



Birds of the World

*click here
to begin...*

index search exit

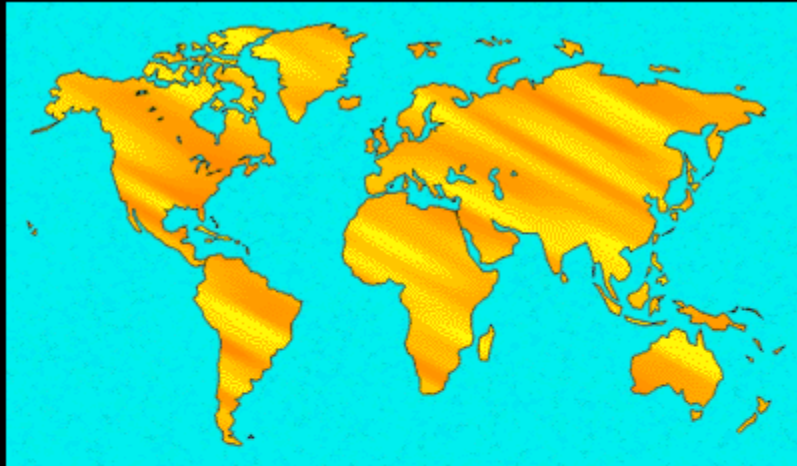
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About

Help

Note



**Special
Topics!**

We Are...
walkers hunters
swimmers
colorful
fast-moving
slow-moving

Our Family Tree Is...
ducks, geese, & swans
cranes & gulls
domestic birds
large birds
small birds

press the escape key to hide me...

Here's how it works!

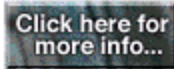


Great Shortcuts!

type B to return back to your previous location
type C to return to the Main Contents screen
type I or S to access the Index or Search
type < or > (comma and period) to browse left and right
type T to trace all the places you have been

Note:

Click on [green type](#) to zoom to a related topic.



Press the escape key to hide me...

Contents Note

Use one of the following "explorers" to access information:

World Map

Click on any location on this map to view a list of birds which typically inhabit that location. Then click on a bird's name to zoom to an article about that particular bird.

We Are...

The birds in this section are organized by character traits, such as walking, hunting, swimming, and so on. Click on any descriptive word to view a list of these birds.

Our Family Tree Is...

The birds in this section are organized by their loose relation to other similar birds, for example: ibis, limpkin, sanderling, and woddies. Click on any descriptive word to view a list of these birds.

Special Topics

Clicking on this button will activate a list of special topics that focus on a particular bird or subject in more detail. These topics are enhanced with a variety of multimedia elements.

Press the escape key to hide me...

Special Topics

Atract Birds

Backyard Bird Feeding

Homes For Birds

Migration Of Birds

The Beautiful Music of Birds

Birdwatching Shows

National Wildlife Refuges

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Colorful

Bishop Bittern Bluebird

Cardinal Cockatoo

Duck Flamingo Jacana

Jay Lovebird Macaw

Oriole

Parrot Peacock Robin

Rooster Spoonbill

Troupial Warbler

Yellowthroat

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Fast-Moving

Eagle

Falcon

Hawk

Hummingbird

Ostrich

Quail

Roadrunner

Swallow

Woodpecker

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Slow-Moving

Emu Goose Owl

Stork Swan

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Swimmers

Anhinga **C**urlew **D**owitcher

Duck **E**gret **G**adwal

Goose

Grebe **H**eron **L**oon

Pelican

Penguin **P**intail **S**anderling

Sandpiper **S**poonbill **S**tork

Swan **T**urkey **W**idgeon

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Hunters

Eagle

Falcon

Goshawk

Hawk

Osprey

Oyster Catcher

Secretary Bird

Sparrowhawk

Vulture

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Unusual

Adhinger

Albatross

Avocet

Booby

Emu

Frigatebird

Hornbill

Lourie

Moorhen

Ostrich

Murre

Puffin

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Walkers

Chicken Emu Guinea

Fowl

Lag Muskovy Ostrich

Peacock Penguin

Turkey

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Ducks, Geese, & Swans

Adhinger **C**ormorant **C**urlew

Dowitcher **D**uck **G**adwal

Gannet **G**oose **G**rebe

Lag

Pintail **P**uffin **S**wan

Teal **W**idgeon **S**wan

Press the escape key to hide me...

Large Birds

Albatross **C**ockatoo **C**rane

Eagle **F**lamingo **H**eron

Ibis **O**sprey **O**strich

Pelican **P**etrel **P**heasant

Ptarmigan **Q**uail **S**ecretary
Bird

Turkey **V**ulture **W**himbrel

Press the escape key to hide me...

Small Birds

Barbet Bee-eater Blackbird Bulul Catbird
Chukar
Dikkop Eremomela Finch Flicker Flycatcher
Gallinule
Godwit Grosbeak Grouse Hoopoe Hummingbird
Hyliota
Jacana Killdeer Kingfisher Kingbird Kookaburra
Longclaw
Meadowlark Noddy Nuthatch Oriole Ovenbird
Phainopepla
Phoebe Pigeon Plonea Plover Redpoll Redstart
Robin
Roller Sapsucker Sheathbill Shrike Snipe
Sparrow
Starling Sunbird Swallow Swee Tanager Tern
Thrush
Titmouse Troupial Veery Wagtail Waxwing
Weaver
White-eye Wren Yellowthroat

Press the escape key to hide me...

Cranes & Gulls

Crane

Egret

Flamingo

Gull

Heron

Ibis

Kittiwake

Limpkin

Little Hull

Loon

Sanderling

Sandpiper

Spoonbill

Stilt

Stork

Woddies

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Domestic Birds

Chicken **C**ockatoo **D**uck

Goose **G**uinea Fowl **L**ag

Macaw **M**uskovy **P**arrot

Pigeon **T**urkey

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North America

Avocet **B**ittern **B**luebird

Cardinal

Chickadee **C**rane **D**ove **D**uck

Eagle **F**alcon **F**lamingo **G**oose

Gull **H**awk **H**ummingbird **J**ay

Loon **O**riole **O**wl **P**elican

Ptarmigan **Q**uail **R**obin

Sparrow

Swallow **S**wan **T**rurkey **V**ulture

Warbler **W**oodpecker

Press the escape key to hide me...

South America

Bluebird Bobolink

Cardinal

Cockatoo Curlew

Flamingo Flicker

Flycatcher

Grebe Grosbeak

Killdeer Kingbird Macaw

Ovenbird Parrot

Plover Stilt Warbler

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Greenland

Brant Goose Crane

Murre

Plover Ptarmigan

Swallow

Tern Warbler

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Asia

Anhinga

Cormorant

Curlew

Falcon

Finch

Hawk

Heron

Peacock

Pheasant

Redstart

Robin

Sparrow

Starling

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Europe

Avocet Bee-Eater Bittern

Egret Goshawk Godwit

Hawk Jay Loon

Owl

Shrike Starling Stork

Wagtail Whimbrel

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Africa

Avocet

Crane

Dikkop

Egret

Gadwal
Fowl

Guinea

Hornbill

Ibis

Jacana

Lovebird

Oriole

Ostrich

Pigeon

Redstart

Robin

Secretary Bird

Tickbird

Press the escape key to hide me...

Australia

Adhinger **C**rane **E**agle

Emu **F**inch **F**lycatcher

Kingfisher **K**ookaburra

Quail

Snipe **T**itmouse

Press the escape key to hide me...

Water/Islands

Albatross **B**ooby **F**rigatebird

Hawk **O**yster Catcher

Pelican **P**enguin **S**tork

Press the escape key to hide me...

About...



Birds of the World



RETURN

Let's Go Exploring!

What's On This Disc...

Hello, and welcome to the Birds Of The World CD-ROM, created by The JLR Group, Inc.! This disc is filled with hundreds of multimedia elements including pictures, movies, music, sounds, and media descriptions of all kinds of birds from all over the world. Learn about familiar birds such as the Chicken, Goose, Robin, and Turkey, as well as some not-so-familiar flying creatures including the Bulul, Frigatebird, Secretary Bird, and Woddies. Hear music that was inspired by birds and see movie footage of birds in their natural habitats -- flying, walking, and swimming. Please take a few minutes to read the short descriptions below. The following quick overview of the contents will help you to find your way around this large library of information!

Contents Explorer...

At the first click of the mouse button you are transported into the wonderful world of birds. Through interaction with the contents explorer screen, you can access virtually all of the information found on this CD-ROM. The screen is divided into four "explore" sections, plus a few additional "controls."

World Map

Click on any location on this map to view a list of the birds which typically inhabit that location. Then click on a bird's name to zoom to an article about that particular bird. You may notice a few birds in multiple locations due to the fact that some birds are more geographically diverse than others.

We Are...

The birds in this section are organized by their character traits, such as walking, hunting, swimming, etc. Click on any descriptive word to view a list of these birds. Then click on a bird's name to zoom to an article about that particular bird.

Our Family Tree Is...

The birds in this section are organized by their relation to other similar birds. For example, ibis, limpkin, sanderling, and woddies all belong to the general group of cranes and gulls. Click on any descriptive word to view a list of these birds. Then click on a bird's name to zoom to an article about that particular bird.

Special Topics

Clicking on the Special Topics button will activate a list of special topics that focus on a particular bird or subject in more detail. These topics are enhanced with various multimedia elements, and may include illustrations, photos, movies, sounds, and music, on subjects such as how to attract, feed, and provide homes for birds, the migration of birds. There are also two special media sections: The Beautiful Music Of Birds, which features musical compositions that were inspired by birds, and Birdwatching Shows, a collection of six movies that focus on particular subjects that are fun for birdwatchers of all ages! Also included is a directory of National Wildlife Refuges with information on viewing birds in the United States and places to visit for breathtaking sightings of these beautiful animals.

About... Help... Note...

Clicking on these buttons will provide information that can assist you in using this product, each in varying degrees of detail. The Note button provides a brief comment on the "Contents Explorer." The Help button will access a visual description of how to use the main control bar found at the top of each article, as well as some tips and shortcuts on how to get around on this CD-ROM. Finally, the About button brings you to this detailed article.

Search...

The Search feature can be used to find information in the Special Topics, and in the directory of National Wildlife Refuges. It is very powerful, and is available at nearly all times. All you have to do is click on the SEARCH button, or type the "S" key (upper or lower case). Then, simply type in any word or phrase you want to look up, for example insect, migration, nest, etc. You'll get a list of all the locations that have what you're looking for. Select any name on the list, click the Go To button, and you'll automatically zoom to that article.

NOTE: There are many items that search will not find, since these items are located not in text but in photos, sounds, movies, graphics, and so on. If you don't find what you're looking for with Search, try using the Wildcard feature described below. If you still don't find it, check the Index!

Search has many sophisticated features, and has additional Help Information built right into it. You can use the asterisk * (shift 8) as a "wildcard" to fill in for one or more missing letters. For example, searching for the word "euro*" will find both Europe, and European, and so on.

Also, you can combine search words any way you want. For example, if you wonder where to find tours that also have water-related activities, you can type "tour* AND water*", and you'll discover 21 such locations.

If you want information on hiking, a search for "hiking*" turns up 39 entries; a

search for "hiking* NOT hunting*" turns up only 10 entries, from California to New York.

Index...

The Index is available at nearly all times. All you have to do is type the "I" key (upper or lower case). There are four different indexes, with hundreds of entries and sub-entries. Each index is an alphabetical list of some sort. Using the Master Index is an easy, quick way to zoom to a specific topic that you're interested in. In addition to many entries pertaining directly to birds, you can also find subjects as varied as Benjamin Franklin, Thanksgiving, Cotton Mather, landscaping, and the Washington Monument.

NOTE: There are many items that are on this CD-ROM, but not specified in the Index. If you don't find what you're looking for with Index, try using Search, especially with the Wildcard feature described above!

Credits and Acknowledgments...

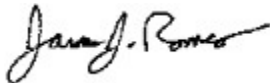
The Creation of Birds Of The World

The Birds Of The World CD-ROM was created over a long period of time by a core team of employees of The JLR Group, Inc. In addition, hundreds of people worked to create many of the photos and other media that are included in this product. It's impossible to list all of the individuals, corporations, government agencies, schools and universities, and other people who were involved. We would like to thank certain people and groups by name for their contributions to this effort. We hope you enjoy Birds Of The World, and we hope you take a few moments to read through the Credits and Acknowledgments.

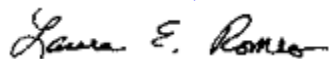
Birds Of The World

James J. Romeo, Ph.D., Senior Editor
Laura E. Romeo, V.P. of Production
Peter Vantine, Director of Special Projects

James J. Romeo, Ph.D., Senior Editor



Laura E. Romeo, V.P. Production



Peter Vantine, Director of Special Projects

BIRDS OF THE WORLD

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Listed below are some of the Media Artists, Technology Experts, Corporations, Writers, and Special Assistants who contributed to this product.

Leanne Liberatore, Photographer, Writer.

Thank you for your help with this CD-ROM. Your photos, writing, and advice are greatly appreciated!

Gigi Abraham, Voice Over Talent.

Mark Wile, Voice Over Talent.

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Thank you, one and all!

