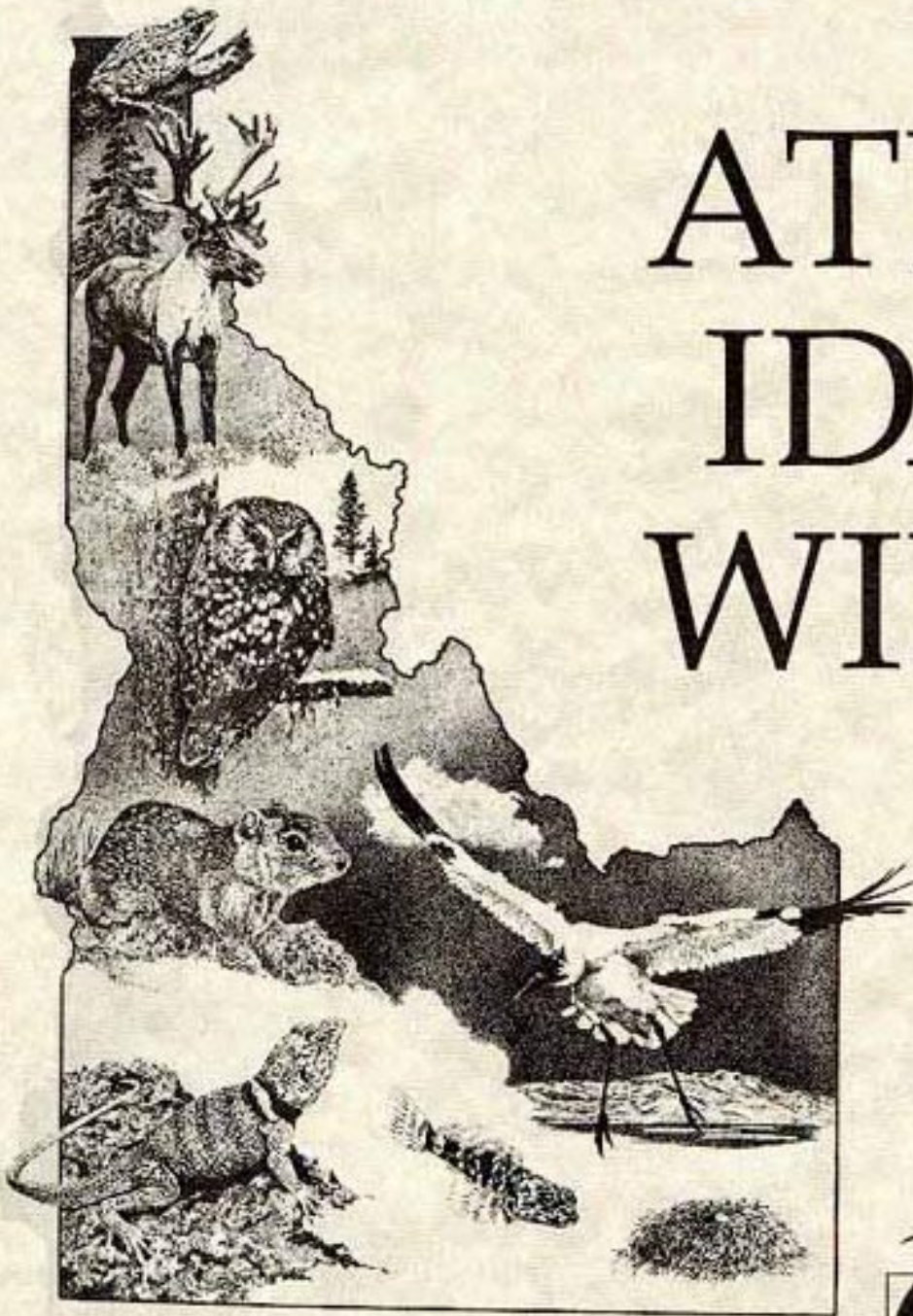


# ATLAS OF IDAHO'S WILDLIFE



BIOLOGICAL RESOURCES DIVISION  
U.S. GEOLOGICAL SURVEY  
U.S. DEPT. OF INTERIOR



The  
Nature  
Conservancy

# Atlas of Idaho's Wildlife

# Atlas of Idaho's Wildlife

## Integrating Gap Analysis and Natural Heritage Information

*Compiled and Written by:*

Craig R. Groves  
Bart Butterfield  
Abigail Lippincott  
Blair Csuti  
J. Michael Scott

*Editor:*

Abigail Lippincott

*A Cooperative Project of:*

Idaho Department of Fish and Game,  
Nongame and Endangered Wildlife Program  
Idaho Conservation Data Center

The Nature Conservancy,  
Conservation Science Division

Idaho Cooperative Fish and Wildlife Research Unit,  
University of Idaho and U.S. Geological Survey

*Published by:*

Idaho Department of Fish and Game  
Nongame and Endangered Wildlife Program  
Boise, Idaho  
1997

# Atlas of Idaho's Wildlife

Integrating Gap Analysis and Natural Heritage Information  
Portable Document File (PDF)  
Idaho Digital Atlas Project

*Compiled from the original document by:*

Stephen R. Burton  
Charles R. Peterson

Herpetology Laboratory  
Idaho State University  
Pocatello, ID 83209-8007

## **Introduction to the Atlas of Idaho's Wildlife PDF Document**

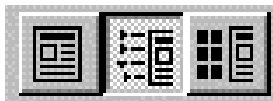
Conversion of the *Atlas of Idaho's Wildlife* to a digital format is part of the Digital Atlas of Idaho Project, an attempt to provide teachers, students, and the public with geographical information about the natural history of Idaho.

This electronic document has several desirable features. It can be easily and inexpensively duplicated and distributed. It can be viewed on a variety of computer platforms (Windows, Macintosh, and UNIX). Portions or all of the document can be printed, as needed, and the document can also be searched using keywords.

We would like to thank Craig Groves (The Nature Conservancy), Wayne Melquist (Idaho Department of Fish and Game Nongame Program), and Mike Jennings (USGS, BRD, National Gap Analysis Program) for permission to convert the *Atlas of Idaho's Wildlife* to a digital format.

## Navigating Atlas of Idaho's Wildlife PDF Document in Adobe Acrobat Reader.

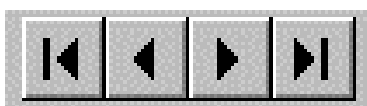
To navigate the Atlas of Idaho's Wildlife PDF document, you will be using the toolbar found at the top of the Acrobat Reader window. Below is a brief description of the buttons.



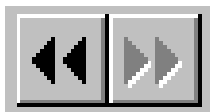
These buttons found in the upper left-hand corner of the window are view buttons. The document view (Left button) only shows the Atlas of Idaho's Wildlife text. To navigate you must use the arrow buttons described below. The index view (middle button) displays the bookmarked index and the Atlas of Idaho's Wildlife text. You can click on the index to the left to jump to bookmarks in the text. The thumbnail view (right button) displays thumbnail views of the Atlas of Idaho's Wildlife text. You can use this to navigate to specific pages by clicking on the thumbnails to the left.



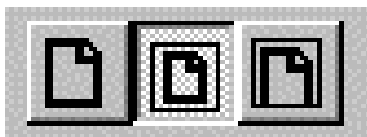
These two buttons allow you to pan around (left button) and zoom (right button) on a page. To use pan button, click on the button and then move to the desired area of the page you want to pan. Click and hold your mouse button and move the document the desired direction. The pan button will only work if you have previously used the zoom button to enlarge the view. This document is in its original size to allow for printing, therefore, it may be necessary to zoom in to read the document online. To zoom, click on the zoom button then select an area that you want to zoom.



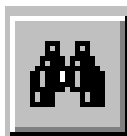
The single arrow buttons are used for moving from page to page and to go to the start and end of the Atlas of Idaho's Wildlife text. The arrows with bars found at the far left and right are used to move to the start and the end of the document while the two inner buttons move from page to page.



The double arrow buttons are used to move to the locations you were at previously. To move back click on the left facing arrow moves you back to previous pages. The right facing arrow button will move you forward to previous pages (only used if left arrow has been clicked).



The page view buttons allow you to change the view of the pages to 100% (left button), make the document fit the window (middle button), or make the page fit the width of the view (right button).



The Find Dialogue button will allow you to search the Atlas of Idaho's Wildlife for specific text. When you click on the button, a dialogue box will appear. Type in the text you are searching for and click find to search the document.

## ACKNOWLEDGEMENTS

Much of the information contained in the species accounts in this atlas was taken from the Vertebrate Characterization Abstracts (VCA), a component of the Biological and Conservation Database System developed and copyrighted by The Nature Conservancy and the network of state Natural Heritage Programs. In particular, we are indebted to Dr. Geoff Hammerson of The Nature Conservancy for populating much of the information found in the VCA data files. The maps in this atlas were developed as part of Idaho's Gap Analysis Program, a joint venture of the Idaho Cooperative Fish and Wildlife Research Unit (University of Idaho and Biological Resources Division, U.S. Geological Survey), the Idaho Department of Fish and Game (Nongame and Endangered Wildlife Program and the Idaho Conservation Data Center) and the Idaho Department of Water Resources. Funding for this atlas was provided by the Idaho Cooperative Fish and Wildlife Research Unit, the Idaho Department of Fish and Game, the National Fish and Wildlife Foundation, and the

Conservation Science Division of The Nature Conservancy. A number of individuals spent long hours reviewing the species accounts and numerous iterations of the distribution maps. We are deeply appreciative of their reviews: Dr. Donald Johnson (University of Idaho), Dr. Richard Wallace (University of Idaho), Shirley Sturts, Dr. Eric Yensen (College of Idaho), Dr. Wayne Melquist and Dr. Charles Harris (Idaho Department of Fish and Game), Michael Kochert (Raptor Research Technical Assistance Center, Biological Resources Division, U.S. Geological Survey), Dr. Vicki Saab (U.S. Forest Service Intermountain Research Station), Dr. Greg Hayward (University of Wyoming), Dr. Charles Trost (Idaho State University), Dr. Charles Peterson (Idaho State University), Dr. Barry Keller (Idaho State University), and David Genter (Montana Natural Heritage Program). George Stephens and Julie Kaltenecker (Idaho Conservation Data Center) provided invaluable data management support.

## Table of Contents

Introduction .....	vii
Vegetation Map (Figure 1).....	xiii
Species Accounts .....	1
Amphibians .....	1
Reptiles .....	14
Birds .....	36
Mammals .....	266
Bibliography.....	365
Common Name Index .....	369
Scientific Name Index.....	371



## **AMPHIBIANS**

Salamanders (ORDER: Caudata)

Frogs and Toads (ORDER: Anura)

## **REPTILES**

Turtles (ORDER: Testudines)

Lizards (ORDER: Squamata)

Snakes (ORDER: Squamata)

# BIRDS

Loons  
(ORDER: Gaviiformes)

Grebes  
(ORDER: Podicipediformes)

Pelicans and Cormorant  
(ORDER: Pelicaniformes)

Bitterns, Herons, and Ibises  
(ORDER: Ciconiiformes)

Swans, Geese, and Ducks  
(ORDER: Anseriformes)

Vultures, Hawks and Eagles  
(ORDER: Falconiformes)

Grouse, Quail, Pheasant, and Turkey  
(ORDER: Galliformes)

Rails, Coots, and Cranes  
(ORDER: Gruiformes)

Shorebirds, Gulls, Terns  
(ORDER: Charadriiformes)

Doves  
(ORDER: Columbiformes)

Cuckoos  
(ORDER: Cuculiformes)

Owls  
(ORDER: Strigiformes)

Goatsuckers  
(ORDER: Caprimulgiformes)

Swifts and Hummingbirds  
(ORDER: Apodiformes)

Kingfisher  
(ORDER: Coraciiformes)

Woodpeckers  
(ORDER: Piciformes)

Tyrant Flycatchers  
(ORDER: Passeriformes)

Lark  
(ORDER: Passeriformes)

Swallows  
(ORDER: Passeriformes)

Corvids  
(ORDER: Passeriformes)

Chickadees  
(ORDER: Passeriformes)

Nuthatches and Creepers  
(ORDER: Passeriformes)

Wrens and Dipper  
(ORDER: Passeriformes)

Kinglets and Gnatcatcher  
(ORDER: Passeriformes)

Thrushes  
(ORDER: Passeriformes)

Thrashers  
(ORDER: Passeriformes)

Pipit  
(ORDER: Passeriformes)

Waxwing  
(ORDER: Passeriformes)

Shrikes  
(ORDER: Passeriformes)

Vireos  
(ORDER: Passeriformes)

Warblers  
(ORDER: Passeriformes)

Tanagers  
(ORDER: Passeriformes)

Grosbeaks, Sparrows, etc.  
(ORDER: Passeriformes)

Icterids  
(ORDER: Passeriformes)

Fringillids  
(ORDER: Passeriformes)

## **MAMMALS**

Shrews (ORDER: Insectivora)

Moles (ORDER: Insectivora)

Bats (ORDER: Chiroptera)

Pikas, Hares, and Rabbits (ORDER: Lagomorpha)

Chipmunks, Marmots, and Squirrels (ORDER: Rodentia)

Pocket Gophers (ORDER: Rodentia)

Pocket Mice, Kangaroo Mice and Kangaroo Rats (ORDER: Rodentia)

Beaver (ORDER: Rodentia)

Mice, Rates, Lemmings, and Voles (ORDER: Rodentia)

Porcupine (ORDER: Rodentia)

Carnivores (ORDER: Carnivora)

Hoofed Mammals (ORDER: Artiodactyla)

## AMPHIBIANS

### Salamanders (ORDER: Caudata)

Long-toed Salamander (*Ambystoma macrodactylum*)

Coeur d'Alene Salamander (*Plethodon idahoensis*)

Tiger Salamander (*Ambystoma tigrinum*)

Idaho Giant Salamander (*Dicamptodon ateriumus*)

### Frogs and Toads (ORDER: Anura)

Tailed Frog (*Ascaphus truei*)

Great Basin Spadefoot (*Spea intermontana*)

Western Toad (*Bufo boreas*)

Northern Leopard Frog (*Rana pipiens*)

Woodhouse's Toad (*Bufo woodhousii*)

Spotted Frog (*Rana pretiosa*)

Striped Chorus Frog (*Pseudacris triseriata*)

Wood Frog (*Rana sylvatica*)

Pacific Chorus Frog (*Pseudacris regilla*)

# REPTILES

## Turtles (ORDER: Testudines)

Painted Turtle (*Chrysemys picta*)

## Lizards (ORDER: Squamata)

Northern Alligator Lizard (*Elagaria coerulea*)

Sagebrush Lizard (*Sceloporus graciosus*)

Mojave Black-collared Lizard (*Crotophytus bicinctores*)

Western Fence Lizard (*Sceloporus occidentalis*)

Longnose Leopard Lizard (*Gambelia wislizenii*)

Side-blotched Lizard (*Uta stansburiana*)

Short-horned Lizard (*Phrynosoma douglassi*)

Western Skink (*Eumeces skiltonianus*)

Desert Horned Lizard (*Phrynosoma platyrhinos*)

Western Whiptail (*Cnemidophorus tigris*)

## Snakes (ORDER: Squamata)

Rubber Boa (*Charina bottae*)

Longnose Snake (*Rhinocheilus lecontei*)

Racer (*Coluber constrictor*)

Western Ground Snake (*Sonora semiannulata*)

Ringneck Snake (*Diadophis punctatus*)

Western Terrestrial Garter Snake (*Thamnophis elegans*)

Night Snake (*Hypsiglena torquata*)

Common Garter Snake (*Thamnophis sirtalis*)

Striped Whipsnake (*Masticophis taeniatus*)

Western Rattlesnake (*Crotalus viridis*)

Gopher Snake (*Pituophis catenifer*)

# BIRDS

## Loons (ORDER: Gaviiformes)

Common Loon (*Gavia immer*)

## Grebes (ORDER: Podicipediformes)

Pied-billed Grebe (*Podilymbus podiceps*)

Eared Grebe (*Podiceps nigricollis*)

Horned Grebe (*Podiceps auritus*)

Western Grebe (*Aechmophorus occidentalis*)

Red-necked Grebe (*Podiceps grisegena*)

Clark's Grebe (*Aechmophorus clarkii*)

## Pelicans and Cormorant (ORDER: Pelicaniformes)

American White Pelican (*Pelecanus erythrorhynchos*)

Double-crested Cormorant (*Phalacrocorax auritus*)

## Bitterns, Herons, and Ibises (ORDER: Ciconiiformes)

American Bittern (*Botaurus lentiginosus*)

Cattle Egret (*Bubulcus ibis*)

Great Blue Heron (*Ardea herodias*)

Black-crowned Night-heron (*Nycticorax nycticorax*)

Great Egret (*Ardea alba*)

White-Faced Ibis (*Plegadis chihi*)

Snowy Egret (*Egretta thula*)

## **BIRDS**

### Swans, Geese, and Ducks (ORDER: Anseriformes)

Trumpeter Swan (*Cygnus buccinator*)

Canada Goose (*Branta canadensis*)

Wood Duck (*Aix sponsa*)

Green-winged Teal (*Anas crecca*)

Mallard (*Anas platyrhynchos*)

Northern Pintail (*Anas acuta*)

Blue-winged Teal (*Anas discors*)

Cinnamon Teal (*Anas cyanoptera*)

Northern Shoveler (*Anas clypeata*)

Gadwall (*Anas strepera*)

American Wigeon (*Anas americana*)

Canvasback (*Aythya valisineria*)

Redhead (*Aythya americana*)

Ring-necked Duck (*Aythya collaris*)

Lesser Scaup (*Aythya affinis*)

Harlequin Duck (*Histrionicus histrionicus*)

Common Goldeneye (*Bucephala clangula*)

Barrow's Goldeneye (*Bucephala islandica*)

Bufflehead (*Bucephala albeola*)

Hooded Merganser (*Lophodytes cucullatus*)

Common Merganser (*Mergus merganser*)

Ruddy Duck (*Oxyura jamaicensis*)

## **BIRDS**

### Vultures, Hawks and Eagles (ORDER: Falconiformes)

Turkey Vulture (*Cathartes aura*)

Osprey (*Pandion haliaetus*)

Bald Eagle (*Haliaeetus leucocephalus*)

Northern Harrier (*Circus cyaneus*)

Sharp-shinned Hawk (*Accipiter striatus*)

Cooper's Hawk (*Accipiter cooperii*)

Northern Goshawk (*Accipiter gentilis*)

Swainson's Hawk (*Buteo swainsoni*)

Red-tailed Hawk (*Buteo jamaicensis*)

Ferruginous Hawk (*Buteo regalis*)

Golden Eagle (*Aquila chrysaetos*)

American Kestrel (*Falco sparverius*)

Peregrine Falcon (*Falco peregrinus*)

Prairie Falcon (*Falco mexicanus*)



## BIRDS

### Grouse, Quail, Pheasant, and Turkey (ORDER: Galliformes)

Gray Partridge (*Perdix perdix*)

Chukar (*Alectoris chukar*)

Ring-necked Pheasant (*Phasianus colchicus*)

Spruce Grouse (*Dendragapus canadensis*)

Blue Grouse (*Dendragapus obscurus*)

Ruffed Grouse (*Bonasa umbellus*)

Sage Grouse (*Centrocercus urophasianus*)

Sharp-tailed Grouse (*Tympanuchus phasianellus*)

Wild Turkey (*Meleagris gallopavo*)

Northern Bobwhite (*Colinus virginianus*)

Gambel's Quail (*Callipepla gambelii*)

California Quail (*Callipepla californica*)

Mountain Quail (*Oreortyx pictus*)

### Rails, Coots, and Cranes (ORDER: Gruiformes)

Virginia Rail (*Rallus limicola*)

Sora (*Porzana carolina*)

American Coot (*Fulica americana*)

Sandhill Crane (*Grus canadensis*)

Whooping Crane (*Grus americana*)

## BIRDS

### Shorebirds, Gulls, Terns (ORDER: Charadriiformes)

Kildeer (*Charadrius vociferus*)

Black-necked Stilt (*Himantopus mexicanus*)

American Avocet (*Recurvirostra americana*)

Willet (*Catoptrophorus semipalmatus*)

Spotted Sandpiper (*Actitis macularia*)

Upland Sandpiper (*Bartramia Longicauda*)

Long-billed Curlew (*Numenius americanus*)

Common Snipe (*Gallinago gallinago*)

Wilson's Phalarope (*Phalaropus tricolor*)

Franklin's Gull (*Larus pipixcan*)

Ring-billed Gull (*Larus delawarensis*)

California Gull (*Larus californicus*)

Caspian Tern (*Sterna caspia*)

Common Tern (*Sterna hirundo*)

Forster's Tern (*Sterna forsteri*)

Black Tern (*Chlidonias niger*)

### Doves (ORDER: Columbiformes)

Mourning Dove (*Zenaida macroura*)

### Cuckoos (ORDER: Cuculiformes)

Yellow-billed Cuckoo (*Coccyzus americanus*)

## **BIRDS**

### Owls (ORDER: Strigiformes)

Common Barn-owl (*Tyto alba*)

Barred Owl (*Strix varia*)

Flammulated Owl (*Otus flammeolus*)

Great Gray Owl (*Strix nebulosa*)

Western Screech Owl (*Otus kennicottii*)

Long-eared Owl (*Asio otus*)

Great Horned Owl (*Bubo virginianus*)

Short-eared Owl (*Asio flammeus*)

Northern Pygmy-owl (*Glaucidium gnoma*)

Boreal Owl (*Aegolius funereus*)

Burrowing Owl (*Speotyto cunicularia*)

Northern Saw-whet Owl (*Aegolius acadicus*)

### Goatsuckers (ORDER: Caprimulgiformes)

Common Nighthawk (*Chordeiles minor*)

Common Poorwill (*Phalaenoptilus nuttallii*)

### Swifts and Hummingbirds (ORDER: Apodiformes)

Black Swift (*Cypseloides niger*)

Calliope Hummingbird (*Stellula calliope*)

Vaux's Swift (*Chaetura vauxi*)

Broad-tailed Hummingbird (*Selasphorus platycercus*)

White-throated Swift (*Aeronautes saxatalis*)

Rufous Hummingbird (*Selasphorus rufus*)

Black-chinned Hummingbird (*Archilochus alexandri*)

## BIRDS

### Kingfisher (ORDER: Coraciiformes)

Belted Kingfisher (*Ceryle alcyon*)

### Woodpeckers (ORDER: Piciformes)

Lewis' Woodpecker (*Melanerpes lewis*)

White-headed Woodpecker (*Picoides albolarvartus*)

Williamson's Sapsucker (*Sphyrapicus thyroideus*)

Three-toed Woodpecker (*Picoides tridactylus*)

Red-naped Sapsucker (*Sphyrapicus nuchalis*)

Black-backed Woodpecker (*Picoides arcticus*)

Downy Woodpecker (*Picoides pubescens*)

Northern Flicker (*Colaptes auratus*)

Hairy Woodpecker (*Picoides villosus*)

Pileated Woodpecker (*Dryocopus pileatus*)

### Tyrant Flycatchers (ORDER: Passeriformes)

Olive-Sided Flycatcher (*Contopus borealis*)

Cordilleran Flycatcher (*Empidonax occidentalis*)

Western Wood-pewee (*Contopus sordidulus*)

Say's Phoebe (*Sayornis saya*)

Willow Flycatcher (*Empidonax traillii*)

Ash-throated Flycatcher (*Myiarchus cinerascens*)

Hammond's Flycatcher (*Empidonax hammondii*)

Western Kingbird (*Tyrannus verticalis*)

Dusky Flycatcher (*Empidonax oberholseri*)

Eastern Kingbird (*Tyrannus tyrannus*)

Gray Flycatcher (*Empidonax wrightii*)

## **BIRDS**

### Lark (ORDER: Passeriformes)

Horned Lark (*Eremophila alpestris*)

### Swallows (ORDER: Passeriformes)

Tree Swallow (*Tachycineta bicolor*)

Violet-green Swallow (*Tachycineta thalassina*)

Northern Rough-winged Swallow  
(*Stelgidopteryx serripennis*)

Bank Swallow (*Riparia riparia*)

Cliff Swallow (*Hirundo pyrrhonota*)

Barn Swallow (*Hirundo rustica*)

### Corvids (ORDER: Passeriformes)

Gray Jay (*Perisoreus canadensis*)

Stellar's Jay (*Cyanocitta stelleri*)

Western Scrub Jay (*Aphelocoma californica*)

Pinyon Jay (*Gymnorhinus cyanocephalus*)

Clark's Nutcracker (*Nucifraga columbiana*)

Black-billed Magpie (*Pica pica*)

American Crow (*Corvus brachyrhynchus*)

Common Raven (*Corvus corax*)

## **BIRDS**

### Chickadees (ORDER: Passeriformes)

Black-capped Chickadee (*Parus atricapillus*)

Chestnut-backed Chickadee (*Parus rufescens*)

Mountain Chickadee (*Parus gambeli*)

Juniper (Plain) Titmouse (*Parus inornatus*)

Boreal Chickadee (*Parus hudsonicus*)

Bushtit (*Psaltriparus minimus*)

### Nuthatches and Creepers (ORDER: Passeriformes)

Red-breasted Nuthatch (*Sitta canadensis*)

Pygmy Nuthatch (*Sitta pygmaea*)

White-breasted Nuthatch (*Sitta carolinensis*)

Brown Creeper (*Certhia americana*)

### Wrens and Dipper (ORDER: Passeriformes)

Rock Wren (*Salpinctes obsoletus*)

Winter Wren (*Troglodytes troglodytes*)

Canyon Wren (*Catherpes mexicanus*)

Marsh Wren (*Cistothorus palustris*)

House Wren (*Troglodytes aedon*)

American Dipper (*Cinclus mexicanus*)

### Kinglets and Gnatcatcher (ORDER: Passeriformes)

Golden-crowned Kinglet (*Regulus satrapa*)

Blue-gray Gnatcatcher (*Polioptila caerulea*)

Ruby-crowned Kinglet (*Regulus calendula*)

## BIRDS

### Thrushes (ORDER: Passeriformes)

Western Bluebird (*Sialia mexicana*)

Swainson's Thrush (*Catharus ustulatus*)

Mountain Bluebird (*Sialia currucoides*)

Hermit Thrush (*Catharus guttatus*)

Townsend's Solitaire (*Myadestes townsendi*)

American Robin (*Turdus migratorius*)

Veery (*Catharus fuscescens*)

Varied Thrush (*Ixoreus naevius*)

### Thrashers (ORDER: Passeriformes)

Gray Catbird (*Dumetella carolinensis*)

Sage Thrasher (*Oreoscoptes montanus*)

### Pipit (ORDER: Passeriformes)

American Pipit (*Anthus rubescens*)

### Waxwing (ORDER: Passeriformes)

Cedar Waxwing (*Bombycilla cedrorum*)

### Shrikes (ORDER: Passeriformes)

Loggerhead Shrike (*Lanius ludovicianus*)

## BIRDS

### Vireos (ORDER: Passeriformes)

Plumbeus Vireo (*Vireo plumbeus*)

Warbling Vireo (*Vireo gilvus*)

Red-eyed Vireo (*Vireo olivaceus*)

### Warblers (ORDER: Passeriformes)

Orange-crowned Warbler (*Vermivora celata*)

Nashville Warbler (*Vermivora ruficapilla*)

Virginia's Warbler (*Vermivora virginiae*)

Yellow Warbler (*Dendroica petechia*)

Yellow-rumped Warbler (*Dendroica coronata*)

Black-throated Gray Warbler (*Dendroica nigrescens*)

Townsend's Warbler (*Dendroica townsendii*)

American Redstart (*Setophaga ruticilla*)

Northern Waterthrush (*Seiurus noveboracensis*)

MacGillivray's Warbler (*Oporornis tolmiei*)

Common Yellowthroat (*Geothlypis trichas*)

Wilson's Warbler (*Wilsonia pusilla*)

Yellow-breasted Chat (*Icteria virens*)

### Tanagers (ORDER: Passeriformes)

Western Tanager (*Piranga ludoviciana*)



## BIRDS

### Grosbeaks, Sparrows, etc. (ORDER: Passeriformes)

Black-headed Grosbeak ( <i>Pheucticus melanocephalus</i> )	Black-throated Sparrow ( <i>Amphispiza bilineata</i> )
Blue Grosbeak ( <i>Guiraca caerulea</i> )	Sage Sparrow ( <i>Amphispiza belli</i> )
Lazuli Bunting ( <i>Passerina amoena</i> )	Savannah Sparrow ( <i>Passerculus sandwichensis</i> )
Green-tailed Towhee ( <i>Pipilo chlorurus</i> )	Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )
Spotted Towhee ( <i>Pipilo maculatus</i> )	Fox Sparrow ( <i>Passerella iliaca</i> )
Chipping Sparrow ( <i>Spizella passerina</i> )	Song Sparrow ( <i>Melospiza melodia</i> )
Brewer's Sparrow ( <i>Spizella breweri</i> )	Lincoln's Sparrow ( <i>Melospiza lincolnii</i> )
Vesper Sparrow ( <i>Pooecetes gramineus</i> )	White-crowned Sparrow ( <i>Zonotrichia leucophrys</i> )
Lark Sparrow ( <i>Chondestes grammacus</i> )	Dark-eyed Junco ( <i>Junco hyemalis</i> )

### Icterids (ORDER: Passeriformes)

Bobolink ( <i>Dolichonyx oryzivorus</i> )	Brewer's Blackbird ( <i>Eupagus cyanocephalus</i> )
Red-winged Blackbird ( <i>Aegialius phoeniceus</i> )	Common Grackle ( <i>Quiscalus quiscula</i> )
Western Meadowlark ( <i>Sturnella neglecta</i> )	Brown-headed Blackbird ( <i>Molothrus ater</i> )
Yellow-headed Blackbird ( <i>Xanthocephalus xanthocephalus</i> )	Bullock's Oriole ( <i>Icterus bullocki</i> )

## **BIRDS**

### Fringillids (ORDER: Passeriformes)

Black Rosy Finch (*Leucosticte atrata*)

Pine Grosbeak (*Pinicola enucleator*)

Cassin's Finch (*Carpodacus cassinii*)

House Finch (*Carpodacus mexicanus*)

Red Crossbill (*Loxia curvirostra*)

Pine Siskin (*Carduelis pinus*)

Lesser Goldfinch (*Carduelis psaltria*)

American Goldfinch (*Carduelis tristis*)

Evening Grosbeak (*Coccothraustes verpertinus*)

## MAMMALS

### Shrews (ORDER: Insectivora)

Masked Shrew (*Sorex cinereus*)

Vagrant Shrew (*Sorex vagrans*)

Dusky Shrew (*Sorex Monticolus*)

Water Shrew (*Sorex palustris*)

Merriam's Shrew (*Sorex merriami*)

Pygmy Shrew (*Sorex hoyi*)

### Moles (ORDER: Insectivora)

Coast Mole (*Sapanus orarius*)

### Bats (ORDER: Chiroptera)

Little Brown Myotis (*Myotis lucifugus*)

Yuma Myotis (*Myotis yumanensis*)

Long-eared Myotis (*Myotis evotis*)

Fringed Myotis (*Myotis thysanodes*)

Long-legged Myotis (*Myotis volans*)

California Myotis (*Myotis californicus*)

Western Small-footed Myotis (*Myotis ciliolabrum*)

Silver-haired Bat (*Lasionycteris noctivagans*)

Western Pipistrelle (*Pipistrellus herperus*)

Big Brown Bat (*Eptesicus fuscus*)

Hoary Bat (*Lasiurus cinereus*)

Spotted Bat (*Euderma maculatum*)

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

Pallid Bat (*Antrozous pallidus*)

## MAMMALS

### Pikas, Hares, and Rabbits (ORDER: Lagomorpha)

American Pika (*Ochonta princeps*)

Mountain Cottontail (*Sylvilagus nuttallii*)

Snowshoe Hare (*Lepus americanus*)

White-tailed Jackrabbit (*Lepus townsendii*)

Black-tailed Jackrabbit (*Lepus californicus*)

Pygmy Rabbit (*Brachylagus idahoensis*)

### Chipmunks, Marmots, and Squirrels (ORDER: Rodentia)

Least Chipmunk (*Tamias minimus*)

Yellow Pine Chipmunk (*Tamias amoenus*)

Cliff Chipmunk (*Tamias dorsalis*)

Red-tailed Chipmunk (*Tamias ruficaudus*)

Uinta Chipmunk (*Tamias umbrinus*)

Yellow-bellied Marmot (*Marmota flaviventris*)

Hoary Marmot (*Marmota caligata*)

White-tailed Antelope Squirrel (*Amмосpermophilus leucrus*)

Townsend's Ground Squirrel (*Spermophilus townsendii*)

Idaho Ground Squirrel (*Spermophilus brunneus*)

Uinta Ground Squirrel (*Spermophilus armatus*)

Belding's Ground Squirrel (*Spermophilus beldingi*)

Columbian Ground Squirrel (*Spermophilus columbianus*)

Rock Squirrel (*Spermophilus variegatus*)

Golden-mantled Ground Squirrel (*Spermophilus lateralis*)

Wyoming Ground Squirrel (*Spermophilus elegans*)

Red Squirrel (*Tamiasciurus hudsonicus*)

Northern Flying Squirrel (*Glaucomys sabrinus*)

## MAMMALS

### Pocket Gophers (ORDER: Rodentia)

Townsend's Pocket Gopher (*Thomomys townsendii*)

Idaho Pocket Gopher (*Thomomys idahoensis*)

Northern Pocket Gopher (*Thomomys talpoides*)

### Pocket Mice, Kangaroo Mice and Kangaroo Rats (ORDER: Rodentia)

Little Pocket Mouse (*Perognathus longimembris*)

Ord's Kangaroo Rat (*Dipodomys ordii*)

Great Basin Pocket Mouse (*Perognathus parvus*)

Chisel-toothed Kangaroo Rat (*Dipodomys microps*)

Dark Kanagaroo Mouse (*Microdipodops megacephalus*)

### Beaver (ORDER: Rodentia)

American Beaver (*Castor canadensis*)

## MAMMALS

### Mice, Rates, Lemmings, and Voles (ORDER: Rodentia)

Western Harvest Mouse (*Reithrodontomys megalotis*)

Deer Mouse (*Peromyscus maniculatus*)

Canyon Mouse (*Peromyscus crinitus*)

Pinon Mouse (*Peromyscus truei*)

Northern Grasshopper Mouse (*Onychomys leucogaster*)

Desert Woodrat (*Neotoma lepida*)

Bushy-tailed Woodrat (*Neotoma cinerea*)

Southern Red-backed Vole (*Clethrionomys gapperi*)

Heather Vole (*Phenacomys intermedius*)

Meadow Vole (*Microtus pennsylvanicus*)

Montane Vole (*Microtus montanus*)

Long-tailed Vole (*Microtus longicaudus*)

Water Vole (*Microtus richardsoni*)

Sagebrush Vole (*Lemmiscus curtatus*)

Muskrat (*Ondatra zibethicus*)

Northern Bog Lemming (*Synaptomys borealis*)

Western Jumping Mouse (*Zapus princeps*)

## MAMMALS

### Porcupine (ORDER: Rodentia)

Common Porcupine (*Erethizon dorsatum*)

### Carnivores (ORDER: Carnivora)

Coyote (*Canis latrans*)

Gray Wolf (*Canis lupus*)

Red Fox (*Vulpes vulpes*)

Black Bear (*Ursus americanus*)

Grizzly or Brown Bear (*Ursus arctos*)

Common Raccoon (*Procyon lotor*)

American Marten (*Martes americana*)

Fisher (*Martes pennanti*)

Ermine (*Mustela erminea*)

Long-tailed Weasel (*Mustela frenata*)

Mink (*Mustela vison*)

Wolverine (*Gulo gulo*)

American Badger (*Taxidea taxus*)

Western Spotted Skunk (*Spilogale gracilis*)

Striped Skunk (*Mephitis mephitis*)

Northern River Otter (*Lutra canadensis*)

Mountain Lion (*Felis concolor*)

Lynx (*Felis lynx*)

Bobcat (*Felis rufus*)

## MAMMALS

### Hoofed Mammals (ORDER: Artiodactyla)

Elk (*Cervus elaphus*)

Mule Deer (*Odocoileus hemionus*)

White-tailed Deer (*Odocoileus virginianus*)

Moose (*Alces alces*)

Woodland Caribou (*Rangifer tarandus*)

Pronghorn (*Antilocapra americana*)

Mountain Goat (*Oreamnos americanus*)

Bighorn Sheep (*Ovis canadensis*)



# ATLAS OF IDAHO'S WILDLIFE

## Introduction

Public interest and concern for the conservation of biological diversity is currently at an all-time high. Information on the distribution, life history, and ecological requirements of individual species is critical to the wise stewardship and conservation of these biological resources. Unfortunately, such information is often lacking, outdated, or difficult to obtain for many species.

The fauna of Idaho are a case in point. They are not well-studied, particularly in the central, mountainous region of the state where several million acres have been designated as wilderness and access is relatively difficult. Only a few studies on Idaho's amphibians and reptiles have been conducted, although that number is increasing in recent years thanks primarily to the efforts of Dr. Charles Peterson and his graduate students at Idaho State University. Nussbaum et al. (1983) provide the most detailed treatment on the state's herptiles, while Groves (1994) gives more updated information on taxonomy, ecology, and distribution in a less technical format. There has been no modern treatment of Idaho's birds since Burleigh's 1972 book which is now out-of-date and out-of print. Stephens and Sturts' (1991) latilong bird booklet details more recent information on distribution and breeding status, while Saab and Groves' (1992) leaflet summarizes information on description, habitats, and ecology for 119 neotropical migrants. No exhaustive treatment of the state's mammals has been written since Davis (1939), although Larrison and Johnson's (1981) book on Idaho mammals provides more recent information on description, distribution, and habitat in a popularized version.

In 1984, The Nature Conservancy and the Nongame and Endangered Wildlife Program of the Idaho Department of Fish and Game (IDFG) cooperatively initiated the Idaho Natural Heritage Program to help rectify this information-shortage problem. Now known as the Idaho

Conservation Data Center (IDCDC), and permanently established in IDFG, the program's purpose is to systematically inventory, store, manage, analyze, and disseminate information on the state's flora and fauna and ecological communities (see Groves and Melquist 1991 for details on IDCDC). Today, the Idaho CDC is an integral component of 50 state and several international CDCs that manage biological information in a standardized, centralized data management network (Groves et al. 1995).

In 1986, the National Biological Service's Cooperative Fish and Wildlife Research Unit at the University of Idaho launched a pilot project in Idaho referred to as "Gap Analysis" (Scott et al. 1987, Groves 1992, Scott et al. 1993). This project involves mapping distributions of individual animal species and vegetation cover types within the state, comparing these distributions with the existing network of preserves or protected areas, and finally, determining which animal species and vegetation types are not protected (i.e., identifying the "gaps") in the state. A powerful computer mapping technology referred to as GIS (geographic information system) has been used in this project to produce and overlay distributional maps of species and vegetation type with information on land ownership and management patterns.

An atlas of distribution maps that includes each of the state's 364 breeding vertebrates (13 amphibians, 22 reptiles, 230 birds, 99 mammals) is one of the principal products in the Idaho Gap Analysis project. The distributions represented by these maps are predicted from known county-of-occurrence data combined with information on which habitats or vegetation types within counties are occupied by each species (see GIS Model Number, below). With the exception of eight species of upland game birds, only native species were included. A few rare breeding birds that don't consistently breed in the state were excluded

(e.g., Northern Mockingbird, Merlin). Also excluded were the winter distributions of birds and distributions of bird species that migrate through but do not breed in Idaho. Finally, this atlas excludes fishes, although we hope to include them in later editions as we model their distributions in the future with GIS.

These maps provide the most up-to-date information on the distribution of Idaho's wildlife. The purpose of this atlas is to make these distributional maps along with information on population status, ecology, and important state references, available to a wide variety of users. These users should include the academic community, natural resource managers, researchers, and interested members of the public.

The maps in this atlas represent our best judgment on where and in what habitats these animals are likely to be found. Because systematic inventories of the state's fauna have not been conducted, and because habitat relationships of many species are poorly known, documentation and verification of these distributions is difficult. For example, for several species of bats and small mammals, only a few individual animals have ever been collected or observed in the state. Our hope is that publication of this atlas will draw attention to how little is known about Idaho's wildlife and will spur new inventories and research. We would appreciate receiving information that extends our predicted distributions into additional areas or corrects our distribution maps where we have inaccurately noted a species' presence.

## METHODOLOGY

This atlas consists of a series of individual species accounts. Each account contains textual information in the left column of the page and the GIS-produced distribution map in the right column. In the upper right corner of the page is taxonomic information — order, family, common name, genus, and species. For amphibians and reptiles, taxonomy follows that of the Society for the Study of Amphibians and Reptiles (Collins 1990). For birds, the taxonomy follows the American Ornithologists' Union Check-list of North American Birds (1983) and its

Subsequent supplements. Finally, taxonomy for mammals comes from Jones et al. (1992), a publication of the Museum of Texas Tech University.

Much of the text information in the species accounts is drawn from the Vertebrate Characterization Abstracts (VCA), a copyrighted database of the Idaho CDC and The Nature Conservancy. Each VCA record contains both global information (information applying to the species throughout its range) as well as state-specific information. Our accounts combine both global and Idaho-specific data. Unless a statement is referenced directly to Idaho or some other state, it should be assumed that the statement is attributable to the species throughout its range. An explanation of the various text fields found in the species accounts follows.

**STATUS:** This is a classification of the Idaho Department of Fish and Game (IDFG). There are four possibilities for this field:

- a) Game Species — A species whose harvest is regulated by the IDFG through bag limits and seasons.
- b) Protected Nongame Species — A species for which it is illegal to collect, harm, or otherwise remove from its natural habitat.
- c) Unprotected Nongame Species — Species that can be harvested, collected, or otherwise taken at any time in virtually any manner.
- d) Predatory Wildlife — Species whose classification and regulation are not under the control of the IDFG but instead fall under the purview of the Idaho legislature (e.g., coyote, jackrabbits, weasels).

**GLOBAL AND STATE RANKS:** Ranks represent a prioritization scheme used by the network of Natural Heritage Programs and Conservation Data Centers to determine the conservation status of a species. The rank is primarily based upon the number of known occurrences but other factors such as habitat quality, estimated population size and trend, range of distribution, and threats to species or habitat are also considered. See Master (1991) for a detailed review and

evaluation of this ranking system. The global rank denotes the rank of the species throughout its range, whereas the state rank refers to the species status within the borders of Idaho. Both the global and state ranks are subject to periodic revision as new information is obtained on a species either in Idaho or elsewhere in its range.

- 1 Critically imperiled because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction (typically 5 or fewer occurrences).
  - 2 Imperiled because of rarity or because of other factors demonstrably making it vulnerable to extinction (typically 6-20 occurrences).
  - 3 Vulnerable (typically 21-100 occurrences).
  - 4 Not rare, and apparently secure, but with cause for long-term concern.
  - 5 Demonstrably widespread, abundant, and secure.
- E Exotic or introduced species.

**NTMB** Neotropical Migratory Landbird. As defined by Saab and Groves (1992), these are bird species that breed in Idaho and winter in tropical America between the tropics of Cancer and Capricorn. In the atlas, state ranks for these species include the acronym "NTMB."

Additional information on state and federal classification of rarity for Idaho animals (e.g., Endangered, Sensitive, etc.) can be found in Idaho Conservation Data Center (1994).

**RANGE:** This field provides a description of the geographic extent or range (breeding, migratory, and wintering) of a species throughout its entire distribution. Occasionally, it also contains a statement on the restricted breeding range of the species within Idaho.

**HABITAT:** Unless specifically indicated otherwise, information in this field refers to breeding habitat of the species throughout its range. For some species, the field also contains wintering and migratory habitat information. When information is available from Idaho studies, specific statements on Idaho habitat are also included.

**DIET:** General information on food habits during the breeding season is given in this field. For some migratory species, information is also provided on diet in wintering habitats. Occasionally, information on diet from an Idaho study is noted in this field, but this information is only available for a small number of species.

**ECOLOGY:** This field describes type and location of nest, foraging behavior, population density, home range or territory size, mortality rates, activity patterns, and predator/prey relations. Because a number of ecological studies of these species have been conducted in Idaho, this field commonly contains information from these Idaho investigations as well as information compiled from studies outside the state.

**REPRODUCTION:** Any information related to reproductive activity can be found in this field. Typically, information on gestation period, breeding season, clutch or litter size, percent successful nests, age at fledging or weaning, survival rates of juveniles, age at sexual maturity, and parental care are provided here.

**GIS MODEL NUMBER:** We used 11 different GIS models to develop the predicted distribution maps of terrestrial wildlife species. Details on these models are provided in Butterfield et al. (1994). Typical range maps in field guides delineate the geographic range or extent of a species' distribution but fail to distinguish between appropriate and inappropriate habitat within that range. To develop the Gap Analysis distribution maps that would make these distinctions, we combined information on geographic extent of distribution with information on habitat-relationships of individual species.

For geographic extent or range information, we used county-of-occurrence data from the Vertebrate Characterization Abstract (VCA) database of the Idaho CDC. To determine which habitats within those

counties were used by a particular species, we relied upon the Gap Analysis vegetation map of Idaho (Caicco 1989). This map was compiled from existing large-scale vegetation maps and LANDSAT image interpretation (Figure 1), at a scale of 1:500,000. It contained 118 described vegetation types. We created a table assigning presence or absence of each vertebrate species to each of these 118 types. We relied heavily on regional and national field guides (e.g., Nussbaum et al. 1983, Ehrlich et al. 1988, Zeveloff 1988) and the scientific literature for information on habitat associations of individual species.

### **Model # 1: County-Vegetation**

Our simplest GIS model combined county-of-occurrence information with associated habitat or vegetation data. Vegetation and county map layers were overlaid on the computer to create composite map polygons identified by county and vegetation type. For each species, the GIS first extracted information on which counties a species occurred in, and then further extracted information on which vegetation polygons or habitats within that county the species was likely to occupy. Vegetation polygons that were truncated by county lines were extended across county boundaries to include the entire vegetation polygon.

### **Model # 2: County-Vegetation-Temperature**

For some groups of species, the simple county-vegetation models were not sufficient to adequately depict distributions. For example, many reptile species are restricted in distribution to southwestern Idaho even though the vegetation types they inhabit extend across southern Idaho. For these species, we used an additional map layer consisting of average date of first bloom of lilacs (Everson and Caprio 1974) which is highly correlated with mean daily temperature. Because reptiles are poikilothermic, their distributions are strongly affected by temperature gradients. Thus, by adding another factor to our original county-vegetation model, and correlating the reptile distributions with this additional factor (lilac flowering times), we were able to develop more accurate distribution maps for selected species. This model repeated the steps of Model #1, but further restricted species' distributions to within certain isolines of lilac flowering phenology (i.e., temperature).

### **Model # 3: County-Vegetation-Faunal Regions**

The distributions of some small mammals (e.g., pocket gophers) were difficult to model because they appeared to be confined to restricted areas within certain vegetation polygons. We suspected that soil characteristics may have been responsible for limiting these distributions, but no statewide soils map was available. Davis (1939) defined faunal regions in Idaho that were largely boundaries of major river drainages. We used USGS 1:100,000 scale digital hydrography (streams) data to develop similar faunal regions. By adding this additional factor to the county-vegetation model (Model #1), we were able to more finely restrict the distributions of some small mammals and thereby better depict their predicted distributional maps. Again, this model repeated the steps of Model #1, but further restricted species' distributions to certain large river drainages.

### **Model # 4: County-Vegetation-Potential Natural Vegetation**

For a few species (e.g., Sharp-tailed Grouse), a map of potential natural vegetation produced by the Soil Conservation Service appeared to be a better predictor of species distribution than the simple model of county-vegetation. This model repeated the steps of the county-vegetation model (#1) and added a third step of extracting only potential natural vegetation types (that we associated with a particular animal species) from within the composite vegetation-county polygons.

### **Model # 5: Vegetation-Riparian/Wetlands**

Because no detailed map of wetlands has been completed statewide for Idaho, distribution models of vertebrate species associated with wetlands were the most difficult for us to develop. We compiled our own map of wetlands by digitizing (electronically transferring information on geographic location from a map to the computer) all the wetland symbology on the USGS 1:100,000 scale map series. We digitized additional wetlands that had been identified by the IDFG, the Environmental Protection Agency (EPA), and the Idaho office of the U.S. Fish and Wildlife Service. We created riparian habitats within this map by adding buffers on the computer around all lakes and

second-order and above streams in the USGS 1:100,000 scale digital hydrography data. The polygons in this resulting data layer were overlaid with the vegetation polygons from Model #1 to create a new model which restricted distributions to certain wetlands and/or riparian habitats within vegetation polygons. Even at a scale of 1:100,000, we were unable to delineate many smaller patches of wetland/riparian habitat in Idaho. Although this model might accurately depict the distribution of a riparian habitat specialist like the Belted Kingfisher, it would considerably under-represent the distributions of species like Yellow Warblers that use even the smallest areas of wetland/riparian habitats. For these more generalist wetland-dependent species, we relied on the county-vegetation model to realistically portray distributions.

#### **Model # 6:** Hybrid of Models #1 and 5

We used a hybrid of Models # 1 and 5 to develop distribution maps for species such as the Northern Saw-whet Owl, which occupies forested habitats in the wetter climates of northern and central Idaho (i.e., Model #1), but is more restricted to riparian habitats in the drier southern part of the state (i.e., Model #5). As a result, we used one GIS model to develop the distribution for northern Idaho and a second model for predicting the distribution in southern Idaho.

#### **Model #7:** Rare Species

Because rare species are restricted in distribution and often occupy only limited amounts of appropriate habitat, models based on county-of-occurrence and vegetation tend to overestimate distributions. Because of their rare status, we often times have better information on their distribution than on more common species. We obtained point (latitude-longitude) locations for these species from the Idaho CDC and used the GIS to assign each point to a vegetation polygon. Thus, this model restricted the distributions of these rare species to only those vegetation polygons in which an individual rare species was known to occur.

#### **Model #8:** Reptilian Rare Species

Further restricting the output of Model # 7 (point locational

data-vegetation polygons) to temperature isolines from Model #2 was the basis for a model used to predict the distributions of two rare snake species (longnose snake and western ground snake). Thus, in this model a species distribution was restricted to certain temperature gradients or isolines found within vegetation polygons that had been identified by point (latitude-longitude) data from the Idaho CDC.

#### **Model #9:** Colonial Waterbirds

The distribution of most species of colonial waterbirds is very patchy in that the species sometimes but not always occupies certain types of wetland habitat throughout the state. To model the distributions of these species, we overlaid point locational data from the Idaho CDC present in Model #7 with the vegetation polygon and riparian/wetlands GIS data layer from Model #5.

#### **Model #10:** Hybrid of Models #5 and #9

For four species (Wood Duck, Red-necked Grebe, Hooded Merganser, and Black-necked Stilt) we used a hybrid of Models #5 and 9 to develop their distribution maps. Similar to the hybrid Model #6, this model was applicable to species that occupied wetland habitats throughout northern Idaho (i.e., Model #5), but were restricted to only a few such locations in southern Idaho (i.e., Model #9). As a result, we applied one model to develop the distribution map for northern Idaho and a different model to predict the distribution in southern Idaho.

#### **Model #11:** Idaho Ground Squirrel

The Idaho ground squirrel occurs in a few isolated colonies north of the Payette River in southwestern Idaho. We used point location information from the Idaho CDC to identify those vegetation polygons that the species occupied (i.e., Model #7). Because some of those polygons included areas both north and south of the Payette River, we used the boundaries of major river drainages developed in Model #3 as a second GIS data layer to restrict the distribution of this species to whole or parts of vegetation polygons that occurred north of the Payette River.

**IMPORTANT STATE REFERENCE:** This final text field may or may not appear on the species account depending on whether there is a pertinent Idaho reference for the particular species being considered. This field contains citations of progress or final reports, published scientific papers, masters theses and doctoral dissertations, technical leaflets, or books which report the results of studies on these species that were conducted *in Idaho*. Because it is difficult to be aware of each and every reference that exists for all the native, terrestrial vertebrate species in Idaho, it is possible that we may have missed some citations. A bibliography on Idaho mammals (Groves 1987), an unpublished

bibliography of Idaho birds (M. Scott, unpublished data), and Nussbaum et al.'s (1983) book on amphibians and reptiles were drawn upon heavily for citations appearing in this field. For many species, any one of several references on Idaho work could have been cited. The point of this field was not to list an exhaustive bibliography for a species, but to cite a single work that appeared to contain the best and most recent information on distribution, ecology, habitat, or reproduction for a particular species. For additional references on information cited in these accounts, interested parties should contact the Idaho Conservation Data Center.

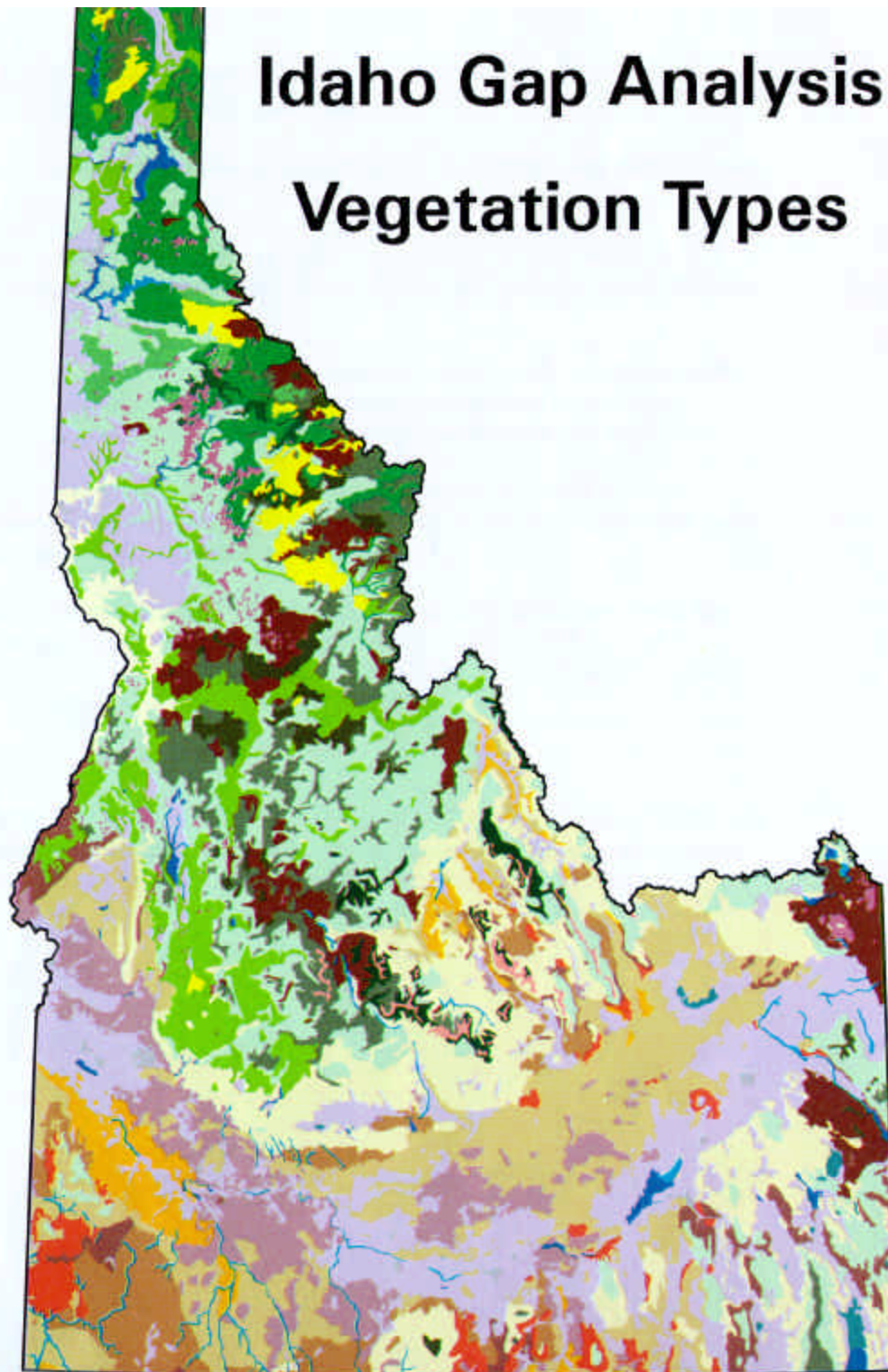
### Literature Cited

- American Ornithologists' Union. 1983. Check-list of North American birds. 6th edition. Allen Press Inc., Lawrence. 877pp.
- Burleigh, T.D. 1972. Birds of Idaho. Caxton Printers, Caldwell. 467pp.
- Butterfield, B., B. Csuti, and J.M. Scott. 1994. Modeling vertebrate distributions for gap analysis. Pp. 53-68 *in* Mapping the Diversity of Nature. Chapman and Hall, London.
- Caicco, S. 1989. Manual to accompany the map of existing vegetation of Idaho. Unpublished manuscript, Idaho Cooperative Fish and Wildlife Research Unit, Univ. Idaho, Moscow. 114 pp.
- Collins, J.T. 1990. Standard common and current scientific names for North American amphibians and reptiles. Third edition. Society for the Study of Amphibians and Reptiles, Herpetological Circular No. 19.
- Davis, W.B. 1939. The Recent mammals of Idaho. Caxton Printers, Caldwell. 400pp.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The birder's handbook. Simon and Schuster, New York. 785pp.
- Everson, D.O. and J.M. Caprio. 1974. Phenological map of average date when lilacs start to bloom in Idaho. Misc. Public. No.18, Idaho Agricult. Exper. Sta., Univ. Idaho, Moscow.
- Groves, C. 1987. A bibliography of Idaho mammalogy (1940-1987). Idaho Dept. Fish & Game, Boise. 62pp.
- Groves, C.R. 1989. Idaho's amphibians and reptiles: description, habitat, and ecology. Nongame Wildlife Leaflet No. 7, Idaho Dept. Fish & Game, Boise. 12pp.
- Groves, C.R. 1992. Gap analysis. Idaho Wildlife Magazine 12:26-27, Idaho Dept. Fish & Game, Boise.
- Groves, C.R. and W.E. Melquist. 1991. Nongame and endangered wildlife: species management plan 1991-1995. Idaho Department of Fish & Game, Boise. 163pp.
- Groves, C.R., M.L. Klein, and T.F. Breden. 1995. Natural Heritage Programs: public-private partnerships for biodiversity conservation. Wildlife Society Bulletin 23(4): 784-790.
- Idaho Conservation Data Center. 1994. Rare, threatened, and endangered plants and animals of Idaho. 3rd edition. Idaho Dept. Fish & Game, Boise. 39pp.
- Jones, J.K., Jr., R.S. Hoffmann, D.W. Rice, C. Jones, R.J. Baker, and M.D. Engstrom. 1992. Revised checklist of North American mammals north of Mexico, 1991. Occasional Papers of the Museum, Texas Tech University. 23pp.
- Larrison, E.J. and D.R. Johnson. 1981. Mammals of Idaho. Univ. Press Idaho, Moscow. 166pp.
- Master, L.L. 1991. Assessing threats and setting priorities for conservation. Conservation Biology 5:559-563.
- Nussbaum, R.A., E.D. Brodie, and R.M. Storm. 1983. Amphibians and reptiles of the Pacific Northwest. Univ. Press Idaho, Moscow. 332pp.
- Saab, V.A. and C.R. Groves. 1992. Idaho's migratory landbirds: description, habitats, and conservation. Nongame Wildlife Leaflet No. 10, Idaho Dept. Fish & Game. 16pp.
- Scott, J.M., B. Csuti, J.D. Jacobi, and J.E. Estes. 1987. Species richness: a geographic approach of protecting future biological diversity. BioScience 37: 782-788.
- Scott, J.M., F.Davis, B.Csuti, R. Noss, B. Butterfield, C. Groves, H. Anderson, S. Caicco, F. D'erchia, T.C. Edwards, Jr., J. Ulliman, R.G. Wright. 1993. Gap analysis: a geographic approach to protection of biological diversity. Wildl. Monog. 123:1-41.
- Stephens, D.A. and S.H. Sturts. 1991. Idaho bird distribution: mapping by latilong. Special Publication No. 11, Idaho Museum of Natural History, Pocatello. 76pp.
- Zeveloff, S.I. 1988. Mammals of the Intermountain West. University of Utah Press, Salt Lake City. 365pp.



# Idaho Gap Analysis

## Vegetation Types



### Key To Vegetation Types

- Alpine Communities
- Whitebark Pine
- Subalpine Fir
- Subalpine Lodgepole Pine
- Mountain Hemlock
- Western Redcedar and Western Hemlock
- Grand Fir and Douglas Fir
- Western Larch and Douglas Fir
- Montane Lodgepole Pine
- Ponderosa Pine
- Recent Timber Harvests
- Shrubfields
- Juniper or Limber Pine Woodlands
- Mountain Sagebrush
- Low Sagebrush
- Big Sagebrush
- Salt Desert Shrub
- Canyon Grassland
- Non-native Grassland
- Mountain Brush and Sand Dunes
- Riparian Forest and Shrub
- Bulrush and Cattail Marsh
- Open Water
- Agricultural Land
- Urban and Industrial

STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Alaska, south to California, east to Montana, and south through Rocky Mountains.

HABITAT: From shrub steppe to alpine meadows (up to 3050 m), in variety of habitats including dry woodlands, humid forests, and rocky shores of mountain lakes.

DIET: Larvae feed on zooplankton, immature insects, snails, and (occasionally) other salamander larvae. Adults eat terrestrial and aquatic invertebrates, including insects, insect larvae, spiders, slugs, earthworms, and amphipods.

ECOLOGY: Hibernates/aestivates. Adults are subterranean, except during breeding season. Predators of larvae probably include aquatic insects and garter snakes; garter snakes and bullfrogs eat adults.

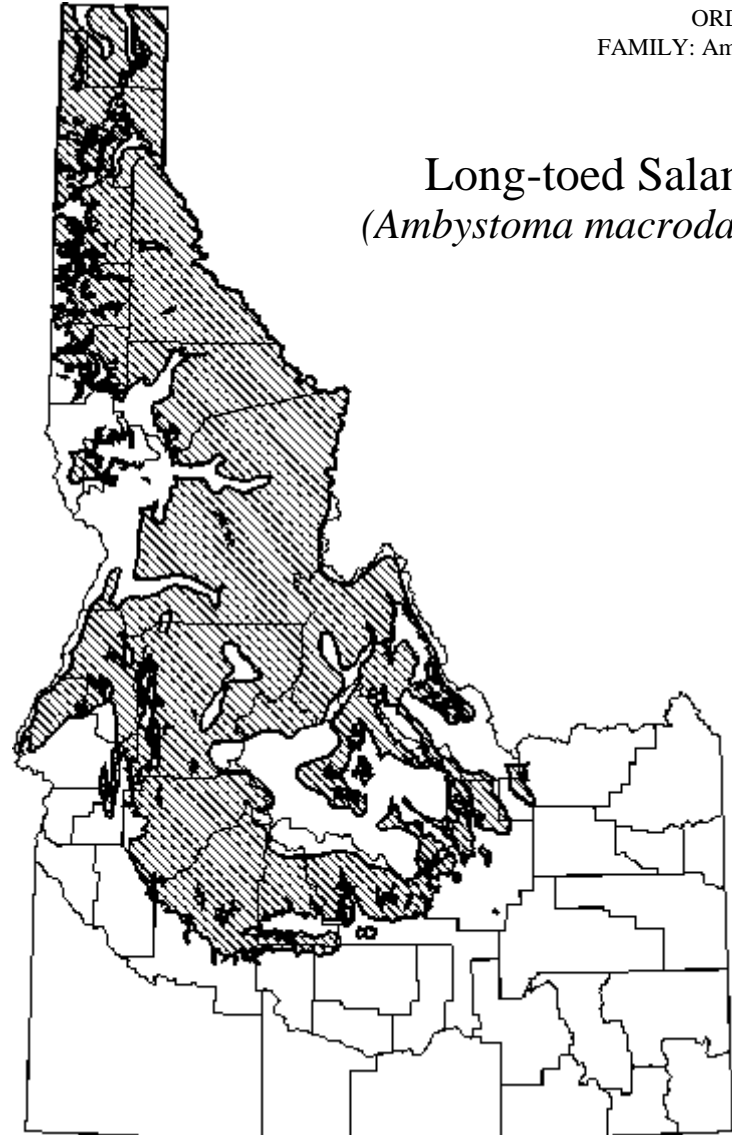
REPRODUCTION: In Idaho, elevation affects breeding season and clutch size. Populations below 2100 m breed in spring; those above 2100 m breed in midsummer. Clutch size is larger at lower elevations. Larvae metamorphose in first summer or, at high elevations, overwinter.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Howard, J.H. and R.L. Wallace. 1985. Life history characteristics of populations of the long-toed salamander (*Ambystoma macrodactylum*) from different altitudes. *Amer. Midl. Nat.* 113: 361-373.

ORDER: Caudata  
FAMILY: Ambystomatidae

## Long-toed Salamander (*Ambystoma macrodactylum*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Found throughout parts of North America from southern Canada to Mexico. Absent from most of Great Basin, western states, New England, and Appalachians. Introduced in many localities west of Rocky Mountains.

HABITAT: Found in virtually any habitat, providing there is nearby body of water suitable for breeding. In Idaho, suspected to be present in scattered populations throughout appropriate habitat of grasslands and shrub steppe.

DIET: Adults eat any small animal that can be captured and swallowed. Larvae eat aquatic invertebrates and vertebrates (especially amphibian larvae) as available.

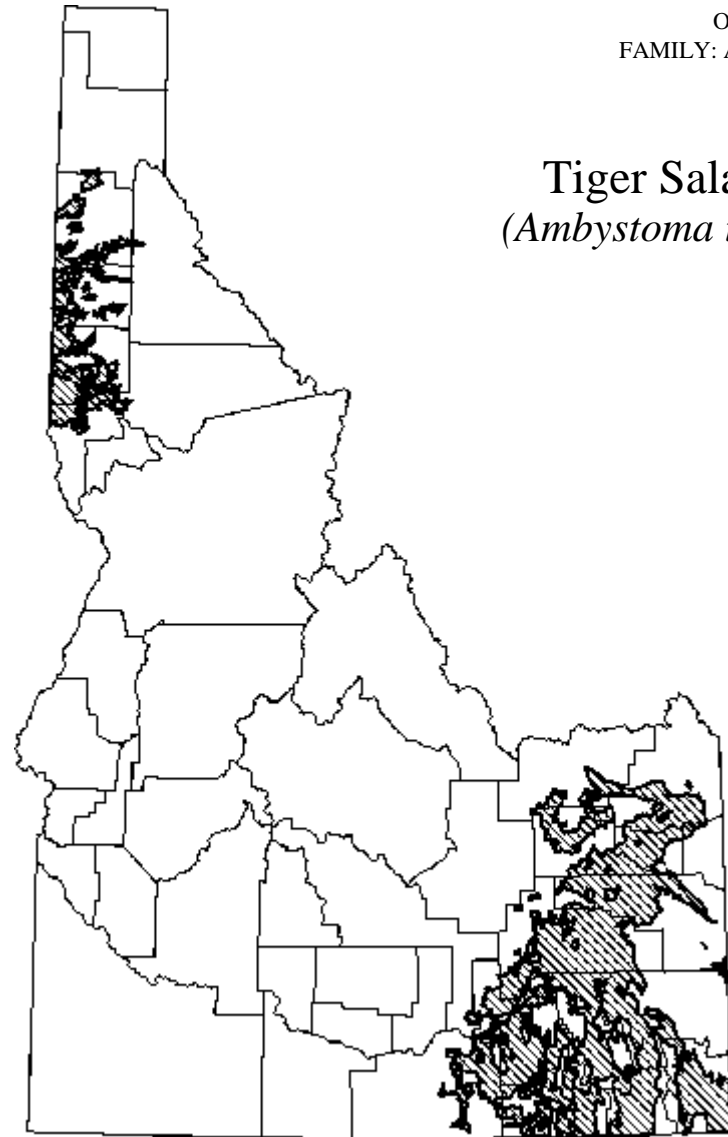
ECOLOGY: Hibernates/aestivates. Activity is often associated with rainfall. Inactive in winter in colder climates. Terrestrial adults are usually underground in self-made burrows, or in those made by rodent or other animals. In some years, drying of breeding pond may result in total reproductive failure.

REPRODUCTION: Lays up to 1000 eggs, singly or in small clusters, on submerged vegetation. Larvae metamorphose in first or second summer, or become paedomorphic. In Idaho, breeding occurs in spring.

GIS MODEL NUMBER: 2

ORDER: Caudata  
FAMILY: Ambystomatidae

## Tiger Salamander (*Ambystoma tigrinum*)



STATUS: Protected nongame species  
GLOBAL RANK: G3 STATE RANK: S3

RANGE: Found in northern Idaho, western Montana, and southern British Columbia.

HABITAT: Found in 3 major types of habitat: springs or seepages; spray zones of waterfalls; and edges of streams. Often associated with fractured rock formations.

DIET: Feeds on aquatic insects.

ECOLOGY: In northern Idaho, emerges from winter hibernation in late March and is active near surface through April and May. Retreats underground to aestivate (except near seepages and waterfalls) from June to mid-September, becomes active again with September through early November rains, then hibernates until March. Surface activity is negatively correlated with high daytime temperature and number of days since last rain.

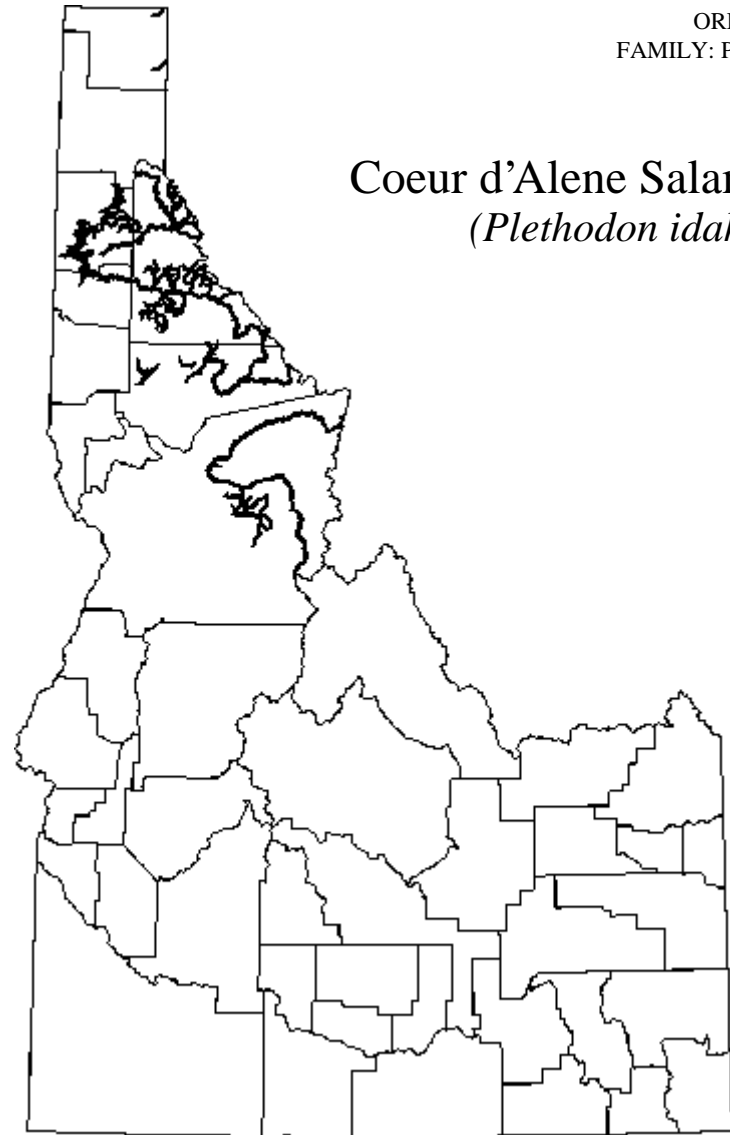
REPRODUCTION: Mating occurs in late summer and fall, and occasionally in spring. Females store sperm up to 9 months before fertilizing eggs. Average of 6 eggs are laid in April-May. Young emerge from underground in September. Individuals first breed in fourth and fifth years. In Idaho, females have biennial reproductive cycles.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Cassirer, E.F., C.R. Groves, and D. Genter. 1993. Sensitive species management guide for the Coeur d'Alene salamander. Idaho Dept. Fish & Game, Boise, and the Montana Natural Heritage Program, Helena. 38pp.

ORDER: Caudata  
FAMILY: Plethodontidae

## Coeur d'Alene Salamander (*Plethodon idahoensis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G3 STATE RANK: S3

ORDER: Caudata  
FAMILY: Dicamptodontidae

RANGE: Central Idaho and adjacent Montana.

HABITAT: Larvae usually inhabit clear, cold streams, but are also found in mountain lakes and ponds. Adults are found under rocks and logs in humid forests, near mountain streams, or on rocky shores of mountain lakes.

DIET: Larvae feed on wide variety of aquatic invertebrates as well as some small vertebrates (e.g., fishes, tadpoles, or other larval salamanders). Adults eat terrestrial invertebrates, small snakes, shrews, mice, and salamanders.

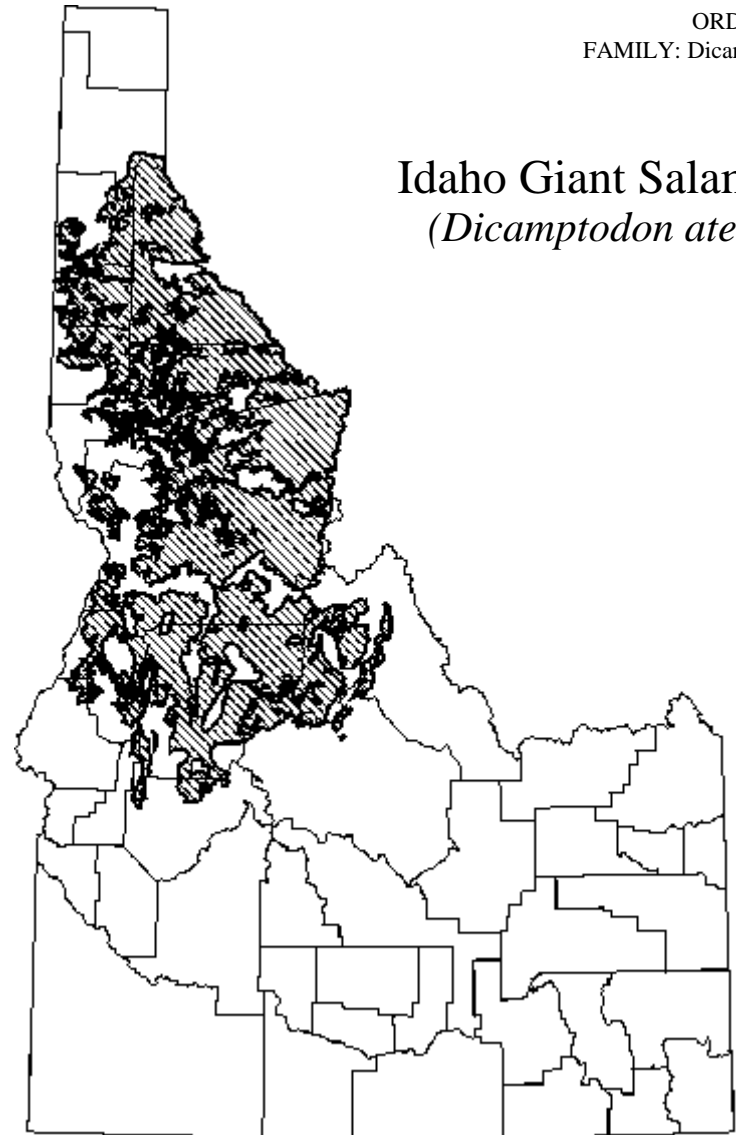
ECOLOGY: Hibernates/aestivates. Usually reaches sexual maturity (in both larval and terrestrial forms) at sizes greater than 115 mm (snout to vent length).

REPRODUCTION: Breeding occurs in spring and fall. Female lays clutch of 135-200 eggs in spring, and guards eggs until hatched. Life history is variable and complex. At some sites, all larvae metamorphose and reproduce as terrestrial adults. At other locales, high percentage of individuals are paedomorphic.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Cassirer, E.F. 1995. Wildlife inventory, Craig Mountain, Idaho. Idaho Dept. Fish & Game, Lewiston. 182 pp.

## Idaho Giant Salamander *(Dicamptodon aterrimus)*



STATUS: Unprotected nongame species  
GLOBAL RANK: G4 STATE RANK: S3

RANGE: Found in separate populations: 1) from southern British Columbia south to northwestern California; and 2) from eastern Oregon and Washington, east to Idaho and northwestern Montana.

HABITAT: Found from sea level to over 2000 m, in clear, cold, swift-moving mountain streams. May be found on land during wet weather, near water in humid forests, or in more open habitat. Stays on moist streambanks during dry weather.

DIET: Larvae feed mostly on diatoms. Adults eat wide variety of insects and other invertebrates.

ECOLOGY: Adults are most active from April through October, depending on locality. Over entire range, logging practices, which increase water temperatures and siltation, may have an adverse effect on tailed frog populations. In Oregon and Washington, tailed frogs are associated with old-growth forests.

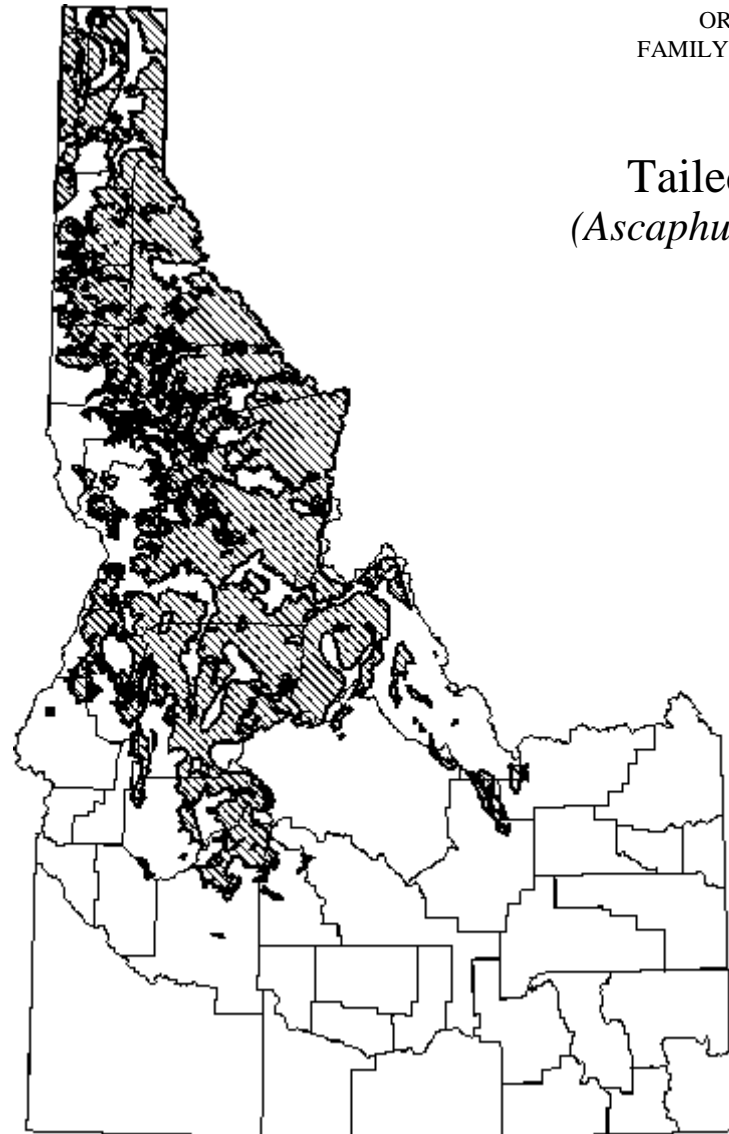
REPRODUCTION: Breeds from May through October (late August and September in Idaho). Fertilization is internal; male has tail-like copulatory organ. Clutch size averages 44-75 eggs, which are laid in July, and hatch from August through September. Larval period lasts 2-4 yr in mountains and northern areas, and 1 yr in a few coastal Oregon populations. Inland populations metamorphose after 3 yr; metamorphosis starts in July and ends in September. Adults may not breed until 7-8 yr old, or 6-8 yr after metamorphosis.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Cassirer, E.F. 1995. Wildlife inventory, Craig Mountain, Idaho. Idaho Dept. Fish & Game, Lewiston. 182 pp.

ORDER: Anura  
FAMILY: Ascaphidae

## Tailed Frog (*Ascaphus truei*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4

RANGE: Found along Pacific Coast from southern Alaska to Baja California; also found from west-central Alberta, east to Montana, Wyoming, Utah, Colorado, and Nevada.

HABITAT: From sea level to over 3600 m, in wide variety of habitats such as desert springs and streams, meadows and woodlands, and in and around ponds, lakes, reservoirs, and slow-moving rivers and streams.

DIET: In Northwest, larvae filter suspended plant material, or feed on bottom detritus. Adults eat all types of flying insects and spiders, crayfish, sowbugs, and earthworms.

ECOLOGY: Digs burrow in loose soil or uses burrows of small mammals. Activity varies seasonally and geographically. At low elevations, individuals are mainly diurnal in late winter and spring, and nocturnal in summer. Mountain populations are active day or night in summer, depending on conditions. Hibernation occurs in winter in cold climates. Birds and garter snakes prey on adults, and predatory insect larvae feed on young. Western toads appear to be declining in Greater Yellowstone Ecosystem and in other parts of western United States.

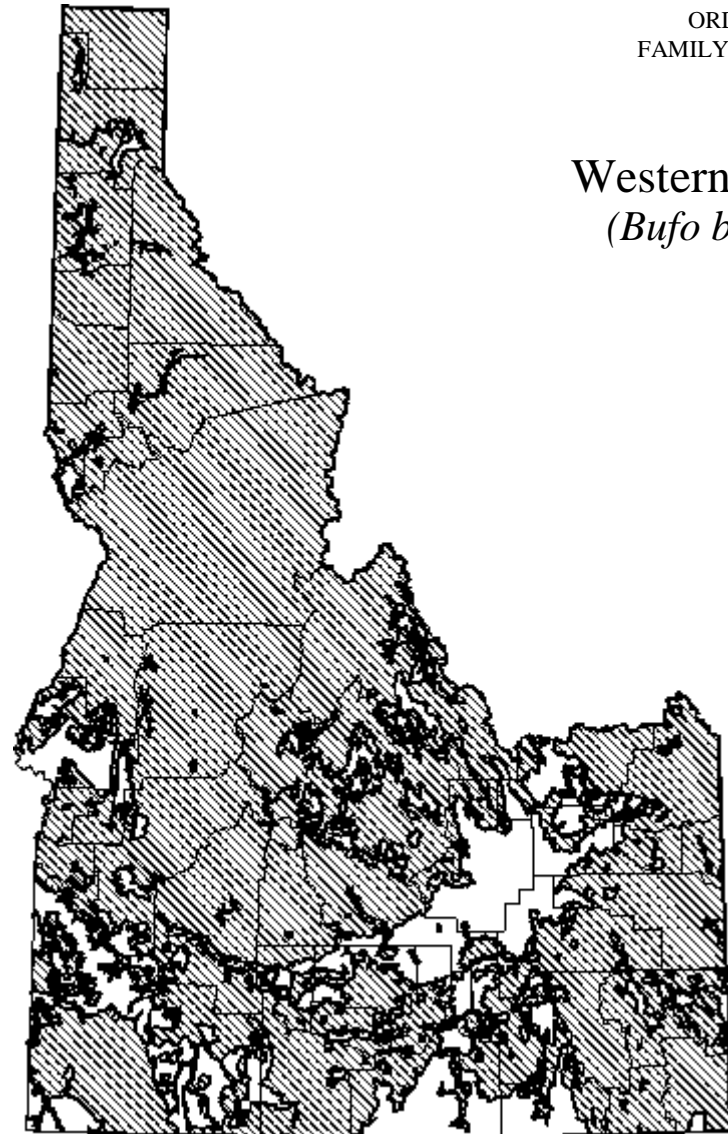
REPRODUCTION: Breeding period varies according to conditions, but usually occurs from late January through July (in Snake River Canyon, breeding occurs in early July as an adaptation to high levels of runoff water). Females deposit an average of 12,000 eggs/clutch; eggs are laid in 2 strands. Larvae metamorphose in second summer in mountains, and in first summer in other areas. Males do not have a mating call as do many frogs and other toads, but they do vocalize and can be heard.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Bartelt, P.E. and C.R. Peterson. 1994. Riparian habitat utilization by western toads (*Bufo boreas*) and spotted frogs (*Rana pretiosa*). Final report to the USDA Forest Service Inter. Res. Sta., Boise. 30pp.

ORDER: Anura  
FAMILY: Bufonidae

## Western Toad (*Bufo boreas*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Throughout most of U.S., portions of northern Mexico, and northern shore of Lake Erie in Canada. Absent from parts of New England and Florida, from high mountains of West, and from West Coast.

HABITAT: Found in grasslands, shrub steppe, woods, river valleys, floodplains, and agricultural lands, usually in areas with deep, friable soils.

DIET: Metamorphosed toads eat various small, terrestrial arthropods. Larvae eat suspended matter, organic debris, algae, and plant tissue.

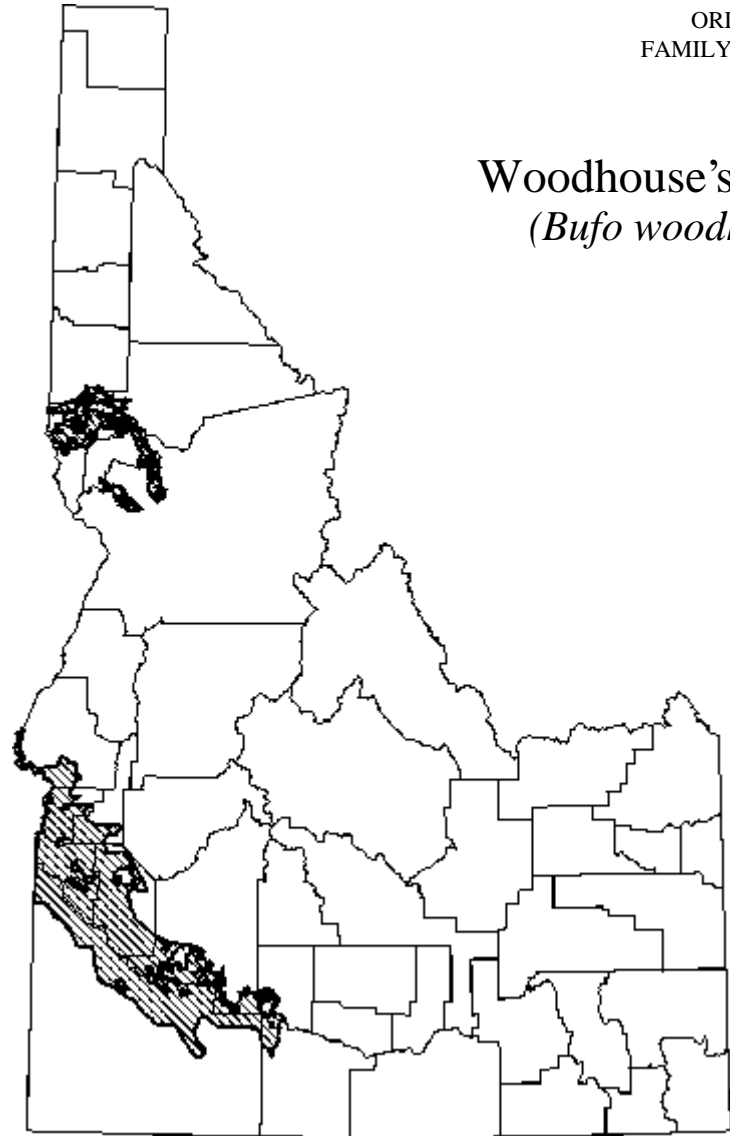
ECOLOGY: Mostly nocturnal, but diurnal activity is not uncommon. Active in wet or dry weather. Inactive during cold months of fall, winter, and early spring. When inactive, burrows underground, or hides under rocks, plants, or other cover.

REPRODUCTION: Breeding choruses may last a few weeks. Female lays clutch of up to 25,000 eggs in spring or summer (depending on geography), usually after heavy rains. Larvae metamorphose in 1-2 mo (by end of July in some locations), and in some areas reach sexual maturity in 2 yr.

GIS MODEL NUMBER: 2

ORDER: Anura  
FAMILY: Bufonidae

## Woodhouse's Toad (*Bufo woodhousii*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: South-central Canada and most of U.S. east of Rocky Mountains. Absent from most of southeastern Coastal Plain, New England, and northern Appalachians.

HABITAT: Found in moist habitats near breeding ponds, ditches, and marshes; found above 2000 m in Idaho.

DIET: Metamorphosed frogs eat various small terrestrial arthropods. Larvae eat suspended matter, organic debris, algae, and plant tissue.

ECOLOGY: Hibernates/aestivates. Inactive in winter in northern range. Active day and night when breeding. Generally diurnal in cooler months of spring and fall, more crepuscular and nocturnal in hot weather. When inactive, hides in water, thick vegetation, under objects on ground, or in rodent burrows. Local populations may include a few dozen adults or as many as tens of thousands of individuals. Garter snakes and tiger salamander larvae prey on tadpoles.

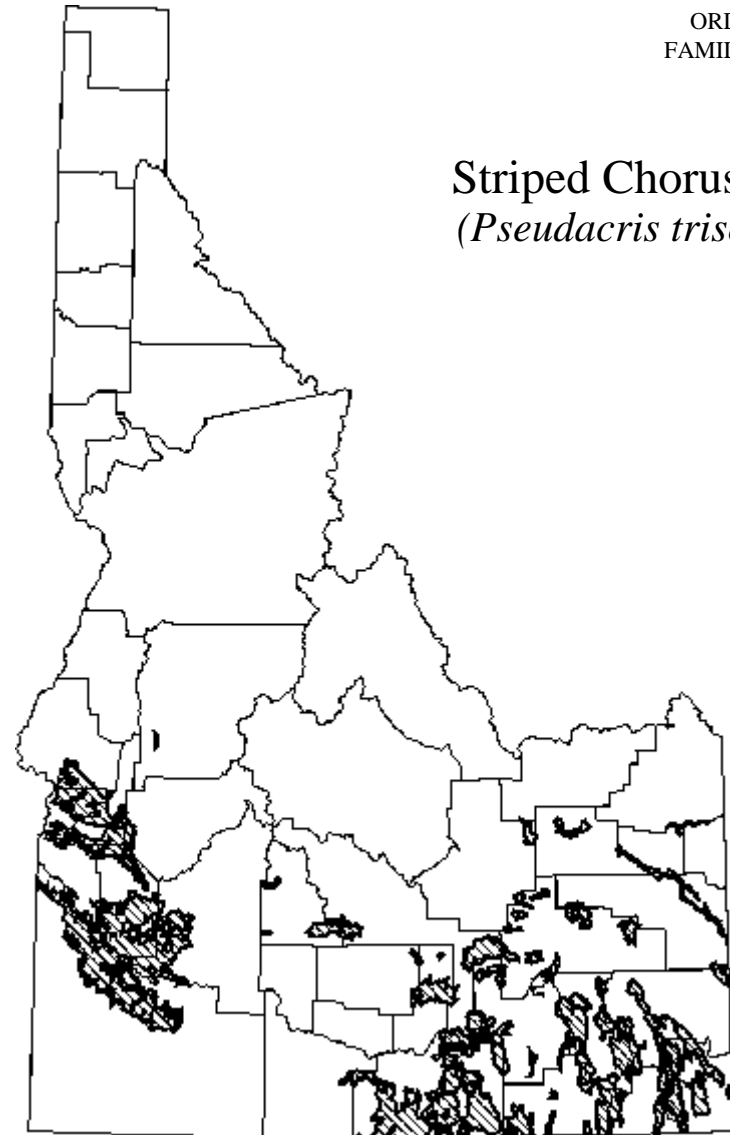
REPRODUCTION: Congregations of singing males initiate breeding season with loud distinctive calls. Females fasten packets of eggs to vegetation. Aquatic larvae metamorphose in spring or summer, and become sexually mature in first, second, or third year. In Idaho, adults breed between March and June, depending on elevation and latitude.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Clark, R.J., C.R. Peterson, and P. E. Bartelt. 1993. The distribution, relative abundance, and habitat associations of amphibians on the Targhee National Forest. Final report to the Targhee National Forest, St. Anthony. 16pp.

ORDER: Anura  
FAMILY: Hylidae

## Striped Chorus Frog (*Pseudacris triseriata*)



ORDER: Anura  
FAMILY: Hylidae

STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern British Columbia to Baja California, and east to Montana, Idaho, and Nevada.

HABITAT: Found from sea level to over 3000 m, usually in low vegetation near water, but also in grasslands, woodlands, forests, and farmlands. In Northwest, prefers shallow, quiet waters for breeding.

DIET: Known to eat beetles, flies, spiders, ants, and isopods. Larvae probably eat algae, organic debris, and plant tissue.

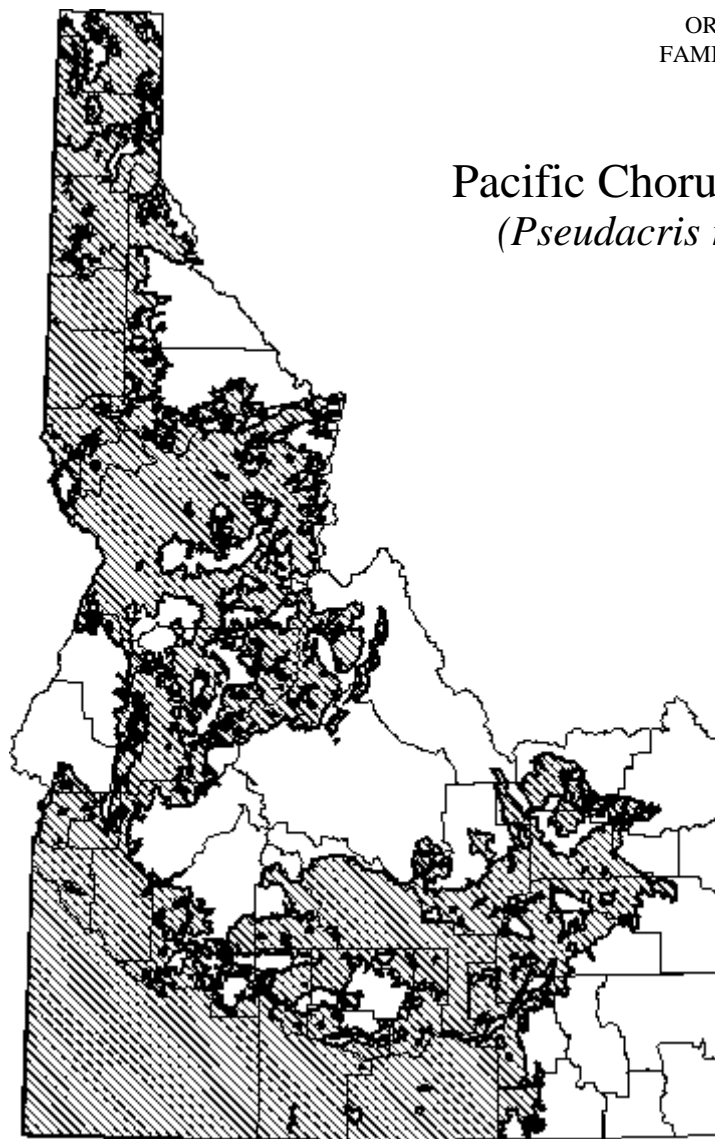
ECOLOGY: Common and widespread species. Larvae are preyed upon by carnivorous aquatic insects, bullfrogs, garter snakes, and many birds and mammals. Individuals are inactive in cold temperatures, frequently nocturnal during dry periods, and terrestrial during nonbreeding season. In some waters, species is probably displaced by bullfrogs.

REPRODUCTION: Breeding occurs January through August. Call is well-known "ribbet." Females have been known to lay eggs in temporary waters, causing lost production. Western Oregon study found that eggs (laid in packets of about 20-80) hatched in 3-5 wk, and young became sexually mature in less than 1 yr. Males begin moving to breeding ponds in April in northern Idaho, and tadpoles gain pre-metamorphic total length of 45-55 mm in about 2.5 mo. Multiple clutches have been documented in southern California.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Schaub, D.L. and J. H. Larsen. 1978. The reproductive ecology of the Pacific treefrog (*Hyla regilla*). *Herpetologica* 34:409-416.

## Pacific Chorus Frog (*Pseudacris regilla*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

ORDER: Anura  
FAMILY: Pelobatidae

RANGE: From extreme southern British Columbia, through Great Basin to extreme northwestern Arizona, and from edge of Cascade-Sierra axis east to Rockies.

HABITAT: Found from sea level to about 2800 m, on shrub steppe, pinyon/juniper woodlands, and spruce/fir forests, but is restricted to shrub steppe habitats in the Northwest. Uses variety of temporary and permanent waters for breeding.

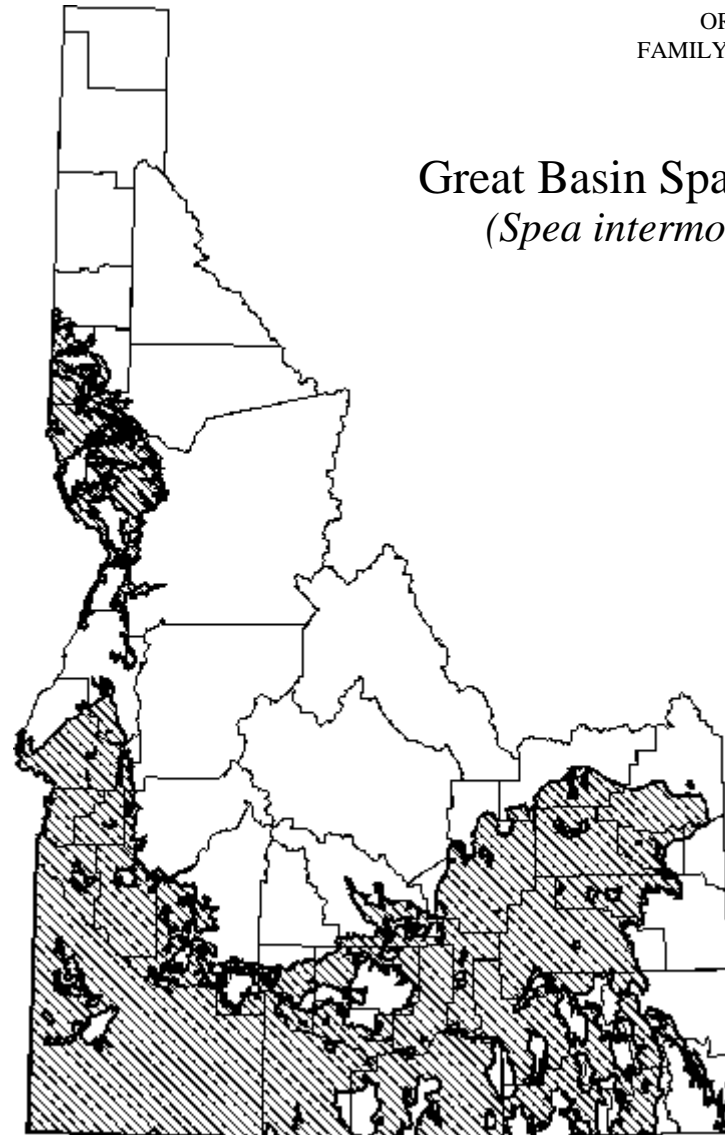
DIET: Not well known over entire range. Larvae probably eat algae, organic debris, and plant tissue. Adults are known to eat ants, beetles, grasshoppers, crickets, and flies.

ECOLOGY: Hibernates/aestivates. Primarily nocturnal, but sometimes forages during day. Digs burrow in loose soil, or uses burrows of small mammals to escape heat and dry periods. Predators include birds and probably fishes. Adult spadefoots have noxious skin secretions known to repel predators and cause sneezing in humans.

REPRODUCTION: Breeding occurs sporadically from April through July, often after spring or summer rains (in the Northwest, breeding season is irregular in response to local moisture conditions). Female lays eggs in small packets of 20-40; total eggs may equal 300-500. Under optimal conditions, eggs probably hatch in about 2-3 days. Larval period lasts a few to several weeks.

GIS MODEL NUMBER: 2

## Great Basin Spadefoot (*Spea intermontana*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From Great Slave Lake and Hudson Bay, Canada, south to Kentucky and New Mexico. Introduced in number of localities in western states.

HABITAT: Usually found in permanent water containing rooted aquatic vegetation. Commonly inhabits wet meadows and fields, but may also be found in springs, slow streams, marshes, bogs, ponds, canals, reservoirs, and lakes.

DIET: Metamorphosed frogs eat various small invertebrates obtained along water's edge or in nearby meadows or fields. Adults rarely eat small vertebrates, although in Idaho, northern leopard frogs are known to eat birds, garter snakes, tadpoles, small frogs, and fishes, as well as snails, leeches, spiders and small insects. Larvae eat algae, plant tissue, organic debris, and probably some small invertebrates.

ECOLOGY: Probably hibernates in streams, ponds or other aquatic locations in winter. Disperses to moist uplands or permanent water during dry-up in summer. Requires moderately high ground cover for concealment. Preyed upon by garter snakes. When disturbed, these frogs leap rapidly and erratically. Anecdotal information exists for their decline in Idaho.

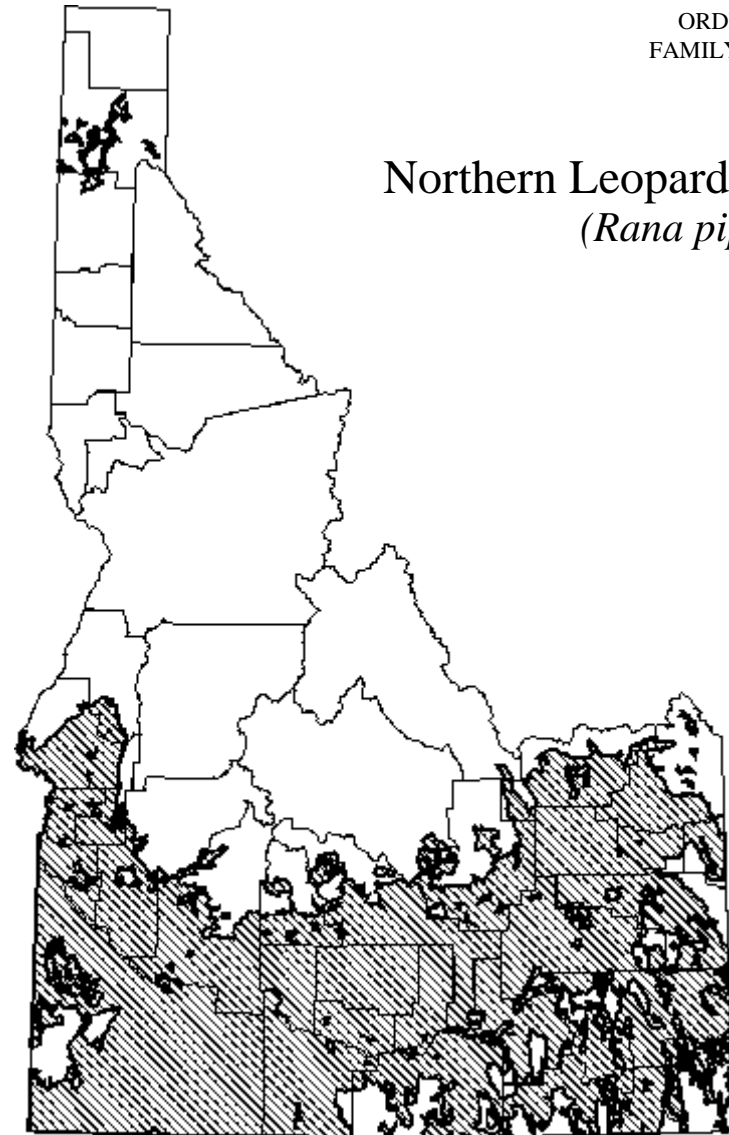
REPRODUCTION: Lays clutch of up to several thousand eggs from March to June, depending on range (in Idaho, breeding activity begins in March or April, when water temperatures reach 10°C). Aquatic larvae usually metamorphose in summer, but may overwinter in some areas. In most areas, adults reach sexual maturity in 2 yr.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Groves, C.R. and C. Peterson. 1992. Distribution and population trends of Idaho amphibians as determined by mail questionnaire. Idaho Dept. Fish & Game, Boise. 16pp.

ORDER: Anura  
FAMILY: Ranidae

## Northern Leopard Frog (*Rana pipiens*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4

RANGE: From extreme southeastern Alaska, south through western Alberta to coastal Oregon and Washington, and east to northern Wyoming, northern Utah, and central Nevada.

HABITAT: Found from sea level to about 3000 m, usually in hilly areas near cool, permanent, quiet water in streams, rivers, lakes, pools, springs, and marshes. Highly aquatic, but may disperse into forests, grasslands, and brushlands. In the Northwest, prefers areas with thick algae and emergent vegetation, but may use sunken, dead, or decaying vegetation as escape cover.

DIET: Opportunistic. Eats wide variety of insects as well as different mollusks, crustaceans, and arachnids. Larvae eat algae, organic debris, plant tissue, and minute water-borne organisms.

ECOLOGY: Hibernates/aestivates, depending on range. Inactive in winter in north. May move overland in spring and summer after breeding. Species is thought to be declining in parts of range, but appears widespread and abundant in Idaho. Bullfrogs are predators.

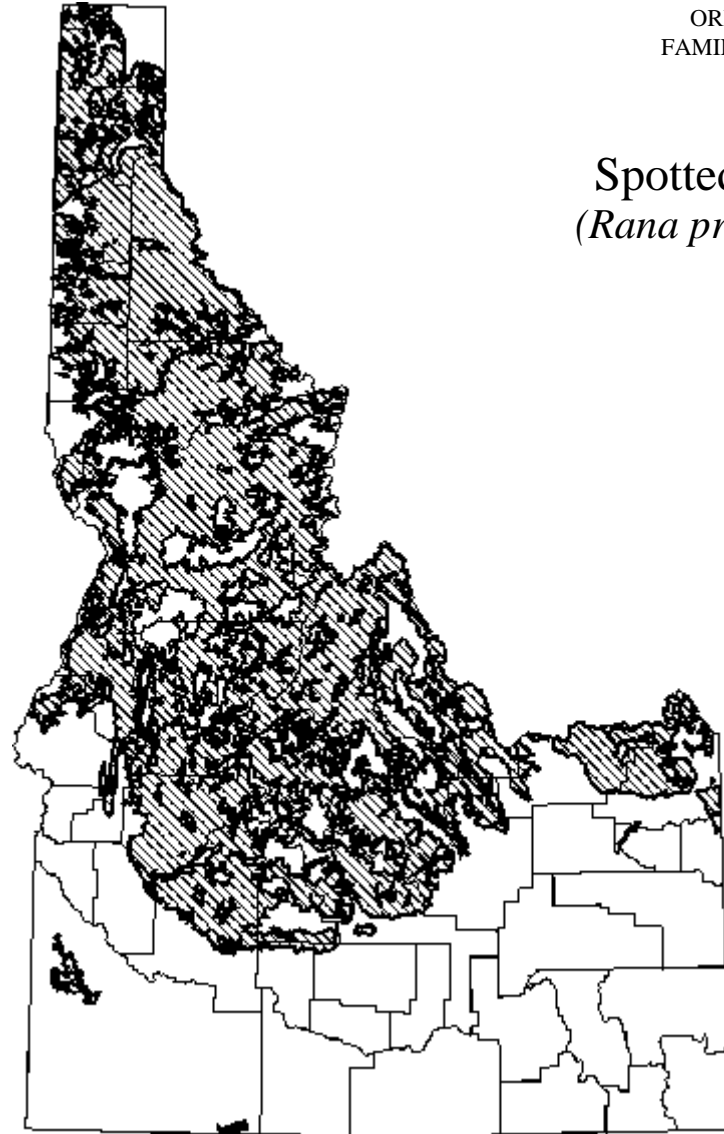
REPRODUCTION: Breeds: February at sea level in British Columbia; mid-March at 1395 m in Utah; and from May through June at 2377 m in Wyoming. Wyoming study found that females breed yearly at low elevations, and every 2-3 yr at high elevations. Females may lay egg masses in communal clusters. Males may require 4 yr (females 6 yr) to reach maturity.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Munger, J.C., L. Heberger, D. Logan, W. Peterson, L. Mealey, and M. Caughlin. 1994. A survey of the herpetofauna of the Bruneau Resource Area, Boise District, with focus on the spotted frog (*Rana pretiosa*). Idaho Bur. Land Manage. Tech. Bull. 94-7.

ORDER: Anura  
FAMILY: Ranidae

## Spotted Frog (*Rana pretiosa*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: SH

RANGE: From northern Alaska, east to Labrador, and south to New Jersey, Georgia, and northern Idaho; spotty distribution occurs south in Rocky Mountains to northern Colorado. Disjunct populations exist in Arkansas and Missouri. Only amphibian in North America to occur north of Arctic Circle.

HABITAT: Found in various kinds of forest/woodland habitats, including edges of ponds and streams, willow thickets, and grass/willow/aspen associations.

DIET: Unstudied in the Northwest, but at other locales, metamorphosed frogs eat various small invertebrates (mostly terrestrial forms). Larvae eat algae, plant tissue, organic debris, and minute water-borne organisms.

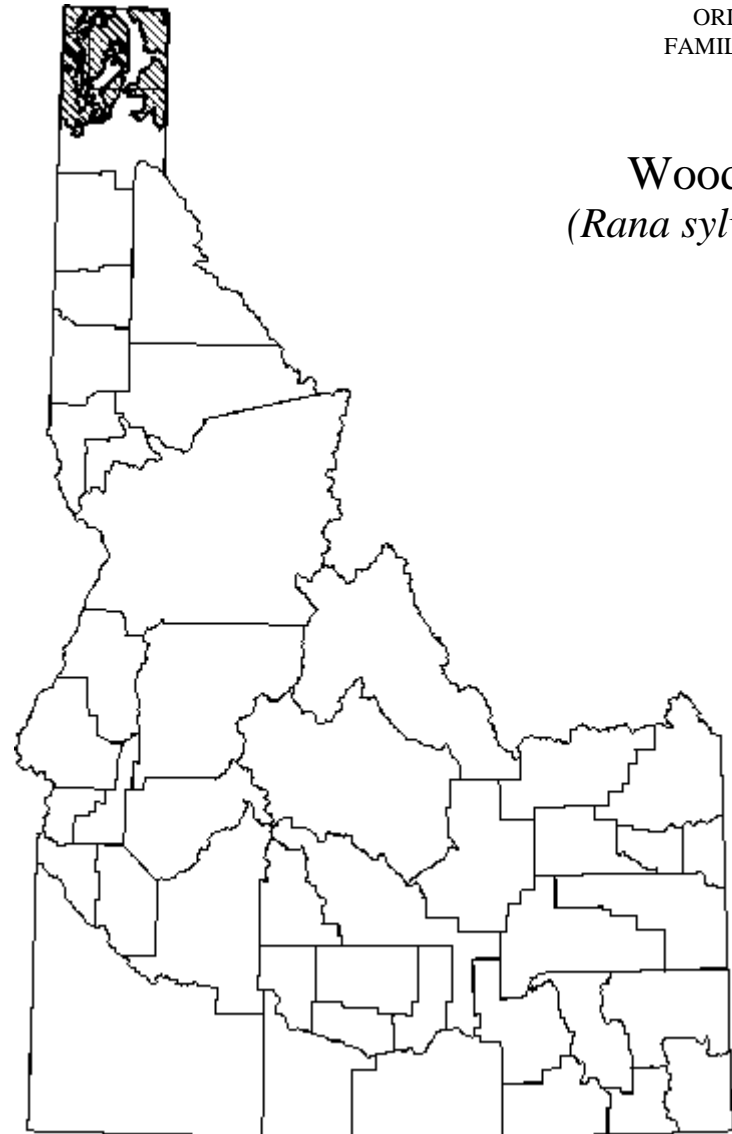
ECOLOGY: Hibernates/aestivates. Scant life history information exists for the Northwest. Inactive during cold season in north and at high elevations. When inactive, hides in humus, leaf litter, under rocks, or in/under logs. Primarily diurnal in northwestern range and in spring at high elevations, although breeding activity may occur at night. Most active in summer in damp conditions. After leaving pond, usually remains in an area less than 100 m across. Aquatic insect and shrew predators are repulsed by wood frog skin secretions. Population status and distribution in Idaho are unknown, but species has not been collected since early 1980's.

REPRODUCTION: Females lay eggs in winter through early June, depending on range (in Idaho, known to breed early and move to breeding waters before ice is off ponds). Larvae metamorphose in spring or summer, depending on locality. Period from fertilization to emigration from pond averages about 11-16 wk, depending on range. Adults become sexually mature in 2-3 yr.

GIS MODEL NUMBER: 1

ORDER: Anura  
FAMILY: Ranidae

## Wood Frog (*Rana sylvatica*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

ORDER: Testudines  
FAMILY: Emydidae

RANGE: From southern Canada to central Gulf Coast, and from East Coast to Pacific Northwest, with isolated populations in Colorado, New Mexico, and Mexico. Introduced and apparently established in other scattered localities in western states, including southeastern and southwestern Idaho.

HABITAT: Found in slow-moving, shallow water (streams, marshes, ponds, lakes, or creeks) containing soft bottom, suitable basking sites, and aquatic vegetation. May colonize seasonally-flooded areas near permanent water.

DIET: Feeds opportunistically on various plants and animals, living or dead. In Idaho, aquatic insect larvae are major diet item of juveniles and adults.

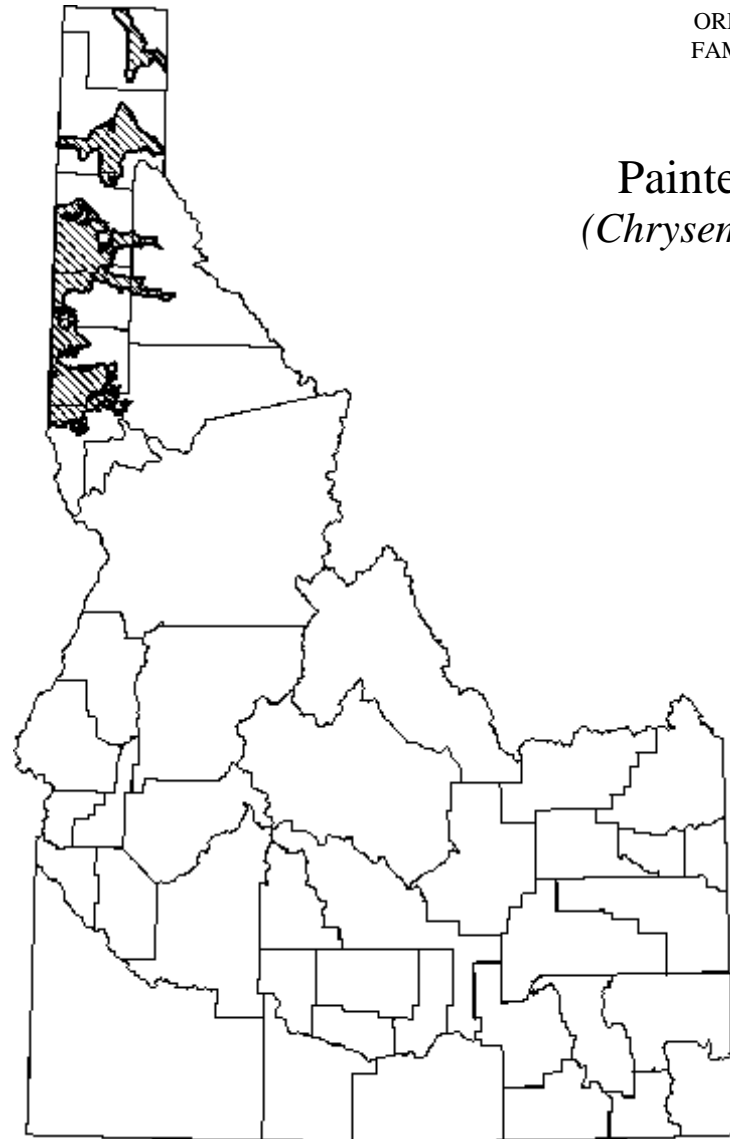
ECOLOGY: Hibernates in water in bottom mud. Most active diurnally from March through October, though warm weather may stimulate activity in other months. Evening activity on land may occur during nesting. Eggs and hatchlings incur high mortality from various predators. Population density in ponds and lakes varies greatly; some areas may contain up to several hundred individuals/hectare, other areas may have as few as a dozen/hectare. Forages on water bottom or among aquatic plants.

REPRODUCTION: In Idaho, mating may occur in fall and spring. Most nesting occurs from late May to early July. Females often produce more than 1 clutch/yr; clutch size ranges from 8-19 eggs. Idaho study found hatchlings usually wintered in nest and emerged in spring. Females reach sexual maturity in 6-7 yr in northern Idaho.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Lindeman, P.V. 1988. Comparative life history of the painted turtle, *Chrysemys picta*, in the inland Pacific Northwest. M.S. Thesis, Univ. Idaho, Moscow. 102pp.

## Painted Turtle (*Chrysemys picta*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Along Pacific Coast, from southern British Columbia through Washington and Oregon to central California. Also in Rocky Mountains from British Columbia, southeast to northern Idaho and western Montana.

HABITAT: Found in humid areas, particularly in grassy, grown-over, open areas of coniferous forests, in clearcuts, or sometimes near streams. Also found along coast sometimes far from trees or major cover; associated with rock outcrops and talus in some areas. Only lizard found in forested portions of Idaho.

DIET: Feeds on insects, ticks, spiders, millipedes, and snails.

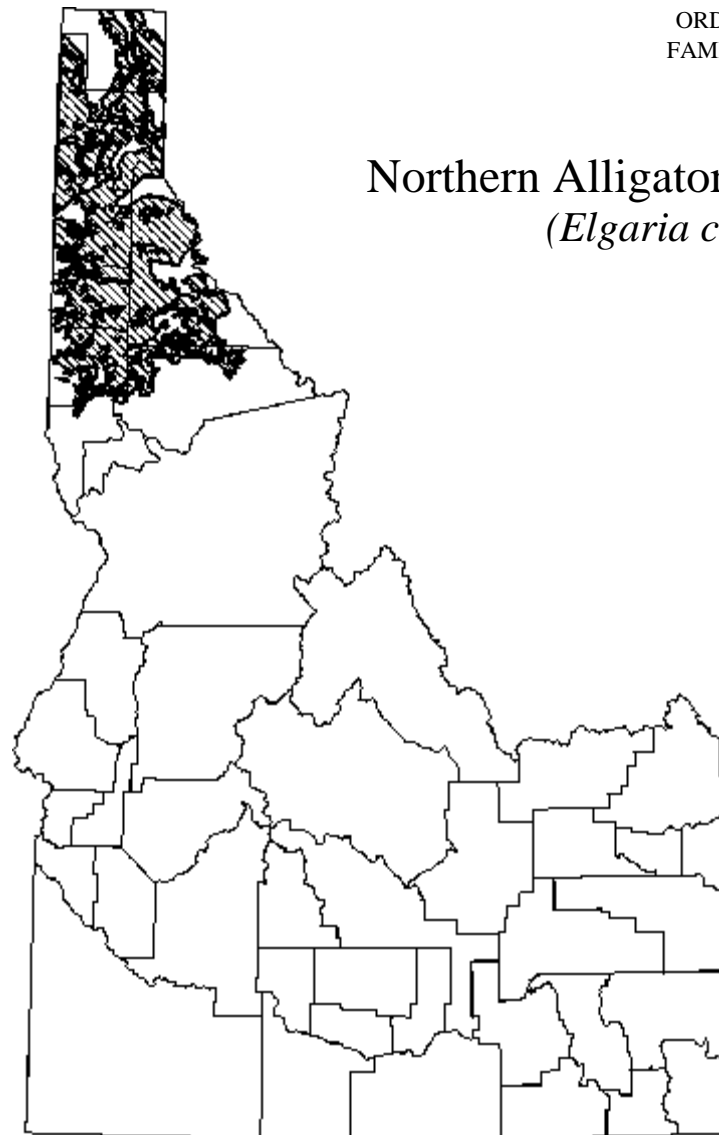
ECOLOGY: Hibernates in winter; duration of inactive period varies with local climate. Introduced cinnabar moths are poisonous to these lizards, and may have deleterious effects on northwestern populations. There are few records for this species in Idaho, possibly due to lack of surveys.

REPRODUCTION: Mating apparently occurs in April and May. In the Northwest, populations at higher elevations nest later in summer than lower-altitude populations. Females, which reach sexual maturity in 32-44 mo in northern California, produce 1 litter. Litter size averages 4-6 eggs, depending on locality.

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Anguidae

## Northern Alligator Lizard (*Elgaria coerulea*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From northeastern California, southeastern Oregon, and adjacent parts of Idaho, Nevada, and western Utah, south into Arizona and southeastern California.

HABITAT: Found in sparsely-vegetated, dry hillsides in areas with talus slopes, rocks or boulders.

DIET: Feeds mainly on insects and other lizards, but is also known to eat small amounts of flowers and leaves.

ECOLOGY: Hibernates/aestivates. Inactive during cold winter weather; duration of inactive period varies with local climate.

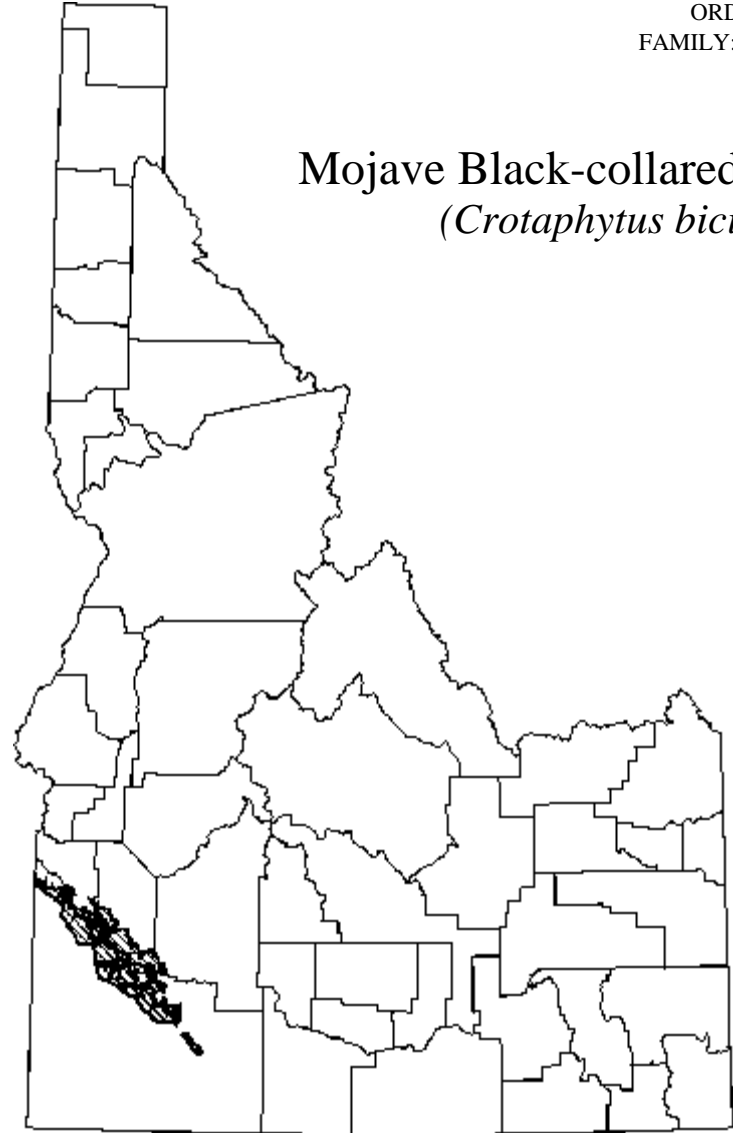
REPRODUCTION: Reproduction information for northwestern portions of range is lacking. In Arizona, eggs are laid in June or July, and hatch in October. In other areas in range, members of the same genus lay 1-2 clutches of 3-8 eggs/yr. In southern populations, some females mature after 1 yr.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and D.R. Johnson. 1982. Ecology of reptiles in the Snake River Birds of Prey Area. USDI Bur. Land Manage. Snake River Birds of Prey Research Project, Boise. 107pp.

ORDER: Squamata  
FAMILY: Crotophytidae

## Mojave Black-collared Lizard (*Crotaphytus bicinctores*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Idaho and Oregon, south to southern Baja California and north-central Mexico.

HABITAT: Found in shrub steppe areas with scattered, low shrubs, especially in areas with abundant rodent burrows.

DIET: Eats insects, spiders, lizards, small rodents, and some plant material.

ECOLOGY: Ground-dwelling, but sometimes climbs into bushes. Home range varies; Nevada study identified range as less than 2½ ha, and population density as 5/ha. Hibernates/aestivates. Uses burrows of pocket mice and kangaroo rats. Inactive in underground burrows in cold weather. First active in early April in southeastern Arizona; in some areas, active in summer months only. One of the few lizards with a voice.

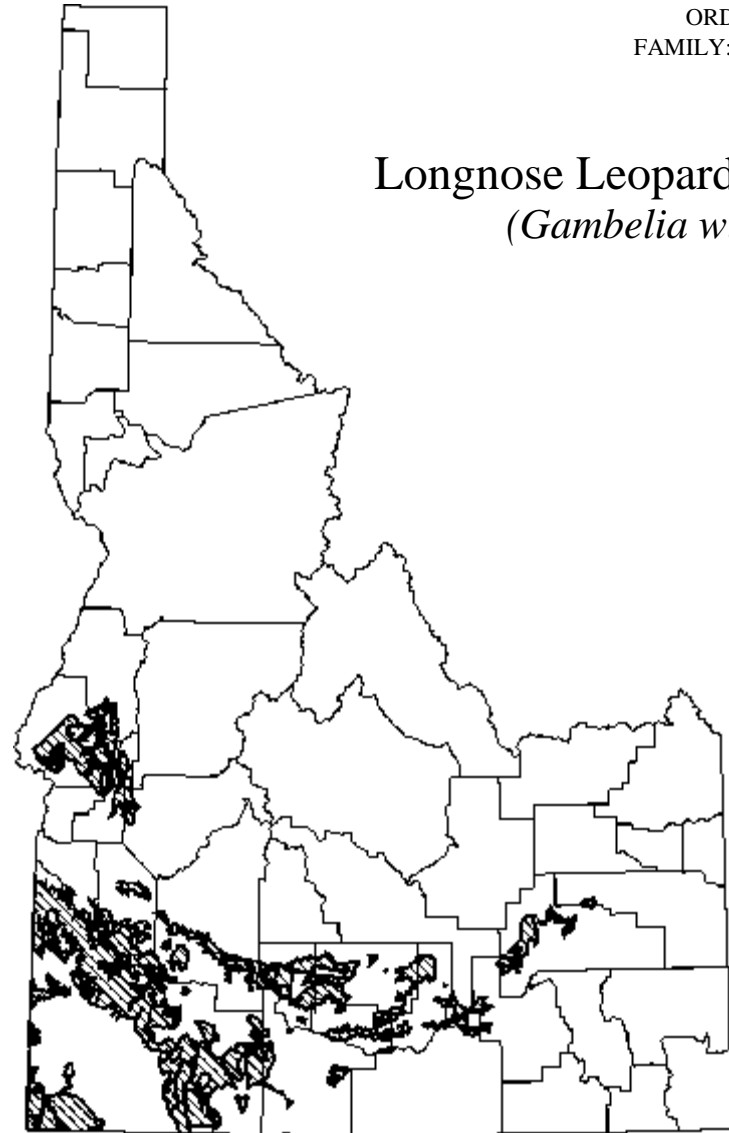
REPRODUCTION: In Idaho, lays clutch of 3-4 eggs in June or July. Eggs hatch in 5-7 wk; individuals become sexually mature in first or second year. Idaho study found years with spring rains led to greater insect prey availability and consequent higher rate of reproduction.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Parker, W.S. and E.R. Pianka. 1976. Ecological observations on the leopard lizard (*Crotaphytus wislizeni*) in different parts of its range. *Herpetologica* 32:95-114.

ORDER: Squamata  
FAMILY: Crotaphytidae

## Longnose Leopard Lizard (*Gambelia wislizenii*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern British Columbia and southern Saskatchewan, south to northern California and northern Mexico.

HABITAT: Found in semi-arid plains to high mountains, in rocky to sandy soil, usually around areas with ground-level, sparse vegetation. In Idaho, occupies various habitats, including shrub steppe and open pine forests.

DIET: Varies from place to place, but includes ants and other insects, spiders, snails, sowbugs, and other invertebrates.

ECOLOGY: Hibernates/aestivates. When inactive, burrows into soil or occupies rodent burrow. In Idaho, adults are active from mid-April to August. Species is more cold tolerant than other horned lizards. Adults and juveniles are active during daylight hours, while young-of-year have bimodal activity patterns. Predators include longnose leopard lizard, Stellars Jay, Northern Shrike, and other birds.

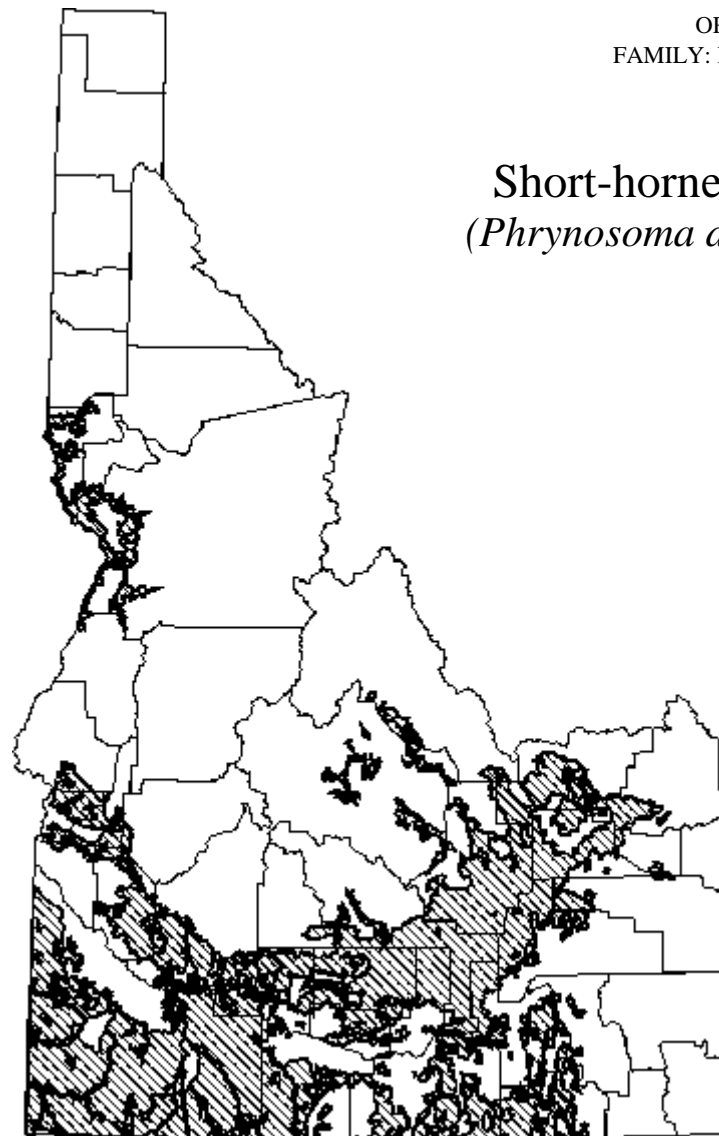
REPRODUCTION: Mating has been observed in May in southeastern Idaho. Female gives birth to 3-36 young (3-15 in Pacific Northwest), from July to September, depending on range. Individuals become sexually mature in 2 or more years.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Guyer, C. and A.D. Linder. 1985. Thermal ecology and activity patterns of the short-horned lizard (*Phrynosoma douglassi*) and the sagebrush lizard (*Sceloporus graciosus*) in southeastern Idaho. Great Basin Natur. 45:607-614.

ORDER: Squamata  
FAMILY: Phrynosomatidae

## Short-horned Lizard (*Phrynosoma douglassi*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From southeastern Oregon, southwestern Idaho, and northern Utah, south through southwestern U.S. desert to northern Mexico.

HABITAT: Found from below sea level (desert sinks) to about 2000 m, in arid regions including sandy flats, alluvial fans, washes, and edges of dunes. Found in sagebrush habitat as well as creosotebush, greasewood, and cactus deserts.

DIET: Generally an ant specialist, but also eats other slow, terrestrial insects such as beetles. May also eat spiders and some plant material.

ECOLOGY: Hibernates/aestivates. Duration of seasonal inactive period varies with local climate. Emerges usually in March in southern Nevada, with little evident adult activity after mid-July. In southern range, may be active on warm nights; in north, generally inactive and buried in soil at night. Nevada study reported population density of 5/ha. Predators include Prairie Falcons, Loggerhead Shrikes, longnose leopard lizards, and striped whipsnakes.

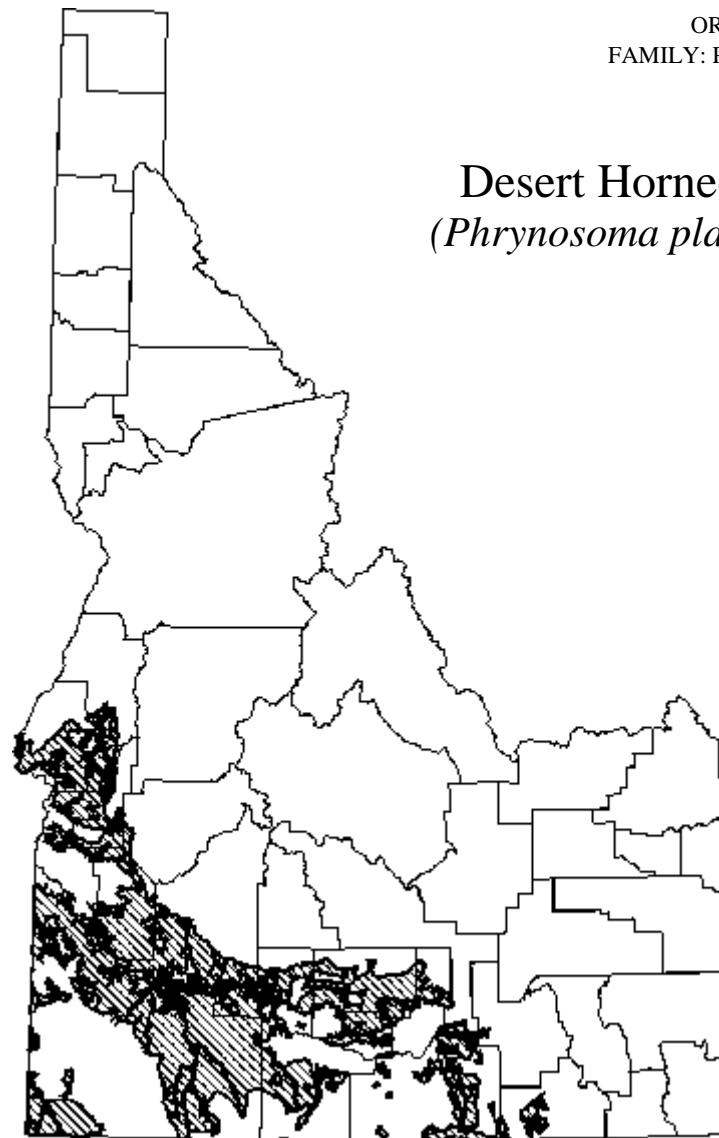
REPRODUCTION: Mating occurs from April to June. Eggs are laid from April to July (apparently, mainly early June) in southern Nevada; clutch size averages about 7 eggs. Female produces 1-2 clutches/yr. Incubation lasts about 50-60 days. Individuals reach maturity in about 22 mo.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and D.R. Johnson. 1982. Ecology of reptiles in the Snake River Birds of Prey Area. USDI Bur. Land Manage. Snake River Birds of Prey Research Project, Boise. 107pp.

ORDER: Squamata  
FAMILY: Phrynosomatidae

## Desert Horned Lizard (*Phrynosoma platyrhinos*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern Montana to northwestern New Mexico, and west to Washington, Oregon, California and northern Baja California. Isolated populations exist in North Dakota, southeastern New Mexico, and Texas.

HABITAT: Found from sea level to about 3200 m, in areas with open ground and some low bushes, in sagebrush, manzanita and ceanothus brushlands, pinyon/juniper woodlands, and open pine and fir forests.

DIET: Eats beetles, flies, ants, caterpillars, aphids, other insects, and spiders, ticks, and mites. Southeastern Idaho study found ants were primary food.

ECOLOGY: Ground dweller. Uses rodent burrows, shrubs, logs, etc. for cover. Hibernates/aestivates. Inactive in cold, winter weather; duration of inactive period varies with local climate (in Idaho, adults are active from mid-April to September, while activity of juveniles peaks in August). Predators include striped whipsnakes, night snakes, and a variety of predatory birds. Most common lizard on Idaho sagebrush plains.

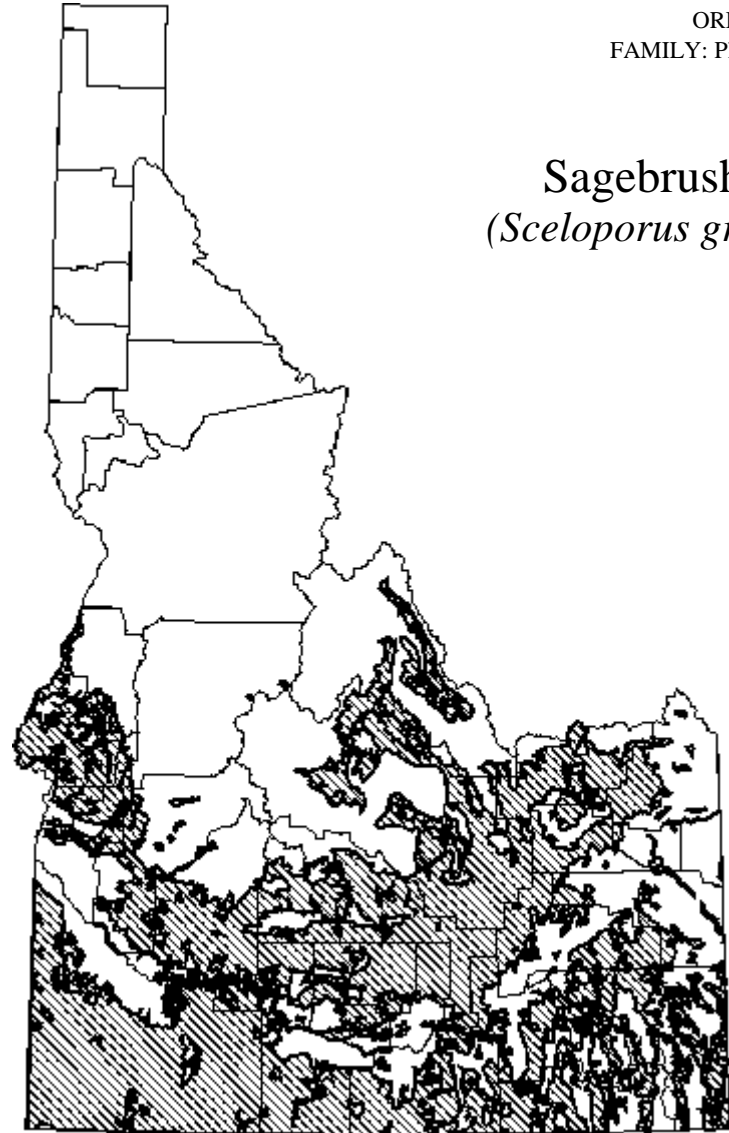
REPRODUCTION: Female lays eggs from June-August. Clutch size varies from 2-8; eggs hatch in about 2 mo. Females in northwestern range may produce 2 clutches. Young become sexually mature in first (southern range) or second (northern range) year.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Guyer C. and A.D. Linder. 1985. Thermal ecology and activity patterns of the short-horned lizard (*Phrynosoma douglassi*) and the sagebrush lizard (*Sceloporus graciosus*) in southeastern Idaho. Great Basin Natur. 45:607-614.

ORDER: Squamata  
FAMILY: Phrynosomatidae

## Sagebrush Lizard (*Sceloporus graciosus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From central Idaho, south through Nevada, and west to Pacific Coast.

HABITAT: Found from sea level to about 2800 m, usually on or near ground, in grasslands, shrub steppe, woodlands, open coniferous forests, rocky canyons, talus slopes, and fence rows. In Idaho, found mostly in talus and along canyon rims.

DIET: Eats beetles, flies, caterpillars, ants, other insects, and spiders.

ECOLOGY: Hibernates/aestivates. Inactive during cold weather. Duration of inactive period varies with local climate. Emerges from hibernacula in late winter or early spring (in Northwest, length of activity varies greatly according to local climatic conditions, but is generally from February to October). Adult males defend home range during breeding season (in California, seasonal home range is generally much less than 0.01 ha). Predators include raptors, snakes, and shrews.

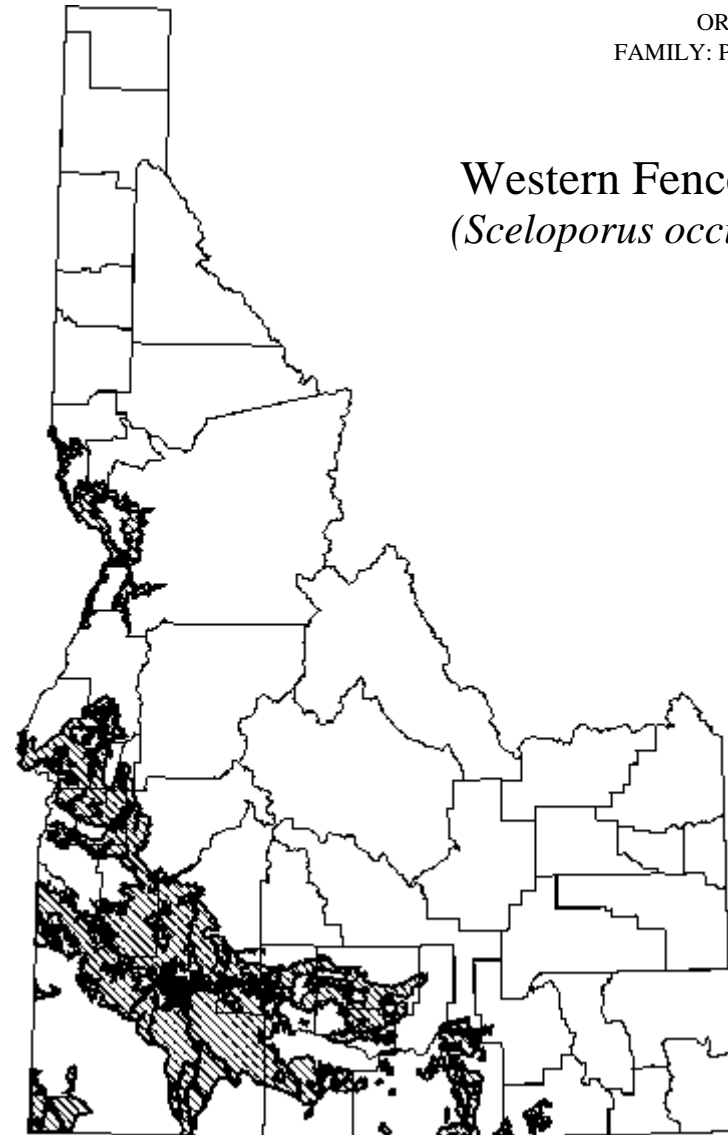
REPRODUCTION: Female lays eggs from April or May to June or July. Clutch size varies from 3-17 eggs; largest females produce largest clutches. Female may produce more than 1 clutch/yr in some areas (in Northwest, females are thought to lay single clutch). Eggs hatch in about 2 mo. Adults first breed in spring of second year.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and D.R. Johnson. 1982. Ecology of reptiles in the Snake River Birds of Prey Area. USDI Bur. Land Manage. Snake River Birds of Prey Research Project, Boise. 107pp.

ORDER: Squamata  
FAMILY: Phrynosomatidae

## Western Fence Lizard (*Sceloporus occidentalis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Washington, south to tip of Baja California and northern Mexico, and east to western Colorado and Texas.

HABITAT: Found in arid and semi-arid regions with scattered bushes and/or scrubby trees (often in sandy washes with scattered rocks and bushes, but soil may be sandy, gravelly, or rocky). Found at lower elevations in Idaho, in areas of low hills, rocky outcrops, flat, sparse vegetation, and (preferably) no trees.

DIET: Eats insects (frequently Hymenoptera, Coleoptera, Hemiptera, Orthoptera), spiders, scorpions, mites, and ticks. Adult males sometimes cannibalize young. In Idaho, diet may include flies, ants, and caterpillars.

ECOLOGY: Hibernates/aestivates. Active from March to November in northern range; active all year in southern range. May aggregate during hibernation in some areas. In Idaho, species is strictly diurnal; may be active during morning and evening during hot, summer months. In Colorado study, home range size was estimated at 0.01-0.03 ha, and population density was estimated at 25-44 adults/ha. Density ranged from 11-285 individuals/ha in 7 sites in California, Nevada, Oregon, and Washington (mean density was 60/ha and 78/ha, in 2 consecutive years). Most abundant lizard in Idaho; predators include night snakes, striped whipsnakes, and raptors.

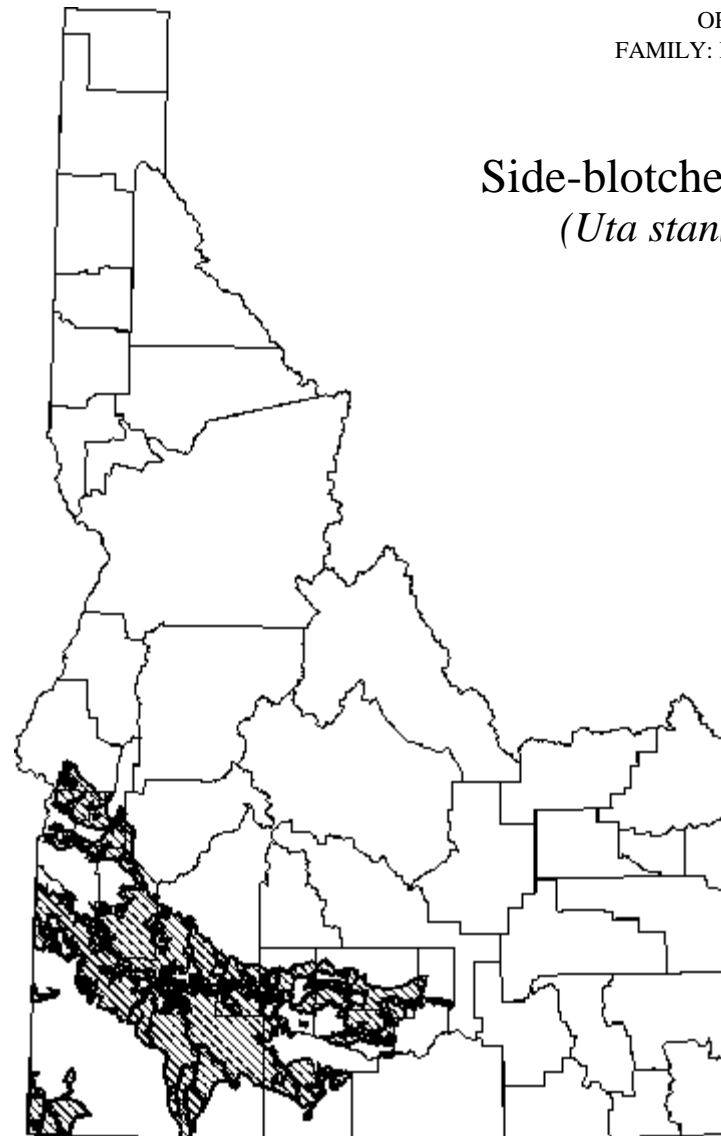
REPRODUCTION: Breeding season lasts longer in southern range than in north. Female lays 1-2 clutches of 3.75 eggs (Idaho average) in March-August. Young reach sexual maturity in 1-2 yr.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Bakewell, G., J.M. Chopek, and G.L. Burkholder. 1983. Notes on reproduction of the side-blotched lizard *Uta stansburiana stansburiana* in southwest Idaho. Great Basin Natur. 43:477-482.

ORDER: Squamata  
FAMILY: Phrynosomatidae

## Side-blotched Lizard (*Uta stansburiana*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From south-central British Columbia to southern Baja California, and east to western Montana, Idaho, eastern Utah, north-central Arizona, and southern Nevada. Also found on some islands off coast of California and Baja California. Isolated populations exist in California and Nevada.

HABITAT: Found from sea level to about 2500 m in grasslands, chaparral, pinyon/juniper woodlands, and pine/oak and pine forests. Prefers open, wooded foothills and rocks, particularly rocky areas on dry hillsides or near streams. In Idaho, prefers rocky habitat with some moisture.

DIET: Feeds on variety of insects (crickets, beetles, grasshoppers, flies, etc.), spiders, and earthworms.

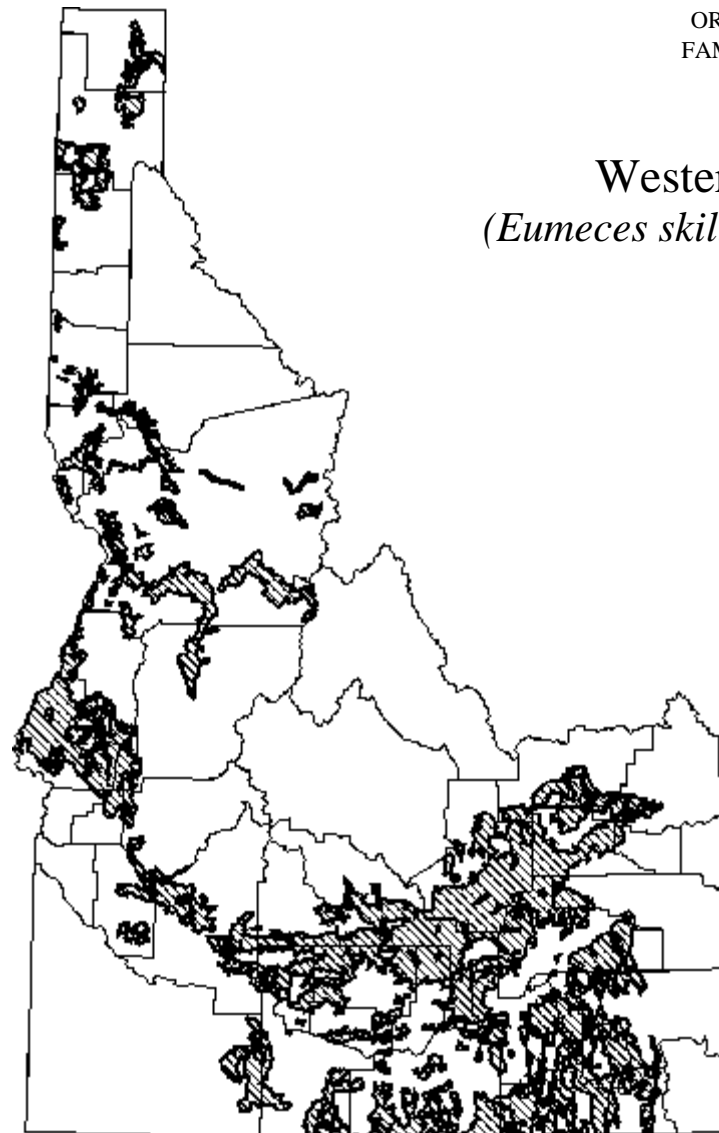
ECOLOGY: Hibernates/aestivates. Inactive in cold, winter weather; duration of inactive period varies with local climate. Secretive; ecology and life history are not well known. In Idaho, night snakes, striped whipsnakes, and raptors are predators.

REPRODUCTION: In Utah, mating occurs in May or June, female lays 2-6 eggs in July, and eggs hatch in August. Female guards eggs and stays with hatchlings until they disperse from nest.

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Scincidae

## Western Skink (*Eumeces skiltonianus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Oregon and Idaho, south to southern Baja California and northern Mexico, and from California east to Colorado and Texas.

HABITAT: In Idaho, found in deserts and semi-arid shrublands (usually in areas with sparse vegetation), and along desert riparian areas. Soil may be firm, sandy, or rocky.

DIET: Eats insects, spiders, scorpions, and lizards. Known to eat Lepidopterans, crickets, grasshoppers, and beetles.

ECOLOGY: Hibernates/aestivates. Active from April to September in northern range. Juveniles may be active on warm days in winter in southern range. In Idaho, individuals are active in early spring (mid-April), aestivate during middle part of summer, and are active again during late summer and early fall. When inactive, individuals remain in underground burrows dug by rodents or lizards. Colorado study determined that adult home range averaged about 0.10-0.13 ha; population density was about 17/ha. In Idaho, heavy predation results from active foraging behavior; tail breakage exceeds 50% in large adults in some populations. Individuals in Idaho are larger than those in more southern areas.

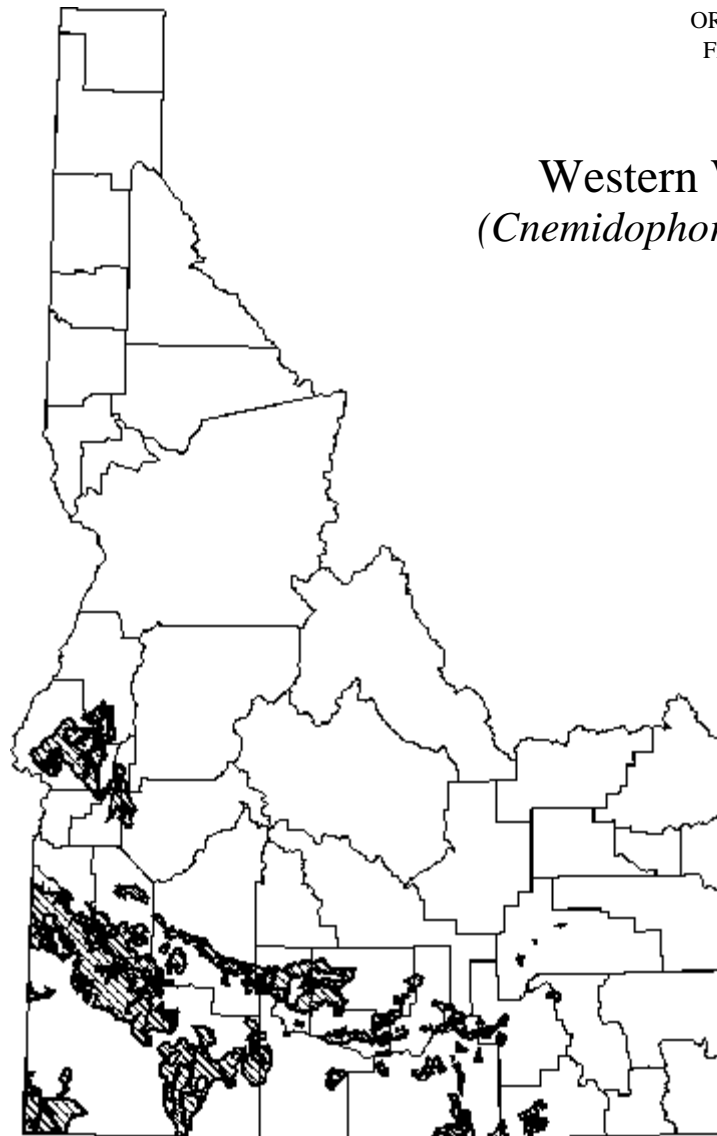
REPRODUCTION: Female produces 1 clutch/yr in northern range, 2 (perhaps 3) in south (1 clutch in Idaho). Clutch size is smaller in north than in south (average 2.7 in Idaho). Young reach sexual maturity in 20-23 mo in Idaho and Colorado, and probably at end of first year in far southern range.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Burkholder, G.L. and J.M. Walker. 1973. Habitat and reproduction of the desert whiptail lizard *Cnemidophorus tigris* in southwestern Idaho at the northern part of its range. *Herpetologica* 29:76-83.

ORDER: Squamata  
FAMILY: Teiidae

## Western Whiptail (*Cnemidophorus tigris*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern British Columbia, south to southern California, central Nevada and southern Utah, and east to north-central Wyoming and western Montana. Distribution is spotty.

HABITAT: Found from near sea level to about 3000 m, under rocks and logs, in woodlands, forests, chaparral, meadows, grassy areas, and wet and sandy edges of rocky streams. In Idaho, occupies both desert foothills and heavily forested mountains.

DIET: Eats mostly mice and shrews, but may also prey on lizards, snakes, and small birds.

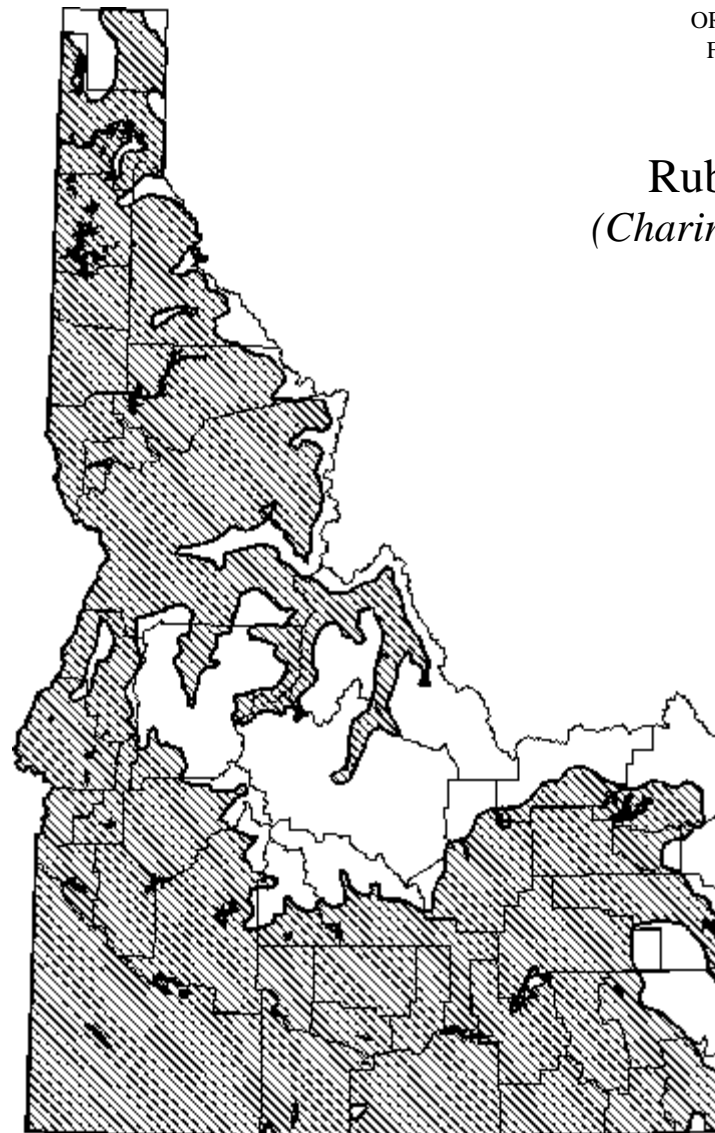
ECOLOGY: Hibernates/aestivates. Nocturnal/crepuscular. Active from March to November. Kills prey by constriction. Wards off predators by releasing potent musk from anal glands.

REPRODUCTION: Female bears 2-8 live young from August to November, depending on range (in Northwest, young are born in September).

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Boidae

## Rubber Boa (*Charina bottae*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern British Columbia, east to Maine, and south across the U.S. to southern Florida, Guatemala, and southern California.

HABITAT: Found in open habitats ranging from deserts and agricultural areas to open woodlands and streamside. Absent from forests and high mountains in Idaho.

DIET: Diet typically includes small mammals, birds, reptiles, amphibians, and large insects.

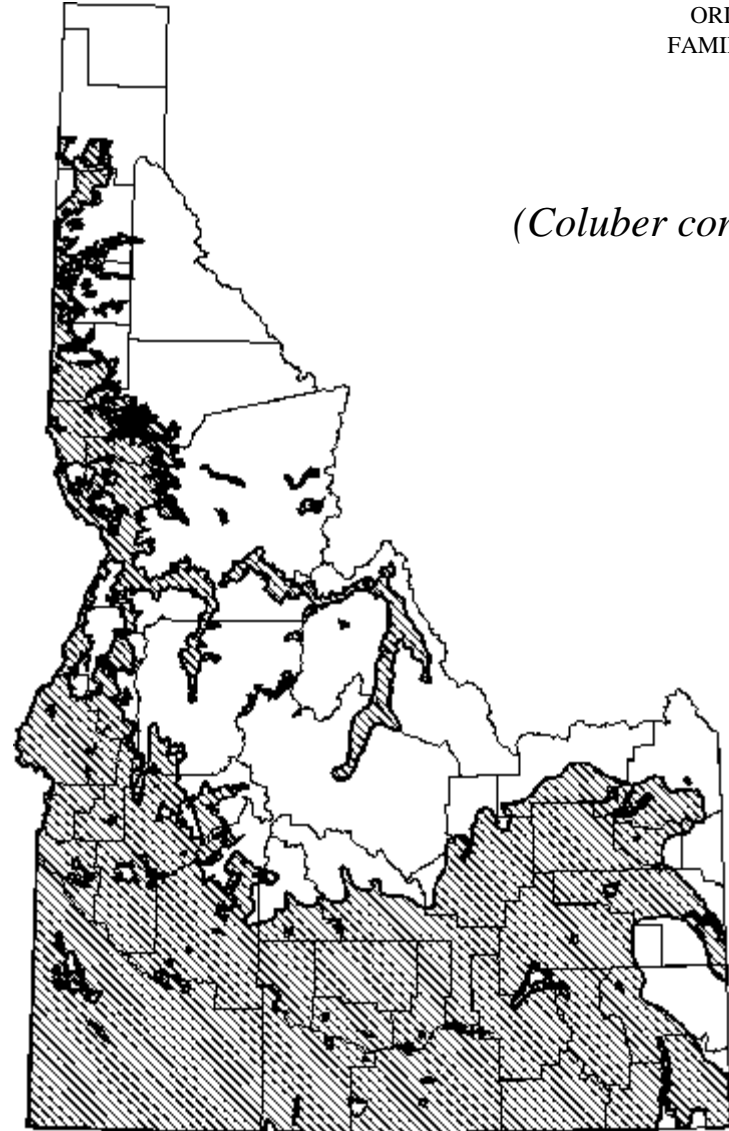
ECOLOGY: Inactive during cold weather; in central U.S., hibernates from November to March. In Idaho, adults emerge from den in late April to early May, and return to distinct hibernacula by October; hibernates with other snakes. In Michigan and other cold-winter areas, adults are active on bright overcast or sunny days in summer, and only on sunny, warm days in spring and fall. Adults hide underground, in crevices, or under surface cover when inactive. Home range size has been estimated at 1.4 ha for nongravid females in Utah, and about 10 ha in Kansas. In Utah study, population density was estimated at 0.65/ha. Separate studies estimated adult annual survivorship at 79% in Utah, 62% in Kansas, and 54% in Michigan. Individuals sometimes nest communally, and may climb shrubs and small trees.

REPRODUCTION: Egg-laying peaks in early to mid-June in southern Michigan, and late June or early July in Utah, Colorado, and Idaho. Female lays clutch of 3-28 eggs (3-6 in Idaho). Average clutch size is higher in eastern range than in west; mean clutch size is about 6 in Utah, 12 in Kansas, and 15 in Michigan. Eggs hatch in 6-9 wk. Females become sexually mature in 3 yr in Utah, 2-3 yr in Kansas, 2 yr in Michigan.

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Colubridae

## Racer (*Coluber constrictor*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: From Pacific to Atlantic coasts, and from Nova Scotia, Minnesota, Colorado, Idaho, and Washington, south across U.S. to Florida Keys and northern Baja California. Distribution is spotty in western states.

HABITAT: Found in moist habitats including forests, woodlands, grasslands, chaparral, and stream vicinities (arid regions). May be found in junk piles in wooded areas or near abandoned buildings. In Idaho, occupies open, rocky canyons.

DIET: Eats earthworms, slugs, other small invertebrates, and small salamanders, frogs, lizards, and snakes.

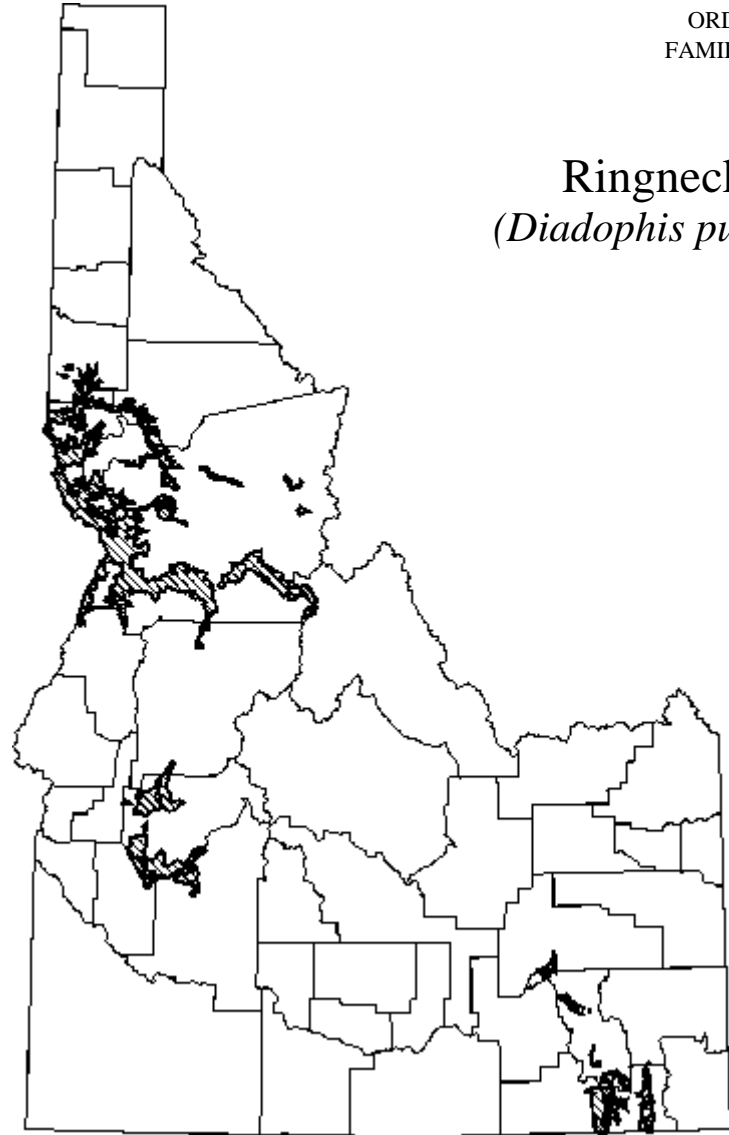
ECOLOGY: Nocturnal. Hibernates/aestivates. Inactive in winter in most areas. In Idaho, probably departs den in May, and returns in September or October. Secretive; hides underground, in logs, or under surface cover during day. Kansas study estimated population density at 700-1800/ha; distances between recaptures averaged 80 m (range 0-1700 m), and home range had maximum dimension of about 140 m. Communal nesting is common. Species is thought to be venomous, but not harmful to man. Although few records exist for Idaho, species is probably more common than it appears.

REPRODUCTION: Lays clutch of 1-18 eggs, usually in June or July (in the Northwest, female deposits about 3 eggs annually in July, in stabilized talus or rotting log). Female in southern range may possibly lay 2 clutches. Eggs hatch in about 8 wk. Adults reach sexual maturity in 2-3 yr.

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Colubridae

## Ringneck Snake (*Diadophis punctatus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From southern British Columbia, Idaho, Colorado, and Kansas, south to southern Baja California and mainland Mexico.

HABITAT: Found in arid and semi-arid sandy or rocky areas, from plains and desert flats to thornscrub, thornforest, woodlands and moist, mountain meadows. In Idaho, found only in vicinity of rocky outcrops.

DIET: Eats mainly lizards and lizard eggs; may also eat small snakes, frogs, insects, and salamanders. Study conducted in southwestern Idaho found diet commonly consisted of side-blotched lizards, their eggs, and anurans.

ECOLOGY: Nocturnal/crepuscular. Hibernates/aestivates. Most active from April to October in Texas and Pacific Northwest. Major peak in activity occurs in early June in Idaho; activity may be restricted to relatively cool nights. When inactive, generally found under rocks, in crevices, or underground (in Idaho, found under rocks in spring but not in summer). Known to be mildly venomous. Southwestern Idaho study found that females are 50% longer and 3 times the body mass of males.

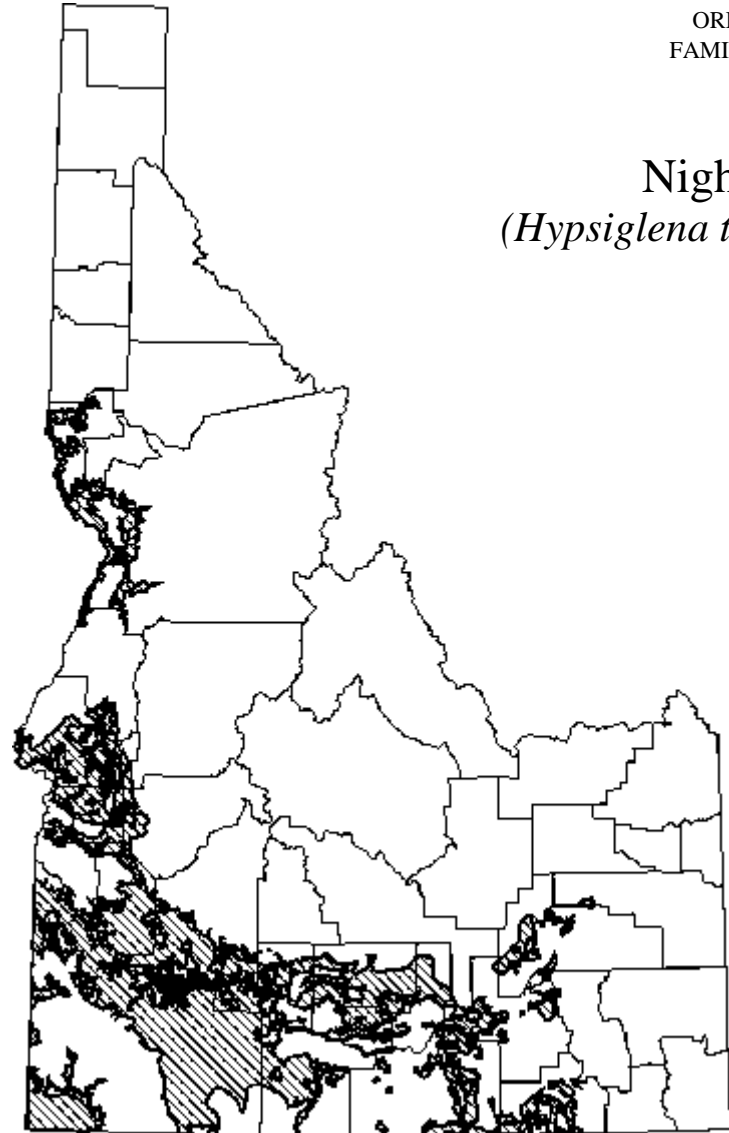
REPRODUCTION: Female lays clutch of 2-9 eggs from April to August, depending on range (late June or July in Idaho). Eggs hatch in 7-8 wk. Males may reach sexual maturity in 1 yr.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and R.L. Wallace. 1986. Aspects of the life history and ecology of the desert night snake, *Hypsiglena torquata deserticola*: Colubridae, in southwestern Idaho. Southwest. Natur. 31:55-64.

ORDER: Squamata  
FAMILY: Colubridae

## Night Snake (*Hypsiglena torquata*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Washington through Great Basin to New Mexico, Texas, and central Mexico.

HABITAT: Found in shrub steppe, canyons, pinyon/juniper woodlands, pine/oak woodlands, and rocky stream courses. In Idaho, prefers grasslands, shrub steppe and rocky canyons.

DIET: Young eat mainly lizards. Adults eat mostly lizards and snakes, but may also eat small mammals, insects, and small birds.

ECOLOGY: Terrestrial and arboreal. Hibernates/aestivates underground or in deep crevices during cold weather. Little information is available for the Northwest. Active from late March to October in Utah; hibernation begins in September or October. In Utah study, population density was determined to be about 0.1-0.3/ha (excluding snakes less than 1 yr old). Individuals hunt with heads held high off ground. Some individuals live 10-20 yr.

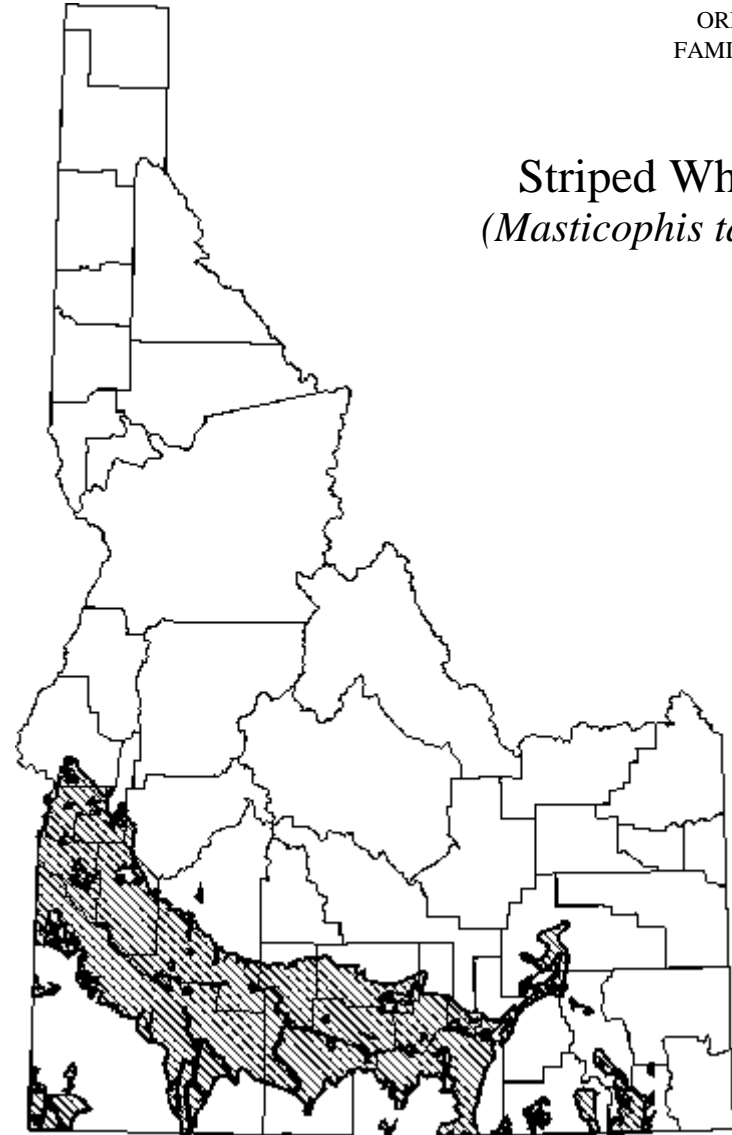
REPRODUCTION: Mating occurs in April and May. Female lays clutch of 3-12 eggs, from June to July depending on range. Eggs hatch in 50-57 days (August or September). Females reach sexual maturity in 2-3 yr.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and D.R. Johnson. 1982. Ecology of reptiles in the Snake River Birds of Prey Area. USDI Bur. Land Manage. Snake River Birds of Prey Research Project, Boise. 107pp.

ORDER: Squamata  
FAMILY: Colubridae

## Striped Whipsnake (*Masticophis taeniatus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southwestern Canada south to northern Mexico.

HABITAT: Found from lowlands to mountains, in deserts, prairies, brushlands, woodlands, open coniferous forests, farmlands, and marshes. Western populations occur from coastal grasslands and forests through deserts into montane forests. In Idaho, found in prairies, coniferous forests, and deserts, but absent from high mountains and dense forests.

DIET: Eats rodents, rabbits, birds and their eggs, and occasionally lizards and insects (latter 2 items are more common in diet of juveniles than adults). In southwestern Idaho study, primary prey included rabbits, ground squirrels, voles, kangaroo rats, and several species of mice.

ECOLOGY: Terrestrial, fossorial, and arboreal. Often forages underground. Generally diurnal, but may be active at night in hot weather. Hibernates/aestivates. Active from about April to October in northern range, and from March to November in northern Texas. Idaho study determined that males emerge from hibernation prior to females. Utah study estimated home range at 1-2 ha. Idaho and Utah study estimated population density at 0.3-1.3/ha. May nest communally. In Idaho, birds of prey, especially Red-tailed Hawks, are important predators.

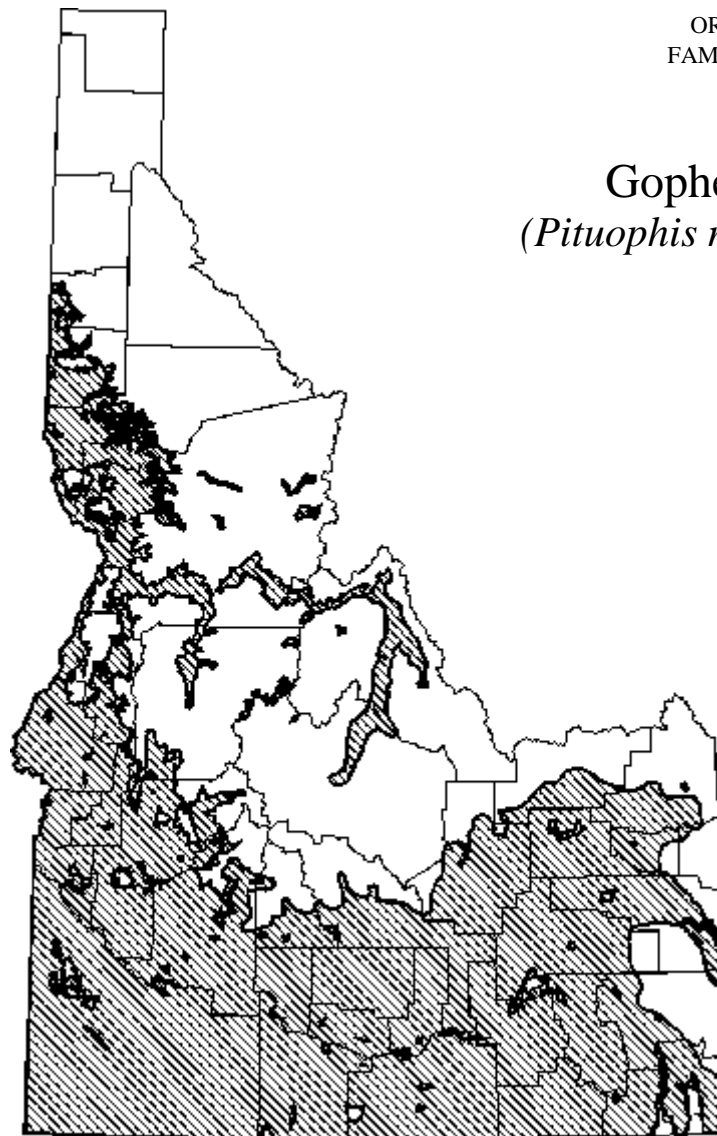
REPRODUCTION: In Idaho, mating occurs in April and May. Female lays 1-2 clutches of an average of 7 eggs. Eggs hatch in 50-79 days. Utah study found that males reach sexual maturity in 1-2 yr, females in 3-5 yr.

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and D.R. Johnson. 1988. Food habits, consumption rates, and predation rates of western rattlesnakes and gopher snakes in southwestern Idaho. *Herpetologica* 44:228-233.

ORDER: Squamata  
FAMILY: Colubridae

## Gopher Snake (*Pituophis melanole*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From northern California, southern Idaho, southeastern Colorado, and southwestern Kansas, south to central Mexico.

HABITAT: Found in deserts, prairies, and shrubland. In Idaho, inhabits shrub steppe and rocky canyons.

DIET: Eats lizards and their eggs, small snakes, small mammals, and sometimes birds (in Idaho, eats primarily lizards and mice).

ECOLOGY: Hibernates/aestivates. Active from about April to September in northern range. Furtive; abundance indicated by frequency of remains found in hawks' nests (raptors are common predator.) Little is known about Northwest ecology or life history.

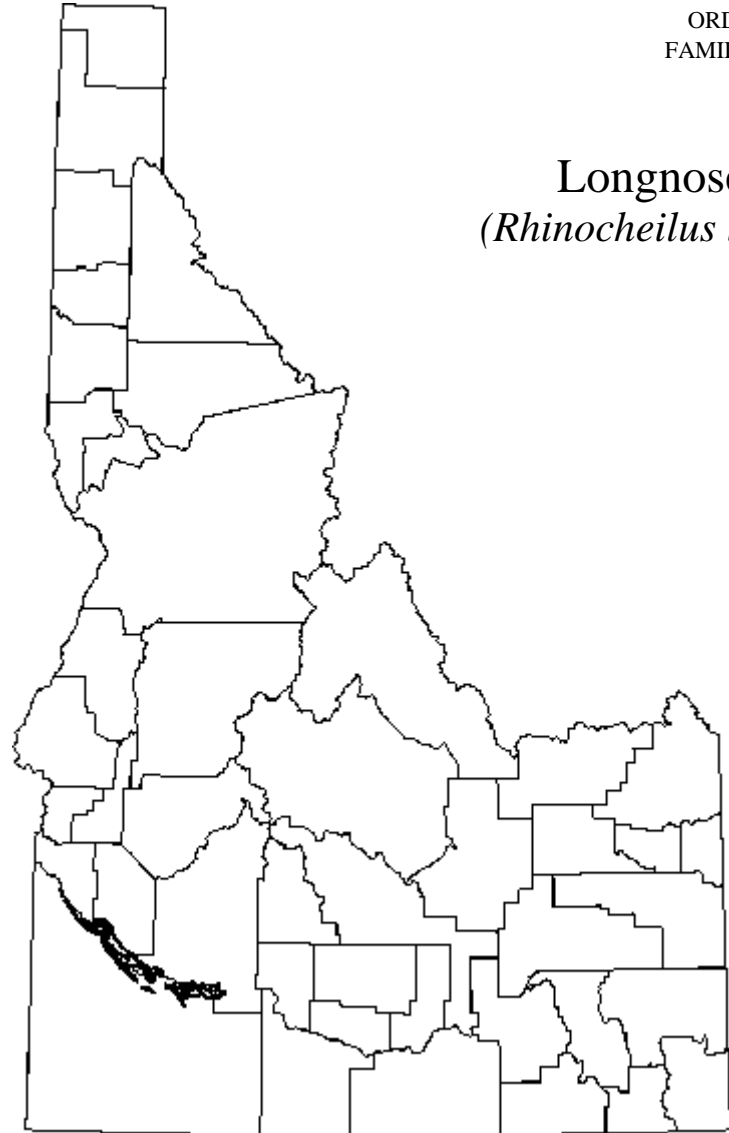
REPRODUCTION: Female lays 1 clutch (possibly 2) of 5-8 eggs, from June-August. Eggs hatch in 2-3 mo.

GIS MODEL NUMBER: 8

IMPORTANT STATE REFERENCE: Diller, L.V. and R.L. Wallace. 1981. Additional distributional records and abundance of three species of snakes in southwestern Idaho. Great Basin Natur. 41:154-157.

ORDER: Squamata  
FAMILY: Colubridae

## Longnose Snake (*Rhinocheilus lecontei*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From southern Idaho, southwestern Utah, southeastern Colorado, and southwestern Missouri, south to northern Mexico.

HABITAT: Found from prairie and desert lowlands to pinyon/juniper and oak/pine zones, in areas such as river bottoms, desert flats, sand hummocks, and rocky hillsides with pockets of loose soil. Soil may be rocky to sandy; vegetation dense to sparse.

DIET: Eats spiders, scorpions, centipedes, crickets, grasshoppers, and insect larvae.

ECOLOGY: Nocturnal. Hibernates/aestivates. Little is known about ecology or life history in the Northwest. In northern range, most active on warm nights from April to October. Active as early as mid-March in west Texas. Preyed upon by raptors. Shallow grooves on outer sides of rear teeth suggest species is mildly venomous.

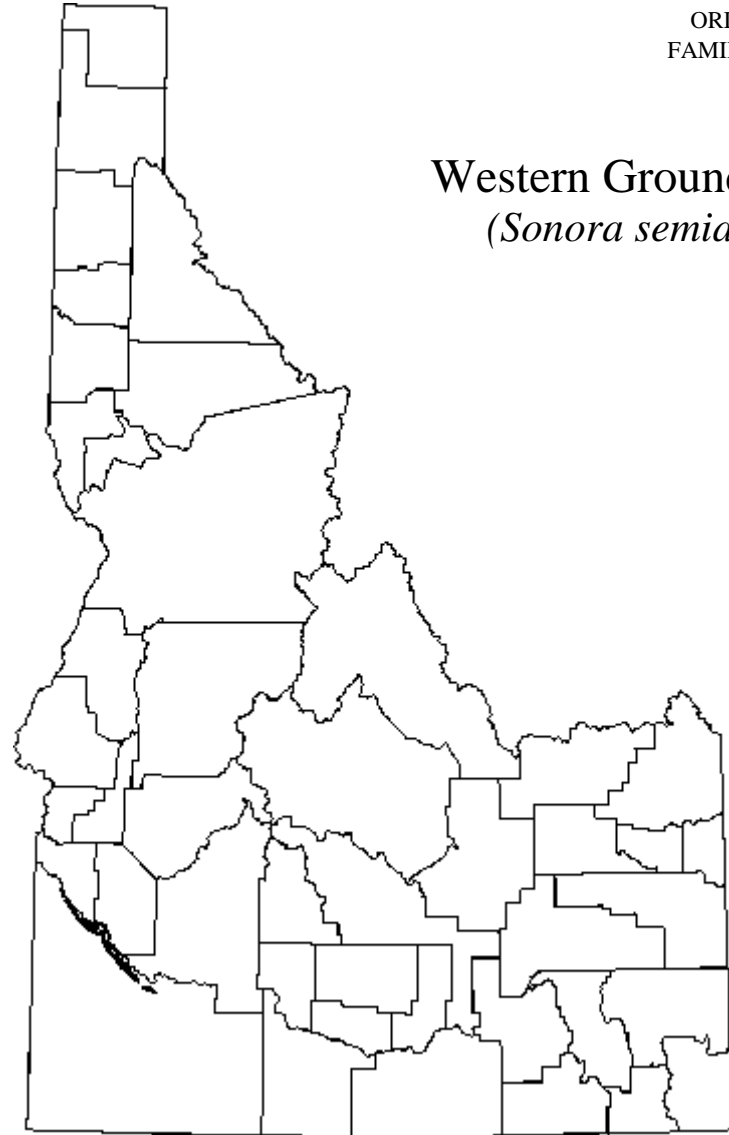
REPRODUCTION: Female lays clutch of 4-6 eggs, usually in June, but as late as August in California. Adults reach sexual maturity in second year.

GIS MODEL NUMBER: 8

IMPORTANT STATE REFERENCE: Diller, L.V. and R.L. Wallace. 1981. Additional distribution records and abundance of three species of snakes in southwestern Idaho. Great Basin Natur. 41:154-157.

ORDER: Squamata  
FAMILY: Colubridae

## Western Ground Snake (*Sonora semiannulata*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southwestern Manitoba and southern British Columbia, south to northern Mexico, and from extreme southwestern South Dakota and western Oklahoma, west to Pacific Coast. Isolated populations occur in many areas.

HABITAT: Found from sea level to 4000 m, in variety of habitats such as grasslands, shrublands, woodlands, and open areas in forests. Also found in wetlands near streams, ponds, and lakes (in Idaho, generally associated with marshes and water areas).

DIET: Feeds on slugs, worms, snails, leeches, tadpoles, frogs, fishes, mice, and, occasionally, small birds and lizards. Also eats insects and carrion.

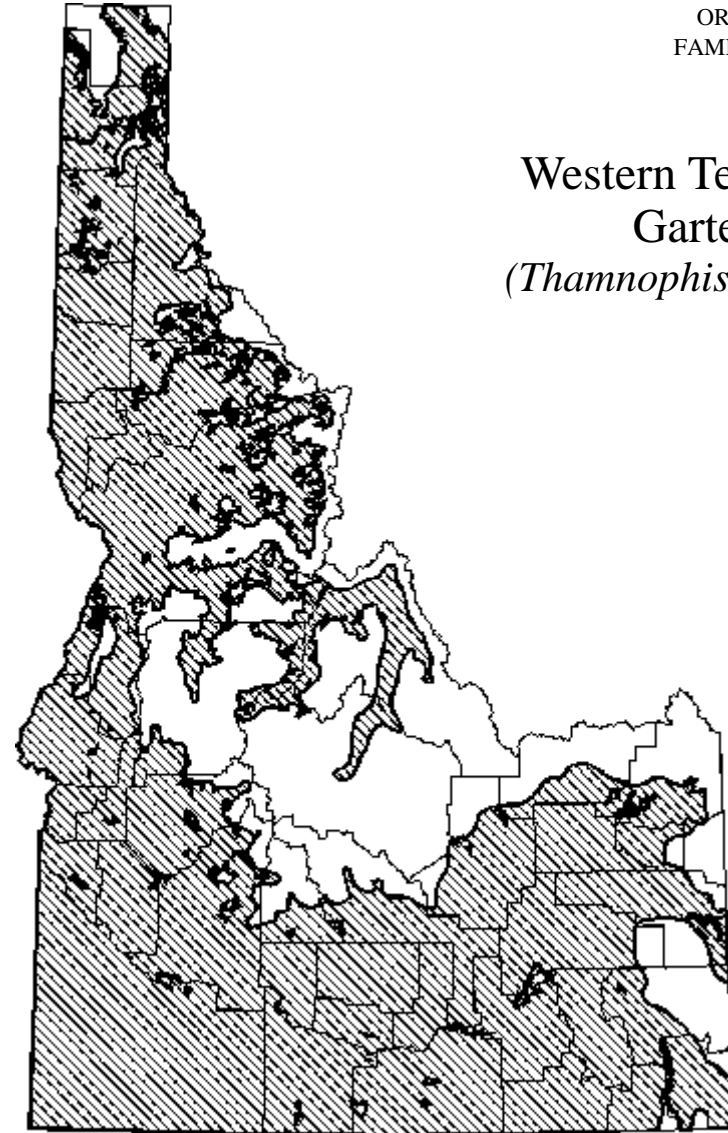
ECOLOGY: Chiefly terrestrial, but may also be aquatic depending on area. Hibernates/aestivates, at times with other species; duration of inactive period varies with local climate. Species' saliva is reportedly mildly poisonous. Preyed upon by birds.

REPRODUCTION: Mates in the spring; 4-19 live young are born from July to September, depending on range.

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Colubridae

## Western Terrestrial Garter Snake (*Thamnophis elegans*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Nova Scotia, west to British Columbia, and south through all of United States except for arid Southwest.

HABITAT: Inhabits virtually any type of wet or moist habitat throughout range, but regional populations exhibit different preferences.

DIET: Preys chiefly on earthworms, frogs, toads, salamanders, and fishes, less regularly on slugs, leeches, small mammals and birds, and rarely on insects, spiders, and small snakes.

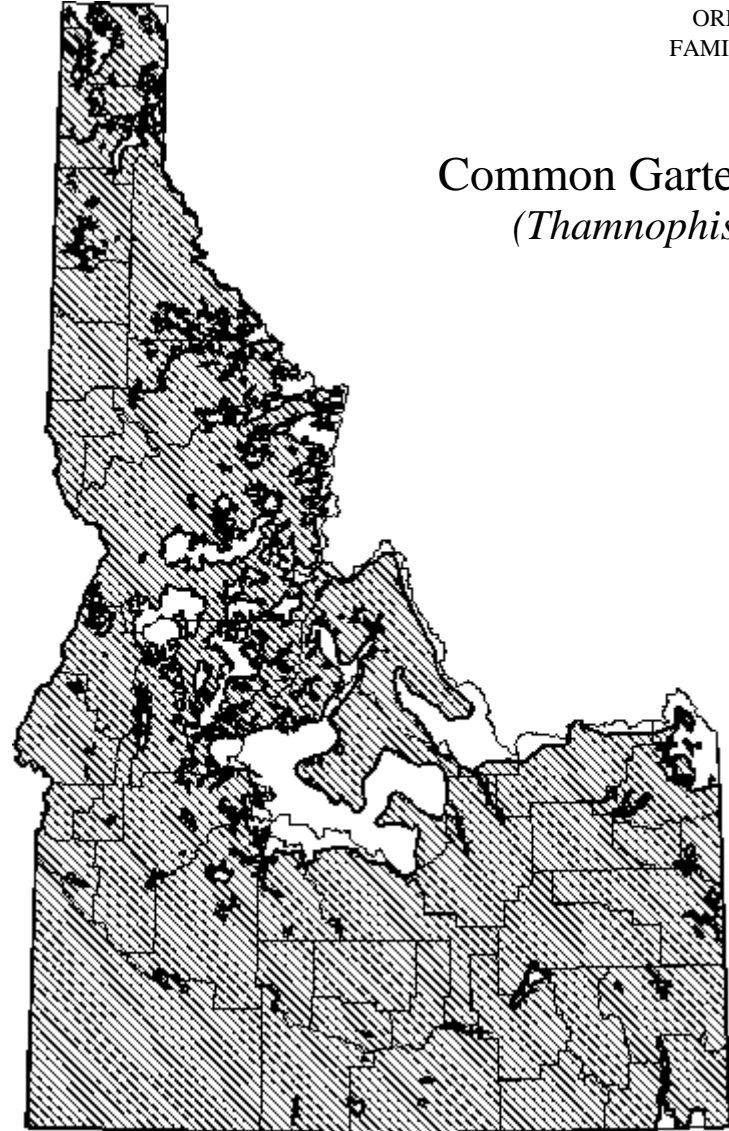
ECOLOGY: Nocturnal/diurnal; nocturnal activity often occurs during hot weather. Hibernates/aestivates. Hibernates underground, in or under surface cover, at times with other snake species. Active from about March or April through October in northern range and at higher elevations; active season is longer in southern range, to year-round in Florida. Thousands of individuals may aggregate at hibernacula in northern range. Population density estimates in different areas vary from about 10-100/ha. Home range size has been variously reported as 0.8-14 ha. May migrate several km from hibernacula to foraging areas. Individuals will exude musk and fecal material from anus to repel predators.

REPRODUCTION: Female gives birth to up to 85 young (13-26 on average, commonly 8-12), usually in July or August (earlier in southern range, to early October in north.)

GIS MODEL NUMBER: 2

ORDER: Squamata  
FAMILY: Colubridae

## Common Garter Snake (*Thamnophis sirtalis*)



ORDER: Squamata  
FAMILY: Crotalidae

## Western Rattlesnake (*Crotalus viridis*)

STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southwestern Saskatchewan, west to southern British Columbia, south to central Baja California and north-central Mexico, and across U.S. from Pacific Coast to western Iowa and central Kansas.

HABITAT: Found from shrubby, coastal dunes to timberline, from prairie and desert edges to mountain forests, and along rocky stream courses. In Idaho, typically found on south-facing, unshaded rocky slopes.