To contact The JLR Group, Inc., write:

**The JLR Group, Inc.
630 Potter Road, Suite 100
Framingham, MA 01701**



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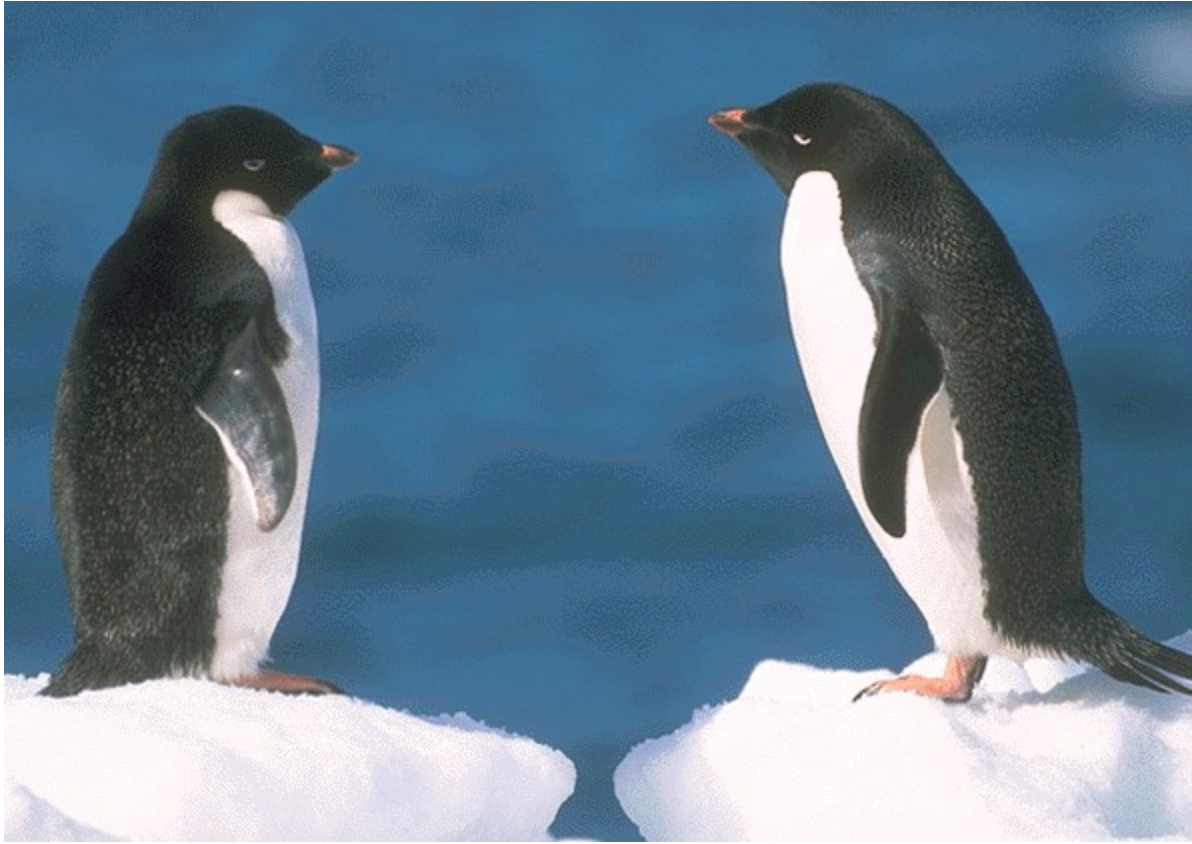
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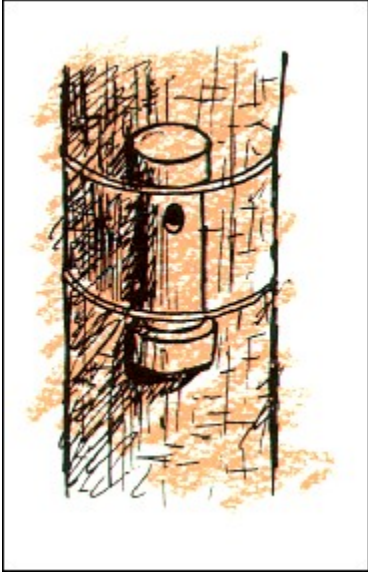


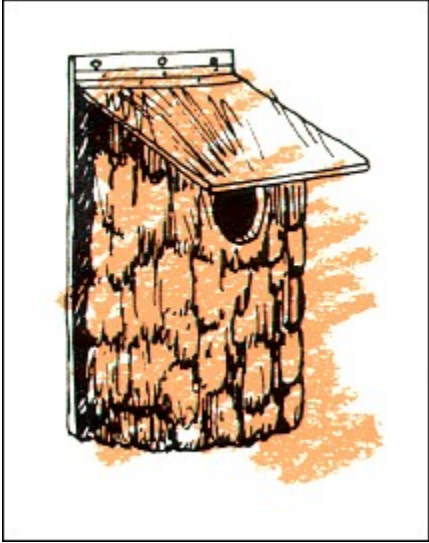
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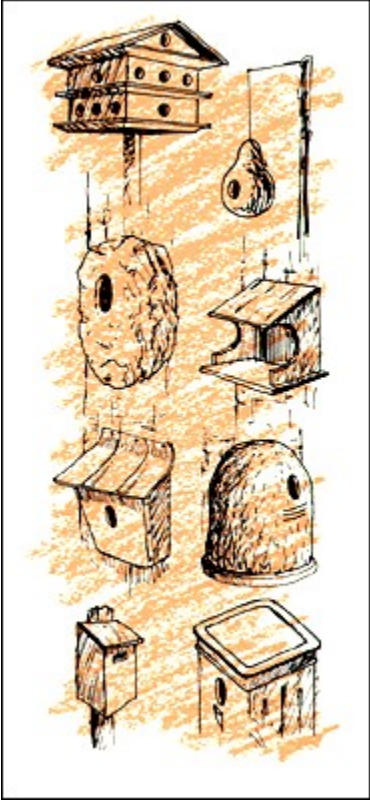


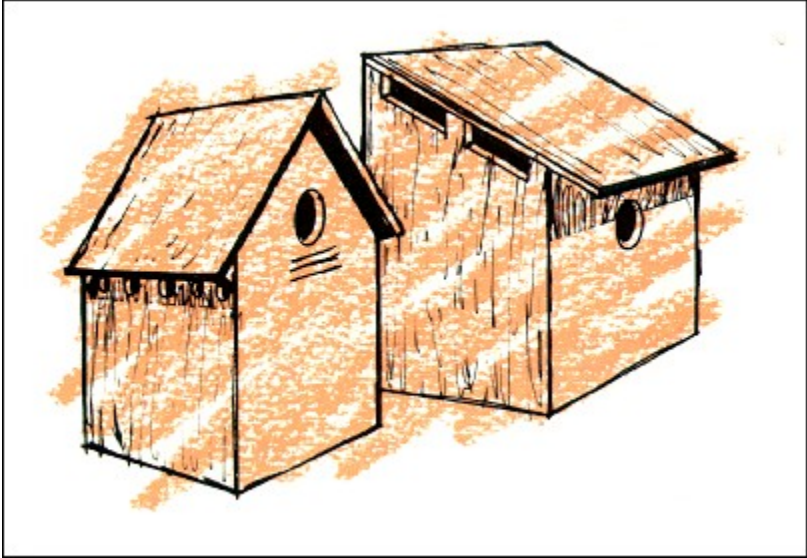


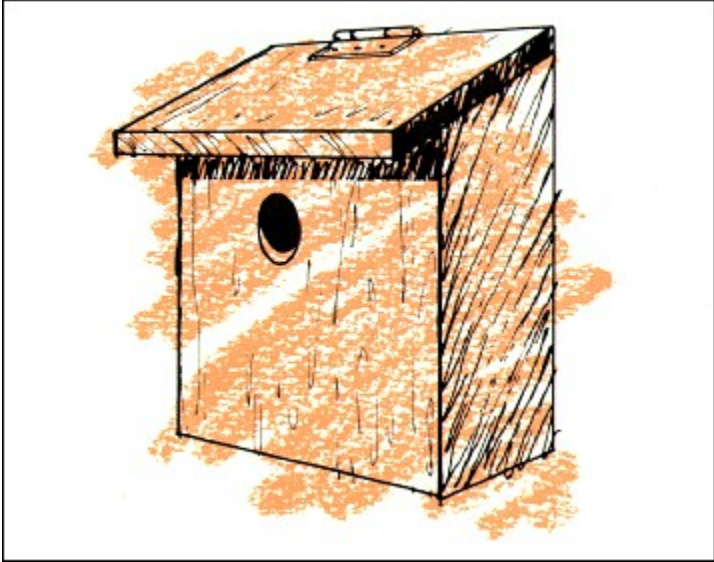




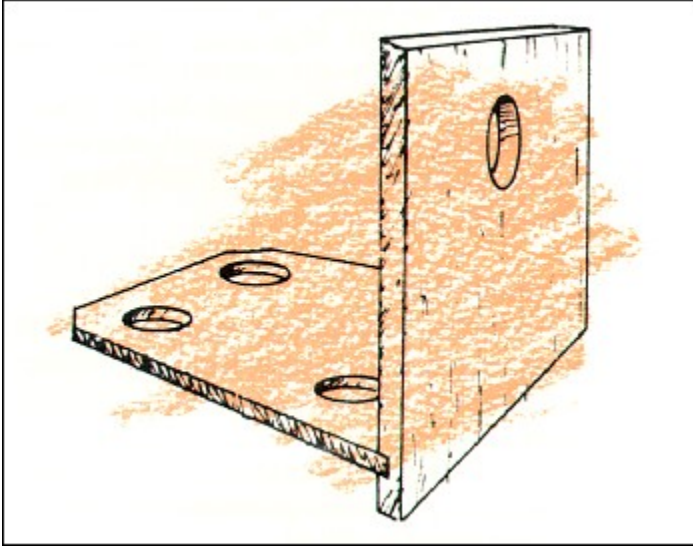


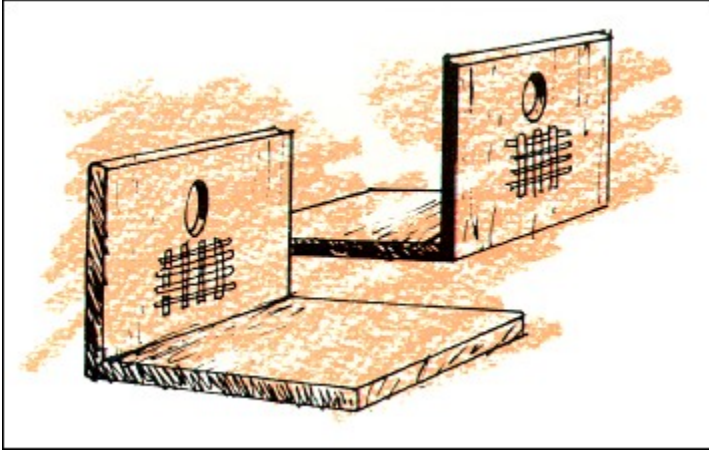


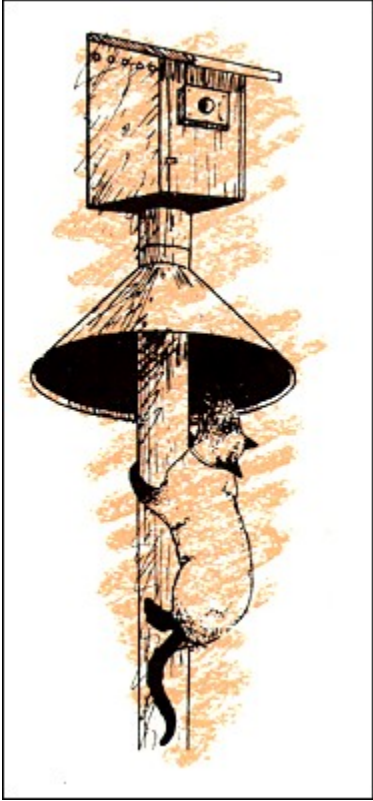






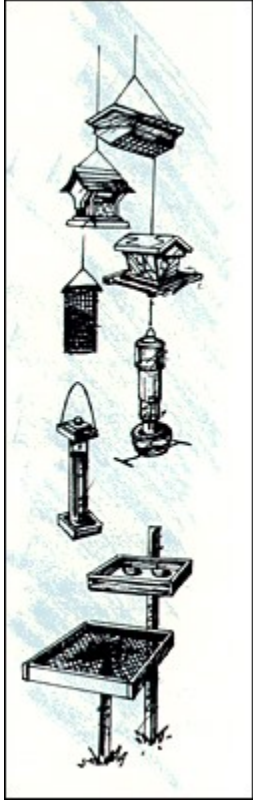




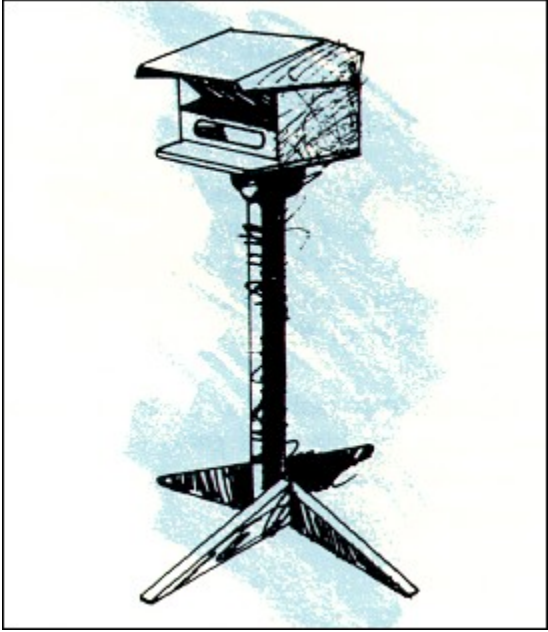


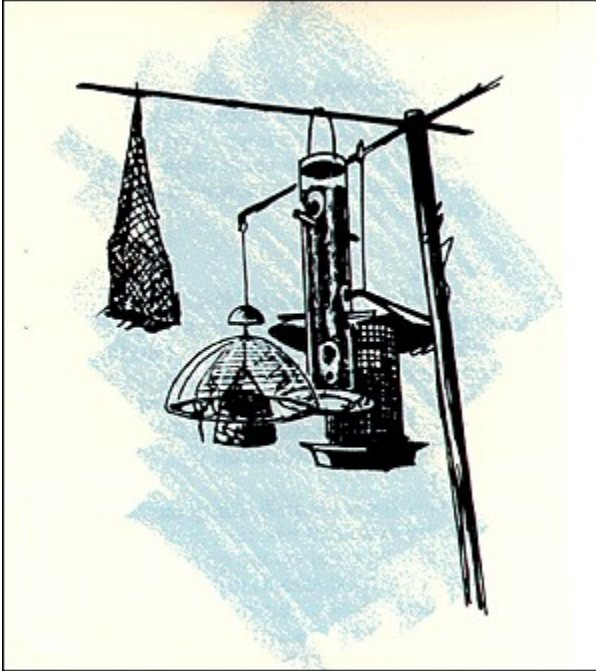






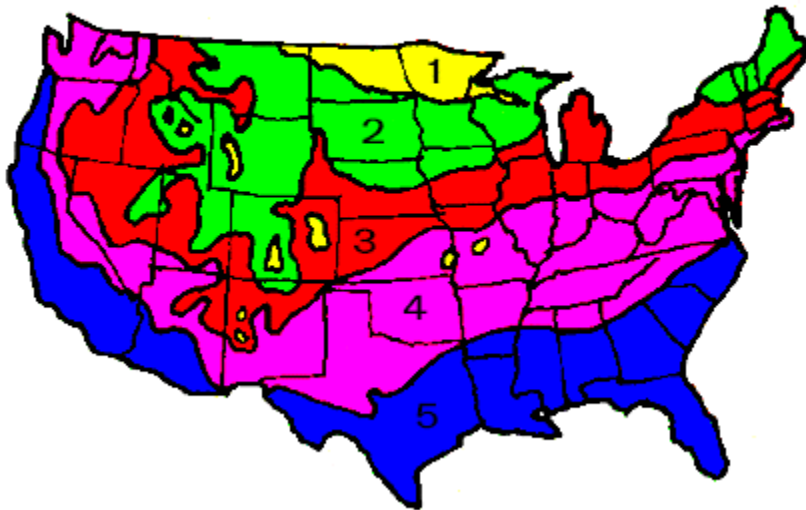


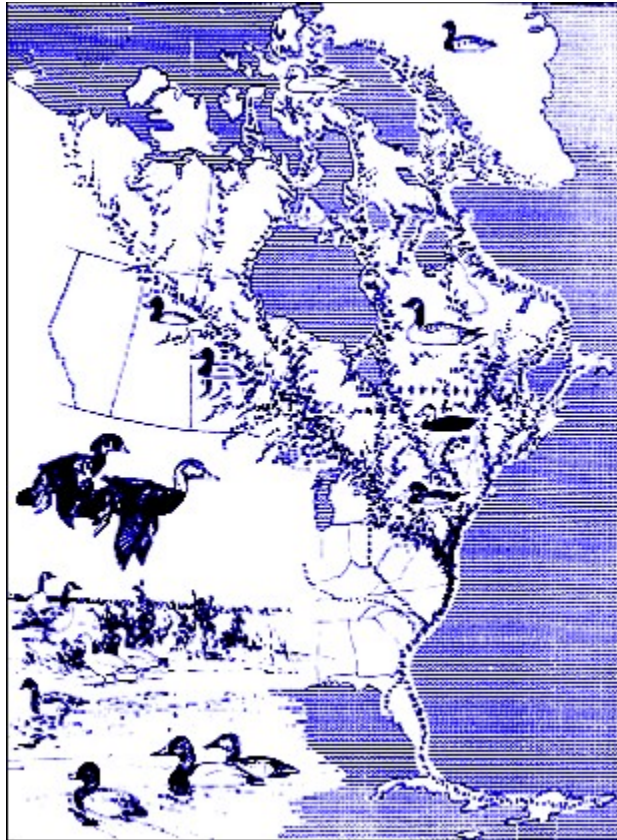


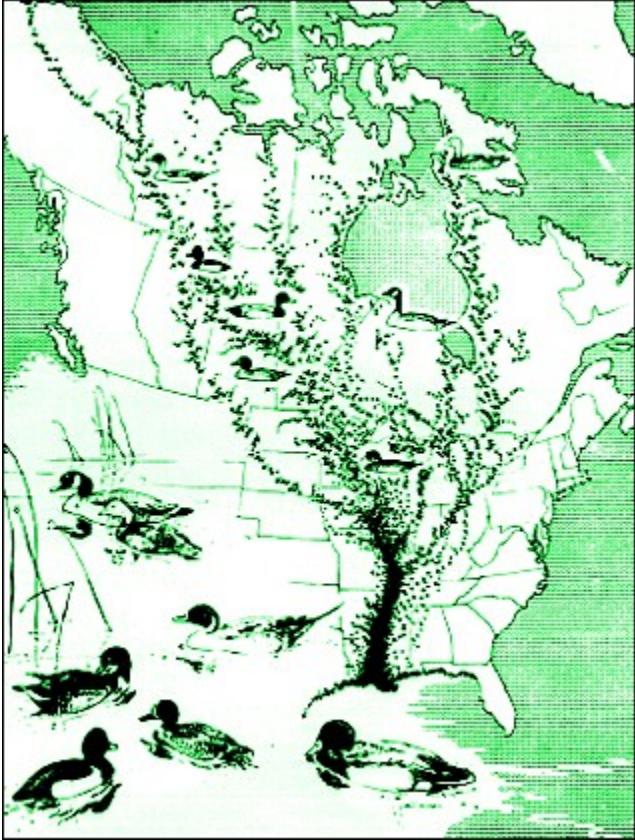


Map Indicating Hardiness Zones

(an example)



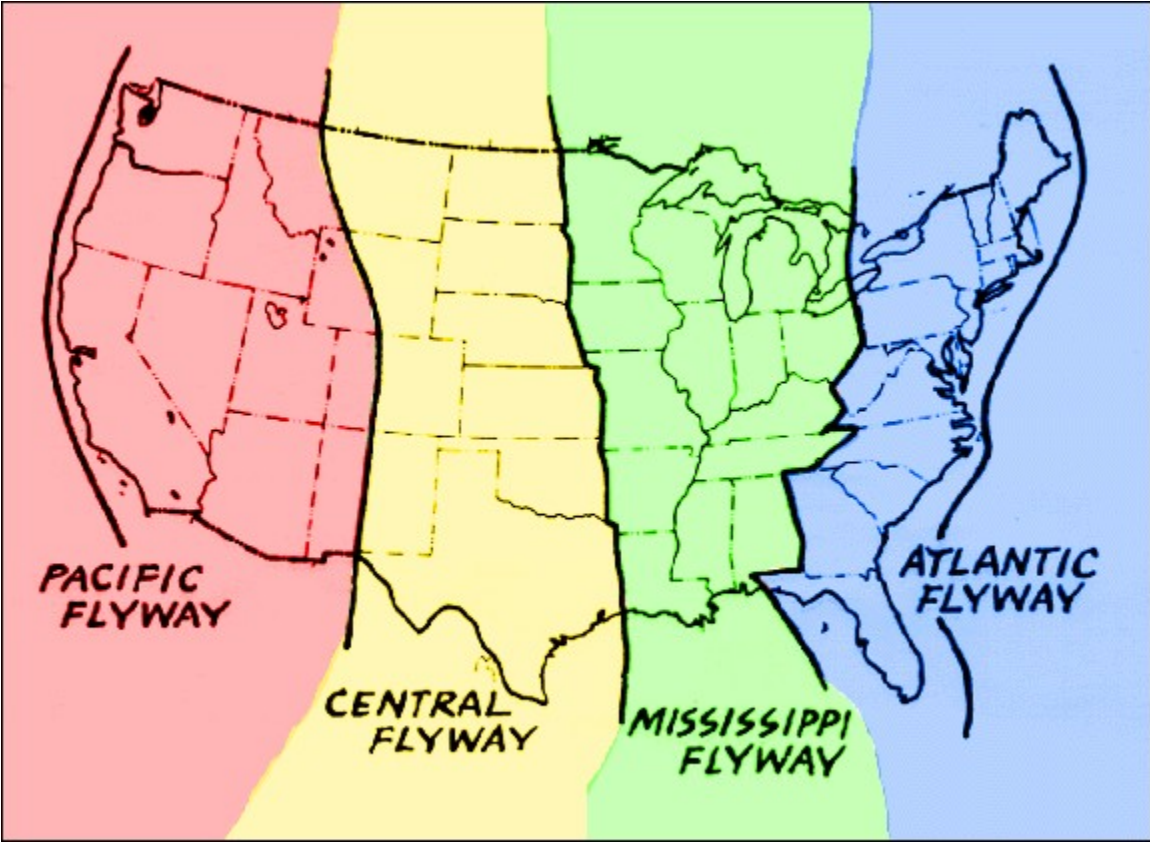




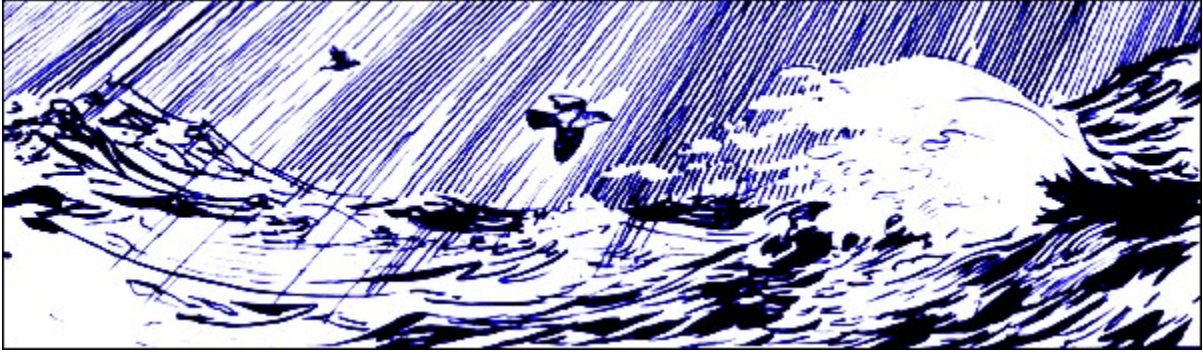


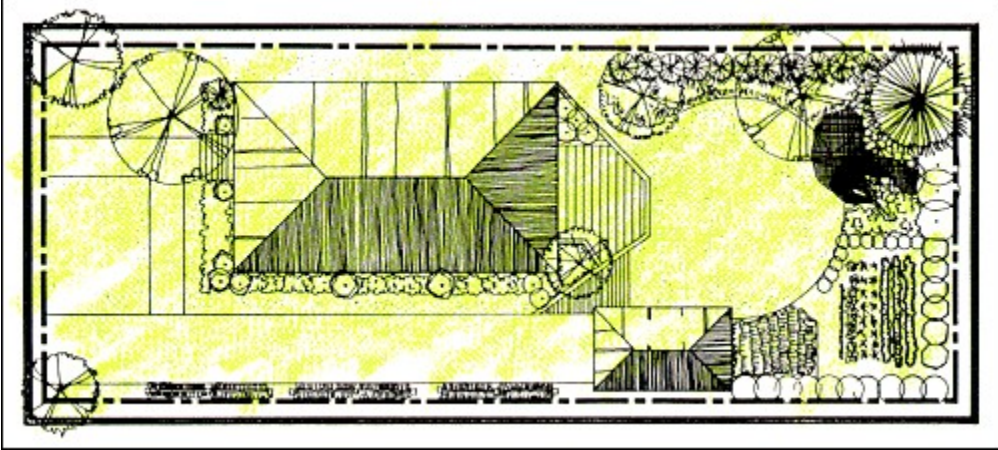






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"Canaries"

by Chambonnieres

Chambonnieres was born in the early 1600s, and was a musician in the French Court of Louis XIV. Canaries is a beautiful duet, originally written for harpsichord, but scored here for harpsichord and two flutes.

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"Swan Lake Theme"

by Tchaikovsky

This is perhaps one of the most famous themes of all time, that was inspired by the beauty of a bird. Composed in 1876, this piece is as emotionally moving today as it was when it was composed, over a century ago. The arrangement here is for harp, flute, and string orchestra

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"Song of the Swallow"

by Böhm

This lovely melody is arranged here as the slow movement of a piano concerto. The dreamy state is enhanced by various special effects, including echo, wind sounds, and gentle tapping.

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"The Nightingale in Love" by Couperin

Couperin was the organist of the French Royal Chapel in 1693, and was the music-master to the royal princes and princesses. He was famous for his beautiful harpsichord music, of which this piece is an example. The song of the nightingale is presented here in the flute, to the accompaniment of strings and harpsichord.

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"Hark! Hark! The Lark!" by Schubert

This piece is one of the most beloved of all Schubert's songs. Schubert composed Hark! Hark! The Lark! in a burst of inspiration one afternoon at a cafe, writing the melody on the back of the bill of fare. It is said that he never revised a note of it after that. This delicate arrangement is for harp, flutes, and choir.

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"The Eagle"

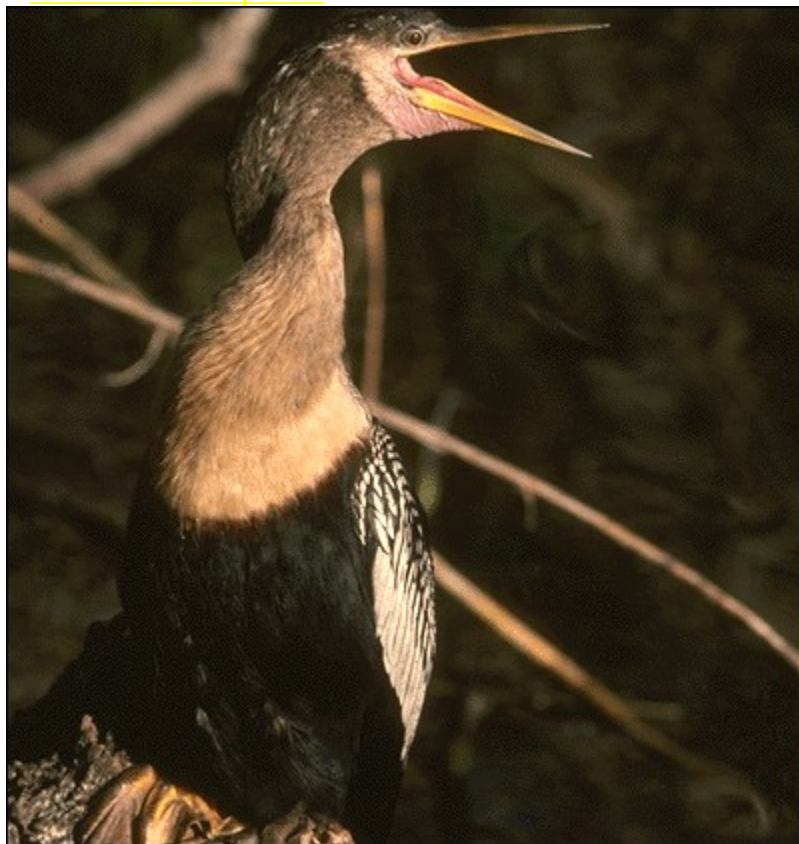
by MacDowell

This famous piano solo, written in 1888, is an interesting interpretation of the eagle. While you listen to this piece, imagine the eagle flying high in the mountains, being viewed from a distance. The music is quiet and distant. And then, with a flourish in the piano at the end of the piece, the eagle swoops out of sight!

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Attract Birds

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Introduction

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Among the fondest and most memorable moments of childhood are the discoveries of songbirds nesting in the backyard. The distinctive, mud-lined nests of robins and their beautiful blue eggs captivate people of all ages. Likewise, the nesting activities of house wrens, cardinals, chickadees, and other common birds can stimulate a lifelong interest in nature.

As people learn to enjoy the beauty of birdlife around their home, they may wish to improve the "habitat" in their yard so that more birds will visit their property. You can attract birds by placing bird feeders, nest boxes, and bird baths in your yard, and by planting a variety of trees, shrubs, and flowers. These can provide good nesting sites, winter shelter, places to hide from predators, and natural food supplies that are available year-round.

Benefits Of Landscaping For Birds

At least ten benefits can be derived from landscaping to attract birds to your yard:

Increased Wildlife Populations

You can probably double the number of bird species using your property with a good landscaping plan.

Energy Conservation

By carefully arranging your conifer and hardwood trees, you can lower winter heating and summer cooling bills for your house.

Soil Conservation

Certain landscape plants can prevent soil erosion.

Natural Beauty

A good landscaping plan will contribute to a beautiful, natural setting around your home that is pleasing to people as well as birds.

Wildlife Photography

Wildlife photography is a wonderful hobby for people of all ages.

Birdwatching

A fun hobby is to keep a list of all the birds seen in your yard or from your yard. Some people have counted over 190 species of birds in their yard!

Natural Insect Control

Birds such as tree swallows, house wrens, brown thrashers, and orioles eat a variety of insects.

Food Production

Some plants that attract wildlife are also appealing to people. Cherries, chokecherries, strawberries, and crabapples can be shared by people and wildlife.

Property Value

A good landscaping plan can greatly increase the value of your property by adding natural beauty and an abundance of wildlife.

Habitat for Kids

Some of the best wildlife habitats are the best "habitats" for young people to discover the wonders of nature. A backyard habitat can stimulate young people to develop a lifelong interest in wildlife and conservation.

Basics Of Landscaping For Birds

Landscaping for birds involves nine basic principles:

Food

Every bird species has its own unique food requirements, and these may change as the bird matures and as the seasons change. Learn the food habits of the birds you wish to attract. Then plant the appropriate trees, shrubs, or flowers that will provide the fruits, berries, grains, seeds, acorns, nuts, or nectar.

Water

You can probably double the number of bird species in your yard by providing a source of water. A frog pond, water garden, or bird bath will get lots of bird use, especially if the water is dripping, splashing, or moving.

Shelter

Birds need places where they can hide from predators and escape from severe weather. Trees (including hollow ones), shrubs, tall grass, and bird houses provide excellent shelter.

Diversity

The best landscaping plan is one that includes a wide variety of plants. This helps attract a greater number of bird species.

Four Seasons

It is necessary to provide birds with food and shelter during all four seasons of the year. Plant trees, shrubs, and flowers that will provide year-round food and shelter.

Arrangement

Habitat components need to be properly arranged. Consider the effects of prevailing winds (and snow drifting) so your yard will be protected from harsh winter weather.