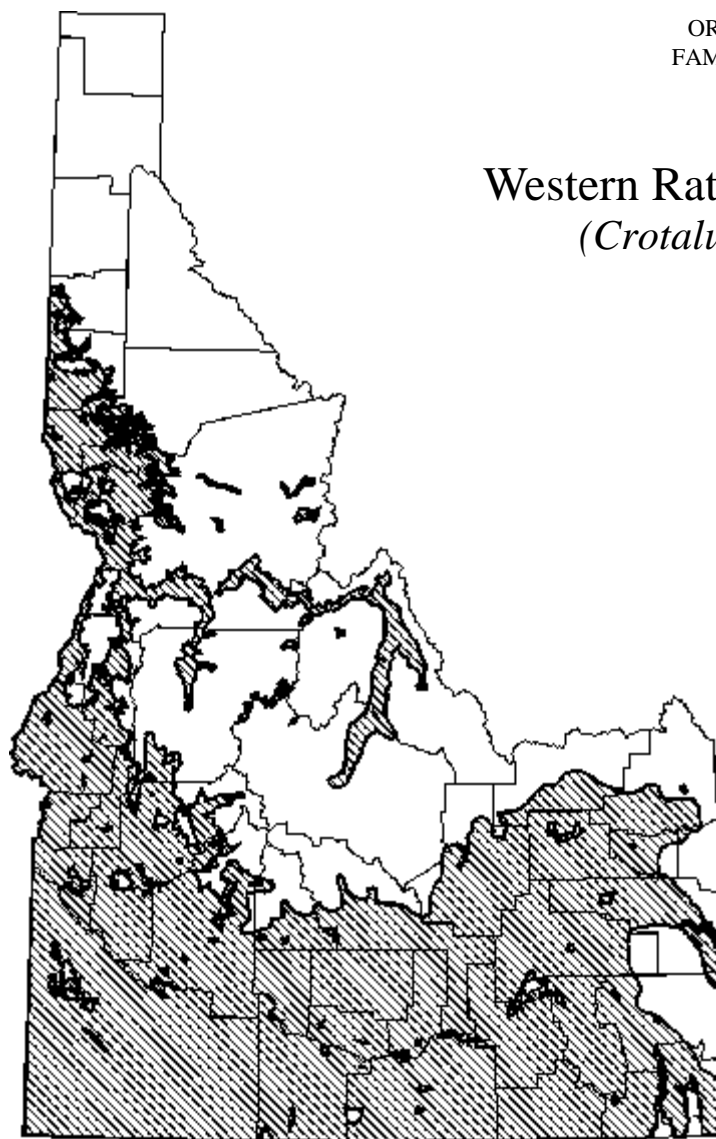
DIET: Eats mainly small mammals, but may also consume birds, lizards, and amphibians (rarely). In some regions, juveniles prey mostly on lizards rather than on small mammals. In southwestern Idaho, adults prefer mice, wood rats, ground squirrels and rabbits. British Columbia study found that most feeding occurs from June through August.

ECOLOGY: Primarily terrestrial. Mostly diurnal in cool weather, and nocturnal/crepuscular in hot, summer weather (active in morning and late afternoon in far northern range). Hibernates/aestivates. Remains in mammal burrows, crevices, or caves when inactive; individuals may congregate at hibernation dens, at times with other snake species. Active from about April to November over most of range, and from late March to October in southern British Columbia and northern Idaho. Gravid females may or may not feed, depending on area. Idaho's only dangerously venomous snake species. Preyed upon by raptors such as Red-tailed Hawks.

REPRODUCTION: Young are born August-October (August-early October in Idaho). Litter size increases with female size. Adult female may not give birth every year; British Columbia study found 2-yr (or more) interval between litters. Northern Idaho study identified females that reproduce in consecutive years; annual versus biannual reproduction was linked to level of fat reserves in body. In areas with short growing seasons, adults require several years to reach sexual maturity (4-6 yr in Idaho; 5-7 yr for females in British Columbia).

GIS MODEL NUMBER: 2

IMPORTANT STATE REFERENCE: Diller, L.V. and R.L. Wallace. 1984. Reproductive biology of the northern Pacific rattlesnake (*Crotalus viridis oregonus*) in northern Idaho. *Herpetologica* 40:182-193.



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Breeds in Iceland, Greenland, and across Canada and northern U.S. to Alaska. Winters along Pacific Coast from Aleutians to northern Mexico, and along Atlantic and Gulf coasts from Newfoundland to Florida and Texas.

HABITAT: Primarily marine when not breeding. During migration, found on inland lakes, rivers, and coastal waters. In Idaho, breeds occasionally on a few lakes and reservoirs in southeastern Idaho, mostly in Fremont County.

DIET: Feeds mainly on fishes, but may also eat amphibians and various invertebrates.

ECOLOGY: Builds platform nest on ground, at edge of shallow water. If nesting on small lake, may use adjacent lake for supplementary foraging. Dives from water surface to obtain food. Studies in different sections of U.S. indicate range of territory size from 39 ha (Saskatchewan) to 503 ha (New Hampshire). Species occurs as transient and breeder in Idaho, occupying water bodies that have suitable conformation and are not affected by human disturbance factors. Size and elevation of lake, water depth and clarity, and nesting habitat requirements are important factors in site use.

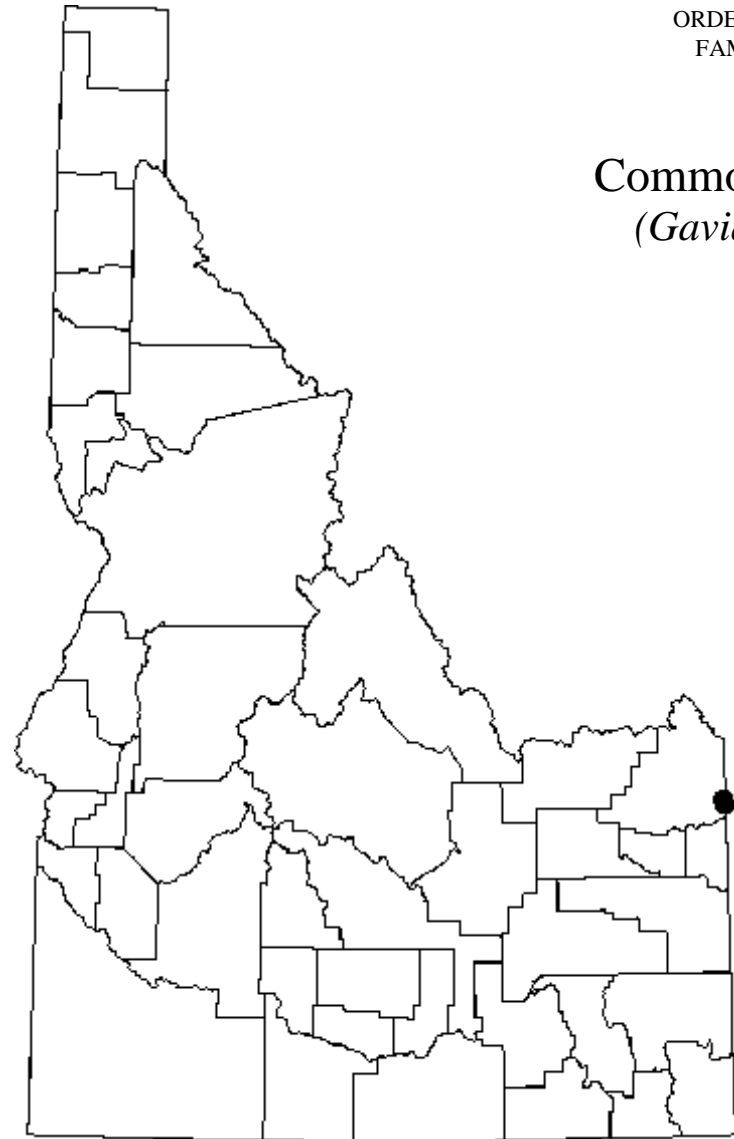
REPRODUCTION: Both sexes incubate usually 2 eggs (but frequently 1), for 26-31 days. Initially, both sexes tend young, which fly at 10-12 wk. Most brood mortality may occur within a week of hatching. Generally, loss of eggs to predators is not primary cause of breeding failure. Female renests usually 5-14 days after egg loss.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Fitch, T. and C.H. Trost. 1985. Nesting status of the common loon in Idaho. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 23pp.

ORDER: Gaviiformes  
FAMILY: Gaviidae

## Common Loon (*Gavia immer*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from southeastern Alaska, east through southern Canada to Nova Scotia, and south locally through North and Middle America to South America. Winters in southern British Columbia, south through western and southern U.S. to South America.

HABITAT: During migration and when not breeding, found on brackish bays and estuaries. When breeding, found on lakes, ponds, sluggish streams, and marshes. In Idaho, prefers large lakes and reservoirs, but known to occur on smaller waters.

DIET: Primarily feeds on fishes, crustaceans, and insects, but will also consume amphibians, other invertebrates, and some plant material.

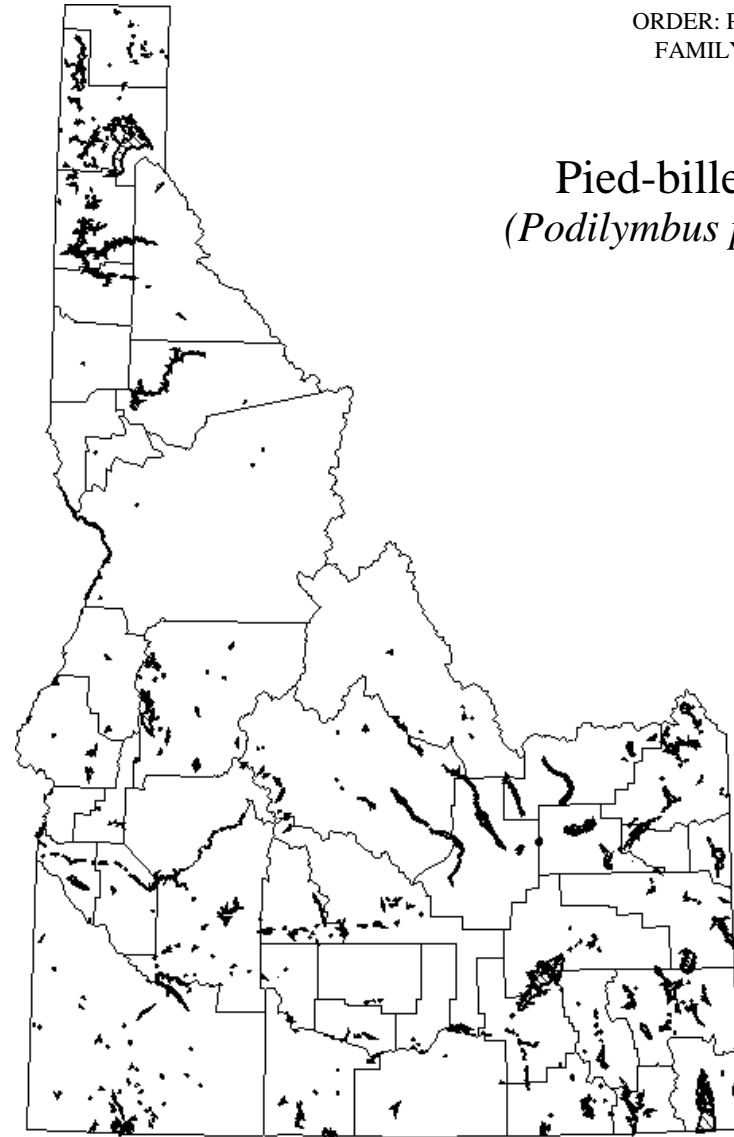
ECOLOGY: Builds platform nest in emergent vegetation in water about 1 m deep. Forages mainly by short dives in shallow water. Generally, density is 1 nesting pair on ponds of up to 4 ha, but many more are possible. One study found defended area with 46-m radius around nest, but nests may be closer than this. Residents form pairs or family groups, and are more gregarious in winter.

REPRODUCTION: Female lays 1 clutch (possibly 2 in some areas) of 2-10 (usually 4-7) eggs, and commonly renests if first clutch is lost. Incubation (mostly by female) lasts 20-27 days. Young fly by about 5 wk.

GIS MODEL NUMBER: 5

ORDER: Podicipediformes  
FAMILY: Podicipedidae

## Pied-billed Grebe (*Podilymbus podiceps*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Breeds in central and southern Alaska and Canada, south to Idaho, northern South Dakota, northern Iowa, and central Wisconsin. Winters mainly coastally south to California, Texas, and Florida. May breed rarely in southeastern Idaho.

HABITAT: When breeding, found on marshes, ponds, and lakes, and occasionally along sluggish streams. When not breeding, occupies bays, estuaries, and seacoasts.

DIET: Usually eats small fishes, crustaceans, and aquatic insects, but will also consume amphibians and leeches.

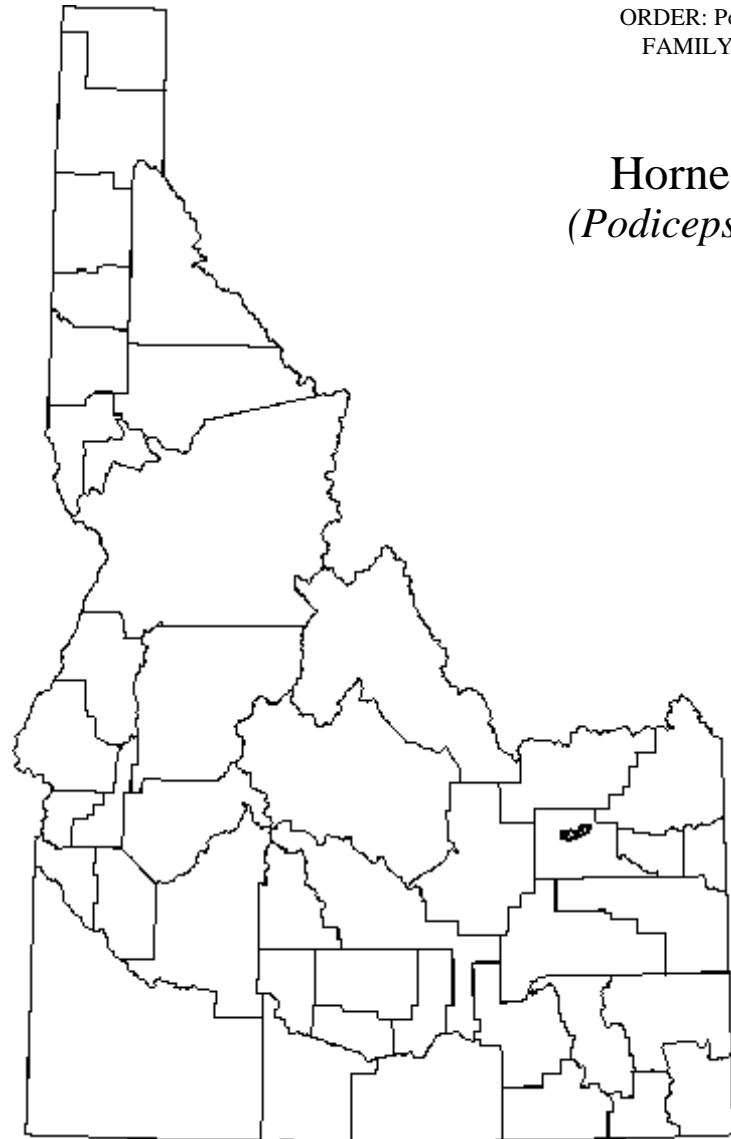
ECOLOGY: Usually nests among tall vegetation in shallow water. Predation may result in high nest losses. Size of breeding territory reflects location and abundance of food supply. Forages by diving in shallow water, often near emergent vegetation, but will also pick food from water surface or from vegetation. Usually not gregarious, except at staging and resting areas prior to and during migration.

REPRODUCTION: In southern Canada, female lays eggs mid-May to mid-July. Both sexes incubate 4-6 eggs for 22-25 days. Young are tended by one or both parents; most young fledge by 6-7 wk. Female renests if nest is destroyed.

GIS MODEL NUMBER: 9

ORDER: Podicipediformes  
FAMILY: Podicipedidae

## Horned Grebe (*Podiceps auritus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Breeds in Alaska and western and south-central Canada, south to Washington, Montana, northeastern South Dakota, and Minnesota; rarely breeds elsewhere in northern United States. Winters coastally from Alaska to southern California, and also from Nova Scotia to central Florida (casually along Gulf Coast). In Idaho, breeds uncommonly on Panhandle and in south-central and southeastern Idaho.

HABITAT: Winters along seacoasts, bays, and estuaries. During migration, found on lakes, ponds, and rivers. In Idaho, prefers large lakes with clear water.

DIET: Feeds on small fishes where available, but also eats aquatic and land insects, crustaceans, mollusks, aquatic worms, tadpoles, salamander eggs, some vegetable matter, and feathers.

ECOLOGY: Nests on floating or half-submerged vegetation. Usually nests solitarily, but will sometimes form loose colonies. Breeding territory size varies in accordance with food supply and other ecological factors. Dives underwater and forages on or near bottom for food. Flees by diving rather than flying.

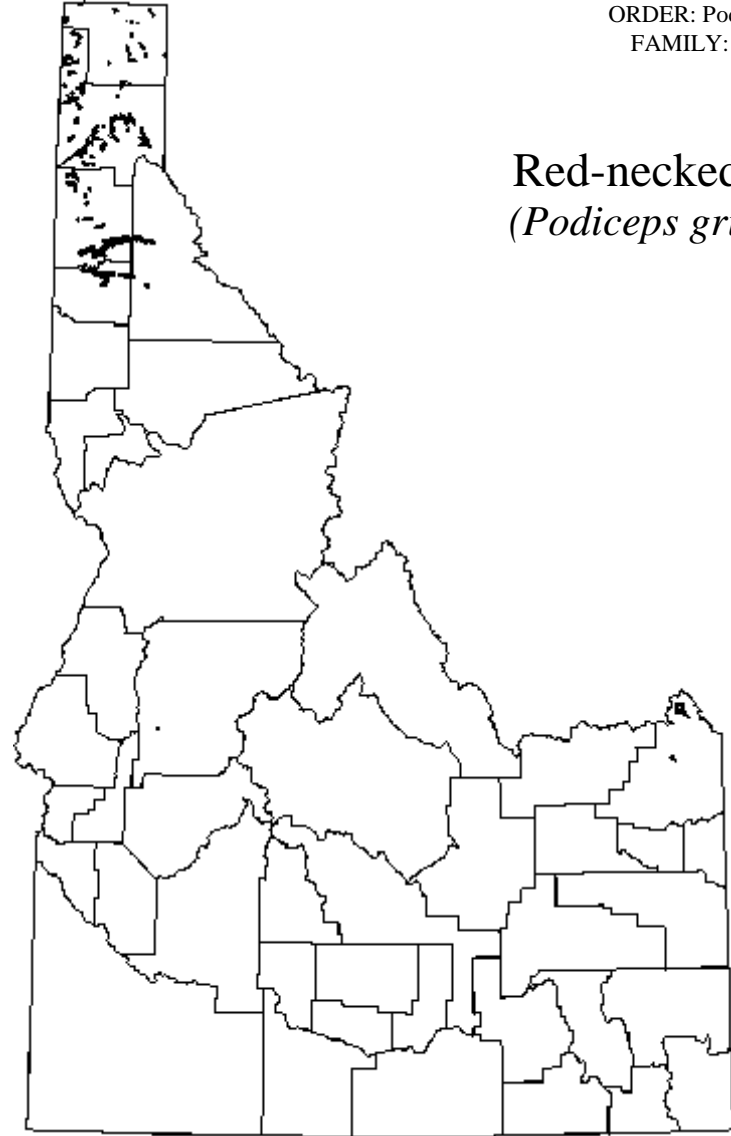
REPRODUCTION: Peak egg-laying activity occurs in June in many areas. Male and female in turn incubate usually 3-5 eggs for 22-27 days. Both parents tend young, which probably become independent at 8-10 wk.

GIS MODEL NUMBER: 10

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

ORDER: Podicipediformes  
FAMILY: Podicipedidae

## Red-necked Grebe (*Podiceps grisegena*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Breeds in southwestern Canada, east to Manitoba, and south through parts of western and midwestern U.S. to central Mexico. Winters mainly coastally, from British Columbia to Guatemala, but also winters inland from northern Nevada and Utah south to Guatemala.

HABITAT: During migration and in winter, found on salt lakes, bays, estuaries, and seacoasts. Some individuals migrate to coast in fall; some remain inland during winter, in loose flocks on large bodies of fresh water. When breeding, found on marshes, ponds, and lakes.

DIET: Diet includes aquatic insects and larvae, small fishes, crustaceans, and other small invertebrates.

ECOLOGY: Feeds on or under surface of water. Escapes by diving. Migrates at night. Builds platform nest on shallow water. Usually nests in colonies on larger lakes (100 pairs on 1 lake is not unusual). In Idaho, dense colonies of 10-30 pairs have been reported, and in 1993, 266-346 nests were estimated to exist. Gregarious at all times of year. Several hundred thousand may congregate in late summer and fall at Mono Lake, California.

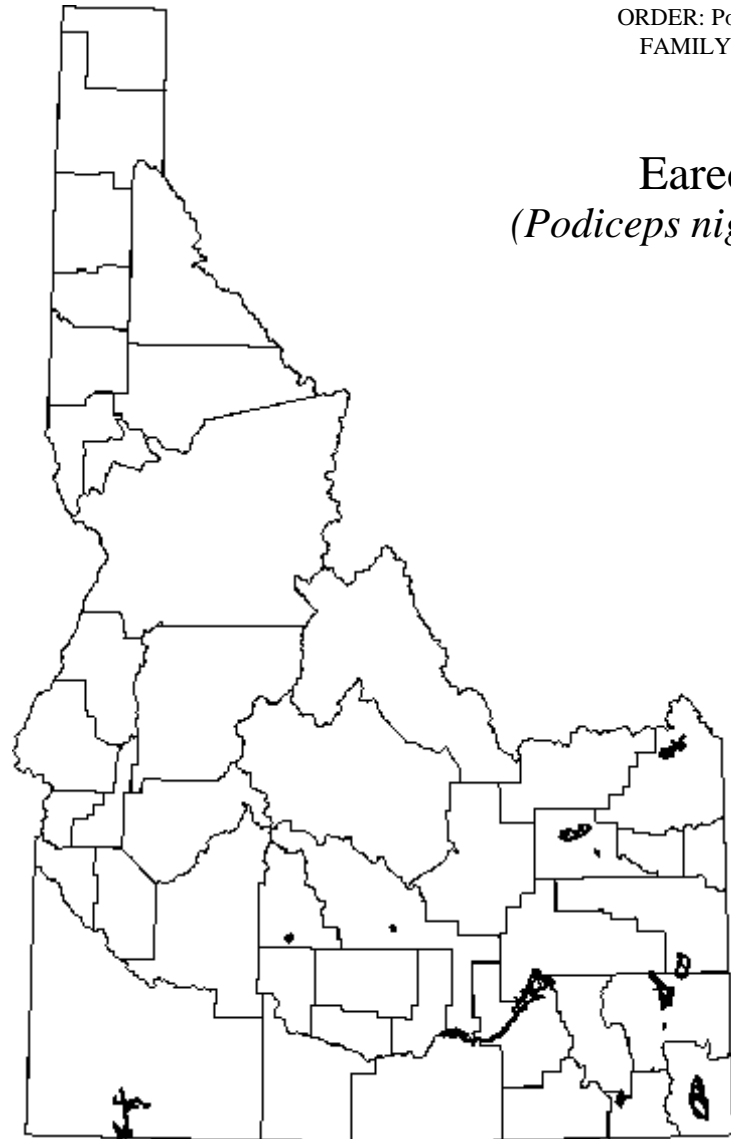
REPRODUCTION: Breeding begins in mid-April in southern range, and in late May or June in north. Both adults, in turn, incubate an average of 3-4 eggs for 20-22 days (southeastern Idaho study reported 2.6 eggs/nest on 11 nests). Young are reportedly independent in 3 wk.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. 1994. The status and distribution of colonial waterbirds in northern Idaho and selected species in southern Idaho, 1994. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 31pp.

ORDER: Podicipediformes  
FAMILY: Podicipedidae

## Eared Grebe (*Podiceps nigricollis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds mainly from western Canada, east to southwestern Manitoba, and south through U.S. from California and Utah east to upper midwestern states. Winters mainly along Pacific Coast from southeastern Alaska to northwestern Mexico.

HABITAT: Found on marshes, lakes, and bays. During migration and in winter, also found on sheltered seacoasts, less frequently along rivers. In Idaho, prefers large rivers and reservoirs that include shallow water areas with emergent vegetation.

DIET: Diet consists mainly of fishes; opportunistic as to species eaten. Also eats insects (adults and larvae, especially in spring and summer), mollusks, crabs, marine worms, and salamanders. Ingests feathers and small stones.

ECOLOGY: Builds platform nest on shallow water. Nests in colonies of sometimes hundreds or thousands of birds. In Idaho, nests in large colonies and isolated pairs that are susceptible to water fluctuations. Young may ride on backs of adults. Individuals dive from water surface to obtain food.

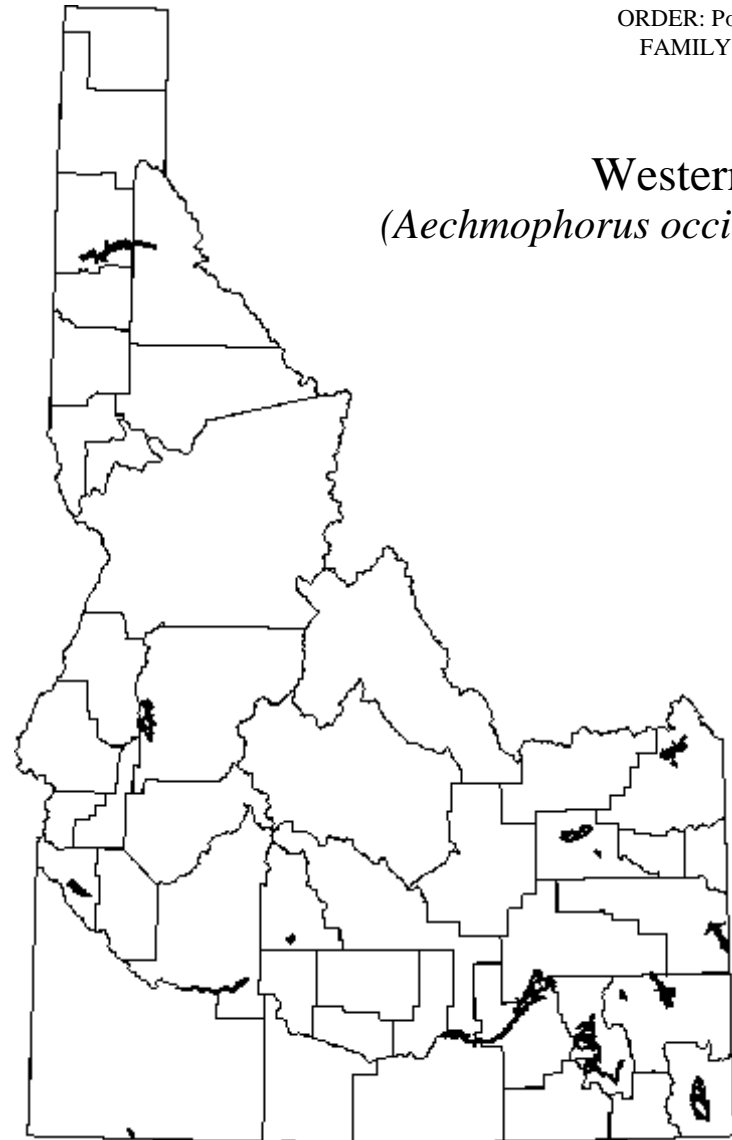
REPRODUCTION: Reported average clutch size is about 2.2-3.3 in southeastern Idaho, 2.5 in Utah, 3.4 in Colorado, and 4.2 in North Dakota. Dump nesting may result in large clutch in one nest. Both adults incubate, in turn. Incubation lasts 3-4 wk. Brood size is usually 1-3. Young are tended by both parents.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. 1994. The status and distribution of colonial waterbirds in northern Idaho and selected species in southern Idaho, 1994. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 31pp.

ORDER: Podicipediformes  
FAMILY: Podicipedidae

## Western Grebe (*Aechmophorus occidentalis*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from southeastern Alaska, east to southwestern Manitoba, and south into portions of western and midwestern U.S.; also breeds in Mexico. Winters from southern British Columbia, south along Pacific Coast (sometimes inland) to Mexico.

HABITAT: Found on marshes, lakes, and bays. During migration and in winter, also found along sheltered seacoasts, and, less frequently, along rivers. Usually forages in deeper water than Western Grebe.

DIET: Eats fishes and aquatic invertebrates.

ECOLOGY: Builds platform nest on shallow water. Nests colonially, often mixed with Western Grebes. Dives from water surface to obtain food. Species is rare in northern range, but as common as Western Grebe in south. Often seen in association with Western Grebes, but species is less common than the latter in Idaho. Ecology and reproduction are similar to, but not as well understood as, Western Grebe.

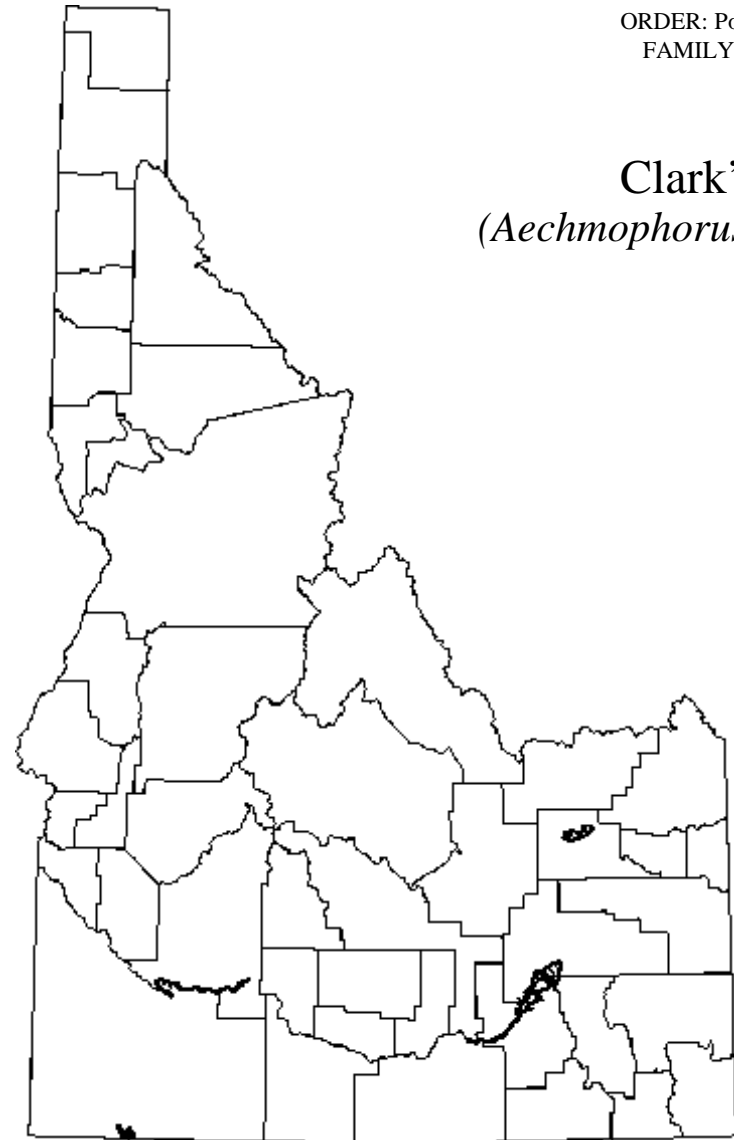
REPRODUCTION: Female lays 1 clutch of 3-4 eggs. Incubation (by both sexes) lasts about 23 days. Young leave nest at hatching, and are tended by both parents.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

ORDER: Podicipediformes  
FAMILY: Podicipedidae

## Clark's Grebe (*Aechmophorus clarkii*)



STATUS: Protected nongame species  
GLOBAL RANK: G3 STATE RANK: S1

ORDER: Pelecaniformes  
FAMILY: Pelecanidae

RANGE: Breeds in Canadian Prairie Provinces and parts of northwestern and midwestern U.S., south to coastal Texas. Winters along Gulf and Pacific coasts south to Guatemala. In Idaho, breeds at Minidoka National Wildlife Refuge, Blackfoot Reservoir, and on Snake River near Glenn's Ferry.

HABITAT: Found on rivers, lakes, estuaries, and bays. In Idaho, found on large inland reservoirs and island nests.

DIET: Feeds mainly on fishes of little commercial value (e.g., carp, perch, catfish, suckers, stickleback). Eats some salamanders and crayfishes.

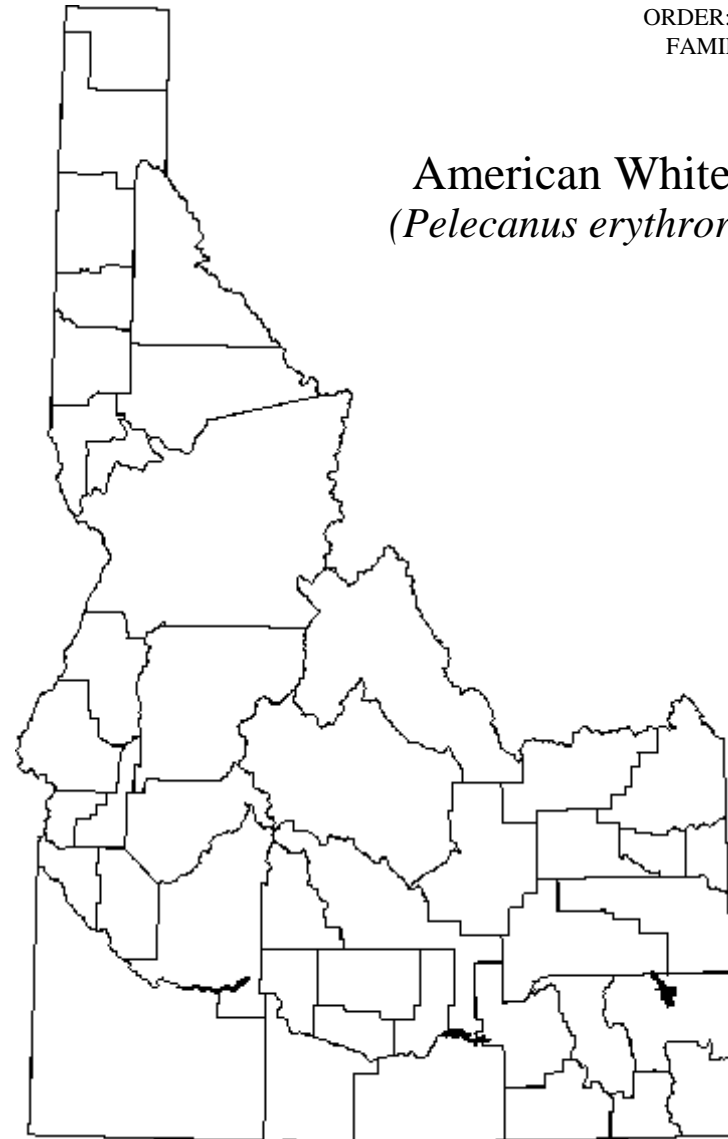
ECOLOGY: Gregarious. Nests on ground, in rimmed scrape. In Idaho, several nesting colonies have been abandoned due to human disturbance. Foxes and coyotes are nest predators. Estimates from 1993 survey indicate 150-175 nests are located at Minidoka NWR and 80-100 nests are located at Blackfoot Reservoir.

REPRODUCTION: Both adults incubate 2 eggs (usually); rarely does more than 1 young fledge (in an Idaho study, 5 nests yielded an average of 1.8 young/nest). Young are tended by both adults, leave nest in about 21-28 days, and first fly at 7-10 wk. In Manitoba study, 34-38 days elapsed between time flocks first flew over colony sites and time eggs hatched.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

## American White Pelican (*Pelecanus erythrorhynchos*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds throughout much of North America (locally in interior), from southern Alaska, Manitoba, and Newfoundland, south to Gulf Coast and northwestern Mexico. Winters throughout most of coastal breeding range.

HABITAT: Found on lakes, rivers, swamps, and seacoasts. In Idaho, occupies larger water courses and reservoirs.

DIET: Feeds primarily on nongame fish.

ECOLOGY: Dives from water surface to obtain food; usually feeds in water less than 15 m deep. Forages cooperatively. Nests mostly in colonies; entire colony will nest either in tree or on ground. Increased sea surface temperatures, such as those associated with El Niño events, were correlated with decreases in nesting populations in Washington. Species is common transient and summer breeder in Idaho, where nesting areas are easily disturbed by man. Gulls prey on eggs. Young can suffer from heat prostration.

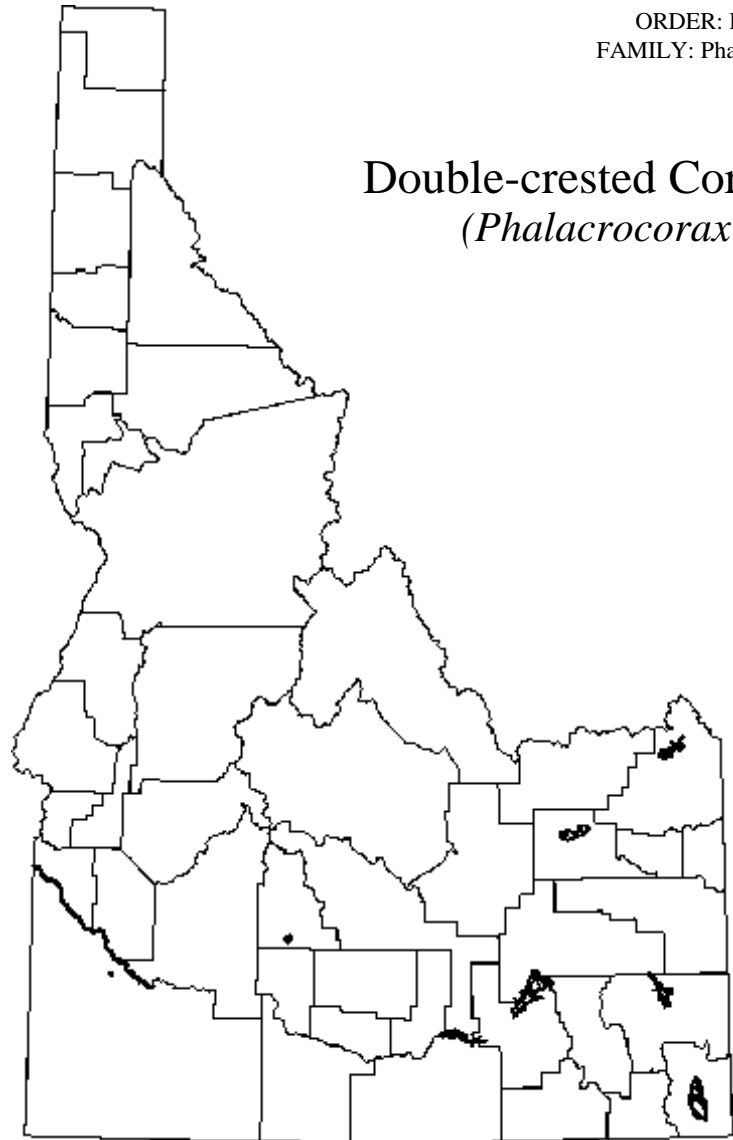
REPRODUCTION: Both sexes in turn incubate 2-9 eggs (usually 3-4), for 24-25 days (southeastern Idaho study found average of 3.5 young for 12 nests). Young first fly to water at about 35-42 days, and become independent at 10 wk. Adults usually breed by third year.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

ORDER: Pelecaniformes  
FAMILY: Phalacrocoracidae

## Double-crested Cormorant (*Phalacrocorax auritus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4

ORDER: Ciconiiformes  
FAMILY: Ardeidae

RANGE: Breeds from southeastern Alaska, east to Newfoundland, south across upper and middle U.S., and locally along Gulf Coast and down to Mexico. Winters from southwestern British Columbia, southeast through parts of U.S. to southern Mexico.

HABITAT: Found on freshwater bogs, swamps, wet fields, cattail and bulrush marshes, brackish and saltwater marshes, and meadows. In Idaho, also occurs on streams, canals, reservoirs and wet meadows.

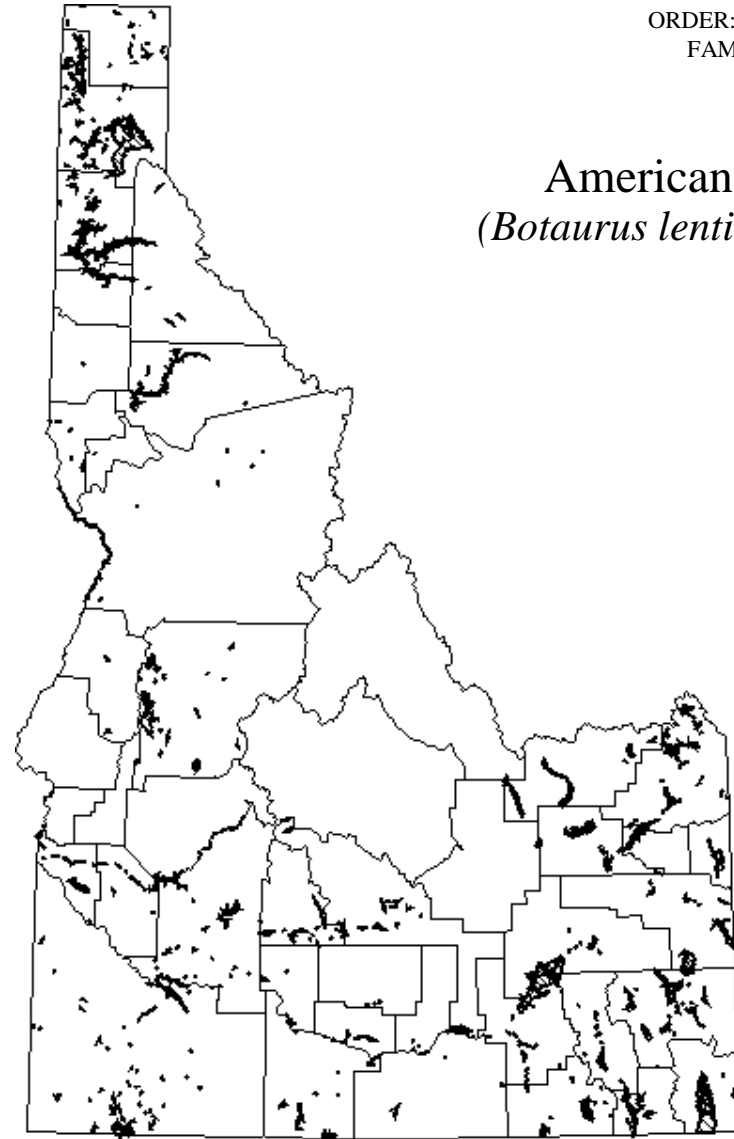
DIET: Eats mainly fishes, crayfishes, amphibians, mice, shrews and other animals, and insects.

ECOLOGY: Nocturnal, crepuscular. Nests on ground, never in trees or bushes. Mostly solitary, but may nest in loose colonies. Species is easily overlooked and may be quite common.

REPRODUCTION: Female (apparently) incubates 2-6 eggs (usually 3-5), for 24-28 days. Young leave nest at about 14 days.

GIS MODEL NUMBER: 5

## American Bittern (*Botaurus lentiginosus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Ciconiiformes  
FAMILY: Ardeidae

RANGE: Breeds from southeastern Alaska and southern Canada, south to southern Mexico. Winters from southeastern Alaska, central U.S., and southern New England, south to northern South America. Wanders widely outside usual range. Some sub-adults may summer in non-breeding range.

HABITAT: Found on freshwater and brackish marshes, along lakes, rivers, bays, lagoons, ocean beaches, fields, and meadows. In Idaho, species follows major watercourses.

DIET: Eats fishes, insects, crustaceans, amphibians, reptiles, mice, shrews, and other animals.

ECOLOGY: Builds nest in tree, sometimes in shrub, rarely on ground. Nests in colonies. Colony size can vary from few pairs to hundreds of pairs; colonies may be displaced by Bald Eagles. In general, individuals are most active just before dawn and at dusk, but Idaho study found herons come and go from colonies regularly, with no peak activity periods. Individuals usually forage while standing in water, but will also forage in fields or drop from air (or perch) into water. May establish feeding territories in winter. Usually solitary when not breeding. In Idaho, some herons are year-round residents while others, especially in northern Idaho, are breeders or transients. Species is most common and widely distributed colonial waterbird in Idaho.

REPRODUCTION: Both sexes incubate 3-7 eggs (usually 4), for 25-29 days (Idaho study reported mean colony size at 24.6 birds with 2.2 young/nest). Both parents tend young, which leave nest in 60-90 days, and may first breed at 2 yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Trost, C.H. 1994. The status and distribution of colonial waterbirds in northern Idaho and selected species in southern Idaho, 1994. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 31pp.



## Great Blue Heron (*Ardea herodias*)

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Breeds from southern Oregon and southern Idaho, east (irregularly) through Canadian Prairie Provinces and northeastern U.S., and south to Gulf Coast states, southern New Mexico, coastal Mexico, and southern South America. Winters from southern U.S., south through breeding range to southern South America. Wanders irregularly outside usual range.

HABITAT: Found on marshes, swampy woods, tidal estuaries, lagoons, along streams, lakes, and ponds, and in fields and meadows.

DIET: Eats mainly fishes, amphibians, snakes, snails, crustaceans, insects, and small mammals.

ECOLOGY: Builds nest in tree, occasionally in shrub. Nests solitarily or in small to large colonies. Usually forages singly, during daylight, in marshes and shallow water ponds, but may also feed in fields or drop from air (or perch) into water. Arrives back at roost at sunset or at dark. Individuals may gather in groups when not breeding.

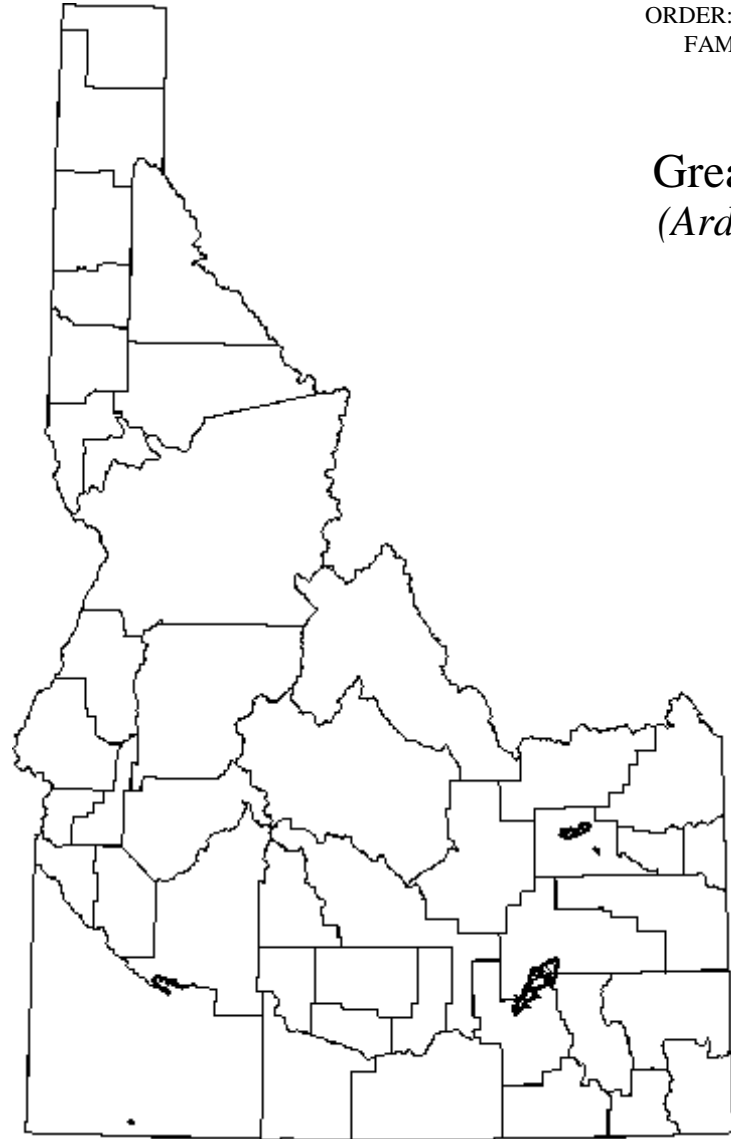
REPRODUCTION: Both sexes incubate 1-6 eggs (usually 3-4 in northern range, 2-3 in south). Incubation lasts 23-24 days. Young fly at about 42 days.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

ORDER: Ciconiiformes  
FAMILY: Ardeidae

## Great Egret *(Ardea alba)*



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from northern California, southern Idaho, Kansas, lower Mississippi Valley, and Gulf and Atlantic coasts, south through Mexico to South America. Winters from northern California, southwestern Arizona, Gulf Coast, and South Carolina, south through breeding range. Wanders irregularly outside usual range.

HABITAT: Found on marshes, lakes, ponds, reservoirs, lagoons, and shallow coastal habitats.

DIET: Eats small fishes, frogs, lizards, snakes, crustaceans, worms, snails, and insects.

ECOLOGY: Nests under shrubs, or in trees and bushes, preferably on islands. Usually found in loose groups; frequently roosts communally, and nests in large colonies. Usually forages in shallow water, but may also graze in fields. Species is present in Idaho from mid-April to September. In past, Idaho reproduction has been depressed due to DDT and other pesticide contamination. Predators include gulls, crows, and magpies.

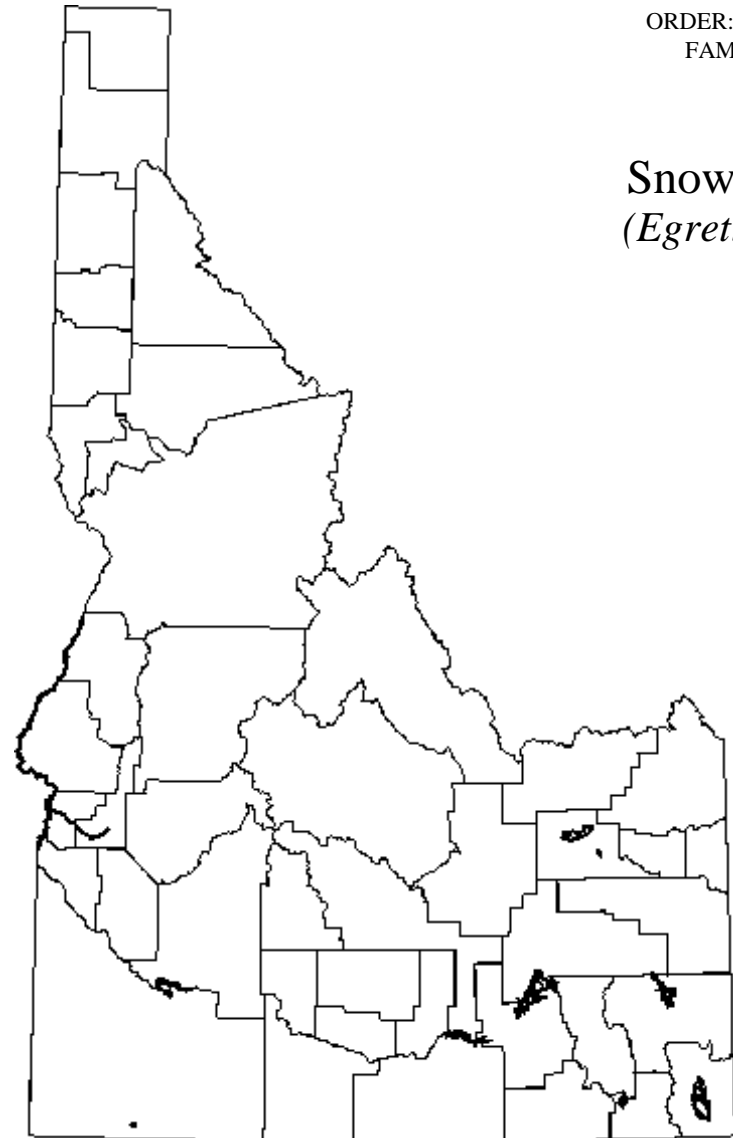
REPRODUCTION: Female lays eggs usually from April to May or June in northern range. Both sexes incubate 4-5 eggs in northern range, 2-4 in south (in Idaho study, clutch size averaged 3.7). Incubation lasts 18 days or longer. Young leave nest at 20-25 days; may first breed at 1 yr.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Findholt, S. 1984. Organochlorine residues, eggshell thickness, and reproductive success of snowy egrets nesting in Idaho. Condor 86:163-169.

ORDER: Ciconiiformes  
FAMILY: Ardeidae

## Snowy Egret (*Egretta thula*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from California, southern Idaho, Colorado, and North Dakota, east through parts of southern Canada and northern U.S. to Maine, and south (primarily in coastal lowlands) to South America. Winters throughout much of breeding range.

HABITAT: Found in wet pastures and freshwater and brackish areas, but may also be found in dry fields and garbage dumps.

DIET: Eats mainly insects and amphibians, but may also eat reptiles and small rodents.

ECOLOGY: Builds nest in tree with other egrets and ibis. Frequently nests in colonies. In Idaho, shares nesting areas with herons. Often flies in large flocks in morning and evening. Usually feeds on dry or moist ground near cattle or horses, sometimes near farm machinery.

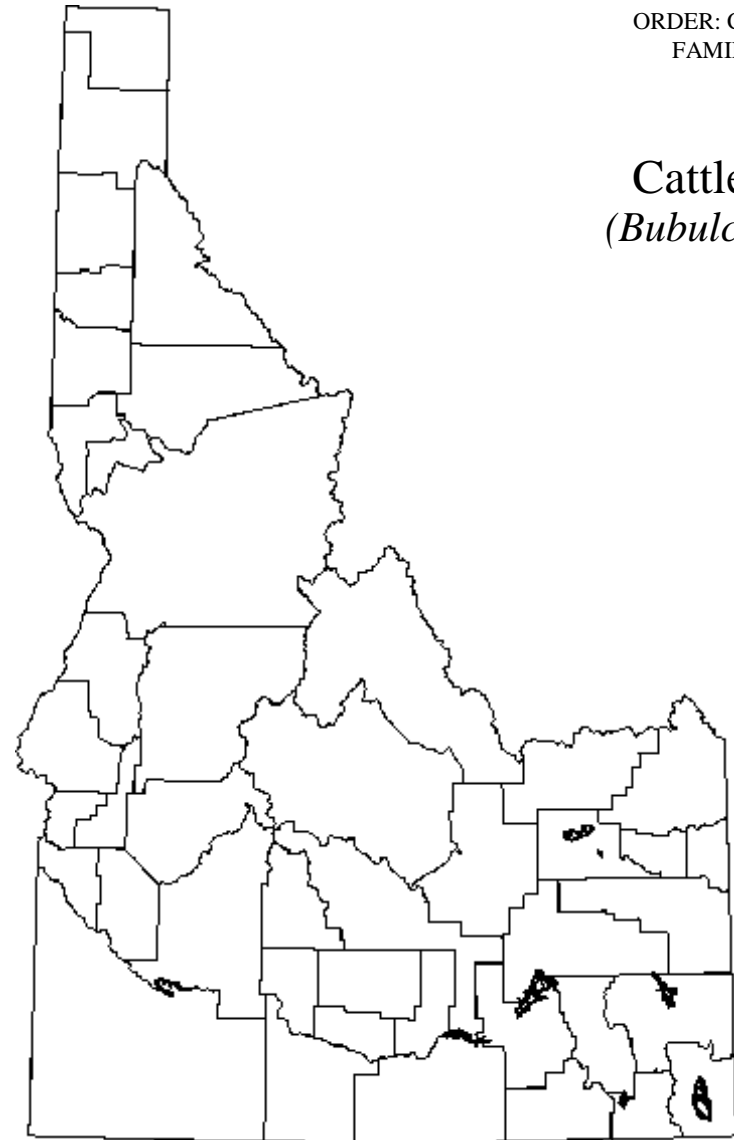
REPRODUCTION: Both sexes incubate 2-6 eggs (usually 3-4), for 21-24 days. Young fly short distances at 40 days, and reasonably well at 50 days. May breed at 1 yr.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

ORDER: Ciconiiformes  
FAMILY: Ardeidae

## Cattle Egret (*Bubulcus ibis*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

ORDER: Ciconiiformes  
FAMILY: Ardeidae

RANGE: Breeds from Washington and southern Idaho, east through parts of Canada and Great Lakes to Nova Scotia, and south to southern South America. Winters from Oregon, Utah, lower Ohio Valley, and New England, south to South America.

HABITAT: Found in brackish, saltwater, or freshwater situations in marshes, swamps, and wooded streams, and on shores of lakes, ponds, and lagoons.

DIET: Feeds opportunistically on fishes, amphibians, and invertebrates; may also eat small mammals and young birds.

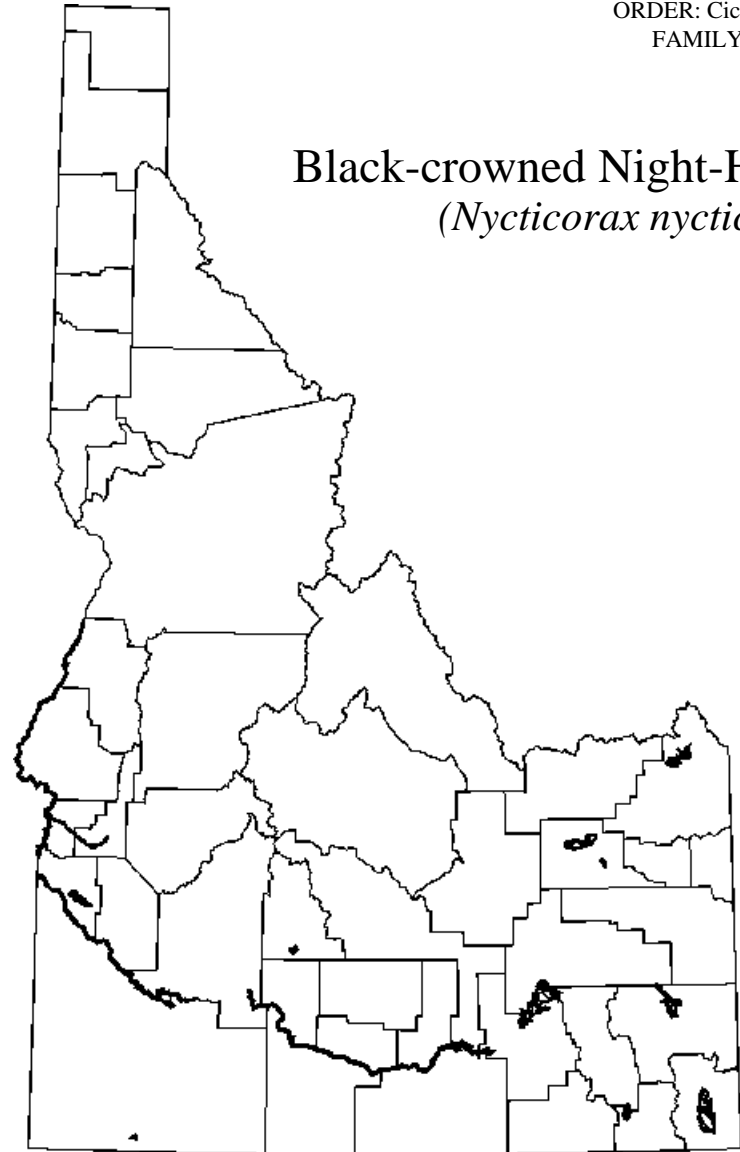
ECOLOGY: Nocturnal/crepuscular, but may sometimes feed by day. Builds nest in trees or bushes. In Idaho, prefers to nest in trees and bushes such as alders, cottonwood, chokecherry, and willows. Nests in small to large colonies. Forages in shallow water for food; may also forage on land. In Idaho, predators include various gulls, Black-billed Magpies, and American Crows. Reproduction has been depressed by pesticide contamination. Some Idaho birds winter in Mexico.

REPRODUCTION: Clutch size varies from 3-5 eggs in northern range, 2-4 eggs in south (southeastern Idaho study reported 3.6 average clutch size). Both sexes incubate eggs; incubation apparently lasts 24-26 days. Young fly at about 42 days, and usually breed at 2-3 yr.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Findholt, S. and C.H. Trost. 1985. Organochlorine pollutants, eggshell thickness, and reproductive success of Black-crowned Night-Herons in Idaho, 1979. Colonial Waterbirds 8:32-41.

## Black-crowned Night-Heron (*Nycticorax nycticorax*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds locally from central California, eastern Oregon, southern Idaho, and Northern Plains states, south through parts of Gulf Coast states and Mexico to South America. Winters from southern California, southern Texas, and Louisiana, south through lowlands to Guatemala and El Salvador, and generally in breeding range in South America. Wanders outside usual range.

HABITAT: Found mostly in freshwater areas, on marshes, swamps, ponds and rivers. In Idaho, prefers shallow-water areas.

DIET: Eats crayfish, frogs, fishes, insects, newts, earthworms, and crustaceans.

ECOLOGY: Builds nest on ground, or in shrub or tree. In Idaho, nests in tule habitat (not known to nest in state prior to 1970). Nesting failure may result from loss of riparian habitat. Typically feeds in freshwater marshes. Some avian predation is known (gulls), but mammalian predation is minimal except during droughts.

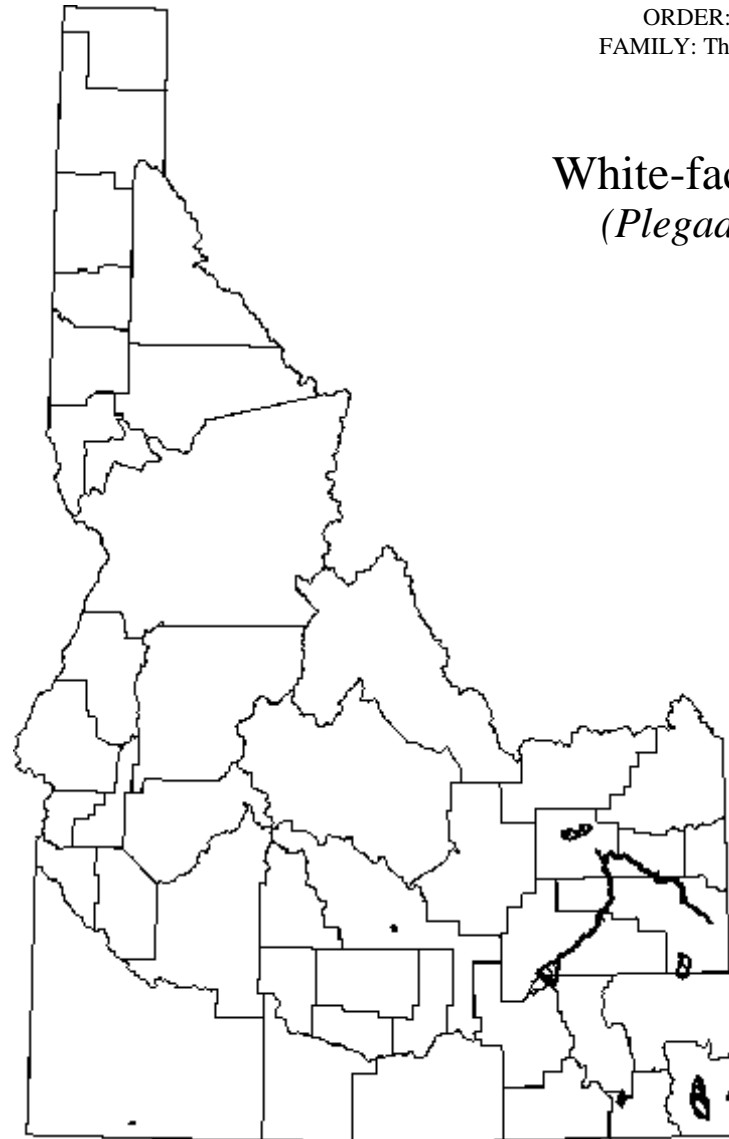
REPRODUCTION: Clutch size usually varies from 3-4 eggs. Incubation lasts 21-22 days. In southern Idaho study, clutch size varied from 2.7-4 eggs/nest, and brood size averaged 2.4 young/nest.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

ORDER: Ciconiiformes  
FAMILY: Threskiornithidae

## White-faced Ibis (*Plegadis chihi*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1

ORDER: Anseriformes  
FAMILY: Anatidae

RANGE: Breeds in Alaska, western Canadian provinces, southeastern Oregon, eastern Idaho, Montana, and northwestern Wyoming. Introduced and established in Nevada and southwestern South Dakota. Winters primarily from southern Alaska to Montana, and south to northern California, sometimes Utah, New Mexico, and eastern Colorado.

HABITAT: Breeds primarily in freshwater in emergent vegetation such as reeds or sedges, but occasionally chooses brackish situations. Winters on open ponds, lakes, and sheltered bays and estuaries. In Idaho, breeding occurs on marshes, lakes, and beaver ponds; wintering occurs along shallow, slow-moving waters.

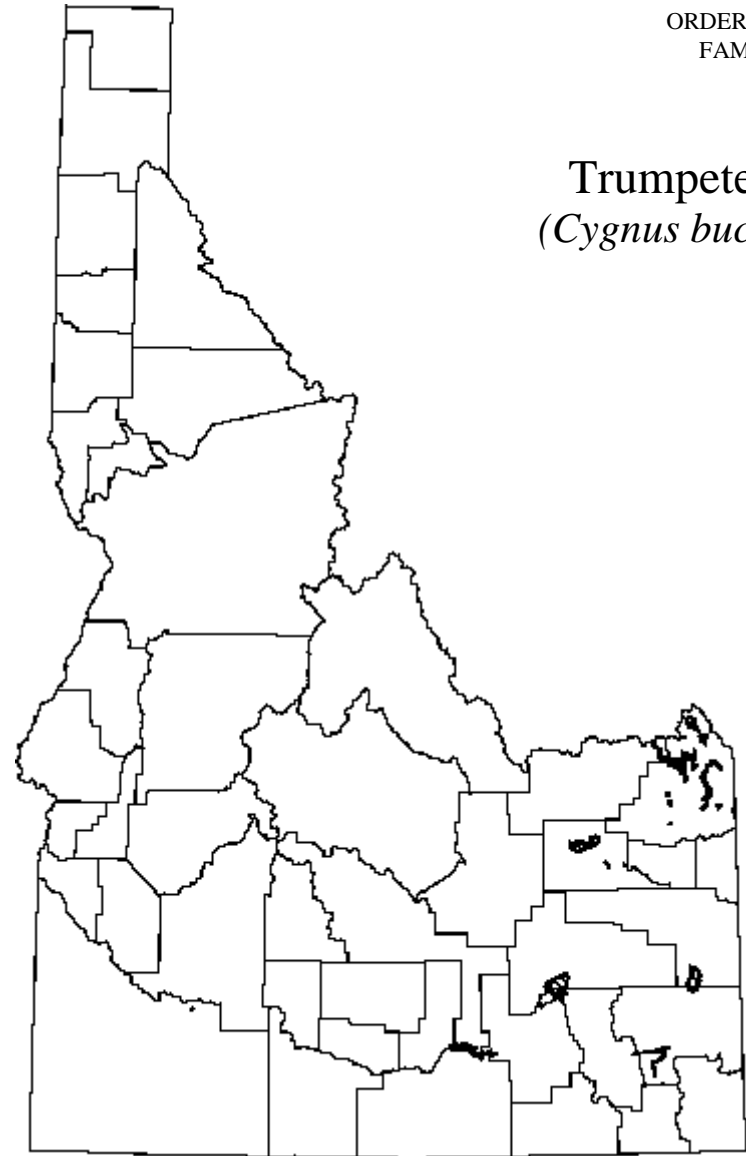
DIET: Adults feed on aquatic vegetation, but may also graze in fields. Young eat aquatic beetles and crustaceans, and, after 5 wk, aquatic plants. In Idaho, adults feed primarily on water-milfoil and pondweed; existing evidence indicates that preferred winter food is declining.

ECOLOGY: Builds nest on ground. Forages on, or just under, water surface. Occurs as resident along Yellowstone Park border; migrant, northern populations winter in Harriman State Park and Island Park. Extensive studies have been done in Idaho on wintering and nesting behavior and habitat. High first-year mortality in Tri-state (WY, ID, MT) cygnet population. Low winter flows and cold conditions can negatively impact wintering swans. Several breeding areas in Idaho outside of Fremont Co. are result of transplants.

REPRODUCTION: Clutch size varies from 2-9 eggs, but is usually around 5 (in Idaho study, mean clutch size ranged 3.6-4.4). Both sexes, but mainly the female, incubate eggs. Incubation lasts 33-37 days. Nestlings are precocial, but remain with adults until subsequent spring. Fledging period lasts 100-120 days. In Idaho, productivity of Trumpeter Swans has decreased in last 10 yr, perhaps due to poor cygnet survival.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Gale, R.S., E.O. Garton, and I.J. Ball. 1987. The history, ecology, and management of the Rocky Mountain population of trumpeter swans. Idaho Dept. Fish & Game, Boise. 314pp.



## Trumpeter Swan (*Cygnus buccinator*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from northern Alaska, east to Labrador and Greenland, and south to southeastern Canada, California, Utah, and northern Arkansas. Winters from Alaska and southern Canada, south to Florida, Gulf Coast, and northern Mexico. In North America, many introduced non-migratory populations exist within and outside normal range.

HABITAT: Found in various habitats near water, from temperate regions to tundra. During migration and in winter, found on coastal and freshwater marshes, lakes, rivers, and fields. In Idaho, occurs in variety of habitats, including lakes, reservoirs, rivers, farmlands, and city parks.

DIET: Grazes on marsh grasses, sprouts of winter wheat in spring, and grains in fall. Eats clover, cattails, bulrushes, algae, pondweed, and other plants. Also eats mollusks and small crustaceans.

ECOLOGY: Highly social species. Builds nest on ground, usually near water. Feeds in shallows, marshes, and fields. Usually feeds in early morning and late afternoon. May be active day or night during migration. In one study, mean annual survival rate for Rocky Mountain birds banded on nesting areas was 53% (immatures) and 64% (adults). Large resident populations exist in southern Idaho; during winter, northern migrants are present throughout state. Populations throughout state have been enhanced through artificial nest platforms. Species is sometimes considered an agricultural pest. A study initiated by the Idaho Dept. Fish & Game in southwestern Idaho in 1993 is estimating population size and trend and examining factors affecting mortality rates.

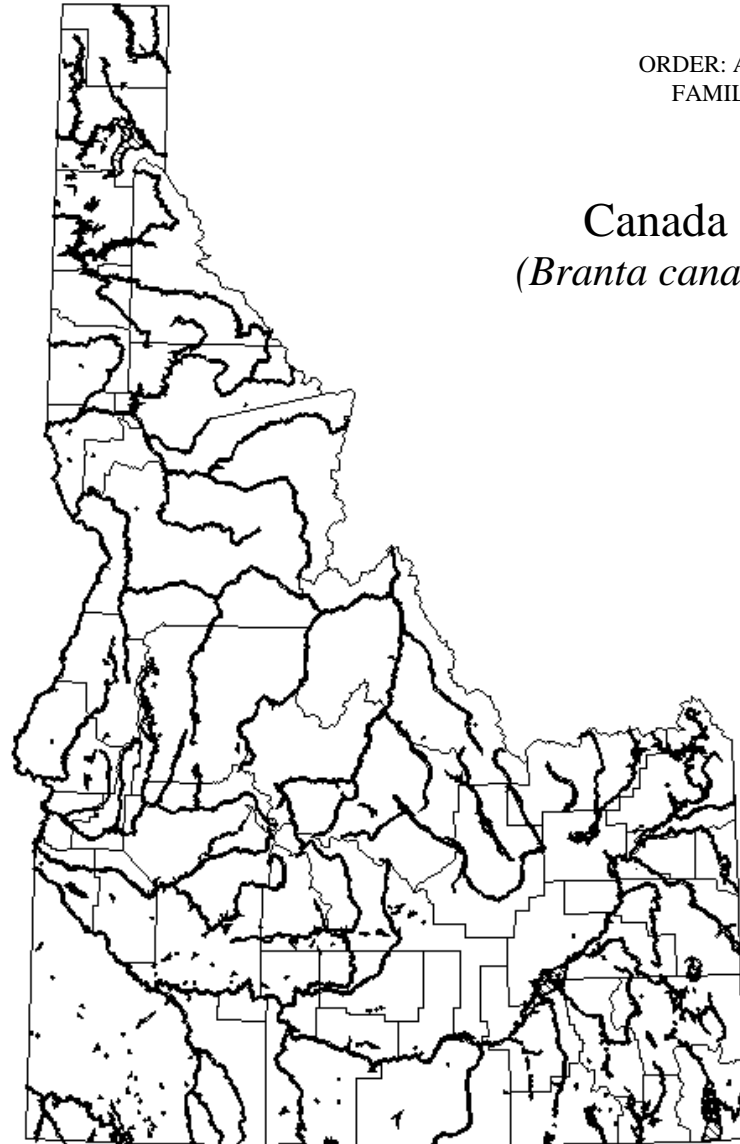
REPRODUCTION: Female incubates 2-11 eggs (usually 5-6), for 25-30 days. Nestlings are precocial. Young are tended by both adults, and remain with adults until next spring. Some individuals begin breeding at 2 yr, most by age 3. May nest early in Idaho to avoid high spring waters.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Krohn, W.B. and E.G. Bizeau. 1980. The Rocky Mountain population of the western Canada goose: its distribution, habitat and management. USDI Fish and Wildl. Serv. Spec. Sci. Rpt. Wildl. No. 229. 93pp.

ORDER: Anseriformes  
FAMILY: Anatidae

## Canada Goose (*Branta canadensis*)



ORDER: Anseriformes  
FAMILY: Anatidae

## Wood Duck (*Aix sponsa*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from southern British Columbia and Alberta, south to central California and northern Idaho, and throughout most of eastern U.S. and adjacent southern Canada. Winters mostly on Pacific Coast and interior California, north to Kansas, southern Iowa, Ohio Valley, and New England.

HABITAT: Found near woodlands on quiet, inland waters such as wooded swamps, flooded forests, ponds, marshes, and along streams. In Idaho, occupies wooded streams, flooded marshes, and lake margins. Winters on both freshwater and brackish marshes, ponds, streams, and estuaries.

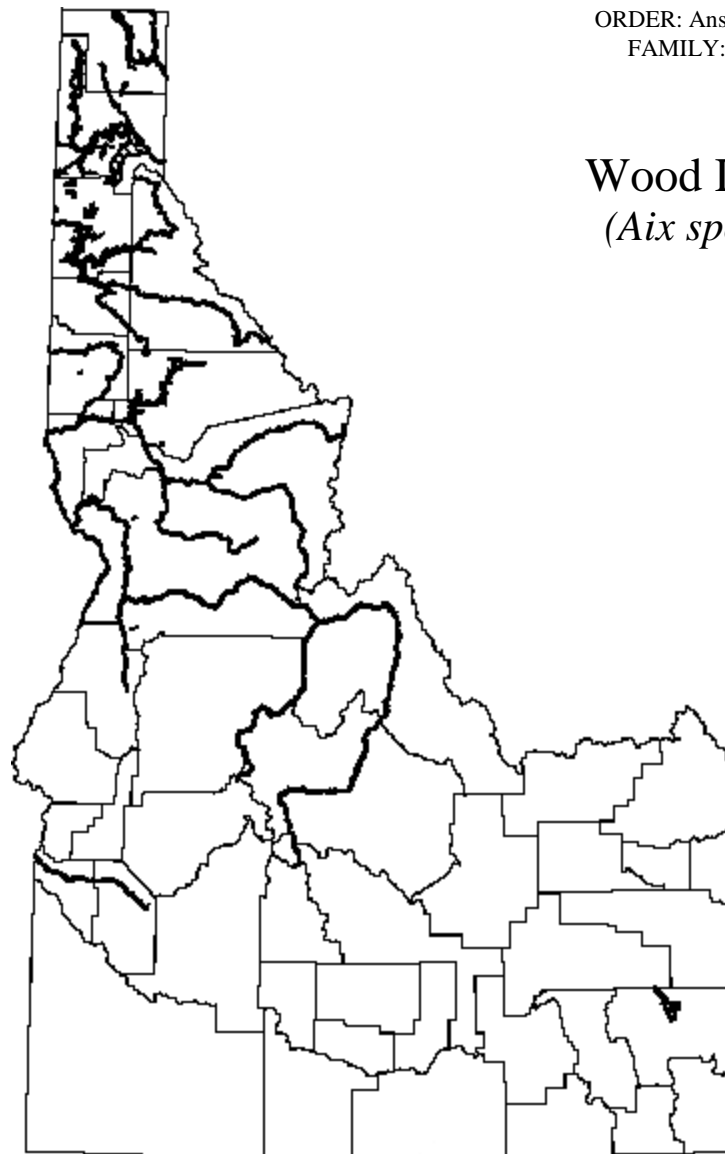
DIET: Eats seeds and other parts of aquatic plants, nuts (especially acorns), fruits, shrubs, and aquatic and land insects. Young initially eat mainly insects, but may also eat duckweed, and, occasionally, frogs.

ECOLOGY: Builds nest in tree cavity, or may sometimes use cavity left by other species. Forages in shallow water. High annual mortality rate (commonly 50% in adults, higher in young-of-year). In Idaho, species has adapted well to nest boxes (which enhance local populations), is largely absent from southern Idaho (where suitable habitat is lacking), but occurs commonly in northern Idaho during nesting season and migration.

REPRODUCTION: Female incubates 9-15 eggs (usually 10-12) for 27-37 days. Young first fly at about 9 wk, and are abandoned by parent at 1-2 mo. Yearlings may breed, but are often unsuccessful. Female often produces 2 broods/yr in southern range, and 1 (occasionally 2), in north.

GIS MODEL NUMBER: 10

IMPORTANT STATE REFERENCE: Gadwa, G.U. 1977. Experimental transplanting of wild wood duck hens and broods in northern Idaho. M.S. Thesis, Univ. Idaho, Moscow. 33pp.



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from north-central Alaska and northwestern and central Canada, south to California, northern New Mexico, northern Great Plains states, Ohio, western New York, Maine, and Nova Scotia. Winters in U.S., south to central Mexico.

HABITAT: Found on freshwater ponds, marshes, and shallow edges of lakes. In Idaho, found at low and medium elevations on streams, ponds, irrigation ditches, lakes, rivers, and reservoirs. During migration and in winter, found on shallow, salt or brackish water and along shores.

DIET: Eats aquatic plants, seeds of sedges, smartweeds, pondweeds, grasses, aquatic insects, mollusks, crustaceans, tadpoles, berries, grapes, and acorns. Will eat waste grain in fall.

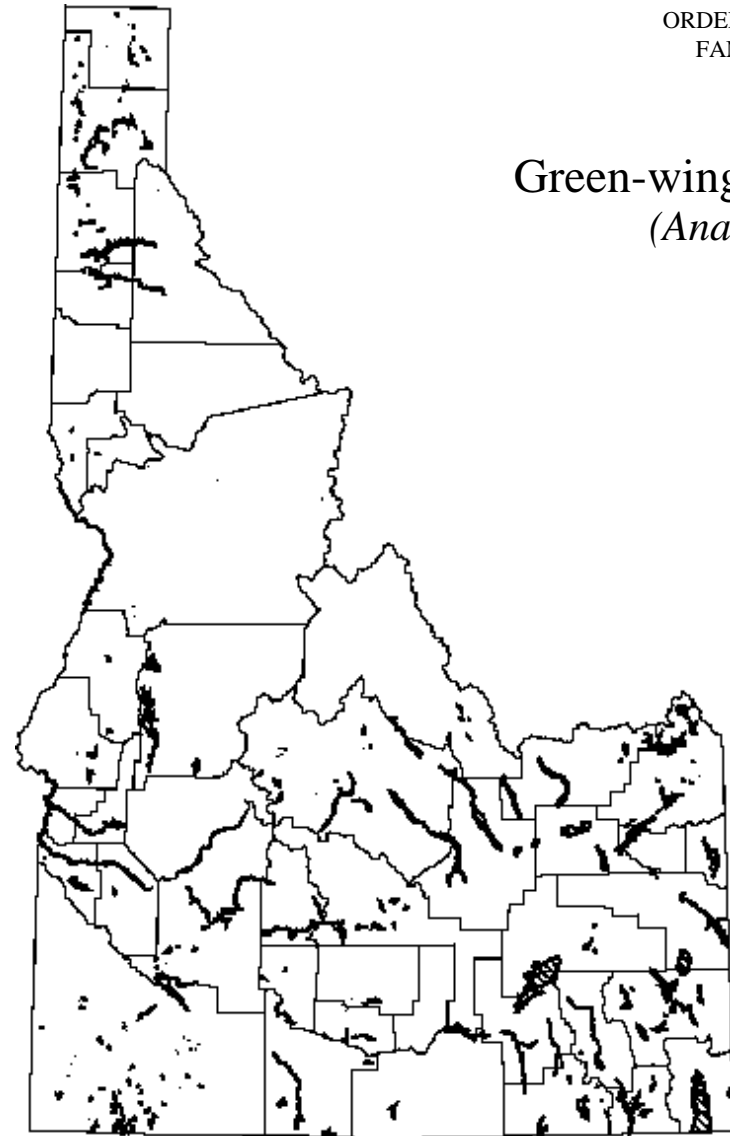
ECOLOGY: Builds well-hidden nest on ground. Dabbles in shallow water, and forages on land.

REPRODUCTION: Female incubates 7-15 eggs (usually 8-9) for 21-23 days. Male abandons female early in incubation. Female tends nestlings, which are precocial and become independent in about 23 days. Young have fastest growth rate of all North American waterfowl.

GIS MODEL NUMBER: 5

ORDER: Anseriformes  
FAMILY: Anatidae

## Green-winged Teal (*Anas crecca*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from Alaska, Mackenzie Delta, and Maine, south to southern California, Mexico, Oklahoma, and Virginia. Winters from southern Alaska and southern Canada to southern U.S. and Mexico.

HABITAT: Found primarily on shallow waters such as streams, ponds, lakes, marshes, and flooded fields. During migration and in winter, found mostly on fresh water and cultivated fields, less commonly in brackish situations.

DIET: Eats seeds, rootlets, and tubers of aquatic plants, seeds of swamp and river bottom trees, acorns, cultivated grains, insects, mollusks, amphibians, small fishes, and fish eggs. Adults eat mostly vegetable material. Young initially feed primarily on invertebrates.

ECOLOGY: Dabbles in shallow water; foraging opportunities are optimal where water depth is less than 40 cm. Adapted to dynamic wetland conditions that provide variety of wetland types in relatively close proximity. Adaptable to variety of nest sites, but usually builds nest on ground, near water. May occasionally nest in hollow tree or artificial structure. In study conducted in prairie pothole region, breeding density (2.3-9.5 birds/km<sup>2</sup>) fluctuated with pond abundance. May attain high nesting density (400 nests/ha) on islands free of mammalian predators. An Idaho study suggested that mammalian and avian (Black-billed Magpies) predators may significantly effect nest success in some wildlife management areas. Many semi-feral populations exist. Most common duck in Idaho, where it resides year-round except at high elevations in winter.

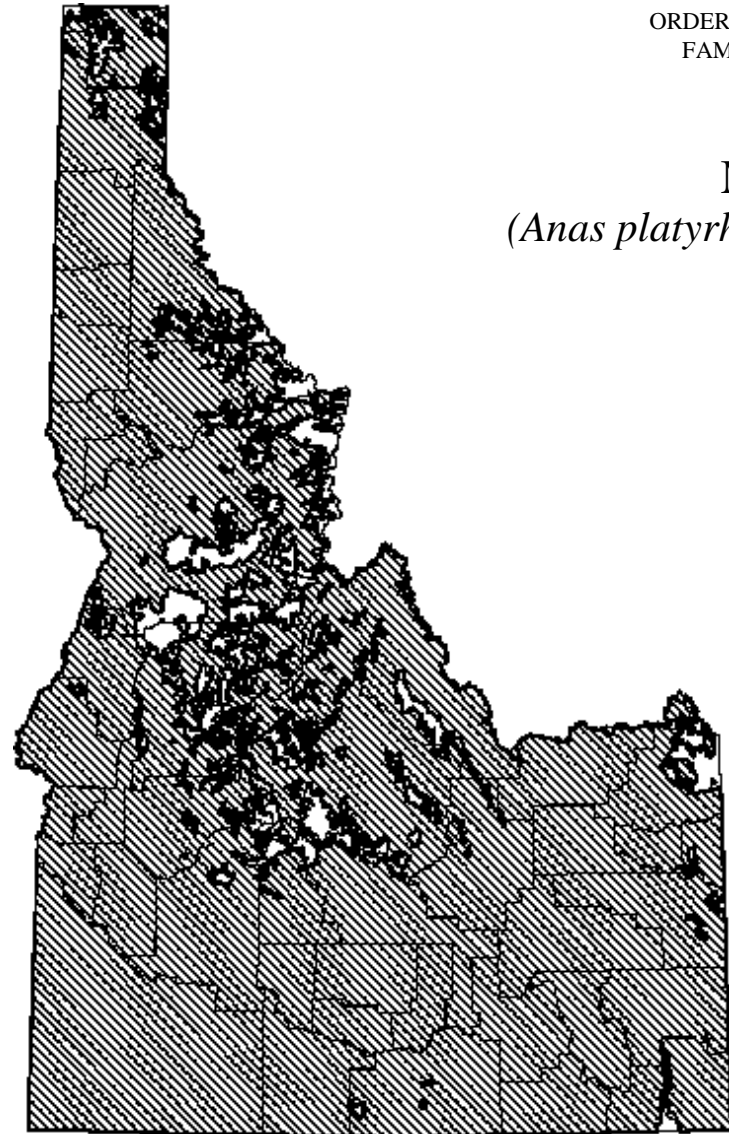
REPRODUCTION: Female incubates 5-14 eggs (usually 8-10), for 26-30 days. Young first fly at 49-60 days, and first breed at 1 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. Thesis, Univ. of Montana, Missoula. 61pp.

ORDER: Anseriformes  
FAMILY: Anatidae

## Mallard (*Anas platyrhynchos*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Anseriformes  
FAMILY: Anatidae

RANGE: Breeds from Alaskan tundra, through Canada to western and central United States. Winters from eastern and southeastern coastal U.S., Great Lakes, southeastern Alaska, southwestern British Columbia, and western and southwestern U.S., south to Colombia and Venezuela.

HABITAT: Found on lakes, rivers, marshes, and ponds in grasslands, barrens, dry tundra, and open boreal forests. Also found in cultivated fields. During migration and in winter, found in both freshwater and brackish situations. In Idaho, prefers lowland marshes for feeding and nesting, but may winter on small creeks and reservoirs.

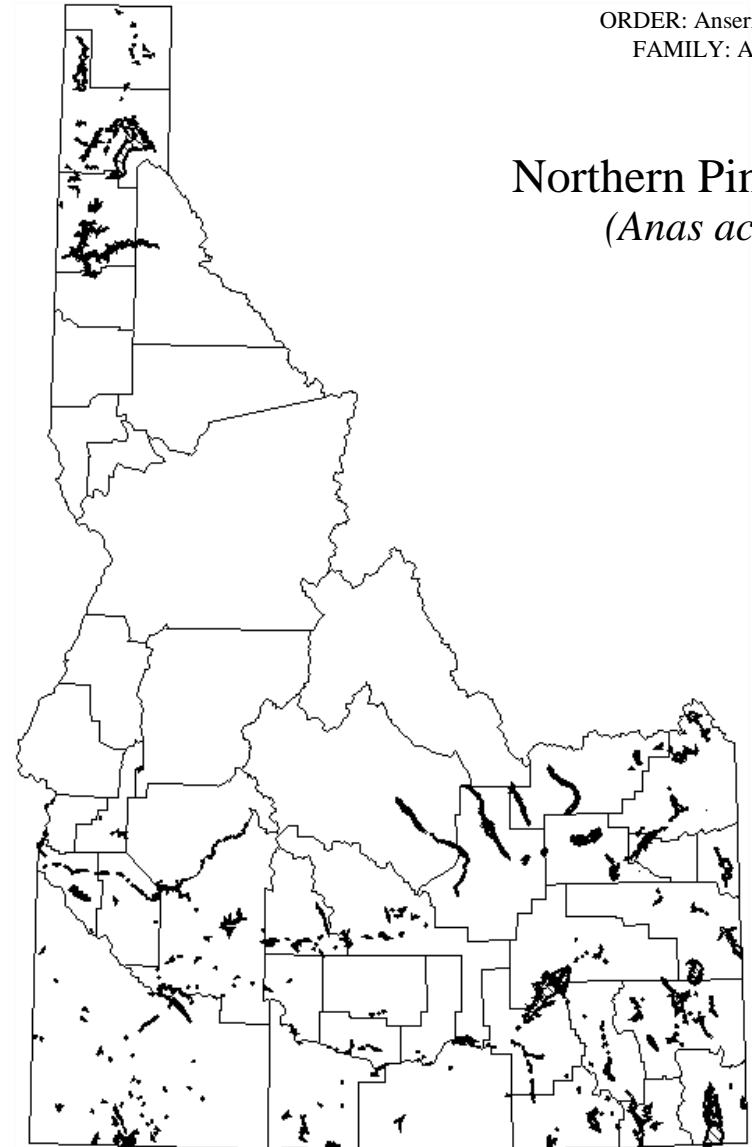
DIET: Eats various plants and animals, depending on availability. Feeds on seeds and nutlets of aquatic plants (sedges, grasses, pondweeds, smartweeds); also eats mollusks, crabs, minnows, worms, fairy shrimp, aquatic insects, and waste grain. Animal foods are important to females during pre-laying and laying periods. Juveniles eat mostly insects.

ECOLOGY: Dabbles for food; may also feed in fields and on tidal flats. Builds nest on ground. Northern Alaska study found 0.3-1.5 nests/km<sup>2</sup>, in various locations. One to 1.8 nests/km<sup>2</sup> found in prairie pothole country. Female and brood may move among different ponds during first few weeks after hatching. Species nests commonly in southeastern Idaho, and sparingly in northern Idaho, but is frequent fall and spring migrant known to winter in many parts of state. An Idaho study suggested that avian (Black-billed Magpies) and mammalian predators may significantly affect nest success in some wildlife management areas.

REPRODUCTION: Clutch size varies depending on age of parents (6-10 eggs for adults, 5-7 for yearlings); adults nest earlier than do yearlings. Female incubates eggs; incubation lasts 21-25 days. Male abandons female early in incubation. Precocial nestlings are tended by female, with male usually present. Young fledge in about 6-7 wk.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. Thesis, Univ. of Montana, Missoula. 61pp.



## Northern Pintail (*Anas acuta*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from southern Canada, south to southern California, New Mexico, central Texas, Louisiana, and North Carolina. Winters from southern U.S., south to northern South America.

HABITAT: Found on marshes, ponds, sloughs, lakes and sluggish streams. During migration and when not breeding, found in both freshwater and brackish situations (prefers freshwater marshes, ponds, and sloughs, but can also be found in river pools, salt ponds, and estuaries). In Idaho, occupies low-elevation wetlands, but may be seen on higher-elevation lakes during fall migration.

DIET: Feeds on vegetative parts of aquatic plants (algae, duckweeds, pondweeds, etc.), as well as seeds (sedges, pondweeds, grasses, etc.). Also feeds on large amounts of aquatic invertebrates.

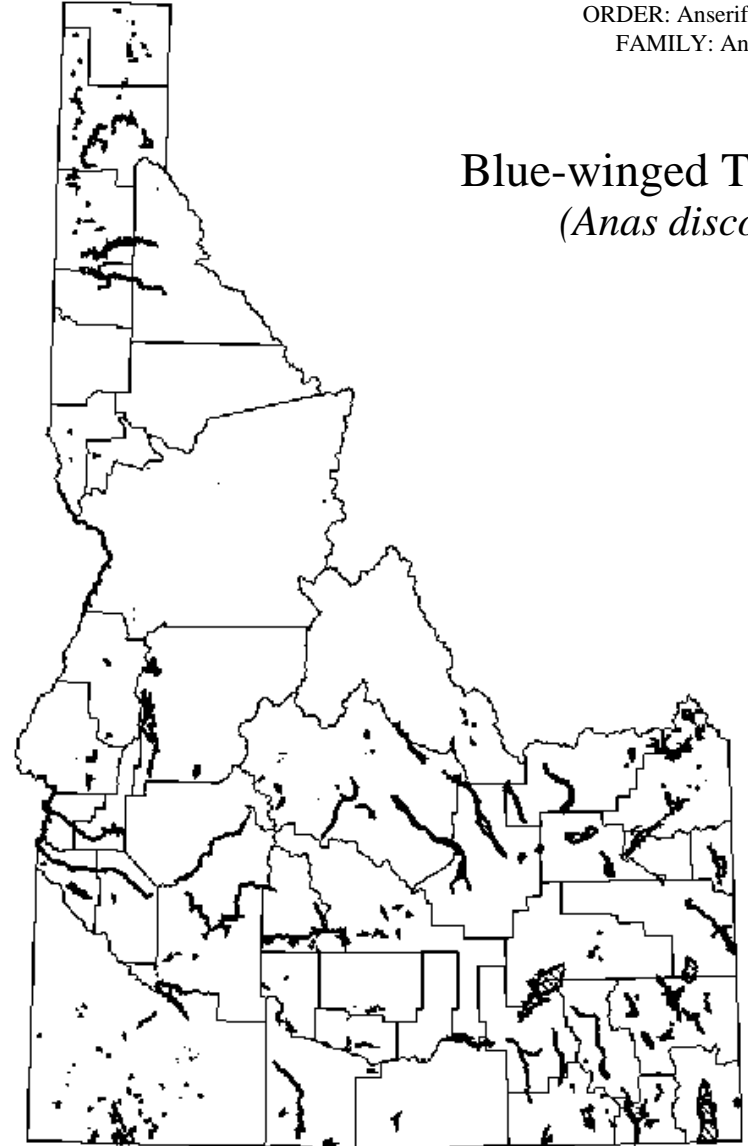
ECOLOGY: Nests on dry land near water. Usually forms flocks when not breeding. May feed with other dabbling ducks, coots, and shorebirds. Hybridizes occasionally with Cinnamon Teal.

REPRODUCTION: Female incubates 6-15 eggs (usually 9-11), for 23-27 days. Nestlings are precocial, and tended by female. First flight of young occurs 35-44 days after hatching.

GIS MODEL NUMBER: 5

ORDER: Anseriformes  
FAMILY: Anatidae

## Blue-winged Teal (*Anas discors*)



ORDER: Anseriformes  
FAMILY: Anatidae

## Cinnamon Teal (*Anas cyanoptera*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from southwestern Canada, eastern Montana, and parts of Great Plains and midwestern states, south to northern Mexico. Winters from southwestern U.S., south to southern Mexico, and rarely or casually to parts of South America.

HABITAT: Found on shallow lake margins, reed beds, ponds, lagoons, sluggish streams, and marshes. Found primarily in freshwater, but occasionally in marine situations in winter. In Idaho, occupies ponds, lakes, and streams at middle and lower elevations.

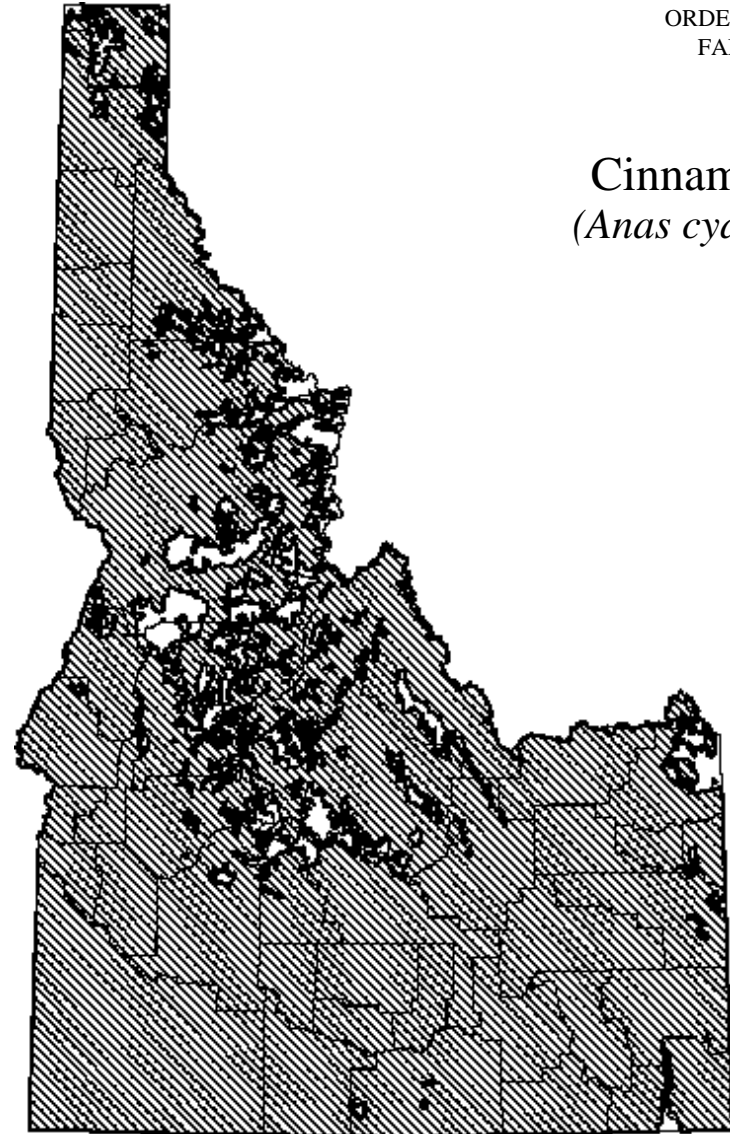
DIET: Feeds on aquatic plants in shallow water areas, especially on rush and pondweed seeds and leaves, but also on grass seeds. Will also eat small amounts of animal food, especially insects and mollusks.

ECOLOGY: Dabbles or dips in shallow water to obtain food. Nests in depression on ground, usually in or near marsh. Before breeding season, usually seen in single pairs; in fall, seen in small family groups.  
An Idaho study suggested that mammalian and avian predators may significantly be affecting nest success in some wildlife management areas.

REPRODUCTION: Female incubates 9-12 eggs (sometimes 6-14), for 21-25 days. Nestlings are precocial and downy, and are capable of flight in about 7 wk. Nests are often parasitized by other duck species.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. Thesis, University of Montana, Missoula. 61pp.



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from Alaska, east to Manitoba, south to California, New Mexico, and western Indiana, and locally eastward. Winters from southwestern British Columbia to Arizona, east from there to Gulf Coast, coastal Georgia and South Carolina, and south to northern South America. Rarely winters in northern to north-central or northeastern United States.

HABITAT: Found on shallow, often muddy, freshwater areas with surrounding cover, including ponds, marshes, sloughs, and creeks. During migration and in winter, occupies both freshwater and brackish habitats, and (atypically) cultivated fields. In Idaho, prefers potholes, ponds and marshes at lower elevations.

DIET: Opportunistic forager. Eats seeds of sedges, bulrushes, sawgrass, pondweeds, smartweeds, algae, duckweed, and others. Will also eat mollusks, aquatic insects, and crustaceans. Manitoba study found males and females ate primarily aquatic invertebrates during pre-laying and laying periods. Aquatic invertebrates (e.g., water boatmen) may dominate winter diet in some areas.

ECOLOGY: Commonly builds nest at water's edge. Usually dabbles at water surface (in Idaho, known to skim aquatic plants and animals off surface). Usually feeds in pairs or small groups. Large concentrations can be seen at migration staging areas. An Idaho study suggested that avian and mammalian predators may significantly affect nest success in some wildlife management areas.

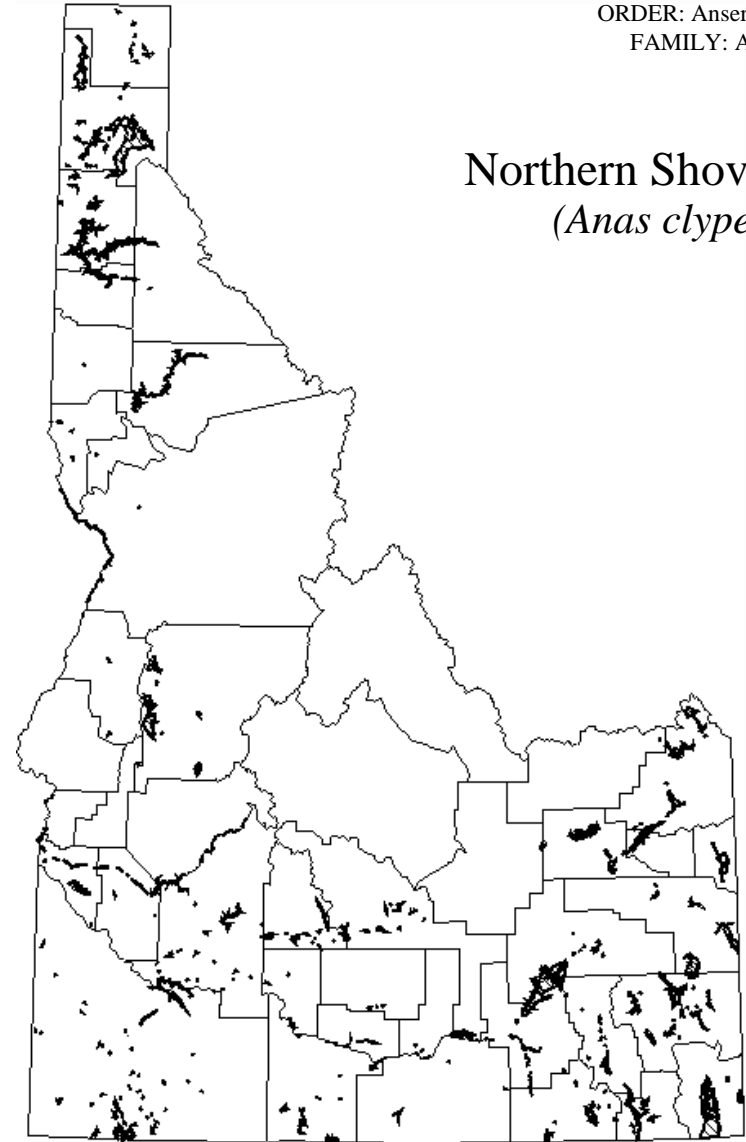
REPRODUCTION: Breeding begins late March in southern range, to early June in north. Female incubates 6-14 eggs (usually 10-12), for 23-25 days. Female tends nestlings, which are precocial and downy, and become independent in about 6-7 wk.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. Thesis, Univ. of Montana, Missoula. 61pp.

ORDER: Anseriformes  
FAMILY: Anatidae

## Northern Shoveler (*Anas clypeata*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from southern Alaska and southwestern and south-central Canada, south to southern Wisconsin, southern Kansas, northern New Mexico, central California, and locally on parts of East Coast. Winters from southern Alaska to central California, across portions of middle U.S. to central Florida and Gulf Coast, and south into south-central Mexico.

HABITAT: Found on lakes, ponds, rivers, and marshes. Prefers freshwater, but may be found on any open water during migration and winter. Moderate- to large-sized wetlands of permanent or semi-permanent nature, expanses of open water with submerged vegetation, and open, undisturbed shorelines are important molting habitats. In Idaho, occupies marshes, lakes, and reservoirs—tends to avoid mountainous areas.

DIET: Feeds on leaves, stems, and tubers of aquatic plants. Also eats algae and seeds of sedges and grasses. Occasionally grazes in pastures and grain fields; may feed on acorns. Eats some small fishes and aquatic invertebrates, which comprise about half spring and summer diet; eats green portions of aquatic plants in non-nesting season. Juveniles initially eat equal amounts of animal and plant food; plant food begins to dominate after 2 wk.

ECOLOGY: Feeds generally in water 15-66 cm deep. Builds concealed nest on ground. One study found that few hundred nests/ha are possible on islands lacking mammalian predators. An Idaho study suggested that mammalian and avian predators may significantly affect nest success in some wildlife management areas. Highest breeding densities occur in northern Great Plains and intermountain valleys of western United States. Molting males may form groups of hundreds or thousands in midsummer.

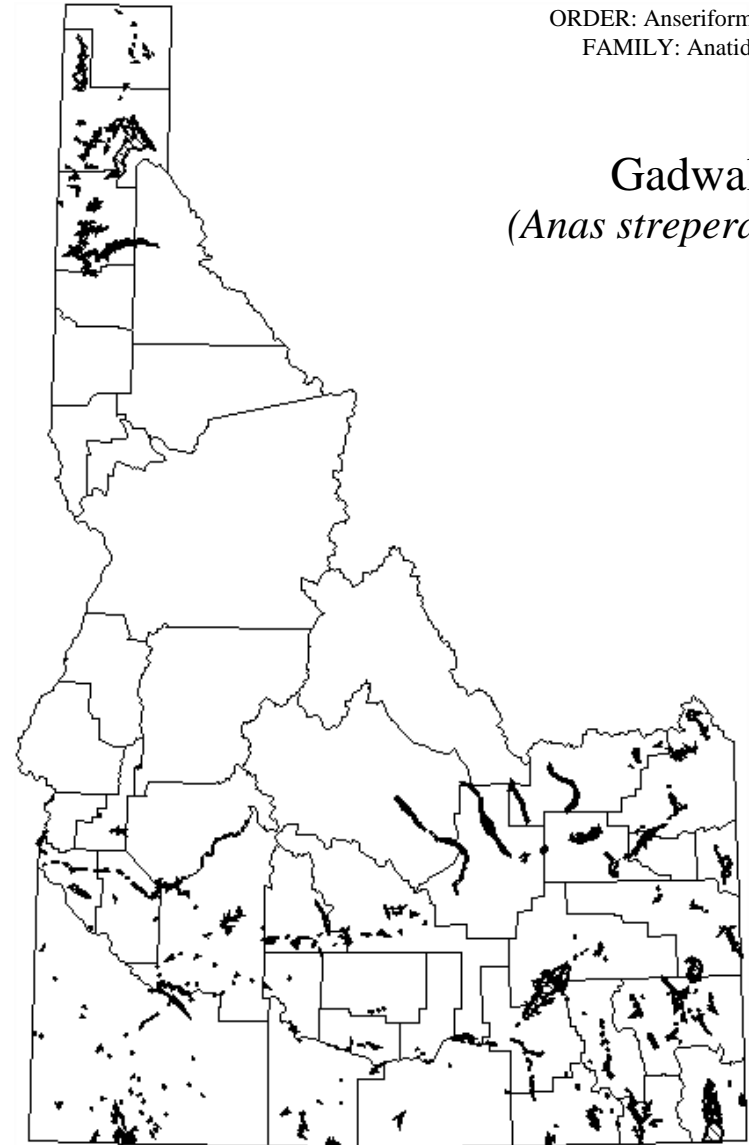
REPRODUCTION: Breeding usually begins in mid-April in southern range, early June in north. Female incubates about 9-11 eggs for 4 wk. Female tends young, which fly at 49-63 days. Species breeds later than most other ducks. Relatively high percentage of yearlings do not breed.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. Thesis, Univ. of Montana, Missoula. 61pp.

ORDER: Anseriformes  
FAMILY: Anatidae

## Gadwall (*Anas strepera*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Anseriformes  
FAMILY: Anatidae

RANGE: Breeds mainly from Alaska, east to Manitoba, and south to northeastern California, northern Nevada, northern Colorado, and portions of Great Plains states. Winters mainly from southern Alaska to Mexico, central U.S. to southern Great Lakes and Ohio Valley, and Nova Scotia south coastally to Gulf Coast.

HABITAT: Generally found on large marshes and lakes. When not breeding, occupies both freshwater and brackish areas and forages on marsh edges, sloughs and sheltered bays. In Idaho, usually inhabits low-elevation lakes, marshes and reservoirs, but may be found on higher-elevation waters during fall migration.

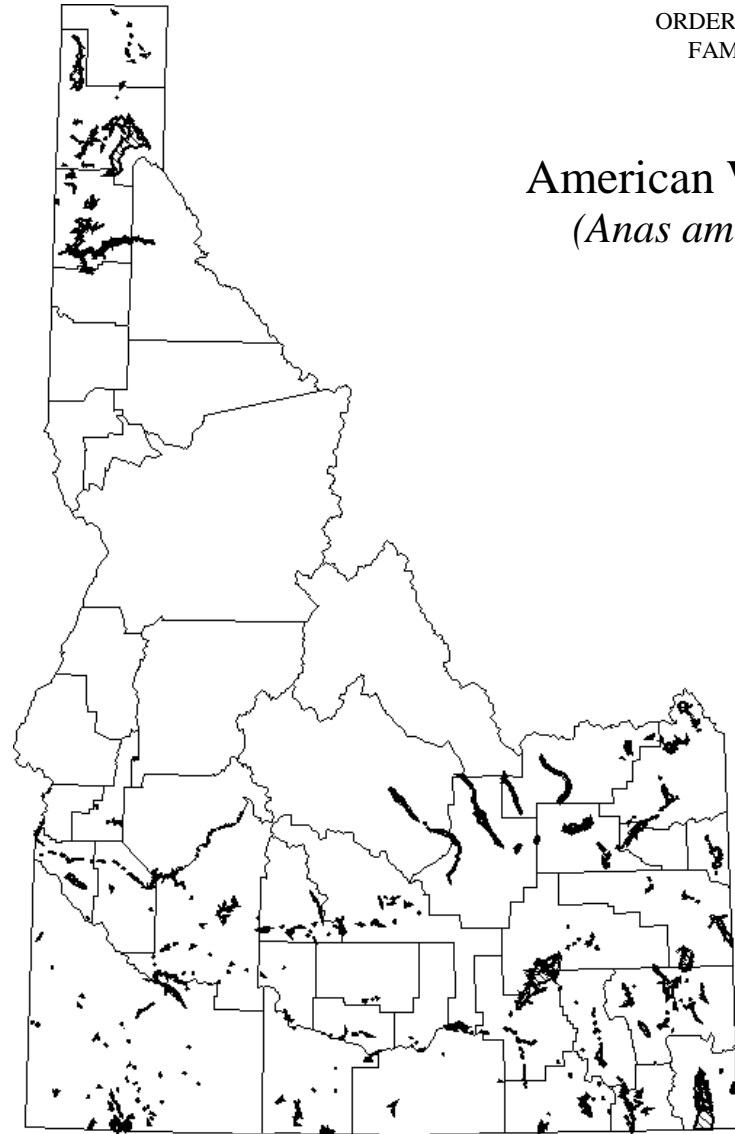
DIET: Feeds on leaves, stems, buds, and some seeds of pondweeds, wigeon grass, grasses, and sedges. May also eat some snails, beetles, and crickets.

ECOLOGY: Builds concealed nest, not necessarily near water. Forages in shallow water and grazes in fields; may damage cultivated crops. In Idaho, known to graze in fields and forage in flooded fields.

REPRODUCTION: Breeding begins in early May in southern range, to early June in north. Clutch size varies from 6-12 eggs, but is usually 9-11. Female incubates eggs (incubation lasts from 22-24 days) and tends young, which become independent in about 6-7 wk.

GIS MODEL NUMBER: 5

## American Wigeon (*Anas americana*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from central Alaska and northwestern Canada, south to northern California, and locally in inland areas to western Nevada, northern Utah, northern Colorado, central New Mexico, and parts of Midwest. Winters along Pacific Coast from Alaska to Baja California, and east through parts of Midwest to Great Lakes; also winters along East Coast from New England to Florida, and west along Gulf Coast to Mexico. Nests primarily in southeastern Idaho.

HABITAT: Found on marshes, ponds, lakes, rivers and bays. Winters on deep, freshwater lakes and rivers as well as on sheltered bays and estuaries. In Idaho, associated with large rivers, lakes and reservoirs.

DIET: Feeds on aquatic plants such as pondweeds, wild celery, water lilies, seeds of grasses, wild rice, sedges, arrowhead, and bulrushes. Rhizomes, tubers, and seeds figure prominently in winter diet. Will also eat some animal food such as mollusks, aquatic insects, and small fishes.

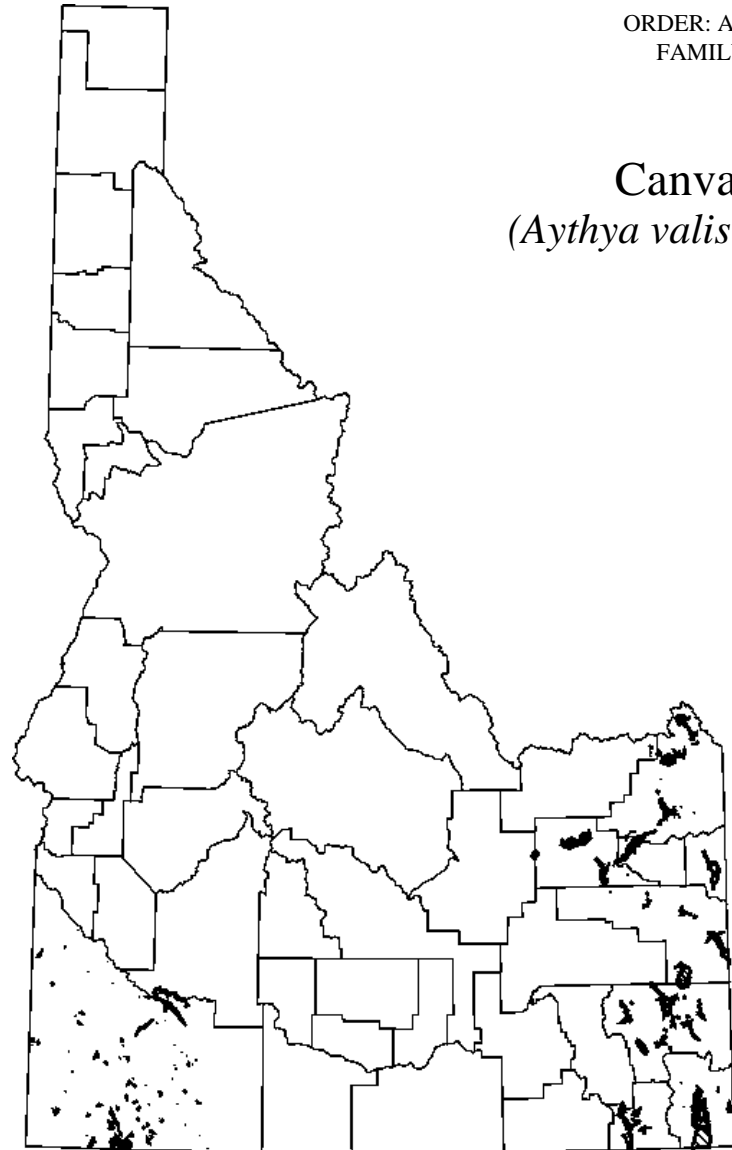
ECOLOGY: Dives underwater to obtain food. Builds concealed, cup-shaped nest over water. In some areas, nests are commonly parasitized by Redhead.

REPRODUCTION: Clutch size varies from 7-12 eggs (usually 9-10). Female incubates eggs and tends young; incubation lasts 23-29 days. Nestlings are precocial and downy. Young first fly at 10-12 wk. Females are philopatric (returning to same site) to breeding areas.

GIS MODEL NUMBER: 5

ORDER: Anseriformes  
FAMILY: Anatidae

## Canvasback (*Aythya valisineria*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Anseriformes  
FAMILY: Anatidae

RANGE: Breeds locally in Alaska, east from there through parts of Canada to Minnesota, and south to parts of Southwest and Midwest; also breeds sporadically in portions of eastern states. Winters from southern British Columbia south to Nevada, northern Arizona, and parts of Midwest, and on East Coast from New England south to Mexico and Guatemala.

HABITAT: Found on large marshes, lakes, lagoons, rivers and bays. Winters mostly on brackish and marine lagoons and bays, less frequently in inland freshwater situations. In Idaho, prefers marshy ponds, lakes, and potholes, except in winter, when it uses deep, open water.

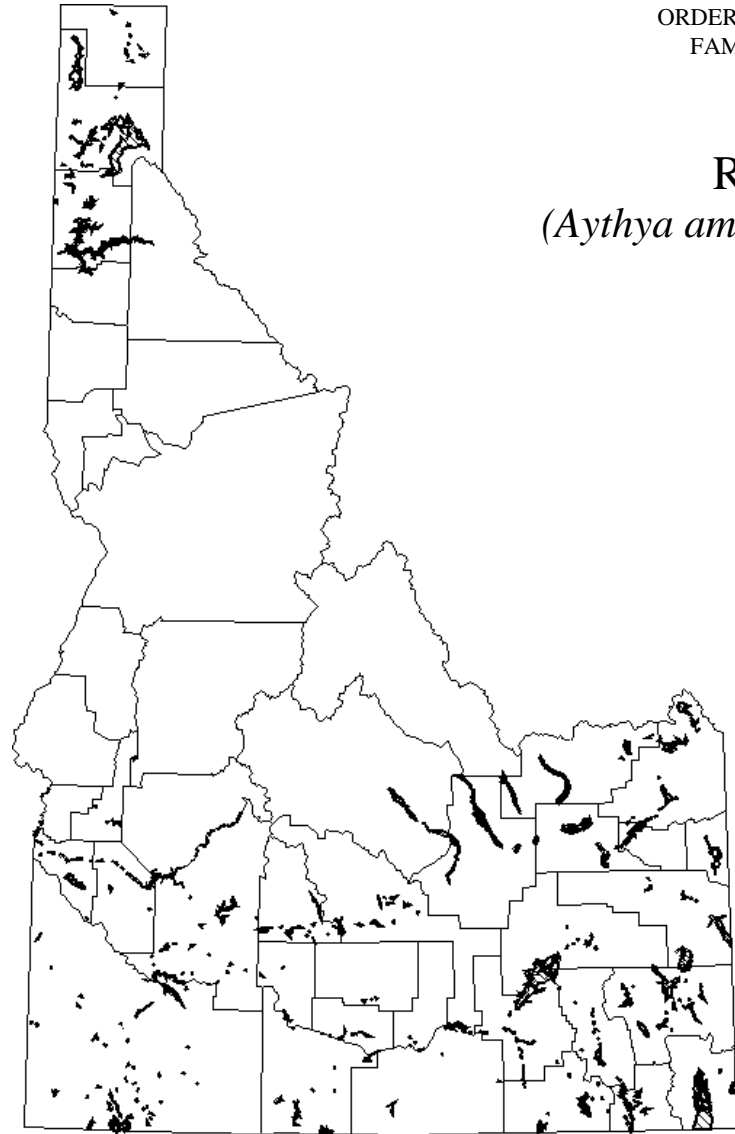
DIET: Feeds on leaves and stems of aquatic plants. Eats pondweeds, wigeon grass, algae, and seeds of sedges and grasses. Will eat some insects, mollusks, and small crustaceans. North Dakota study found breeding individuals ate 51-70% invertebrates (mostly chironomids) and 30-49% plant matter; seeds of shallow-marsh emergent plants were important in diet of females during a wet year.

ECOLOGY: Dives from water surface to obtain food. Builds concealed, cup-shaped nest over shallow water.

REPRODUCTION: In general, breeding begins in late April in southern range, and early June in north. Clutch size varies from 10-16 eggs. Female incubates eggs (incubation lasts 24-28 days) and tends young, which are precocial and downy. Young can fly at 56-73 days. Species often parasitizes other waterfowl nests.

GIS MODEL NUMBER: 5

## Redhead (*Aythya americana*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S3

ORDER: Anseriformes  
FAMILY: Anatidae

RANGE: Breeds from southeastern and east-central Alaska and central British Columbia, east through Saskatchewan to Newfoundland, and south to northeastern California, southeastern Arizona, southern Colorado, and parts of the Midwest to New York. Winters from southeastern Alaska and Massachusetts, south through southwestern U.S. and Mexico to Panama.

HABITAT: Found on marshes, lakes, rivers, and swamps, especially in wooded areas. Winters primarily in freshwater and brackish situations on larger lakes, rivers, and estuaries; prefers deep, open water. In Idaho, prefers shallow forested ponds and lakes for breeding, and large rivers and reservoirs during winter.

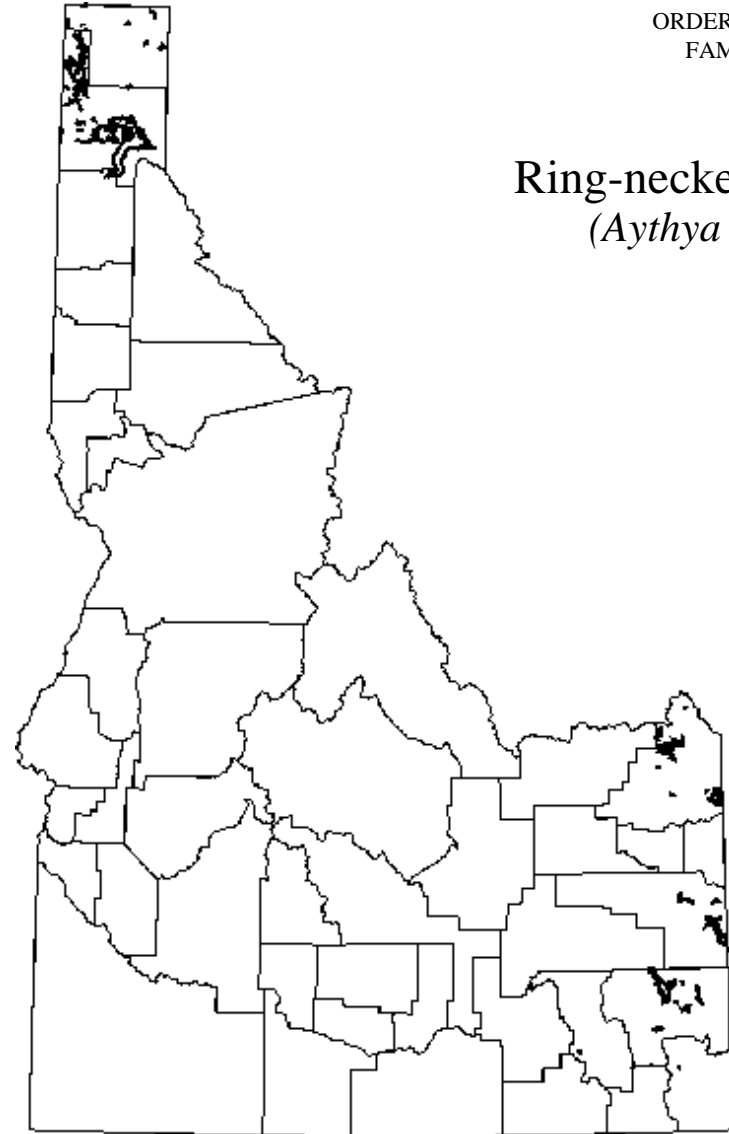
DIET: Plant material, such as tubers, leaves, rootstocks, and seeds of aquatic plants, is important part of diet. Also eats aquatic invertebrates, especially in summer. Downy young eat insects, snails, sponges, seeds, and other plant material.

ECOLOGY: Builds nest in dry spot on ground near water, or sometimes on dry site over water. Dives from water surface to obtain food from as far as 12 m underwater. Most active in early morning and evening; sleeps by day near emergent vegetation by shorelines.

REPRODUCTION: Clutch size varies from 6-14 eggs (usually 8-10). Female incubates eggs (25-29 days), and tends young, which are precocial and downy, and fly about 49 days after hatching.

GIS MODEL NUMBER: 5

## Ring-necked Duck (*Aythya collaris*)





STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from Alaska and parts of Canada, south to northern Idaho, northern Wyoming, northern North Dakota, and Minnesota, and casually or irregularly to western Washington, northeastern California, southern Idaho, northeastern Colorado, and parts of Midwest. Winters from southern Alaska, east to New England, and south through southern Idaho, Utah, northeastern Colorado, parts of Midwest, and southern U.S., to northern Colombia.

HABITAT: During migration and when not breeding, found along coasts in sheltered bays, estuaries, and marshes, or inland on lakes, ponds, and rivers; found on saltwater especially if lakes and ponds are frozen. In southern winter range, prefers freshwater ponds, lakes, and sloughs with reasonably clear water 1 m or more deep.

DIET: Diet consists of about equal amounts of plant and animal food. Feeds on seeds of pondweeds, wigeon grass, wild rice, sedges, and bulrushes. Also eats crustaceans, mollusks, and aquatic insects.

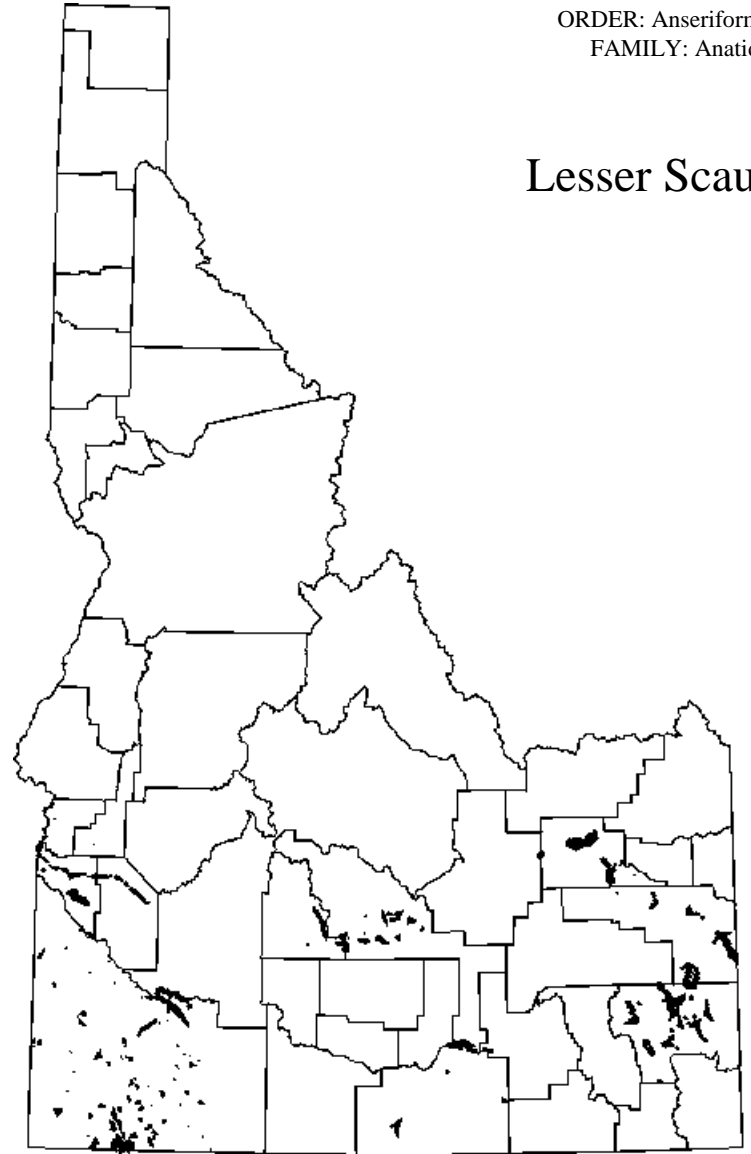
ECOLOGY: Feeds mostly in freshwater 1-2 m deep. Builds nest on ground, close to water; occasionally nests over water. In Idaho, prefers marshes for nesting, and open reservoirs and large rivers during migration and in winter.

REPRODUCTION: Egg-laying begins early May in southern range, to mid-June in north. Clutch size varies from 6-15 eggs, but is usually 9-12 (older females lay largest clutches). Female incubates eggs (incubation lasts 22-27 days) and tends young. A variable percentage of yearling females do not breed.

GIS MODEL NUMBER: 5

ORDER: Anseriformes  
FAMILY: Anatidae

## Lesser Scaup



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G4 STATE RANK: S1

RANGE: Breeds from Alaska and western Canada, south to eastern Oregon, east-central California, Idaho, and Wyoming; also breeds in eastern Canada. Winters from Aleutian and Pribilof islands, south to central California; also winters from Maritime Provinces south to Maryland.

HABITAT: Winters in rough, coastal waters, especially along rocky shores. In Idaho, breeds on forested mountain streams of relatively low gradient free of human disturbance.

DIET: Feeds primarily on crustaceans, mollusks, insects, and a few small fishes (98% of diet consists of animal food).

ECOLOGY: In Idaho, hens nest in cliff cavities, tree cavities, and on ground. Breeding pairs show strong fidelity to breeding streams year after year. Preliminary study data indicate some Idaho birds migrate to San Juan Islands, WA, in winter. Birds migrate to Idaho from Pacific Coast in April and females return to coast in August or September with males returning earlier. Entire Idaho population is less than 100 birds on about 30 streams in northern Idaho.

REPRODUCTION: Clutch size varies from 5-10 eggs (usually 6-8). Female incubates eggs (about 27-32 days) and tends young, which are precocial and downy, fly in 5-6 wk, and apparently breed at 2 yr. Idaho study found mean brood size to be 3.4 young/brood.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Cassirer, E.F., C.R. Groves, and R.L. Wallen. 1991. Distribution and population status of Harlequin Ducks in Idaho. *Wilson Bull.* 103:723-725.

## Harlequin Duck (*Histrionicus histrionicus*)



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Breeds in Alaska, across parts of Canada, and south to northern Washington, central Montana, and across northern U.S. to Maine. Winters from southeastern Alaska to southern California, from Great Lakes to Gulf Coast, and from Newfoundland to Florida.

HABITAT: Found on ponds, lakes, rivers, and coastal bays, wintering primarily on bays and estuaries, less commonly on rivers and lakes. In Idaho, normally associated with water bodies near forests; prefers deep, open waters of large rivers, lakes, and reservoirs.

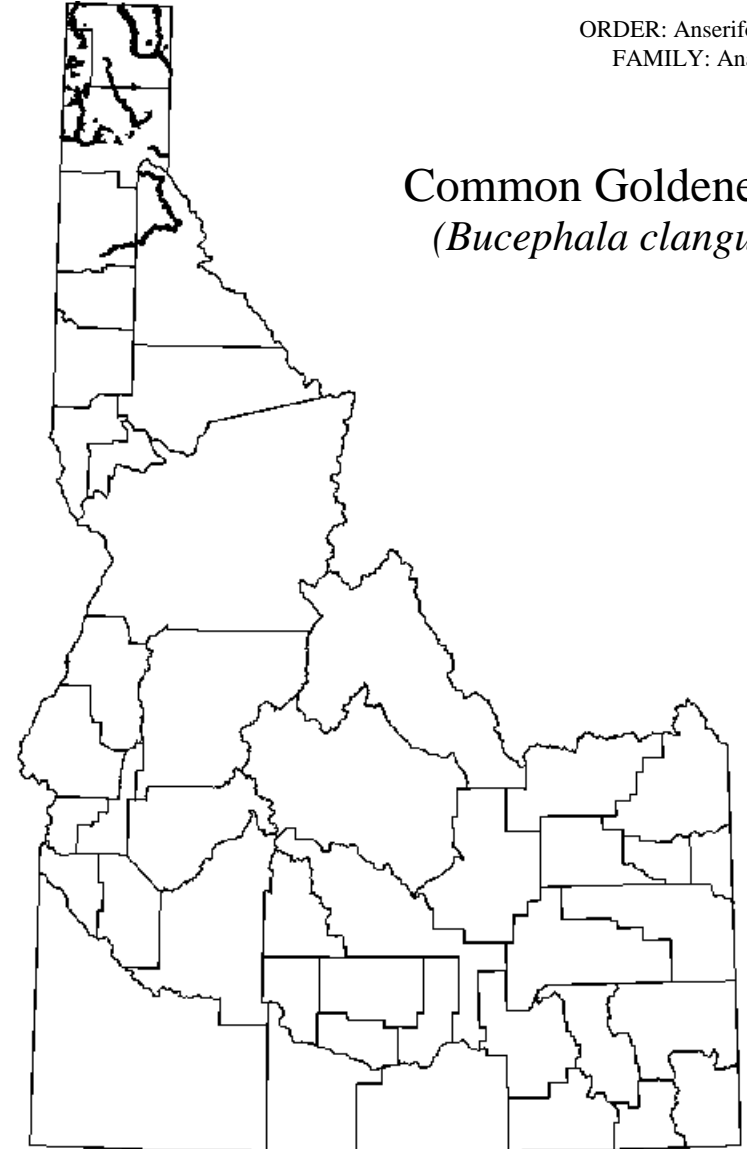
DIET: In inland areas during summer and fall, feeds on aquatic insects, crustaceans, and aquatic plants. Along coastal wintering grounds, feeds largely on crustaceans, mollusks, small fishes, and some plant material.

ECOLOGY: Builds nest in tree cavity near water. Dives under water to obtain food.

REPRODUCTION: Breeding begins early May in southern range, to June in north. Clutch size varies from 5-19 eggs (usually 8-12). Female incubates eggs and tends young; incubation lasts 28-32 days. Nestlings are precocial and downy, and fly at 51-60 days.

GIS MODEL NUMBER: 5

## Common Goldeneye (*Bucephala clangula*)



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Breeds from southeastern Alaska, east through parts of western Canada, and south to eastern Washington, southwestern Oregon, eastern California, northern Montana, and northwestern Wyoming. Also breeds in eastern Canada. Winters from southern Alaska, south along coast to central California, and locally from southern British Columbia and northern Montana, south to southwestern Arizona, Utah and Colorado. Also winters along East Coast.

HABITAT: Winters on lakes, rivers, estuaries, and bays. Frequently winters along Snake River in southern Idaho. In central Idaho, prefers mountain lakes for breeding.

DIET: In inland areas during summer and fall, feeds on aquatic insects, crustaceans and aquatic plants. Along coastal wintering grounds, feeds largely on crustaceans, mollusks, small fishes, and some plant material.

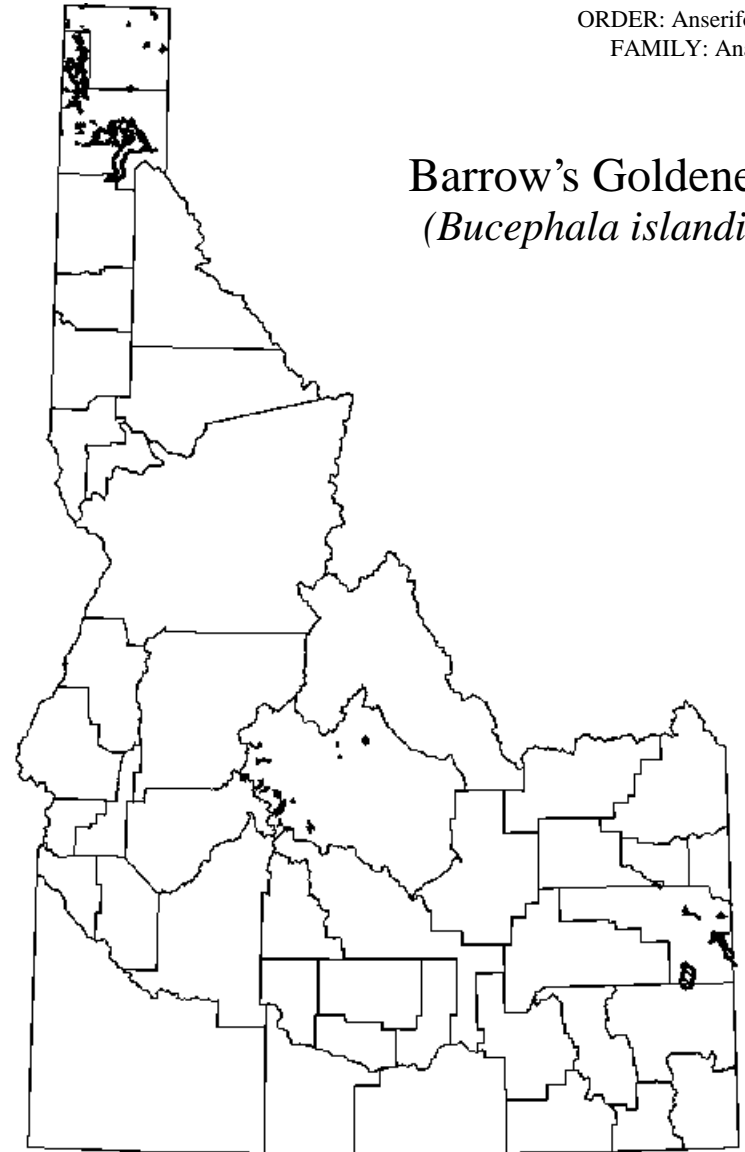
ECOLOGY: Nests in tree cavity near water; may nest on cliff. Intraspecific nest parasitism is common. Dives underwater to obtain food. Usually found in small, scattered groups in summer; found in large flocks in winter. Uncommon breeder in Idaho.

REPRODUCTION: Clutch size varies from 6-15 eggs (usually 10-13). Female incubates eggs; incubation lasts about 30 days. In British Columbia, mean hatching date is mid- to late June. Nestlings are precocial and downy. Adult pair bond may last more than 1 yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Schultz, G.A. 1978. Barrow's Goldeneyes nesting in central Idaho. Murrelet 59:107-108.

## Barrow's Goldeneye (*Bucephala islandica*)



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Breeds from central Alaska and parts of western Canada, south to northern Washington, and east to northern Montana; also breeds (locally) south to mountains of Oregon and northern California. Winters from Alaska, Great Lakes, and Maritime Provinces, south to Mexico and Gulf Coast.

HABITAT: Found on lakes, ponds, rivers, and seacoasts. Winters on sheltered bays and estuaries. In Idaho, occupies ponds, lakes, rivers, and reservoirs; winters on larger bodies of open water.

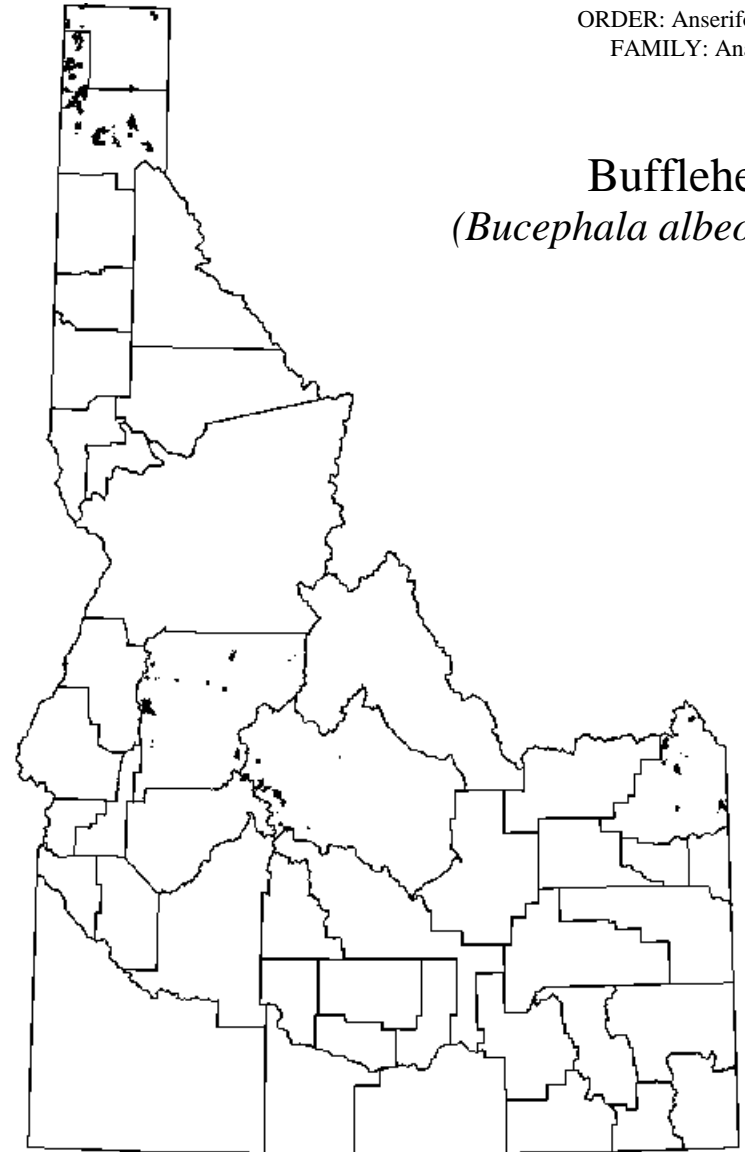
DIET: In freshwater, feeds on aquatic insects, snails, amphipods, small fishes, and some aquatic plants. In saltwater, eats crustaceans, mollusks, fishes, and some aquatic plants.

ECOLOGY: Dives underwater to obtain food. Nests in tree near water, either in natural cavity or in cavity made by flicker or woodpecker. Will also nest in burrow in bank. Female strongly defends brood territory. British Columbia study found that breeding density was not limited by nest sites, but rather by territorial behavior. Usually seen in small groups (2-3 individuals). Usually migrates at night. Breeds uncommonly on mountain lakes in Idaho.

REPRODUCTION: Breeding begins mid-May in southern range, to early June in north. Clutch size varies from 6-11 eggs (usually 7-9). Incubation lasts 28-33 days; female incubates eggs and tends young, which fly 50-55 days after hatching and breed at 2 yr.

GIS MODEL NUMBER: 5

## Bufflehead (*Bucephala albeola*)



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from southeastern Alaska and southwestern Canada, south to southwestern Oregon, eastern Idaho, and northwestern Montana. Also breeds in eastern U.S. and eastern Canada. Winters along Pacific, Atlantic, and Gulf slopes.

HABITAT: Found on streams, lakes, swamps, marshes, and estuaries. Winters mostly in freshwater, but can also be found on estuaries and sheltered bays. In Idaho, prefers wooded streams and flooded bottomlands during summer, and open bodies of water in winter.

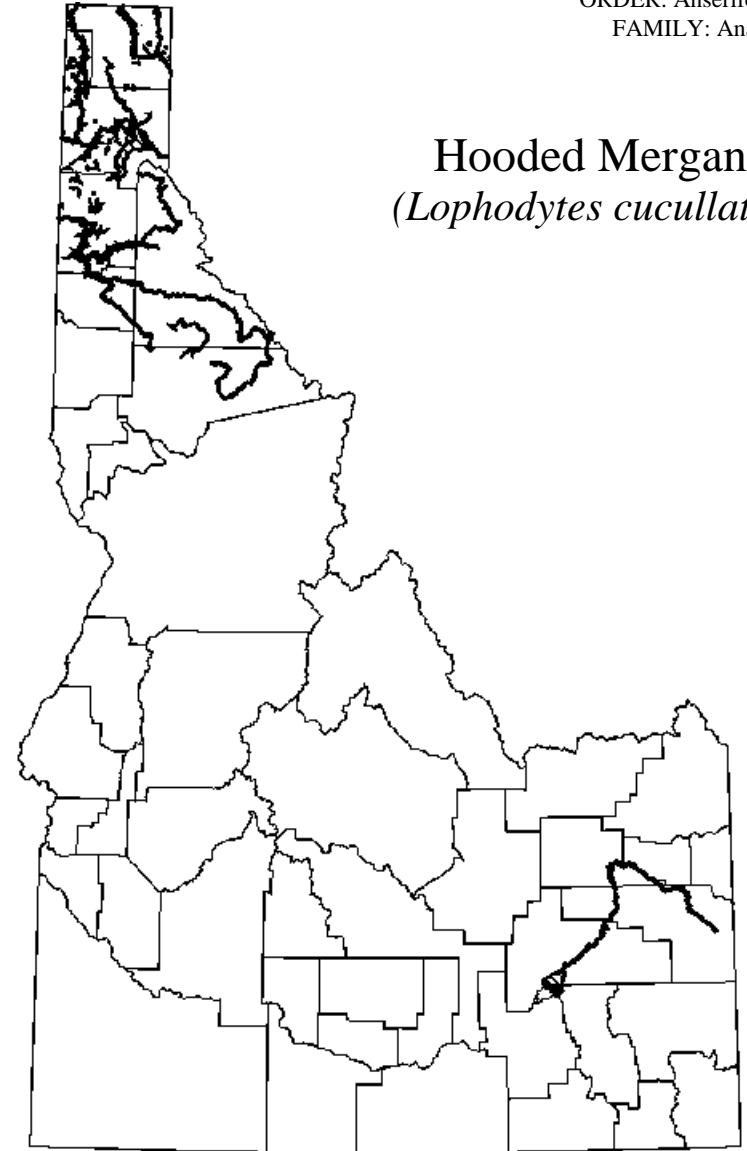
DIET: Eats mostly small fishes, crayfishes, and other crustaceans, but may also eat aquatic insects.

ECOLOGY: Dives underwater to obtain food. Nests in cavity in tree. Limited breeding occurs in northern Idaho and along Snake River in southeast. Usually seen during fall and spring migration and in winter. Similar to Wood Duck in habitat use.

REPRODUCTION: Female incubates 6-18 eggs for 29-37 days. In some areas, nests may include eggs of Wood Duck or Goldeneye. Young first fly at about 10 wk, and first breed at about 2 yr.

GIS MODEL NUMBER: 5

## Hooded Merganser (*Lophodytes cucullatus*)



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from Alaska and Canada, south to central California, Arizona, and Mexico. Also breeds in northeastern U.S. and eastern Canada. Winters from Alaska and southern Canada, south to Mexico and Florida.

HABITAT: Found mostly on lakes and rivers; winters primarily on open lakes and rivers and brackish lagoons, rarely in marine coastal situations. In Idaho, breeds on forest watercourses, and winters on Snake River and larger reservoirs in southern part of state.

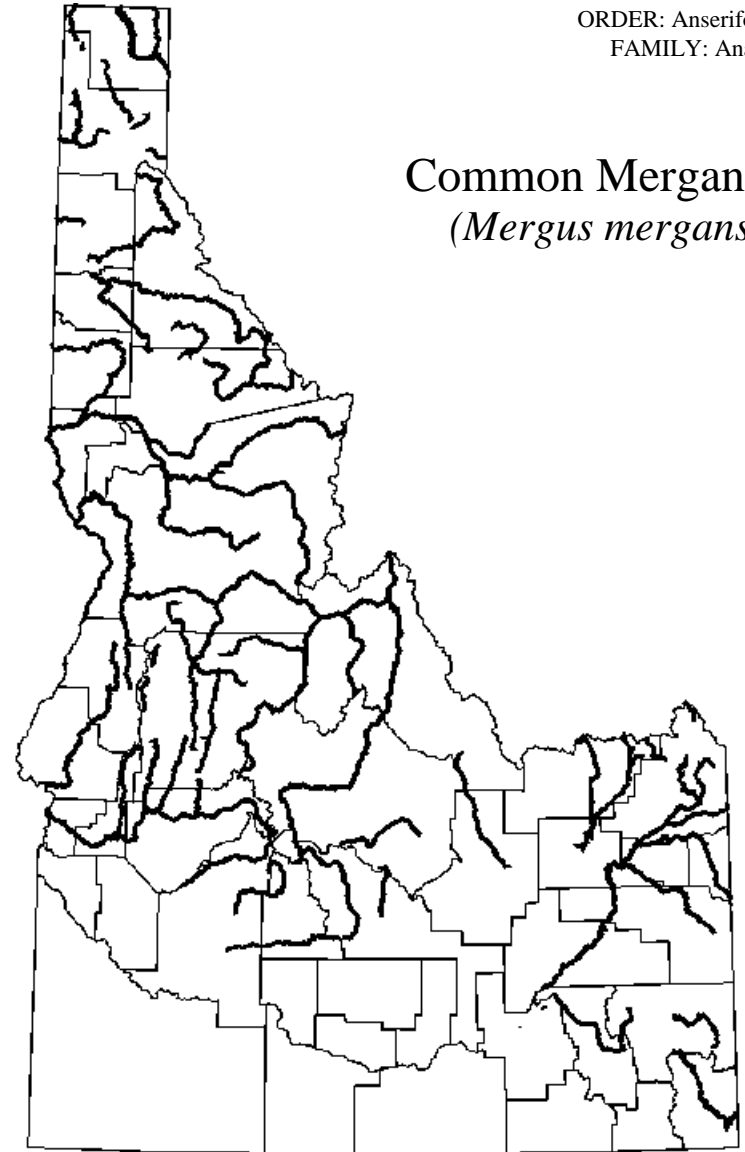
DIET: Eats mainly fishes, but will also eat amphibians, crustaceans, mollusks, and other invertebrates. Young initially feed on insects caught underwater.

ECOLOGY: Dives under water surface to obtain food. Usually nests in cavity in tree, but will occasionally nest on ground, around shrubs or under rocks.

REPRODUCTION: Female incubates 6-17 eggs (usually 9-12), for 28-32 days. Young first fly at 60-70 days, and breed at end of second year.

GIS MODEL NUMBER: 5

## Common Merganser (*Mergus merganser*)



ORDER: Anseriformes  
FAMILY: Anatidae

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from Alaska (casually) and parts of Canada, south to southern California, central Arizona, southern New Mexico, western and southern Texas, and southwestern Louisiana. Scattered, sporadic, or former breeding located in several other areas in U.S., Canada, and Mexico. Winters from southern British Columbia, Idaho, Colorado, Kansas, Great Lakes, and Atlantic Coast, south throughout southern U.S., most of Mexico, and South America.

HABITAT: Found on marshes, lakes and coastal areas. When not breeding, found on sheltered, brackish and marine coastal areas, as well as on lakes and rivers.

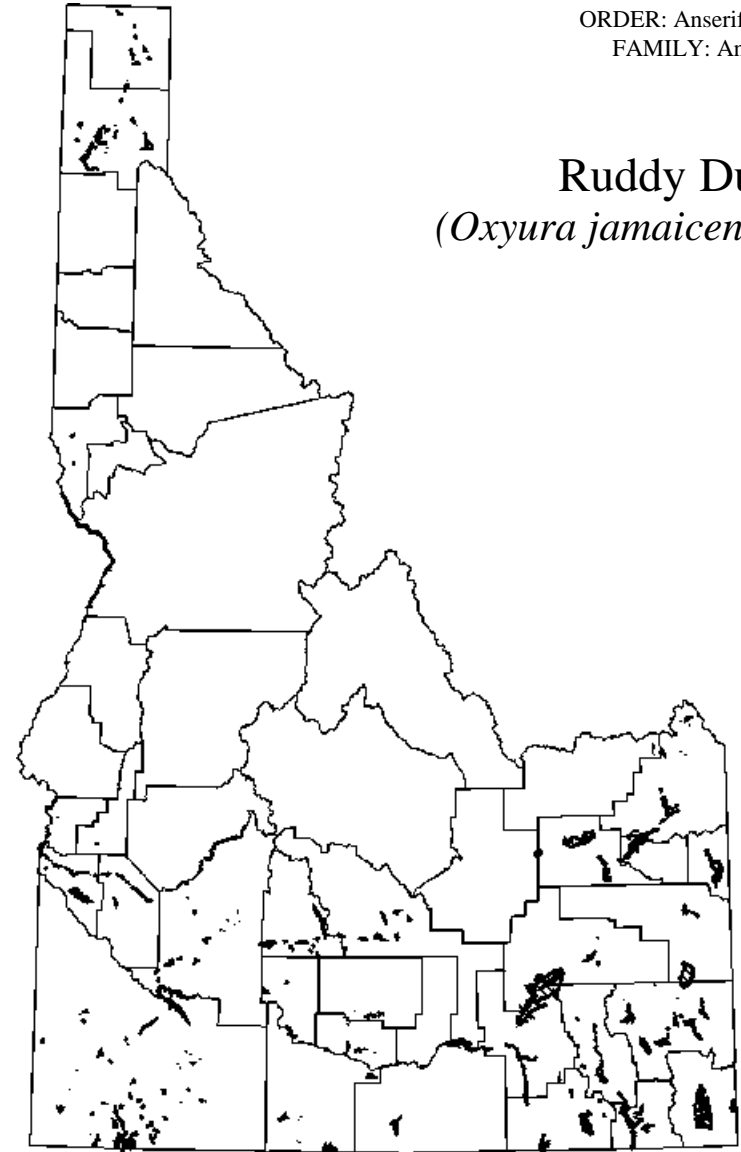
DIET: Diet varies with age, season, and site. Eats pondweeds, algae, wild celery, seeds of sedges, smartweeds, grasses, insects and their larvae, and shellfish and crustaceans.

ECOLOGY: Dives under water surface to obtain food. Basically diurnal, but appears to migrate mostly at night. Nests over or close to water (preferably shallow water with emergent vegetation).

REPRODUCTION: Female incubates 6-10 eggs (sometimes 5-17), for about 23 days. Male often accompanies female and brood. Often parasitizes Redhead and Canvasback nests.

GIS MODEL NUMBER: 5

## Ruddy Duck (*Oxyura jamaicensis*)





ORDER: Falconiformes  
FAMILY: Cathartidae

## Turkey Vulture (*Cathartes aura*)

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southern British Columbia, east to southern Manitoba and New England, and south through U.S. and Middle America to South America. Winters mainly from northern California, Arizona, Ohio Valley, and Maryland south to South America.

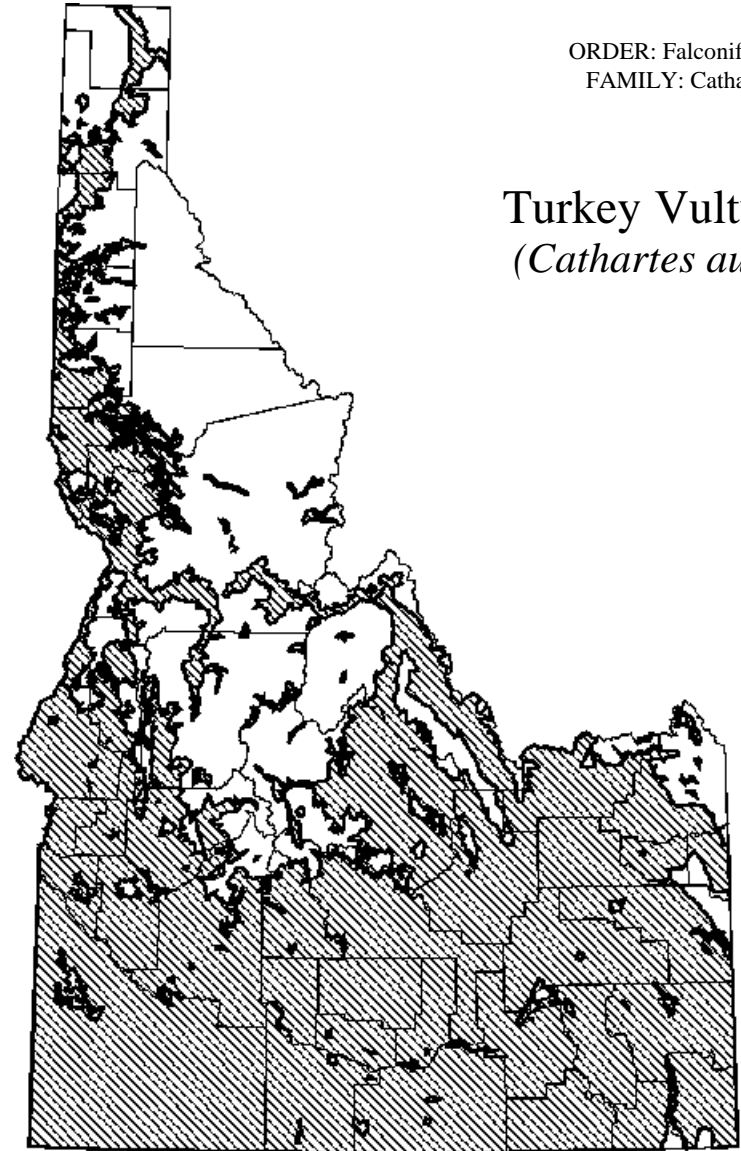
HABITAT: Found in forested and open situations (more commonly in latter), from lowlands to mountains. In Idaho, occupies broad valley and mountain areas.

DIET: Eats mainly vertebrate carrion; prefers fresh meat. Sometimes eats ripe or rotten fruits.

ECOLOGY: Uses scant nest on cliff or standing snag. May roost singly, or in large flocks in trees at night; roosts are often near or over water. In Maryland/Pennsylvania study, average distance between communal roost and feeding site was 8 km. Roosts may be temporary (at food source), seasonal (spring-fall), or permanent. In one study, most individuals left roost 3.5-5 hr after sunrise. Individual may remain at roost up to 2 or more days during rainy weather. Locates food visually, or by odor. Hunts at 60 m, but migrates between 1200-1500 m. Light wing loading permits ease of flight. Species is resistant to botulism.

REPRODUCTION: Both sexes incubate 2 eggs (usually) for 5-6 wk. Young first fly at about 9 wk. Family may stay together several months after young fledge.

GIS MODEL NUMBER: 1



ORDER: Falconiformes  
FAMILY: Accipitridae

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from northwestern Alaska, east to northern Saskatchewan, Labrador, and Newfoundland, and south to Baja California, Arizona, Gulf Coast, Florida, and Yucatan Peninsula. Winters from California and Gulf Coast, south through Central America to South America.

HABITAT: Found along rivers, lakes, reservoirs, and seacoasts, occurring widely in migration, often crossing land between bodies of water.

DIET: Feeds almost exclusively on fishes (usually live).

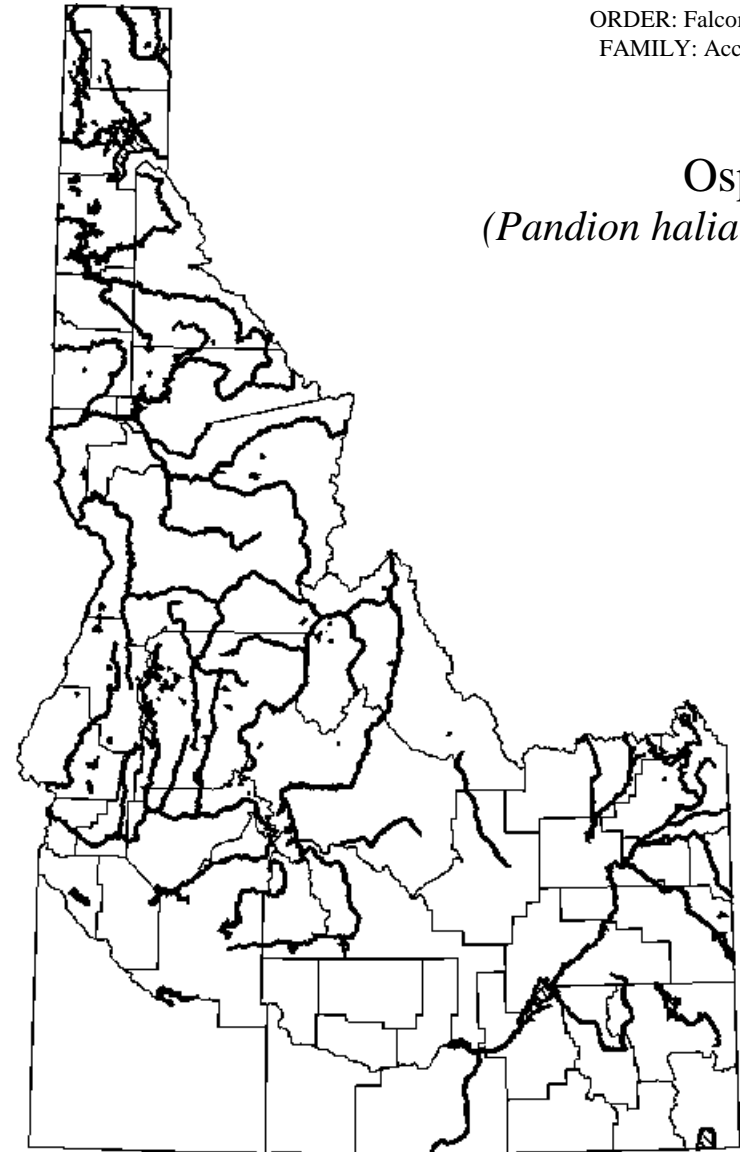
ECOLOGY: Catches food by diving feet-first into shallow water. Builds stick nest usually near water (sometimes up to 5 km from water), in tree or atop pole. Sometimes nests semi-colonially. Artificial platforms are highly productive, and help expand local populations, especially along reservoirs. Species is kleptoparasitised by Bald Eagles. Idaho study revealed birds nesting in northern Idaho winter in Central America. Northern Idaho nestlings disperse to Nevada, Oregon, and Montana.

REPRODUCTION: Female incubates 2-4 eggs (usually 3), for about 38 days; male provides food (Idaho study found young/nest averaged 1.37). Young first fly at 44-59 days, and are dependent on parents for 6 wk or more (less in northern range). Breeding usually occurs at 3 yr, sometimes at 4-5 yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Johnson, D.R. and W.E. Melquist. 1991. Wintering distribution and dispersal of northern Idaho and eastern Washington ospreys. *J. Field Ornithol.* 62:517-520.

## Osprey (*Pandion haliaetus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S3

ORDER: Falconiformes  
FAMILY: Accipitridae

RANGE: Breeds from central Alaska, east to northern Saskatchewan, Labrador, and Newfoundland, and south, locally, to northern Mexico, New Mexico, Arizona, Texas Gulf Coast, and Florida; very local breeder in interior North America. Winters generally throughout breeding range except in far north.

HABITAT: Found primarily near seacoasts, rivers, and reservoirs and lakes.

DIET: Catches fish (or steals from osprey); also eats various mammals and carrion. Idaho diet includes fish, big game carrion, waterfowl, and jackrabbits.

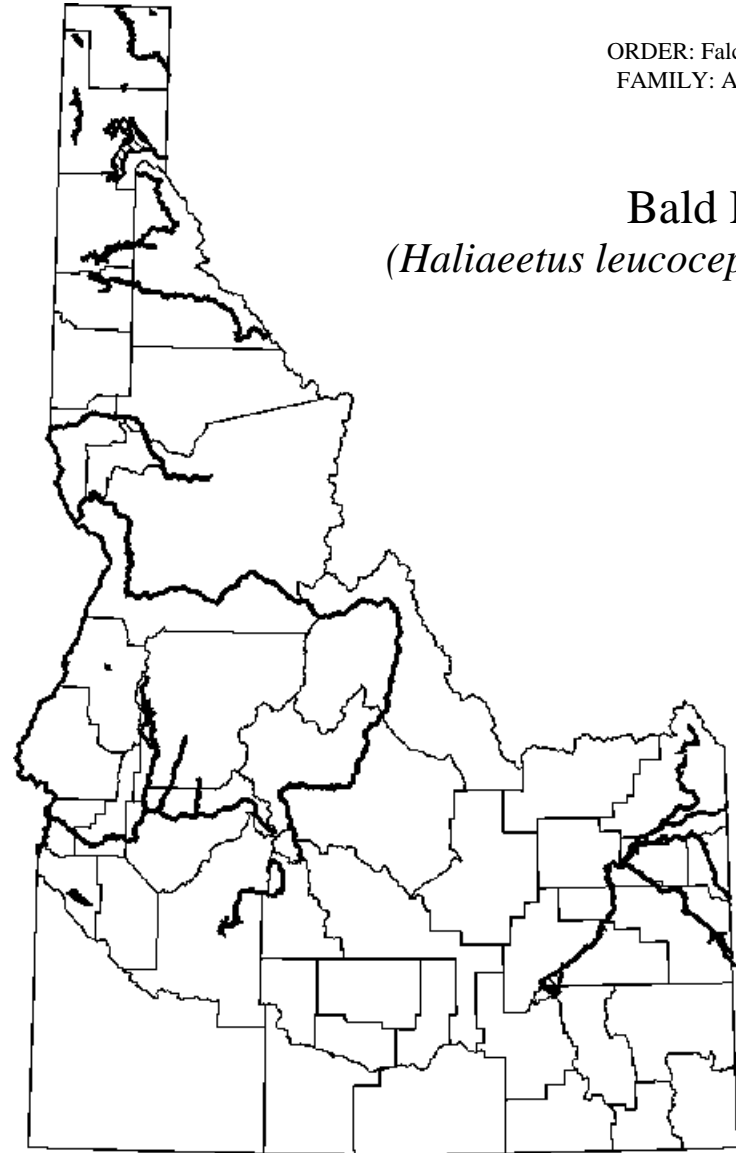
ECOLOGY: Forages from high altitudes; often forages from perch. Builds stick nest in fork of tall tree, or occasionally on cliff. In winter, adults often roost communally at night, in trees used in successive years. In winter in some areas, adults preferentially roost in conifers, or other sheltered sites, and may associate with waterfowl concentrations, or congregate in areas with abundant dead fish (in Idaho, individuals congregate in numbers on watercourses in northern, eastern, and southwestern parts of state). Montana study determined introduction of shrimp (*Mysis relicta*) had cascading effect through food chain, ultimately causing displacement of Bald Eagles. North-central Arizona study found February-April home ranges of immatures averaged 400 km<sup>2</sup>; birds moved frequently and roosted singly or in small groups. Home ranges of Bald Eagles nesting along Cascade Reservoir in west-central Idaho have ranged from 15-60 km<sup>2</sup> during breeding season, and have typically been half that size at other times (management recommendations suggest 400 m buffer zone around nest sites to protect key habitat features such as nests, perch trees and food resources). From 1979-1995, Idaho's nesting Bald Eagle population increased from 11 to 77 occupied territories. In 1995, 51 pairs from occupied territories successfully fledged an average of 1.2 young/pr.

REPRODUCTION: Both sexes incubate 1-3 eggs (usually 2) for about 5 wk. Second-hatched young sometimes dies. Young first fly at 10-12.5 wk, remain around nest for several more weeks, and generally do not breed until about 5-6 yr. Adults may not lay every year.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Beals, J., and W. Melquist. 1995. Idaho bald eagle nesting report, 1995. Idaho Dept. Fish & Game, Boise. 23pp.

## Bald Eagle (*Haliaeetus leucocephalus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from Alaska, east to Quebec, and south to Baja California, southern Texas, southern Missouri, West Virginia, and southeastern Virginia. Winters from southern Canada to northern South America.

HABITAT: Found on marshes, meadows, grasslands, and cultivated fields. In Idaho, associated with deserts, marshes and irrigated agriculture; avoids forested areas.

DIET: Eats small mammals (especially voles and cotton rats), small and medium-size birds (especially passerines), and some reptiles, amphibians, large insects, and carrion.

ECOLOGY: Nests on ground. Perches on ground, or on stumps or posts. Hunts mostly in early morning and late afternoon in some areas, but may hunt throughout day. Usually flies low when hunting; captures prey on ground. In winter, throughout range, individuals may aggregate in communal roosts in areas of high prey density, and may hunt in same area for several consecutive days. Roosts in winter in undisturbed fields or marshes. In southwestern Idaho study, male and female home ranges were 15.7 km<sup>2</sup> and 1.13 km<sup>2</sup>, respectively. Males hunted up to 9.5 km from nests for voles and whiptail lizards.

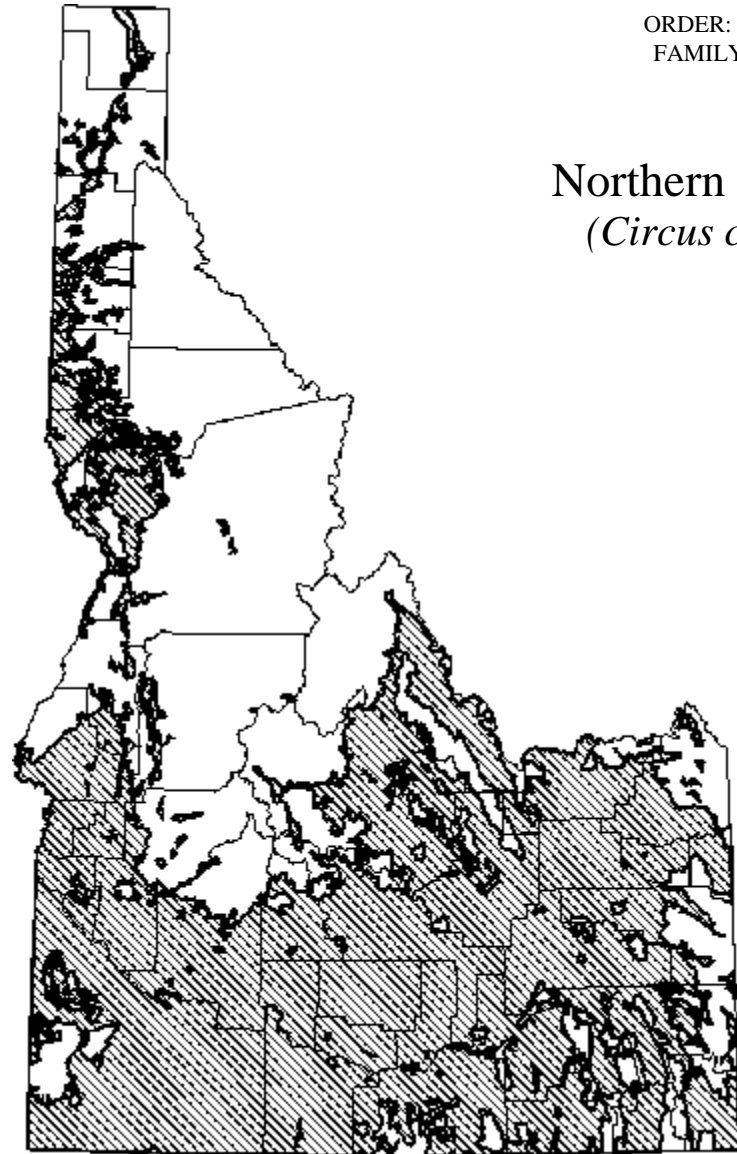
REPRODUCTION: Clutch size usually varies from 3-6 eggs. Female incubates eggs for about 30-32 days; male brings food. Young fly at about 30-35 days, and usually breed at 2+ yr. Some males are polygynous. Number of breeders and clutch size may increase when prey is abundant.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Martin, J.W. 1987. Behavior and habitat use of breeding Northern Harriers in southwestern Idaho. *J. Raptor Res.* 21:57-66.

ORDER: Falconiformes  
FAMILY: Accipitridae

## Northern Harrier (*Circus cyaneus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Falconiformes  
FAMILY: Accipitridae

RANGE: Breeds from Alaska, east to Saskatchewan, Labrador, and Newfoundland, and south to South America. Winters (casually) north to southern Alaska and southern Canada, and south to Panama.

HABITAT: Found in forests and open woodlands (coniferous, mixed, or deciduous, but primarily coniferous in more northern and mountainous portions of range). Migrates through various habitats, mainly along ridges, lakeshores, and coastlines.

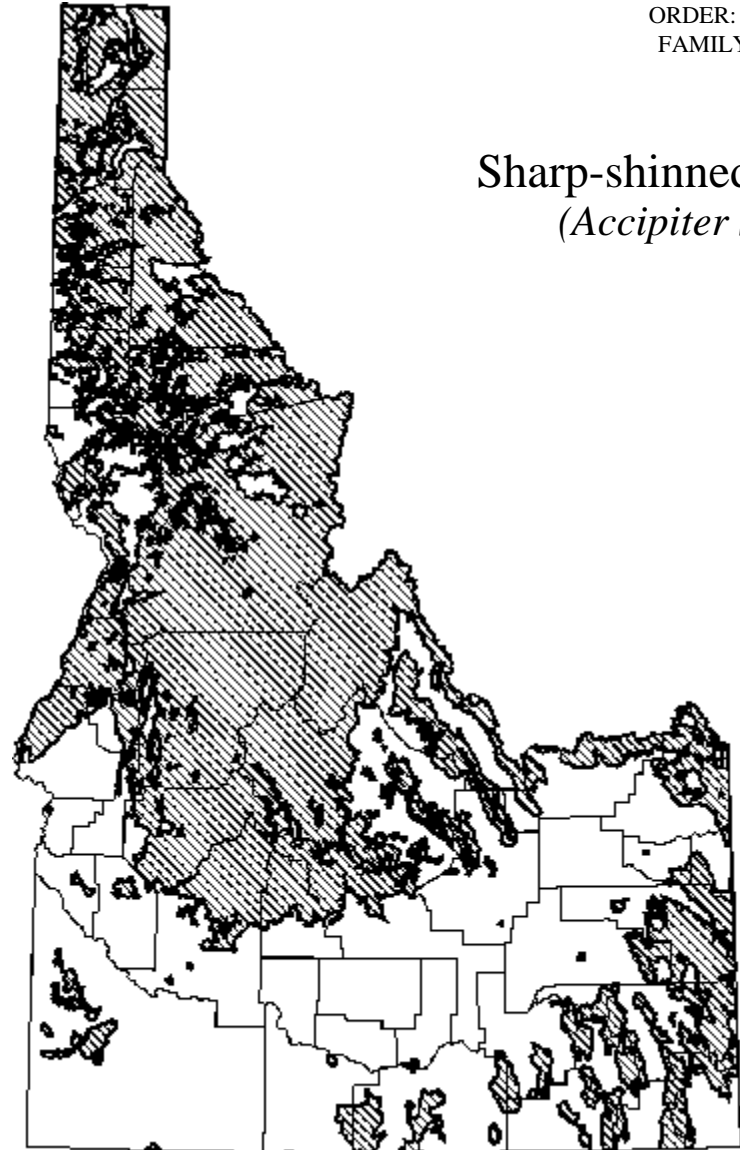
DIET: Eats mainly small- to medium-size birds, but will occasionally eat small mammals, insects, and lizards.

ECOLOGY: Builds stick nest in coniferous or deciduous tree. Oregon study found average distance between nests was 4.3 km. Captures prey in mid-air, or takes prey from its perch. Species is extensive migrant in fall in Idaho, occupying urban areas with abundant prey (primarily House Sparrows). Individual members are occasionally killed by larger raptors; species has suffered from pesticide contamination.

REPRODUCTION: Female incubates 4-5 eggs for 30-32 days (34-35 days has also been reported); male brings food. Young fledge at 3-4.5 wk, are independent at about 7 wk, and first breed at 2 yr (sometimes as yearlings).

GIS MODEL NUMBER: 1

## Sharp-shinned Hawk (*Accipiter striatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4, NTMB

ORDER: Falconiformes  
FAMILY: Accipitridae

RANGE: Breeds from southern British Columbia, east to central Saskatchewan and Nova Scotia, and south to northern Mexico and southeastern United States. Winters from Washington, Colorado, southern Minnesota, southern Ontario, and New England, south to Middle America.

HABITAT: Primarily found in mature forests (either deciduous or coniferous, but mostly the former); also found in open woodlands and forest edges. Migrates mostly along ridges and coastlines. In Idaho, nests in coniferous and deciduous forests (especially along riparian corridors), and occupies edges and more open habitat when not breeding.

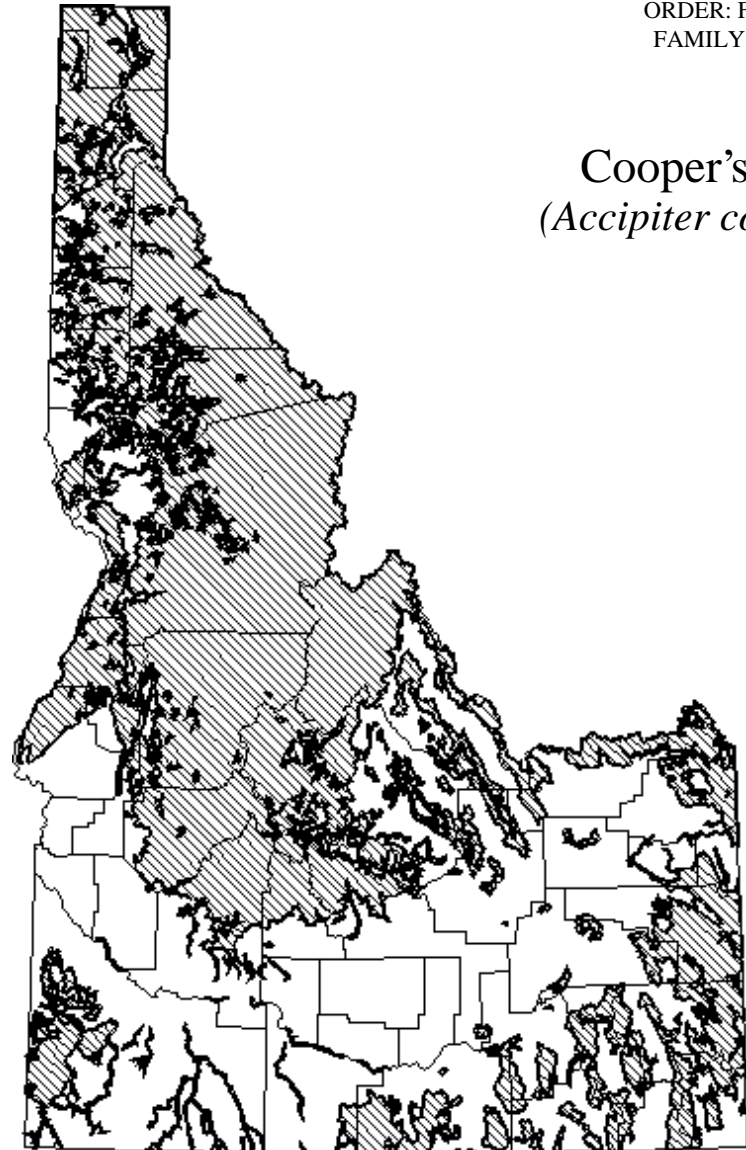
DIET: Eats mainly medium-size birds such as starlings, thrushes, and quail. Will also eat some birds up to size of adult Ruffed Grouse, small birds, small mammals, reptiles, and amphibians.

ECOLOGY: Secretive. Typically hunts from inconspicuous perch. Sometimes attracted to birds at feeders. Builds stick nest in coniferous or deciduous tree. In various areas, nesting density has been measured at 1 nest/730-2300 ha; nests are usually not closer than 1 km apart. Individuals maintain small territory centered on nest site. Annual mortality has been measured at about 80% in immatures, and 34% in adults. Idaho population is partially migratory—pushed into lower elevations and into southern Idaho during winter.

REPRODUCTION: Female incubates 4-5 eggs for about 5 wk; male brings food. Young leave nest at 4-5 wk, return to nest for food for about 10 days, become independent at about 8 wk, and first breed at 2 yr (occasionally at 1 yr.)

GIS MODEL NUMBER: 1

## Cooper's Hawk (*Accipiter cooperii*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4, NTMB

RANGE: Breeds from western and central Alaska, east to northeastern Manitoba, Labrador, and Newfoundland, and south to central California, southeastern Arizona, eastern foothills of Rockies, southern Manitoba, New England, and Appalachians; breeds locally in Mexico. Winters throughout breeding range and irregularly south to northern Mexico.

HABITAT: Found in deciduous and coniferous forests, along forest edges, and in open woodlands. Will forage in cultivated regions. Migrates mostly along ridges and coastlines. In Idaho, summers and nests in coniferous and aspen forests; winters in riparian and agricultural areas.

DIET: Eats mainly rabbits, squirrels, ducks, and upland game birds; local diet depends partly on availability.

ECOLOGY: Builds stick nest in coniferous or deciduous tree. Nests are usually 2 km or more apart, but may be as close as 0.8 km. Tends to hunt low in forest canopy; most hunting is conducted from perch. From 1980-1990, 34 goshawk territories were identified on Targhee National Forest. Nests were in dense stands of old-growth coniferous timber with high canopy cover. Timber harvest activities may be negatively affecting occupancy rates of goshawks.

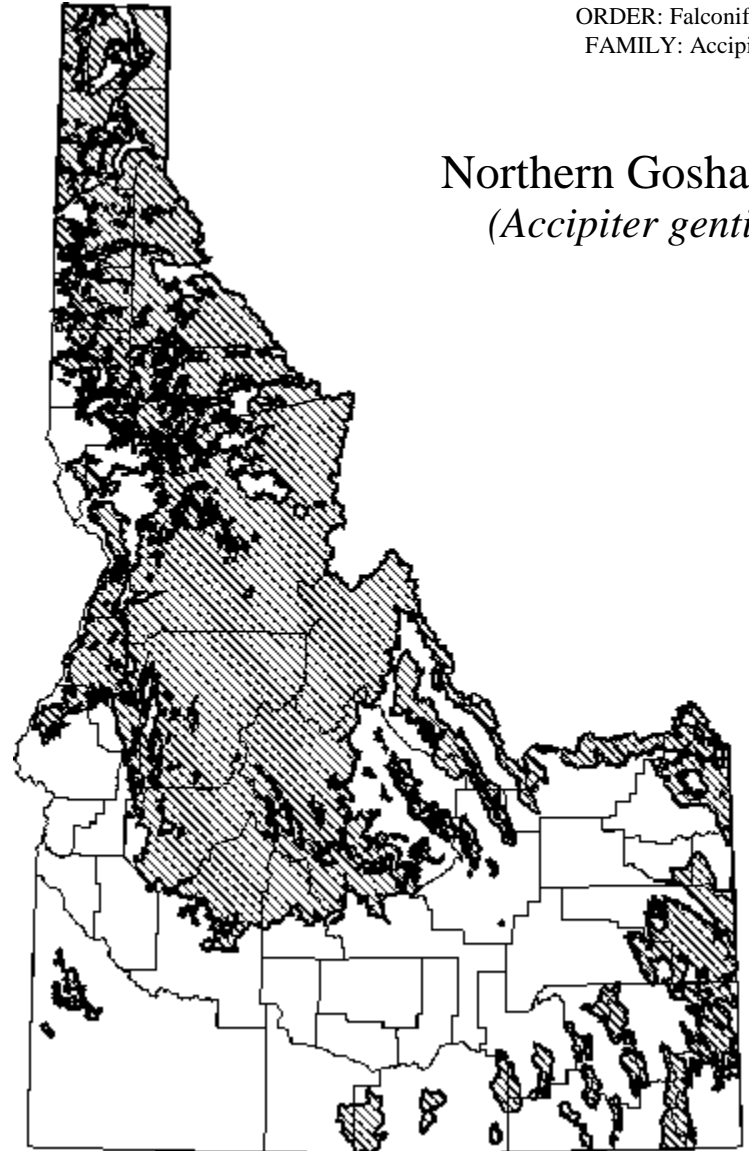
REPRODUCTION: Female incubates 2-4 eggs for 32-34 days/egg; male provides food. Young leave nest at 5-6 wk, begin hunting at about 50 days, and become independent at about 70 days. Some individuals breed as yearlings.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Patla, S. 1991. Northern Goshawk monitoring project #2. USDA Targhee National Forest, St. Anthony. 42pp.

ORDER: Falconiformes  
FAMILY: Accipitridae

## Northern Goshawk (*Accipiter gentilis*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4, NTMB

RANGE: Breeds in portions of Alaska and western Canada, east to Minnesota and Illinois, and south to southern California, parts of Mexico, Texas, and Missouri; eastern breeding limits are unstable. Winters from southwestern U.S. and southeastern Florida (irregularly), south to South America.

HABITAT: Found in open pine/oak woodlands, and in cultivated land with scattered trees (e.g., alfalfa and other hay crops, and certain grain and row crops, but not vineyards, orchards, rice, or corn). During migration and in winter, also found in grasslands and other open country. In Idaho, prefers to nest in trees or shrubs near riparian zones adjacent to agricultural lands.

DIET: Vertebrates (mainly mammals such as young ground squirrels and pocket gophers) dominate diet during breeding season; invertebrates (especially crickets and grasshoppers) are common food at other times. Depending on availability, individuals also eat snakes, lizards, birds, amphibians, and some carrion. Concentrations of Swainson's Hawks foraging on grasshoppers have been documented in Idaho.

ECOLOGY: Hunts while soaring or from perch. Builds stick nest in tree, or occasionally on cliff. Nesting density in suitable habitat varies from 0.1-1.6 nests/10 km<sup>2</sup>; nests average 1.4-2.4 km apart. May form pre-migratory aggregations in summer and migrate in immense flocks. Migrants may roost at night on ground in very large fields, and go without feeding during most of migration (with occasional feeding during initial and terminal stages). In Idaho, species is highly migratory (present between April and September and winters in Argentina). A 1985 survey in southern Idaho located 109 occupied nests and indicated that Swainson's Hawks were still a widespread common nester in state.

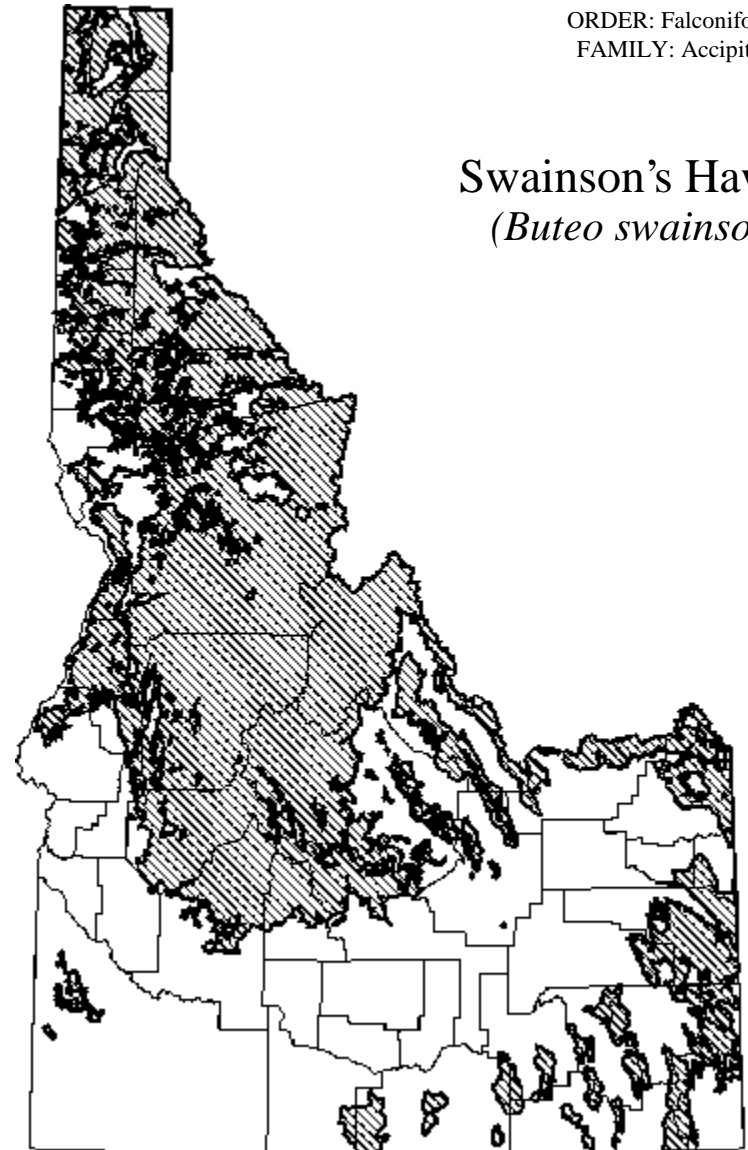
REPRODUCTION: Female incubates 2-3 eggs for 34-35 days/egg (laid April-May in Oregon, mainly May-June in Canada). Both adults tend young (Idaho study reported 1.17 young/nest). Young leave nest in about 30 days, fly at 42-44 days, depend on parents for 4-4.5 wk after fledging, and first breed at 2 yrs.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Bechard, M.J., K.D. Hague-Bechard, and D.H. Porter. 1986. Historical and current distributions of Swainson's and Ferruginous Hawks in southern Idaho. Dept. Biology, Boise St. Univ., Boise. 58pp.

ORDER: Falconiformes  
FAMILY: Accipitridae

## Swainson's Hawk (*Buteo swainsoni*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Falconiformes  
FAMILY: Accipitridae

RANGE: Breeds from parts of Alaska and parts of western and southern Canada, south to Baja California, northern Mexico, southern Texas, Gulf Coast, and Florida, and south from there through highlands of Middle America to Costa Rica and western Panama. Winters from southern Canada, south through remainder of breeding range, and in lowlands of Central America.

HABITAT: Found in various settings from open woodlands and forests to desert and agricultural lands.

DIET: Opportunistic. Commonly eats rodents, birds, and reptiles, but will also eat other vertebrates and invertebrates as available. In Idaho, diet often includes ground squirrels, gophers, rabbits, mice, small birds, and reptiles. In Idaho studies, prey selection depended on relative prey densities and diet.

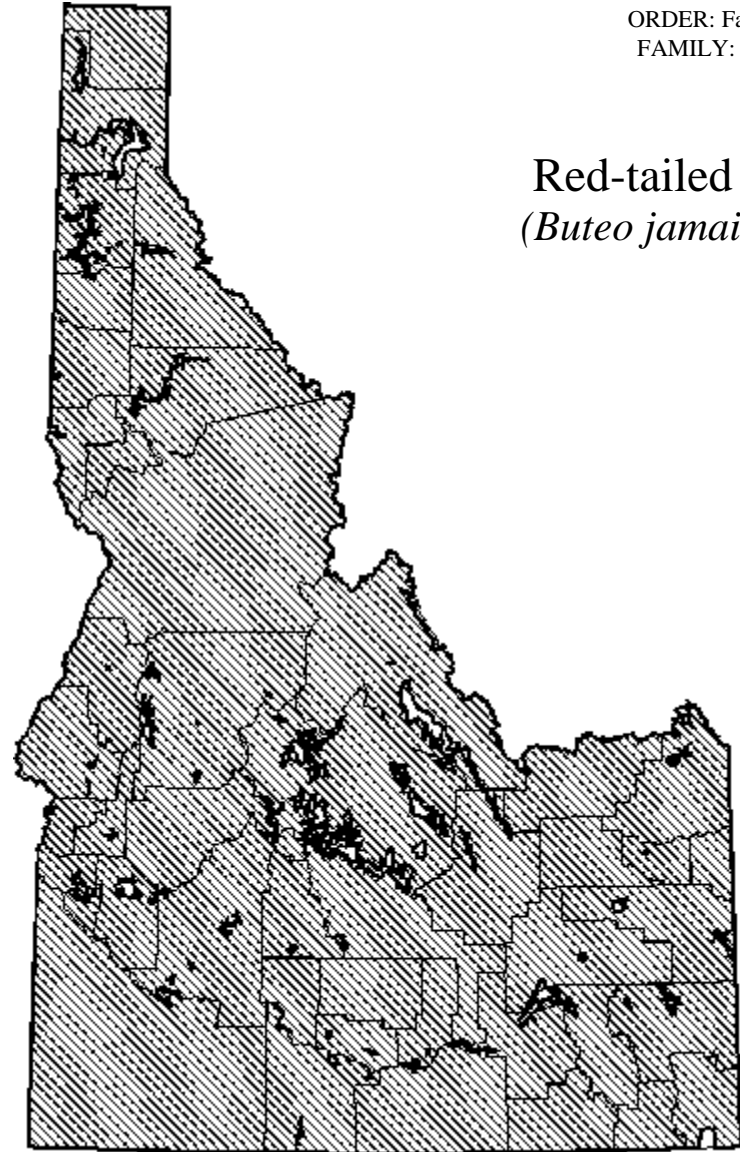
ECOLOGY: Builds stick nest in cliff, tree, or on artificial structure. Breeding density (pairs/km<sup>2</sup>) varies from 0.03 (Utah) to 0.78 (California), but is mostly less than 0.25. Elevated perches are important element of habitat. Home range found to be 13 km<sup>2</sup> in Idaho study; composition of sympatric Red-tail and Ferruginous hawks was not affected by interspecific competition. Species is most common hawk in Idaho.

REPRODUCTION: Female incubates 5 eggs for about 34 days per egg. Both parents tend young, which leave nest at about 4 wk, fly at about 6.5-7 wk, and depend on parents for food for few weeks after fledging (Idaho study found 2.9 young/successful pair were produced). If clutch is lost, adult pair will reneest (usually in another nest) a few weeks later. Successful reproduction usually does not occur before 2 yr. Pair bond is typically lifelong, at least in non-migratory populations, and probably in migrants as well.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Steenhof, K. and M.N. Kochert. 1988. Dietary responses of three raptor species to changing prey densities in a natural environment. *J. Animal Ecol.* 57:37-48.

## Red-tailed Hawk (*Buteo jamaicensis*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S3, NTMB

ORDER: Falconiformes  
FAMILY: Accipitridae

RANGE: Breeds from eastern Washington, southern Alberta, southern Saskatchewan, and southwestern Manitoba, south to eastern Oregon, Nevada, Arizona, New Mexico, north-central Texas, western Oklahoma, and western Kansas. Winters from southwestern and south-central U.S., south to Baja California and central mainland of Mexico.

HABITAT: Found in shrub steppe at periphery of pinyon/juniper or other woodlands.

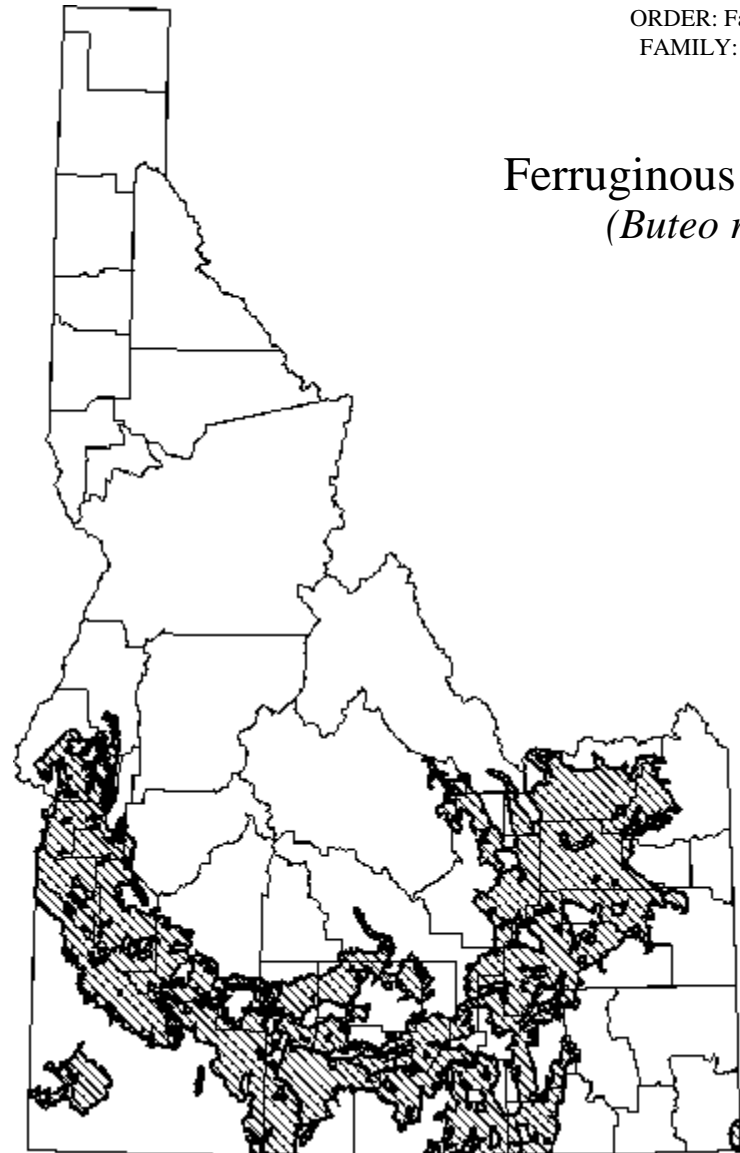
DIET: Eats small mammals and reptiles (snakes and lizards), and occasionally eats birds (grouse, meadowlarks, etc.). Will also eat some insects. In Idaho, diet includes ground squirrels, rabbits, pocket gophers, kangaroo rats, mice, voles, lizards, and snakes.

ECOLOGY: Hunts from air or perch, most frequently near sunrise and sunset. Builds nest in tree or on cliff. Up to 8-10 nests per 100 km<sup>2</sup> are possible if local conditions are favorable. Idaho study estimated average home range of males to be 7-8 km<sup>2</sup>; birds did not use habitats proportional to availability. In general, species is adversely affected by agricultural development. In Idaho, species is associated with nesting Swainson's Hawks, and commonly migrates south in fall, but resides in limited numbers in southern part of state. A 1985 southern Idaho survey located 72 occupied nests and revealed recent distribution is being maintained.