Protection

Birds should be protected from unnecessary mortality. When choosing the placement of bird feeders and nest boxes, consider their accessibility to predators. Picture windows can be death traps for birds. A network of parallel, vertical strings spaced 4 inches apart can be placed on the outside of windows to prevent this problem. You also should be cautious about the kinds of herbicides and pesticides used in your yard. They should be applied only when necessary and strictly according to label instructions.

Hardiness Zones

When considering plants not native to your area, consult a plant hardiness zone map (they are in most garden catalogues). Make sure the plants you want are rated for the winter hardiness zone classification of your area.

[click here to see picture...](#)

Soils and Topography

Consult with your local garden center, university, or county extension office to have a soil test done for your yard. Plant species are often adapted to certain types of soils. By knowing what type of soil you have, you can identify the types of plants that should grow best in your yard.

Plants For Wild Birds

Seven types of plants are important for bird habitat:

Conifers

Conifers are evergreen trees and shrubs that include pines, spruces, firs, arborvitae, junipers, cedars, and yews. These plants are important as escape cover, winter shelter, and summer nesting sites. Some also provide sap, buds, and seeds.

Grasses and Legumes

Grasses and legumes can provide cover for ground nesting birds -- especially if the area is not mowed during the nesting season. Some grasses and legumes provide seeds as well. Native prairie grasses are becoming increasingly popular for landscaping purposes.

Nectar-Producing Plants

Nectar-producing plants are very popular for attracting hummingbirds and orioles. Flowers with tubular red corollas are especially attractive to hummingbirds. Other trees, shrubs, vines, and flowers can also provide nectar for hummingbirds.

Summer-Fruiting Plants

This category includes plants that produce fruits or berries from May through August. Among birds that can be attracted in the summer are brown thrashers, catbirds, robins, thrushes, waxwings, woodpeckers, orioles, cardinals, towhees, and grosbeaks. Examples of summer-fruiting plants are various species of cherry, chokecherry, honeysuckle, raspberry, serviceberry, blackberry, blueberry, grape, mulberry, plum, and elderberry.

Fall-Fruiting Plants

This landscape component includes shrubs and vines whose fruits are ripe in the fall. These foods are important both for migratory birds which build up fat reserves prior to migration and as a food source for non-migratory species that need to enter the winter season in good physical condition. Fall-fruiting plants include dogwoods, mountain ash, winterberries, cottoneasters, and buffaloberries.

Winter-Fruiting Plants

Winter-fruiting plants are those whose fruits remain attached to the plants long after they first become ripe in the fall. Many are not palatable until they have frozen and thawed numerous times. Examples are glossy black chokecherry, Siberian and "red splendor" crabapple, snowberry, bittersweet, sumacs, American highbush cranberry, eastern and European wahoo, Virginia creeper, and Chinaberry.

Nut and Acorn Plants

These include oaks, hickories, buck-eyes, chestnuts, butternuts, walnuts, and hazels. The meats of broken nuts and acorns are eaten by a variety of birds. These plants also provide good nesting habitat.

How To Get Started

Think of this project as "landscaping for birds." Your goal will be to plant an assortment of trees, shrubs, and flowers that will attract birds. If you plan carefully it can be inexpensive and fun for the whole family.

The best way to get started is to follow this checklist:

1. Set Your Priorities

Decide what types of birds you wish to attract, then build your plan around the needs of those species. Talk to friends and neighbors to find out what kinds of birds frequent your area. Attend a local bird club meeting and talk to local birdwatchers about how they have attracted birds to their yards.

2. Use Native Plants When Possible

Check with the botany department of a nearby college or university or with your Natural Heritage Program for lists of trees, shrubs, and wildflowers native to your area. Use this list as a starting point for your landscape plan. These plants are naturally adapted to the climate of your area and are a good long-term investment. Many native plants are beautiful for landscaping purposes and are excellent for birds. If you include non-native plant species in your plan, be sure they are not considered "invasive pests" by plant experts.

3. Draw a Map of Your Property

Draw a map of your property to scale using graph paper. Identify buildings, sidewalks, powerlines, buried cables, fences, septic tank fields, trees, shrubs, and patios. Consider how your plan relates to your neighbor's property (will the tree you plant shade out the neighbor's vegetable garden?) Identify and map sunny or shady sites, low or wet sites, sandy sites, and native plants that will be left in place. Also identify special views that you wish to enhance -- areas for pets, benches, picnics, storage, playing, sledding, vegetable gardens, and paths.

4. Get Your Soil Tested

Get your soil tested by your local garden center, university, or soil conservation service. Find out what kinds of soil you have, and then find out if your soils have nutrient or organic deficiencies that can be corrected by fertilization or addition of compost. The soils you have will help determine the plants which can be included in your landscaping plan.

5. Review the Seven Plant Habitat Components

Review the seven plant components that were described previously. Which components are already present? Which ones are missing? Remember that you are trying to provide food and cover through all four seasons. Develop a list of plants that you think will provide the missing habitat components.

6. Confer With Resource Experts

Review this plant list with landscaping resource experts who can match your ideas with your soil types, soil drainage, and the plants available through state or private nurseries. People at the nearby arboretum may be able to help with your selections. At an arboretum you can also see what many plants look like.

7. Develop Your Planting Plan

Sketch on your map the plants you wish to add. Trees should be drawn to a scale that represents three-fourths of their mature width and shrubs at their full mature width. This will help you calculate how many trees and shrubs you need. There is a tendency to include so many trees that eventually your yard will be mostly shaded. Be sure to leave open sunny sites where flowers and shrubs can thrive. Decide how much money you can spend and the time span of your project. Don't try to do too much at once. Perhaps you should try a five year development plan.

8. Implement Your Plan

Finally, go to it! Begin your plantings and be sure to include your family so they can all feel they are helping wildlife. Document your plantings on paper and by photographs. Try taking pictures of your yard from the same spots every year to document the growth of your plants.

9. Maintain Your Plan

Keep your new trees, shrubs, and flowers adequately watered, and keep your planting areas weed-free by use of landscaping film and wood chips or shredded bark mulch. This avoids the use of herbicides for weed control. If problems develop with your plants, consult a local nursery or garden center.

10. And Finally...

Most of all, take the time to enjoy the wildlife that will eventually respond to your efforts at landscaping for birds.

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Press the escape key to hide me...



Backyard Bird Feeding

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Introduction

Backyard bird feeding is a convenient way to enjoy wildlife. According to a recent Census Report, over 65 million Americans, young and old, have given it a try. What has made watching birds the fastest growing hobby in the country, second only to gardening? What ever it is, watching birds, like watching fish or other animals, seems to make people feel good.

We do know that some birds -- cardinals, mockingbirds and tufted titmice -- have extended their winter range northward, perhaps because of an increased availability of food at feeding stations. There is no indication however that backyard bird feeding has had a negative effect on wild bird populations as a whole.

Backyard bird feeding can, however, have an adverse effect on an individual bird. There may be a higher incidence of disease and birds injured by flying into windows. You can take precautions to minimize these problems.

Getting Started

No matter where you live, you can put food outside your door, and some creature, feathered or furred, will show its appreciation and make an appearance. That's all it takes. Once you get started, it's hard to stop. Before you know it, you're learning bird names. After awhile, you'll start to recognize individuals and the messages in their behavior and song.

When you get to the point where you want to attract and "keep" a particular species, what you do will be determined by where you live, and the time of year. For example, on any winter day, you're likely to see a cardinal at a sunflower feeder in Virginia, a goldfinch at a thistle feeder in Massachusetts, and hummingbirds at a nectar feeder in southern California.

How can you find out which birds to expect? A bird field identification book has

pictures of different birds and will help you find the names for the birds you're likely to see.

Feeder Selection

When the ground is covered with snow and ice, it's hard to resist just tossing seed out the door. But it's healthier for the birds to get their "hand-outs" at a feeding station, off the ground.

Regardless of the season, food that sits on the ground for even a short time is exposed to potential contamination by dampness, mold, bacteria, animal droppings, lawn fertilizers, and pesticides. It's best, for the birds' sake, to use a feeder.

You can start simply with a piece of scrap wood, elevated a few inches above the ground. Add a few holes for drainage and you've built a platform feeder. It won't be long before the birds find it.

Whether you buy one or build one, eventually you'll find yourself looking at commercially manufactured feeders. There are literally hundreds to choose from. How do you make the "right" choice? What makes a feeder "good?"

First consider placement

Where do you want to watch your birds? From a kitchen window... a sliding glass door opening on to a deck... a second story window? Pick a location that has year-round easy access. When the weather's bad and birds are most vulnerable, you may be reluctant to fill a feeder that isn't in a convenient spot near a door or accessible window.

Also consider the "mess" factor. Pick a location where discarded seed shells and bird droppings won't be a clean-up problem. Put your feeder where the squirrels can't reach. Those cute little rodents seem to like sunflower and peanuts as much or more than acorns. Squirrels become a problem when they take over a bird feeder, scaring the birds away, and tossing seed all over. What's worse... frustrated squirrels have been known to entertain themselves by chewing right through plastic and wooden feeders.

If you've seen squirrels in your neighborhood, it's safe to assume they will visit your feeder. Think long and hard before you hang anything from a tree limb. Squirrels are incredibly agile, and any feeder hanging from a tree, with or without a squirrel guard or baffle, is likely to become a squirrel feeder. In the long run, a squirrel-proof feeder or any feeder on a pole with a baffle is the least aggravating

solution.

The most effective squirrel-proof feeder is the pole-mounted metal "house" type. If you must hang a feeder, select a tube protected with metal mesh. Most plastic "squirrel-proof" feeders, despite manufacturers' claims, may eventually succumb to rodent teeth.

If you have the "right" situation in your yard, a pole with a baffle should suffice. Any wood or plastic feeder can be effective when mounted on a pole with a plastic or metal baffle, if the pole is at least 10 feet or more from a tree limb or trunk.

Once you've determined where you're going to put your feeder, you're ready to go shopping. In addition to good looks, think about...

- **How durable is it?** -
- **Will it keep the seeds dry?** -
- **How easy is it to clean?** -
- **How much seed will it hold?** -
- **How many birds will it feed at one time?** -
- **Which species will use it?** -

Durability

There seems to be no end to the materials used in making bird feeders. You can buy "disposable" plastic bag feeders; feeders made of cloth, nylon, vinyl, and metal netting; clear, lexan, colored, and PVC plastic tubes; ceramic and terra cotta; redwood, western cedar, birch, pine, and plywood; sheet metal and aluminized steel; glass tubes and bottles. How long a feeder lasts depends on how much effort you put into maintaining it, the effects of weather, and whether squirrels can get to it.

[click here to see picture...](#)

Dry Seeds

Water can get into any feeder regardless of how careful you are to protect it. Seed will spoil when it gets damp or wet. Cloth, vinyl, nylon, and metal netting feeders are inexpensive, but they do not protect your seed. You can improve them by adding a plastic dome.

Most wood, plastic, ceramic, and solid metal feeders will keep seed dry, but water can get into the feeding portals. Look for feeders with drainage holes in the bottoms of both the feeder hopper and the seed tray. Even bowl-type feeders and trays with drainage holes will clog with seed and bird droppings. Add rainwater and you have an unhealthy broth. Look for shallow plate-like seed trays. The

purpose of a tray is to catch dropped seeds while allowing spent seed shells to blow away.

Cleaning

Any zookeeper and cage bird owner will tell you, when you feed birds in a confined area, you have to expect bird droppings, feathers, an occasional insect or two, and left-over food mess.

While you don't have to wash the feeder daily, you should clean it regularly. Diseases like salmonella can grow in moldy, wet seed and bird droppings in your feeder tray and on the ground below. It's a good idea to move your feeders (just a foot or so) each season to give the ground underneath time to assimilate the seed debris and bird droppings.

Keeping your feeders clean should not become a major undertaking. The degree of maintenance required is directly related to the types of birds you want to attract. A thistle feeder for goldfinches should be cleaned about once a month depending on how often it rains. Feeding hummingbirds requires cleaning at the very least, weekly, preferably more often -- two or three times a week.

Sunflower and suet feeders may need to be cleaned only once a month. Feeders made of plastic, ceramic, and glass are easy to clean. Wash them in a bucket of hot, soapy water fortified with a capful or two of chlorine bleach, then give them a run through your dishwasher. Use the same regimen with wood feeders, but substitute another disinfectant for the bleach so your wood won't fade.

Food Capacity

The ideal feeder capacity varies with your situation, and the types of birds you want to attract. If you feed hummingbirds, big feeders are not always better. One hummingbird will drink about 2 times its body weight (less than an ounce) a day. Early in the season, hummers are territorial and won't share a feeder. A sixteen ounce feeder can be wasteful, or indeed lethal, because artificial nectar (sugar water) can ferment in the hot summer sun.

If you see only one hummer in your yard, a two ounce feeder is more than enough. On the other hand, if you live in the southwest, and have 34 hummers in your yard, a sixteen ounce feeder may not be big enough. If you opt for a large volume seed feeder, be sure to protect it from the weather and keep it clean. If after months of use, the birds suddenly abandon your feeder full of seed, it's time for a cleaning.

How Many Birds

If too many birds at your feeder becomes a problem, you can control their numbers by putting out smaller amounts of seed, by using specialty seeds, or by using restrictive feeders. If you fill your feeder only when it's empty, the birds will look for food elsewhere. They'll return as long as you continue to fill it.

You can virtually eliminate visits by birds you'd rather not see by offering seeds they won't eat. Be selective in your choice of seeds. If you use more than one type of seed, put them in separate feeders. This will reduce wasted seeds, as birds will toss unwanted seeds out of a feeder to get to their favorites.

[*click here to see picture...*](#)

Birds that visit your feeder have very specific preferences. Most prefer sunflower. Some prefer millet. A few prefer peanuts. None seem to prefer the other grains used in the mixes: corn, milo, red millet, oats, wheat, and canary seed.

If you want to feed only cardinals, doves, and white-throated sparrows, switch from black oil sunflower to sadower. If you want only finches and an occasional dove and white-throated sparrow, try niger thistle. If you want only jays, titmice, and white-throated sparrows, try peanuts.

Another way to discourage unwanted birds is to use specialty feeders that for the most part, allow only "select" birds to feed. The most non-selective feeders are the tray, platform or house feeders.

You can encourage small birds with feeders that restrict access. Wood feeders with vertical bars and feeders covered with wire mesh frustrate the larger birds. Tube feeders without trays also restrict access to small birds. Remove the perches, and you've further selected only those birds capable of clinging -- finches, chickadees, titmice, and woodpeckers.

Add vertical perches to tube thistle feeders, and you'll limit accessibility primarily to the goldfinches. If starlings are a problem at your suet feeder, you can discourage them by using a suet feeder with access only at the bottom. Starlings are reluctant to perch upside down. Chickadees and woodpeckers don't find that a problem.

Species Variety

The species you attract is determined primarily by the seeds you offer. Black oil

sunflower is the hands-down favorite of all the birds that visit tube and house type feeders. White proso millet is favored by birds who visit platform feeders (doves and sparrows). Ducks, geese, and quail will eat corn. Many of the cereal grains (corn, milo, oats, canary, wheat, rape, flax, and buckwheat) in mixed bird seeds are NOT favorites of birds that visit tube feeders.

Watch a feeder filled with a seed mix and you'll see the birds methodically drop or kick out most of the seeds to get to their favorite -- sunflower. Birds will also kick out artificial "berry" pellets, processed seed flavored and colored to look like "real" fruit. Seeds that wind up on the ground are likely to be contaminated by dampness and bird droppings. If the birds don't eat them, rodents will.

The most effective way to attract the largest variety of birds to your yard is to put out separate feeders for each food:

- (a.) a starling-resistant suet feeder
- (b.) a house feeder for sunflower
- (c.) a bluebird feeder
- (d.) a wire mesh cage feeder for peanuts
- (e.) a nectar feeder
- (f.) a tube feeder for thistle
- (g.) a stationary or tray fruit feeder
- (h.) a house or platform feeder for millet



Attracting Wild Birds With Feeders And Seeds

Tube feeder with black oil sunflower

chickadees

**goldfinches
nuthatches
pine siskins
redpolls
titmice
woodpeckers**

Adding a tray to the tube feeder will also attract

**cardinals
crossbills
jays
purple and house finches
white-throated, white-crowned sparrows**

Tray or platform feeder -- with millet

**blackbirds
chipping, field, tree sparrows
cowbirds
doves
house sparrows
juncos
towhees
white-throated, white-crowned sparrows**

Tray or platform feeder -- with corn

**bobwhite quail
doves
grackles
house sparrows
jays
juncos
ring-necked pheasants
starlings
white-throated sparrows**

Platform feeder or tube feeder and tray -- with peanuts

**cardinals
chickadees
grackles**

**house finches
house sparrows
jays
juncos
mourning doves
sparrows
starlings
titmice
white-throated sparrows**

Niger thistle feeder with tray

**chickadees
dark-eyed juncos
doves
goldfinches
house finches
pine siskins
purple finches
redpolls
song sparrows
white-throated sparrows**

Nectar Feeder

**cardinals
finches
hummingbirds
orioles
tanagers
thrushes
woodpeckers**

Fruit

**bluebirds
cardinals
cedar waxwings
jays
mockingbirds
orioles
starlings**

**tanagers
thrashers
thrushes
woodpeckers
yellow breasted chats**

Hanging Suet Feeder

**cardinals
chickadees
creepers
kinglets
nuthatches
starlings
thrashers
woodpeckers
wrens**

Peanut Butter Suet

**bluebirds
cardinals
goldfinches
jays
juncos
kinglets
starlings
thrushes
woodpeckers
wrens**

Hanging Peanut Feeder

**chickadees
titmice
woodpeckers**

Uninvited Guests At The Birdfeeder

Once you get your bird feeding station up and running, you may run into problems with uninvited guests. These visitors fall into two categories -- those

interested in the seeds (squirrels and chipmunks, rats and mice, starlings and house sparrows), and those interested in a bird for dinner (cats and hawks).

If you have trees, you will get to know squirrels. You may marvel at their antics, until they take over your bird feeders. Then you'll either love them or hate them. Those who love squirrels tolerate their visits, and may even encourage them with special squirrel toys and feeders.

When a squirrel is at the feeder, you're not likely to see birds. Squirrels will scare off the birds while they eat the seed, and sooner or later, they'll eat the feeder too. The simplest solution is the squirrel-proof feeder or pole, and storing your seed in a metal garbage can.

[click here to see picture...](#)

Chipmunks, rats, and mice can also become a problem where there's seed spillage under the feeder. Don't use mixed bird seed, and if you don't have a squirrel problem, add a feeder tray. Crow, house sparrow, and starling problems can be eliminated by seed and feeder selection.

Cats are another story altogether. Feral cats and your neighbor's tabby are a serious threat to nestlings, fledglings, and roosting birds. Too often, the presence of just one cat on the prowl near your feeder can take the enjoyment out of your backyard bird watching experience. When a cat sits drooling under your feeder, you're not likely to see any birds. You're bound to feel much worse when you find a pile of feathers on the ground.

If your neighbor is reasonable, suggest a bell collar. If that doesn't work, consider getting yourself a pet -- a dog. Birds don't seem to be bothered by most dogs, but cats and squirrels are!

If there are no cats in your neighborhood and you find a pile of feathers near your feeder, look for a hungry hawk perching on a tree nearby. Don't get upset. Consider yourself fortunate to see one, right in your backyard. Cooper's and sharp-shinned hawks eat birds and play an important role in the natural community. Don't put out poisons, or try to trap them, since all birds of prey -- eagles, owls, and hawks -- are protected by Federal law.

Questions About Feeding Wild Birds

When's the best time to start?

There is no best or worst time. Start whenever you want to. The birds can use your

help in the very early spring when their natural seed sources are scarce. In general, whenever the weather is severe, birds will appreciate a reliable supplemental food source.

When's the best time to stop?

If you enjoy feeding birds, there is no reason to stop. You can do it year-round. Feeding the birds throughout the summer will not make them "lazy," or "dependent." If you keep your feeding station clean, there's no reason for you to stop feeding suet, sunflower, millet, fruit, and nectar.

Is it best to stop feeding hummingbirds after Labor Day?

There is no evidence that feeding hummingbirds after Labor Day will keep them from migrating. In fact, it may help a weakened straggler refuel for the long haul. Leave your nectar feeders out until the birds stop coming.

How long does it take for birds to find a feeder?

Sometimes it can seem like forever. It may take more time for birds to find window feeders than hanging or pole-mounted feeders. If you're impatient, start with a feeder full of hulled sunflower. If that doesn't get their attention, wrap aluminum foil around the top of the feeder hanger. Sometimes all it takes is the reflection of light on the foil to catch their attention.

My feeder is full of seeds. I haven't seen a bird in months. Am I doing something wrong?

When birds desert your feeder, it may be simply that a lot of natural food is available nearby. Or something may be wrong, such as your seeds are spoiled or your feeder contaminated. Throw the seeds away and wash the feeder. Take a look at where your feeder is placed. Be sure it's not vulnerable to predators.

Won't birds' feet stick to metal feeders and perches in the wet winter weather?

Birds don't have sweat glands in their feet, so they won't freeze onto metal feeders. There's no need to cover any metal feeder parts with plastic or wood to protect birds feet, tongues, or eyes.

Can birds choke on peanut butter?

There's no evidence that birds can choke on peanut butter. However, birds have no salivary glands. You can make it easier on them by mixing peanut butter with lard, cornmeal, and/or grit. Your birds will appreciate drinking water too -- a bird bath or trough.

Do wild birds need grit?

In the winter, you may see flocks of birds along roadsides after the snowplows have passed. They're after the grit. Birds have no teeth to grind their food. The dirt, sand, pebbles, and grit they eat sits in their crop and helps grind up their

food. Adding grit to your feeder is helpful year-round, but particularly in the winter and spring. Crushed eggshells do the same thing, and in the spring have an added benefit. They provide extra calcium during nesting season.

Won't suet go "bad" in the summer?

In the winter, raw beef fat from the local butcher is all you need for your suet feeder. When temperatures rise, raw fat can melt, and get rancid. It's safer to use commercially rendered suet cakes in the spring and summer months. Rendering, boiling the fat, kills bacteria. And yes, it's okay to feed your woodpeckers year-round. They will visit your feeders all summer long, and they'll bring their babies.

What is hummingbird "nectar?" Do hummers need nectar fortified with Vitamins and minerals?

Hummingbird nectar is nothing more than table sugar and water. You can make your own by adding 1/4 cup of sugar to a cup of boiling water. Hummers eat insects for their protein. There is no evidence that these tiny birds need vitamin and mineral supplements. There is also no evidence that adding red food coloring to nectar will harm the birds, but it probably is not necessary to attract them. Just put your feeder near red flowers. Please remember, sugar water will ferment when left in the hot sun. Fermented nectar is deadly. Do not put out a feeder if you are not willing to clean it at least weekly, preferably twice a week.

How can I avoid bees at my hummingbird feeder?

Bees are usually a problem only in hot weather. It's inevitable that bees will visit your hummingbird feeder. Little plastic bee guards may help keep them from getting nectar but it won't stop them from trying. Don't take the chance of contaminating your nectar by putting vegetable oil around the feeding portals. The safest solution is to add a few small feeders away from where people are likely to be bothered by bees.

How close to your window can you put a feeder?

Birds will come right to your window. Sometimes it takes a while for them to overcome their initial reluctance, so be patient. Don't worry that a feeder on the window will cause birds to fly into the window. Birds fly into the window because they see the reflection of the woods. Window feeders and decals can help break up the reflection. If you find a bird that has hit a window, carefully pick it up and put it in a box or a large paper bag, put it in a dark, quiet corner of your house for a couple of hours. If the bird recovers, take the box or bag outside and just let it go. If the bird comes to, but seems injured, call your local wildlife rehabilitation center for help.

I bought some cracked corn coated with a red dye. Is it safe to use?

The red or pink coating is capstan, a fungicide used on seeds meant for planting. If you buy a bag of cracked corn or other seed treated with capstan, return it to the

store. It can kill horses, other mammals, and wild birds.

I bought a bag of sunflower seeds early in the spring. Over the summer I noticed first worms, then moths. What can I do to keep the bugs out?

It's natural for moths to lay their eggs in sunflower seeds. The eggs lay dormant as long as the seeds are stored in a cool dry place. In the summer, seeds get hot and the eggs hatch. The best way to avoid this problem to buy seeds in smaller quantities, or store your seeds in a cool, dry place. It also helps to know where your retailer stores the seed. An air conditioned storage unit is the better choice. Insects will also lay their eggs in burlap bags. Don't buy seeds in burlap bags. Don't buy seed in paper and plastic bags with patched holes. That may be a sign of insect or rodent infestations.

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Homes For Birds

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Introduction

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It doesn't matter where you live -- in an apartment, townhouse, or single family dwelling, in the city, suburbs, or country. Just stand still and you'll hear them: *wild birds*. It's hard to imagine life without them. Bird watching is one of the fastest growing hobbies in the country. It's easy to understand why. Birds are fun to watch.

And you can watch them just about everywhere. The most convenient place to start is right in your own backyard. All it takes to get their attention is water, food, and a place to build a nest. This special topic is designed to help you build or buy suitable homes -- more correctly, nesting boxes -- for birds. Your success in attracting birds will depend on what you know about birds and bird-house design. This article explains what you need to know to get started:

- Which birds nest in houses -
- Basics of bird-house construction -
 - Proper placement -
 - Good maintenance -
- How to deal with predators -
 - Monitoring -

Birds You Can Attract To Nest Boxes

Many of the birds that visit feeders and baths may stay and nest in nearby trees. Most of them, including cardinals, doves, and orioles, don't nest in boxes. You can still help them by considering their food and shelter requirements in your landscape plans. You can also hang out a wire cage full of nesting materials (fiber scraps, twigs, wool, or feathers) in the spring.

More than two dozen North American birds will nest in bird houses. The following descriptions will help you determine which birds might visit your

neighborhood.

Bluebirds

If you put up a bluebird house near an old field, orchard, park, cemetery, or golf course, you'll have a good chance of attracting a pair of bluebirds. They prefer nest boxes on a tree stump or wooden fence post between three and five feet high. Bluebirds also nest in abandoned woodpecker nest holes. The most important measurement is the hole diameter. An inch and a half is small enough to deter starlings.

Starlings and house sparrows have been known to kill baby bluebirds as well as adults sitting on the nest. Bluebirds have problems with other animals too. The easiest way to discourage predatory cats, snakes, raccoons, and chipmunks is to mount the house on a metal pole, or use a metal predator guard on a wood post.

Robins

Robins are our largest thrushes. They prefer to build their nest in the crotch of a tree. If you don't have an appropriate tree, you can offer a nesting platform. Pick a spot six feet or higher up on a shaded tree trunk or under the overhang of a shed or porch. Creating a "mud puddle" nearby offers further excitement, as robins use mud to line their nests.

[*click here to see picture...*](#)

Chickadees, Nuthatches, and Titmice

Chickadees, nuthatches, and titmice share the same food, feeders, and habitats. If you put a properly designed nest box in a wooded yard, at least one pair is sure to check it out. Put chickadee houses at eye level. Hang them from limbs or secure them to tree trunks. The entrance hole should be 1-1/8" to attract chickadees yet exclude house sparrows. Anchor houses for titmice and nuthatches on tree trunks five to six feet off the ground. You can encourage these birds to stay in your yard by continuing to fill your suet and peanut feeders through the summer.

[*click here to see picture...*](#)

Brown Creepers and Prothonotary Warblers

Look for brown creepers to nest behind the curved bark of tree trunks. In heavily wooded yards, slab bark houses will appeal to creepers. Prothonotary warblers also prefer slab bark houses, but theirs must be placed over water.

[*click here to see picture...*](#)

Wrens

Wrens don't seem to be very picky about where they nest. Try nest boxes with a 1" x 2" horizontal slot (1-1/2" x 2-1/2" for the larger Carolina wrens) instead of a

circle. These are easier for the wrens to use. Wrens are notorious for filling up any conceivable nest cavity with twigs, regardless of whether they use the nest. Since male house wrens build several nests for the female to choose from, hang several nest boxes at eye level on partly sunlit tree limbs. Wrens are sociable and will accept nest boxes quite close to your house.

[click here to see picture...](#)

Swallows

Tree swallows prefer nest boxes attached to dead trees. Space the boxes about seven feet apart for these white-bellied birds with iridescent blue-green backs and wings. The ideal setting for these insect-eaters is on the edge of a field near a lake, pond, or river. Violet green swallows nest in forested mountains of the west. Boxes placed on large trees in a semi-open woodland will attract them.

Barn Swallows and Phoebes

If you have the right habitat, barn swallows and phoebes are easy to attract. It's their nesting behavior, not their plumage or song, that catches your attention. These birds tend to nest where you'd rather not have them: on a ledge right over your front door. To avoid a mess by your door, offer the birds a nesting shelf nearby where you'd rather have them.

Purple Martins

Many people want martins because, it's been said, these birds "can eat 2,000 mosquitoes a day." While it's true that they eat flying insects, don't expect purple martins to wipe out your mosquitoes. Martins actually prefer dragonflies, insects which prey on mosquito larvae.

[click here to see picture...](#)

Mosquitoes are most active after sunset. If you want to rid your yard of mosquitoes, put up a bat roosting box. One bat can eat thousands of mosquitoes a night. But don't cross martins off your prospective tenant list because they don't live up to their "bug zapping" reputation. If you need a reason for attracting them, these gregarious swallows put on a show that's better than any television soap opera.

You have the best chance of attracting martins if you put a house on the edge of a pond or river, surrounded by a field or lawn. Martins need a radius of about 40 feet of unobstructed flying space around their houses. A convenient wire nearby gives them a place to perch in sociable groups. Martins nest in groups, so you'll need a house with a minimum of four large rooms -- 6 or more inches on all sides, with a 2-1/2 inch entrance hole about an inch and a half above the floor.

Ventilation and drainage are critical factors in martin house design. Porches, railings, porch dividers, and supplemental roof perches, like a TV antenna, will make any house more appealing. Gourds may also be made into houses by making an entrance hole and providing drainage. If you use gourds, it's not necessary to add railings and perches. Adult martins will perch on the wire used to hang the houses.

Before you decide on a house, take the time to think about what kind of pole you're going to put it on. Martins will occupy a house that's between ten and twenty feet off the ground. Some poles are less cumbersome than others. Gourd houses are the easiest to set up. You can string them:

- from a wire between two poles -
- from a sectional aluminum pole -
- on pulleys mounted to cross-bar high up on a pole -

Light-weight aluminum houses can be mounted on telescoping poles, providing easy access for maintenance and inspection. Because of their weight (well over 30 pounds), wood houses cannot be mounted on easy-access telescoping poles. You'll have to use a sturdy metal or wood pole attached to a pivot post. The problem with this "lowering" technique is that you can't tilt the house without damaging the nests inside. If you put your house on a shorter, fixed pole, ten to twelve feet high, you can use a ladder to inspect and maintain it.