REPRODUCTION: Female incubates 3-4 eggs for about 32-33 days; male provides food. Young fledge in 35-50 days (males before females), and depend on parents for several additional weeks (southern Idaho study reported average brood number of 3.2). Clutch size, fledging rate, and/or breeding density tend to vary with prey availability (especially jackrabbits or ground squirrels). Female evidently does not often renest if clutch is lost. Individuals are easily disturbed by humans during early nesting season. There is no evidence that yearlings breed.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Bechard, M.J., K.D. Hague-Bechard, and D.H. Porter. 1986. Historical and current distributions of Swainson's and Ferruginous Hawks in southern Idaho. Dept. Biol., Boise St. Univ., Boise. 58pp.



## Ferruginous Hawk (*Buteo regalis*)

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from Alaska, east through Northwest Territories to Labrador, and south to northern Mexico, central Texas, western Oklahoma, and western Kansas. Also breeds rarely in eastern U.S. to New England. Winters from south-central Alaska and southern Canada, south through breeding range.

HABITAT: Found on prairies, tundra, open wooded country, and barren areas, especially in hilly or mountainous regions. In Idaho, prefers open and semi-open areas in both deserts and mountains.

DIET: Feeds mainly on small mammals, but may also eat insects, snakes, birds, juvenile ungulates, and carrion. Jack rabbits are principal prey in southern Idaho, and this preference is unaffected by changes in prey density.

ECOLOGY: Builds stick nest on cliff or in tree. Commonly forages in early morning and early evening. Idaho study indicated males capture more food during brood rearing, while females spend more time feeding offspring. Territory size averaged 3276 ha. Positive correlation between breeding success and jackrabbit numbers reported in Idaho, Colorado, and Utah. Species resides in Idaho year-round, although recent studies have revealed some winter birds are breeders from Alaska and Northwest Territories.

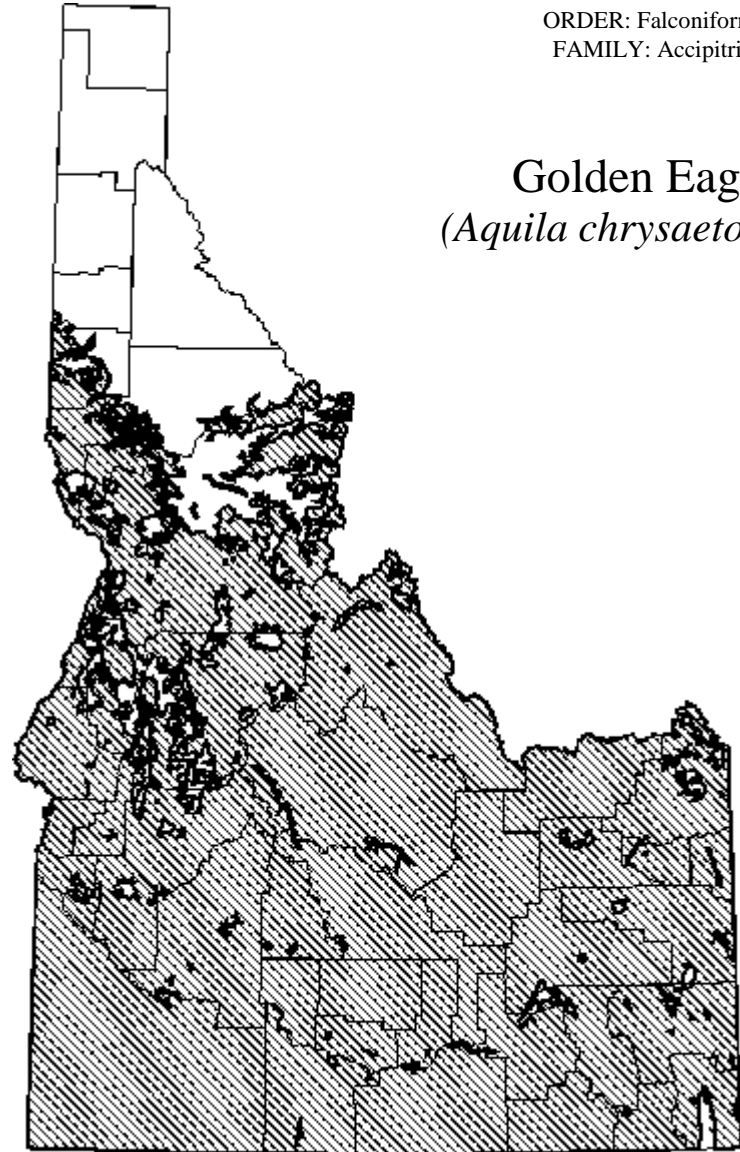
REPRODUCTION: Egg-laying occurs from February-May, depending on range (late February to early March in Utah). Female (usually) incubates 1-3 eggs (rarely 4, usually 2) for about 43-45 days. In southwestern Idaho, numbers fledged/pair has ranged from .39-1.36 over last 20 yr. Young can fly at 60-77 days (longer in far north than in south) and are cared for by parents for 30+ additional days (family unit will sometimes remain together several months). Breeding typically takes place in fourth or fifth year. Lifelong monogamy may be the rule, though some apparent exceptions have been recorded.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Collopy, M.W. 1984. Parental care and feeding ecology of golden eagle nestlings. *Auk* 101:753-760.

ORDER: Falconiformes  
FAMILY: Accipitridae

## Golden Eagle (*Aquila chrysaetos*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Falconiformes  
FAMILY: Falconidae

RANGE: Breeds from central Alaska and most of forested Canada, south through most of North, Central, and South America, to Tierra del Fuego. Winters from northern U.S. (locally in southern Canada), south through breeding range to Panama.

HABITAT: Found in open or partly-open habitat such as shrub steppe, wooded streams, burned forests, cultivated lands, farmland with scattered trees, open woodlands, along roads, and sometimes in cities. In Idaho, found from low deserts to high mountain meadows.

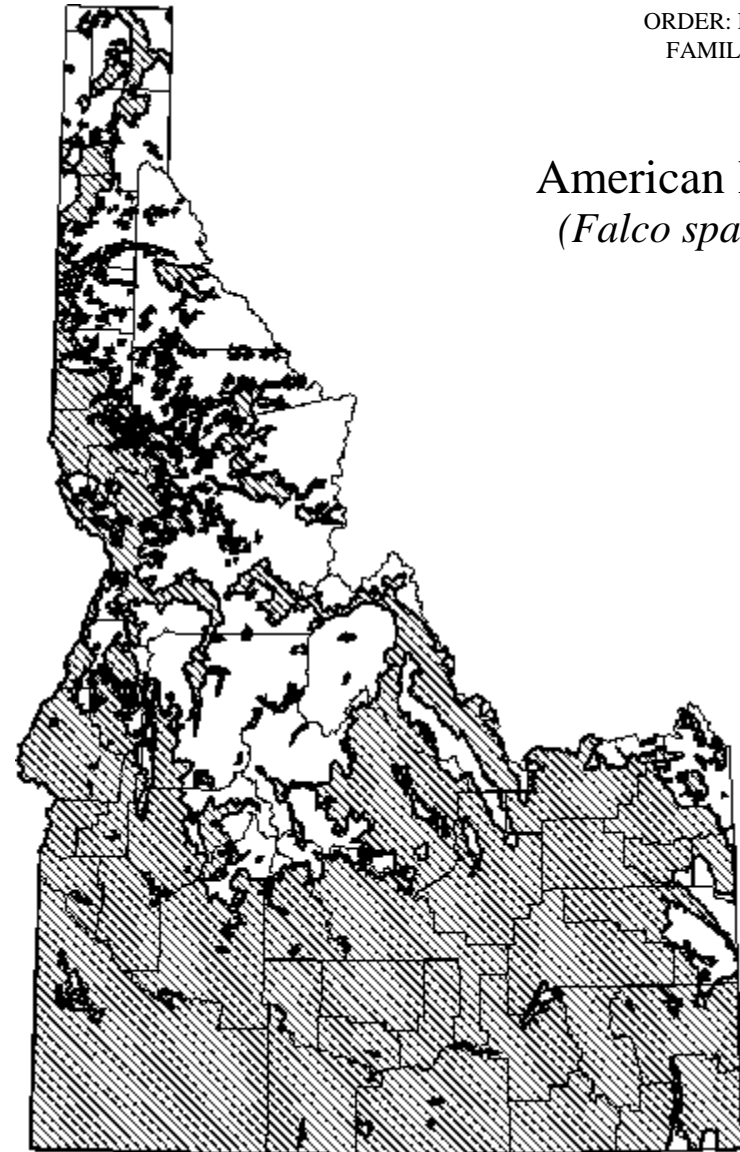
DIET: In summer, feeds on insects and small vertebrates (e.g., snakes, lizards, birds, mice, and sometimes bats). In winter in northern range, feeds mainly on birds and mice. In Idaho, diet includes insects and small mammals.

ECOLOGY: Forages from conspicuous perch or while in flight (regularly hovers in flight while hunting). Hunts most actively in morning and late afternoon, rests during middle of day. Two western U.S. studies found average territory size to be 109.4 ha and 129.6 ha. Home range diameter during breeding season varies from 0.5-2.4 km. Nests in cavities (in Idaho, regularly nests in urban areas). Nesting density varies greatly throughout range, depending on nest-site availability and probably food supply; may tolerate close nesting by other pairs in some regions. May be attacked by larger raptors. Year-round Idaho resident.

REPRODUCTION: Female incubates 3-7 eggs (usually 4-5, but 2-6 in Idaho) for 29-31 days. Southeastern Idaho study reported clutch sizes ranging from 4.5-4.7 during 1975-76, and average numbers fledged ranged from 3.7-4.0. Both parents tend young, which leave nest in about 29-31 days, but may stay with parents for 2-4 wks or more (no later than late summer in U.S.). Readily lays replacement clutch if first clutch lost. Most young first breed at 1 yr. Monogamy through successive breeding seasons seems to prevail.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Craig, T.H. and C.H. Trost. 1979. The biology and nesting density of breeding American Kestrels and Long-eared Owls on the Big Lost River, southeastern Idaho. *Wilson Bull.* 91:50-61.



## American Kestrel (*Falco sparverius*)

STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1, NTMB

ORDER: Falconiformes  
FAMILY: Falconidae

RANGE: Nearly cosmopolitan; breeds on every continent except Antarctica.

HABITAT: Found in various open situations from tundra, moorland, steppes, and seacoasts (especially where there are suitable nesting cliffs), to mountains, open forested regions, and populated areas. In Idaho, former and current nest sites are located in both mountain and desert regions, and are generally associated with bodies of water.

DIET: Feeds primarily on birds (medium-size passerines up to small waterfowl), but will also eat (rarely or locally) small mammals, lizards, fish, and insects (eaten by young birds). In Idaho, diet consists almost entirely of birds.

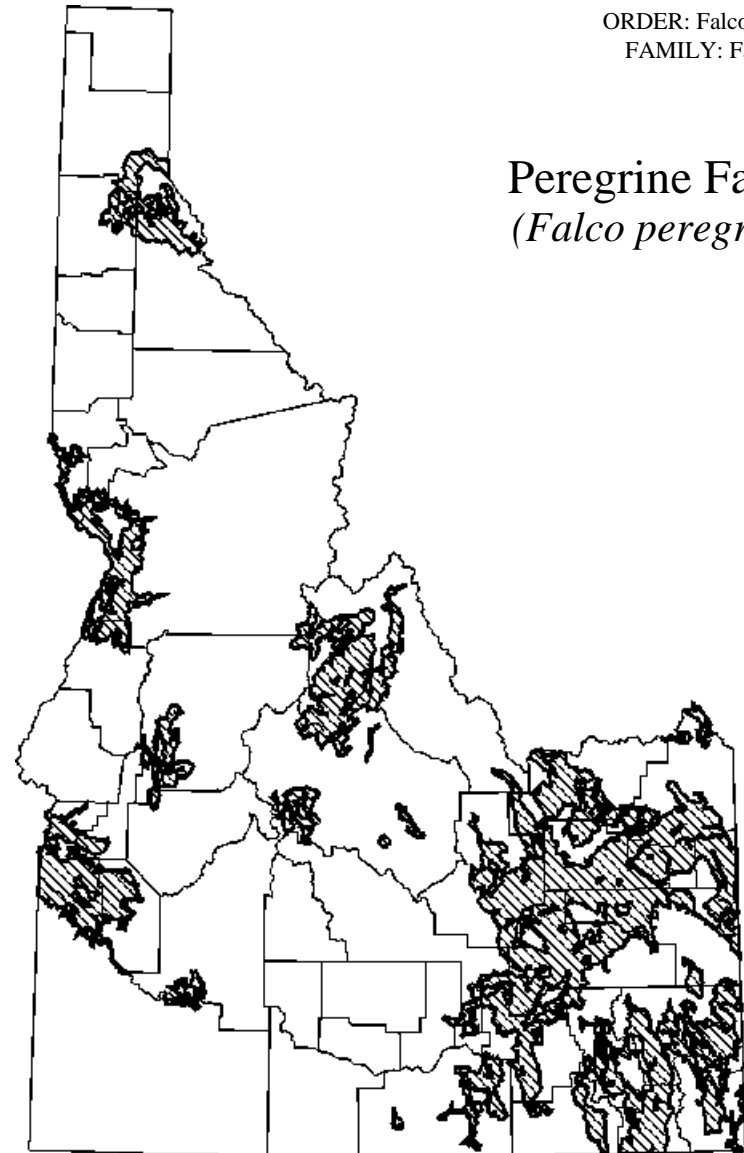
ECOLOGY: Nests on cliff or building. May hunt anytime during day, but usually hunts in morning or evening. Initiates prey pursuit from perch or while soaring. May hunt up to several km from nest site. Great-horned Owl is serious nest predator in U.S. (in Idaho, Golden Eagles are also predators). Severe weather may result in high mortality in northern range. Since 1982, 288 captive-reared young have been released in Idaho. The first re-establishing pair of peregrines was discovered in 1985. As of 1995, 13 pairs of peregrines occupied territories in Idaho. In 1995, 6 occupied territories in Idaho successfully fledged an average of 2.7 young/pr.

REPRODUCTION: Clutch size averages 4 eggs at mid-latitudes, 3 in far north. Female incubates eggs for 32-35 days; male brings food. Clutch is often replaced if lost, usually at an alternate site (brood losses are apparently caused mainly by bad weather). Young fledge at 39-49 days, gradually become independent, and breed at 2-3 yr (occasionally as yearlings). Adults form life-long pair bond.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Levine, E., W. Melquist, and J. Beals. 1995. Idaho peregrine falcon survey, nest monitoring, and release program, 1995. Idaho Dept. Fish & Game, Boise. 25 pp.

## Peregrine Falcon (*Falco peregrinus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S5, NTMB

ORDER: Falconiformes  
FAMILY: Falconidae

RANGE: Breeds from southeastern British Columbia, southern Alberta, southern Saskatchewan, and northern North Dakota, south to Baja California, parts of southwestern U.S., and northern Mexico. Winters from breeding range in southern Canada, south to Baja California and northern Mexico.

HABITAT: Found in open situations in mountainous shrub steppe, or grasslands areas. In Idaho, breeds in shrub steppe and dry mountainous habitat, and winters at lower elevations.

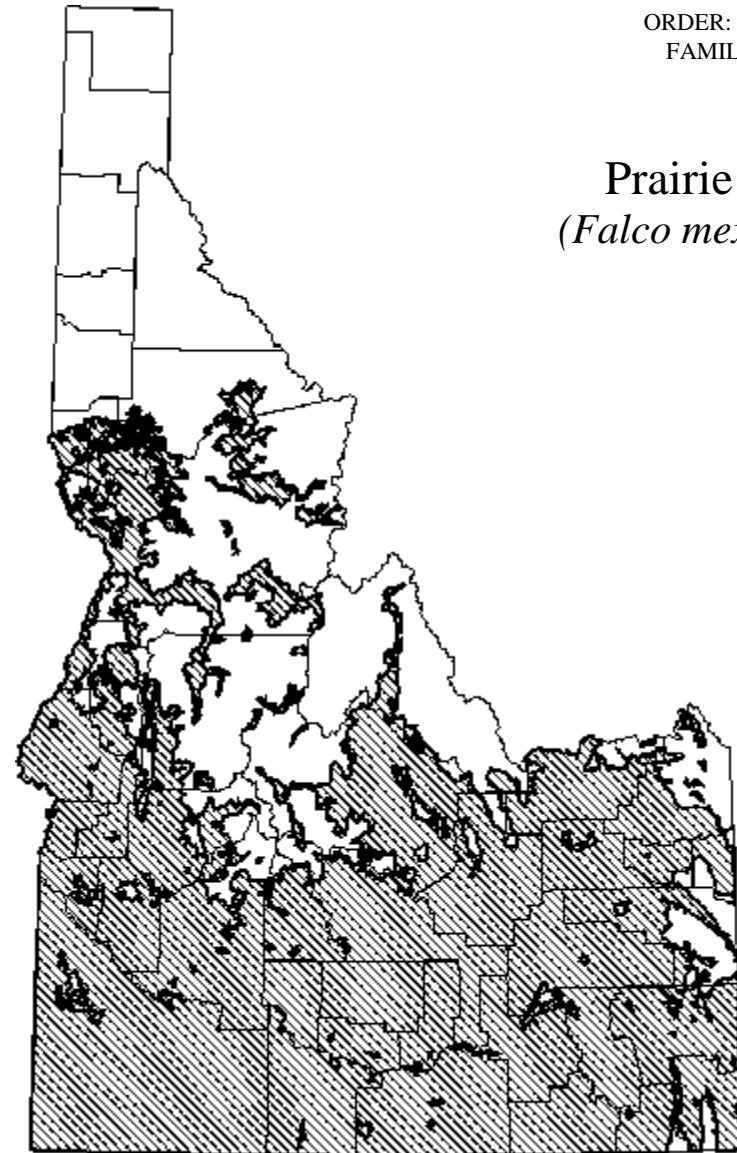
DIET: Feeds opportunistically on mammals, lizards, and birds. In southwestern Idaho, Townsend's ground squirrels are main prey item.

ECOLOGY: Nests on cliff, sometimes in old corvid or raptor nest. Rapidly pursues birds in flight, but usually captures prey on or near ground. May cache prey in vegetation, on ledge, or in small crevice or cavity (caching is most common during early brood rearing). Cumulative home range size increases from incubation to hatching period. Birds disperse from lower elevations after young fledge. Average home range in southwestern Idaho study was 49-73 km<sup>2</sup>; highest known nesting density in North America occurs in that area (recorded nesting densities: 23 pairs on 26 km of cliffs in Colorado; and 200 pairs in 130 km along Snake River). Annual mortality has been estimated at 74% in immatures, and 25% in adults. Southwestern Idaho study found construction and recreation activities had no detectable adverse effects on nesting Prairie Falcons.

REPRODUCTION: Laying may begin as early as: February in Texas and Mexico; March in California, Washington, Arizona, and Oregon; and April in Montana and Wyoming. Female (usually) incubates 6 eggs for 29-33 days; male brings food (in southern Idaho study, maximum broods averaged 3.14 young/nest). In southwestern Idaho, from 1974-83, numbers fledged/pair ranged from 1.48-3.23. Young are tended by both parents, remain at nest site for 36-41 days, and first breed at 2 yr (sometimes 1).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Holthuijzen, A.M.A. 1990. Behavior and productivity of nesting prairie falcons in relation to construction activities at Swan Falls Dam. Final Report. Idaho Power Co., Boise. 77pp.



## Prairie Falcon (*Falco mexicanus*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

RANGE: Native to western Eurasia. Widely introduced in North America, and established locally from southern Canada to northern U.S. (from New York, west to Oregon).

HABITAT: Found primarily in cultivated regions with marginal cover of bushes, undergrowth, or hedgerows. In study conducted in Palouse region of Idaho, birds wintered mostly in plowed stubble fields.

DIET: Feeds primarily on seeds of wheat, corn, barley, oats, smartweeds, lambs quarters, crabgrass, and others. Also eats leaves of clover, alfalfa, bluegrass, and dandelion. Chicks feed on insects for first few weeks of life. In eastern South Dakota, row crop grains (corn, sunflowers) dominated late fall, winter, and spring diets; small grains (oats, barley, wheat, rye) are rarely consumed, though widely available. In one study, partridges ate more leafy vegetation when row crop grains were buried by snow, consumed predominately insects in early summer, and ate foxtail seeds in late summer and early fall.

ECOLOGY: Builds concealed nest in shallow depression in grass or shrubs; Idaho study found most nests were in areas of permanent cover. Forages on ground. In New York study, home range was 82-672 ha; size did not differ by season.

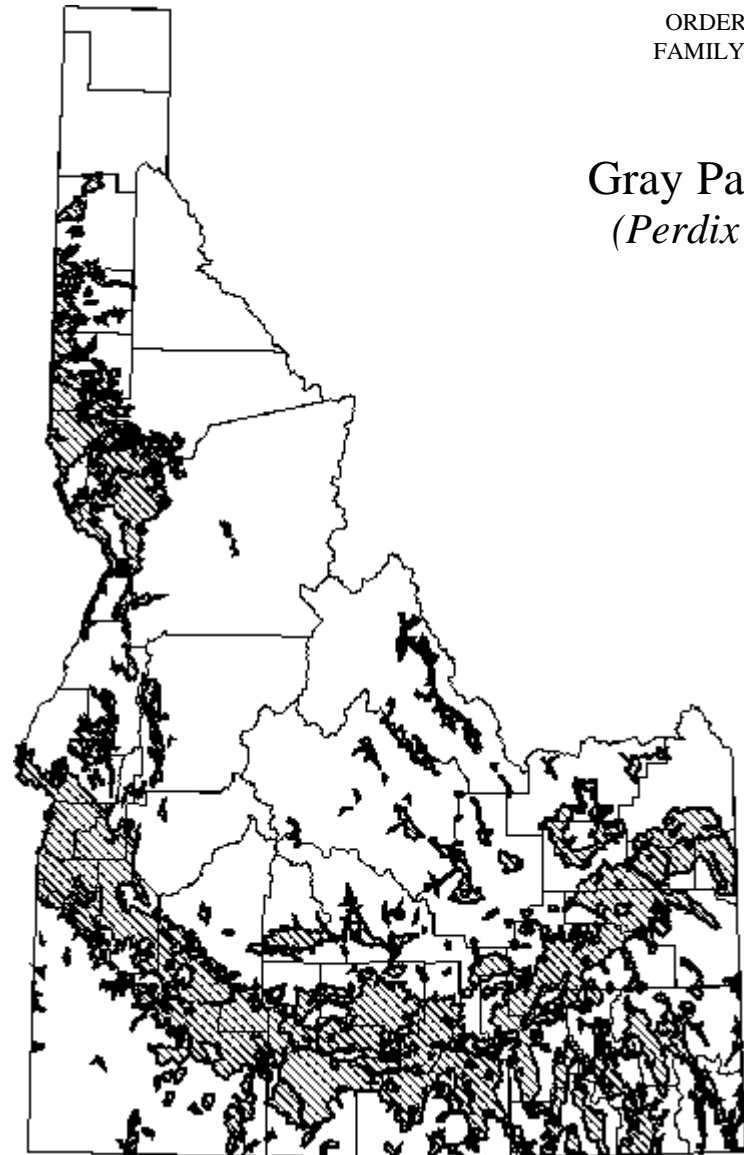
REPRODUCTION: Breeding begins late May to early June. Female lays 8-23 eggs in 1 nest; 2 hens may lay eggs in same nest. Incubation lasts 23-25 days; hatching peaks in mid-June in north-central Idaho. Nestlings are precocial and downy. Parents probably form lifetime pair bond; both parents tend young. Idaho study found nesting success ranged from 12%-63% over 2-yr period.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Mendel, G.W. 1979. The hungarian partridge in the Palouse Region of Northern Idaho. M.S. Thesis, Univ. Idaho, Moscow. 161pp.

ORDER: Galliformes  
FAMILY: Phasianidae

## Gray Partridge (*Perdix perdix*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

RANGE: Native to Eurasia. Introduced and resident in North America from south-central British Columbia, northern Idaho, and central and eastern Montana, south to northern Baja California, southern Nevada, northern Arizona, northwestern New Mexico, and south-central Colorado.

HABITAT: Found on rocky hillsides, mountain slopes with grassy vegetation, open and flat deserts with sparse grasses, and barren plateaus.

DIET: Feeds primarily on seeds and leaves. Also eats some fruits and insects.

ECOLOGY: Builds concealed nest on ground, or in rocks or bush. Most foraging activity occurs in mid-morning, but may continue into afternoon. Frequently inactive and near water at mid-day in hot weather. In favorable habitat, population density can reach levels of 1 bird/4 hectares. In late summer, family groups may join and form larger groups. Males reportedly may leave female during incubation and spend summer with other males. Idaho study found greatest dispersion in spring; in summer birds restricted themselves to tree-shrub vegetation adjacent to water. A habitat-use study in north-central Idaho was initiated in 1994 by the Idaho Dept. Fish & Game.

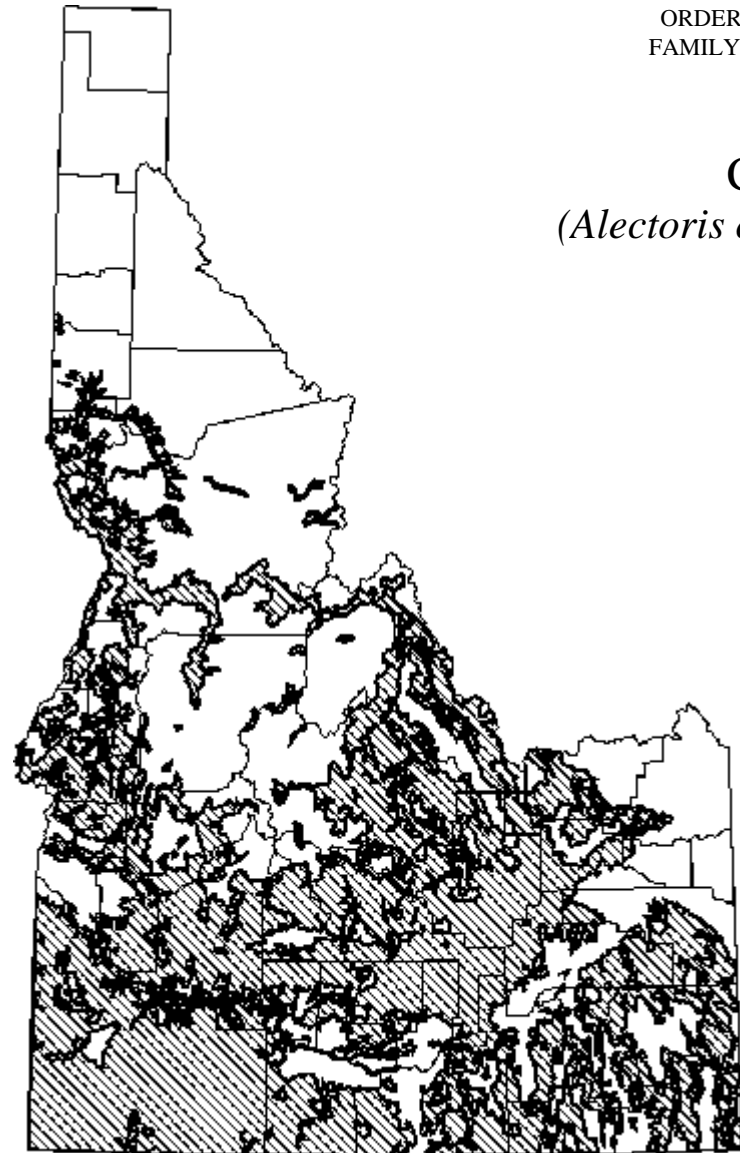
REPRODUCTION: Clutch size varies from 8-15 eggs. Incubation lasts 22-23 days (some authorities state male may incubate first clutch while female lays second). Nestlings are precocial. Young are almost full-size at 84 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Oelklaus, W.F. III. 1976. Chukar partridge dispersion along the middle and lower Snake and Columbia Rivers. M.S. Thesis, Univ. Idaho, Moscow. 56pp.

ORDER: Galliformes  
FAMILY: Phasianidae

## Chukar (*Alectoris chukar*)





STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Native to Asia. Introduced and established in North America from southern Canada, south locally to California, Utah, southern New Mexico, southeastern Texas, northwestern Oklahoma, southern Illinois, Pennsylvania, New Jersey, and Maryland.

HABITAT: Found in open country—especially cultivated areas, scrubby wastes, open woodlands, and edges of woods, but also in shrub steppe, riverside thickets, swamps, and open mountain forests.

DIET: Eats waste corn, wheat, barley, oats, buckwheat, berries, and seeds of ragweed, burdocks, and pine. In spring, eats green vegetation. Will also eat some insects, mice, and snails.

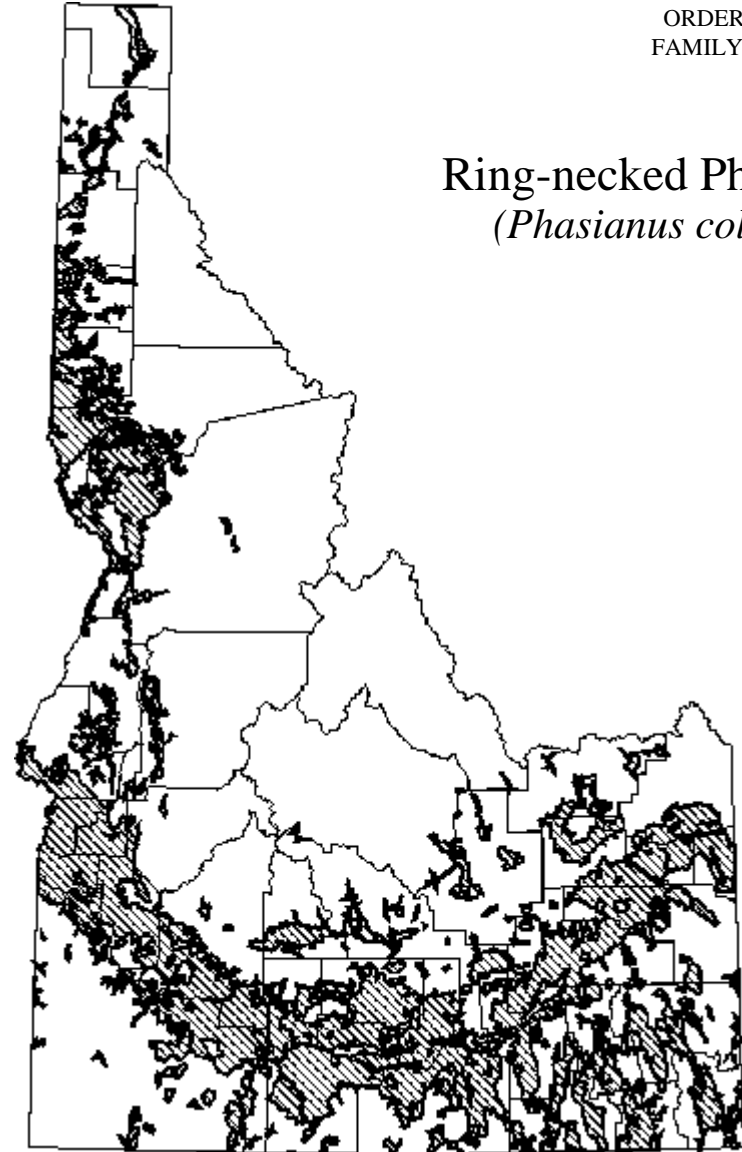
ECOLOGY: Nests in depression in grass or weeds. Forages on ground. Roosts in trees. Usually ranges over no more than 2-3 km. In fall, family groups may join and form flocks of 30-40 birds; flocks break up in spring. Populations in Idaho thought to be declining due to winter habitat loss. Idaho study showed pheasants preferred sagebrush, wetland, and herbaceous cover types in winter, and avoided grassland and agricultural areas. Livestock grazing decreased pheasant use of sagebrush. In 1994 the Idaho Dept. Fish & Game initiated research on pheasant response to intensive habitat management, predator management, and the effects of pesticides on pheasants.

REPRODUCTION: Usually 10-12, but sometimes 5-23, eggs are laid in 1 nest. Two hens may lay eggs in same nest. Incubation lasts 23-25 days. Nestlings are precocial and downy; young are tended by female.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Leptich, D.J. 1992. Winter habitat use by hen pheasants in southern Idaho. *J. Wildl. Manage.* 56:376-380.

## Ring-necked Pheasant (*Phasianus colchicus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Found from central Alaska, east through parts of Canada to Labrador, and south to northeastern Oregon, central Idaho, western Montana, northwestern Wyoming, northern Montana, Minnesota, northern Wisconsin, and parts of New England.

HABITAT: Found in coniferous forests (primarily spruce and pine), especially in forests with dense grass and shrub understories.

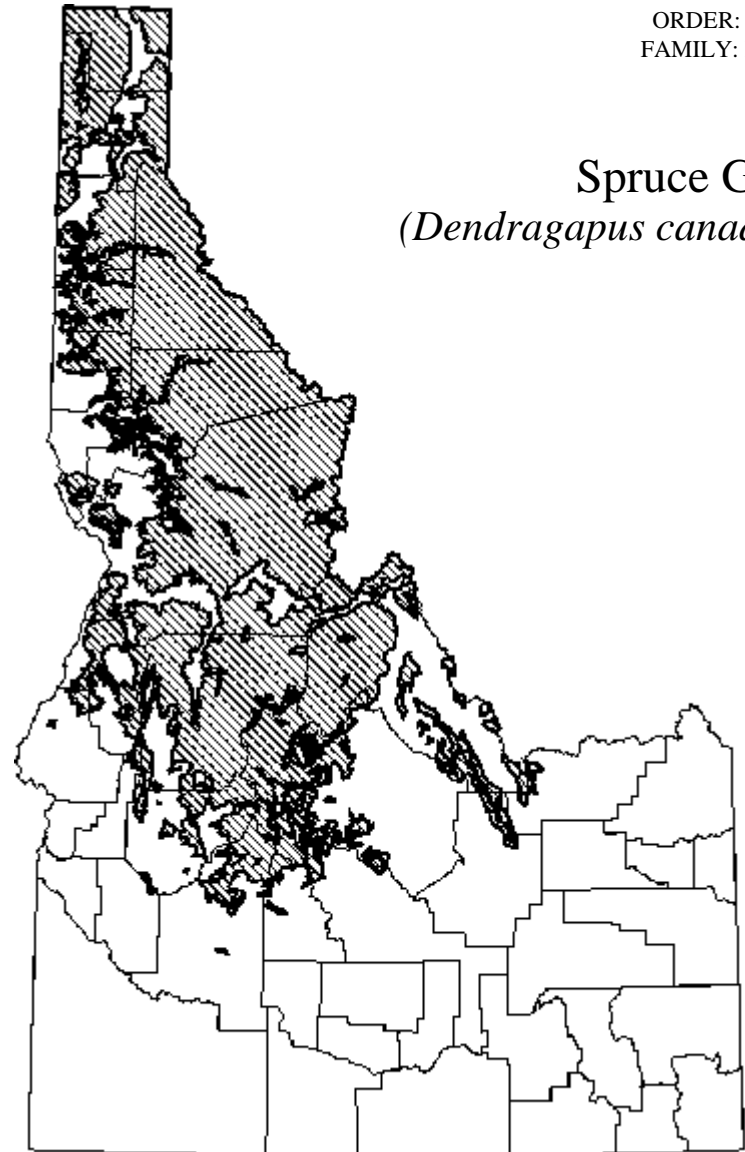
DIET: Eats needles and buds of spruce, jack pine, fir, and larch. Also consumes berries, seeds, fungi, leaves, and some insects as available. In Ontario study, spring diet consisted mainly of conifer foliage, flowers, fruits, foliage of ground plants, grit, and arthropods.

ECOLOGY: Nests in depression on ground, often near fallen tree. Takes food from foliage, or forages on ground. Primarily arboreal. Usually found alone or in small, family flocks. In southwestern Alberta study, spring population density fluctuated from 5-30/ha over 21 yr; population decline was attributed to maturation of forest. Populations may be highest in earlier stages of post-fire succession.

REPRODUCTION: Female incubates 5-10 eggs (usually 6-7) for 23-24 days. Hatching occurs from late June-early July in Alberta. Young are tended by female. Females reach sexual maturity as yearlings. Cold, wet conditions during incubation result in poor productivity. In Ontario study, large clutch size was associated with high intake of flowers of trailing arbutus and moss spore capsules; females relied on spring diet and stored reserves for nutrients required for clutch formation.

GIS MODEL NUMBER: 1

## Spruce Grouse (*Dendragapus canadensis*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: From southeastern Alaska, south through western Canada to eastern Washington, and south from there through Rocky Mountains to eastern Nevada, northern and eastern Arizona, southwestern and north-central New Mexico, and eastern Colorado. Also present from western Washington south in coastal ranges and Cascades through Sierra Nevada to southern California and extreme western Nevada.

HABITAT: Found in coniferous forests (especially fir), mostly in open situations with mixture of deciduous trees and shrubs. Spends winter (usually at elevations higher than that of summer habitat) in open coniferous forests of various categories of age and tree density. Idaho study found spring and summer habitat to be low-elevation bigtooth maple, mountain mahogany, and mixed shrub stands with open understory and overstory.

DIET: In summer, feeds on variety of berries, insects, flowers, and leaves. In winter, feeds mainly on needles and buds of conifers (Douglas-fir is often important). Also eats waste grain.

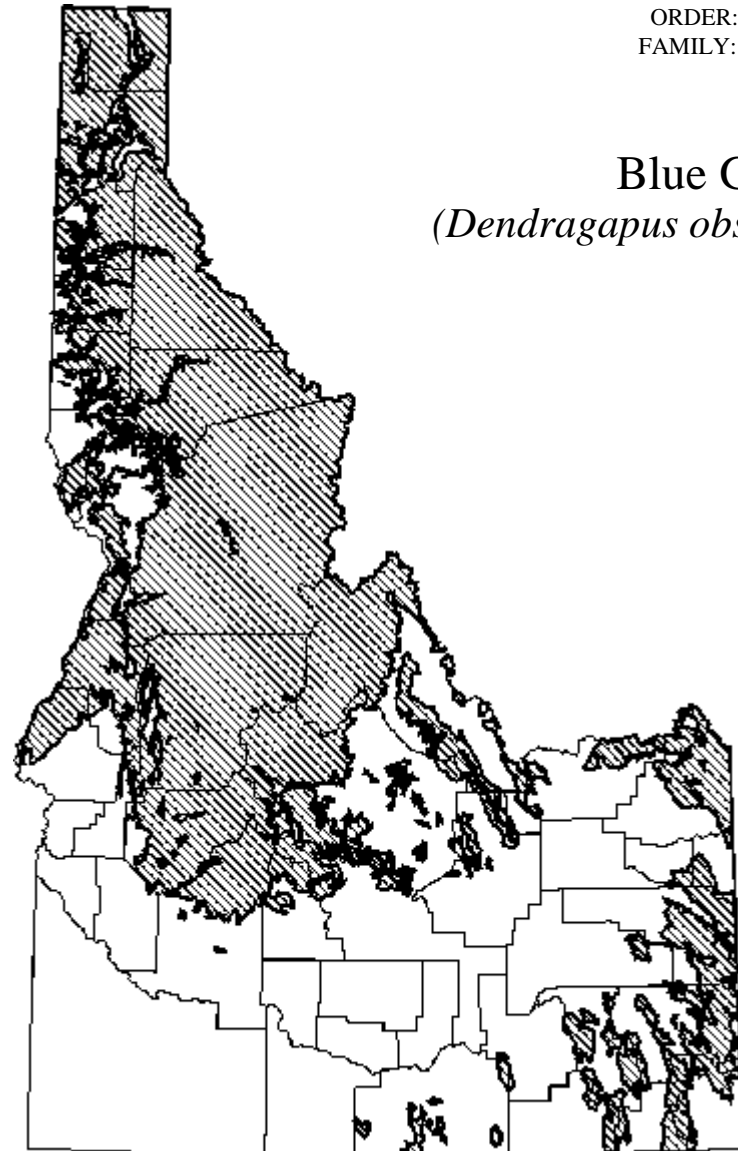
ECOLOGY: Primarily a solitary, montane species. Nests in depression on ground, frequently near shrub or fallen tree. Forages on ground or takes food from foliage. Roosts in large conifers with dense foliage. Courting males establish territories.

REPRODUCTION: Breeding begins mid-April in southern range, to late May in north. Female incubates 7-10 eggs (sometimes up to 16), for 26 days, and may renest if nest is destroyed. Nestlings are precocial and downy. Young are tended by female. Yearling males often do not breed.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Stauffer, D.F. and S.R. Peterson. 1985. Ruffed and blue grouse habitat use in southeastern Idaho. *J. Wildl. Manage.* 49:459-466.

## Blue Grouse (*Dendragapus obscurus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Central Alaska and most of forested Canada, south to northern California, central Arizona, central Idaho, central Utah, western South Dakota, Minnesota, Georgia, and Virginia.

HABITAT: Found in wet or relatively dry, dense forests with some deciduous trees, such as boreal forests (especially early seral stages dominated by aspen) or northern hardwood ecotone. In southeastern Idaho study, Ruffed Grouse were associated with early-successional aspen stands year-round.

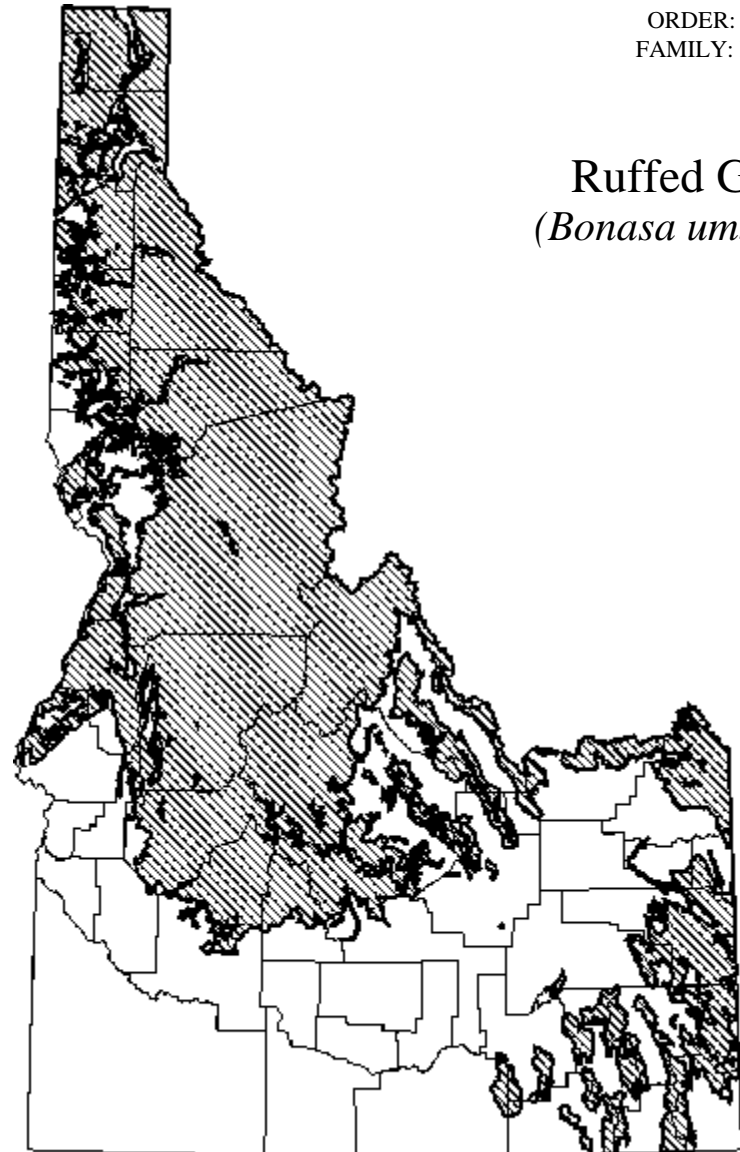
DIET: Young eat mainly insects and spiders. Adults eat insects (30% of summer diet), nuts, flowers, buds, and leaves of trees and shrubs, seeds, and fruits. In many areas, aspen, willow, and rose family are important food resources.

ECOLOGY: Nests in depression on ground. Usually roosts in small groups in winter. Population densities may fluctuate (10-yr cycle in some populations). Spring density may reach 2-10/40 ha; fall density 20-55/ha (highest in boreal forest regions). Brood home range is about 6-19 ha. In Missouri study, mean adult male home range was 67 ha in spring-summer, 104 ha in fall-winter. Mature and some immature males may defend a territory. Predators include Great-horned Owl and Northern Goshawk. Shallow snow cover or icy crust on snow may reduce winter survival by precluding access to subnivean shelter.

REPRODUCTION: Drumming/mating peak in mid-March to May, depending on range. Egg laying occurs April-May, depending on latitude. Female incubates 4-19 eggs (generally 9-12) for 23-24 days. Nestlings are precocial and downy, and fly in 10-12 days. Young are tended by female. Broods break up in fall when young are about 84 days old (young disperse at about 120-125 days in Wisconsin). Single-brooded, but females may renest if first nesting attempt is unsuccessful. Sexually mature in 1 yr; uncommonly lives more than 5 yr. Cold, wet weather in May/June may cause high losses among broods.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Stauffer, D.F. and S.R. Peterson. 1985. Ruffed and blue grouse habitat use in southeastern Idaho. *J. Wildl. Manage.* 49:459-466.



## Ruffed Grouse (*Bonasa umbellus*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Previously widespread. Resident locally from central Washington, southern Idaho, Montana, and parts of southern Canada and Great Plains, south to eastern California, south-central Nevada, southern Utah, western Colorado and northern New Mexico.

HABITAT: Found in foothills, plains and mountain slopes where sagebrush is present, or in mixture of sagebrush, meadows, and aspen in close proximity. In some areas, suitable winter habitat is probably most limiting seasonal factor.

DIET: Feeds on sagebrush during winter. At other times of year, feeds on sagebrush as well as leaves, blossoms, and buds of associated plants. Also eats insects (e.g., ants and grasshoppers).

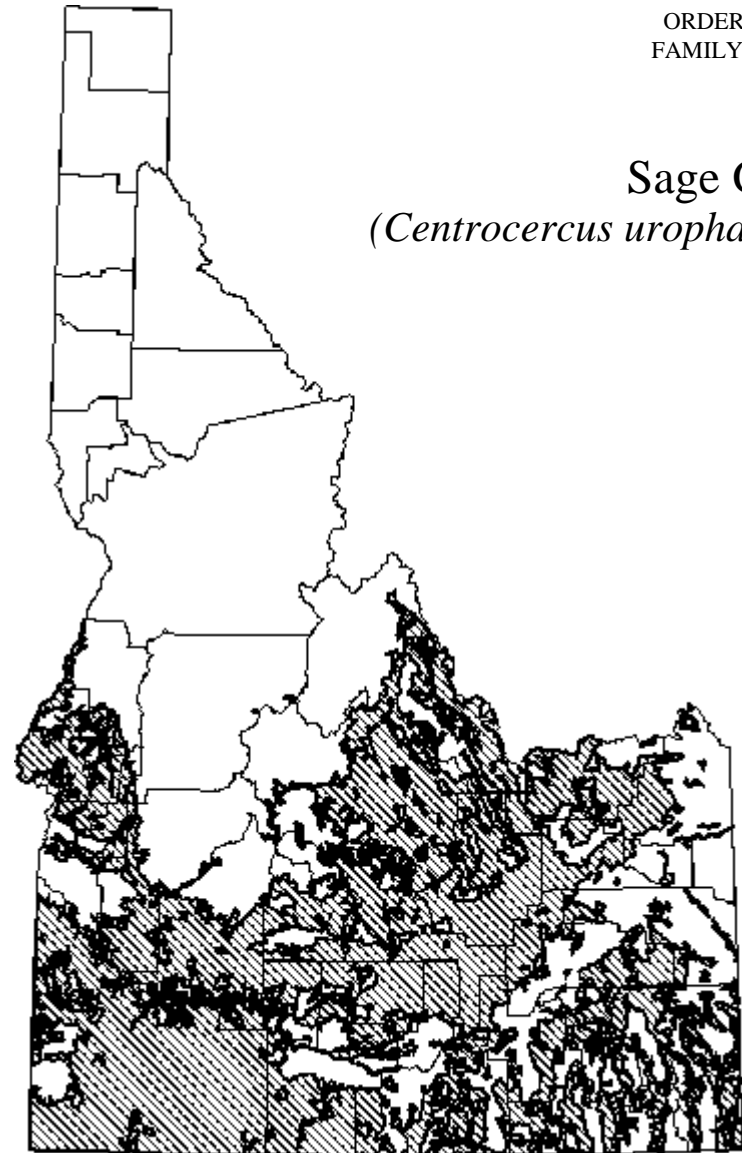
ECOLOGY: Builds concealed nest in depression on ground under sagebrush. Forages in foliage, or on ground. Lek breeder; up to 400 males may display in area 0.8 km long. In Idaho, populations may move 0.2-81.0 km from summer to winter range. Agricultural areas are important component of summer range; sagebrush stands are more important in winter. In Idaho study, nesting success was higher in sagebrush versus non-sagebrush sites. Other Idaho investigations by the Dept. Fish & Game are examining the impact of wildfire in shrub steppe on sage grouse

REPRODUCTION: Female incubates 7-8 eggs (sometimes 7-15), for 25-27 days. Young are precocial and downy, are tended by female, and fly when they are 7-14 days old.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Connelly, J.W., W.L. Wakkinen, A.D. Apa, and K.P. Reese. 1991. Sage grouse use of nest sites in southeastern Idaho. *J. Wildl. Manage.* 55:521-524.

## Sage Grouse (*Centrocercus urophasianus*)



STATUS: Game species  
GLOBAL RANK: G4 STATE RANK: S2

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Locally from Alaska, east to western Quebec, and south to eastern Washington, eastern Oregon, southern Idaho, Utah, Colorado, northeastern New Mexico (at least formerly), and parts of Midwest.

HABITAT: Found in grasslands (especially with scattered woodlands), arid sagebrush, brushy hills, oak savannas, and edges of riparian woodlands. Also found in upland winter wheat fields. In west-central Idaho study, grouse preferred big sagebrush to other summer cover types; mountain shrub and riparian cover types were critical components of winter habitat.

DIET: Initially, chicks eat insects and some berries. Adults eat berries, grain, leaves, buds, and flowers of wide variety of plants. In spring, fall, and winter, roughly 10% of adult bird's diet is insects (up to 40% in summer); 90% or more is plant material. In Idaho study, hawthorn fruits and buds of serviceberry and chokecherry were primary winter foods.

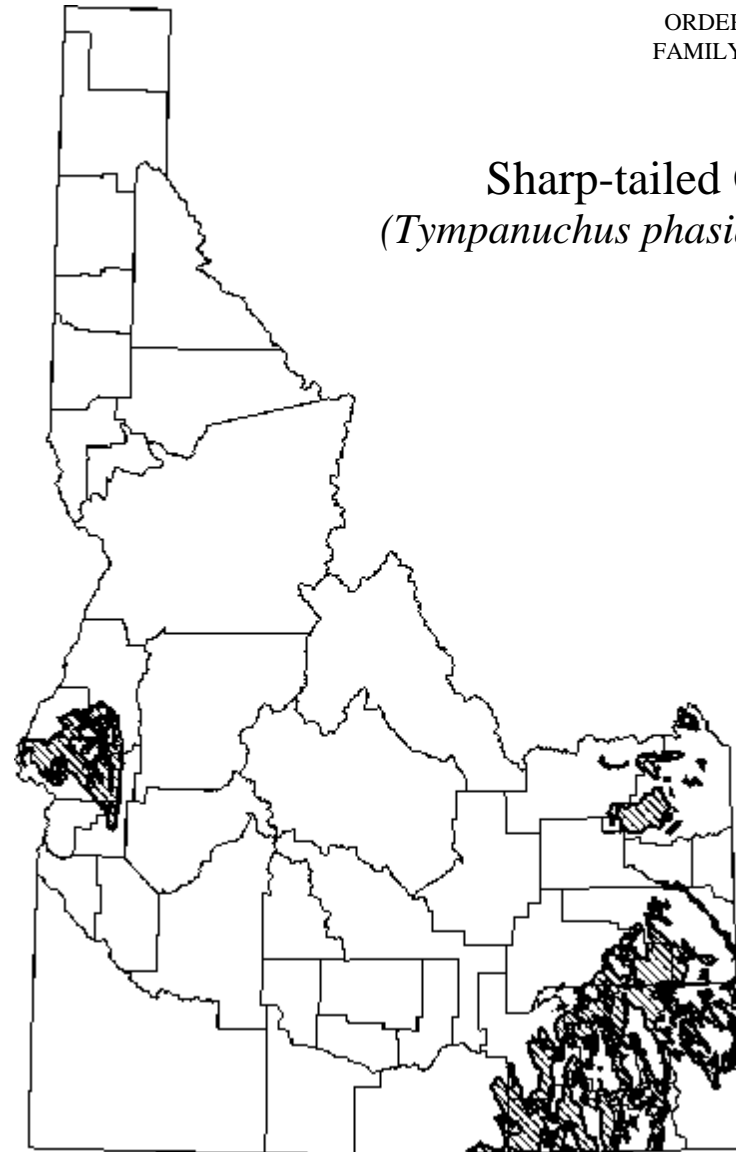
ECOLOGY: Builds concealed nest in depression on ground, in grass or near shrub. Forages in foliage or on ground (broods forage in short vegetation in early morning and evening, and in taller vegetation at other times). Gathers in flocks in fall and winter. Often uses snow as roost cover in winter. In Idaho study, winter food/cover was regarded as most limiting habitat characteristic for long-term abundance. Spring/autumn home ranges were 1.87 km<sup>2</sup>. In Montana, spring, summer, and fall distribution of males is generally within 1.6 km of lek; in other states, movements of up to several km between seasonal habitats have been reported.

REPRODUCTION: Males engage in communal courtship displays. Breeding begins early April in southern/western range, to early May in north. Female incubates 10-13 eggs (usually) for 23-24 days (Idaho study reported average clutch of 10.8). Young are tended by female; brood disperses in 6-8 wk.

GIS MODEL NUMBER: 4

IMPORTANT STATE REFERENCE: Marks, J.S. and V.S. Marks. 1987. Habitat selection by Columbian sharp-tailed grouse in west-central Idaho. USDI Bur. Land Manage., Boise District, U.S. Govt. Report 792-057/40, 019, Boise. 115pp.

## Sharp-tailed Grouse (*Tympanuchus phasianellus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

RANGE: Native to eastern and southwestern U.S., Mexico, and southern Ontario. Extirpated or reduced populations in some of those areas have been re-introduced; also re-introduced widely outside of former range.

HABITAT: Found, especially in mountainous regions, in forests and open woodland (scrub oak, and deciduous or mixed deciduous-coniferous areas). Also found in agricultural areas in some regions; agricultural areas may provide important food resources in winter. In an Idaho study, brood rearing sites were characterized by low overstory canopy cover and high ground cover.

DIET: Feeds on seeds, nuts, acorns, fruits, grains, buds, and young grass blades. During summer, eats many insects; may also eat some small vertebrates (frogs, toads, snakes, etc.).

ECOLOGY: Nests in depression on ground. Usually forages on ground. Roosts in trees at night. Sexes usually form separate flocks in winter. Severe winters and/or lack of winter habitat are important limiting factors in many northern areas. In Massachusetts study, predation exerted greatest influence on productivity; in Minnesota study, winter conditions and resulting pre-breeding female condition were important factor. In southeastern Oklahoma study, mean seasonal home range for adult females were 225 ha (winter), 865 ha (spring), 780 ha (summer), and 459 ha (fall). In Colorado study, adult males moved average distance of 5.3 km from winter ranges to spring breeding areas, and sub-adult males moved average distance of 8.7 km; in spring, males moved about 1000 m between morning and evening roosts used on same day.

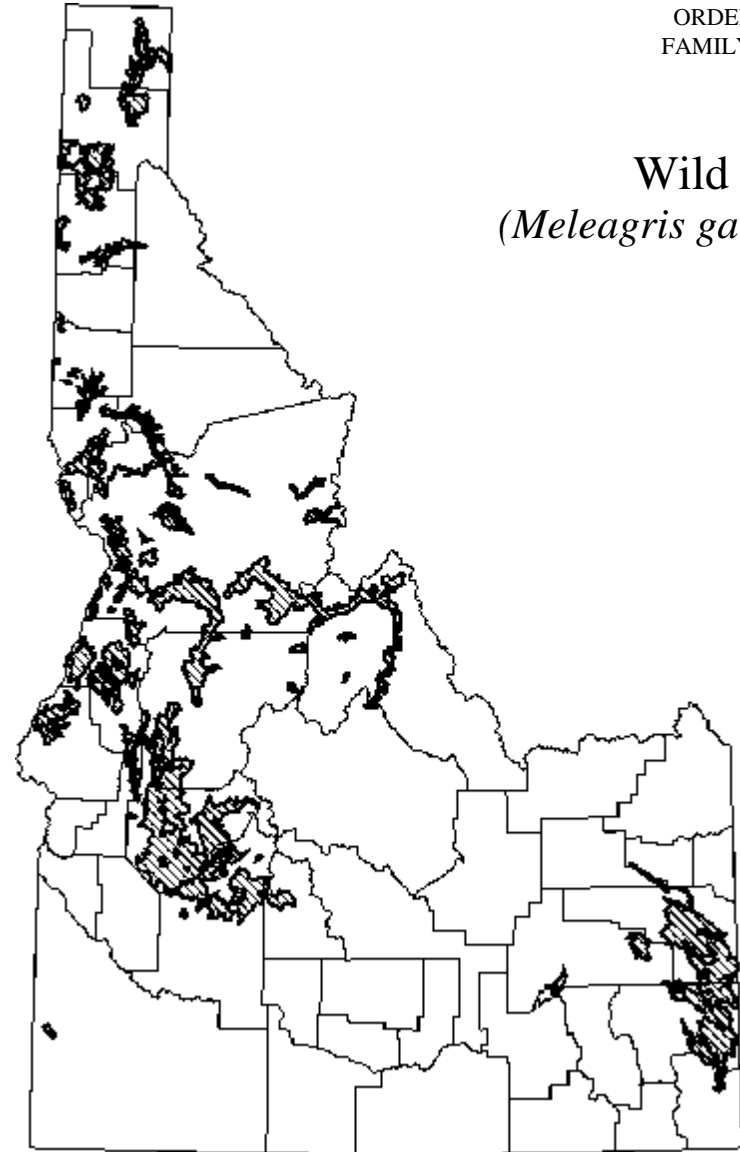
REPRODUCTION: Female incubates average of 10-12 eggs for 27-28 days (in northeastern Colorado, most nests are initiated mid-April to mid-May). Hatching begins in May in southern range, usually early June in north. Young are tended by female; brood stays together until winter. Females first breed as yearlings. An Idaho study compared nest success and initiation rates between resident and introduced hens and found no significant difference.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Edelman, F.B. 1995. Ecology of Merriam's wild turkeys in west central Idaho. M.S. Thesis, Univ. of Idaho, Moscow. 168pp.

ORDER: Galliformes  
FAMILY: Phasianidae

## Wild Turkey (*Meleagris gallopavo*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

RANGE: Resident from southeastern Wyoming east to Maine, and south through central and eastern U.S. to Guatemala and Florida. Also resides in southeastern Arizona (at least formerly) and eastern Sonora. Introduced and established in western North America.

HABITAT: Found in humid and semi-arid situations, in brushy fields, grasslands (primarily long grass), cultivated lands, and open woodlands.

DIET: Eats mainly seeds, but in summer, insects may comprise 30% of diet. Will also eat small fruits and tender leaves.

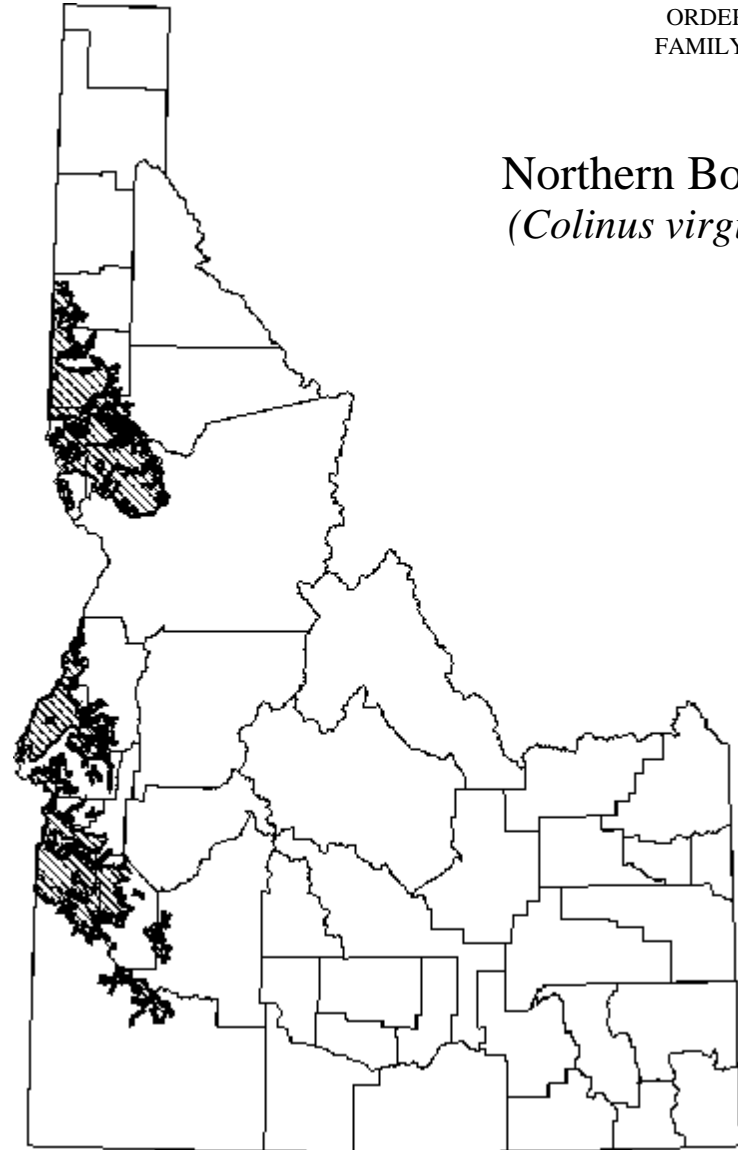
ECOLOGY: Generally sedentary. Builds nest in depression on ground, usually under woven vegetation. Maximum population density is usually about 0.4 birds/ha in fall. Forages in coveys on ground. Peaks in feeding activity occur in early morning and in late afternoon until dark.

REPRODUCTION: Both sexes incubate 14-16 eggs for 23-24 days. Young are attended by both parents and fly at less than 14 days. Brood remains together until spring.

GIS MODEL NUMBER: 1

ORDER: Galliformes  
FAMILY: Phasianidae

## Northern Bobwhite (*Colinus virginianus*)





STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Resident from east-central California, southern Nevada, southern Utah, western Colorado, and northwestern New Mexico, south to northeastern Baja California, portions of northern Mexico, and western Texas. Introduced in north-central Idaho.

HABITAT: Found in deserts (primarily with brushy or thorny growth such as mesquite, desert thorn, and yucca), but also in adjacent cultivated regions. Usually lives near water in river valleys or near streams. Ideal cover is composed of creek banks, willow thickets, brush piles, vines and brambles.

DIET: Feeds on seeds, green vegetation, and some fruits.

ECOLOGY: Builds nest in depression on ground, frequently under vegetation. May occasionally nest in bush or tree. Forages on ground. Most active in morning and in late afternoon and evening. In fall, family groups form coveys of 12-24 or 40-50 birds; coveys break up by March.

REPRODUCTION: Female incubates 12-14 eggs (sometimes 10-19) for 21-23 days (male is usually nearby). Precocial, downy nestlings are usually tended by both parents. Female may renest if first attempt is unsuccessful.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

## Gambel's Quail (*Callipepla gambelii*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: SE

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Resident from southern Oregon and western Nevada, south to southern Baja California. Apparently introduced into southern British Columbia, Washington, Idaho, northern Oregon, and Utah.

HABITAT: Found (usually near water) in brushy, grassy, and weedy areas in both humid and arid regions, including chaparral, forest edges, cultivated lands, semi-desert scrub, thickets, sagebrush, and, less frequently, open second-growth woodlands.

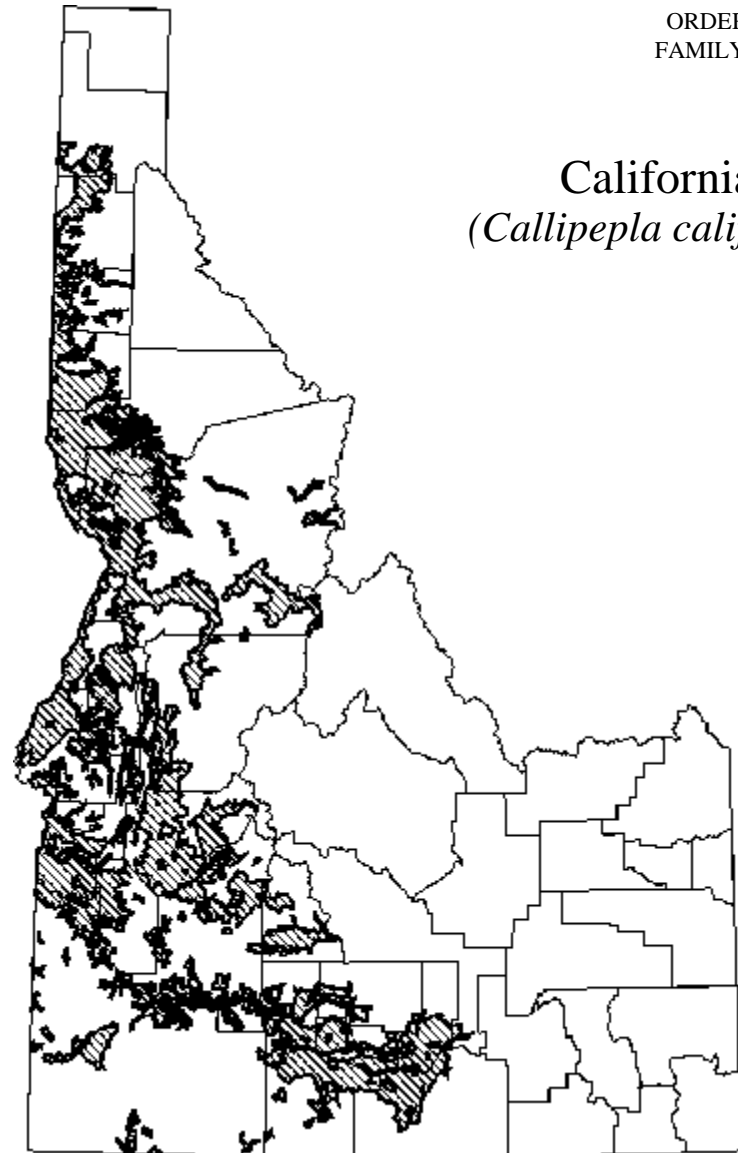
FOOD HABITS: Primarily vegetarian. Eats leaves, seeds (e.g., clovers, lupines, grasses, grains), acorns, and berries. In spring, also eats tips of grasses and buds, as well as spiders, snails, and insects (e.g., grasshoppers, ants, beetles).

ECOLOGY: Usually nests on ground in shallow depression lined with vegetation. Sometimes nests above ground in fork of tree branch. Active during day, feeding mainly 1-2 hr after sunrise, and 1-2 hr before sunset. Highly gregarious, especially in fall and winter. In fall, family groups form coveys of 10-200 birds, which usually disband by late April. Predators include hawks, owls, snakes, and coyotes.

REPRODUCTION: Breeding begins in January (southern range), and ends in mid-May (north). Female incubates 12-17 eggs (sometimes 6-18), for 21-23 days. Precocial, downy nestlings are active soon after hatching, and are tended by both parents.

GIS MODEL NUMBER: 1

## California Quail (*Callipepla californica*)



STATUS: Game species  
GLOBAL RANK: G4 STATE RANK: SE

ORDER: Galliformes  
FAMILY: Phasianidae

RANGE: Resident from southwestern British Columbia, western and southern Washington, and central Idaho, south through mountains of California and northern and western Nevada, to northern Baja California and Mexico.

HABITAT: Found in brushy mountainsides, coniferous forests, forest and meadow edges, and dense undergrowth. Also found in more arid conditions in sagebrush, pinyon and juniper. In Idaho, favors areas with tall dense shrubs that are close to water.

DIET: In spring and summer, feeds on herbaceous vegetation (especially leaves, buds, and flowers of legumes) and some insects (grasshoppers, beetles, and ants). Eats seeds, acorns, and fruits during rest of year. Idaho study determined fringe cup and thistle seeds dominated summer diet; elderberry fruits were important in fall.

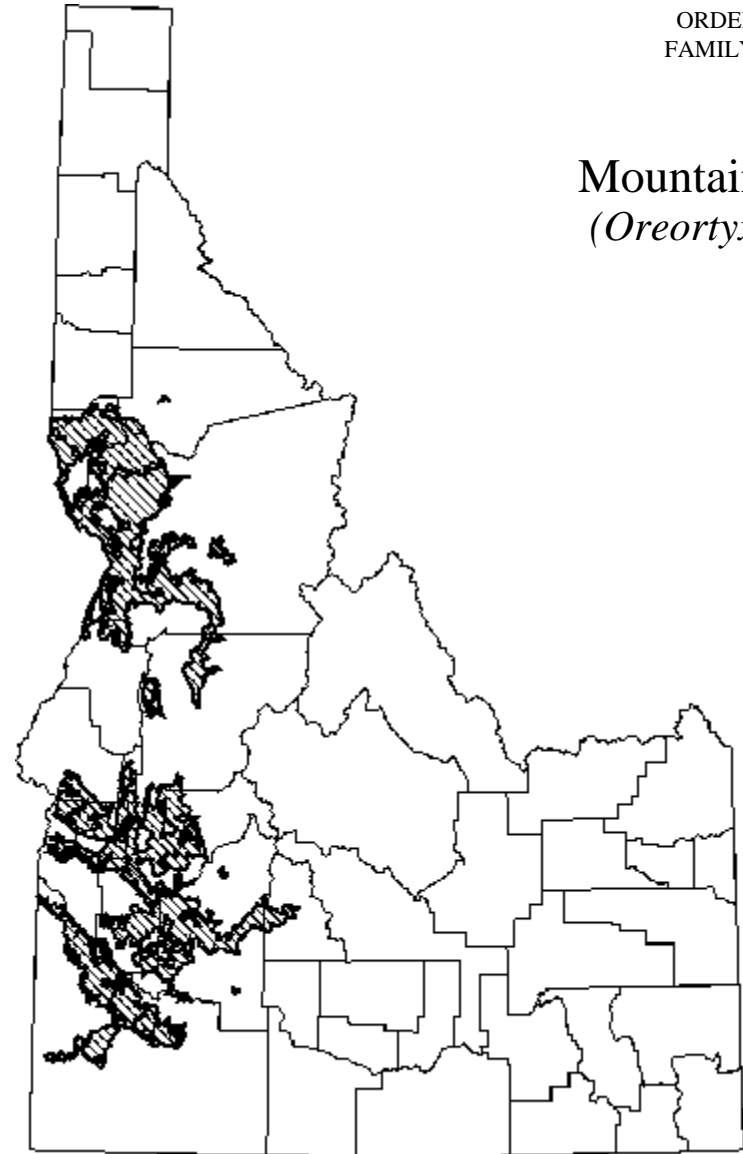
ECOLOGY: Builds concealed nest in depression on ground, frequently near shrub, base of tree, or fallen log. Forages on ground, usually in early morning and late afternoon; rests at mid-day. Forms coveys of 3-20 birds in late summer and early fall; covey disperses in late winter. Daily range varies by season (less than 920 m in winter, and less than 800 m in summer). Study conducted in different California habitats found 9-30 individuals may inhabit 100 ha. Population in Idaho has been declining for last 30 yr (1960-90), possibly due to riparian habitat degradation. Recent Idaho study points to predation by feral cats as a problem.

REPRODUCTION: Female (sometimes male) incubates 7-10 eggs for 24-25 days. Precocial nestlings are tended by both parents, or by either adult. Young can fly about 14 days after hatching.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Heekin, P.E., R. Guse, C. Connell, K.P. Reese, and P.M. Zager. 1993. Mountain quail ecology—job progress report, Study I, Job I. Idaho Dept. Fish & Game, Boise. 15pp.

## Mountain Quail (*Oreortyx pictus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds locally from southern British Columbia to Newfoundland, and south to northwestern Baja California, southern Arizona, west-central Texas, Missouri, Ohio, North Carolina, central Mexico, and South America. Winters from southern British Columbia to northern Baja California, and north to Gulf Coast and North Carolina.

HABITAT: Found in freshwater (occasionally brackish) marshes, mostly in cattails, reeds, and deep grasses.

DIET: Eats insects and other invertebrates, seeds of aquatic plants, and duckweed.

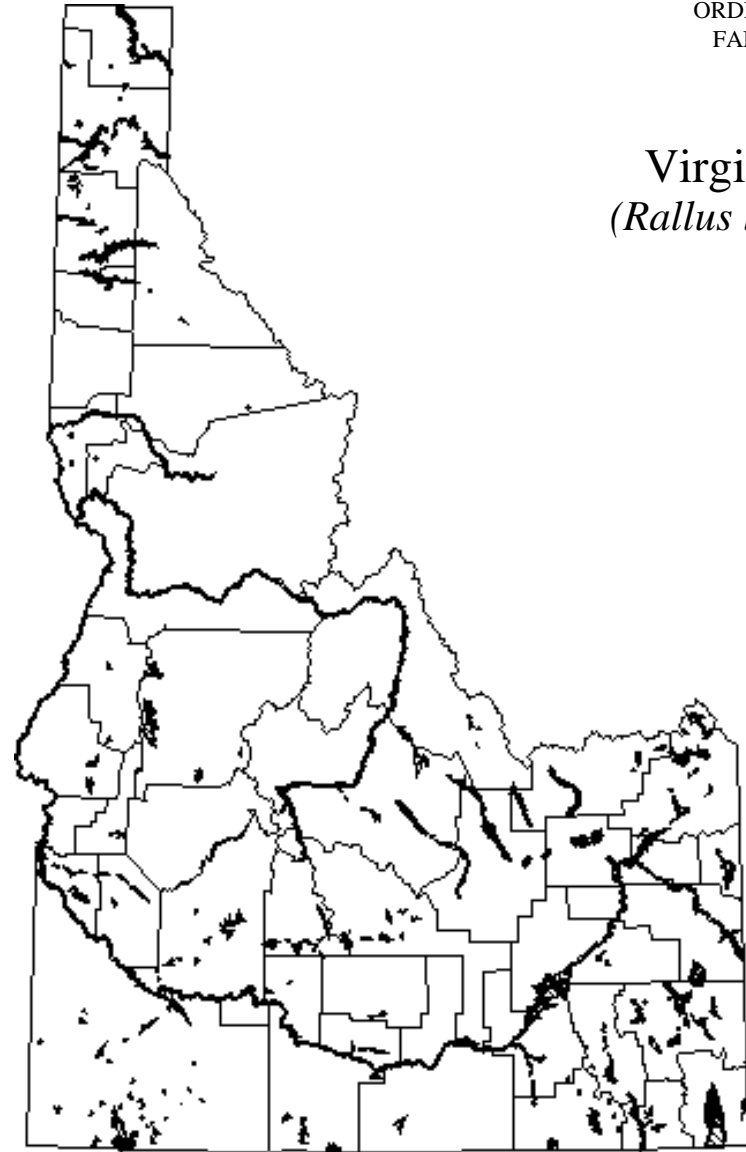
ECOLOGY: Builds nest in vegetation, usually in dry area, but occasionally over mud or water. Probes into mud with bill.

REPRODUCTION: Lays clutch of 5-12 eggs (from April to June on West Coast, May to June or July in central and middle Atlantic and northern states). Incubation lasts about 20 days. Both sexes incubate eggs and tend young, which leave nest soon after hatching.

GIS MODEL NUMBER: 5

ORDER: Gruiformes  
FAMILY: Rallidae

## Virginia Rail (*Rallus limicola*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Gruiformes  
FAMILY: Rallidae

RANGE: Breeds from southeastern Alaska, east to Newfoundland, and south locally to northwestern Baja California, southern New Mexico, eastern Colorado, southern Missouri, central Ohio, and Maryland. Winters regularly from central California, east to southern Texas and Gulf Coast, and south through Central America to portions of South America.

HABITAT: Found primarily in freshwater marshes, less frequently in flooded fields, sometimes foraging on open mudflats adjacent to marshy habitat. Prefers sedges and cattails where mud and water are deep. Also found in swamps and slough borders.

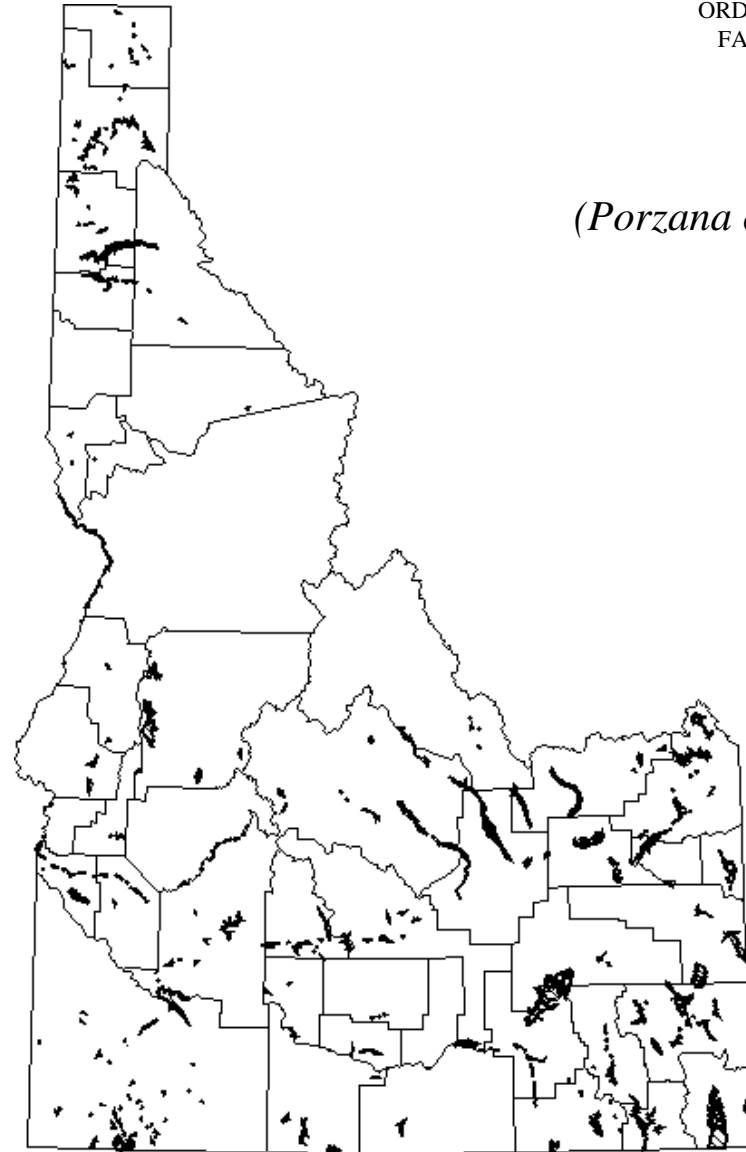
DIET: Eats mollusks, insects, seeds of marsh plants, and duckweed.

ECOLOGY: Usually nests on ground or vegetation; occasionally builds nest over water. Frequently conceals nest with vegetation. Forages on ground. Departs dense cover mostly in early morning and evening. Roosts communally in cattails or other dense vegetation when not breeding.

REPRODUCTION: Both sexes incubate 6-18 eggs (commonly 10-12) for 18-20 days. Young are tended by both parents, and leave nest within 1-2 days (but may return at night for brooding).

GIS MODEL NUMBER: 5

## Sora (*Porzana carolina*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Gruiformes  
FAMILY: Rallidae

RANGE: Breeds from Alaska (casually), east across parts of Canada, and south (locally) to southern Baja California, Gulf Coast, Florida, and portions of Central America. Winters along Pacific Coast, north to southwestern U.S., lower Ohio Valley, and Maryland, and south through southeastern U.S. and Middle America to Panama and probably Colombia.

HABITAT: Found on calm, open water with plenty of algae and other aquatic vegetation, such as freshwater lakes, ponds, marshes, and larger rivers, wintering also on brackish estuaries and bays. Also found on land bordering these habitats.

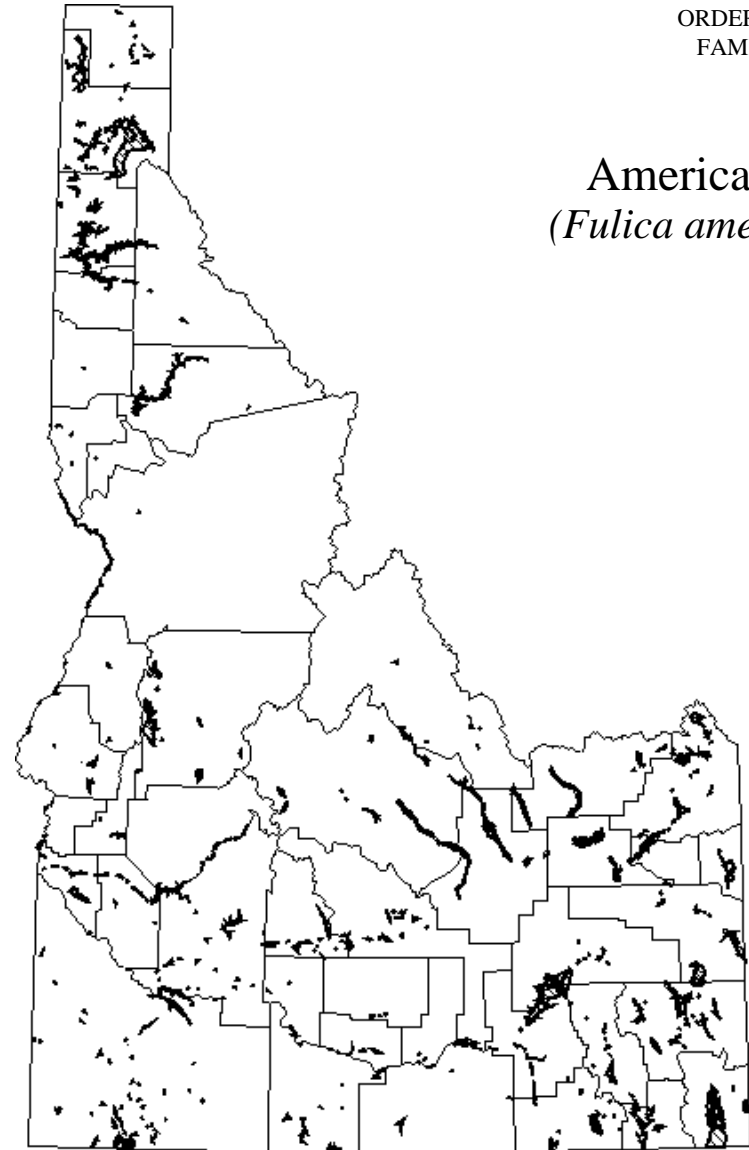
DIET: Eats seeds, roots, and other plant material, insects, snails, small fishes, tadpoles, and other small organisms.

ECOLOGY: Builds concealed nest over water. Feeds on land and in water. Often found in groups when not breeding.

REPRODUCTION: Both sexes incubate 6-22 eggs (most often 8-12 in North America) for 23-24 days. Young are tended by both parents, though brood may be divided between them. Young first fly probably at 7-8 wk.

GIS MODEL NUMBER: 5

## American Coot (*Fulica americana*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Gruiformes  
FAMILY: Gruidae

RANGE: Breeds from northern Alaska and middle arctic Canada, south locally to northeastern California, Nevada, Wyoming, Colorado, South Dakota, and Minnesota. Also breeds in southeastern United States. Winters from southern U.S., south to central Mexico.

HABITAT: Found in open grasslands, marshes, marshy edges of lakes and ponds, river banks, and, occasionally, pine savannas.

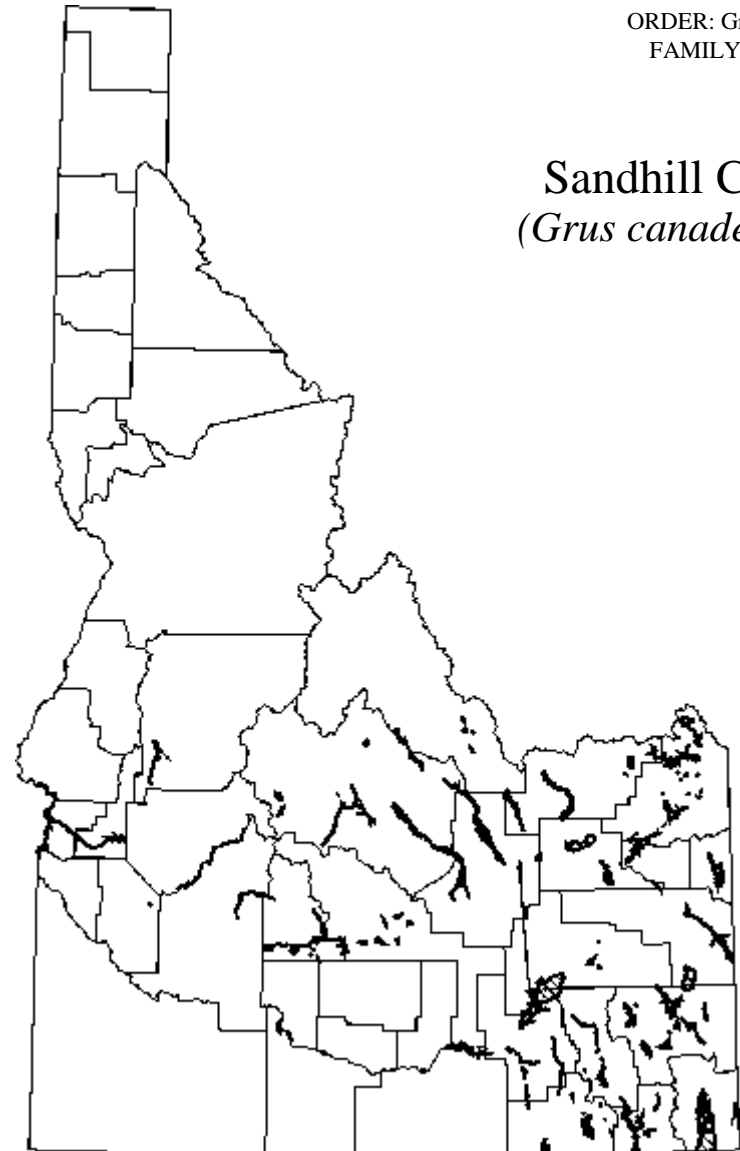
DIET: Feeds on roots, tubers, seeds, grain, berries, earthworms, insects, and small vertebrates (mice, lemmings, birds, snakes, lizards, etc.). Young forage for invertebrates during first few weeks of life. Idaho study found plants made up 73% of diet by volume, with insects and earthworms constituting 27%.

ECOLOGY: Usually builds concealed nest on ground surrounded by water, or in undisturbed location. Roosts at night along river channels, on alluvial islands of braided rivers, or in natural basin wetlands. Communal roost site along open expanse of shallow water is key feature of wintering habitat. Often feeds and rests in fields and agricultural lands; also forages in marshes. Flocks in winter. Mean territory size in Idaho study was 17 ha. Highest reported density is Grays Lake, Idaho—200 pairs/10,000 ha. Grays Lake birds migrate in September and October to New Mexico and Arizona.

REPRODUCTION: Nesting occurs in Idaho from late April-early July. Nests with eggs can be found from: late February-late May in Florida (mean laying date mid-March); April in mid-U.S.; and mid-May in northern range. Both sexes, in turn, incubate usually 2 eggs for 28-30 days. Idaho study found 78% nest success; mean brood size at hatching and fledging was 1.8 and 1.3, respectively. Both parents tend young, which fly at about 2 mo, and remain with parents until following year. Pair usually renests if clutch is lost or abandoned (interval between clutches is 18-20 days in Florida). Usually, only 1 chick survives to fledging. May pair as early as 3 yr, but more commonly at 5-6 yr; in mid-continental North America, most recruitment is by cranes older than 7 yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Mullins, W.H. and E.G. Bizeau. 1978. Summer foods of sandhill cranes in Idaho. *Auk* 95:175-178.



## Sandhill Crane (*Grus canadensis*)

STATUS: Protected nongame species  
GLOBAL RANK: G1 STATE RANK: SE

RANGE: Formerly found over much of central and eastern North America; present range is much reduced. Breeds in south-central MacKenzie River District and adjacent northern Alberta. Winters on Gulf Coast of Texas. Introduced in Idaho in Grays Lake National Wildlife Refuge; Idaho population winters in central New Mexico in Bosque del Apache National Wildlife Refuge.

HABITAT: Found in freshwater marshes and wet prairies. During migration and in winter, also found in grain and stubble fields, and on shallow lakes. Winters on salt flats and marshes.

DIET: During summer, feeds on insects, crustaceans, and berries. Winter diet includes grains, acorns, wolfberry fruit, insects, crustaceans, mollusks, fishes, amphibians, and reptiles. One study found radio-marked migrants fed primarily in variety of croplands.

ECOLOGY: Nests in dense, emergent vegetation in freshwater marshes, wet prairies, and along lake margins. Constructs mound nest of marsh vegetation; nest rises 20-48 cm above water level. Population has exhibited 10-yr periodicity. Mated pairs and families establish and defend winter territories on coastal marshes in Texas. Breeding territories are very large, averaging 770 ha. Idaho population was re-established through translocation (cross-fostered eggs) to sandhill cranes at Gray's Lake. High mortality (especially juveniles) due to shootings, collisions, and bad weather. No successful breeding occurred in experimental population in Idaho.

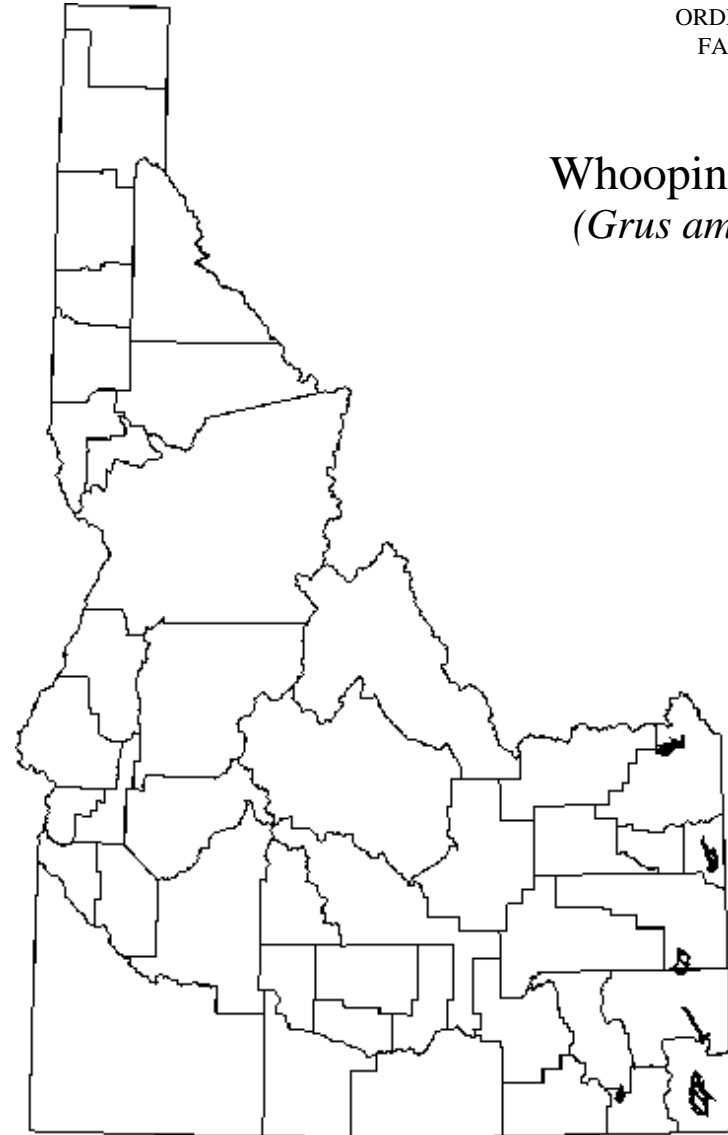
REPRODUCTION: Breeding begins in early May. Pair mates for life. Both sexes, in turn, incubate 2 eggs (sometimes 1-3), for 33-34 days. Nestlings are precocial, are tended by both adults, fledge when no less than 10 wk old, remain with parents until following year (dissociate after arrival on breeding grounds), and reach sexual maturity at 4-6 yr.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Carlson, G.E. and C.H. Trost. 1992. Sex determination of the whooping crane by analysis of vocalizations. Condor 94:532-536.

ORDER: Gruiformes  
FAMILY: Gruidae

## Whooping Crane (*Grus americana*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from Alaska, east through parts of Canada to Newfoundland, and south to southern Baja California, central Mexico, Gulf Coast, southern Florida, and western South America. Winters from southeastern Alaska (rarely), southern British Columbia, central U.S., and New England, south to western Indies and northern South America.

HABITAT: Found in fields, meadows, pastures, mudflats, and shores of lakes, ponds, and rivers; found less commonly along seacoasts.

DIET: Feeds on small invertebrates on ground surface, but will also feed in shallow water.

ECOLOGY: Nests in depression on ground, in variety of habitats from unconcealed locations near human habitation, to gravelly, camouflaged areas. Nesting density in several different areas was 13-30 pairs/ha. Forages on ground. Sometimes active on moonlit nights. Adults engage in broken-wing distraction displays. In Idaho study, Killdeer were more abundant in grazed than ungrazed riparian habitat.

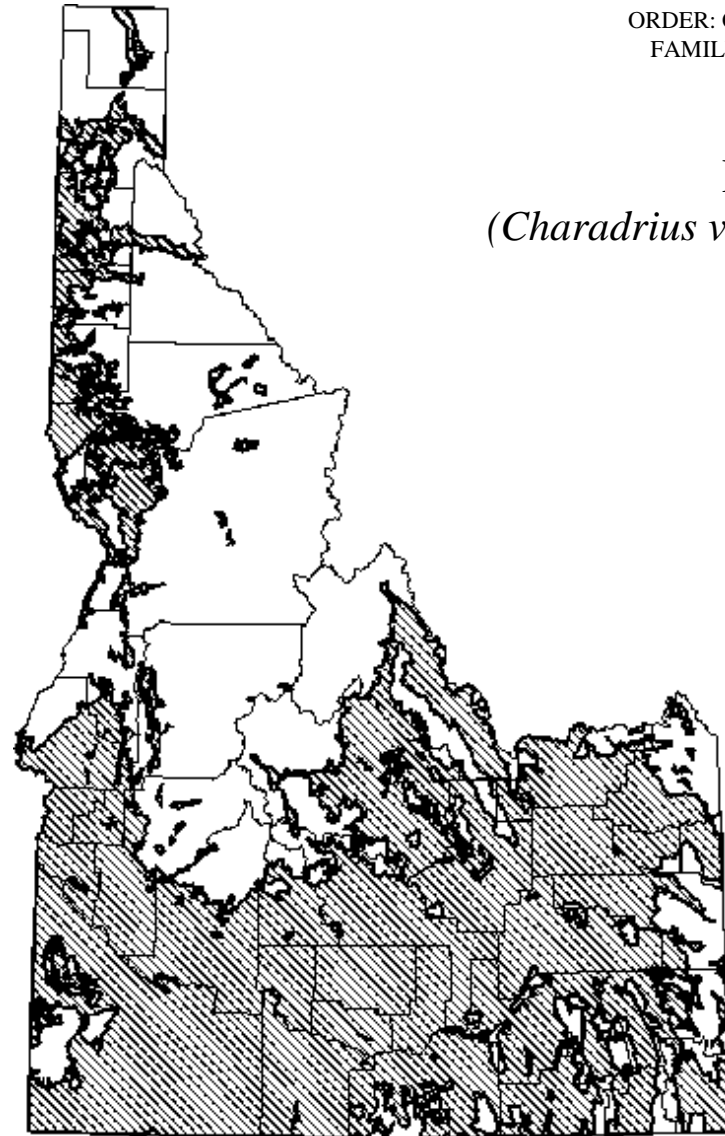
REPRODUCTION: Clutch size varies from 3-5 eggs, but is usually 4. Both parents incubate eggs; incubation averages 24-30 days (female may desert second clutch in some areas). Young are attended by both parents, and first fly at about 25 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. and W.P. Clary. 1990. Bird and small mammal populations in a grazed and ungrazed riparian habitat in Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-245, Boise. 8pp.

ORDER: Charadriiformes  
FAMILY: Charadriidae

## Killdeer (*Charadrius vociferus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from southern Oregon, Idaho, northern Utah, southern Colorado, eastern New Mexico, central Kansas, coastal Texas and southern Louisiana, south through Middle America to southern Chile and southern Argentina; may also breed in eastern Montana and western South Dakota. Breeds locally on Atlantic Coast from mid-Atlantic states, south to southern Florida. Winters mostly from southern California, southern coastal Texas, and Florida, south through breeding range.

HABITAT: Found in shallow water (salt or fresh) with soft muddy bottom. In Idaho, found on marshes, on flooded meadows and margins of pond, and on lakes and reservoirs; also occupies islands in Snake River.

DIET: Eats polychaets, crustaceans, snails, and variety of insects (e.g., bugs, beetles, caddisflies, mosquito larvae, grasshoppers). Also feeds on some small fishes, as well as seeds of aquatic plants.

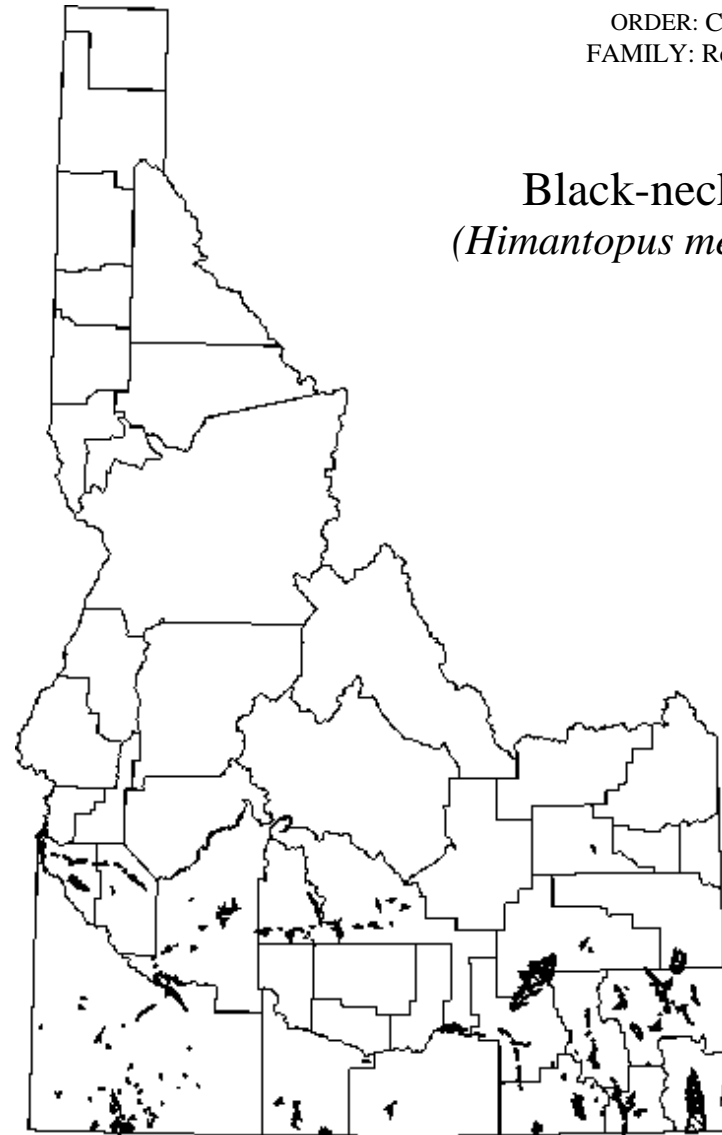
ECOLOGY: Social; sometimes found in loose groups of up to 50 individuals. Nests in small colonies. Builds nest in depression on ground, frequently in grass. Prefers to wade in shallow pools (up to 30 cm deep) but avoids deep water; plucks food from surface of water or mud, or probes in soft mud.

REPRODUCTION: Both adults, in turn, incubate 4 eggs about 25 days. Nestlings are precocial. Both adults tend young, which become independent in about 4 wk, and first fly at 7-8 wk.

GIS MODEL NUMBER: 5

ORDER: Charadriiformes  
FAMILY: Recurvirostridae

## Black-necked Stilt (*Himantopus mexicanus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Charadriiformes  
FAMILY: Recurvirostridae

RANGE: Breeds from parts of southern Canada and Minnesota, south locally to southern California, central Nevada, northern Utah, south-central Colorado, southern New Mexico and San Luis Potosi, and east to central Kansas and coastal Texas. Nonbreeders may summer in usual winter range. Winters from California and southern Texas, south through Mexico, casually in Central America, and locally in southern Florida.

HABITAT: Found in lowland marshes, mudflats, ponds, alkaline lakes, and estuaries.

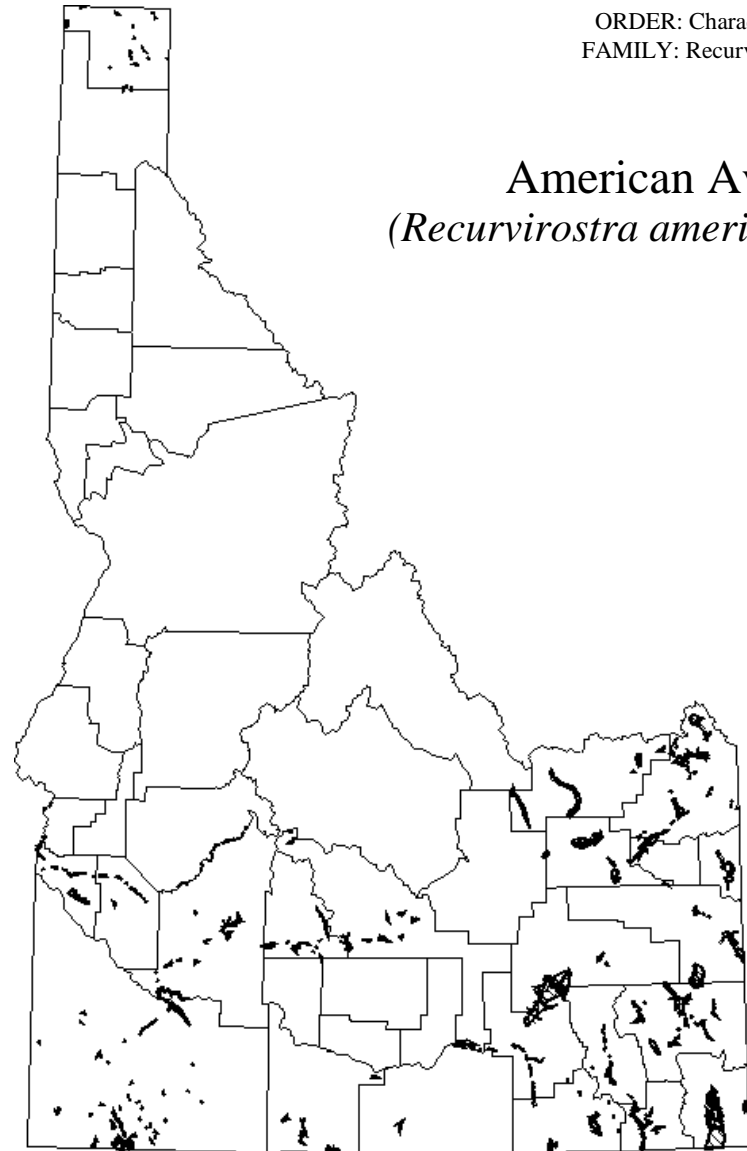
DIET: Eats variety of aquatic insects and their larvae, crustaceans, and seeds of aquatic plants.

ECOLOGY: Nests in depression on ground, or on gravel, mud, or vegetation. When breeding, nests in loose colonies. Colony may engage in group distraction displays or mob predators. Individuals walk slowly through water and often feed in flocks that number 12-300 birds. May dive or extend head under surface of water while feeding.

REPRODUCTION: Breeding begins in mid-April in southern range, to mid-May in north. Both parents incubate 3-4 eggs for 23-25 days. Young are precocial and tended by both adults, and become independent in about 6 wk.

GIS MODEL NUMBER: 5

## American Avocet (*Recurvirostra americana*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds locally from eastern Oregon, Idaho, and parts of south-central Canada, south to east-central California, western Nevada, central Utah, northern Colorado, and parts of Midwest. Also breeds locally along parts of Atlantic and Gulf coasts. Winters north to California and Virginia, and south to South America. Nonbreeders may summer in winter range.

HABITAT: Found in marshes, tidal mudflats, beaches, lake margins, tidal channels, river mouths, coastal lagoons, sandy or rocky shores, and, less frequently, open grasslands.

DIET: Feeds primarily on small invertebrates (crustaceans, mollusks, insects, and worms).

ECOLOGY: Builds nest (concealed or in open) in depression on beach or flat. When not breeding, forages singly or in small, loose groups, typically in shallow water, on water surface, or in mud. Gathers in large flocks to sleep or rest. Uses separate feeding and nesting areas when breeding. Females show strong fidelity to mate and feeding areas between years. In Idaho study, Willets were more abundant in grazed than ungrazed riparian habitat.

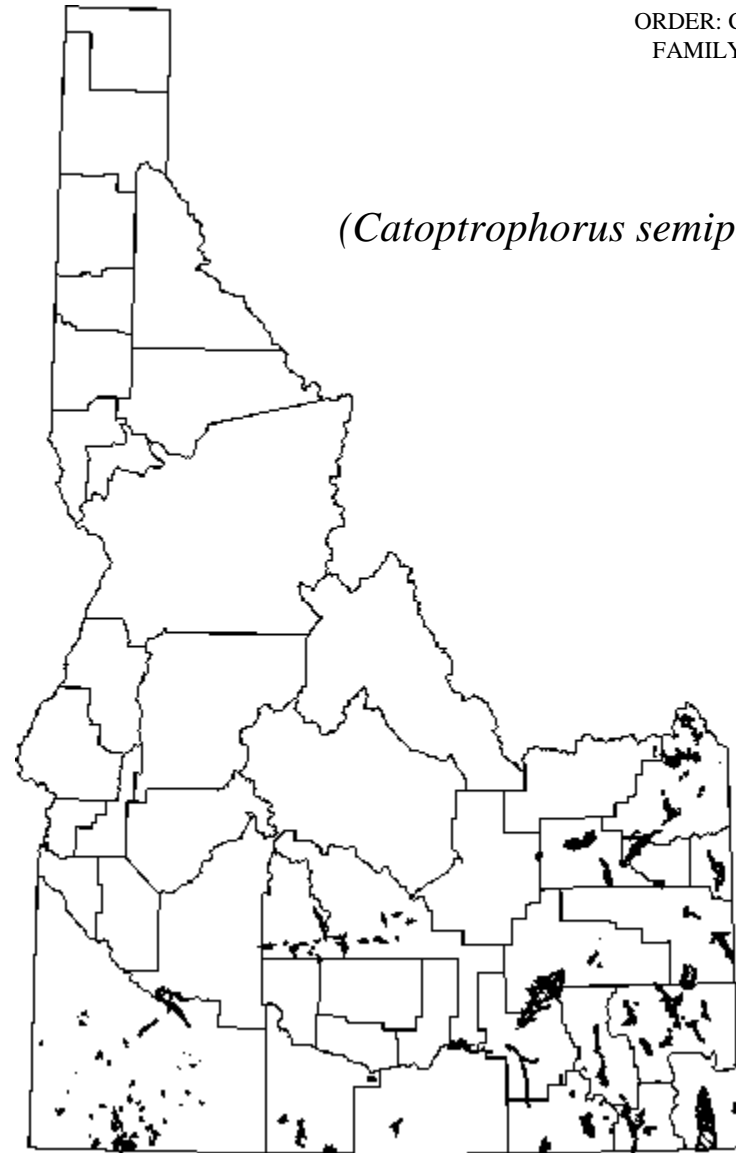
REPRODUCTION: Female (possibly male, at night) incubates 4 eggs for 22 days. Eggs are laid April-May, depending on range. Young are tended by both parents, and are abandoned at an early age.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Medin, D.E. and W.P. Clary. 1990. Bird and small mammal populations in a grazed and ungrazed riparian habitat in Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-245, Boise. 8pp.

ORDER: Charadriiformes  
FAMILY: Scolopacidae

## Willet (*Catoptrophorus semipalmatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Charadriiformes  
FAMILY: Scolopacidae

RANGE: Breeds across portions of Alaska and Canada, south to Oregon, southern California, central Arizona, southern New Mexico, Texas, and parts of southeastern United States. Winters from southwestern British Columbia, western Washington, southern Arizona, southern New Mexico, southern Texas, and coastal southeastern U.S., south to South America.

HABITAT: Found on seacoasts and shores of lakes, ponds, and streams, and occasionally in marshes. Prefers shores with rocks, wood, or debris.

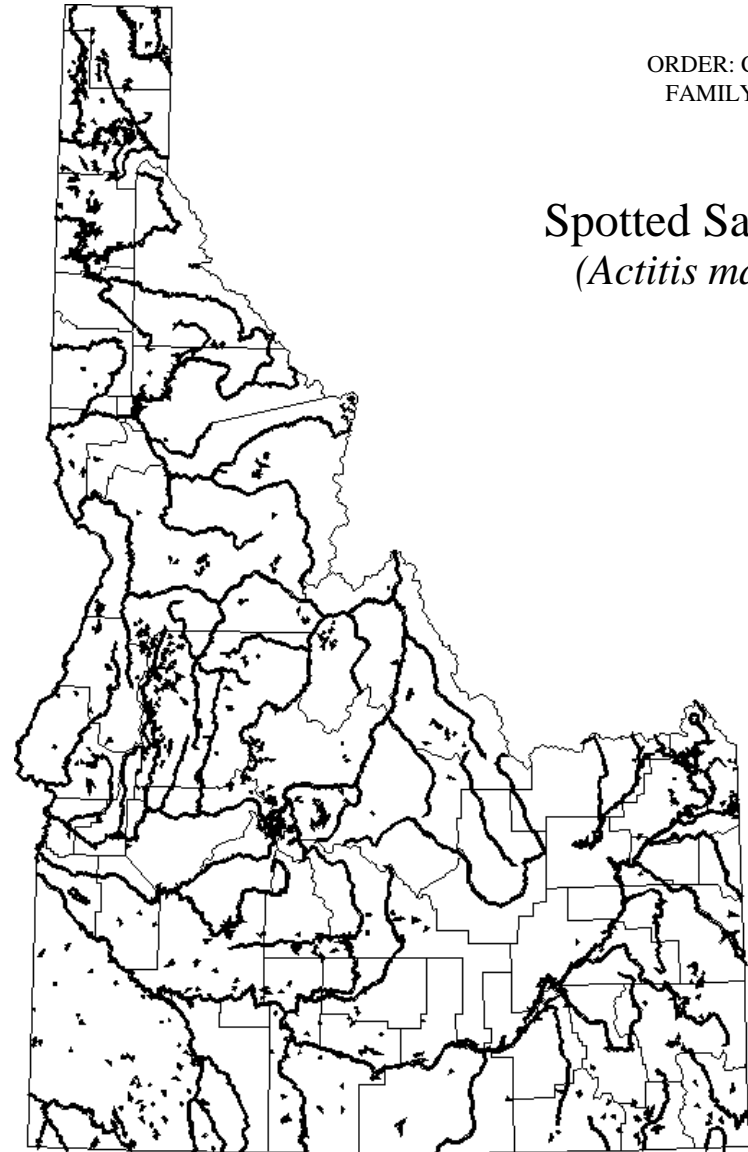
DIET: Eats mainly small invertebrates.

ECOLOGY: Builds nest in depression on ground, on elevated site in vegetation or rocks. May form loose colonies when breeding. Obtains food from water surface, or by probing along shores, or sometimes inland. When not breeding, defends individual territory, and forms small flocks to sleep (normally does not flock). In one study, predation by single mink reduced local annual reproductive success from 30-50 chicks fledged to zero.

REPRODUCTION: Male incubates 4 eggs (usually) for 20-21 days. Female may lay clutch for more than 1 male (polyandrous). Male may change mate if nest fails. Young are attended by male, leave nest soon after hatching, and fly at 13-16 days.

GIS MODEL NUMBER: 5

## Spotted Sandpiper (*Actitis macularia*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1, NTMB

RANGE: Breeds locally from Alaska, east through central Canada and Great Lakes region to southern New Brunswick, and south in interior to eastern Washington, northeastern Oregon, Idaho, Colorado, northwestern Oklahoma, Texas, and parts of Midwest and mid-Atlantic states. Winters in South America.

HABITAT: Found in grasslands (especially prairies), dry meadows, pastures, short-grass savannas, plowed fields, fields around airports, and (in Alaska) scattered woodlands at timberline. Found very rarely (in migration) along shores and mudflats. In Idaho, prefers dry grass prairies, and is not tied to wet areas or shores.

DIET: Eats mainly insects and other small, terrestrial invertebrates.

ECOLOGY: Forages on ground. When not breeding, found alone or in small, scattered groups. Has conspicuous habit of whistling while sitting on fence posts. Arrives in Idaho in early May and begins courtship and copulation immediately; engages in high flying as part of courtship. Builds concealed nest in depression on ground in vegetation. Population in Idaho appears restricted to 3 or 4 small colonies.

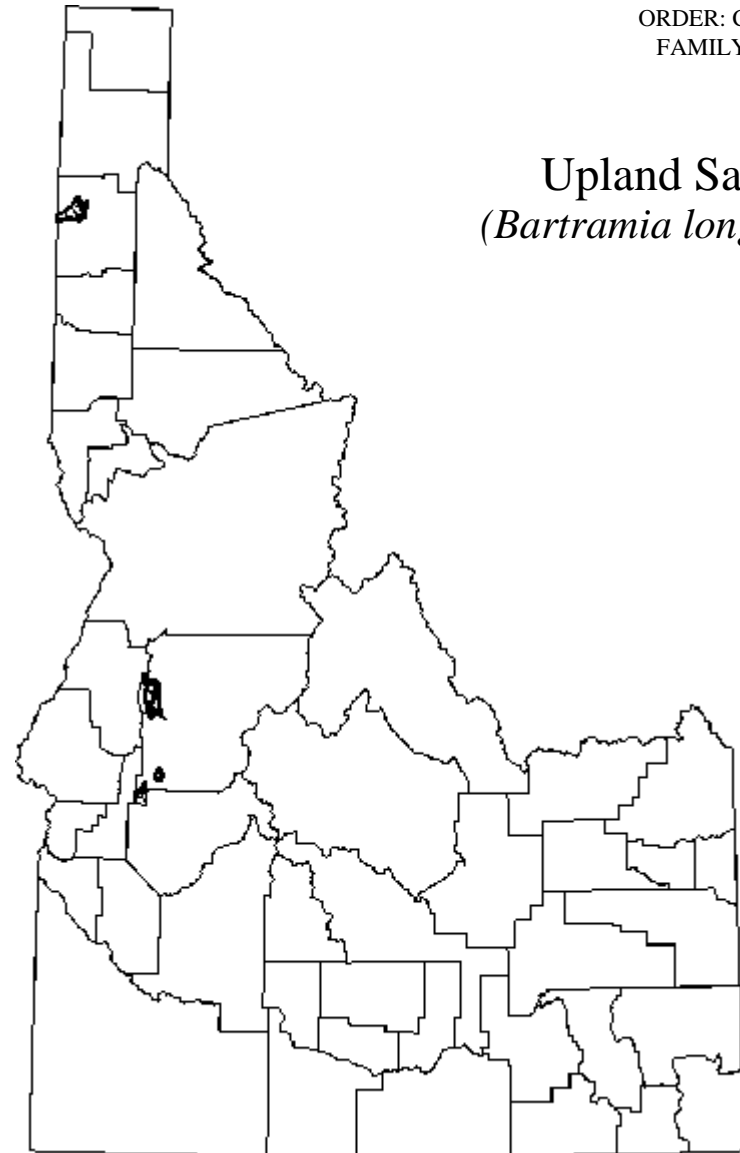
REPRODUCTION: Both sexes incubate 4 eggs (usually), for 21-24 days (eggs are laid May-June, depending on range). Both parents tend young, which first fly at 30-31 days.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

ORDER: Charadriiformes  
FAMILY: Scolopacidae

## Upland Sandpiper (*Bartramia longicauda*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3, NTMB

ORDER: Charadriiformes  
FAMILY: Scolopacidae

RANGE: Breeds from southwestern Canada, south to eastern Washington, northeastern California, Nevada, Utah, southern Colorado, New Mexico and northern Texas, and east to southwestern Kansas. Winters from central California, southern Arizona (rarely), northern Mexico, and parts of Gulf Coast states, south to southern Mexico, and irregularly to Central America.

HABITAT: Found in prairies and grassy meadows, generally near water. During migration and in winter, also found on beaches and mudflats. In Idaho, prefers open, recently-grazed shrub steppe containing short vegetation for nesting; often feeds in agricultural areas.

DIET: Feeds on insects (grasshoppers, beetles, caterpillars, etc.). Eats some berries. During migration, also feeds on crayfishes, crabs, snails, and toads. In Idaho, grasshoppers and carabid beetles are dominant in chick diet. May probe into loose soil for insect larvae. Predation on nestling birds has been observed.

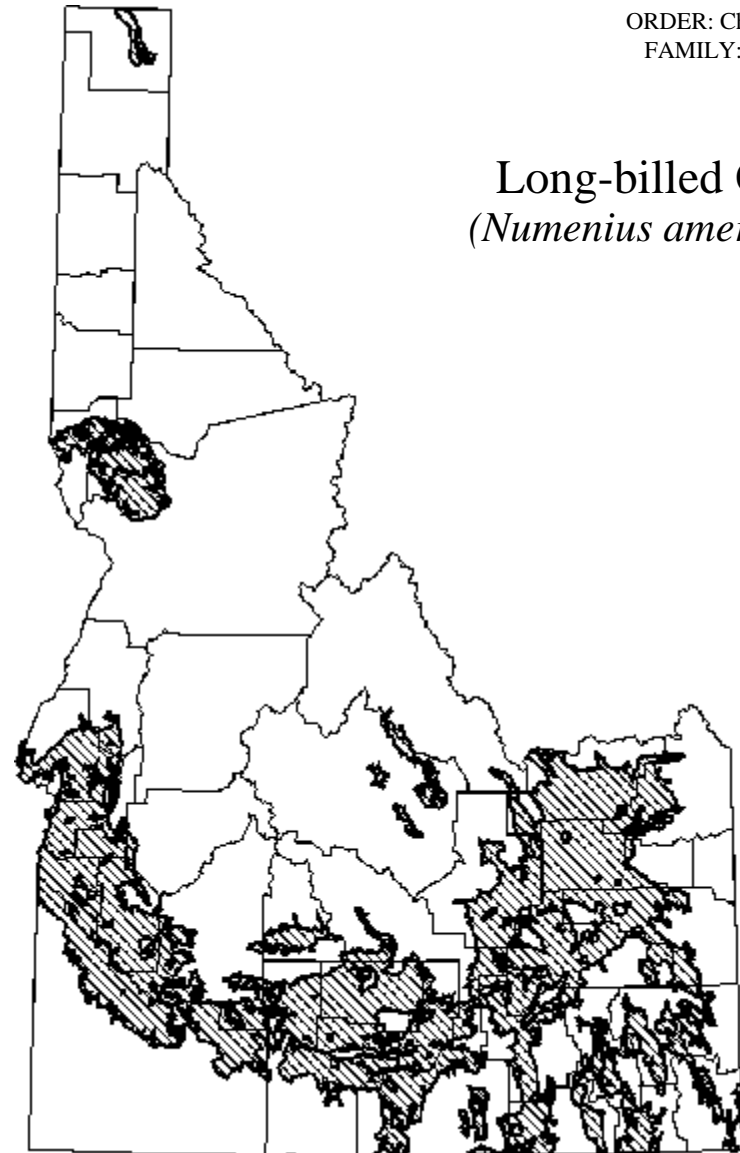
ECOLOGY: Forages on ground. Idaho study found adults foraged within 10 km of their nest sites; minimum home range approached 1000 ha. Individuals build nests on ground, frequently in depressions or on slopes. Will sometimes nest on platform. Breeding density has been reported as: about 5-7 males/100 ha in Idaho; 1 pair/6-7 km<sup>2</sup> in Saskatchewan; up to 15 territories in 10.4 km<sup>2</sup> in Washington. In Idaho, predators include canids, mustelids, feral cats, magpies, gulls, and raptors; grazing livestock have damaged nests.

REPRODUCTION: Curlews arrive in southwestern Idaho in late March. Eggs are laid over 4-7 days. Clutch size varies from 3-5 eggs (in Idaho, average is near 4). Incubation lasts 28-30 days; both sexes incubate eggs. Nestlings are precocial. Young are tended by both parents. Fledging lasts from mid-June until end of July, and success is greater for early nesters. By mid-August, most curlews have departed Idaho.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Jenni, D., R.L. Redmond, and T. Bicak. 1982. Behavioral ecology and habitat relationships of Long-billed Curlews in western Idaho. USDI Bur. Land Manage. Boise District, Boise. 234pp.

## Long-billed Curlew (*Numenius americanus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from northern Alaska, east through parts of Canada to Maritime Provinces, and south to southern Alaska, central California, eastern Arizona, New Mexico (probably), Colorado, and parts of Midwest, mid-Atlantic states, and New England. Winters from southern Alaska (rarely), southern British Columbia, Washington, Oregon, Utah, central U.S., and Virginia, south to South America.

HABITAT: Found in wet, grassy, or marshy areas, from tundra to temperate lowlands and hilly regions. In winter and during migration, also found in wet meadows, flooded fields, bogs, swamps, moorlands, and marshy banks of rivers and lakes.

DIET: Eats mostly insects (especially burrowing larvae), mollusks, crustaceans, and worms; sometimes eats seeds of sedges and grasses.

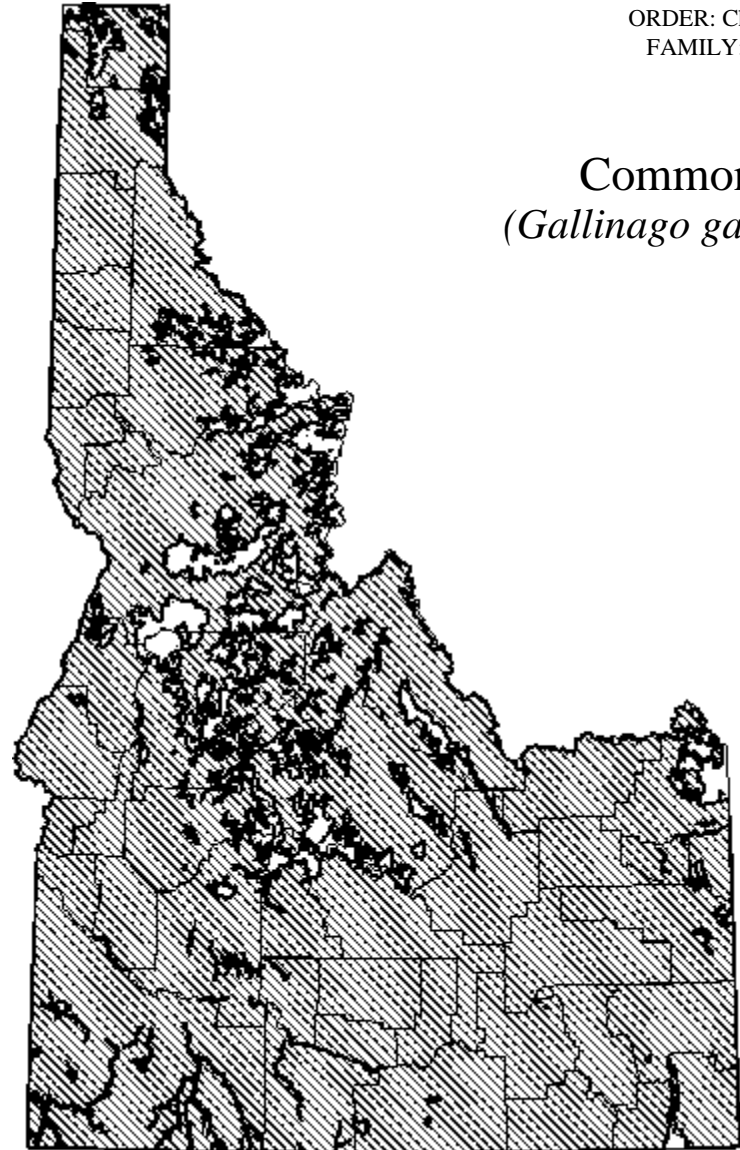
ECOLOGY: Nests in depression on ground, under concealing vegetation. When not breeding, forages singly or in loose groups. Feeds by probing into mud or soft soil, or taking some food on surface. Largely crepuscular in feeding, nocturnal in migration. Usually roosts in flocks.

REPRODUCTION: Female incubates 4 eggs (usually) for 17-20 days. Young leave nest soon after hatching, are tended by both parents in 2 separate groups, and are capable of sustained flight at about 20 days.

GIS MODEL NUMBER: 1

ORDER: Charadriiformes  
FAMILY: Scolopacidae

## Common Snipe (*Gallinago gallinago*)





STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S5

RANGE: Breeds from British Columbia and southern Yukon, east across central Prairie Provinces to Great Lakes area and New Brunswick, and south to south-central California, Utah, eastern Arizona, western New Mexico, Texas, and parts of Midwest. Nonbreeders have been recorded in summer north to central Alaska and parts of western Canada. Winters mainly in western and southern South America, and casually north to southern California and southern Texas.

HABITAT: Found in freshwater marshes and wet meadows. When not breeding, also found on lakes, mudflats and salt marshes, along seacoasts, and at sewage ponds; rarely reported at sea.

DIET: Eats insects (larvae and adults), especially mosquitoes and crane flies. On salt flats, may feed on flies, brine shrimp, and seeds of aquatic plants.

ECOLOGY: Builds nest on damp ground; ground may be surrounded by water. Sometimes forms loose colonies, or feeds with other species. Feeds as it walks along muddy shores, wades in shallow water, or swims in whirls.

REPRODUCTION: Breeding begins in mid- to late May. Male incubates 3-4 eggs for about 20 days; female usually leaves before eggs hatch. Nestlings are precocial and downy. Young are tended by male. Female may acquire second mate and lay second clutch.

GIS MODEL NUMBER: 5

ORDER: Charadriiformes  
FAMILY: Scolopacidae

## Wilson's Phalarope (*Phalaropus tricolor*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from Canadian Prairie Provinces, south to east-central Oregon, southern Idaho, northwestern Utah, northwestern Wyoming, northeastern South Dakota, and northwestern Indiana. Nonbreeders occur in summer from east-central British Columbia and northeastern Manitoba, south to northern New Mexico, southeastern Wyoming, Kansas, central Indiana, and Great Lakes. Winters primarily in South America, and casually along coastal Texas and Louisiana.

HABITAT: When breeding, found on sloughs, marshy lakes, and prairie freshwater marshes. When not breeding, found on seacoasts, bays, estuaries, lakes, rivers, marshes, ponds, irrigated fields, and mudflats.

DIET: Feeds primarily on insects. Also eats aquatic insects and small fishes in small ponds and sloughs.

ECOLOGY: Builds floating nest anchored to platform of dead reeds. Forms large colonies (up to 15,000-20,000 individuals); largest colony in Idaho is at Gray's Lake National Wildlife Refuge with an estimated 5,000-6,000 nests. Breeders will desert nests if disturbed. Individuals catch prey in air and follow farmers' plows to feed on unearthed insects and their larvae.

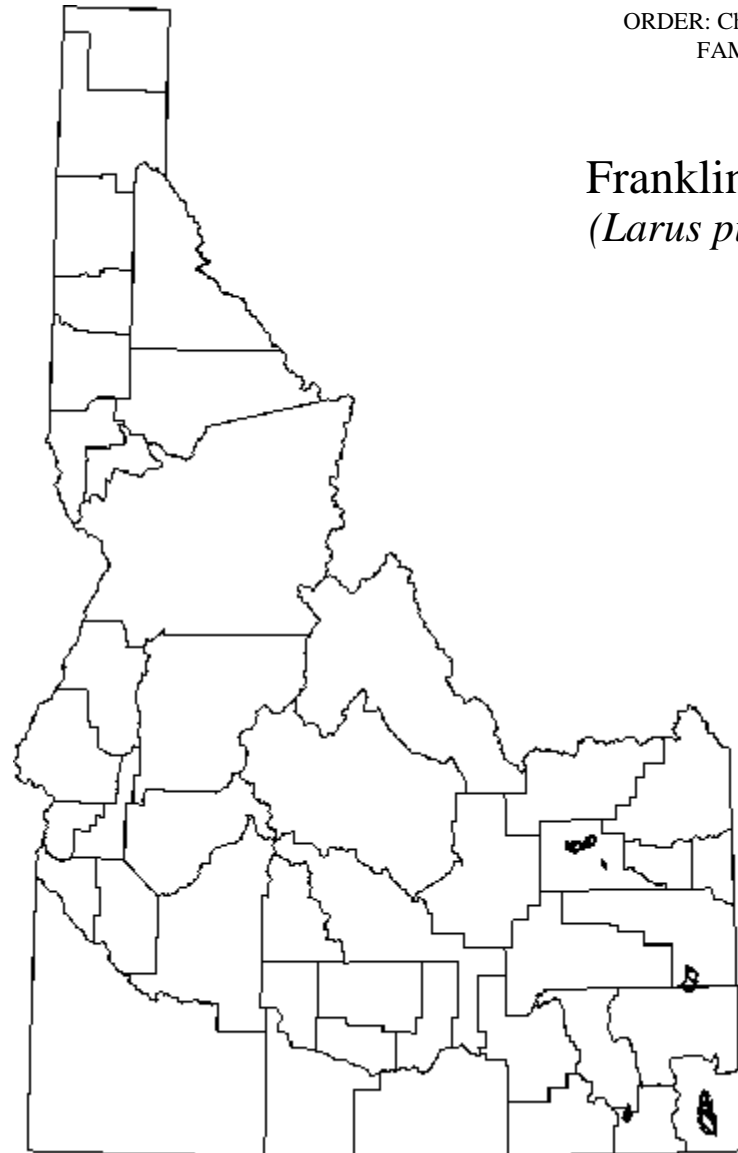
REPRODUCTION: Breeding begins early May to early June. Both sexes incubate 2-3 eggs for about 18-20 days. Nestlings are semi-precocial. Young are tended by both adults.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 74pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## Franklin's Gull (*Larus pipixcan*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from Washington east to Manitoba, and south to northeastern California, Colorado, and South Dakota. Also breeds in eastern U.S. and Canada. Nonbreeders occur in summer north to central Alaska, portions of western Canada, and south through wintering range. Winters coastally from southern British Columbia to southern Mexico (rarely south to Central America). Also winters on East Coast and in interior from Great Lakes to central Mexico.

HABITAT: Found on seacoasts, bays, estuaries, rivers, lakes, ponds, irrigated fields and plowed lands, and in cities and dumps. In Idaho, often associated with California Gulls, but nests in more vegetated areas.

DIET: Feeds opportunistically on various animals, plant material, and garbage. Also eats insects and fruits.

ECOLOGY: Forages on land or water surface, or sometimes in vegetation; may take prey in air. Builds nest in matted vegetation on islands. Forms colonies. Pirates other nests. Fox predation may result in reproductive failure of local breeding colonies.

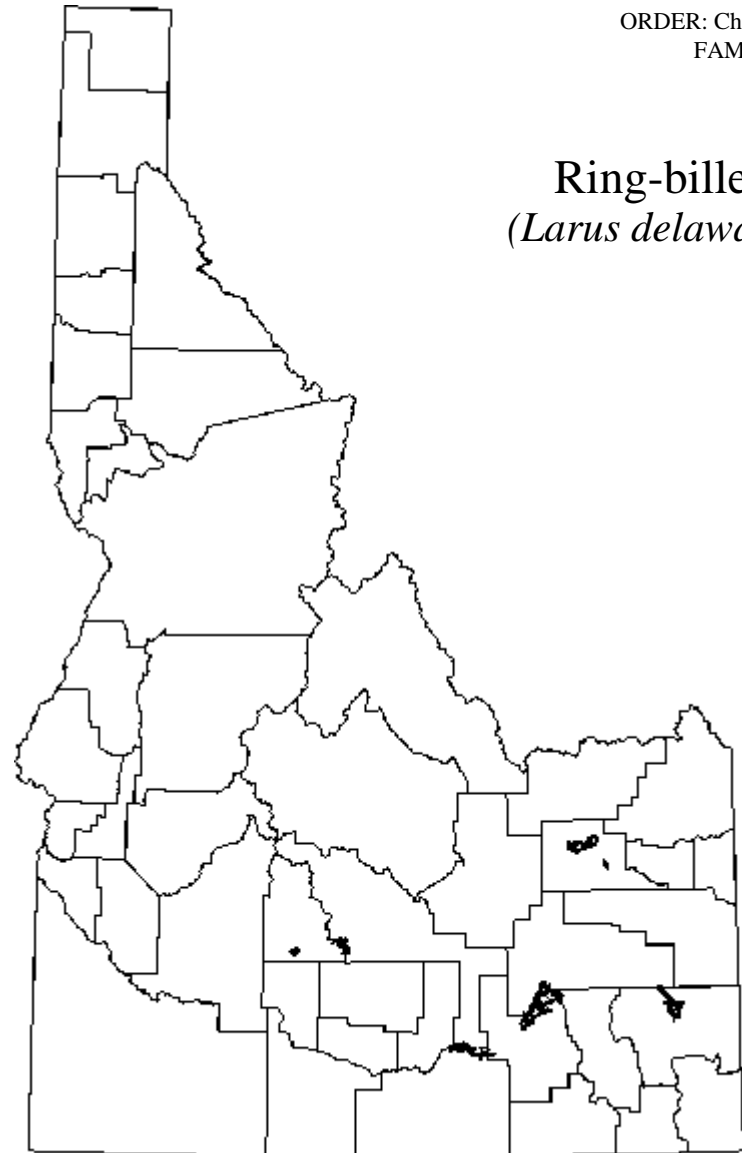
REPRODUCTION: Both sexes incubate usually 3 eggs (2.2-3.0 eggs in Idaho) for about 21 days. Young are tended by both parents, are fed until able to fly, and usually attain adult plumage in 3 yr. Adults may form female-female pairs or polygynous trios. In Idaho, colony size averages over 2000 nests.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 74pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## Ring-billed Gull (*Larus delawarensis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Breeds from parts of western Canada, south to east-central North Dakota, central Montana, northwestern Wyoming, eastern Idaho, northwestern Utah, Northwestern Nevada, eastern California, southeastern Oregon, and southern Washington. Winters from southern Washington and eastern Idaho, south along Pacific Coast to southern Baja California and northwestern mainland Mexico.

HABITAT: Found on seacosts, bays, estuaries, mudflats, marshes, irrigated fields, lakes, ponds, dumps, agricultural lands, and in cities.

DIET: In inland areas, feeds on mice and insects (crickets, grasshoppers, and cutworms). Along the coast, feeds on dead fish and garbage; scavenges behind boats and around harbors and dumps.

ECOLOGY: Builds nest in depression on ground; in Idaho, nests are typically on islands. May gather in large flocks, often in association with Ring-billed or other gulls. Species is colonial; colony size in Idaho averages about 4000 nests. Although Great Horned Owl may cause significant mortality in breeding colony, colonial waterbird surveys conducted between 1984 and 1994 indicate that California Gull numbers have increased three-fold during this time period.

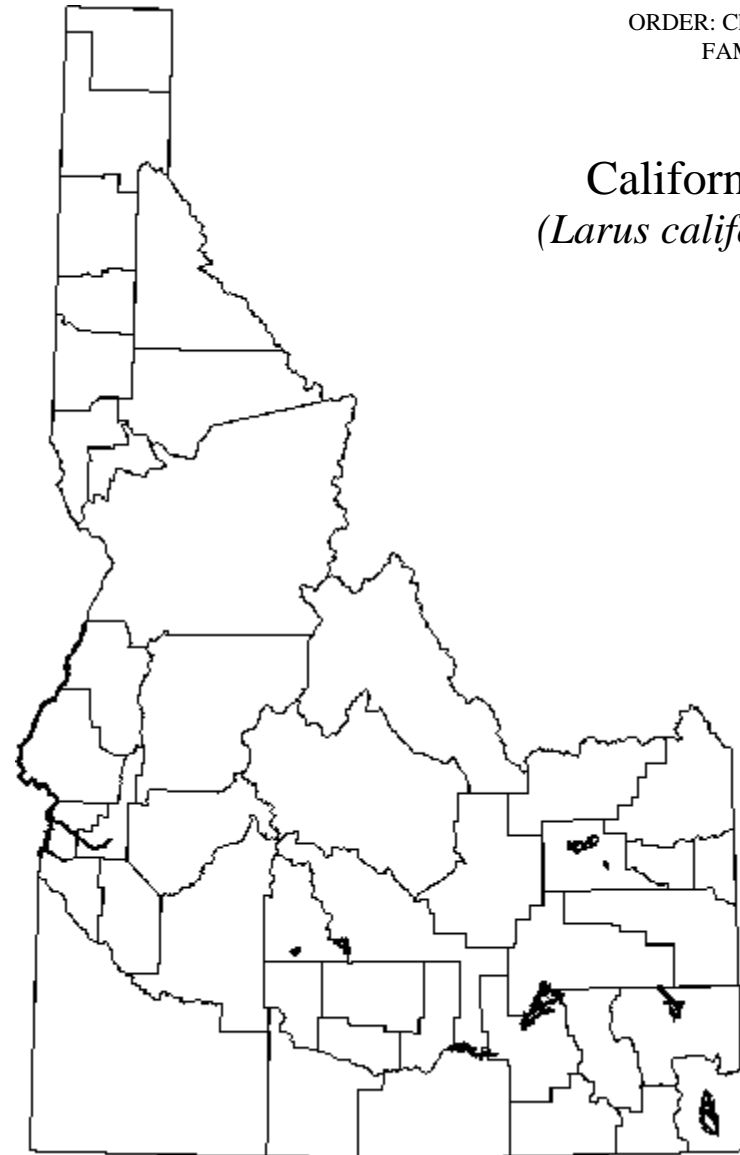
REPRODUCTION: Breeding begins in late April in southern range, to early June in north. Both sexes incubate 3 eggs for 23-27 days (2.2-2.6 eggs in Idaho). Nestlings are semi-precocial and downy. Young are tended by both parents. Adults may form female-female pairs.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## California Gull (*Larus californicus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Breeds locally (mostly in interior, but on coast in Washington and California) in Washington, eastern Oregon, northern Utah, northwestern Wyoming, Idaho (recent range expansion), and North Dakota, south to southern California, western Nevada and northern Mexico. Also breeds in portions of Canada, and locally on Atlantic and Gulf coasts and U.S. Great Lakes. Winters mainly north to California and North Carolina, and south to Mexico, sometimes to northern South America.

HABITAT: Found on seacoasts, bays, estuaries, lakes, marshes, and rivers.

DIET: Eats mainly fishes, but will also eat eggs and young of other terns and gulls.

ECOLOGY: Least gregarious tern; nests singly, or may form colonies of up to several thousand pairs (in Idaho, average colony size is 11.5 nests). Nests in rocks or on ground (in Idaho, nesting sites are on islands). When not breeding, often rests with flocks of other terns. Dives from air to obtain food at water surface; sometimes feeds from surface like a gull.

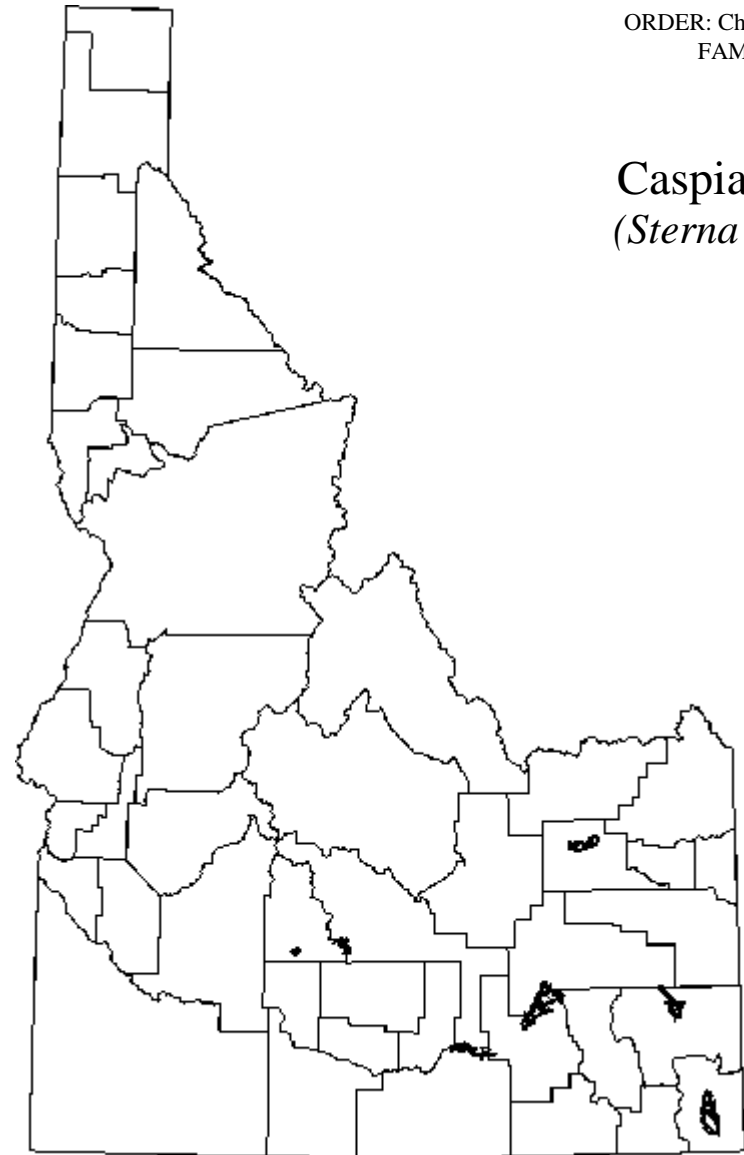
REPRODUCTION: Clutch varies from 2-3 eggs. Both parents incubate eggs (20-22 days) and tend young, which leave nest in a few days, and first fly at 4-5 wk.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 74pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## Caspian Tern (*Sterna caspia*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Breeds from northern Alberta, east across parts of Canada to southern Labrador, and south to eastern Washington, northeastern Montana, portions of Great Plains, Midwest, and New England, and Gulf Coast (locally). Winters from Baja California and South Carolina, south to Peru and northern Argentina. In Idaho, has recently nested at American Falls Reservoir.

HABITAT: Found on seacoasts, estuaries, bays, lakes, rivers, and marshes.

DIET: Eats mainly small fishes and crustaceans.

ECOLOGY: Dives from air to obtain food at water surface. Nests on ground, amid sand, shells, or pebbles. Found singly or in small, loose groups when not breeding; sometimes forms large flocks during migration. Two-year study found fish abundance affected reproductive performance. In Massachusetts study, loss of eggs and chicks was attributed to nocturnal desertion of nests by adults in response to predation by Great Horned Owl. Susceptible (especially females, just prior to laying) to poisoning from toxin accumulated in fishes.

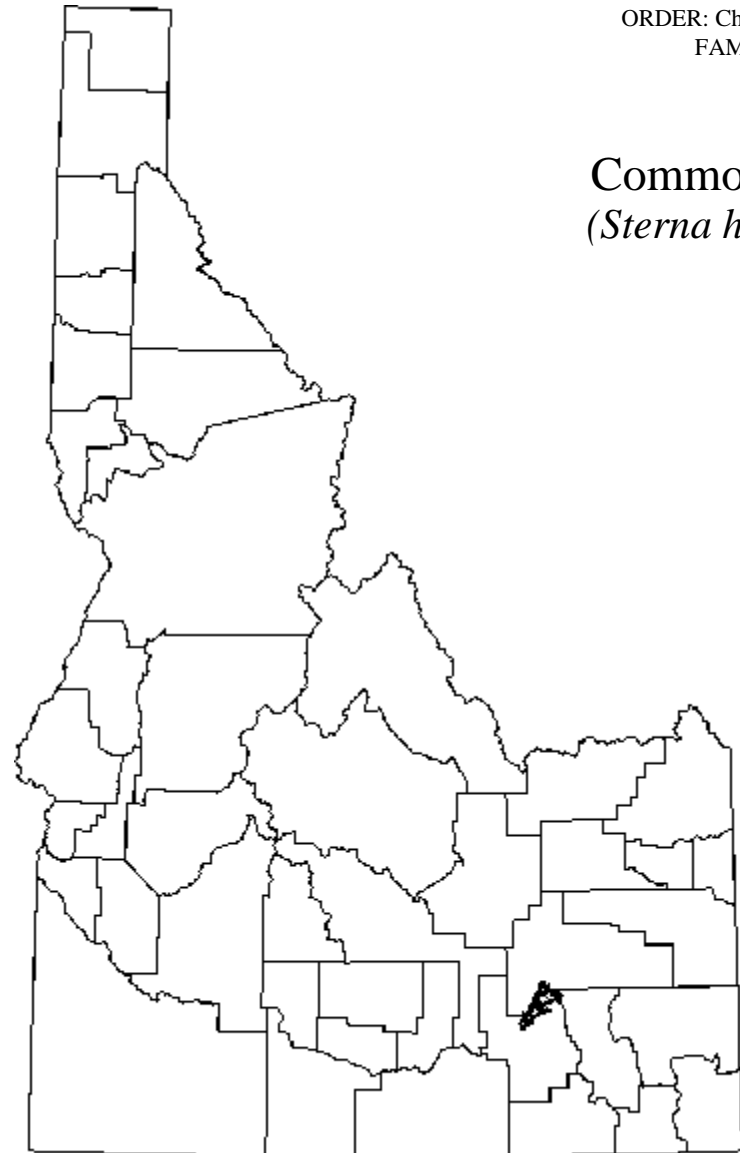
REPRODUCTION: Female incubates 2-3 eggs (laid mostly May-July) for 21-27 days. Both sexes tend young, which may leave nest after 3 days (but return for brooding), and first fly at about 4 wk. Female may lay 2 clutches/yr, but second brood rarely fledges.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 74pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## Common Tern (*Sterna hirundo*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from central Prairie Provinces of Canada, south to southern California, western Nevada, southern Idaho, northern Utah, northern and eastern Colorado, and portions of Midwest. Also breeds along portions of Gulf and Atlantic coasts. Winters from central California and Baja California, south to Central America, and from northern Mexico to portions of Gulf and East coasts.

HABITAT: Found on freshwater and salt marshes. During migration and in winter, also found on seacoasts, bays, estuaries, rivers, and lakes.

DIET: Eats insects and fishes.

ECOLOGY: When not breeding, found singly or in small, loose groups. Frequently nests in loose colonies; vigorously defends nest. In Idaho, average colony size is small—8.1 nests. Builds platform nest on water, or may nest independently on ground or sand. Intolerant of other birds, but American Coot may parasitize nest. Snatches food off surface of water while in flight, or dives into water.

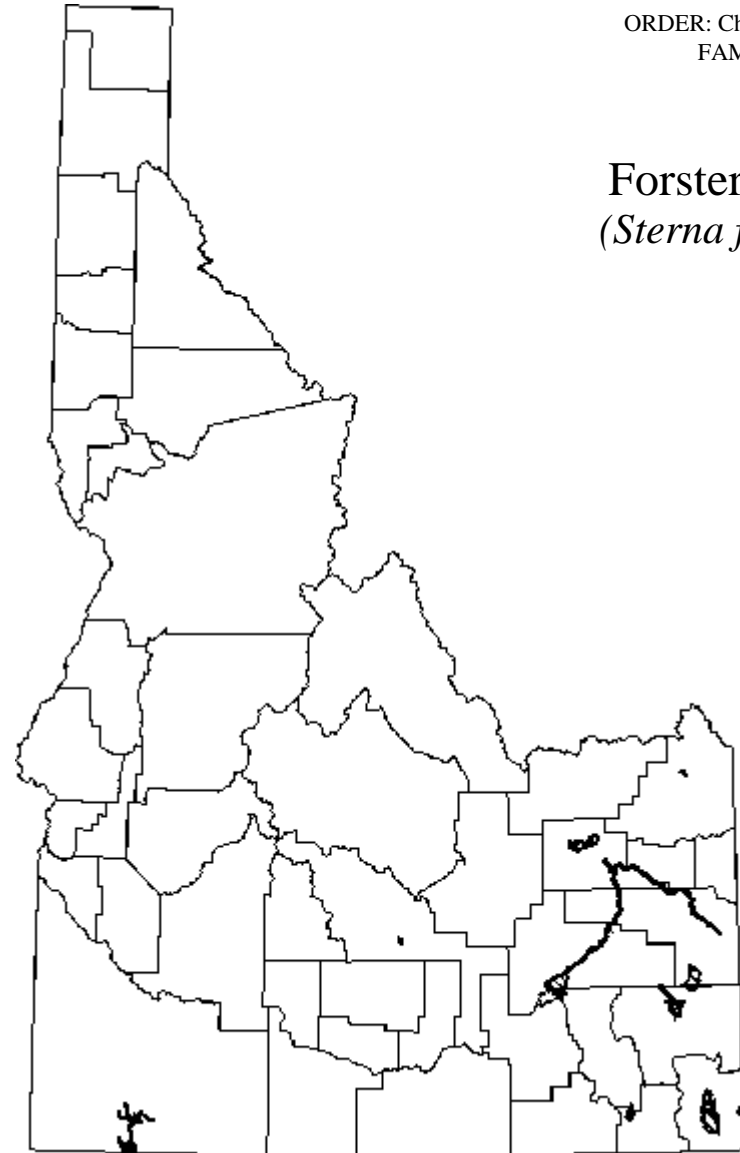
REPRODUCTION: Both sexes incubate 3-4 eggs for about 23-24 days. Nestlings are semi-precocial and downy. Young are tended by both adults until capable of flight.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. 1994. Status and distribution of colonial waterbirds in northern Idaho and selected species in southern Idaho, 1994. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 31pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## Forster's Tern (*Sterna forsteri*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S2

RANGE: Breeds from British Columbia, across portions of Canada to Nova Scotia, and south locally to southern California, Colorado, portions of Midwest, and northern New England. Winters along both coasts, and from Panama to Peru and Surinam.

HABITAT: Prefers sheltered, offshore waters and bays; comes to shore chiefly during migrations or when breeding, when it is found along seacoasts, bays, estuaries, lagoons, lakes, and rivers.

DIET: Eats insects and other invertebrates, including small fishes and crustaceans.

ECOLOGY: Gregarious. Forms loose nesting colonies, sometimes in association with Forster's Tern. Usually builds floating platform nest in vegetation. Feeds from surface of saltwater, forages on vegetation, or plucks food from air.

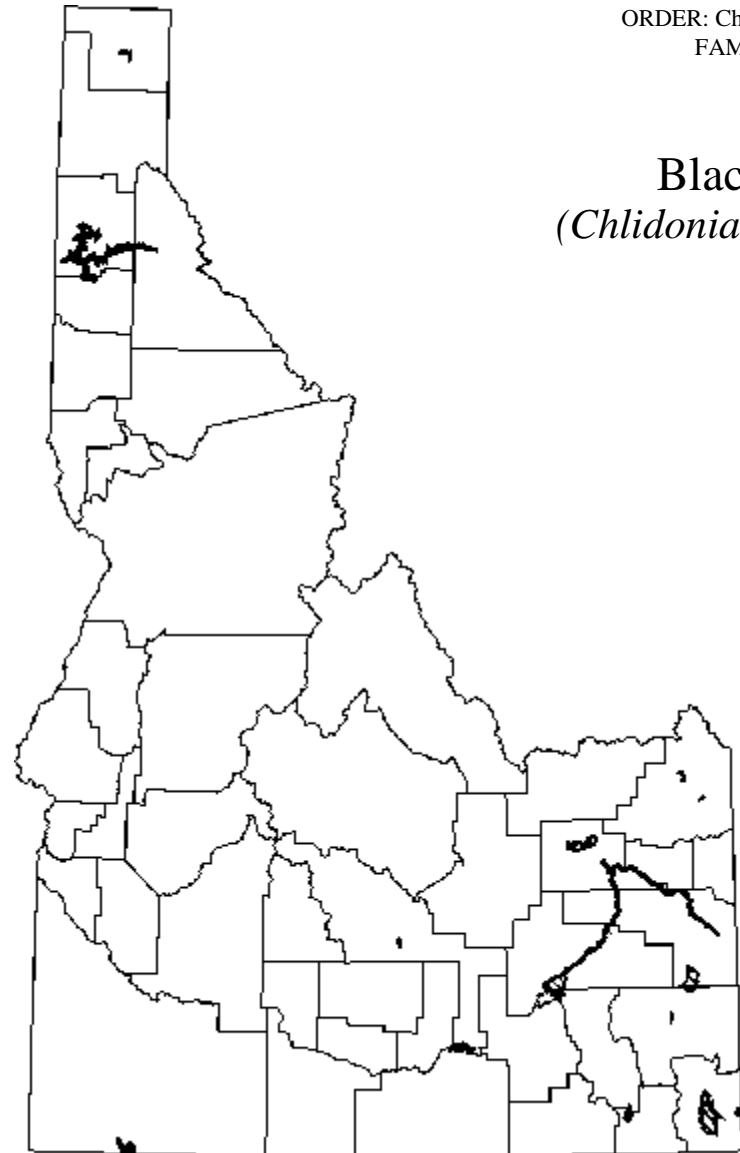
REPRODUCTION: Both sexes incubate 3 eggs (usually), for 20-24 days. Both parents tend young, which first fly at about 3 wk, and become fully fledged at about 4 wk.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Trost, C.H. 1994. The status and distribution of colonial waterbirds in northern Idaho and selected species in southern Idaho, 1994. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 31pp.

ORDER: Charadriiformes  
FAMILY: Laridae

## Black Tern (*Chlidonias niger*)





STATUS: Game species

GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern Canada and possibly southeastern Alaska, south to Panama. Winters in breeding range, except for northernmost populations, which migrate farther south to winter.

HABITAT: Found in open woodlands, forest edges, cultivated lands with scattered trees and bushes, parks and suburban areas, arid and desert country (generally near water), and second growth. Occupies wide variety of habitats from northern to southern Idaho, but prefers lower elevations and open regions.

DIET: Feeds on wide variety of wild seeds, as well as waste grain (wheat, corn, rye, oats, etc.). Also eats some insects, but about 98% of diet is seeds.

ECOLOGY: Usually forages on ground. May fly long distances in search of water; Idaho study found doves in desert moved an average of 3.7 km from feeding and loafing sites to watering sites. Individuals nest in trees, on ground, or in nests of other species. In Idaho, species is highly migratory, nesting throughout state, but wintering in small, localized flocks; greatest numbers migrate south after summering and breeding.

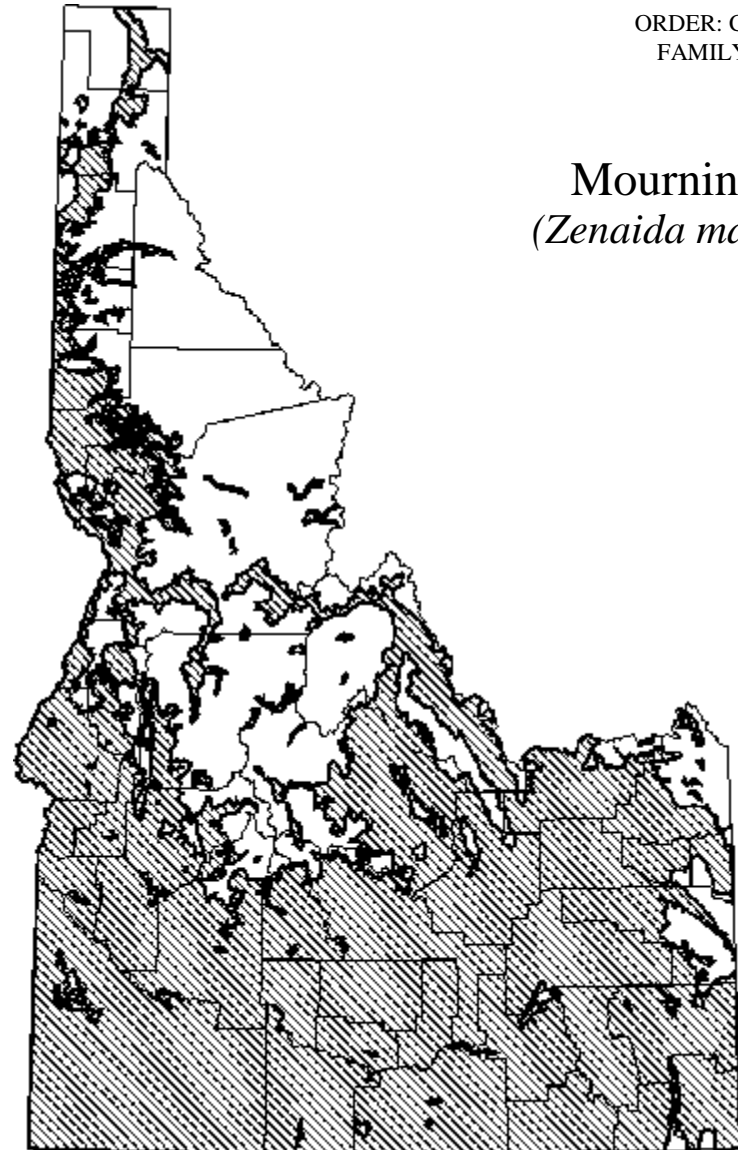
REPRODUCTION: Protracted breeding season. Both sexes (male diurnally) incubate usually 2 eggs for 13-15 days. Young are fed by at least 1 parent for 27 days (mainly by male after 16 days). Pair forms life-long bond, and may raise 2-5 broods/yr. Breeding population trends in Idaho have declined from 1966-1987, as they have throughout the western U.S.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Reeves, H.M., R.E. Tomlinson, and J.C. Bartonek. 1993. Population characteristics and trends in the western management unit. Pp. 341-376 in T.S. Basket et al., eds. Ecology and management of the mourning dove. Stackpole Books, Harrisburg, PA.

ORDER: Columbiformes  
FAMILY: Columbidae

## Mourning Dove (*Zenaida macroura*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1, NTMB

ORDER: Cuculiformes  
FAMILY: Cuculidae

RANGE: Breeds from interior California, east to northern Utah, Minnesota, and New Brunswick, and south to southern Baja California, Mexico, and Gulf Coast. Winters in southern Central America and South America.

HABITAT: Found in open woodlands (especially where undergrowth is thick), parks, and deciduous riparian woodlands. When not breeding, found in forests, woodlands, and scrub. In Idaho, occupies riparian areas with thick understory.

DIET: Eats mainly caterpillars. Will also eat other insects, some fruits, and, occasionally, small lizards and frogs.

ECOLOGY: Builds untidy nest in tree or shrub; occasionally uses nest of other species. Forages or hovers in foliage. Rare in Idaho, and present only in summer. Species is declining in parts of range due to deterioration of riparian habitat.

REPRODUCTION: Female (usually) incubates 2-6 eggs (commonly 3-5), for about 14 days. Both parents tend young, which climb in branches at 7-9 days.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

## Yellow-billed Cuckoo (*Coccyzus americanus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Resident from southern Canada and northern U.S., south to South America. Northern populations are partially migratory.

HABITAT: Found in wide variety of situations in open and partly-open country. Frequently found around human habitation.

DIET: Eats mainly small mammals. In many areas (including southern Idaho), voles are principal prey. Pocket gophers, ground squirrels, pocket mice, kangaroo rats, and deer mice are locally important.

ECOLOGY: Nests in cavity in standing snag, cliff, or building. Breeding density depends on availability of nest sites and food supply. Young disperse widely from natal area (up to hundreds or 1900 km has been documented). Home ranges may overlap considerably where nest sites and prey are abundant. Individual remains solitary or paired when not breeding. Hunts mostly at night, from about 1 hr after sunset to about 1 hr before sunrise. May forage up to a few km from nesting or roosting site. Hunts mainly by quartering flights 1.5-4.5 m above ground. In northern winter, often roosts in dense conifers; also roosts in nest boxes, barns, and silos. Susceptible to starvation during prolonged low temperatures and snow cover. In Utah study, most adults survived only 1 breeding season. Great Horned Owl is principal predator in North America. Long-term study of breeding density and foraging ecology continues in Idaho Birds of Prey Area.

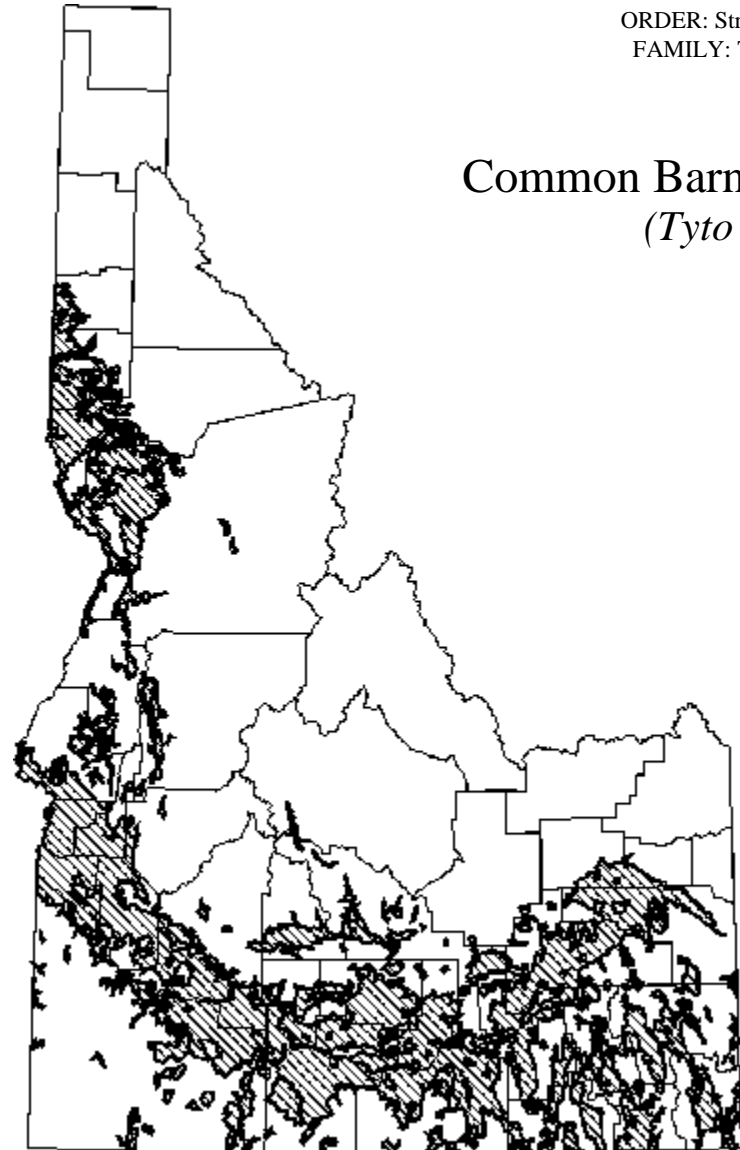
REPRODUCTION: Breeds throughout year in Texas (as many as 3 broods/year); some California birds attempt 2 broods/year. Average clutch size is 4-6 eggs. Female incubates eggs (21-24 days for single egg, 29-34 days for full clutch). Female broods and feeds young, male brings food. In Utah study, mean fledging time was 64 days. Male may care for fledged young as female begins second clutch. Most individuals apparently breed at 1 yr. Pair are typically monogamous with life-long pair bond; polygyny sometimes occurs.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Marti, C.D. 1988. A long-term study of food-niche dynamics in the common barn-owl: comparisons within and between populations. *Can. J. Zool.* 66:1803-1812.

ORDER: Strigiformes  
FAMILY: Tytonidae

## Common Barn-owl (*Tyto alba*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S3, NTMB

RANGE: Breeds locally from southern and southeastern British Columbia, north-central Washington, eastern Oregon, Idaho, western Montana, and northern Colorado, south to portions of southwestern states and central Mexico. Winters from central Mexico, south in highlands to Guatemala and El Salvador, and casually north to southern California.

HABITAT: Found in montane forests; associated mainly with ponderosa or Jeffrey pine (often intermixed with aspen in northern range, oaks in southern range, Douglas-fir in British Columbia). In areas with warm, dry summers, also found locally in spruce/fir and lodgepole pine/red fir. During migration, found in wooded areas in lowlands and mountains. Prefers old growth. In Idaho, occupies older ponderosa pine, Douglas-fir, and mixed coniferous forests.

DIET: Feeds on various insects (e.g., moths, beetles, grasshoppers, crickets, and caterpillars). May eat small mammals or birds.

ECOLOGY: Nocturnal. Foraging tactics include hawk-gleaning, hawking, hover-gleaning, and drop-pouncing. Nests in cavity (old woodpecker hole) in standing snag. In Colorado study, nesting home ranges averaged 14 ha; foraging activity was concentrated in 1-4 areas within home range. During nesting period in Colorado, foraging activity peaked 15-30 min after sunset and 1-1.5 hr before sunrise; birds ceased activity during snow or rain. One study found generally fewer than 4 singing males/40 ha in Oregon, British Columbia, and Colorado. Surveys in Idaho report densities up to 1.25 males/40 ha.

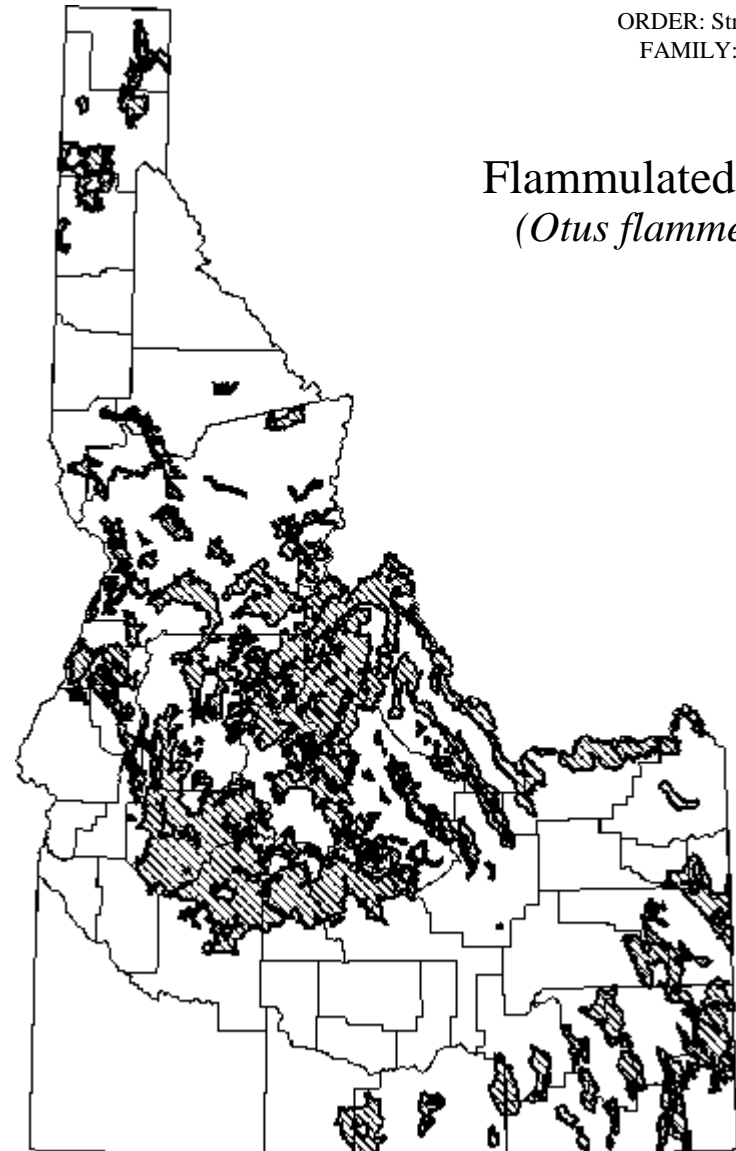
REPRODUCTION: Female incubates 2-4 eggs (usually 3), for 21-22 days; male brings food. Nestling period has been reported as 22-24 nights and 21-23 days; fledglings are tended by both parents (in Colorado, parents divide brood).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Moore, T.L. and G.D. Frederick. 1991. Distribution and habitat of flammulated owls (*Otus flammeolus*) in west-central Idaho. Idaho Dept. Fish & Game, Boise. 28pp.

ORDER: Strigiformes  
FAMILY: Strigidae

## Flammulated Owl (*Otus flammeolus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Resident from south-coastal and southeastern Alaska, coastal and southern British Columbia, northern Idaho, western Montana, southeastern Colorado, and western Oklahoma, south to southern Baja California, northern Mexico, and western Texas. Apparently has moved north into southern Alberta.

HABITAT: Found in woodlands (especially oak and riparian woodlands), and in scrub. In central Idaho, screech owls are limited in distribution by occurrence of deciduous riparian habitat, but are occasionally found in aspen.

DIET: Feeds mainly on small mammals (mice and shrews), insects, birds, and sometimes other small vertebrates. Diet may vary seasonally and geographically, depending on local prey abundance.

ECOLOGY: Nocturnal. Nests in cavity in standing snag; may nest in crevice in building, in abandoned magpie nest, or in nest box. Hunts from perch; captures prey on ground. In central Idaho, home ranges of 2 radio-tagged birds were reported as 3-9 ha and 29-58 ha. Distance between adjacent pairs varies from about 50 to a few hundred m. Recent study in southwestern Idaho examined timing of dispersal and post-fledging movements using radio telemetry and videotaping.

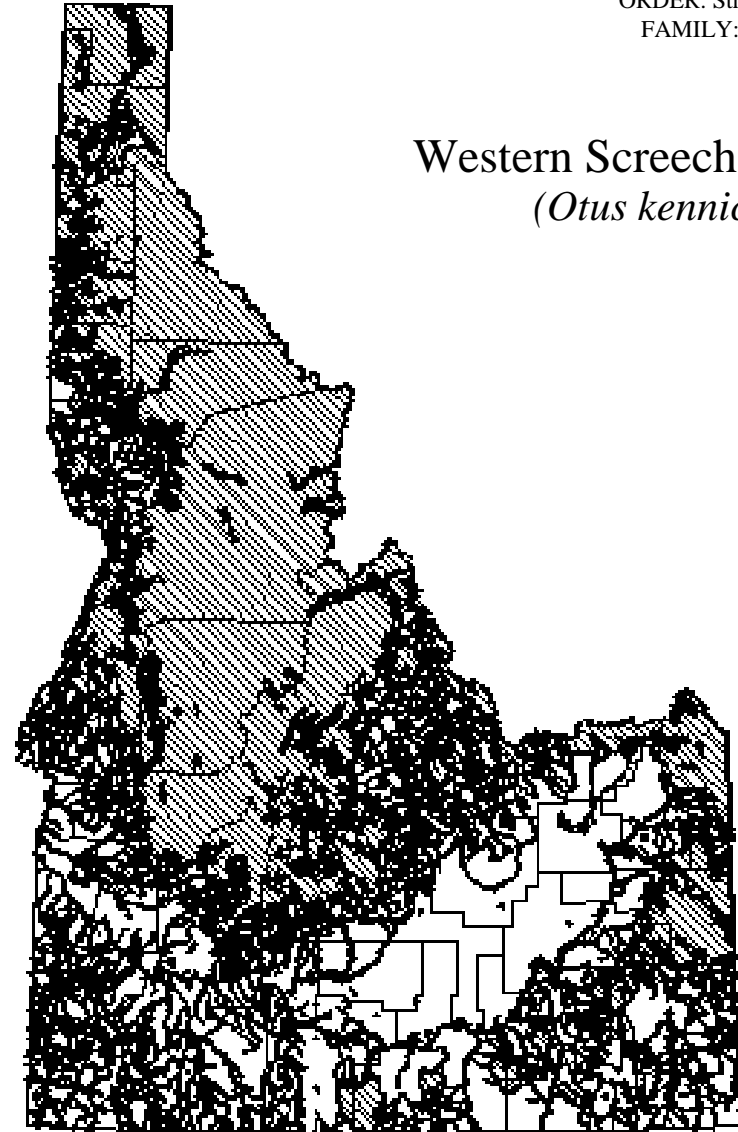
REPRODUCTION: Clutch size averages 3-4 eggs; incubation by female lasts about 26 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Ellsworth, E.A., J.E. Emerson, J.R. Belthoff, and J. Doremus. 1994. Post-fledging movements and dispersal timing of western screech owls. Pp. 285-288 in K. Steenhof, ed., Snake River Birds of Prey National Conservation Area, 1994 Annual Rep., USDI Bur. Land Manage., Boise District.

ORDER: Strigiformes  
FAMILY: Strigidae

## Western Screech Owl (*Otus kennicottii*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from western and central Alaska, east to southern Keewatin and Labrador, and south to southern South America. Winters generally throughout breeding range. Northernmost populations are partially migratory, wintering south to southern Canada and northern United States. Species is most common and widely distributed owl in Idaho.

HABITAT: Found in various moist or arid forested habitats, from lowland forests (deciduous or evergreen) to open temperate woodlands, including second-growth forests, swamps, orchards, riverine forests, brushy hillsides, and desert.

DIET: Broad diet; eats mainly mammals (commonly mouse to rabbit size), and small to large birds (including hawks and waterfowl) but also amphibians, reptiles, and invertebrates. Idaho study found voles and deer mice were main food items. Parents provide about 300 g of food per day, per nestling.

ECOLOGY: Hunts from perch; captures prey on ground. Caches food. Utilizes abandoned stick nest in tree, cliff ledge, or man-made platform. Productivity peaks with snowshoe hare population in northern range. Size of home range varies seasonally and geographically. Density varies, but is usually about 1 pair/5-20 km<sup>2</sup>. Idaho study found density of 1.7 owls/10 km<sup>2</sup>; juvenile survival was 1.8/nest.

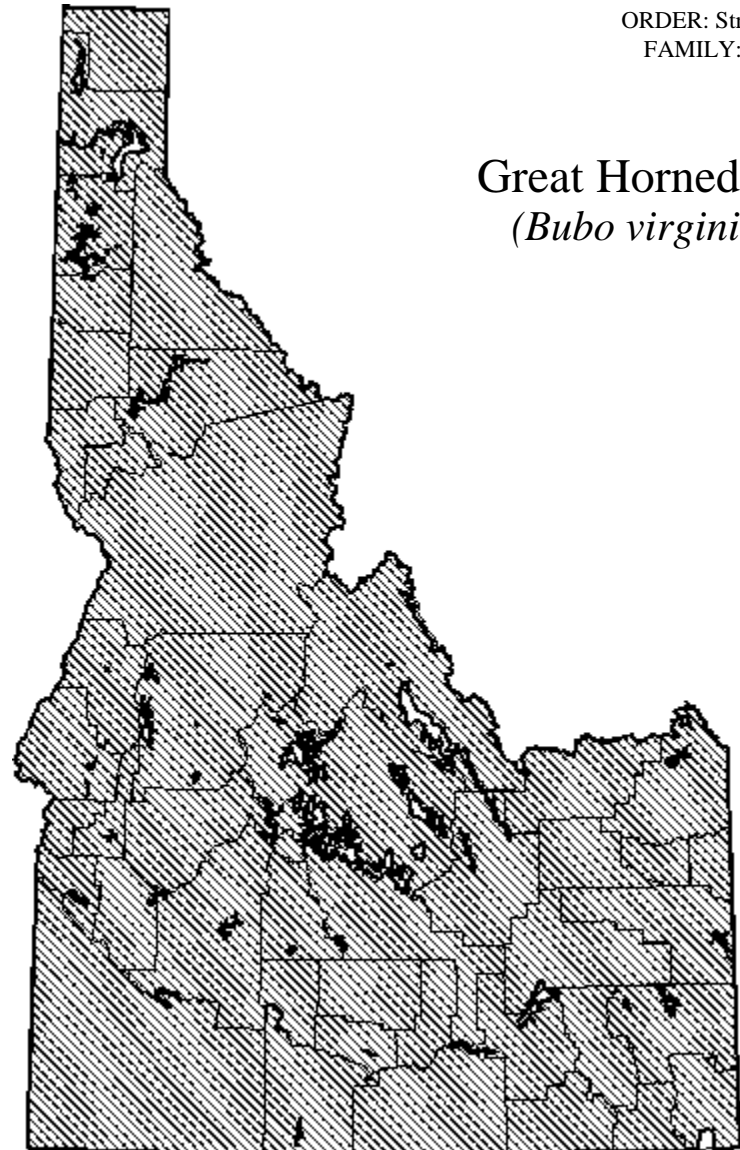
REPRODUCTION: Female incubates 2-3 eggs for 26-35 days; male supplies food. Young leave nest at 4-5 wk, fly well at 9-10 wk, and are dependent on parents for several wk. Most yearling females do not nest. Female may re-lay if first clutch is lost.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Frounfelker, C.R. 1977. Prey selection of the great horned owl with reference to habitat and prey availability. M.S. Thesis, Univ. Idaho, Moscow. 62pp.

ORDER: Strigiformes  
FAMILY: Strigidae

## Great Horned Owl (*Bubo virginianus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Resident from British Columbia, south through western U.S., interior Mexico, and Guatemala to central Honduras, and east to Colorado, central New Mexico, and western Texas. Possibly breeds in southeastern Alaska.

HABITAT: Found in dense forests or open woodlands in foothills and mountains; frequents meadows while foraging. Usually found in vicinity of forest opening, rather than in unbroken, dense forest.

DIET: Feeds mainly on mice and large insects, but will also eat other small mammals, birds, and reptiles.

ECOLOGY: Chiefly diurnal; most active at dawn and dusk. Glides/dives down from elevated perch to capture prey. In Idaho, forages diurnally more than other forest owls. Caches food. Nests in natural or abandoned cavity in standing snag. Tends to be solitary, or in highly dispersed pairs or family groups throughout year. Reported territory size: 0.2-4 km<sup>2</sup> (Europe). Maximum reported density: 4.2 territories/10 km<sup>2</sup> (Europe). May display seasonal elevational migration.

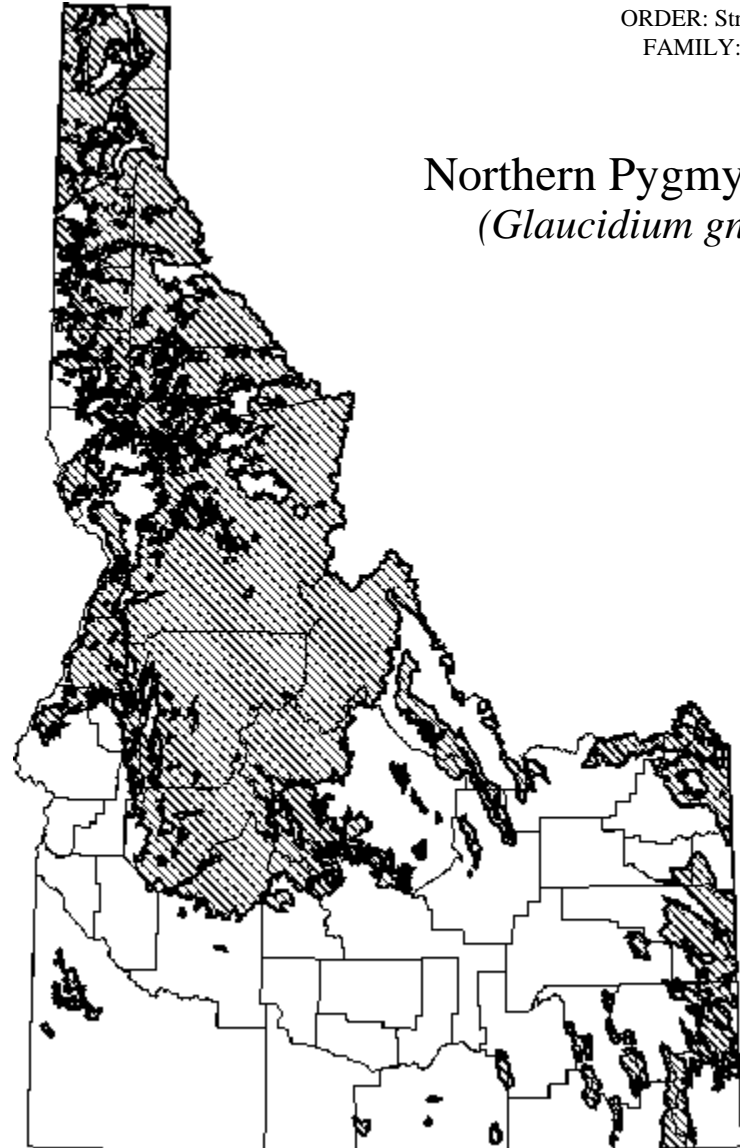
REPRODUCTION: Eggs are laid in April-June in California, May-June in Colorado and Arizona. Female (probably) incubates usually 3 eggs (in northern Americas) for about 29 days; male brings food. Young are fed by both parents, leave nest at about 30 days, and are tended by parents another 20-30 days, maturing in first year.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hayward, G.D. 1983. Resource partitioning among six forest owls in The River of No Return Wilderness, Idaho. M.S. Thesis, Univ. Idaho, Moscow. 132pp.

ORDER: Strigiformes  
FAMILY: Strigidae

## Northern Pygmy-owl (*Glaucidium gnoma*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S3, NTMB

RANGE: Breeds in southwestern Canada, south through western U.S., central Mexico, and central and southern Florida, to much of South America (locally). Withdraws from northernmost portions of breeding range in northern winter. Winters regularly south to portions of Central America.

HABITAT: Found in open grasslands (especially prairies, plains and savannas), and sometimes in open areas such as airports or vacant lots near human habitation. In southern Idaho, nests in sagebrush steppe and agricultural lands.

DIET: Feeds primarily on large insects (especially in warmer months) and rodents. Sometimes eats birds and amphibians.

ECOLOGY: Primarily nocturnal in winter in northern range, diurnal and crepuscular in summer. Catches prey in flight or drops to ground. Nests and roosts in burrow dug by mammal or owl. May mimic rattlesnake if disturbed in burrow. Territory defense is mainly limited to immediate vicinity of nest burrow; may share foraging area. Badger plays important role in nesting ecology in Idaho—provides nest burrows and is a major predator. Reported densities: 12.5 ha/pair (California); 3.5-6 ha/pair (North Dakota); 13-16 ha/pair (Saskatchewan). Home range in Saskatchewan reported at 0.14-4.81 km<sup>2</sup>; 95% of all movements were within 600 m of nest burrow.

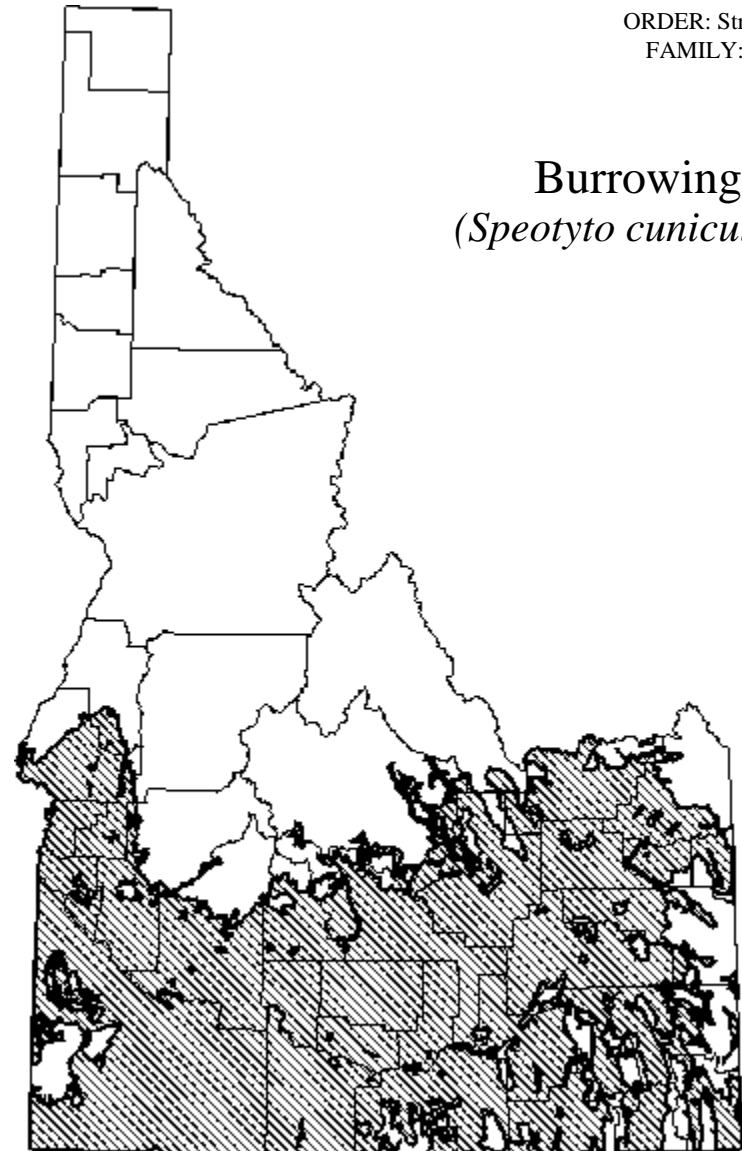
REPRODUCTION: Female incubates 6-7 eggs (on average), for 27-30 days. Male provides food during incubation and early nestling stages. Young (average of 3-5 fledglings) run and forage at 4 wk, are capable of sustained flight at 6 wk, and first breed at 1 yr (some may not). Female generally produces 1 brood/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Rich, T. 1986. Habitat and nest-site selection by burrowing owls in the sagebrush steppe of Idaho. *J. Wildl. Manage.* 50:548-555.

ORDER: Strigiformes  
FAMILY: Strigidae

## Burrowing Owl (*Speotyto cunicularia*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Resident from portions of Alaska, southern British Columbia, western Washington, eastern Oregon, and northeastern California, east through northern Idaho and northwestern Montana to portions of south-central Canada. Also resident in portions of eastern Canada and eastern, midwestern, and southern United States. Appears to be expanding range southward in Idaho.

HABITAT: Found in dense woodlands and forests with large, mature, decadent coniferous or hardwood trees providing secure nesting cavities. May prefer older stands, but uses earlier stages of forest succession if enough large trees, snags, or nest boxes are present. Also found in swamps and wooded river valleys, often in areas bordering streams, marshes, and meadows, but also in upland areas (use reflects vegetation types rather than water proximity).

DIET: Eats mice, birds, reptiles, amphibians, invertebrates, and other mammals. Small mammals such as voles, deer mice, and shrews often comprise bulk of diet.

ECOLOGY: Nests in abandoned or natural cavity in standing snag. Nocturnal. Flies at low altitude to locate prey. Birds feeding young may also forage diurnally. Opportunistic foraging may occur at any time. Minnesota study found home range was usually less than 400 ha (but up to 760) over 2-7 mo; boundaries generally remained constant from year to year, with no overlap (usually), except for mated pair. Annual home range averaged 282 ha in Michigan. Reported density was 0.03-1.0 pairs/km<sup>2</sup>. Species has become established in northern and central Idaho since at least 1968.

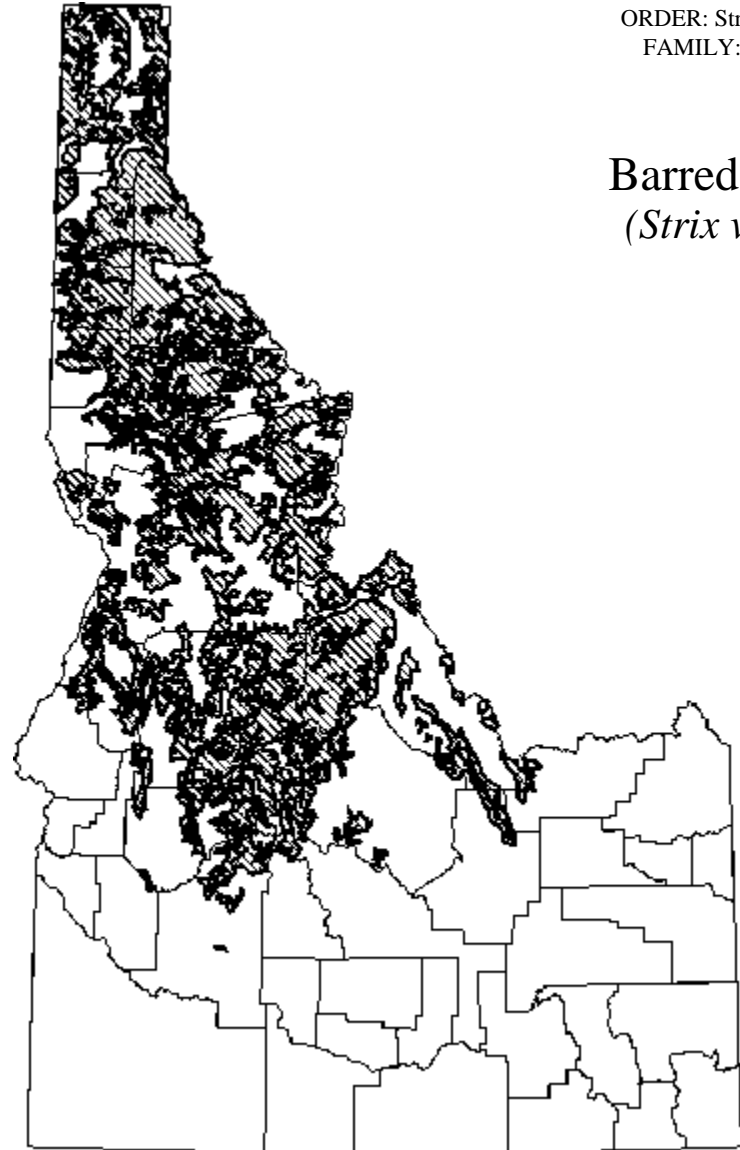
REPRODUCTION: Egg-laying occurs January-May, depending on range. Clutch size varies from 2-3 eggs; incubation lasts 28-33 days. Young may leave nest at 4-5 wk, fly at 6 wk, but receive some food from parents until 4 mo.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Olson, R.A., T. Craig, and E. Craig. 1978. Recent records of the barred owl, *Strix varia*, in Northern Idaho. J. Id. Acad. Sci. 14:24-25.

ORDER: Strigiformes  
FAMILY: Strigidae

## Barred Owl (*Strix varia*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from central Alaska to northern Ontario, and locally south in mountains to California (vicinity of Yosemite), Idaho, Montana, Wyoming, northern Minnesota, and portions of south-central Canada. Winters generally throughout breeding range.

HABITAT: Found in coniferous and hardwood forests, especially pine, spruce, paper birch, and poplar; also found in second growth, especially near water. In Idaho, found at lower elevations and in agricultural areas during winter, and in conifer forests in spring and summer, most commonly near extensive meadows.

DIET: Commonly eats pocket gophers and voles; may also eat other small mammals. In Idaho, owls nesting near clearcuts were found to have greater proportions of pocket gophers in diet.

ECOLOGY: Nests in broken-top snags or uses abandoned stick nest of other species, especially Goshawks. Hunts from perch; captures food on ground. Forages usually in open area where scattered trees or forest margin provides suitable sites for visual searching; also uses sound to locate prey under snow cover. When nesting, may hunt day or night. In Oregon study, radio-tagged juveniles moved 9-31 km from nest over period of 1 yr; adults moved 3-43 km during same period. In Idaho study, home range per pair was found to be 2.6 km<sup>2</sup>. Predation by Great Horned Owl was greatest known mortality factor in northern Minnesota and southeastern Manitoba study.

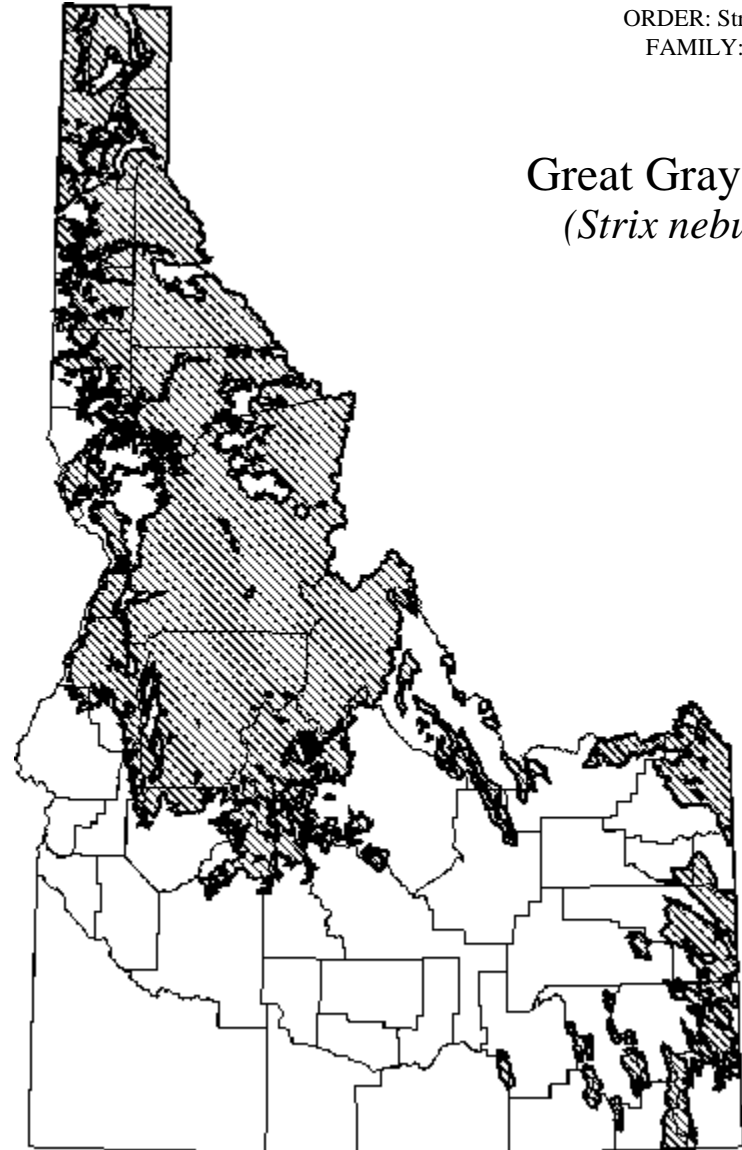
REPRODUCTION: Lays eggs in March-June, depending on range. Mean date of first egg was 5 May in southern Idaho and northwestern Wyoming; egg-laying may be delayed in deep snow years. Female incubates 2-5 eggs (3.3 in Idaho), for 28-29 days. Young leave nest at 3-4 wk (4 wk in Idaho and Wyoming), fly well at 5-6 wk (6 wk in Idaho and Wyoming), and become independent at about 4-5 mo. In Idaho study, mean brood size was 3.0 young/pair.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Franklin, A.B. 1988. Breeding biology of the Great Gray Owl in southeastern Idaho and northwestern Wyoming. Condor 90:689-696.

ORDER: Strigiformes  
FAMILY: Strigidae

## Great Gray Owl (*Strix nebulosa*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern and eastern British Columbia, east across parts of Canada, and south to northwestern Baja California, southern New Mexico, northern Mexico, Arizona, and Virginia. Winters from southern Canada, south to northern Baja California, central Mexico, and Gulf Coast.

HABITAT: Found in deciduous and evergreen forests, orchards, wooded parks, farm woodlots, river woods, and desert oases. In western states, often associated with deciduous woods near water. Uses wooded areas for roosting and nesting, and open areas for hunting.

DIET: Feeds on small mammals, particularly voles (usually weighing less than 100 g). In Idaho, typical prey includes moles, kangaroo rats, harvest mice, and pocket mice, but particular prey varies with locality; prey size is most important factor in food selection.

ECOLOGY: Flies at low altitudes to locate prey. Typically forages in open, grassy areas, (e.g., marshes or old fields), but may forage in forests in some areas. Nocturnal, though diurnal foraging may occur at high latitudes, or when feeding young. Uses abandoned tree nest of other species, often corvids. May form loose nesting colonies and perform group distraction displays. Breeding density is generally not more than 1-2 pairs/km<sup>2</sup>, and is often much less. In Idaho study, colonies nested in clumps of trees, rather than single tree. Individuals are gregarious in winter.

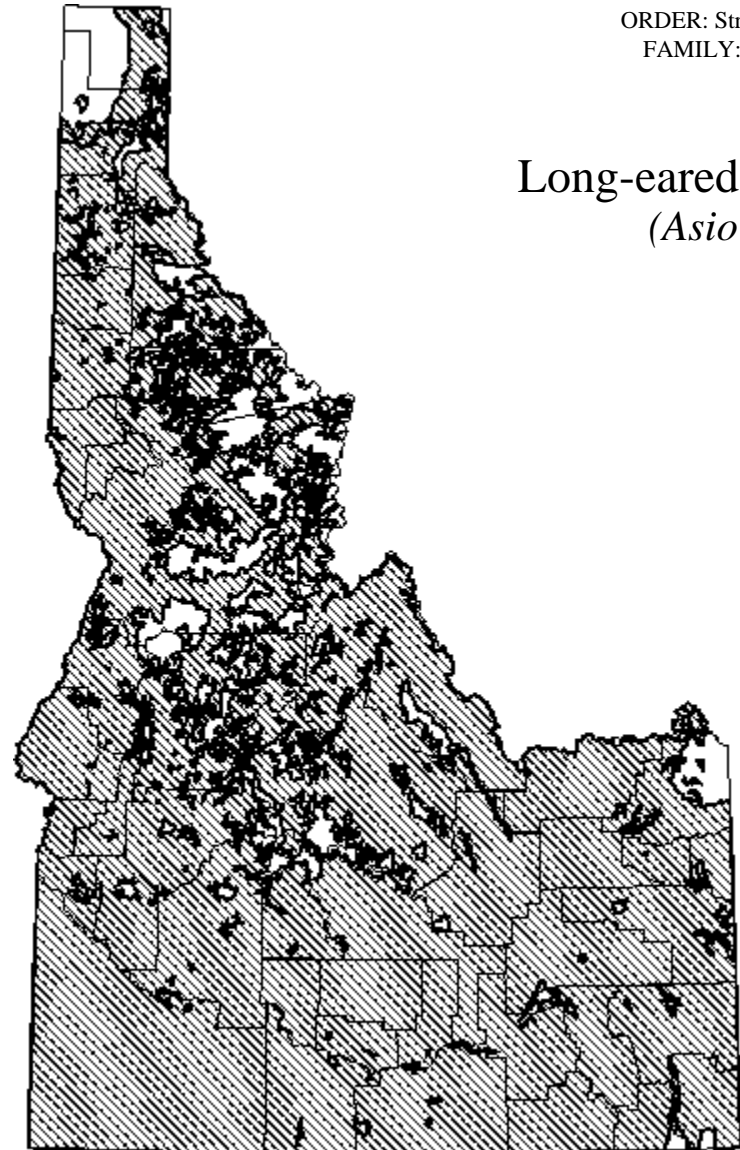
REPRODUCTION: Nests mainly from mid-March to mid-May, depending on area. Female (usually) incubates an average of 4-5 eggs for 25-30 days. Young leave nest at 20-26 days, fly at 30-40 days, become independent at about 2 mo, and reach sexual maturity in first year. In Idaho study, fledged young/nest ranged from 3.4-4.0. Predators such as raccoons cause most nest failures.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Marks, J.S. 1986. Nest-site characteristics and reproductive success of long-eared owls in southwestern Idaho. *Wilson Bull.* 98:547-560.

ORDER: Strigiformes  
FAMILY: Strigidae

## Long-eared Owl (*Asio otus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from northern Alaska, east to northern Labrador, and south to California, Utah, Colorado, parts of Midwest, and Virginia. Winters mostly from southern Canada, south to southern Baja California, southern Mexico, Gulf Coast, and Florida.

HABITAT: Found in open country in prairies, meadows, tundra, moorlands, marshes, savannas, dunes, fields, and open woodlands.

DIET: Eats mainly rodents (commonly voles), but will also eat small birds, insects, and other small mammals.

ECOLOGY: Nests in depression on ground. Both sexes perform distraction displays. Breeding density in different areas has been reported at 0.6-6 pairs/km<sup>2</sup>. Reported average home range size is 15-200 ha. Roosts by day on ground, on low open perch, under low shrub, or in conifer. Somewhat gregarious in winter; groups may gather where prey is abundant. May defend feeding territory in winter. Forages primarily by flying low (typically into wind), and dropping down onto prey, sometimes after hovering briefly. Will forage day or night; may favor late afternoon and early evening. Recent study in southwestern Idaho reported 7% mortality rate in nestlings.

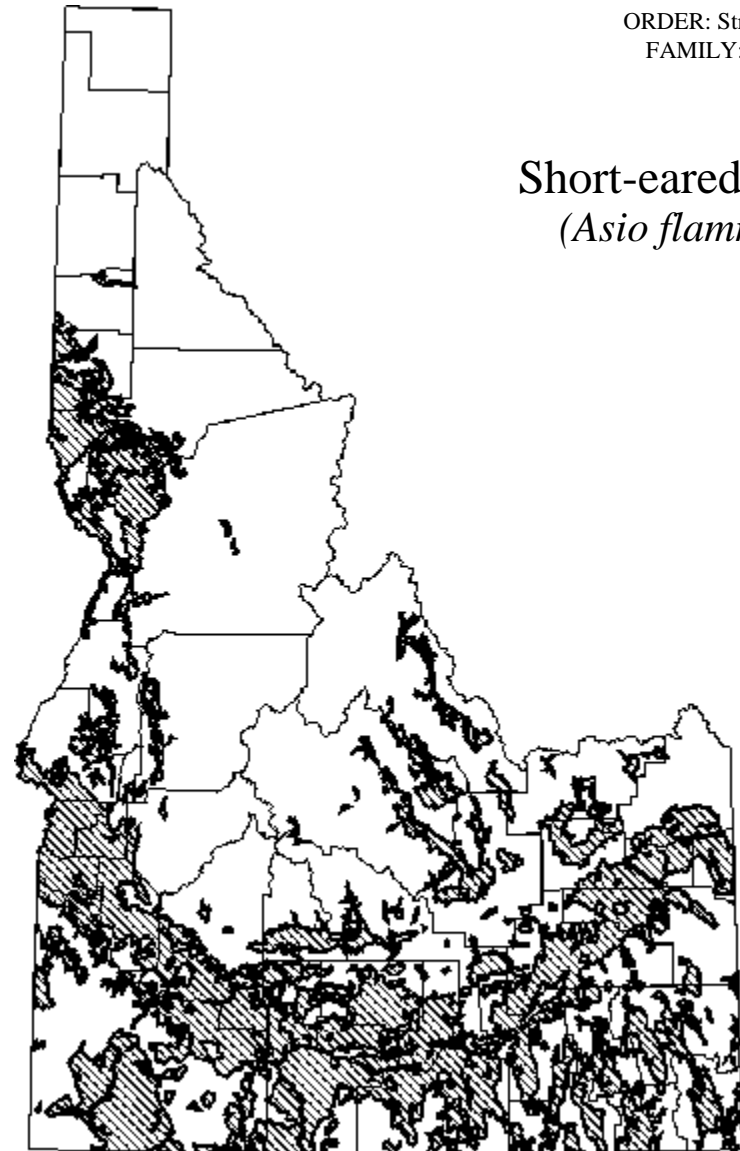
REPRODUCTION: Clutch size is usually 4-7 eggs (number increases in northern range). Incubation lasts 24-29 days. Young may leave nest at 12-18 days, fly at 3-5 wk, remain in nest vicinity until about 6 wk old, and reach sexual maturity in first year. Often only the oldest chicks survive.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Rivest, T.A. 1994. Short-eared owl mortality between mid-nestling age and dispersal. Pp. 296-304 in K. Steenhof, ed., Snake River Birds of Prey National Conservation Area, 1994 Annual Report. USDI Bur. Land Manage., Boise District.

ORDER: Strigiformes  
FAMILY: Strigidae

## Short-eared Owl (*Asio flammeus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Breeds from central Alaska, east across portions of Canada to Labrador and New Brunswick, and south to northeastern Washington, Idaho, Montana, and northeastern Minnesota, and further south in mountains to Colorado and New Mexico. Winters mainly in breeding range, and south irregularly to northern United States.

HABITAT: Found in coniferous forests, mixed forests, thickets of alder, aspen, or stunted spruce, and muskeg bogs. Generally found in spruce/fir in Rockies. In Idaho, nests in mixed conifer, spruce/fir, Douglas-fir, and aspen stands.

DIET: Eats mainly small mammals (often red-backed voles, but also shrews, pocket gophers, and deer mice). Will sometimes eat birds and insects.

ECOLOGY: Hunts from perch; captures prey on ground. Caches food. Nests in abandoned or natural cavity in standing snag in older forests with complex physical structures. Defends nest site only. Roosts in dense cover by day; forages mostly at night. Idaho study found home range averaged 1451 ha in winter and 1152 ha in summer. Best foraging habitat was in spruce/fir stands.

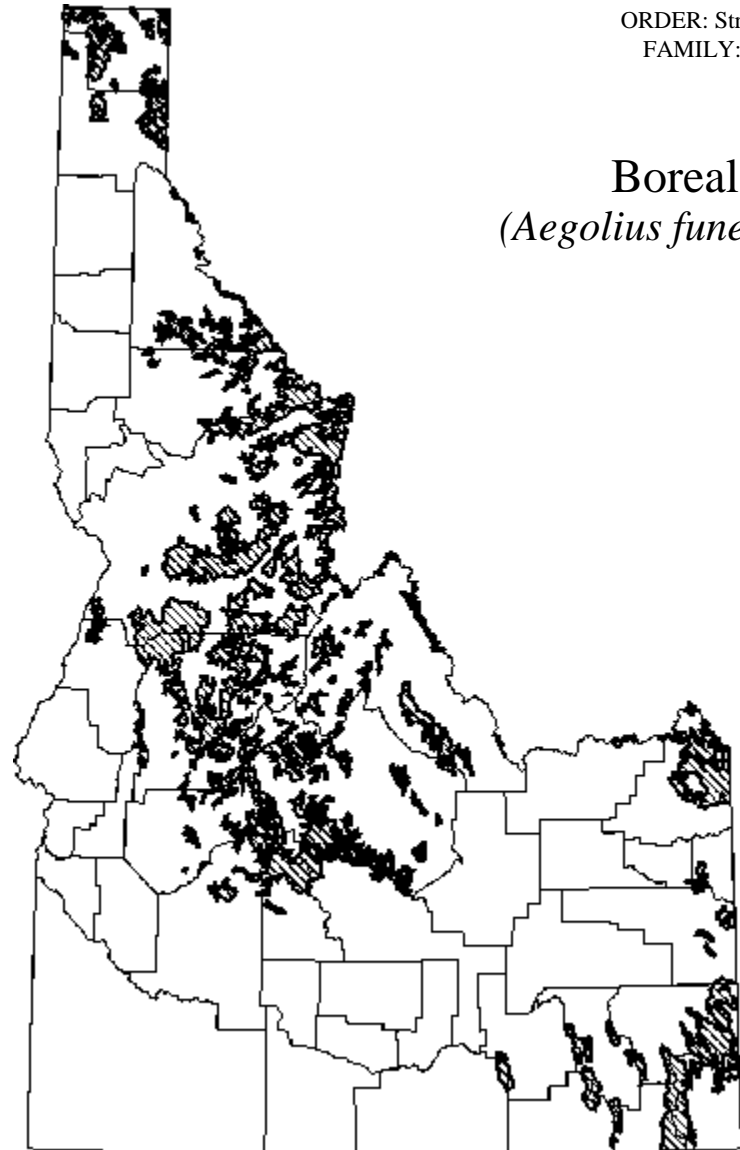
REPRODUCTION: In Idaho, nesting occurs in mid-April to late May. Female incubates 2-5 eggs for 25-36 days. Young fledge at about 27-31 days, are independent at 5-6 wk, and become sexually mature by 1 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hayward, G.D., P.H. Hayward, and E.O Garton. 1993. Ecology of boreal owls in the northern Rocky Mountains, USA. Wildl. Mono. 59.

ORDER: Strigiformes  
FAMILY: Strigidae

## Boreal Owl (*Aegolius funereus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Breeds from southern Alaska, east across portions of Canada to New Brunswick, and south to southern California, southern Arizona, southern Mexico, western Texas, Missouri, southern Minnesota, and Maryland. Also breeds in Great Smoky Mountains. Winters generally throughout breeding range (some southward withdrawal), and irregularly or casually south to southern United States.

HABITAT: Found in dense coniferous or mixed forests, cedar groves, alder thickets, swamps, and tamarack bogs. When not breeding, found in dense second growth, brushy areas, arid scrub, and open buildings. In Idaho, less abundant in higher-elevation spruce/fir forests, but is the most abundant owl in mid-elevation conifer forests.

DIET: Eats mainly small mammals (e.g., deer mice, voles, and shrews), and sometimes birds and insects. In Idaho, eats higher proportion of very small mammals (2-15 g).

ECOLOGY: Nests in natural or abandoned cavity in tree. Throughout range, often roosts in dense evergreens in winter. Hunts at night. Apparently obtains prey mainly by pouncing from above, after short flight from elevated perch. In Idaho, defends exclusive territories. Limited data on breeding density suggest maximum of few pairs/km<sup>2</sup>.

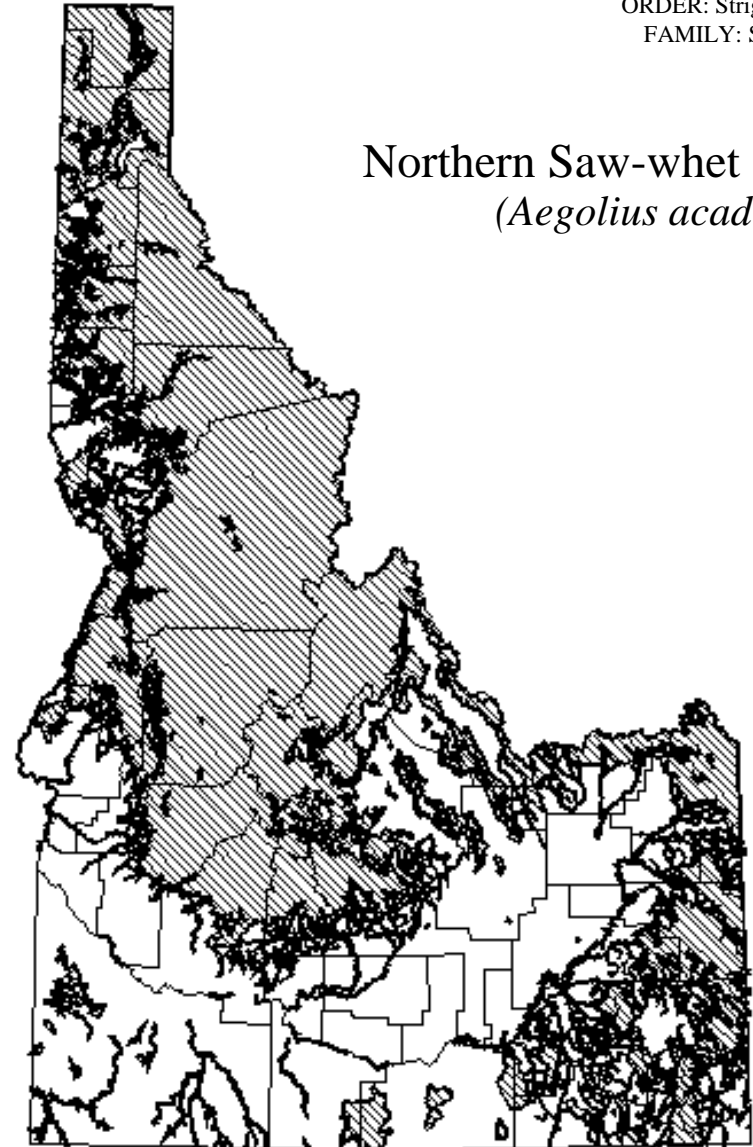
REPRODUCTION: Female incubates about 5-6 eggs for 26-28 days. Young first fly at 4-5 wk. Nest-box study in southwestern Idaho revealed polygyny (1 male mating with >1 female) in Saw-whets.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Marks, J.S., J.H. Doremus, and R.J. Cannings. 1989. Polygyny in the Northern Saw-whet Owl. *Auk* 106:732-734.

ORDER: Strigiformes  
FAMILY: Strigidae

## Northern Saw-whet Owl (*Aegolius acadicus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern Canada south to Panama. Winters throughout South America.

HABITAT: Found in mountains and plains, in open and semi-open habitat such as open coniferous forests, savannas, grasslands, fields, and around cities and towns.

DIET: Feeds on flying insects (e.g., mosquitoes, moths, beetles, flies, and caddisflies).

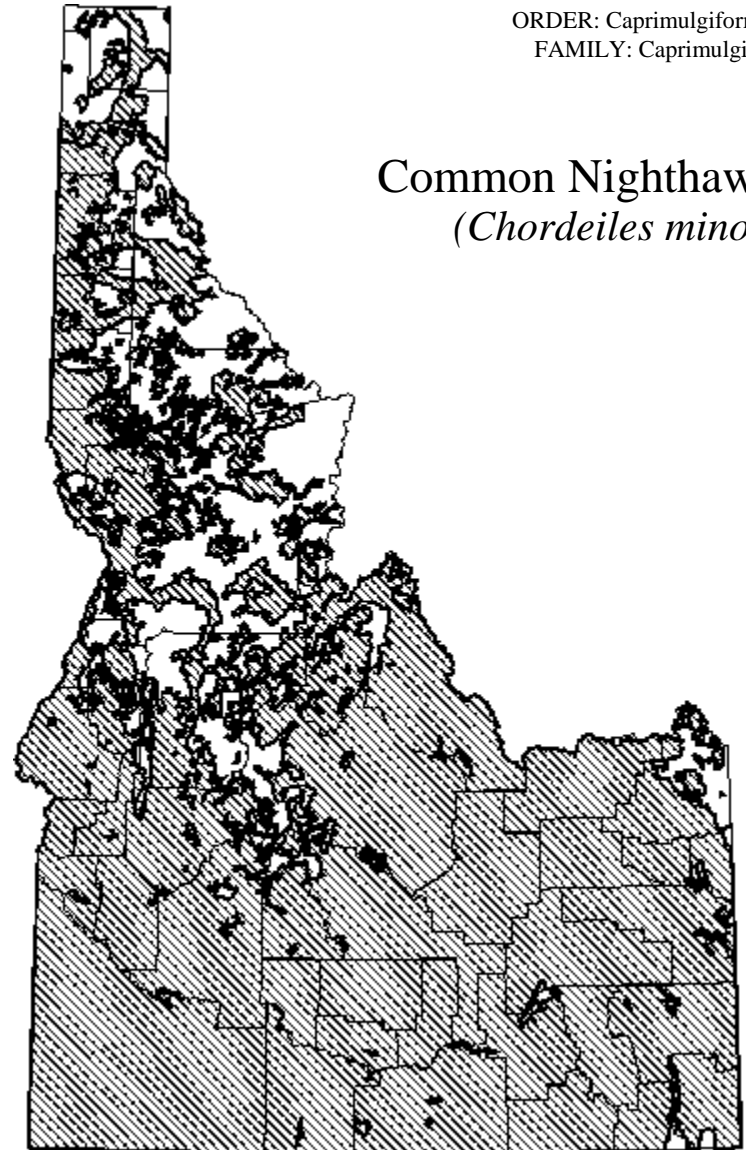
ECOLOGY: Nests on ground, occasionally on rooftop or in old robin's nest. Forages at night or during day (most active during early morning and evening and at night). Catches insects high in air or close to ground.

REPRODUCTION: Female incubates 2 eggs for about 19 days. Nestlings are semi-precocial, are tended by both parents, and become independent in about 30 days.

GIS MODEL NUMBER: 1

ORDER: Caprimulgiformes  
FAMILY: Caprimulgidae

## Common Nighthawk (*Chordeiles minor*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southern British Columbia, southeastern Montana, and portions of Midwest, south on West Coast from central California to southern Baja California, and through central Texas to central mainland of Mexico. Winters from central California, southern Arizona, and southern Texas, south to limits of breeding range in Mexico.

HABITAT: Found in shrub steppe, rocky canyons, open woodlands, and broken forests (primarily in arid or semi-arid habitats). Also found in valleys and foothills, mixed chaparral/grassland, and pinyon/juniper habitat.

DIET: Feeds on insects such as moths, beetles, grasshoppers, and locusts.

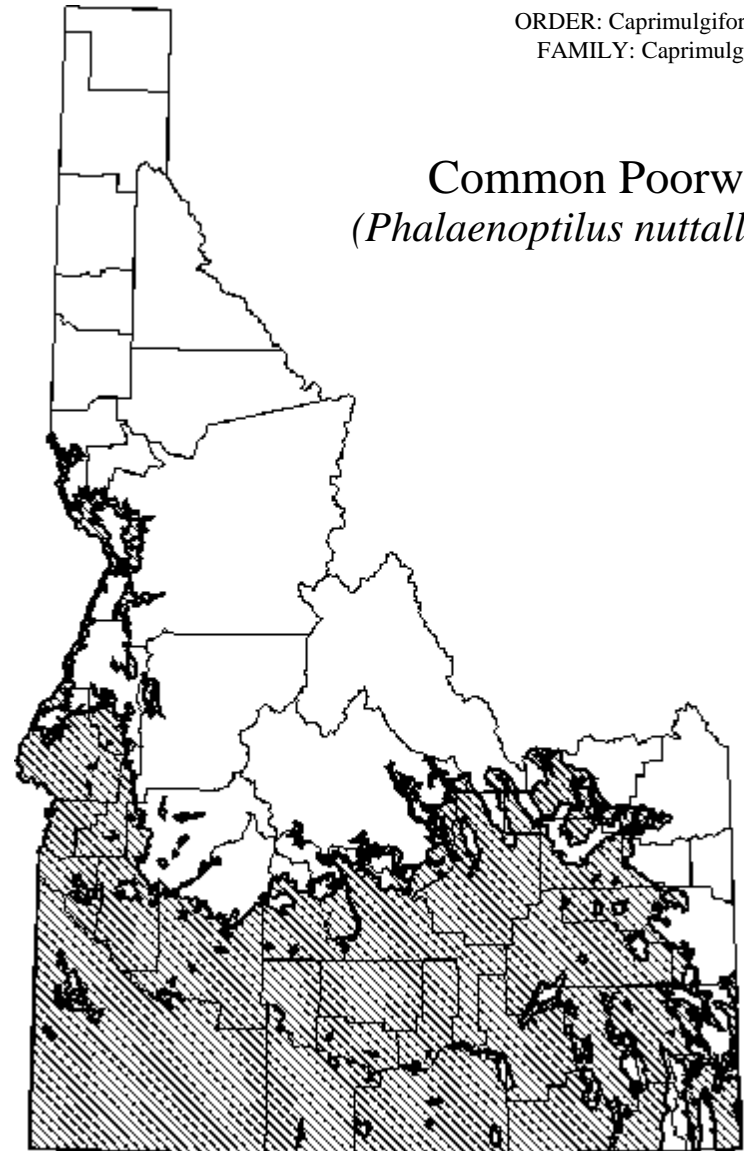
ECOLOGY: Nocturnal. Nests on gravel or rock. Catches insects on ground, or vaults upward and captures insects in air.

REPRODUCTION: Breeding begins in late March in southern range, to late May in north. Both sexes alternate incubating 2 eggs. Nestlings are semi-precocial and downy.

GIS MODEL NUMBER: 1

ORDER: Caprimulgiformes  
FAMILY: Caprimulgidae

## Common Poorwill (*Phalaenoptilus nuttallii*)





STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1, NTMB

ORDER: Apodiformes  
FAMILY: Apodidae

RANGE: Breeds from southeastern Alaska and western Canada, south to southern California, northwestern Montana, Colorado, Utah, northern New Mexico, and southeastern Arizona. Winters in Mexico and Costa Rica.

HABITAT: Found in montane habitats. In Idaho, prefers higher-elevation mountains.

DIET: Feeds on insects (e.g., caddisflies, mayflies, beetles, flesh flies, hymenopterans).

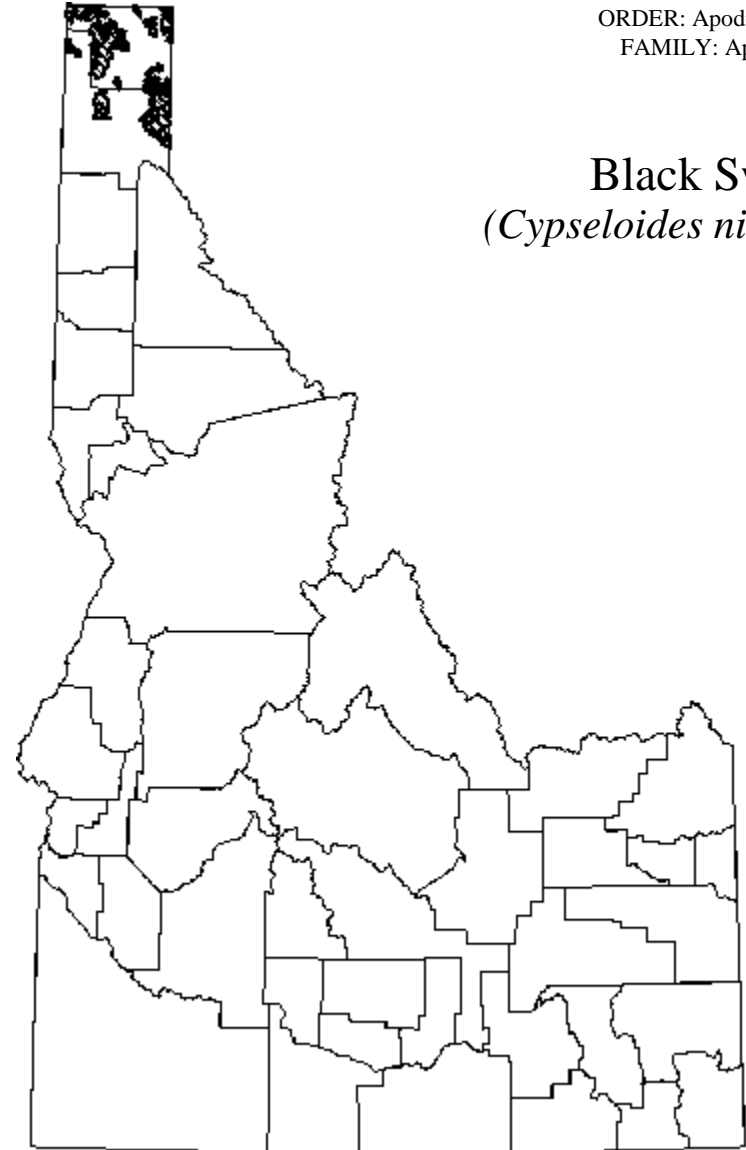
ECOLOGY: Requires moist cliff environment for nesting. Builds cup-shaped nest of mud, mosses, and algae on cliff ledge, near or behind waterfalls, or in shallow cave. Nests in colonies. Nest site persistence and tenacity are almost absolute. Catches prey in air, often at great heights.

REPRODUCTION: Female lays 1 egg in June or July. Incubation lasts 24-27 days and fledging occurs at 45-49 days. Nestling is altricial.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

## Black Swift (*Cypseloides niger*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southeastern Alaska, western Canada, northern Idaho, and western Montana, south to central California. Winters in central Mexico, south through breeding range, and casually in southern Louisiana and western Florida.

HABITAT: Found in coniferous, forested regions, but forages and migrates over open country, rivers, and lakes.

DIET: Feeds on insects.

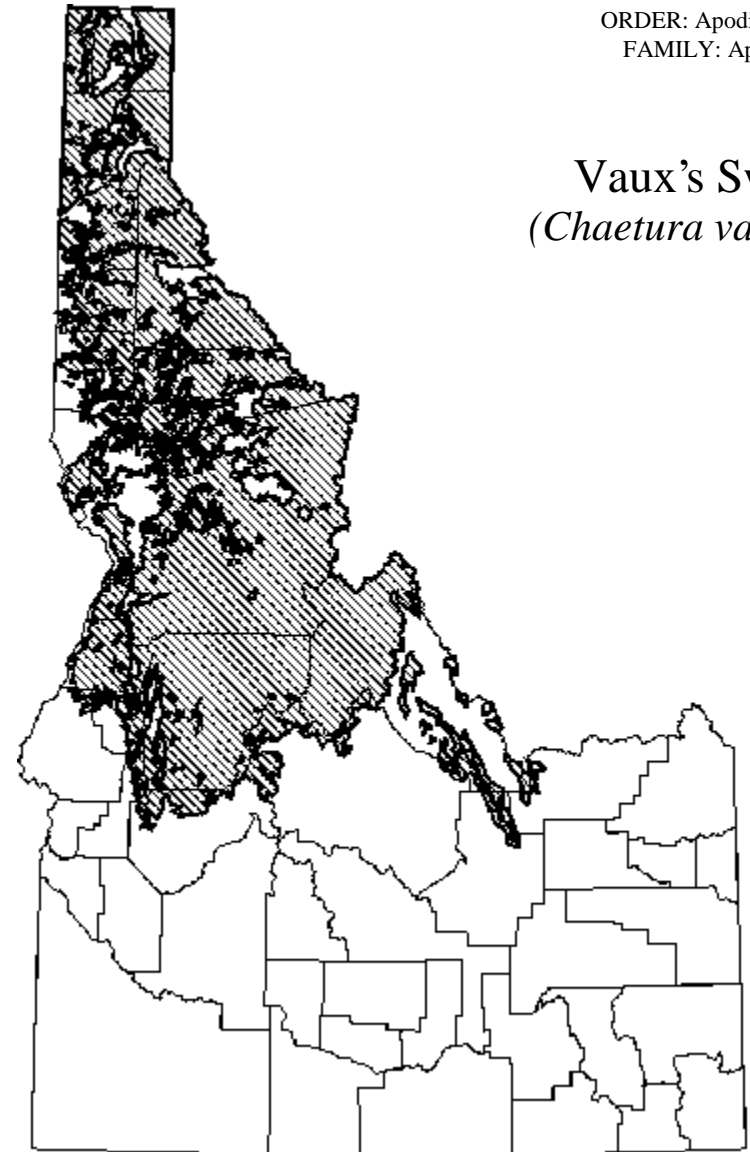
ECOLOGY: Builds nest in standing snag, or occasionally in chimney. Nests singly or in small colonies. Catches prey in air. During migration, often roosts in large flocks in hollow trees or chimneys. Recent studies in Oregon suggest this species is associated with old-growth forests.

REPRODUCTION: Clutch size varies from 3-6 eggs, but is usually 4-6. Incubation probably lasts about 19 days. Young are capable of first flight 20-21 days after hatching.

GIS MODEL NUMBER: 1

ORDER: Apodiformes  
FAMILY: Apodidae

## Vaux's Swift (*Chaetura vauxi*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

ORDER: Apodiformes  
FAMILY: Apodidae

RANGE: Breeds from southwestern Canada, east to Montana, upper Great Plains states, southeastern Wyoming, eastern Colorado, New Mexico, and western Texas, west to southern California and central Arizona, and south to Central America. Winters from central California and central Arizona, south to limits of breeding range.

HABITAT: Found primarily in mountainous country, especially near cliffs and canyons.

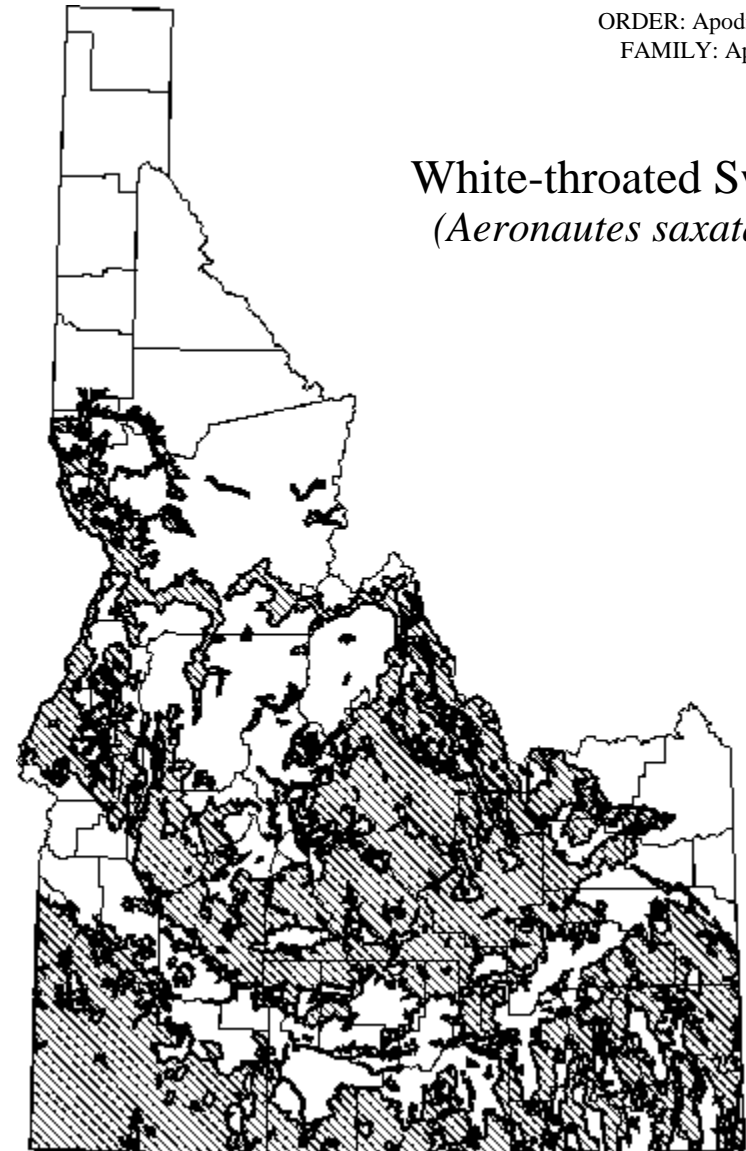
DIET: Catches flying insects such as flies, beetles, bees, winged ants, and bugs.

ECOLOGY: Builds nest in deep crevice in rock wall, or, occasionally, in building. Forms small nesting colonies. Fastest of North American swifts. Can become torpid during cold periods. Exhibits spectacular aerial courtship display.

REPRODUCTION: Copulation occurs in air. Clutch size varies from 3-6 eggs, but is usually 4-5.

GIS MODEL NUMBER: 1

## White-throated Swift (*Aeronautes saxatalis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Apodiformes  
FAMILY: Trochilidae

RANGE: Breeds from southwestern British Columbia, Washington, central Idaho, and northwestern Montana, south to northern Mexico and southern Texas, and east to western Wyoming, eastern Colorado, eastern New Mexico, and central Texas. Winters from northern Mexico and southern Texas, south to southern Mexico, and casually to Louisiana and Florida.

HABITAT: Found in semi-arid habitat near water, canyons, slopes, chaparral, riparian woodlands, open woodlands, and scrub. Also found in parks, orchards, and gardens.

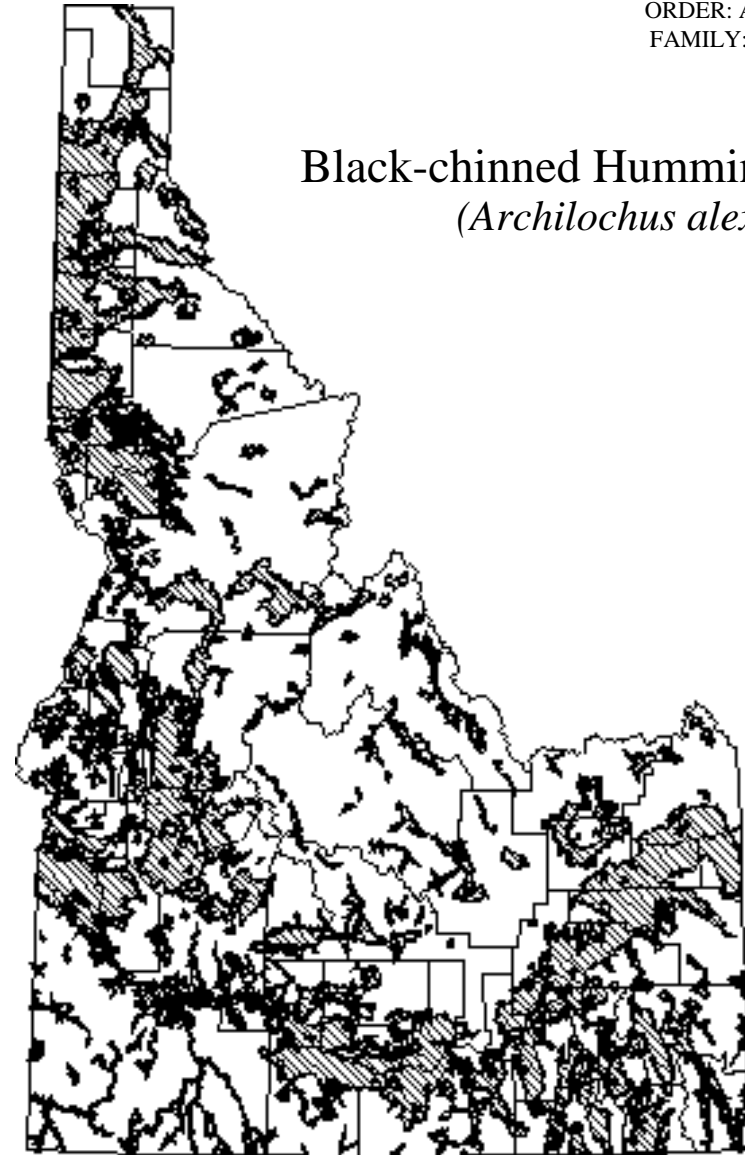
DIET: Feeds on nectar and insects.

ECOLOGY: Primarily solitary. Builds cup-shaped nest in tree, frequently near water. Takes nectar from flowers, or forages by darting out from perch to catch insects in air.

REPRODUCTION: Female incubates 2 eggs (occasionally 1-3) for 13-16 days. Young are tended by female, leave nest in about 3 wk, and are fed by female for several days after fledging. Adults may begin second nesting before young of first nesting become independent.

GIS MODEL NUMBER: 1

## Black-chinned Hummingbird (*Archilochus alexandri*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Apodiformes  
FAMILY: Trochilidae

RANGE: Breeds in mountains from central interior British Columbia and southwestern Alberta, south through Washington, Oregon, Nevada, and California to northern Baja California, and east to northern Wyoming, western Colorado, and Utah. Winters from northern to central Mexico.

HABITAT: Found in mountains (along meadows, canyons and streams), in open montane forests, and in willow and alder thickets. During migration and in winter, found in chaparral, lowland brushy areas, and deserts.

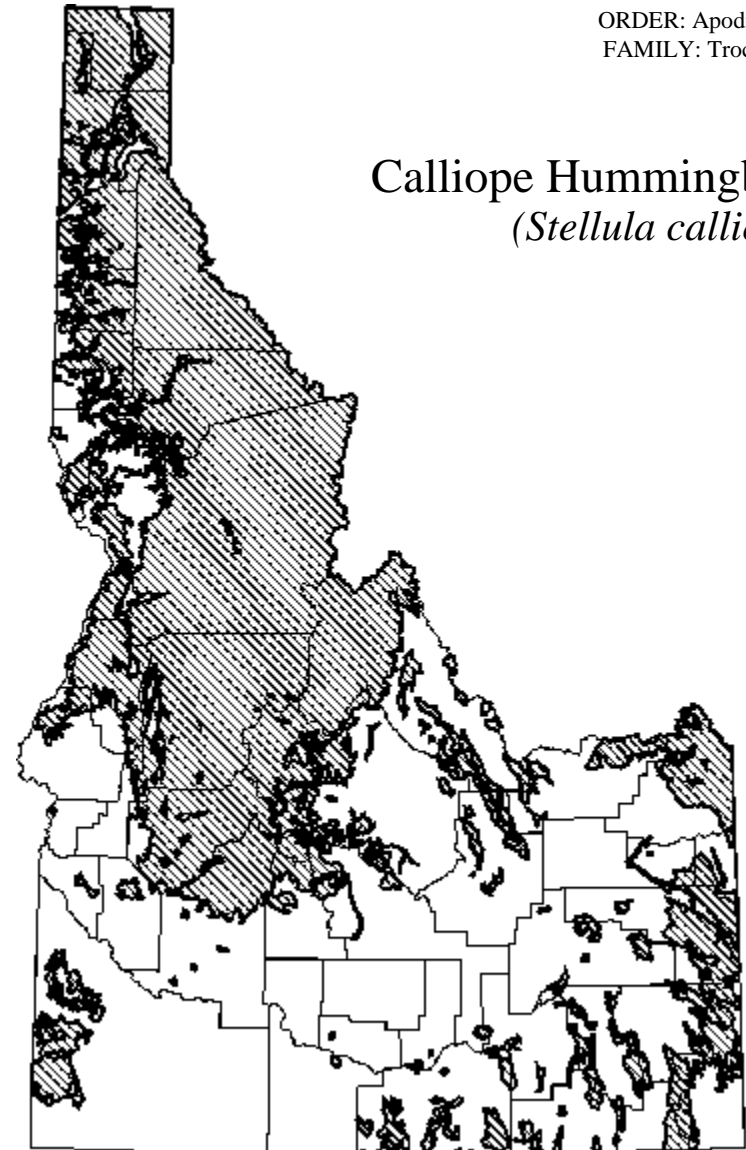
DIET: Feeds on nectar, insects, and spiders. Food sources include: paintbrush, penstemon, columbine, trumpet gilia, and elephant head.

ECOLOGY: Builds cup-shaped nest in tree on limb or cone, or in shrub. Nests from 180 m (Washington) to more than 3000 m (California). Takes nectar from flowers, or may hunt from perch. Tends to feed close to ground. In southern British Columbia, defends territories from late April-late June. Smallest bird north of Mexico.

REPRODUCTION: One brood of 2 eggs is laid in May-July (British Columbia). Incubation lasts about 15 days. Young are capable of flight about 20 days after hatching. About 338 days elapse from egg-laying to fledging. Males depart breeding grounds while females are incubating.

GIS MODEL NUMBER: 1

## Calliope Hummingbird (*Stellula calliope*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Apodiformes  
FAMILY: Trochilidae

RANGE: Breeds from north-central Idaho, northern Utah, and portions of Wyoming, south to southeastern California, portions of Mexico and Guatemala, and western Texas. Winters in highlands of northern Mexico south to Guatemala.

HABITAT: Found in open woodlands (especially pinyon/juniper and conifer/aspen associations), brushy hillsides, and montane scrub and thickets. During winter and in migration, also found in open, lowland situations where flowering shrubs are present. May move to higher elevations after breeding.

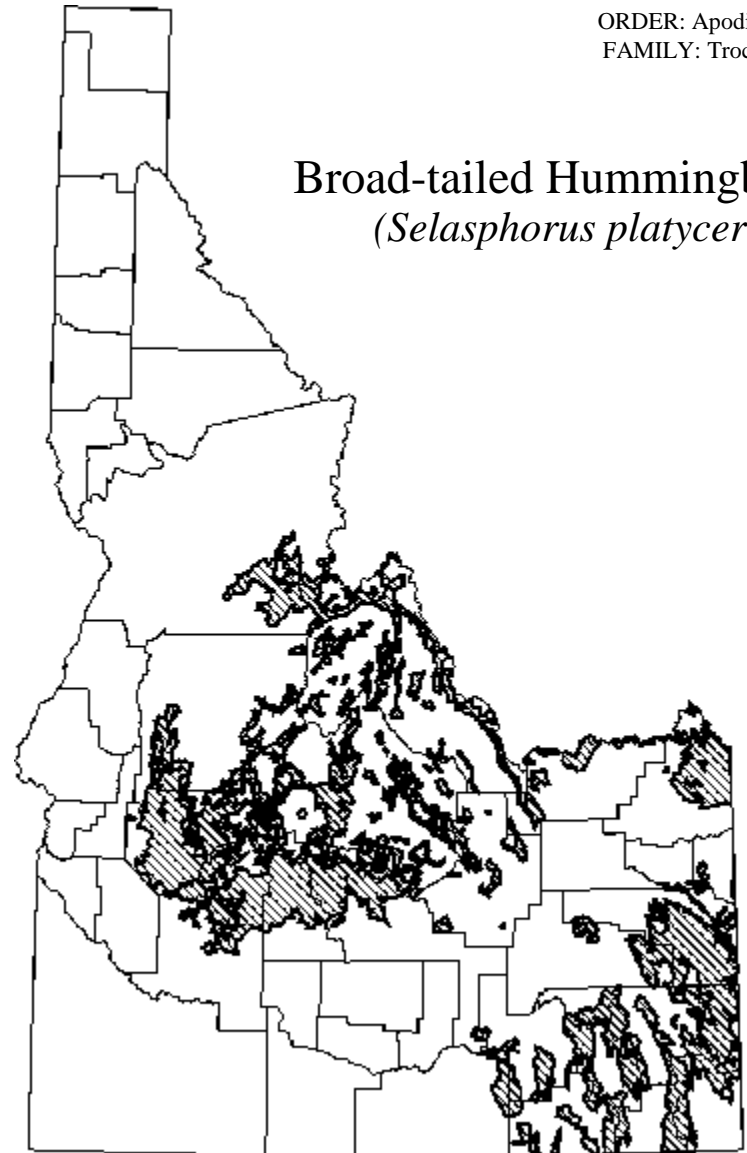
DIET: Consumes nectar, small insects, and spiders.

ECOLOGY: Usually nests 1-4 m above ground, on low, horizontal branch in tree. Often nests above water. Forages in flowers and foliage. In Arizona study, males defended 2040 m<sup>2</sup> (average) breeding territory. In Colorado study, males were observed displaying close to one another in apparent lek. In some areas, species may compete with Rufous Hummingbird for same food resources.

REPRODUCTION: Egg-laying occurs mainly June-July in Arizona, Utah, and Colorado. Females may nest close together, and may occasionally attempt 2 broods. Female incubates 2 eggs for 16-17 days. Young are tended by female, and fledge in 21-26 days (18 days has been reported). Females are long-lived and show strong fidelity to breeding site.

GIS MODEL NUMBER: 1

## Broad-tailed Hummingbird (*Selasphorus platycercus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern Alaska, southwestern Canada, and western Montana, south and west of Cascades to northwestern California and southern Idaho. Winters mainly in Mexico. Often strays out of usual range.

HABITAT: Found in coniferous forests, second growth, and thickets and brushy hillsides (forages in adjacent scrubby areas and meadows). During migration and in winter, found in open situations where flowers are present. A study in north-central Idaho found these hummingbirds more common in clearcut areas than in fragmented or contiguous stands of coniferous forest.

DIET: Feeds on nectar, insects, and tree sap.

ECOLOGY: Builds nest in tree, often on drooping branch; occasionally nests on vine. May nest in loose colony of up to 10 nests. Defends feeding territory during migration and on breeding grounds. Capable of altering energy balance by employing nocturnal torpor.

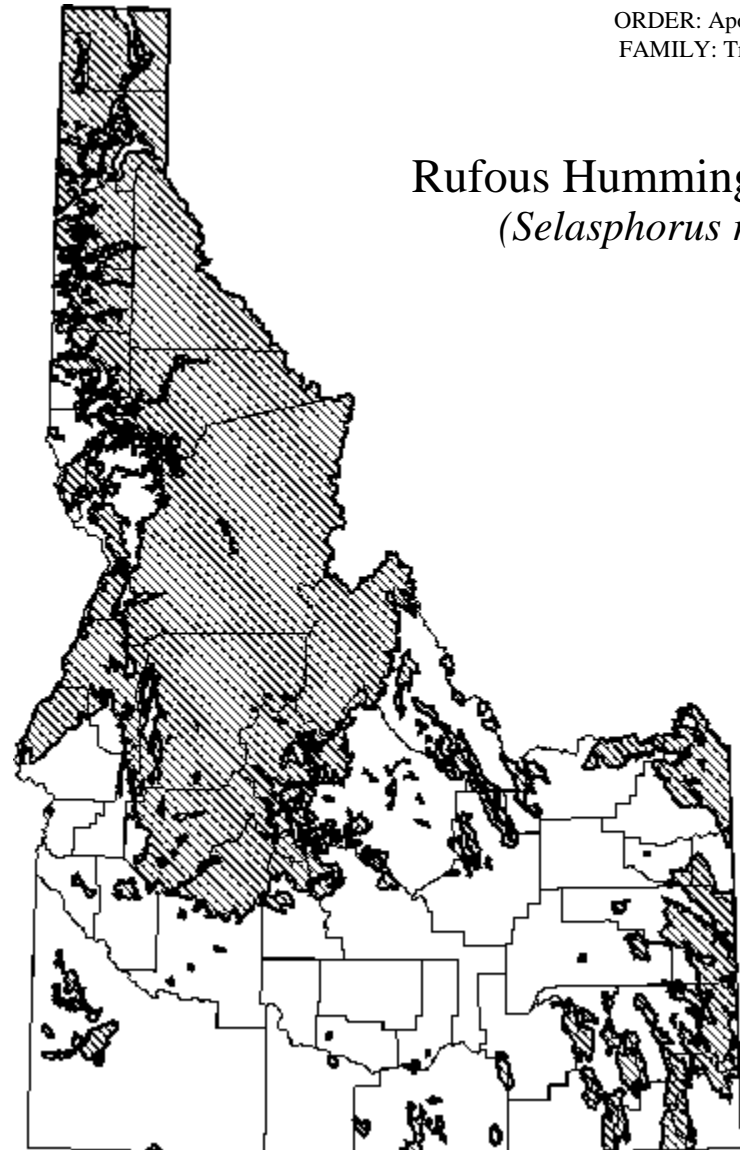
REPRODUCTION: Female lays 2 eggs. Young are capable of first flight about 20 days after hatching.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hutto, R.L. 1993. Effects of clearcutting and fragmentation on the birds of a western coniferous forest. Final report to the Clearwater National Forest., Univ. Montana, Missoula. 13pp.

ORDER: Apodiformes  
FAMILY: Trochilidae

## Rufous Hummingbird (*Selasphorus rufus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Coraciiformes  
FAMILY: Alcedinidae

RANGE: Breeds from western and central Alaska, east across portions of Canada to Labrador, and south to southern California, southern Texas, Gulf Coast, and southern Florida. Winters in south-coastal and southeastern Alaska, British Columbia, Colorado, southern Great Lakes region, and New England, and south to northern South America (rare).

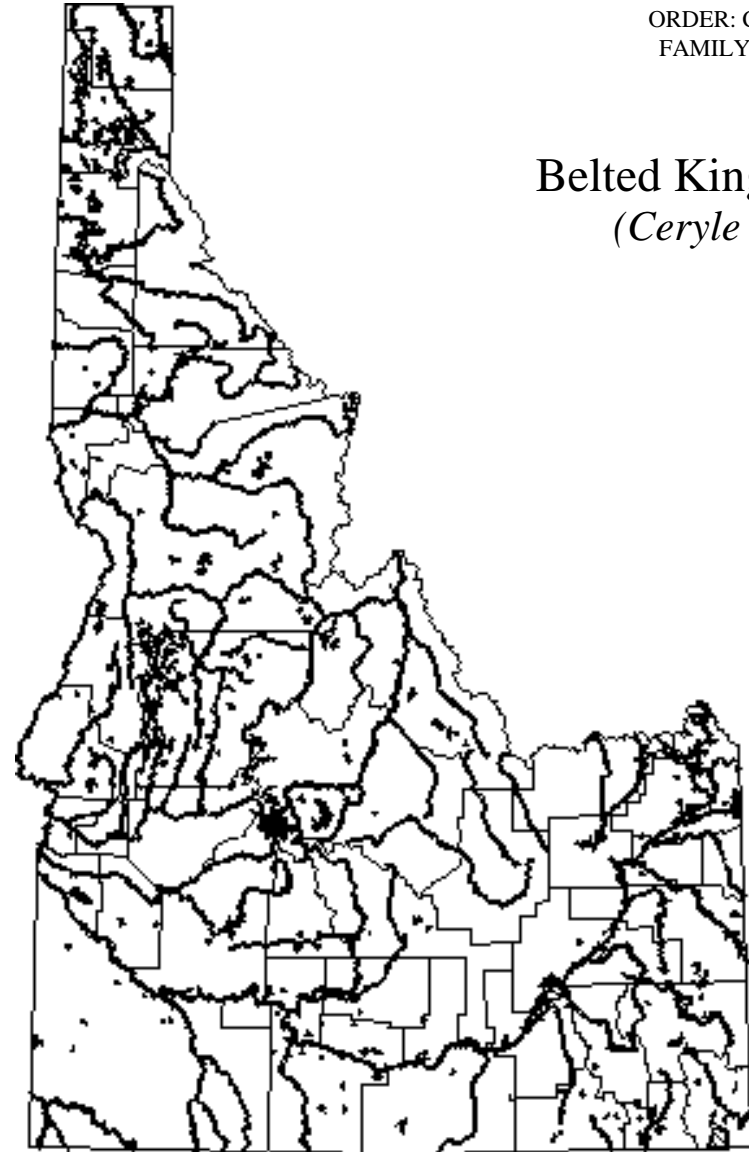
HABITAT: Found primarily along water (both freshwater and marine), including lakes, wooded creeks and rivers, seacoasts, bays, and estuaries.

DIET: Eats mainly fishes, but will also eat various other vertebrates and invertebrates.

ECOLOGY: Solitary except during breeding period. Usually nests in burrow constructed in bank near water. In some areas, availability of foraging sites may be more limiting than availability of nest sites. Obtains food by diving into water from air or perch.

REPRODUCTION: Both sexes incubate 5-8 eggs (usually 6-7), for 23-24 days. Young leave nest after 30-35 days.

GIS MODEL NUMBER: 5



## Belted Kingfisher (*Ceryle alcyon*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S4, NTMB

ORDER: Piciformes  
FAMILY: Picidae

RANGE: Breeds from southwestern Canada, Montana, and southern Great Plains states, south to south-central California, central Arizona, southern New Mexico, and eastern Colorado. Winters mainly from northern Oregon, southern Idaho, central Colorado, and south-central Nebraska, south irregularly to northern Mexico, southern New Mexico, and western Texas.

HABITAT: Found in open forests and woodlands (often logged or burned), including oak, coniferous forests (primarily ponderosa pine), and riparian woodlands and orchards.

DIET: Feeds mainly on insects (e.g., ants, beetles, flies, grasshoppers, tent caterpillars). Also eats fruits and nuts.

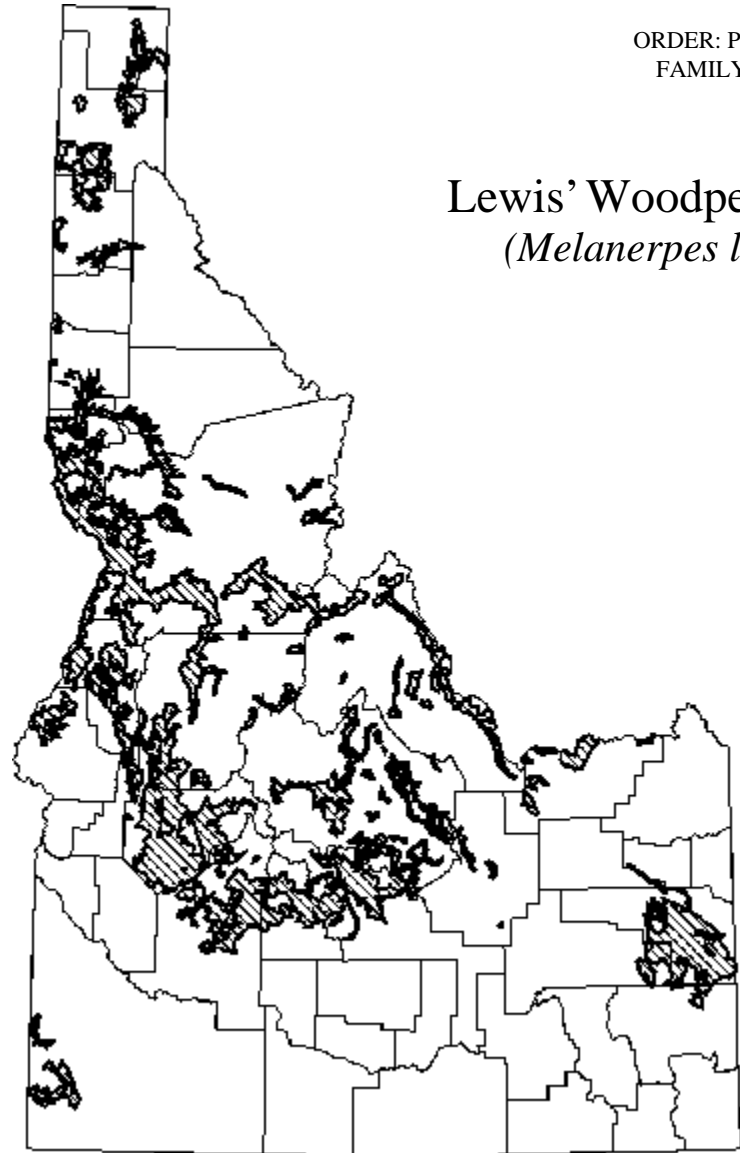
ECOLOGY: Nests in cavity in tree, frequently on dead limb; may nest on pole. Catches prey in air; also drops from perch to capture prey on ground. Stores nuts in natural cavities for use in non-breeding season. May damage orchard crops. Primarily uses cavities excavated by other species.

REPRODUCTION: Pair forms life-long bond. Both sexes incubate 5-9 eggs (usually 6-7), for 13-14 days. Young are capable of first flight 28-34 days after hatching.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V.A. and J. Dudley. 1995. Nest usurpation and cavity use by Lewis' Woodpecker. USDA Forest Service Inter. Res. Sta. Rep., Boise. 13pp.

## Lewis' Woodpecker (*Melanerpes lewis*)



STATUS: Protected nongame species

GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southern interior British Columbia, Idaho, and western Montana, south in mountains to northern and east-central California, and locally in southern California, central Arizona, southern New Mexico, and northern Baja California. Winters mainly from breeding range, south to northern Baja California, northwestern Mexico, and western Texas.

HABITAT: Found in montane coniferous forests, especially fir and lodgepole pine. During migration and in winter, also found in lowland forests.

DIET: Consumes sap, cambium, and insects. Ants may comprise 86% of animal food. Also eats white wood-boring larvae and moths of spruce budworms.

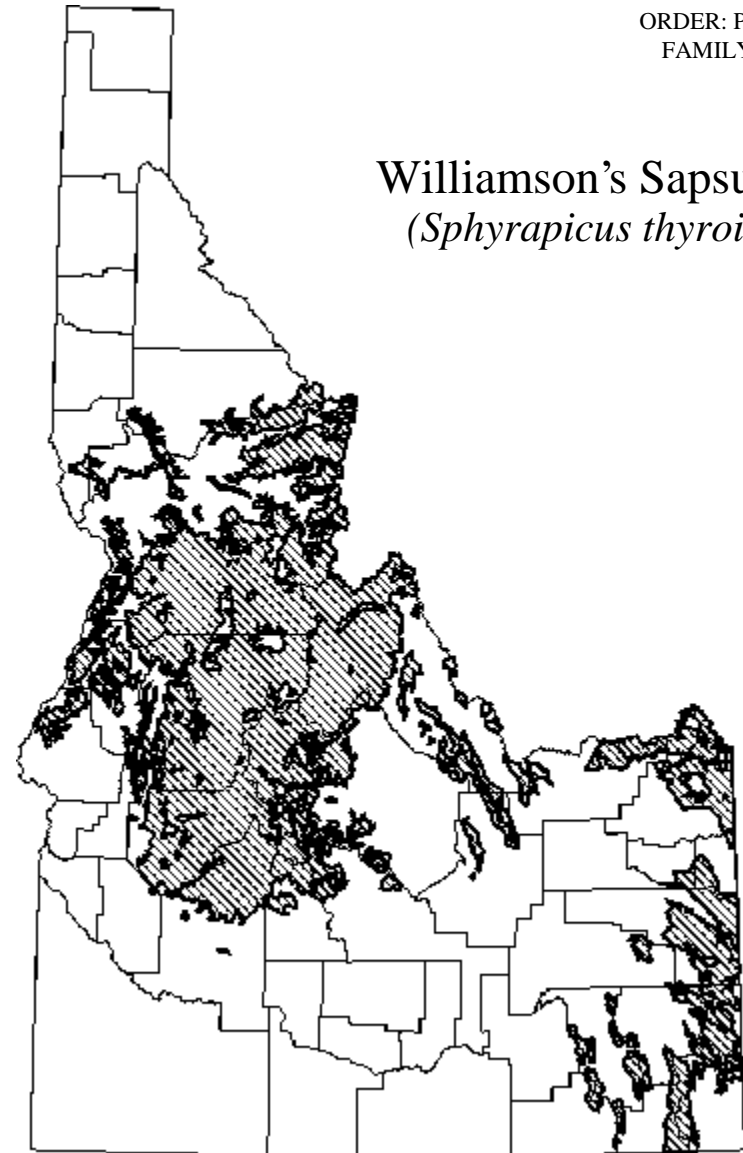
ECOLOGY: Nests in cavity in standing snag/hollow tree; sometimes returns to same tree, but not same cavity, year after year. Drills holes in trees, or forages on ground.

REPRODUCTION: Both sexes incubate 3-7 eggs (usually 5-6), for 12-14 days. Nestlings are altricial. Young are tended by both adults, and leave nest cavity about 28-35 days after hatching.

GIS MODEL NUMBER: 1

ORDER: Piciformes  
FAMILY: Picidae

## Williamson's Sapsucker (*Sphyrapicus thyroideus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Piciformes  
FAMILY: Picidae

RANGE: Breeds in Rocky Mountain region from south-central British Columbia, southwestern Alberta, and western Montana, south (east of Cascades) to east-central California, southern Nevada, central Arizona, southern New Mexico, and extreme western Texas. Winters in southern California, Oregon (casually), southern Nevada, central Arizona, and central New Mexico, and south to northern Mexico.

HABITAT: Found primarily in coniferous/deciduous forests that include aspen and cottonwood. During migration and in winter, found in various forest and open woodland habitats, and in parks, orchards, and gardens. A study in north-central Idaho found no differences in numbers among clearcut, fragmented, and contiguous stands of coniferous forest.

DIET: Drinks sap and eats cambium, fruits, and berries.

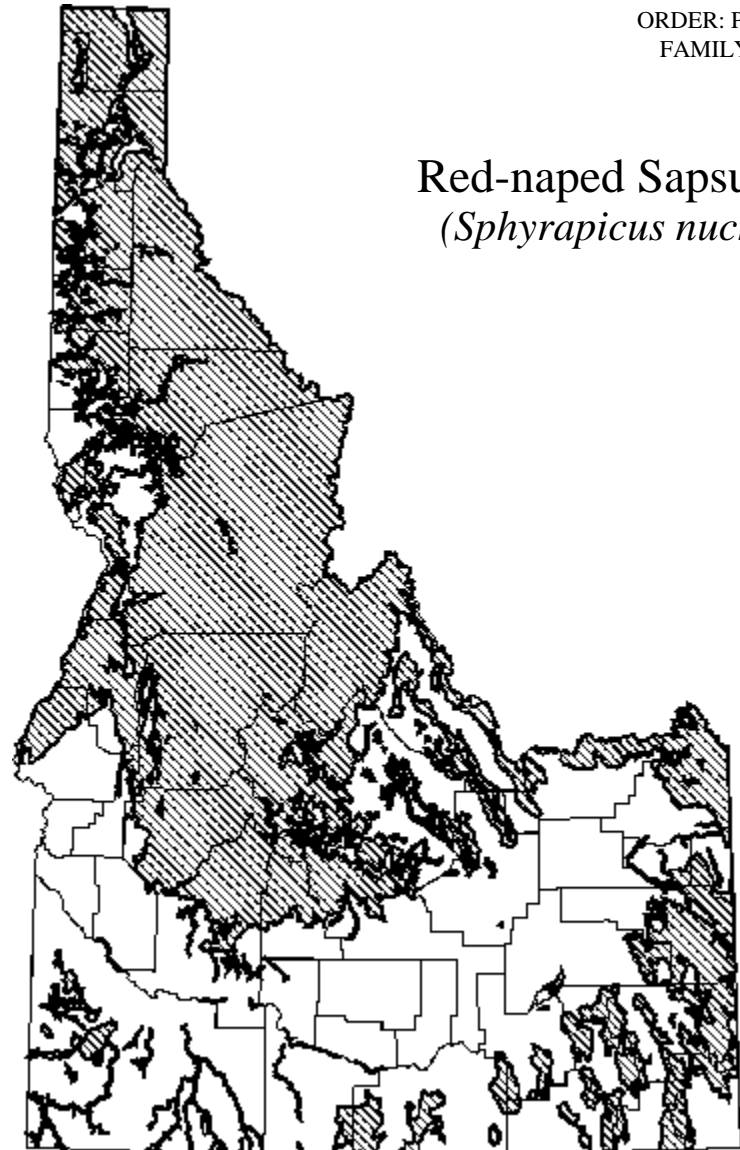
ECOLOGY: Nests in cavity in live tree, frequently near water. Often returns to nest in same tree, but not same cavity, year after year. Drills holes in trees to obtain food.

REPRODUCTION: Both sexes incubate 4-5 eggs for 12-13 days. Nestlings fledge at 25-29 days. In Montana and Wyoming, nestlings have been noted in late June to mid-July.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hutto, R.L. 1993. Effects of clearcutting and fragmentation on the birds of a western coniferous forest. Final report to Clearwater National Forest, Univ. Montana, Missoula. 13pp.

## Red-naped Sapsucker (*Sphyrapicus nuchalis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from western and central Alaska, east across portions of Canada to Newfoundland, and south to southern California, central Texas, Gulf Coast, and southern Florida. Winters throughout breeding range, but more northern populations are mostly migratory, occurring irregularly southward.

HABITAT: Found in deciduous and mixed woodlands, second growth, parks, orchards, swamps, and riparian woodlands.

DIET: Eats mostly insects (adults, larvae, pupae, and eggs), but will also eat berries and nuts.

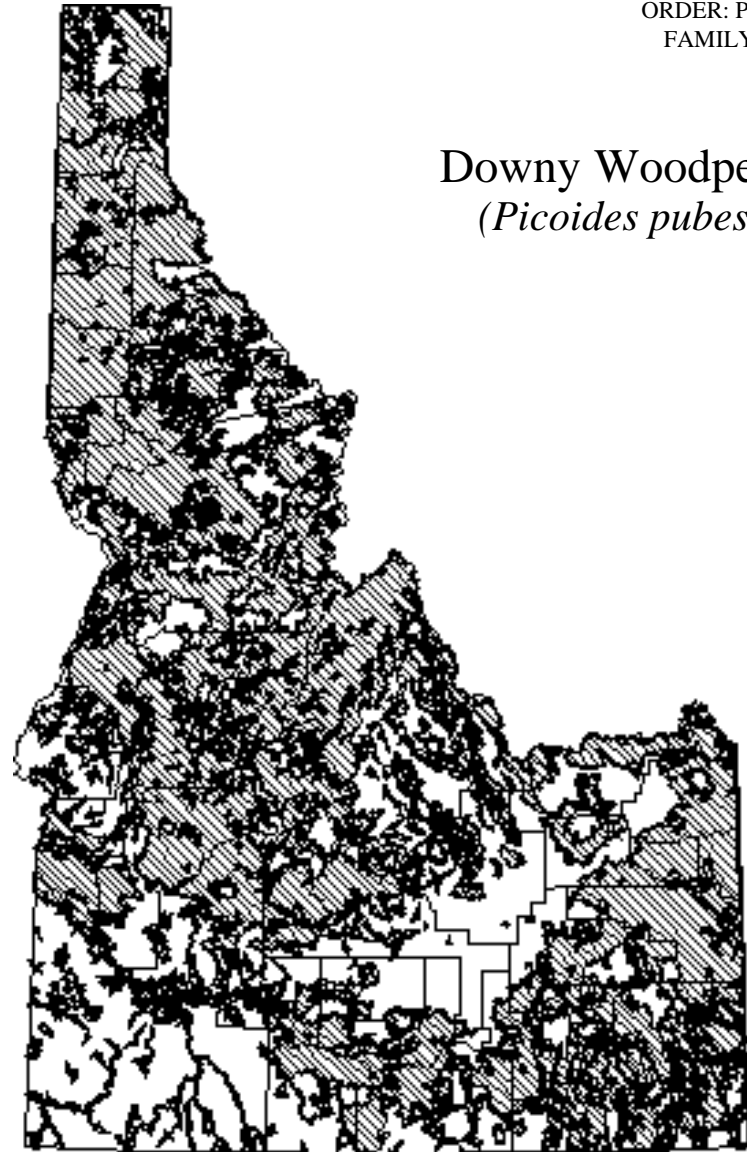
ECOLOGY: Nests in cavity in standing snag. Constructs new nesting cavity yearly. Forages on bark of tree.

REPRODUCTION: Both sexes incubate 3-7 eggs (usually 4-5), for 12 days. Young leave nest at 20-22 days, and are dependent on parents for food for 3 more wk. Female may produce 2 broods/yr in southern range.

GIS MODEL NUMBER: 1

ORDER: Piciformes  
FAMILY: Picidae

## Downy Woodpecker (*Picoides pubescens*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from western and central Alaska, east to northern Saskatchewan and Newfoundland, and south to northern Baja California, highlands of Middle America, Gulf Coast, and southern Florida. Winters generally throughout breeding range; more northern populations are partially migratory.

HABITAT: Found in forests, open woodlands, swamps, well-wooded towns and parks, and open situations with scattered trees.

DIET: Eats mainly insects (beetles, ants, and caterpillars, but especially boring larvae). Also eats other invertebrates, and some fruits and nuts. Seeds may be important food in winter.

ECOLOGY: Uses various foraging substrates, ranging from dead and live trees to downed wood and ground. May concentrate feeding in areas of insect outbreaks. Nests in cavity in tree or standing snag. Uses tree cavities for roosting and winter cover. Female spends entire year on breeding territory, and is joined in late winter by male. Reported territory size is 0.6-15 ha (varies with habitat quality). In eastern U.S., individuals use forest areas of 2-4 ha or larger, though much larger area (possibly 12 ha) may be needed to support viable breeding population. In Iowa study, minimum width of riparian forest necessary to support breeding population was 40 m. Idaho study in hemlock and grand fir forests found species occurring in all life forms from burned and shrub areas to mature forests.

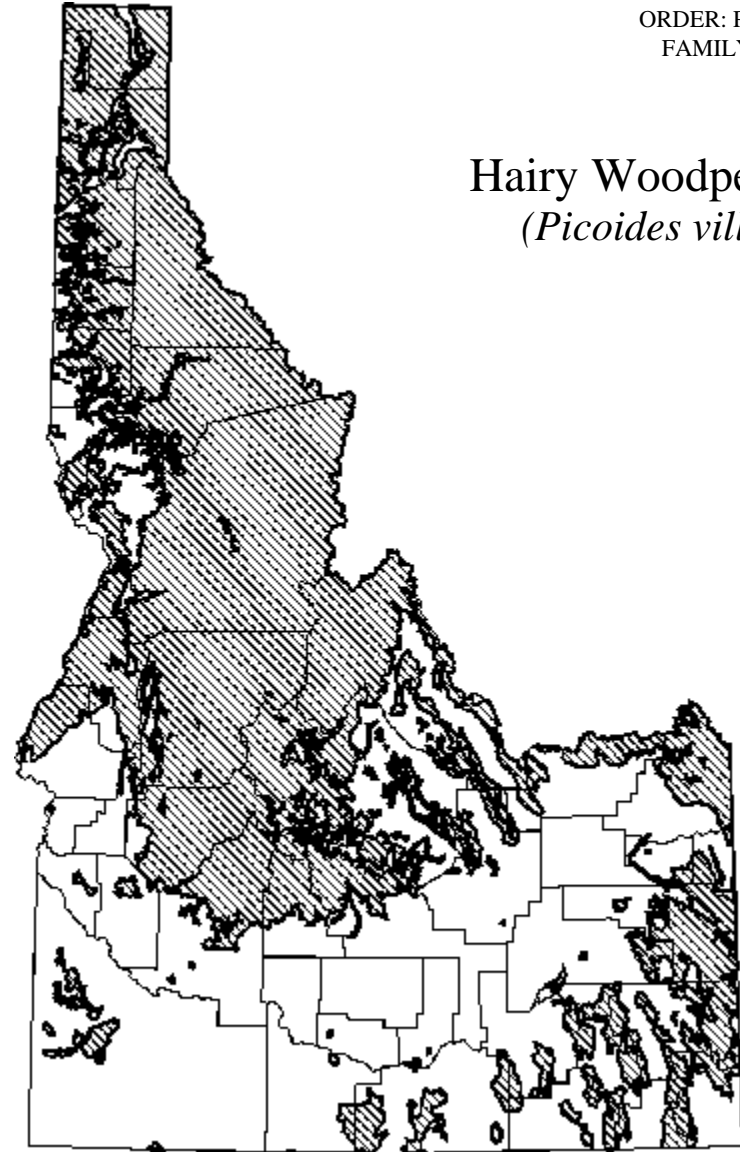
REPRODUCTION: Both sexes incubate 3-6 eggs (usually 4) for 11-12 days. Young leave nest at 28-30 days, rely on parents for about 2 more wk, and may return to nest to roost.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, S.R. 1982. A preliminary survey of forest bird communities in northern Idaho. Northwest Sci. 56:287-298.

ORDER: Piciformes  
FAMILY: Picidae

## Hairy Woodpecker (*Picoides villosus*)



ORDER: Piciformes  
FAMILY: Picidae

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

GLOBAL RANGE: Resident from south-central British Columbia, north-central Washington and northern Idaho, south through Oregon (east of Cascades) to southern California and west-central Nevada.

HABITAT: Found in montane coniferous forests (primarily pine and fir). Usually found at elevations of 1200-2800 m during nesting season, but may descend to lower elevations during winter. In Idaho, species is restricted to mature or old ponderosa pine and mixed coniferous forests.

DIET: Eats seeds of ponderosa and sugar pine, spiders, beetles, ants, fly larvae, and other insects.

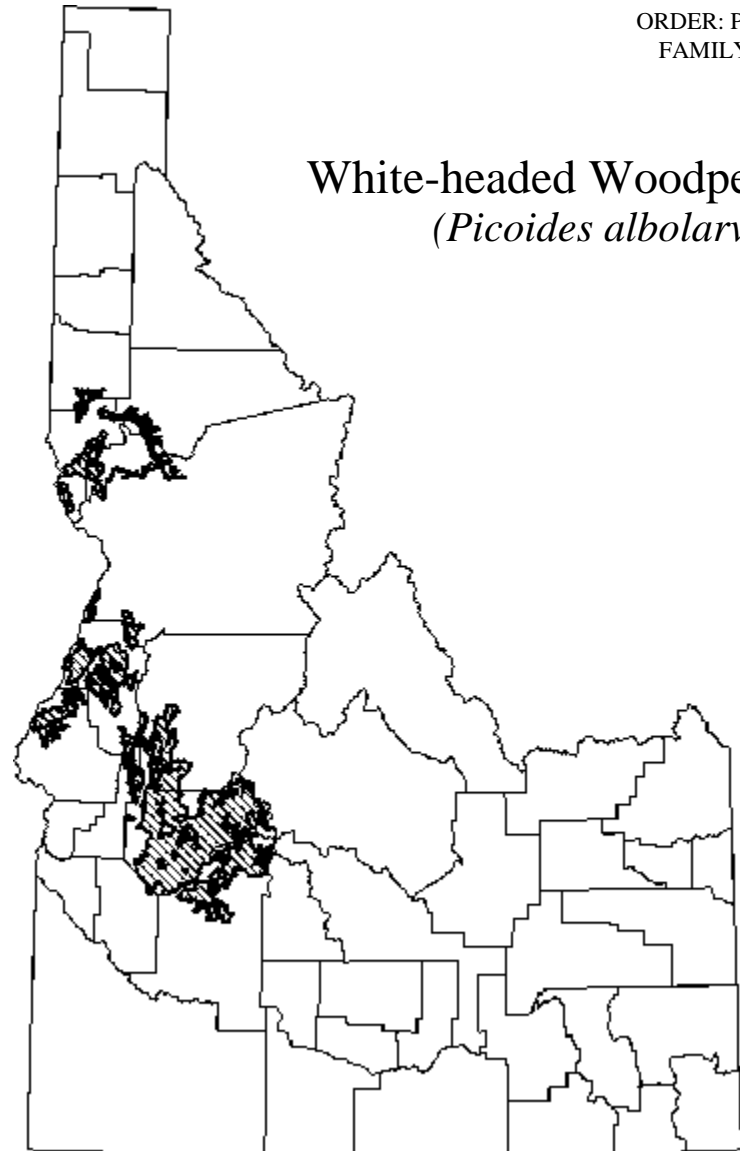
ECOLOGY: Constructs nesting cavity in standing snag/hollow tree; may use same tree year after year. Forages mainly on trunks of living conifers by prying off loose bark to obtain food, but may also obtain food in air. Idaho study located nests in ponderosa pine and Douglas-fir snags in habitats ranging from dry meadows to partial cuts to forest edges.

REPRODUCTION: Both sexes incubate 4-5 eggs. Nestlings are altricial, and are tended by both adults.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Frederick, G.P. and T.L. Moore. 1991. Distribution and habitat of white-headed woodpeckers (*Picoides albolarvatus*) in west-central Idaho. Idaho Dept. Fish & Game, Boise. 32pp.

## White-headed Woodpecker (*Picoides albolarvatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

ORDER: Piciformes  
FAMILY: Picidae

RANGE: Breeds, often locally, from northwestern and central Alaska to northern Saskatchewan and northern Labrador, and south to central Washington, central Arizona, south-central New Mexico, central Saskatchewan, northeastern Minnesota, northern New England, and southern Quebec. Wanders irregularly or casually north and south.

HABITAT: Found in coniferous forests (primarily spruce/fir and lodgepole, less frequently in mixed forests). Found also in willow thickets along streams, in high-elevation aspen groves, in swamps, and in burned-over coniferous forests.

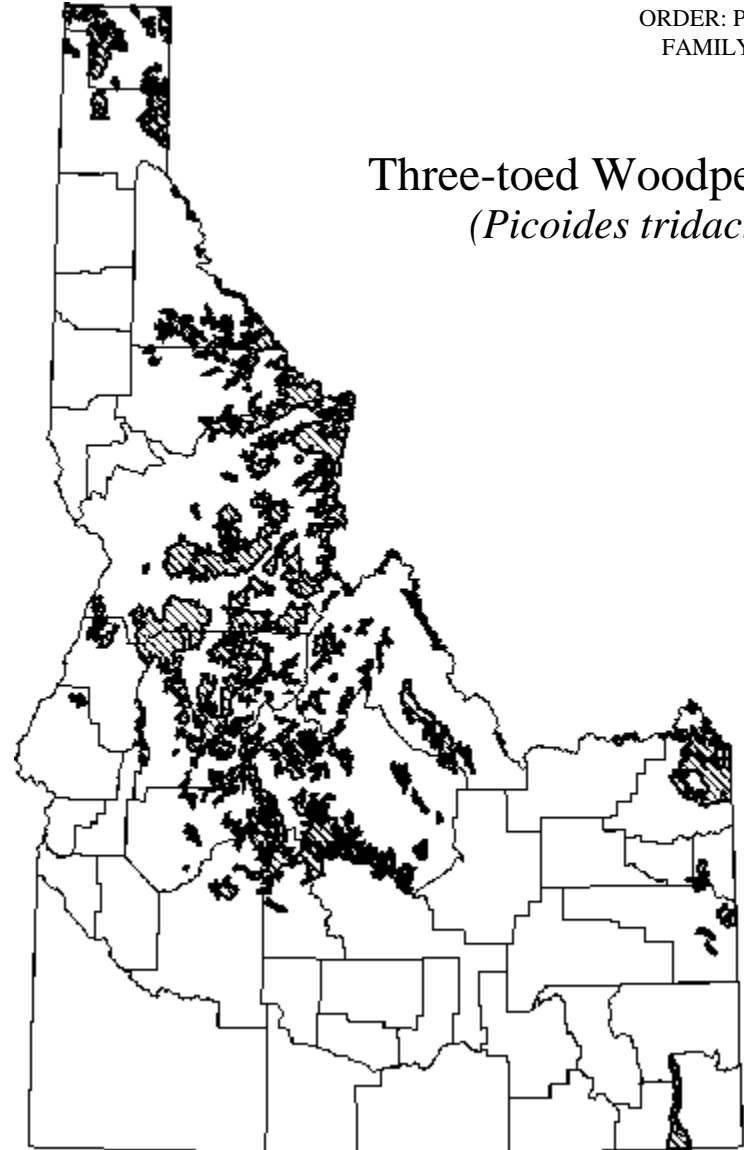
DIET: Eats mainly wood-boring insects, but will also eat spiders, berries, and cambium.

ECOLOGY: Excavates cavities in tree or standing snag. Forages on tree bark. Few nests have been found in Idaho. In Oregon, home range size varied from 52-300 ha, depending on habitat quality.

REPRODUCTION: Both sexes incubate 4 eggs (usually), for 14 days. Young are tended by both parents until fledging at 22-26 days.

GIS MODEL NUMBER: 1

## Three-toed Woodpecker (*Picoides tridactylus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

GLOBAL RANGE: Resident, often locally, from western and central Alaska to northern Saskatchewan and central Labrador, and south to southeastern British Columbia, central California, northwestern Wyoming, portions of Great Plains states and Prairie Provinces, and northern New England. Wanders irregularly south in winter.

HABITAT: Found in coniferous forests (primarily spruce/fir), especially in windfalls and burned areas with standing dead trees. Found less frequently in mixed forests, and rarely in deciduous woodlands in winter.

DIET: Eats mainly wood-boring insects, but will also eat spiders, fruits, nuts, and some cambium.

ECOLOGY: Excavates new cavity each year, in decaying tree or standing snag. Forages on bark. Populations can be irruptive in recent burns. Few nests have been located in Idaho. In Oregon, home range size varied from 70-324 ha, and there was no intraspecific overlap.

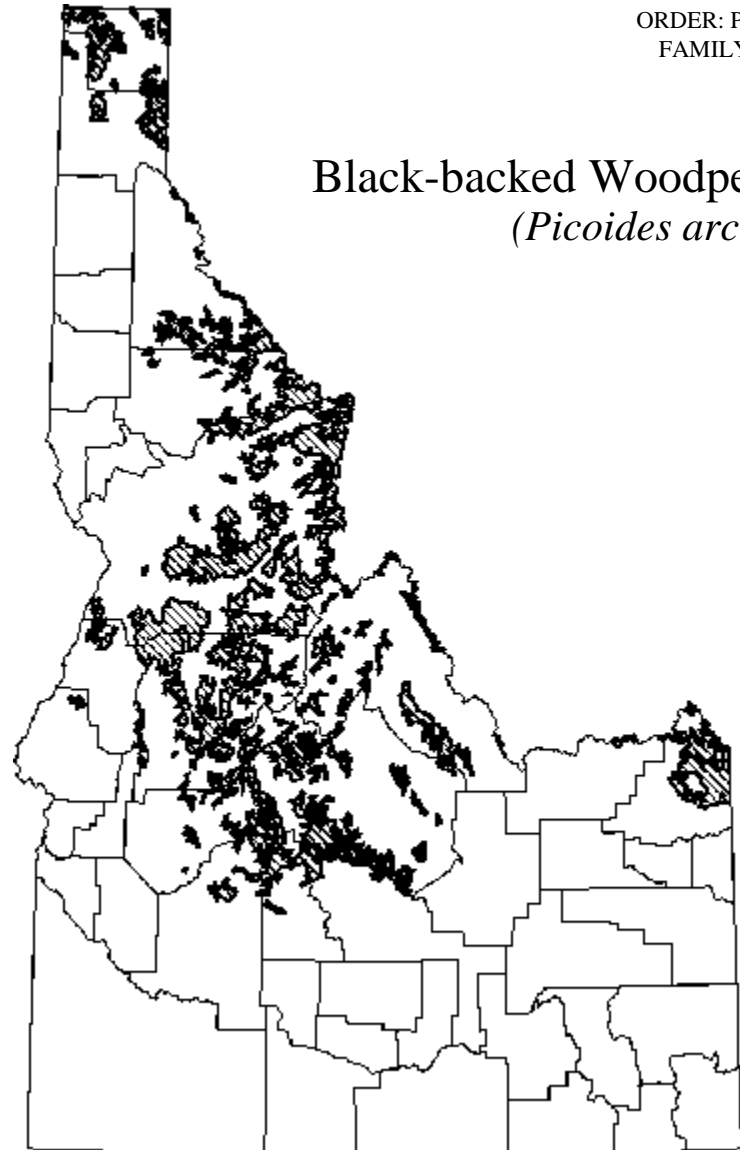
REPRODUCTION: Both sexes incubate 2-6 eggs (usually 4) for 14 days. Young are tended by both parents.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. 1985. Densities and nesting heights of breeding birds in a Idaho Douglas-fir forest. Northwest Sci. 59:45-52.

ORDER: Piciformes  
FAMILY: Picidae

## Black-backed Woodpecker (*Picoides arcticus*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Piciformes  
FAMILY: Picidae

RANGE: Breeds from tree limit in central Alaska and portions of Canada, south through British Columbia, eastern Montana, and interior (east of Rockies) to southern Texas, Gulf Coast, southern Florida, and Nicaragua. Winters from southern Canada, south through breeding range to southern Texas and Gulf Coast. Resident in portions of Southwest.

HABITAT: Found in forests (deciduous and coniferous), open woodlands, open situations with scattered trees and snags, riparian woodlands, pine/oak associations, parks, and deserts (usually containing large cacti). Preliminary results of Montana-Idaho study of old-growth and rotation-aged Douglas-fir found flickers are old-growth associates.

DIET: Feeds on insects (ants, beetles, wasps, grasshoppers, grubs, etc.). Also eats fruits, berries, and seeds (clovers, grasses, ragweed, etc.).

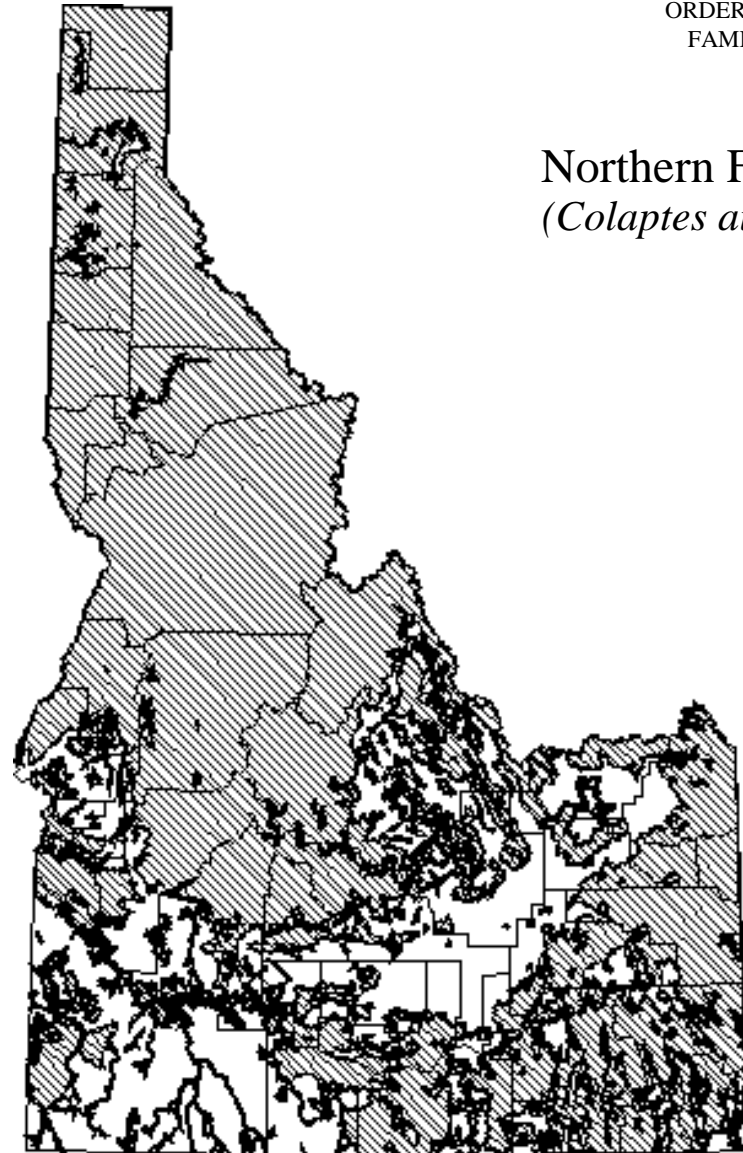
ECOLOGY: Feeds on ground or catches insects in air. Nests in cavity in standing snag; may nest on houses, poles, or banks. May return to same nesting cavity year after year. Cavities excavated by flickers are used by many species of secondary cavity users.

REPRODUCTION: Both sexes incubate eggs for 11-12 days. Clutch size is larger in northern range than in south. Nestlings are altricial. Young are tended by both adults, and leave nest 25-28 days after hatching.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds. Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

## Northern Flicker (*Colaptes auratus*)



ORDER: Piciformes  
FAMILY: Picidae

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Resident across portions of Canada, south to central California, Idaho, western Montana, eastern Dakotas, Gulf Coast, and southern Florida.

HABITAT: Found in dense coniferous and mixed forests, open woodlands, second growth, and, locally, parks and wooded residential areas of towns. Preliminary results of Montana-Idaho study of old-growth and rotation-aged Douglas-fir found Pileated Woodpeckers are old-growth associates.

DIET: Eats mainly ants and beetles, but will also eat other insects, fruits, and seeds.

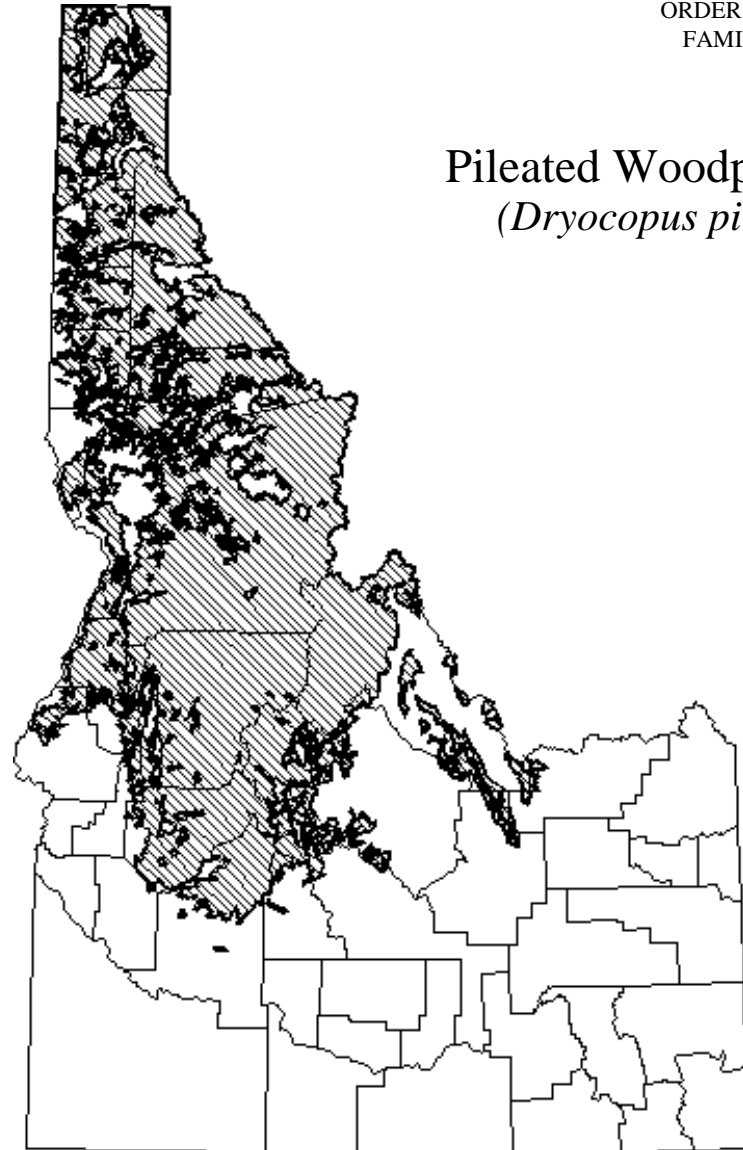
ECOLOGY: Nests in cavity in standing snag, frequently in area free of bark. Oregon study found territory size to be 267-1056 ha; size was negatively correlated with percent forest overstory canopy cover, percent saw timber cover, and log and stump volume. Logs and stumps are important foraging substrates, but species will also dig into anthills.

REPRODUCTION: Both sexes incubate usually 3-4 eggs for 18 days. Young are tended by both parents, and leave nest in 22-26 days. Family group stays together until fall or later.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

## Pileated Woodpecker (*Dryocopus pileatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from portions of Alaska and Canada, south (west of Rockies) to northern Baja California, Arizona, New Mexico, and western Texas, and (east of Rockies) through portions of Midwest, Northeast, and middle Atlantic states. Winters in mountains of South America, and in small numbers in Central America and southern Mexico.

HABITAT: Found in forests and woodlands (especially in burned-over areas with standing dead trees) such as taiga, subalpine coniferous forests, mixed forests, boreal bogs, muskeg, and borders of lakes and streams. Idaho study found species responded positively in numbers to single-tree logging.

DIET: Eats insects.

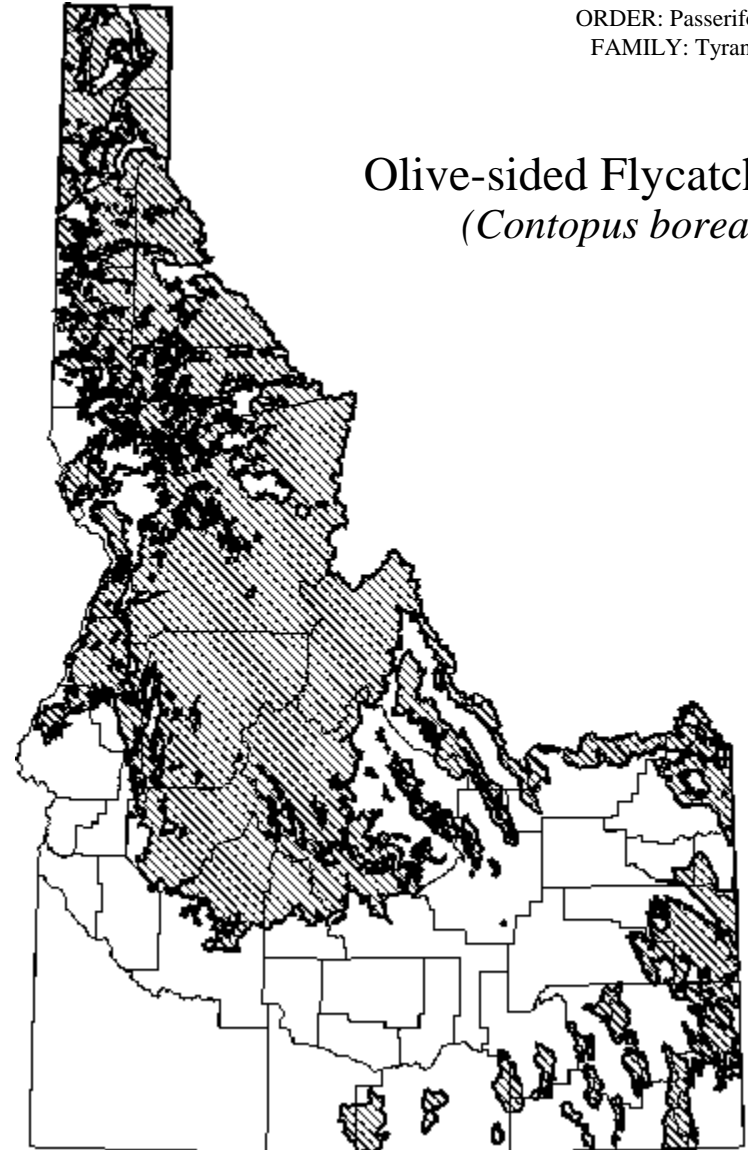
ECOLOGY: Hunts from perch. Builds cup-shaped nest in coniferous or deciduous tree. Usually territorial in non-breeding areas.

REPRODUCTION: Female incubates 3-4 eggs for 16-17 days. Young usually leave nest in 15-19 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. and G.D. Booth. 1989. Responses of birds and small mammals to single-tree selection logging in Idaho. USDA Forest Service Int. Res. Station Res. Paper INT-408, Boise. 11pp.

## Olive-sided Flycatcher (*Contopus borealis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from east-central Alaska, south through western Canada to western U.S., southern Baja California, interior highlands of Mexico, and portions of Central America. Winters mainly in Colombia and Venezuela, south to Peru and Bolivia, and casually to Costa Rica.

HABITAT: Found in forests and forest edges and woodlands (especially coniferous or mixed coniferous/deciduous forests), and in poplar or riparian woodlands. Idaho study found preference for open canopy in cottonwood forest with willow subcanopy.

DIET: Feeds on wide variety of insects including bees, wasps, ants, and flies.

ECOLOGY: Builds concealed nest in tree at end of branch. Hunts from perch. Idaho study conducted in cottonwood forests indicated pewees were more strongly associated with agricultural landscapes compared to more natural landscapes and avoided campground areas.

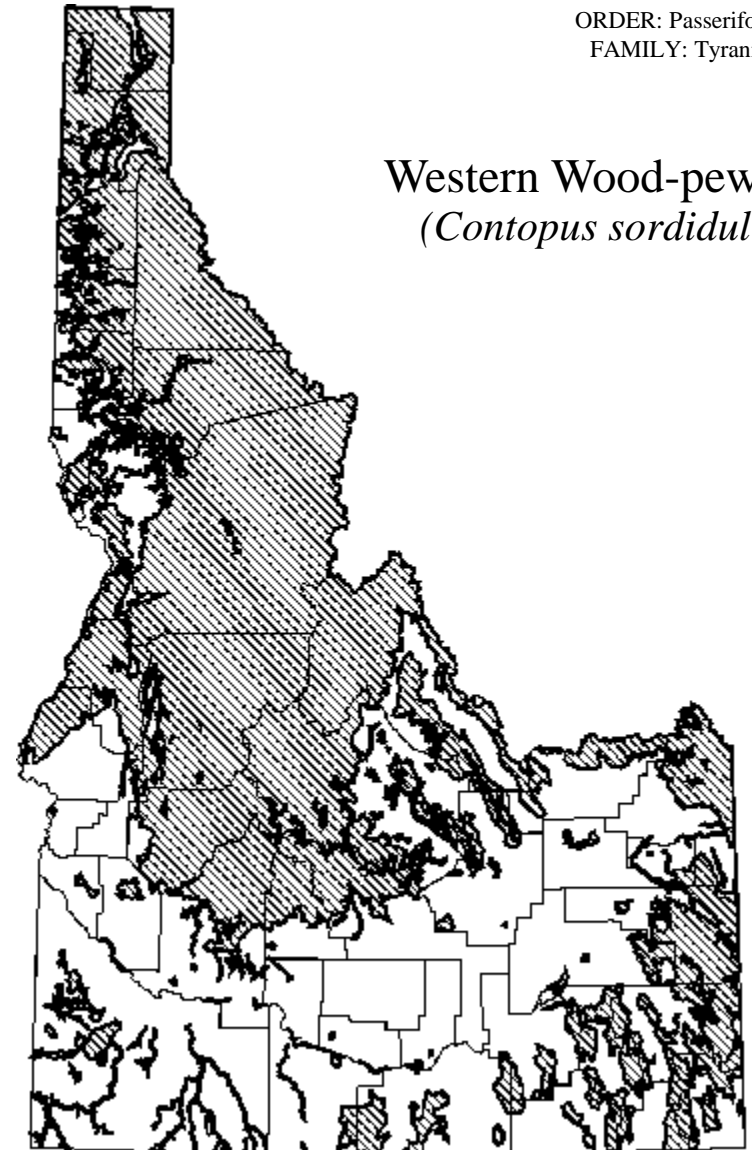
REPRODUCTION: Breeding begins in early May in southern range, to early June in north. Female incubates 3 eggs (sometimes 2-4), for about 12 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Tyrannidae

## Western Wood-pewee (*Contopus sordidulus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from central British Columbia, east to southern Minnesota and Nova Scotia, and south to southern California, western and central Texas, Arizona, and portions of southeastern United States. Winters from central Mexico to Colombia.

HABITAT: Found in thickets, scrubby and brushy areas, open second growth, swamps, and open woodlands. In Idaho study of riparian birds, Willow Flycatchers were intermediate in association with mesic and xeric willow habitats.

DIET: Eats insects.

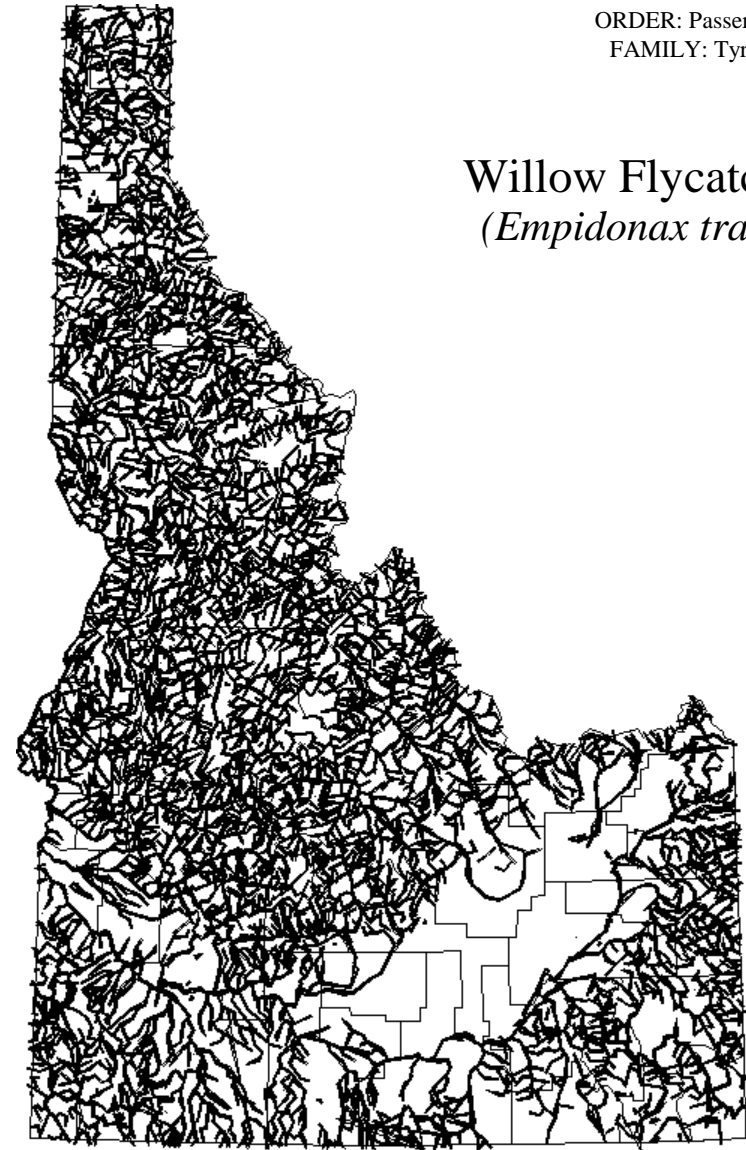
ECOLOGY: Catches prey in air, or takes food from foliage. Builds cup-shaped nest in shrub or deciduous tree. In Ontario study, territory size ranged from about 1000 to 4700 m<sup>2</sup>. Although Willow Flycatchers are declining in Pacific Northwest, their numbers in Idaho appear stable.

REPRODUCTION: Female incubates 3-4 eggs for 12-15 days. Young are tended by both parents, and leave nest at 12-15 days. Occasional polygyny may occur. High rate of cowbird parasitism occurs in northern Colorado.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Sharp, B. 1986. Management guidelines for the Willow Flycatcher. U.S. Fish and Wildlife Service, Portland. 21pp.

## Willow Flycatcher (*Empidonax traillii*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from east-central Alaska and western Canada, south through northwestern U.S. to east-central California, eastern Nevada, Utah, northeastern Arizona, western Colorado and north-central New Mexico. Winters from southeastern Arizona, south through highlands of Mexico to portions of Central America.

HABITAT: Found in coniferous forests and woodlands. During migration and in winter, found in deserts and scrub, and in pine and pine/oak associations. In preliminary results of Idaho-Montana study, Hammond's Flycatchers were found to be old-growth associates in Douglas-fir/ponderosa pine forests.

DIET: Eats insects such as beetles, moths, flies, bees, and wasps.

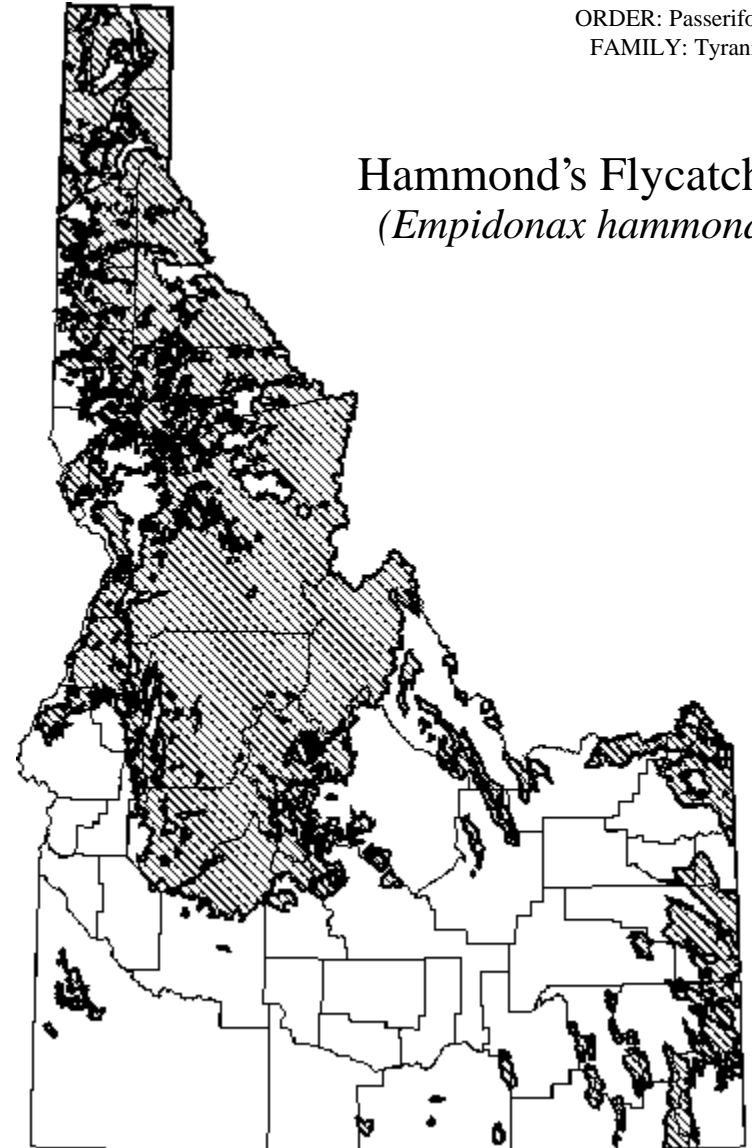
ECOLOGY: Builds cup-shaped nest in coniferous (sometimes deciduous) tree. Hunts from perch.

REPRODUCTION: Female incubates 2-4 eggs for 15 days. Young are tended by both adults, and leave nest 17-18 days after hatching.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

## Hammond's Flycatcher (*Empidonax hammondi*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from portions of western Canada and western U.S., south to southern California, southern Nevada, southwestern Utah, central Arizona, and central and northeastern New Mexico. Winters from southern California (casually), southern Arizona, and northern Mexico, south (mostly in highlands), to portions of Mexico, and casually south to northwestern Guatemala.

HABITAT: Found in brushy habitat, thickets, open coniferous forests, mountain chaparral, aspen groves, and cottonwood forests. Often found near water. During migration and in winter, found in deserts. In preliminary results of Montana-Idaho study, species was found to be associated with rotation-aged Douglas-fir stands.

DIET: Eats insects.

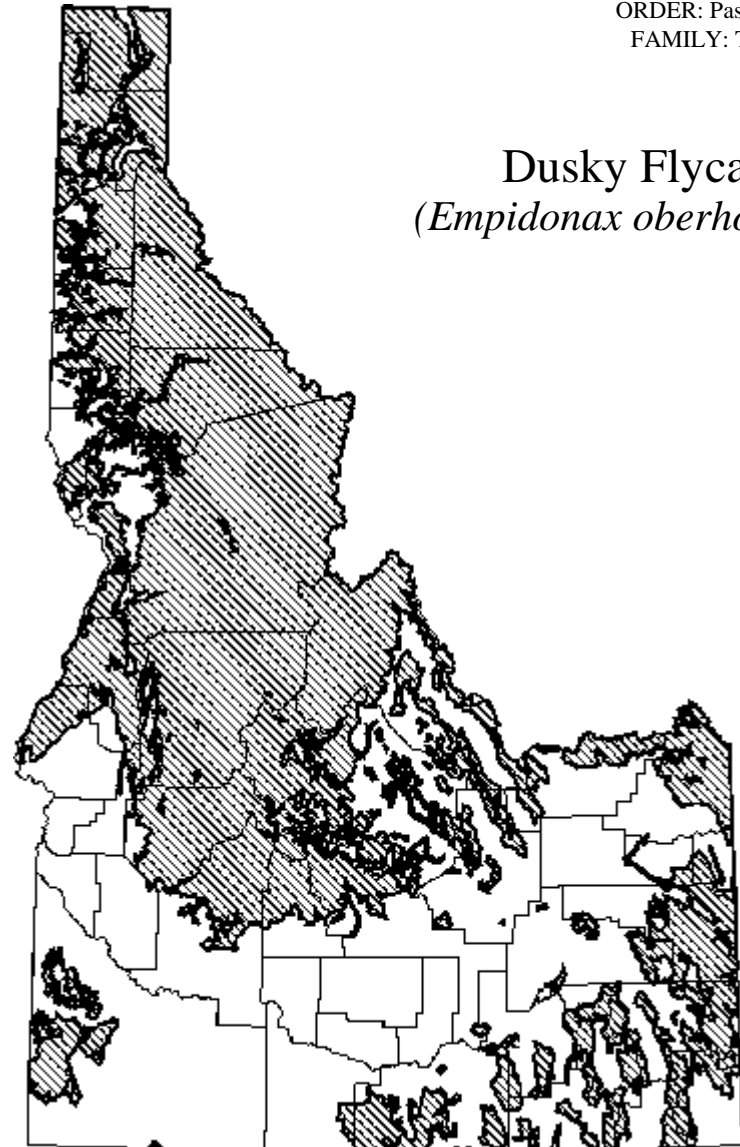
ECOLOGY: Builds cup-shaped nest in shrub or tree (frequently juniper or sage). Hunts from perch, or forages in foliage.

REPRODUCTION: Both sexes incubate 3-4 eggs (usually), for 12-15 days. Young are tended by both adults, and leave nest about 18 days after hatching.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

## Dusky Flycatcher (*Empidonax oberholseri*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from central Oregon, southwestern Idaho, southwestern Wyoming, northeastern Utah, and central Colorado, south to east-central California, southern Nevada, central Arizona, and west-central New Mexico. Winters from southern California and central Arizona, south to Baja California and south-central mainland of Mexico.

HABITAT: Found in arid woodlands and brushy areas. During migration and in winter, also found in arid scrub, riparian woodlands, and mesquite. Idaho study found species more abundant in old-growth juniper stands than in prescribed burn or clearcut areas.

DIET: Apparently eats small insects (beetles, grasshoppers, moths, etc.).

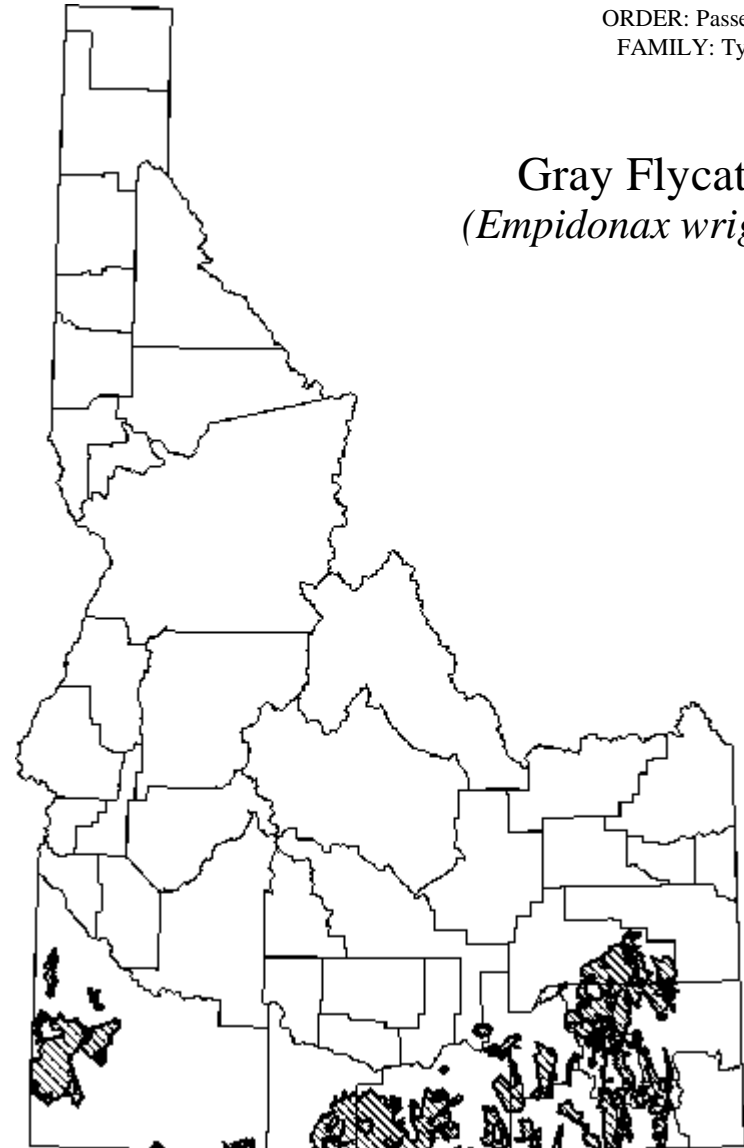
ECOLOGY: Hunts from perch; catches food in air or on ground. Builds cup-shaped nest in shrub or tree (frequently juniper or sage). Breeding population of approximately 25 pairs/100 ha has been reported in Oregon. Chipmunks and jays have been observed destroying nests.

REPRODUCTION: Female incubates 3-4 eggs for 14 days. Nestlings are altricial and downy, are tended by both parents, leave nest in 16 days, and are fed by parents for 14 more days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: McCoy, M. 1993. Breeding bird survey of clearcut, prescribed burn, and seral/old growth stands of western juniper. USDI Bur. Land Manage., Boise District, Challenge Cost Share Project Report, Boise. 19pp.

## Gray Flycatcher (*Empidonax wrightii*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from southeastern Washington, southwestern Alberta, northern Idaho, western Montana, Wyoming, and western South Dakota, south (generally east of Cascades and Sierra Nevada) to northern California, Nevada, portions of Arizona and Mexico, western Texas, and western Nebraska. Winters from southern Baja California and northern Mexico, south through breeding range.

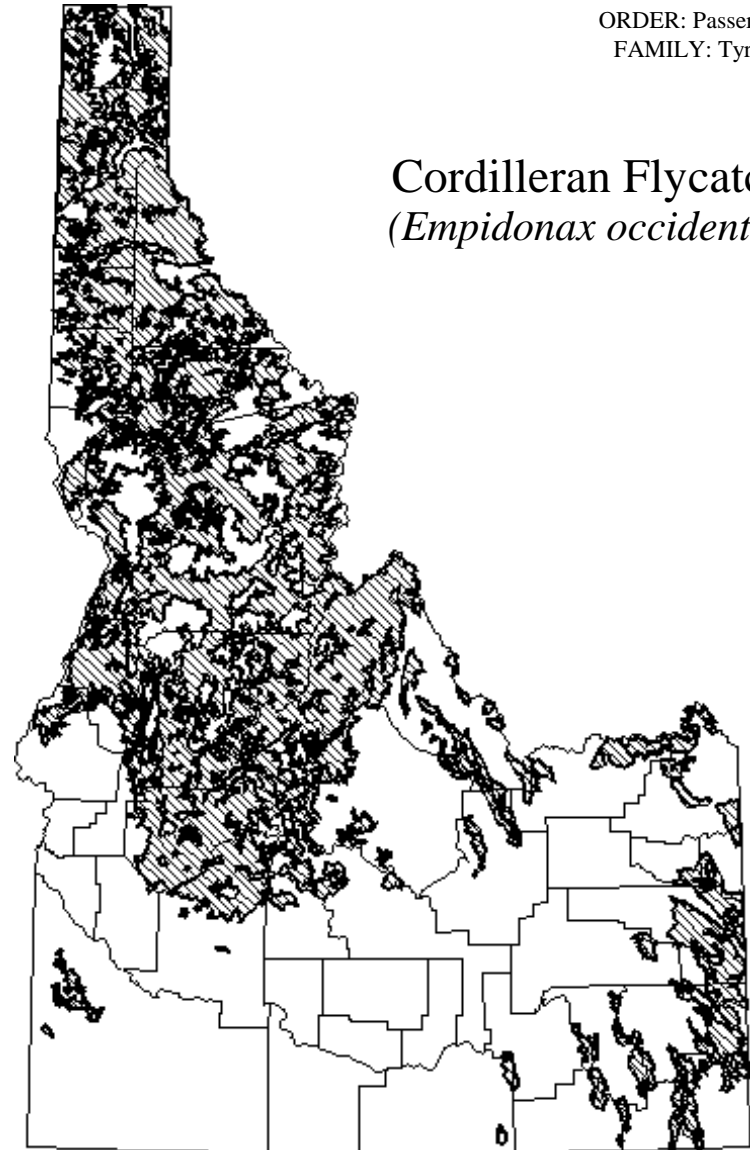
HABITAT: Found in wooded areas ranging from riparian woodlands through aspens into coniferous forest zones; extends out into shrub steppe during nonbreeding season. Also found in shady canyon bottoms. In winter, found mostly in mixed woodlands and forests.

ECOLOGY: Nests on rocky ledge, dirt bank, in mouth of mine tunnel, or in protected spot around building (commonly around mountain cabins).

REPRODUCTION: Female incubates 3-4 eggs for 12-13 days. Nestlings fledge at 14-18 days.

GIS MODEL NUMBER: 1

## Cordilleran Flycatcher (*Empidonax occidentalis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from Alaska and portions of western Canada, south to central Mexico. Winters from northern California, northern Arizona, New Mexico, and southern Texas, south to Baja California and south-central mainland of Mexico.

HABITAT: Found in arid, open country such as shrub steppe, dry barren foothills, canyons, cliffs, and around ranches.

DIET: Eats insects (bees, wasps, ants, flies, beetles, butterflies, etc.) and other invertebrates (sow bugs, spiders, millipedes). Also feeds on some berries.

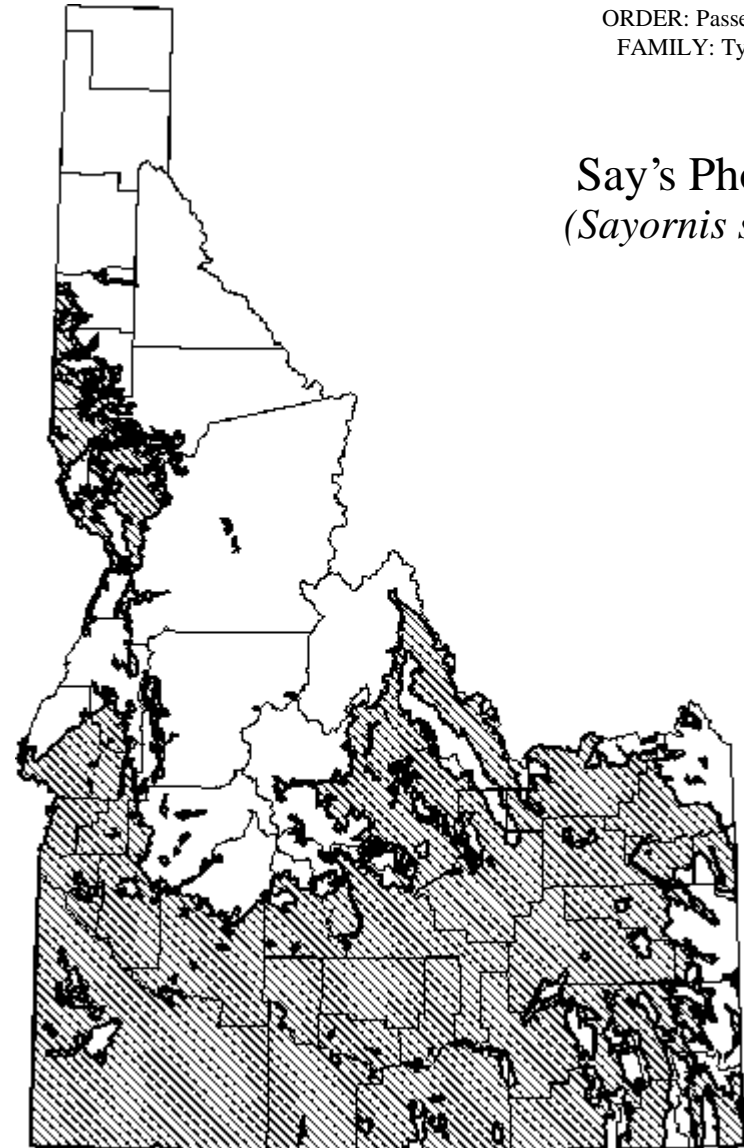
ECOLOGY: Builds cup-shaped nest on cliff, wall, bridge, or under eaves of building. Forages by darting out from perch to capture prey in air; may also forage in foliage. Often hovers in air.

REPRODUCTION: Female incubates 3-7 eggs (usually 4-5), for 12-14 days. Young are altricial and downy, are tended by both parents, and leave nest in about 14 days. Male may tend first brood while female renests.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Tyrannidae

## Say's Phoebe (*Sayornis saya*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from southwestern Oregon, eastern Washington, southern Idaho, southwestern Wyoming, Colorado, New Mexico, northern and central Texas, and sometimes Oklahoma, south to Baja California and mainland of Mexico. Winters from northern Baja California, southeastern California, and central Arizona, south into mainland of Mexico and portions of Central America.

HABITAT: Found in shrub steppe, pinyon/juniper and oak woodlands, chaparral, thorn scrub, and riparian woodlands. Also found in open deciduous woodlands in winter.

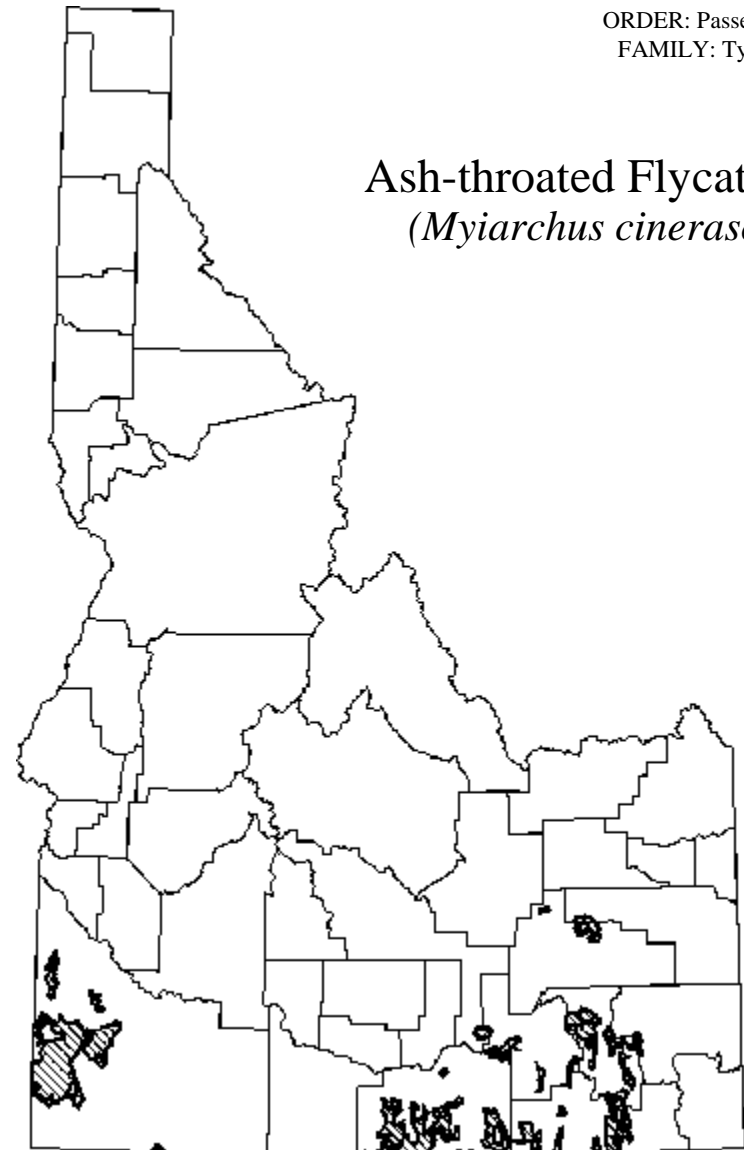
DIET: Primarily insectivorous (consumes bees, wasps, ants, caterpillars, moths, grasshoppers, etc.). Will also eat spiders and some berries.

ECOLOGY: Nests in natural or abandoned cavity in tree; may occasionally nest in fence post. May displace small woodpeckers from nesting holes. Often forages by flying out from perch and catching prey in air.

REPRODUCTION: Female incubates 3-7 eggs (usually 4-5), for about 15 days. Young are altricial, are tended by both parents, and leave nest in 16-17 days.

GIS MODEL NUMBER: 1

## Ash-throated Flycatcher (*Myiarchus cinerascens*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Tyrannidae

RANGE: Breeds from southwestern Canada, south to northern Baja California, northwestern mainland of Mexico and west-central Texas, and east to northwestern Ohio (rarely to Missouri). Winters mainly from Mexico, south to Costa Rica, and in small numbers in coastal southeastern United States.

HABITAT: Found in open and partly-open country, especially savannas, agricultural lands, and areas with scattered trees. May also be found in deserts.

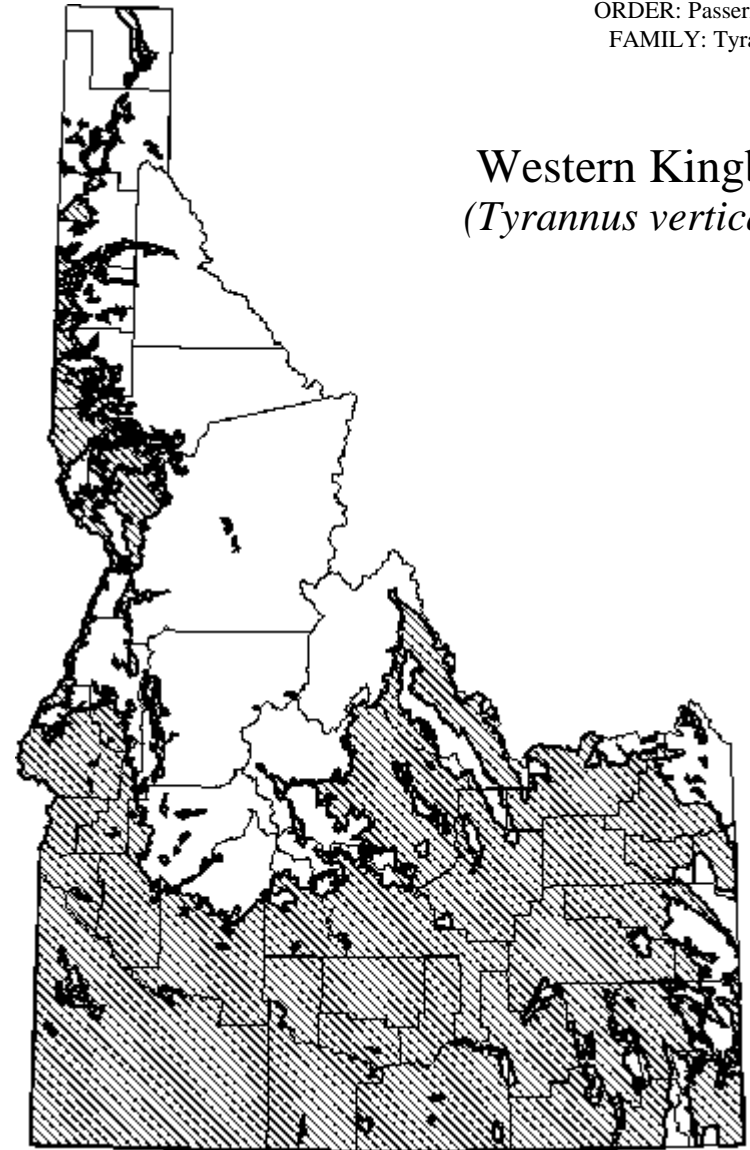
DIET: Primarily insectivorous (eats wasps, beetles, moths, caterpillars, grasshoppers, and true bugs). Will also eat spiders, millipedes, and some fruits. May occasionally take tree frogs.

ECOLOGY: Feeds in air or on ground. Builds cup-shaped nest in tree, usually near trunk. Two or more pairs may nest in same tree. May drive hawks, crows, and jays away from nest.

REPRODUCTION: Clutch size varies from 3-5 eggs, but is often 4. Incubation lasts 12-14 days. Nestlings are tended by both parents. Reproductive success is positively correlated with insect abundance.

GIS MODEL NUMBER: 1

## Western Kingbird (*Tyrannus verticalis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds across portions of Canada, south to northeastern California, Utah, New Mexico, Gulf Coast, and Florida. Winters in portions of South America.

HABITAT: Found in forest edges, open situations with scattered trees and shrubs, cultivated lands with bushes and fencerows, and parks. In Idaho, usually associated with riparian zones.

DIET: Eats mainly insects, but will also eat seeds and small fruits.

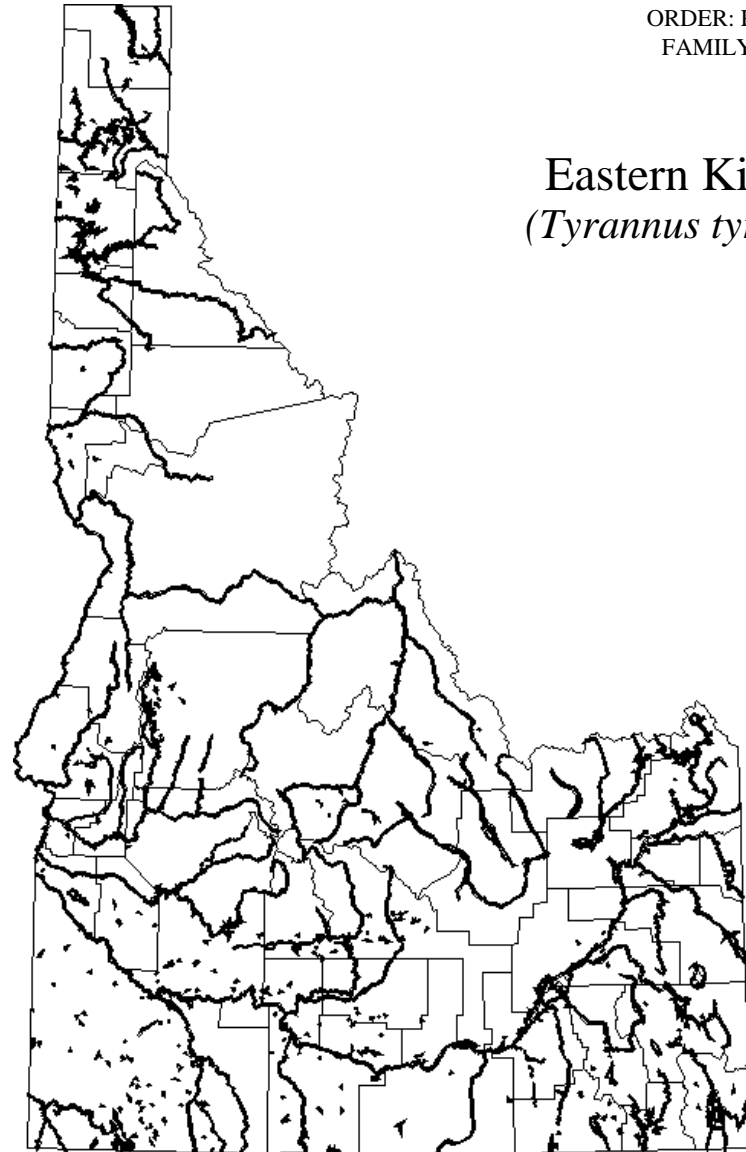
ECOLOGY: Forages in air, on ground, or on water surface. Builds cup-shaped nest, usually midway in tree; may nest on fence post or stump. Will harass larger birds, and defend nest against humans.

REPRODUCTION: Female incubates 3-5 eggs for 12-13 days (perhaps longer). Young are tended by both parents, and leave nest at about 13-14 days. Parents continue to feed young for up to 5 additional wk.

GIS MODEL NUMBER: 5

ORDER: Passeriformes  
FAMILY: Tyrannidae

## Eastern Kingbird (*Tyrannus tyrannus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from northernmost North America, south to southern Baja California, southern Mexico, Louisiana, northern Alabama, and North Carolina. Winters in southern Canada, south through breeding range, and locally and irregularly to Gulf Coast and Florida.

HABITAT: Found in grasslands, tundra, sandy regions, shrub steppe, grazed pastures, stubble fields, open cultivated areas, and (rarely) open areas in forest.

DIET: Eats mainly seeds and some insects.

ECOLOGY: Obtains most food from ground surface. Builds nest in depression on ground. Female may perform distraction displays. In Nevada study, breeding density was 1.3-1.5 individuals/ha in shadscale habitat. Horned Lark is one of the most abundant birds in deserts of southern Idaho.

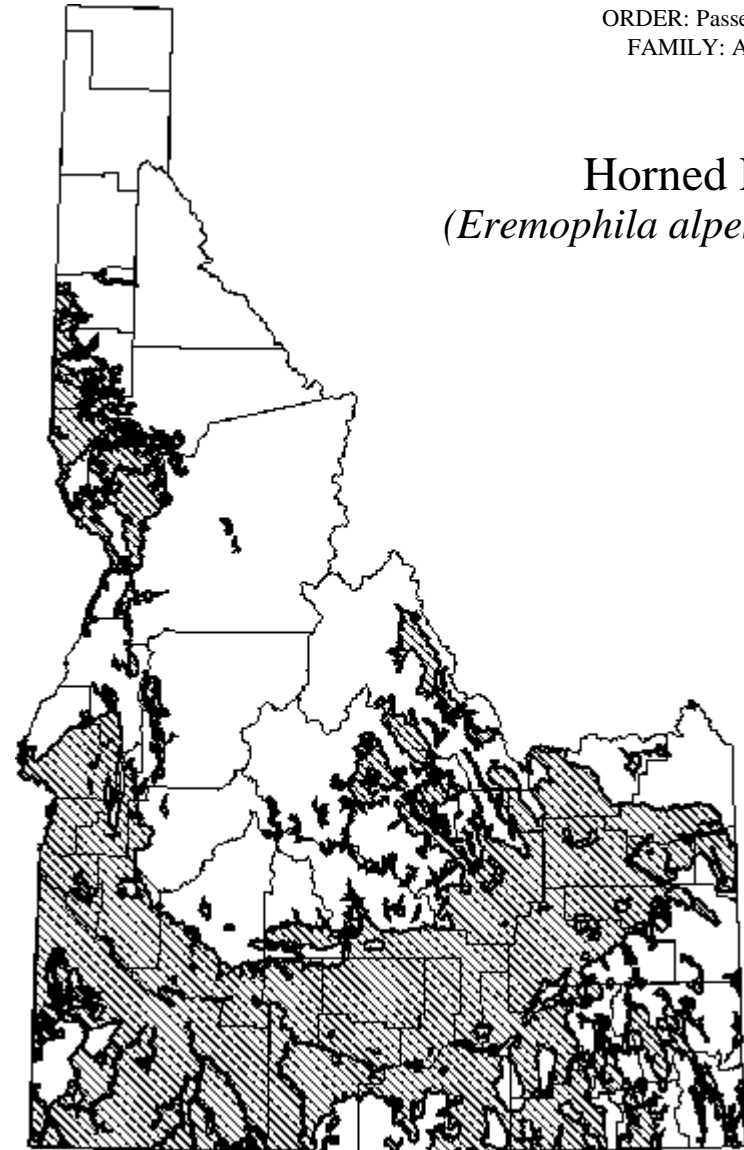
REPRODUCTION: Egg-laying occurs early to mid-June at northern end of range. Female incubates 2-7 eggs (commonly 4) for 10-14 days. Females produce 1 brood annually at higher latitudes and elevations, 2 or possibly 3 at lower ones. Young are tended by both parents, and leave nest at 9-12 days. Idaho study found grazing may have delayed onset of nesting activities.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Reynolds, T.D. and C.H. Trost. 1981. Grazing, crested wheatgrass, and bird populations in southeastern Idaho. Northwest Sci. 55:225-234.

ORDER: Passeriformes  
FAMILY: Alaudidae

## Horned Lark (*Eremophila alpestris*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Hirundinidae

RANGE: Breeds from western Alaska to Newfoundland, south to southern California, Nevada, Arizona, and New Mexico, and east to portions of southeastern United States. Winters primarily from southern California and extreme southern U.S., south through Mexico to portions of Central America.

HABITAT: Found in open situations near water, including streams, lakes, ponds, marshes and coastal regions, savannas, and pastures.

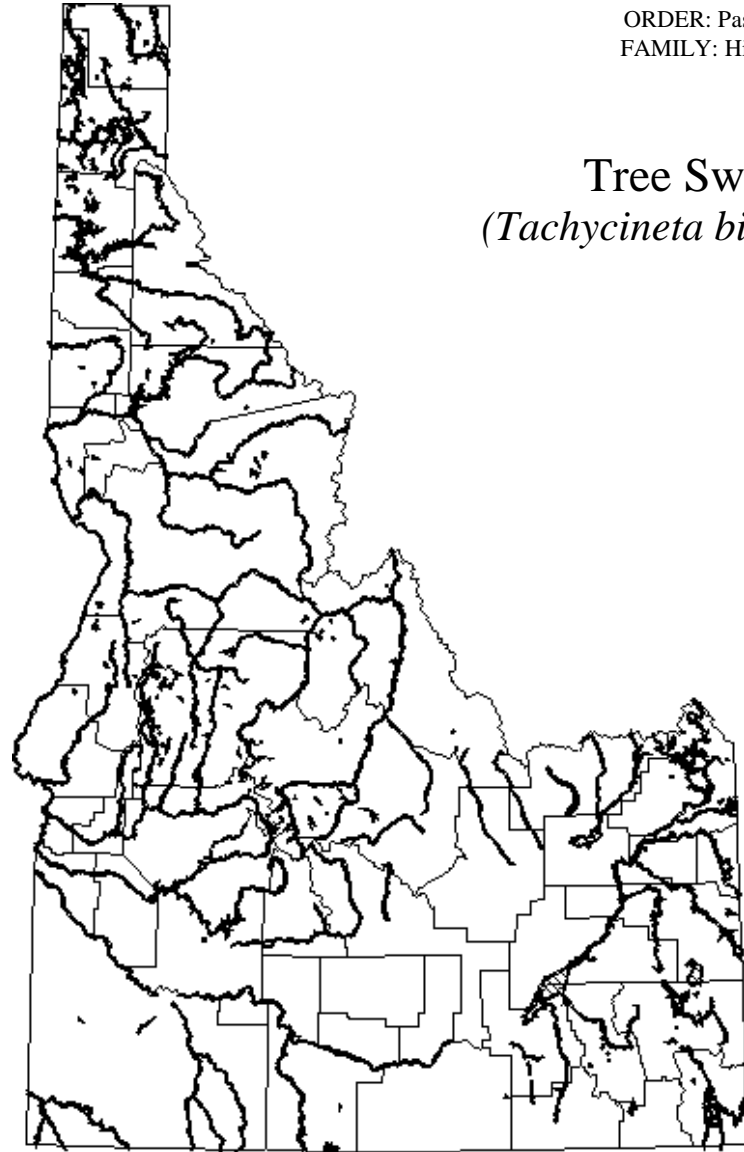
DIET: Eats insects and spiders. Occasionally eats some seeds and fruits.

ECOLOGY: Forages in air or on ground. Nests in cavity in standing snag. Nests alone or in loose colony. Many individuals may congregate where food is abundant, or form roosts when weather is cold. When not breeding, flocks may contain thousands of individuals.

REPRODUCTION: Egg are laid late April to late June in southern range, and early May to mid-June in north. Female (typically) incubates 4-6 eggs for 13-16 days. Nestlings are altricial and downy. Young are tended by both sexes, leave nest 16-24 days after hatching, and receive little parental care after that. Species is generally monogamous, but sometimes polygynous if food is superabundant. Inclement weather and resulting scarcity of food may result in high nestling mortality in some years.

GIS MODEL NUMBER: 5

## Tree Swallow (*Tachycineta bicolor*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Hirundinidae

GLOBAL RANGE: Breeds from portions of Alaska and western Canada, south through Montana and portions of Great Plains to southern Baja California and northern mainland of Mexico; also breeds south through Colorado to western Texas. Winters from portions of California, south through interior Mexico to portions of Central America.

HABITAT: Found in open forests (coniferous, deciduous or mixed), and in woodlands (primarily in highlands, but frequently at low elevations in northern range). During migration and in winter, also found in meadows, fields and watercourses, more commonly in highland regions.

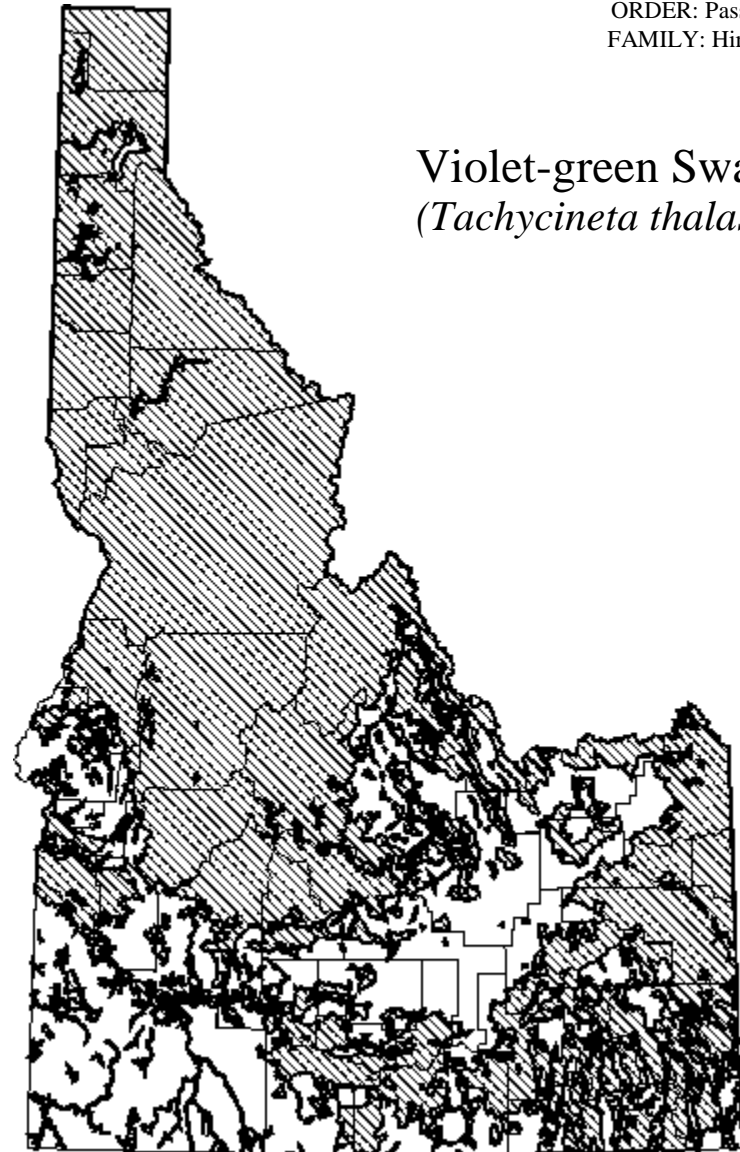
DIET: Feeds on flying insects (e.g., flies, leafhoppers, ants, wasps, bees, beetles, moths, midges, and mayflies).

ECOLOGY: Forages over ponds, fields, and wooded areas, catching prey in flight. May occasionally forage on ground, on accumulations of insects. Nests in cavity in tree. May form loose nesting colonies if nest sites are abundant. Arizona study found 2.5-15 breeding pairs/40 ha in northern part of state; up to 50 pairs/40 ha in thinned forest with added nest boxes.

REPRODUCTION: Eggs are laid May to early July in southern range; egg laying begins in late May in north. Female incubates 4-5 eggs (sometimes 6 in northern range; fewer in south), for 13-15 days. Altricial nestlings are tended by both parents, and leave nest in 23-25 days. Female usually produces 1 brood/season, although 2 broods/season have been reported in Oregon.

GIS MODEL NUMBER: 6

## Violet-green Swallow (*Tachycineta thalassina*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southeastern Alaska (rarely) and southern Canada, south through U.S., Mexico, and portions of Central America to Costa Rica. Winters from southern Texas, southern Louisiana, and southern Florida, south through breeding range to Panama.

HABITAT: Found in open and partly-open situations, especially along watercourses with steep banks and roadside cuts.

DIET: Eats insects (e.g., flies, wasps, bees, and beetles).

ECOLOGY: Swoops low over open ground or water to obtain food. May occasionally scavenge on ground. Burrows in or uses soil for nest. Nests singly or in small, scattered groups. May form loose colonies. Sometimes nests in Bank Swallow colonies.

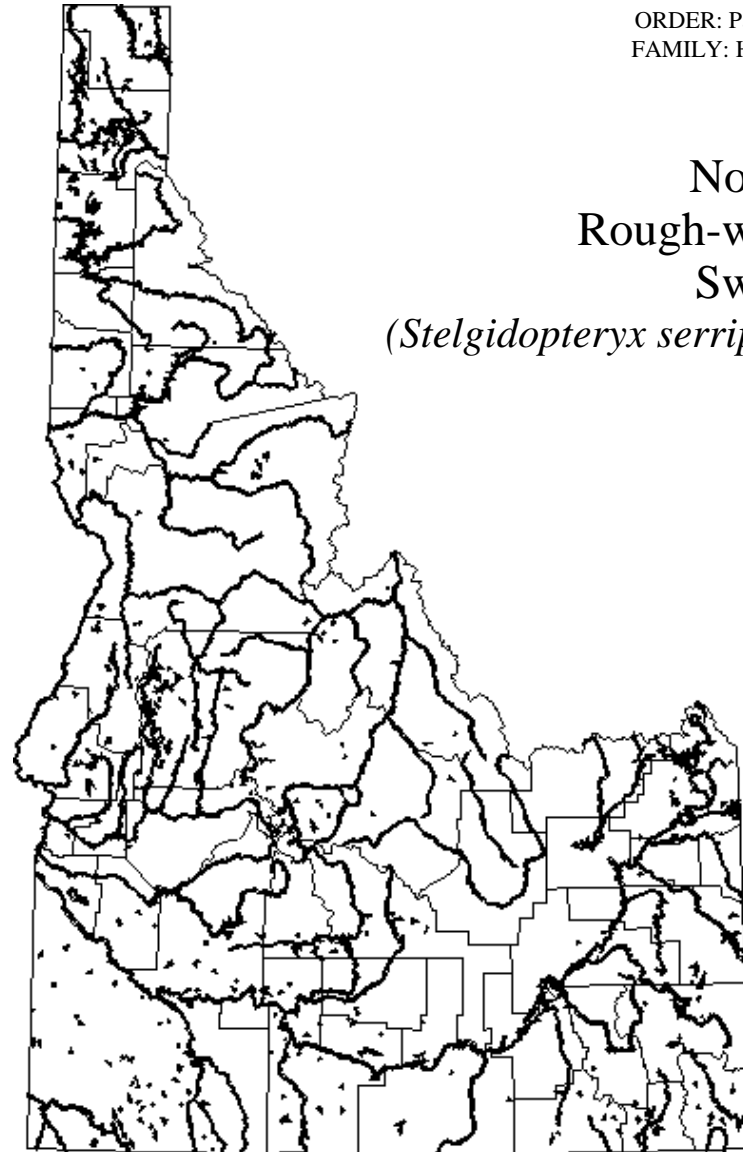
REPRODUCTION: Female incubates 4-8 eggs (usually 6-7), for 15-16 days. Nestlings are altricial, are tended by both adults, and leave nest when 18-21 days old. Female will re-lay if first nesting attempt fails.

GIS MODEL NUMBER: 5

ORDER: Passeriformes  
FAMILY: Hirundinidae

## Northern Rough-winged Swallow

(*Stelgidopteryx serripennis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Hirundinidae

RANGE: Breeds from portions of Alaska, east to Newfoundland, and south to southern California and eastern Virginia. Winters mainly from eastern Panama to Peru and northern Argentina, and casually in Central America.

HABITAT: Found in open and partly-open situations, frequently near flowing water.

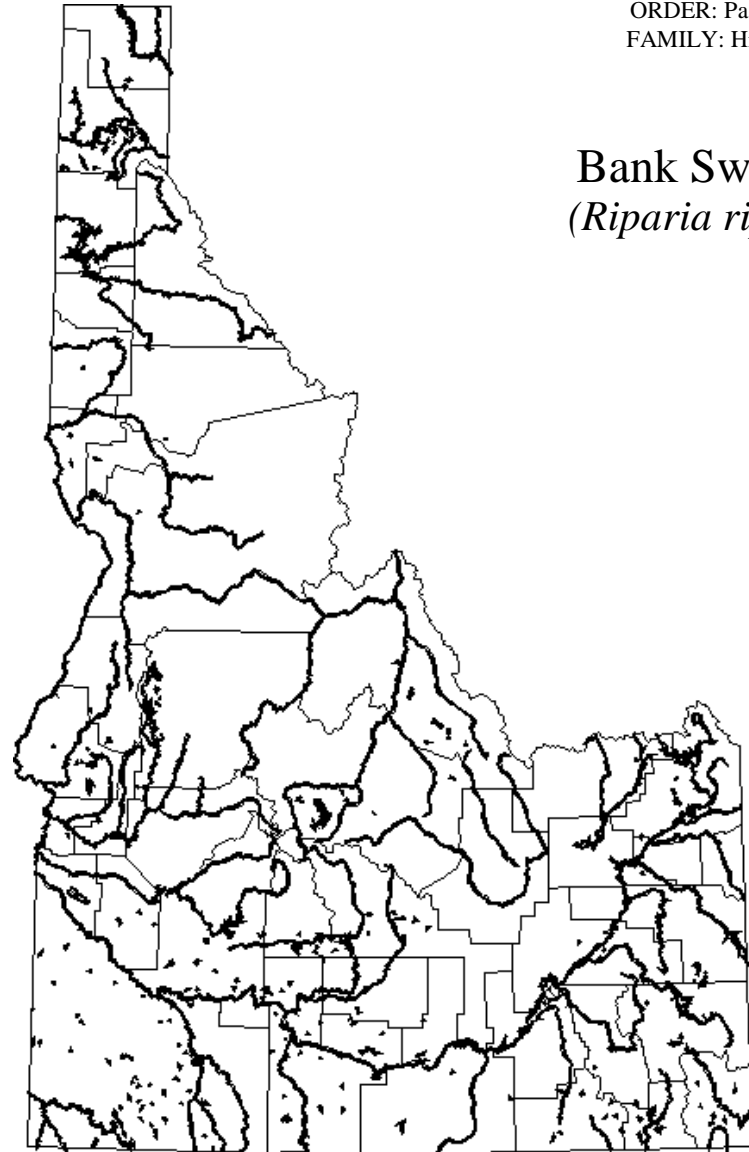
DIET: Feeds primarily on flying insects (e.g., beetles, mosquitoes, winged ants, flies, and moths).

ECOLOGY: Catches food in air over fields, wetlands, and water. If necessary, may forage up to several km from nesting area. Burrows in or uses soil for nest. Forms colonies of various sizes; largest colonies, which may reach several hundred pairs, often occur in artificial sites. When not breeding, may form flocks of hundreds or thousands. Inclement weather and resulting scarcity of food may be important factor in nestling mortality in some years; erosion of nest sites and predators also sometimes destroy nests.

REPRODUCTION: Both sexes incubate 4-8 eggs (usually 4-5), for 12-16 days. Young are altricial, are tended by both sexes, leave nest when 18-22 days old, and return to original burrow for few days after first flight. In some areas in southern range, females may produce 2 broods.

GIS MODEL NUMBER: 5

## Bank Swallow (*Riparia riparia*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from Alaska and portions of Canada, south to central Mexico, western Texas, Missouri, and portions of southeastern United States. Winters in South America.

HABITAT: Found in open to semi-wooded habitat (such as cliffs, canyons, and farms) near meadows, marshes, and water.

DIET: Primarily insectivorous; often feeds on small, swarming insects. Eats beetles, flying ants, wasps, grasshoppers, mosquitoes, and other insects.

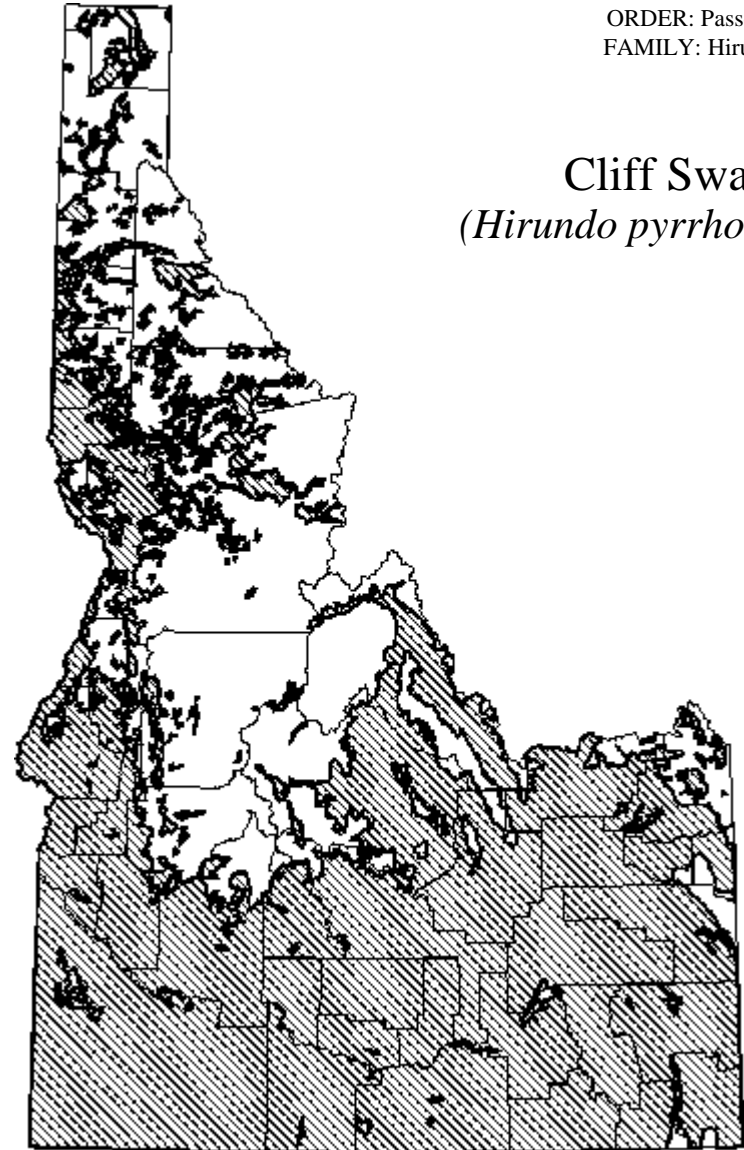
ECOLOGY: Gregarious at all seasons. Constructs nest on cliff, or under bridge, culvert, or eaves. Nests in colonies of up to 1000+ individuals (few hundred is average). Catches prey in air. Forages usually within 0.5 km of colony, but will sometimes travel several kilometers. Periodically, populations may decline drastically due to prolonged spring or summer rains and reduced food availability. Parasitic swallow bug is sometimes abundant enough to reduce reproductive success in large colonies.

REPRODUCTION: Both parents incubate 2-6 eggs (usually 3-5), for about 12-14 days. Young are tended by both parents, and are able to fly at 23 days. Female usually produces 1 brood/year; a few have a second brood.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Hirundinidae

## Cliff Swallow (*Hirundo pyrrhonota*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

GLOBAL RANGE: Breeds from portions of Alaska, east across much of Canada, and south through much of U.S. to central Mexico. Winters from Costa Rica through South America.

HABITAT: Found in open situations, less frequently in partly-open habitats, frequently near water and agricultural areas.

DIET: Eats insects (e.g., grasshoppers, dragonflies, leafhoppers, beetles, etc.). Rarely eats berries.

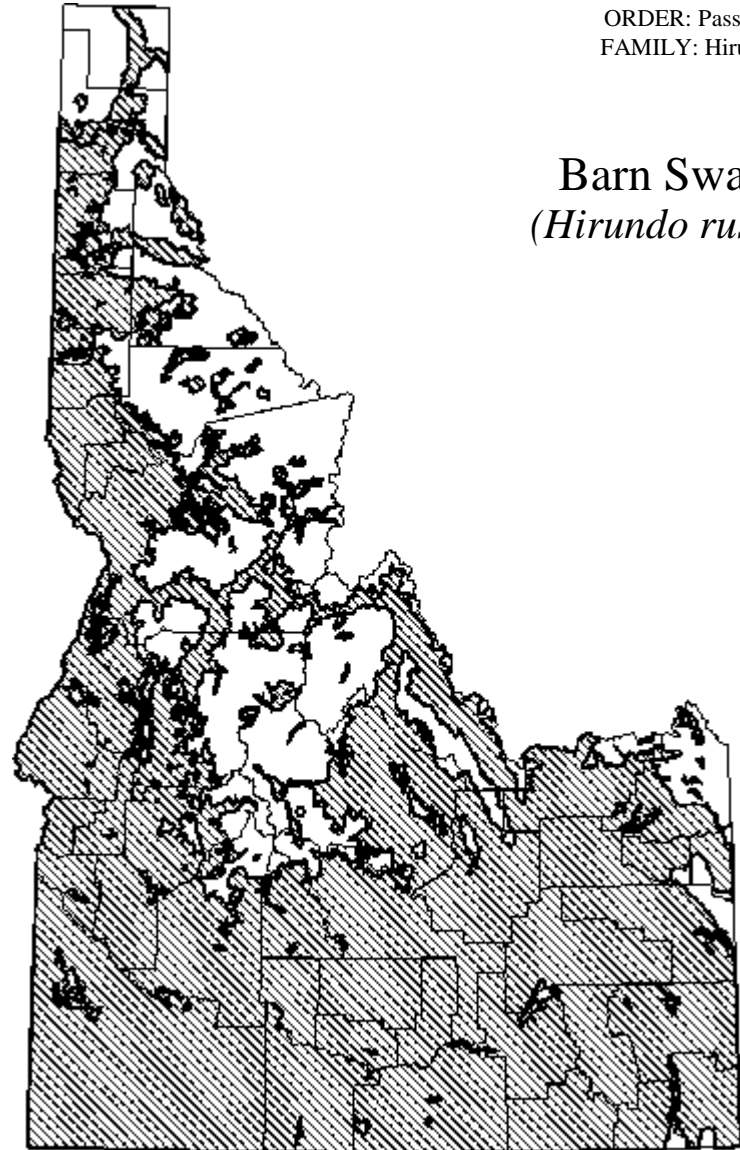
ECOLOGY: Constructs cup-shaped nest on building, bridge, culvert, or cliff. May nest in small colonies. When not breeding, may form flocks of up to thousands. Flies over open land and water and forages for prey; may occasionally take prey from ground or vegetation. When breeding, usually forages within few hundred meters of nest.

REPRODUCTION: Clutch size varies from 4-5 eggs. Incubation lasts 13-17 days (less often 11-19 days), and is performed mainly by female. Young are tended by both adults, fledge at 18-23 days, and stay together and are fed by parents for about 1 wk. Females first breed at 1 yr (a few males remain unpaired until 2 yr). Adults often have same mate in successive years. Females often have 2 broods, except in far northern range. Juveniles may help feed young of second brood. Breeding birds tend to return to same colony and sometimes same nest.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Hirundinidae

## Barn Swallow (*Hirundo rustica*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from western and central Alaska, east across Canada, and south to northern California, eastern Oregon, Idaho, Utah, eastern Arizona, northern New Mexico, Colorado, portions of Great Plains and Great Lakes states, and New England. Winters mainly through breeding range.

HABITAT: Found in coniferous and mixed coniferous/deciduous forests (primarily spruce), including open and partly-open woodlands and around bogs. Often found around campgrounds. In preliminary results of northern Idaho study, Gray Jays were more abundant in fragmented than in continuous stands of old-growth forest.

DIET: Omnivorous. Feeds on insects, berries, lichen, mice, carrion, and scraps from campsites. Probably eats birds' eggs.

ECOLOGY: Builds cup-shaped nest in coniferous (sometimes deciduous) tree, usually near trunk. Usually seen in small family groups or in pairs. Forages on ground, or sometimes in foliage. Stores food.

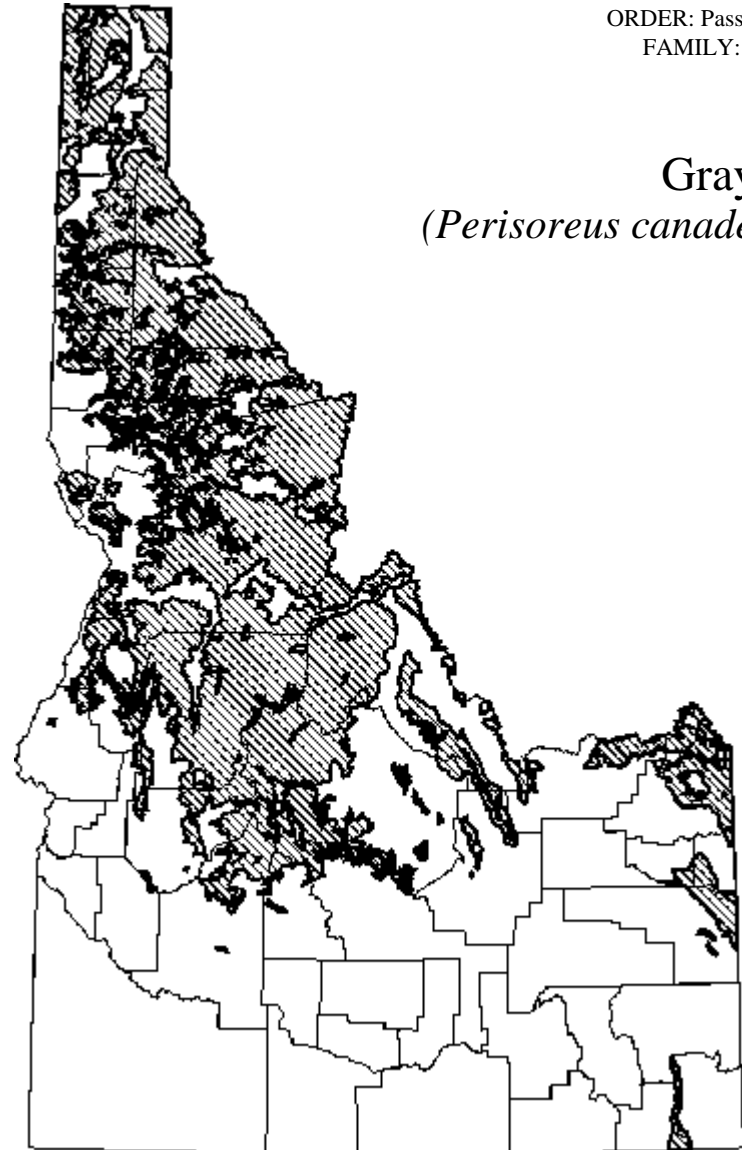
REPRODUCTION: Female incubates 2-5 eggs (usually 3-4), for 16-18 days. Young are tended by both adults, and are capable of first flight when about 15 days old.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and L.C. Paige. 1993. Birds in continuous and fragmented forests of western red cedar/western hemlock in northern Idaho: a preliminary assessment. Draft manuscript, USDA Forest Service Inter. Res. Sta., Missoula. 18pp.

ORDER: Passeriformes  
FAMILY: Corvidae

## Gray Jay (*Perisoreus canadensis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident from portions of Alaska and southwestern Canada, south through western Montana, Wyoming, northern Colorado and western Nebraska to southern California and Arizona, east to portions of Colorado, New Mexico, and Texas, and south from there through highlands of Middle America to Nicaragua.

HABITAT: Found in coniferous and mixed coniferous/deciduous forests, in humid coniferous forests (in northwestern northern America), and in arid pine/oak. Also occurs in open woodlands, campsites, orchards, and gardens. A study in north-central Idaho found no differences in numbers among clearcut, fragmented, and contiguous stands of coniferous forest.

DIET: Feeds on acorns, pine seeds, fruits, insects, spiders, small reptiles and amphibians, and eggs and young of small birds.

ECOLOGY: Builds cup-shaped nest in coniferous (occasionally deciduous) tree. May travel in flocks of a dozen or more, but is less gregarious than other jays. Forages in trees and on ground. Caches food.

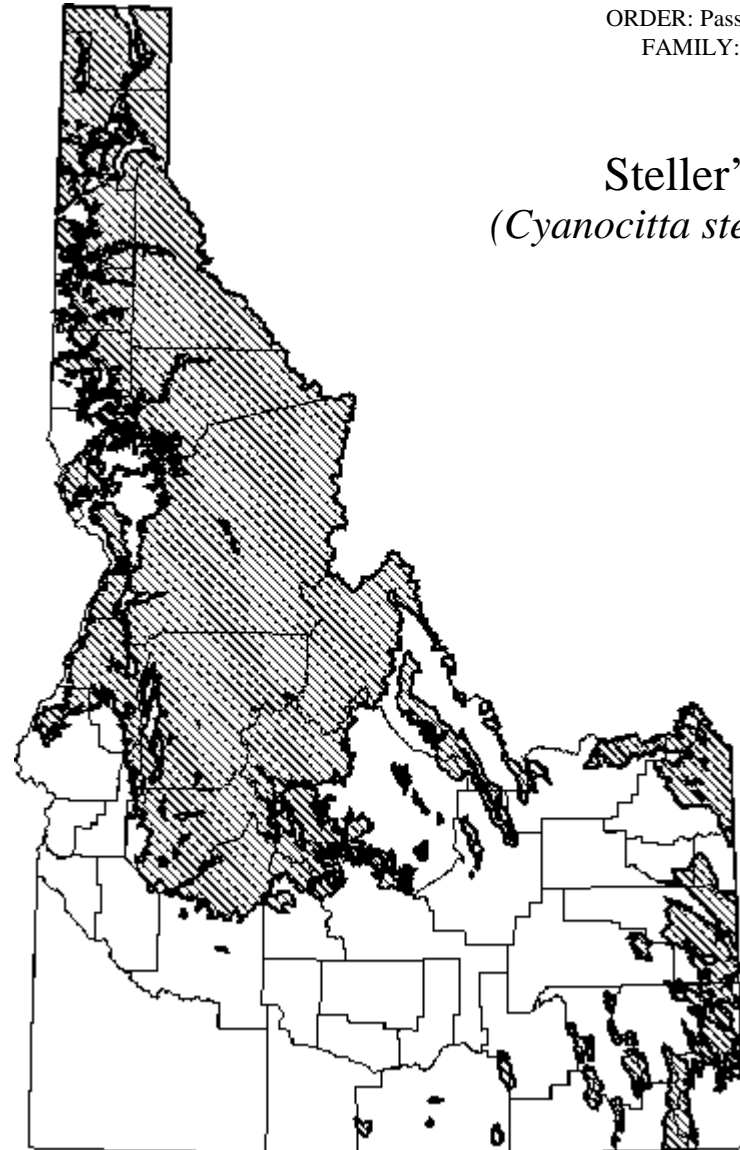
REPRODUCTION: Female incubates 3-5 eggs (usually 4). Nestlings are altricial. Young are tended by both adults.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hutto, R.L. 1993. Effects of clearcutting and fragmentation on the birds of a western coniferous forest. Final report to Clearwater National Forest, Univ. Montana, Missoula. 13pp.

ORDER: Passeriformes  
FAMILY: Corvidae

## Steller's Jay (*Cyanocitta stelleri*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

ORDER: Passeriformes  
FAMILY: Corvidae

GLOBAL RANGE: Resident from southwestern Washington, southwestern Wyoming, Colorado, and central Texas, south through southwestern U.S. to southern Baja California and Oaxaca, Mexico. Also resides in central Florida.

HABITAT: Found in scrub (especially oak, pinyon and juniper), brush, chaparral, and pine/oak associations. When not breeding, also found in riparian woodlands, gardens, orchards, and lowland brushy areas.

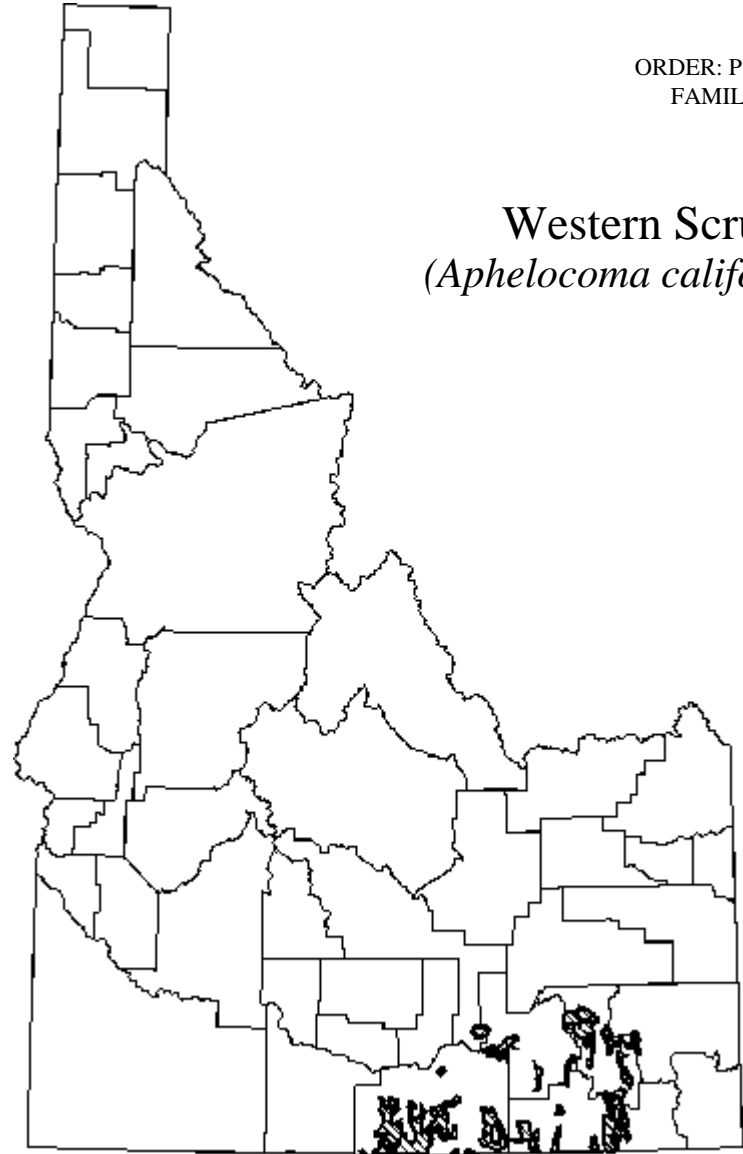
DIET: Feeds on nuts (acorns, pinyon), grains, (corn, oats), fruits, insects (wasps, bees, caterpillars, cutworms, grasshoppers, etc.), mollusks, eggs and young of small birds, mice, shrews, frogs, and lizards.

ECOLOGY: Builds cup-shaped nest in deciduous (occasionally coniferous) tree; will sometimes nest in shrub. Forages on ground. Caches food, particularly nuts. Travels alone or in small family groups. In Florida, groups of related birds defend year-round territories.

REPRODUCTION: Female incubates 2-7 eggs (usually 4-6), for 16 days. Young are tended by parents and (in Florida) young of previous brood. Young leave nest at about 18 days, and first breed as early as 1 yr in some areas, 2+ yr in Florida and on Santa Cruz Island, California. Adults form long-term pair bond. There is a high adult survivorship.

GIS MODEL NUMBER: 1

## Western Scrub Jay (*Aphelocoma californica*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

GLOBAL RANGE: Resident from central Oregon, east-central Montana, and western South Dakota, south to northern Baja California, central Nevada, and western Oklahoma. Occurs irregularly to southern Washington, northern Idaho, southwestern Saskatchewan, Great Basin and parts of Midwest, and portions of Mexico.

HABITAT: Found in pinyon/juniper woodlands, less frequently in pine. When not breeding, also found in scrub oak and sagebrush.

DIET: Eats pinyon and other pine seeds, berries, small seeds, and grain. Also eats larvae, nymphs, and adults of insects such as beetles, grasshoppers, caterpillars, and ants. May eat birds' eggs and hatchlings.

ECOLOGY: Gregarious; forms complex social organizations. Forages on ground or in foliage. May cache seeds communally and live in loose flock (flock has an established home range but may wander to other areas in search of food). Builds cup-shaped nest in juniper or pine. Breeds in loose, scattered colonies. During nesting season, flocks of yearlings may form. Nesting success is often low due to predation or severe weather.

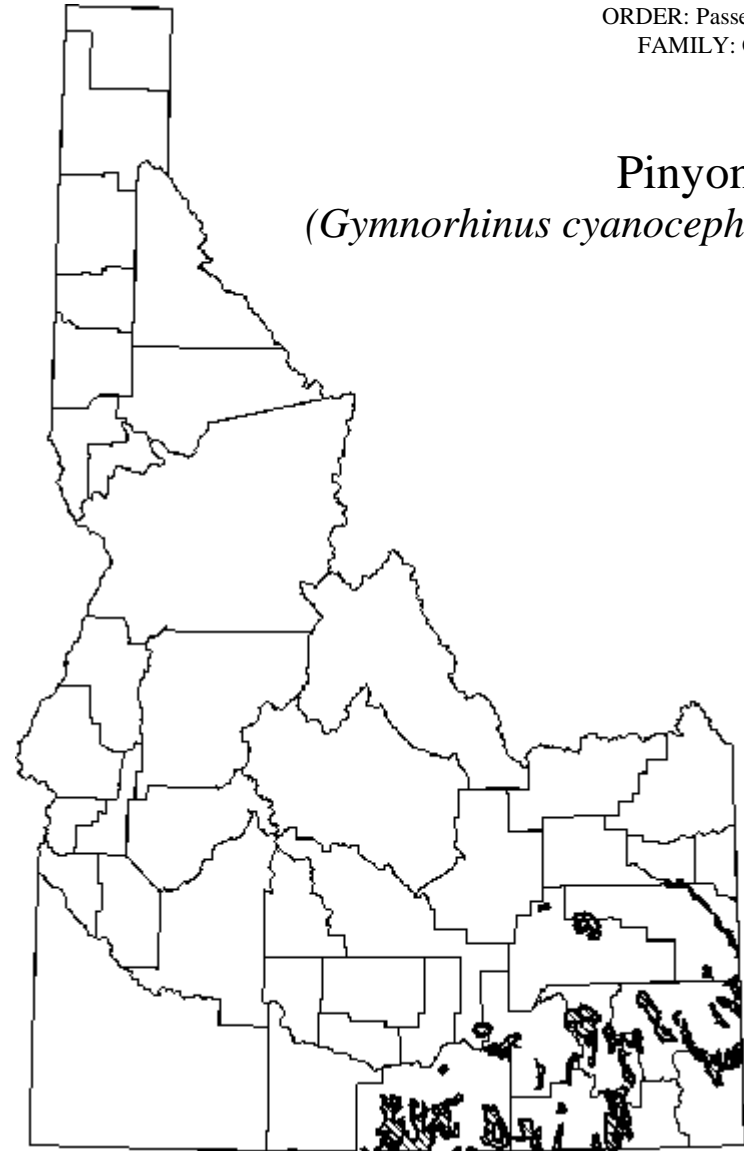
REPRODUCTION: Female incubates 3-6 eggs (usually 3-4), for 15-17 days. Nestlings are altricial, are tended by both adults, and leave nest in about 3 wk. Adults remain paired throughout year. In Arizona study, pair bonds were apparently monogamous, perennial, and lasted average of 2.5 yr; males initiated breeding at average age of 2 yr, females at 1.6 yr, and deserted females were incapable of rearing offspring. Idaho study found jays had very low nesting success due to predation by Northern Harriers and Black-billed Magpies.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Brody, A. 1992. The sociality of pinon jays with and without pinon pine. M.S. Thesis, Idaho St. Univ., Pocatello. 179pp.

ORDER: Passeriformes  
FAMILY: Corvidae

## Pinyon Jay (*Gymnorhinus cyanocephalus*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Passeriformes  
FAMILY: Corvidae

GLOBAL RANGE: Resident from central British Columbia, southwestern Alberta, western and central Montana, and western and southeastern Wyoming, south through mountains of central Washington, eastern Oregon, and central and eastern California and Nevada, to northern Baja California. Also present in Rockies to east-central Arizona and southern New Mexico. Wanders irregularly beyond normal range.

HABITAT: Found in open coniferous forests and in forest edges and clearings (primarily in mountains, but also in lowlands in winter). Preliminary results of Idaho-Montana study suggest Clark's Nutcrackers are more common in rotation-aged than old-growth Douglas-fir stands.

DIET: Pine seeds are primary food for both adults and nestlings, but individuals will also eat insects, acorns, berries, snails, carrion, and, sometimes, eggs and young of small birds.

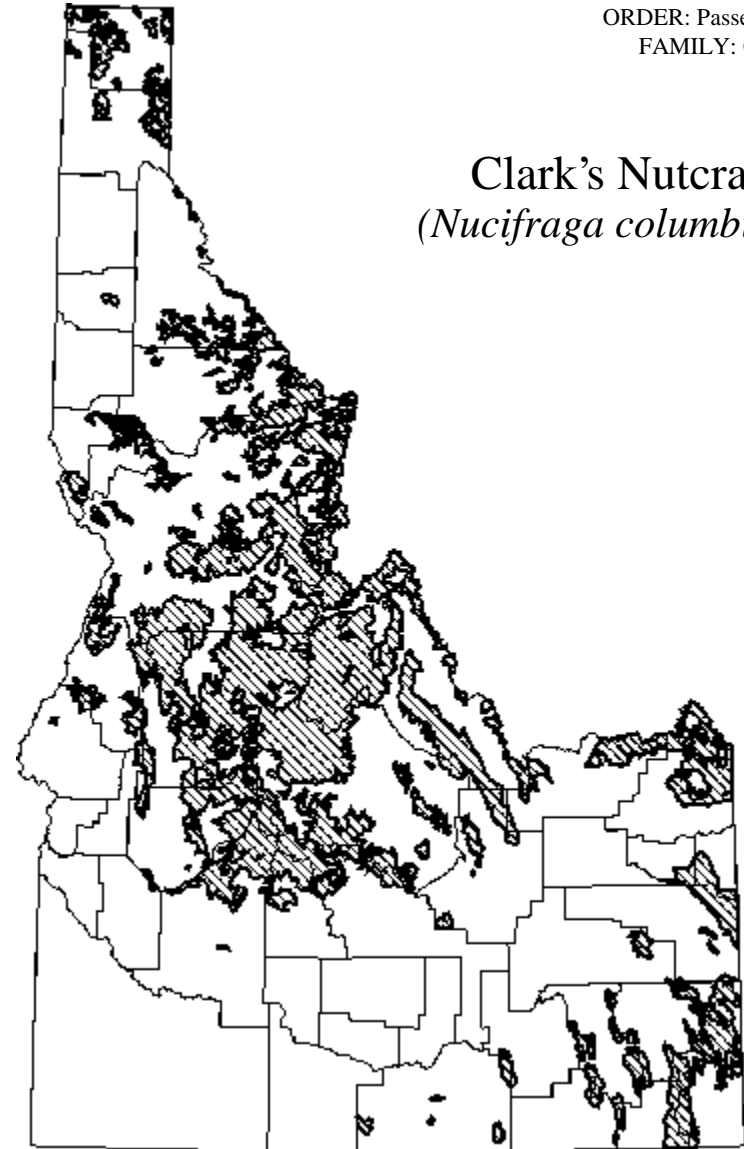
ECOLOGY: Builds cup-shaped nest in tree. Takes food from foliage. Caches food; nearly all winter food, and much of breeding season food, is derived from pine seeds collected and stored in fall. May travel in large flocks (25-100 birds).

REPRODUCTION: Both sexes incubate 2-6 eggs (usually 2-3), for 17-18 days. Young leave nest at 24-28 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

## Clark's Nutcracker (*Nucifraga columbiana*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident from portions of Alaska and western Canada, south to eastern California, southern Nevada, southern Utah, extreme northeastern Arizona, northern New Mexico, western and northeastern Oklahoma, and western Kansas.

HABITAT: Found (in either arid or humid habitats) in open country (including grasslands), open situations with scattered trees, shrubby areas, riparian and open woodlands, and forest edges and farmlands.

DIET: Eats insects, carrion, mice, snakes, some eggs and young of small birds, and some grains and fruits.

ECOLOGY: Often forages on ground. Usually seen in small flocks of 6-10 birds; larger flocks may form in winter. Builds enclosed, spherical nest in tree or sometimes in shrub. Nests in scattered, loose colonies, and roosts communally after breeding season, and especially in winter (Alberta study found up to 150 birds in February and March). Abandoned magpie nests often are used by other bird species as shelter, daytime retreat, or nests. Individuals roost in dense thickets of deciduous trees or scrub, or, especially in north in winter, in dense conifers. In Idaho, a number of studies have been conducted on genetic variability, behavior, social organization, and nesting density/dispersion.

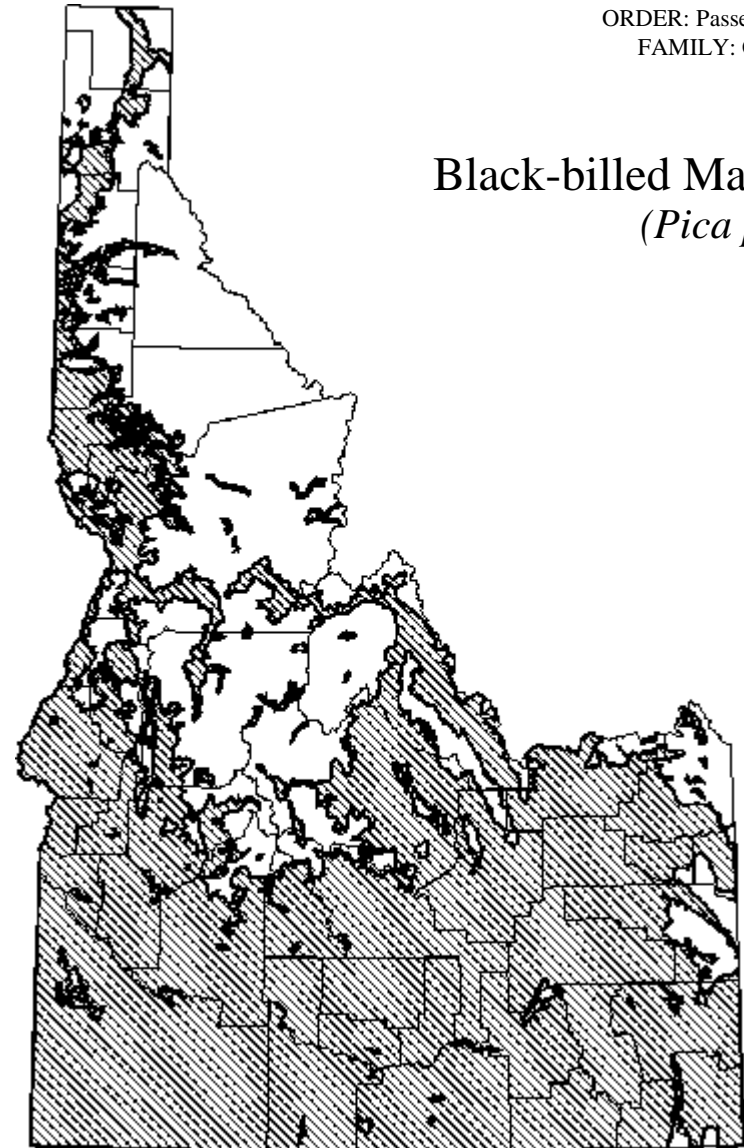
REPRODUCTION: Female incubates 5-8 eggs (usually 6-7) for 16-18 days. Pair often remains monogamous for several years. Young reach sexual maturity in 1 yr. Alberta study indicates that male parental care is required for successful rearing of young.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Stone, E.R. 1991. The sociology of North American Black-billed Magpies (*Pica pica hudsonia*). Ph.D. Dissertation, Idaho St. Univ., Pocatello. 71pp.

ORDER: Passeriformes  
FAMILY: Corvidae

## Black-billed Magpie (*Pica pica*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Passeriformes  
FAMILY: Corvidae

RANGE: Breeds across portions of Canada, south to northern Baja California, Texas, Gulf Coast, and southern Florida. Winters from southern Canada, south throughout breeding range.

HABITAT: Found in open and partly-open country (primarily in humid situations), including agricultural lands, suburban areas, orchards, and tidal flats. Restricted mostly to riparian forests and adjacent areas in arid regions. Generally avoids dense coniferous forests and deserts.

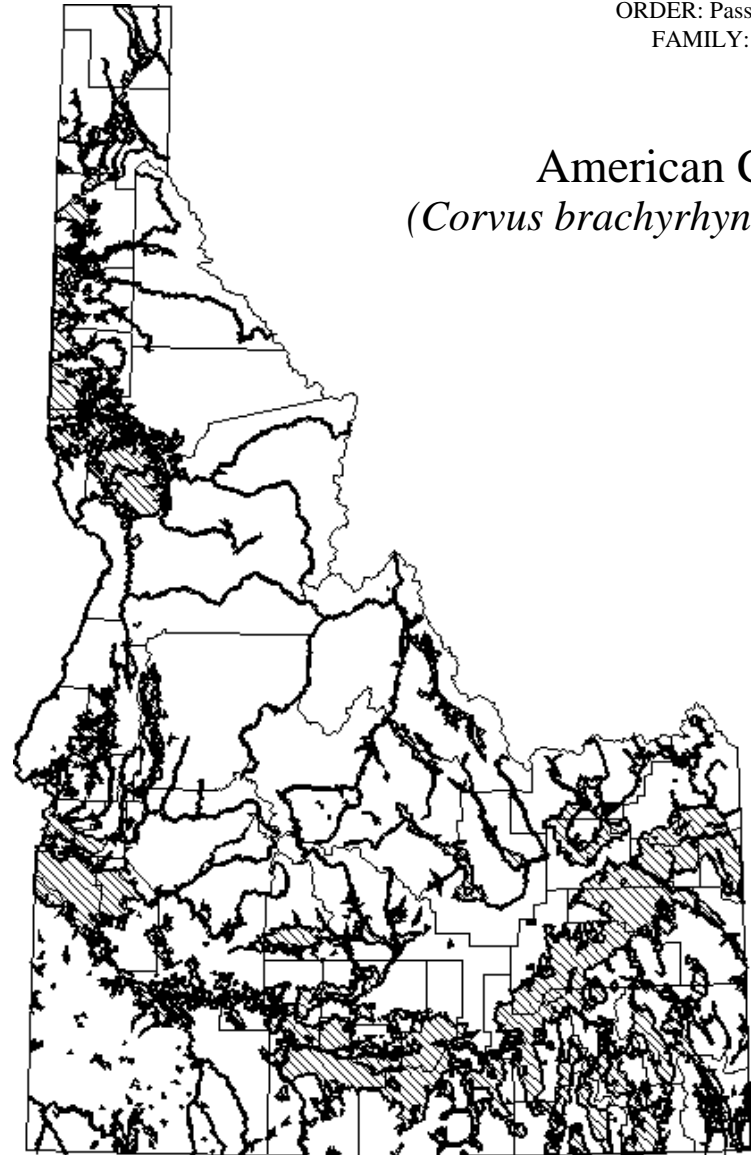
DIET: Eats various small vertebrates, invertebrates, carrion, grain, and fruits.

ECOLOGY: Builds cup-shaped nest in tree, occasionally in shrub. May form small breeding colonies and roost communally in winter. Forages on ground. May cooperatively forage and cache food.

REPRODUCTION: Both sexes incubate 3-7 eggs (usually 4-6), for about 18 days. Young are tended by both parents, and first fly at 4-5 wk. Females produce 1 or 2 broods annually. Yearlings may help dominant pair breed.

GIS MODEL NUMBER: 6

## American Crow (*Corvus brachyrhynchos*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident from northernmost North America, south to southern Baja California, Nicaragua, and Texas. Also resident east of Rockies from southern Saskatchewan, northeastern Minnesota, northern Michigan, and northern New England, south to Appalachians and (locally) northern Georgia.

HABITAT: Found in various situations from lowlands to mountains, open country to forested regions, and humid regions to deserts, but found most frequently in hilly or mountainous areas, especially in vicinity of cliffs.

DIET: Opportunistic; commonly eats birds' eggs and young rodents, some fruits, cereal grains, and insects. In some areas, species is largely a scavenger on various animals.

ECOLOGY: Builds cup-shaped nest in tree, on cliff, or on human-built structure. Forages on ground. Caches food. May hunt in groups. Roosts communally in winter. Southwestern Idaho study found ravens spent 54% of day in agricultural land, 23% in shrub, 13% in grass, and 6% in riparian habitat.

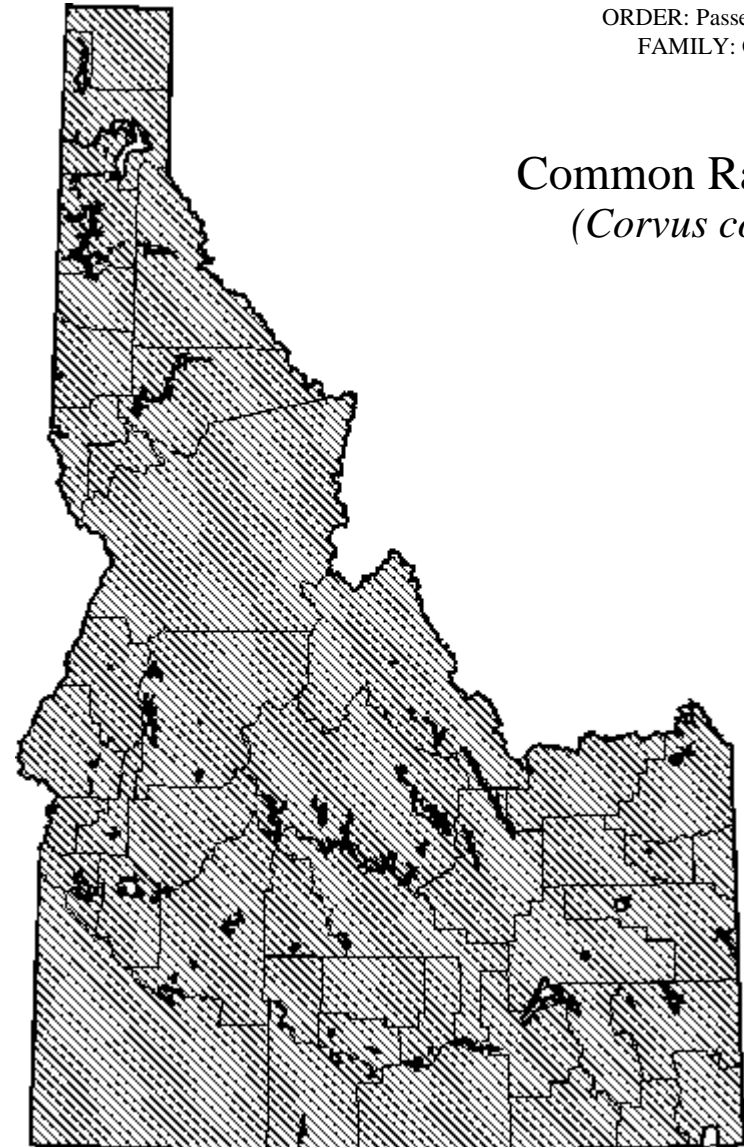
REPRODUCTION: Female incubates 3-7 eggs (usually 3-6), for 18-21 days. Male feeds female during incubation. Young are tended by both parents, and leave nest in 5-6 wk.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Engel, K.A. and L.S. Young. 1992. Movements and habitat use by common ravens from roost sites in southwestern Idaho. *J. Wildl. Manage.* 56:596-602.

ORDER: Passeriformes  
FAMILY: Corvidae

## Common Raven (*Corvus corax*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident across portions of Alaska and Canada, south to northwestern California, southern Utah, central New Mexico, portions of Midwest, northern New Jersey, and (at higher elevations) southern Appalachians. Wanders irregularly south in winter.

HABITAT: Found in deciduous and mixed forests and woodlands, tall thickets, open woodlands, and parks.

DIET: Eats mainly insects and other small invertebrates, their eggs and immature stages, and seeds and fruits.

ECOLOGY: Nests in cavity in tree or standing snag. Forages in foliage. Forms foraging and roosting flocks in winter. In Alberta study, winter survival rates were higher in food-supplemented area than in control area, but breeding densities in the 2 areas were similar. In southwestern Alberta, territory size averaged about 8-9 ha, and overlapped territories of Mountain Chickadee. An Idaho study conducted in cottonwood forests indicated these chickadees preferred agricultural landscapes over more natural landscapes.