Flycatchers

The great crested flycatcher and its western cousin, the ash-throated flycatcher, are common in wooded suburbs. Their natural nesting sites are abandoned woodpecker holes. These flycatchers may nest in a bird house if it's placed about ten feet up in a tree in an orchard or at the edge of a field or stream.

Woodpeckers

You can attract all the woodpeckers with a suet feeder, but only the flicker and the red-bellied are likely to use a bird house. They prefer a box with roughened interior and a floor covered with a two-inch layer of wood chips or coarse sawdust. Flickers are especially attracted to nest boxes filled with sawdust, which they "excavate" to suit themselves. For best results, place the box high up on a tree trunk exposed to direct sunlight.

Owls

Most owls seldom build their own nests. Great horned and long-eared owls prefer abandoned crow and hawk nests. Other owls (barred, barn, saw-whet, boreal, and screech) nest in tree cavities and bird houses.

Barn owls are best known for selecting nesting sites near farms. Where trees are

sparse, these birds will nest in church steeples, silos, and barns. If you live near a farm or a golf course, try fastening a nest box about 15 feet up on a tree trunk.

Screech owls prefer abandoned woodpecker holes at the edge of a field or neglected orchard. They will readily take to boxes lined with an inch or two of wood shavings. If you clean the box out in late spring after the young owls have fledged, you may attract a second tenant -- a kestrel. Trees isolated from larger tracts of woods have less chance of squirrels taking over the box.

[click here to see picture...](#)

Selecting A House

In the bird house business, there's no such thing as "one size fits all." you need to decide which bird you want to attract, then get a house for that particular bird. Look through any book or catalog and you'll see bird houses of all sizes and shapes, with perches and without, made of materials you might not have thought of: recycled paper, gourds, plastic, rubber, pottery, metal, and concrete. So what makes a "good" bird house? It's a combination of quality materials and design.

Materials

Of all the available building materials, wood is about as good as you can get. It's durable, has good insulating qualities, and it breathes. Three-quarter-inch-thick bald-cypress and red cedar are recommended. Pine and exterior grade plywood will do, but they're not as durable.

It makes no difference whether the wood is slab, rough-cut, or finished, as long as the inside has not been treated with stains or preservatives. Fumes from the chemicals could harm the birds.

There's no need to paint cypress and cedar, but pine and plywood houses will last longer with a coat of water-based exterior latex paint. White is the color for purple martin houses. Tan, gray, or dull green works best for the other cavity nesting species. The dull, light colors reflect heat and are less conspicuous to predators. Don't paint the inside of the box or the entrance hole.

Regardless of which wood you select, gluing all the joints before you nail them will extend the life of your bird house. Galvanized or brass shank nails, hinges, and screws resist rusting and hold boxes together more tightly as they age.

Resist the temptation to put a metal roof on your bird house. Reflective metal makes sense for martin houses up on a sixteen-foot pole, but when it's tacked onto a roof of a wood chickadee house, the metal is more likely to attract predators.

Natural gourds make very attractive bird houses. They "breathe," and because they sway in the wind are less likely to be taken over by house sparrows and starlings. Grow your own gourds and you'll have dozens to choose from in the years ahead. If you don't have the space to grow them, a coat of polyurethane or exterior latex (on the outside only) will add years to the one you have.

Properly designed pottery, aluminum (for purple martins only), concrete, and plastic houses will breathe and are durable, but don't drop them. Be sure to provide ventilation, drainage, and easy access for maintenance and monitoring. Concrete (actually a mix of concrete and sawdust) offers protection other houses cannot: squirrels cannot chew their way in.

Design

How elaborate you make your bird house depends on your personal sense of aesthetics. For the most part, all the birds care about is their safety and the right dimensions: box height, depth and floor, diameter of entrance hole, and height of hole above the box floor. Refer to the following chart, keeping in mind that birds make their own choices, without regard for charts. So don't be surprised when you find tenants you never expected in a house you intended for someone else.

Nest Box Dimensions

Click any bird species below for the nest box dimensions:

[American Robin+](#)

[Eastern & Western Bluebird](#)

[Mountain Bluebird](#)

[Chickadees](#)

[Titmice](#)

[Ash-throated Flycatcher](#)

[Great Crested Flycatcher](#)

[Phoebes+](#)

[Brown-headed Pygmy](#)

[Red-breasted Nuthatch](#)

[White-breasted Nuthatch](#)

[Downy Woodpecker](#)

[Hairy Woodpecker](#)

[Lewis' Woodpecker](#)

[Northern Flicker](#)

[Pileated Woodpecker](#)

[Red-headed Woodpecker](#)

[Yellow-bellied Sapsucker](#)

[Bewick's & House Wrens](#)

[Carolina Wren](#)

[Barn Owls](#)

[Screech Owls Kestrel](#)

[Prothonotary Warbler](#)

[Osprey](#)

[Barn Swallow+](#)

[Red-tailed Hawk](#)

[Purple Martin](#)

[Great Horned Owl](#)

[Tree & Violet-green Swallows](#)

[Wood Ducks](#)

+Use nesting shelf, platform with three sides and an open front.

Now that you have the correct dimensions for your bird house, take a look at how to make it safe: ventilation, drainage, susceptibility to predators, and ease of maintenance.

Ventilation

Without air vents, boxes can turn into bird ovens. There are two ways to provide ventilation: leave gaps between the roof and sides of the box, or drill 1/4" holes just below the roof.

[click here to see picture...](#)

Drainage

Water becomes a problem when it sits in the bottom of a bird house. A roof with sufficient slope and overhang offers some protection. Drilling the entrance hole on an upward slant may also help keep the water out.

[click here to see picture...](#)

Regardless of design, driving rain will get in through the entrance hole. You can assure proper drainage by cutting away the corners of the box floor and by drilling 1/4 inch holes in the box floor. Nest boxes will last longer if the floors are recessed about 1/4 inch.

[click here to see picture...](#)

Entrance Hole

Look for the entrance hole (and exit hole) on the front panel near the top. A rough surface both inside and out makes it easier for the adults to get into the box and, when it's time, for the nestlings to climb out. If your box is made of finished wood, add a couple of grooves outside below the hole. Open the front panel and add grooves, cleats, or wire mesh to the inside.

[click here to see picture...](#)

Never put up a bird house with a perch below the entrance hole. Perches offer starlings, house sparrows, and other predators a convenient place to

wait for lunch. Don't be tempted by those beautiful duplexes or houses that have more than one entrance hole. With the exception of purple martins, cavity-nesting birds prefer not to share a house. While these condos look great in your yard, starlings and house sparrows are the only birds inclined to use them.

Accessibility

Bird houses should be easily accessible so you can see how your birds are doing and, when the time comes, clean out the house. Part of being a responsible bird house landlord is your willingness to watch out for your tenants. Monitor your bird houses every week and evict unwanted creatures: house sparrows, starlings, rodents, snakes, and insects.

Be careful when you inspect your bird boxes. You may find something other than a bird inside. Don't be surprised to see squirrels, a mouse, a snake, or insects. Look for fleas, flies, mites, larvae, and lice in the bottom of the box. If you find insects and parasites, your first reaction may be grab the nearest can of insect spray. If you do, use only insecticides known to be safe around birds: *1% rotenone powder or pyrethrin spray*. If wasps are a problem, coat the inside top of the box with bar soap.

How to check your nest boxes

Watch the nest for awhile. If you don't see or hear any birds, go over and tap on the box. If you hear bird sounds, open the top and take a quick peek inside. If everything's okay, close the box. If you see problems (parasites or predators), remove them and close the box. Here's where a bird house with easy access makes the job simple. Most bird houses can be opened from the top, the side, the front, or the bottom.

Boxes that open from the top and the front provide the easiest access. Opening the box from the top is less likely to disturb nesting birds. It's impossible to open a box from the bottom without the nest falling out. While side- and front-opening boxes are convenient for cleaning and monitoring, they have one drawback: the nestlings may jump out.

If this happens, don't panic. Just pick them up and put them back in the nest. Don't worry that the adults will reject the nestlings if you handle them. That's a myth. Most birds have a terrible sense of smell. If you clean out your nest boxes after each brood has fledged, several pairs may use the nest throughout the summer. Many cavity nesting birds will not nest again in a box full of old nesting materials.

In the fall, after you've cleaned out your nest boxes for the last time, you can put them in storage or leave them out. Gourds and pottery last longer if you take them in for the winter. You can leave your purple martin houses up, but be sure to plug

the entrance holes to discourage starlings and house sparrows.

Leaving your wood and concrete houses out provides shelter for birds, flying squirrels, and other animals during winter. Each spring be sure to clean out all houses you've left out for the winter.

Predator Access

Proper box depth, roof, and entrance hole design will help minimize predator (raccoons, cats, opossums, and red squirrels) access. Sometimes all it takes is an angled roof with a three-inch overhang to discourage mammals. The entrance hole is the only thing between a predator and a bird house full of nestlings. By itself, the 3/4" wall isn't wide enough to keep out the arm of a raccoon or house cat. Add a predator guard, a 3/4 inch thick rectangular wood / block, to thicken the wall, and you'll discourage sparrows, starlings, and cats.

[click here to see picture...](#)

Bird House Placement

Habitat

Where you put your bird house is as important as its design and construction. Cavity nesting birds are very particular about where they live. No matter how perfect your nest box, if you don't have the right habitat, the birds aren't likely to find it. Not everyone has the habitat for a wood duck, purple martin, or screech owl. On the other hand, just about anyone can attract a robin, titmouse, wren, or chickadee.

Placement

Let's assume you've built or bought the "perfect" house. You put it out in your backyard in February. Months pass, and not one bird has landed on it. What's wrong? It may be that you don't have the right habitat, or it may be where you put the house.

There's lots you can do to modify your land to attract the birds you want to see. It can be as simple as putting out a bird bath or as complicated as planting fruit-bearing shrubs or installing a pond with a waterfall. But it's much easier just to identify the birds most likely to take to your backyard as it is and put the appropriate nest box in the right place.

Should you hang it from a tree limb, nail it to a fence, or mount it on a pole or a tree trunk? There's a wide range between how high and low you can place a nest box. Pick a height that's convenient for you. After all, you'll want to watch what goes on and keep the box clean. If you want to watch chickadees from your

second floor window or deck, fifteen feet is not unreasonable but it's a lot easier to clean out a box at eye level.

Here are some tips on where to put bird houses:

- 1.** Houses mounted on metal poles are less vulnerable to predators than houses nailed to tree trunks or hung from tree limbs.
- 2.** Use no more than four small nest boxes for any one species or one large box per acre.
- 3.** Put about 100 yards between bluebird boxes and 75 yards between swallow boxes (if you have both species, "pair" the houses with one bluebird box 25 feet from a swallow box, put the "pair" 100 yards away.)
- 4.** Don't put bird houses near bird feeders.
- 5.** Don't put more than one box in a tree, unless the tree is extremely large or the boxes are for different species.
- 6.** If you have very hot summers, face the entrance holes of your boxes north or east to avoid overheating the box.

Protection From Predators

Nesting birds are very vulnerable to cats, as are fledglings and birds roosting for the night. Bell collars on cats offer birds little protection. Nailing a sheet metal guard or cone to a tree trunk is unsightly, but it may deter less agile felines. Houses mounted on metal poles are the most difficult for predators to reach, especially if you smear the poles with a petroleum jelly and hot pepper mixture.

Dogs

Pet dogs are a hazard to nestlings in the spring and summer. All it takes is one swift bite and the baby bird is gone. Don't let your dog run loose during nesting time.

Squirrels

Red squirrels, and sometimes gray squirrels, can become a serious menace to bird houses and the birds themselves. If you find your nest hole enlarged, chances are a red squirrel is the culprit. Once inside the box, squirrels make a meal of the eggs

and young. Adding a predator guard of sheet metal to the entrance hole is usually enough to keep squirrels out.

Raccoons and Opossums

Raccoons and opossums will stick their arms inside nest boxes and try to pull out the adult, young, and eggs. Adding a predator guard to the bird house or to its pole support is a simple solution.

Snakes

Snakes are an important part of the natural balance between predator and prey. If you find one of these reptiles in your bird house, please don't kill it. Snake-proof your house by putting it on a metal pole lathered with petroleum jelly or hot red cayenne pepper.

House Sparrows and Starlings

If you don't discourage them, these two pest species introduced from Europe will bully or kill cavity-nesting birds. Since house sparrows and starlings are not protected by law, you may destroy their nests. But, remember, other birds are protected by law.

House Wrens

Sometimes house wrens interfere with the nesting success of other birds by puncturing their eggs. But unlike the sparrow and starling, these birds are part of the natural system. They are protected by law. Don't be tempted to intervene.

Insects

Many insects lay their eggs and pupate in bird houses. You should inspect your bird houses for signs of gypsy moths, blow flies, wasps, ants, gnats, and bees. You can keep bees and wasps from attaching their nests by coating the inside of the roof with bar soap. In areas where gypsy moths abound, avoid placing boxes in oak trees, which are favored by the gypsy moths. Pyrethrin and rotenone insecticides are recommended for killing fly larvae, bird lice, and mites *after* birds have finished nesting for the season.

Protecting Bird Habitat

Each year your State wildlife agency, private conservation groups, and the U.S. Fish and Wildlife Service work together to acquire and manage millions of acres of wetland habitat -- swamps, ponds, lakes, and marshes. These wetlands provide nesting habitat for songbirds and shorebirds, ducks and geese, hawks and owls.

You can help preserve wetlands for wildlife by buying Federal Duck Stamps at your local post office. Money from sales of these Stamps is used to buy more

wetlands. For more information write: Director, U.S. Fish and Wildlife Service,
Department of the Interior, Washington, D.C. 20240.

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Press the escape key to hide me...