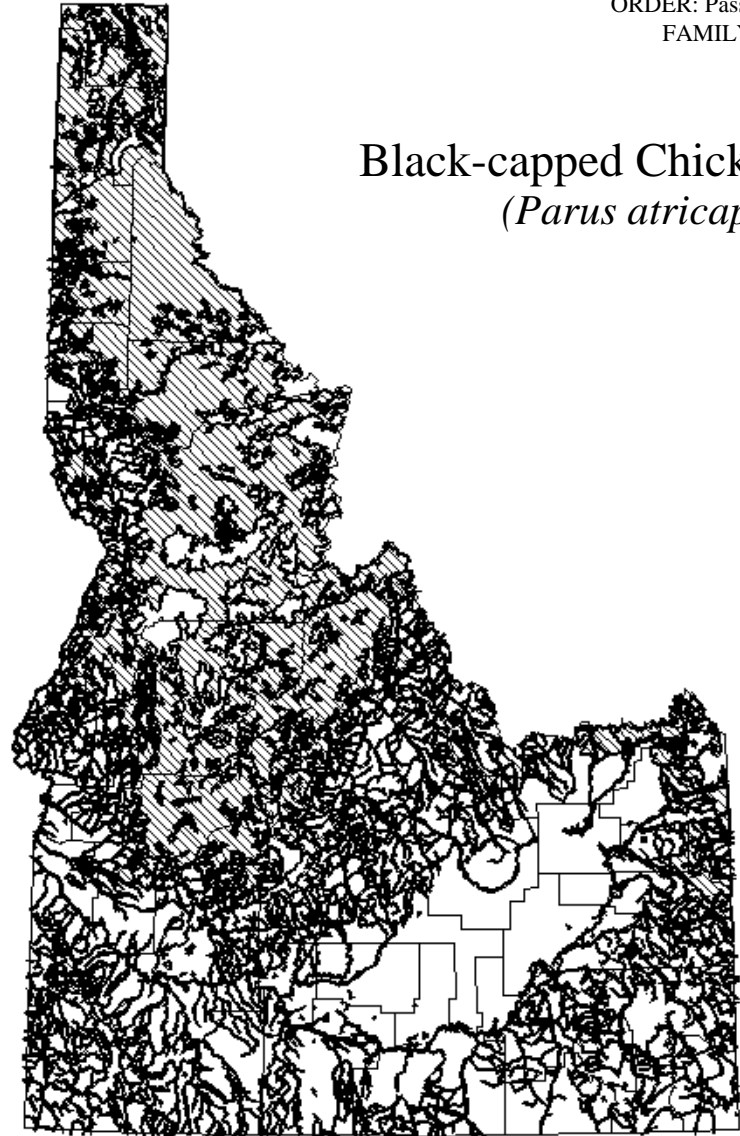
REPRODUCTION: Both parents, or female only, incubate 5-10 eggs (usually 6-8), for 11-13 days. Young are tended by both parents, and leave nest at 14-18 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Paridae

## Black-capped Chickadee (*Parus atricapillus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident in mountains from southeastern Alaska, British Columbia, and southwestern Alberta, south to northern Baja California, central and southeastern Arizona, southeastern and central New Mexico, and southwestern Texas.

HABITAT: During breeding season, found in montane coniferous forests (especially pine, spruce/fir, and pinyon/juniper). During winter, found at lower elevations in mixed (pine/oak) and riparian woodlands. Pacific Northwest study indicated species is habitat generalist, found in structurally variable montane forests.

DIET: Feeds on a variety of insect food.

ECOLOGY: Nests in natural or excavated cavity in standing snag or tree. Forages in foliage. Forms mixed-species flocks in winter. Mean territory size has been estimated at 1.5 ha. Breeding density has been reported as 71.5 breeding pairs/100 ha in White Mountains in Arizona, less than 10 breeding pairs/40 ha in northern Arizona, and up to 11 pairs/40 ha in thinned forest with added nest boxes. Territory size in southwestern Alberta averaged about 6-7 ha, and overlapped with territories of Black-capped Chickadee.

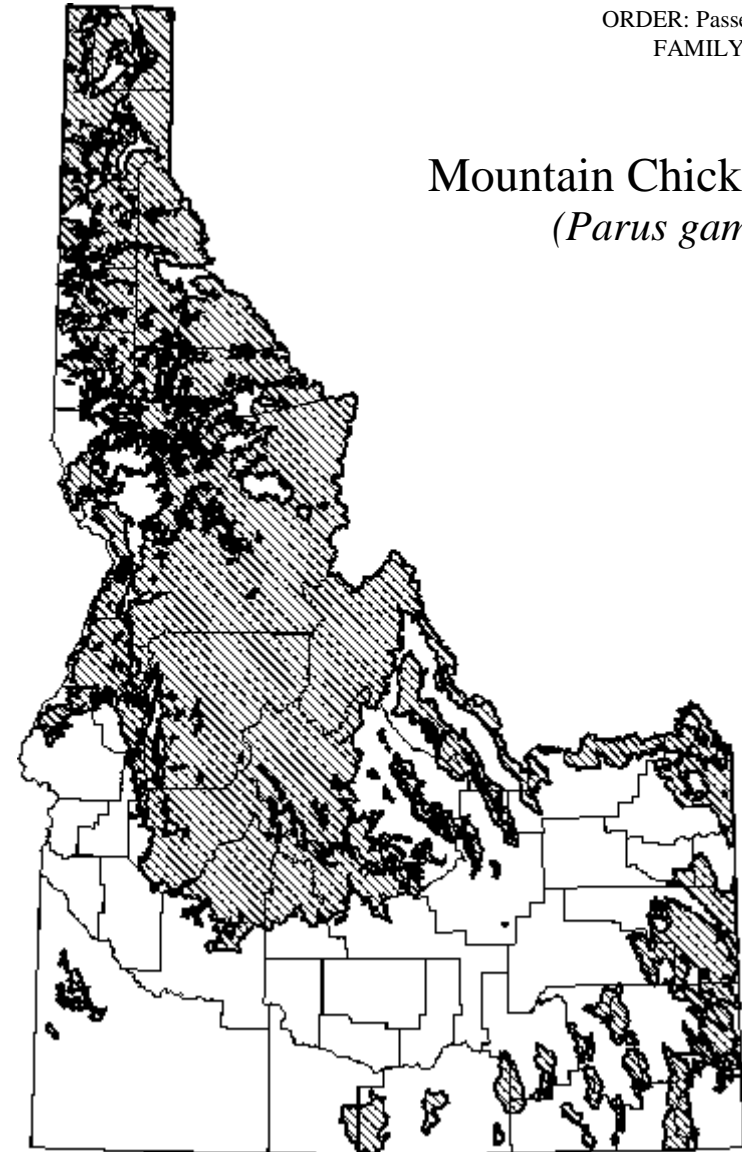
REPRODUCTION: Clutch size is usually 6-12 eggs. Incubation lasts 14 days. Young are tended by both parents, and leave nest in about 20 days. Female possibly produces 2 broods annually.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Langelier, L. 1983. Habitat selection of common breeding bird species in western spruce budworm outbreaks. M.S. Thesis, Univ. Idaho, Moscow. 119pp.

ORDER: Passeriformes  
FAMILY: Paridae

## Mountain Chickadee (*Parus gambeli*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

ORDER: Passeriformes  
FAMILY: Paridae

GLOBAL RANGE: Resident from western and central Alaska, east to northern Saskatchewan and Labrador, and south to Washington, Montana, Minnesota, and northern New England. Wanders irregularly south after breeding season.

HABITAT: Found in boreal coniferous and mixed forests, in muskeg bogs, in vicinity of white cedar and hemlock swamps, and in birches and streamside willows. In Idaho, prefers open, subalpine forests in northern part of state, but is also found in low, dense montane forests.

DIET: Eats conifer and birch seeds, and eggs, immature stages, and adults of insects.

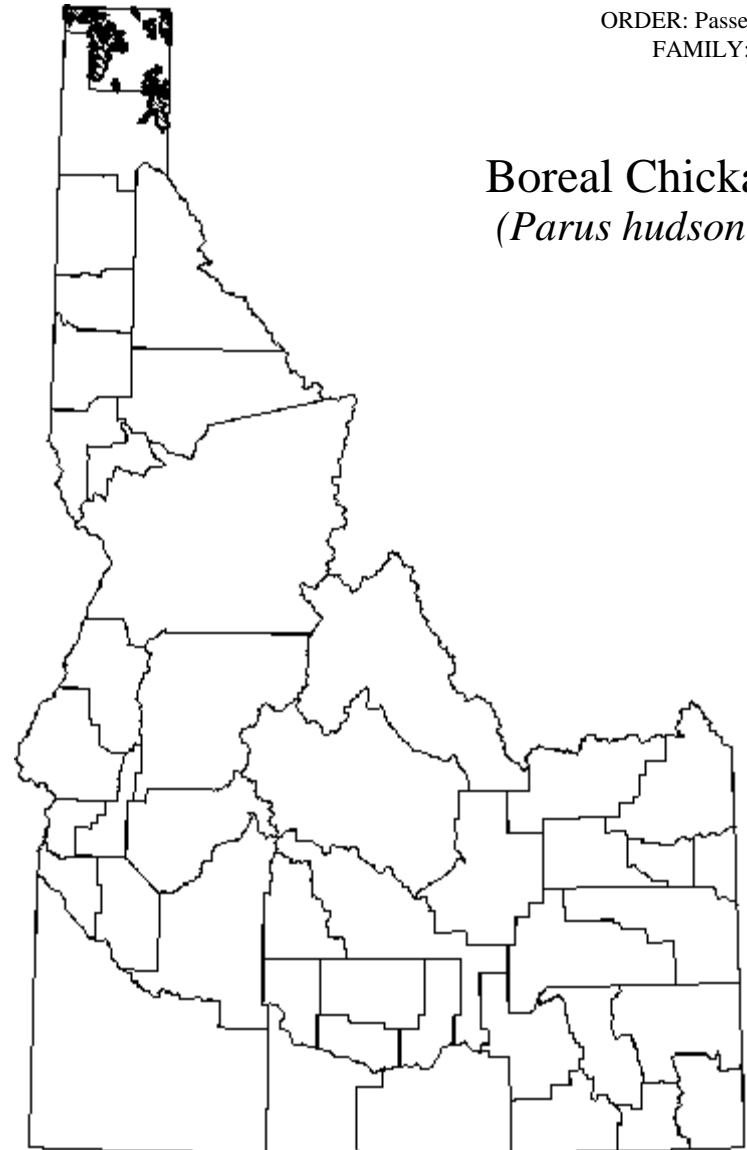
ECOLOGY: Nests in natural or excavated cavity in tree or standing snag. Forages in foliage. Forms mixed-species flocks in winter.

REPRODUCTION: Female incubates 4-9 eggs (usually 6-7), for 11-16 days. Young are tended by both parents, and leave nest at 18 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

## Boreal Chickadee (*Parus hudsonicus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Resident from portions of Alaska, east to western Alberta, and south to southern California and northwestern Montana. Wanders irregularly inland after breeding season.

HABITAT: Found in coniferous and mixed forests, primarily in humid regions, less frequently in pine forests, oak woodlands, pine-oak associations, and thickets. Strongly associated with Douglas-fir in most areas. Northern Idaho study conducted in hemlock-grand fir suggested these birds were associated with older forest stands.

DIET: Eats mainly insects, but will also eat spiders, some fruits, and conifer seeds.

ECOLOGY: Nests in natural or excavated cavity in standing snag or live tree. May nest in loose colonies. Forages in foliage. Forms flocks of 4-20 individuals during nonbreeding season, often in loose association with other species (juncos, kinglets, nuthatches, etc.). Recent range expansion in Sierra Nevada was not accompanied by declines in Mountain Chickadee numbers.

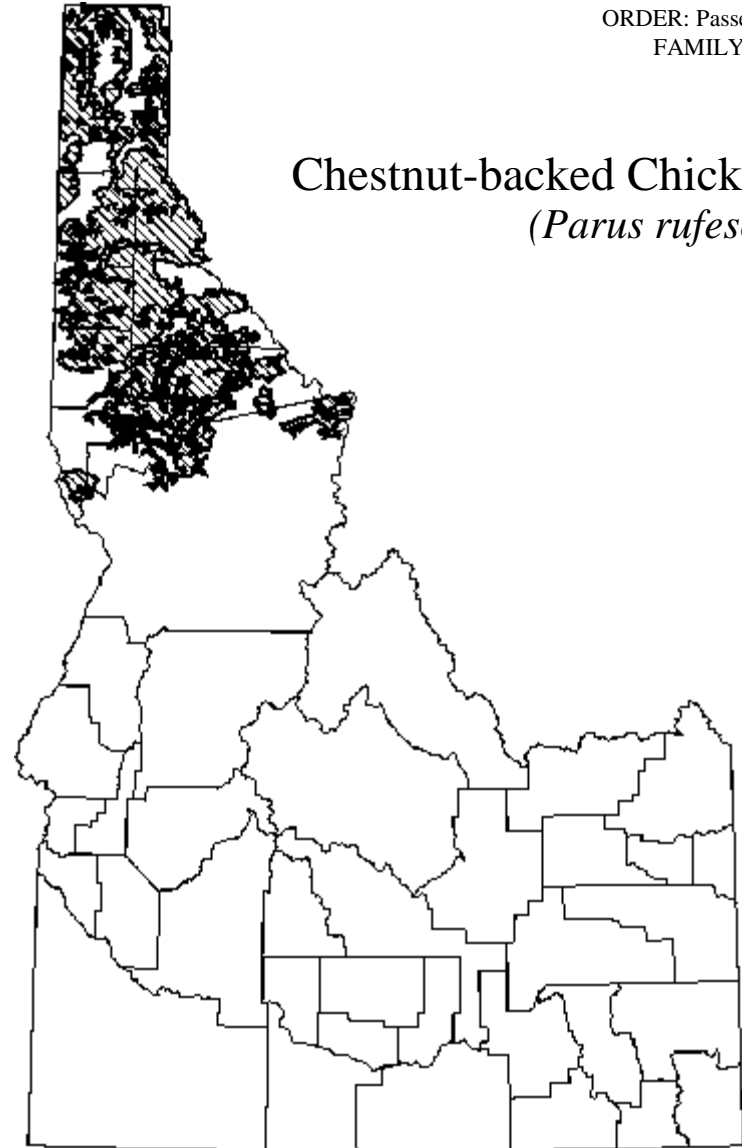
REPRODUCTION: Clutch size varies from 5-9 eggs, but is commonly 6-7. Young are tended by both parents.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, S.R. 1982. A preliminary survey of forest bird communities in northern Idaho. Northwest Sci. 56:287-298.

ORDER: Passeriformes  
FAMILY: Paridae

## Chestnut-backed Chickadee (*Parus rufescens*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Resident from southern Oregon, Nevada, southeastern Idaho, southwestern Wyoming, and south-central Colorado, south to Baja California, extreme northeastern Sonora, central and southeastern Arizona, central New Mexico, and western Texas.

HABITAT: Found in pinyon/juniper, and juniper and oak woodlands.

DIET: Feeds on acorns, juniper seeds, pinyon nuts, fruits, leaf galls, and weed seeds. Will also eat invertebrates, including beetles, leafhoppers, caterpillars, flies, ants, and spiders.

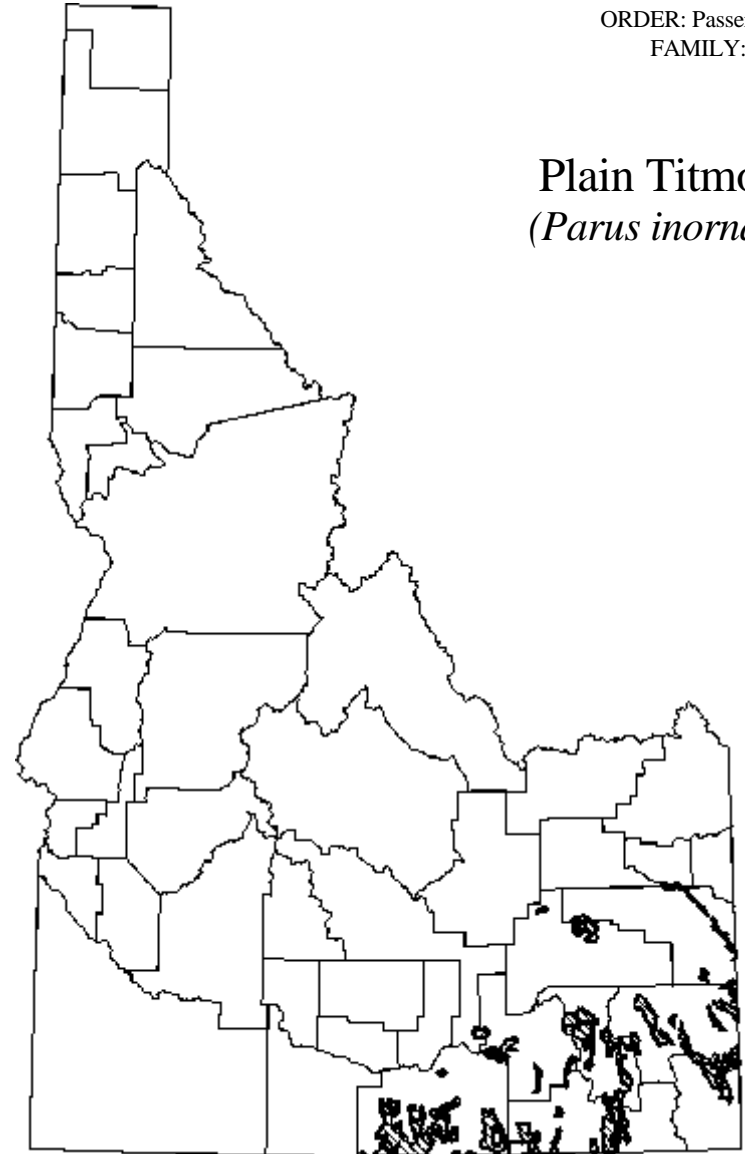
ECOLOGY: Takes food from vegetation and from bark, usually low to moderately high in bushes and trees, but sometimes on ground. Often seen in mixed-species foraging flocks. Nests in natural or excavated cavity in tree or standing snag. During nesting, may defend territory of 1.2-4.9 ha.

REPRODUCTION: Female incubates 6-8 eggs for 14-16 days. Young are tended by both parents, leave nest in about 3 wk, and remain with parents for 3-4 additional wk. Adult pair may remain together for 2 or more yr.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Paridae

## Plain Titmouse (*Parus inornatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Resident in coastal ranges from southwestern British Columbia, south to southern Baja California. Also resident in interior from southern and southeastern Oregon, southwestern Idaho, north-central Utah, western Colorado, western Oklahoma, and central Texas, south into Mexico and Guatemala.

HABITAT: Found in woodlands, in scrub habitat with scattered trees and shrubs, along brushy streamsides, in pinyon/juniper, in juniper, in chaparral and pine/oak associations, and in trees and shrubs in residential areas. In Rocky Mountains, may be found at elevations up to 1800-2500 m.

DIET: Feeds primarily on spiders and insects (e.g., aphids, leafhoppers, scale insects, beetles, wasps, ants, and caterpillars). Will also eat some fruits.

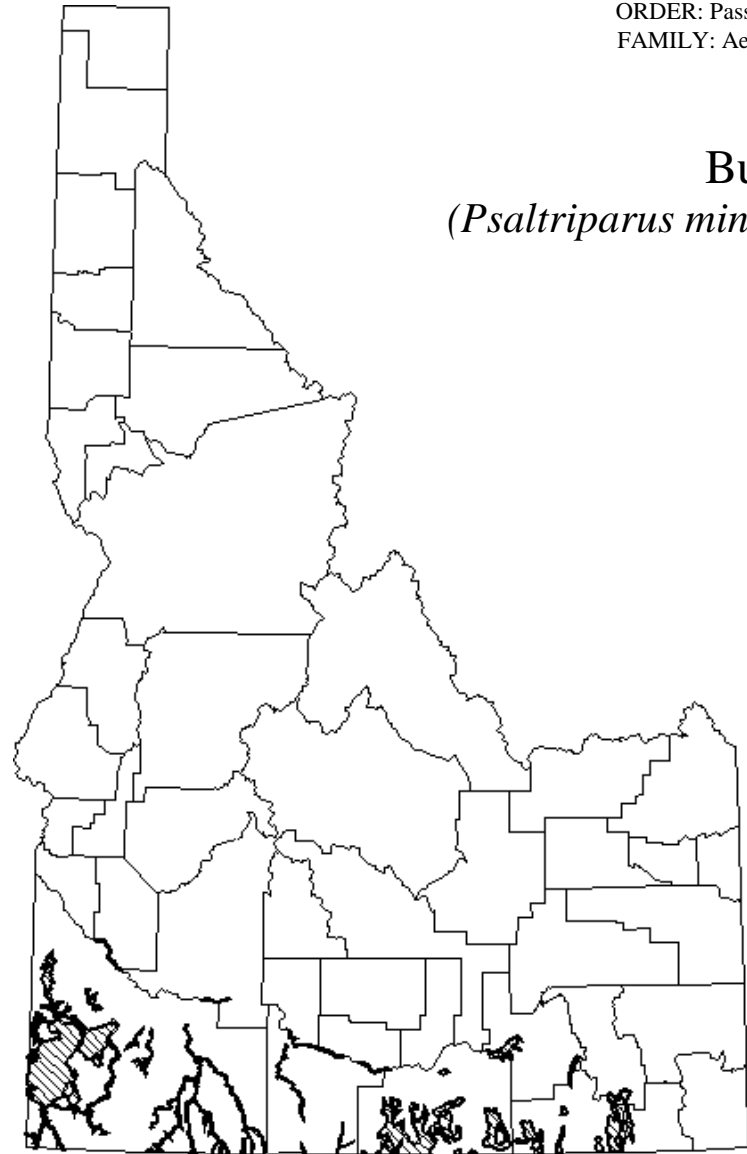
ECOLOGY: Nests in hanging pocket in tree or shrub. Roosts in tightly huddled groups. Gleans prey from foliage while flitting about trees and shrubs. May forage in loose flocks. In winter, often found in mixed species flocks (kinglets, wrens, chickadees) that may number 20-50 birds.

REPRODUCTION: Clutch size is usually 5-7 eggs, but may sometimes number 15. Incubation lasts 12-13 days. Nestlings are altricial, are tended by both parents, and leave nest in 14-15 days.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Aegithalidae

## Bushtit (*Psaltriparus minimus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from southern Alaska, east across portions of Canada, and south to southern California, southern New Mexico, western South Dakota, Minnesota, northern Ohio, southern Appalachians, and in isolated areas farther south. Winters throughout most of breeding range and irregularly to Gulf Coast.

HABITAT: Found in coniferous and mixed forests and aspen woodlands. During migration and in winter, also found in deciduous forests, open woodlands, parks, scrub, and riparian woodlands. Preliminary results of an Idaho-Montana study indicated these birds favored rotation-aged Douglas fir stands over old-growth stands.

DIET: Eats mainly conifer seeds and insects.

ECOLOGY: Nests in excavated cavity in standing snag or hollow tree. Forages over trunks and branches.

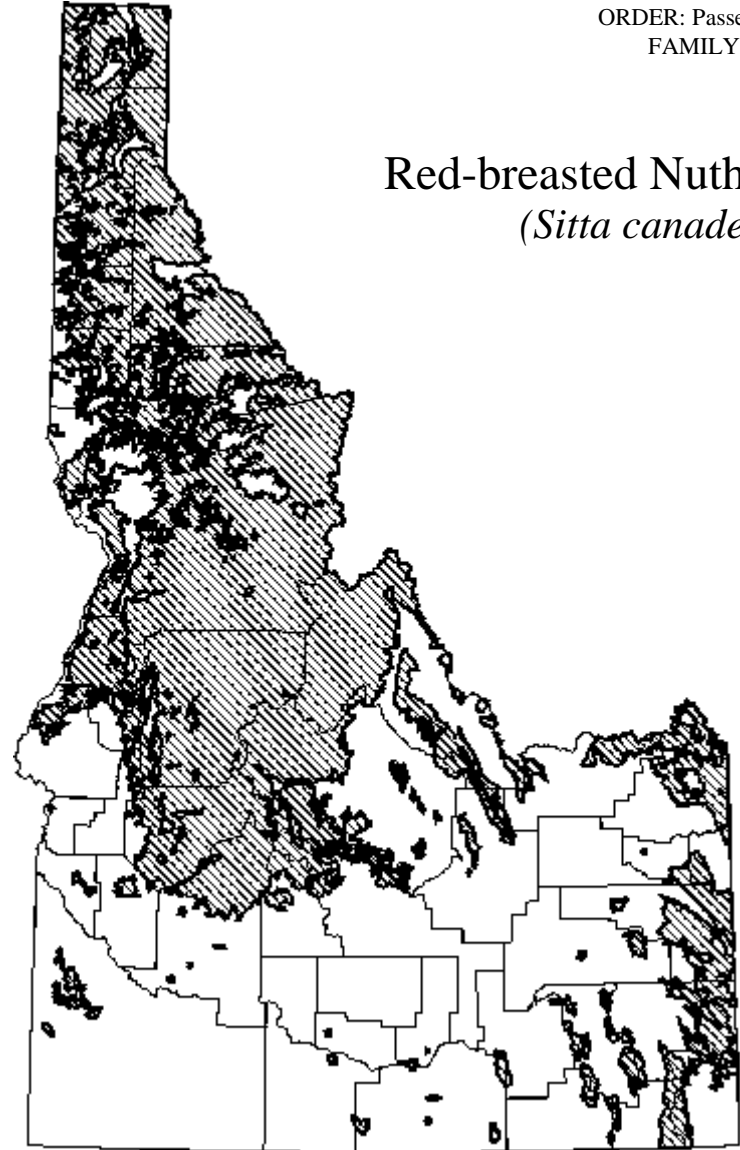
REPRODUCTION: Clutch size varies from 4-7 eggs, but is usually 5-6. Incubation lasts 12 days. Young are tended by both parents, and leave nest at 18-21 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

ORDER: Passeriformes  
FAMILY: Sittidae

## Red-breasted Nuthatch (*Sitta canadensis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

ORDER: Passeriformes  
FAMILY: Sittidae

GLOBAL RANGE: Resident from Washington and southern British Columbia, east to southern Saskatchewan and New Brunswick, and south to Baja California, southeastern Arizona, southern Mexican highlands, and Gulf Coast. Absent from most of Great Plains.

HABITAT: Found primarily in deciduous and mixed forests, locally in coniferous forests, and more frequently in open woodlands, pinyon/juniper, clearings, forest edges, parks, and partly-open situations with scattered trees.

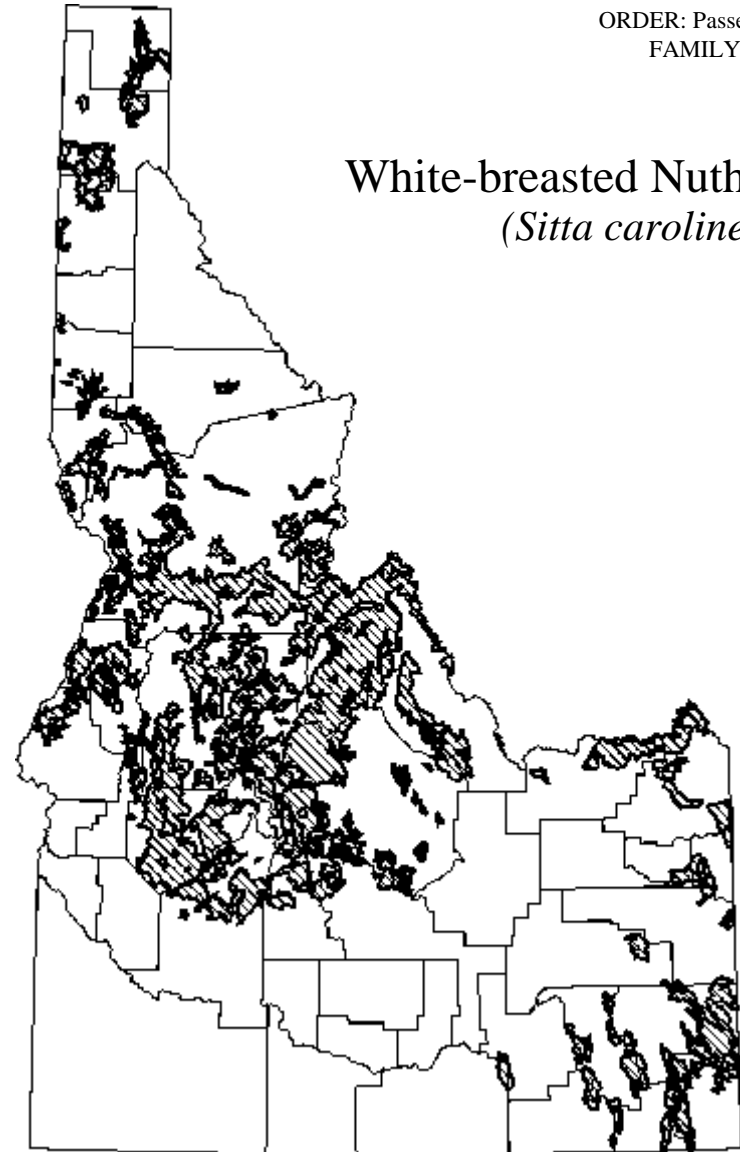
DIET: Eats mainly nuts and seeds in fall and winter, and insects in spring and summer.

ECOLOGY: Nests in natural or excavated cavity, preferably in standing snag or hollow tree. Forages in mated pairs on trunks and main branches of trees. Hoards surplus food. Maintains year-round territory. In one study, resident pairs stayed together on feeding territory of 10-20 ha throughout year. Arizona study found 3-16 breeding pairs/40 ha.

REPRODUCTION: Female incubates 5-10 eggs (commonly 8), for about 12 days. Young are tended by both parents, leave nest at about 14 days, and are fed by parents for another 2 wk.

GIS MODEL NUMBER: 1

## White-breasted Nuthatch (*Sitta carolinensis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

ORDER: Passeriformes  
FAMILY: Sittidae

GLOBAL RANGE: Resident from southern interior British Columbia, northern Idaho, western Montana, central Wyoming, and southwestern South Dakota, south to northern Baja California, southern Nevada, central and southeastern Arizona, central New Mexico, extreme western Texas, extreme western Oklahoma, and south in mountains to central Mexico. An uncommon bird in Idaho.

HABITAT: Found, at elevations up to 3000 m, in pine forests and woodlands (especially in ponderosa pine, less frequently in pinyon/juniper).

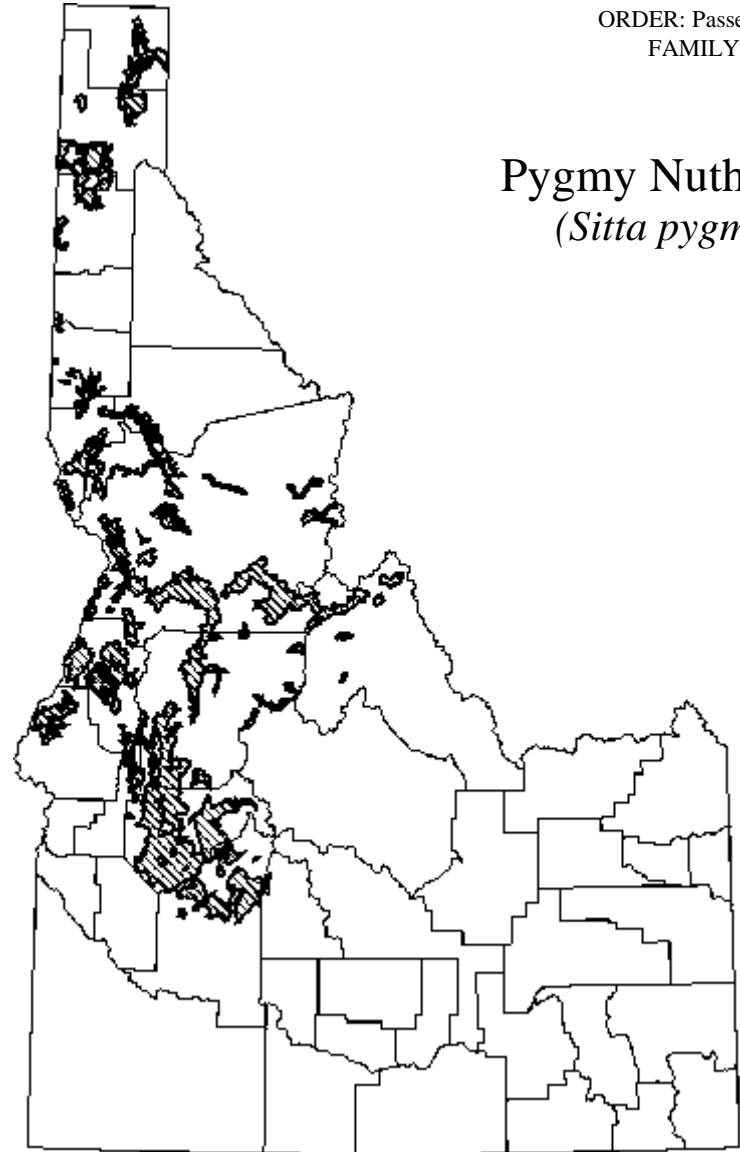
DIET: Feeds on insects such as wasps, ants, beetles, moths, and grasshoppers, but may also eat spiders and pine seeds.

ECOLOGY: Nests in natural or excavated cavity in tree or standing snag; may nest in post. Social throughout year. Often found in association with Yellow-rumped Warbler, Plain Titmouse, or Mountain Chickadee. Travels in small family groups after nesting season. Family groups form larger, loose flocks in fall and winter. Winter groups average 5-15 individuals, forage as a flock, and roost communally within group territory. Individuals forage on outer branches and twigs as well as along tree trunks.

REPRODUCTION: Female incubates 4-9 eggs (usually 6-8), for 15.5-16 days. Nestlings are altricial. Young leave nest at 22 days. Cooperative breeding has been documented in California and Arizona; breeding units consisted of 2-5 birds. Helpers (mostly yearlings, and offspring or siblings of the birds they aided) were found at about 30% of all nests in northern Arizona; nests with helpers were sometimes more productive than those without helpers.

GIS MODEL NUMBER: 1

## Pygmy Nuthatch (*Sitta pygmaea*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Certhiidae

RANGE: Breeds across portions of Alaska and Canada, south to southern California, mountains of Middle America, western Texas, and portions of midwestern and eastern United States. Winters throughout breeding range (except for higher latitudes and elevations), south to Gulf Coast.

HABITAT: Found in forests, woodlands, and swamps. During winter and in migration, also found in scrub and parks. Preliminary results of northern Idaho study indicated species was more abundant in continuous old growth than in fragmented or selectively harvested stands.

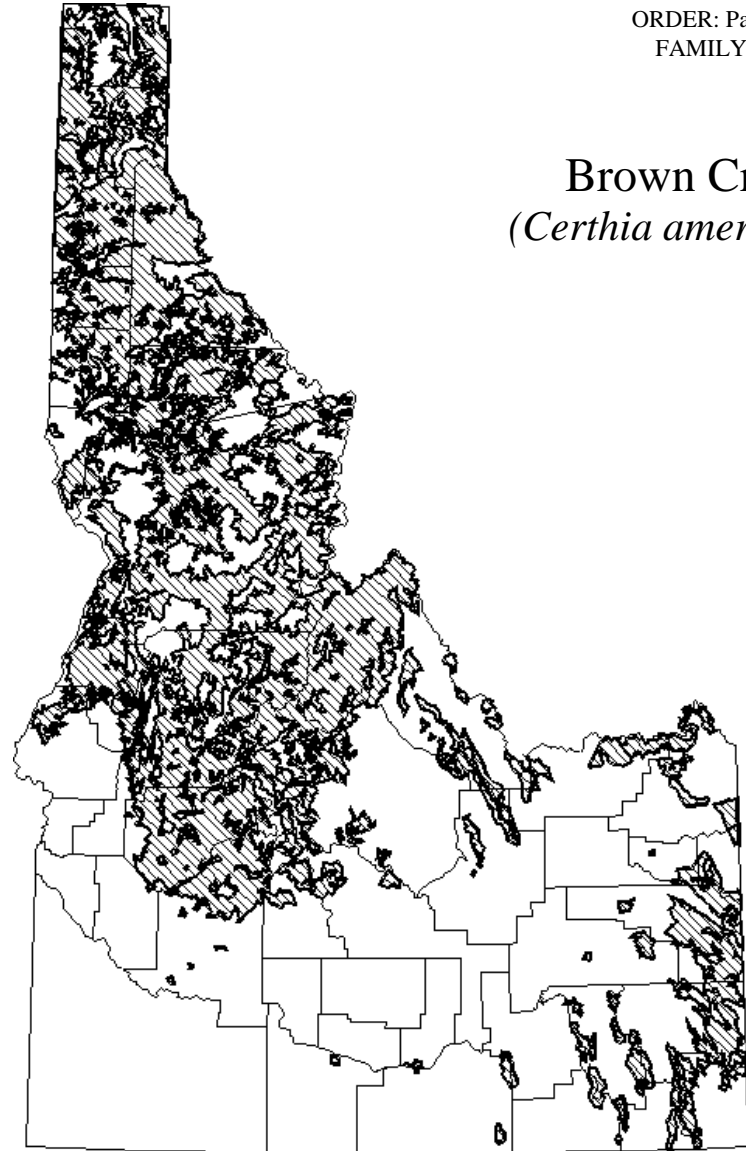
DIET: Eats mainly insects and other invertebrates (including immature stages). Also eats some nuts and seeds.

ECOLOGY: Usually nests under bark in tree; will sometimes nest in cavity. When pursued, spreads wings and remains motionless on tree trunk. Forages on bark of tree trunks and branches.

REPRODUCTION: Clutch size varies from 4-8 eggs, but is commonly 5-6. Incubation lasts 14-15 days. Young are tended by both parents, and leave nest at 13-16 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and L.C. Paige. 1993. Birds in continuous and fragmented forests of western red cedar/western hemlock in northern Idaho: a preliminary assessment. Draft manuscript, Inter. Res. Sta., USDA Forest Service, Missoula. 18pp.



## Brown Creeper (*Certhia americana*)

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Troglodytidae

RANGE: Breeds from south-central British Columbia, east to southern Saskatchewan, portions of Great Plains, western Oklahoma, and central Texas, and south to southern Baja California and Costa Rica. Winters from northern California, east to southern Utah, south to Arizona, New Mexico, and southern Texas, and further south through breeding range. Occasionally winters in northwestern and central United States.

HABITAT: Found in arid or semi-arid habitat, in shrubby areas in rocky canyons and cliffs, on rock slides and boulder-strewn slopes, and in arroyos with sparse vegetation. Sometimes seen around concrete and stone buildings. Similar to Canyon Wren in habitat, but in Idaho, Rock Wrens are more widely distributed.

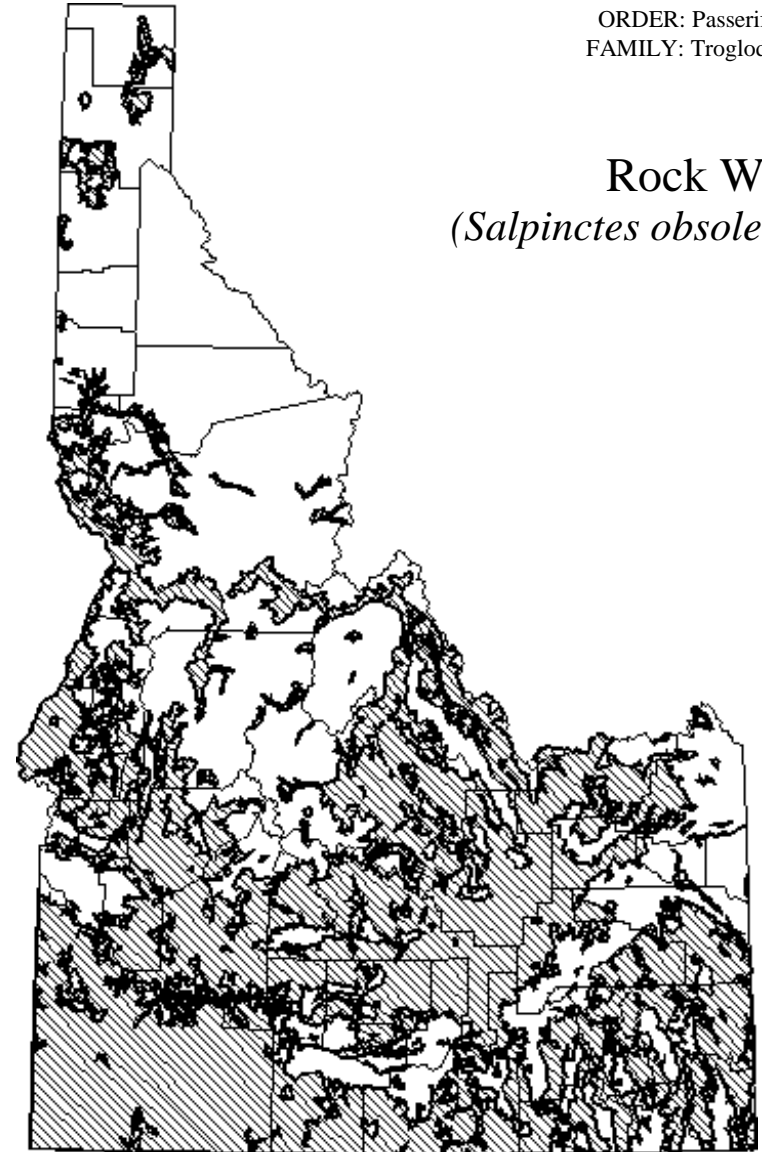
DIET: Probably feeds on insects and spiders, as well as earthworms and larval insects.

ECOLOGY: Nests in cavity or crevice, under or near rocks. Forages on ground, or takes food from foliage. Few studies have been conducted on this species.

REPRODUCTION: Female incubates 4-10 eggs (usually 5-6) in northern range, fewer in south. Young are tended by both parents.

GIS MODEL NUMBER: 1

## Rock Wren (*Salpinctes obsoletus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

GLOBAL RANGE: Resident from central coastal California and south-central British Columbia, east to southwestern South Dakota, and south to central Texas and southern Mexico.

HABITAT: Found (usually in arid regions) on cliffs, steep-sided canyons, rocky outcrops, and boulder piles. Also found in towns, around houses and barns, and on old stone buildings.

DIET: Feeds on insects and spiders.

ECOLOGY: Nests in situations such as rocky outcrops, human-built structures, and caves. Forages on ground, frequently around rocks, or takes food from foliage. Little is known about ecology.

REPRODUCTION: Female incubates 5-6 eggs (sometimes 4-8). Male provides female's food during incubation.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Troglodytidae

## Canyon Wren (*Catherpes mexicanus*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southern British Columbia, east across southern Canada to New Brunswick, and south to northern Baja California, Texas, and northern Georgia. Also breeds in Mexico and Central and South America. Winters in southern U.S., south to southern Mexico.

HABITAT: Found in thickets, shrubbery, brushy areas, partly-open situations, open woodlands, deciduous forests, farmlands, chaparral, and around human habitation.

DIET: Feeds almost entirely on insects, but may also eat other small invertebrates.

ECOLOGY: Nests in excavated cavity, preferably in standing snag or hollow tree. Will also use nest box. In Arizona study, breeding density was 10-18 pairs/40 ha in northern pine forest. Forages on ground, or takes food from vegetation. Sleeps in all seasons in crannies in buildings, holes in trees, niches in banks, or in similar sites. Sometimes destroys clutches of other birds, including conspecifics. Species is one of 7 neotropical migrants thought to be declining in Idaho.

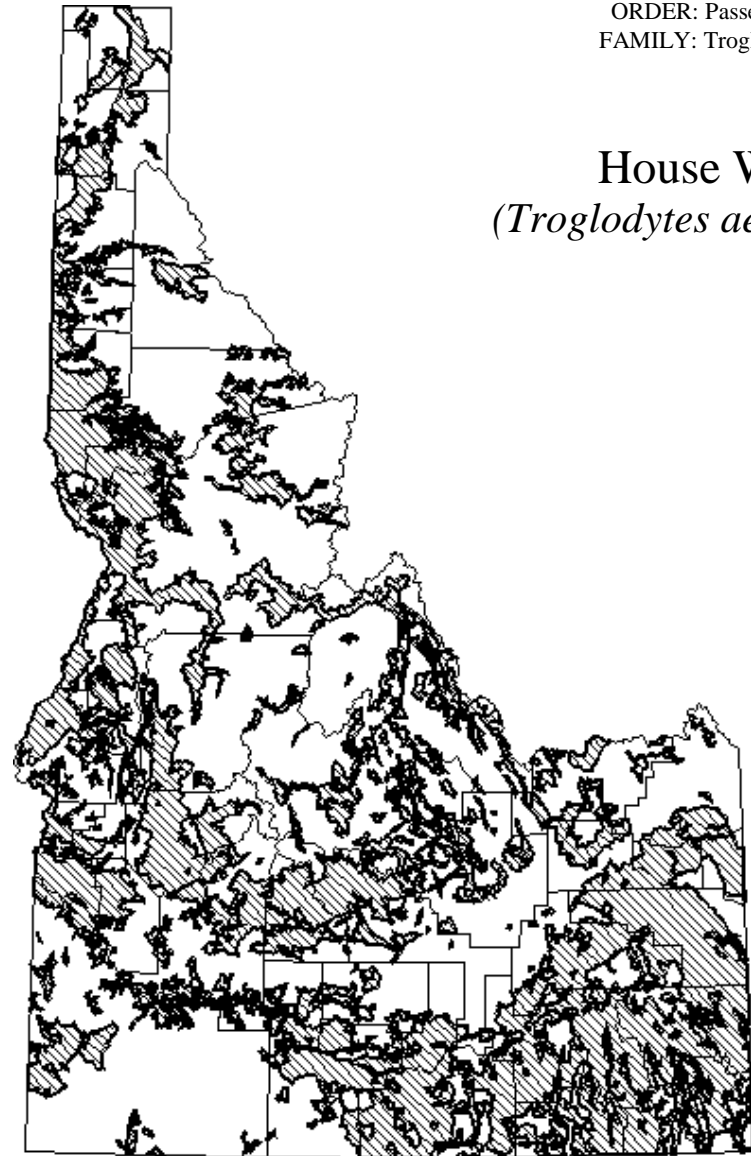
REPRODUCTION: Female incubates 5-9 eggs (commonly 6-8), for 12-15 days, and may produce 2-3 broods/yr. Young are tended by both parents, and leave nest at 12-18 days; male may feed fledged young while female renests.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V. and C.R. Groves. 1992. Idaho's migratory landbirds: description, habitats, and conservation. Nongame Wildlife Leaflet #10, Idaho Dept. Fish & Game, Boise. 16pp.

ORDER: Passeriformes  
FAMILY: Troglodytidae

## House Wren (*Troglodytes aedon*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident from southern Alaska, east across portions of Canada to Labrador, and south to central California, Idaho, Minnesota, southern Appalachians, and New Jersey. Winters from southern part of breeding range, south to southern California, Texas, Gulf Coast, and Florida.

HABITAT: Found in coniferous forests (primarily near water and with dense understory), and in open areas with low cover along rocky coasts, cliffs, islands, high mountain areas, or logged areas with large amounts of slash. During winter and in migration, also found in deciduous woods with understory, thickets, and brushy fields. Preliminary results of northern Idaho study found species was more abundant in continuous old growth than in fragmented or selectively harvested stands.

DIET: Feeds almost entirely on insects (e.g., beetles, Diptera, caterpillars) and spiders.

ECOLOGY: Secretive. Nests in natural (sometimes excavated) cavity, preferably in standing snag or hollow tree. Male may construct dummy nest. Individuals obtain food from ground surface, or from substrates within 3 m of ground.

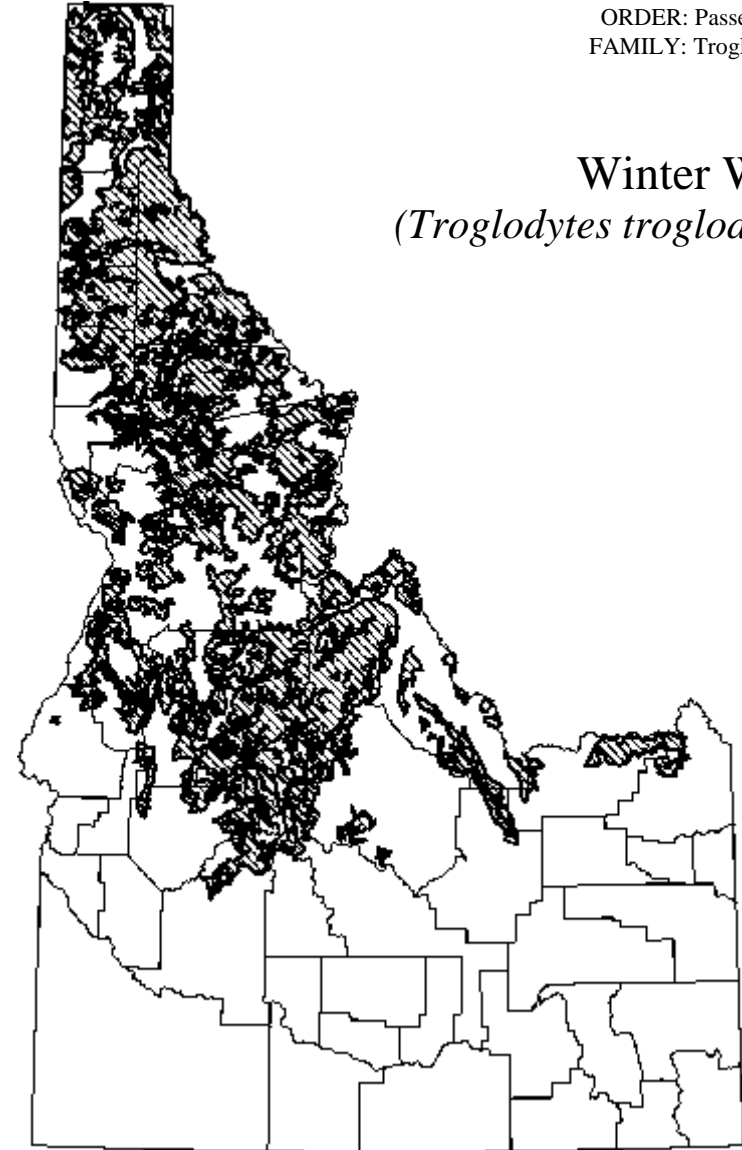
REPRODUCTION: Female incubates 4-7 eggs (commonly 5-6), for 14-17 days. Young are tended by both parents, and leave nest in 15-20 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and L.C. Paige. 1993. Birds in continuous and fragmented forests of western red cedar/western hemlock in northern Idaho: a preliminary assessment. Draft manuscript, USDA Forest Service Inter. Res. Sta., Missoula. 18pp.

ORDER: Passeriformes  
FAMILY: Troglodytidae

## Winter Wren (*Troglodytes troglodytes*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from central British Columbia, east across southern Canada to New Brunswick, and south to southern California, northern Mexico, Texas, Gulf Coast, and Florida. Breeds locally in interior United States. Winters in coastal areas throughout breeding range, and in interior from southern U.S. to southern Mexico.

HABITAT: Found in freshwater and brackish marshes in cattails, tule, bulrushes, and reeds.

DIET: Eats mainly insects and other invertebrates.

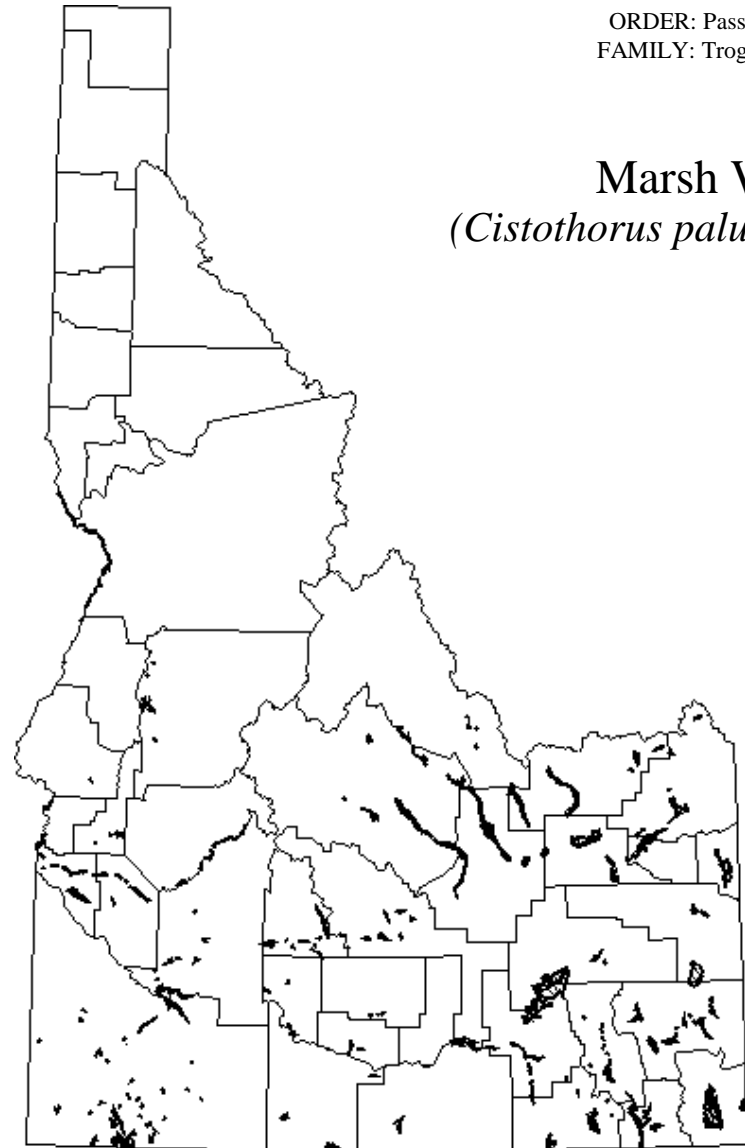
ECOLOGY: Builds spherical nest in reeds. Adults may destroy eggs and young of conspecifics and of other marsh-nesting passerines. Species may be excluded from areas of marsh by Yellow-headed Blackbird. Territory size may reach several hundred square meters.

REPRODUCTION: Female incubates 3-10 eggs (commonly 5-6), for 12-16 days. Young leave nest at 11-16 days, but are still fed by adult. Female produces 2-3 broods/yr. In most populations, males are polygynous.

GIS MODEL NUMBER: 5

ORDER: Passeriformes  
FAMILY: Troglodytidae

## Marsh Wren (*Cistothorus palustris*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident from portions of Alaska and western Canada, south in mountains to southwestern South Dakota, and further south to southern California, highlands of Mexico, and western Panama.

HABITAT: Found up to treeline along montane streams, especially along swift-flowing water. Found less frequently along mountain ponds and lakes. In winter, occasionally found along rocky seacoasts.

DIET: Feeds on adult insects and their larvae (e.g., caddisflies, stoneflies, mayflies, mosquitos, and water beetles). Also eats clams, snails, and some trout fry.

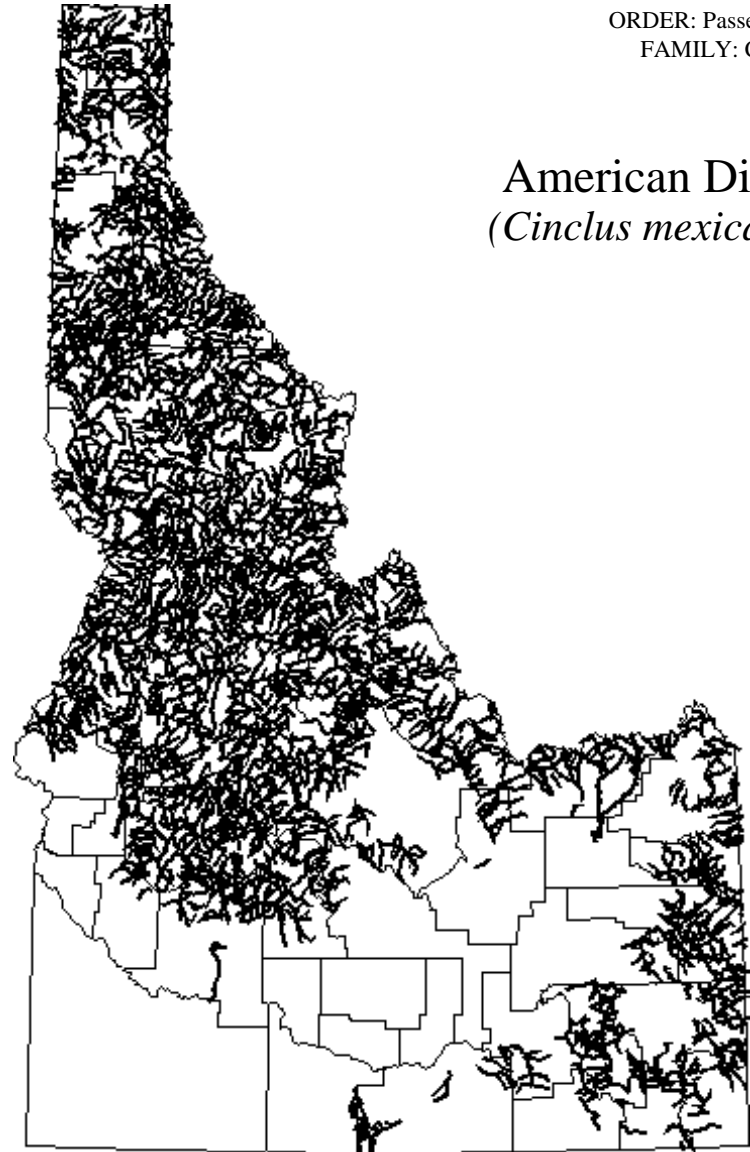
ECOLOGY: Solitary except during nesting season. Nests on rock in stream, on cliff face, or behind waterfall. Adapted for semi-aquatic foraging. Walks, swims, or dives in or under water, and walks on stream bottoms while foraging. Characteristic dipping behavior upon alighting may signal mate.

REPRODUCTION: Female incubates 3-6 eggs (usually 4-5), for 15-17 days. Young are altricial, are tended by both adults, and leave nest at 24-25 days.

GIS MODEL NUMBER: 5

ORDER: Passeriformes  
FAMILY: Cinclidae

## American Dipper (*Cinclus mexicanus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from southern Alaska, east to Newfoundland, and south to central California, southeastern Arizona, U.S.-Canadian border, and western North Carolina. Winters from south-coastal Alaska and southern Canada, south to northern Baja California, southwestern U.S., Guatemala, Gulf Coast, and Florida.

HABITAT: Found in coniferous forests and woodlands (especially spruce). During migration and in winter, also found in deciduous woodlands, scrub, and brush. Pacific Northwest study found these kinglets associated with dense, shaded forests with some shrub interspersed. Preliminary results of northern Idaho study indicated species was more abundant in continuous old growth stands than in fragmented or selectively harvested stands.

DIET: Feeds primarily on insects and their eggs (e.g., bark beetles, scale insects, and aphids). Drinks tree sap.

ECOLOGY: Builds hanging nest on branch near trunk. Forages among branches of trees. Often obtains prey while clinging to or hanging from foliage. In winter, seen in association with chickadees, Brown Creepers, and Downy Woodpeckers.

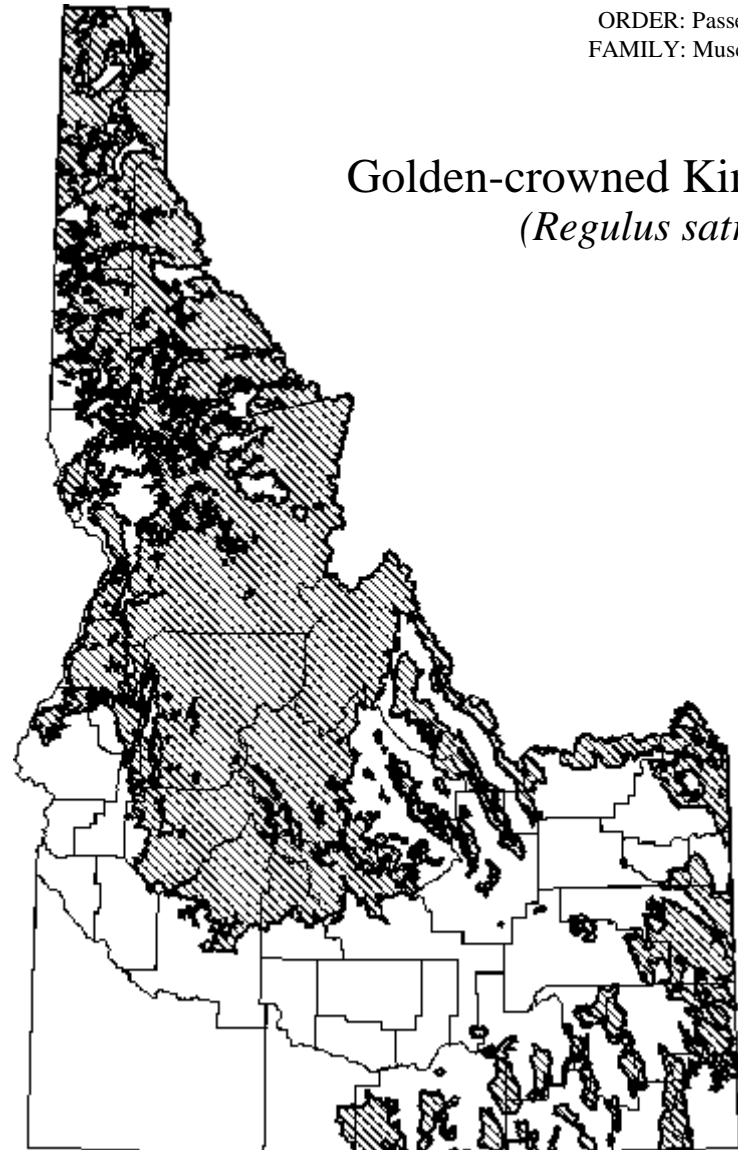
REPRODUCTION: Clutch size varies from 5-11 eggs (usually 8-9). Incubation probably lasts about 14-15 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Langelier, L. 1983. Habitat selection of common breeding bird species in western spruce budworm outbreaks. M.S. Thesis, Univ. Idaho, Moscow. 119pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Golden-crowned Kinglet (*Regulus satrapa*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from northwestern Alaska, east across portions of Canada, and south to central New Mexico and southern California. Winters from southern British Columbia, Virginia, and Indiana, south to southern Florida, Gulf Coast, and through Mexico to Guatemala.

HABITAT: Found in coniferous forests and woodlands. During migration and in winter, found in deciduous woodlands, shrubs and thickets. May also be found in old fields, gardens, yards, and parks. Northern Idaho study conducted in hemlock-grand fir found this species associated with older conifer stands.

DIET: Feeds primarily on insects and other small invertebrates (e.g., wasps, ants, beetles, moths, spiders, and pseudoscorpions). Will also eat some berries and seeds and drink sap.

ECOLOGY: Builds hanging nest on tree limb. Forages at branch tips in trees and often in shrubs. Captures aerial prey. May hover while foraging. Seen in scattered groups in association with other species (e.g., Golden-crowned Kinglets, nuthatches, and chickadees).

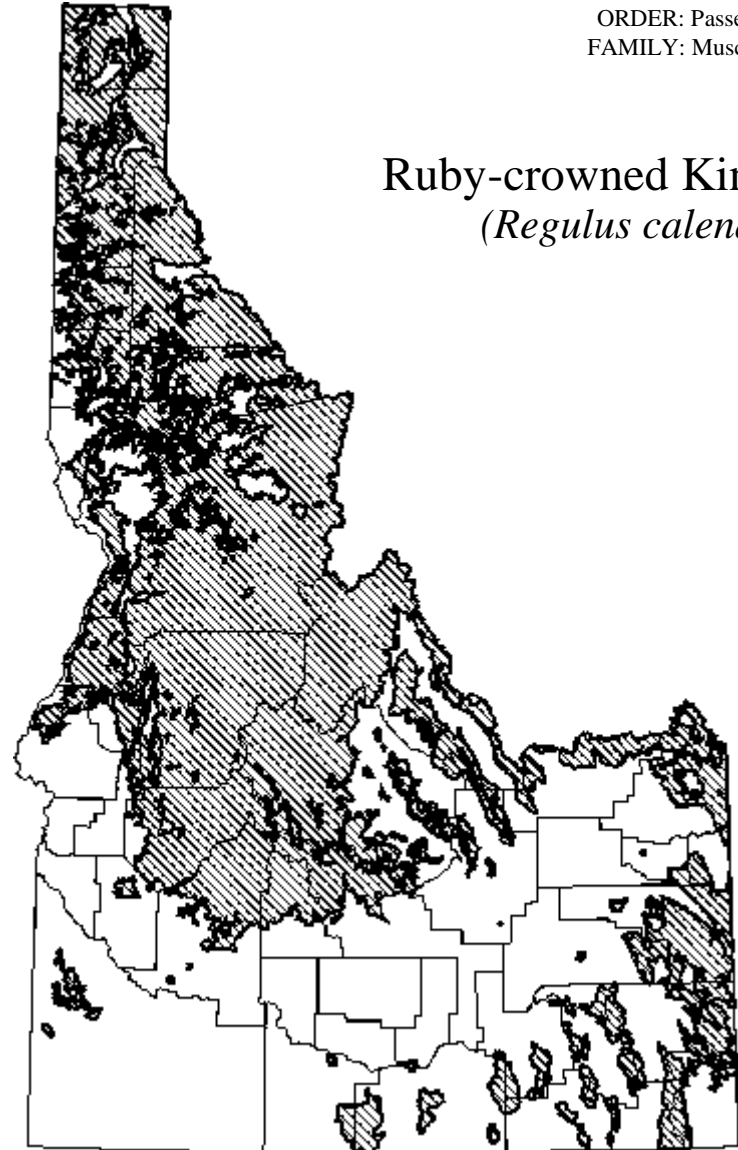
REPRODUCTION: Female incubates 5-11 eggs (usually 7-8), for about 12 days. Nestlings are downy and altricial, are tended by both parents, and fly at about 12 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, S.R. 1982. A preliminary survey of forest bird communities in northern Idaho. Northwest Sci. 56:287-298.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Ruby-crowned Kinglet (*Regulus calendula*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3, NTMB

ORDER: Passeriformes  
FAMILY: Muscicapidae

RANGE: Breeds from southern South Dakota, central Nevada, southern Utah, Oregon, portions of upper Midwest, southern Ontario, and portions of New England, south to southern Baja California, Guatemala, Gulf Coast, and Florida. Winters along coastal southeastern U.S., south to Central America.

HABITAT: Found in deciduous forests, open woodlands, second growth, scrub, brushy areas, and chaparral. In winter, found in wide range of brushy habitats. In Idaho, species is associated with juniper stands.

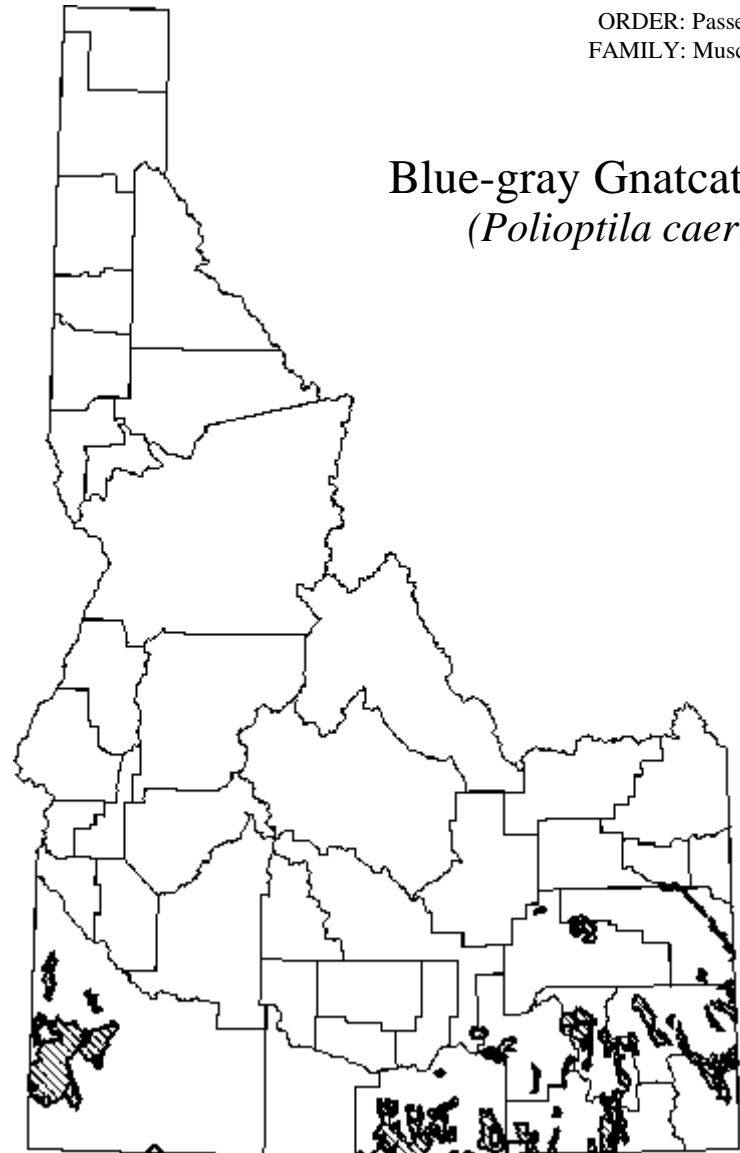
ECOLOGY: Takes food from foliage; may hover while foraging. Builds nest on limb, or in fork of tree. Breeding pairs establish territory which male defends, occasionally assisted by female. In California study, breeding territories averaged 4.6 ac, and ranged from 2.2-7.4 ac.

REPRODUCTION: Both sexes incubate 4-5 eggs for 15 days. Nestlings are altricial and naked at hatching. Young are brooded and fed by both parents, and leave nest in 12-13 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. Murrelet 68:69-93.

## Blue-gray Gnatcatcher (*Polioptila caerulea*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

GLOBAL RANGE: Resident from southern British Columbia and central Montana, south in mountains to northern Baja California and central mainland of Mexico. May wander to other areas during winter.

HABITAT: Found in open or riparian woodlands, farmlands, orchards, and savannas. Also inhabits desert areas during winter.

DIET: Mainly insectivorous. Eats grasshoppers, caterpillars, beetles, other insects, and other invertebrates (spiders, earthworms, sow bugs, etc.). Feeds seasonally on berries and other fruits.

ECOLOGY: Nests in excavated cavity, preferably in standing snag or hollow tree. Forages by flycatching, and by dropping from perch to ground. Colorado study found average of 0.6 breeding birds/ha in montane forests. In Idaho, species has probably benefited from extensive placement of nestboxes.

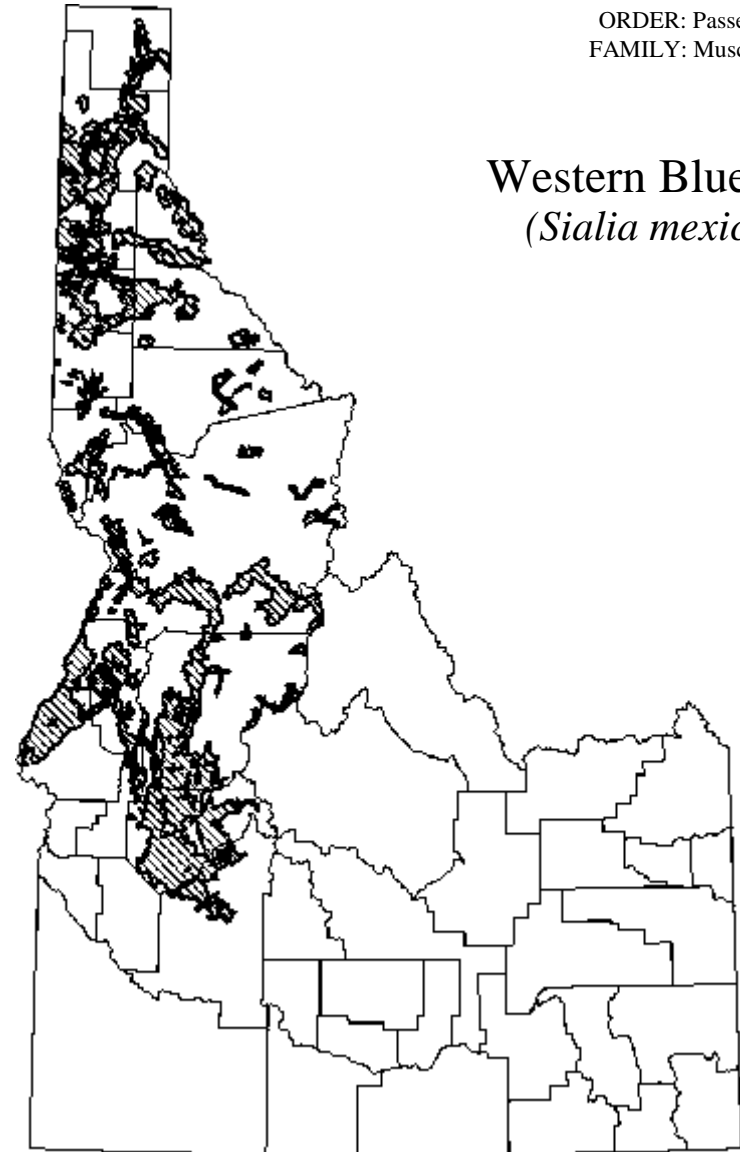
REPRODUCTION: Clutch size varies from 3-8 eggs (usually 4-6). Incubation lasts 13-14 days. Altricial nestlings are tended by both parents. Fledged young are tended by male while female renests (female usually produces 2 broods/yr).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V.A. and J. Dudley. 1995. Nest usurpation and cavity use by Lewis' Woodpecker. USDA Forest Service Inter. Res. Sta. Rep., Boise. 13pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Western Bluebird (*Sialia mexicana*)





STATUS: Protected nongame species

GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from central Alaska, east through portions of western Canada, and south in mountains to California, Nevada, northern Arizona, southern New Mexico, western Oklahoma, Colorado, and portions of Great Plains. Winters from southern British Columbia and western Montana, south to central Mexico and southern Texas, and east, at least casually, to eastern Kansas, western Oklahoma and central Texas.

HABITAT: Found in subalpine meadows, rangelands, open coniferous forests, and pinyon/juniper woodlands, usually at elevations above 1500 m. During winter and in migration, also found in grasslands, deserts, brushy areas, and agricultural lands. Idaho study found Mountain Bluebirds were more abundant on prescribed burn juniper stands than on old-growth or clearcut areas.

DIET: Primarily insectivorous. Feeds on beetles, ants, bees, wasps, caterpillars, grasshoppers, and other insects. Will also consume some berries and grapes.

ECOLOGY: Nests in excavated cavity, preferably in standing snag or hollow tree. Hovers and drops to ground while foraging, or darts out from low perch to catch prey. Wyoming study recorded 6-7 bluebirds/16.2 ha. In Idaho, species has probably benefited from extensive nestbox placement.

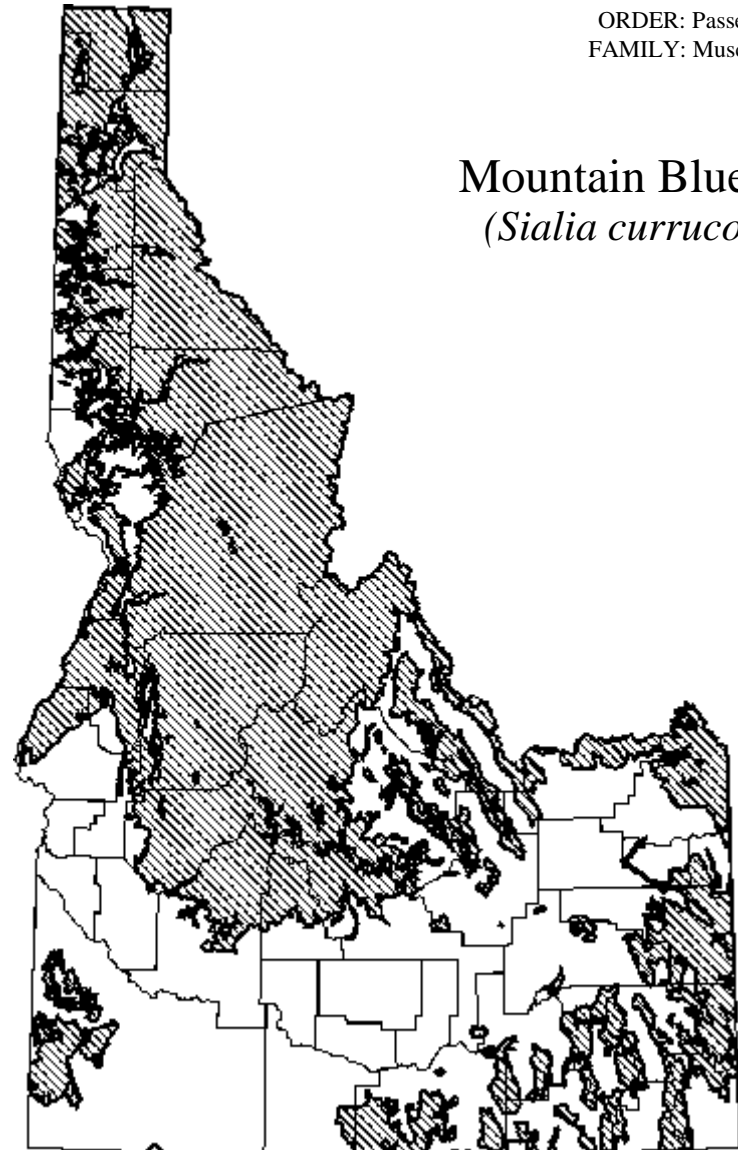
REPRODUCTION: Both sexes, but primarily female, incubate about 4-8 eggs (usually 5-6) for 13-14 days. Female sometimes produces 2 broods/yr. Altricial young are tended by both parents, sometimes with assistance of young of first brood.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: McCoy, M. 1993. Breeding bird survey of clearcut, prescribed burn, and seral/old growth stands of western juniper. USDI Bur. Land Manage., Boise District, Challenge Cost Share Project Report, Boise. 19pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Mountain Bluebird (*Sialia currucoides*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from portions of Alaska and western Canada, south in mountains in western U.S. to southern California, Arizona, New Mexico, and central Mexico, and east to Montana, northeastern Wyoming, and portions of Great Plains. Winters from southwestern Canada, Montana, and South Dakota, east to central Texas, and south to northern Baja California and central Mexico.

HABITAT: Breeds in open montane coniferous forests. Idaho study found species responded positively in number to diameter-cut logging. When not breeding, found in open or riparian woodlands, pinyon/juniper associations, chaparral, and deserts.

DIET: Feeds on insects (e.g., caterpillars, beetles, wasps, ants, and bugs). Also eats pine seeds and fruits (e.g., juniper berries, and berries of rose, cedar, mistletoe, and madrona).

ECOLOGY: Nests in sheltered area on ground. Flies out from perch and catches insects in air. Usually seen singly, in pairs, or in small family groups.

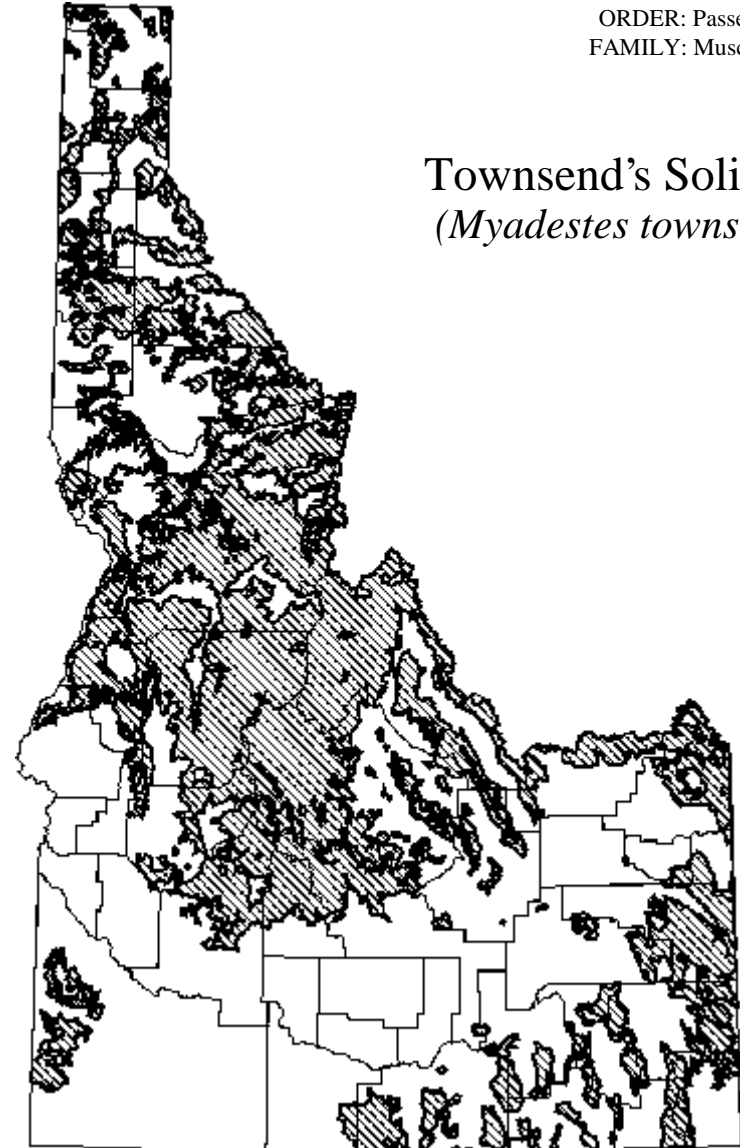
REPRODUCTION: Clutch size varies from 3-5 eggs, but is usually 4. Nestlings are altricial. Breeding biology is poorly known.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. 1985. Breeding bird responses to diameter-cut logging in west-central Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-355, Boise. 12pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Townsend's Solitaire (*Myadestes townsendi*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern British Columbia, east across southern Canada to Newfoundland, and south to Oregon, Colorado, portions of Midwest, and southern Appalachians. Winters in northern South America.

HABITAT: Found in cottonwood, alder, and other swampy forests, as well as aspen communities, especially in more open areas with shrubby understory. Also found in second growth, or willow or alder shrubbery near water. Results of an Idaho study indicated probability of finding Veeries present in cottonwood forest increased with patch size; and species showed a preference for dogwood subcanopies. Numbers were significantly reduced in grazed areas and campgrounds compared to relatively undisturbed sites.

DIET: Eats insects, other invertebrates, and (especially during migration) small fruits.

ECOLOGY: Forages on forest floor and trees, often near water. Builds cup-shaped nest (preferably on moist substrate) on ground or in shrub.

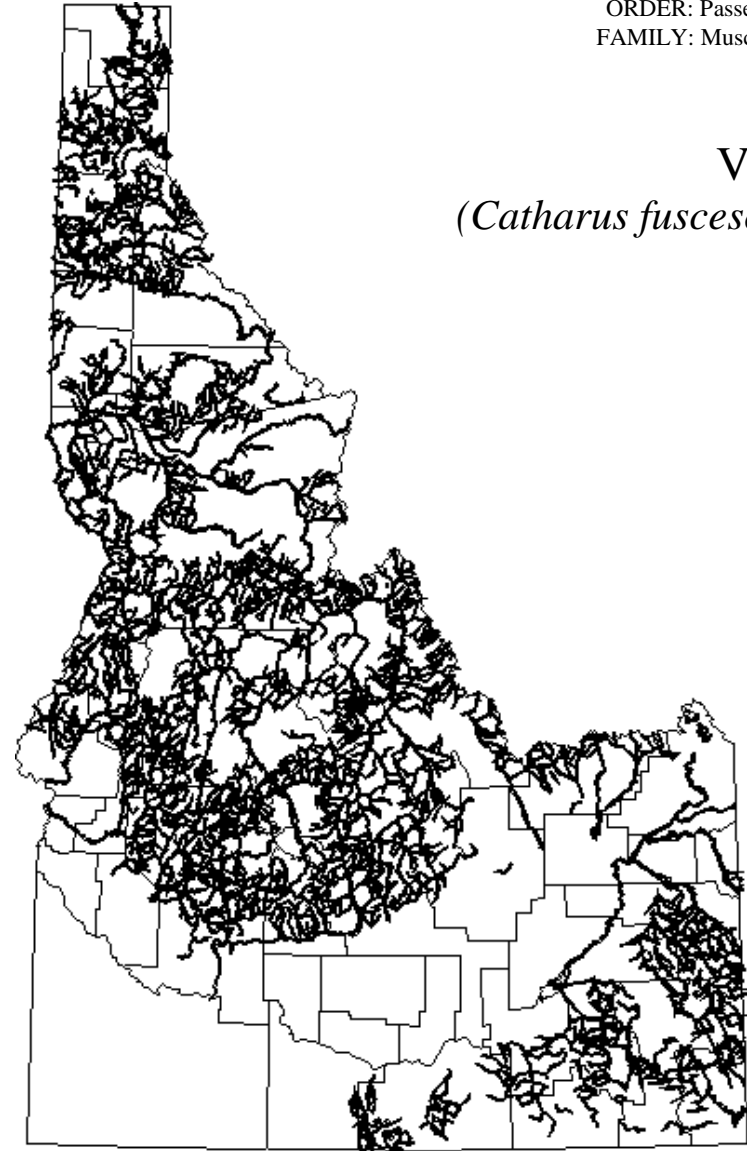
REPRODUCTION: Lays eggs in May or June. Female incubates 3-5 eggs (usually 4), for 11-12 days. Young are tended by both parents, and leave nest at 10-12 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influence of spatial scale and land management on habitat use by breeding birds in cottonwood forests of southeastern Idaho. Ph.D. Dissertation, Univ. Colorado, Boulder. 140pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Veery (*Catharus fuscescens*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from portions of Alaska and Canada, south to southern California, northern New Mexico, northern Nebraska, eastern Montana, northern Minnesota, northern New England, and Virginia. Winters in portions of South America, and in small numbers to northern Mexico.

HABITAT: Found in dense, tall shrubbery, coniferous woodlands (especially spruce), aspen/poplar forests, second growth, and willow and alder thickets. During migration and in winter, also found in deciduous forests, open woodlands, humid lowland forests, scrub and brush (mostly mid-story or lower, but well above ground). Most common in mountains. Preliminary results of northern Idaho study indicated species was more abundant in continuous stands of old-growth cedar/hemlock than in fragmented or selectively harvested stands. In southeastern Idaho, species was strongly associated with cottonwood patches adjacent to natural upland vegetation as opposed to agriculture, and preferred cottonwood forests with willow subcanopies.

DIET: Eats insects and other invertebrates, small fruits, and seeds. Frugivorous in migration and during winter.

ECOLOGY: Builds cup-shaped nest low in coniferous tree or shrub. Solitary when not breeding, but found in loose flocks in migration (sometimes concentrated in large numbers near fruiting trees and shrubs). Takes food from foliage. May hover and drop to ground while foraging. Preliminary results of Idaho study conducted in cottonwood forests found species was negatively associated with grazed areas.

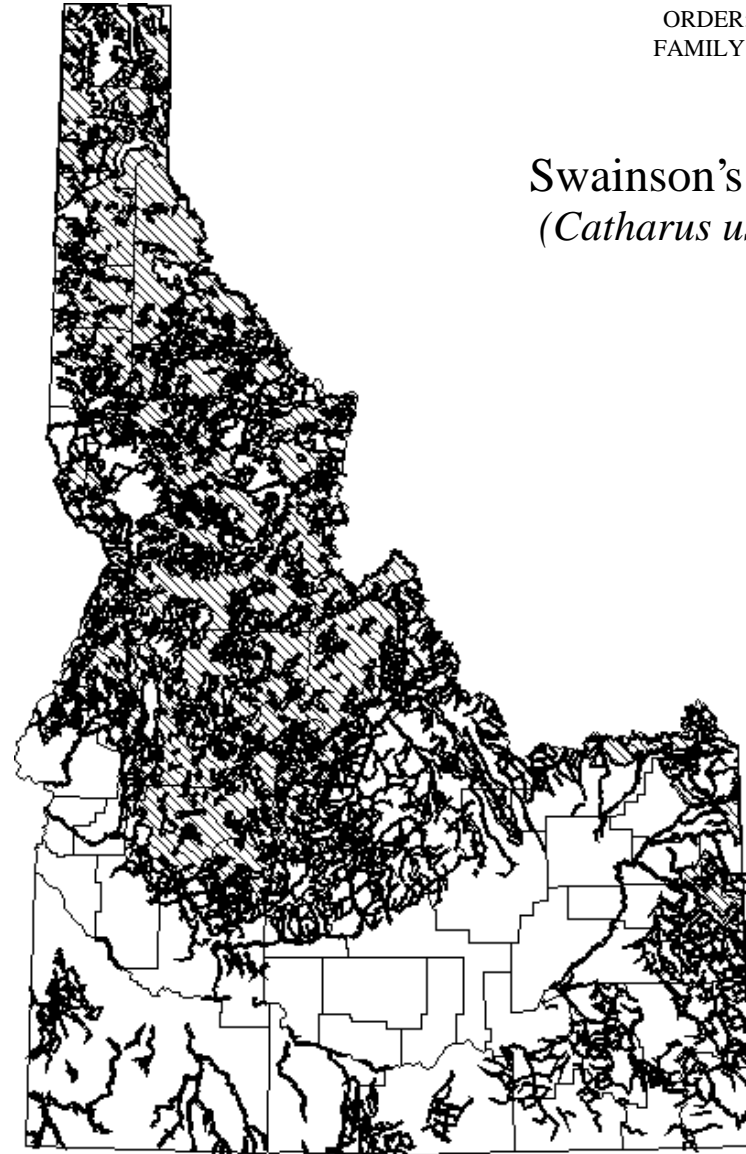
REPRODUCTION: Female incubates 3-4 eggs (usually), for 10-14 days. Young are tended by both parents, and leave nest at 10-14 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Swainson's Thrush (*Catharus ustulatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from portions of Alaska and Canada, south to southern California, western Texas, northern Minnesota, northeastern Ohio, and Virginia. Winters from southern British Columbia, southern Ontario, and northern U.S., south to southern Baja California, Central America, Texas, and Gulf Coast.

HABITAT: Found in open, humid, coniferous and mixed forests and forest edges; in dry, sandy, sparse jackpine; and, less frequently, in deciduous forests and thickets. During migration and in winter, also found in chaparral, riparian woodlands, arid pine/oak, and desert scrub. Preliminary results of northern Idaho study found abundance was higher in selectively harvested stands than in continuous old-growth stands.

DIET: Eats insects, other invertebrates, and some small fruits.

ECOLOGY: Builds cup-shaped nest, frequently in moist situations, on ground or low in tree or shrub. Forages on ground. May also take food from foliage, or hover while foraging.

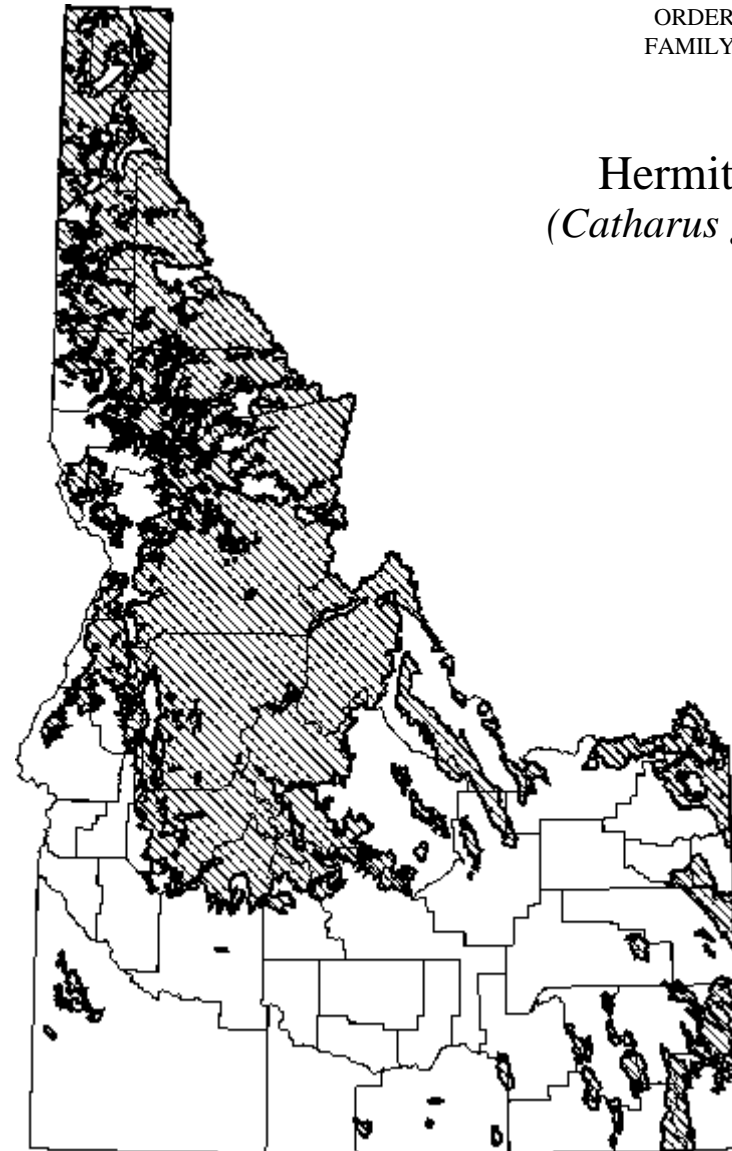
REPRODUCTION: Female incubates 3-4 eggs (usually) for 12-13 days. Young are tended by both parents, and leave nest at 10-12 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and L.C. Paige. 1993. Birds in continuous and fragmented forests of western red cedar/western hemlock in northern Idaho: a preliminary assessment. Draft manuscript, USDA Forest Service, Inter. Res. Sta., Missoula. 18pp.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Hermit Thrush (*Catharus guttatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Muscicapidae

RANGE: Breeds from portions of Alaska and Canada, south to southern California, southern Mexico, Gulf Coast, and central Florida. Resident in mountains of southern Baja California. Winters from British Columbia and northern U.S. (irregularly), south to Baja California, Guatemala, and Gulf Coast.

HABITAT: Found in forests, woodlands, scrub, parks, thickets, gardens, cultivated lands, savannas, swamps, and suburbs.

DIET: Worms, insects, and other invertebrates dominate spring diet. Fruits dominate fall and winter diet.

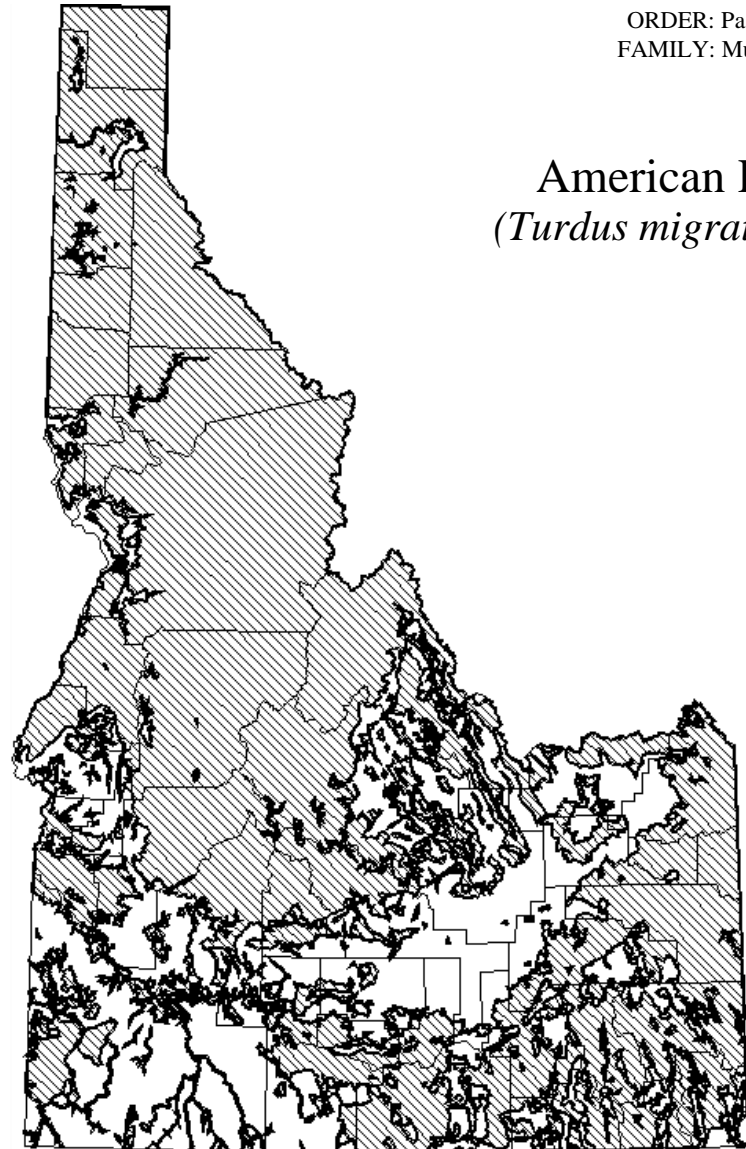
ECOLOGY: Builds nest in shrub or human-built structure. Will occasionally nest on ground. Forages on ground. May take food from vegetation. Frequently roosts communally after young fledge.

REPRODUCTION: Female incubates 3-6 eggs (usually 4), for 11-14 days. Young are tended by both parents, and leave nest at 14-16 days. Female usually produces 2 broods/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. 1985. Densities and nesting heights of breeding birds in a Idaho Douglas-fir forest. Northwest Sci. 59:45-52.

## American Robin (*Turdus migratorius*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from portions of Alaska and western Canada, south to northwestern Montana, northern Idaho, Washington, most of Oregon, and extreme northwestern California. Winters from southern Alaska, southern British Columbia, and northern Idaho, south through Washington, Oregon and California to northern Baja California. Wanders widely in central and northeastern North America.

HABITAT: Found in humid, coastal and interior montane coniferous forests, deciduous forests with dense understory, and tall shrubs (especially alder). During migration and in winter, also found in open woodlands and chaparral. Northern Idaho study conducted in hemlock/grand fir forests found this species associated with older conifer stands.

DIET: Eats insects, earthworms, seeds, and berries.

ECOLOGY: Builds nest in small conifer, usually against trunk. Feeds in trees or forages on ground.

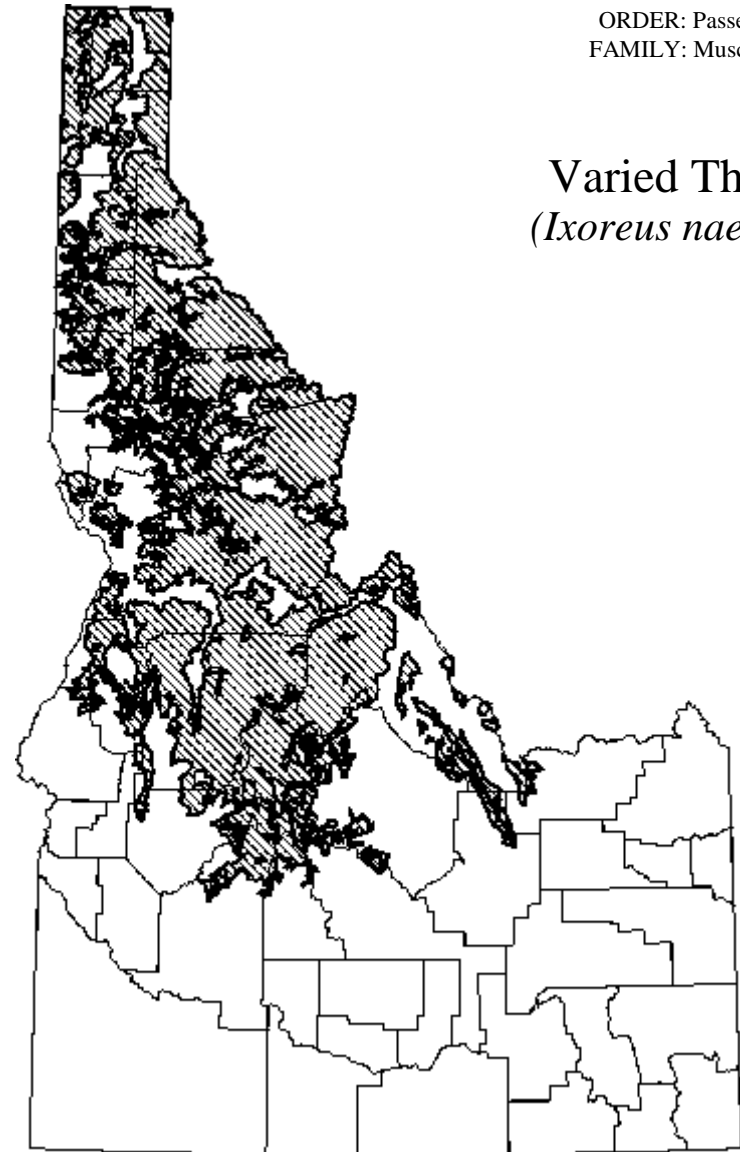
REPRODUCTION: Clutch size varies from 2-5 eggs, but is usually 3-4. Incubation lasts about 14 days. Nestlings are altricial.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, S.R. 1982. A preliminary survey of forest bird communities in northern Idaho. Northwest Sci. 56:287-298.

ORDER: Passeriformes  
FAMILY: Muscicapidae

## Varied Thrush (*Ixoreus naevius*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern British Columbia, east across southern Canada to Nova Scotia, and south to central New Mexico, Texas, central portions of Gulf states, and northern Florida. Winters from Atlantic coastal lowlands, north to Long Island, and from Gulf states to Panama.

HABITAT: Found in thickets, dense brushy and shrubby areas, undergrowth of forest edges, hedgerows, gardens, and dense second growth. An Idaho study in cottonwood forests reported that the probability of detecting catbirds increased with patch size; the species avoided grazed areas.

DIET: Eats insects, other invertebrates, small fruits, and arillate seeds.

ECOLOGY: Builds cup-shaped nest, frequently in thickets. Forages on ground or in vegetation. Sometimes forms loose flocks during migration.

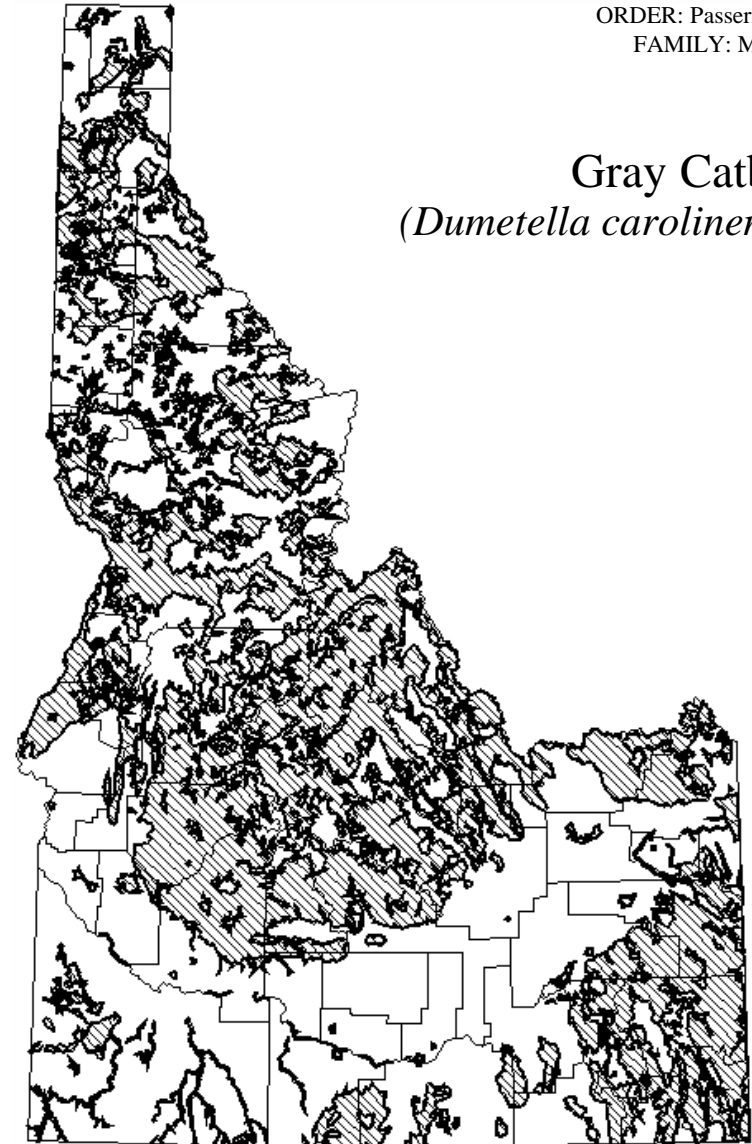
REPRODUCTION: Female incubates 2-6 eggs (usually 4), for 12-15 days. Young are tended by both parents, and leave nest at 10-15 days. Female often produces 2 broods/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Mimidae

## Gray Catbird (*Dumetella carolinensis*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Mimidae

RANGE: Breeds from southern British Columbia southeast to Wyoming, south to southern California (east of Coast Ranges), west to Utah, and south from there to northern New Mexico, northwestern Texas, and western Oklahoma. Winters south to Baja California and northern mainland of Mexico.

HABITAT: Found in sagebrush steppe. During migration and in winter, also found in scrub, brush, and thickets, primarily in arid or semi-arid situations (rarely around towns). In many areas, confined to regions where *Artemisia tridentata* grows. Idaho study found big sagebrush used for nesting were taller than average, had greater foliage density, and most often faced easterly. A recent study in southwestern Idaho concluded that distribution of sage thrashers was influenced by both local vegetation cover and landscape features such as patch size.

DIET: Feeds on variety of insects, including grasshoppers, beetles, weevils, ants, and bees. Will also eat fruits and berries.

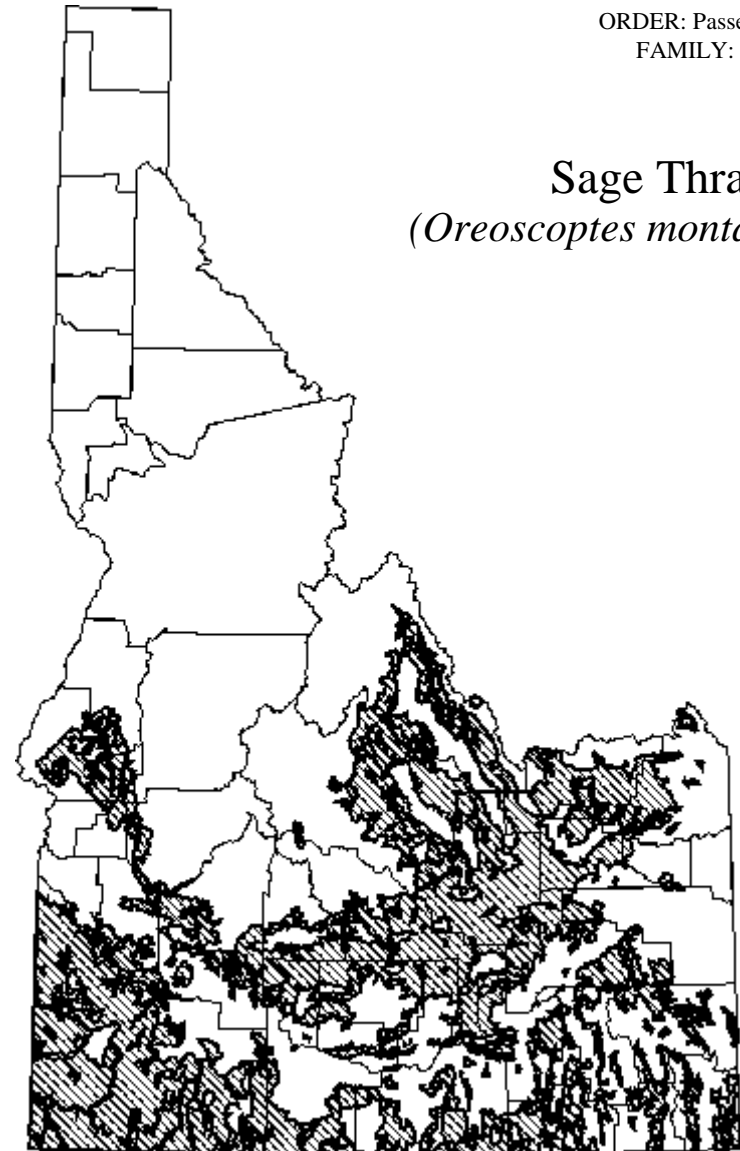
ECOLOGY: Forages on ground. Builds nest in, or under, sagebrush. Density rarely exceeds 30/km<sup>2</sup>. Idaho study found average territory size was 1.14 ha.

REPRODUCTION: Idaho study found both sexes incubated average of 3.5 eggs for 15 days; nestling period averaged 12.3 days and fledglings averaged 2.2/nest. Nestlings are altricial and downy.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, K.L. and L.B. Best. 1991. Nest-site selection by Sage Thrashers in southeastern Idaho. Great Basin Nat. 51:261-266.

## Sage Thrasher (*Oreoscoptes montanus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

ORDER: Passeriformes  
FAMILY: Motacillidae

RANGE: Breeds in arctic tundra and mountains of North America. Winters (primarily coastally) from British Columbia, east to New York, and south through southern U.S. to Guatemala.

HABITAT: When not breeding, found along seacoasts, beaches, mudflats, wet meadows, sandy areas and cultivated fields. Rosy Finches and pipits are only birds in Idaho which nest exclusively in alpine habitat.

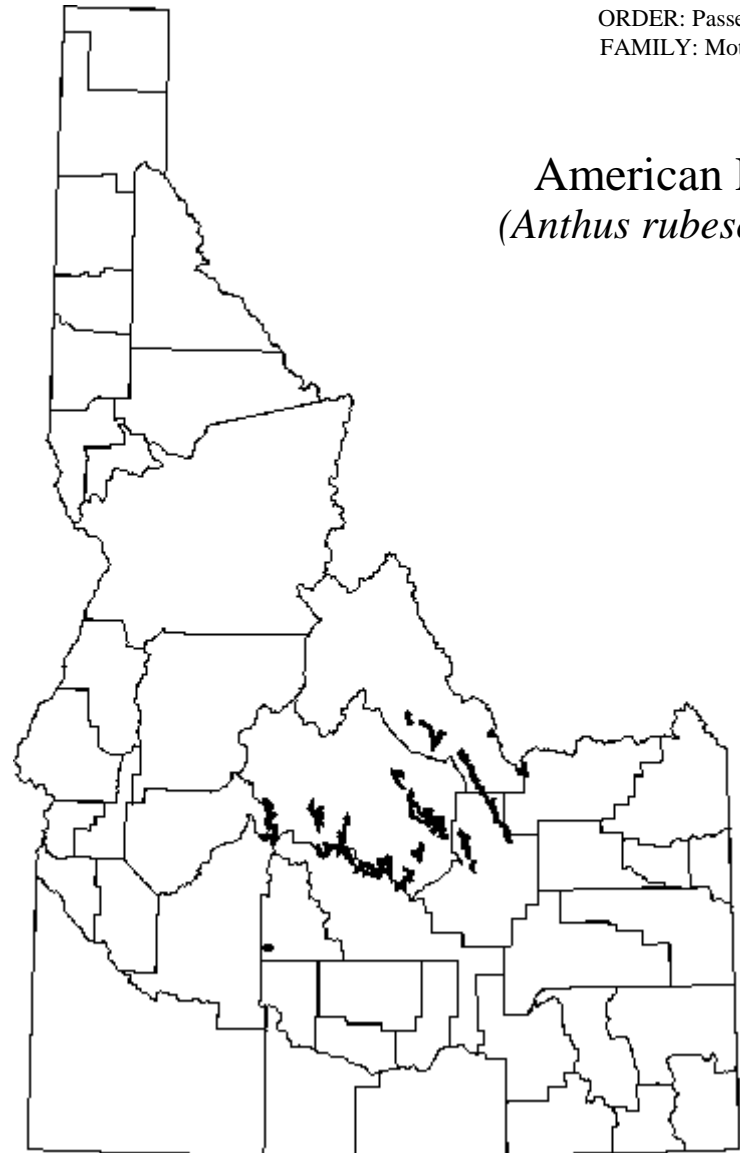
DIET: Species feeds on insects, spiders, mites, mollusks, crustaceans, and aquatic worms.

ECOLOGY: Builds cup-shaped nest on ground under rock or vegetation. Forms large flocks in winter. Forages while walking along open ground, or on mud flats and marshes. Also wades through shallow pools in tidal flats.

REPRODUCTION: Breeding begins early to mid-June. Female incubates 4-5 eggs (sometimes 3-7), for about 14 days. Nestlings are altricial, are tended by both adults, and leave nest 14-15 days after hatching. In central Idaho mountains, nests with eggs can be consistently located around July 4.

GIS MODEL NUMBER: 1

## American Pipit (*Anthus rubescens*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Bombycillidae

RANGE: Breeds from southeastern Alaska, east to Newfoundland, and south to northern California, northern Utah, western Oklahoma, southern Illinois, and parts of southeastern United States. Winters from southern Canada (locally) and northern U.S., south to central Panama, and casually to northern South America.

HABITAT: Found in variety of open woodland types (either deciduous or coniferous), and in forest edges, second growth, parks, orchards, and gardens. During migration and in winter, occurs wherever there are trees.

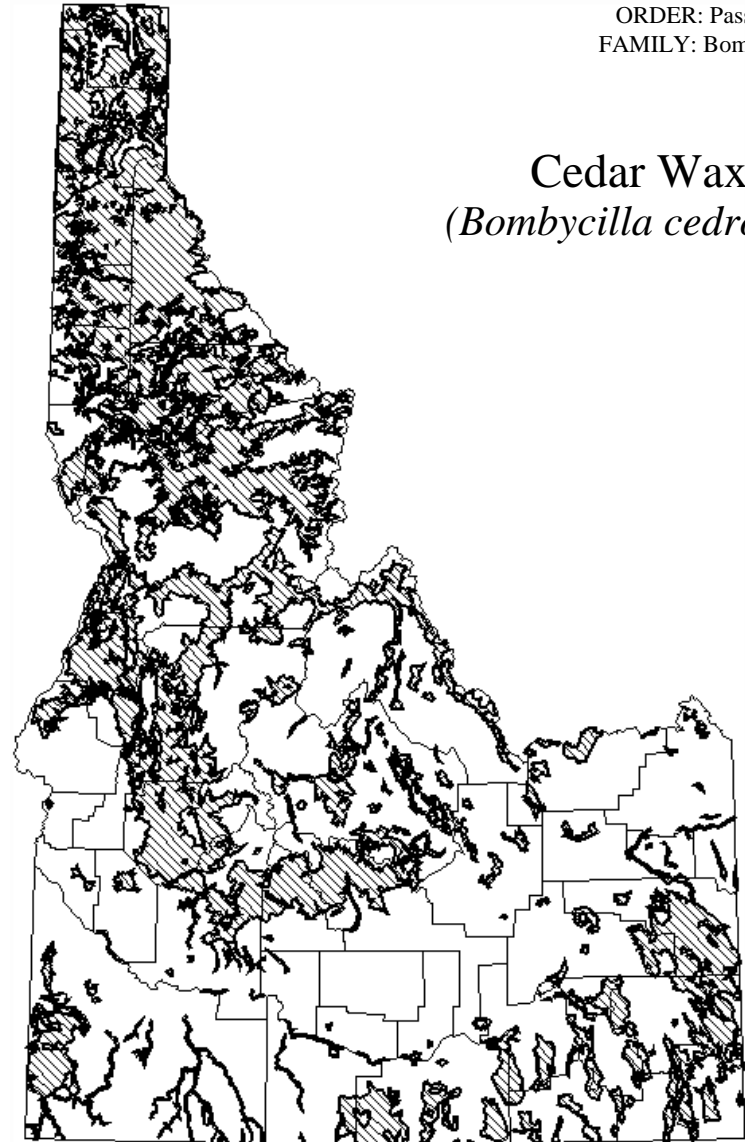
DIET: Feeds opportunistically on small fruits. May consume maple tree sap and flower petals. In spring and summer, eats various insects.

ECOLOGY: Forages in vegetation, or may fly from perch to capture prey. Nests in tree; nest size varies. Individuals may form small nesting colonies of up to 12 pairs, and may travel in small groups or flocks. Winter flocks may reach thousands of individuals.

REPRODUCTION: Breeding season varies. Female incubates 3-5 eggs (sometimes 6), for 12-16 days. Young are tended by both adults, and leave nest at 14-18 days.

GIS MODEL NUMBER: 1

## Cedar Waxwing (*Bombycilla cedrorum*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S3, NTMB

ORDER: Passeriformes  
FAMILY: Laniidae

RANGE: Breeds across portions of Canada, south through Great Basin to Baja California, Mexico, Gulf Coast, and southern Florida. Winters in southern half of breeding range, south to Gulf Coast, southern Florida, and Mexico.

HABITAT: Found in open country with scattered trees and shrubs, in savannas, desert scrub and, occasionally, in open juniper woodlands. Often found on poles, wires or fenceposts.

DIET: Feeds primarily on insects, small birds, lizards, and rodents. Diet varies with season and location; in parts of range, 76% of food eaten in winter may be meat.

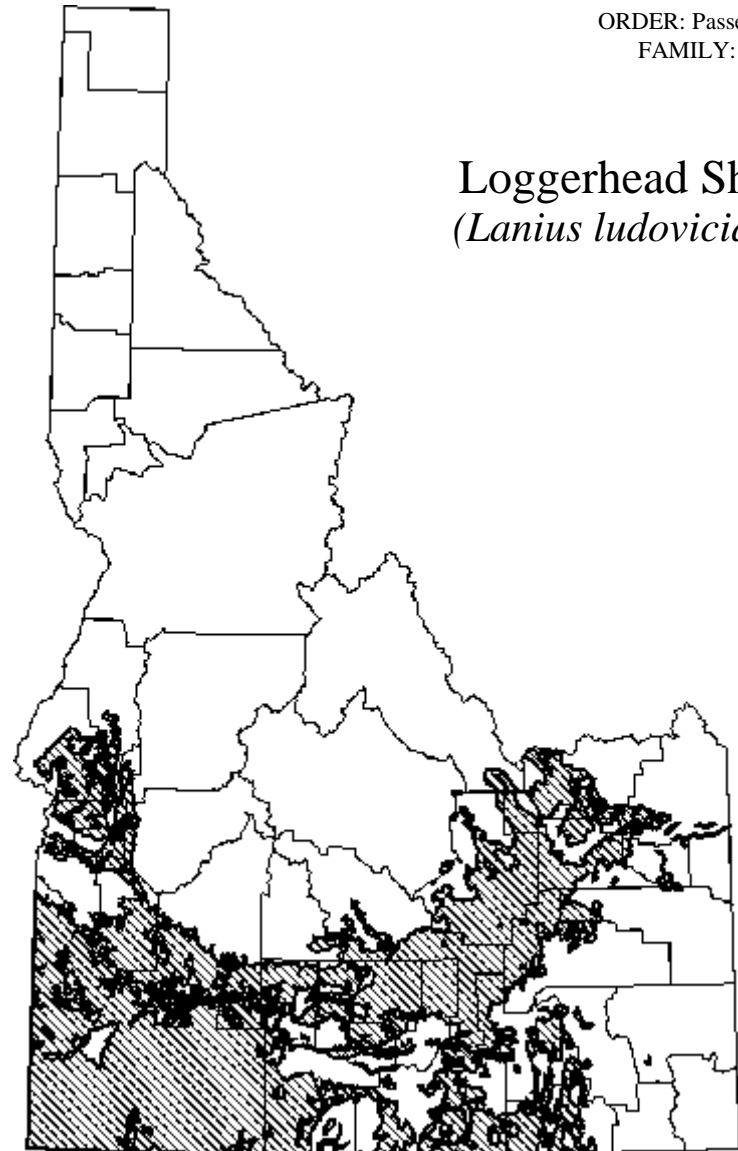
ECOLOGY: Constructs bulky, cup-shaped nest in shrub. A study in southeastern Idaho located nests in sagebrush, bitterbrush, and greasewood. Most nests were in sagebrush, and a lower than expected nest height was observed in all shrub species. Species hunts from perch, or catches prey in mid-air. Territorial throughout year. Size of territory may be about 6 ha in grassy hills; 10-16 ha in semi-desert. May maintain separate breeding and winter territories. Idaho study indicated that shrikes directly lowered nesting success of Sage and Brewer's Sparrows and Sage Thrashers. Loggerheads are one of 3 shrub-steppe neotropical migrants declining in Idaho. Shrike species throughout world are thought to be declining.

REPRODUCTION: Female incubates 4-5 eggs (sometimes 6-7), for 14-16 days. Incubation by both sexes (for 10-12 days) has also been reported. Young are tended by both adults, fledge in about 3 wk, and become independent in 36 days. Females produce 2 broods/season.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Woods, C.P. and T.J. Cade. 1996. Nesting habits of the loggerhead shrike in sagebrush. *Condor* 98:75-81.

## Loggerhead Shrike (*Lanius ludovicianus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Vireonidae

RANGE: Breeds across portions of Canada, south to Baja California, central Honduras, western Texas, northern Minnesota, southern Ohio, southern Appalachians, and New Jersey. Winters from southern California, northern Mexico, and portions of southeastern U.S., south to Costa Rica and western Panama.

HABITAT: Found in mixed woodlands, humid montane forests, pine/oak, oak forests, and pinyon/juniper. During migration and in winter, also found in variety of forests, woodlands, scrub, and thicket habitats, but prefers forest edges and semi-open situations. Preliminary results of Idaho-Montana study indicated Plumbeus Vireos (formerly Solitary) favored rotation-aged Douglas-fir stands over old growth.

DIET: Eats mostly insects, but will also eat some spiders and small fruits.

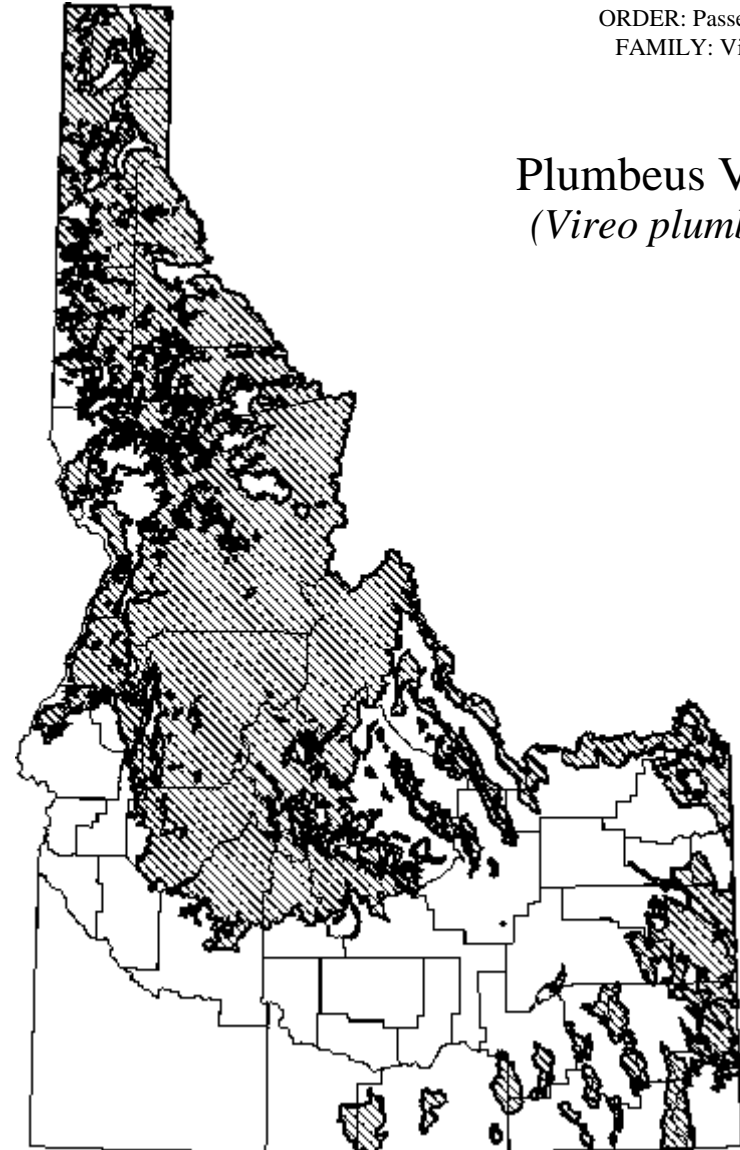
ECOLOGY: Builds cup-shaped nest in tree (usually coniferous). Forages among foliage and branches of trees and shrubs. Species is common host for Brown-headed Cowbird, especially near settled areas in western U.S.; cowbirds reduce vireo reproductive success.

REPRODUCTION: Both sexes incubate 3-5 eggs (usually 4), for probably 13-14 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

## Plumbeus Vireo (*Vireo plumbeus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from British Columbia, east across portions of Canada to northern Michigan, further east to Nova Scotia, and south to Baja California, northern Mexico, Texas, and portions of southeastern United States. Winters from northern Mexico to Nicaragua, and casually to Costa Rica.

HABITAT: Found in open, deciduous and deciduous/coniferous woodlands, riparian forests and thickets, pine/oak associations, orchards, and parks. During migration and in winter, found in wide variety of forest, woodland, and scrub habitats; seems to prefer light woodlands and savanna groves in winter. Idaho study found species was associated with dry, tall, willow areas.

DIET: Primarily insectivorous. Feeds on caterpillars, beetles, grasshoppers, ants, spiders, and some berries.

ECOLOGY: Forages in trees. Builds cup-shaped nest, usually high in tree, but sometimes in shrub. Density figures of 13.4 birds/40 ha have been recorded in flatland aspen; 60.0/40 ha in scrub-meadow; and 5 pairs/40 ha in Douglas-fir forest. Species is common cowbird host.

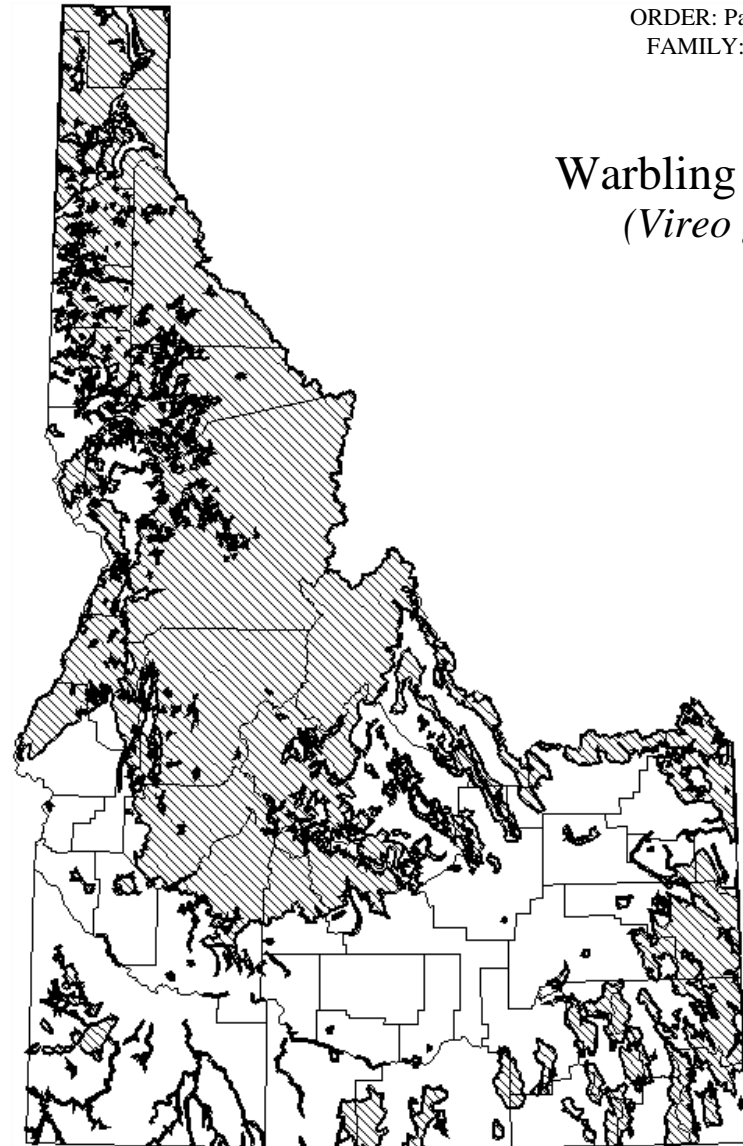
REPRODUCTION: Male and female, in turn, incubate 4 eggs (sometimes 3-5), for about 12 days. Nestlings are altricial and downy, are tended by both parents, and leave the nest in about 12-14 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

ORDER: Passeriformes  
FAMILY: Vireonidae

## Warbling Vireo (*Vireo gilvus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Vireonidae

RANGE: Breeds from British Columbia and probably southeastern Alaska, east across portions of Canada, and south to northern Oregon, northern Idaho, eastern Colorado, Texas, Gulf Coast, and southern Florida. Winters in South America.

HABITAT: Found in open, deciduous (less frequently coniferous) forests, especially with sapling undergrowth. Also found in second-growth woodlands, scrub, thickets, and gardens. During migration and in winter, found in various open forests, forest edges, woodlands, scrub, and brush habitats. In Idaho, primarily found in cottonwood riparian habitats and in low numbers in aspen stands.

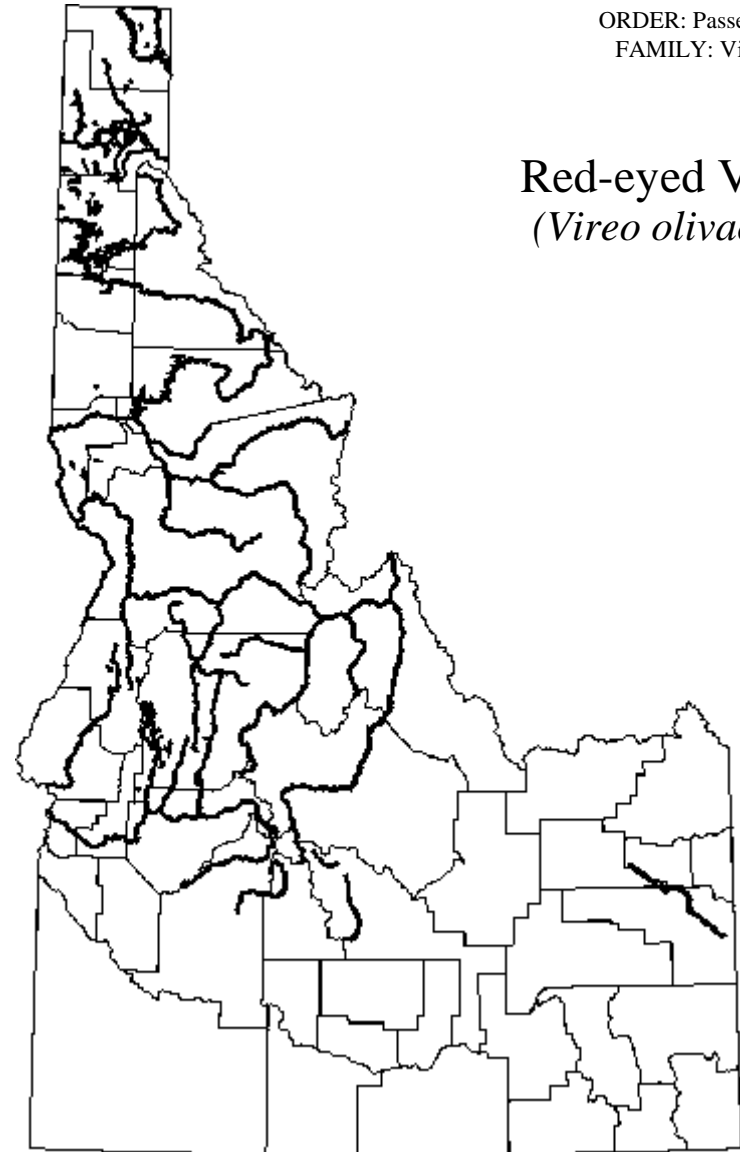
DIET: Eats insects, small fruits, and seeds. Notably frugivorous, almost totally so away from breeding areas.

ECOLOGY: Forages in trees. Builds cup-shaped nest in shrub or deciduous tree. In one study, 45 territories averaged 0.7 ha/pair. Species is a common cowbird host.

REPRODUCTION: Female (mostly or entirely) incubates 3-5 eggs (usually 4), for 11-14 days. Young are tended by both parents, and leave nest at 10-14 days. Female occasionally produces 2 broods/yr.

GIS MODEL NUMBER: 6

## Red-eyed Vireo (*Vireo olivaceus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from portions of Alaska and Canada, south to northwestern Baja California, southeastern Arizona, and western Texas. Winters from northern California to southern Texas, and in parts of southeastern United States, Mexico, and Central America.

HABITAT: Found in deciduous and mixed woodlands, shrub, chaparral, steep shaded slopes, riparian thickets, and aspen woodlands. During migration and in winter, found in woodlands, forest edges, a variety of brushy, shrubby areas, and in open and overgrown pastures. Preliminary results of northern Idaho study found species was more abundant in selectively harvested stands than in continuous stands of old-growth conifers.

DIET: Feeds on insects (wasps, ants, flies, caterpillars, etc.) and spiders.

ECOLOGY: Usually builds nest on ground, but will sometimes nest low in shrub or tree canopy. Not gregarious, but will occasionally forage with other bird species. Forages 1-11 m above ground.

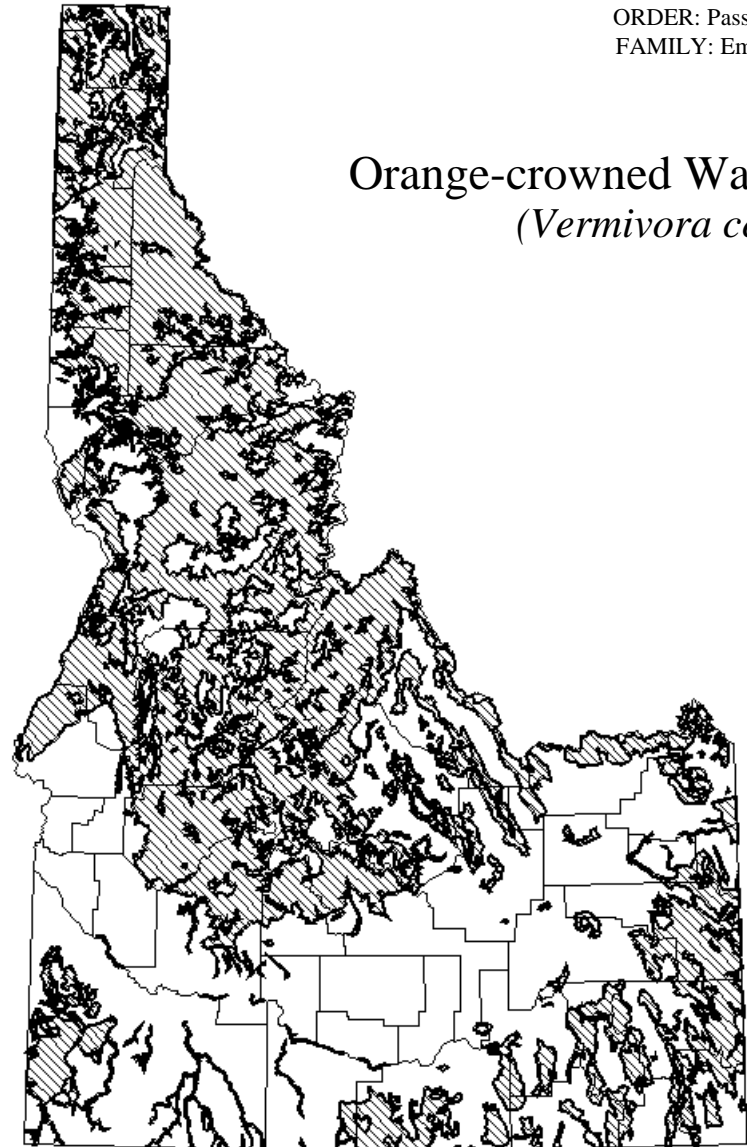
REPRODUCTION: Clutch size varies from 4-6 eggs, but is usually 5. Nestlings are altricial and downy and fledge in 8-10 days. Breeding biology is poorly known.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and L.C. Paige. 1993. Birds in continuous and fragmented forests of western red cedar/western hemlock in northern Idaho: a preliminary assessment. Draft manuscript, USDA Forest Service, Inter. Res. Sta., Missoula. 18pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Orange-crowned Warbler (*Vermivora celata*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern British Columbia, east to northwestern Montana, and south to southern California and Nevada. Also breeds in portions of eastern Canada and United States. Winters from northern Mexico, east to southern Texas, and south into Guatemala.

HABITAT: Found in forest-bordered bogs, second growth, open deciduous and coniferous woodlands, forest edges and undergrowth, and cut-over or burned areas. During migration and in winter, found in various woodland, scrub, and thicket habitats.

DIET: Eats insects. In nonbreeding range, visits flowers, takes small berries and seeds, and gleans for small insects.

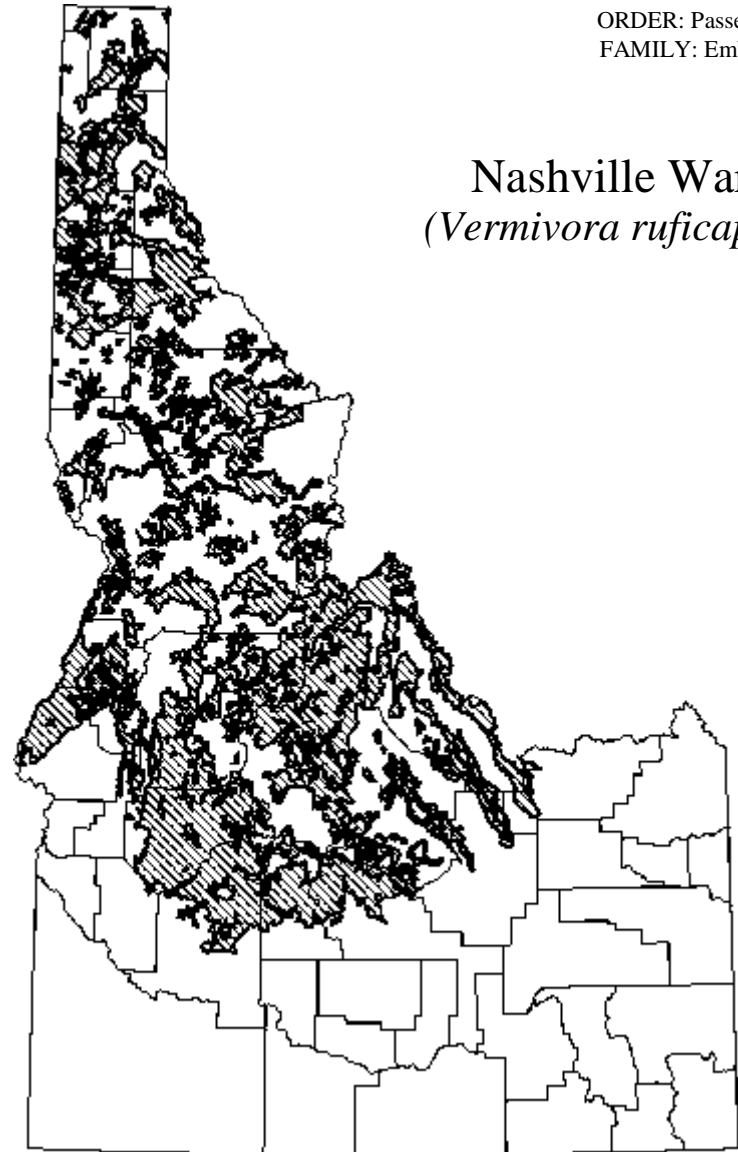
ECOLOGY: Builds concealed, cup-shaped nest on ground. Forages from ground to treetop, but usually remains low in trees and thickets at edges of forests. Uncommon cowbird host. Species is poorly studied.

REPRODUCTION: Female incubates 4-5 eggs for 11-12 days. Young are tended by both parents, and leave nest at about 11 days.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Emberizidae

## Nashville Warbler (*Vermivora ruficapilla*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2, NTMB

RANGE: Breeds in Great Basin from southeastern Idaho, northeastern Utah, and central Colorado, south to southeastern California, southern Nevada, southeastern Arizona, and central New Mexico. Winters in southwestern Mexico.

HABITAT: Breeds in deciduous woodlands on steep mountain slopes. Also found along mountain streams in sagebrush, or in cottonwood and willow habitat at 1800-2800 m. Winters in arid scrub. In Idaho, species is most closely associated with pinyon/juniper woodlands and nearby riparian areas.

DIET: Eats insects. Both sexes have been seen carrying caterpillars to young.

ECOLOGY: Builds concealed, cup-shaped nest on ground. Forages on ground in thick brush, or flies from perch to catch prey. Species is uncommon cowbird host.

REPRODUCTION: Clutch size varies from 3-5 eggs, but is usually 4. Young are cared for by both parents. Little is known about breeding biology.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Emberizidae

## Virginia's Warbler (*Vermivora virginiae*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from northern Alaska, east across northern Canada to Labrador, and south to Panama and northern coast of South America. Winters from southern California, southern Arizona, northern Mexico, and southern Florida, south to central Peru, northern Bolivia, and Amazonian Brazil.

HABITAT: Found in open scrub, second-growth woodlands, thickets, farmlands, and gardens, especially near water. During migration and in winter, found in open woodlands, plantations, brushy areas, and forest edges. Several Idaho studies have found this species to be a riparian habitat generalist.

DIET: Eats insects (especially caterpillars) and spiders. In southern range, occasionally eats small fruits or nectar.

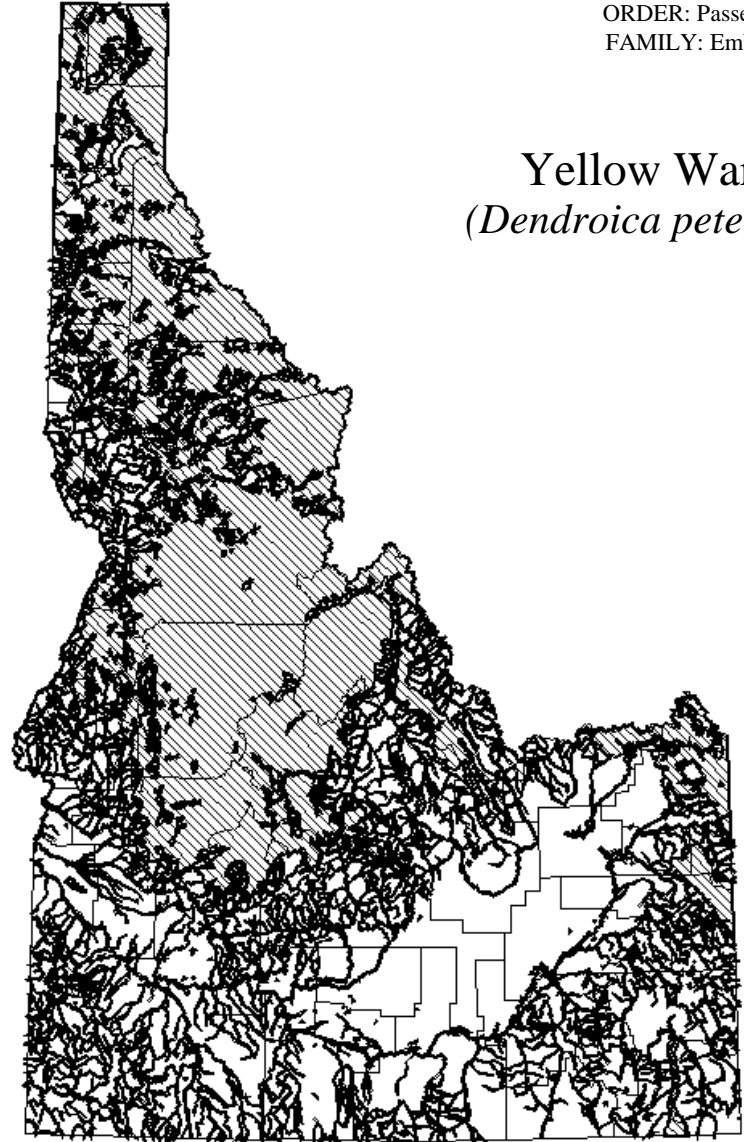
ECOLOGY: Takes most food from vegetation; may fly from perch to capture prey. Builds cup-shaped nest in shrub. Territories as small as 0.16 ha have been reported. Migrants are solitary and territorial in winter. Species is one of most common cowbird hosts. Reduced grazing apparently results in increased population size.

REPRODUCTION: Female incubates 3-6 eggs (usually 4-5), for 11-12 days. Young are tended by both parents, and leave nest at 9-12 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

## Yellow Warbler (*Dendroica petechia*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

GLOBAL RANGE: Breeds from Alaska and Canada, south to north-central and northeastern U.S and through western U.S into Baja California. Winters from southwestern Canada and northwestern, central and east-central U.S., south throughout western Mexico to Guatemala and uncommonly to Honduras. Species is one of the most abundant and widely distributed warblers.

HABITAT: When breeding, found in forests or open woodlands. During migration and in winter, found in open forests, woodlands, savannas, roadsides, pastures, and scrub habitat. May be seen in parks and gardens.

DIET: Feeds on insects (ants, wasps, flies, beetles, mosquitoes, etc.), spiders, and some berries and seeds. May drink tree sap.

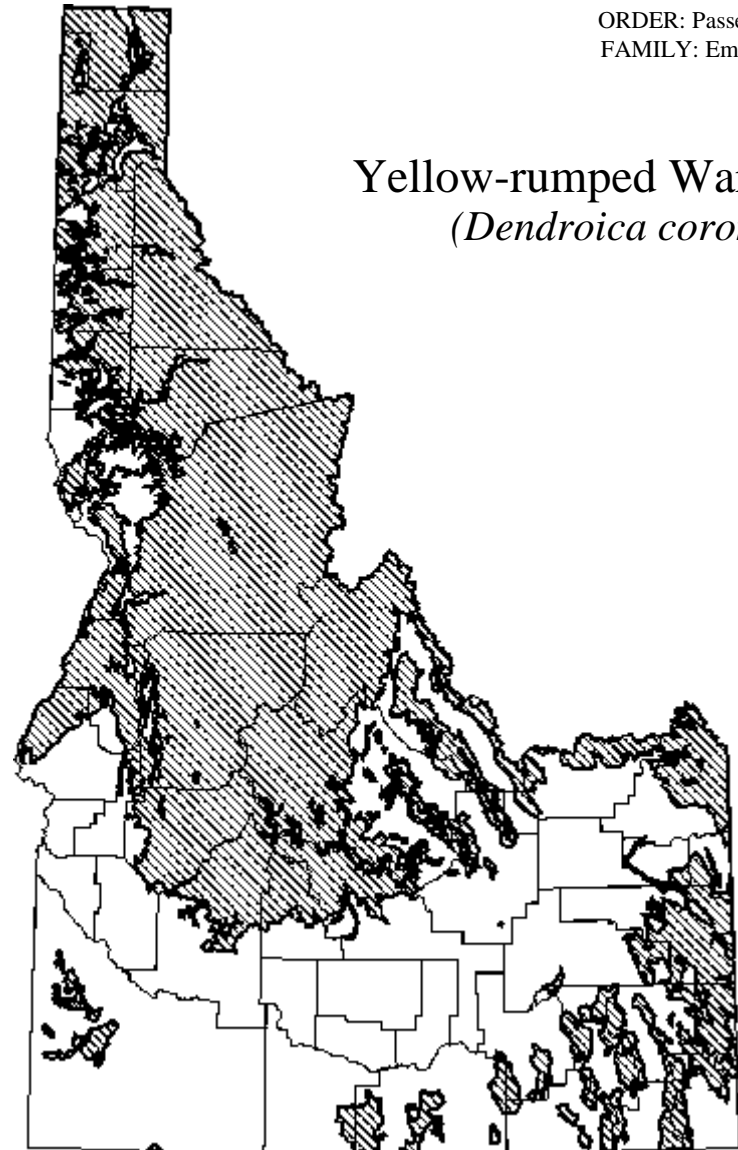
ECOLOGY: Builds cup-shaped nest on horizontal branch in coniferous tree. Forages by moving slowly over trunks and branches, by catching insects in flight, or by hopping on ground.

REPRODUCTION: Female incubates 4-5 eggs for 12-13 days. Nestlings are tended by both parents, but are brooded by female. Young leave nest in 12-14 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

## Yellow-rumped Warbler (*Dendroica coronata*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3, NTMB

RANGE: Breeds from southwestern British Columbia, western Washington, central Oregon, southwestern Idaho, northern Utah, southwestern Wyoming, and northwestern and central Colorado, south in mountains to Arizona, eastern and southern New Mexico, and northern Mexico. Winters from western and southern California and southern Arizona, south to portions of northern Mexico.

HABITAT: Found in dry, open forests and woodlands, and in brushland and chaparral. May inhabit fir forests, edges of clearings, or juniper/pinyon/oak scrub on slopes, foothills, and canyons. In winter, can be found in arid mountain woodlands, including pine/oak. In Idaho, species is associated with juniper stands.

DIET: Feeds mainly on insects (moths, butterflies, beetles, ants, etc.). May also eat leaf galls and a few spiders.

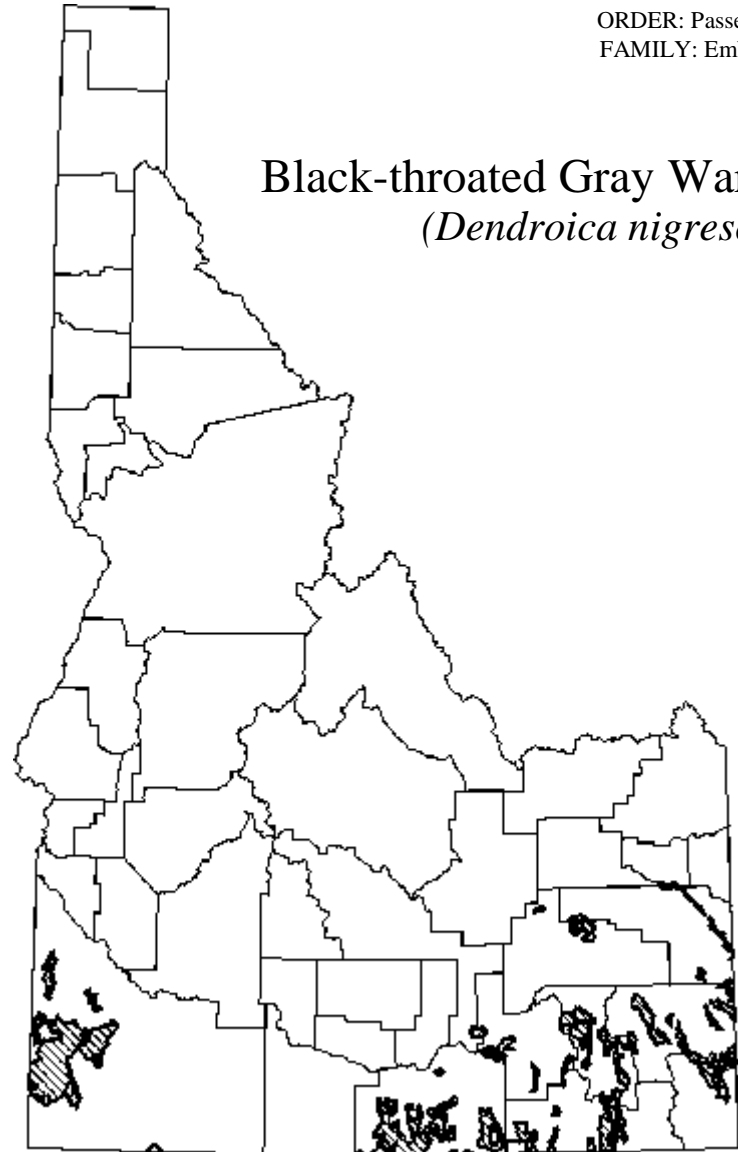
ECOLOGY: An inconspicuous, retiring bird. Builds nest in coniferous (sometimes deciduous) tree. Forages among leaves in bushes and trees. Seen singly or in pairs; may be seen in small groups while migrating. Jays, crows, and snakes prey on eggs and young.

REPRODUCTION: Female incubates 3-5 (usually 4) eggs. Young are tended by both parents.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Emberizidae

## Black-throated Gray Warbler (*Dendroica nigrescens*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southeastern Alaska, south through western Canada to central and northeastern Oregon, northern Idaho, northwestern and south-central Montana, and northwestern Wyoming. Winters in central and southern California, western Mexico, and highlands of Central America.

HABITAT: Found in tall, coniferous and mixed coniferous/deciduous forests. During migration and in winter, found (primarily in montane situations) in humid forests, pine/oak associations, open woodlands, second growth and scrub. Preliminary results of Idaho-Montana study indicate species favors old-growth Douglas-fir stands over rotation-aged stands.

DIET: Feeds mostly on insects (e.g., weevils, bugs, leafhoppers, caterpillars, etc.) and spiders. In winter, gleans small insects and caterpillars in foliage at all heights; hawks flying insects.

ECOLOGY: Builds cup-shaped nest in coniferous tree. Summer activity takes place in tops of trees.

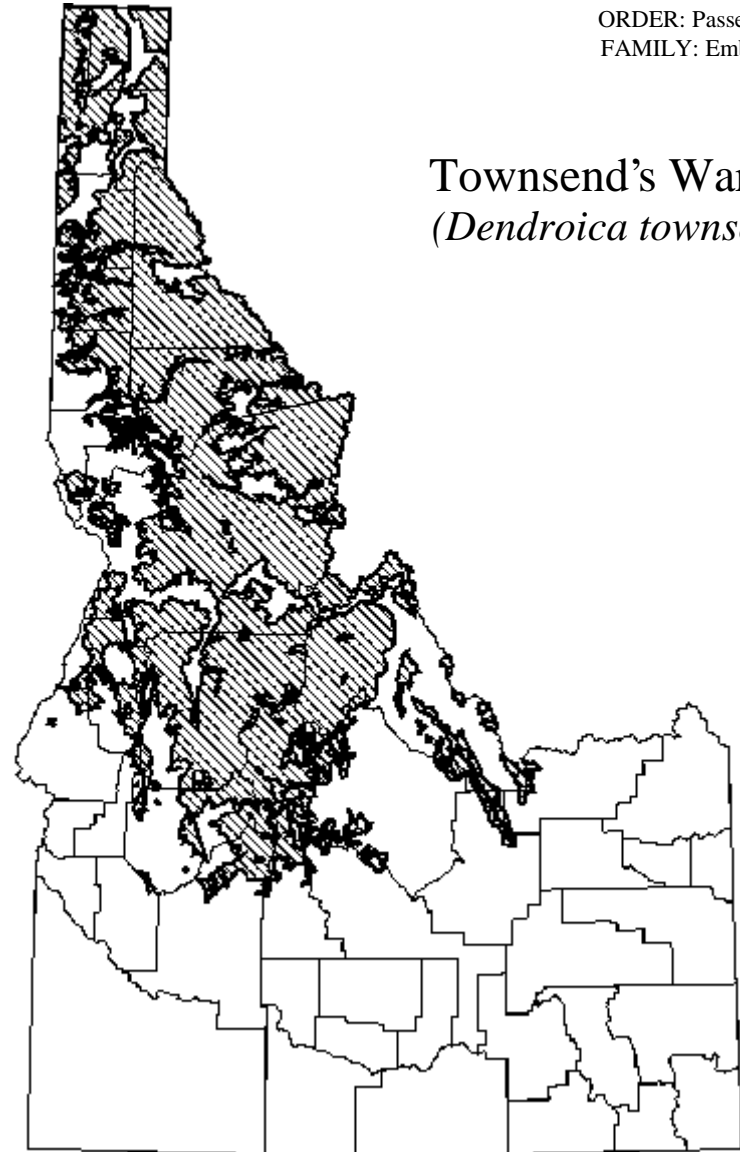
REPRODUCTION: Clutch size is usually 3-5 eggs. Nestlings fledge in 8-10 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Townsend's Warbler (*Dendroica townsendi*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds across portions of Alaska and Canada, south to Oregon, Arizona, Oklahoma, northern Gulf Coast, and Carolinas. Winters from southern Texas (rarely), south through Mexico (mainly coastally), and into Central and South America.

HABITAT: Found in open deciduous and mixed woodlands, second growth and tall shrubbery, orchards, shade trees, thickets, parks, gardens, and small groves. During migration and in winter, found in various forest, woodland, scrub, and thicket habitats.

DIET: Eats mostly forest tree insects, but will also eat spiders and some fruits and seeds.

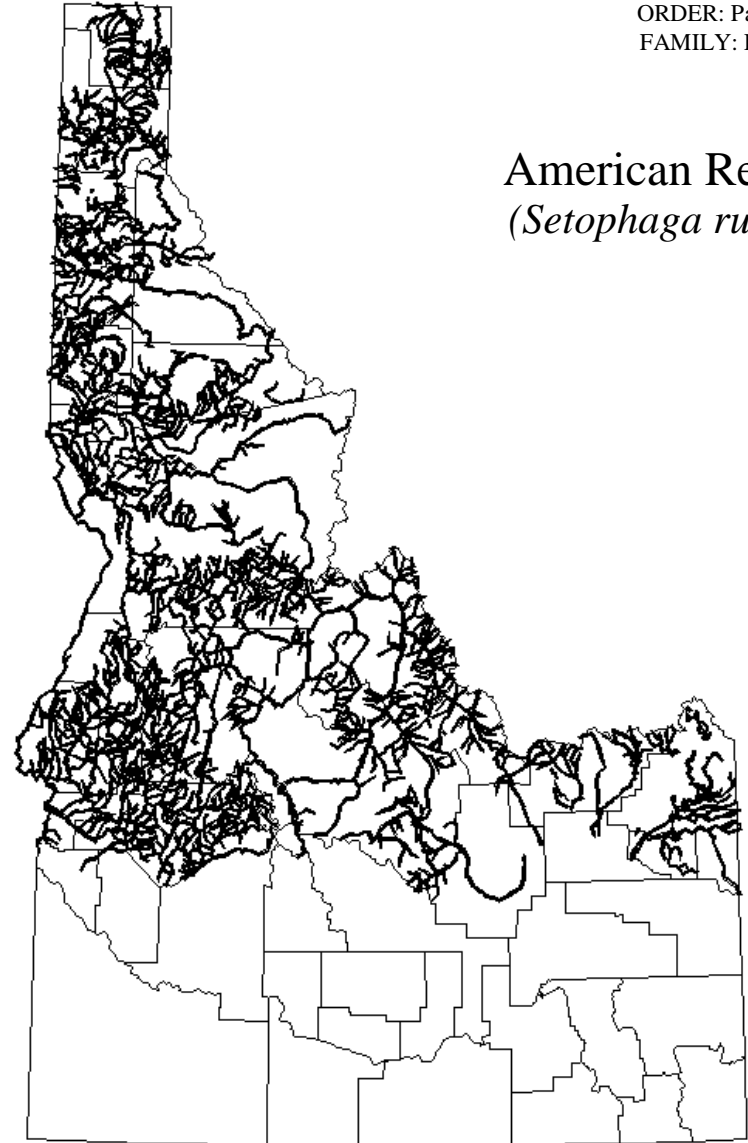
ECOLOGY: Nests in low, deciduous tree or shrub, sometimes in deserted nest of other species; nests are commonly parasitized by Brown-headed Cowbird. Captures prey during aerial sallies; sometimes gleans or hovers. Solitary in winter. Defends winter territory. Density in winter (in Jamaica study) was 10-51/10 ha, which was comparable to breeding densities reported for eastern U.S., but greater than densities reported for other sites in Caribbean and Mexico (0-17/10 ha).

REPRODUCTION: Female incubates 2-5 eggs (usually 4), for 12-13 days. Young are tended by both parents, and leave nest at 8-9 days.

GIS MODEL NUMBER: 6

ORDER: Passeriformes  
FAMILY: Emberizidae

## American Redstart (*Setophaga ruticilla*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S3, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from portions of Alaska and Canada, south to Washington, Idaho, North Dakota, Great Lakes, West Virginia, and Massachusetts. Winters in southern Florida, in portions of Mexico, throughout Central America, and in portions of South America.

HABITAT: Found in thickets near water, swamps, and bogs. In migration, found in forests, woodland, scrub, brushy areas, yards, and gardens. In winter, generally found alongside water, often along slow-moving streams in mangroves.

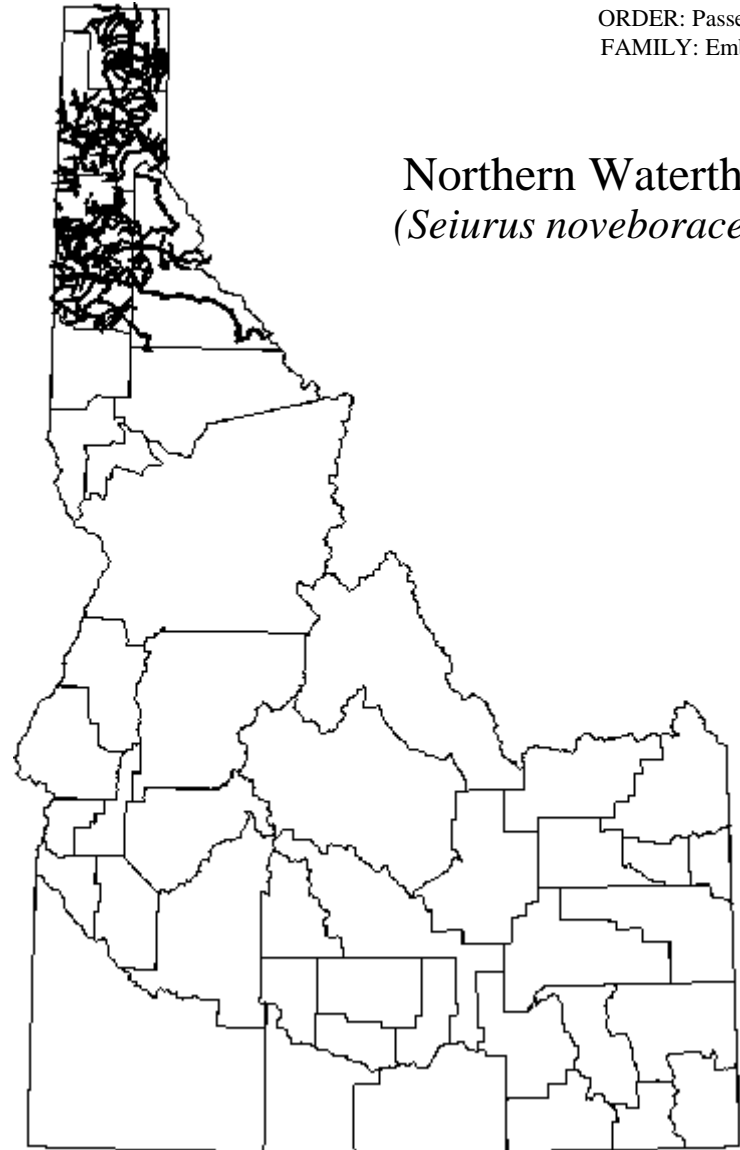
DIET: Eats various small invertebrates.

ECOLOGY: Builds nest in ground under bank near water. Forages on muddy ground, among soggy, fallen leaves, or in extremely shallow water.

REPRODUCTION: Lays eggs from late May to June. Female incubates 3-6 eggs (usually 4-5). Breeding biology is poorly known.

GIS MODEL NUMBER: 6

## Northern Waterthrush (*Seiurus noveboracensis*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from southeastern Alaska and western Canada, east to eastern Montana and southwestern South Dakota, and south (mainly in mountains) to southern California, central Arizona, and southern New Mexico. Winters in portions of Mexico and on Pacific side of Central America.

HABITAT: Found in coniferous forest undergrowth and edges, brushy hillsides, riparian thickets, and chaparral. During migration and in winter, found in variety of open woodland undergrowth, scrubby areas and thickets (often in cut-over or burned areas). Idaho study found species to be riparian habitat specialist, preferring dry, tall, willow areas with grasses and forbs.

DIET: Insectivorous.

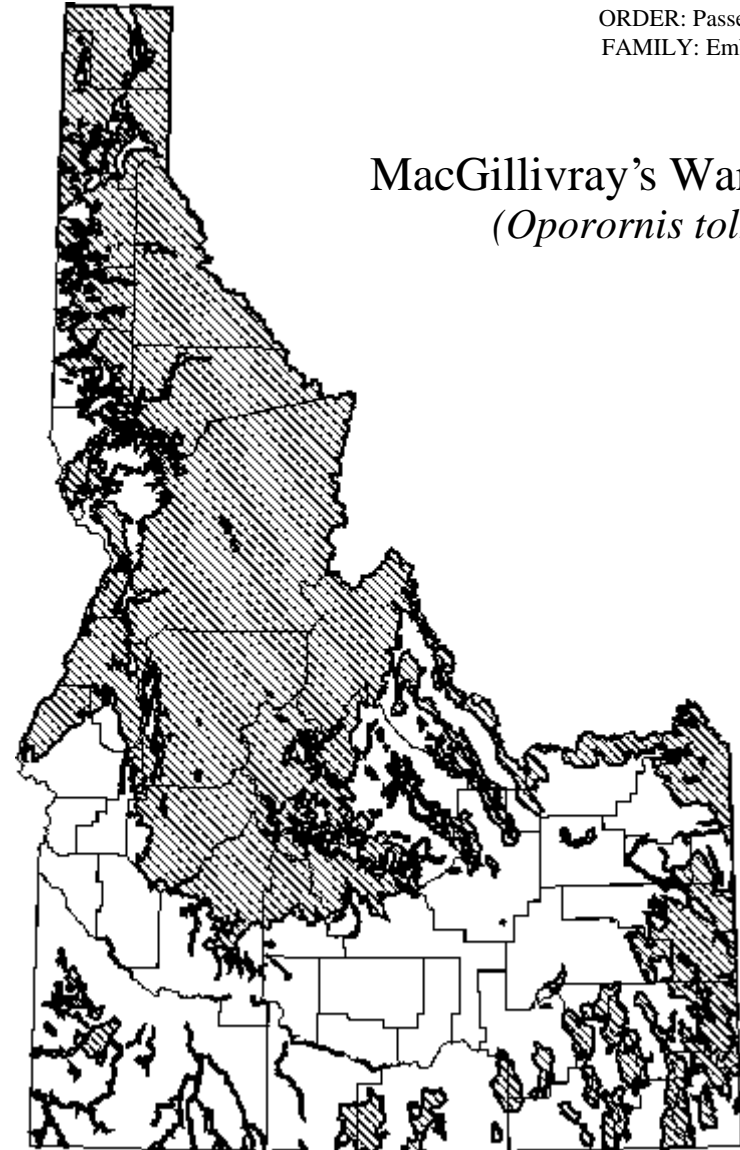
ECOLOGY: Nests low in thick shrubs. Forages close to ground in dense vegetation.

REPRODUCTION: Female incubates 3-6 eggs (usually 4), for 11 days. Nestlings are altricial. Young are tended by both adults, and leave nest when 8-9 days old.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

## MacGillivray's Warbler (*Oporornis tolmiei*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from portions of Alaska and Canada, south to northern Baja California, southern Mexico, southern Texas, Gulf Coast, and southern Florida. Winters from northern California, southwestern U.S., southern Texas, Gulf states and South Carolina, south throughout Mexico, Central America and portions of South America. Species may be the most abundant warbler.

HABITAT: Found in marshes (especially cattail marshes), thickets near water, bogs, brushy pastures, old fields, and, locally, undergrowth of humid forests. During migration and in winter, found in brushy and shrubby areas in both moist and arid regions. Idaho study found species favored wet, low, willow habitats.

DIET: Eats various small invertebrates.

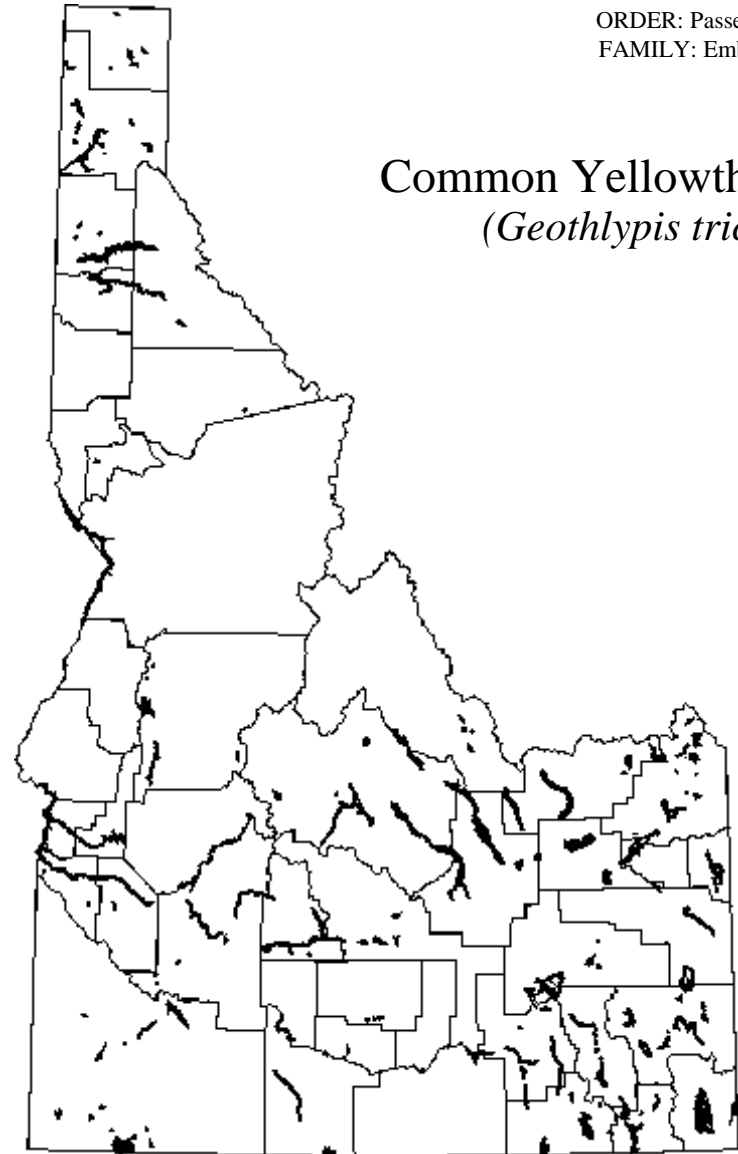
ECOLOGY: Nests in shrub. Forages in low plants. Southeastern Massachusetts study reported population density of about 1.5-2.5 territories/ha. Species is frequent cowbird host.

REPRODUCTION: Female incubates 3-6 eggs (usually 4), for 11-13 days. Young are tended by both parents, and leave nest at 8-10 days. Polygyny has been observed. Female usually produces 2 broods/yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

## Common Yellowthroat (*Geothlypis trichas*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from portions of Alaska and Canada, south to southern California, central Nevada, northern Utah, northern New Mexico, northern Minnesota, and portions of upper New England. Winters occasionally along Gulf Coast and southern Texas, throughout most of Mexico, and commonly in Central America.

HABITAT: Found in open areas in moist woodlands, in bogs with scattered trees, and in willow and alder thickets. During winter, found in semi-open or lightly-wooded areas, in canopies, openings, and edges of forest, and in second growth, coffee plantations, brushy fields, and yards.

DIET: Feeds on insects such as wasps, ants, flies, beetles, and caterpillars.

ECOLOGY: Builds nest on ground. Forages throughout available vegetation, obtaining most food from leaves by gleaning while perched or flying. Usually solitary and territorial in winter, but may join mixed flocks. California study found territory size in different habitats ranged from about 0.2-2.0 ha.

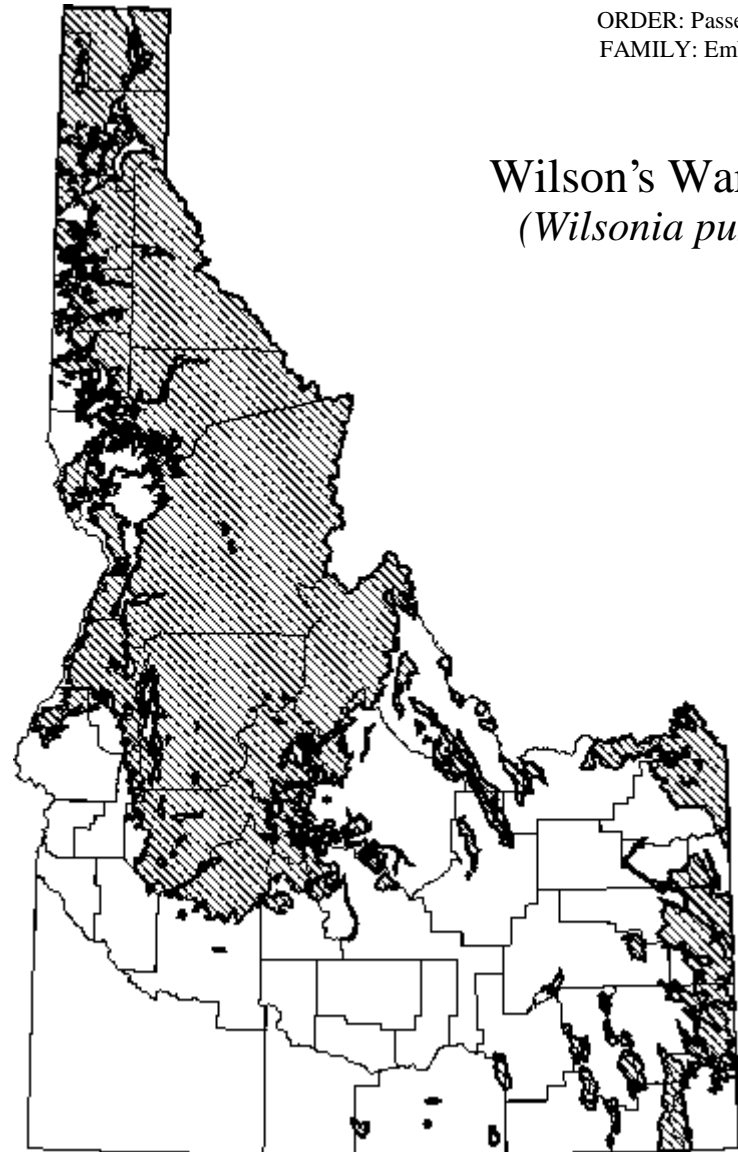
REPRODUCTION: Clutch size is commonly 3-4 eggs in coastal California, 4-5 in Sierra Nevada, and 5-6 in Alaska. Incubation lasts about 12-15 days; female incubates eggs. Young are tended by both parents, and leave nest at 9-10 days (California). In Sierra Nevada, some males are polygynous.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Wilson's Warbler (*Wilsonia pusilla*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds east across portions of Canada and northern U.S. to northern New England, and south to Gulf Coast and portions of Mexico. Winters from portions of northern Mexico, southern Texas, and southern Florida, south to portions of Central America.

HABITAT: Found in second growth, shrubby old pastures, thickets, brushy areas, scrub, woodland undergrowth, and fencerows. Often found in low, wet places near streams, pond edges, or swamps.

DIET: Eats mostly insects, but will also eat small fruits, particularly in winter.

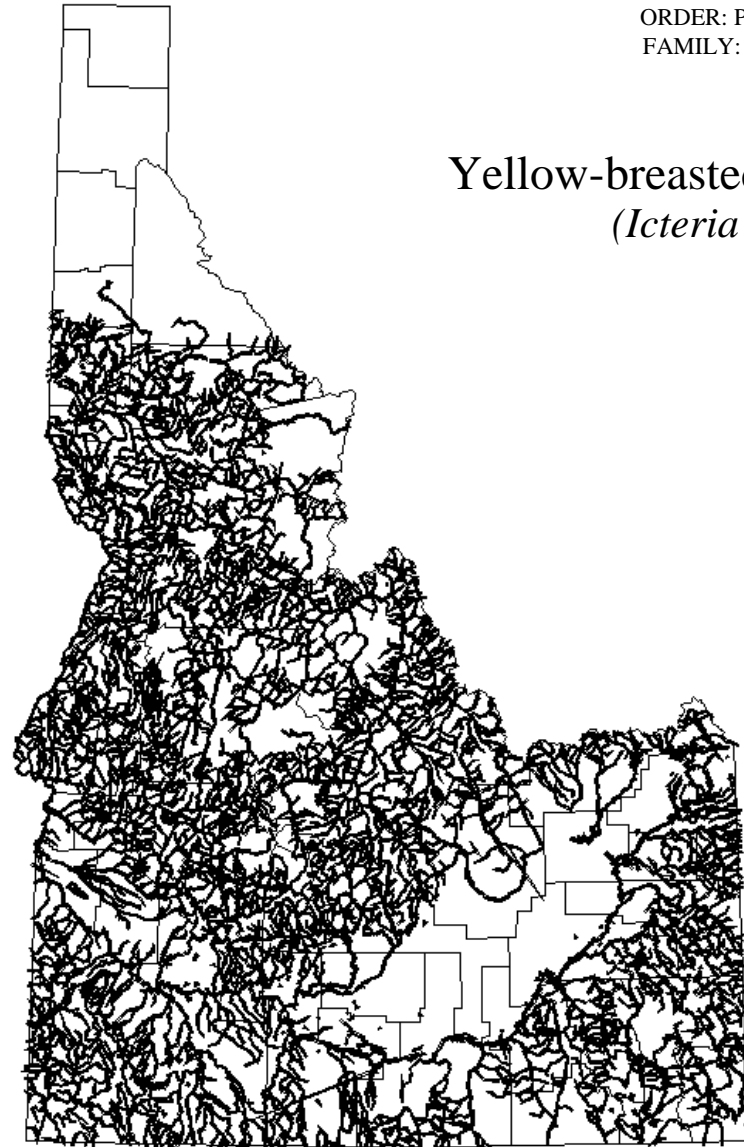
ECOLOGY: Builds nests in shrubs and sometimes on ground. Sedentary and solitary during winter. May form loose nesting colonies. Southern Indiana study found: 5-8 breeding males (plus 2-5 territorial nonbreeding males) per 18 ha of upland deciduous scrub; territory averaged 1.24 ha; and very few individuals returned to study area in years following first capture.

REPRODUCTION: Female incubates 3-6 eggs (usually 5), for 11-12 days. Young are tended by both parents, and leave nest at 8-11 days. Southern Indiana study found that nests begun in late June and July were more successful than nests begun earlier; nearly all nest failures were attributed to predators.

GIS MODEL NUMBER: 5

ORDER: Passeriformes  
FAMILY: Emberizidae

## Yellow-breasted Chat (*Icteria virens*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southeastern Alaska, east through western Canada, and south through western U.S. to northern Baja California, southern Nevada, southwestern Utah, Arizona, southern New Mexico, and western Texas. Winters from southern Baja California and central mainland of Mexico, south to portions of Central America (rarely southern U.S.).

HABITAT: Breeds mostly in coniferous and mixed mountain woodlands. Migrates and winters in variety of forest, woodland, scrub and partly-open habitats. Preliminary results of Idaho-Montana study indicated species favored old growth over rotation-aged stands in Douglas-fir/ponderosa pine habitats.

DIET: Feeds on variety of insects and fruits.

ECOLOGY: Nests on horizontal branch of coniferous (occasionally deciduous) tree.

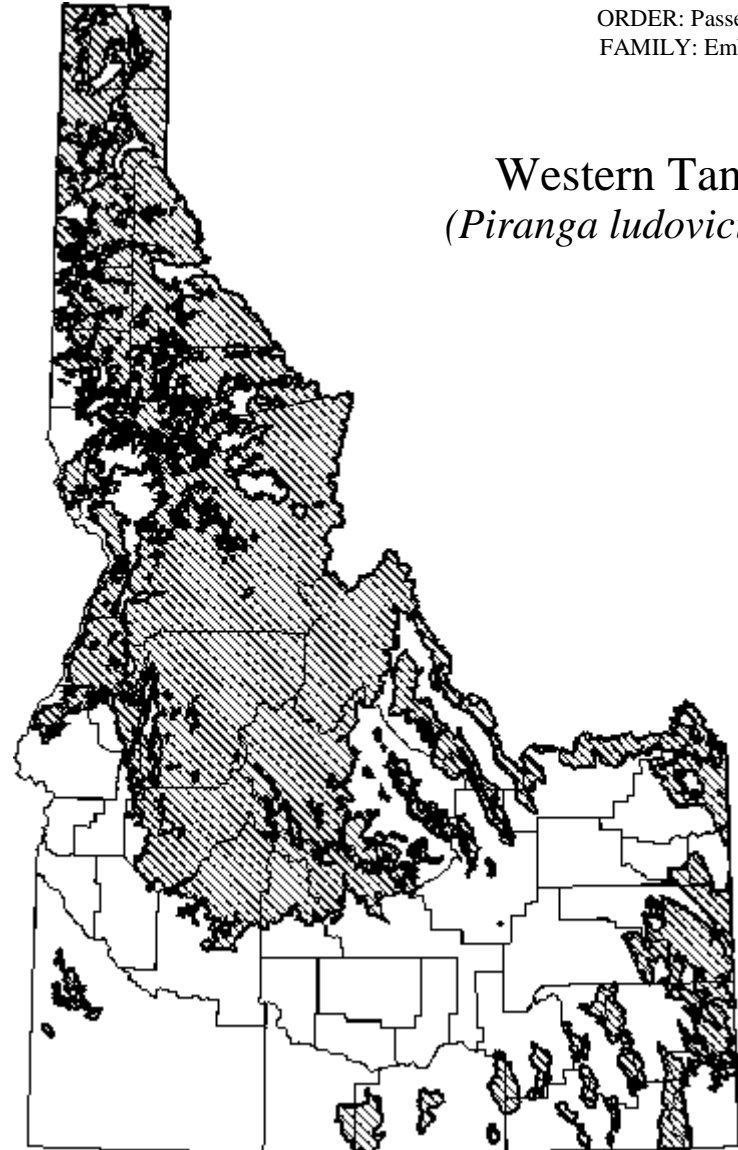
REPRODUCTION: Female incubates 3-5 eggs for 13 days. Nestlings are altricial. Young are tended by both adults.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Western Tanager (*Piranga ludoviciana*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from portions of western Canada, northeastern Montana, and northwestern North Dakota, south along Pacific Coast to northern Baja California, central and southeastern Arizona, and eastern New Mexico, east through portions of Midwest, and further south into mainland of Mexico. Winters in Mexico.

HABITAT: Found in deciduous forests and woodlands, pine/oak associations, oak scrub, pinyon/juniper woodlands, and deciduous thickets. Often found on edges of ponds, streams, or forests. Results of an Idaho study in cottonwood forest indicated grosbeaks were most strongly associated with willow subcanopies and avoided grazed areas.

DIET: Feeds on insects, spiders, berries, seeds, and buds.

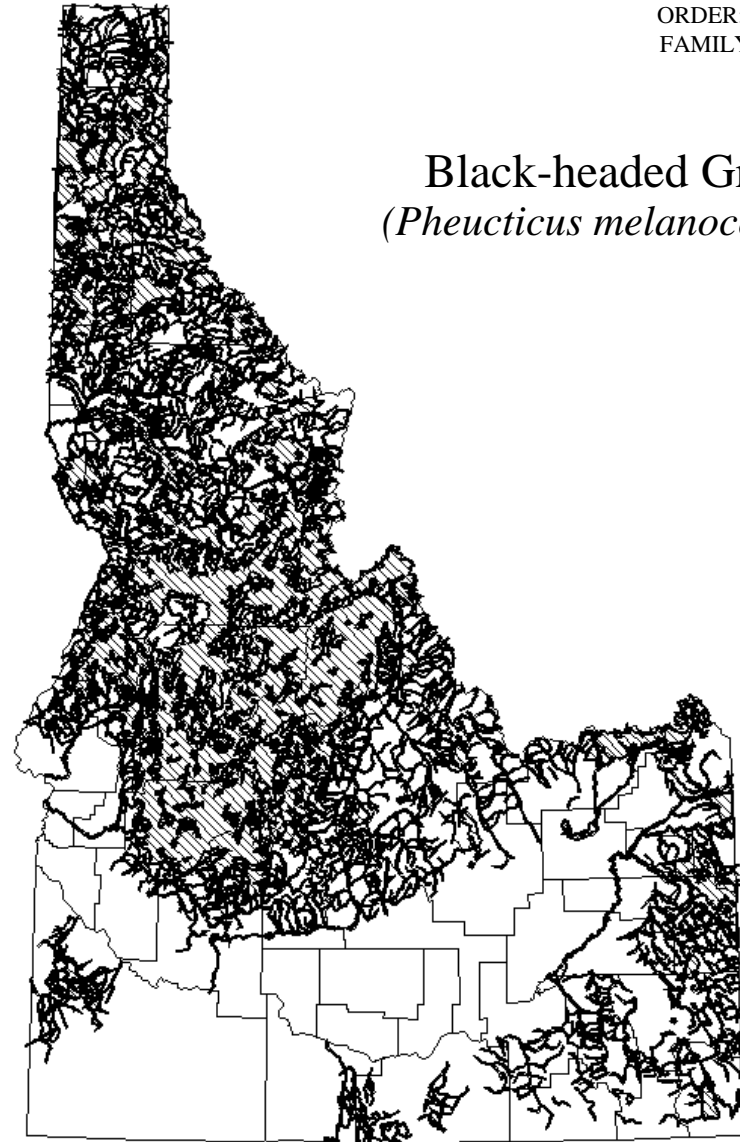
ECOLOGY: Builds cup-shaped nest in tree, or sometimes in shrub. Forages in crowns of deciduous trees, in shrubs, and on ground. Both male and female defend nesting territory against other breeding pairs. In New Mexico, jays are primary nest predators.

REPRODUCTION: Both sexes incubate 3-4 eggs for 12-13 days. Nestlings are altricial and downy, are tended by both parents, and leave nest in 9-12 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

## Black-headed Grosbeak (*Pheucticus melanocephalus*)



STATUS: Protected nongame species

GLOBAL RANK: G5 STATE RANK: S1, NTMB

RANGE: Breeds from central California, southern Nevada, Utah, southern Colorado, the Dakotas, and portions of the midwest and mid-Atlantic states, south to northern Baja California, southern Arizona, Costa Rica, Gulf Coast, and central Florida. Winters from southern Baja and northern Mexico, south to Panama and portions of South America.

HABITAT: Found in partly-open situations with scattered trees, and in riparian woodlands, scrub, thickets, cultivated lands, woodland edges, overgrown fields, and hedgerows. In Idaho, nests in hayfields or chickory, Russian olive, willow, and wild rose thickets next to sagebrush foothills.

DIET: In general, eats mostly insects, but will also consume snails, spiders, seeds, grains, and wild fruits.

ECOLOGY: Nests in shrub, or sometimes in tree. Forms flocks prior to migration. Forages on ground and in shrubs and trees. Obtains grit from roadsides or streams. Species is a rare breeder in Idaho.

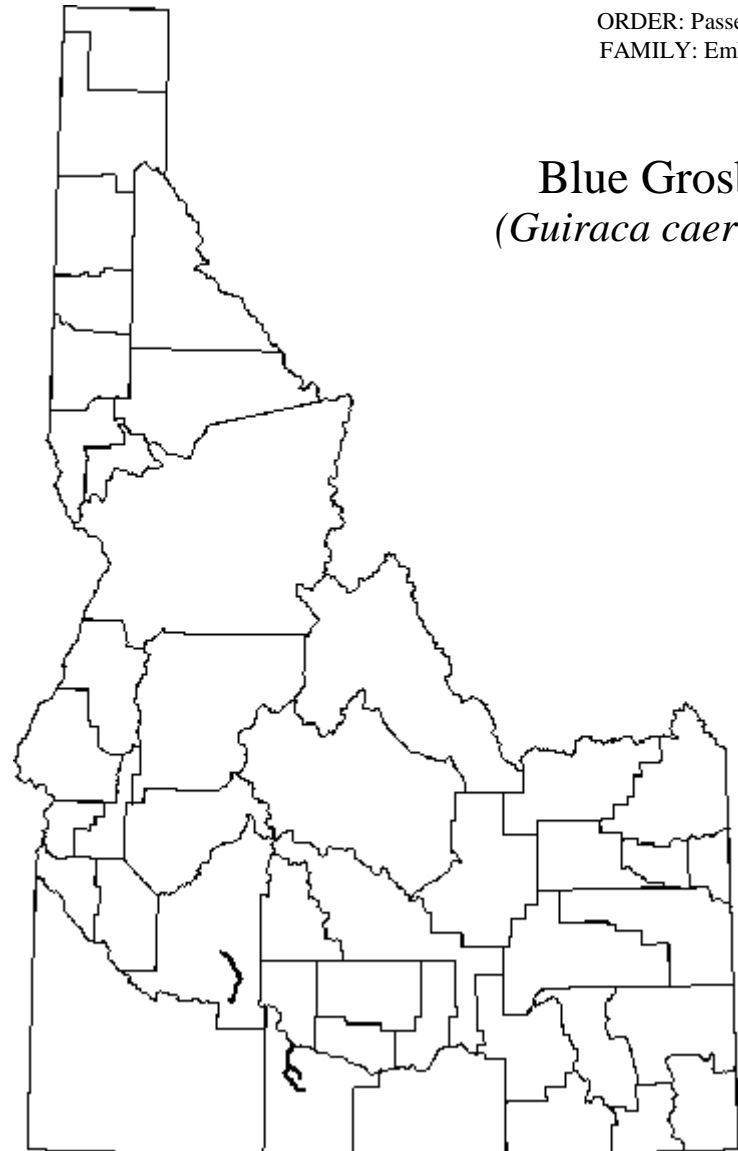
REPRODUCTION: Female incubates 2-5 eggs (usually 4) in northern range, for 11-12 days. Young are tended by both parents, and leave nest at 9-13 days. Female may produce 2 broods in southern range; male feeds fledged young if female re-nests.

GIS MODEL NUMBER: 9

IMPORTANT STATE REFERENCE: Rich, T. 1981. Second breeding locale for the blue grosbeak in Idaho. Murrelet 62:91-92.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Blue Grosbeak (*Guiraca caerulea*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern British Columbia, east to southern Saskatchewan and sections of midwestern U.S., and south to southeastern California, northwestern Baja California, southern Nevada, southwestern Utah, central Arizona, northern New Mexico, and western Oklahoma. Winters from southern Arizona (scarce), south to portions of Mexico.

HABITAT: Found in arid, brushy areas in canyons, riparian thickets, chaparral and open woodlands. During migration and in winter, found in open, grassy and weedy areas. Results of Idaho study conducted in cottonwood forest found buntings most strongly associated with dense shrub layers, a willow subcanopy, and herbaceous ground cover; species also avoided grazed areas.

DIET: Species feeds on insects (grasshoppers, caterpillars, beetles, ants, etc.), and seeds (wild oats, canary grass, needlegrass, etc.).

ECOLOGY: Nests in shrub. After breeding, may form flocks and move to higher elevations.

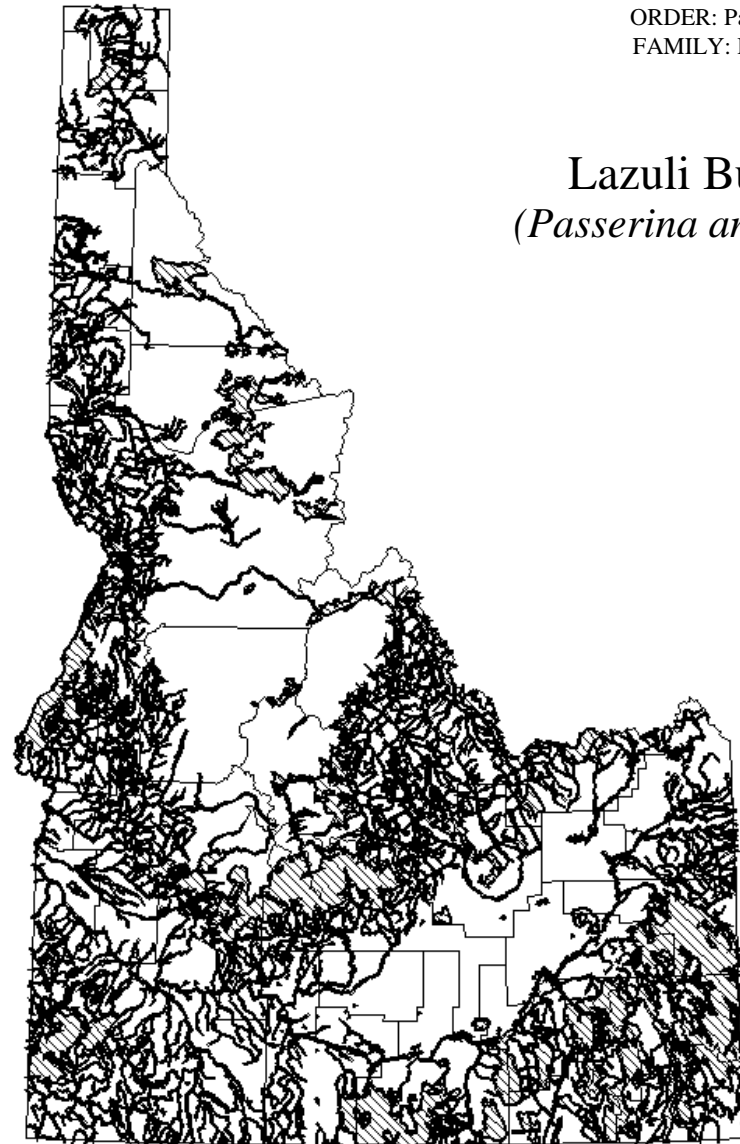
REPRODUCTION: Breeding begins late March in southern range, early June in north. Female incubates 3-5 eggs for 12 days. Nestlings are altricial and downy, are either tended by both parents or by female, and leave nest in 10-15 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Lazuli Bunting (*Passerina amoena*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southwestern and central Oregon, southeastern Washington, southern Idaho, southwestern Montana, and Wyoming, south through interior mountains to southern California, southern Nevada, central Arizona, and southern New Mexico. Winters from southern California, southern Arizona, and western and southern Texas, south to southern Baja California and central Mexico.

HABITAT: Found in thickets, chaparral, shrublands, and riparian scrub, primarily in mountains in breeding season, to lowland habitats when not breeding. Avoids forested areas.

DIET: Feeds on seeds, berries, and insects.

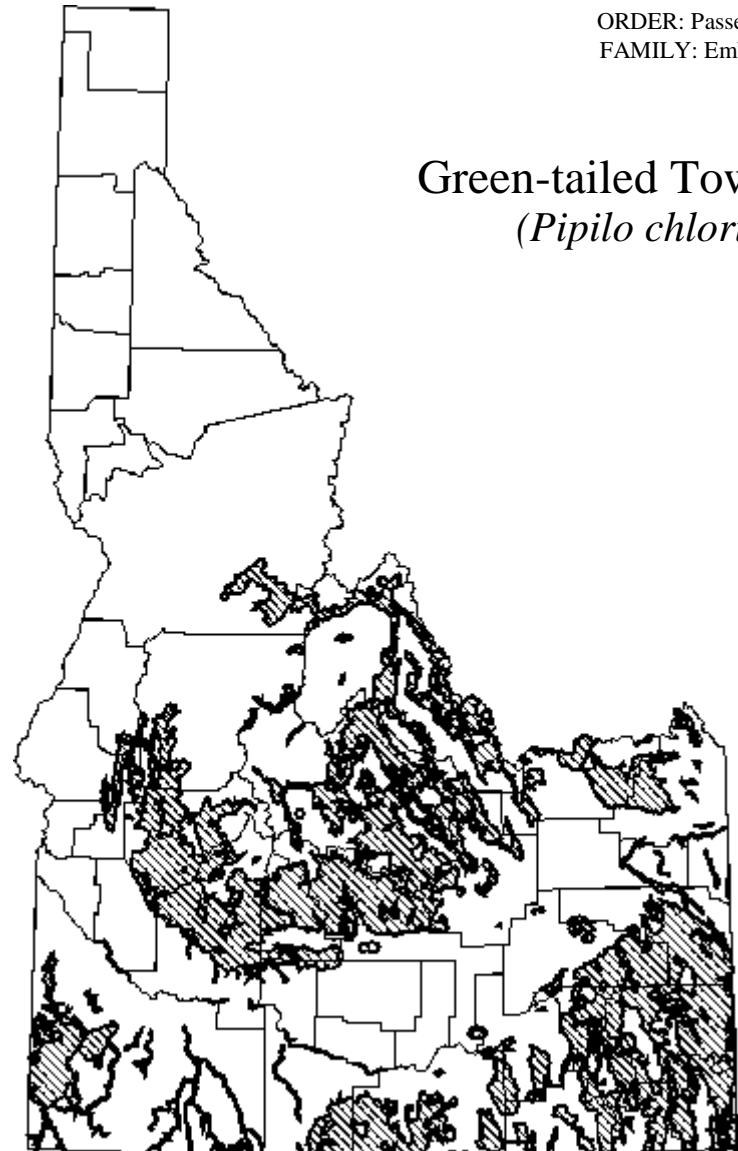
ECOLOGY: Nests in shrub; when nest is approached, female drops down to ground and runs away. Individuals forage in leaf litter, using double-scratch motion.

REPRODUCTION: Clutch size varies from 2-4 eggs, but is usually 4. Nestlings are altricial and downy.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Emberizidae

## Green-tailed Towhee (*Pipilo chlorurus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern British Columbia, east to southwestern Maine, and south to Baja California, Guatemala, western Texas, northern Oklahoma, northern Arizona, and portions of southeastern United States. Winters north to southern British Columbia, Utah, Colorado, portions of Midwest, and Massachusetts, and south to Guatemala.

HABITAT: Found in undergrowth of open woodlands, forest edges, second growth, brushy areas, chaparral, and riparian thickets.

DIET: Eats various invertebrates, seeds, small fruits, and some small vertebrates.

ECOLOGY: Builds cup-shaped nest on ground. Nesting female may fake injury to distract predator. Individuals forage in leaf litter, using double-scratch motion. Massachusetts study reported density of about 1-3 territories/ha. Species is one of the neotropical migrants thought to be declining in Idaho.

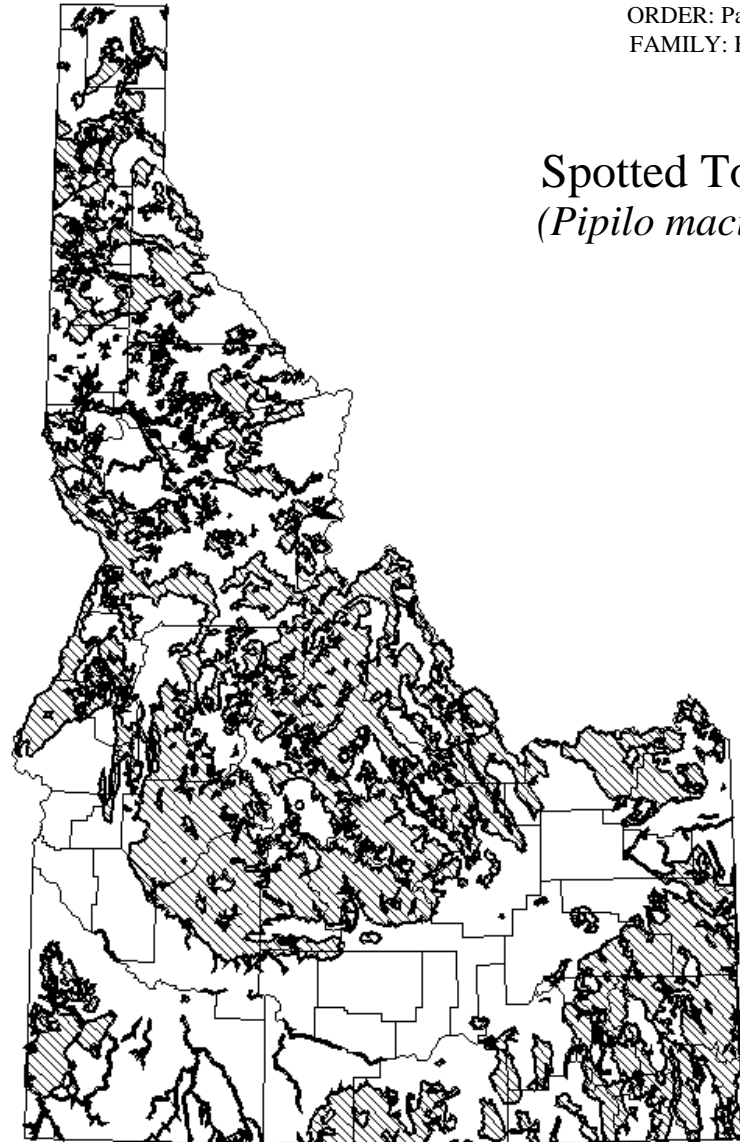
REPRODUCTION: Female (usually) incubates 2-6 eggs (usually 3-4), for 12-13 days. Young are tended by both parents, and leave nest in 10-13 days. Female may produce 2 broods/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V. and C.R. Groves. 1992. Idaho's migratory landbirds: description, habitats, and conservation. Nongame Wildlife Leaflet #10, Idaho Dept. Fish & Game, Boise. 16pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Spotted Towhee (*Pipilo maculatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from Alaska, Yukon, and British Columbia, east to Newfoundland, and south to northern Baja California, Nicaragua, and Gulf Coast. Winters from southwestern and central U.S., south to northern Nicaragua.

HABITAT: Found in open woodlands, woodland edges, edges of lakes and streams, grassy fields, parks, farmyards, and orchards. Preliminary results of Idaho-Montana study found species favored rotation-aged stands over old growth in Douglas-fir/ponderosa pine habitats.

DIET: Feeds on seeds (e.g., grasses, clover, ragweed, and knotweed), spiders, and insects (e.g., weevils, beetles, caterpillars, and grasshoppers).

ECOLOGY: Builds cup-shaped nest in coniferous tree, in vines, or occasionally on ground. Forages primarily on ground; may also take food from foliage or shrubs.

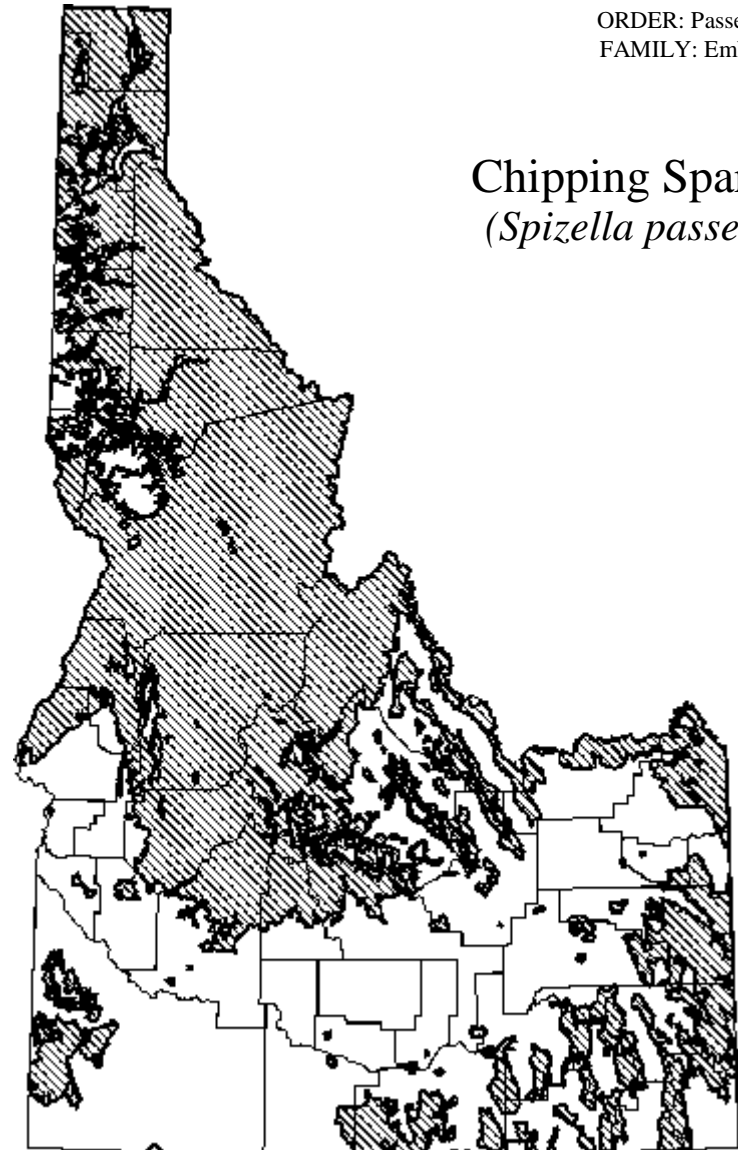
REPRODUCTION: Clutch size varies from 3-5 eggs, but is usually 4. Incubation lasts 11-14 days. Both parents tend young, which are altricial, and leave nest in 9-12 days. Female may produce 2 broods.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Chipping Sparrow (*Spizella passerina*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds across portions of western Canada and southwestern North Dakota, south to southern California, southern Nevada, central Arizona, and northwestern New Mexico. Winters from portions of southwestern U.S., south to southern Baja California and central mainland of Mexico.

HABITAT: Usually found in association with sagebrush. During migration and in winter, also found in desert scrub and creosote bush. Idaho study found Brewer's Sparrows prefer large, living sagebrush for nesting. A recent study in southwestern Idaho concluded that their distribution was influenced by both local vegetation cover and landscape-level features such as patch size.

DIET: In spring and summer, consumes insects such as alfalfa weevils, aphids, beet leafhoppers, caterpillars, and beetles. In fall and winter, feeds on seeds. Obtains water from food.

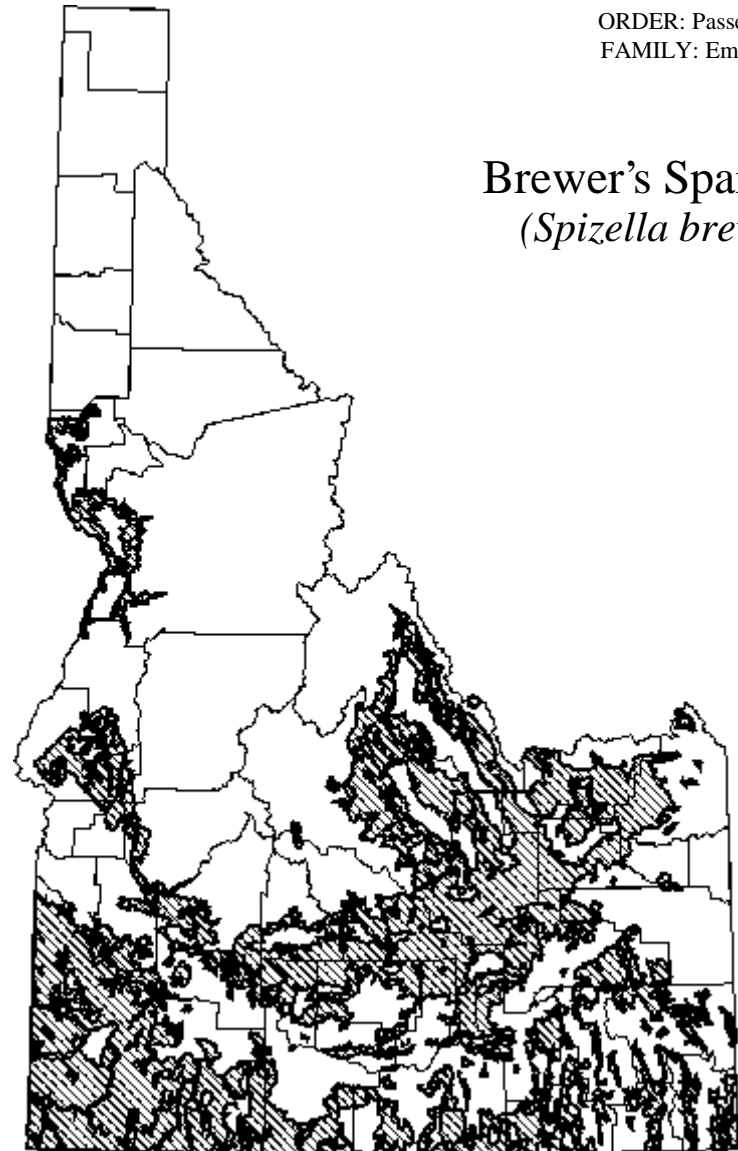
ECOLOGY: In Idaho, builds cup-shaped nest in sagebrush between 20 and 50 cm high or in low tree. Forages on ground. May be abundant in sagebrush habitat (Great Basin and Pacific slopes). In eastern Washington, as many as 47 pairs have been recorded on 100 ac. Breeding density of 0.08-0.10 individuals/ha has been reported in shadscale habitat in eastern Nevada. Breeding territory averaged 0.52 ha in Idaho study. During nesting season many males may sing in chorus at dawn and twilight. Two Idaho studies have indicated nesting success is quite low. In Great Basin, population density is usually 150-300/km<sup>2</sup>, but may exceed 500/km<sup>2</sup> in some cases. Species is one of 7 neotropical migrants thought to be declining in Idaho.

REPRODUCTION: Breeding begins in mid-April in southern range, to May or early June in north. Idaho study found clutch size averaged 3.4 eggs. Nestlings are altricial.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, K.L. and L.B. Best. 1985. Brewer's sparrow nest-site characteristics in a sagebrush community. *J. Field Ornith.* 56:23-27.

## Brewer's Sparrow (*Spizella breweri*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds across portions of Canada, south to eastern and southern California, central Nevada, southwestern Utah, Arizona, central New Mexico, Colorado, Kansas, Minnesota, Tennessee, and North Carolina. Winters in central California, southwestern U.S., and portions of eastern U.S., south to southern Mexico, Gulf Coast and central Florida.

HABITAT: Found in shrub steppe, grasslands, savannas, weedy pastures, fields, sagebrush, arid scrub, and woodland clearings. Idaho study found species was more abundant in prescribed burn areas of juniper than in old growth or clearcut.

DIET: Feeds on seeds, waste grain, and insects.

ECOLOGY: Builds cup-shaped nest on ground in excavated depression. Forages on ground. May bathe in dirt. Female may engage in distraction displays. Species is one of 7 neotropical migrants thought to be declining in Idaho.

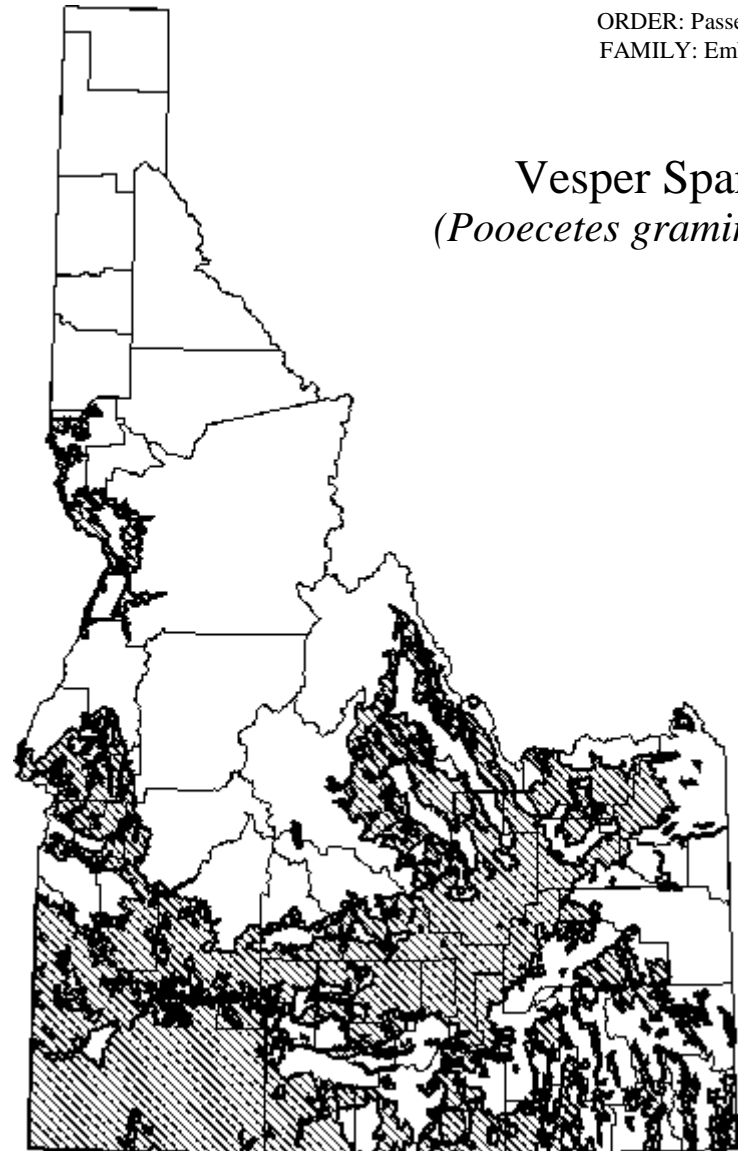
REPRODUCTION: Both sexes (usually female) incubate 3-5 eggs (sometimes 6) for 11-13 days. Young leave nest 7-12 days after hatching. Female may produce 2-3 broods/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: McCoy, M. 1993. Breeding bird survey of clearcut, prescribed burn, and seral/old growth stands of western juniper. USDI Bur. Land Manage., Boise District, Challenge Cost Share Project Report, Boise. 19pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Vesper Sparrow (*Pooecetes gramineus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from western Oregon, eastern Washington, southern British Columbia, southern Prairie Provinces, and portions of upper Midwest, south to portions of southwestern and southeastern U.S. Winters in southern U.S., south through Mexico, and casually south to El Salvador.

HABITAT: Found in open situations with scattered bushes and trees such as prairies, forest edges, cultivated areas, orchards, fields with bushy borders, and savannas.

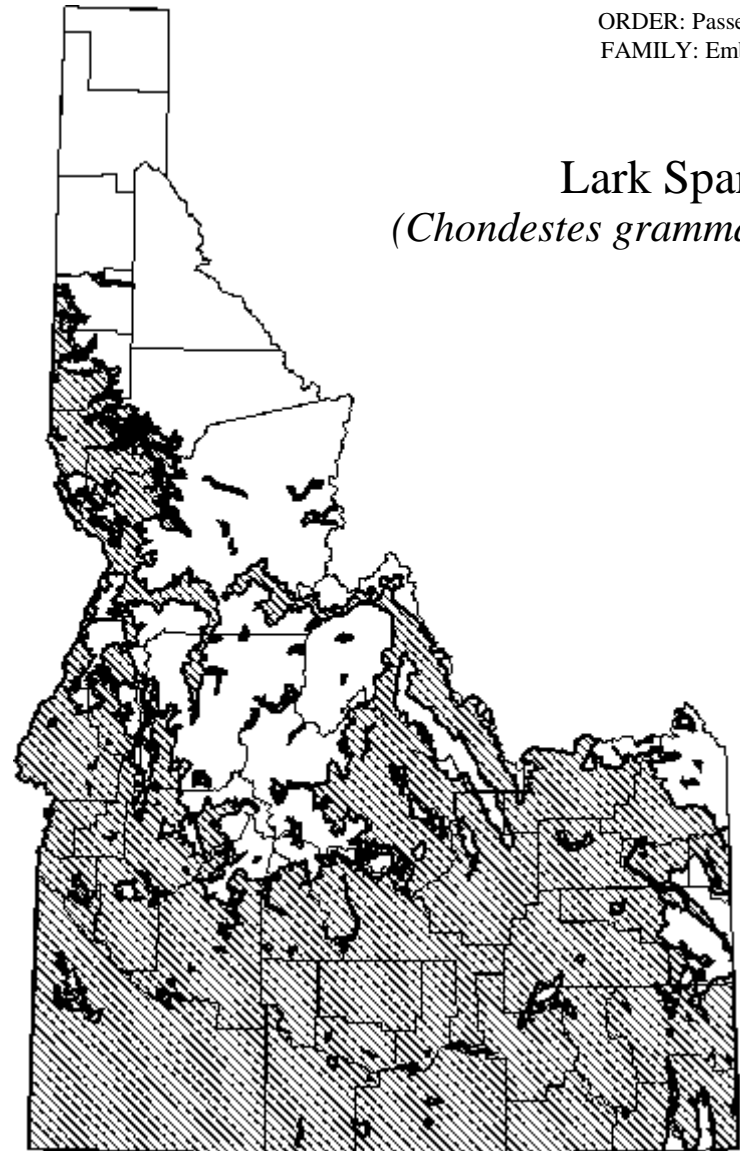
DIET: Feeds on seeds and insects (especially grasshoppers).

ECOLOGY: Gregarious. Builds cup-shaped nest, usually in depression on ground, but may also nest in shrub or crevice in rock. Female may engage in distraction displays. Individuals forage on ground, often in small flocks, and are seen in flocks, especially during winter.

REPRODUCTION: Clutch initiation peaks in early May in southern range, early June in north. Female incubates 3-6 eggs (usually 4-5), for about 12 days. Young leave nest at 9-10 days, and are able to fly short distances at that time. Males may be polygynous.

GIS MODEL NUMBER: 1

## Lark Sparrow (*Chondestes grammacus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2, NTMB

RANGE: Breeds from northeastern California, southwestern Wyoming, northwestern Oklahoma, and north-central Texas, south to southern Baja California and north-central mainland of Mexico. Winters from U.S. deserts southward.

HABITAT: Found in desert scrub, thorn bush, mesquite and juniper. During migration and in winter, also found occasionally in grassy areas and weedy fields away from desert regions. In Idaho, prefers open shrub areas dominated by high sage, spiny hopsage, or horsebrush exceeding 50 cm in height.

DIET: Feeds on seeds and insects. During some seasons, species may obtain daily water requirements from food source.

ECOLOGY: Builds cup-shaped nest in shrub or cactus; in Idaho, all located nests have been 25-45 cm above ground in big sagebrush plants. Individuals usually forage on ground, but may forage in air. In California study, population density of 7/40 ha was reported in desert scrub/creosote/burrobush habitat; in another study, density was 3.9/40 ha.

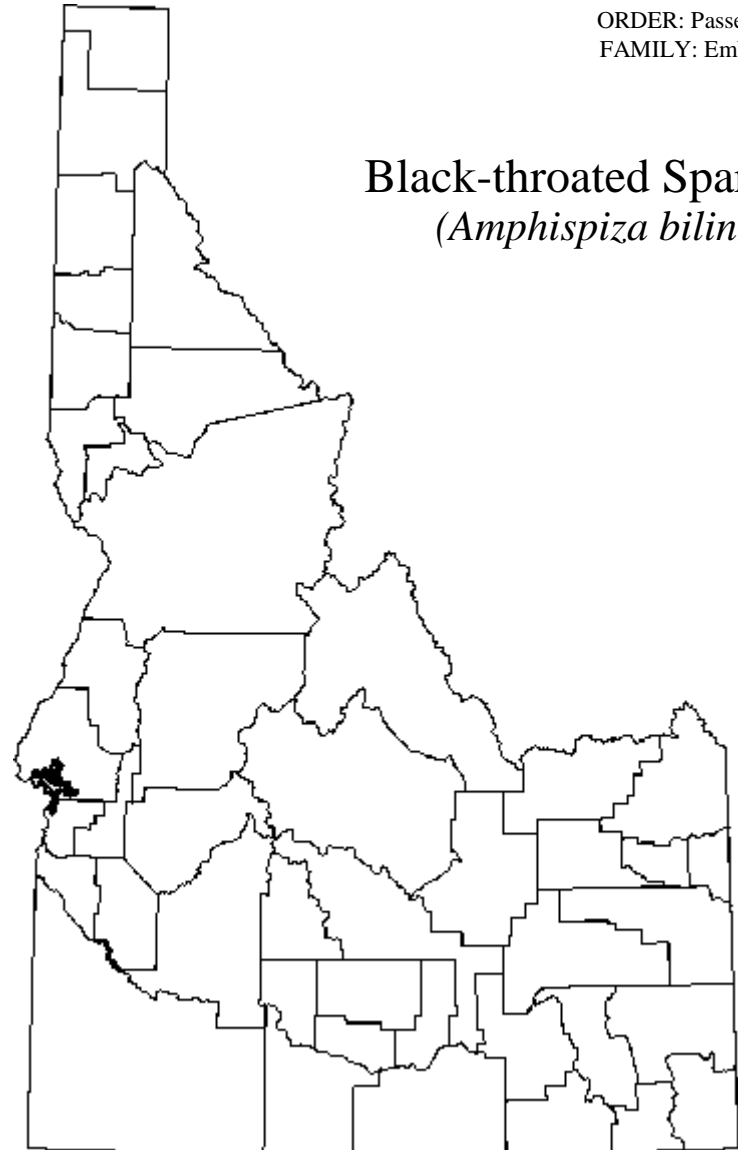
REPRODUCTION: Clutch size varies from 3-4 eggs. Nestlings are altricial and downy.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Marks, J.S., J.H. Doremus, and A.R. Bammann. 1980. Black-throated Sparrows breeding in Idaho. Murrelet 61:112-113.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Black-throated Sparrow (*Amphispiza bilineata*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from central Washington, eastern Oregon, southern Idaho, and southwestern and northwestern Colorado, south to southern California, central Baja California, southern Nevada, southwestern Utah, northeastern Arizona and northwestern New Mexico. Winters from portions of southwestern U.S., south to portions of northwestern Mexico.

HABITAT: Found in sagebrush, saltbush brushlands, and chaparral. During migration and in winter, also found in arid plains with sparse bushes, in grasslands, and in open situations with scattered brush. One Idaho study found nesting occurred in areas where sagebrush coverage was sparse but clumped. A recent southwestern Idaho study concluded that distribution of sage sparrows was influenced by both local vegetation cover and landscape features such as patch size.

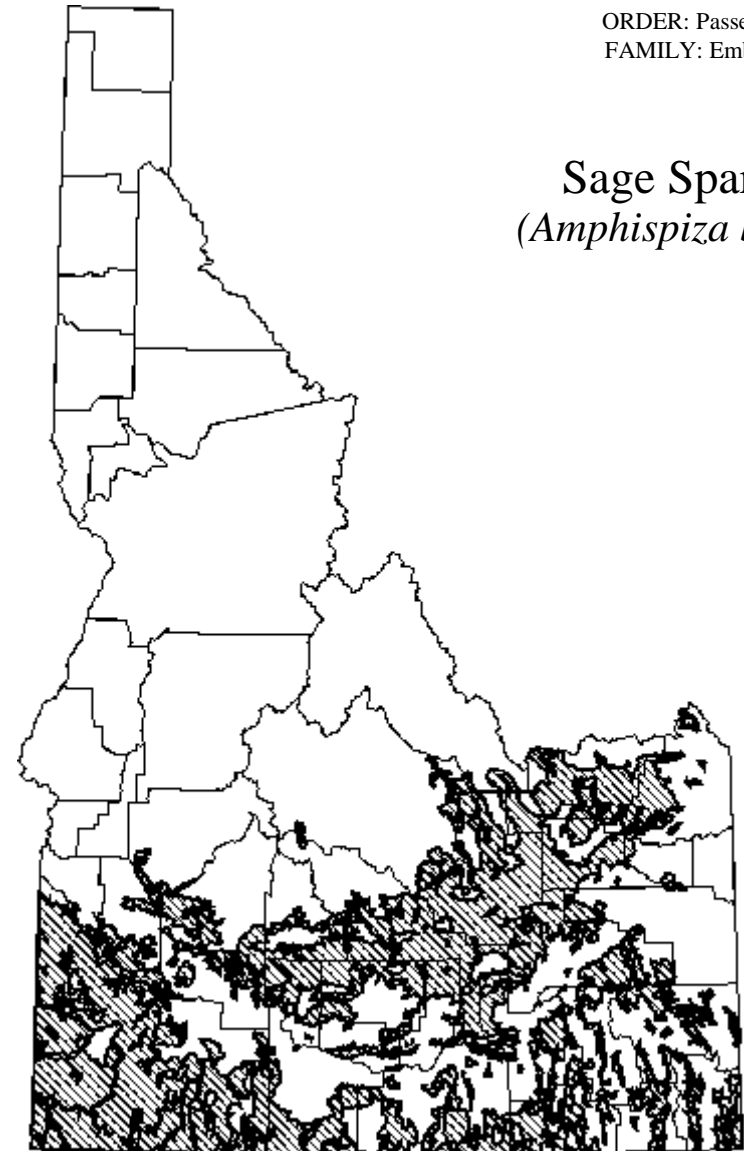
DIET: Feeds on insects, spiders, and seeds (especially in winter.)

ECOLOGY: Builds cup-shaped nest, usually in sagebrush. Idaho study found species preferred large, living sagebrush for nesting; nests were not placed on southwest side of shrubs. Individuals run along ground, stopping to pick up food; may also take food from foliage. Species forms flocks of 25-50 individuals in winter. Breeding territory size usually averages about 1.5-3 ha. Population density is usually 50-200/km<sup>2</sup> in Great Basin. In Oregon, predation by Townsend's ground squirrels affected reproductive success; populations in southeastern Washington and northern Nevada incurred high rates of nest predation, probably from gopher snakes.

REPRODUCTION: An Idaho study found clutch size averaged 2.8 eggs. Incubation lasted about 14 days; successful nests averaged 1.3 fledglings/nest. Nestlings are altricial. Female produces 1-3 broods annually. Reproductive success is greater in wetter years.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Peterson, K.L. and L.B. Best. 1985. Nest-site selection by Sage Sparrows. *Condor* 87:217-221.



Sage Sparrow  
(*Amphispiza belli*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds across portions of Alaska and Canada, south to Indiana and New Jersey, and south through western U.S. and Mexico (locally) to southwestern Guatemala. Winters from southern British Columbia, southern Nevada, Gulf states, and Massachusetts, south to northern Honduras.

HABITAT: Found in open areas, especially grasslands, tundra, meadows, bogs, farmlands, grassy areas with scattered bushes, and marshes.

DIET: During summer, eats insects, spiders, and snails. Adults feed arthropods to young. Individuals feed on seeds at other times of year.

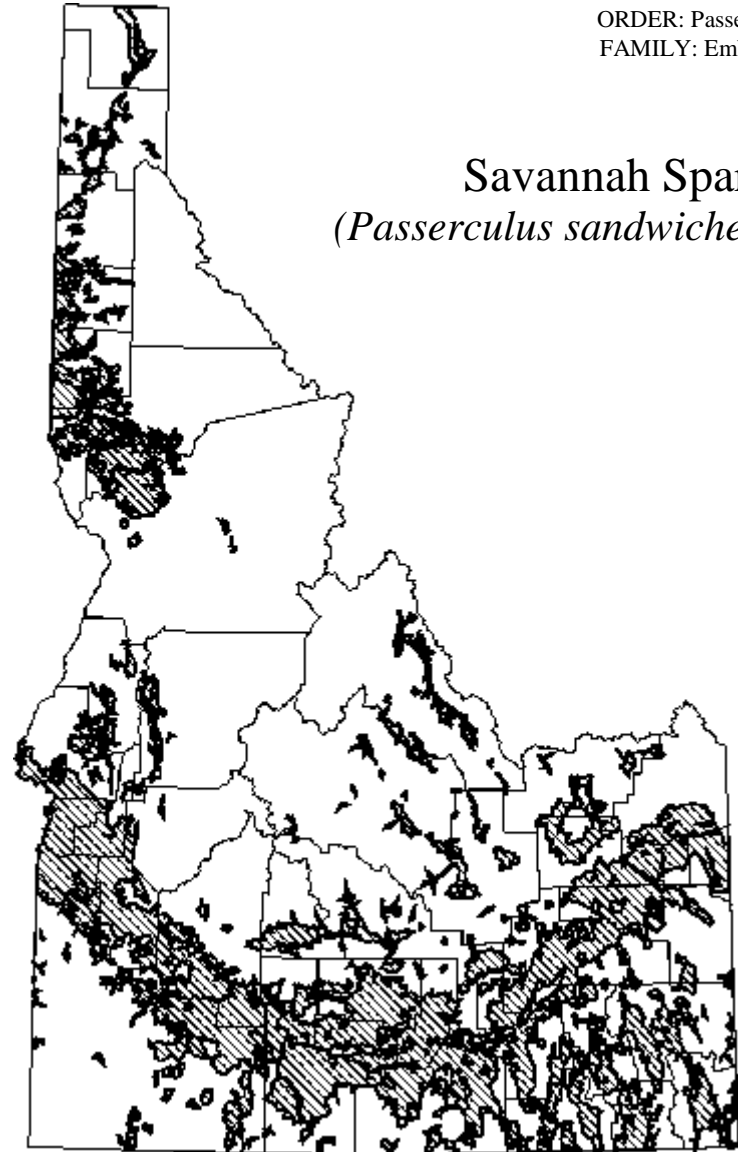
ECOLOGY: Builds cup-shaped nest on ground, frequently under covering vegetation. Infrequently nests in loose colonies. Forages on ground. May form small aggregations in winter.

REPRODUCTION: Both sexes, in turn, incubate 3-6 eggs (usually 4-5), for 12 days. Nestlings are altricial and downy. Young leave nest about 14 days after hatching.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Emberizidae

## Savannah Sparrow (*Passerculus sandwichensis*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S3, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from eastern Washington and southern British Columbia, east across portions of Canada and U.S. to Maine, and south to southern California, New Mexico, southern Texas, southeastern Arizona, and portions of northern Mexico and southeastern United States. Winters from southern U.S. to Costa Rica.

HABITAT: Found in prairies, old fields, open grasslands, cultivated fields, and savannas.

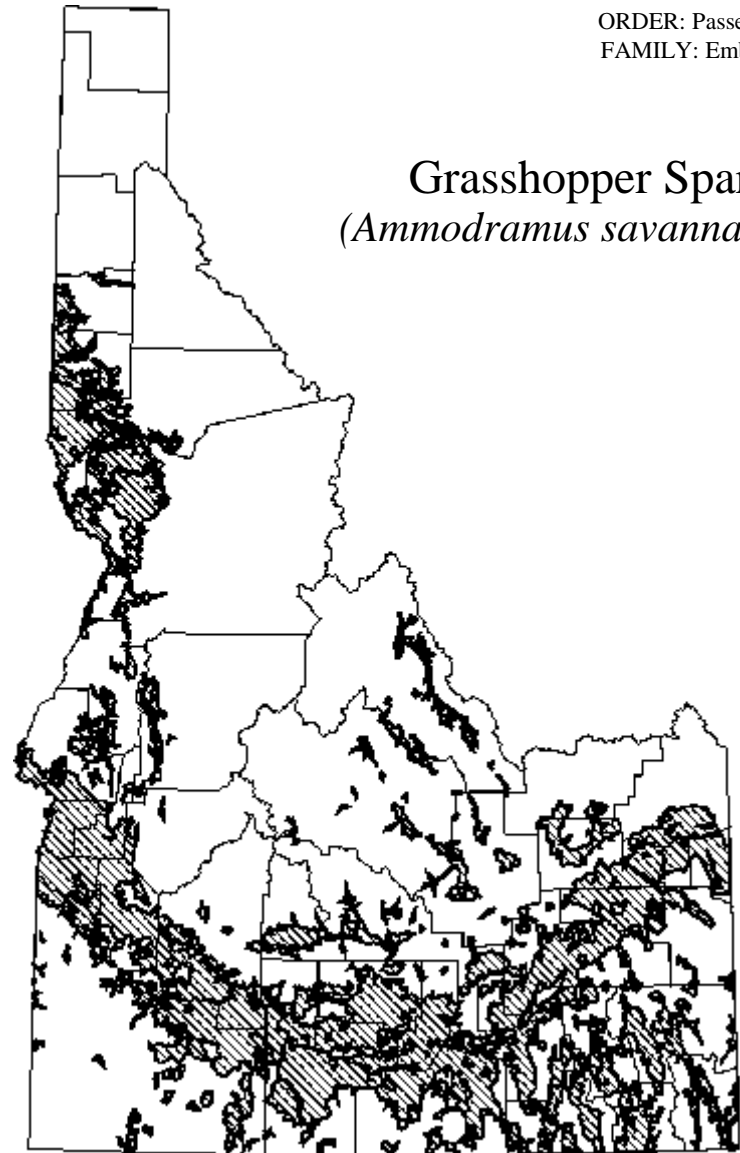
DIET: Eats insects, other small invertebrates, grain, and seeds.

ECOLOGY: Builds nest on ground. Female may perform distraction displays. Forms small colonies when breeding. In one study, breeding territory was found to be about 0.4-1.3 ha. Forages on ground.

REPRODUCTION: Female incubates 3-6 eggs (commonly 4-5), for 11-13 days. Young are tended by female, and leave nest at 6-9 days while still unable to fly. Female commonly produces 2 broods/yr.

GIS MODEL NUMBER: 1

## Grasshopper Sparrow (*Ammodramus savannarum*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds across portions of Alaska and Canada, south to Colorado, Nevada, and southern California. Winters from British Columbia, New Mexico, and portions of Midwest, south to southern California, central Texas, portions of Gulf Coast, and southern Florida.

HABITAT: Found in dense thickets in coniferous or mixed forests, in chaparral, parks, and gardens, and in wooded bottomlands along rivers and creeks. Requires dense, brushy cover during nesting season. Idaho study conducted in cottonwood forests found Fox Sparrows avoided grazed areas and were more strongly associated with natural landscapes than agricultural ones.

DIET: Eats seeds (e.g., smartweed, ragweed), berries (e.g., blueberries, elderberries), grapes, and other fruits. May eat invertebrates (e.g., beetles, spiders, millipedes, and craneflies).

ECOLOGY: Builds cup-shaped nest on ground or, rarely, in tree. Forages on ground.

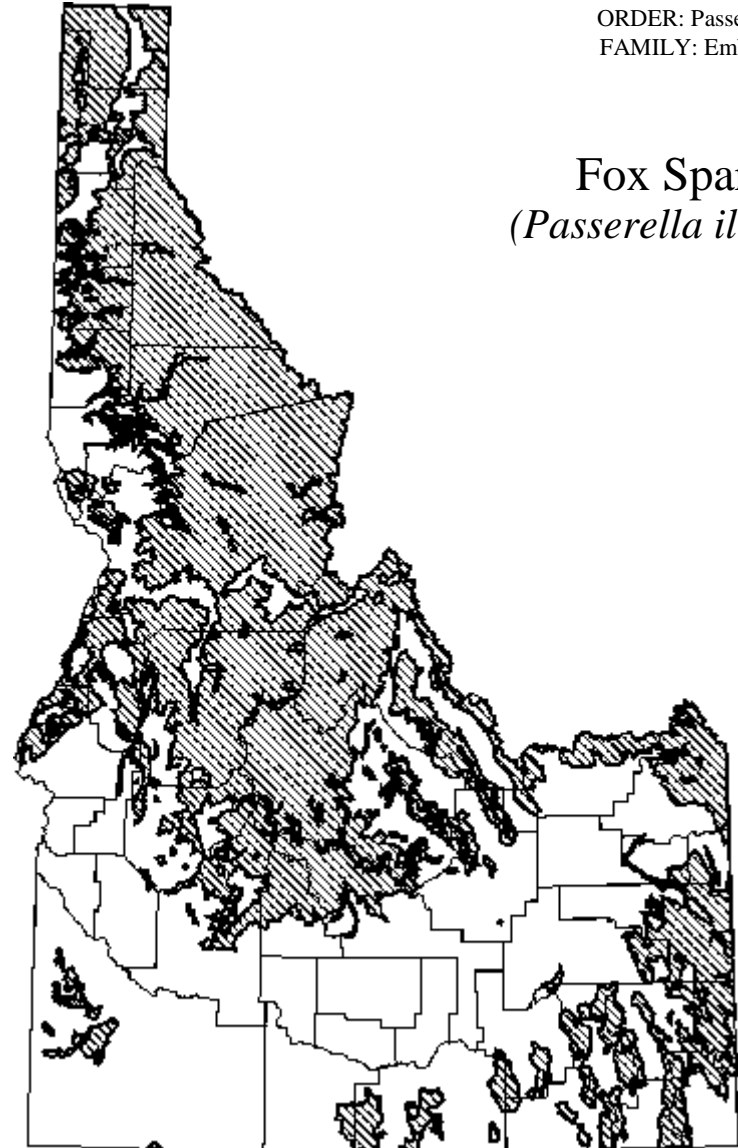
REPRODUCTION: Female (mostly) incubates 3-5 eggs for 12-14 days; nestlings fledge at 9-11 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Fox Sparrow (*Passerella iliaca*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds across portions of Alaska and Canada, south to southern Baja California, southern Mexico, northern New Mexico, northern Arizona, and portions of southeastern United States. Winters from southern Alaska, coastal and southern British Columbia, northern U.S., and southeastern Canada, south through breeding range and southeastern United States.

HABITAT: Found in brushy, shrubby, and deep, grassy areas along watercourses and seacoasts, in marshes (e.g., cattail, bulrush, and salt), and, mostly in northern and eastern portions of range, in forest edges, bogs, brushy clearings, thickets, hedgerows, and gardens. Idaho study found Song Sparrows preferred wet, short-willow communities for breeding.

DIET: Eats mostly insects and seeds, but will also eat some small fruits.

ECOLOGY: Forages on ground, or in trees, grasses, and bushes. Builds cup-shaped nest on ground or, occasionally, in shrub. One study reported breeding territory at usually less than 0.4 ha.

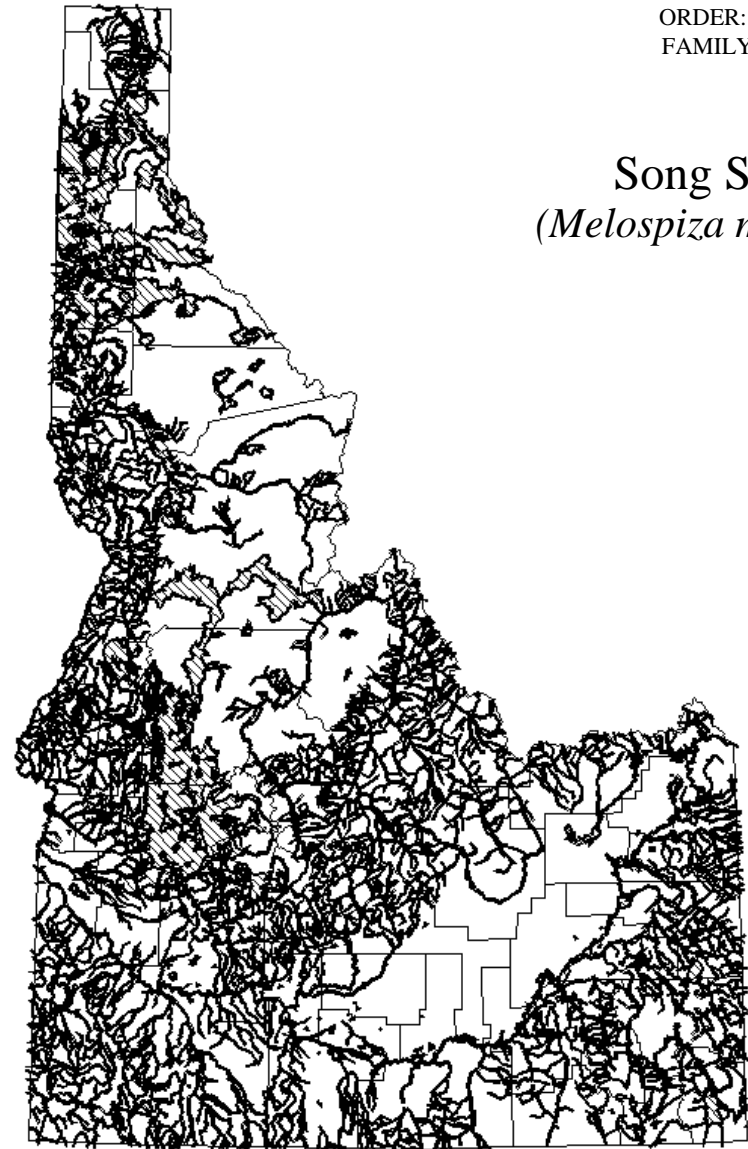
REPRODUCTION: Female incubates 3-6 eggs for 12-13 days. Young are tended by both parents, leave nest at about 10 days, fly well at 17 days, become independent in 18-20 additional days, and reach sexual maturity in 1 yr. Female produces 2-3 broods/yr.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Song Sparrow (*Melospiza melodia*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds across portions of Alaska and Canada, south to southwestern U.S., central Minnesota, and New England. Winters from southern U.S., south regularly to Honduras, and casually to central Panama.

HABITAT: Found in bogs, wet meadows, riparian thickets, shrubby forest edges, marshes, and brushy fields. Idaho study found Lincoln's Sparrows preferred wet, short-willow communities for breeding.

DIET: Eats insects, seeds, and grain.

ECOLOGY: Forages on ground. Builds cup-shaped nest on ground. One study reported breeding territory of about 0.4 ha. Species possibly competes with Song Sparrow when breeding territories overlap.

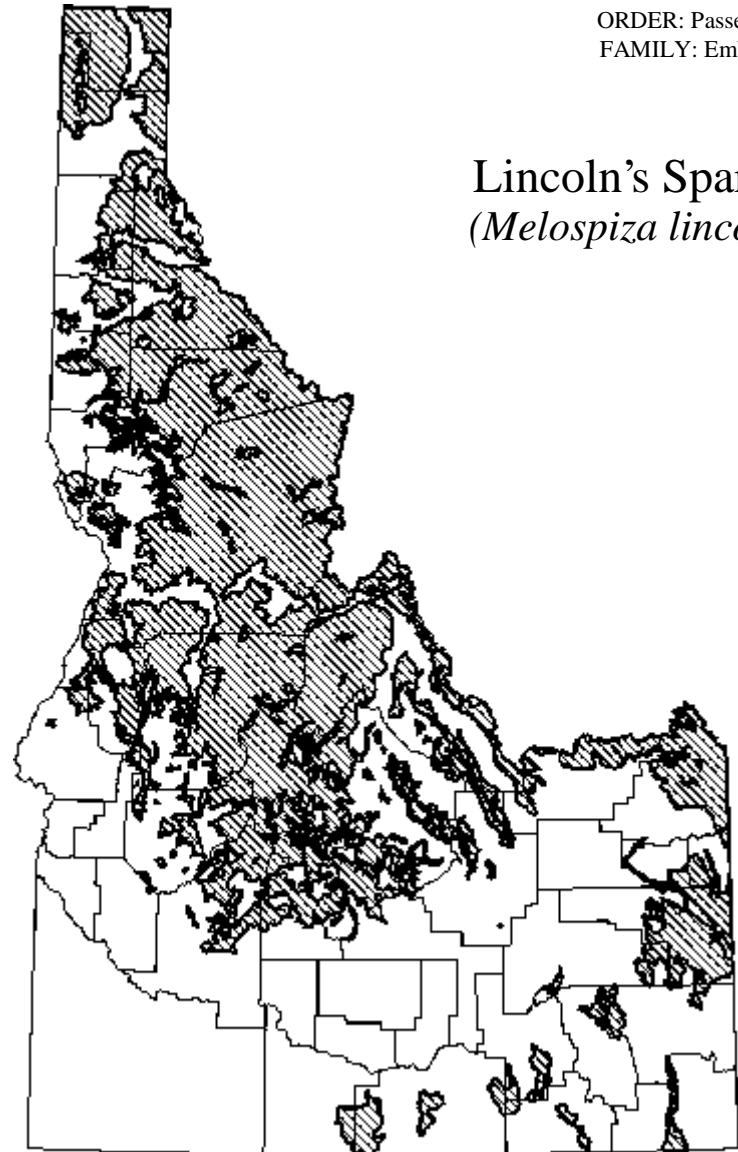
REPRODUCTION: Female incubates 3-6 eggs (usually 4-5), for about 13 days. Young are tended by both parents, and leave nest at 10-12 days. Female may produce 2 broods/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Lincoln's Sparrow (*Melospiza lincolnii*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from northern Alaska, east across portions of Canada, and south to southern California, Nevada, central Arizona, and northern New Mexico. Winters from southern British Columbia, southeastern Washington, southern Idaho, Wyoming, and portions of Midwest and East, south to southern Baja California, southern mainland of Mexico, and Gulf Coast.

HABITAT: Found in open woodlands, burnt-over areas in forests, brushy areas, brushy subalpine meadows, willow thickets along streams or lakes, parks, and farmland. Idaho study found White-crowned Sparrows preferred dry, tall-willow portions of riparian communities.

DIET: Feeds primarily on seeds of grasses and weeds (e.g., ragweed, pigweed, goosefoot, and panicum). Also feeds on invertebrates (e.g., ants, caterpillars, true bugs, beetles, spiders, and snails), especially in summer.

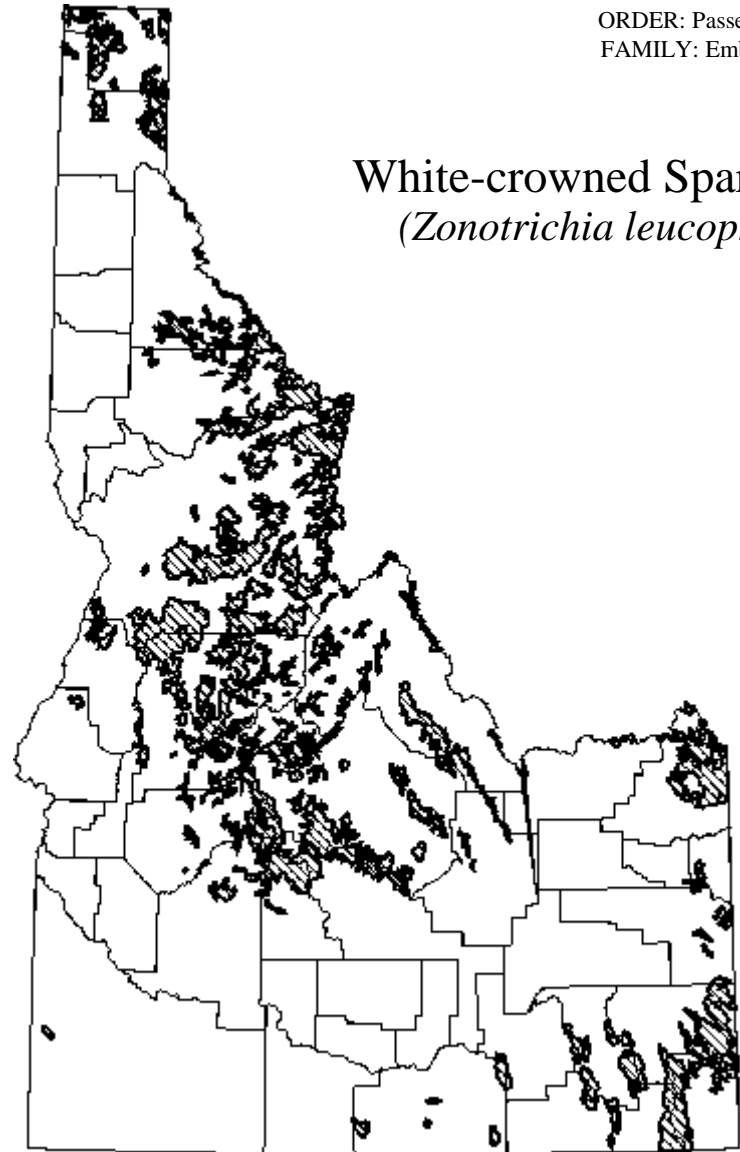
ECOLOGY: Builds cup-shaped nest in shrub or on ground. Large proportion of nests and nestlings may be lost to predators (e.g. garter snakes) in even a stable population. Diurnal and crepuscular, but mostly inactive for several hours daily in continuous daylight at high latitudes. Forages on ground, or may take insects from foliage or air. May form flocks in winter, of 10-20 birds in southeastern U.S., 30-50 in West. Species is 1 of 7 neotropical migrants thought to be declining in Idaho.

REPRODUCTION: Female incubates 2-5 eggs (rarely 6), for 9-15 days. Young are tended by both parents, leave nest in 9-11 days, and are fed to some degree for additional 25-30 days. On California coast, females may produce several broods annually.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

## White-crowned Sparrow (*Zonotrichia leucophrys*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds across Alaska and portions of Canada, south to northern Baja California, central Arizona, western Texas, Appalachians to northern Georgia, and southern New England. Winters from southern Canada, south through U.S. to southern Florida, southern Texas, and northern Mexico.

HABITAT: Found in coniferous and deciduous forests, forest edges, clearings, bogs, open woodlands, brushy areas adjacent to forests, and burned-over lands. During migration and in winter, found in variety of open woodlands, and in brushy and grassy habitats.

DIET: Feeds on seeds throughout year. Also eats insects during breeding season, and waste grain in fall and winter.

ECOLOGY: Builds cup-shaped nest on ground, frequently against vertical surface. Occasionally builds in tree, shrub, or on building. Forages on ground, or takes insects in air. Forms small flocks in winter; may forage with other species (e.g., chickadees, sparrows). Species is 1 of 7 neotropical migrants thought to be declining in Idaho.

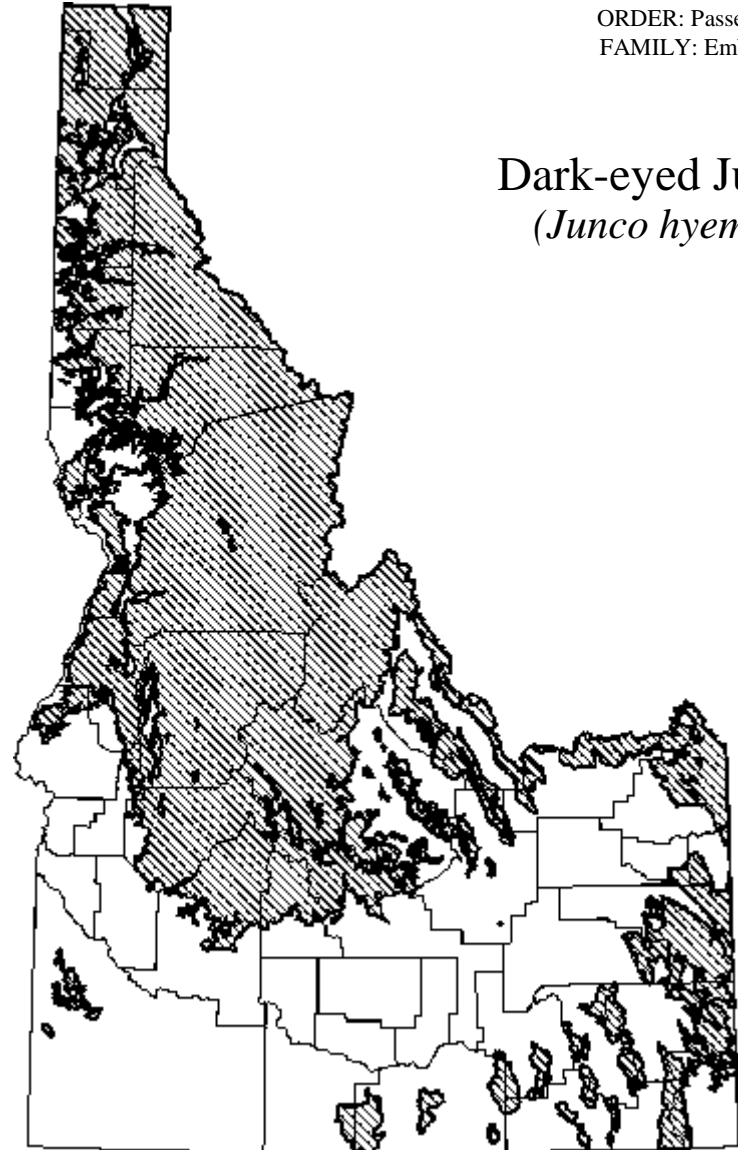
REPRODUCTION: Clutch size varies from 3-5 eggs. Incubation lasts about 11-12 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Dark-eyed Junco (*Junco hyemalis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4, NTMB

RANGE: Breeds from southern British Columbia, east across southern Canada to Nova Scotia, south to Oregon, Utah, portions of Midwest and New Jersey, and locally to Tennessee and North Carolina. Winters in central and southern South America.

HABITAT: Found in tall-grass areas, flooded meadows, prairies, deep cultivated grains, and hayfields. During migration and in winter, also found in rice fields, marshes, and open, woody areas. Nests locally in wheat fields in Idaho.

DIET: Eats mainly seeds, but will also eat insects and grain.

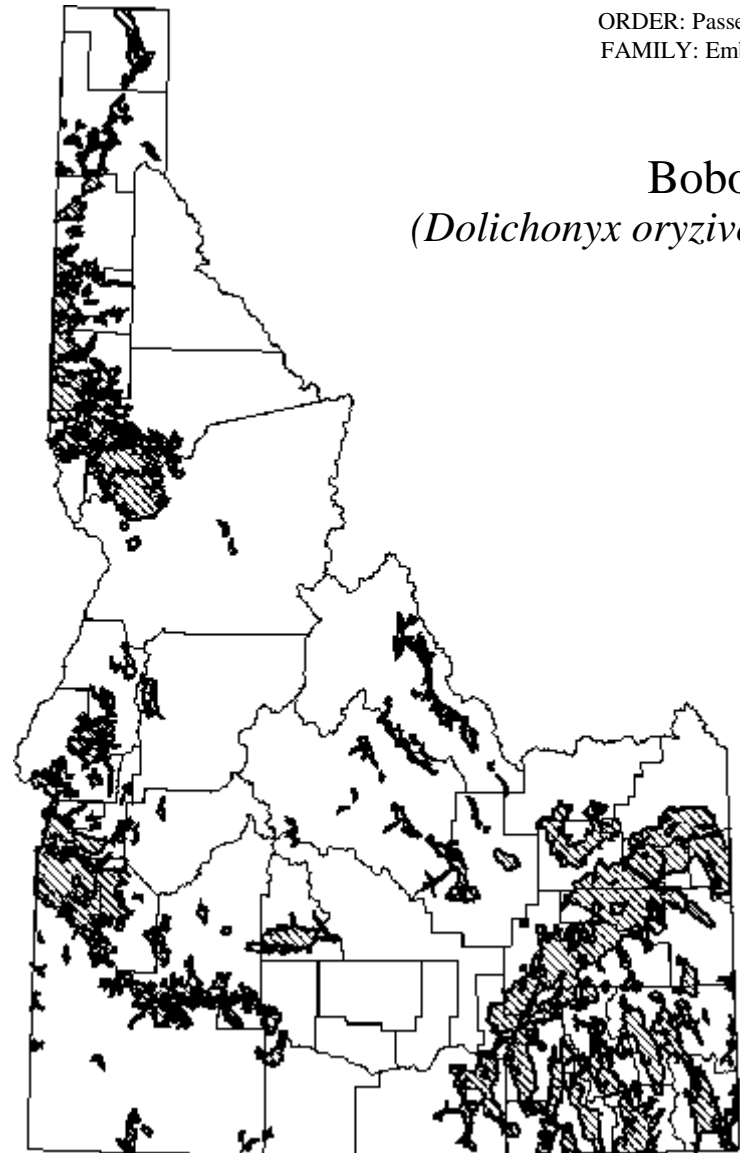
ECOLOGY: Builds cup-shaped nest on ground. Forages on ground, or may take insects from foliage. When not breeding, often found in large flocks.

REPRODUCTION: Female incubates 4-7 eggs (usually 5-6), for 11-13 days. Young are tended by both parents, and leave nest at 10-14 days (before they are able to fly). In some areas, females may produce second, unsuccessful clutch after first brood fledges.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Emberizidae

## Bobolink (*Dolichonyx oryzivorus*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds across portions of Canada, south to Baja California and Costa Rica. Winters over much of U.S., especially in southern portions.

HABITAT: Found in freshwater and brackish marshes, in bushes and small trees along watercourses, and in upland cultivated fields. During migration and in winter, also found in open, cultivated lands, plowed fields, pastures, and prairies. Idaho study found Red-winged Blackbirds avoided grazed riparian areas.

DIET: Eats mayflies, moths, beetles, caterpillars, grubs, mollusks, other invertebrates, and some fruits. Approximately 73% of diet is vegetable matter, and 27% is animal matter.

ECOLOGY: Builds cup-shaped nest in reeds, over or near water. Nests in loose groups; some territorial males have harems of up to 15 females. One study reported density of territorial males averaged 0.2-0.7/ha in favorable habitat. Gregarious; travels in large flocks, except during breeding season. May travel in mixed flocks with cowbirds and grackles. Forages on ground, or takes food from foliage or air. Species may be most abundant landbird in North America.

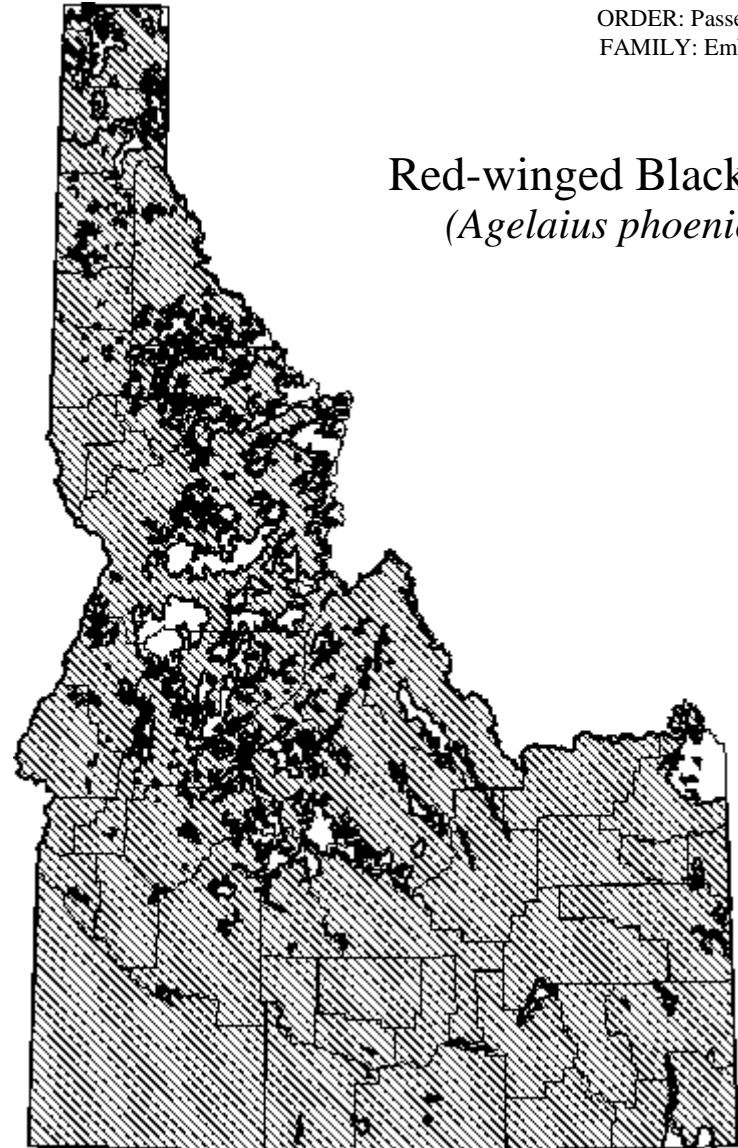
REPRODUCTION: Female incubates 3-5 eggs (usually 4) in northern range, for 11-12 days. Nestlings are tended by both parents or, in some areas, by female only; young are able to leave nest in about 10 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. and W.P. Clary. 1990. Bird and small mammal populations in a grazed and ungrazed riparian habitat in Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-245. 8pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Red-winged Blackbird (*Agelaius phoeniceus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from central British Columbia and central Alberta, east to southern Ontario, northern Michigan, and northwestern Ohio, and south to Baja California, central mainland of Mexico, central Texas and Louisiana. Winters from south-central Canada to central Mexico, and east to Gulf Coast and Florida.

HABITAT: Found in grasslands, shrub steppe, savannas, and cultivated fields and pastures. Summers in grasslands and valleys, but may also be found in foothills and open mountain areas (up to 2500 m in California). A study conducted in southwestern Idaho determined that landscape-level features did not influence the distribution of meadowlarks.

DIET: Approximately 65-70% of diet consists of small invertebrates such as beetles, cutworms, caterpillars, grasshoppers, spiders, sow bugs, and snails. Will also eat some grains and seeds.

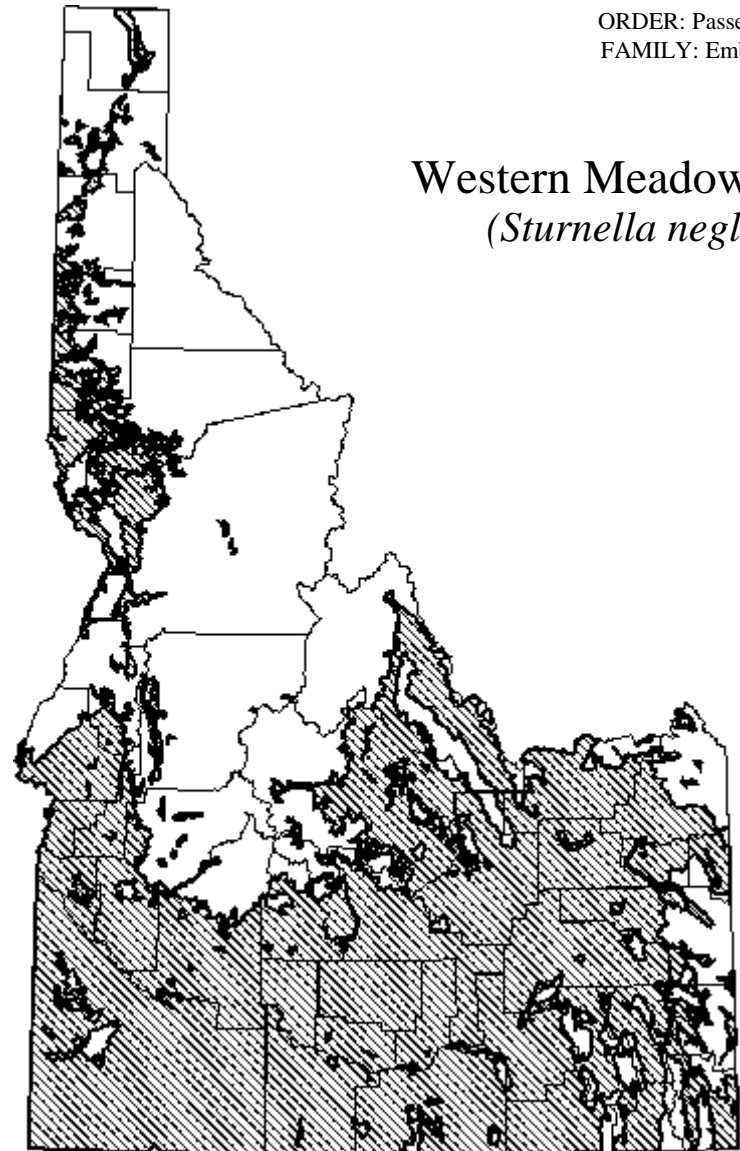
ECOLOGY: Builds cup-shaped nest on ground. Forages on ground. One study estimated home range size at 4-13 ha. Found in flocks of 10-75 birds in winter. Predators include hawks, crows, skunks, weasels, raccoons, and coyotes.

REPRODUCTION: In Manitoba, nests are initiated in late April or June (mainly in first half of May). Female incubates 3-7 eggs (usually 5), for 13-15 days. Nestlings are tended by both parents, leave nest in about 12 days, and are fed by parents for 2 additional weeks.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Knick, S.T. and J.T. Rotenberry. 1995. Landscape characterization of fragmented shrubsteppe habitats in breeding passerines. *Conserv. Biology* 9:1059-1071.

## Western Meadowlark (*Sturnella neglecta*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from central-interior British Columbia, east to extreme western Ontario and northwestern Ohio, and south to southern California, northeastern Baja California, New Mexico, northern Texas, northern Missouri, and northwestern Ohio. Winters from central California, central Arizona, southern New Mexico, and Texas, south to portions of Mexico, and casually to Costa Rica.

HABITAT: Found in freshwater marshes of cattail, tule, or bulrushes. During migration and in winter, also found in open cultivated lands, pastures, and fields.

DIET: Feeds on insects, seeds, and grain.

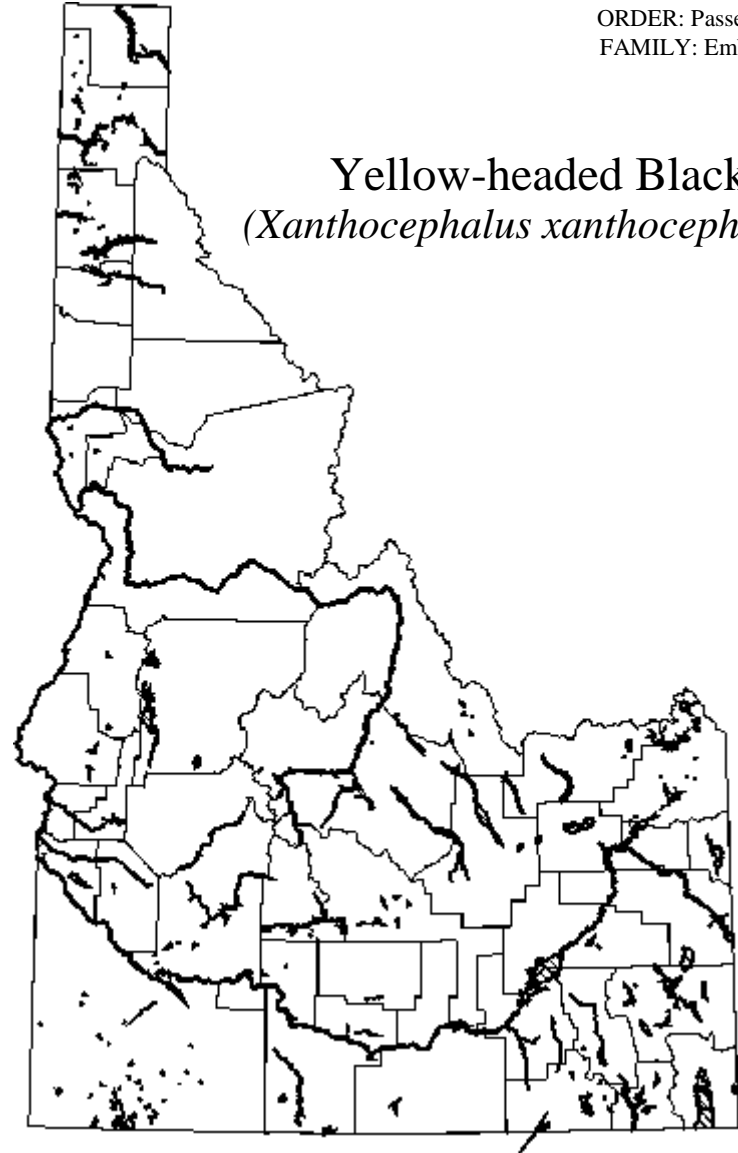
ECOLOGY: Builds cup-shaped nest in reeds over water. Searches for food while walking along ground or perched on seed-bearing plant; also forages in fields and on muddy ground near water. Gregarious; often found with much larger flocks of Red-winged Blackbirds in winter. Territorial; may exclude Marsh Wrens from breeding areas (Marsh Wrens may disrupt some nesting attempts).

REPRODUCTION: Female incubates 3-5 eggs for 12-13 days. Young leave nest 9-12 days after hatching, but are unable to fly until about 21 days.

GIS MODEL NUMBER: 5

ORDER: Passeriformes  
FAMILY: Emberizidae

## Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

ORDER: Passeriformes  
FAMILY: Emberizidae

RANGE: Breeds from central interior British Columbia, east to western Great Lakes area, and south to northwestern Baja California, southern Nevada, western and northern Texas, and northern Indiana. Winters from southern British Columbia, central Alberta, eastern Montana, Kansas, Arizona, and western South Carolina, south to portions of Mexico, southern Texas, Gulf Coast, and southern Florida.

HABITAT: Found in shrubby and bushy areas (especially near water), in riparian woodlands, aspen parklands, cultivated lands, marshes, and around human habitation. During migration and in winter, also found in pastures and fields. Idaho study conducted in riparian habitat found Brewer's Blackbirds favored grazed over ungrazed areas.

DIET: Feeds on insects, seeds, waste grain, and fruits.

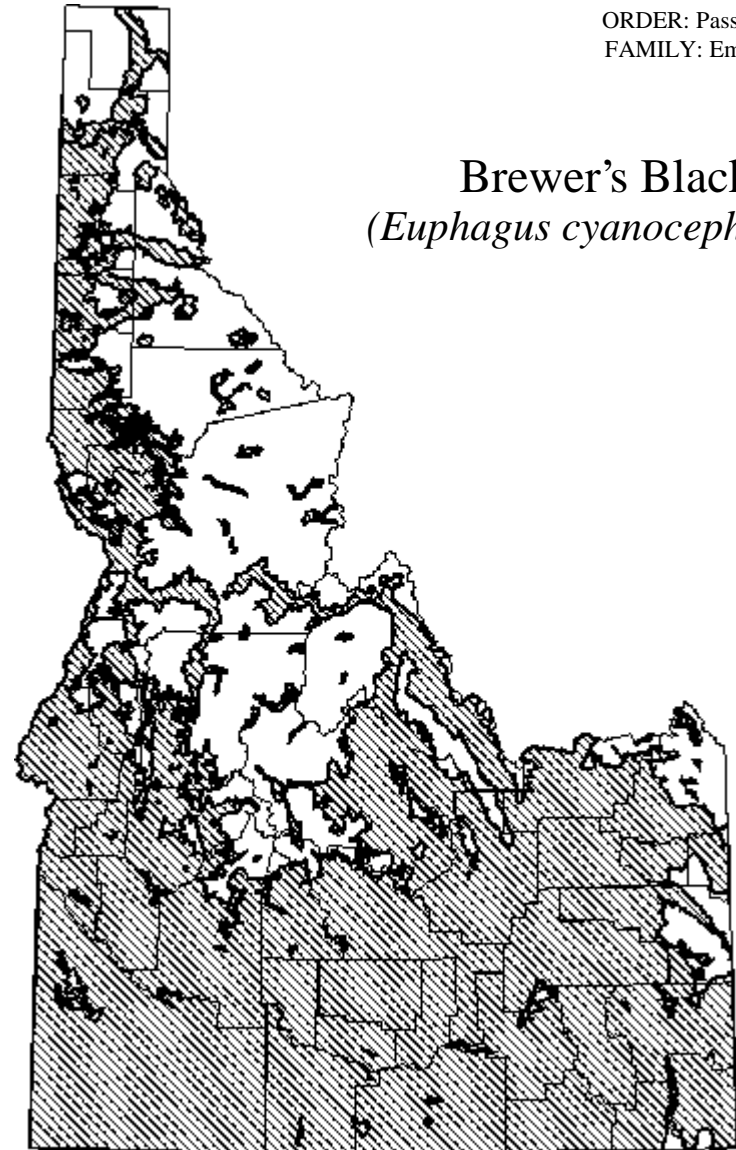
ECOLOGY: Builds nest in tree (usually coniferous), or sometimes in shrub or on ground. Nests in loose colonies (3-20 pairs). Forages on ground, or takes food from foliage or in air. Sometimes follows plows to eat uncovered insects. Often seen in large flocks; may forage with other blackbirds.

REPRODUCTION: Clutch size varies from 3-7 eggs, but is usually 5-6. Incubation lasts 12-14 days. Young are tended by both adults, and fly 13-14 days after hatching. Female may produce 2 broods. Males may be polygynous.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. and W.P. Clary. 1990. Bird and small mammal populations in a grazed and ungrazed riparian habitat in Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-245. 8pp.

## Brewer's Blackbird (*Euphagus cyanocephalus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S2, NTMB

RANGE: Breeds from northeastern British Columbia, east across portions of Canada, south to southern Texas, Gulf Coast, and southern Florida, and west to Wyoming, Colorado, and New Mexico. Winters from Kansas, southern Great Lakes region, New England and Nova Scotia, south to southeastern New Mexico, southern Texas, Gulf Coast, and Florida. Breeder in urban areas of southeastern Idaho; invaded Idaho successfully as a nester in 1970's.

HABITAT: Found in partly-open situations with scattered trees, open woodlands, forest edges, marsh edges, islands, swamp thickets, coniferous groves, riparian woodlands, cities, suburbs, and farms. During migration and in winter, also found in open situations, cultivated lands, and fields. In Idaho, has adapted to forested urban environments.

DIET: Eats various invertebrates, grain, seeds, fruits, sometimes small vertebrates, and birds' eggs.

ECOLOGY: Builds cup-shaped nest, frequently in tree, but sometimes in shrub or human-built structure. Nests usually in loose colonies. Forages on ground, in shrubs and trees, and in shallow water. Roosts communally in large flocks (sometimes greater than 100,000 individuals) in summer and fall in northeastern U.S.; often roosts with starlings.

REPRODUCTION: Female incubates 4-7 eggs (commonly 5-6), for 12-14 days. Young are tended by both sexes, leave nest at 10-17 days, and remain in nest vicinity for 2-3 days. Female may produce 2 broods/yr.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Taylor, D.M. and C.H. Trost. 1985. The Common Grackle in Idaho. *Am. Birds* 39:217-218.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Common Grackle (*Quiscalus quiscula*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from northern British Columbia, east across portions of Canada, and south to central Mexico, southern Texas, Gulf Coast, and southern Florida. Winters from northern California, southern New Mexico, Kansas, Great Lakes region, New England, and Nova Scotia, south to southern Baja California, southern Mexico, Gulf Coast, and southern Florida.

HABITAT: Found in woodlands, forests (primarily deciduous), forest edges, city parks, suburban gardens, farms, and ranches. During migration and in winter, also found in open situations, cultivated lands, fields, pastures, and scrub. In Idaho, alteration of sagebrush lands through grazing or agriculture has provided mechanism for cowbirds to parasitize shrub-steppe birds.

DIET: Eats mostly insects, but will also eat grain, seeds, and some fruits.

ECOLOGY: Lays eggs in nests built by other species (i.e., nest parasitism). Forages on ground. Female defends a territory, male does not. Gregarious. Forms flocks in fall and winter, sometimes with other species.

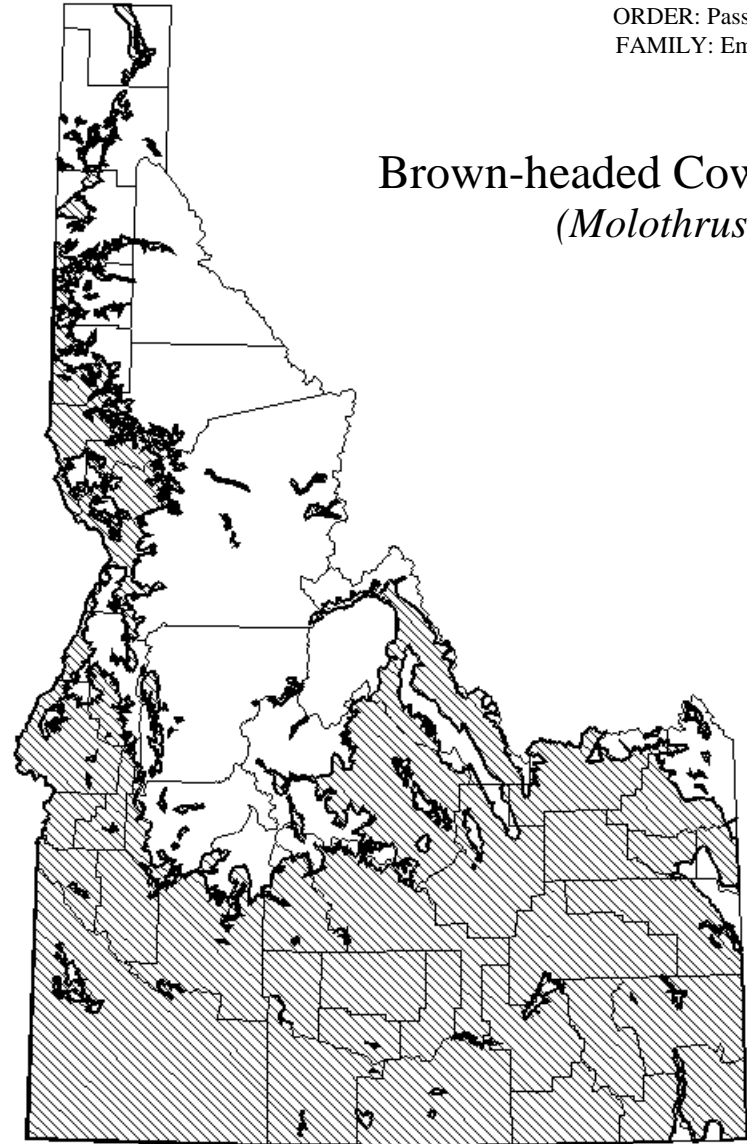
REPRODUCTION: Adult female usually removes eggs of host. Host incubates cowbird eggs for 10-12 days (female cowbird probably produces 8-40 eggs/season). Young leave nest at 10-11 days, are fed by host, and become independent at 25-39 days.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Rich, T.D. 1978. Cowbird parasitism of Sage and Brewer's Sparrows. Condor 80:348.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Brown-headed Cowbird (*Molothrus ater*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern Canada and all of U.S. (except extreme southeastern portion), to northern Mexico. Winters in central U.S., and south to northern South America.

HABITAT: Found in open or riparian woodlands, deciduous forest edges, partly-open situations with scattered trees, orchards, and shade trees. During migration and in winter, also found in humid forest edges, second growth, and scrub. An Idaho study conducted in cottonwood forests showed Bullock's Orioles prefer habitat edges adjacent to agricultural landscapes.

DIET: Eats insects, especially caterpillars; also eats various fruits and nectar.

ECOLOGY: Builds hanging nest in tree (usually deciduous). When not breeding, usually forms groups of 2-5 individuals (rarely up to 15); each group has definite home range. Sometimes forms large communal roosts. Gleans food from trees and shrubs; also takes food in air.

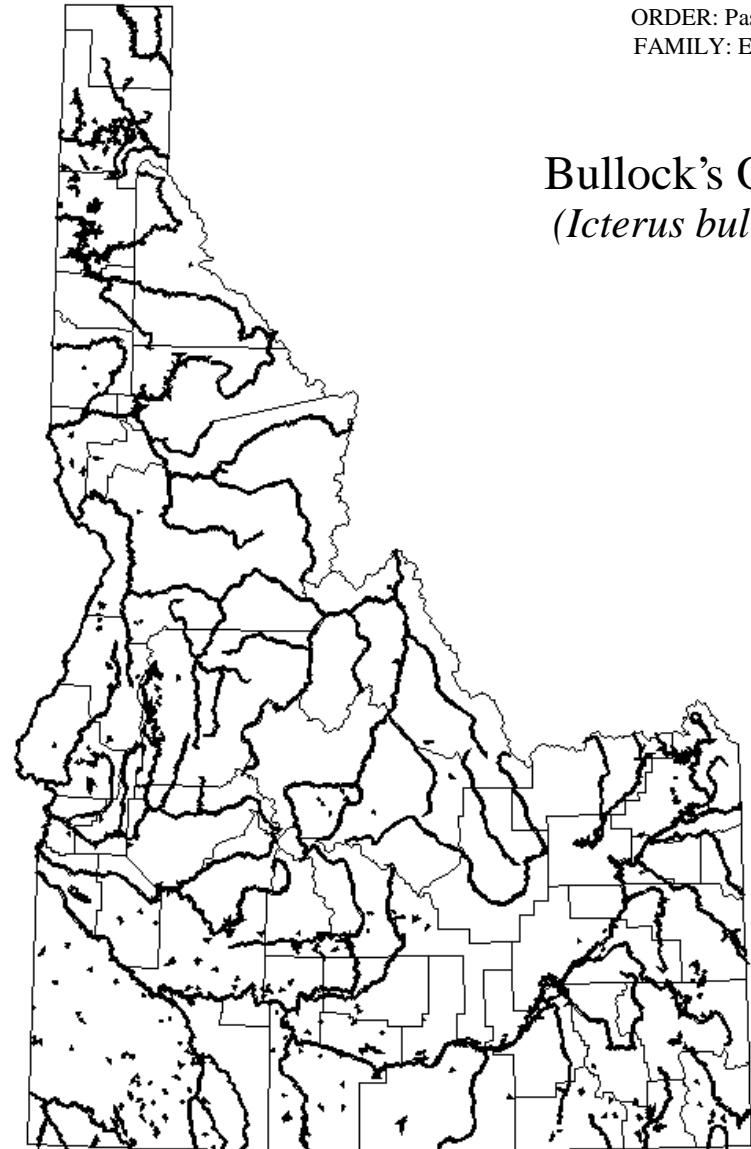
REPRODUCTION: Female incubates 3-6 eggs (commonly 4-5), for 12-14 days. Young are tended by both parents, and leave nest at 12-14 days.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Emberizidae

## Bullock's Oriole (*Icterus bullockii*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

ORDER: Passeriformes  
FAMILY: Fringillidae

GLOBAL RANGE: Breeds from Alaska, portions of western Canada, and northwestern Montana, south through mountains to east-central California, Utah, and northern New Mexico. Winters from southern Alaska and portions of southwestern Canada, south to eastern California, southern Nevada, northern New Mexico, and northeastern Nebraska.

HABITAT: Found in barren, rocky, or grassy areas and cliffs, among glaciers or beyond timberline. During migration and in winter, also found in open situations, fields, cultivated lands, brushy areas, and around human habitation. One of only 2 species in Idaho that nests exclusively in alpine habitats. Gray-crowned Rosy Finch, a closely related species, is suspected but unconfirmed as a nesting species in these same habitats in Idaho.

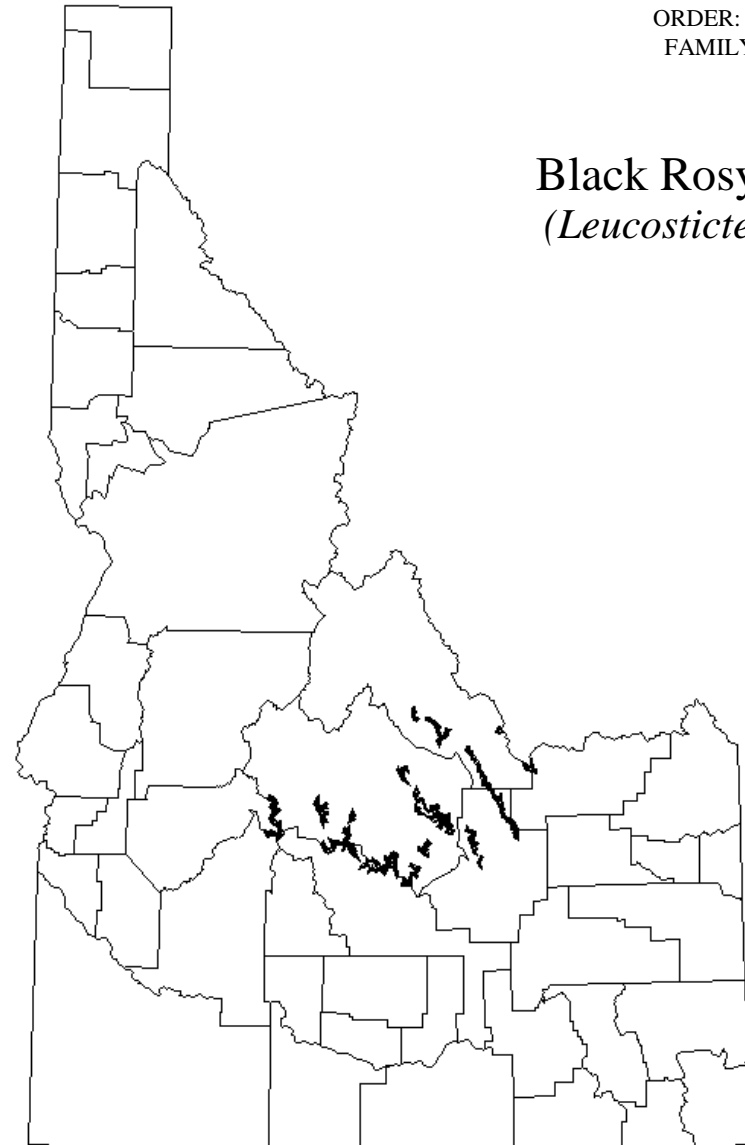
DIET: Eats seeds and insects.

ECOLOGY: Builds cup-shaped nest on ground, cliff, or human-built structure. Males typically outnumber females in breeding and wintering populations. During breeding season, male defends "territory" around female wherever she moves. When not breeding, individuals form large flocks of up to 1000+ birds. Species forages on ground, gleans insects from vegetation, or may take insects from air.

REPRODUCTION: Female incubates 4-5 eggs for 12-14 days. Young are tended by both adults, and leave nest at about 20 days. In Aleutians, eggs are laid in late April-July, clutch size is 3-6 eggs, fledging occurs at 15-22 days, and female produces 2 broods/yr.

GIS MODEL NUMBER: 1

## Black Rosy Finch (*Leucosticte atrata*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

GLOBAL RANGE: Breeds from western Alaska, east across northern Canada to Newfoundland, and south to central California, northern New Mexico, northern Alberta, central Manitoba, central Maine, and Nova Scotia. Winters from western Alaska and portions of western and southern Canada, south through breeding range.

HABITAT: Found in open coniferous (less commonly mixed coniferous/deciduous) forests and forest edges. During migration and in winter, also found in deciduous forests, woodlands, second growth, and shrubbery.

DIET: Feeds on wide variety of seeds. Also eats fruits and insects.

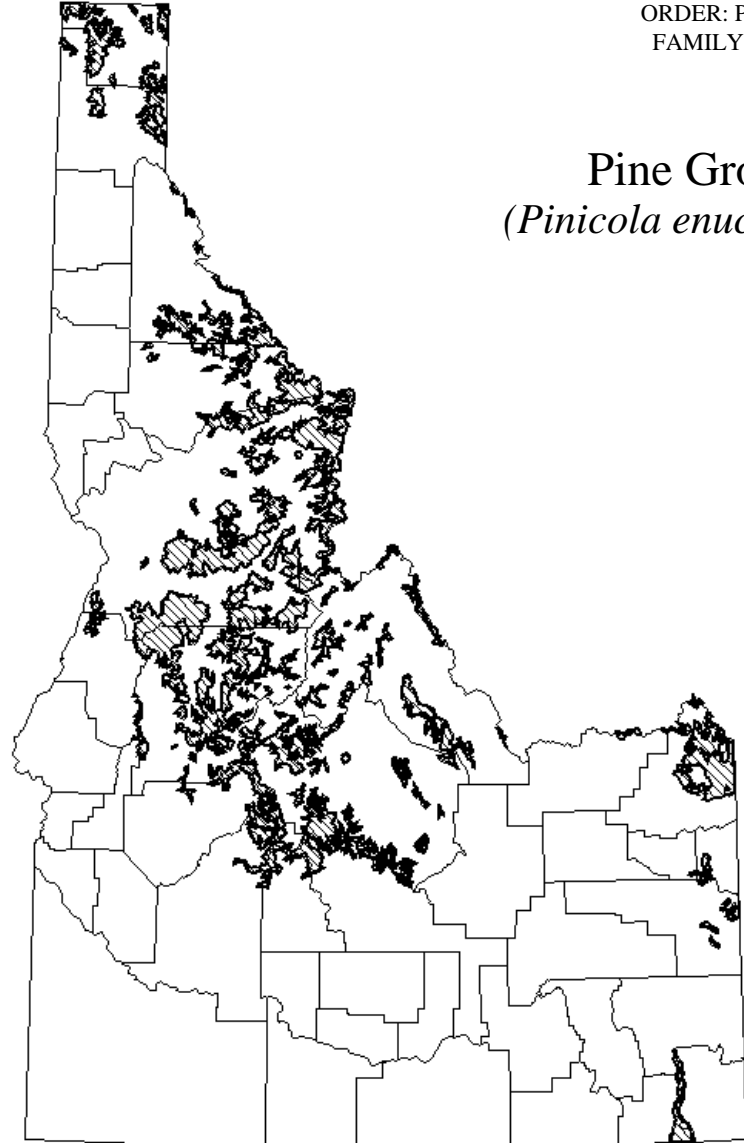
ECOLOGY: Builds cup-shaped nest, usually in coniferous tree, but may nest in shrub. Takes food from foliage or ground. Gregarious; may gather in flocks of up to 100 birds.

REPRODUCTION: Female incubates 2-6 eggs (usually 4), for 13-14 days. Young leave nest about 20 days after hatching.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Fringillidae

## Pine Grosbeak (*Pinicola enucleator*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from southern interior British Columbia, extreme southwestern Alberta, Montana, and northern Wyoming, south to portions of California, southern Nevada, northern Arizona and northern New Mexico. Winters mainly from southern British Columbia, northwestern Montana, and eastern Wyoming, south to northern Baja California, southern Arizona, and central Mexico.

HABITAT: Found in open, montane coniferous forests at higher elevations. During migration and in winter, also found in deciduous woodlands, second growth, scrub, brushy areas, partly-open situations with scattered trees, and occasionally in suburbs near mountains. Idaho study found Cassin's Finches responded positively in number to diameter-cut logging.

DIET: Eats seeds and buds of plants, insects, and berries.

ECOLOGY: Forages on ground, or takes food from foliage. Builds cup-shaped nest in tree, frequently near end of large limb. Male defends zone around female during breeding period; female is more attached to particular site than is male. Individuals are usually seen in flocks, except during nesting season. Often seen in association with crossbills and Evening Grosbeaks.

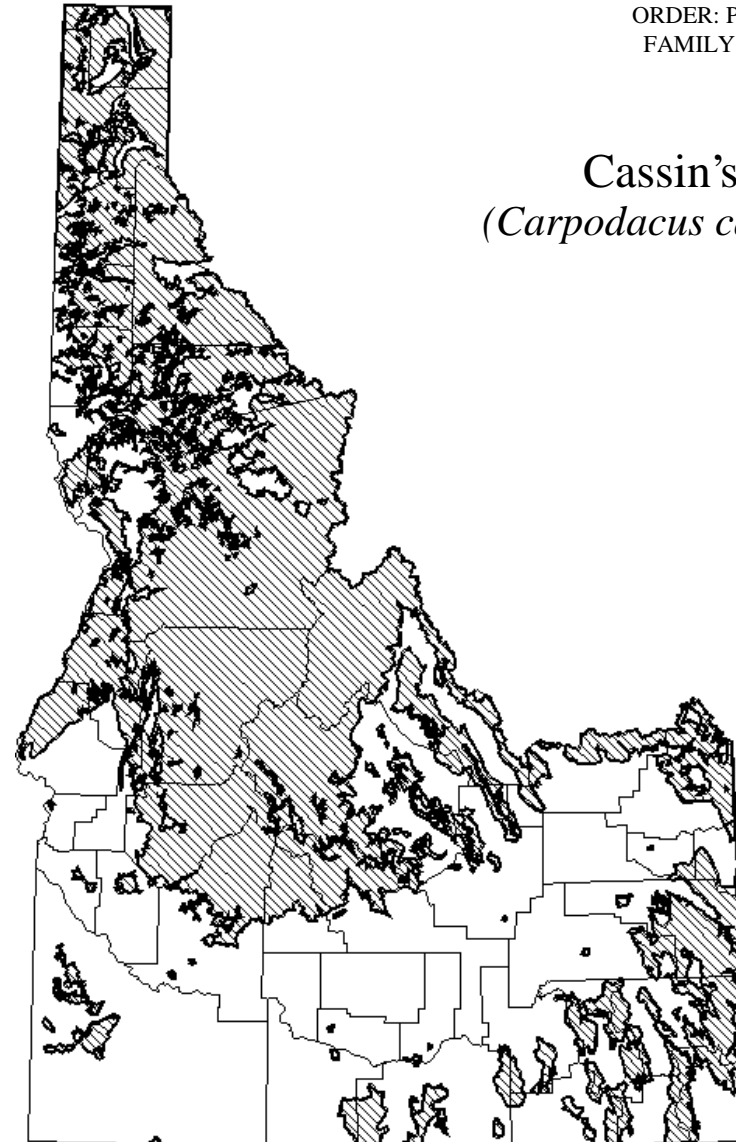
REPRODUCTION: Female incubates 3-6 eggs (usually 4-5), for about 12-14 days. Young are tended by both adults, and first breed as yearlings in some areas, and at 2 yr in other areas.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. 1985. Breeding bird responses to diameter-cut logging in west-central Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-355, Boise. 12pp.

ORDER: Passeriformes  
FAMILY: Fringillidae

## Cassin's Finch (*Carpodacus cassinii*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: From southern British Columbia, east to Idaho, Wyoming, and western Nebraska, south to Oklahoma and Texas, and west to California, Baja California, and further south into Mexico. Introduced in eastern United States.

HABITAT: Found in arid scrub and brush, thornbush, oak/juniper, pine/oak associations, chaparral, open woodlands, towns, cultivated lands, and savannas.

DIET: Eats seeds, plant buds and blossoms, and fruits (approximately 86% of diet is seeds). Nestlings are fed regurgitated seeds.

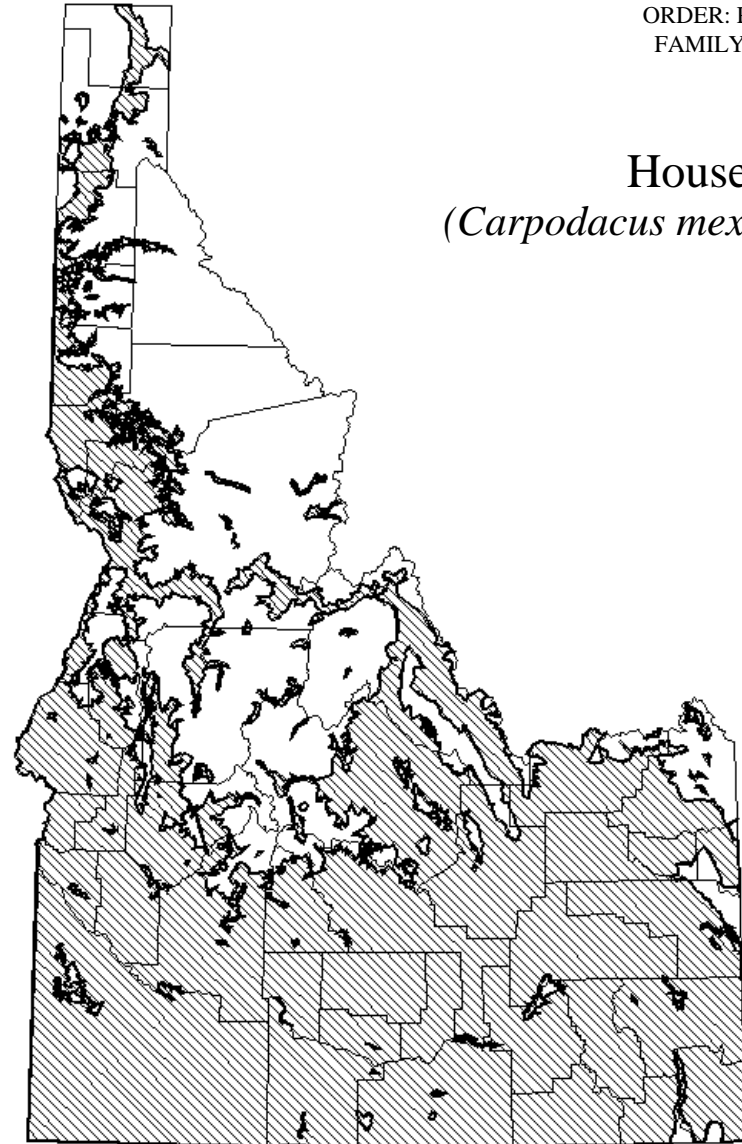
ECOLOGY: Usually builds nest in tree, but may sometimes nest in shrub or building; may also take nest from other species. Forages on ground, or takes food from foliage. Forms flocks when not breeding.

REPRODUCTION: Female incubates 2-6 eggs (usually 4-5), for 12-14 days. Young are tended by both parents, leave nest in 14-19 days, and are fed by parents for 2-3 wk after leaving nest.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Fringillidae

## House Finch (*Carpodacus mexicanus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

GLOBAL RANGE: Resident from southeastern Alaska, east to Newfoundland, and south in western U.S. to northern Baja California and Nicaragua (south in eastern U.S. to northern Wisconsin, Tennessee, and North Carolina).

HABITAT: Found in coniferous and mixed coniferous/deciduous forests, pine savannas, and pine/oak habitat. During migration and in winter, found in deciduous forests, and in more open, scrubby areas. Preliminary results of Idaho-Montana study found species favoring rotation-aged Douglas-fir stands over old-growth.

DIET: Eats seeds (e.g., pine, fir, spruce, hemlock, larch, birch, alder, elm), buds, and insects.

ECOLOGY: Builds cup-shaped nest in tree. Takes food from foliage, or forages on ground. May feed with other species. Does not maintain feeding territory. Forms flocks when not breeding.

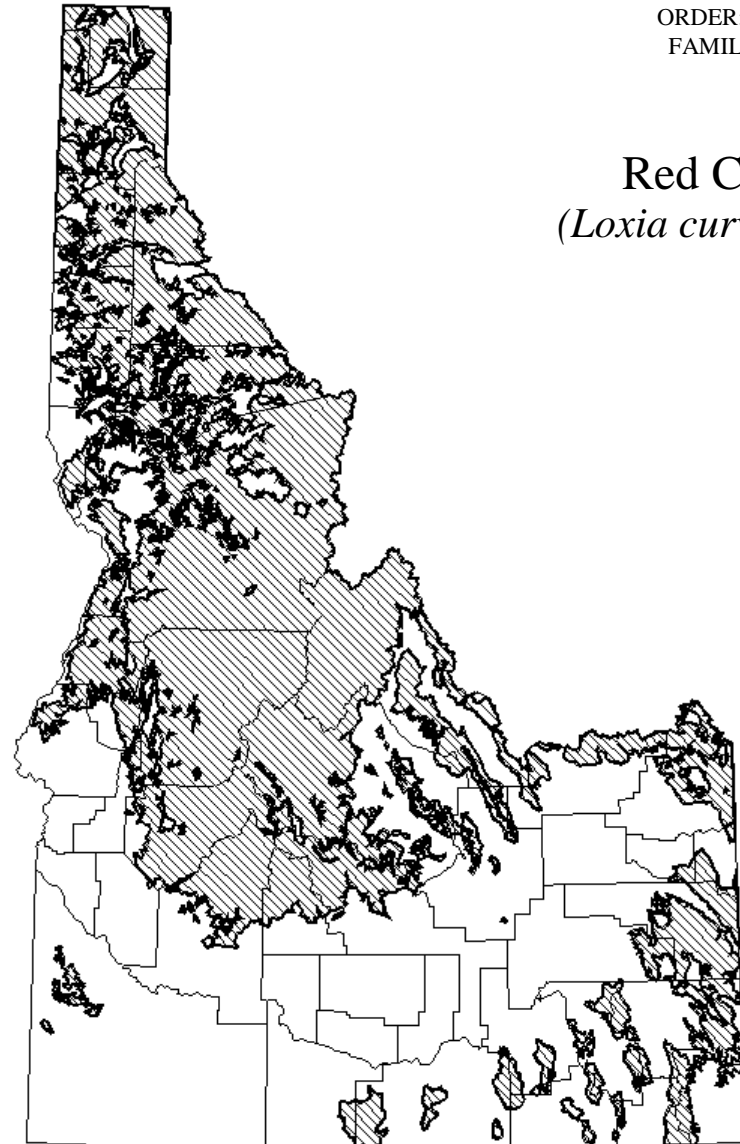
REPRODUCTION: Breeding season varies, depending in part on food supply. Female incubates 3-4 eggs, sometimes 5, for about 12-14 days (in Rockies, female may breed in year hatched, and may produce 2 broods). Young leave nest about 17 days after hatching.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

ORDER: Passeriformes  
FAMILY: Fringillidae

## Red Crossbill (*Loxia curvirostra*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds from portions of Alaska and Canada, south to northern Baja California, central highlands of Mexico, Kansas, Pennsylvania, and southern New Jersey. Winters from breeding range, south to Gulf Coast and northern Florida.

HABITAT: Found in forests and woodlands, parks, gardens, and yards in suburban areas. During migration and in winter, found in variety of woodland and forest habitats, in partly-open situations with scattered trees, and in open fields, pastures, and savannas. Preliminary results of Idaho-Montana study suggest species prefers old-growth stands over rotation-aged stands in Douglas-fir/ponderosa pine forests.

DIET: Eats seeds (e.g., alder, birch, pine, maple, thistle) and insects.

ECOLOGY: Builds saucer-shaped nest in tree. May form loose colonies when nesting. Takes food from foliage, or forages on ground. Gregarious. In fall and winter, travels in flocks of typically 50-200 individuals; occasionally, a few siskins will travel in flocks with goldfinches and redpolls.

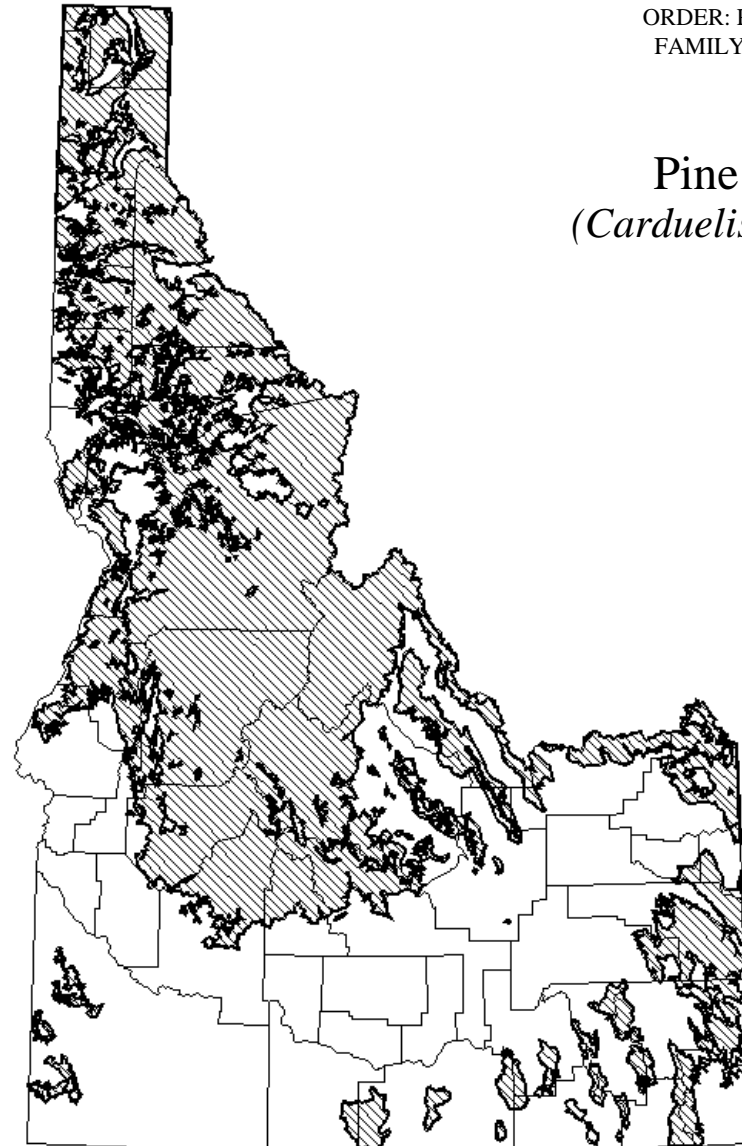
REPRODUCTION: Female incubates 3-4 eggs (sometimes 5), for 13 days. Nestlings are altricial and downy. Both parents tend young, which leave nest 15 days after hatching. Female sometimes produces 2 broods/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., Proceedings of a Symposium on Interior Douglas-fir: the species and its management. Feb. 27, 1990, Spokane WA.

ORDER: Passeriformes  
FAMILY: Fringillidae

## Pine Siskin (*Carduelis pinus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1, NTMB

ORDER: Passeriformes  
FAMILY: Fringillidae

RANGE: Resident from southwestern Washington, western Oregon, northeastern California, northern Nevada, northern Utah, and northern Colorado, south to northwestern Oklahoma, north-central and central Texas, Mexico, and northern South America. Mainly migratory in Rocky Mountain region.

HABITAT: Found, in areas where water is available, in partly-open situations with scattered trees, and in woodland edges, second growth, open fields, pastures, and around human habitation.

DIET: Thistle and other seeds comprise about 96% of diet. May also take a few insects during breeding season.

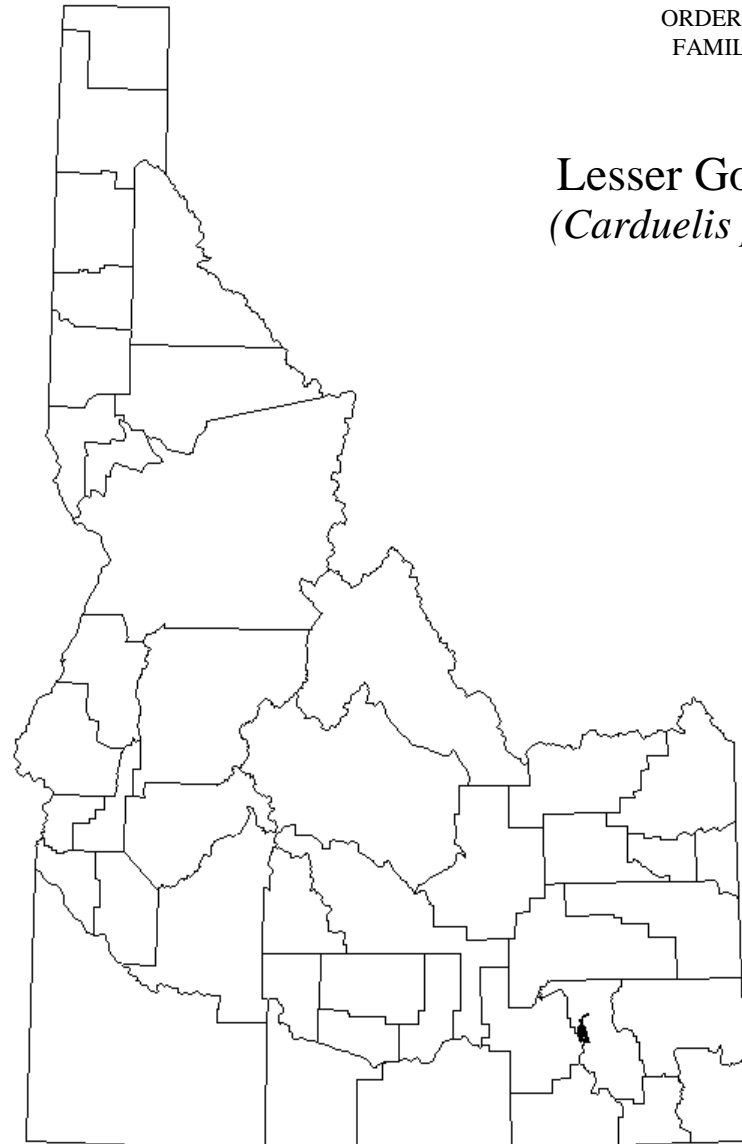
ECOLOGY: Usually nests 0.6-9 m above ground in dense foliage in tree or shrub, often near water. Usually forages on or near ground. Frequently forages in flocks. Species may form loose winter flocks of 20-30 birds that may also include other species of goldfinches and passerines. Lesser Goldfinch is an uncommon breeder in Idaho.

REPRODUCTION: Female incubates 3-6 eggs (usually 4-5), for 12 days. Nestlings are altricial and downy, and are tended by both parents. Breeding pairs may stay together all winter.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Stephens, D.A., C. Webb, and C.H. Trost. 1990. First report of nesting lesser goldfinch in Idaho. *Western Birds* 21(1): 33-34.

## Lesser Goldfinch (*Carduelis psaltria*)



STATUS: Protected nongame species

GLOBAL RANK: G5 STATE RANK: S5, NTMB

RANGE: Breeds across southern Canada, south to southwestern California, northern Baja California, eastern Oregon, central Nevada, extreme northeastern Texas, central Georgia, and South Carolina. Winters from southern Canada and northern U.S., south to northern Mexico, Gulf Coast, and southern Florida.

HABITAT: Found in weedy fields, cultivated lands, open deciduous and riparian woodlands, forest edges, second growth, shrubbery, orchards, and farmlands. Results of an Idaho study conducted in cottonwood forests indicated a preference for agricultural landscapes over more natural landscapes.

DIET: Feeds on seeds (e.g., birch, alder, conifer, thistle, and goldenrod). Will also eat some berries and insects. Young eat partly-digested, regurgitated seeds.

ECOLOGY: Builds cup-shaped nest in shrub or tree, often near water. Takes food from foliage, or forages on ground. Usually travels and forages in flocks, except during breeding season.

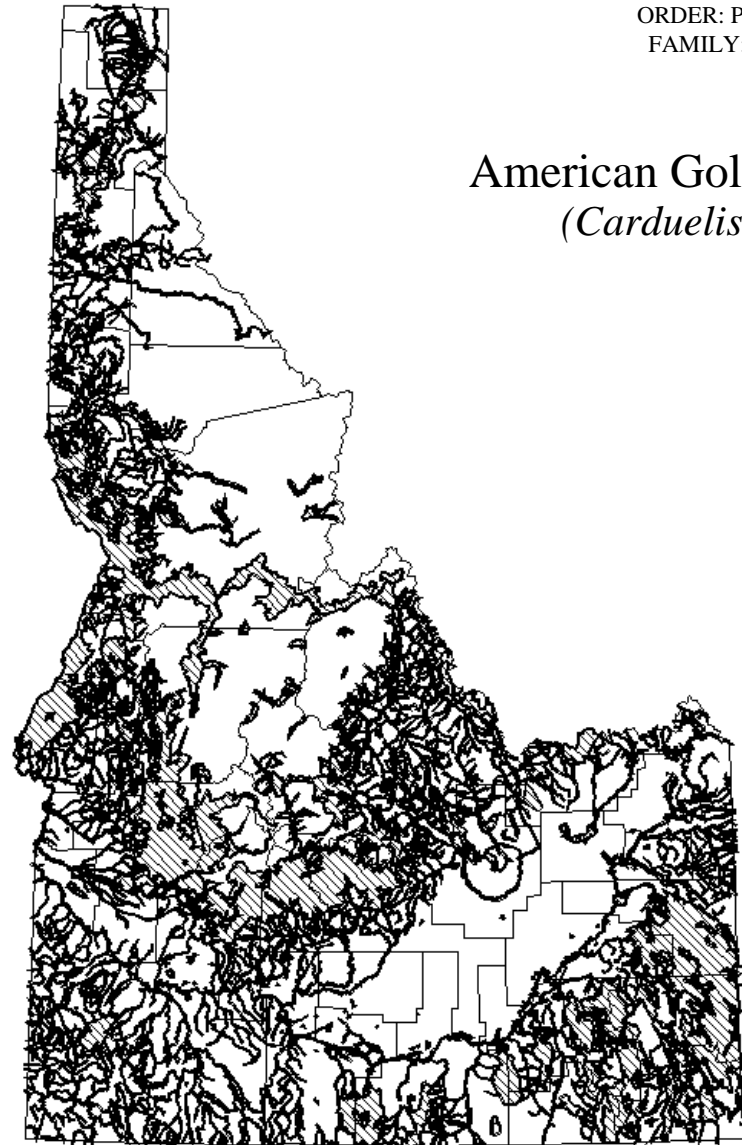
REPRODUCTION: Female incubates 4-6 eggs (usually 5), for 12-14 days. Young are tended by both adults, and leave nest 10-16 days after hatching.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.

ORDER: Passeriformes  
FAMILY: Fringillidae

## American Goldfinch (*Carduelis tristis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Breeds from British Columbia, east across portions of Canada, and south in mountains to central California and Veracruz, Mexico. Breeds in eastern U.S. to Minnesota, northern New York, and Massachusetts. Winters throughout breeding range, and irregularly to Gulf Coast and central Florida.

HABITAT: Found in montane coniferous (primarily spruce and fir) and mixed coniferous/deciduous forests at higher elevations, in second growth, and occasionally in parks. During migration and in winter, found in variety of forest and woodland habitats and around human habitation.

DIET: Eats buds and seeds of deciduous trees, shrubs, and conifers. Will eat some insects in summer.

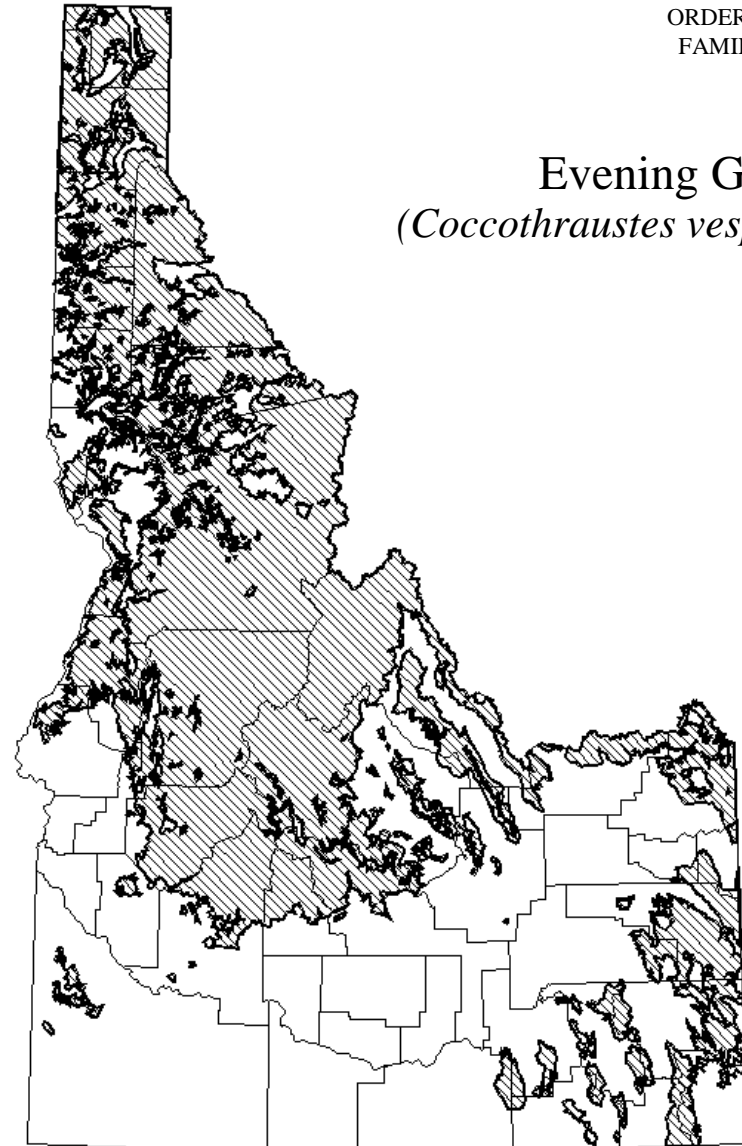
ECOLOGY: Builds cup-shaped nest in tree, near edge of limb. Gregarious; travels and forages in flocks throughout much of year. Forages on ground, or in foliage.

REPRODUCTION: In Colorado, most nests are initiated in late May or early June. Female incubates 2-5 eggs (usually 3-4), for about 12-14 days. Male provides most of female's food during incubation. Young are tended by both adults, and leave nest at 13-14 days.

GIS MODEL NUMBER: 1

ORDER: Passeriformes  
FAMILY: Fringillidae

## Evening Grosbeak (*Coccothraustes vespertinus*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Occurs from Alaska/Canadian Arctic tundra through Rockies, northern Great Plains, and Appalachians.

HABITAT: Found in most terrestrial habitats, excluding areas with very little or no vegetation. Thick leaf litter in damp forests may represent favored habitat, although species appears adaptable to major successional disturbances. In Idaho, species can be found in both wet and dry coniferous forests.

DIET: Eats insects and other invertebrates, carrion, small vertebrates, and, occasionally, seeds. Consumes its own weight in food each day.

ECOLOGY: Remains active throughout day (and year) to secure enough food to maintain high metabolic rate. May use echolocation to detect prey. Peak activity period occurs from 0100-0200 hr. Cloudy, rainy nights increase nocturnal activity. Population size is subject to large annual fluctuations. Density estimates range from 1-12 shrews/0.4 ha. Home range is about 0.04 ha. Usually found in scattered, locally abundant populations. Individuals rarely live past second summer.

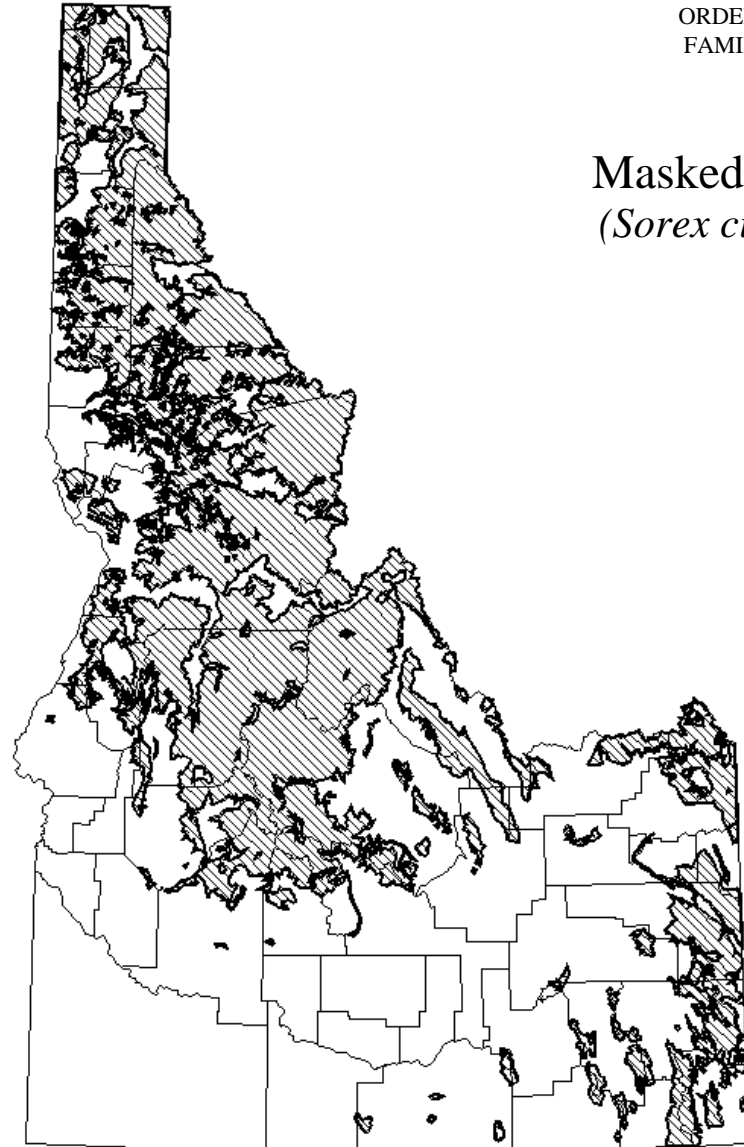
REPRODUCTION: Breeding season may last from March-September (in Nova Scotia, evidence of mid-winter births exists for at least some years). Female produces 2, sometimes 3, litters. Gestation lasts 18 days. Litter size varies from 2-10 young, but averages 7. Young are weaned in 3 wk, and reach sexual maturity in 20-26 wk.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Rickard, W.H. 1960. The distribution of small mammals in relation to climax vegetation mosaic in eastern Washington and northern Idaho. *Ecology* 41: 99-106.

ORDER: Insectivora  
FAMILY: Soricidae

## Masked Shrew (*Sorex cinereus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Western North America, from Columbian Plateau, Snake River Plains, and northern Great Basin, west to Pacific Ocean, and east to Continental Divide. Recently found east of Continental Divide in southwestern Alberta.

HABITAT: Found in wide variety of habitats such as forests, meadows, and riparian situations, but is usually mesic.

DIET: Feeds primarily on forest insects (eggs, larvae, pupae, and adults), slugs, and earthworms. May feed occasionally on salamanders and other small vertebrates.

ECOLOGY: Active all year, mostly at night; diurnal activity increases in spring. In southern British Columbia study, mean home range was estimated at 1039 m<sup>2</sup> for nonbreeding, and 3258 m<sup>2</sup> for breeding individuals. In an old field community in western Washington, annual crude density was estimated at 36.6 shrews/ha.

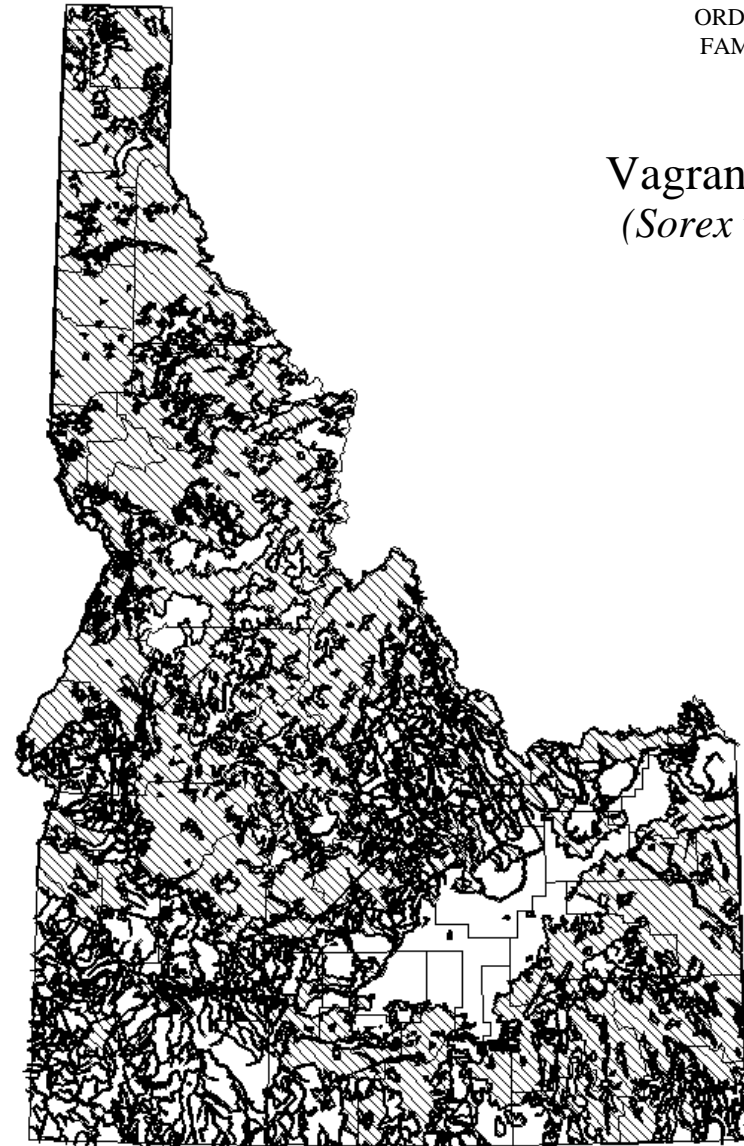
REPRODUCTION: Breeding may occur from March-September, but most activity occurs in spring, between March and May. Litter size varies from 2-9 young (average 5.2). Gestation lasts approximately 20 days.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Rickard, W.H. 1960. The distribution of small mammals in relation to climax vegetation mosaic in eastern Washington and northern Idaho. *Ecology* 41: 99-106.

ORDER: Insectivora  
FAMILY: Soricidae

## Vagrant Shrew (*Sorex vagrans*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Alaska, south through Canada and western U.S. to Mexico.

HABITAT: Found in various habitats, including damp meadows surrounded by coniferous forests, in grass among spruce/fir, in mid-elevation fir/larch, along streams and rivers in high prairie, on mossy banks of small streams, and in alpine tundra or sphagnum bogs. In Idaho, distribution is similar to vagrant shrew, but thought to be less dependent on water.

DIET: Feeds primarily on insects and other small invertebrates (worms, sowbugs, mollusks, etc.) Also consumes some vegetable matter.

ECOLOGY: Active throughout year. Mean home range has been estimated at 1227 m<sup>2</sup> for nonbreeders, and 4020 m<sup>2</sup> for breeders. Individuals are apparently not territorial in breeding season, and may move widely. Most individuals probably do not live longer than 18 mo.

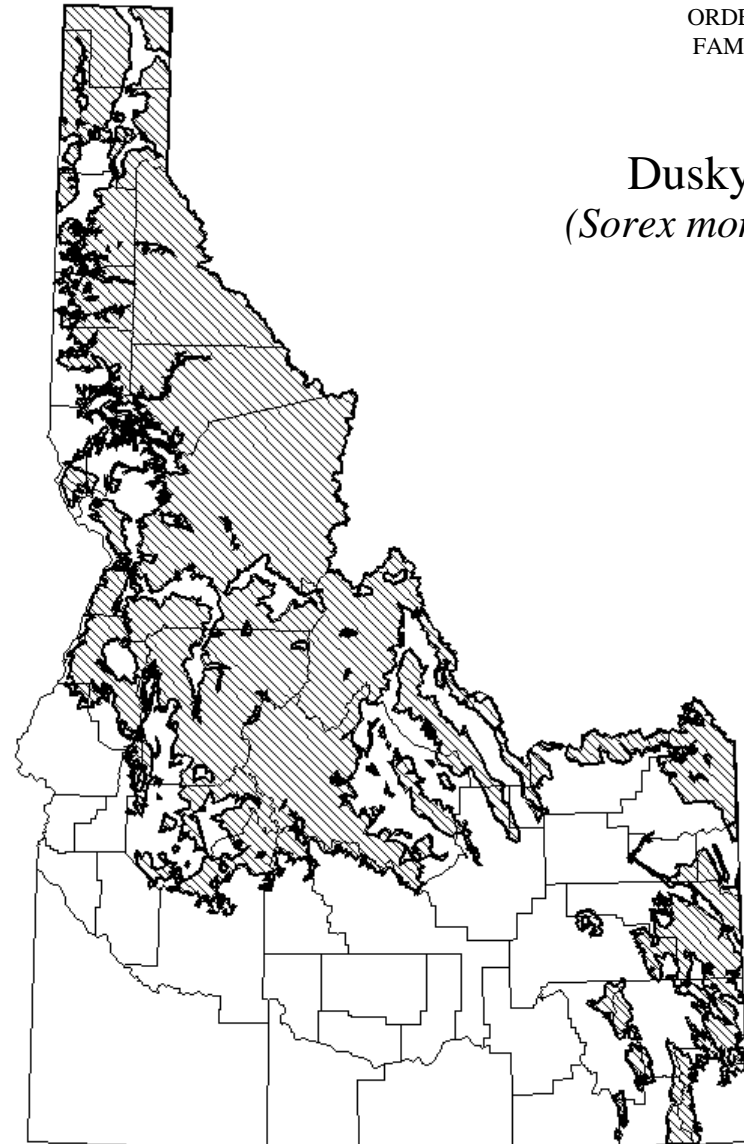
REPRODUCTION: Breeding season extends from April-August. Average litter size is about 5 young, but may reach 7. Information on reproduction from different parts of range is needed.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Groves, C.R. 1994. A preliminary report: effects of timber harvest on small mammals and amphibians inhabiting old-growth coniferous forests on the Clearwater National Forest, Idaho. Idaho Dept. Fish & Game, Boise. 24pp.

ORDER: Insectivora  
FAMILY: Soricidae

## Dusky Shrew (*Sorex monticolus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From southern Alaska and Yukon Territory, south through California, Rocky Mountains, northern Great Lakes region, and New England. Disjunct population exists in Appalachians.

HABITAT: Most abundant along small, cold streams with thick overhanging riparian growth. Also found around lakes, ponds, and other aquatic habitats. Rarely found far from water. In Idaho, found in mountain and foothill streams, lakes, and wetlands (marshes, bogs, fens.)

DIET: Primarily dependent upon aquatic insects, but will also eat various other invertebrates. May take small vertebrates (fishes or amphibians) when available.

ECOLOGY: Generally active throughout day in every season (two major activity periods have been reported: sunset to 4 hr after sunset; and just before sunrise). Hunts under and on top of water. May be seen running across water surface. In Manitoba study, home range for 2 individuals was 0.2-0.3 ha. Michigan study found 7 individuals along 20 m section of stream. In Idaho, predators include snakes, weasels, fish, owls, hawks, and frogs. Species possesses highly odoriferous flank glands, acute hearing, and (possibly) echolocation.

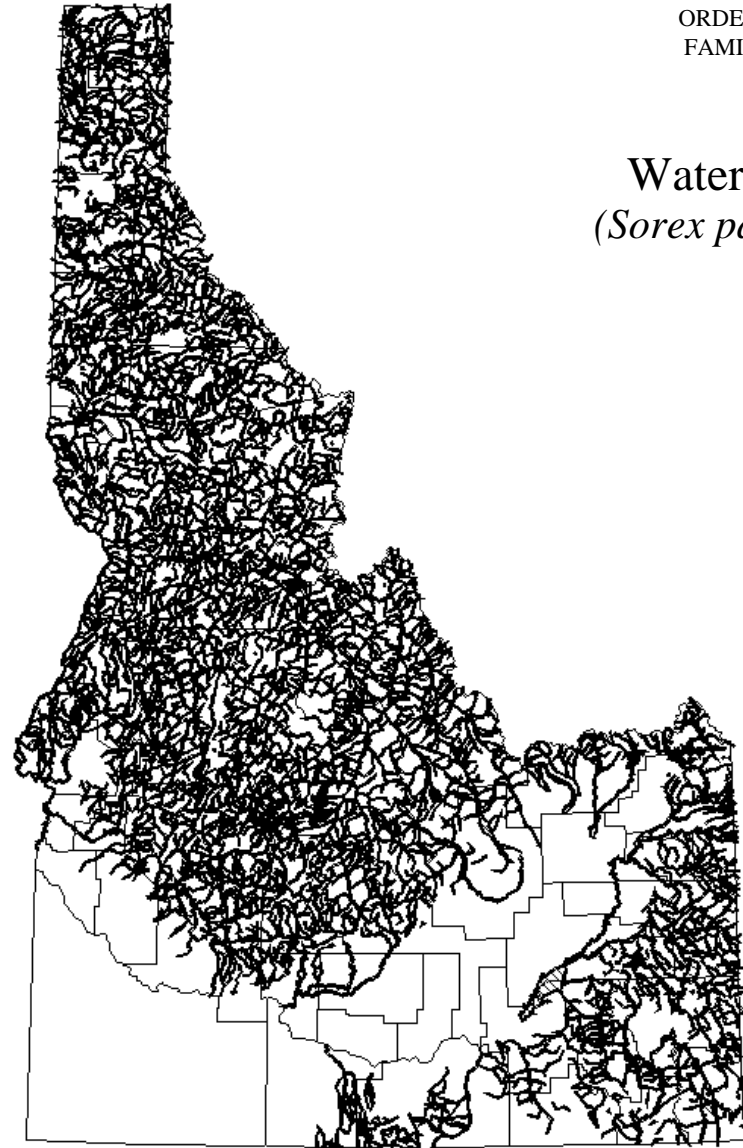
REPRODUCTION: In Montana, breeds from February-August. Gestation probably takes 3 wk. Litter size varies from 3-10 young (average 6). In Montana, female produces 2-3 litters/yr. Young become sexually mature in second calendar year (females before males), and live a maximum of 18 mo.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Medin, D.E. and W.P. Clary. 1990. Bird and small mammal populations in a grazed and ungrazed riparian habitat in Idaho. USDA Forest Service Inter. Res. Sta. Res. Paper INT-245.

ORDER: Insectivora  
FAMILY: Soricidae

## Water Shrew (*Sorex palustris*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Occurs in Great Basin, Columbia Plateau, northern Great Plains, and southern Rocky Mountains.

HABITAT: Found at elevations of 200-2900 m, primarily in grasses in shrub steppe or pinyon/juniper habitat (recorded in spruce/aspen grove in New Mexico). Seems to prefer drier habitat than other shrews. In Idaho, species has only been collected in sagebrush habitats.

DIET: Feeds primarily on insects and other small invertebrates. Caterpillars are most common summer food item.

ECOLOGY: Active throughout year. May utilize burrows and runways of other animals. In Washington and Wyoming, frequently found in association with sagebrush vole. Owls are only known predators. Displays summer and winter pelage. Recent studies in Idaho suggest species is more common than previously thought.

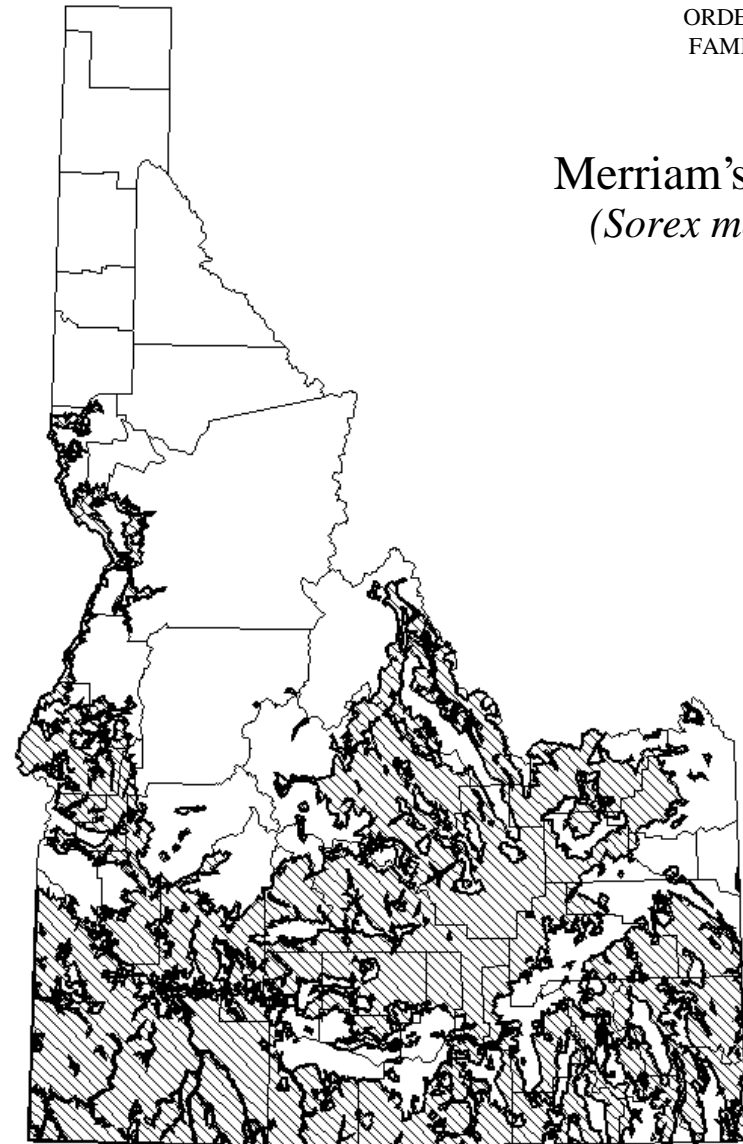
REPRODUCTION: In Washington, pregnant females have been captured from mid-March to early July; litter size produced by 3 females ranged from 5-7 young.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Mullican, T.R. 1986. Additional records of *Sorex merriami* from Idaho. Murrelet 67:19-20.

ORDER: Insectivora  
FAMILY: Soricidae

## Merriam's Shrew (*Sorex merriami*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: Distributed throughout much of Canada and Alaska, excluding northern tundra zones. U.S. populations are limited to northern Rockies, Great Lakes region, and New England. Disjunct populations occur in mid-Rockies and Appalachians.

HABITAT: Found in variety of habitats. Appears to prefer grassy openings of boreal forests. Moist habitats are preferred over dry areas. In Idaho, individuals have been collected in high-elevation spruce-fir forests and, more recently, in cedar-hemlock forests on Panhandle.

DIET: Primarily dependent upon invertebrates. In one study, diet in New Brunswick included mainly insect larvae, beetles, and spiders.

ECOLOGY: Active throughout year. Peak activity occurs at night. Michigan study estimated population densities at 0.2-2 individuals/0.4 ha.

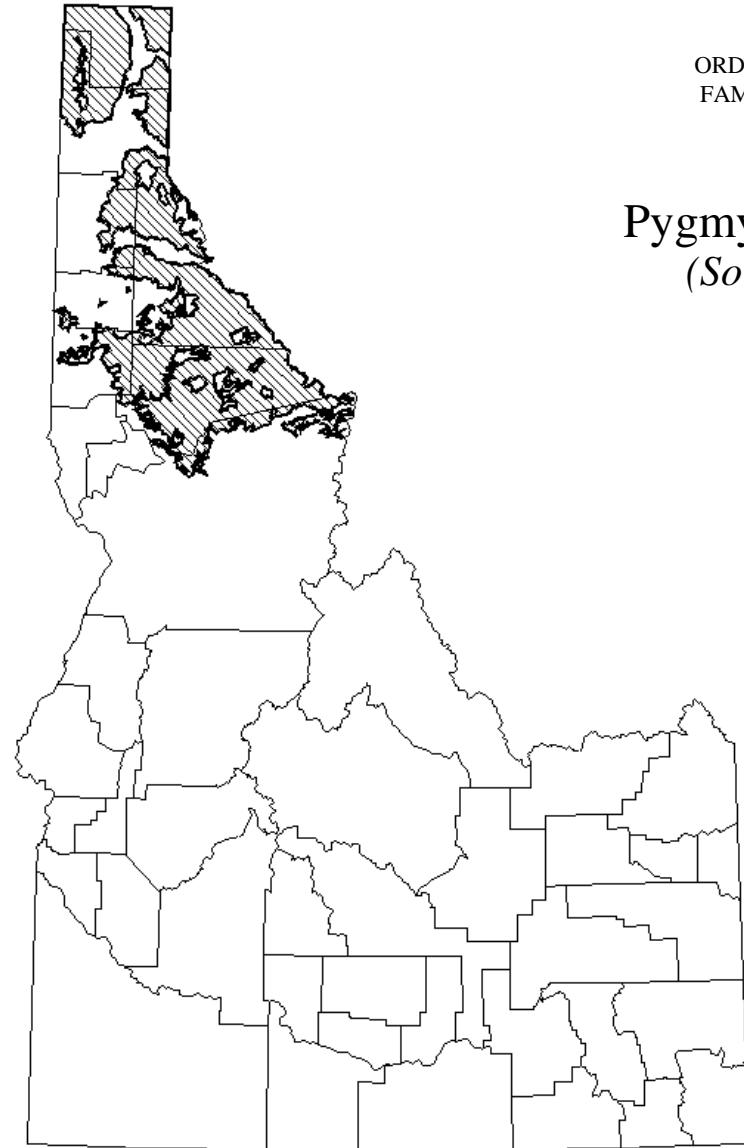
REPRODUCTION: Meager information exists on life history. Probably breeds from late spring to late summer. Female produces 1 litter. Gestation probably lasts 2-3 wk. Litter size varies from 5-6 young. Young reach sexual maturity in second summer.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Foresman, K.R. 1986. *Sorex hoyi* in Idaho: a new state record. Murrelet 67:81-82.

ORDER: Insectivora  
FAMILY: Soricidae

## Pygmy Shrew (*Sorex hoyi*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

ORDER: Insectivora  
FAMILY: Talpidae

RANGE: From southwestern British Columbia, south through western Washington and Oregon to coastal northwestern California. Also found in parts of eastern Washington and Oregon, and extreme west-central Idaho.

HABITAT: Found in agricultural land, coastal dunes, grassy meadows, coniferous and deciduous forests and woodlands, and along streams.

DIET: Diet is dominated by earthworms. Other common food items include adult and larval insects and other invertebrates.

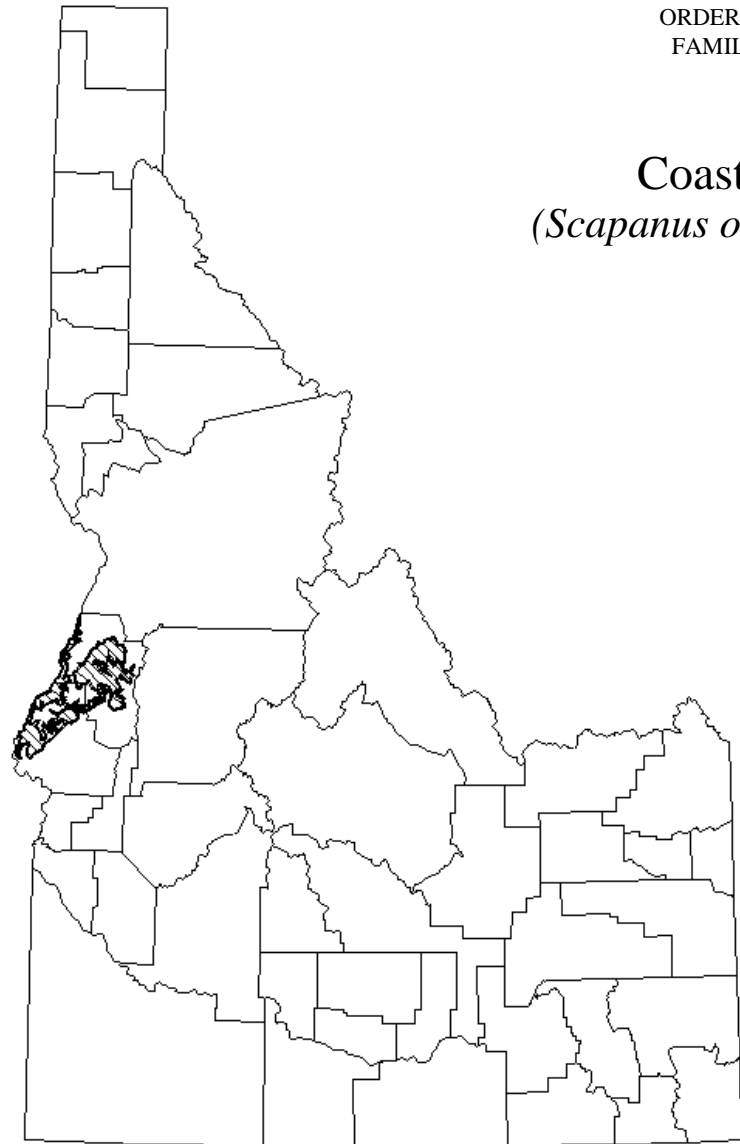
ECOLOGY: Active throughout year. Fossorial; occasionally active on surface, especially when dispersing juveniles in summer. Solitary except when breeding. Population density is highly variable, ranging from 1/0.10 ha to 1/14 ha. Quickly recolonizes formerly flooded areas. Maximum longevity is probably about 4-5 yr. Average home range has been estimated at 0.12 ha.

REPRODUCTION: Breeds from January-early March. Parturition occurs in late March or early April. Litter size varies from 2-4 young. Females, which are sexually mature at 9-10 mo, produce 1 litter/yr.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Yensen, E., D.A. Stephens, and M. Post. 1986. An additional Idaho mole record. Murrelet 67:96.

## Coast Mole (*Scapanus orarius*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Alaskan and Canadian boreal forests, south through most of contiguous U.S. to central Mexico. Generally not present in southern Great Plains region.

HABITAT: Found in caves and hollow trees, but has also adapted to using structures for resting and maternity sites. Usually forages in woodlands near water.

DIET: Consumes flying insects, especially mosquitoes and midges (or insects with wingspans of 3-13 mm).

ECOLOGY: Probably the most common bat in North America, and one of the best studied. Most active during first 2-3 hr after sunset. Second foraging period follows midnight roost, which is lengthened by cool temperatures and low abundance of prey. Hibernates from September or October to April or May. In winter, selects temperature at or below 40° F and relative humidity of about 80%. Winter concentrations may include tens of thousands of individuals. Survival rate is low during first winter, higher in subsequent years. Most summer nursery colonies range from 50-2500 bats (average 400). Summer home range is poorly understood.

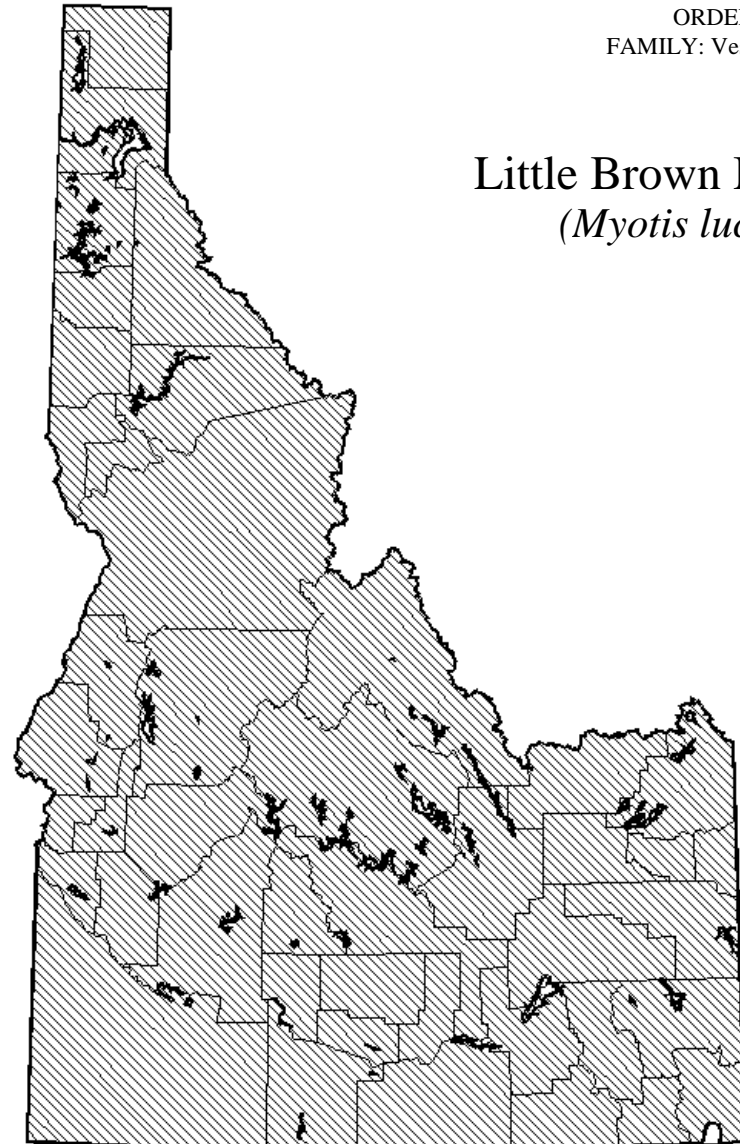
REPRODUCTION: Usually mates from September-October. Ovulation and fertilization are delayed until spring. Gestation lasts 50-60 days. Female gives birth to 1 litter of 1 young, in late spring-early summer. Female produces first young usually in first year (Indiana, New Mexico) or second year (British Columbia).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Bonnell, M.L. 1967. Emergence and foraging behavior in small populations of Idaho bats. M.S. Thesis, Univ. Idaho, Moscow. 63pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Little Brown Myotis (*Myotis lucifugus*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From British Columbia, south through western U.S. to portions of Mexico. Range is difficult to plot due to frequent mistaken identifications of specimens.

HABITAT: Found in wide variety of upland and lowland habitats, including riparian situations, desert scrub, and moist woodlands and forests, but usually found near open water (more closely associated with water than most other North American bats.) In Idaho, inhabits wide elevational range.

DIET: Insectivorous. Small moths are believed to be primary food source; dipterans and ground beetles are other common prey.

ECOLOGY: Hibernates/aestivates. Active at night; leaves daytime roosts to feed in early evening. Often forages over streams, flying just above water surface. May be locally abundant. Availability of daytime roosts may be limiting factor in some areas. Males are solitary during birthing season.

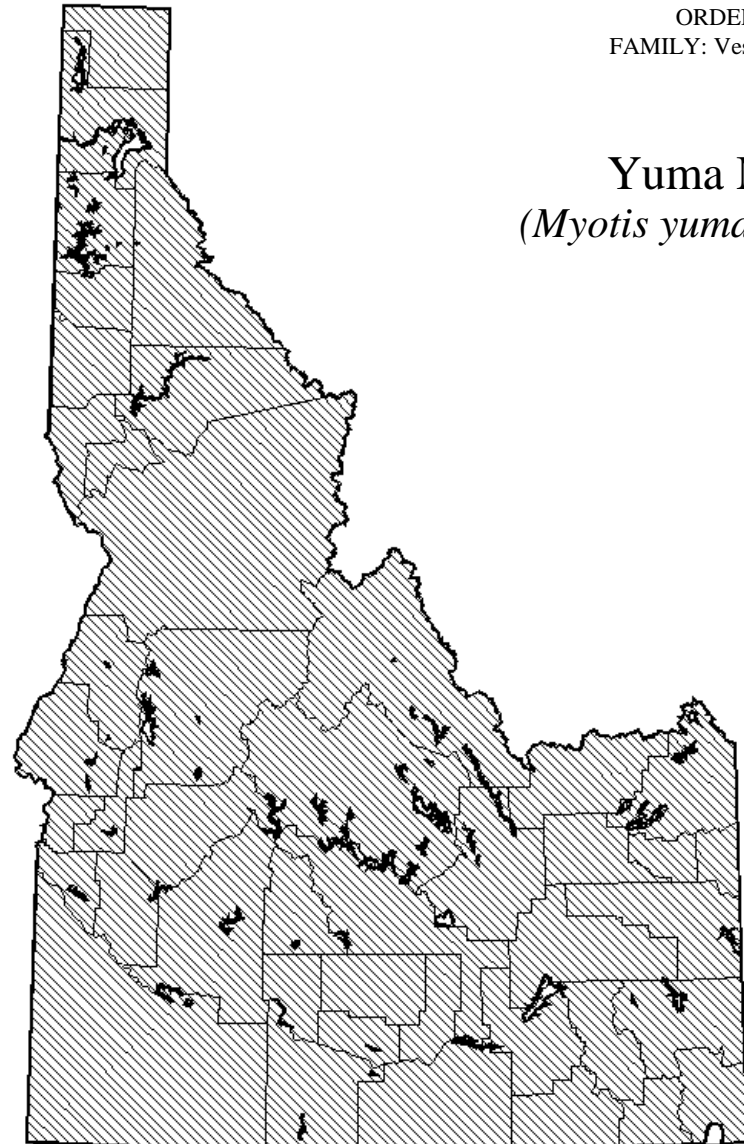
REPRODUCTION: Maternity colonies form in April. Female first breeds in second summer, and produces 1 young, born late May-July (in western Oklahoma and Arizona, peak is apparently mid-June; in California, young are born apparently from late May to mid-June). Ovulation and fertilization are delayed until spring. Colonies disperse by end of September.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Yuma Myotis (*Myotis yumanensis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From central British Columbia, southern Alberta, and southern Saskatchewan, south along Pacific Coast to Baja California, east through Montana and Idaho to western Dakotas, and from Nevada, Utah, Wyoming, and Colorado south to New Mexico and Arizona. Distribution in Idaho is poorly known.

HABITAT: Found (from near sea level along Pacific Coast, to about 2830 m in Wyoming), mostly in forested areas, especially those with broken rock outcrops; also found in shrublands, over meadows near tall timber, along wooded streams, and over reservoirs. Idaho study found roosts were always located near water. Species is common in lodgepole pine forests.

DIET: Preys primarily on small moths and medium-sized beetles.

ECOLOGY: Widespread and not uncommon species, but little is known about its habits. Reportedly emerges late in evening to feed, though some studies report earlier emergence. Forages over water or among trees. Usually feeds by picking prey from surface of foliage, tree trunks, rocks, or ground; may fly slowly around shrub searching for emerging moths, or perhaps nonflying prey. Known to forage with long-legged myotis, big brown bat, silver-haired bat, and hoary bat, but Idaho study found species foraged earlier in evening than several other bat species. Often roosts in buildings; may also roost in hollow trees, mines, caves, and fissures.

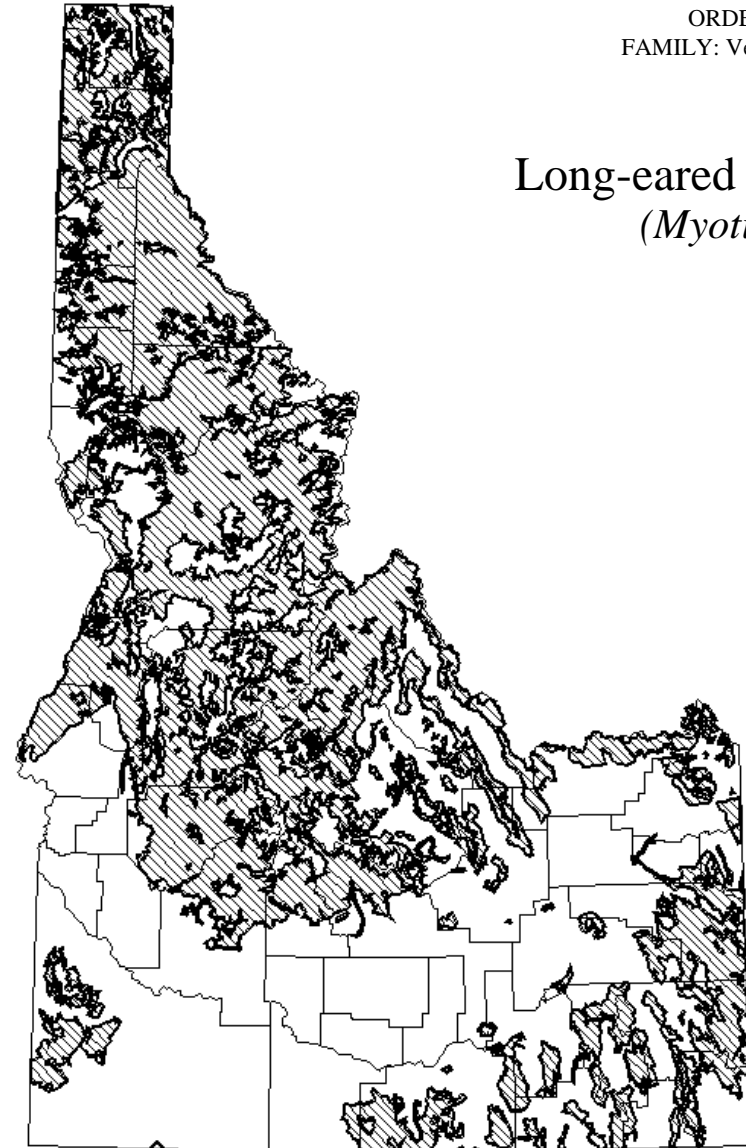
REPRODUCTION: Mating occurs in fall; ovulation and fertilization are delayed until spring. Births have been recorded in mid-July in western Washington. Young and lactating females have been recorded in late July in New Mexico. Female and newborn young have been recorded in late June in California. Female produces 1 young. South Dakota study found that male young-of-year reached approximate adult size in early August.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Bonnell, M.L. 1967. Emergence and foraging behavior in small populations of Idaho bats. M.S. Thesis, Univ. Idaho, Moscow. 63pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Long-eared Myotis (*Myotis evotis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

ORDER: Chiroptera  
FAMILY: Vespertilionidae

RANGE: From south-central British Columbia, south through western U.S. to portions of southern Mexico. Disjunct population occurs in Black Hills of Wyoming and South Dakota. Winter range is not well known; Idaho range is only known from 2 locales, but distribution is probably much greater.

HABITAT: Found in desert, grassland, and woodland habitats, primarily at middle elevations of 1200-2150 m. Has been recorded at 2850 m in spruce/fir forests in New Mexico, and at low elevations along Pacific Coast.

DIET: Insectivorous; beetles and moths are common prey item.

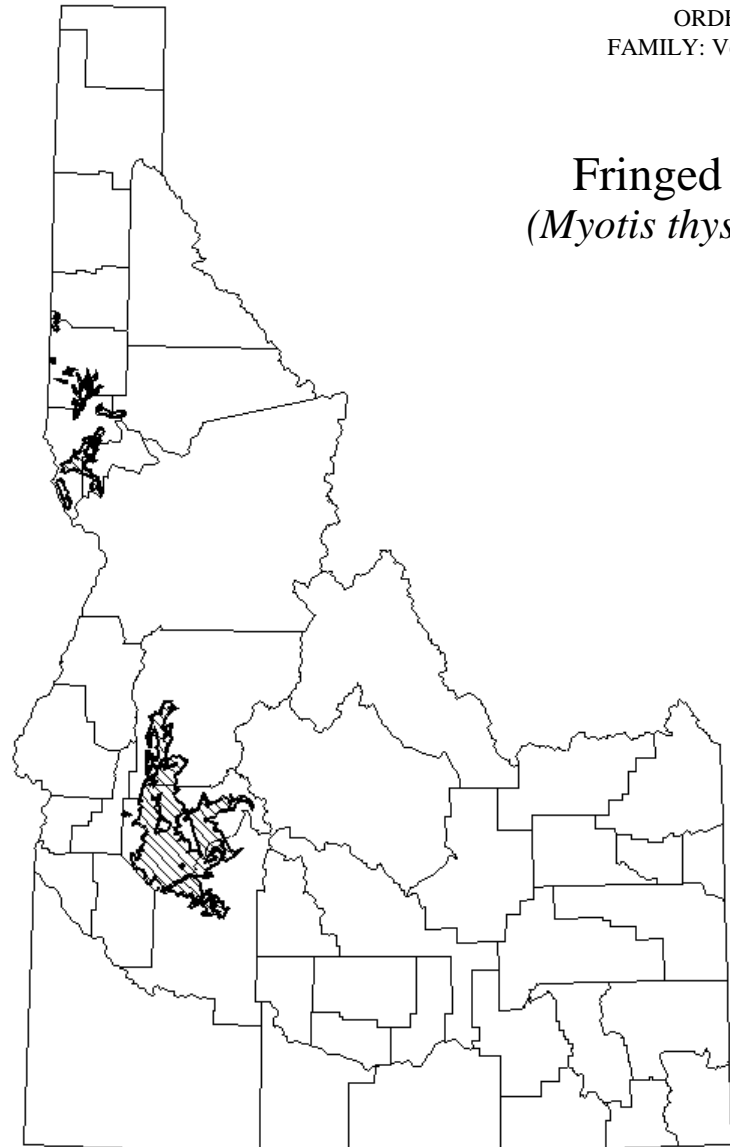
ECOLOGY: Hibernates/aestivates. Known to be active from April-September. Roosts in caves, mines, rock crevices, buildings, and other protected sites. Often forages close to vegetative canopy. Wings have high puncture strength, which is characteristic of bats that forage by gleaning from ground or near thick or thorny vegetation. In Idaho, found with many other species, including long-eared myotis, long-legged myotis, and California myotis; known to roost communally, but never closer than 3 m to other bat species. Easily disturbed by human presence. Known to thermoregulate. Ecology of this species is poorly known, particularly in winter.

REPRODUCTION: Apparently little variation exists in timing of reproduction throughout range. In northeastern New Mexico, mating occurs in fall; ovulation, fertilization, and implantation occur from late April to mid-May. Gestation lasts 50-60 days; births occur in late June to mid-July. Female produces 1 young. Young can fly at 16-17 days. Maternal colony sizes may reach several hundred individuals; colonies begin to disperse in October.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Bonnell, M.L. 1967. Emergence and foraging behavior in small populations of Idaho bats. M.S. Thesis, Univ. Idaho, Moscow. 63pp.

## Fringed Myotis (*Myotis thysanodes*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From extreme southeastern Alaska, south through western Canada and U.S. to central Mexico. Winter range is poorly known, although a few records exist from South Dakota. Distribution in Idaho is poorly known.

HABITAT: Found in montane coniferous forests at 2000-3000 m. Also found in riparian and desert (Baja California) habitats. May change habitats seasonally.

DIET: Feeds primarily on moths. Also eats variety of invertebrates (e.g., fleas, termites, lacewings, wasps, small beetles, etc.)

ECOLOGY: Hibernates/aestivates. Active throughout most of night. Peak activity occurs during first 3-4 hr after sunset. Forages for relatively long distances over, through, and around forest canopies and forest clearings, and also over water. In New Mexico, forages primarily in open areas. Uses caves and mines as hibernacula, but winter habits are poorly known. Roosts in abandoned buildings, rock crevices, and under bark. In summer, apparently does not use caves as daytime roost sites. Sometimes attains life span of 21 yr.

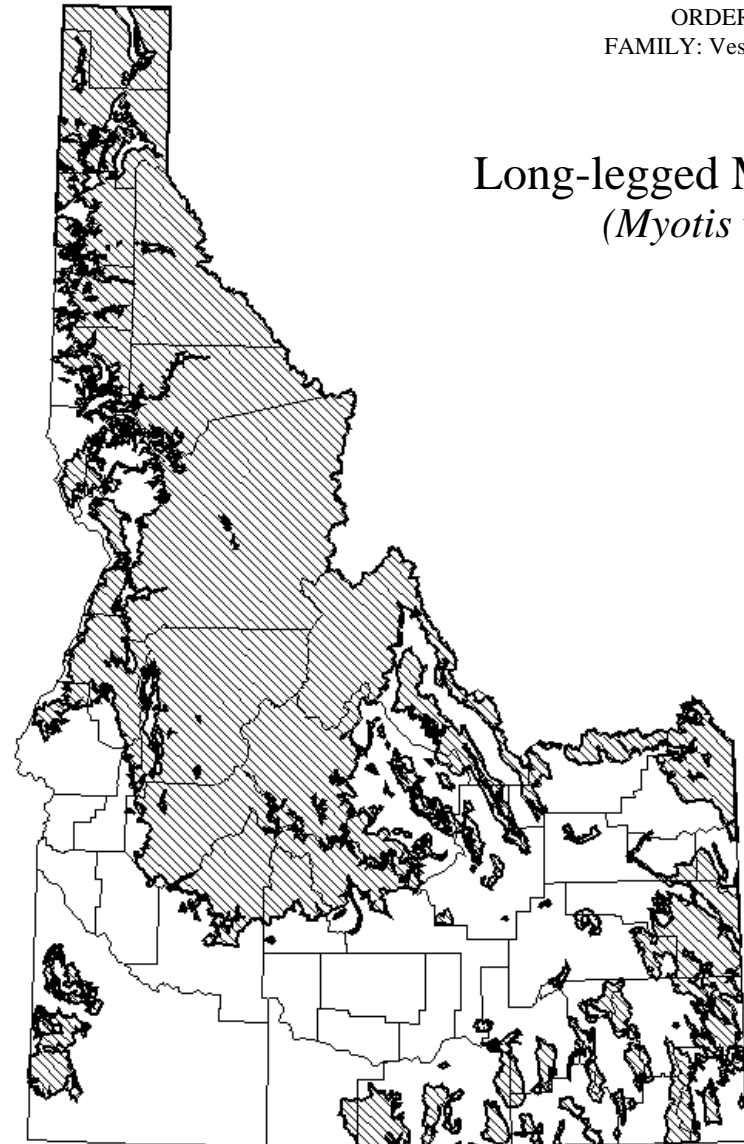
REPRODUCTION: In New Mexico study, mating began in late August, sperm was stored over winter in female reproductive tract, ovulation occurred March-May, and parturition took place May-August. In Texas, births probably occur in June or early July. Female produces 1 young. Nursery colonies may include up to several hundred individuals.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Long-legged Myotis (*Myotis volans*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: From extreme southern Alaska and western Canada, south in lowlands through Montana, Utah, and California, and throughout desert Southwest. Winters in California, Nevada, Utah, Arizona, and Texas. Full extent of winter range is not known. In Idaho, species has only been observed near west-central border, but distribution is probably more widespread.

HABITAT: Found from seacoasts to deserts, at elevations up to about 1800 m, in oak/juniper situations, canyons, riparian woodlands, desert scrub, and grasslands.

DIET: Insectivorous.

ECOLOGY: Known to hibernate in U.S. during winter, but winter activity has also been recorded. In southern California, occasional individuals have been found active on warm winter days. Active bats have been regularly caught in Nevada in fall and winter (frequently in temperatures below 43°F). Species hibernates in caves, mines, tunnels, or buildings. Forages with slow, erratic flight pattern approximately 1.5-3 m off ground. Often uses human-built structures for night roosts. Uses crevices of various kinds for summer day roosts.

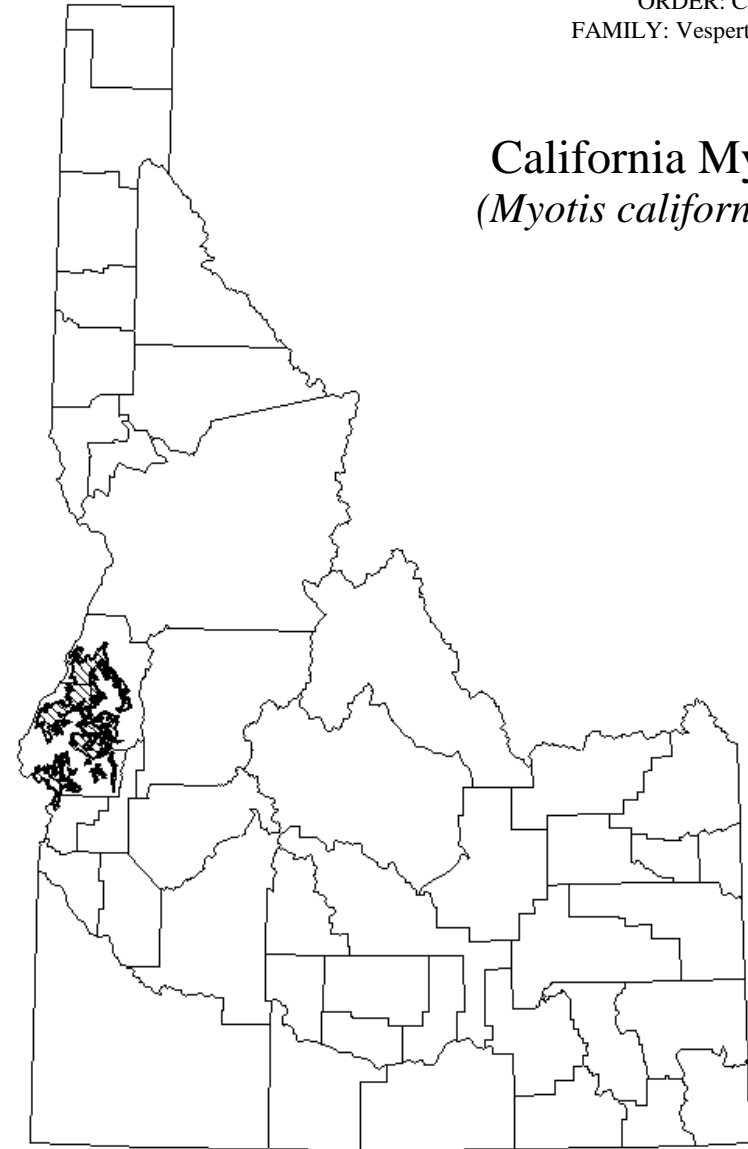
REPRODUCTION: Mating occurs in fall; ovulation and fertilization are delayed until spring. Female gives birth to 1 young in late May to mid-June, depending on range (July in Canada). Nursery colonies are usually small (up to about 25 individuals).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## California Myotis (*Myotis californicus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From southern Alberta, Saskatchewan and British Columbia, south through western United States into Mexico. Distribution in Idaho is poorly known.

HABITAT: Found in arid habitat associated with cliffs and talus slopes. In Texas, principally found in mountainous, wooded areas, with a few found in grassland and shrub steppe habitats. In Canada, inhabits arid, short-grass prairies with clay buttes and steep riverbanks.

DIET: Probably feeds on variety of small insects (Oregon study identified Lepidoptera, Hemiptera, and Diptera; British Columbia study found Trichoptera).

ECOLOGY: Hibernates in caves and mines in winter (one of the last bats to begin hibernation). In Idaho, known to winter in lava-tube caves in southern part of state. Roosts in summer in rock crevices, under boulders, beneath loose bark, or in buildings. During warmer months, leaves daytime roost shortly after sunset. Forages along cliffs and rocky slopes at heights of 1-3 m. Foraging activity peaks between 2200-2300 hr and 0100-0200 hr. Species is sympatric with California myotis; appears to coexist by spatial partitioning of available food source.

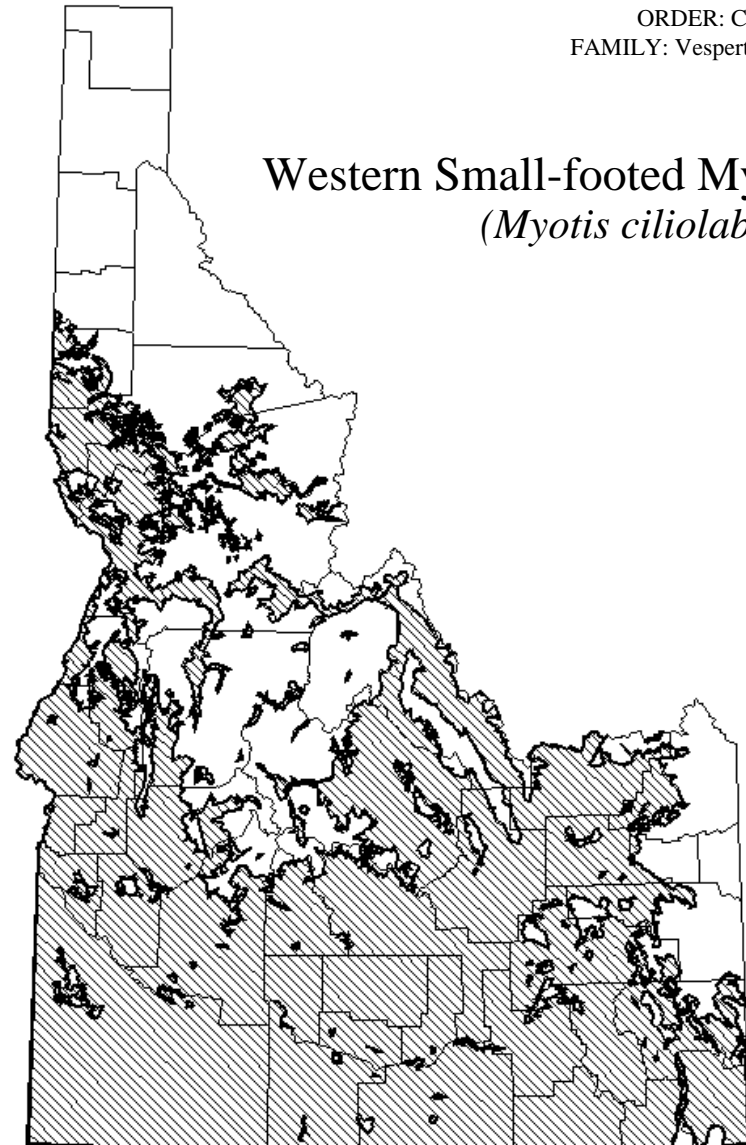
REPRODUCTION: Little information is available. Observations of pregnant and lactating females indicate that parturition occurs from late May or June through early July. In U.S., females usually produce 1 young (sometimes 2 at more southern latitudes). Maternity colonies are small.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Genter, D.L. 1986. Wintering bats of the upper Snake River plain: occurrence in lava-tube caves. Great Basin Natur. 46:241-244.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Western Small-footed Myotis (*Myotis ciliolabrum*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Occurs throughout U.S. and most of southern Canada. Small populations may also be found in northern Mexico and southern Alaska. Apparently, most individuals overwinter in southern part of range. Males seem to stay farther south in spring and summer than do females. Idaho distribution is not well known.

HABITAT: Prefers forested (frequently coniferous) areas adjacent to lakes, ponds, and streams.

DIET: Consumes small- to medium-sized flying insects.

ECOLOGY: Hibernates (rarely in caves). Species is relatively cold tolerant; may be active at low air temperatures (roosting migrants in Manitoba study became torpid at air temperatures below 20° C). Forages over small water bodies, forest canopy, and (in more open habitats) low over ground and shrub vegetation. Leaves roost and begins to forage relatively late. Major activity peaks 3 hr after sunset and 7-8 hr after sunset, but this varies with latitude. Usually roosts singly, but will occasionally form groups of 3-6. Summer roosts and nursery sites are in tree foliage, cavities, under loose bark, or sometimes in buildings (in Manitoba study, migrants typically roosted in narrow crevices in tree trunks). Densities are probably low. May congregate in large numbers and migrate several hundred miles.

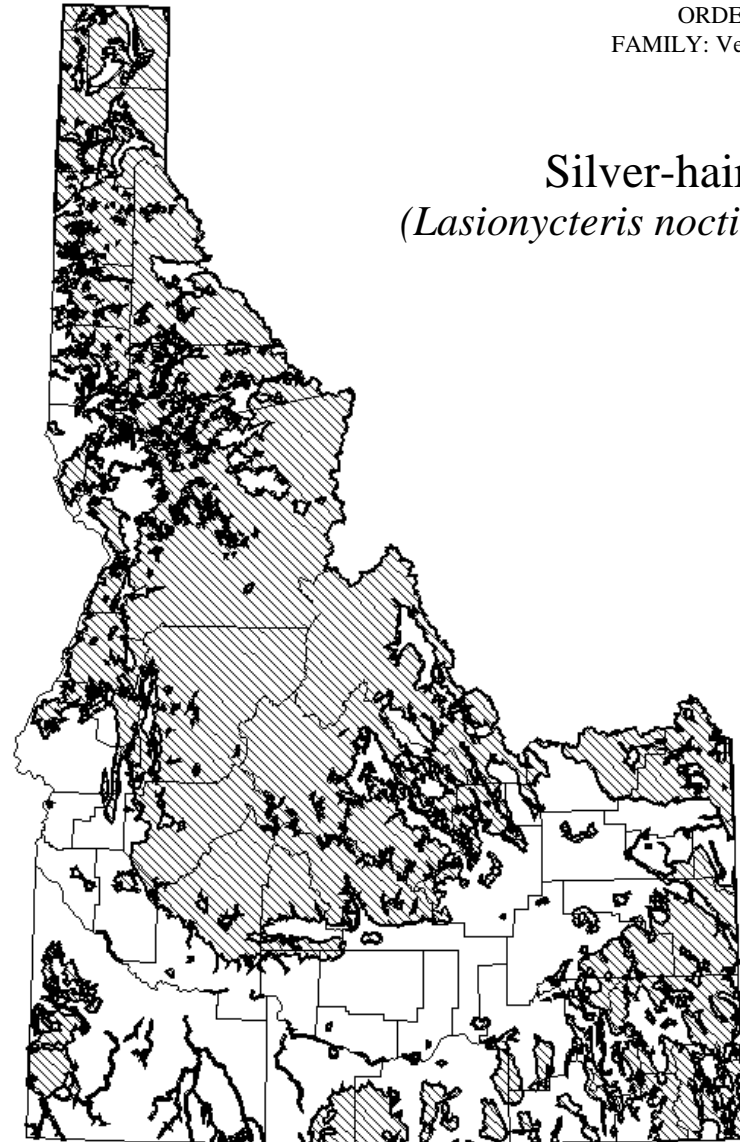
REPRODUCTION: Breeds in late September; fertilization is delayed until spring. Gestation lasts 50-60 days. Maternity colonies are small. Female produces 1-2 young, born in June or July (sometimes later in northern range). Young are able to fly at about 3 wk, and may become sexually mature in first summer.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Silver-haired Bat (*Lasionycteris noctivagans*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: From southeastern Washington, south through western and southwestern U.S. to Michoacan and Hidalgo, Mexico. Known to winter in Nevada, California, Arizona, and Texas, but limits of winter range are not known. Distribution in Idaho is poorly documented.

HABITAT: Found (up to about 2100 m) in deserts and lowlands, desert mountain ranges, desert scrub flats, and rocky canyons. In Idaho, prefers cliffs and canyon walls close to water.

DIET: Eats small insects, especially those in swarms.

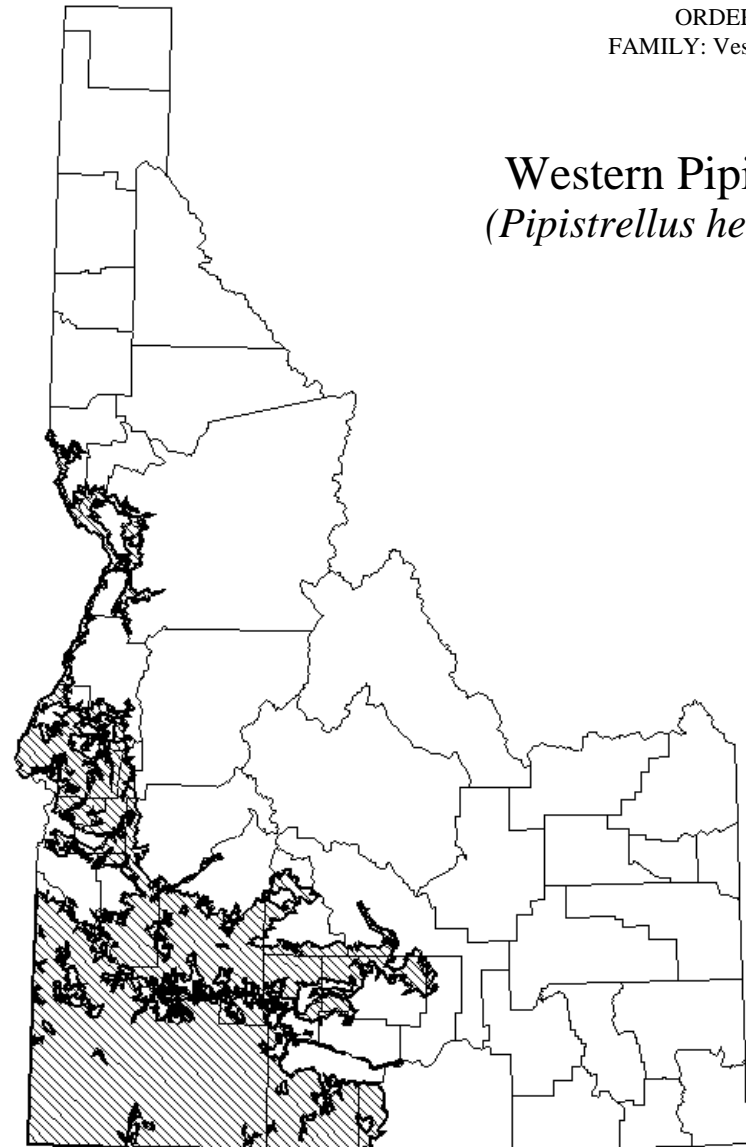
ECOLOGY: Known to hibernate, but remains sporadically active throughout winter in some areas. May hibernate in cave, mine, or rock crevice. Forages along short circuits 2-15 m above ground. Tends to roost singly or in very small groups. Day and night roosts include rock crevices, under rocks, in burrows and sometimes in buildings or mines. Most active early in evening; rests during night and feeds again near dawn. Emerges well before dark; remains out later in morning than other bats. Typically visits water and drinks immediately after emergence each evening.

REPRODUCTION: Mates in fall; ovulation and fertilization are delayed until spring. Gestation lasts about 40 days. Maternity colonies comprise no more than a dozen individuals; births may occur solitarily, in June or July. Female produces 2 young, which fly at about 1 mo.

GIS MODEL NUMBER: 1

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Western Pipistrelle (*Pipistrellus hesperus*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From southern Canada, south to portions of South America.

HABITAT: Found in various wooded and semi-open habitats. More abundant in regions dominated by deciduous forests than in coniferous forest areas.

DIET: Dependent upon flying insects; in many areas, small beetles are most common prey. Species' large size, powerful jaw muscles, and robust teeth allow predation on larger insects with tough exoskeletons (i.e., beetles).

ECOLOGY: Forages over land or water, around clearings and lake edges, around lights in rural areas, or around trees or forest canopies. Common in towns and cities. Initial foraging period occurs within 5 hr after sunset, although most activity occurs within second hr after sunset (may subsequently retire to night roost). Flies less than 2 hr each night. Distance from day roost to foraging area averages about 1-2 km. Caves, mines, and human-built structures are used for hibernation. In temperate areas, many individuals do not appear at hibernacula until November. Winter colonies rarely number more than a few hundred. Less gregarious in winter; usually roosts alone in crevice, but sometimes 2-20 may roost together. Summer roosts are generally in buildings, but hollow trees, rock crevices, tunnels, and cliff swallow nests may also be used; prefers roosting sites that do not get hot. Males are often solitary in summer, but may roost with females or in all-male colonies. When young are flying, males may join nursery groups to form large late-summer colonies. Individuals are capable of living at least 20 yr, but few attain old age.

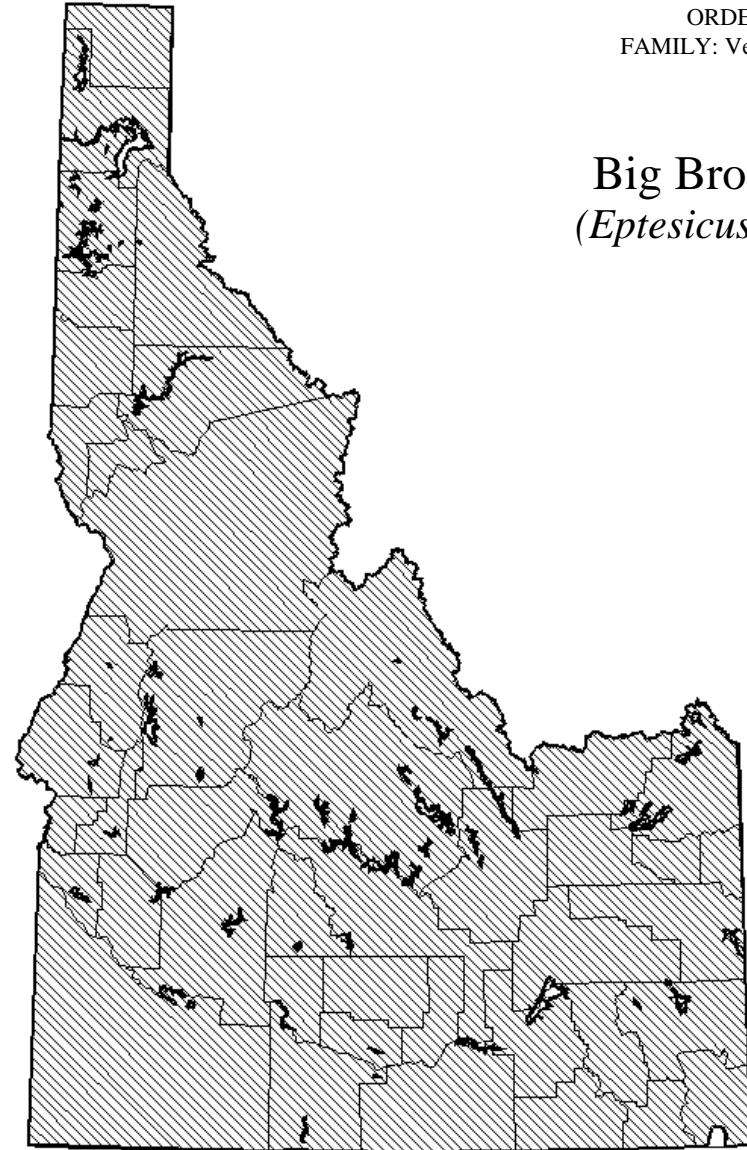
REPRODUCTION: Breeds in fall and intermittently throughout winter. In temperate regions, ovulation and fertilization are delayed until after hibernation. Gestation lasts 2 mo. Female produces 1 young in western range, 2 in east, in May-July. Lactation lasts 32-40 days; young fly at 4-5 wk. Males are usually sexually mature in first fall; not all females reproduce at end of first year. Nursery colony rarely numbers more than a few hundred.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Big Brown Bat (*Eptesicus fuscus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Occurs throughout U.S., north to northern Canada, and south through Mexico to Guatemala. Rare or absent in most of southeastern U.S. and in deserts of Southwest. Wintering areas for northern breeders include southeastern U.S., southern California, and Mexico.

HABITAT: Prefers deciduous and coniferous forests, sometimes at clearing edges or along hedgerow trees.

DIET: Feeds chiefly on large moths and, to a lesser extent, beetles.

ECOLOGY: Swift flier. Usually emerges after dark, though one source states that emergence occurs early in evening. Feeding activity peaks 4-5 hr after sunset, with secondary peak occurring several hr before dawn. Frequently forages around clearings, but may forage around lights in nonurban situations. May forage at considerable distances (a mile or more) from diurnal roost site. Usually roosts in tree foliage 3-5 m above ground with dense foliage above roost and open flying room below, often at edge of clearing. Sometimes roosts in rock crevices; rarely uses caves. Generally dispersed population allows little chance to obtain density figures.

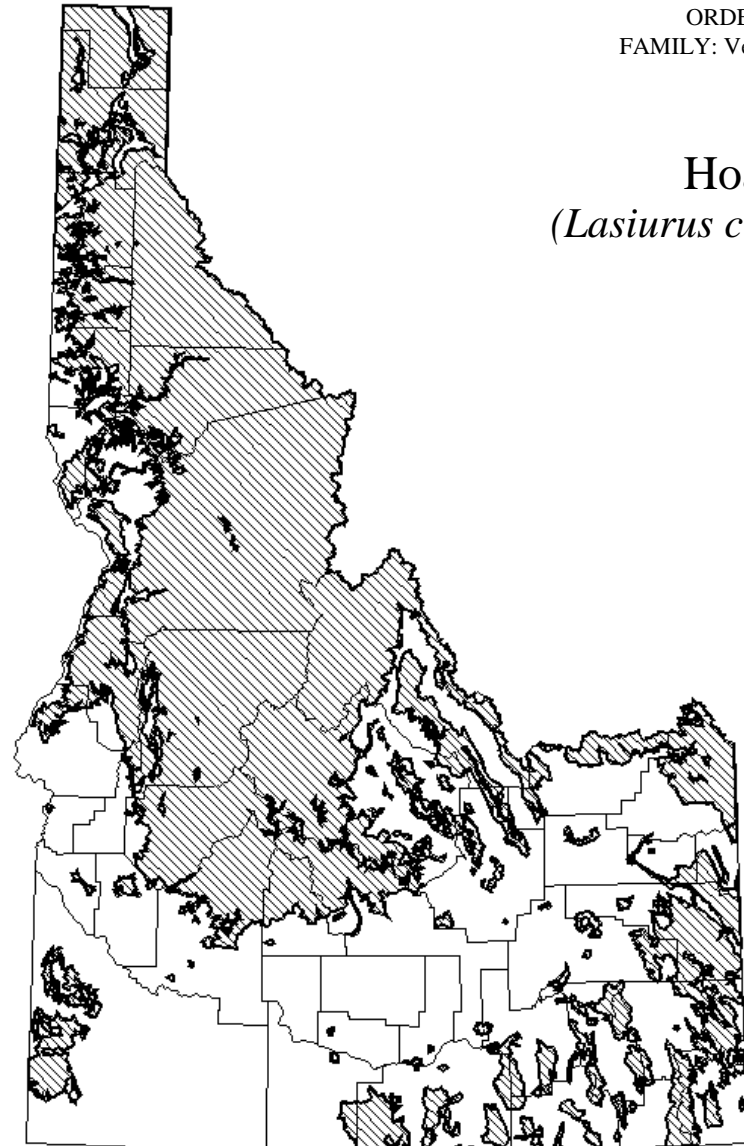
REPRODUCTION: Breeds from September-November in North America. Fertilization is delayed. Gestation lasts 90 days. Female produces 1 litter of 1-4 young (average 2) in mid-May to early July (May or June in Idaho). Young are able to fly at 4 wk, and probably become sexually mature in first summer. Female sometimes may carry young during feeding flight.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Hoary Bat (*Lasiurus cinereus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1

RANGE: From southern British Columbia, south through western and southwestern U.S. to central Mexico, and east to Big Bend region of Texas. Winter range is not known. Extensive Idaho surveys have only recently located species in southwestern part of state.

HABITAT: Found, up to 2450 m, in various habitats from desert to montane coniferous forests. In Idaho, recently observed in canyons of Owyhee County.

DIET: Insectivorous; feeds primarily on noctuid moths.

ECOLOGY: Apparently relatively solitary but may hibernate in small clusters; winter habits are poorly known. Roosts in cracks and crevices in cliffs and canyons. British Columbia study found individuals used same roost each night from May-July, but not after early August. Individuals roosted solitarily during active season, appeared to maintain exclusive foraging areas, and foraged up to 6-10 km from day roost each night. Species forages primarily over dry, open coniferous forest. In western Texas study, nearly all individuals netted were caught after midnight. In British Columbia study, individuals left day roost an average of 49 min after sunset (13 min in radio-tagged bats), and returned an average of 67 min before sunrise; foraging activity peaked at 0000-0300 hr (emergence from day roost was not significantly influenced by moonlight). Individuals flew continuously (5-15 m above ground) between departure from and return to day roost; foraging areas of different individuals overlapped. Spotted bat calls can be detected by the human ear. Species is very sensitive to human disturbance.

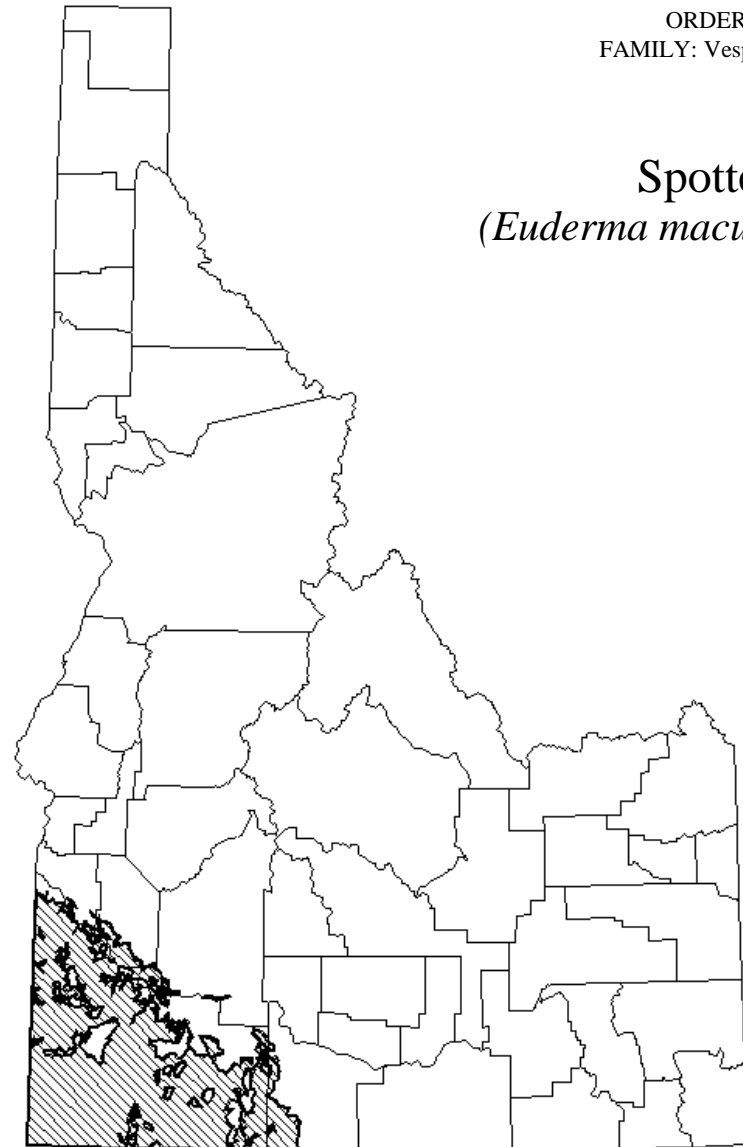
REPRODUCTION: Following delayed fertilization and implantation, births apparently occur in late May or early June in southern range, possibly later in north. Female probably produces 1 young.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Spotted Bat (*Euderma maculatum*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G4 STATE RANK: S2

RANGE: From British Columbia, south through Mexico, and east to West Virginia. Isolated populations exist in Arkansas, Oklahoma, Missouri, Illinois, Indiana, Ohio, Kentucky, Virginia, and West Virginia. Fairly widespread in western states; disjunct eastern populations are endangered.