American Robin

Box depth (inches): 7 x 8

Box height (inches): 8

Entrance height (inches): N/A

Entrance diameter (inches): N/A

Placement height (feet): 6-15

Eastern & Western Bluebird

Box depth (inches): 5 x 5

Box height (inches): 8-12

Entrance height (inches): 6-10

Entrance diameter (inches): 1 & 1/2

Placement height (feet): 4-6

Mountain Bluebird

Box depth (inches): 5 x 5

Box height (inches): 8-12

Entrance height (inches): 6-10

Entrance diameter (inches): 1 &
1/2

Placement height (feet): 4-6

Chickadees

Box depth (inches): 4 x 4

Box height (inches): 8-10

Entrance height (inches): 6-8

Entrance diameter (inches): 1 &
1/8

Placement height (feet): 4-15

Titmice

Box depth (inches): 4 x 4

Box height (inches): 10-12

Entrance height (inches): 6-10

Entrance diameter (inches): 1 &
1/4

Placement height (feet): 5-15

Ash-throated Flycatcher

Box depth (inches): 6 x 6

Box height (inches): 8-12

Entrance height (inches): 6-10

Entrance diameter (inches): 1 &
1/2

Placement height (feet): 5-15

Great Crested Flycatcher

Box depth (inches): 6 x 6

Box height (inches): 8-12

Entrance height (inches): 6-10

Entrance diameter (inches): 1 &
3/4

Placement height (feet): 5-15

Phobes

Box depth (inches): 6 x 6

Box height (inches): 6

Entrance height (inches): N/A

Entrance diameter (inches): N/A

Placement height (feet): 8-12

Brown-headed Pygmy

Box depth (inches): 4 x 4

Box height (inches): 8-10

Entrance height (inches): 6-8

Entrance diameter (inches): 1 &
1/4

Placement height (feet): 5-15

Red-breasted Nuthatch

Box depth (inches): 4 x 4

Box height (inches): 8-10

Entrance height (inches): 6-8

Entrance diameter (inches): 1 &
1/4

Placement height (feet): 5-15

White-breasted Nuthatch

Box depth (inches): 4 x 4

Box height (inches): 8-10

Entrance height (inches): 6-8

Entrance diameter (inches): 1 &
3/8

Placement height (feet): 5-15

Prothonotory Warbler

Box depth (inches): 5 x 5

Box height (inches): 6

Entrance height (inches): 4-5

Entrance diameter (inches): 1 &
1/8

Placement height (feet): 5-15

Barn Swallow

Box depth (inches): 6 x 6

Box height (inches): 6

Entrance height (inches): N/A

Entrance diameter (inches): N/A

Placement height (feet): 8-12

Purple Martin

Box depth (inches): 6 x 6

Box height (inches): 6

Entrance height (inches): 1-2

Entrance diameter (inches): 2 &
1/4

Placement height (feet): 6-20

Tree & Violet-Green Swallows

Box depth (inches): 5 x 5

Box height (inches): 6-8

Entrance height (inches): 4-6

Entrance diameter (inches): 1 & 1/2

Placement height (feet): 5-15

Downy Woodpecker

Box depth (inches): 4 x 4

Box height (inches): 8-10

Entrance height (inches): 6-8

Entrance diameter (inches): 1 &
1/4

Placement height (feet): 5-15

Hairy Woodpecker

Box depth (inches): 6 x 6

Box height (inches): 12-15

Entrance height (inches): 9-12

Entrance diameter (inches): 1 &
1/2

Placement height (feet): 8-20

Lewis' Woodpecker

Box depth (inches): 7 x 7

Box height (inches): 16-18

Entrance height (inches): 14-16

Entrance diameter (inches): 2 &
1/2

Placement height (feet): 12-20

Northern Flicker

Box depth (inches): 7 x 7

Box height (inches): 16-18

Entrance height (inches): 14-16

Entrance diameter (inches): 2 &
1/2

Placement height (feet): 6-20

Pileated Woodpecker

Box depth (inches): 8 x 8

Box height (inches): 16-24

Entrance height (inches): 12-20

Entrance diameter (inches): 3 x 4

Placement height (feet): 15-25

Red-headed Woodpecker

Box depth (inches): 6 x 6

Box height (inches): 12-15

Entrance height (inches): 9-12

Entrance diameter (inches): 2

Placement height (feet): 10-20

Yellow-bellied Sapsucker

Box depth (inches): 5 x 5

Box height (inches): 12-15

Entrance height (inches): 9-12

Entrance diameter (inches): 1 &
1/2

Placement height (feet): 10-20

Bewick's & House Wrens

Box depth (inches): 4 x 4

Box height (inches): 6-8

Entrance height (inches): 4-6

Entrance diameter (inches): 1 &
1/4

Placement height (feet): 5-10

Carolina Wren

Box depth (inches): 4 x 4

Box height (inches): 6-8

Entrance height (inches): 4-6

Entrance diameter (inches): 1 &
1/2

Placement height (feet): 5-10

Barn Owls

Box depth (inches): 10 x 18

Box height (inches): 15-18

Entrance height (inches): 4

Entrance diameter (inches): 6

Placement height (feet): 12-18

Screech Owls Kestrel

Box depth (inches): 8 x 8

Box height (inches): 12-15

Entrance height (inches): 9-12

Entrance diameter (inches): 3

Placement height (feet): 10-30

Osprey

Box depth (inches): 48 x 48
platform

Box height (inches): N/A

Entrance height (inches): N/A

Entrance diameter (inches): N/A

Placement height (feet): N/A

Red-tailed Hawk

Box depth (inches): 24 x 24
platform

Box height (inches): N/A

Entrance height (inches): N/A

Entrance diameter (inches): N/A

Placement height (feet): N/A

Great Horned Owl

Box depth (inches): 24 x 24
platform

Box height (inches): N/A

Entrance height (inches): N/A

Entrance diameter (inches): N/A

Placement height (feet): N/A

Wood Ducks

Box depth (inches): 10 x 18

Box height (inches): 10-24

Entrance height (inches): 12-16

Entrance diameter (inches): 4

Placement height (feet): 10-20

Migration Of Birds

[click here for contents...](#)

Introduction



The migration of birds usually refers to the regular flights between their summer and winter homes. Except for those that nest in the tropics, nearly all North American birds migrate, some great distances while others only a short way. This seasonal movement has long been a mystery to man. Aristotle, the naturalist and philosopher of ancient Greece, noticed that cranes, pelicans, geese, swans, doves, and many other birds moved to warmer places to spend the winter.

But, like others of times past, he started superstitions that were believed for hundreds of years. For example, Aristotle thought that many birds spent the winter sleeping in hollow trees, caves, or beneath the mud in marshes.

Probably the strangest idea as to where birds go in winter is found in a statement by Cotton Mather, a minister who lived in New England at the turn of the 16th century. He said, "The wild pigeons on leaving us repair to some undiscovered satellite accompanying the earth at a near distance."

Why Do Birds Migrate?

[click here to see picture...](#)

As with most aspects of migration, there are many theories about why. Many scientists believe that birds migrate north to south because of inclement weather. Supposedly, these birds began this journey originally because they were driven southward by the advancing ice age.

Many birds feed almost entirely upon insects, so another theory holds that birds migrate to areas with plentiful insects. When winter sets in, insects, of course, disappear and the birds would starve unless they moved southward to warmer climates. You may wonder, however, why insect eaters fly north again with the coming of Spring, when there are many insects at winter homes.

A more realistic theory holds that birds have an "imprint" or lasting impression of the birth place, resulting in a lifelong urge to return to this locale each spring. Scientists have recently found that length of day is the triggering force that prepares many birds for their migratory journeys. The change in length of day brings the birds into breeding condition and causes them to seek their northern nesting grounds.

When Do Birds Migrate?

[click here to see picture...](#)

In North America, it is possible to see migrating birds almost every month of the year. Some birds start south early in July, while others remain north until pushed out by either severe weather or shortage of food. Soon after hardy travelers reach winter homes, other equally hardy migrants start north on the heels of winter. In their eagerness to reach northern nesting grounds, early spring migrants sometimes crowd the retreating winter a little too closely and are caught in sudden storms and of course some perish.

Most small birds and a good many larger ones migrate by night. This may sound

strange since most seem helpless in the dark, but there are good reasons for this nighttime travel. Some are poor fliers. Even good fliers can fall easy prey to hawks, which feed and migrate in daylight. Also, night migrants have daylight hours for feeding. Many kinds of wading and swimming birds migrate either by day or night. Such birds usually feed at all hours and rarely depend on hiding to escape enemies.

[click here to see picture...](#)

Day migrants include, in addition to some of the ducks and geese, loons, cranes, gulls, pelicans, hawks, swallows, nighthawks, and swifts. All these are strong-winged birds. Swifts, swallows, and nighthawks feed on flying insects and can easily pick up a full course dinner as they travel. Gulls, hawks, and pelicans feed so heavily when food is available that to miss a meal now and then causes little hardship.

Migrations of blackpoll warblers and cliff swallows are samples of differences between routes of day and night migrants. These two birds winter as neighbors in South America. When northward spring migration starts, warblers, traveling at night, head north *across* the Caribbean Sea and the Gulf of Mexico and into the United States. Cliff swallows, traveling during daylight hours, move westward through Panama, up the western slope of the Caribbean Sea to Mexico, and then *around* the Gulf of Mexico into the United States.

How Fast Do Migratory Birds Travel?

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Migratory birds do not travel as fast as some people have believed. A German scientist in 1895, for example, attributed speeds in excess of 200 miles an hour to some birds during migration, but later investigations indicated this estimate was much too high. It is true that the peregrine falcon flies 165 to 180 miles per hour while pursuing food, but very few birds can even approach this.

Birds have two speed -- one for normal flying including migration, and a faster one for escaping enemies or pursuing food. Most songbirds have cruising speeds between 25 and 50 miles per hour during migration.

Scientists making studies of the amount of fat lost by migrating birds are convinced that migration often consists of a series of single, long flights, followed by feeding for several days to replenish fat needed for the next stage of the journey.

How High Do Migrating Birds Travel?

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At one time it was thought that migrating birds traveled at heights above 15,000 feet because flying was easier high up. Lack of oxygen and of buoyancy in the rarified air, however, would handicap such high altitude flying.

Birds such as vultures, pelicans, cranes, and some of the hawks feel this lack of buoyancy least since their wing surface is very great in comparison with body weight. But smaller and shorter-winged birds do not have this buoyancy at high altitudes. Even when flying close to the earth, small birds have to keep their wings beating rapidly to stay airborne.

Observation from towers and by radar and airplanes indicate that most birds travel below 5,000 feet above the earth during migration.

How Do Migrating Birds Keep On Course?

[click here to see picture...](#)

Perhaps the most mysterious aspect of bird migration is navigation. The old idea that birds have a mysterious "sense of direction" or some sort of built-in compass has been discarded by most modern scientists, but in place of this theory there are a host of others with their advocates and evidence to support them.

Some scientists, for example, believe that many birds navigate by the sun and stars. This would account for amazing treks across vast stretches of ocean. But other scientists believe birds use familiar landmarks to guide them. Veteran fliers who made the trek before "educate" young followers on the journey to nesting or wintering homes.

Still other scientists say birds can navigate by way of subtle differences in the magnetic field of the earth. This theory would endow young birds with subtle receptors that can detect differences in field strength.

One of the most amazing things about migration is that some birds brought up away from their parents and without adult guidance or experience in actual migration can orient to the proper direction across vast stretches of water.

It is thus obvious that most theories on navigation apply only for some birds and under certain conditions. Migrating birds traversing oceans could guide their journey by way of heavenly bodies, but many birds following land routes could guide their treks by familiar land objects. Much more research is needed before we can say what theory applies for each migrating bird.

How Far Do Birds Migrate?

[click here to see picture...](#)

Birds like bobwhite quail and cardinals never get more than 10 miles from the nest where they were hatched, but arctic terns are true globetrotters. These birds nest in Greenland and the northern part of North America, with a few found as far south as Massachusetts.

As soon as the young are grown, those from eastern North America cross the Atlantic Ocean to Europe and a few months later can be found in the Antarctic regions, 11,000 miles from their nesting grounds. They fly at least 25,000 miles each year in migrating.

Most North American birds, however, spend winters in southern United States and Central and South America. Coastal marshes along the Gulf of Mexico and along the South Atlantic coast of the United States serve as the winter home for hundreds of thousands of ducks and geese.

Migration Routes

[click here to see movie...](#)

Migratory birds generally follow north-south routes in the United States. They may veer east or west, but their movement in the end is southward. Most waterfowl follow the same approximate route each spring and fall. Probably in no other region of the world does such a large proportion of the birds migrate north and south as they do in North America.

The outlines of the coasts, the courses of large rivers, the trend of mountain chains -- all combine to make northward and southward migration easy and natural. These routes are known as flyways, and there are four in the United States -- Atlantic, Mississippi, Central, and Pacific.

But some birds that nest in high mountain areas simply move down to the warmer lowlands to spend the winter. This is known as vertical migration. In such cases, a few hundred feet in elevation corresponds to a flight of hundreds of miles. Only such hardy birds as the harlequin ducks, chickadees, rosy finches, juncos, and a few others make such migrations because winters are still severe in most lowland areas near larger mountain ranges.

Protection Of Migrating Birds

[click here to see picture...](#)

Our feathery friends do not recognize man's political boundaries, traveling across both international and State borders. Protection of these birds within the United States is in the hands of the Department of the Interior's Bureau of Sport Fisheries and Wildlife. Treaties with Canada and Mexico extend protection throughout the North American continent. Nearly all migratory birds are protected by Federal law, and a corps of Federal game management agents and cooperating State conservation officers enforce these laws.

[click here to see picture...](#)

Protective laws regulating hunting of ducks and geese are established according to flyways. But rather than follow indefinite boundaries, so-called legal or regulation flyways follow State lines, with the exception of the boundary between the Central and Pacific flyways which follows the Continental Divide.

Dangers During Migration

[click here to see picture...](#)

Many perils are faced by migrating birds during their long journeys. Aerial obstructions such as television or radio towers and monuments are responsible for the deaths of thousands each year. Planes landing and taking off at airports and airport ceilometers are also dangerous for birds flying at night because some are attracted to the light during foggy weather.

[click here to see picture...](#)

The famous Washington Monument in our nation's capital, which is illuminated by powerful searchlights, kills many birds, especially when gusty winds and low

cloud cover prevail. The Statue of Liberty, when the torch was kept lighted, caused enormous destruction of birds.

Storms also kill many birds, particularly the smaller ones. Inland hailstorms kill great numbers. Those traversing large stretches of water are sometimes forced down and drown.

But birds like the sandpipers, plovers, and terns are well-adapted for long overseas flights. For example, the golden plover, traveling the Atlantic oceanic route from Nova Scotia to South America covers the entire distance of 2,400 miles without stopping and although considerable fat is lost, the bird seems little worse for wear as a result of its journey.

A Center For Migratory Bird Data

[click here to see picture...](#)

Banding -- the marking or attaching of identification tags to individual birds and other kinds of wildlife -- has been responsible for scientists determining many routes of migration. This technique, which began in Europe by amateur naturalists who were curious about the movements of individual birds, was later picked up along with data by biologists.

There are several dozen banding centers throughout the world, but we in North America are fortunate to have a facility where much of these activities can be coordinated. This is the Interior Department's Bird Banding Laboratory located near Laurel, Maryland. In cooperation with the Canadian Wildlife Service, this Bureau of Sport Fisheries and Wildlife center coordinates the banding activities of about 4,000 professional and amateur ornithologists throughout North America and several foreign countries.

To this station hunters and others send bands they find on birds and facts of recovery to help scientists get a better picture of the population dynamics and migration routes of birds. Thousands of recoveries come in each year -- so many that the center's scientists use computers to keep track of information.

Summary

[click here to see picture...](#)

Bird migration had its start such a long time ago that it is only possible to speculate how it all began. Some aspects of migration, particularly routes of travel and time of year of journeys for many species have been worked out largely through banding efforts and observations from planes, radar, and miniature radio transmitters.

Interested observers and laboratory experiments have also contributed to the growing fund of knowledge. But much of bird migration is still a mystery for future generations of scientists and amateur naturalists to explore.

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The Beautiful Music Of Birds

Birds have inspired many artists over the centuries -- including composers! Click on any selection below to hear the complete piece. Enjoy the music!

[Chambonnières, "Canaries"](#)

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Click on any selection below to see collected photographs and movies of common and exotic birds from around the world. Keep your eyes opened!

[Artistic Impressions](#)

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Bald Eagle

This majestic raptor with a seven and a half foot wingspan is recovering well from near extinction. During the '60s and '70s the overuse of DDT caused the eggshells to become fragile and birthrates plummeted.