HABITAT: On West Coast, found regularly in forested regions and buildings. In Texas, ranges from shrub steppe to pinyon/juniper woodlands, but is consistently found in areas with canyons or cliffs.

DIET: Feeds on various flying insects, but probably mainly consumes moths.

ECOLOGY: In western range, species seems to prefer cool, damp sites for hibernation; hibernacula average 38°-54° F. Hibernates singly, or in clusters in some areas. Maternity and hibernation colonies occur exclusively in caves and mine tunnels. Often moves between caves, even in coldest weather. Does not use crevices or cracks; hangs from ceiling, generally near zone of total darkness (in Idaho, individuals hang in exposed, open areas of cave). Occasionally uses buildings, bridges, and tree cavities for night roosts. Forages near foliage of trees and shrubs; foraging activity usually begins well into night. Population densities of western populations are approximately 1 bat/139 ha. In Idaho, individuals are sedentary and have high degree of site attachment.

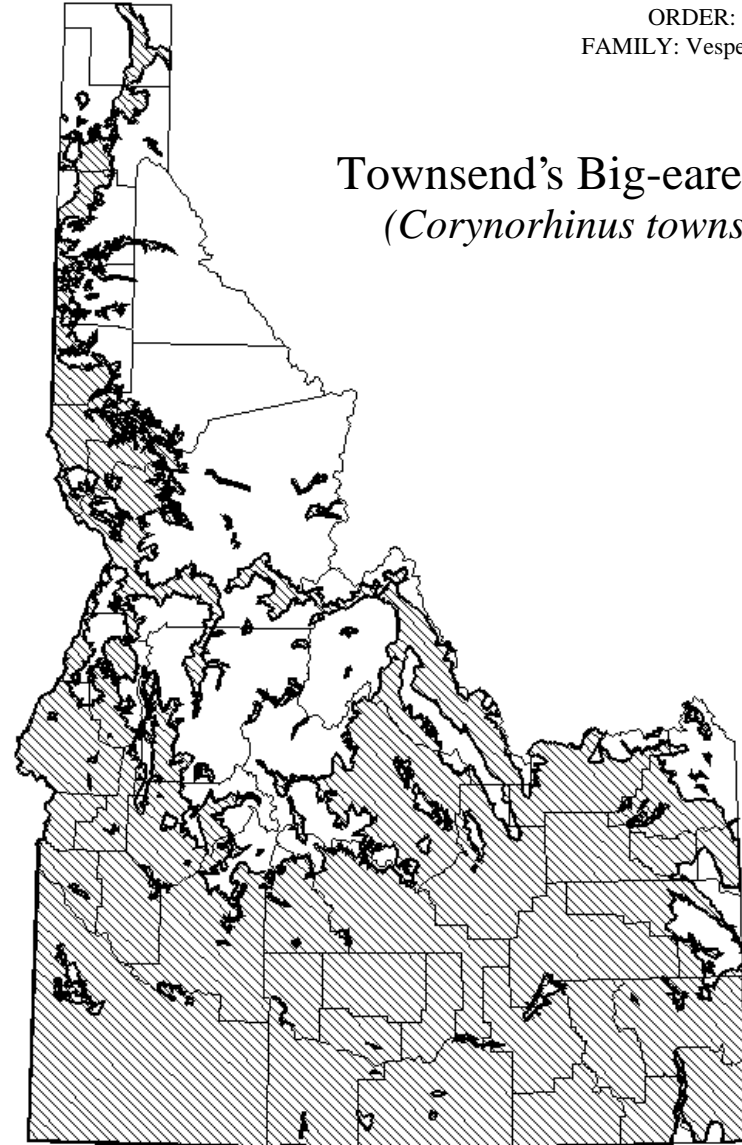
REPRODUCTION: Mating begins in autumn and continues into winter. Ovulation and fertilization are delayed until late winter/early spring. Gestation lasts 2-3.5 mo. Female produces 1 young, in late spring/early summer. Young are weaned by 6-8 wk, and fly at 1 mo. Females reach sexual maturity in first summer; males are sexually mature in second year (California). Females form nursery colonies, of up to 200 (western range) or 1000 (eastern range) individuals; males roost separately, in small groups, or singly during summer.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Wackenhut, M.C. 1990. Bat species overwintering in lava-tube caves in Lincoln, Gooding, Blaine, Bingham, and Butte Counties Idaho, with special reference to annual return of banded *Plecotus townsendii*. M.S. Thesis, Idaho St. Univ., Pocatello. 63pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Townsend's Big-eared Bat (*Corynorhinus townsendii*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: From south-central British Columbia, south through western U.S. to southern Baja California, central Mexico, southern Kansas, and southern Texas.

HABITAT: Found in shrub steppe and grasslands, frequently near rocky outcrops and water. Less abundant in evergreen and mixed coniferous forests. In Idaho, found around cliffs and rocky river canyons in shrub steppe habitats.

DIET: Insectivorous. Food items include flightless arthropods, Jerusalem crickets, moths, and beetles. May eat small vertebrates.

ECOLOGY: Species is gregarious. Usually forms clusters in diurnal roosts (*Yuma myotis* may roost among pallid bats). May also gather in night roosts that are frequently near, but separate from, day roosts (40-75% of time away from diurnal roost may be spent at night roosts). Usually roosts in rock crevice or building, less often in cave, tree hollow, or mine (in Oklahoma, night roosts are typically in caves). Emerges from day roost relatively late; foraging peaks at beginning and end of nocturnal activity cycle. Captures prey on ground, after an aerial search; also takes prey in flight, within few meters of ground vegetation. Bimodal foraging and audible communication is known. Species is largely inactive in winter, and is believed to hibernate (in Idaho, species is migratory).

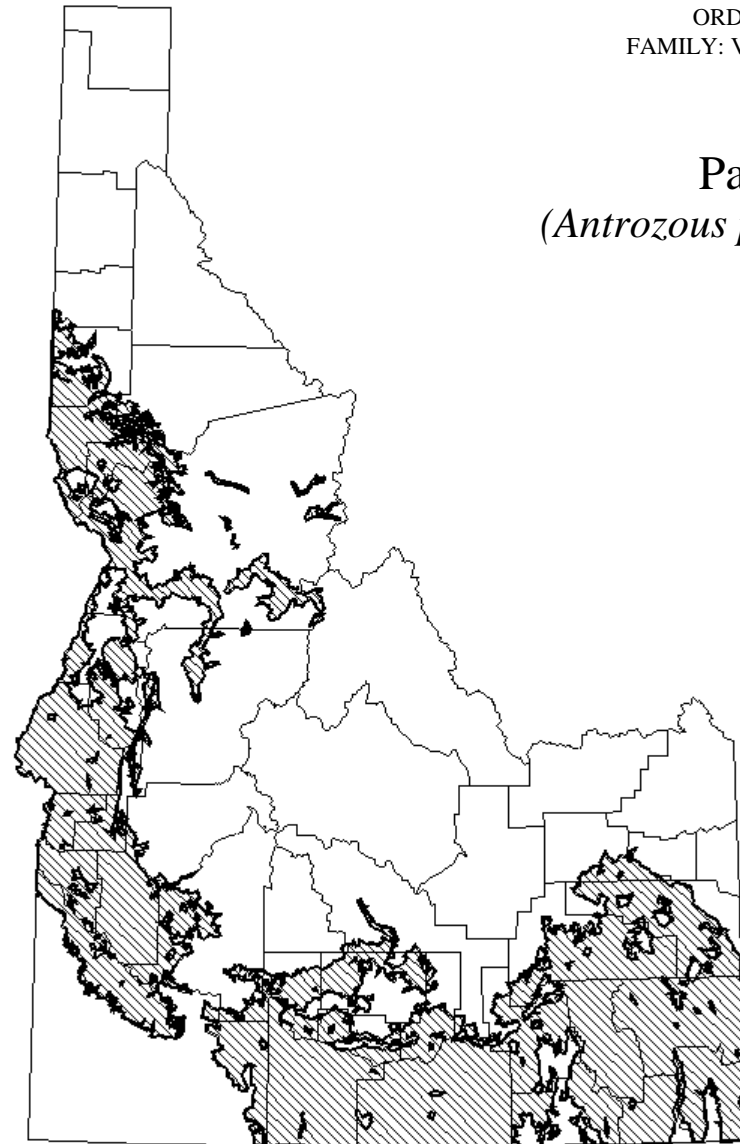
REPRODUCTION: Copulation usually occurs from October-December; fertilization takes place in spring. In U.S., usually 2, but sometimes 1, young are born from: late May-early June in California; mostly late June in Kansas; and probably early May to mid-June in Texas. Young fly at 6 wk, and are weaned in 6-8 wk. Maternity colonies are usually small, but may include up to 200+ adults, including some adult males.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.

ORDER: Chiroptera  
FAMILY: Vespertilionidae

## Pallid Bat (*Antrozous pallidus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Lagomorpha  
FAMILY: Ochotonidae

RANGE: Distributed discontinuously in mountainous areas from southern British Columbia and southern Alberta, south to southern California, Nevada, southern Utah, and northern New Mexico, and east to Wyoming and Colorado.

HABITAT: Found from sea level to 3000 m in northern range, infrequently below 2500 m in south. Restricted to rocky talus slopes, primarily talus-meadow interface. Often found on high alpine slopes at about 2700 m, above treeline up to limit of vegetation. Also found at lower elevations in rocky areas within forests or near lakes. Occasionally found on mine tailings, or piles of lumber or scrap metal.

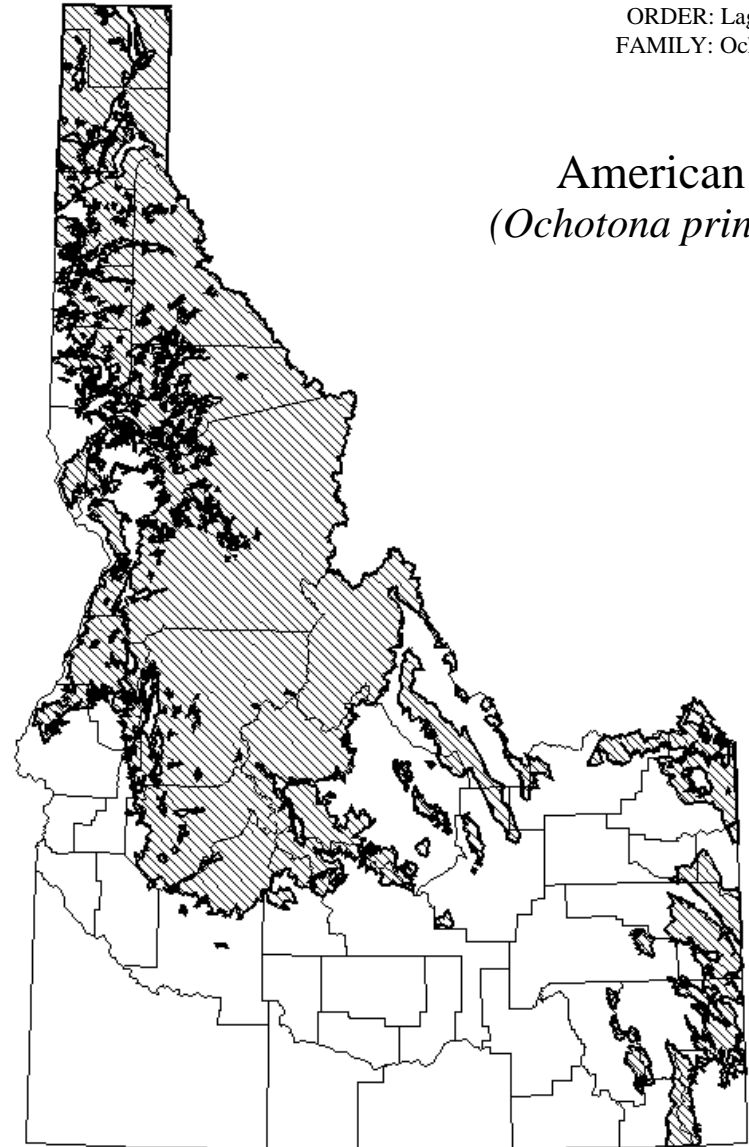
DIET: Feeds primarily on grasses and sedges, but also eats flowering plants and shoots of woody vegetation.

ECOLOGY: Active all year. Relatively inactive on warm days; may be inactive at midday in hot weather near lower elevational limit. In late summer and fall, harvests and stores food and defends haypiles built for winter consumption. May forage in winter in snow tunnels. Does not dig burrows, but may enlarge den or nest site under rock. May defend territory of about 400-700 m<sup>2</sup>; home range is about twice that size, but varies seasonally (largest during spring breeding season). Male and female territories are same average size. Adjacent home ranges tend to be occupied by opposite sexes. Colorado study found population density of 3-10/ha in favorable habitat in mid-August (same as in other regions); density-related social behavior maintains population stability. Juveniles tend to stay on natal or adjacent home range. Individuals may live 5-7 yr; adult mortality is 37-56%/yr.

REPRODUCTION: Seasonally polyestrous. Gestation lasts about 30 days. Young are born May-September (possibly March in some low elevation areas). Female produces 1-2 litters of 2-5 young/litter. Young depend on mother for at least 18 days, and are weaned at 3-4 wk. Juveniles establish territories and haypiles, but do not breed until second summer.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Bunnell, S.D. and D.R. Johnson. 1974. Physical factors affecting pika density and dispersal. *J. Mammal* 55:866-869.



## American Pika (*Ochotona princeps*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From eastern slopes of Cascade-Sierra Nevada ranges, east to western North Dakota and Black Hills, and from southern Canada south to Arizona and New Mexico.

HABITAT: Prefers brushy, rocky areas in dense sagebrush, and streamside thickets and forest edges. May sometimes climb into junipers. In southeastern Idaho, prefers areas with relatively greater amounts of forbs.

DIET: Feeds on grasses and other herbaceous and woody vegetation, including sagebrush and juniper. In Idaho, diet includes sagebrush, rabbitbrush, grasses, brush, bark, shoots, buds, and crops.

ECOLOGY: May be active any time of day or night, but is primarily crepuscular. Active throughout year. Uses burrows and forms. Usually feeds in or near cover. In some areas, gopher snakes and western rattlesnakes are important predators on juveniles. In Oregon study, population density ranged from 19-254/100 ha; in southern British Columbia study, density in sagebrush was 23-43/100 ha. In Idaho, species is known to carry tularemia.

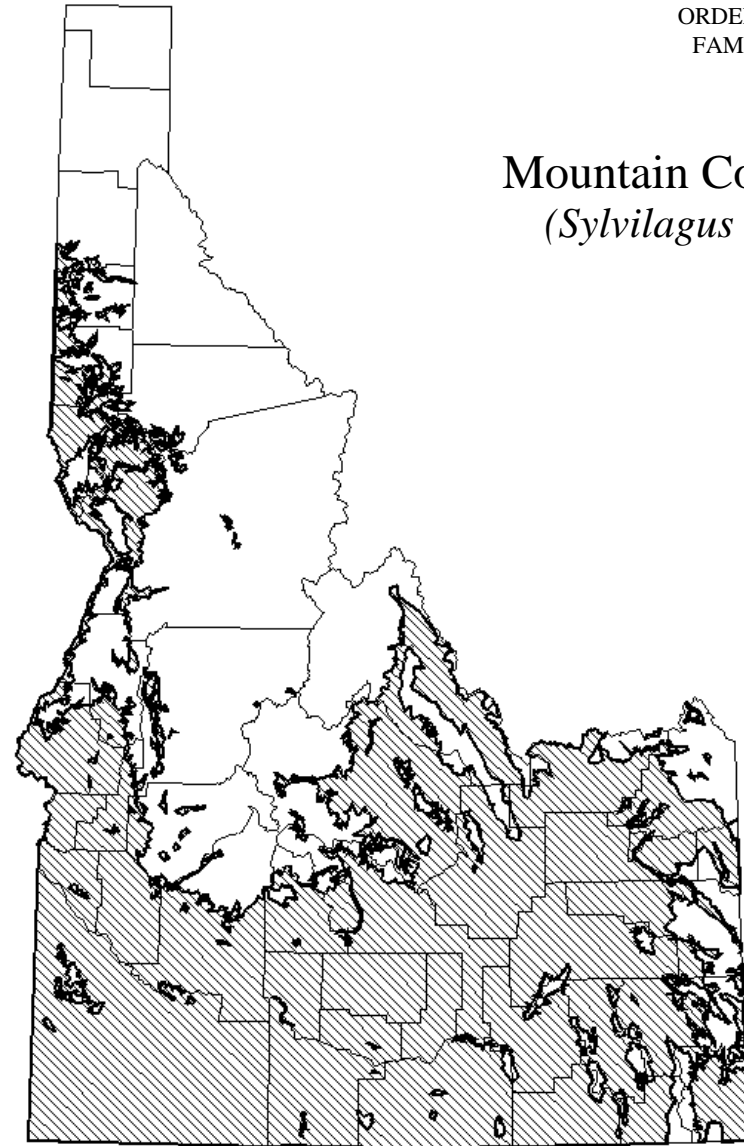
REPRODUCTION: Breeds in late winter, spring, and summer. Gestation lasts 28-30 days. Females may produce 4-5 litters of 4-5 young/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Johnson, M.K. and R.M. Hansen. 1979. Foods of cottontails and woodrats in south-central Idaho. *J. Mammal.* 60:213-215.

ORDER: Lagomorpha  
FAMILY: Leporidae

## Mountain Cottontail (*Sylvilagus nuttallii*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From the Rockies, northern Great Lakes region, and New England, north through most of Canada and Alaska. Scattered populations exist in Appalachian Mountains, south to Great Smoky Mountains.

HABITAT: Prefers dense cover of coniferous and mixed forests, but will also inhabit coniferous swamps and second-growth areas adjacent to mature forests and alder fens and conifer bogs. In Idaho, most abundant in young lodgepole pine stands.

DIET: In summer, eats succulent vegetation. In winter, consumes twigs, buds, and bark of small trees (particularly alder and balsam).

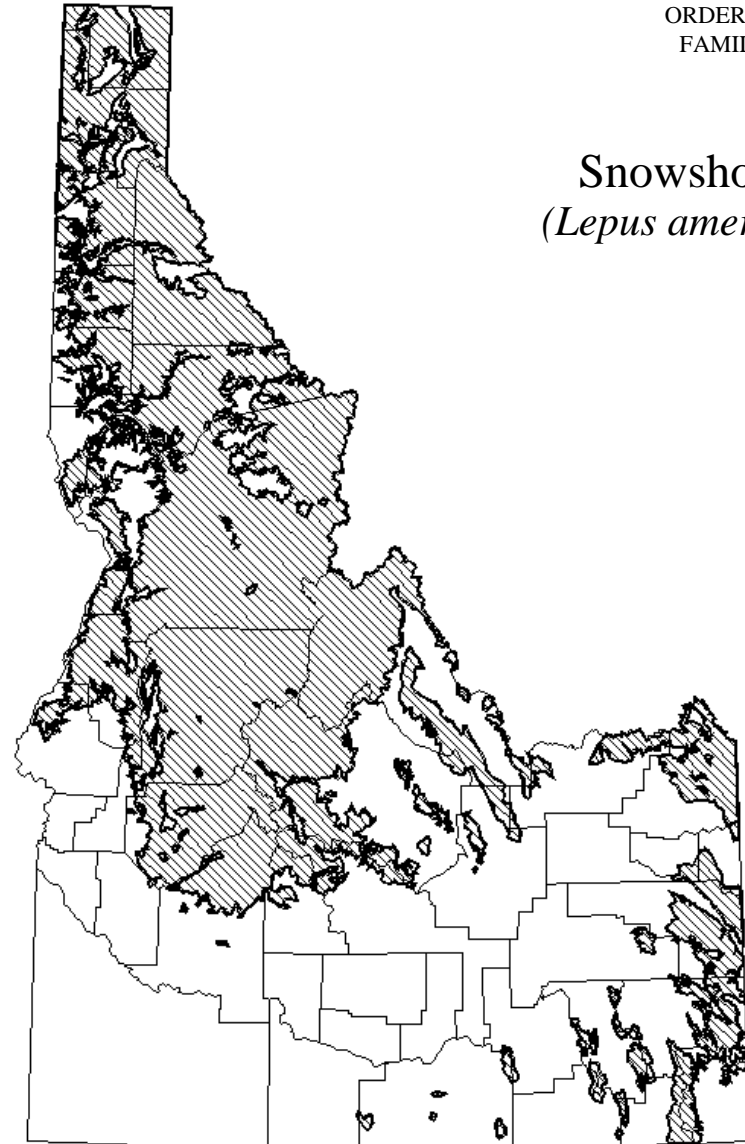
ECOLOGY: Mainly crepuscular and nocturnal. Populations fluctuate widely over 10-11 yr cycle. Densities may vary from 1 to several hundred/2.6 km<sup>2</sup>. Home range is typically about 4 ha; male ranges are larger (in Montana study, home range of male was 10 ha, female was 6 ha). Species changes pelage from summer to winter, and is important prey item for many forest predators.

REPRODUCTION: Breeding period extends from March-July. Gestation lasts 37 days. Young are born from May-August. Female produces 1-4 litters of 1-6 (average 3) young/yr. Young mature in first spring.

GIS MODEL NUMBER: 1

ORDER: Lagomorpha  
FAMILY: Leporidae

## Snowshoe Hare (*Lepus americanus*)





STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Primarily in Great Basin and northern Great Plains, from Sierra Nevada east to Mississippi River, and from central Canada south to northern New Mexico.

HABITAT: Found in open grasslands and montane shrublands generally above shrub steppe. At higher elevations, found in open areas in pine forests and in alpine tundra. Prefers grass and scattered shrub between sagebrush and mountain forest zones, and is attracted to aspen and fir groves.

DIET: In summer, eats grasses, forbs, and grains; may feed on cultivated crops. In winter, browses on twigs, buds, and bark.

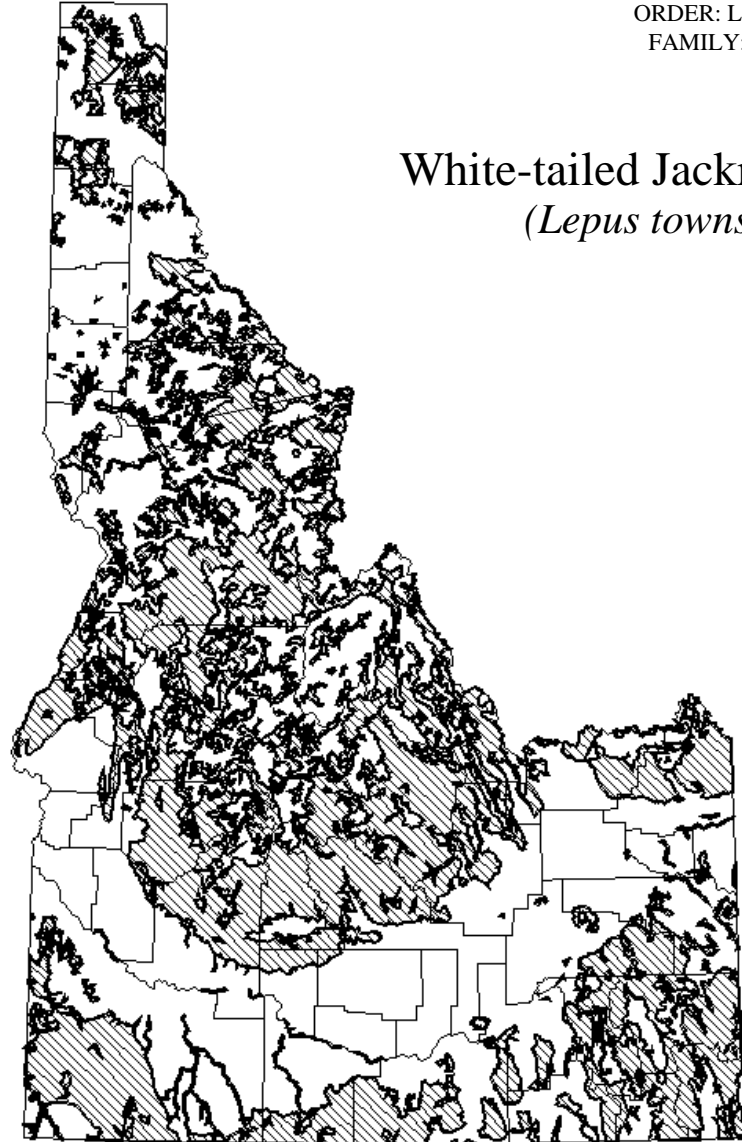
ECOLOGY: Active throughout year. Generally solitary but sometimes aggregates. Primarily crepuscular; active in early morning and late afternoon and evening (one source reported nocturnal activity period). Rests by day, usually in shallow depressions (form) at base of bush, or beside or in cavity in snow. Occupies greatest range of any jackrabbit. Home range is about 2-3 km in diameter. Populations are known to fluctuate as drastically as with snowshoe hare. Usual population density is generally 2-15/km<sup>2</sup>, but up to 71 (Iowa) and 43 (Minnesota) per km<sup>2</sup> have been reported. Reduction in Northwest populations has been due to overgrazing.

REPRODUCTION: Breeds from late February to mid-July in North Dakota, from May-early July in northern range. Female produces up to 4 litters/yr (1 litter in northern range) of 1-11 young. Gestation lasts 5-6 wk. Young become independent in about 2 months.

GIS MODEL NUMBER: 1

ORDER: Lagomorpha  
FAMILY: Leporidae

## White-tailed Jackrabbit (*Lepus townsendii*)



STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Lagomorpha  
FAMILY: Leporidae

RANGE: From Pacific Coast, east to Missouri and Arkansas, and from Washington and Idaho, south to central Mexico.

HABITAT: Inhabits open plains, fields and deserts, and open country with scattered thickets or patches of shrubs. In Idaho, found in lower-elevation rangeland associated with shrub steppe communities of southern part of state; adapts well to areas of agricultural development.

DIET: In summer, forages on grasses, forbs, crops, and hay; in winter, eats buds, bark, and leaves of woody plants. Southeastern Idaho studies reported winterfat, green rabbitbrush, cheatgrass, crested wheatgrass, and perennial grasses were primary foods. Species obtains water from vegetation and re-ingests soft fecal pellets produced while resting.

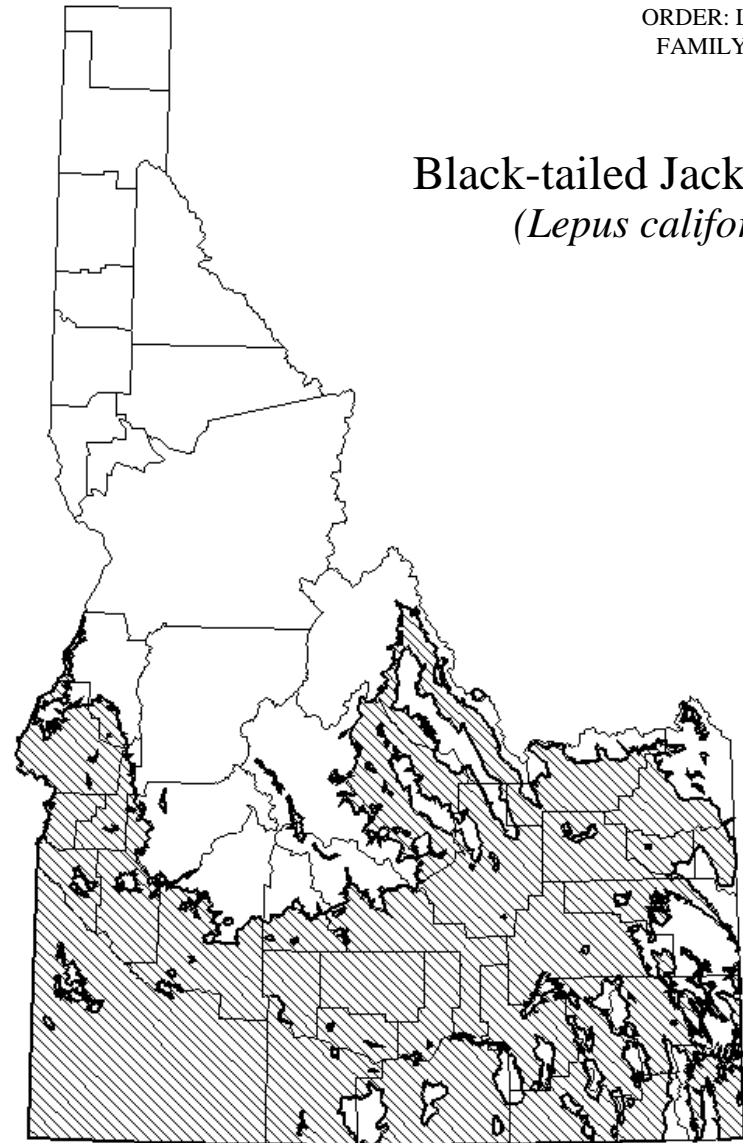
ECOLOGY: Active throughout year. Primarily crepuscular and nocturnal. Rests by day in shallow depression (form). May travel up to 1.6 km from daytime retreat to night feeding area. May gather in large group to feed. In northern Utah study, home range varied from less than 1 km<sup>2</sup> to 3 km<sup>2</sup>; in Idaho study, home range was 12.5-18.2 km<sup>2</sup>. Populations are known to fluctuate markedly, slowly reaching peak over several years, and falling off rapidly in several weeks or months (in Idaho, population peaks at 10-yr cycle). Populations may increase or decrease with grazing. Species commonly carries tularemia. Both raptors and carnivorous mammals respond numerically and functionally to changes in jackrabbit abundance.

REPRODUCTION: Breeding period may extend from late winter to late summer (in southeastern Idaho study, length of breeding season was variable and not affected by weather). Gestation lasts 41-47 days. Females produce 1-4 litters of 1-8 (usually 2-4) precocial young each year (in eastern Idaho study, estimated production was 2.5 litters/yr).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Johnson, D.R. and J.M. Peek. 1984. The black-tailed jackrabbit in Idaho: life history, population dynamics, and control. Coop. Extens. Service, Univ. Idaho, College Agricult. Bull No. 637, Moscow. 16pp.

## Black-tailed Jackrabbit (*Lepus californicus*)



STATUS: Game Species  
GLOBAL RANK: G5 STATE RANK: S3

ORDER: Lagomorpha  
FAMILY: Leporidae

RANGE: From Great Basin (with isolated population in east-central Washington), north to extreme southwestern Montana.

HABITAT: Typically found in dense stands of big sagebrush growing in deep, loose sediment. In Idaho, closely associated with large stands of sagebrush; prefers areas of tall, dense sagebrush cover with high percent woody cover.

DIET: In Idaho, big sagebrush is primary food source, but grasses and forbs are eaten in mid- to late summer.

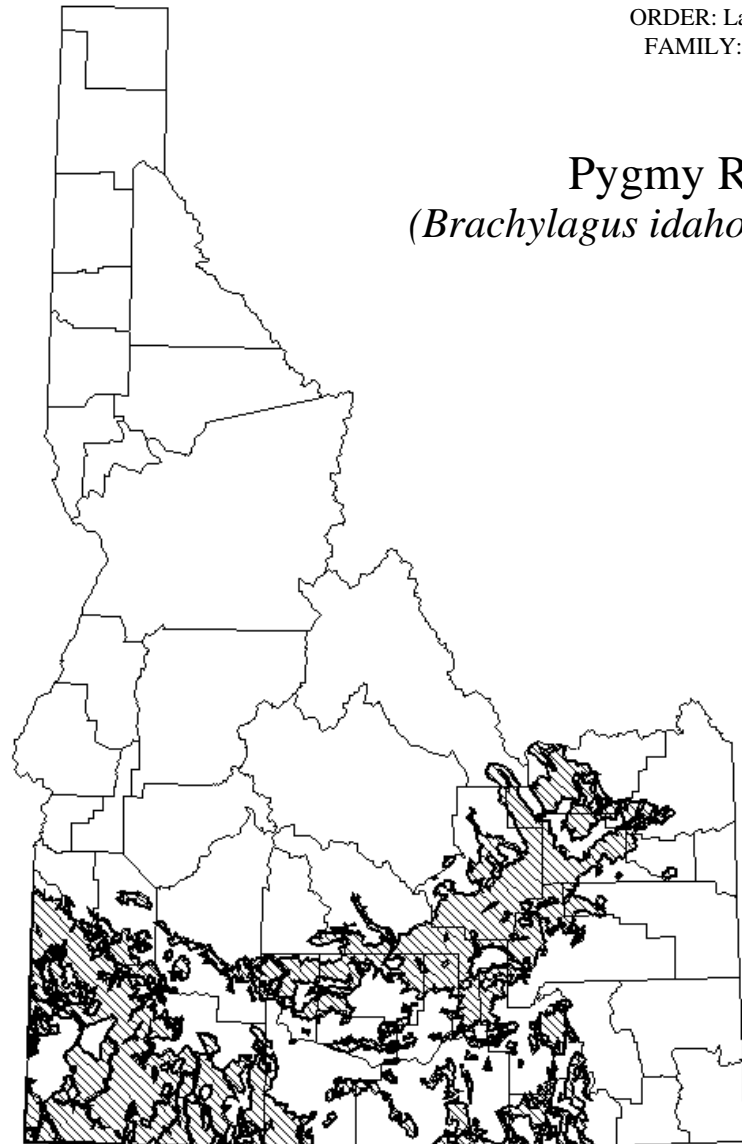
ECOLOGY: Active throughout year. May be active at any time of day or night, but is generally crepuscular. Burrows are an average of 7.6 cm in diameter, and may have 3 or more entrances. Individuals do not appear to move far from burrow when feeding. Predators include weasels, coyotes, and owls.

REPRODUCTION: Breeding period extends from spring to early summer (Idaho study found males capable of breeding from January-June, females from February-June; juveniles did not breed). Gestation probably lasts about 27-30 days. Female may produce 6 young/litter. Idaho study found lower reproductive potential in this species than in most lagomorphs.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Green, J.S. and J.T. Flinders. 1980. Habitat and dietary relationships of the pygmy rabbit. *J. Range Manage.* 33:136-142.

## Pygmy Rabbit (*Brachylagus idahoensis*)



ORDER: Rodentia  
FAMILY: Sciuridae

## Least Chipmunk (*Tamias minimus*)

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From portions of western Canada, south through Rockies and northern Great Lakes region.

HABITAT: Found in various habitats. Common in coniferous forests, but may also be found in clearcuts, deciduous woods, sagebrush, jack pine stands, and riparian zones; in western regions may even occur in alpine tundra. In Idaho, found in sagebrush, juniper, and lower-elevation coniferous forests adjacent to sagebrush.

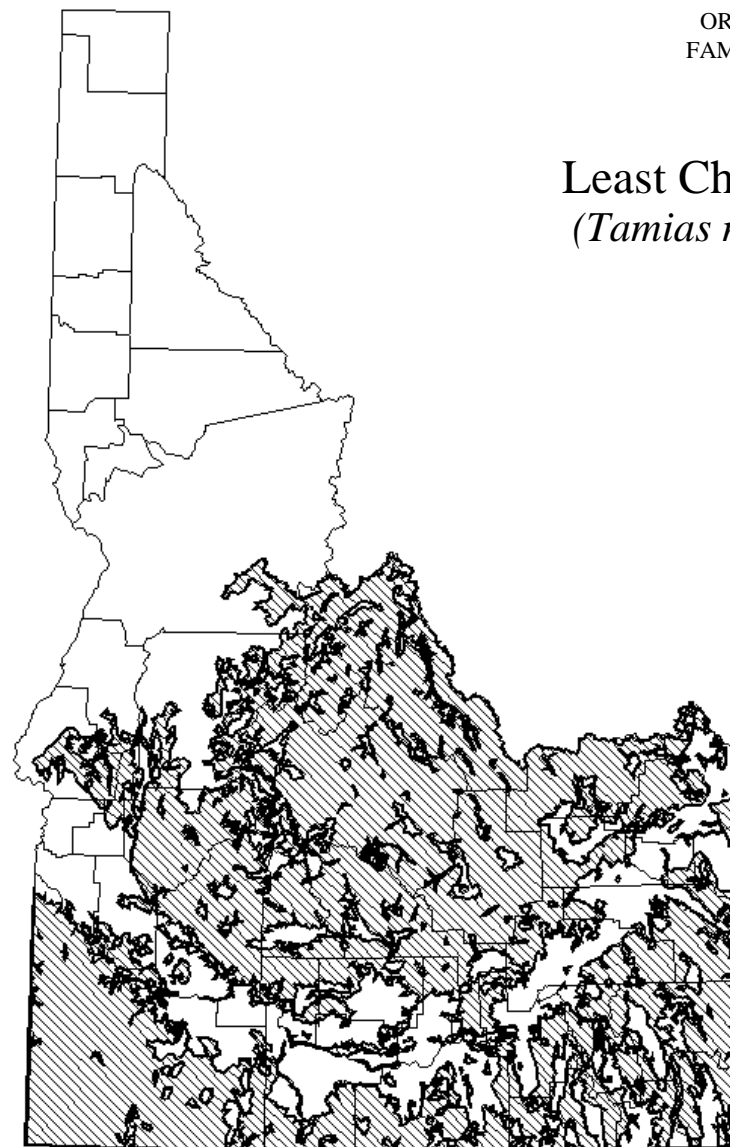
DIET: Feeds mostly on seeds, nuts, fruits, and acorns. In Idaho, known to be omnivorous, feeding on plant seeds, foliage, and arthropods.

ECOLOGY: Diurnal; may be active throughout day, but prefers sunny midday hours. Hibernates/aestivates. Begins semi-hibernation in late October, but may awaken on warm winter days, and is fully active by mid-March. In Idaho desert lowlands below 1200 m, aestivates in early July, and reappears in late August or early September (with autumn rains) before returning to winter hibernation. Builds winter nest up to 1 m below ground surface. Highly favorable habitats may contain 30 or more per 0.4 ha, though average densities typically range from 5-15/0.4 ha. Home range varies from less than 0.4 ha to 1.6 ha.

REPRODUCTION: Breeds in early spring. Gestation lasts 31 days. Litter size varies from 2-7 young (average 5-6). Female produces 1 litter; if that litter fails, she may produce another. Young become sexually mature in first spring.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Laundré, J.W. 1989. Burrows of least chipmunks in southeastern Idaho. Northwest. Natur. 70:18-20.



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Rodentia  
FAMILY: Sciuridae

RANGE: From central British Columbia, south to Wyoming and central California.

HABITAT: Found in chaparral and in open areas in coniferous forests (e.g., redwood or yellow-pine/Douglas fir forests). Found among logs, brush, and rocky outcrops, and in brushy borders between subalpine forests and alpine tundra. In Idaho, prefers open and semi-open coniferous forests. Idaho study found single-tree selection logging increased species' populations.

DIET: Eats seeds, fruits, fungi, and some insects. An Idaho study indicated berries, seeds, and lichens were most important food items.

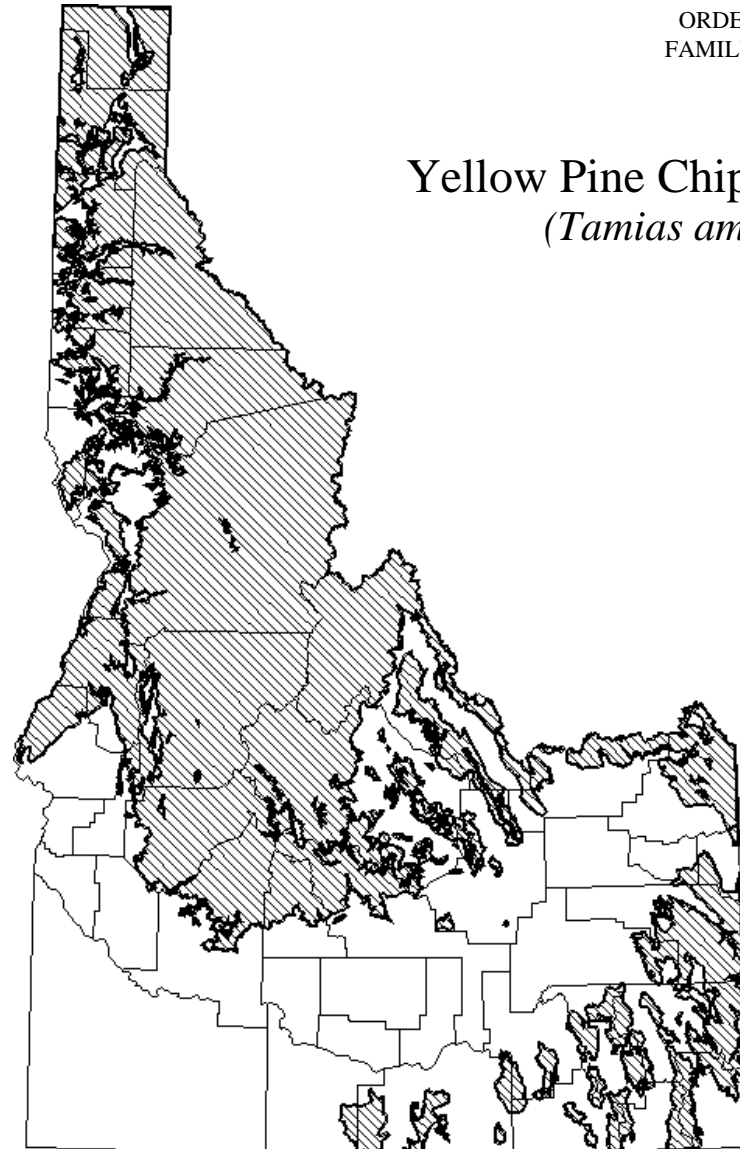
ECOLOGY: Hibernates late fall-early spring. Stores little energy as body fat; probably awakens periodically in winter to feed on stored seeds. May become lethargic during cold summer weather. Digs burrows 17-53 cm deep. May live up to 5 yr. Predators include hawks, weasels, and coyotes. An Idaho study reported densities from 6.9-36.5/ha.

REPRODUCTION: Breeds in early spring. Litter size averages 5 (Washington) to 6 (California). In Washington Cascades, female produces 1 litter/yr. Young are born from mid-May to early June, are weaned in about 6 wk, first appear at surface in June (Washington Cascades), and first breed at 1 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Harris, C.E., J.W. Beals, and K. Geier-Hayes. 1994. Deer mouse and yellow-pine chipmunk density and food habits in three central Idaho shrub communities. Idaho Dept. Fish & Game, Boise. 23 pp.

## Yellow Pine Chipmunk (*Tamias amoenus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: From southwestern United States to northern Mexico.

HABITAT: Usually found in rocky pinyon/juniper woodlands and lower elevations of pine forests. Also found in higher-elevation Douglas-fir and Mexican pine. In Idaho, occurs only in pinyon/juniper stands in south-central part of state.

DIET: Consumes wide variety of seeds, acorns, and fruits.

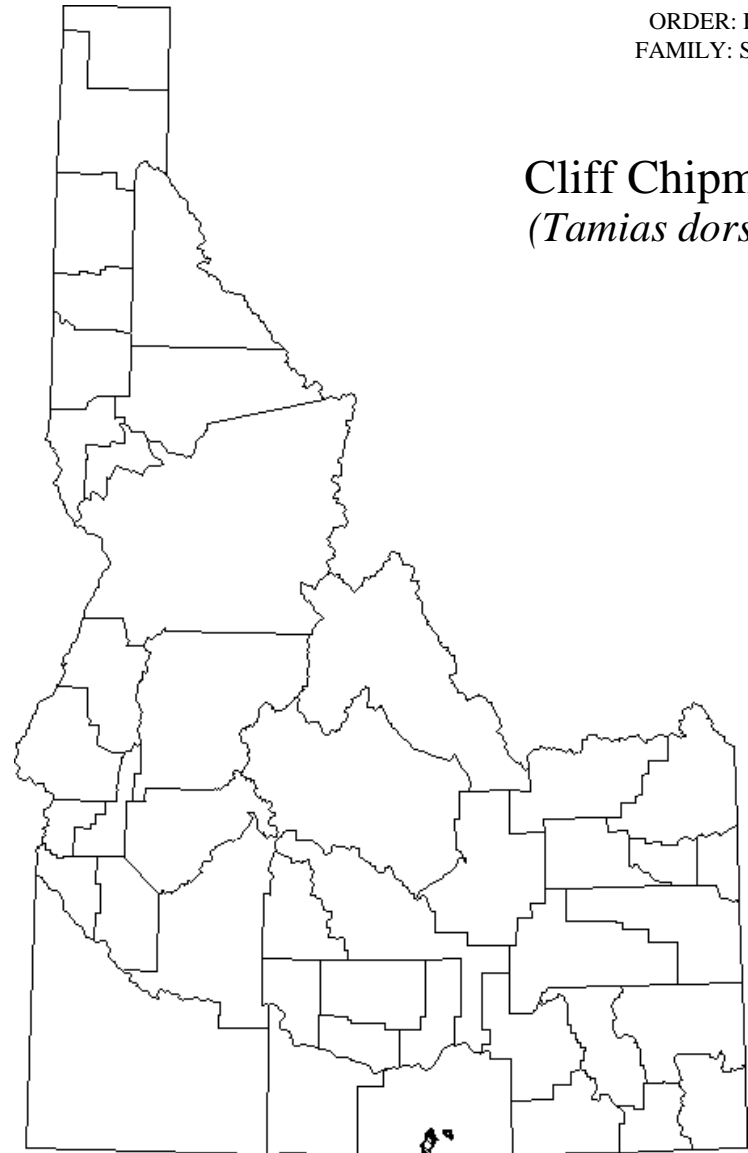
ECOLOGY: Most active in early morning and late afternoon. In Idaho, probably hibernates in winter like other chipmunks. May store food. Primarily terrestrial, but capable of climbing tree to forage for food. Little is known about ecology of this species.

REPRODUCTION: Probably similar to other western chipmunks which breed in spring and produce 1 litter of altricial young each year.

GIS MODEL NUMBER: 7

ORDER: Rodentia  
FAMILY: Sciuridae

## Cliff Chipmunk (*Tamias dorsalis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From central Rocky Mountains in southern British Columbia and Alberta, south to northwestern Washington, northern Idaho, and western Montana.

HABITAT: Found in coniferous forests, including spruce/fir, cedar/hemlock, yellow pine, and (at timberline) alpine fir. Seems to prefer dense cover where range overlaps with yellow pine chipmunk. Idaho study indicated red-tailed chipmunks prefer mid-successional forests.

DIET: Probably feeds on seeds, fungi, and fruits.

ECOLOGY: Probably inactive during coldest part of winter; wakes periodically to feed from food cache. Primarily terrestrial, but will climb trees. Ecology and reproduction are not well known.

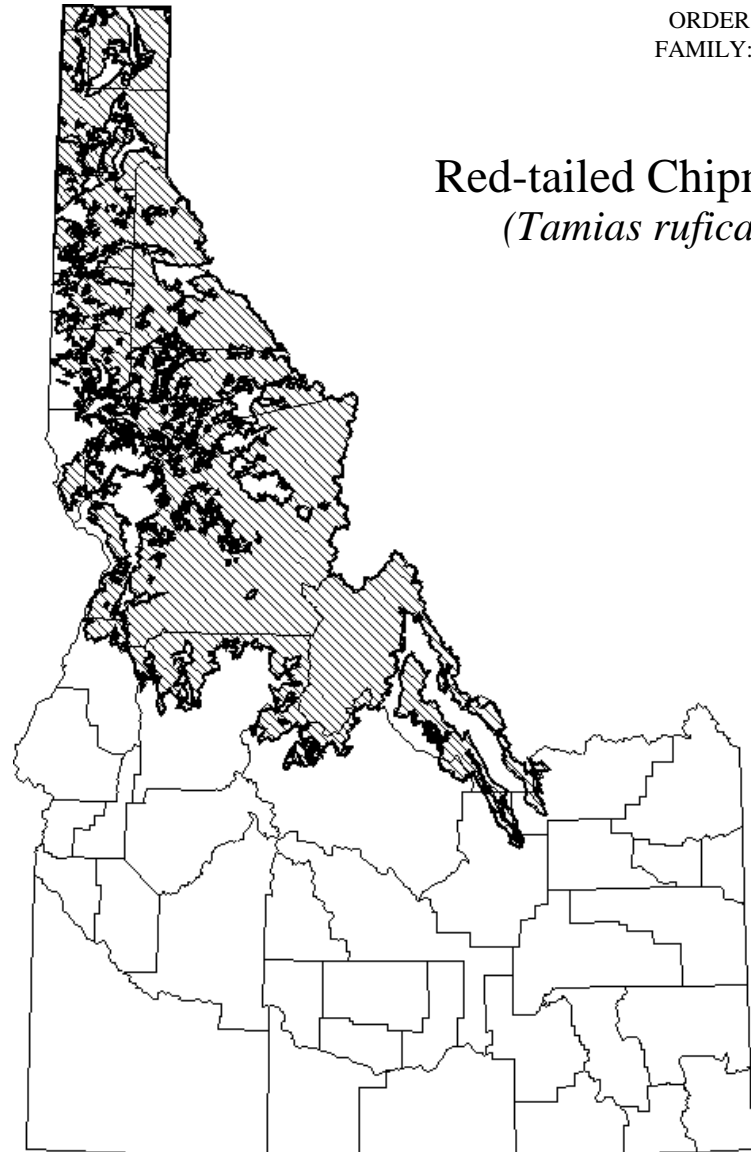
REPRODUCTION: Probably similar to other western chipmunks which mate in spring and, following gestation period of approximately 1 mo, produce a litter of altricial young.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Scrivner, J.H. and H.D. Smith. 1984. Relative abundance of small mammals in four successional stages of spruce-fir in Idaho. Northwest Sci. 58:171-176.

ORDER: Rodentia  
FAMILY: Sciuridae

## Red-tailed Chipmunk (*Tamias ruficaudus*)



ORDER: Rodentia  
FAMILY: Sciuridae

## Uinta Chipmunk (*Tamias umbrinus*)

STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Distributional records are disjunct, but in general, range extends from southwestern Montana south to northern Arizona, and from western Colorado into eastern California.

HABITAT: Found, at about 2000-3400 m, in coniferous forests, often near logs and brush in open areas, and at edge of forests.

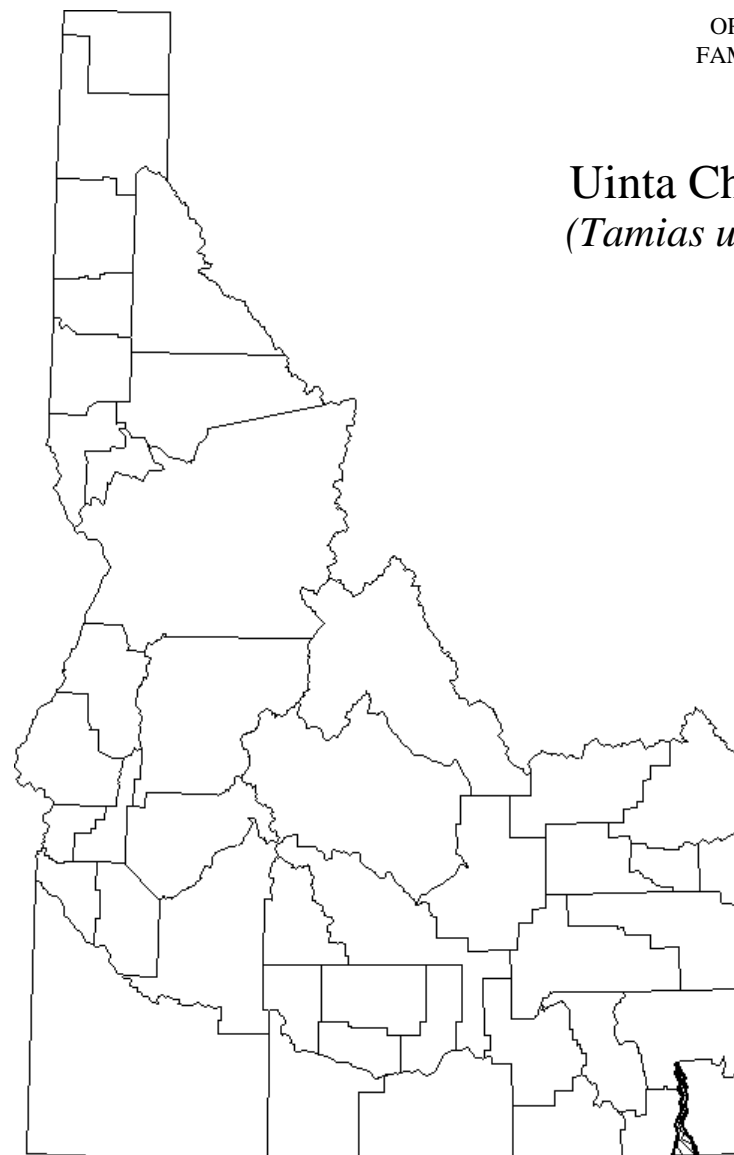
DIET: Feeds on seeds and berries supplemented with other plant material and insects. May occasionally eat birds' eggs and carrion.

ECOLOGY: Excavates burrows beneath rocks and shrubs. Dormant in winter in snow-covered areas; may appear above ground in warm weather on warm slopes, or may rouse and feed, but not leave burrow. Caches food.

REPRODUCTION: Probably similar to other western chipmunks which mate in spring and produce 1 litter of 4-5 altricial young following a gestation period of approximately 1 mo. Young are weaned and foraging on their own in mid-July or August.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Keller, B.L. 1986. Small mammal collections in Bear Lake, Bonneville, Cassia, Franklin, and Oneida Counties, Idaho: Final Report. Dept. Biol. Sciences, Idaho St. Univ. Pocatello. 7pp.





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From south-central British Columbia and southern Alberta, south to southern California and northern New Mexico.

HABITAT: Found (typically above 2000 m) in meadows, valleys, and foothills, often in open areas where forest and meadow form a mosaic. In Idaho, prefers talus slopes, rocky outcroppings and rimrock.

DIET: Feeds on wide variety of grasses and forbs.

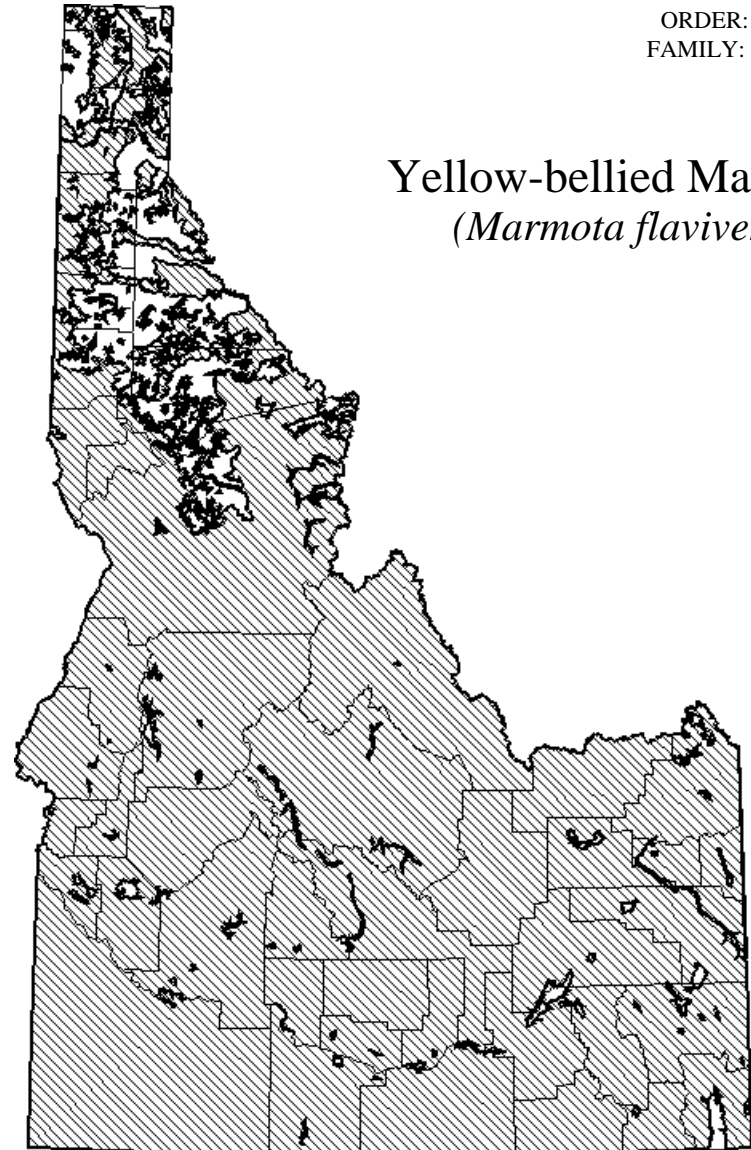
ECOLOGY: At higher elevations, may hibernate early September-May; at lower elevations may emerge late February-mid March. In more boreal zones, may be active all summer, but begin aestivation in June at lower elevations. Burrows under rocks, logs, or bushes in areas of well-drained talus, rock outcrops, or scattered boulders. Habitat size ranges from 0.01-70 ha or more. Lives alone, in pairs, or colonies. Colony typically consists of 1 or more adult territorial males and 1-5 adult females and their young. Small habitat patches may include female and offspring, but adult males and yearlings may not be present. Virtually all males and slightly less than half females disperse from natal colony, typically as yearlings and regardless of population density in males; dispersal distance usually is less than 4 km, but up to 15.5 km for males, and 6.4 km for females (western Colorado). May harbor fleas that are vectors of sylvatic plague or tick which transmits Rocky Mountain spotted fever.

REPRODUCTION: Mating usually occurs within 2 wk after hibernation. Gestation lasts about 30 days. Litter varies between 3-8 young/yr. Young remain in burrow for 20-30 days, and emerge in late June to mid-July (Colorado). At highest elevations, females rarely produce litters in consecutive years. Males typically first breed at age 3 or older.

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Sciuridae

## Yellow-bellied Marmot (*Marmota flaviventris*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Alaska to Yukon, and south to Washington, northern Idaho, and western Montana. Idaho distribution is not well known, particularly along southern end of range.

HABITAT: Found on talus slopes and alpine meadows, often high in mountains near timberline. In Idaho, prefers rocky granitic habitats in subalpine and higher elevations.

DIET: Diet consists almost entirely of grasses and other herbaceous plants.

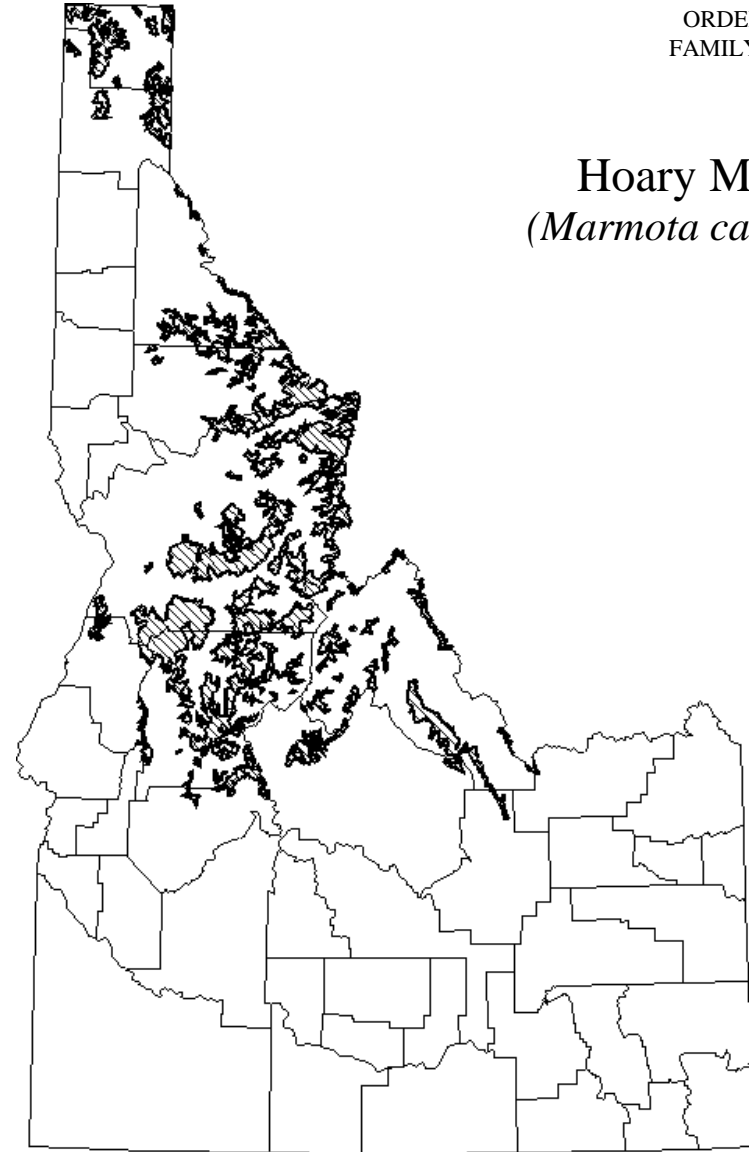
ECOLOGY: Hibernates October-February in southern range, September-April in British Columbia. Gives off loud, shrill whistle when disturbed.

REPRODUCTION: Gives birth to 4-5 young in late spring or early summer, after gestation period of about 1 mo.

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Sciuridae

## Hoary Marmot (*Marmota caligata*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From southeastern Oregon and southwestern Idaho, south to Nevada, most of Utah, western Colorado, northwestern New Mexico, northern Arizona, eastern and southern California, and Baja California.

HABITAT: Found in low, dry, deserts and foothills, in sandy to rocky soil, in alkali sinks, and in shrub steppe with sagebrush, greasewood, shadscale, creosotebush, or sometimes juniper. In Idaho, restricted to salt-desert shrub communities (shadscale, halogeton).

DIET: Omnivore. Eats green vegetation, seeds, insects, and carrion. May sometimes prey on small, live vertebrates. Diet changes seasonally with availability of various foods. In Idaho, known to feed primarily on shadscale and halogeton leaves and grass seeds.

ECOLOGY: Not known to hibernate or aestivate. Active throughout day, but in summer may rest in shaded areas or in burrow during hottest part of day. In winter, often basks in sun. May become torpid as last resort if exposed to cold temperatures. Cannot survive indefinitely without free water. Stores food. May forage in trees or shrubs. Burrows may be under shrub (usually) or in open; often uses abandoned burrow of kangaroo rat. May use multiple burrows over period of few weeks. Primarily solitary. Does not maintain exclusive territory; forms dominance hierarchies. In southern Nevada study, density ranged from 0.06/ha in late spring, to 0.35/ha in fall. In Utah, population density varied widely over time. In southern Nevada study, average home range was about 6 ha. Well adapted to water conservation and desert life.

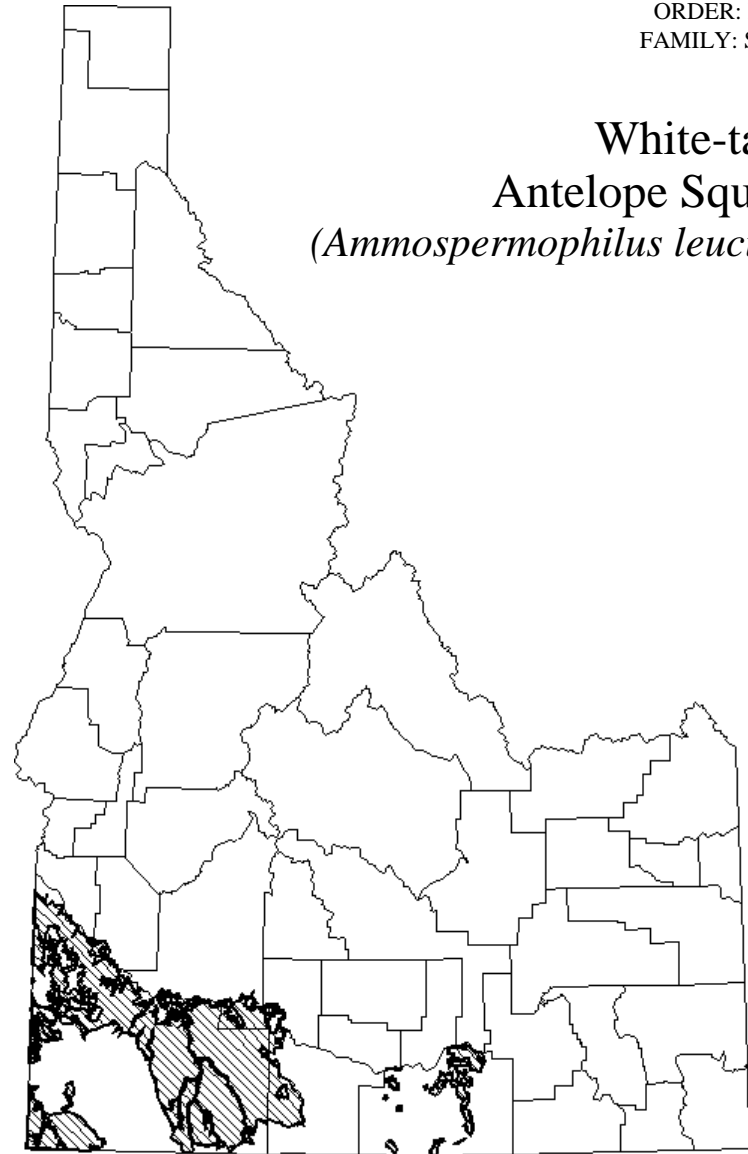
REPRODUCTION: In southern Nevada, breeds February-June with peak in February-March. In southern California, mating occurs mostly during first 2 wk of March. Gestation lasts 30-35 days in Nevada and California. Litter size varies from 5-14 young (average 8). Female probably produces 1 litter/yr, possibly 2 in some areas. In southern California, young first appear on surface in mid-May, 1-2 wk before weaning at age 8 wk.

GIS MODEL NUMBER: 3

IMPORTANT STATE REFERENCE: Johnson, D.R. 1961. The food habits of rodents on rangelands of southern Idaho. Ecology 42:407-410.

ORDER: Rodentia  
FAMILY: Sciuridae

## White-tailed Antelope Squirrel (*Ammospermophilus leucurus*)



ORDER: Rodentia  
FAMILY: Sciuridae

STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From south-central Washington and southern Idaho, south to eastern Oregon, extreme eastern California, most of Nevada, and western Utah.

HABITAT: Found mainly in shrub steppe, in well-drained soils (especially on embankments), in sagebrush, shadscale, or greasewood. Often found around desert springs and irrigated fields.

DIET: Feeds mainly on herbaceous vegetation and seeds, but may also eat some shrub parts and animal matter. Will often feed on crops.

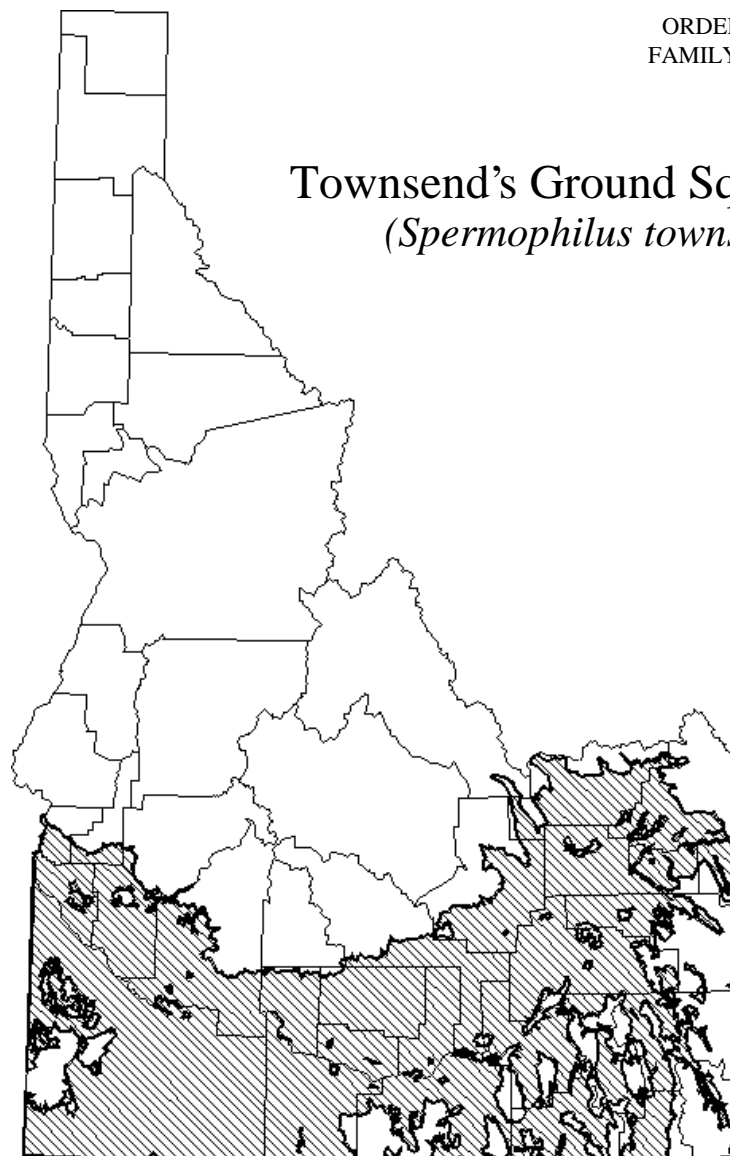
ECOLOGY: Hibernates/aestivates. Emerges from dormancy (males before females) in late winter or early spring (in Idaho, appears in early spring when first green grass is available). Returns to dormancy during May-July (early or middle July in Idaho), when grasses dry out; may have separate period of activity in fall. Diurnal; most active in early morning. Makes extensive burrow system; known to use both shallow and deep burrows. Population density in southern Idaho study estimated at 3-32/ha, excluding juveniles; density estimates ranging up to 331/ha (including juveniles) may be inaccurate. Mean home range estimated at 1357 m<sup>2</sup>. May form colonies, but families and individuals live separately. Compared to other ground squirrels, has high fecundity and low adult survivorship, and is short-lived. In Idaho, heavily preyed upon by both raptors and badgers within Snake River Birds of Prey Area (BOPA). Recent studies at BOPA have investigated habitat, behavior, and parasites.

REPRODUCTION: Breeds from late January-early March, depending on locality. Drought may suppress breeding. Gestation lasts 24 days. Female produces 1 litter of typically 5-10 young/yr. Males mature as yearlings or as 2-yr olds; females breed as yearlings.

GIS MODEL NUMBER: 3

IMPORTANT STATE REFERENCE: Smith, G. and D.R. Johnson. 1985. Demography of a Townsend ground squirrel population in southwestern Idaho. Ecology 66:171-178.

## Townsend's Ground Squirrel (*Spermophilus townsendii*)



STATUS: Protected nongame species  
GLOBAL RANK: G2 STATE RANK: S2

RANGE: Endemic to 5-county area of west-central Idaho. Northern subspecies (*brunneus*) is presently known only from about 2 dozen isolated demes in Valley and Adams counties; these demes occur at mid-elevations (1150-1550 m). Southern subspecies (*endemicus*) occurs at lower elevations (670-975 m) north of Payette River in Gem, Payette, and Washington counties. Apparent extirpation has occurred in area between extant populations of northern and southern subspecies.

HABITAT: Northern populations are associated with shallow rocky soils in xeric meadows surrounded by ponderosa pine and Douglas-fir forests; southern populations inhabit low rolling hills and valleys now dominated by annual grassland with relict big sagebrush and bunch grasses. Species may occur on slopes and (rarely) ridges.

DIET: Feeds on green vegetation and seeds.

ECOLOGY: Southern populations emerge in late January-early February and cease above-ground activity in late June-early July; northern populations are active above ground from late March-early April until late July-early August. Activity is constrained by time of snow melt and vegetation dessication. Individuals dig burrows; entrances are often under rocks and logs. Burrows are extensive in shallow, rocky soils, but nest burrows are located in adjacent areas with deeper (greater than 1 m), well-drained soils. Indiscriminate shooting and poisoning are continued threats to species.

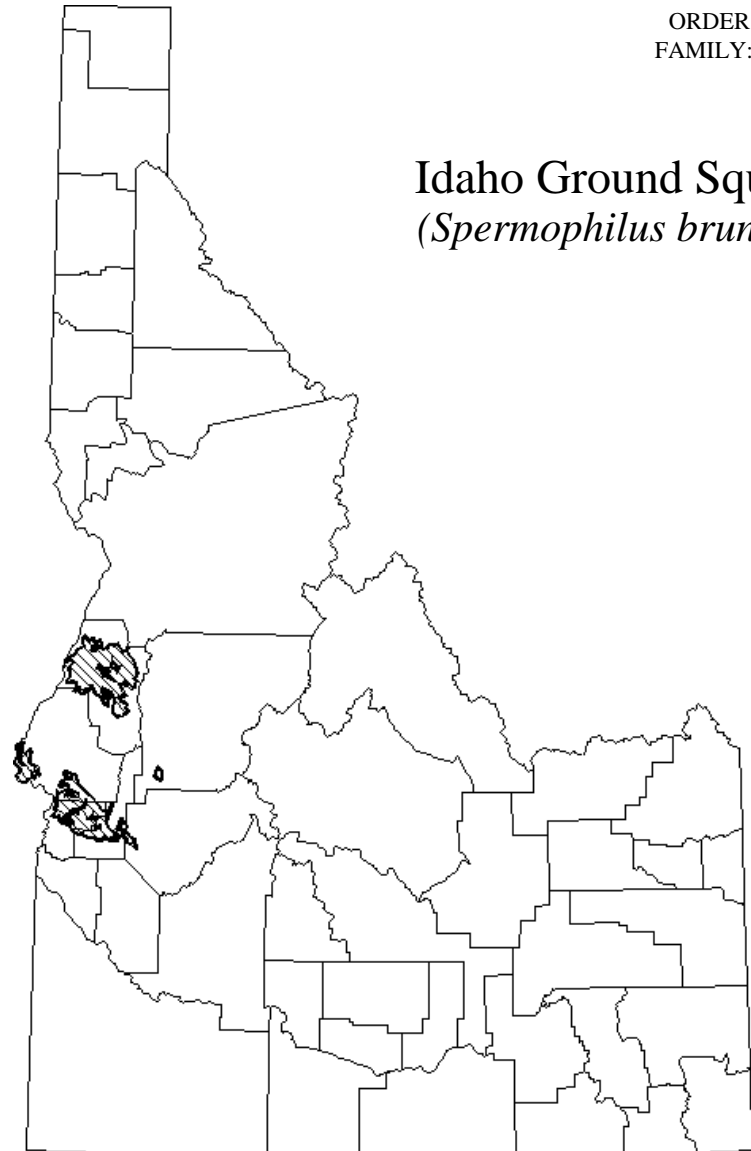
REPRODUCTION: Gestation probably lasts about 25 days. Female produces 2-10 young.

GIS MODEL NUMBER: 11

IMPORTANT STATE REFERENCE: Yensen, E. 1991. Taxonomy and distribution of the Idaho ground squirrel, *Spermophilus brunneus*. J. Mammal. 72:583-600.

ORDER: Rodentia  
FAMILY: Sciuridae

## Idaho Ground Squirrel (*Spermophilus brunneus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Southern Montana, southeastern Idaho, western Wyoming and north-central Utah.

HABITAT: Found in dry meadows, pastures, and cultivated fields, usually near water. May also be found in montane grasslands to timberline.

DIET: Feeds on wide variety of green vegetation and seeds.

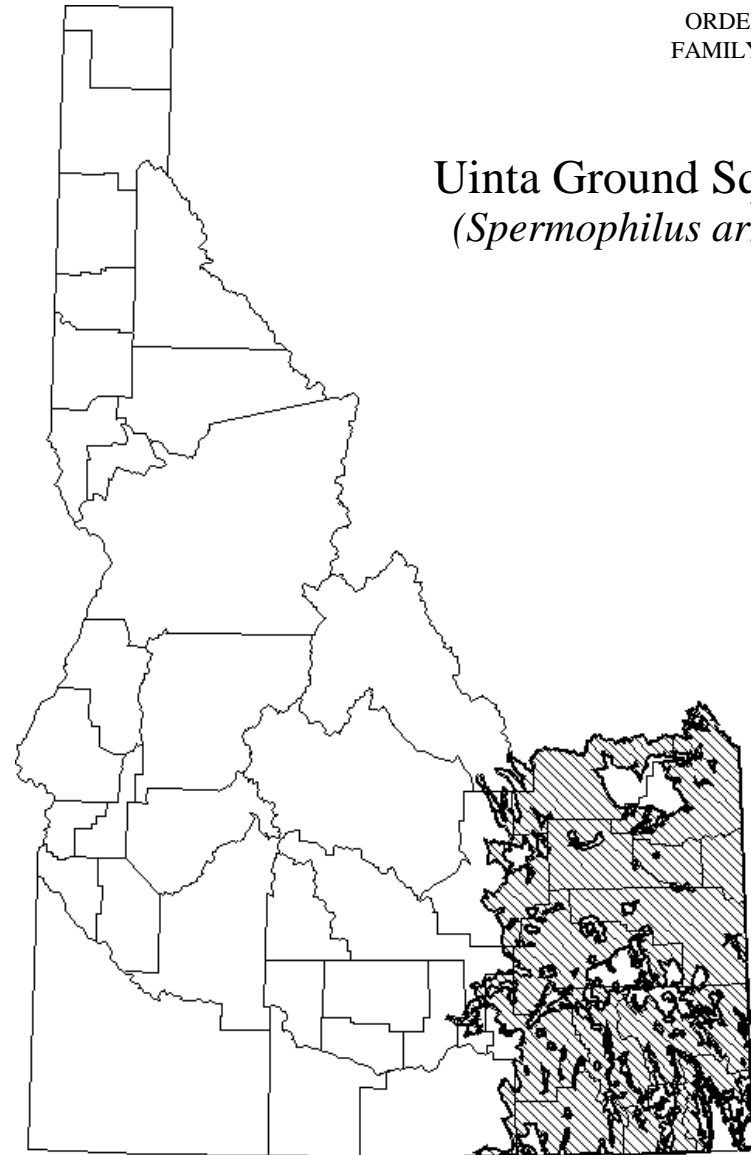
ECOLOGY: Hibernates/aestivates. Usually active from spring through late summer (approximately April-August). Dormant during fall and winter. Digs underground burrows. Colonial, but notably intolerant of kin. Badger is common predator.

REPRODUCTION: Females produce 1 litter of 4-6 altricial young/yr. Young are usually born in April. Females are territorial around nesting burrows.

GIS MODEL NUMBER: 3

ORDER: Rodentia  
FAMILY: Sciuridae

## Uinta Ground Squirrel (*Spermophilus armatus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From eastern Oregon, south through northeastern California, southwestern Idaho, north-central Nevada, and extreme southeastern Utah.

HABITAT: Usually found in fairly open habitat. Inhabits alpine and subalpine meadows, shrub steppe, grasslands, and pastures and croplands.

DIET: Feeds primarily on grass, leaves of meadow plants, and seeds (in California, known to eat arthropods). Diet may be less varied than that of other ground squirrels.

ECOLOGY: Active for longer periods during spring and summer than *Spermophilus* that live in more arid habitats at lower elevations. Usually hibernates from late September-May or June. Digs underground burrows (in Idaho, prefers used burrows). Lives in colonies. In California study, population density estimates varied from 1.2/ha in an alpine meadow, to well over 100/ha in an alfalfa field. Individuals may damage range grass and carry bubonic plague.

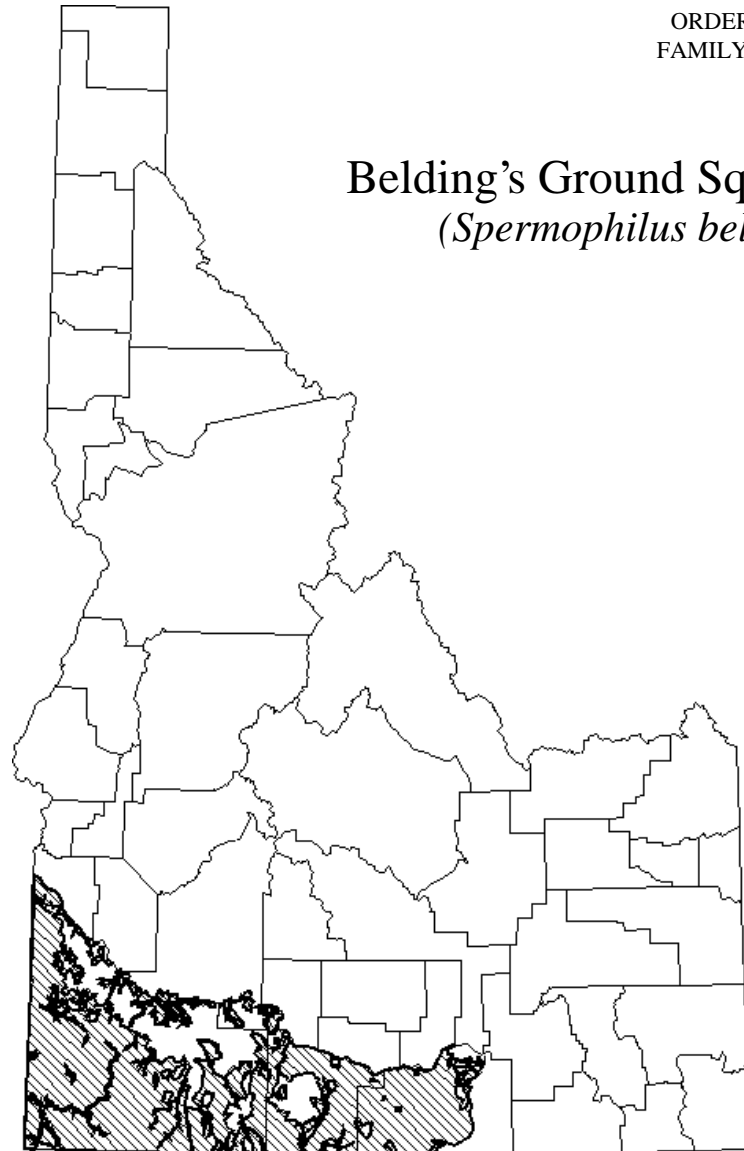
REPRODUCTION: Breeding occurs shortly after hibernation. Gestation lasts 23-28 days. Female reportedly produces 1 litter of 4-12 young, or average of 8 young per/litter. Individuals reach sexual maturity in 2 yr.

GIS MODEL NUMBER: 3

IMPORTANT STATE REFERENCE: Hansen, R.M. 1954. The Belding ground squirrel north of the Snake River in Idaho. *J. Mammal.* 35:587.

ORDER: Rodentia  
FAMILY: Sciuridae

## Belding's Ground Squirrel (*Spermophilus beldingi*)



ORDER: Rodentia  
FAMILY: Sciuridae

STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southeastern British Columbia and southwestern Alberta, south through northern and eastern Washington, northeastern Oregon, northern and central Idaho, and western Montana.

HABITAT: Found, from about 200-2400 m, in open habitat such as high grass plateaus, valley grasslands, meadows, clearcuts, coniferous forests, and stream banks. Species is not tolerant of dry conditions.

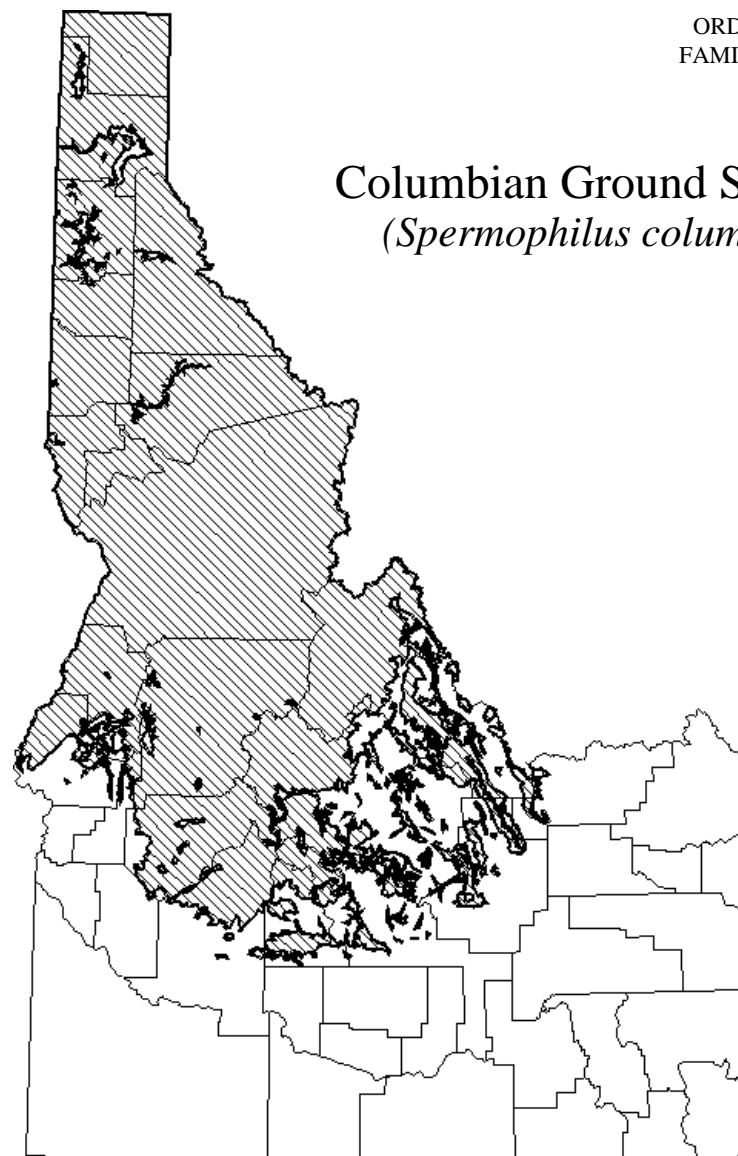
DIET: Feeds on wide variety of vegetation such as roots, bulbs, stems, leaves, seeds, and berries. Also eats some animal food (e.g., insects, mice, and dead fishes).

ECOLOGY: Spends about 70% of year in hibernation. Hibernates from July-October and emerges from February-April, depending on elevation. In Idaho, June is height of activity for females. Individuals are diurnal; in spring/summer, activity occurs from about 20 min after sunrise to about 10 min after sunset. Typically constructs burrow in friable or sandy soils in open ground or bank under boulder or log. Population density of 32-35/ha has been reported for central Idaho and Alberta; 25-62/ha on agricultural lands in Washington. Density is generally uneven over large areas. Species is colonial. In southwestern Alberta study, intercolony yearling males dispersed usually less than 4 km (but up to 8.5 km). Average home range of adult male was about 0.4 ha, adult female about 0.1 ha. Adult males defend (primarily during breeding season) core areas within home range. Adult females defend territory near nest burrow and exhibit strong site fidelity.

REPRODUCTION: Mating occurs soon after females emerge from hibernation. Gestation lasts 24 days. Female produces 2-7 (average 2-4) altricial young born May-late June. Nursing period usually lasts about 30 days. Young reach sexual maturity in 1-2 yr; 22-33% survive to maturity.

GIS MODEL NUMBER: 3

IMPORTANT STATE REFERENCE: Elliott, C.L. and J.T. Flinders. 1980. Seasonal activity pattern of Columbian ground squirrels in the Idaho Primitive Area. Great Basin Natur. 40:175-177.



Columbian Ground Squirrel  
(*Spermophilus columbianus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: From southeastern Nevada, Utah, Colorado, and extreme western Oklahoma, south through southwestern U.S. to portions of Mexico.

HABITAT: Found, up to 2900 m, in rocky habitats such as cliffs, canyons, hillsides, talus slopes, old buildings, bridges, terraced roads, and stone walls. Usually not present in open plains, wide valleys, deserts, or high montane forests. In Idaho, occurs in open canyons with bigtooth maple, narrowleaf cottonwood, mountain mahogany, box elder, and mountain shrubs.

DIET: Feeds on nuts, seeds, grains, berries, roots, green vegetation, cacti, invertebrates, and fresh and dried meat. Diet depends on availability of foods.

ECOLOGY: Active all year except at high elevations (in Idaho, length of hibernation depends on severity of weather). Diurnal. Summer activity peaks in morning and/or late afternoon; spring/fall/winter activity peaks at midday. Southeastern Arizona study (1500 m.) reported relatively inactive adults from late October-February; juveniles were active throughout autumn. Species burrows under rocks, bushes, and trees; spends most of life underground. Tends to be colonial at breeding time (maternal aggregation and dominant male, with subordinate males nearby). Large home ranges overlap greatly; some studies found average to be less than 0.5 ha, but radiotelemetric study in southeastern Arizona found spring/summer home range averaged about 7.9 ha (males), 3.8 ha (females); same values were reported for population in central New Mexico. One study found population density of about 2-13/ha. Density of adult residents was less than 2/ha in central New Mexico.

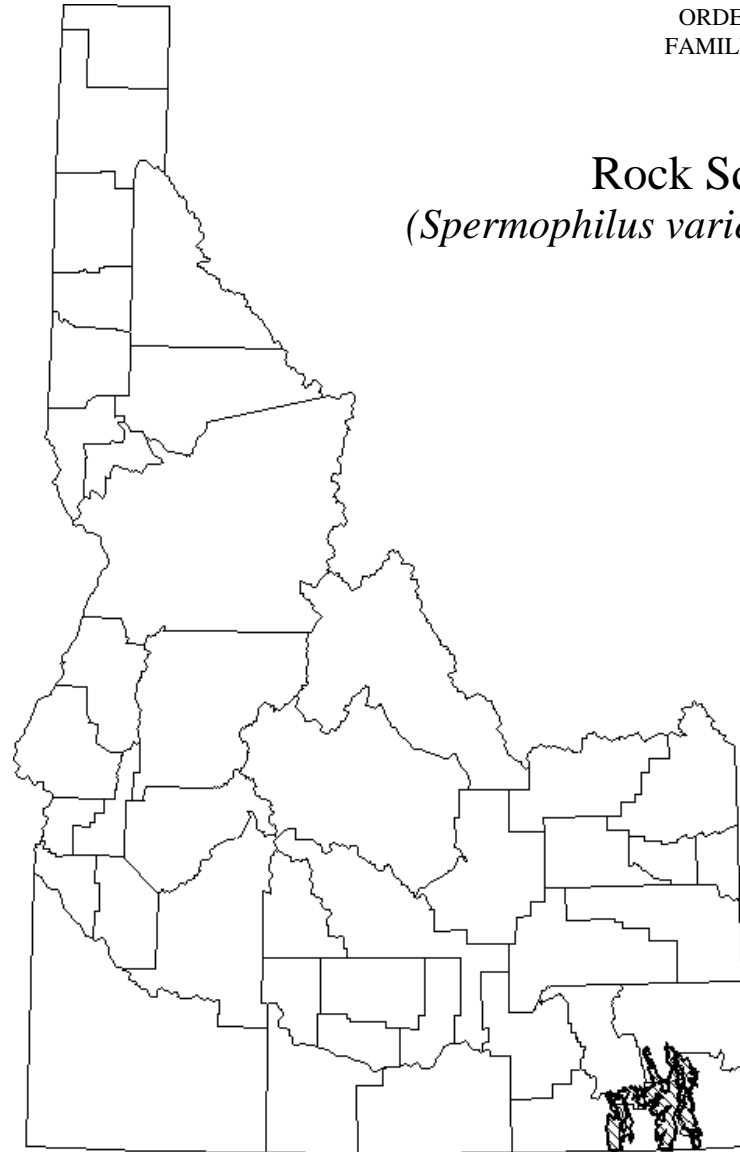
REPRODUCTION: Mating occurs mid-April to early July (Arizona). Gestation probably lasts about 30 days. Parturition occurs April-August. Percentage of lactating females peaked July-August (Arizona); lactation lasts about 2 mo. Average of 4 young emerge from natal burrow (in July at 1500 m. in Arizona). Female produces 1 litter/yr (possibly 2 in south).

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Groves, C., E. Yensen, and E.B. Hart. 1988. First specimen record of the rock squirrel (*Spermophilus variegatus*) in Idaho. Murrelet 69:50-53.

ORDER: Rodentia  
FAMILY: Sciuridae

## Rock Squirrel (*Spermophilus variegatus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From eastern British Columbia and western Alberta, south through western U.S. to California, Arizona, and New Mexico.

HABITAT: Found, from intermediate elevations to alpine tundra, on mountain slopes and foothills, in chaparral, in open areas in pine, spruce, and fir forests, and on rocky outcroppings and slides.

DIET: Feeds on seeds, fungi, leaves, flowers, fruits, and roots. Will also eat arthropods and meat. One study reported underground fungus comprised 65% of summer food and 90% of fall food.

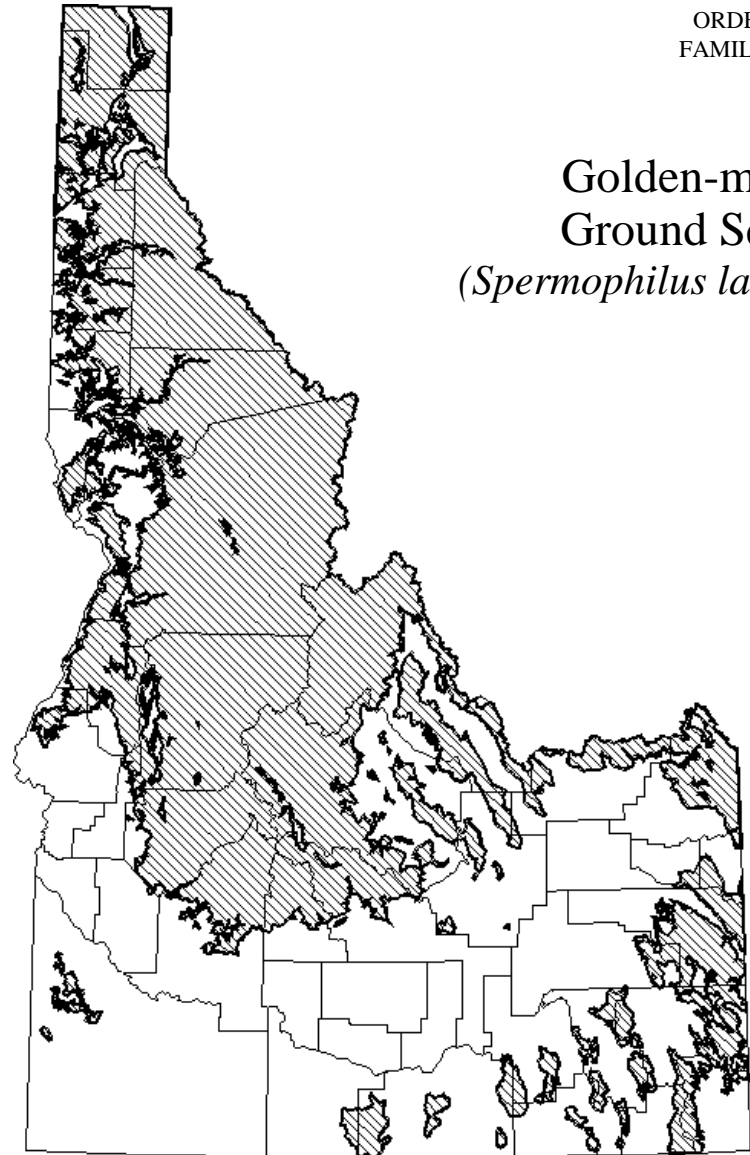
ECOLOGY: In Canada, may begin to hibernate in early September; males emerge in mid-April. In California, may remain active until late November; males may reappear in March. In Idaho, active from March-September, then hibernates for winter. Diurnal, but inactive during heat of day. May store food in burrow in summer. Burrows may be located under rocks, logs, or bushes. Populations are usually distributed evenly over good habitat (in Idaho, species is scattered in numbers but locally abundant, especially in campgrounds and picnic areas).

REPRODUCTION: Breeding occurs in spring soon after females emerge from hibernation. Females are monoestrous. Litter size varies from 2-8 young (usually 4-6). Young typically emerge from burrow in July (in Idaho, young are born in June or July).

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Sciuridae

## Golden-mantled Ground Squirrel (*Spermophilus lateralis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G4 STATE RANK: S4

RANGE: Subspecies occur in 3 areas that are probably geographically isolated: extreme southeastern Oregon, southwestern Idaho, and north-central Nevada; northeastern Idaho and southwestern Montana; and extreme northeastern Utah, southern Wyoming, northern Colorado, and extreme western Nebraska.

HABITAT: Found in grasslands and sagebrush, especially on upland slopes with loose, sandy soils.

DIET: Feeds on seeds, flowers, stems, leaves, roots of grasses, forbs, and shrubs. Will also eat insects, especially in late summer. Sometimes eats carrion.

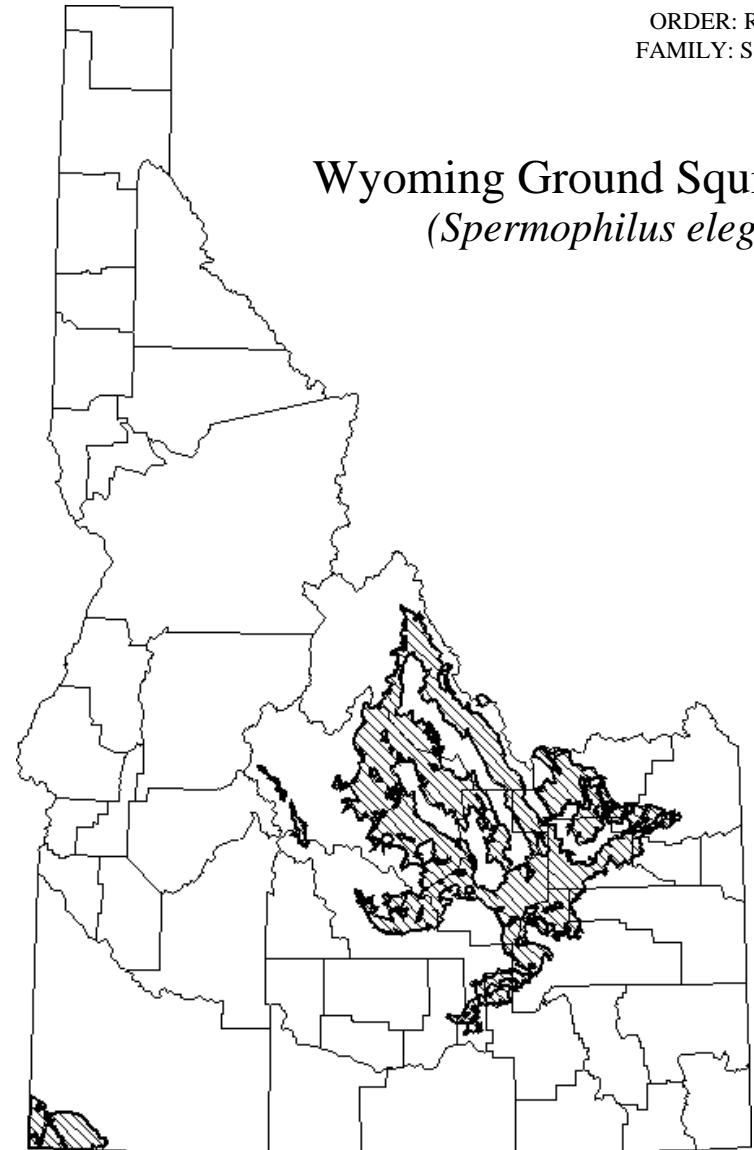
ECOLOGY: Emerges from hibernation in early spring. Active during spring and summer, but becomes dormant again between late July and early September. In north-central Colorado study, adult males emerged in March, about 2.5 wk before females; adult females emerged 1-1.5 wk before adult males (late July and early August, respectively). Population densities may reach 10-20/0.4 ha. In large colonies, home range may be restricted to 7.6-15 m in diameter. Species is one of least social ground squirrels. May host fleas that transmit bubonic plague.

REPRODUCTION: Mating occurs soon after emergence from hibernation. Gestation probably lasts 22-23 days. Female produces 1 litter/yr of 1-11 (usually 6-7) altricial young. In northern Colorado study, parturition occurred in late April or early May, and juveniles appeared above ground in late May or early June. Young reach adult size by end of summer. Northern Colorado study reported successful breeding by yearling females may, in some years, be prevented by late emergence and low body mass attributable to deep snow and low temperatures.

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Sciuridae

## Wyoming Ground Squirrel (*Spermophilus elegans*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Alaska, east to Newfoundland, south to Smoky Mountains, and south through Rocky Mountains to Arizona and New Mexico.

HABITAT: Prefers coniferous and mixed forests, but is frequently found in deciduous woodlots, hedgerows, and second-growth areas. In Idaho, found in all coniferous forests, mixed forests, and riparian woodlands adjacent to conifers.

DIET: Commonly eats seeds, conifer cones, nuts, and fruits. Occasionally feeds on invertebrates.

ECOLOGY: Diurnal with peak activity in morning and evening. Usually conspicuous throughout day. Most active 2 hr after sunrise and before sunset. Capable climber. Commonly caches more food than it can consume. Has economic value as seed planter. Home range varies from 0.4-2.4 ha. Population densities range from about 1/3.2 ha (Pinaleno Mountains, southeastern Arizona) to 1/0.2 ha. More territorial than most other North American tree squirrels. Populations in British Columbia are limited by food (acting through effect on reproduction).

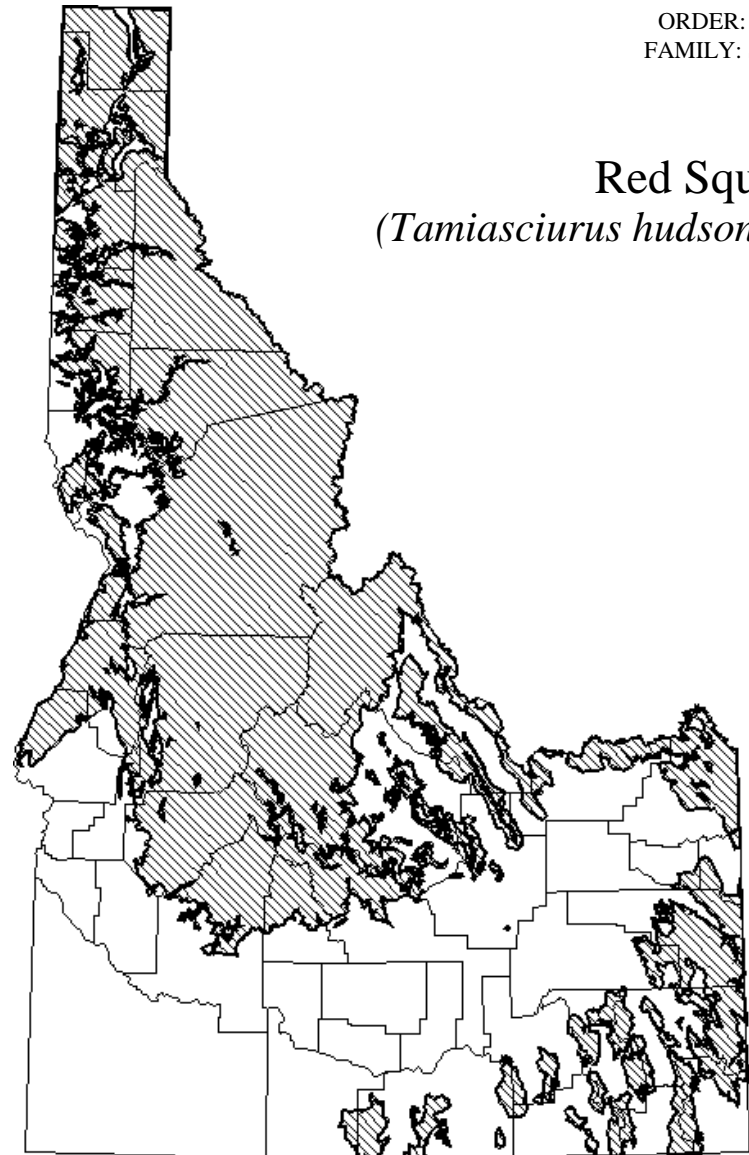
REPRODUCTION: Breeds March-April and June-July. Female is in estrus only for 1 day. Gestation lasts 31-35 days. Some females produce 2 litters/yr. Litter size averages 4-5 young. Some females breed when less than 1 yr old.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Medin, D.E. 1986. The impact of logging on red squirrels in an Idaho conifer forest. West. J. Appl. Forestry 1:73-76.

ORDER: Rodentia  
FAMILY: Sciuridae

## Red Squirrel (*Tamiasciurus hudsonicus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Alaska, east through most of Canada, and south in Rockies, Great Lakes Region, and Appalachians.

HABITAT: Prefers coniferous and mixed forests, but will utilize deciduous and riparian woods. Optimal conditions consist of cool, moist, mature forest with abundant standing and downed snags.

DIET: Diet consists of both plant and animal material. In Idaho, diet includes seeds, fruits, nuts, berries, fungi, insects, birds' eggs and nestlings, buds, and meat.

ECOLOGY: Nocturnal. In southern Appalachians, peak activity occurs from sunset to 2 hr after and 1 hr before sunrise. Occupies tree cavities, leaf nests, caves, and underground burrows; uses large number of alternate den sites in Alaska. Active throughout year. Spends considerable time foraging on ground. Highly social, especially in winter when nests may be shared. Summer home range has been estimated at 2-3 ha in North Carolina, 5-7 ha in West Virginia. Apparently lives in family groups of adults and juveniles. Known for its gliding ability. Preyed upon by hawks, owls, and mammalian carnivores.

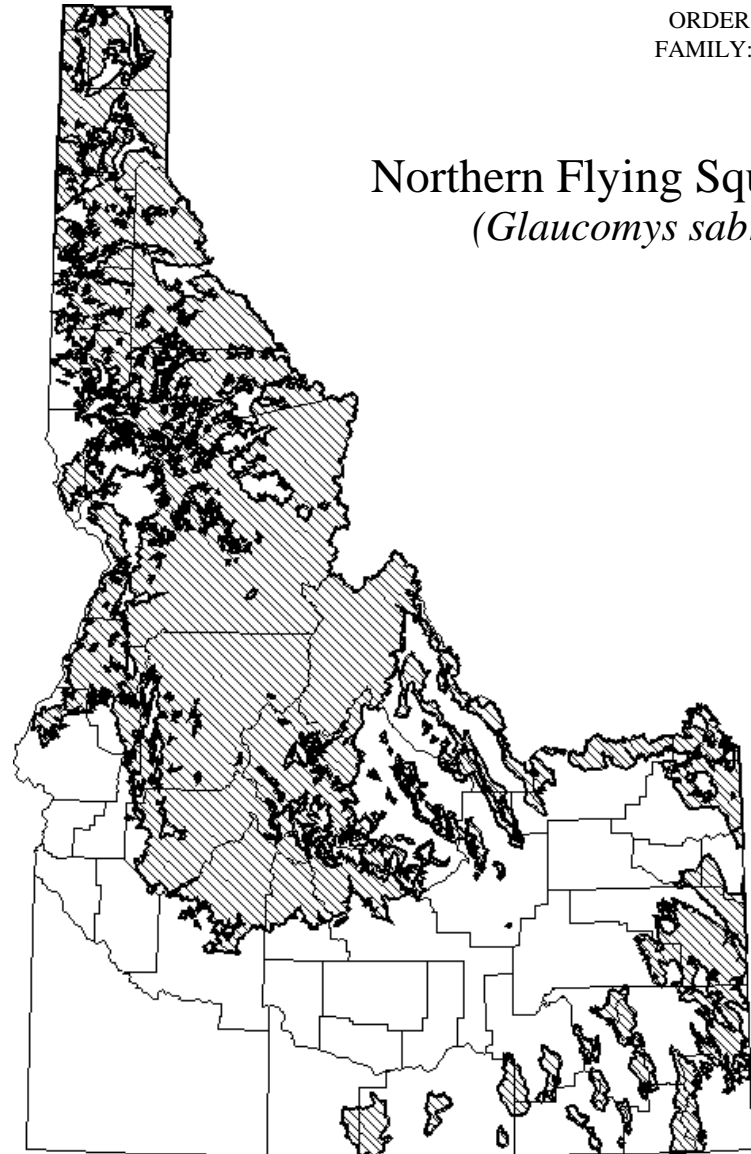
REPRODUCTION: Breeding season occurs from February-May, and possibly again in July. Gestation lasts 37-42 days. Female produces 1-2 litters of 2-6 young (average 4-5), born March-early July, and possibly late August to early September (in southern Appalachians, apparently 1 litter is produced in spring or summer). Young are weaned at about 2 mo, and reach sexual maturity at 6-12 mo.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Laurance, W.F. and T.D. Reynolds. 1984. Winter food preference of capture-reared northern flying squirrels. Murrelet 65:20-22.

ORDER: Rodentia  
FAMILY: Sciuridae

## Northern Flying Squirrel (*Glaucomys sabrinus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G4 STATE RANK: S4

ORDER: Rodentia  
FAMILY: Geomyidae

RANGE: Southeastern Oregon, southwestern Idaho, northern Nevada, and northeastern California.

HABITAT: Found in deep soils of river valleys, in old lake beds, and in irrigated farmland. In Idaho, prefers moist river valleys and irrigated farmland.

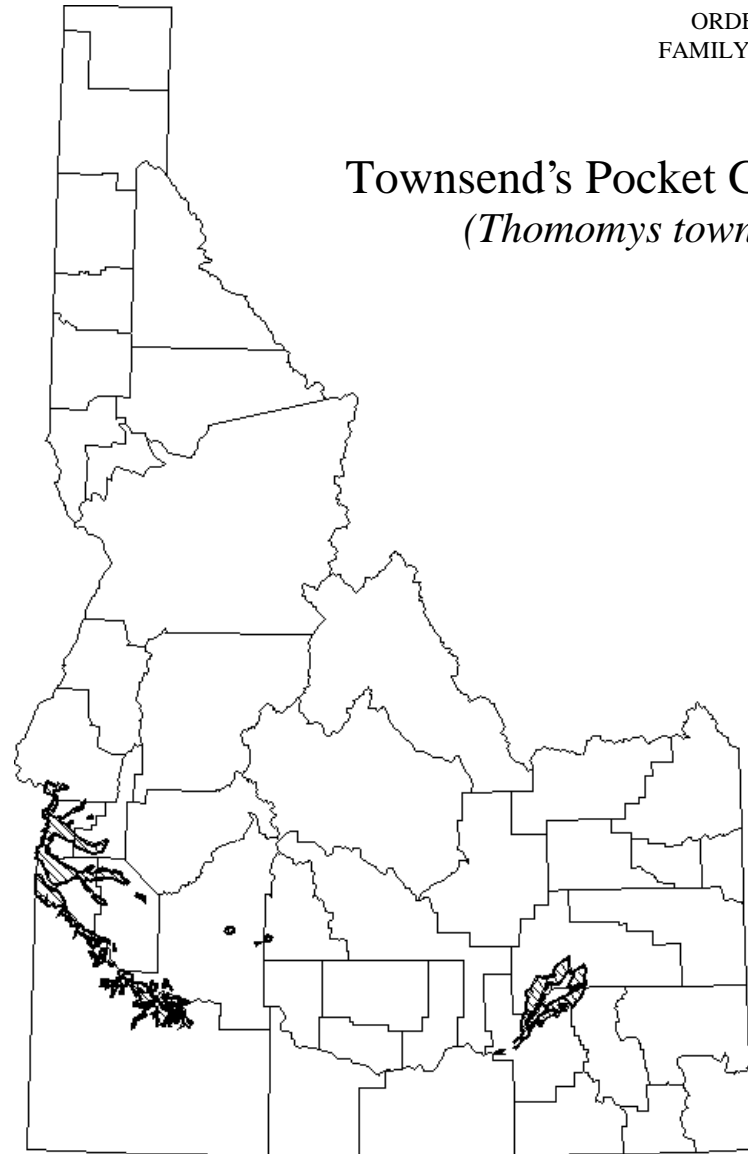
DIET: Eats roots, tubers, and some surface vegetation. In Idaho, diet includes roots of saltgrass, roots and stems of grasses, alfalfa, grains, and crops.

ECOLOGY: Nocturnal. Fossorial. Forages from underground burrow; may pull plants down through soil into burrow. Sometimes forages above ground. Collects food in cheek pouches and carries it to underground storage area. Active throughout year. Primarily solitary; individuals fight viciously when together. Species is largest Idaho pocket gopher. Pocket gophers are ecologically important as prey items and in influencing soils, microtopography, habitat heterogeneity, diversity of plant species, and primary productivity.

REPRODUCTION: Polygamous. Female may produce 2 or more litters of 3-10 young/litter each yr. Gestation lasts approximately 19 days.

GIS MODEL NUMBER: 4

## Townsend's Pocket Gopher (*Thomomys townsendii*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Rodentia  
FAMILY: Geomyidae

RANGE: From Alberta and Saskatchewan, south to northern Arizona and New Mexico, and from Washington east to northwestern Minnesota.

HABITAT: Prefers deep soils along streams and in meadows and cultivated fields, but is also found in rocky soils and clay, in brushy areas or along roadsides, and in alpine tundra.

DIET: Eats roots of forbs, cacti, and grasses.

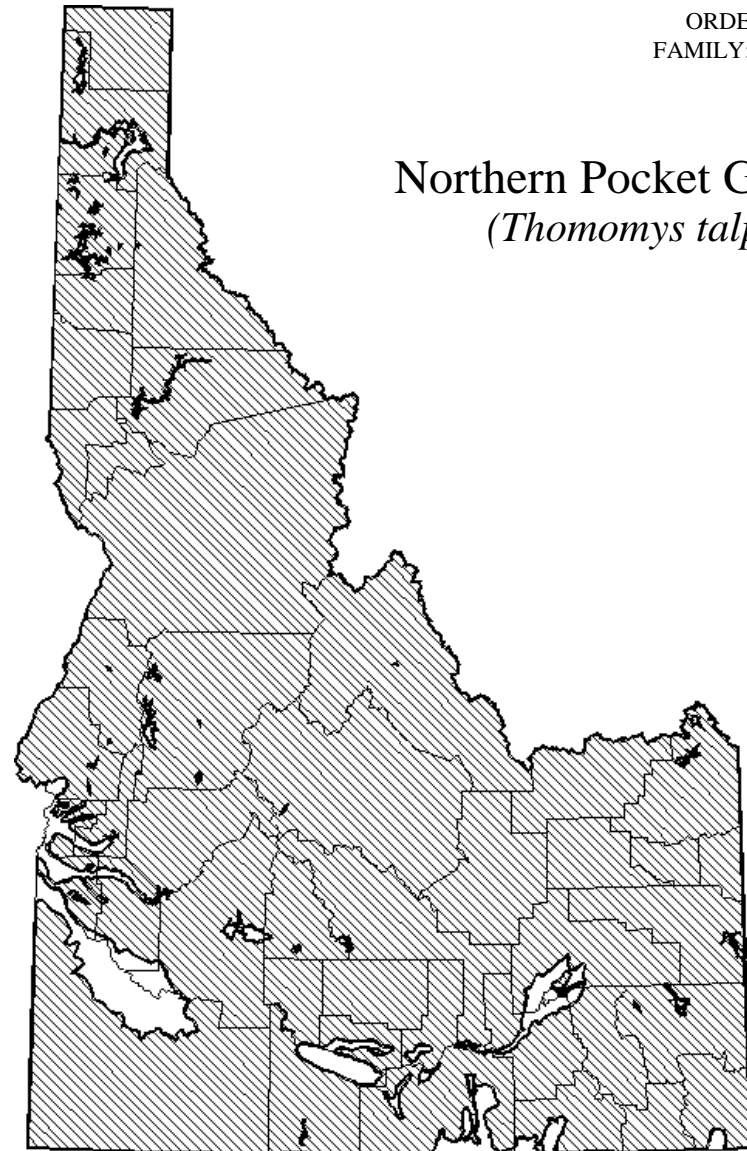
ECOLOGY: Active throughout year. Does not hibernate but may be inactive in winter and midsummer for brief periods. Circadian, but peaks of activity occur at dawn and dusk. Fossorial. Most burrowing activity occurs in spring and fall when soil is loose. Food is often carried in cheek pouches and stored in underground chambers, or in or under snow. May feed in vegetable gardens, grainfields, and orchards, causing damage to crops. Primarily solitary. Home range may occupy 125-170 m<sup>2</sup>. Population density varies widely with quality of habitat. Pocket gophers are ecologically important as prey items and in influencing soils, microtopography, habitat heterogeneity, diversity of plant species, and primary productivity. Species may help reduce erosion as result of tunneling, but may also become nuisances and conflict with agriculture and forestry.

REPRODUCTION: Females are monoestrous. Mating usually occurs from March to mid-June, depending on weather and latitude. Female produces litter of 4-7 young after gestation period of 19-20 days. Young disperse from natal burrow at about 2 months.

GIS MODEL NUMBER: 4

IMPORTANT STATE REFERENCE: Kuck, L. 1969. The effects of the northern pocket gopher on reforestation: activity and movement. M.S. Thesis, Univ. Idaho, Moscow. 51pp.

## Northern Pocket Gopher (*Thomomys talpoides*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: Eastern Idaho, southwestern Montana, western Wyoming, and northeastern Utah.

HABITAT: Found in shrub steppe, grasslands, and subalpine mountain meadows.

DIET: Eats roots, tubers, and some surface vegetation.

ECOLOGY: Active throughout year. Forages in underground burrows and above ground at night or on overcast days. Carries food in cheek pouches and stores it in underground chambers. Primarily solitary except during breeding season. Predators include coyotes, foxes, and owls. Pocket gophers are ecologically important as prey items and in influencing soils, microtopography, habitat heterogeneity, diversity of plant species, and primary productivity.

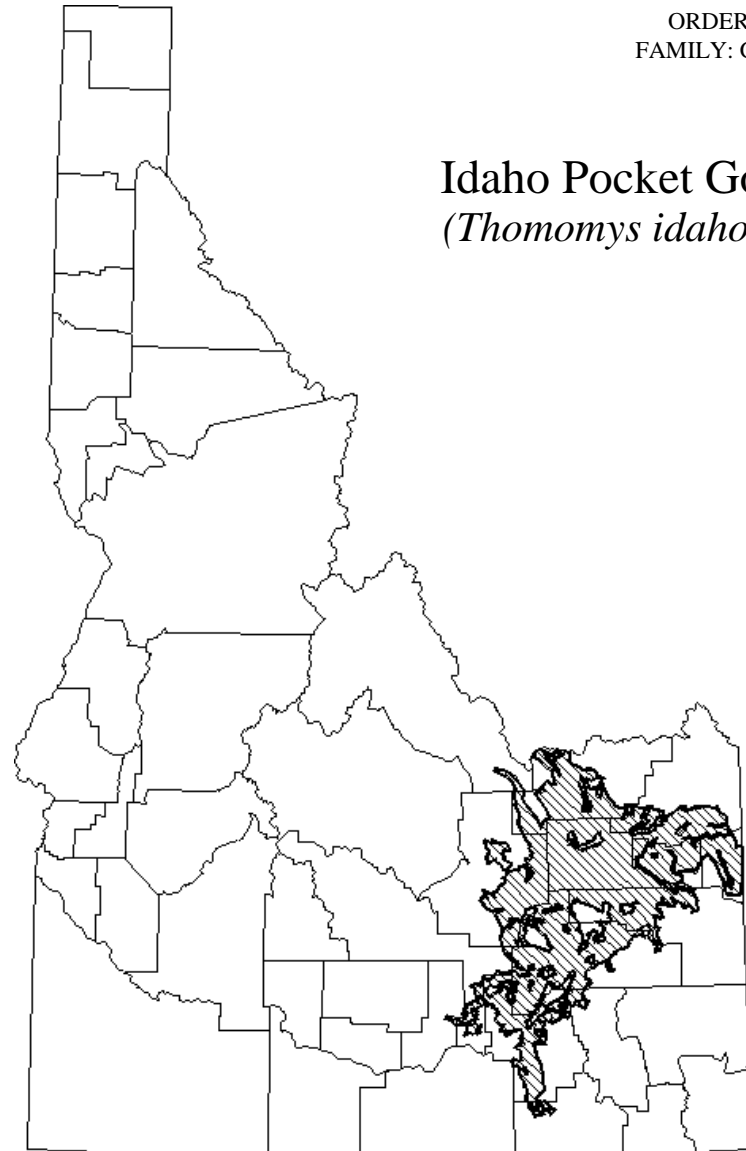
REPRODUCTION: Probably similar to northern pocket gopher (female produces litter of 4-7 young after gestation period of 19-20 days).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Thaeler, C.S. 1972. Taxonomic status of pocket gophers *Thomomys idahoensis* and *Thomomys pygmaeus* (Rodentia: Geomyidae). J. Mammal. 53:417-428.

ORDER: Rodentia  
FAMILY: Geomyidae

## Idaho Pocket Gopher (*Thomomys idahoensis*)





STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

ORDER: Rodentia  
FAMILY: Heteromyidae

RANGE: From southeastern Oregon and southwestern Idaho, south to Baja California and northwestern mainland of Mexico.

HABITAT: Found in sagebrush, creosote bush, and cactus communities. On slopes with widely spaced shrubs, found in firm, sandy soil overlain with pebbles. In Idaho, found in shadscale/dwarf sage on lower slopes of alluvial fans in Raft River Valley.

DIET: Feeds primarily on seeds.

ECOLOGY: Remains in den during severe weather. In Idaho, inactive during winter months, although evidence of hibernation is lacking. In southeastern California, hibernates 6.5 mo. Nocturnal. In spring, most active 2-5 hr after sunset, with second peak just before sunrise. Stores food in underground burrows. Able to metabolize water from food. Primarily solitary. Populations may fluctuate markedly from year to year and seasonally. Species is smallest rodent in Pacific Northwest. In some areas species is most abundant mammal; populations have been estimated to be as high as 400/0.4 ha.

REPRODUCTION: Female produces 1-2 litters of 3-7 young/litter. Young are born April-July. Species may not reproduce in years with below average precipitation.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Larrison, E.J. and D.R. Johnson. 1973. Density changes and habitat affinities of rodents of shadscale and sagebrush associations. *Great Basin Natur.* 33:255-264.

## Little Pocket Mouse (*Perognathus longimembris*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Rodentia  
FAMILY: Heteromyidae

RANGE: From south-central British Columbia, south to southern California, northern Arizona, and southwestern Wyoming.

HABITAT: Found on arid, sandy, short-grass steppes, shrub steppe, and pinyon/juniper woodlands. Usually found in habitats with light-textured, deep soils. Also found among rocks. In Idaho, prefers sagebrush, rabbitbrush, and bitterbrush, as well as grassy fields.

DIET: Primarily a seed eater, but in spring and summer also feeds on insects and some green vegetation.

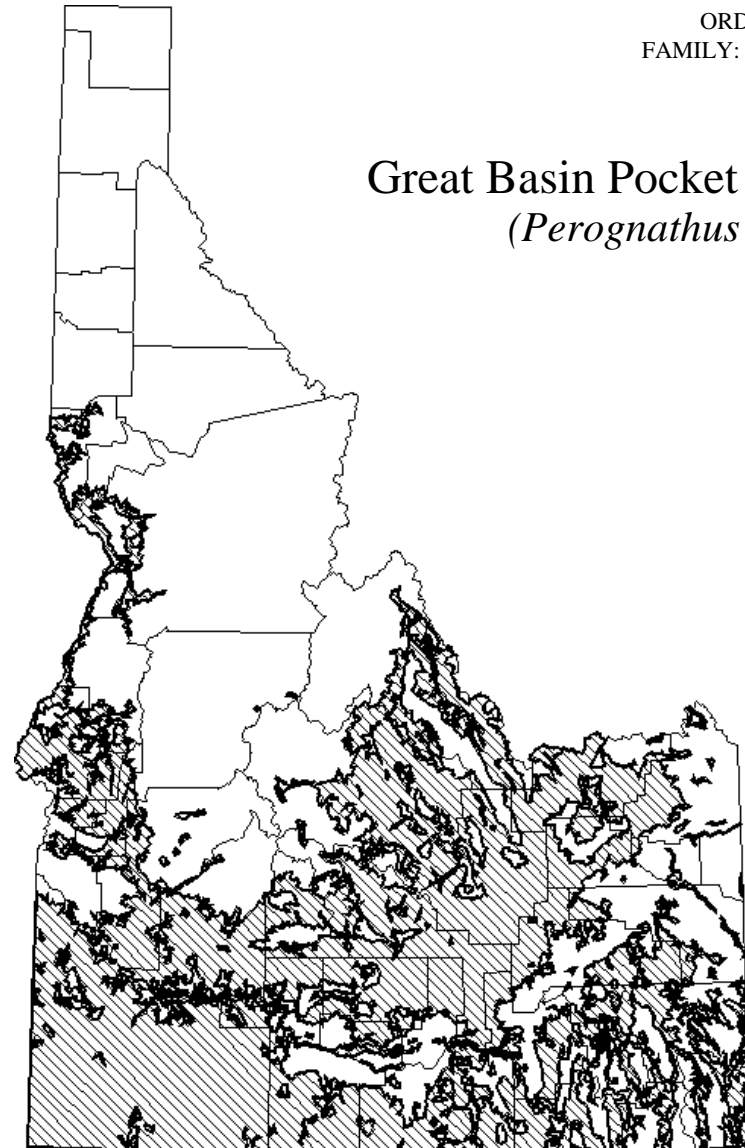
ECOLOGY: Underground when inactive. Above-ground activity decreases from November-March. During this time, long periods of torpor are presumed to alternate with arousal and eating periods. May also become torpid in summer. Nocturnal/crepuscular. Active within an hour after sunset. Stores seeds in underground chambers; germination may produce undesirable plants. May forage in grain fields. Primarily solitary. Home range has been estimated at up to 0.40 ha; range varies with several factors. In years with abundant precipitation, population density may reach 80/ha or more.

REPRODUCTION: Reproductively active in spring and summer. Gestation probably lasts about 21-28 days. Female produces 0-3 litters/year; number varies with precipitation. Number of fetuses/female ranges from 2-8 (average about 5). Young are weaned in about 3 wk. Idaho study found males were sexually active March-August; juvenile females bred during first year; males generally did not.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Speth, R.L., C.L. Pritchett, and C.D. Jorgensen. 1968. Reproductive activity of *Perognathus parvus*. J. Mammal. 49:336-337.

## Great Basin Pocket Mouse (*Perognathus parvus*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

ORDER: Rodentia  
FAMILY: Heteromyidae

RANGE: Southeastern Oregon, northeastern and central-eastern California, Nevada, and west-central Utah.

HABITAT: Found in loose sands and gravel in shadscale scrub, sagebrush scrub, and alkali sink plant communities. May occur in sand dunes near margins of range.

DIET: Seeds are primary food source, but will also eat some insects.

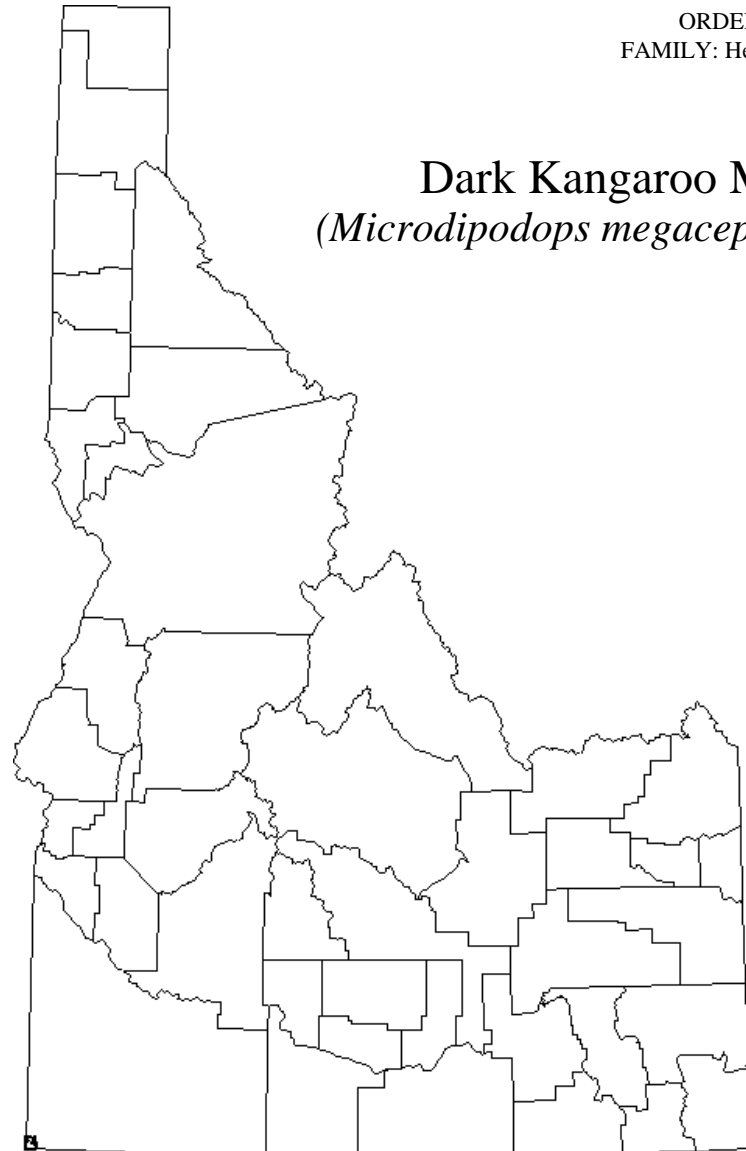
ECOLOGY: Underground when inactive; activity has been observed only from March-October. Nocturnal; peak activity occurs in first 2 hr after sunset. Moonlight and ambient temperature influence activity. Believed to store food in seed caches within burrow system. Does not appear to utilize free water. Uses bipedal locomotion. Predators include owls, foxes, and badgers. In west-central Nevada, mean yearly circular home range for males was 6613 m<sup>2</sup>; for females, 3932 m<sup>2</sup>. Insufficient fall and winter precipitation may limit growth of animals, which may, in turn, affect reproduction.

REPRODUCTION: Possibly polyestrous. Litter size ranges from 2-7 young (average 3.9). Most young are born in May or June.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Hafner, J.C. 1985. New kangaroo mice, genus *Microdipodops* (Rodentia: Heteromyidae), from Idaho and Nevada. Proc. Biol. Soc. Wash. 98:1-9.

## Dark Kangaroo Mouse (*Microdipodops megacephalus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Rodentia  
FAMILY: Heteromyidae

RANGE: From southern Alberta and Saskatchewan, south to portions of Mexico, west to southern Washington, Oregon, northeastern California and Arizona, and east to Oklahoma, western Texas, and portions of Midwest.

HABITAT: Prefers open, bare soil in grasslands, shrub steppe, or woodlands (e.g. sagebrush, rabbitbrush, greasewood, shadscale, pinyon/juniper, oak, mesquite). In Idaho, can be found in habitats dominated by sagebrush, shadscale, crested wheatgrass, kochia, greasewood, and halogeton.

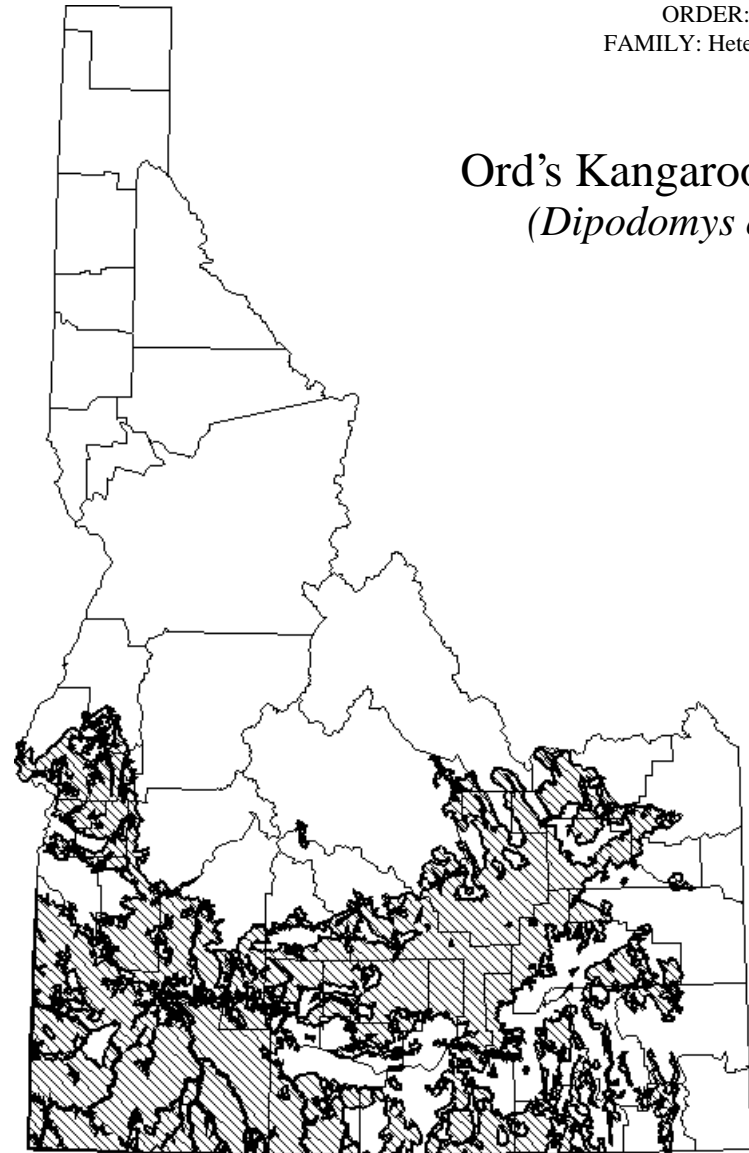
DIET: Feeds on seeds (mainly grasses and forbs). May also eat green vegetation, some insects, and other arthropods. In Idaho, diet includes seeds and leaves of halogeton, shadscale, Russian thistle, and several mustards.

ECOLOGY: Active most of year; dormant below ground in winter in northern range. Strictly nocturnal; individuals are active maximum of 2 hr/night. In Utah, spring activity peaks shortly after sunset; secondary peak occurs shortly before dawn. In Nevada, activity occurs only after midnight in winter, mainly after midnight in summer. Activity increases under cloud cover (especially in winter), decreases in inclement weather, on clear nights, and under moonlight, and ceases when temperatures are less than  $-11^{\circ}\text{C}$ , or when snow cover is greater than 40%. Species often burrows at base of shrubs or grasses. Stores food in burrow. Solitary except during breeding season. Recorded population densities were 1-5/2.7 ha in Nevada, 10-27/ha in Texas, and up to 53/ha in other areas. Annual home range is about 1 ha or less. Individuals may live at least 2 yr.

REPRODUCTION: Females are seasonally polyestrous. Reproductive patterns vary geographically: February-June in New Mexico; August-February in Texas; spring in Canada. Gestation lasts 28-32 days. Average litter size is 3. Young reach sexual maturity in about 83 days. In Oklahoma, females may produce 2 litters/yr in favorable years, and females born early in season produce a litter before end of same season. Drought may inhibit reproduction.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Larrison, E.J. and D.R. Johnson. 1973. Density changes and habitat affinities of rodents of shadscale and sagebrush associations. *Great Basin Natur.* 33:255-264.



## Ord's Kangaroo Rat (*Dipodomys ordii*)

STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From southwestern Idaho and southeastern Oregon, south through eastern California, Nevada, and western Utah to southern California and northern Arizona, west to Sierra Nevada, and east to Wasatch Mountains.

HABITAT: Found in desert valleys dominated by saltbush/shadscale, in blackbush zone along southern edge of range, and in other types of shrubby communities. Occurs on rocky slopes in some areas. Infrequently captured on sand dunes. Generally found at moderate elevations, but recorded up to 3200 m. In Idaho, species occurs in salt desert shrub habitats.

DIET: In central and northern range, consumes mostly leaves, especially saltbush, from which hypersaline outer layers are removed. In southern range, consumes mostly seeds. Sometimes eats insects and fungi. In Idaho, eats both leaves and seeds of shadscale and halogeton.

ECOLOGY: Not known to hibernate or aestivate (in Idaho, active below ground in winter). Nocturnal with limited crepuscular activity. When inactive, occupies underground burrows that typically open near base of shrubs. Forages in foliage; caches leaves and/or seeds in burrow. Basically solitary. Reported average home range varies from less than 1 to 5 ha. Reported population density was 7 or less per ha in Nevada, to 34/ha in Utah. Most abundant in spring and early summer. Major primary consumer and prey item for carnivores. Life span averages just over a year.

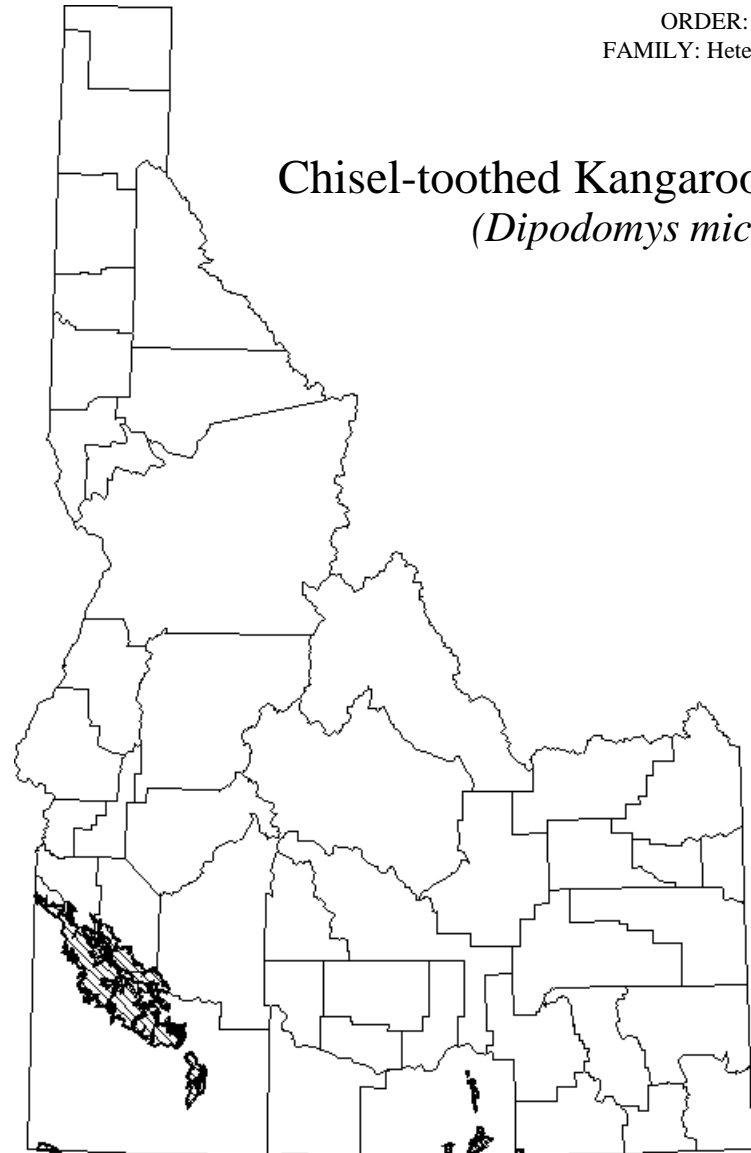
REPRODUCTION: In California, mating usually occurs from February to mid-March, with births from March to mid-April, or sometimes later. In Nevada, pregnant females are evident from April to June. Gestation lasts 30-34 days. Females produce single litters of 1-4 young (most often 2); 2 litters/yr is possible under exceptional conditions. In southeastern California, juveniles typically do not mature sexually in season of birth.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Johnson, D.R. 1961. The food habits of rodents on rangelands of southern Idaho. Ecology 42:407-410.

ORDER: Rodentia  
FAMILY: Heteromyidae

## Chisel-toothed Kangaroo Rat (*Dipodomys microps*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Widely distributed through North America north of Mexico, excluding Florida, southern California, and southern Nevada.

HABITAT: Dependent on slow-flowing brooks, streams, and rivers for dam construction. Adjacent stands of successional growth are preferred over mature forests.

DIET: Prefers bark of deciduous trees, especially poplars, alder, willow, birch, and maple. Will also eat roots of tuberous plants.

ECOLOGY: Usually active from dusk to dawn. Activity in winter is reduced. Commonly moves overland when searching for mate or locating unoccupied water source. May stockpile branches in bottom of pond near den for use as winter food. Will not use bank burrows in lakes and large rivers. Length of time colony site is occupied depends in part on rate of replenishment of food resources. Colony typically consists of 4-8 related individuals (pair of adults plus offspring from current and previous year). Colony densities may reach 3/121 ha; 0.6-0.9/km<sup>2</sup> has been reported in northern Minnesota. On rivers, population densities may range from 2-15 beavers/2.6 km<sup>2</sup>. In Idaho study, males and juveniles showed greatest migration tendency; common migration pattern was from upstream to downstream.

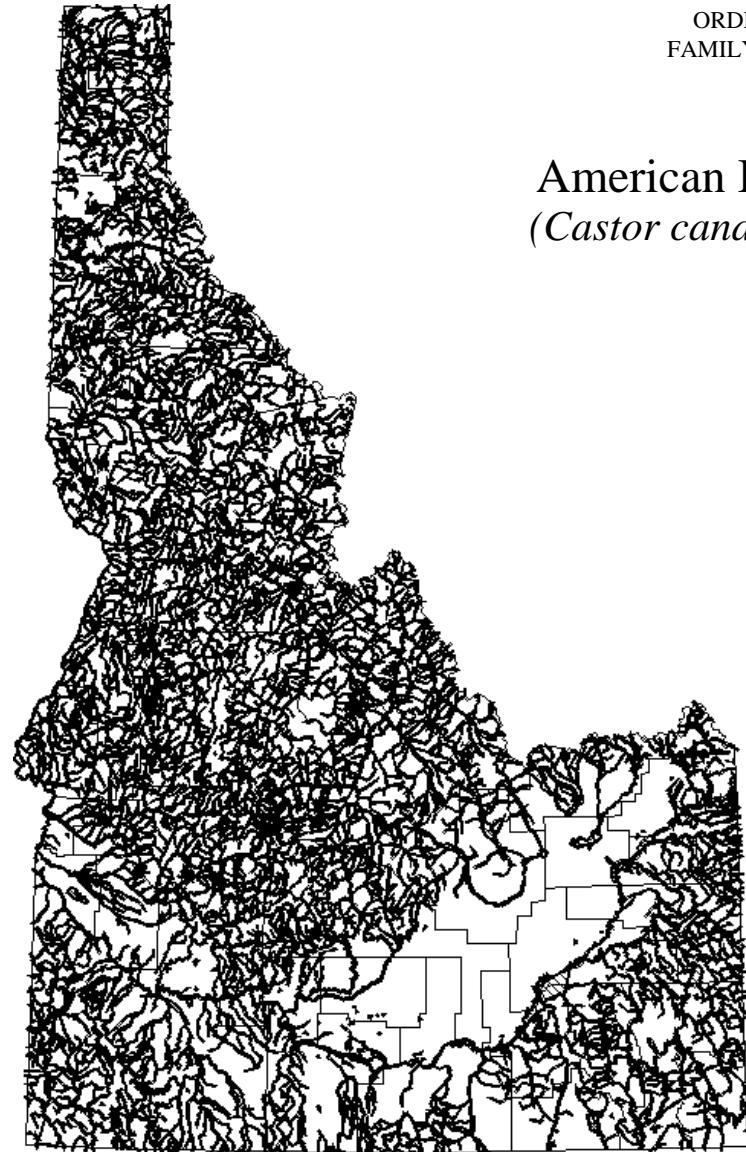
REPRODUCTION: Breeds mid-January to early June. Gestation lasts 106 days. Parturition occurs February-July in Mississippi, April-May in Oklahoma, mainly May-June in many areas. Litter size varies from 1-9 young; average is 3-5 (larger in north than in south). Young are weaned in about 6 wk. Female produces 1 litter/yr. Young mature and disperse in 1.5-2 yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Leege, T.A. 1968. Natural movements of beavers in southeastern Idaho. J. Wildl. Manage. 32:973-976.

ORDER: Rodentia  
FAMILY: Castoridae

## American Beaver (*Castor canadensis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern British Columbia, southeastern Alberta, southwestern Saskatchewan, North Dakota, and southern and western Wisconsin, south to northern Baja California, portions of Mexico, Texas, western Oklahoma, Kansas and northeastern Arkansas, and east to Indiana.

HABITAT: Found, up to 3960 m, in old fields, meadows, weedy roadsides, agricultural areas, grassy situations within pine/oak forests, and riparian borders. May also be found in shrubby arid regions. Prefers dense vegetative cover. In Idaho, prefers grassy areas in shrub steppe (Idaho study reported highest density in crested wheatgrass).

DIET: Prefers seeds of weeds and grasses, but also eats some herbaceous material. In Idaho, eats beetles, seeds, and leaves of sagebrush, halogeton, and grass.

ECOLOGY: Primarily nocturnal; most active on moonless, rainy nights. Uses runways made by voles. In California study, individuals began moving along vole runways about 0.5 hr after sunset; runway activity ended about 0.5 hr before sunrise. Species climbs in vegetation; may climb into tumbleweeds. Home range is usually about 0.2-0.6 ha. Long-distance movements (up to 3200 m) have been recorded in Kansas; vast majority moved less than 300 m. Population density is about 2-4/0.4 ha, but may reach 24/0.4 ha. in optimum habitat. Populations may decline during peaks in vole abundance. Forms mixed-sex social units dominated by a male. In Idaho, builds spherical nests, some above ground. Adults molt twice annually. Few mice reach 12 mo age.

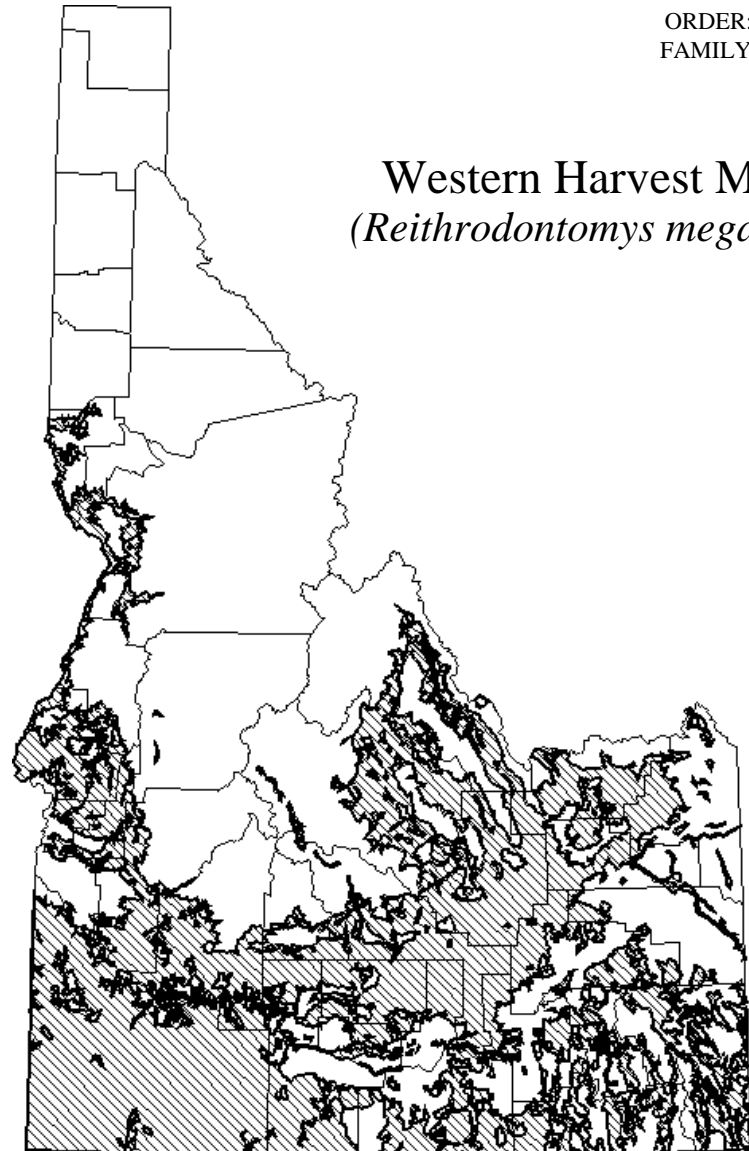
REPRODUCTION: Breeds year-round, but mostly in early spring to late autumn. Gestation lasts 23-24 days. Litter size varies from 1-6 young (average 4). Young are weaned in slightly less than 3 wk, and reach sexual maturity in 2-4 mo. Female may produce multiple litters annually.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Larrison, E.J. and D.R. Johnson. 1973. Density changes and habitat affinities of rodents of shadscale and sagebrush associations. Great Basin Natur. 33:255-264.

ORDER: Rodentia  
FAMILY: Muridae

## Western Harvest Mouse (*Reithrodontomys megalotis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Occurs in most of North America; absent in most of Alaska, northern Canada, and western and southeastern Mexico.

HABITAT: Found in variety of upland and riparian habitats, from open areas and brushlands to coniferous and deciduous forests.

DIET: Eats arthropods, other invertebrates, fruits, nuts, seeds, green plant material, and fungi. Insects, worms, and snails are most important in summer.

ECOLOGY: Primarily nocturnal. Active throughout year. May store food. Home range averages 1 ha or less, but may vary from a few hundred to a few thousand square meters, depending on circumstances. Territorial behavior is most prevalent at high population densities. Population density is generally lowest in spring, highest in fall (sometimes up to about 30/ha; densities as high as 109/ha and 163/ha have been reported). Idaho studies of effects of logging and grazing on small mammals show deer mice numbers have not been affected. Species is most abundant small mammal in most Idaho desert habitats, and most common mammal in Idaho.

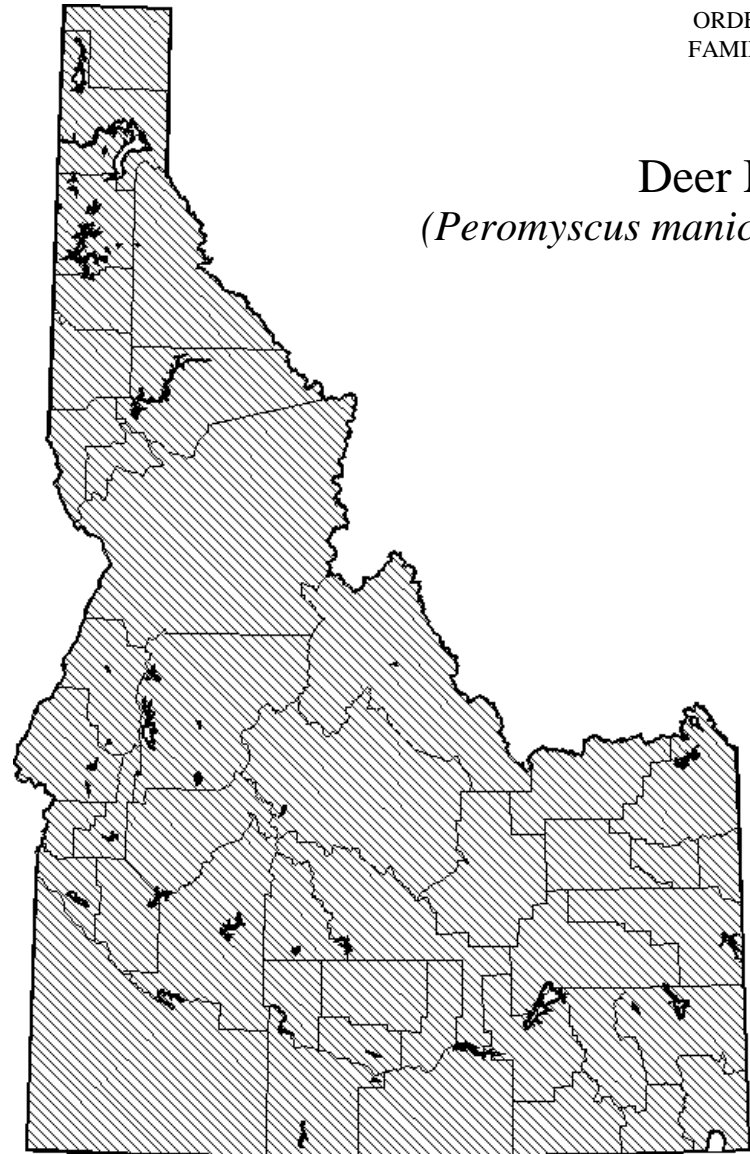
REPRODUCTION: Breeding season is shorter in northern range and at high elevations than elsewhere. Gestation lasts 23 days. Litter size averages 5-6 in northern range, 4.5 in south. Females produce 1-2 litters/yr in northern range, more in south. Young become independent in about 16-25 days, depending on geography. Young-of-year may attain sexual maturity by 2 mo, or may not breed in some areas. Some litters are fathered by more than 1 male; mating system ranges from promiscuity to facultative monogamy.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Groves, C.R. and B.L. Keller. 1983. Ecological characteristics of small mammals on a radioactive waste disposal area in southeastern Idaho. *Amer. Midl. Natur.* 109:253-265.

ORDER: Rodentia  
FAMILY: Muridae

## Deer Mouse (*Peromyscus maniculatus*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S3

RANGE: From eastern Oregon, southwestern Idaho, and southwestern Wyoming, south to northwestern Sonora and eastern Baja California Norte, west to northeastern and southeastern California, and east to western Colorado and northwestern New Mexico.

HABITAT: Found exclusively in rocky habitats such as gravelly desert pavement, talus, boulders, cliffs, and slickrock. Vegetation type is not important.

DIET: Eats seeds, insects, and green vegetation, depending on availability. In Idaho, diet includes hackberry, rose, currant seeds, and insects.

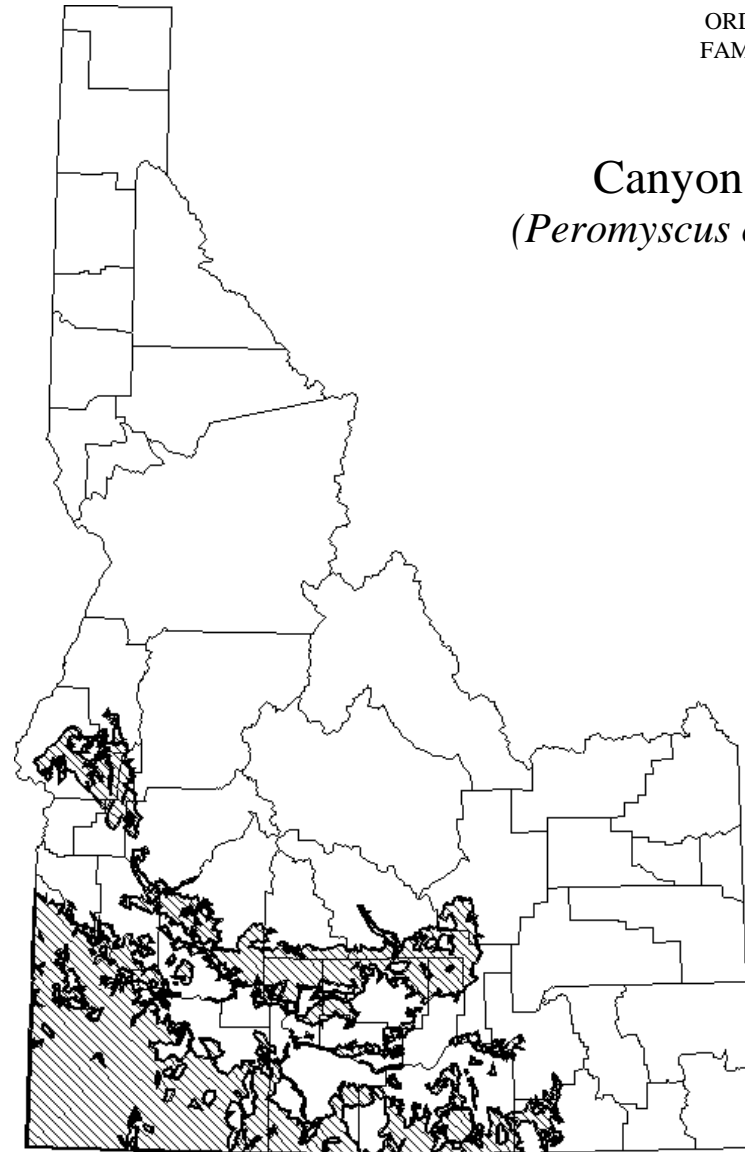
ECOLOGY: Active throughout year. Primarily nocturnal. May exhibit diurnal torpor in response to food and water deprivation. May enter torpor at low environmental temperatures (less than 5° C). Can apparently survive without access to water. Maximum population density has been estimated at 3/ha in California, 27/ha in Grand Canyon, and 43/ha in southeastern Utah. Little is known about Idaho ecology of this species.

REPRODUCTION: Gestation lasts about 25-31 days, and is longest in lactating females. Litter size varies from 2-4 young/litter (average 3 in southern California and northern Utah). Females may produce multiple litters annually. Young are altricial with slow postnatal development. Young are weaned in about 23-28 days; most first breed at 4-6 mo.

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Muridae

## Canyon Mouse (*Peromyscus crinitus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S2

RANGE: From central Oregon, northern Nevada, northern Utah, and western and southern Colorado, south to northern Baja California, southeastern Arizona, and southern New Mexico. Disjunct population exists in northern Texas.

HABITAT: Often found among rocks or on rocky slopes, in wide variety of habitats including pinyon/juniper woodlands, chaparral and desert scrub areas, limestone cliffs, redwood forests, and riparian woodlands. In Idaho, found in rocky, desert terrain dominated by western juniper.

DIET: Feeds on seeds, nuts, berries, fungi, and insects.

ECOLOGY: Active throughout year. Primarily nocturnal. Semi-arboreal with some vocalizations. Stores food in cheek pouches and caches. Idaho study produced home range figures of 0.8-1.4 ha. Preyed upon by various vertebrates. Average life span is less than 1 yr.

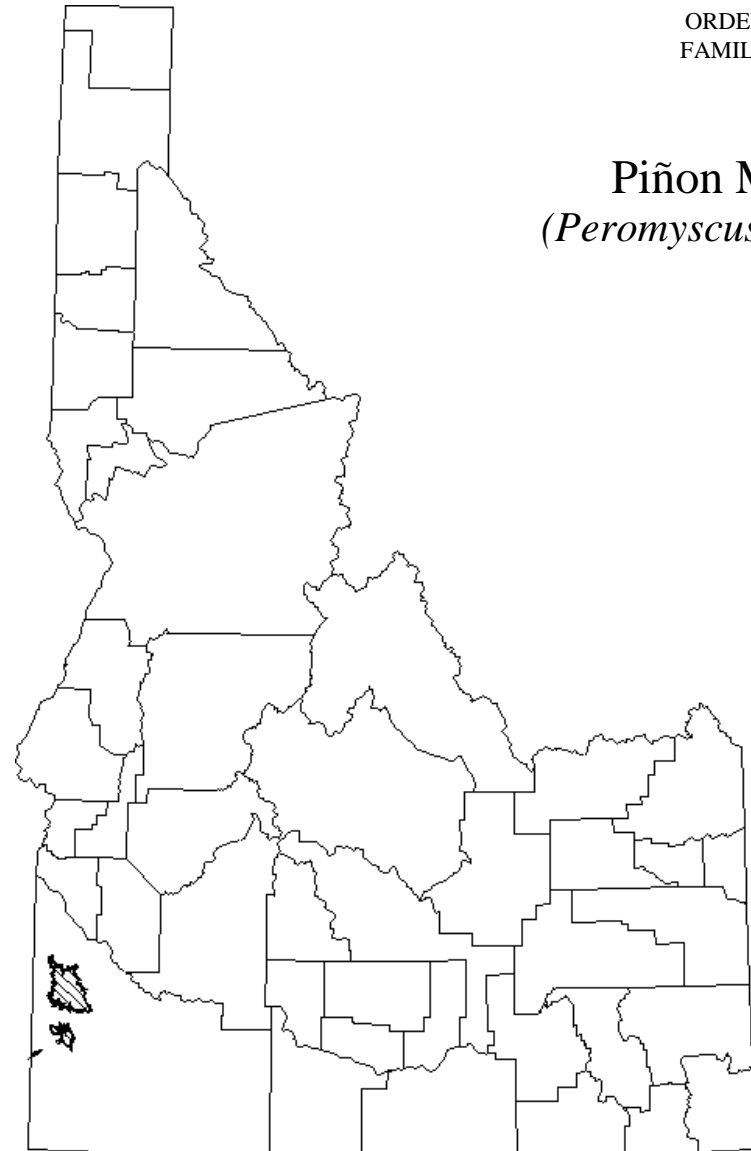
REPRODUCTION: Breeds primarily in spring and summer, but throughout most of year in Arizona and in some areas of California and Nevada. In New Mexico and Colorado, female produces an average of 3.4 litters/yr. Gestation lasts 25-27 days for nonlactating females, and about 40 days for lactating females.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: Hammond, D.B. and E. Yensen. 1982. Differential microhabitat utilization in *Peromyscus truei* and *Peromyscus maniculatus* in the Owyhee Mountains, Idaho. *J. Idaho Acad. Science* 18:49-56.

ORDER: Rodentia  
FAMILY: Muridae

## Piñon Mouse (*Peromyscus truei*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From south-central Canada, south through Great Plains to northern Mexico. Extends west through Great Basin and southwestern deserts of Arizona and New Mexico, and also occurs in Rocky Mountains.

HABITAT: Occurs, in areas with sandy, diggable soil and sparse vegetation, in grasslands, shrub steppe, overgrazed pastures, weedy roadside ditches, and semi-stabilized sand dunes. In Idaho, species is most numerous in sagebrush areas.

DIET: Eats 70-90% animal material, primarily arthropods (grasshoppers, beetles, spiders, larval Lepidoptera), but will also eat plant material and small rodents, especially in winter.

ECOLOGY: Active throughout year, although activity is greatly reduced during full moon or heavy, prolonged rainfall. Nocturnal on lunar pattern. Occupies underground burrows when inactive. May store seeds. Usually occurs at relatively low densities, but may become a controlling factor for prey items (species is an aggressive predator). Maintains unusually large home range (estimated average 2.3 ha) for small mammal. Whistles shrilly on spring and summer nights, perhaps as territorial defense.

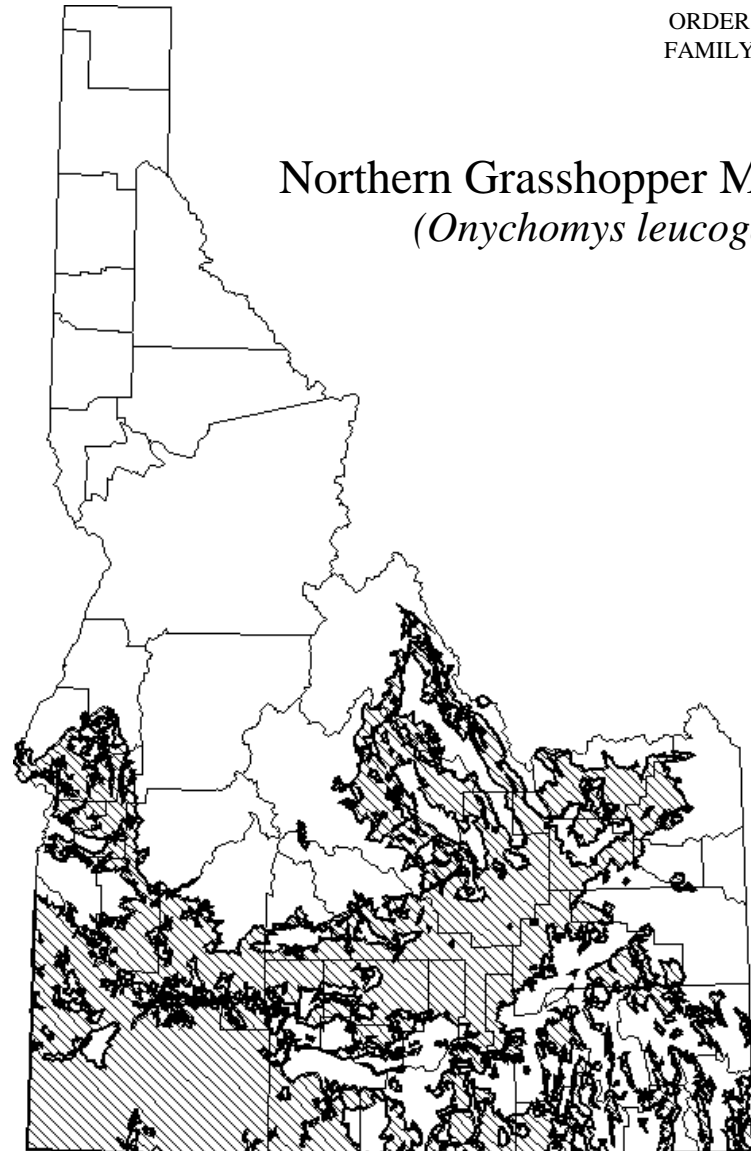
REPRODUCTION: Gestation lasts about 32-38 days. Most litters are born February-October, with peak in June, July, and August. In the laboratory, females may produce up to 6 litters/yr. Litter size varies from 1-6 young. Young reach sexual maturity at 3-4 mo.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Reynolds. T.D. 1980. Effects of some different land management practices on small mammal populations. J. Mammal. 61:558-561.

ORDER: Rodentia  
FAMILY: Muridae

## Northern Grasshopper Mouse (*Onychomys leucogaster*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From southeastern Oregon and southwestern Idaho, south to Baja California and extreme northwestern Sonora, Mexico.

HABITAT: Found in sagebrush scrub, in chaparral, and in deserts and rocky slopes with scattered cactus, yucca, pine/juniper, and other low vegetation. In Idaho, occupies rocky areas of desert habitat in greasewood, sagebrush and hopsage.

DIET: Feeds on beans and leaves of mesquite, on juniper, and on parts of available cacti, creosote bush, thistle, and ephreda. Will also eat other green vegetation, seeds, fruits, acorns, and pine nuts. Can eat plants high in oxalic acid.

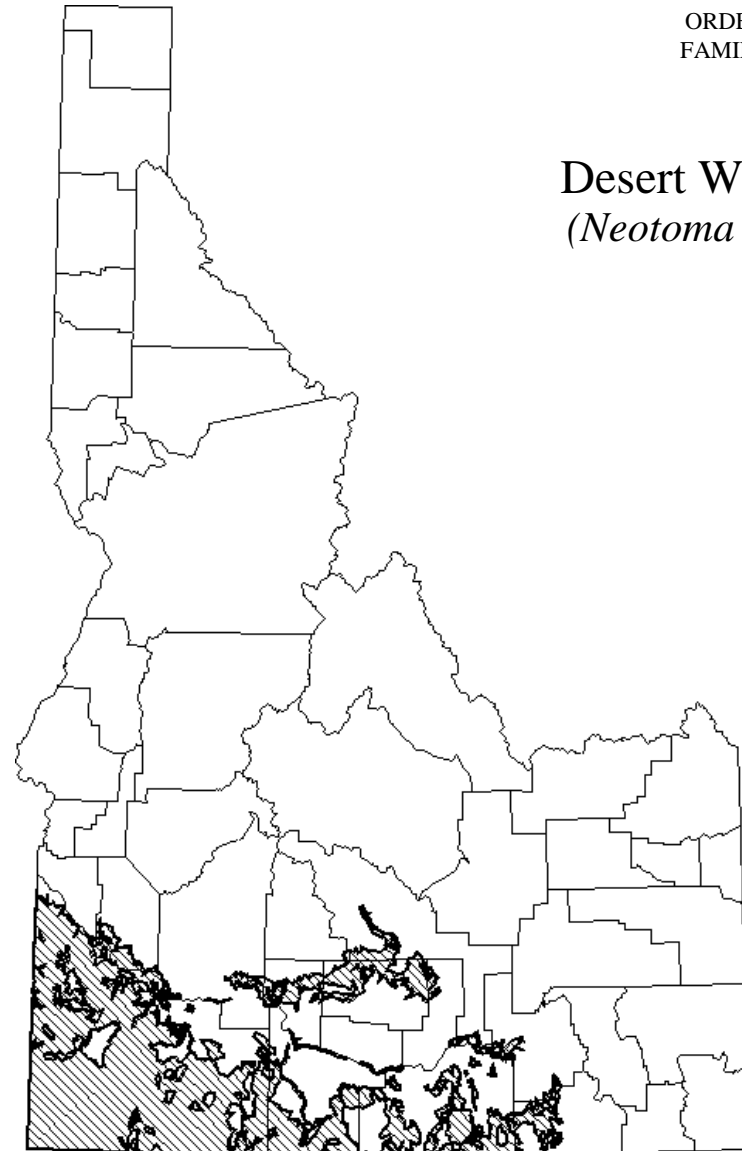
ECOLOGY: Primarily nocturnal. When inactive, occupies elaborate den built of debris on ground, in vegetation, along cliff, or occasionally in tree. Often uses kangaroo rat or ground squirrel burrow. Derives water from diet. Species is isolated and scarce within Idaho range.

REPRODUCTION: Gestation lasts 30-36 days. Female produces 4 or more litters/yr. Litter size usually varies from 2-3 young, but may number 1-5. Young are weaned in 21-34 days (depending on litter size), and reach sexual maturity in 2-3 mo.

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Muridae

## Desert Woodrat (*Neotoma lepida*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Rodentia  
FAMILY: Muridae

RANGE: From Yukon Territory, south to northern Arizona and New Mexico.

HABITAT: Inhabits mountains, cliffs, talus slopes, caves, and rock outcrops, both in forests and open deserts. Can also be found in deserted buildings and mine shafts.

DIET: Feeds on twigs, shoots, leaves, needles, fruits, and seeds. Southeastern Idaho study found grass, cactus, vetch, sage, and mustard in diet as well as a few arthropods.

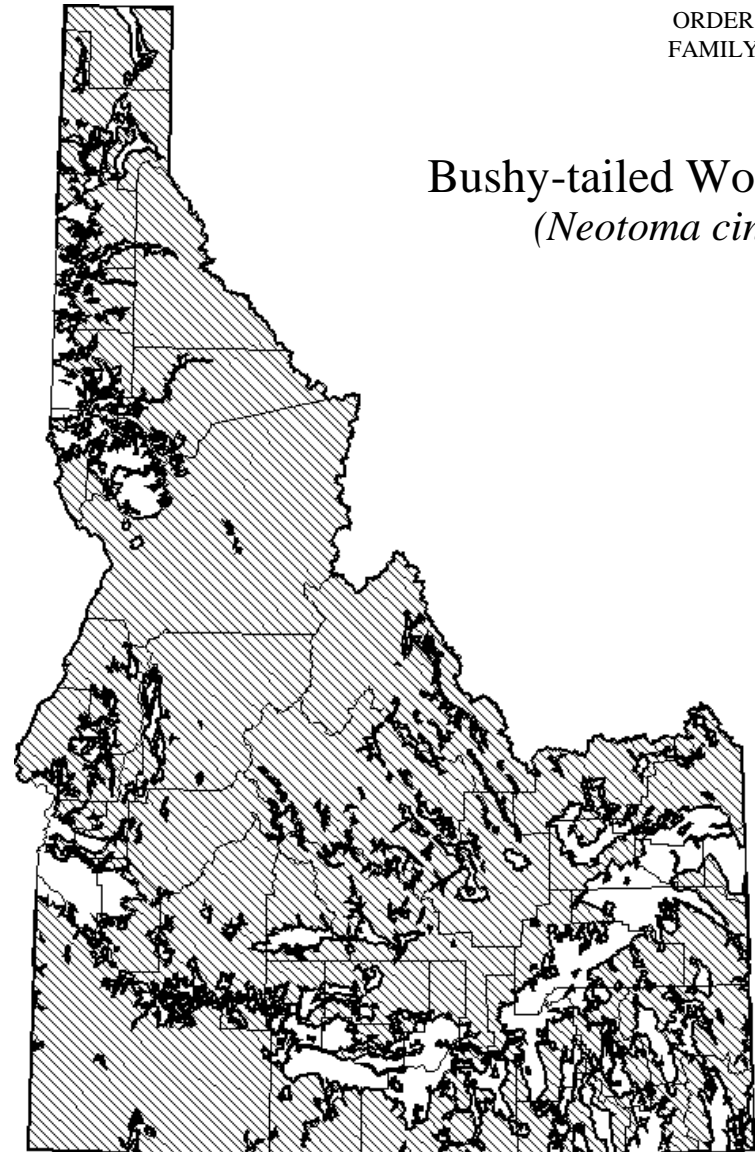
ECOLOGY: Active throughout year. Primarily nocturnal, but may be seen during day. Collects debris in old buildings or crevices. Most individuals occupy separate dens. Male may exclude other males from small rock outcrop inhabited by multiple females. Average population density has been reported at about 1/8 ha. Known to thump hind legs when disturbed.

REPRODUCTION: Breeding peaks in spring. Gestation lasts about 5 wk. Female produces 2-3 litters of 3-4 young/litter. Births occur April-August in California. Young males disperse by 2.5 mo; many females breed in natal area.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Johnson, M.K. and R.M. Hansen. 1979. Foods of cottontails and woodrats in south-central Idaho. *J. Mammal.* 60:213-215.

## Bushy-tailed Woodrat (*Neotoma cinerea*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Most of forested Canada, south through Rockies, northern Great Plains, northern Great Lakes, New England, and Appalachian Mountains.

HABITAT: Prefers cool, moist, deciduous, coniferous or mixed forests, especially areas with large amounts of ground cover. Will also use second-growth areas. Mossy logs and tree roots in coniferous forests are optimal. Idaho study found species prefers mature grand fir stands over younger stands.

DIET: Feeds chiefly on vegetation, seeds, nuts, and fungi, but will also eat some insects. Summer diet in Colorado (and much of western U.S.) consists almost entirely of fungi.

ECOLOGY: Active year-round. Mainly nocturnal. Travels under snow all winter. Disperses viable spores of mycorrhizal fungi and nitrogen-fixing bacteria. Home range varies from 0.10-1.42 ha. Mature females are territorial. Populations are noncyclic. In Idaho, density peaks in late summer/early fall; populations do not colonize early post-burn communities. Species is preyed upon by mustelids, canids and raptors. Idaho studies of logging impacts on species have provided ambiguous results. This vole is often the most common small mammal in coniferous forests.

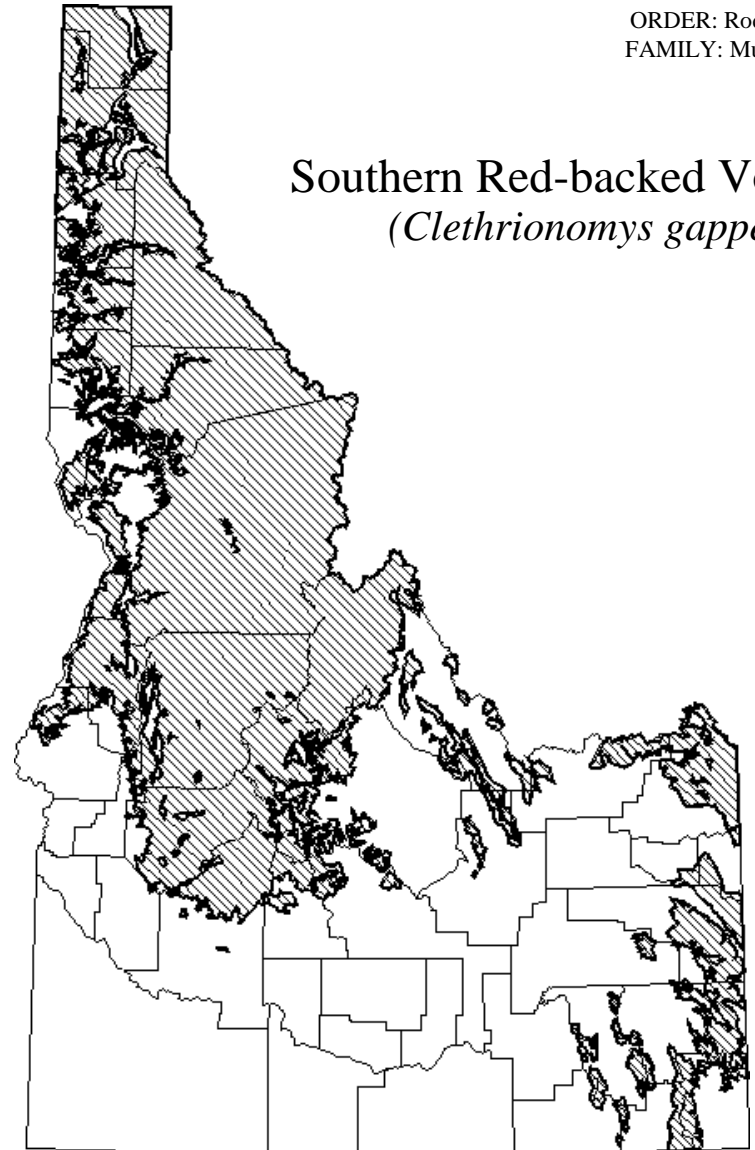
REPRODUCTION: Breeds mid-January to late November; peak breeding activity occurs February-October. Gestation lasts 17-19 days. Litter size varies from 1-9 young (average 5.6 in Alberta, 6.5 in Colorado). In Alberta, young females produce 1-4 litters/yr, older females produce 1-6; in Colorado, females produce 2 litters/yr, and young-of-year breed.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Scrivner, J.H. and H.D. Smith. 1984. Relative abundance of small mammals in four successional stages of spruce-fir in Idaho. Northwest Science 58:171-176.

ORDER: Rodentia  
FAMILY: Muridae

## Southern Red-backed Vole (*Clethrionomys gapperi*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Labrador, west across northern Canada to Yukon Territory, and south to Sierra Nevada and through Rocky Mountains to northern New Mexico.  
HABITAT: Found, from sea level to above treeline, in open coniferous forests with heath or shrub understory, in shrubby areas on forest edges, in mossy meadows in forests, and in alpine tundra with cover. Has been trapped in burned and logged areas of northern Idaho.

DIET: In winter, feeds on bark and buds of shrubs and heaths. In summer, feeds primarily on green vegetation, berries, and seeds.

ECOLOGY: Does not hibernate/aestivate. Circadian. When inactive, occupies nest on ground under snow or in burrow. Occupies short, underground burrows in summer. Stores food winter and summer. Solitary in summer, except during breeding season. Family groups may occupy communal nests in winter. Population density estimates range from 0.5-10/ha in different habitats in different areas. Preliminary results of a northern Idaho study indicated that this species is uncommon in old-growth coniferous forest stands but more abundant in second-growth and clearcut areas.

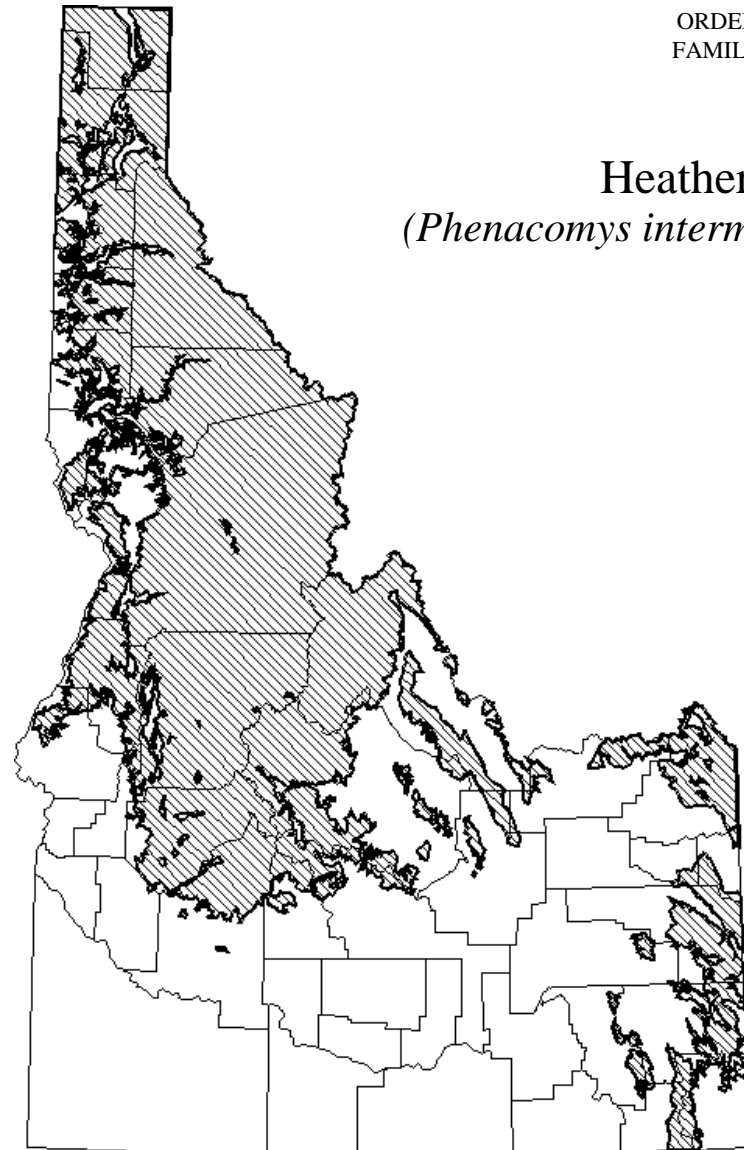
REPRODUCTION: Gestation lasts 19-24 days. Young are born mid-June to early September (season may possibly be more restricted at high elevations). In general, young-of-year females produce 3-4 young (average); older females may produce 2 litters of 4-6 young/litter.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Groves, C.R. 1994. A preliminary report: effects of timber harvest on small mammals and amphibians in old-growth coniferous forests on the Priest Lake Ranger District, Idaho Panhandle National Forests. Idaho Dept. Fish & Game, Boise. 18pp.

ORDER: Rodentia  
FAMILY: Muridae

## Heather Vole (*Phenacomys intermedius*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Most of Canada and Alaska, south through northern half of U.S. to Oregon, northern Utah, central New Mexico, northern Missouri, and Georgia. Has greatest distribution of any vole species in North America.

HABITAT: Found in variety of habitats, from dry pastures and weeded swamps to marshes and orchards. Needs loose organic soils for tunneling. In Idaho, prefers moist grasslands, woodlands, and meadows.

DIET: Eats vegetable matter such as grasses, roots, and seeds.

ECOLOGY: Active day and night throughout year; at any one time, half of population is active. Home range seldom exceeds 0.10 ha. Population density fluctuates every 2-5 yr. High densities of 50-60/0.4 ha are not unusual; average densities are probably closer to 8-10/0.4 ha. High population densities may result in damage to woody vegetation such as fruit orchards. Extensively studied species (particularly population cycles), but not so in Idaho. Meadow vole is important prey to many mammalian and avian predators.

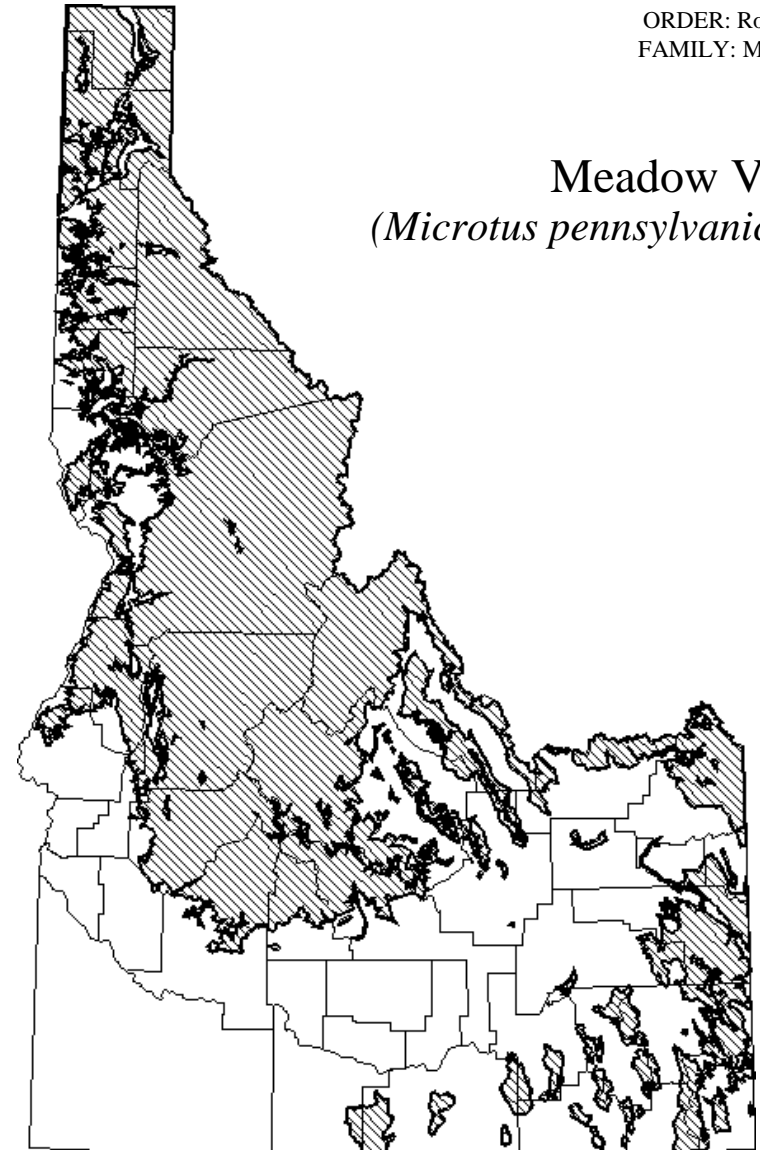
REPRODUCTION: Breeds throughout year, if snow provides insulating layer. Peak breeding activity occurs April-October. Gestation lasts approximately 21 days. Litter size varies from 1-9 young (average is 4-5). Litter size is smaller in fall than in spring/summer. Females may produce 5-10 litters/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hoffman, G.R. 1960. The small mammal components of six climax plant associations in eastern Washington and northern Idaho. *Ecology* 41:571-572.

ORDER: Rodentia  
FAMILY: Muridae

## Meadow Vole (*Microtus pennsylvanicus*)





STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southwestern British Columbia, south through western U.S. to Arizona and New Mexico.

HABITAT: Found in alpine meadows in southern range, and in mountain valleys in north. Prefers wet meadows and cropland (especially fields and pastures of grass and legumes along fence rows), and grassy areas by streams and lakes. In Idaho, prefers moist, mountain meadows and high valleys, but also occurs in shrub steppe (especially crested wheatgrass).

DIET: Eats grasses and sedges, and leaves, stems, and roots of wide variety of forbs. In Idaho, diet includes grass shoots, seeds, bulbs, tree bark, shrubs, and agricultural crops.

ECOLOGY: Active throughout year. Circadian. Occupies shallow burrows and surface runways. Populations may fluctuate dramatically, and cause serious crop damage during population highs. Northwestern Wyoming study reported populations peaked at 3-4 yr intervals. In Utah study, peak population density reached 375-560/ha. Idaho study suggested grazing may negatively impact populations. Species is important prey to many avian and mammalian predators.

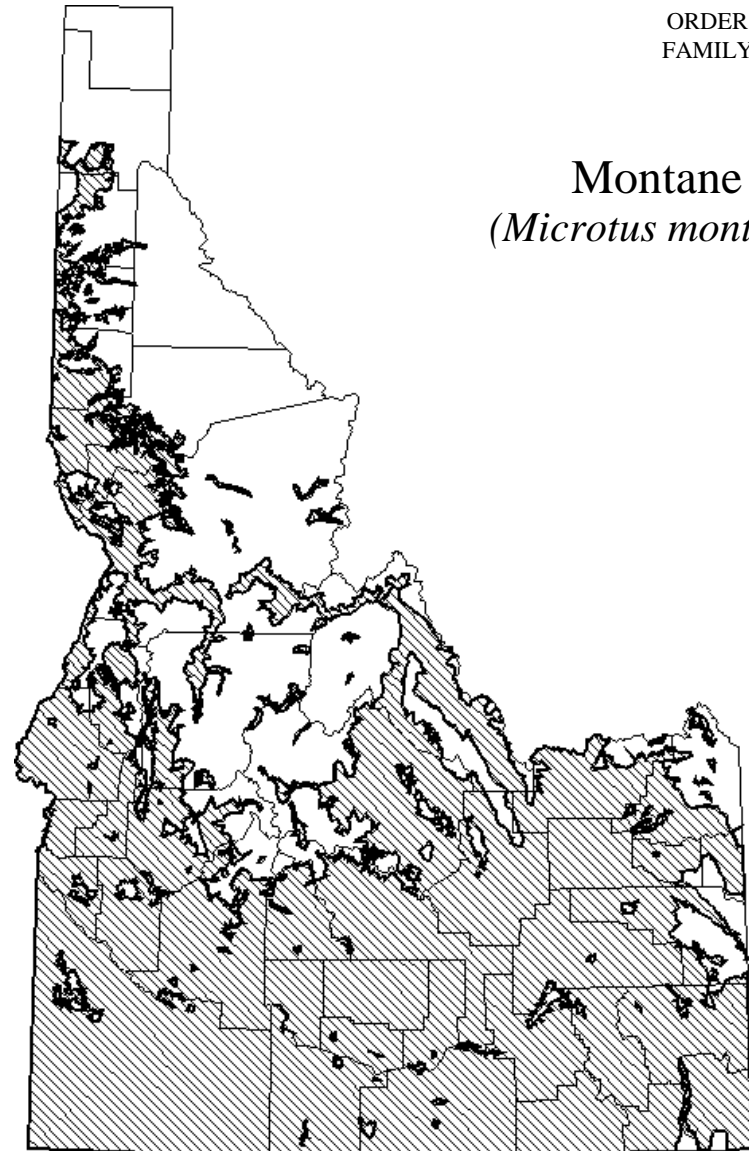
REPRODUCTION: Breeds April-October (in Idaho, breeding may occur year-round, but is subject to cyclic abundance). In Utah, births occur April-August. Female usually produces 2-3 litters/yr (4 cohorts/yr in Utah; early cohorts breed in same season). Average litter size is about 6 (in northwestern Wyoming, litter size peaked at 3-4 yr intervals).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Smolen, M.J. and B.L. Keller. 1979. Survival, growth, and reproduction of progeny from isolated high and low density populations of *Microtus montanus*. J. Mammal. 60:265-279.

ORDER: Rodentia  
FAMILY: Muridae

## Montane Vole (*Microtus montanus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From east-central Alaska, south through western Canada and western U.S. to Arizona and New Mexico. Populations at eastern and southern edges of range are generally restricted to high elevations in isolated mountains.

HABITAT: Found, up to at least 3650 m, in various habitats ranging from dense coniferous forests to rocky alpine tundra and shrub steppe. Found in moist meadows, marshes, forest-edge habitat, and recently-cut or burned forests. Not as dependent on moisture as meadow or montane voles.

DIET: Eats green vegetation, seeds, berries, and fungi. In winter, may feed on inner bark of shrubs and trees.

ECOLOGY: Usually does not make well-defined runways. Will burrow and remain beneath snow for long periods. In Idaho, active day and night year-round. Gregarious. Populations fluctuate dramatically. Population densities are usually relatively low, but may build up to 40 or more per ha. Individuals seldom live more than 1 yr.

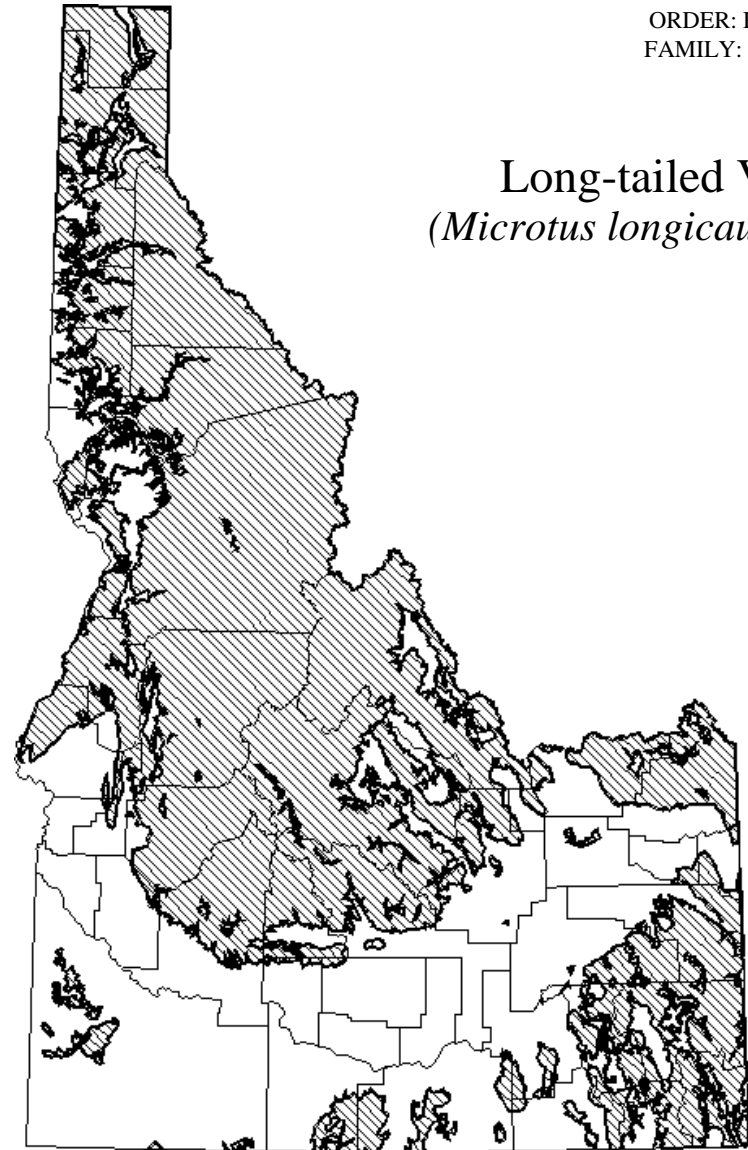
REPRODUCTION: Breeds mid-May to mid-September in Alaska and Idaho, May-October in Nevada (but mostly June-July). Females produce 1-4 litters/yr in Alberta (average 2); in Alaska females produce maximum of 2 litters during lifetime. Litter size varies from 2-8; in Alberta, average is 4, in Alaska, 5. Young-of-year breed in Alberta, but not in Alaska.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Rickard, W.H. 1960. The distribution of small mammals in relation to climax vegetation mosaic in eastern Washington and northern Idaho. Ecology 41: 99-106.

ORDER: Rodentia  
FAMILY: Muridae

## Long-tailed Vole (*Microtus longicaudus*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Two disjunct ranges: from southwestern British Columbia, south through Washington and Oregon; and from southeastern British Columbia and southwestern Alberta, south through western Montana, western Wyoming, and Idaho to central Utah.

HABITAT: Found in subalpine and alpine meadows close to water, especially swift, clear, spring-fed or glacial streams with gravel bottoms. Also found in marshes and pond edges.

DIET: Leaves and, occasionally, stems of forbs are major foods. Will also eat grasses, sedges, and willows. May eat some seeds and insects. Feeds on subterranean parts of plants throughout year.

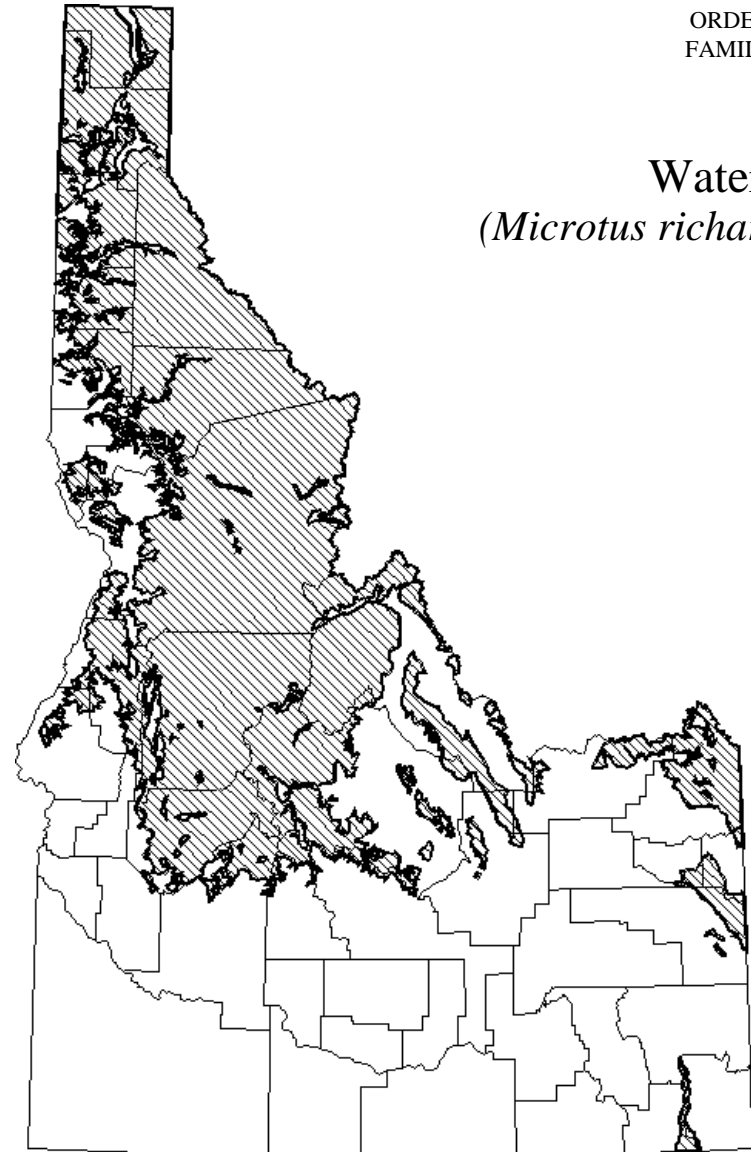
ECOLOGY: Active throughout year. Uses underground nests throughout year. Burrows into streambanks. Makes runways in wet meadows. More restricted to water than other meadow mice. Populations may fluctuate dramatically yearly or seasonally. In Alberta, monthly density estimates (June-September) in several streamside sites ranged from 0.2-12.2/ha; seasonal recruitment increased population size 0.8-6.2 times, with highest numbers occurring in August or September. Most individuals overwinter only once. Individuals dig burrows and swim to escape capture. Species is largest Idaho vole or mouse.

REPRODUCTION: In Alberta study, mating activity was recorded in late May-early June through August-September; young first entered trappable population in early July; females produced maximum of 2 litters/yr; average litter size was about 5-6 (range 2-9); and about 26% of young bred before their first winter. In laboratory animals, gestation lasted minimum of 22 days.

GIS MODEL NUMBER: 1

ORDER: Rodentia  
FAMILY: Muridae

## Water Vole (*Microtus richardsoni*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Portions of Great Basin, extending east through Rocky Mountains of Colorado, Wyoming, and Montana, to edge of Great Plains and just into southern Canada.

HABITAT: Found in well-drained soil (may be rocky), in semi-arid prairies, shrub steppe, rolling hills, and brushy canyons. Vegetation is usually dominated by sagebrush and bunchgrasses, especially crested wheatgrass.

DIET: Eats almost any green plant material, including bromegrass (but not ripe seeds) and other grasses. Also eats leaves, flowers, and stalks of buckwheat, and some sagebrush leaves. In Idaho, paintbrush and lupine are most common foods in June and August; diet also includes sagebrush, bluebrush, squirreltail, onion, tumble mustard, and downy chess.

ECOLOGY: Active essentially throughout day (year-round), but main activity occurs 2-3 hr before sunset to 2-3 hr after full darkness, and similar period occurs around sunrise. When inactive, occupies underground burrow. Population density fluctuates widely (Idaho average 4-16/ha in different areas at different seasons). In Idaho, individuals are singles or paired, but not in colonies, except in winter. Species uses nearly linear burrows lined with sagebrush bark.

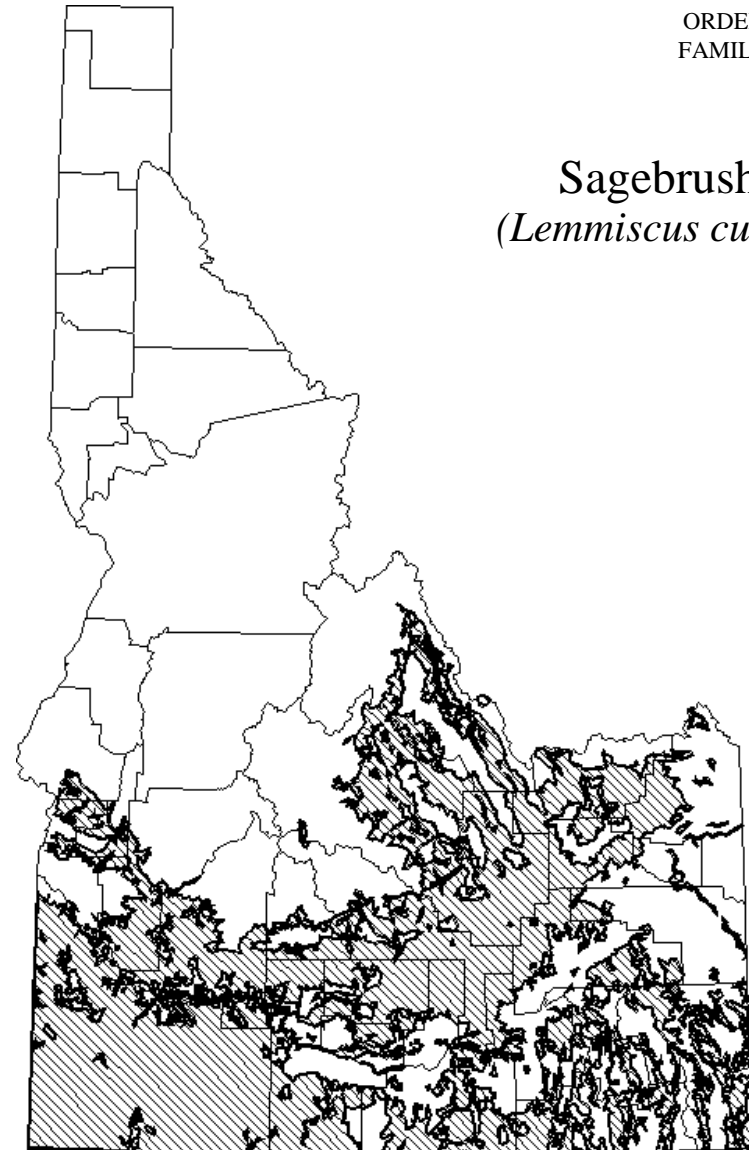
REPRODUCTION: Appears to breed year-round, except in northern range, where it may not breed in winter. Breeding activity declines in summer (in Idaho, activity increases). Female produces up to 3 litters/season. Gestation averages 25 days, and average litter size is 4-6 young (5.6 in Idaho).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Mullican, T.R. and B.L. Keller. 1986. Ecology of the sagebrush vole in southeastern Idaho. *Can. J. Zool.* 64:1218-1223.

ORDER: Rodentia  
FAMILY: Muridae

## Sagebrush Vole (*Lemmiscus curtatus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Throughout North America north of Mexico, except portions of southwestern U.S. and Florida.

HABITAT: Prefers fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattails. Rare or absent from large, artificial impoundments where fluctuating water levels eliminate littoral zone plants (food supply). In Idaho, occurs primarily in lowland ponds, lakes, marshes and streams.

DIET: Diet consists primarily of aquatic plants, particularly cattails, cordgrass, and bulrushes. Also eats crustaceans and mollusks; in some areas may eat large numbers of mussels.

ECOLOGY: Active year-round. Mainly nocturnal, but frequently seen in daylight. Activity peaks twice daily: between 1600 and 1700 hr, and between 2200 and 2300 hr. Constructs den in bank burrow or conical house of vegetation in shallow, vegetated water. Builds rooted feeding platform. Home range is relatively small; usually does not forage more than 11 m from home site (in marginal areas, foraging excursion areas are greater). Populations fluctuate; density may reach 90/ha, but is usually much less. Individuals are generally solitary, but several may use same general area; in winter several may congregate in single den. Territoriality is common. Species can cause damage to river banks and agriculture. Predators include man, large carnivores, and large raptors. Species is one of the most heavily exploited furbearers in North America.

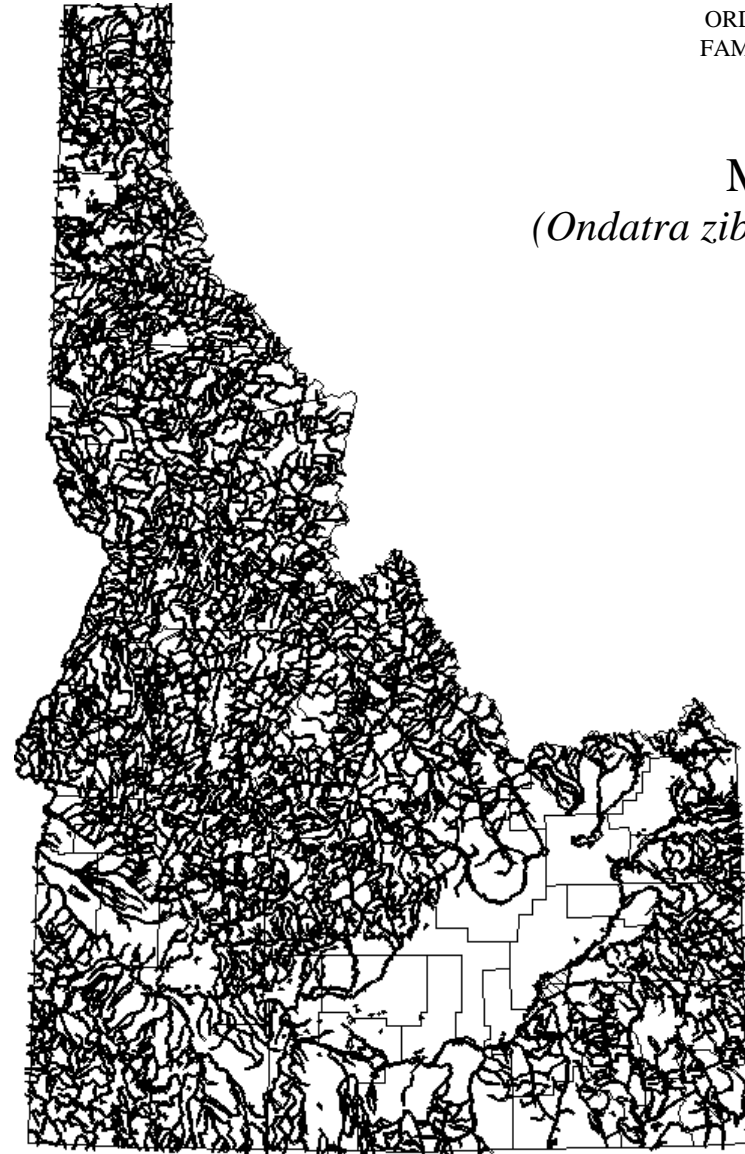
REPRODUCTION: Gestation lasts 28-30 days. Female produces average of 2-3 litters/yr; litter size varies from 1-12 young (in Idaho, average is about 7, born May-August). Young are weaned and fairly independent after about 1 mo, and reach sexual maturity in 4-6 mo. High rate of mortality exists in young.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Reeves, H.M. and R.M. Williams. 1956. Reproduction, size, and mortality in the Rocky Mountain muskrat. *J. Mammal.* 37:494-500.

ORDER: Rodentia  
FAMILY: Muridae

## Muskrat (*Ondatra zibethicus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1

RANGE: From central Alaska, east to Labrador, and south to Washington, southeastern Manitoba and northern New England.

HABITAT: Found in sphagnum bogs, wet meadows, moist mixed and coniferous forests, alpine sedge meadows, krummholz spruce/fir forests with dense herbaceous and mossy understory, and mossy streamsides. In Idaho, occupies bog or marsh habitat in montane forest or subalpine zone. Idaho study initiated in 1991 is examining habitat requirements.

DIET: Feeds on grasses and other herbaceous vegetation.

ECOLOGY: Active day and night throughout year. Occupies surface runways and burrow systems up to 30 cm deep. Individuals probably maintain home range of less than 0.4 ha. Population densities may reach 36/0.4 ha. Very sociable; may be found in small colonies. Little is known about ecology of this species.

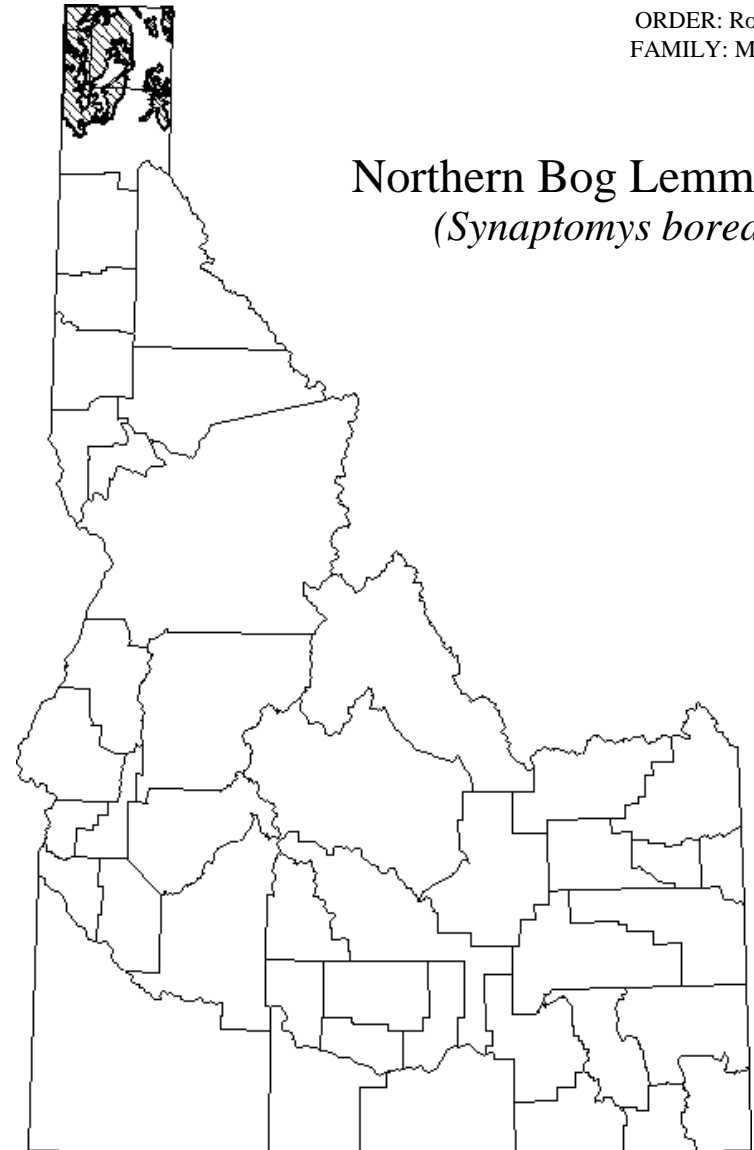
REPRODUCTION: Breeds May-August. Gestation probably lasts 3 wk. Litter size varies from 2-8 young (average 4). Female produces several litters/yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Groves, C. and E. Yenson. 1989. Rediscovery of the northern bog lemming (*Synaptomys borealis*) in Idaho. Northwest Natur. 70:14-15.

ORDER: Rodentia  
FAMILY: Muridae

## Northern Bog Lemming (*Synaptomys borealis*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southeast Yukon Territory, east to southwestern Manitoba, south to New Mexico through Rocky Mountains, and south (through eastern Washington and Oregon) to California Sierras.

HABITAT: Found in mountain meadows, along banks of streams and ponds, in marshes, and in dense cover of tall grasses and herbs. In Idaho, prefers wet meadows, bogs, and streamside habitats in forest and subalpine areas. Idaho study in grand fir stands found species preferred willow-alder thickets in mid-successional stages.

DIET: Feeds on insects and other invertebrates in spring. In midsummer, consumes mostly grass seeds and some berries.

ECOLOGY: Nocturnal. Hibernates/aestivates. Adult may enter hibernation in September or October. Throughout winter, periods of hibernation alternate with arousal from torpor. In eastern Wyoming, emergence from hibernation occurs mid-May to mid-June; in Utah at high elevations, emergence may not occur until late June or July. When inactive, occupies burrow in well-drained mound, elevated bank, or spherical surface nest. Utah study reported home range averaged 0.2-0.6 ha in different areas in different years. Adult density was 8-32/ha in different areas. Individuals are primarily solitary, are good swimmers, and are known to use erratic running patterns to evade predators.

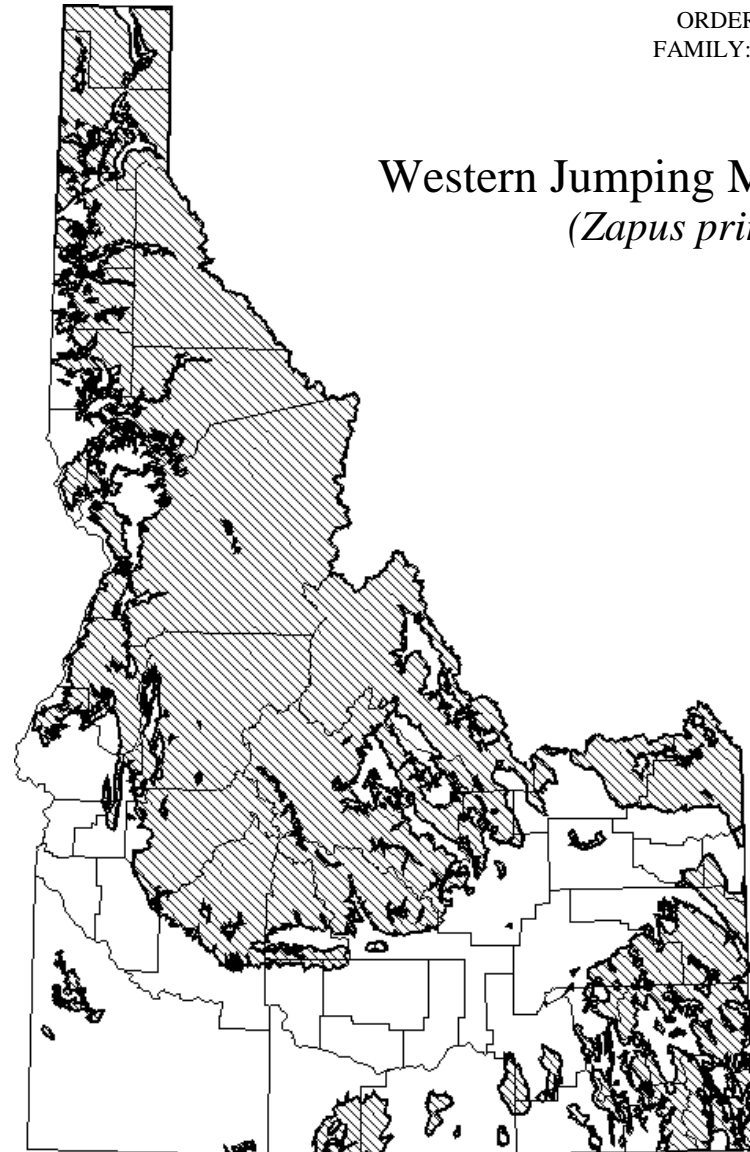
REPRODUCTION: Breeding occurs soon after females emerge from hibernation. Gestation lasts 18 days. Most young are born late June-early July. Female apparently produces only 1 litter/yr. Litter size is estimated at 2-7 young (average 5). Some females bear first litter at 1 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Scrivner, J.H. and H.D. Smith. 1984. Relative abundance of small mammals in four successional stages of spruce-fir in Idaho. Northwest Sci. 58:171-176.

ORDER: Rodentia  
FAMILY: Dipodidae

## Western Jumping Mouse (*Zapus princeps*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Throughout Canada, northern Mexico, and U.S. (absent from southeastern U.S.)

HABITAT: Prefers coniferous and mixed forests. In some parts of range, also found in riparian zones, grasslands, and shrub steppe.

DIET: Feeds on inner bark of trees and on evergreen needles in winter, buds in spring, roots, leaves, berries, fruits and seeds in summer, and mast and fruits in fall.

ECOLOGY: Mainly nocturnal, but frequently seen during day. Active year-round in southeastern Idaho. Winter den sites include rock outcrops, live hollow trees, hollow logs, and outbuildings; may also shelter in dense conifers. Summer range may average up to 50-100 ha; winter range may be less in presence of extensive snow cover. In southeastern Idaho study, winter home range was reported at 0.07 ha, and summer home range was 23.1 ha for females. Densities may vary from 9-22/km<sup>2</sup> in good habitat. Species is preyed upon by felids, canids, mustelids, and raptors.

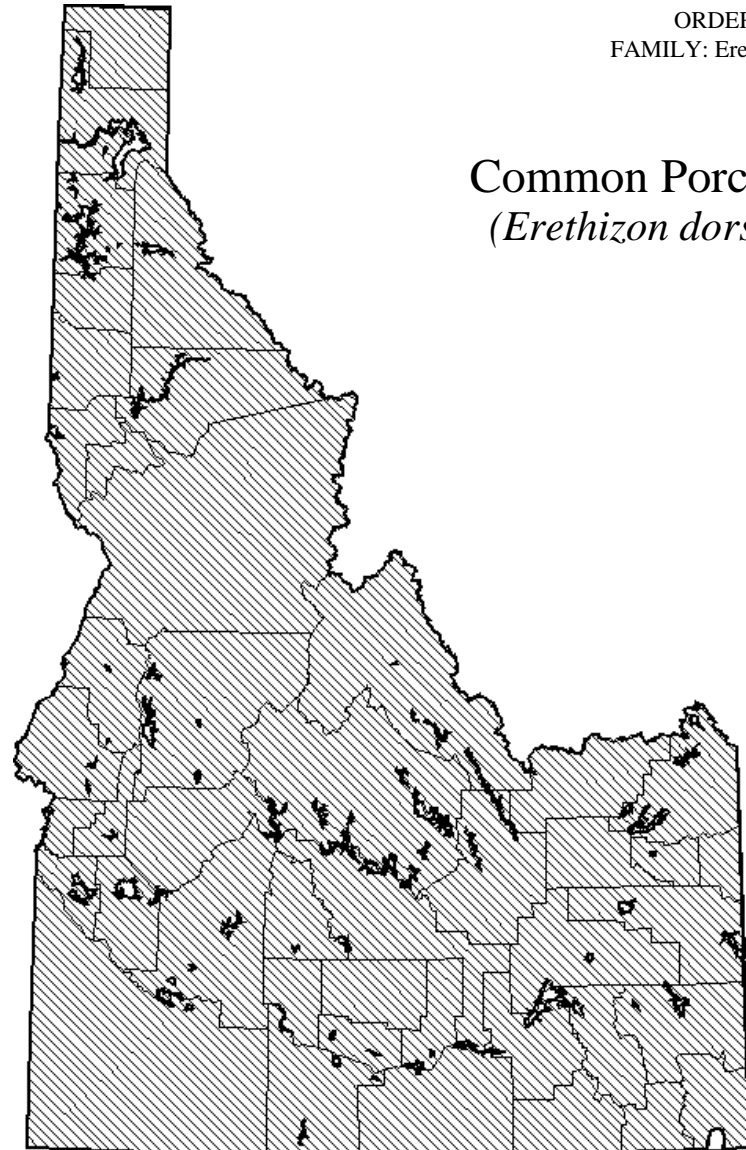
REPRODUCTION: Breeds September-December. Gestation lasts 17-18 wk (usually 210 days). Female rears 1 young each year; young reaches sexual maturity in 15-16 mo.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Craig, E.H. and B.L. Keller. 1986. Movements and home range of porcupines, *Erethizon dorsatum*, in Idaho shrub desert. *Canad. Field-Natur.* 100:167-173.

ORDER: Rodentia  
FAMILY: Erethizontidae

## Common Porcupine (*Erethizon dorsatum*)





STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Throughout North America, with widely scattered populations in southeastern United States; range expanded into eastern U.S. with opening of forest and extermination of wolf.

HABITAT: Found in wide range of habitats, from open prairies of West to heavily forested regions of Northeast. Present in cities in some areas.

DIET: Opportunistic feeder, but eats mainly carrion, small vertebrates, and invertebrates. Occasionally feeds on vegetation. Diet has been studied extensively in southeastern Idaho; study findings indicate cottontails, jackrabbits, pocket mice, voles, ground squirrels, and kangaroo rats dominate diet.

ECOLOGY: Active year-round. Mainly crepuscular and nocturnal, though commonly observed during daylight hours in some areas. Idaho study identified elaborate repertoire of visual signals. Home range may reach 80 km<sup>2</sup> or more in some areas, and may be larger in winter than in summer; range increases greatly after pups are reared. Idaho study noted 3 kinds of behavioral use of home range—resting, hunting, and travelling. Travelling behavior was observed in those parts of home range that were little used. Population density is generally around 0.2-1.0/km<sup>2</sup>, although seasonally higher densities have been recorded in Texas. Most of population is usually less than 3 yr old. Species is preyed on by wolves and cougars. Species interbreeds freely with domestic dog.

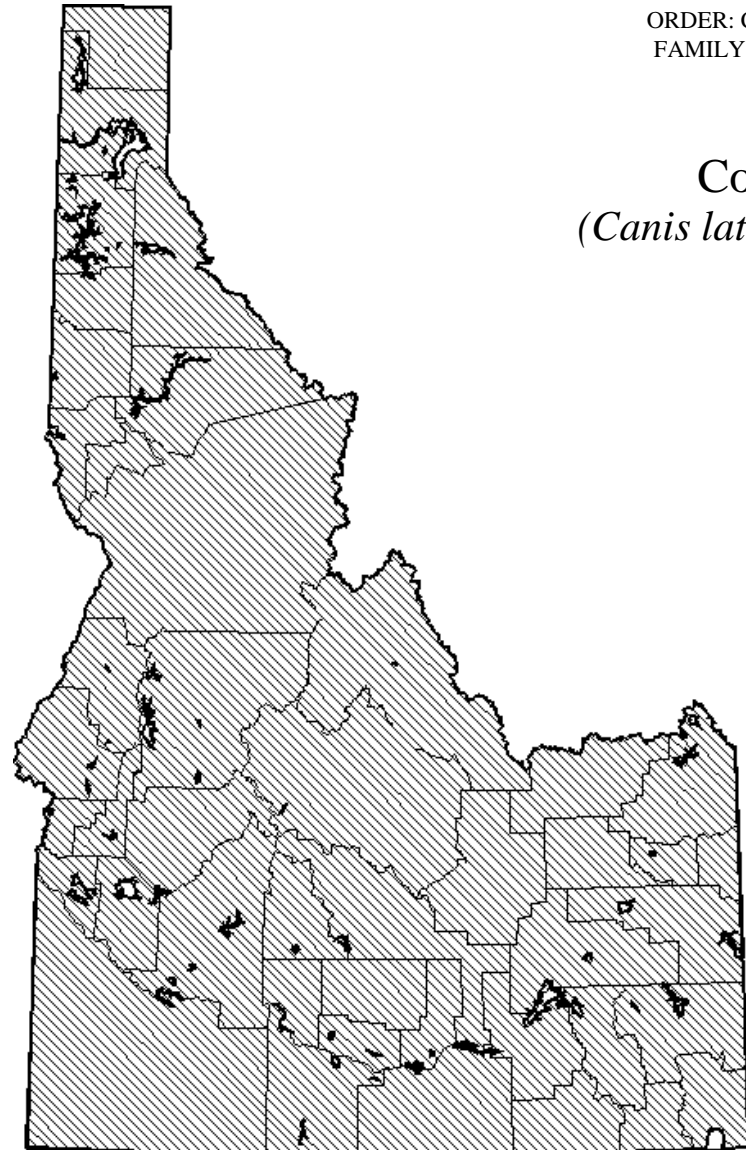
REPRODUCTION: Mates in late winter. Gestation lasts 60-65 days. Litter size averages 4-7 young, depending on area. Young are born March-May, and are tended by both parents. Family leaves den when young are 8-10 wk old; young become independent by late fall and reach sexual maturity in 1-2 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Laundré, J.W. and B.L. Keller. 1981. Home-range use by coyotes in Idaho. *Anim. Behav.* 29:449-461.

ORDER: Carnivora  
FAMILY: Canidae

## Coyote (*Canis latrans*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1

RANGE: South of Canada only in northwestern Montana, central and northern Idaho, northeastern Minnesota, northern Wisconsin, Michigan's Upper Peninsula, and Cascade Mountains of Washington near Canadian border at Ross Lake.

HABITAT: Once found throughout Idaho, but now restricted to forested areas in central and northern Idaho.

DIET: Prefers ungulates, but also eats beaver, snowshoe hare, rodents, and carrion.

ECOLOGY: Requires areas with low human population, low potential for human interactions, high prey densities, and secluded denning and rendezvous sites. Commonly hunts in packs (with dominance hierarchy) of 1 family group of 2-8 members (but up to 21). Individuals may take livestock as secondary prey when ungulates are less vulnerable or available. Summer home range is smaller than winter range; annual range may reach several hundred km<sup>2</sup>. Individuals may occasionally move several hundred km, especially when dispersing. Population density is low. In Idaho, where wolf activity is closely linked to seasonality of ungulate movements, population density of naturally occurring wolves is unknown, but is probably very sparse; total population was estimated at 15 animals in early 1980's. In 1991-92, wolves were documented in Bear Valley (Valley Co.) and Kelly Creek drainage (Clearwater Co.). In 1995, 15 wolves were released along Middle Fork of Salmon River in Frank Church River of No Return Wilderness; in 1996, 20 wolves were released in same general area. Those wolves currently roam throughout central Idaho and adjacent areas of Montana; several have paired and reproduction is expected.

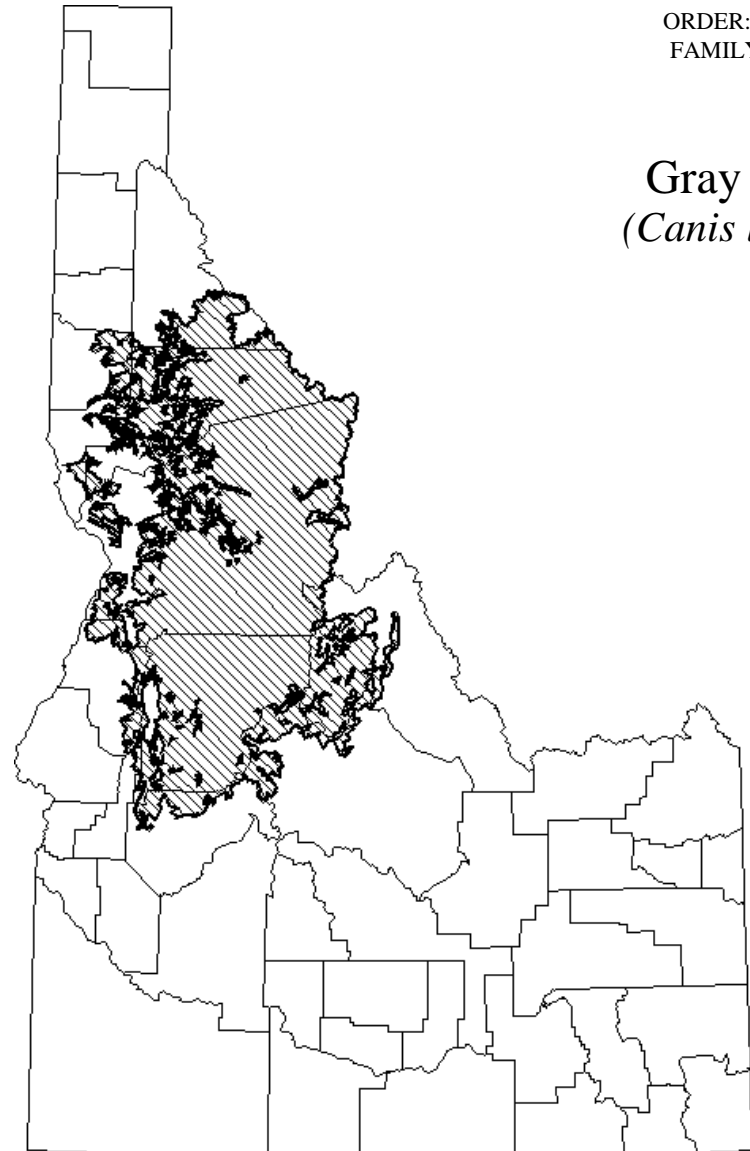
REPRODUCTION: Breeds February-March. Dominant male/female mate and rear 1 litter of 4-10 young (average 6-7) per yr. Gestation lasts 63 days. Young are born in late April or early May. Pups are weaned in 50 days (5 wk has also been reported). Some offspring remain with pack; others disperse as they mature.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: U.S. Fish and Wildlife Service. 1994. Final Environmental Impact Statement. The reintroduction of gray wolves to Yellowstone National Park and central Idaho. Helena, MT. 441pp.

ORDER: Carnivora  
FAMILY: Canidae

## Gray Wolf (*Canis lupus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Throughout North America north of Mexico, except for parts of Southwest and Rocky Mountains.

HABITAT: Found in variety of open and semi-open habitats. Usually avoids dense forests, but frequently occurs in open woodlands. Sometimes found in suburban areas.

DIET: Opportunistic omnivore; eats small mammals, carrion, birds, insects, fruits, and other food items. Rabbits and mice are common prey.

ECOLOGY: Mainly crepuscular and nocturnal. Summer home range varies from 57-518 ha; winter range is more extensive. Home range diameter is usually 2-4 km, but may reach 8 km or more if food is scarce. Population density average is 1 family (approximately 7 foxes) per 10.36 km<sup>2</sup>. Species may be excluded by coyote or other large canids from some areas of otherwise suitable habitat. Human-caused mortality includes shooting, trapping, and roadkill. Species is susceptible to rabies, and is most widely distributed carnivore in world.

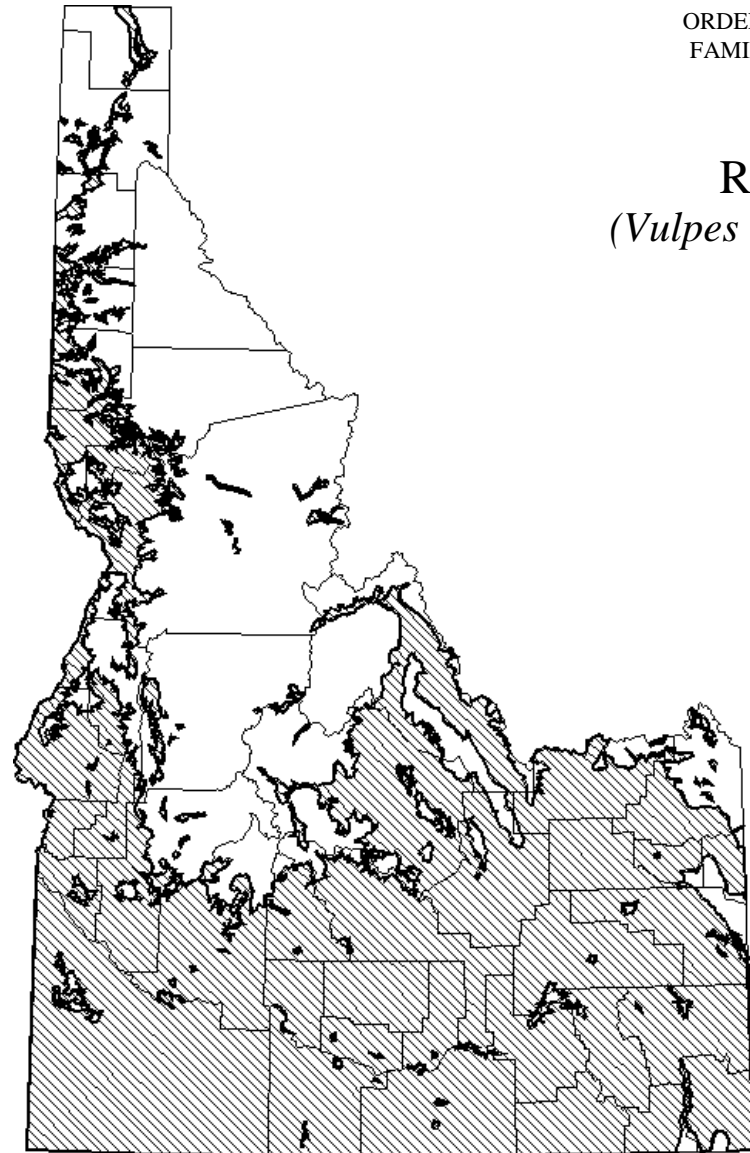
REPRODUCTION: Breeds in winter. Gestation lasts 51-56 (average 53) days. Female produces litter of 1-10 (average 4-5) young, born March-April. Male and female may divide young between 2 dens. Young are weaned in 8-10 wk, leave den and learn to hunt with parents at that time, become independent in fall, and reach sexual maturity the winter after birth.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Fichter, E. and R. Williams. 1967. Distribution and status of the red fox in Idaho. *J. Mammal.* 48:219-230.

ORDER: Carnivora  
FAMILY: Canidae

## Red fox (*Vulpes vulpes*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Throughout North America north of central Mexico; absent from southwestern United States.

HABITAT: Prefers mixed deciduous-coniferous forests with thick understory, but also occurs in various other situations.

DIET: Opportunistic omnivore; feeds on plant and animal food, including carrion and items from garbage dumps. Idaho study found individuals fed on forbs/grasses in spring, and mast in summer and fall.

ECOLOGY: Nocturnal and crepuscular. Hibernates 5-7 mo in northern range. When inactive, occupies den under fallen tree, in ground-level or above-ground tree cavity or hollow log, in underground cave-like site, or on ground surface in dense cover. In Idaho study, females used uncut timber for bedding, open timber/shrub fields for foraging and bedding, and riparian areas for feeding and travel corridors. Home range averages around 28-40 km<sup>2</sup>, but may reach several hundred km<sup>2</sup> in some areas. Idaho study reported 13.5 km<sup>2</sup> for males, and 2.7 km<sup>2</sup> for females. Female and sub-adult range is typically much smaller than that of adult male. Idaho study reported elevational movements in response to abundant food (berries). Density estimates in different areas were 1 bear/1.3-8.8 km<sup>2</sup>. In Idaho study, density was 1 bear/1.3 km<sup>2</sup>. Adult males are most susceptible to hunting. Habitat quality affects breeding age and litter size. Southern Appalachian study found enhanced productivity and survival of young when fall food supply, especially hard mast, was favorable.

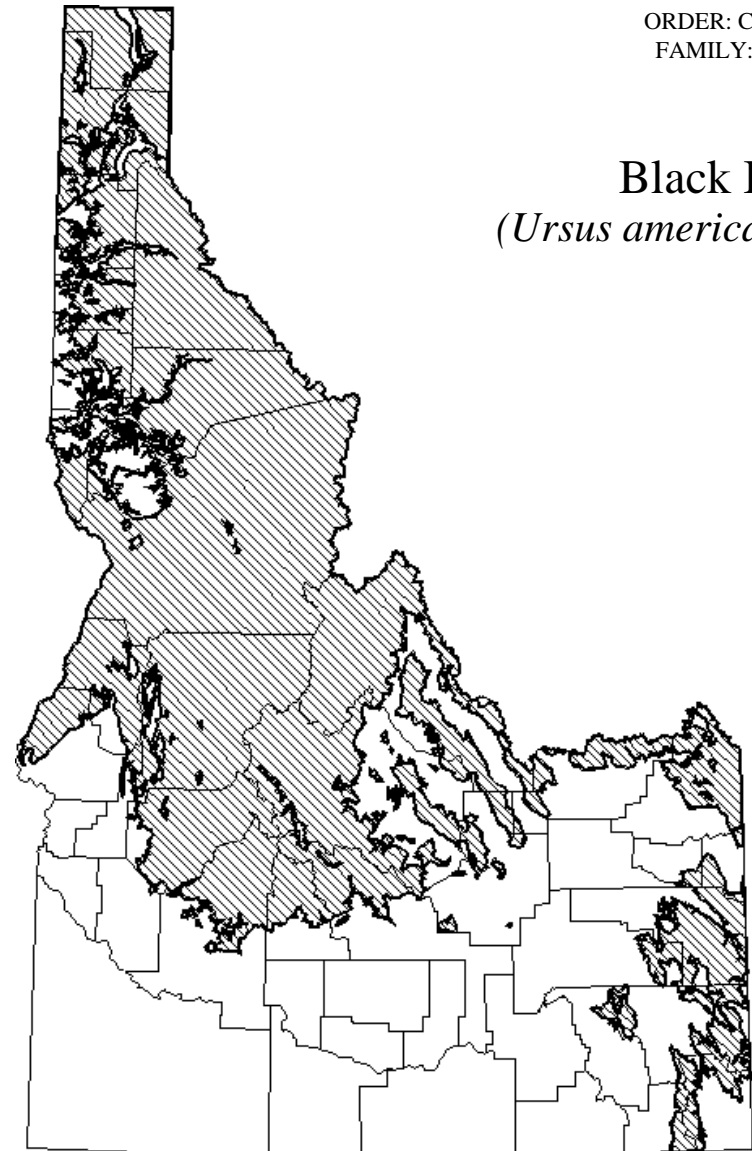
REPRODUCTION: Breeding occurs June-July. Implantation is delayed about 4 mo. Gestation lasts 7-7½ mo (average 220 days). Female gives birth every 2 yr at most (birth occurs in winter den); litter size varies from 1-5 (average 2). Young are born January-February, and remain with mother until fall of second year. Female first gives birth at 2-5 yr (usually 4-5 yr).

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Beecham, J.J. 1983. Population characteristics of black bears in west central Idaho. *J. Wildl. Manage.* 47:405-412.

ORDER: Carnivora  
FAMILY: Ursidae

## Black Bear (*Ursus americanus*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S1

RANGE: Alaska, northern/western Canada, Cabinet/Yaak mountains and Northern Continental Divide Ecosystem in Montana, Selkirk Mountains in Montana/Idaho, northern Cascades (Washington), and Yellowstone (Wyoming/Montana/Idaho).

HABITAT: Mostly arctic or alpine tundra and subalpine mountain forests. In Idaho, occupies lodgepole pine/Douglas-fir forests near Yellowstone, and cedar/hemlock, spruce-fir, lodgepole/larch, and shrub fields in Selkirk Mountains.

DIET: Vegetal matter dominates diet; also eats carrion, mammals, fish, insects, and garbage. Yellowstone area study found ungulate remains composed major part of early season diet, graminoids dominated May-June, and whitebark pine seeds were important in late season; berries composed minor portion of scats in all seasons. Selkirk study reported extensive feeding on huckleberries in summer.

ECOLOGY: Tends to be crepuscular; least activity occurs at midday, but much individual variation exists. Hibernates; enters den Oct.-Nov., emerges April-May (in Idaho, hibernation occurs Oct.-May). Typically digs own den, usually on steep northern slope where snow accumulates. Most feeding occurs from mid-July to onset of hibernation. Individuals may congregate in areas with abundant food, but are otherwise solitary, except when breeding or caring for young. Yellowstone region study found berry scarcity and large pine seed crop fluctuations were major factors limiting bear density. Home range exhibits much variation among areas, seasons, and individuals. Selkirk study reported adult home range of 226-454 km<sup>2</sup>, with male range generally larger than female's. Density of Selkirk population was about 1 bear/40 km<sup>2</sup>. Mortality in Selkirk population is primarily due to illegal shooting. Most recent population analysis indicates population is stable.

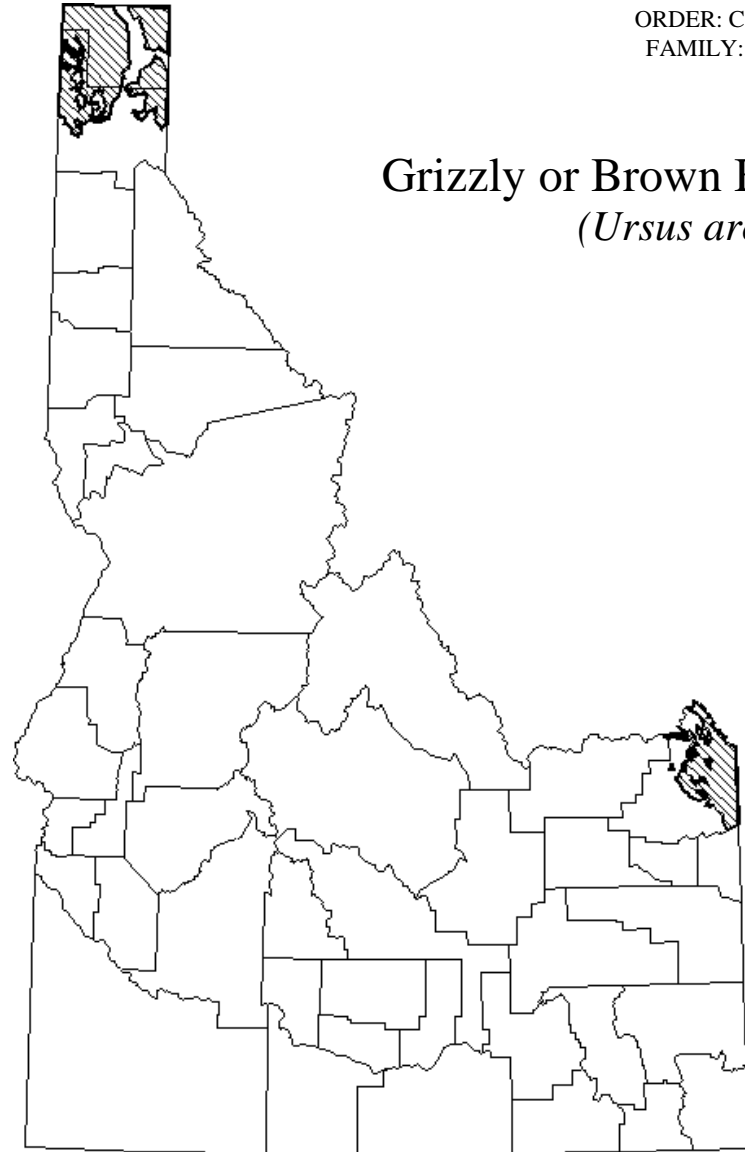
REPRODUCTION: Breeds late spring-early summer, in 2-4 yr intervals. Implantation is delayed; gestation lasts about 184 days. Litter size varies from 1-4 (average 2). Young are born in winter, remain with mother first 2 winters. First parturition occurs at 5-6 yr in southern range, 6-9 yr in north.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: McCracken, J.G., D. Goble and J. O'Laughlin. 1994. Grizzly bear recovery in Idaho. Idaho Forest, Wildlife and Range Policy Analysis Group. Univ. of Idaho. Moscow. 110pp.

ORDER: Carnivora  
FAMILY: Ursidae

## Grizzly or Brown Bear (*Ursus arctos*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Throughout North America to southern Canada.

HABITAT: Found in various habitats, but usually in moist situations, often along streams and shorelines.

DIET: Opportunistic omnivore; eats fruits, nuts, insects, small mammals, birds' eggs and nestlings, reptiles' eggs, frogs, fishes, aquatic invertebrates, worms, and garbage.

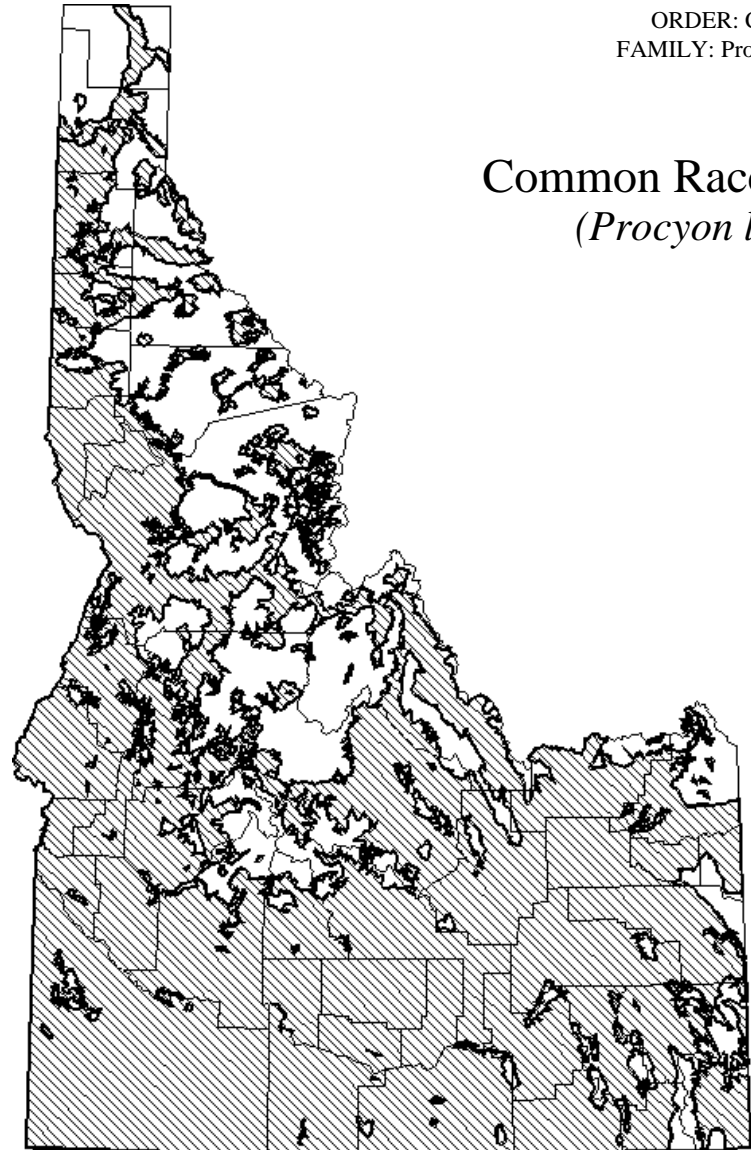
ECOLOGY: Often forages along streams. Obtains most food on or near ground, near water. Primarily nocturnal and crepuscular. May become dormant when foraging trail is covered by deep snow. Young may be more active than adults in colder, subfreezing weather. Activity may be reduced on nights of full moonlight. When inactive, seeks shelter under log or rock, in tree hole, or in bank den. Average home range varies from 36-61 ha. Population density is 1 individual/4-6.5 ha. Individuals are typically solitary, unless female is with young.

REPRODUCTION: Breeding occurs from late January to mid-March. Gestation lasts 63 days. Female produces 1 litter of 3-7 young (average 3-4), in late April to early May. Young are weaned at 10-12 wk, stay with mother through winter or until next litter is born, and reach sexual maturity in 1-2 yr. Percentage of yearlings breeding varies annually and/or regionally. Males mate promiscuously.

GIS MODEL NUMBER: 1

ORDER: Carnivora  
FAMILY: Procyonidae

## Common Raccoon (*Procyon lotor*)



STATUS: Game species  
GLOBAL RANK: G4 STATE RANK: S4

RANGE: Throughout Canada and Alaska, and south through Rockies, Sierra Nevada, northern Great Lakes Region, and northern New England.

HABITAT: Usually found in dense, deciduous, mixed, or (especially) coniferous upland and lowland forests. May use rocky alpine areas. In central Rockies, associated in winter mainly with old-growth forests. Idaho study found species used variety of forest types, but greatest activity was in older stands of spruce-fir.

DIET: Diet consists mainly of small mammals, birds, insects, and carrion. Idaho study found voles were primary item in diet.

ECOLOGY: Activity may peak at dusk and dawn in summer; individuals have been frequently observed by day in winter. In Sierra Nevada, foraging activity is nocturnal in winter, diurnal in summer, and apparently synchronous with activity of prey. Forages primarily on ground, but also in trees. Tracks and ambushes prey, uses hunting perches, and robs nests. When inactive, occupies hole in dead or live tree, or in abandoned squirrel nest, conifer crown, rock pile, burrow, or snow cavity; in winter, uses mainly subnivean site, often associated with coarse woody debris. Home range varies, but usually averages less than 10 km<sup>2</sup> (may be larger when food is scarce). Male's range is usually larger than female's, and may overlap those of multiple females. Densities of 1-2/km<sup>2</sup> have been recorded in early fall. Individuals are curious and easily trapped. Some studies suggest species is old-growth dependent. A northern Idaho study of habitat use was initiated in 1995 by the Idaho Dept. Fish & Game.

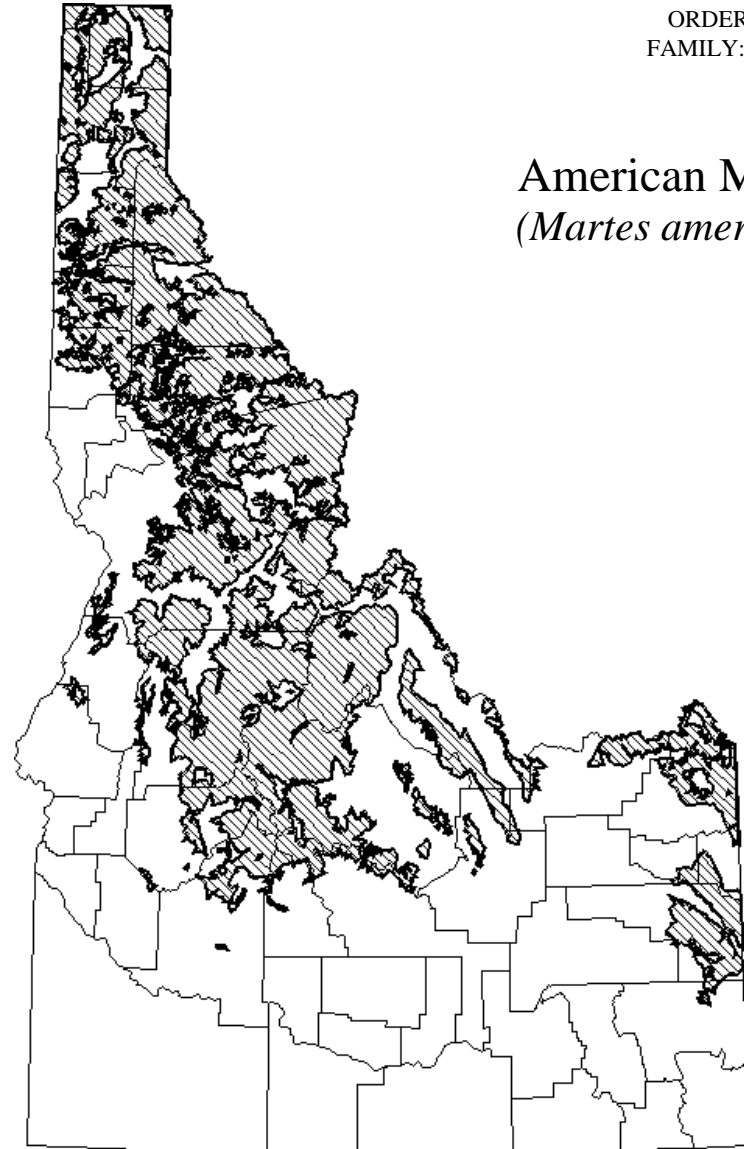
REPRODUCTION: Breeds in summer. Implantation is delayed. Female produces litter of 1-5 young (average 3-4, less when food is scarce), born in spring. Young are weaned in 6 wk, and are apparently independent by August (Maine). Males are sexually mature in 1 yr; females in 1-2 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Koehler, G.M. and M.G. Hornocker. 1977. Fire effects on marten habitat in the Selway-Bitterroot Wilderness. *J. Wildl. Manage.* 41:500-505.

ORDER: Carnivora  
FAMILY: Mustelidae

## American Marten (*Martes americana*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Throughout much of Canada, and south through Rockies, northern Great Lakes Region, and New England. Species was extirpated from Idaho, and re-introduced to 3 north-central Idaho sites in early 1960's.

HABITAT: Found in upland and lowland mixed, deciduous, or coniferous forests, but prefers mixed or coniferous forests. In Idaho, prefers mature or old-growth coniferous forests (forested riparian habitats in spring, summer, and fall, and younger-aged forests in winter).

DIET: Primarily consumes mammals (small rodents, shrews, squirrels, hares, muskrat, beaver, porcupine, raccoon, and deer carrion), but will also eat birds and fruits.

ECOLOGY: Active both day and night. Mainly nocturnal in summer and diurnal in winter. In south-central Maine, most activity occurred shortly before sunrise and after sunset; activity was reduced in winter. When inactive, occupies den in tree hollow, under log, in ground or rocky crevice, or (in warmer months) rests in branches of conifer. Home range has been estimated at 10-800 km<sup>2</sup> by snow tracking, and 2-75 km<sup>2</sup> by telemetry (Idaho study found 6-120 km<sup>2</sup>). Generally, ranges of adults of same sex do not overlap; in Maine, home ranges of females were stable between seasons and years, but males moved extensively in late winter and early spring and their ranges shifted between years. Population density (New England and Great Lakes area) has been estimated at up to about 1/3-11 km<sup>2</sup> in summer, and 1/8-20 km<sup>2</sup> in winter. Densities are lower in western U.S. due to lower habitat quality.

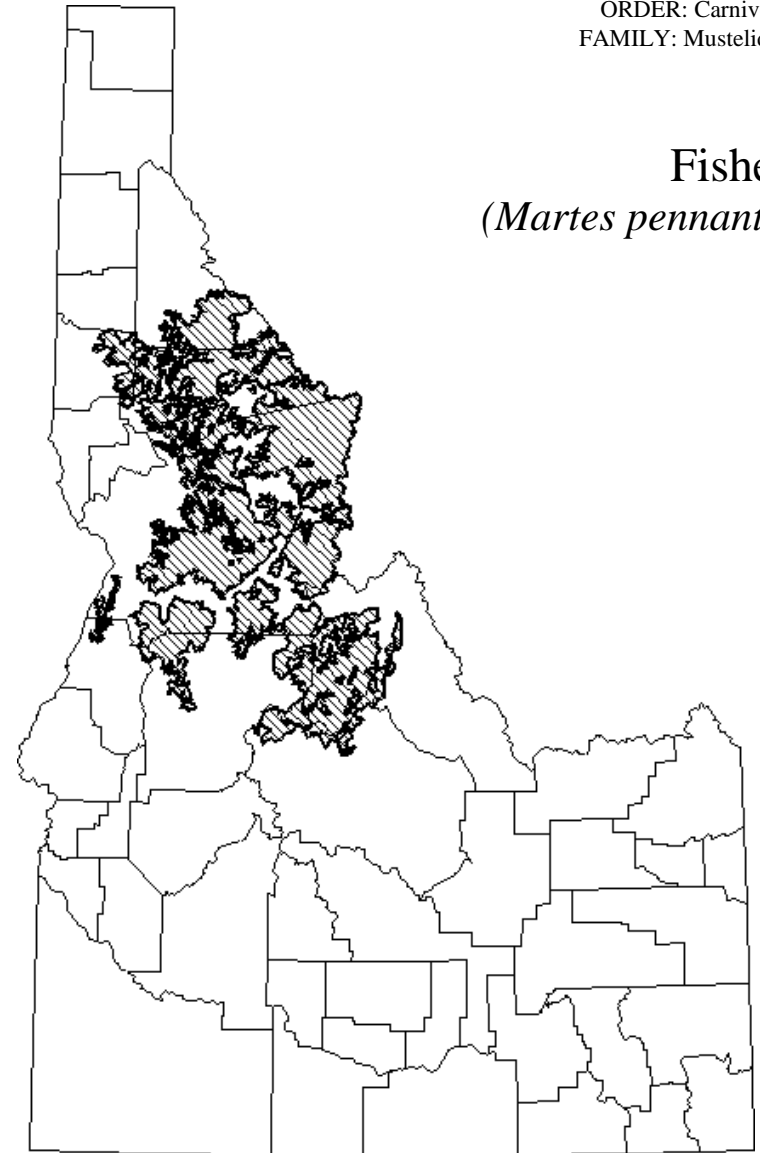
REPRODUCTION: Breeds late February-April; peak occurs in March. Gestation lasts 1 yr, including period before implantation. Litter size averages about 3 young. Births occur March-early April. In Maine, young are weaned mid-May to early June, become independent probably late August-early September, and are sexually mature in 1-2 yr; not all adult females breed in a given year. Apparently, breeding is promiscuous.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Jones, J.L. 1991. Habitat use of fisher in north-central Idaho. M.S. Thesis, Univ. Idaho, Moscow. 147pp.

ORDER: Carnivora  
FAMILY: Mustelidae

## Fisher (*Martes pennanti*)





STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Alaska and Canada, south through most of northern U.S. to central California, northern Arizona, northern New Mexico, Iowa, Great Lakes region, Pennsylvania, and northern Virginia.

HABITAT: Has adapted to variety of habitats from low-elevation marshes to alpine meadows, but prefers wooded areas with thick understory near watercourses.

DIET: Feeds primarily on small mammals, but will also eat other small vertebrates and insects.

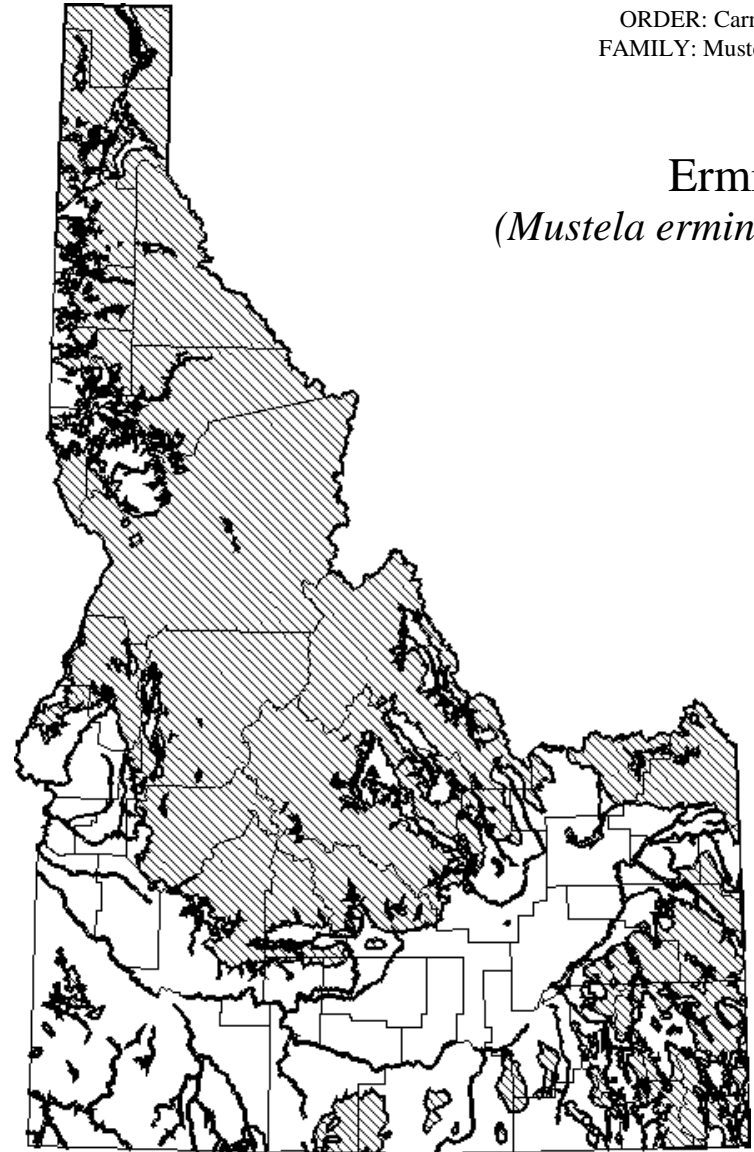
ECOLOGY: Mainly nocturnal, but can frequently be seen during day. When inactive, occupies den under log, stump, roots, brushpile, or rocks. Southern Ontario study reported individuals usually stayed beneath snow surface in winter. Home range averages 12-16 ha. In southern Ontario study: male home range averaged 20-25 ha; female range was smaller; and most individuals remained on study site less than 1 year.

REPRODUCTION: Breeding occurs July through August. Implantation is delayed. Gestation lasts 255 days. Female produces litter of 4-9 young (average 6-7), born mid-April or early May. Females reach sexual maturity in 3-4 mo; males are probably sexually mature in 12 mo.

GIS MODEL NUMBER: 6

ORDER: Carnivora  
FAMILY: Mustelidae

## Ermine (*Mustela erminea*)



STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Carnivora  
FAMILY: Mustelidae

RANGE: Throughout North America south of southern Canada.

HABITAT: Found in variety of habitats from open woods to grasslands, and river bottoms to fencerows. In Idaho, occurs from upland brush and woods to subalpine rock slides and semi-open forest areas, but is most numerous in rocky, mountainous regions.

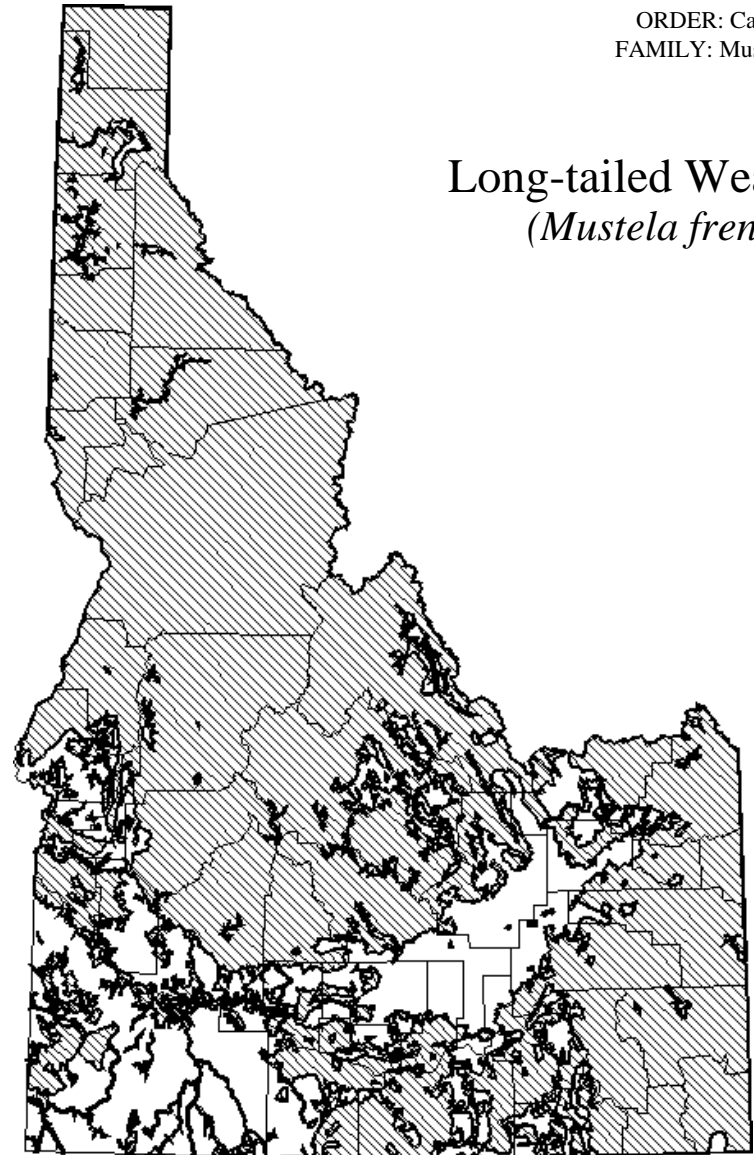
DIET: Feeds primarily on small mammals, and occasionally on birds, other small vertebrates, and insects.

ECOLOGY: Primarily nocturnal, but frequently seen during daytime. When inactive, occupies rock crevice, brushpile, stump hollow, space among tree roots, or abandoned burrow made by other mammal; 1 individual may use multiple dens. Home range varies from 12-16 ha (one study reported up to 160 ha). Individuals are basically solitary. Population density depends on habitat and environmental conditions, and averages 1/2.8-16 ha.

REPRODUCTION: Breeding occurs July through August. Implantation is delayed. Gestation lasts 205-337 days (average 279). Litter size varies from 1-12 young (average 6-7). In northern range, 1 litter is born April-May; nests with young have been found in November in southeastern United States. Weaning begins at about 5 wk. Females reach sexual maturity in 3-4 mo; males are sexually mature in 1 yr.

GIS MODEL NUMBER: 1

## Long-tailed Weasel (*Mustela frenata*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Carnivora  
FAMILY: Mustelidae

RANGE: Throughout North America north of Mexico; absent from southwestern United States.

HABITAT: Prefers forested, permanent, or semi-permanent wetlands with abundant cover, marshes, and riparian zones. In Idaho, prefers aquatic habitats at lower and middle elevations.

DIET: Eats small mammals, crayfish, and small vertebrates associated with aquatic/riparian ecosystems. Particularly favors muskrats, but diet reflects availability.

ECOLOGY: Mainly nocturnal and crepuscular. May reduce activity in severe winter weather. When inactive, occupies den in muskrat burrow, abandoned beaver den, hollow log, hole under tree roots, or self-constructed burrow in streambank. Individuals are solitary, except during mating period and when females have young. Male home range is considerably larger than that of female; average for female is 8-20 ha (not more than 8 ha, according to one source). Male's home range is 769 ha plus (up to 8 km in diameter). In good habitat, density may be 9-22/2.6 km<sup>2</sup>; higher concentrations indicate abundant prey.

REPRODUCTION: In northern states, breeding occurs late February through early May (peak occurs March). Gestation lasts 40-79 (average 51) days; implantation is delayed. Litter size varies from 1-8 young (average 4-5). Young begin to venture from nest after about 7 wk, are weaned at 8-9 wk, and reach sexual maturity at 10 mo. Male may sometimes help care for young.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Whitman, J.S. 1981. Ecology of the mink (*Mustela vison*) in west-central Idaho. M.S. Thesis, Univ. Idaho, Moscow. 101pp.

## Mink (*Mustela vison*)



STATUS: Protected nongame species  
GLOBAL RANK: G4 STATE RANK: S2

RANGE: From Labrador, east to Alaska, and south to mountainous regions of western United States.

HABITAT: Found in alpine tundra and in boreal and mountain forests. In California, recorded at elevations of 480-4300 m (average 2425 m). In Idaho, a 1985 survey indicated species inhabits remote, mountainous areas unaffected by human disturbance.

DIET: Feeds on variety of roots, berries, small mammals, birds' eggs, fledglings, and fishes; may attack moose, caribou, and deer hampered by deep snow. Small- and medium-size rodents and carrion, especially ungulate carcasses, comprise large percentage of diet.

ECOLOGY: Active throughout year. Active both day and night, but normally nocturnal. When inactive, occupies den in cave, rock crevice, under fallen tree, or in thicket. Terrestrial; may climb trees. Solitary. Male home range exceeds that of female, but they overlap. Mean annual home range of male has been reported at 535 km<sup>2</sup> in Alaska, and 422 km<sup>2</sup> in Montana; female's range has been reported at 105 km<sup>2</sup> in Alaska, and 100 km<sup>2</sup> in Montana. A radiotelemetry study of wolverines determined annual home ranges for females and males to be 384 km<sup>2</sup> and 1582 km<sup>2</sup>, respectively. Adult home ranges were segregated by sex. Male wolverines dispersed at sexual maturity at distances up to 185 km.

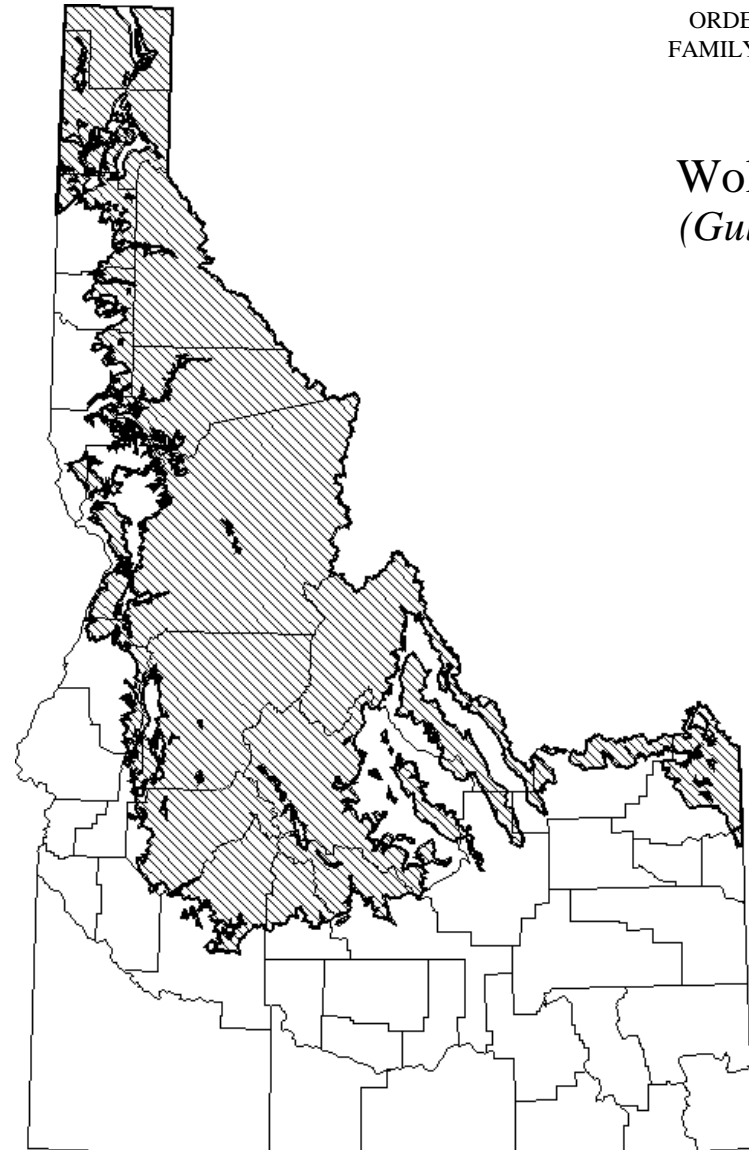
REPRODUCTION: Breeding occurs from April through October, but is usually in summer. Implantation is delayed until January. Gestation lasts 7-8 mo. Two to 5 young are born late March to mid-April. In Idaho, females use high-elevation basins for natal sites.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Copeland, J.P. 1996. Biology of the wolverine in central Idaho. M.S Thesis, Univ. Idaho, Moscow. 138pp.

ORDER: Carnivora  
FAMILY: Mustelidae

## Wolverine (*Gulo gulo*)



STATUS: Unprotected nongame species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From Great Lakes, west to Pacific Coast, and from Canadian Prairie Provinces, south to Mexican Plateau.

HABITAT: Prefers open areas; may also frequent brushlands with little groundcover. In Idaho, species occurs in shrub steppe, in agricultural areas, and in open woodland forests.

DIET: Feeds primarily on small rodents such as ground squirrels, pocket gophers, kangaroo rats, prairie dogs, and mice, but will also eat scorpions, insects, snakes, lizards, and birds, especially when rodent population is low. Idaho study reported individuals preyed on Townsend's ground squirrels, lagomorphs, deer mice, kangaroo rats, and arthropods.

ECOLOGY: Usually active day and night, but chiefly nocturnal activity has been reported. Underground in burrows when inactive. In one Idaho study, individuals rarely stayed underground for more than 24 hr except in winter; 1 female emerged from winter den only once during 72-day period. Southwestern Idaho study reported winter underground stays from several days to several weeks. Density averages 1 badger/2.6 km<sup>2</sup> in prime open country, although southeastern Idaho study reported 5 badgers/km<sup>2</sup> (associated with ground squirrel populations in areas of sparse vegetation). One Idaho study reported home range of less than 4 km<sup>2</sup>, while another in-state study found: adult home range averaged 2.4 km<sup>2</sup> and 1.6 km<sup>2</sup> for adult males and females, respectively; 50% of population was young-of-year; most young-of-year dispersed during first summer (up to 110 km); and home ranges overlapped, but individuals were basically solitary.

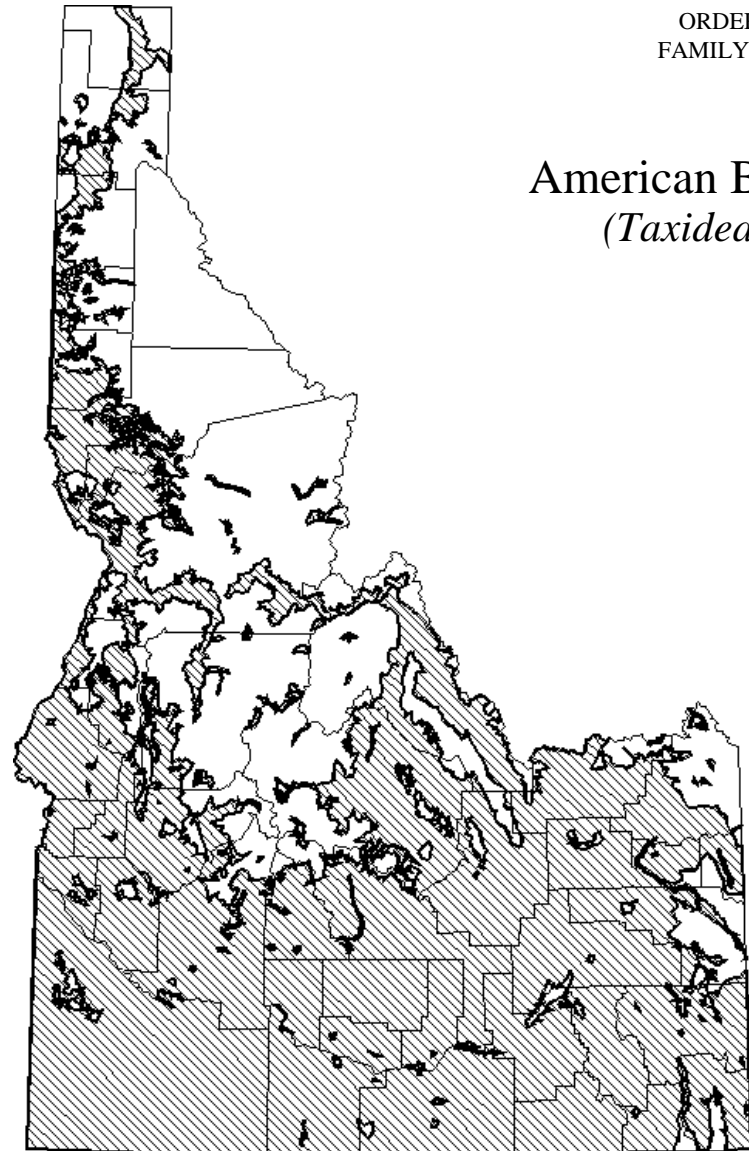
REPRODUCTION: Mating occurs mid- to late summer. Implantation is delayed until December-February. Female produces 1 litter averaging 3 (2-5) young, born March-early April (Idaho study found 1.4 young). Young leave family group in fall. Idaho study reported 30% of young-of-year females bred, and males reached sexual maturity as yearlings.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Messick, J.P. and M.G. Hornocker. 1981. Ecology of the badger in southwestern Idaho. Wildl. Monog. 76:1-53.

ORDER: Carnivora  
FAMILY: Mustelidae

## American Badger (*Taxidea taxus*)



STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern British Columbia and Montana, south throughout most of western North America to Mexico and Central America; barely enters Great Plains to the east.

HABITAT: Found in semi-arid brushlands in canyons, and on rocky outcrops (rimrock) on hillsides and walls of canyons. In Idaho, often found in agricultural areas.

DIET: Insects, rodents, small birds, and possibly birds' eggs constitute most of diet, but will also eat reptiles, amphibians, fruits, and berries.

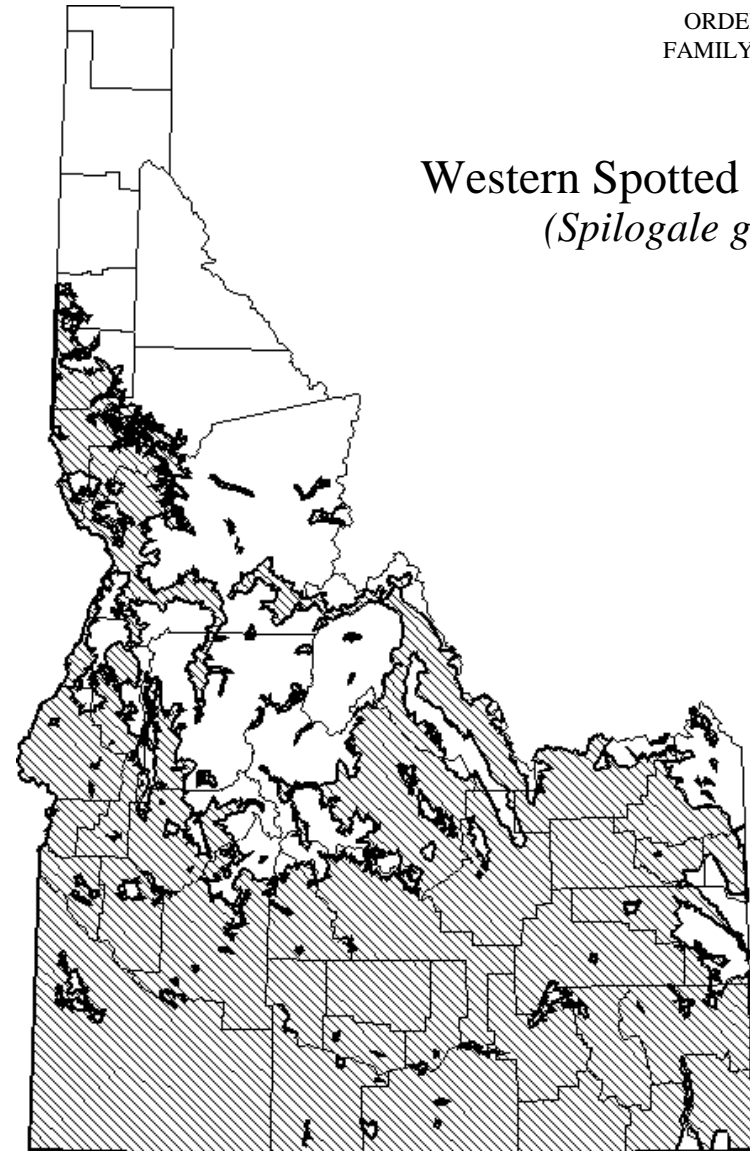
ECOLOGY: Active throughout year, but may be inactive in winter in Idaho. More nocturnal than striped skunk; rarely seen abroad during daylight hours. When inactive, occupies den in rocks, burrow, hollow log, brush pile, or under building. Adults are essentially solitary. In Idaho, individuals are destroyed for predator control. Species is known rabies vector.

REPRODUCTION: Breeding occurs from late September through October (as early as late summer, but primarily in September in Idaho). Implantation is delayed. Gestation lasts 210-230 days (in Idaho, gestation lasts 210-260 days, and births occur in May). Litter size varies from 4-6 young. Young leave nest about 1 mo after birth, follow mother until almost fully grown, and reach sexual maturity in 4-5 mo.

GIS MODEL NUMBER: 1

ORDER: Carnivora  
FAMILY: Mustelidae

## Western Spotted Skunk (*Spilogale gracilis*)



STATUS: Predatory wildlife  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Carnivora  
FAMILY: Mustelidae

RANGE: From northern Mexico to central Canada.

HABITAT: Prefers semi-open country with interspersed woodlands and meadows, brushy areas, and bottomland woods. Frequently found in suburban areas. In Idaho, prefers marshes, farmlands, and riparian areas in dry country.

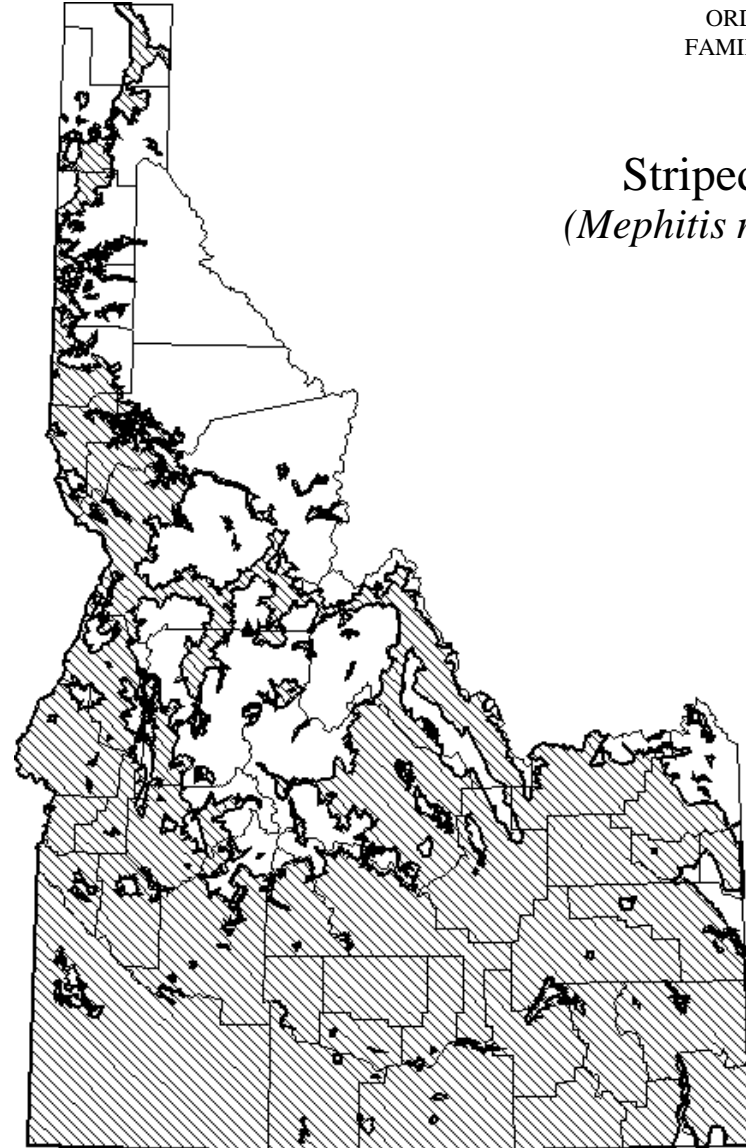
DIET: Opportunistic. Consumes varied diet of plant and animal foods (insects, small mammals, eggs, carrion, fruits, etc.). Half of summer diet is insects.

ECOLOGY: Mostly crepuscular or nocturnal, but sometimes active during daytime. May be dormant during extended periods of cold, snowy weather; males are more likely to be active in winter. When inactive, occupies den under rocks, logs, or buildings; may excavate burrow or use burrow abandoned by other mammal. Several individuals, mainly females, may share winter den. Seasonal shifts in denning behavior occur. Home range may reach several hundred ha; males tend to wander more than females. Population density may fluctuate greatly. Species is preyed on by humans, canids, felids, mustelids and raptors. Individuals molt pelage annually. Species is a rabies vector.

REPRODUCTION: Breeding occurs February through late March, with peak occurring in mid-February. Reported pregnancy rate is 78-96%. Gestation lasts 62-68 days. Litter size varies from 2-10 young (average 6-8), born late April to early June. Female produces 1 litter/yr. Young are weaned and begin to follow female at 6-7 wk; some young are independent by fall. Individuals reach sexual maturity in first spring.

GIS MODEL NUMBER: 1

## Striped Skunk (*Mephitis mephitis*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Throughout North America north of Mexico; absent from extreme southwestern United States.

HABITAT: Found on stream borders, and in lakes, swamps, marshes, and beaver flowages. Idaho study found otters preferred valley to mountain habitats, and stream-associated habitats to lakes, reservoirs, and ponds; food had greatest influence on habitat use.

DIET: Eats mainly aquatic animals, particularly fishes (mostly slow-moving, mid-size species), frogs, crayfish, and turtles. Commonly preys on nesting seabirds in some areas. Idaho study reported diet items included fishes, invertebrates, birds, mammals, and reptiles.

ECOLOGY: Active in winter, even in fresh, deep snow. In general, mainly nocturnal, but may be active by day. Idaho study reported diurnal activity in winter and nocturnal activity in other seasons, with most activity in winter, and progressively less activity in other seasons. When inactive, occupies hollow log, space under roots, log, or overhang, abandoned beaver lodge, dense thicket near water, or burrow of other animal. Home range is typically linear; 32-48 km for pair or male, and less for females with young. Population density of 1/3.5 km of river length has been recorded. Idaho study reported home ranges overlapped extensively and ranged in length from 8-78 km (home range shape was determined by drainage patterns).

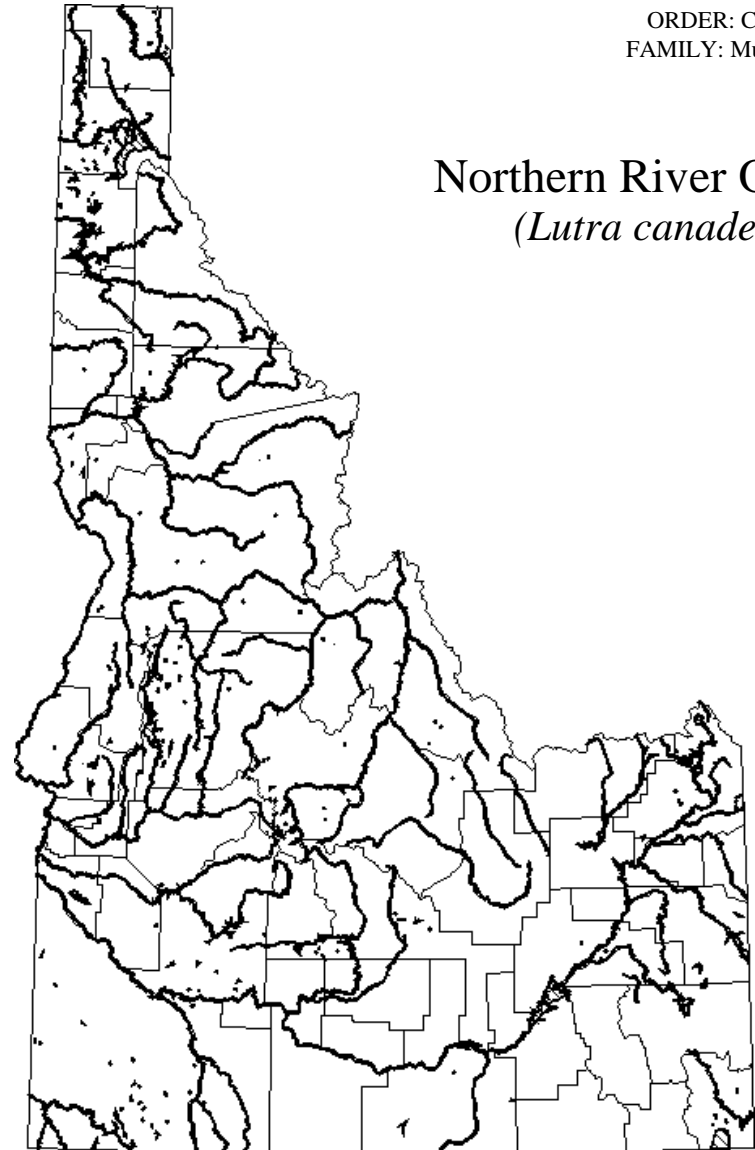
REPRODUCTION: In Idaho, breeding begins in late April. Implantation is delayed 10-11 mo, and gestation lasts 9-12 mo (11 mo in Idaho). Female produces 1 litter of 1-5 young (average 2.4 in Idaho). Young stay with mother for about 1 yr, and reach sexual maturity in 2 yr.

GIS MODEL NUMBER: 5

IMPORTANT STATE REFERENCE: Melquist, W.E. and M.G. Hornocker. 1983. Ecology of river otters in west central Idaho. Wildl. Monog. 83:1-60.

ORDER: Carnivora  
FAMILY: Mustelidae

## Northern River Otter (*Lutra canadensis*)





STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: Widest historic distribution of any native American mammal other than humans—from British Columbia south to Argentina, and from Pacific to Atlantic coasts. Currently restricted mainly to mountainous, relatively unpopulated areas.

HABITAT: In Idaho, prefers montane and semi-wooded canyon habitat. Idaho study considered wide habitat tolerance an important niche component.

DIET: Opportunistic; eats large and small mammals (bighorn sheep, coyote, mice, squirrels, rabbits, livestock, etc.), insects and reptiles, but in many areas, primary prey is deer. Idaho study reported mule deer and elk were primary food from September-May, and Columbian ground squirrels were primary food in summer.

ECOLOGY: Active day or night throughout year, but in absence of human disturbance, peak activity occurs within 2 hr of sunset and sunrise; near human presence, activity peaks after sunset. Primarily solitary. Density is usually not more than 3-4/100 km<sup>2</sup> (about 1/20 km<sup>2</sup> in Big Cypress and Everglades regions, Florida). In Idaho, mutual avoidance maintains density of breeding adults below level set by food supply. Annual home range varies greatly in different areas (13-1454 km<sup>2</sup>; in Florida, average is few hundred km<sup>2</sup>). Idaho study reported: home ranges of resident females overlapped, but those of resident males did not; seasonal movements occurred within home range as response to prey movements (moved farther in summer than in winter); and some altitudinal movement was associated with ungulate movements and snows in winter. Radiotelemetry study is ongoing in isolated mountain ranges of south-central Idaho.

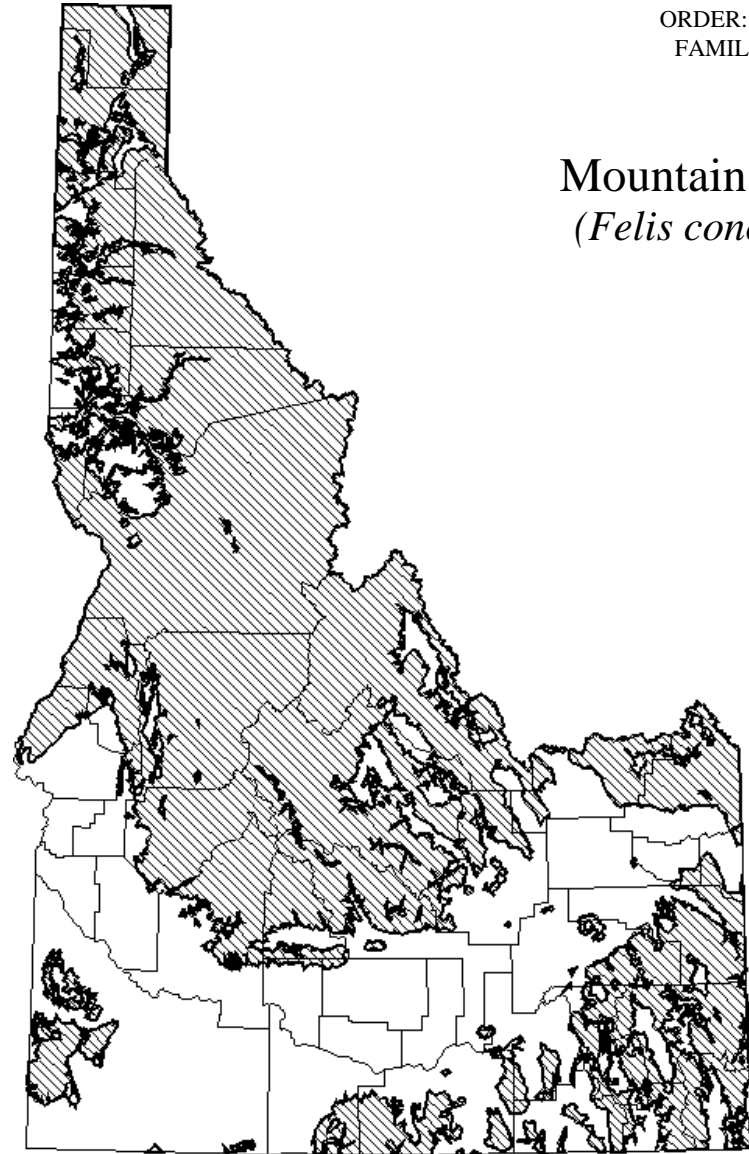
REPRODUCTION: Gestation lasts about 82-96 days. Most births occur April-September. Litter size varies from 1-6. Young are weaned after 2-3 mo, remain with mother for 1-2 yr, and reproduce at 2-3 yr (Idaho study reported female breeding age may depend on social status). Usually 2 years elapse between litters (18-24 mo in Idaho), but if litter does not survive, female may have litters in consecutive years. Polygamous breeders.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hornocker, M.G. 1970. An analysis of mountain lion predation upon mule deer and elk in the Idaho Primitive Area. Wildl. Monog. 21:1-39.

ORDER: Carnivora  
FAMILY: Felidae

## Mountain Lion (*Felis concolor*)



STATUS: Game species  
GLOBAL RANK: G4 STATE RANK: S1

RANGE: Throughout Alaska and Canada, south through Rocky Mountains, northern Great Lakes, and northern New England.

HABITAT: Found in boreal forests with openings, in regenerating mixed forests, and in rugged outcrops, bogs, and thickets. In Idaho, species needs early successional forests for foraging, and mature forests for denning.

DIET: Eats primarily small mammals and birds, particularly snowshoe hares. Occasionally feeds on squirrels, small mammals, beaver, deer, moose, muskrat, and birds (some may be taken as carrion).

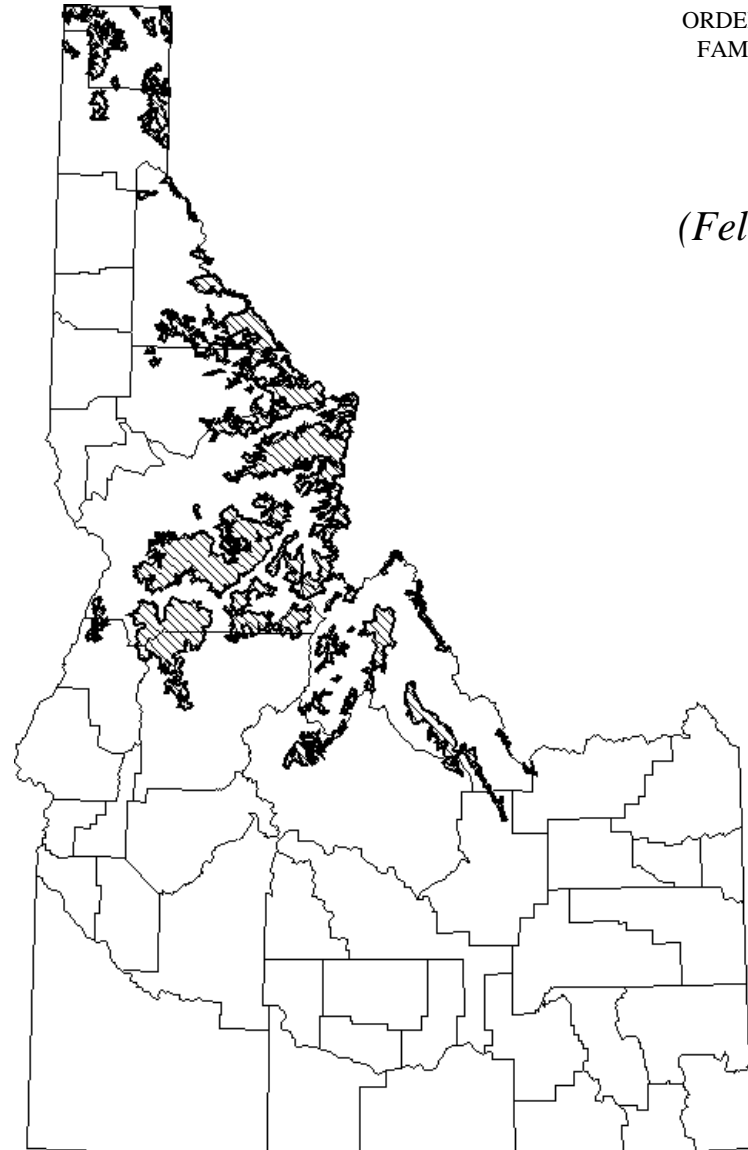
ECOLOGY: Mainly nocturnal. Most active from 2 hr after sunset to 1 hr after sunrise. When inactive, typically occupies den in hollow tree, under stump, or in thick brush. May cache food. When prey is scarce, home range increases and individuals may become nomadic. Range of male is larger than that of female. In western U.S., home range is usually between 24-48 km<sup>2</sup>. Population density is usually less than 10 (locally up to 20) per 100 km<sup>2</sup>, depending on prey availability. Individuals are usually solitary. Species is uncommon in Idaho.

REPRODUCTION: Breeds from March through May in Nearctic. Gestation lasts 62-74 days. Female produces 1 litter of 3-4 young every 1-2 yr. Young stay with mother until next mating season or longer. Some females give birth as yearlings. Prey scarcity may suppress breeding.

GIS MODEL NUMBER: 7

ORDER: Carnivora  
FAMILY: Felidae

## Lynx (*Felis lynx*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Mexico, north to southern Canada.

HABITAT: Found in various habitats, including deciduous-coniferous woodlands and forest edges, swamps, brushlands, and areas with thick undergrowth. In Idaho, found from deserts to rocky mountains near timberline.

DIET: Prefers small mammals, especially lagomorphs, but will occasionally eat birds, other invertebrates, and carrion. West-central Idaho study reported voles were primary winter prey. Southeastern Idaho studies found bobcats preyed primarily on jackrabbits, but switched to small mammals when rabbit numbers declined.

ECOLOGY: Mainly nocturnal/crepuscular, but sometimes diurnal in winter. When inactive, occupies rocky cleft, cave, hollow log, space under fallen tree, etc.; usually changes shelter daily. Home range is generally less than 100 km<sup>2</sup> (often much less); male's range is greater than female's. West-central Idaho study found summer home range was approximately 4 times larger than winter home range. Population density is 1/3.9 km<sup>2</sup> in southern range, to 1/12.9 km<sup>2</sup> in north (Idaho study reported density of 1/23.3-29.0 km<sup>2</sup>). Individuals are solitary except when breeding. Southeastern Idaho study found bobcat numbers declined as rabbit numbers declined due to fewer females raising litters. Home ranges also increased.

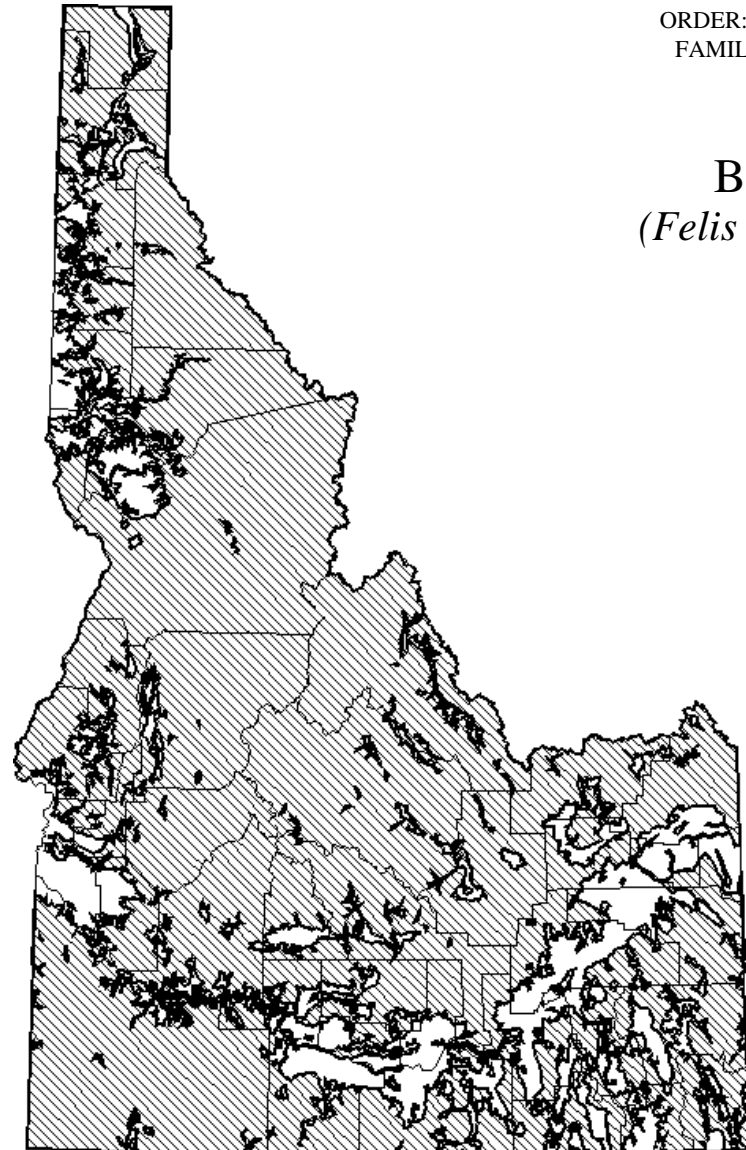
REPRODUCTION: Breeds mid-winter through spring (possibly any time of year in some areas). Female produces 1 litter of 1-7 young (average 2.8 in southeastern Idaho), except in southern range, where second litter may be born in early August. Gestation lasts 50-60 days. Both parents feed young while kits are in den. Young are weaned at about 2 mo, stay with mother until early fall, and first breed usually at 1-2 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Knick, S.T. 1990. Ecology of bobcats relative to exploitation and a prey decline in southeastern Idaho. Wildl. Monog. 108:1-42.

ORDER: Carnivora  
FAMILY: Felidae

## Bobcat (*Felis rufus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: Formerly widespread in North America, now mostly restricted to western regions, with small reintroduced populations elsewhere.

HABITAT: Varies according to location. Uses open areas such as alpine pastures, marshy meadows, river flats, and aspen parkland, as well as coniferous forests, brushy clearcuts, forest edges, and shrub steppe. In Idaho, some populations live year-round in sagebrush desert. Idaho study found elk: used grass-shrub for feeding and tall shrub or pole timber for resting in spring; fed in clearcuts and shrub fields and rested in pole timber in summer; and stayed in mesic pole timber in autumn.

DIET: Much geographic and seasonal variation exists in diet. Species is primarily a grazer, but also consumes forbs in summer, and may browse on willow and aspen where grasses are unavailable.

ECOLOGY: Active at night, but most active at dusk and dawn. Diurnal feeding is more common in summer than in winter. Feeding periods are more prolonged in winter, and are concentrated in morning and evening. Individuals may bed down in meadows in afternoon and again after midnight to chew cud. In Idaho, herds move to lower elevations in winter to feed. Species avoids roads in all seasons. Individuals exhibit high fidelity to home range, but may abandon it if excessively disturbed. Species is gregarious, though some bulls may be solitary. Males shed antlers in March and April. Recent Idaho study points to hunter access and intensity, not habitat parameters, as major factor in population control.

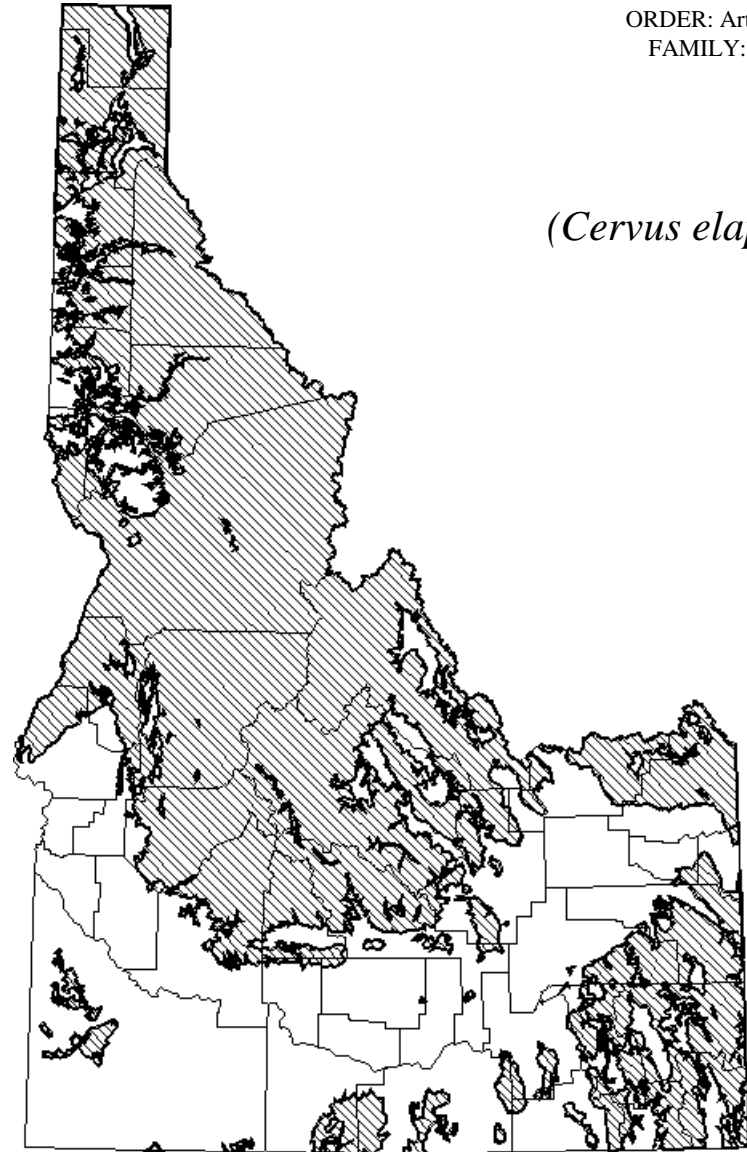
REPRODUCTION: Mature males defend female herd during rut (September-October). Older, dominant males do most of mating. Females breed at 2 yr. Most births (late spring) are single, but twins are common. Gestation lasts 249-262 days. Idaho study reported winter herd composition included 16% calves.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Unsworth, J.W., L. Kuck, M.D. Scott, and E.O. Garton. 1993. Elk mortality in the Clearwater drainage of north-central Idaho. *J. Wildl. Manage.* 57:495-502.

ORDER: Artiodactyla  
FAMILY: Cervidae

## Elk (*Cervus elaphus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southeastern Alaska, south through Canada and most of western U.S. and Great Plains, to Baja California and southern end of Mexican Plateau.

HABITAT: Found in coniferous forests, shrub steppe, chaparral, and grasslands with shrubs. Often associated with successional vegetation, especially near agricultural lands. However, in southeastern Alaska, uses old-growth forests almost exclusively in winter and spring. In Idaho, prefers rocky brushy areas, open meadows, open pine forests, and burns.

DIET: Browses on wide variety of woody plants, and grazes on grasses and forbs. May feed on agricultural crops.

ECOLOGY: Throughout year, most activity occurs at dawn and dusk, although nocturnal and daytime activity is common. Home range size may be 36-243 ha or more; size is directly correlated with availability of food, water, and cover. In Pacific Northwest, deep winter snows are major factor limiting population size. Idaho study found deer showed high fidelity to summer range, but less to winter range; deer from 1 summer range migrated to different winter ranges.

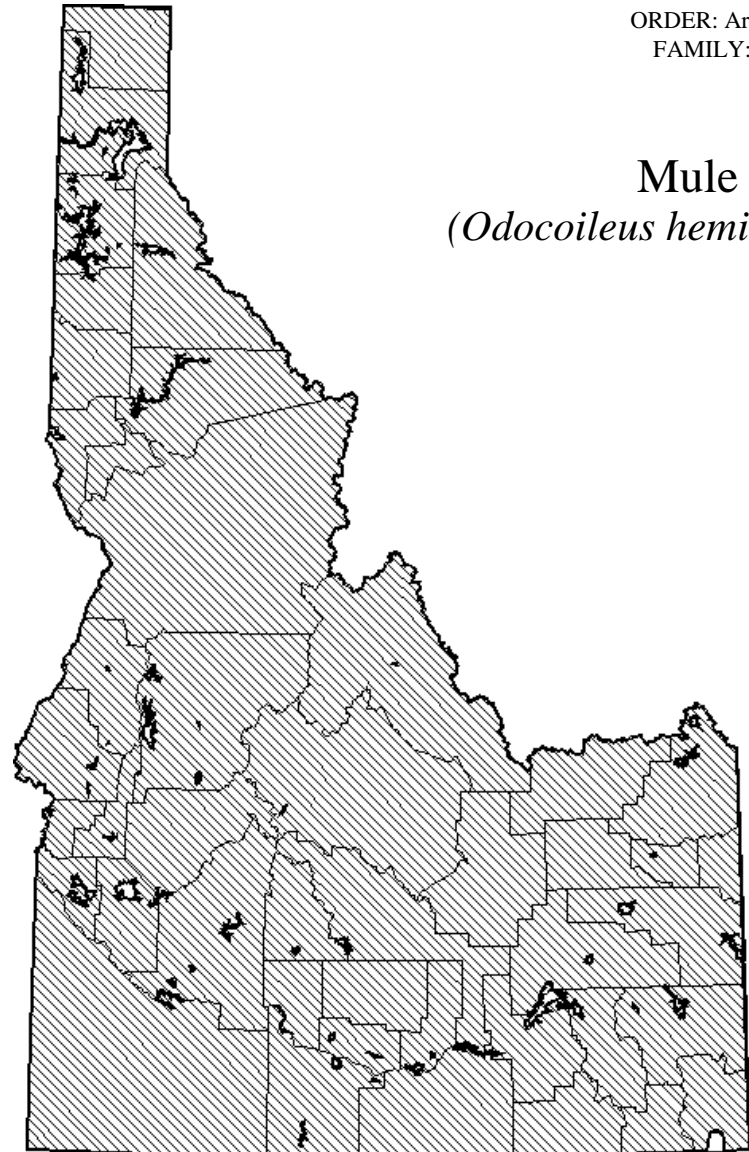
REPRODUCTION: Breeding peaks mid-November to mid-December. Gestation lasts about 203 days. In much of range, young are born mostly May-June; July-August births occur in some areas. Litter size varies from 1-2, depending on age and condition of female. Weaning begins at about 5 wk, and is usually completed by 16 wk. Females usually breed at 2 yr, males at 3-4 yr.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Brown, C.G. 1992. Movement and migration patterns of mule deer in southeastern Idaho. *J. Wildl. Manage.* 56:246-253.

ORDER: Artiodactyla  
FAMILY: Cervidae

## Mule Deer (*Odocoileus hemionus*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

ORDER: Artiodactyla  
FAMILY: Cervidae

RANGE: From southern Canada, south through most of U.S. and Mexico to South America. Absent from much of southwestern United States.

HABITAT: Found in various habitats from forests to fields with adjacent cover. In northern regions, usually requires stands of conifers for winter shelter. In north and in montane regions, limited ecologically by depth/duration/quality of snow cover. In Idaho, prefers low to intermediate elevations and dense, deciduous woodlands and brush, as well as marshy areas near water.

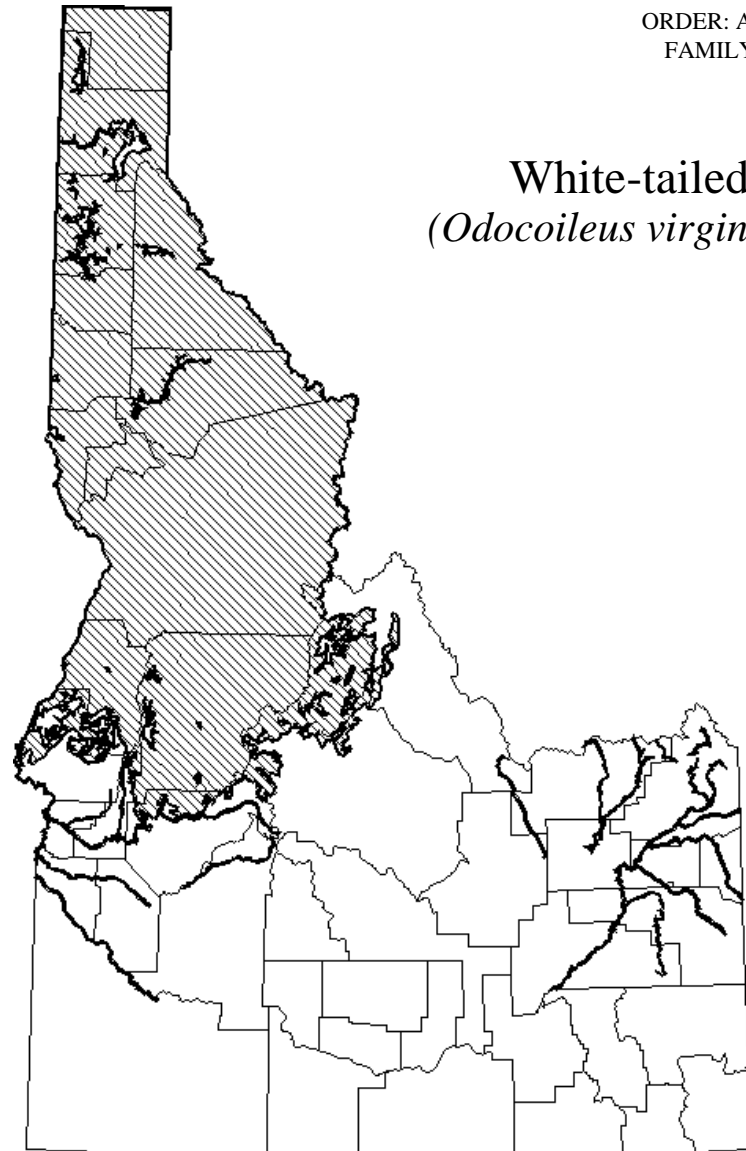
DIET: In north, diet is dominated by grasses in spring, forbs in early summer, leafy green browse in late summer, acorns and other fruits in fall, and evergreen woody browse in winter.

ECOLOGY: Active day or night, but mainly crepuscular. Two basic social groups exist: adult female(s) and young; and adult and, occasionally, yearling males (though adult males are solitary during breeding season except when attending estrous females). Home range varies from 16-120 ha, depending on conditions (smallest in summer). Annual home range of sedentary populations averages 59-520 ha. Population density is 1/2.4-18.6 ha, depending on environmental conditions. Dispersal from mother's home range is mostly by yearling males. Home range formation may extend over 2-3 yr. Winter weather (snow accumulation) may strongly affect populations, even more so than density of wolves in areas where latter are present. Species is preyed on by canids, bears and felids.

REPRODUCTION: Breeds late October to mid-December, peaking in November. Female's receptive period lasts 1-2 days; reoccurs in 3-4 wk if not impregnated. Gestation varies from 187-222 days. Litter of 1-2 (sometimes 3 in optimal habitat) is born May-June. Young are initially hidden for 1-2 wk, and are usually weaned by 10 wk (by fall). Females may breed at 6-7 mo, but 1.5 yr is typical. Males reach sexual maturity around 18 mo. Few individuals exceed age of 10 yr.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Pauley, G.R. 1990. Habitat use, food habits, home range, and seasonal migration of white-tailed deer in the Priest River drainage, north Idaho. M.S. Thesis, Univ. Idaho, Moscow. 153pp.



## White-tailed Deer (*Odocoileus virginianus*)

STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From Alaska and Canada, south through Rockies, northern Great Lakes, and northern New England.

HABITAT: Prefers mosaic of second-growth forests, openings, lakes, and wetlands. In Idaho, prefers shrubby, mixed coniferous and deciduous forests with nearby lakes, marshes and bogs. Requires water bodies for foraging, and hardwood-conifer forests for winter cover. Avoids hot summer conditions by utilizing dense shade or bodies of water. Northern Idaho study found old-growth grand fir/Pacific yew stands were critical winter habitat; moose used even-aged pole timber and open areas in summer.

DIET: In summer, browses on new growth of trees and shrubs, and on vegetation associated with water (attracted to high-sodium aquatic plants). In winter, feeds on conifer and hardwood twigs. Idaho study found menziesia, yew, alder, maple, and willow were most important diet items.

ECOLOGY: Active day or night, but mainly crepuscular. Depending on habitat, home range may reach several thousand ha. Idaho study reported cow's summer home range was 15.5-25.9 km<sup>2</sup>, bull's was 31-51.8 km<sup>2</sup>; winter home range was 5.2-15.5 km<sup>2</sup>. Population density has been reported as up to 11.6/10 km<sup>2</sup>, but 18-20/10 km<sup>2</sup> was reported in unhunted area in eastern Quebec. May herd in winter. Snow accumulation may affect populations more than wolf density. Favorable conditions may produce large annual increases (20-25%) in population size; large populations may degrade habitat, resulting in population crash.

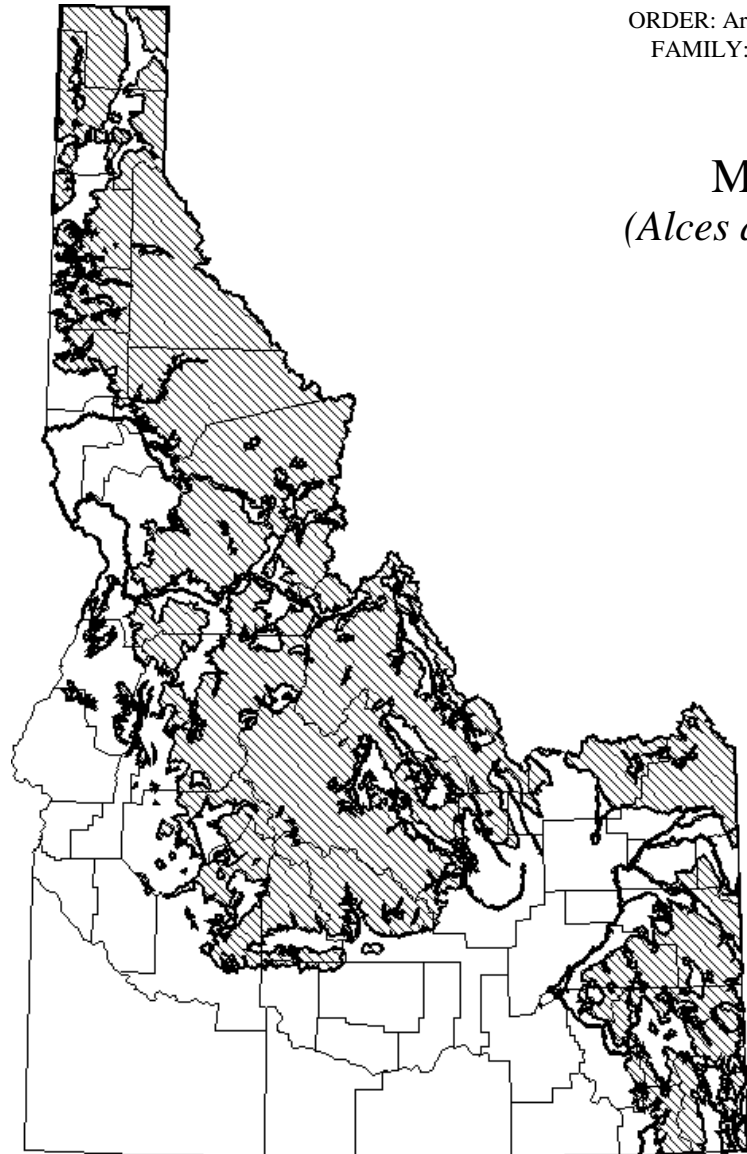
REPRODUCTION: Breeds September-late October. Gestation lasts 240-246 days. One calf (less commonly 2) is born late May-early June. Sexual maturity occurs in 1.5 yr, although most males breed at 5-6 yr due to intrasexual competition; females reach peak productivity at 4 yr.

GIS MODEL NUMBER: 6

IMPORTANT STATE REFERENCE: Pierce, J.D. and J.M. Peck. 1984. Moose habitat use and selection patterns in north-central Idaho. *J. Wildl. Manage.* 48:1335-1343.

ORDER: Artiodactyla  
FAMILY: Cervidae

## Moose (*Alces alces*)



STATUS: Protected nongame species  
GLOBAL RANK: G5 STATE RANK: S1

RANGE: Previously as far south as central Idaho, Great Lakes area, and northern New England. Wild populations are currently extant in Alaska, Canada, Washington, and northern Idaho. Northern Idaho population has been supplemented by transplants from Canada.

HABITAT: Found in arctic tundra (including tussock tundra and sedge meadow), subarctic taiga, mature coniferous forests, semi-open and open bogs, rocky ridges with jack pine, and riparian zones. In Idaho, occupies high-elevation open forests in winter, moves to more mature stands of timber with high lichen density for spring calving, then to shallower slopes with greater understory cover in summer, and finally to lower-elevation forests with denser overstories in fall.

DIET: Eats leaves, buds and bark of trees and shrubs, grasses, sedges, forbs, mushrooms, and terrestrial and arboreal lichens (arboreal lichens are most important winter food). In summer, moves to new areas to find new plant growth.

ECOLOGY: Primarily diurnal, but feeds crepuscularly. Gregarious; in tundra, usually found in bands of 10-50, or in loose herds of about 1000. Sexes may segregate seasonally. May form herds after fawning (not in southeastern Manitoba). Tundra caribou may travel extensively in summer in attempt to avoid bothersome insects. Species often incurs high calf loss, mostly due to predation. Survival of calves to 1 yr is usually 10-15%. In Idaho, grizzly bears, mountain lions, and humans are predators. Transplanted Idaho population is experiencing high levels of predation from mountain lions. As of 1995, population in Selkirks ecosystem had stabilized at about 50 animals.

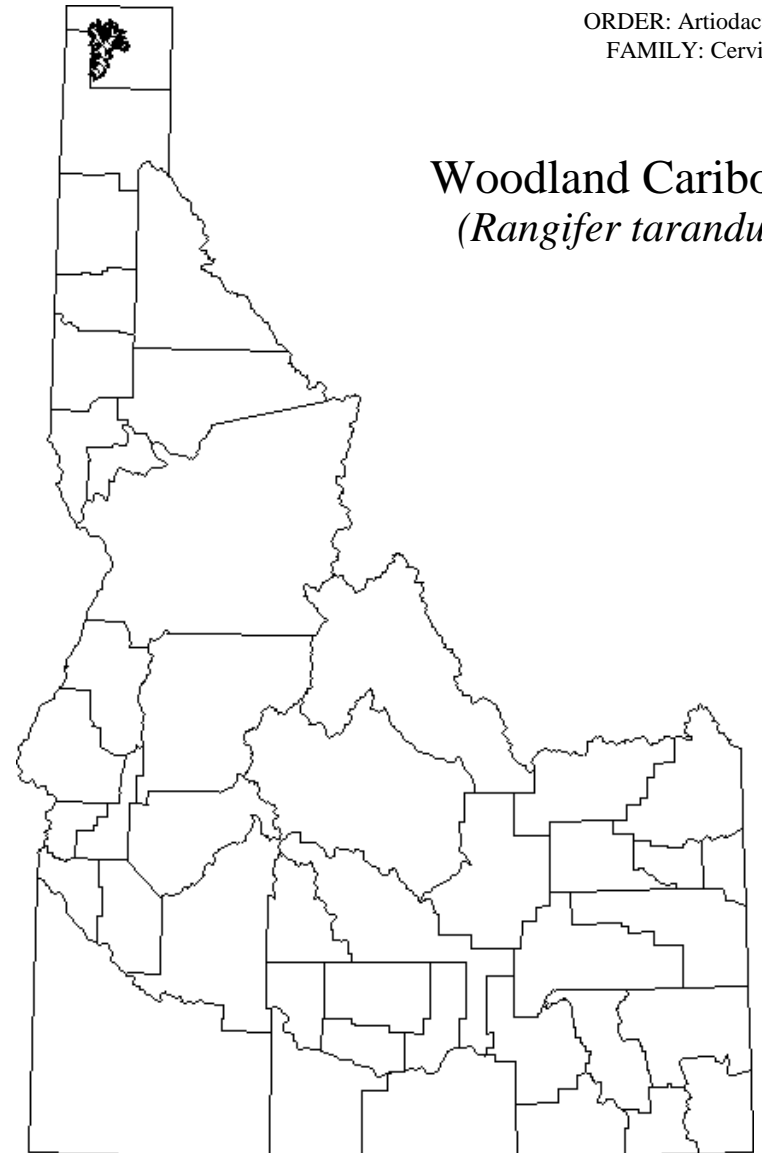
REPRODUCTION: Breeds mostly in October. Gestation lasts about 227-230 days. Cows bear usually 1, sometimes 2, young in May and June (early June in northern British Columbia). Calves are precocious.

GIS MODEL NUMBER: 7

IMPORTANT STATE REFERENCE: U.S. Fish and Wildlife Service. 1993. Recovery plan for woodland caribou in the Selkirk Mountains. Portland, OR. 71 pp.

ORDER: Artiodactyla  
FAMILY: Cervidae

## Woodland Caribou (*Rangifer tarandus*)





STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S5

RANGE: From southern Prairie Provinces of Canada, south through western U.S. to northern Mexico.

HABITAT: Found on grasslands, shrub steppe, and foothills.

DIET: In winter, northern populations depend heavily on browse, especially sagebrush. In summer, forbs are most important. Southern populations use more forbs and less browse.

ECOLOGY: Daily activity pattern varies seasonally. Alternating periods of feeding and resting occur throughout day, with fairly continuous feeding in early morning and late afternoon, and longer rest periods at night (Idaho study found major summer feeding peaks were in early morning and late evening; pronghorns spent 30% of day feeding, and 65% resting/loafing). Home range varies between 0.2-0.6 km<sup>2</sup> (Idaho study found summer home ranges averaged about 2000 ha; home range of yearlings was 2-5 times greater than adults). Individuals usually form small bands. Large winter herds disperse in spring and form separate bachelor and female-kid groups in spring and summer. Males associate with females in late summer and early fall. In Idaho, species migrates to lower elevations in winter. Spring migration in Idaho is to heads of mountain valleys.

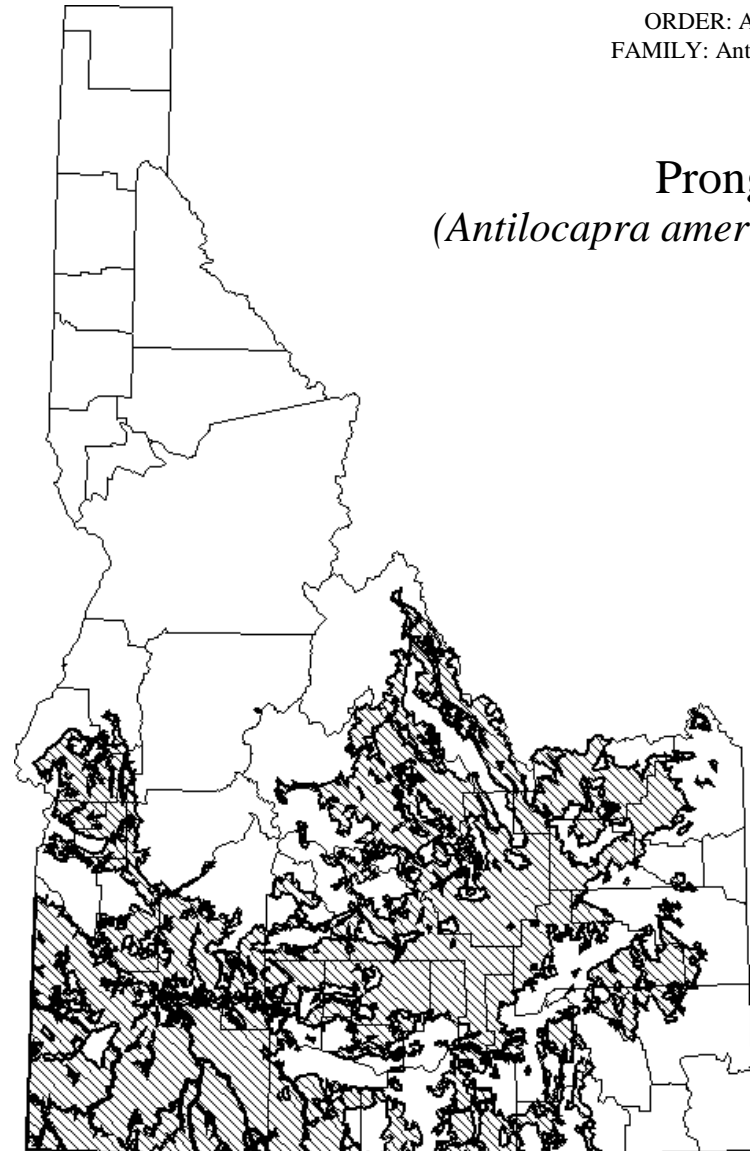
REPRODUCTION: Breeds mid-September to early October in northern range, late July-early October in south. Gestation lasts 240-250 days in northern range, and is shorter in south (e.g., 210-225 days in Texas). Births occur earlier in southern range than in north (e.g., April-May in Texas, but early June peak in Colorado). Females usually give birth to twins; young females may produce single fawns. Young are weaned by 4 mo, but continue to follow mother during first winter. Some begin breeding at 1 yr. High mortality in young is common (mostly from predation). In Idaho, ratio of 75 fawns to 100 does is considered good.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Autenreith, R.E. and E. Fichter. 1975. On the behavior and socialization of pronghorn fawns. Wildl. Monog. 42:1-111.

ORDER: Artiodactyla  
FAMILY: Antilocapridae

## Pronghorn (*Antilocapra americana*)



STATUS: Game species  
GLOBAL RANK: G5 STATE RANK: S4

RANGE: From southeastern Alaska, south to Washington, western Montana and southern Idaho. Introduced in Colorado, Oregon, Olympic Peninsula of Washington, and South Dakota. Some Idaho populations were introduced outside historic range.

HABITAT: Found in alpine and subalpine habitat (from sea level to about 2440 m, but usually at timberline or above), on steep grassy talus slopes, grassy ledges of cliffs, or alpine meadows. May seek shelter and food in stands of spruce or hemlock in winter.

DIET: Grazes on grasses and forbs in summer; also browses shrubs and conifers. Winter diet is often variable; may feed on mosses and lichens, as well as grasses, shrubs, and conifers.

ECOLOGY: Most active dawn to mid-morning and late afternoon to evening. Moves in October/November and April/May. In Idaho, may move up to 16 km in winter to appropriate habitat. One Idaho band of 10 animals wintered in 81 ha. In winter, occupies lowest suitable range on south-facing aspects. Strong social hierarchy is dominated by mature females. Adult females and young may form small groups in summer. Males are often solitary (sometimes in male groups), but join female groups in fall. Annual home range in different areas of Montana was reported at 6-24 km<sup>2</sup>.

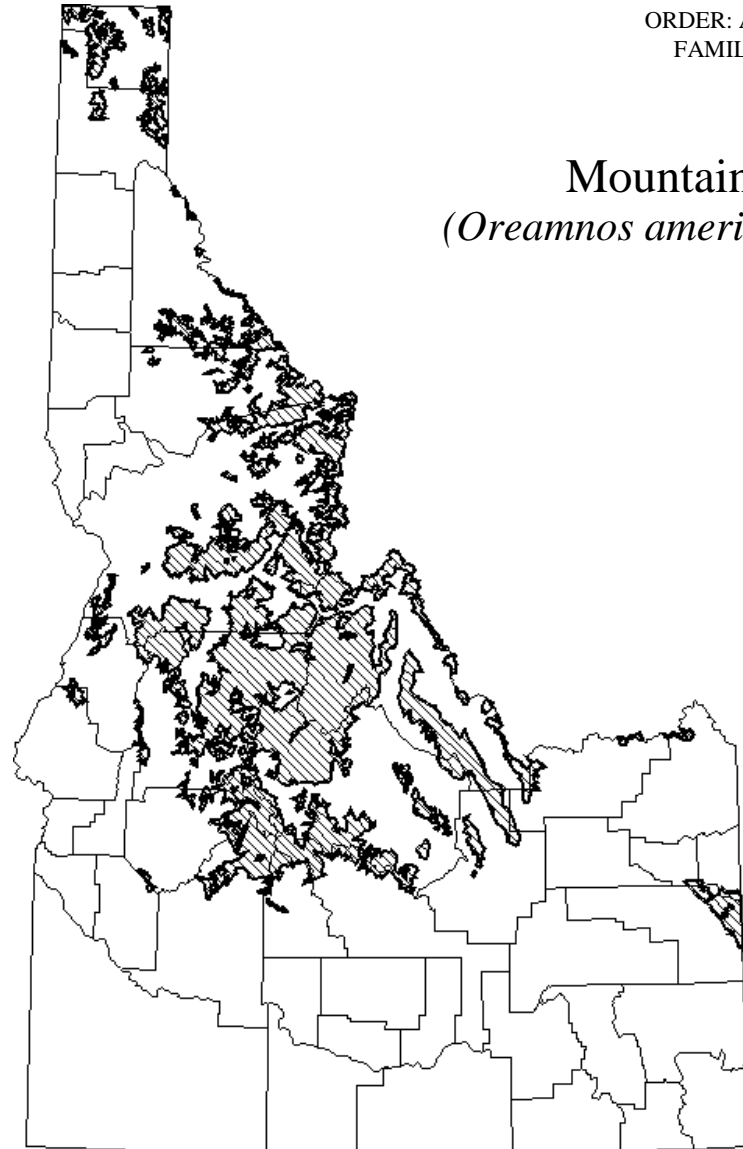
REPRODUCTION: Rut occurs in November. Gestation lasts about 178 days. One (sometimes 2, occasionally 3) precocial young is born in late May or early June. Young are sexually mature in about 2 yr, although in some areas some yearling females may breed. Young to female ratios between 39:100 and 72:100 were recorded in one Idaho study.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Hayden, J.A. 1989. Status and population dynamics of mountain goats in the Snake River Range, Idaho. M.S. Thesis, Univ. Montana, Missoula. 147pp.

ORDER: Artiodactyla  
FAMILY: Bovidae

## Mountain Goat (*Oreamnos americanus*)



STATUS: Game species  
GLOBAL RANK: G4 STATE RANK: S4

RANGE: From mountains of southwestern Canada, south through Rocky Mountains, Sierra Nevada, and southwestern U.S. desert mountains to portions of Mexico. Some Idaho populations introduced outside historic range.

HABITAT: Found in alpine-desert grasslands associated with mountains, cliffs, foothills, or river canyons. California bighorns are found in desert canyons of southwestern Idaho, while Rocky Mountain bighorns are in central Idaho.

DIET: Often eats grasses, but diet also includes significant amounts of shrubs and forbs; shrubs may dominate summer diet in some areas.

ECOLOGY: Feeding peaks in early morning and at dusk, and alternates with rest-rumination periods. Species is gregarious, but most of year, adult males live apart from females/young. Winter elevational range is often between 760-1523 m; summer range varies from 1828-3100 meters. Male and maternal groups often occupy separate home ranges. Western Arizona study reported January-June home range of adult females was 19-27 km<sup>2</sup>; Nevada study found male annual home range reached 37 km<sup>2</sup>. Carrying capacity for bighorn can be reduced through grazing by other ungulates (cattle, burros, etc.). In Idaho, seasonal elevation movements occur in response to winter snows or lack of water in summer. In desert, individuals can survive 10 or more days in summer without drinking. In some areas, lungworm infections may predispose bighorn to respiratory bacterial infections; lungworm life cycle involves gastropod intermediate host.

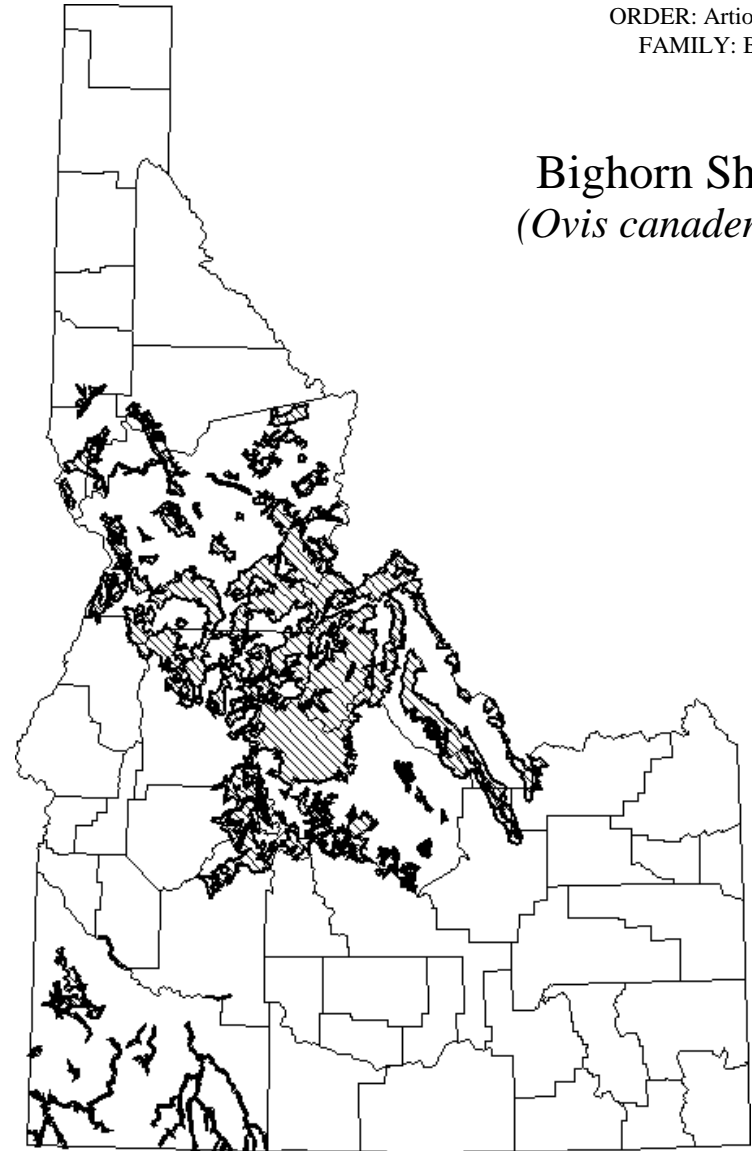
REPRODUCTION: Probably seasonally polyestrous. Mating season varies from July-January throughout range (November-December in Idaho, with births in May). Gestation lasts about 175-180 days. Female usually produces 1, occasionally 2, young. Young are weaned in 4-6 mo (September in Idaho). Females usually begin breeding in second yr in southern range, and third yr in north; occasionally in first yr in some areas. Annual precipitation may affect reproductive success.

GIS MODEL NUMBER: 1

IMPORTANT STATE REFERENCE: Taylor, E., M. McCoy, and W. Bodie. 1993. California bighorn sheep ecology: habitat selection. Job completion report, Idaho Dept. Fish & Game, Boise. 38pp.

ORDER: Artiodactyla  
FAMILY: Bovidae

## Bighorn Sheep (*Ovis canadensis*)



## Bibliography

- Autenreith, R.E. and E. Fichter. 1975. On the behavior and socialization of pronghorn fawns. *Wildl. Monog.* 42:1-111.
- Bakewell, G., J.M. Chopek, and G.L. Burkholder. 1983. Notes on reproduction of the side-blotched lizard *Uta stansburiana stansburiana* in southwest Idaho. *Great Basin Natur.* 43:477-482.
- Bartelt, P.E. and C.R. Peterson. 1994. Riparian habitat utilization by western toads (*Bufo boreas*) and spotted frogs (*Rana pretiosa*). Final report to the USDA Forest Service Inter. Res. Sta., Boise. 30pp.
- Beals, J., and W. Melquist. 1995. Idaho bald eagle nesting report, 1995. Idaho Dept. Fish & Game, Boise. 23pp.
- Bechard, M.J., K.D. Hague-Bechard, and D.H. Porter. 1986. Historical and current distributions of Swainson's and Ferruginous Hawks in southern Idaho. Dept. Biology, Boise St. Univ., Boise. 58pp.
- Beecham, J.J. 1983. Population characteristics of black bears in west central Idaho. *J. Wildl. Manage.* 47:405-412.
- Bonnell, M.L. 1967. Emergence and foraging behavior in small populations of Idaho bats. M.S. Thesis, Univ. Idaho, Moscow. 63pp.
- Brody, A. 1992. The sociality of pinon jays with and without pinon pine. M.S. Thesis, Idaho St. Univ., Pocatello. 179pp.
- Brown, C.G. 1992. Movement and migration patterns of mule deer in southeastern Idaho. *J. Wildl. Manage.* 56:246-253.
- Bunnell, S.D. and D.R. Johnson. 1974. Physical factors affecting pika density and dispersal. *J. Mammal* 55:866-869.
- Burkholder, G.L. and J.M. Walker. 1973. Habitat and reproduction of the desert whiptail lizard *Cnemidophorus tigris* in southwestern Idaho at the northern part of its range. *Herpetologica* 29:76-83.
- Carlson, G.E. and C.H. Trost. 1992. Sex determination of the whooping crane by analysis of vocalizations. *Condor* 94:532-536.
- Cassirer, E.F. 1995. Wildlife inventory, Craig Mountain, Idaho. Idaho Dept. Fish & Game, Lewiston. 182 pp.
- Cassirer, E.F., C.R. Groves, and D. Genter. 1993. Sensitive species management guide for the Coeur d'Alene salamander. Idaho Dept. Fish and Game, Boise, and the Montana Natural Heritage Program, Helena. 38pp.
- Cassirer, E.F., C.R. Groves, and R.L. Wallen. 1991. Distribution and population status of Harlequin Ducks in Idaho. *Wilson Bull.* 103:723-725.
- Clark, R.J., C.R. Peterson, and P. E. Bartelt. 1993. The distribution, relative abundance, and habitat associations of amphibians on the Targhee National Forest. Final report to the Targhee National Forest, St. Anthony. 16pp.
- Collopy, M.W. 1984. Parental care and feeding ecology of golden eagle nestlings. *Auk* 101:753-760.
- Connelly, J.W., W.L. Wakkinen, A.D. Apa, and K.P. Reese. 1991. Sage grouse use of nest sites in southeast Idaho. *J. Wildl. Manage.* 55:521-524.
- Copeland, J.P. 1996. Biology of the wolverine in central Idaho. M.S. Thesis, Univ. Idaho, Moscow. 138pp.
- Craig, E.H. and B.L. Keller. 1986. Movements and home range of porcupines, *Erethizon dorsatum*, in Idaho shrub desert. *Canad. Field-Natur.* 100:167-173.
- Craig, T.H. and C.H. Trost. 1979. The biology and nesting density of breeding American Kestrels and Long-eared Owls on the Big Lost River, southeastern Idaho. *Wilson Bull.* 91:50-61.
- Diller, L.V. and D.R. Johnson. 1982. Ecology of reptiles in the Snake River Birds of Prey Area. BLM Snake River Birds of Prey Research Project, Boise. 107pp.
- Diller, L.V. and D.R. Johnson. 1988. Food habits, consumption rates, and predation rates of western rattlesnakes and gopher snakes in southwestern Idaho. *Herpetologica* 44:228-233.
- Diller, L.V. and R.L. Wallace. 1981. Additional distributional records and abundance of three species of snakes in southwestern Idaho. *Great Basin Natur.* 41:154-157.
- Diller, L.V. and R.L. Wallace. 1984. Reproductive biology of the northern Pacific rattlesnake (*Crotalus viridis oregonus*) in northern Idaho. *Herpetologica* 40:182-193.
- Diller, L.V. and R.L. Wallace. 1986. Aspects of the life history and ecology of the desert night snake, *Hypsiglena torquata deserticola*: Colubridae, in southwestern Idaho. *Southwest. Natur.* 31:55-64.
- Douglas, D.C., J.T. Ratti, R.A. Black, and J.R. Alldredge. 1992. Avian habitat associations in riparian zones of Idaho's Centennial Mountains. *Wilson Bull.* 104:485-500.
- Edelman, F.B. 1995. Ecology of Merriam's wild turkeys in west central Idaho. M.S. Thesis, Univ. of Idaho, Moscow. 168pp.
- Elliott, C.L. and J.T. Flinders. 1980. Seasonal activity pattern of Columbian ground squirrels in the Idaho Primitive Area. *Great Basin Natur.* 40:175-177.
- Ellsworth, E.A., J.E. Emerson, J.R. Belthoff, and J. Doremus. 1994. Post-fledging movements and dispersal timing of western screech owls. Pp. 285-288 in K. Steenhof, ed., Snake River Birds of Prey National Conservation Area, 1994 Annual Rep., USDI Bur. Land Manage., Boise District.
- Engel, K.A. and L.S. Young. 1992. Movements and habitat use by common ravens from roost sites in southwestern Idaho. *J. Wildl. Manage.* 56:596-602.
- Fichter, E. and R. Williams. 1967. Distribution and status of the red fox in Idaho. *J. Mammal.* 48:219-230.
- Findholt, S. 1984. Organochlorine residues, eggshell thickness, and reproductive success of snowy egrets nesting in Idaho. *Condor* 86:163-169.
- Findholt, S. and C.H. Trost. 1985. Organochlorine pollutants, eggshell thickness, and reproductive success of Black-crowned Night-Herons in Idaho, 1979. *Colonial Waterbirds* 8:32-41.
- Fitch, T. and C.H. Trost. 1985. Nesting status of the common loon in Idaho. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 23pp.
- Foresman, K.R. 1986. *Sorex hoyi* in Idaho: a new state record. *Murrelet* 67:81-82.
- Franklin, A.B. 1988. Breeding biology of the Great Gray Owl in southeastern Idaho and northwestern Wyoming. *Condor* 90:689-696.
- Frederick, G.P. and T.L. Moore. 1991. Distribution and habitat of white-headed woodpeckers (*Picoides albolarvatus*) in west-central Idaho. Idaho Dept. Fish & Game, Boise. 32pp.
- Frounfelker, C.R. 1977. Prey selection of the great horned owl with reference to habitat

- and prey availability. M.S. Thesis, Univ. Idaho, Moscow. 62pp.
- Gadwa, G.U. 1977. Experimental transplanting of wild wood duck hens and broods in northern Idaho. M.S. Thesis, Univ. Idaho, Moscow. 33pp.
- Gale, R.S., E.O. Garton, and I.J. Ball. 1987. The history, ecology, and management of the Rocky Mountain population of trumpeter swans. Idaho Dept. Fish & Game, Boise. 314pp.
- Gazda, R.J. 1994. Duck productivity and nest predation in southeastern Idaho. M.S. Thesis, Univ. of Montana, Missoula. 61pp.
- Genter, D.L. 1986. Wintering bats of the upper Snake River plain: occurrence in lava-tube caves. *Great Basin Natur.* 46:241-244.
- Green, J.S. and J.T. Flinders. 1980. Habitat and dietary relationships of the pygmy rabbit. *J. Range manage.* 33:136-142.
- Groves, C.R. 1994. A preliminary report: effects of timber harvest on small mammals and amphibians inhabiting old-growth coniferous forests on the Clearwater National Forest, Idaho. Idaho Dept. Fish & Game, Boise. 24pp.
- Groves, C. and E. Yenson. 1989. Rediscovery of the northern bog lemming (*Synaptomys borealis*) in Idaho. *Northwest Natur.* 70:14-15.
- Groves, C.R. and B.L. Keller. 1983. Ecological characteristics of small mammals on a radioactive waste disposal area in southeastern Idaho. *Amer. Midl. Natur.* 109:253-265.
- Groves, C.R. and C. Peterson. 1992. Distribution and population trends of Idaho amphibians as determined by mail questionnaire. Idaho Dept. Fish and Game, Boise. 16pp.
- Groves, C., E. Yensen, and E.B. Hart. 1988. First specimen record of the rock squirrel (*Spermophilus variegatus*) in Idaho. *Murrelet* 69:50-53.
- Guyer, C. and A.D. Linder. 1985. Thermal ecology and activity patterns of the short-horned lizard (*Phrynosoma douglassii*) and the sagebrush lizard (*Sceloporus graciosus*) in southeastern Idaho. *Great Basin Natur.* 45:607-614.
- Hafner, J.C. 1985. New kangaroo mice, genus *Microdipodops* (Rodentia: Heteromyidae), from Idaho and Nevada. *Proc. Biol. Soc. Wash.* 98:1-9.
- Hammond, D.B. and E. Yensen. 1982. Differential microhabitat utilization in *Peromyscus truei* and *Peromyscus maniculatus* in the Owyhee Mountains, Idaho. *J. Idaho Acad. Science* 18:49-56.
- Hansen, R.M. 1954. The Belding ground squirrel north of the Snake River in Idaho. *J. Mammal.* 35:587.
- Harris, C.E., J.W. Beals, and K. Geier-Hayes. 1994. Deer mouse and yellow-pine chipmunk density and food habits in three central Idaho shrub communities. Idaho Dept. Fish & Game, Boise. 23 pp.
- Hayden, J.A. 1989. Status and population dynamics of mountain goats in the Snake River Range, Idaho. M.S. Thesis, Univ. Montana, Missoula. 147pp.
- Hayward G.D. 1983. Resource partitioning among six forest owls in The River of No Return Wilderness, Idaho. M.S. Thesis, Univ. Idaho, Moscow. 132pp.
- Hayward, G.D., P.H. Hayward, and E.O Garton. 1993. Ecology of boreal owls in the northern Rocky Mountains, USA. *Wildl. Mono.* 59.
- Heekin, P.E., R. Guse, C. Connell, K.P. Reese, and P.M. Zager. 1993. Mountain quail ecology—job progress report, Study I, Job I. Idaho Dept. Fish & Game, Boise. 15pp.
- Hejl, S.J. and L.C. Paige. 1993. Birds in continuous and fragmented forests of western red cedar/western hemlock in northern Idaho: a preliminary assessment. Draft manuscript, USDA Forest Service, Inter. Res. Sta., Missoula. 18pp.
- Hejl, S.J. and R.E. Woods. 1990. Bird assemblages in old-growth and rotation-aged Douglas-fir/Ponderosa pine stands in the northern Rocky Mountains: a preliminary assessment. Pp. 93-100 in D.M. Baumgartner and J.E. Lotan, eds., *Proceedings of Symposium on Interior Douglas-fir: the species and its management.* Feb. 27, 1990, Spokane WA.
- Hoffman, G.R. 1960. The small mammal components of six climax plant associations in eastern Washington and northern Idaho. *Ecology* 41:571-572.
- Holthuijzen, A.M.A. 1990. Behavior and productivity of nesting prairie falcons in relation to construction activities at Swan Falls Dam. Final Report. Idaho Power Co., Boise. 77pp.
- Hornocker, M.G. 1970. An analysis of mountain lion predation upon mule deer and elk in the Idaho Primitive Area. *Wildl. Monog.* 21:1-39.
- Howard, J.H. and R.L. Wallace. 1985. Life history characteristics of populations of the long-toed salamander (*Ambystoma macrodactylum*) from different altitudes. *Amer. Midl. Nat.* 113:361-373.
- Hutto, R.L. 1993. Effects of clearcutting and fragmentation on the birds of a western coniferous forest. Final report to the Clearwater National Forest, Univ. Montana, Missoula. 13pp.
- Jenni, D., R.L. Redmond, and T. Bicap. 1982. Behavioral ecology and habitat relationships of Long-billed Curlews in western Idaho. BLM Boise District, Boise. 234pp.
- Johnson, D.R. 1961. The food habits of rodents on rangelands of southern Idaho. *Ecology* 42:407-410.
- Johnson, D.R. and W.E. Melquist. 1991. Wintering distribution and dispersal of northern Idaho and eastern Washington ospreys. *J. Field Ornithol.* 62:517-520.
- Johnson, D.R. and J.M. Peek. 1984. The black-tailed jackrabbit in Idaho: life history, population dynamics, and control. *Coop. Extens. Service, Univ. Idaho, College Agricult. Bull. No. 637, Moscow.* 16pp.
- Johnson, M.K. and R.M. Hansen. 1979. Foods of cottontails and woodrats in south-central Idaho. *J. Mammal.* 60:213-215.
- Jones, J.L. 1991. Habitat use of fisher in north-central Idaho. M.S. Thesis, Univ. Idaho, Moscow. 147pp.
- Keller, B.L. 1986. Small mammal collections in Bear Lake, Bonneville, Cassia, Franklin, and Oneida Counties, Idaho: Final Report. Dept. Biol. Sciences, Idaho St. Univ. Pocatello. 7pp.
- Keller, B.L. 1987. Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum*. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 25pp.
- Knick, S.T. 1990. Ecology of bobcats relative to exploitation and a prey decline in southeastern Idaho. *Wildl. Monog.* 108:1-42.

- Koehler, G.M. and M.G. Hornocker. 1977. Fire effects on marten habitat in the Selway-Bitterroot Wilderness. *J. Wildl. Manage.* 41:500-505.
- Krohn, W.B. and E.G. Bizeau. 1980. The Rocky Mountain population of the western Canada goose: its distribution, habitat and management. *USDI Fish and Wildl. Serv. Spec. Sci. Rpt. Wildl. No. 229.* 93pp.
- Kuck, L. 1969. The effects of the northern pocket gopher on reforestation: activity and movement. M.S. Thesis, Univ. Idaho, Moscow. 51pp.
- Langelier, L. 1983. Habitat selection of common breeding bird species in western spruce budworm outbreaks. M.S. Thesis, Univ. Idaho, Moscow. 119pp.
- Larrison, E.J. and D.R. Johnson. 1973. Density changes and habitat affinities of rodents of shadscale and sagebrush associations. *Great Basin Natur.* 33:255-264.
- Laundré, J.W. 1989. Burrows of least chipmunks in southeastern Idaho. *Northwest. Natur.* 70:18-20.
- Laundré, J.W. and B.L. Keller. 1981. Home-range use by coyotes in Idaho. *Anim. Behav.* 29:449-461.
- Laurance, W.F. and T.D. Reynolds. 1984. Winter food preference of capture-reared northern flying squirrels. *Murrelet* 65:20-22.
- Leege, T.A. 1968. Natural movements of beavers in southeastern Idaho. *J. Wildl. Manage.* 32:973-976.
- Leptich, D.J. 1992. Winter habitat use by hen pheasants in southern Idaho. *J. Wildl. Manage.* 56:376-380.
- Levine, E., W. Melquist, and J. Beals. 1995. Idaho peregrine falcon survey, nest monitoring, and release program, 1995. Idaho Dept. Fish & Game, Boise. 25 pp.
- Lindeman, P.V. 1988. Comparative life history of the painted turtle, *Chrysemys picta*, in the inland Pacific Northwest. M.S. Thesis, Univ. Idaho, Moscow. 102pp.
- Marks, J.S. 1986. Nest-site characteristics and reproductive success of long-eared owls in southwestern Idaho. *Wilson Bull.* 98:547-560.
- Marks, J.S. and V.S. Marks. 1987. Habitat selection by Columbian sharp-tailed grouse in west-central Idaho. *BLM Boise District U.S. Govt. Report 792-057/40, 019,* Boise. 115pp.
- Marks, J.S., J.H. Doremus, and A.R. Bammann. 1980. Black-throated Sparrows breeding in Idaho. *Murrelet* 61:112-113.
- Marks, J.S., J.H. Doremus, and R.J. Cannings. 1989. Polygyny in the Northern Saw-whet Owl. *Auk* 106:732-734.
- Marti, C.D. 1988. A long-term study of food-niche dynamics in the common barn-owl: comparisons within and between populations. *Can. J. Zool.* 66:1803-1812.
- Martin, J.W. 1987. Behavior and habitat use of breeding Northern Harriers in southwestern Idaho. *J. Raptor Res.* 21:57-66.
- McCoy, M. 1993. Breeding bird survey of clearcut, prescribed burn, and seral/old growth stands of western juniper. *USDI Bur. Land Manage., Boise District, Challenge Cost Share Project Report,* Boise. 19pp.
- McCracken, J.G., D. Goble and J. O'Laughlin. 1994. Grizzly bear recovery in Idaho. Idaho Forest, Wildlife and Range Policy Analysis Group. Univ. of Idaho. Moscow. 110pp.
- Medin, D.E. 1985. Breeding bird responses to diameter-cut logging in west-central Idaho. *USDA Forest Service Inter. Res. Sta. Res. Paper INT-355,* Boise. 12pp.
- Medin, D.E. 1985. Densities and nesting heights of breeding birds in a Idaho Douglas-fir forest. *Northwest Sci.* 59:45-52.
- Medin, D.E. 1986. The impact of logging on red squirrels in an Idaho conifer forest. *West. J. Appl. Forestry* 1:73-76.
- Medin, D.E. and G.D. Booth. 1989. Responses of birds and small mammals to single-tree selection logging in Idaho. *USDA Forest Service Inter. Res. Station Res. Paper INT-408,* Boise. 11pp.
- Medin, D.E. and W.P. Clary. 1990. Bird and small mammal populations in a grazed and ungrazed riparian habitat in Idaho. *USDA Forest Service Inter. Res. Sta. Res. Paper INT-245.* 8pp.
- Melquist, W.E. and M.G. Hornocker. 1983. Ecology of river otters in west central Idaho. *Wildl. Monog.* 83:1-60.
- Mendel, G.W. 1979. The hungarian partridge in the Palouse Region of Northern Idaho. M.S. Thesis, Univ. Idaho, Moscow. 161pp.
- Messick, J.P. and M.G. Hornocker, 1981. Ecology of the badger in southwestern Idaho. *Wildl. Monog.* 76:1-53.
- Moore, T.L. and G.D. Frederick. 1991. Distribution and habitat of flammulated owls (*Otus flammeolus*) in west-central Idaho. Idaho Dept. Fish & Game, Boise. 28pp.
- Mullican, T.R. 1986. Additional records of *Sorex merriami* from Idaho. *Murrelet* 67:19-20.
- Mullican, T.R. and B.L. Keller. 1986. Ecology of the sagebrush vole in southeastern Idaho. *Can. J. Zool.* 64:1218-1223.
- Mullins, W.H. and E.G. Bizeau. 1978. Summer foods of sandhill cranes in Idaho. *Auk* 95:175-178.
- Munger, J.C., L. Heberger, D. Logan, W. Peterson, L. Mealey, and M. Caughlin. 1994. A survey of the herpetofauna of the Bruneau Resource Area, Boise District, with focus on the spotted frog (*Rana pretiosa*). Idaho Bur. Land Manage. Tech. Bull. 94-7.
- Oelklaus, W.F. III. 1976. Chukar partridge dispersion along the middle and lower Snake and Columbia Rivers. M.S. Thesis, Univ. Idaho, Moscow. 56pp.
- Olson, R.A., T. Craig, and E. Craig. 1978. Recent records of the barred owl, *Strix varia*, in Northern Idaho. *J. Id. Acad. Science* 14:24-25.
- Parker, W.S. and E.R. Pianka. 1976. Ecological observations on the leopard lizard (*Crotaphytus wislizeni*) in different parts of its range. *Herpetologica* 32:95-114.
- Patla, S. 1991. Northern Goshawk monitoring project report #2. Targhee National Forest, St. Anthony, ID. 42pp.
- Pauley, G.R. 1990. Habitat use, food habits, home range, and seasonal migration of white-tailed deer in the Priest River drainage, north Idaho. M.S. Thesis, Univ. Idaho, Moscow. 153pp.
- Peterson, K.L. and L.B. Best. 1985. Brewer's sparrow nest-site characteristics in a sagebrush community. *J. Field Ornith.* 56:23-27.
- Peterson, K.L. and L.B. Best. 1985. Nest-site selection by Sage Sparrows. *Condor* 87:217-221.
- Peterson, K.L. and L.B. Best. 1991. Nest-site selection by Sage Thrashers in

- southeastern Idaho. *Great Basin Nat.* 51:261-266.
- Peterson, S.R. 1982. A preliminary survey of forest bird communities in northern Idaho. *Northwest Sci.* 56:287-298.
- Pierce, J.D. and J.M. Peck. 1984. Moose habitat use and selection patterns in north-central Idaho. *J. Wildl. Manage.* 48:1335-1343.
- Reeves, H.M. and R.M. Williams. 1956. Reproduction, size, and mortality in the Rocky Mountain muskrat. *J. Mammal.* 37:494-500.
- Reeves, H.M., R.E. Tomlinson, and J.C. Bartonek. 1993. Population characteristics and trends in the western management unit. Pp. 341-376 in T.S. Basket et al., eds. *Ecology and management of the mourning dove*. Stackpole Books, Harrisburg, PA.
- Reynolds, T.D. 1980. Effects of some different land management practices on small mammal populations. *J. Mammal.* 61:558-561.
- Reynolds, T.D. and C.H. Trost. 1981. Grazing, crested wheatgrass, and bird populations in southeastern Idaho. *Northwest Sci.* 55:225-234.
- Rich, T.D. 1978. Cowbird parasitism of Sage and Brewer's Sparrows. *Condor* 80:348.
- Rich, T. 1981. Second breeding locale for the blue grosbeak in Idaho. *Murrelet* 62:91-92.
- Rich, T. 1986. Habitat and nest-site selection by burrowing owls in the sagebrush steppe of Idaho. *J. Wildl. Manage.* 50:548-555.
- Rickard, W.H. 1960. The distribution of small mammals in relation to climax vegetation mosaic in eastern Washington and northern Idaho. *Ecology* 41: 99-106.
- Rivist, T. A. 1994. Short-eared owl mortality between mid-nestling age and dispersal. Pp. 296-304 in K. Steenhof, ed., *Snake River Birds of Prey Natural Conservation Area, 1994 Annual Report*. USKI Bur. Land Manage., Boise District.
- Saab, V.A. 1996. Influences of spatial scale and land-use practices on habitat relationships of breeding birds in cottonwood riparian forests. Ph.D. Dissertation, Univ. Colorado, Boulder. 140 pp.
- Saab, V. and C.R. Groves. 1992. Idaho's migratory landbirds: description, habitats, and conservation. Nongame Wildlife Leaflet #10, Idaho Dept. Fish & Game, Boise. 16pp.
- Saab, V.A. and J. Dudley. 1995. Nest usurpation and cavity use by Lewis' Woodpecker. USDA Forest Service Inter. Res. Sta. Rep., Boise. 13pp.
- Schaub, D.L. and J. H. Larsen. 1978. The reproductive ecology of the Pacific treefrog (*Hyla regilla*). *Herpetologica* 34:409-416.
- Schultz, G.A. 1978. Barrow's Goldeneyes nesting in central Idaho. *Murrelet* 59:107-108.
- Scrivner, J.H. and H.D. Smith. 1984. Relative abundance of small mammals in four successional stages of spruce-fir in Idaho. *Northwest Science* 58:171-176.
- Sharp, B. 1986. Management guidelines for the Willow Flycatcher. U.S. Fish and Wildlife Service, Portland. 21pp.
- Smith, G. and D.R. Johnson. 1985. Demography of a Townsend ground squirrel population in southwestern Idaho. *Ecology* 66:171-178.
- Smolen, M.J. and B.L. Keller. 1979. Survival, growth, and reproduction of progeny from isolated high and low density populations of *Microtus montanus*. *J. Mammal.* 60:265-279.
- Speth, R.L., C.L. Pritchett, and C.D. Jorgensen. 1968. Reproductive activity of *Perognathus parvus*. *J. Mammal.* 49:336-337.
- Stauffer, D.F. and S.R. Peterson. 1985. Ruffed and blue grouse habitat use in southeastern Idaho. *J. Wildl. Manage.* 49:459-466.
- Steenhof, K. and M.N. Kuchert. 1988. Dietary responses of three raptor species to changing prey densities in a natural environment. *J. Avian Ecol.* 57:37-48.
- Stephens, D.A., C. Webb, and C.H. Trost. 1990. First report of nesting lesser goldfinch in Idaho. *Western Birds* 21(1): 33-34.
- Stone, E.R. 1991. The sociology of North American Black-billed Magpies (*Pica pica hudsonia*). Ph.D. Dissertation, Idaho St. Univ., Pocatello. 71pp.
- Taylor, D.M. and C.H. Trost. 1985. The Common Grackle in Idaho. *Am. Birds* 39:217-218.
- Taylor, D.M. and C.H. Trost. 1987. The status of rare birds in Idaho. *Murrelet* 68:69-93.
- Taylor, E., M. McCoy, and W. Bodie. 1993. California bighorn sheep ecology: habitat selection. Job completion report, Idaho Dept. Fish & Game, Boise. 38pp.
- Thaeler, C.S. 1972. Taxonomic status of pocket gophers *Thomomys idahoensis* and *Thomomys pygmaeus* (Rodentia: Geomyidae). *J. Mammal.* 53:417-428.
- Trost, C.H. 1994. The status and distribution of colonial waterbirds in northern Idaho and selected species in southern Idaho, 1994. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 31pp.
- Trost, C.H. and A. Gerstell. 1994. Status and distribution of colonial nesting waterbirds in southern Idaho, 1993. Dept. Biol. Sciences, Idaho St. Univ., Pocatello. 101pp.
- Unsworth, J.W., L. Kuck, M.D. Scott, and E.O. Garton. 1993. Elk mortality in the Clearwater drainage of north-central Idaho. *J. Wildl. Manage.* 57:in press.
- U.S. Fish and Wildlife Service. 1993. Recovery plan for woodland caribou in the Selkirk Mountains. Portland, OR. 71 pp.
- U.S. Fish and Wildlife Service. 1994. Final Environmental Impact Statement. The reintroduction of gray wolves to Yellowstone National Park and central Idaho. Helena, MO.
- Wackenhut, M.C. 1990. Bat species overwintering in lava-tube caves in Lincoln, Gooding, Blaine, Bingham, and Butte Counties Idaho, with special reference to annual return of banded *Plecotus townsendii*. M.S. Thesis, Idaho St. Univ., Pocatello. 63pp.
- Whitman, J.S. 1981. Ecology of the mink (*Mustela vison*) in west-central Idaho. M.S. Thesis, Univ. Idaho, Moscow. 101pp.
- Woods, C.P. and T.J. Cade. 1996. Nesting habits of the loggerhead shrike in sagebrush. *Condor* 98:75-81.
- Yensen, E. 1991. Taxonomy and distribution of the Idaho ground squirrel, *Spermophilus brunneus*. *J. Mammal.* 72:583-600.
- Yensen, E., D.A. Stephens, and M. Post. 1986. An additional Idaho mole record. *Murrelet* 67:96.

# Common Name Index

Antelope		Cuckoo, Yellow-billed	123	Grebe, Clark's	42	Northern Alligator	15
<i>see</i> Pronghorn	362	Curlew, Long-billed	112	Eared	40	Sagebrush	20
Avocet, American	108	Deer, Mule	358	Horned	38	Short-horned	18
Badger, American	350	White-tailed	359	Pied-billed	37	Side-blotched	22
Barn-owl, Common	124	Dipper, American	197	Red-necked	39	Western Fence	21
Bat, Big Brown	282	Dove, Mourning	122	Western	41	Loon, Common	36
Hoary	283	Duck, Harlequin	67	Grosbeak, Black-headed	231	Lynx	355
Pallid	286	Ring-necked	65	Blue	232	Magpie, Black-billed	179
Silver-haired	280	Ruddy	73	Evening	265	Mallard	56
Spotted	284	Wood	54	Pine	258	Marmot, Hoary	299
Townsend's Big-eared	285	Eagle, Bald	76	Grouse, Blue	92	Yellow-bellied	298
Bear, Black	341	Golden	84	Ruffed	93	Marten, American	344
Grizzly or Brown	342	Egret, Cattle	49	Sage	94	Meadowlark, Western	251
Beaver, American	319	Great	47	Spruce	91	Merganser, Common	72
Bittern, American	45	Snowy	48	Sharp-tailed	95	Hooded	71
Blackbird, Brewer's	253	Elk	357	Gull, California	117	Mink	348
Red-winged	250	Ermine	346	Franklin's	115	Mole, Coast	272
Yellow-headed	252	Falcon, Peregrine	86	Ring-billed	116	Moose	360
Bluebird, Mountain	202	Prairie	87	Hare, Snowshoe	289	Mouse, Canyon	322
Western	201	Finch, Cassin's	259	Harrier, Northern	77	Dark Kangaroo	316
Boa, Rubber	25	Black Rosy	257	Hawk, Cooper's	79	Deer	321
Bobcat	356	House	260	Ferruginous	83	Great Basin Pocket	315
Bobolink	249	Fisher	345	Red-tailed	82	Little Pocket	314
Bobwhite, Northern	97	Flicker, Northern	154	Sharp-shinned	78	Northern Grasshopper	324
Bufflehead	70	Flycatcher, Ash-throated	164	Swainson's	81	Piñon	323
Bunting, Lazuli	233	Cordilleran	162	Heron, Great Blue	46	Western Harvest	320
Bushtit	187	Dusky	160	Hummingbird, Black-chinned	141	Western Jumping	336
Canvasback	63	Gray	161	Broad-tailed	143	Muskrat	334
Caribou, Woodland	361	Hammond's	159	Calliope	142	Myotis, California	278
Catbird, Gray	209	Olive-sided	156	Rufous	144	Fringed	276
Chat, Yellow-breasted	229	Willow	158	Ibis, White-faced	51	Little Brown	273
Chickadee, Black-capped	182	Fox, Red	340	Jackrabbit, Black-tailed	291	Long-eared	275
Boreal	184	Frog, Northern Leopard	11	White-tailed	290	Long-legged	277
Chestnut-backed	185	Pacific Chorus	9	Jay, Gray	174	Western Small-footed	279
Mountain	183	Spotted	12	Pinyon	177	Yuma	274
Chipmunk, Cliff	295	Striped Chorus	8	Steller's	175	Night-Heron, Black-crowned	50
Least	293	Tailed	5	Western Scrub	176	Nighthawk, Common	136
Red-tailed	296	Wood	13	Junco, Dark-eyed	248	Nutcracker, Clark's	178
Yellow Pine	294	Gadwall	61	Kestrel, American	85	Nuthatch, Pygmy	190
Uinta	297	Goat, Mountain	363	Killdeer	106	Red-breasted	188
Chukar	89	Goldeneye, Barrow's	69	Kingbird, Eastern	166	White-breasted	189
Coot, American	103	Common	68	Western	165	Oriole, Bullock's	256
Cormorant, Double-crested	44	Goldfinch, American	264	Kingfisher, Belted	145	Osprey	75
Cottontail, Mountain	288	Lesser	263	Kinglet, Golden-crowned	198	Otter, Northern River	353
Cowbird, Brown-headed	255	Goose, Canada	53	Ruby-crowned	199	Owl, Barred	130
Coyote	338	Gopher, Idaho Pocket	313	Lark, Horned	167	Boreal	134
Crane, Sandhill	104	Northern Pocket	312	Lemming, Northern Bog	335	Burrowing	129
Whooping	105	Townsend's Pocket	311	Lion, Mountain	354	Flammulated	125
Creep, Brown	191	Gnatcatcher, Blue-gray	200	Lizard, Desert Horned	19	Great Gray	131
Crossbill, Red	261	Goshawk, Northern	80	Longnose Leopard	17	Great Horned	127
Crow, American	180	Grackle, Common	254	Mojave Black-collared	17	Long-eared	132



Northern Saw-whet .....	135	Shrew, Dusky .....	268	Townsend's Ground .....	301	Montane .....	330
Short-eared .....	133	Masked .....	266	Uinta Ground .....	303	Sagebrush .....	333
Western Screech .....	126	Merriam's .....	270	White-tailed Antelope .....	300	Southern Red-backed .....	327
Partridge, Gray .....	88	Pygmy .....	271	Wyoming Ground .....	308	Water .....	332
Pelican, American White .....	43	Vagrant .....	267	Stilt, Black-necked .....	107	Vulture, Turkey .....	74
Phalarope, Wilson's .....	114	Water .....	269	Swallow, Bank .....	171	Warbler, Black-throated Gray .....	222
Pheasant, Ring-necked .....	90	Shrike, Loggerhead .....	213	Barn .....	173	MacGillivray's .....	226
Phoebe, Say's .....	163	Siskin, Pine .....	262	Cliff .....	172	Nashville .....	218
Pika, American .....	287	Skink, Western .....	23	Northern Rough-winged .....	170	Orange-crowned .....	217
Pintail, Northern .....	57	Skunk, Striped .....	352	Tree .....	168	Townsend's .....	223
Pipistrelle, Western .....	281	Western Spotted .....	351	Violet-green .....	169	Virginia's .....	219
Pipit, American .....	211	Snake, Common Garter .....	34	Swan, Trumpeter .....	52	Wilson's .....	228
Poorwill, Common .....	137	Gopher .....	30	Swift, Black .....	138	Yellow .....	220
Porcupine, Common .....	337	Longnose .....	31	Vaux's .....	139	Yellow-rumped .....	221
Pronghorn .....	362	Night .....	28	White-throated .....	140	Waterthrush, Northern .....	225
Pygmy-owl, Northern .....	128	Ringneck .....	27	Tanager, Western .....	230	Waxwing, Cedar .....	212
Quail, California .....	99	Western Ground .....	32	Teal, Blue-winged .....	58	Weasel, Long-tailed .....	347
Gambel's .....	98	Western Terrestrial Garter .....	33	Cinnamon .....	59	Whipsnake, Striped .....	29
Mountain .....	100	Snipe, Common .....	113	Green-winged .....	55	Whiptail, Western .....	24
Rabbit, Pygmy .....	292	Solitaire, Townsend's .....	203	Tern, Black .....	121	Wigeon, American .....	62
Raccoon, Common .....	343	Sora .....	102	Caspian .....	118	Willet .....	109
Racer .....	26	Spadefoot, Great Basin .....	10	Common .....	119	Wolf, Gray .....	339
Rail, Virginia .....	101	Sparrow, Black-throated .....	240	Forster's .....	120	Wolverine .....	349
Rat, Chisel-toothed Kangaroo .....	318	Brewer's .....	237	Thrasher, Sage .....	210	Woodpecker, Black-backed .....	153
Ord's Kangaroo .....	317	Chipping .....	236	Thrush, Hermit .....	206	Downy .....	149
Rattlesnake, Western .....	35	Fox .....	244	Swainson's .....	205	Hairy .....	150
Raven, Common .....	181	Grasshopper .....	243	Varied .....	208	Lewis' .....	146
Redhead .....	64	Lark .....	239	Titmouse, Plain .....	186	Pileated .....	155
Redstart, American .....	224	Lincoln's .....	246	Toad, Western .....	6	Three-toed .....	152
Robin, American .....	207	Sage .....	241	Woodhouse's .....	7	White-headed .....	151
Salamander, Coeur d'Alene .....	3	Savannah .....	242	Towhee, Green-tailed .....	234	Wood-pewee, Western .....	157
Idaho Giant .....	4	Song .....	245	Spotted .....	235	Woodrat, Bushy-tailed .....	326
Long-toed .....	1	Vesper .....	238	Turkey, Wild .....	96	Desert .....	325
Tiger .....	2	White-crowned .....	247	Turtle, Painted .....	14	Wren, Canyon .....	193
Sandpiper, Spotted .....	110	Squirrel, Belding's Ground .....	304	Veery .....	204	House .....	194
Upland .....	111	Columbian Ground .....	305	Vireo, Plumbeus .....	214	Marsh .....	196
Sapsucker, Red-naped .....	148	Golden-mantled Ground .....	307	Red-eyed .....	216	Rock .....	192
Williamson's .....	147	Idaho Ground .....	302	Warbling .....	215	Winter .....	195
Scaup, Lesser .....	66	Northern Flying .....	310	Vole, Heather .....	328	Yellowthroat, Common .....	227
Sheep, Bighorn .....	364	Red .....	309	Long-tailed .....	331		
Shoveler, Northern .....	60	Rock .....	306	Meadow .....	329		

# Scientific Name Index

<i>Accipiter cooperii</i> .....	79	<i>Bucephala albeola</i> .....	70	<i>Crotalus viridis</i> .....	35	<i>Himantopus mexicanus</i> .....	107
<i>gentilis</i> .....	80	<i>clangula</i> .....	68	<i>Crotaphytus bicinctores</i> .....	16	<i>Hirundo pyrrhonota</i> .....	172
<i>striatus</i> .....	78	<i>islandica</i> .....	69	<i>Cyanocitta stelleri</i> .....	175	<i>rustica</i> .....	173
<i>Actitis macularia</i> .....	110	<i>Bufo boreas</i> .....	6	<i>Cygnus buccinator</i> .....	52	<i>Histrionicus histrionicus</i> .....	67
<i>Aechmophorus clarkii</i> .....	42	<i>woodhousii</i> .....	7	<i>Cypseloides niger</i> .....	138	<i>Hypsiglena torquata</i> .....	28
<i>occidentalis</i> .....	41	<i>Buteo jamaicensis</i> .....	82	<i>Dendragapus canadensis</i> .....	91	<i>Icteria virens</i> .....	229
<i>Aegolius acadicus</i> .....	135	<i>regalis</i> .....	83	<i>obscurus</i> .....	92	<i>Icterus bullockii</i> .....	256
<i>funereus</i> .....	134	<i>swainsoni</i> .....	81	<i>Dendroica coronata</i> .....	221	<i>Ixoreus naevius</i> .....	208
<i>Aeronautes saxatalis</i> .....	140	<i>Callipepla californica</i> .....	99	<i>nigrescens</i> .....	222	<i>Junco hyemalis</i> .....	248
<i>Agelaius phoeniceus</i> .....	250	<i>gambelii</i> .....	98	<i>petechia</i> .....	220	<i>Lanius ludovicianus</i> .....	213
<i>Aix sponsa</i> .....	54	<i>Canis latrans</i> .....	338	<i>townsendi</i> .....	223	<i>Larus californicus</i> .....	117
<i>Alces alces</i> .....	360	<i>lupus</i> .....	339	<i>Diadophis punctatus</i> .....	27	<i>delawarensis</i> .....	116
<i>Alectoris chukar</i> .....	89	<i>Carduelis pinus</i> .....	262	<i>Dicamptodon aterrimus</i> .....	4	<i>pipixcan</i> .....	115
<i>Ambystoma macrodactylum</i> .....	1	<i>psaltria</i> .....	263	<i>Dipodomys microps</i> .....	318	<i>Lasionycteris noctivagans</i> .....	280
<i>tigrinum</i> .....	2	<i>tristis</i> .....	264	<i>ordii</i> .....	317	<i>Lasiurus cinereus</i> .....	283
<i>Ammodramus savannarum</i> .....	243	<i>Carpodacus cassinii</i> .....	259	<i>Dolichonyx oryzivorus</i> .....	249	<i>Lemmings curtatus</i> .....	333
<i>Ammospermophilus leucurus</i> .....	300	<i>mexicanus</i> .....	260	<i>Dryocopus pileatus</i> .....	155	<i>Lepus americanus</i> .....	289
<i>Amphispiza belli</i> .....	241	<i>Castor canadensis</i> .....	319	<i>Dumetella carolinensis</i> .....	209	<i>californicus</i> .....	291
<i>bilineata</i> .....	240	<i>Cathartes aura</i> .....	74	<i>Egretta thula</i> .....	48	<i>townsendii</i> .....	290
<i>Anas acuta</i> .....	57	<i>Catharus fuscescens</i> .....	204	<i>Elgaria coerulea</i> .....	15	<i>Leucosticte atrata</i> .....	257
<i>americana</i> .....	62	<i>guttatus</i> .....	206	<i>Empidonax hammondi</i> .....	159	<i>Lophodytes cucullatus</i> .....	71
<i>clypeata</i> .....	60	<i>ustulatus</i> .....	205	<i>oberholseri</i> .....	160	<i>Loxia curvirostra</i> .....	261
<i>crecca</i> .....	55	<i>Catherpes mexicanus</i> .....	193	<i>occidentalis</i> .....	162	<i>Lutra canadensis</i> .....	353
<i>cyanoptera</i> .....	59	<i>Catoptrophorus semipalmatus</i> .....	109	<i>traillii</i> .....	158	<i>Marmota caligata</i> .....	299
<i>discors</i> .....	58	<i>Centrocercus urophasianus</i> .....	94	<i>wrightii</i> .....	161	<i>flaviventris</i> .....	298
<i>platyrhynchos</i> .....	56	<i>Certhia americana</i> .....	191	<i>Eptesicus fuscus</i> .....	282	<i>Martes americana</i> .....	344
<i>strepera</i> .....	61	<i>Cervus elaphus</i> .....	357	<i>Eremophila alpestris</i> .....	167	<i>pennanti</i> .....	345
<i>Anthus rubescens</i> .....	211	<i>Ceryle alcyon</i> .....	145	<i>Erethizon dorsatum</i> .....	337	<i>Masticophis taeniatus</i> .....	29
<i>Antilocapra americana</i> .....	362	<i>Chaetura vauxi</i> .....	139	<i>Euderma maculatum</i> .....	284	<i>Melanerpes lewis</i> .....	146
<i>Antrozous pallidus</i> .....	286	<i>Charadrius vociferus</i> .....	106	<i>Eumeces skiltonianus</i> .....	23	<i>Meleagris gallopavo</i> .....	96
<i>Aphelocoma californica</i> .....	176	<i>Charina bottae</i> .....	25	<i>Euphagus cyanocephalus</i> .....	253	<i>Melospiza lincolni</i> .....	246
<i>Aquila chrysaetos</i> .....	84	<i>Chlidonias niger</i> .....	121	<i>Falco mexicanus</i> .....	87	<i>melodia</i> .....	245
<i>Archilochus alexandri</i> .....	141	<i>Chondestes grammacus</i> .....	239	<i>peregrinus</i> .....	86	<i>Mephitis mephitis</i> .....	352
<i>Ardea alba</i> .....	47	<i>Chordeiles minor</i> .....	136	<i>sparverius</i> .....	85	<i>Mergus merganser</i> .....	72
<i>herodias</i> .....	46	<i>Chrysemys picta</i> .....	14	<i>Felis concolor</i> .....	354	<i>Microdipodops megacephalus</i> .....	316
<i>Ascapus truei</i> .....	5	<i>Cinclus mexicanus</i> .....	197	<i>lynx</i> .....	355	<i>Microtus longicaudus</i> .....	331
<i>Asio flammeus</i> .....	133	<i>Circus cyaneus</i> .....	77	<i>rufus</i> .....	356	<i>montanus</i> .....	330
<i>otus</i> .....	132	<i>Cistothorus palustris</i> .....	196	<i>Fulica americana</i> .....	103	<i>pennsylvanicus</i> .....	329
<i>Aythya affinis</i> .....	66	<i>Clethrionomys gapperi</i> .....	327	<i>Gallinago gallinago</i> .....	113	<i>richardsoni</i> .....	332
<i>americana</i> .....	64	<i>Cnemidophorus tigris</i> .....	24	<i>Gambelia wislizenii</i> .....	17	<i>Molothrus ater</i> .....	255
<i>collaris</i> .....	65	<i>Coccythraustes vespertinus</i> .....	265	<i>Gavia immer</i> .....	36	<i>Mustela erminea</i> .....	346
<i>valisineria</i> .....	63	<i>Coccyzus americanus</i> .....	123	<i>Geothlypis trichas</i> .....	227	<i>frenata</i> .....	347
<i>Bartramia longicauda</i> .....	111	<i>Colaptes auratus</i> .....	154	<i>Glaucaudium gnoma</i> .....	128	<i>vison</i> .....	348
<i>Bombycilla cedrorum</i> .....	212	<i>Colinus virginianus</i> .....	97	<i>Glaucomys sabrinus</i> .....	310	<i>Myadestes townsendi</i> .....	203
<i>Bonasa umbellus</i> .....	93	<i>Coluber constrictor</i> .....	26	<i>Grus americana</i> .....	105	<i>Myiarchus cinerascens</i> .....	164
<i>Botaurus lentiginosus</i> .....	45	<i>Contopus borealis</i> .....	156	<i>canadensis</i> .....	104	<i>Myotis californicus</i> .....	278
<i>Brachylagus idahoensis</i> .....	292	<i>sordidulus</i> .....	157	<i>Guiraca caerulea</i> .....	232	<i>Ciliolabrum</i> .....	279
<i>Branta canadensis</i> .....	53	<i>Corvus brachyrhynchos</i> .....	180	<i>Gulo gulo</i> .....	349	<i>evotis</i> .....	275
<i>Bubo virginianus</i> .....	127	<i>corax</i> .....	181	<i>Gymnorhinus cyanocephalus</i> .....	177	<i>lucifugus</i> .....	273
<i>Bubulcus ibis</i> .....	49	<i>Corynorhinus townsendii</i> .....	285	<i>Haliaeetus leucocephalus</i> .....	76	<i>thysanodes</i> .....	276

<i>yumanensis</i> .....	274	<i>Phenacomys intermedius</i> .....	328	<i>Salpinctes obsoletus</i> .....	192	<i>Strix nebulosa</i> .....	131
<i>volans</i> .....	277	<i>Pheucticus melanocephalus</i> .....	231	<i>Sayornis saya</i> .....	163	<i>varia</i> .....	130
<i>Neotoma cinerea</i> .....	326	<i>Phrynosoma douglassi</i> .....	18	<i>Scapanus orarius</i> .....	272	<i>Sturnella neglecta</i> .....	251
<i>lepida</i> .....	325	<i>platyrhinos</i> .....	19	<i>Sceloporus graciosus</i> .....	20	<i>Sylvilagus nuttallii</i> .....	288
<i>Nucifraga columbiana</i> .....	178	<i>Pica pica</i> .....	179	<i>occidentalis</i> .....	21	<i>Synaptomys borealis</i> .....	335
<i>Numenius americanus</i> .....	112	<i>Picoides albolarvatus</i> .....	151	<i>Seiurus noveboracensis</i> .....	225	<i>Tachycineta bicolor</i> .....	168
<i>Nycticorax nycticorax</i> .....	50	<i>arcticus</i> .....	153	<i>Selasphorus platycercus</i> .....	143	<i>thalassina</i> .....	169
<i>Ochotona princeps</i> .....	287	<i>pubescens</i> .....	149	<i>rufus</i> .....	144	<i>Tamias amoenus</i> .....	294
<i>Odocoileus hemionus</i> .....	358	<i>tridactylus</i> .....	152	<i>Setophaga ruticilla</i> .....	224	<i>dorsalis</i> .....	295
<i>virginianus</i> .....	359	<i>villosus</i> .....	150	<i>Sialia currucoides</i> .....	202	<i>minimus</i> .....	293
<i>Ondatra zibethicus</i> .....	334	<i>Pinicola enucleator</i> .....	258	<i>mexicana</i> .....	201	<i>ruficaudus</i> .....	296
<i>Onychomys leucogaster</i> .....	324	<i>Pipilo chlorurus</i> .....	234	<i>Sitta canadensis</i> .....	188	<i>umbrinus</i> .....	297
<i>Oporornis tolmiei</i> .....	226	<i>maculatus</i> .....	235	<i>carolinensis</i> .....	189	<i>Tamiasciurus hudsonicus</i> .....	309
<i>Oreamnos americanus</i> .....	363	<i>Pipistrellus hesperus</i> .....	281	<i>pygmaea</i> .....	190	<i>Taxidea taxus</i> .....	350
<i>Oreortyx pictus</i> .....	100	<i>Piranga ludoviciana</i> .....	230	<i>Sonora semiamulata</i> .....	32	<i>Thamnophis elegans</i> .....	33
<i>Oreoscoptes montanus</i> .....	210	<i>Pituophis melanole</i> .....	30	<i>Sorex cinereus</i> .....	266	<i>sirtalis</i> .....	34
<i>Otus flammeolus</i> .....	125	<i>Plegadis chihi</i> .....	51	<i>hoyi</i> .....	271	<i>Thomomys idahoensis</i> .....	313
<i>kennicottii</i> .....	126	<i>Plethodon idahoensis</i> .....	3	<i>merriami</i> .....	270	<i>talpoides</i> .....	312
<i>Ovis canadensis</i> .....	364	<i>Podiceps auritus</i> .....	38	<i>monticolus</i> .....	268	<i>townsendii</i> .....	311
<i>Oxyura jamaicensis</i> .....	73	<i>grisegena</i> .....	39	<i>palustris</i> .....	269	<i>Troglodytes aedon</i> .....	194
<i>Pandion haliaetus</i> .....	75	<i>nigricollis</i> .....	40	<i>vagrans</i> .....	267	<i>trogodytes</i> .....	195
<i>Parus atricapillus</i> .....	182	<i>Podilymbus podiceps</i> .....	37	<i>Spea intermontanus</i> .....	10	<i>Turdus migratorius</i> .....	207
<i>gambeli</i> .....	183	<i>Poliopitila caerulea</i> .....	200	<i>Speotyto cunicularia</i> .....	129	<i>Tympanuchus phasianellus</i> .....	95
<i>hudsonicus</i> .....	184	<i>Poecetes gramineus</i> .....	238	<i>Spermophilus armatus</i> .....	303	<i>Tyrannus tyrannus</i> .....	166
<i>inornatus</i> .....	186	<i>Porzana carolina</i> .....	102	<i>beldingi</i> .....	304	<i>verticalis</i> .....	165
<i>rufescens</i> .....	185	<i>Procyon lotor</i> .....	343	<i>brunneus</i> .....	302	<i>Tyto alba</i> .....	124
<i>Passerculus sandwichensis</i> .....	242	<i>Psaltriparus minimus</i> .....	187	<i>columbianus</i> .....	305	<i>Ursus americanus</i> .....	341
<i>Passerella iliaca</i> .....	244	<i>Pseudacris regilla</i> .....	9	<i>elegans</i> .....	308	<i>arctos</i> .....	342
<i>Passerina amoena</i> .....	233	<i>triseriata</i> .....	8	<i>lateralis</i> .....	307	<i>Uta stansburiana</i> .....	22
<i>Pelecanus erythrorhynchos</i> .....	43	<i>Quiscalus quiscula</i> .....	254	<i>townsendii</i> .....	301	<i>Vermivora celata</i> .....	217
<i>Perdix perdix</i> .....	88	<i>Rallus limicola</i> .....	101	<i>variegatus</i> .....	306	<i>ruficapilla</i> .....	218
<i>Perisoreus canadensis</i> .....	174	<i>Rana pipiens</i> .....	11	<i>Sphyrapicus nuchalis</i> .....	148	<i>virginiae</i> .....	219
<i>Perognathus longimembris</i> .....	314	<i>pretiosa</i> .....	12	<i>thyroideus</i> .....	147	<i>Vireo gilvus</i> .....	215
<i>parvus</i> .....	315	<i>sylvatica</i> .....	13	<i>Spilogale gracilis</i> .....	351	<i>olivaceus</i> .....	216
<i>Peromyscus crinitus</i> .....	322	<i>Rangifer tarandus</i> .....	361	<i>Spizella breweri</i> .....	237	<i>plumbeus</i> .....	214
<i>maniculatus</i> .....	321	<i>Recurvirostra americana</i> .....	108	<i>passerina</i> .....	236	<i>Vulpes vulpes</i> .....	340
<i>truei</i> .....	323	<i>Regulus calendula</i> .....	199	<i>Stelgidopteryx serripennis</i> .....	170	<i>Wilsonia pusilla</i> .....	228
<i>Phalacrocorax auritus</i> .....	44	<i>satrapa</i> .....	198	<i>Stellula calliope</i> .....	142	<i>Xanthocephalus xanthocephalus</i> .....	252
<i>Phalaenoptilus nuttallii</i> .....	137	<i>Reithrodontomys megalotis</i> .....	320	<i>Sterna caspia</i> .....	118	<i>Zapus princeps</i> .....	336
<i>Phalaropus tricolor</i> .....	114	<i>Rhinocheilus lecontei</i> .....	31	<i>forsteri</i> .....	120	<i>Zenaidra macroura</i> .....	122
<i>Phasianus colchicus</i> .....	90	<i>Riparia riparia</i> .....	171	<i>hirundo</i> .....	119	<i>Zonotrichia leucophrys</i> .....	247