Today, a mated pair will reuse the same nest every year for up to forty-five years. Each new nesting season, the parents will make repairs to the nest with tree limbs until it grows to twelve feet deep and can weigh over two tons!

press the escape key to hide me...

Pigeon

Also known as a rock dove, the pigeons' homing behavior is so strong that it has been carrying men's messages for six thousand years! It's a highly adaptable bird that feels as much at home in the mountains nesting on rock ledges as in the city on window ledges.

The pigeon is overlooked as remarkable because it's so common, but it's one of the only birds able to drink with its' head down and it also hatches broods year round.

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Hummingbird

This peewee of the bird world has a giant personality. Flying at speeds of sixty miles per hour, it has been known to drive off large birds from nesting sites or food sources! It's ability to hover and fly backward make it a jewel toned helicopter that inhabits any place it can find nectar.

The female masterfully camouflages her teaspoon-sized nest by sticking bits of lichen from the tree to the outside of it. She looks for nesting sites near spiders since she uses their silk in its' construction.

When the hummingbirds' energy resources are extremely low, it will go into a type of hibernation called torpor for up to fourteen hours. The respiration and heart rate slows to almost nothing, and waking from this state can take up to an hour.

press the escape key to hide me...

Jay

Jays have a reputation as the bad boys of the bird world. Blue jays are the most recognized bird in the eastern United States for good reason. They're very aggressive at bird feeders and noisy!

Blue jays will loudly scold anyone or anything that invades their territory. The gray jay has a very similar personality. It's known as the Jesse James of the northern woods because it will steal food and small shiny objects from campers.

Stellar's jay was named after the German zoologist who first found the bird in Alaska in the early 1700s. It's found in the western part of North America, and is considerably better mannered than its eastern and northern counterparts.

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American Crow

Flocks of these large all black birds can reach two hundred thousand in number and darken the sky as they gather to roost for the night. They're very intelligent, eat just about anything, and have outsmarted all human attempts to curb their population.

Farmers despise them as a large flock can wipe out an entire grain crop in a matter of hours. Male crows have been known to steal shiny objects such as coins and jewelry which they present to prospective mates as gifts during courtship.

press the escape key to hide me...

Nuthatch

The name of this acrobatic little bird is derived from "nuthack". They spend much of their time working diligently to stuff nuts into cracks within tree trunks . They then hack open the shells and feast on the nut meats. When Europeans first came to the United States and saw this familiar bird, the name somehow evolved into "nuthatch".

The birds' long pointed beak is useful for prying insects out from under tree bark as they travel down the trunk head first. By working their way down the trunk, the nuthatch can pick out insects that other birds have missed on their way up the trunk!

press the escape key to hide me...

American Robin

"Robin Redbreast" is eagerly awaited by those in the northern United States as a true sign that Spring has arrived. Common folklore suggests the robin has exceptional hearing but this isn't true.

The bird often stops, turns its head and bends closer to the ground. Although it may appear to be listening for worms, the robin is actually looking for them. Eyes spaced far apart on the sides of the head enable the robin to keep one eye out for predators and one eye on the dinner table!

press the escape key to hide me...

Eastern Bluebird

This sapphire toned thrush has many of the characteristics of all thrushes; their diet is made up mostly of insects, fruits and berries, and the immature birds have spotted breast feathers. One difference, however, is that bluebirds are the only thrush to nest in cavities.

It's population has declined severely in recent years due to competition for nesting sites with the aggressive starling. To attract bluebirds to your area, nesting boxes of special dimensions can be constructed. The entrance is just big enough to admit a bluebird, but not the other cavity nesters.

press the escape key to hide me...

Cardinal

The brilliant scarlet plumage of the male cardinal combined with its' sweet repertoire of song make this species a delight for the senses. They're a little on the shy side, preferring the security of a thicket or a tangle of vines. The blunt heavy bill is designed for cracking large seeds.

They can be lured to the feeding station with sunflower seed placed at ground level, near cover of shrubbery. At one time the cardinal was a southern bird, but it now lives as far north as the Canadian border.

press the escape key to hide me...

Chickadee

This sociable little birds' name comes from its' song. A perky "chicka-dee-dee-dee" can be heard from them all year round. They're very bold and curious. Often they can be tempted to eat out of hand.

Chickadees will sometimes stun themselves by flying into closed windows. They attempt to investigate a noise or motion that captures their attention inside a building. The jaunty black cap this bird wears makes it easy to identify and their engaging personality can provide endless hours of entertainment.

press the escape key to hide me...

Woodpecker

The downy woodpecker is the boldest of the woodpecker family so it's the most familiar to the casual birdwatcher. The males have a red spot on the back of the head, the females do not. Woodpeckers are characterized by a sharp beak, barbed tongue and extra thick skull which aids in prying insects out of tree bark.

The drumming sound made by the birds' pecking is not only a sign of a search for food. It's also used as a means of communication during the Spring and Winter by males to let other males know the territory has been taken, and to capture the attention of females in the area.

press the escape key to hide me...

Chicken

Chickens have been domesticated for thousands of years. Due to the extra large breast the bird cannot fly except for short distances, which make them prime targets for hawks and other birds of prey. They must be carefully locked up at night, because chicken is a raccoons' favorite food.

The social structure of a flock of chickens is something to behold. Only one male, or rooster, is tolerated. The cock will attempt to drive off all other males of sexual maturity by constant harassment and blows with the spurs located on the lower legs.

The rooster has a favorite hen who enjoys his special attention and protection. He may find a juicy worm and lay it at her feet or lead her to a particularly dusty place so she can bathe. This is where we get the term "pecking order". All the other hens know their place within this order and the hens at the lower end usually get pecked a lot to keep them in line!

press the escape key to hide me...

Rooster

This is a generic term given to a male chicken. Roosters are slightly larger than hens and have a very pronounced comb on the top of their head. They also have spurs on their lower leg that can grow to four inches long in some breeds, and is primarily used for fighting off other roosters.

Roosters can be very territorial, charging at anything that tries to enter its' domain. They can look quite formidable as they hurl all five to seven pounds of their body weight at the trespasser, crowing and pecking furiously with neck feathers puffed out. Roosters do indeed crow at sunrise, but will also crow intermittently throughout the day and if artificial light is shone on them at night.

press the escape key to hide me...

Hen

A term used to describe a female bird, most often used in association with chickens. As with most of the bird world, the female chicken, or hen, is smaller and duller than her male counterpart. When they're not in the company of a rooster, they are a close knit little group and quite even tempered with each other. (Could this be the origin of the term "hen party"?)

Enter the rooster, and the flocks' demeanor changes. Hens begin fighting with each other in the form of vicious (hen) pecking to determine who will be the favored female. Generally, only a few feathers are lost in the brawl, although the hen who winds up on the bottom of the social ladder may die from wounds sustained during the fight.

Any chicken with an open wound of any kind must be removed from the flock . The scent of blood sends the normally mild-mannered chicken into a pecking frenzy and they will actually eat the unfortunate fowl.

press the escape key to hide me...

Dove

The dove is widely spread over the United States and Canada. There is some question as to how to classify this bird. Some place it in the songbird category, but thirty states have classified it as a game bird due to the flight speeds of thirty to fifty-five miles per hour it can attain.

Its' numbers have remained strong even though it is a popular game bird because it does not flock. Some doves' wings create a soft whistling noise when it flies. The mourning dove and laughing dove are named due to their songs, which sound like a sad sigh and a chuckle respectively.

press the escape key to hide me...

House Finch

Sometime during the 1940s a booming business was being done in the capture and illegal sale of the house finch. It's a common bird in the western United States, but customers in the east clamored for this new cage bird. As with most imported pets, a few escaped and people in the eastern part of the country can now enjoy this beautiful songster in the wild.

The incredible population explosion over the last fifty years is due in part to the birds' easy going nature. It will nest anywhere! Tree branches, ledges, or cavities look good to the house finch. Deep woods, urban areas or anything in between are acceptable neighborhoods for these little birds to inhabit.

press the escape key to hide me...

Loon

The common loon is a shore bird with a preference for fresh water with many small islands. This is because the loon's legs are adapted for powerful swimming and diving to catch it's dinner.

Because the legs are muscular and so far back on the body, the loon is extremely awkward on land. Since it must nest on land, it requires a site where it's easy to slip into the water in the event of danger. The loon is aptly named, as anyone who has heard the maniacal laughing call of this bird can attest to.

press the escape key to hide me...

Heron

The heron is the largest family of the wading birds. When flying it folds its neck in the very distinctive "S" shape and is the only wading bird to do so. There are many different kinds of herons ranging in size from one to four feet tall. They all stab small fish and other aquatic life with lightning speed using their pointed bills.

Their long legs give them a perfect vantage point for viewing their prey. They are loners most of the year, but come together in flocks during mating and nesting season. The great blue, green, and black crowned night herons are all easily identifiable by the colors for which they're named.

press the escape key to hide me...

Owl

Owls are found almost all around the globe. Like other raptors, they possess sharp talons and curved sharp beaks for grasping and tearing prey. They are mostly nocturnal and can be found in sizes ranging from four inches tall to over two feet! They have great night vision, some can locate prey in total darkness due to superb hearing. They are one of the only birds with eyes located far forward on the head, giving them binocular vision. This gives the owl depth perception, which other birds lack.

The owl is an extremely silent flyer -- all in all, a formidable predator. The nesting styles are as diverse as the species. The burrowing owl will take over the abandoned dens of prairie dogs, while the snowy owl's nest sits right out in the open on the tundra. Should a predator or human try to get too close, the owl will fly straight at the offender screaming a shrill cry and talons poised for murderous intent!

The saw-whet owl is the smallest owl in the Eastern United States, but the screech owl is the smallest in the East that has ear tufts. The great horned owl is one of the largest owls in North America. Standing at twenty-two inches tall, it is an impressive sight either in flight or on a perch. The short eared owl is the most commonly seen by birdwatchers. It feeds in open country at dawn and dusk.

The spotted owl and barred owl are named for the distinctive pattern of their plumage. The barn owl is easily recognized by its white heart shaped face and it is much more slender than the average owl. The hawk owl has a falcon-like appearance and will perch out in the open waiting for its dinner to appear.

press the escape key to hide me...

Swallow

There are many different species of swallows, but they all share some common traits. They are mainly insectivorous and they are extremely agile fliers. It's a thrilling sight to see a small flock of swallows skimming low over a pond at high speed and turning on a dime to capture insects. Their swooping soaring acrobatics is a product of their wing structure.

Although the bird is relatively small, their long wings provide a lot of power and the maneuverability is obtained by closing the spaces in the primary wing feathers during the backstroke. This allows less air to flow through, increasing the drag and allowing the swallow to capture that elusive dragonfly! Swallows spend most of their waking moments airborne, even managing to bathe while in flight.

Cliff swallows and barn swallows build their nests out of mud scooped from the riverbank, swallowed and regurgitated at the appropriate site. This mortar is then woven through with grasses and lined with softer material. Tree swallows are cavity nesters and will readily use either natural cavities or bird houses. Bank swallows are the smallest swallow in the United States and can be found near river banks that are nearly vertical. This is where they dig their burrows in which to nest.

Mated pairs of many species will return to the same site year after year. Encourage swallows to nest near your home by providing soft earth and fresh water for nesting materials, and the benefits will amaze you. Swallows can eat thirty to fifty percent of their body weight in insects every day!

press the escape key to hide me...

Sparrow

The number of species of sparrows is too numerous to mention. Two are on the endangered species list, but most are highly adaptable and aggressive. There is a type of sparrow for every part of the United States and every kind of terrain. Some prefer open parks and orchards, others the dense woods. All will go wherever they must to find food. That's why when winter weather is at its nastiest, two or three different kinds of sparrows you've never noticed before will show up at your feeder looking for a handout.

All sparrows are primarily seed eaters and will gladly clean up what other pickier birds have thrown out of your feeder. The savannah sparrow is one of the most common birds in the United States. It can be found in the arctic tundra, the heat of Arizona and near the marshes of New Jersey. The chipping sparrow is a small bird that enjoys nesting close to houses. The males wear a chestnut colored cap. The white crowned sparrow is named for the startling white bars on the males' head.

press the escape key to hide me...

Starling

In 1890, sixty European starlings were released in Central Park, New York as part of a festival. One hundred years later, this unpleasant transplant has populated the entire United States and parts of Canada. The birds eat mainly insects, depleting the good insect population as well as the bad.

The biggest problem with the starling is that they destroy grain and fruit crops and aggressively take over all available cavity nesting sites. The flocks' numbers can be in the thousands when they gather in the evenings to roost or migrate. They appear to use the sun in migration, since they have been observed to travel only short distances and stay in larger flocks on overcast days.

Ornithologists have proven this point by caging starlings and rearranging the sun's orientation with mirrors. The birds would hop primarily in the direction of their migratory path based on the bogus position of the sun.

press the escape key to hide me...

Falcon

The peregrine falcon is probably the most well known because of the publicity it has received. It is on the endangered species list and great effort has been made to increase its' numbers. This species of falcon has become a celebrity because pairs have been relocated to cities such as New York and Boston and have taken up residence there.

Since falcons nest on sheer cliff edges, and locate and swoop down on prey from high above, they have found a similar environment within the busy cityscape. skyscraper "cliffs" and main street "canyons" provide the perfect backdrop for the falcon to hunt pigeons, rats and other small mammals. When a citified pair of pergrine falcons is successful in raising a brood of chicks, it usually makes the national news!

The American kestrel, on the other hand, is a fairly common falcon best identified by its' ruby red tail. It's method of hunting is very distinctive. It will hover over open areas looking for prey, whereas other falcons will perch on a high point to do their hunting.

press the escape key to hide me...

Quail

Depending on where you live, this bird is known by different names. Partridge in the southern United States, quail in the north and bobwhite elsewhere. All are members of the pheasant family and great game birds. In the winter, most can be seen at backyard feeders since they all prefer open areas to a degree.

There is much diversity in the different species. Some are fast fliers, some flee best by hiding in cover and running low, and some hide for a while then burst out of their shelter in an almost vertical rise and fly very strongly, but only for short distances.

press the escape key to hide me...

Swan

The swan enjoys one of the most mythical and romantic reputations of all the bird world. Pairs mate for life, and stories abound of devotion shown by one bird when the mate has been injured or killed. Although their bond is strong, ornithologists have noted approximately a 10% "divorce" rate among the birds from season to season.

Like most waterfowl, the tundra swan will nest on the arctic tundra and migrate south during the winter. The average altitude for migration is ten to twenty thousand feet, but it isn't unusual for the birds to fly as high as thirty-five thousand feet if weather is poor or tail winds are favorable.

Swans migrate at night, and although the theory that they need the daylight hours to feed seems logical, there isn't any scientific proof. The trumpeter swan and mute swan are named for their calls. The trumpeter does indeed sound something like a trumpet. The mute swan will grunt and hiss when disturbed, but is usually silent.

press the escape key to hide me...

Turkey

Most people are familiar with the image of thousands of domesticated turkeys milling around a pen at Thanksgiving time. The wild turkey, which inhabits the older deciduous forests of the eastern United States and southern Canada is no passive fowl. This is a bird with attitude!

Fiercely territorial, the male turkey will hiss, stomp his feet and display his considerable plumage at any intruder. Ranging in weight from ten to twenty pounds, this large game bird will rush at any perceived threat and drive it off with ferocious pecking. Benjamin Franklin was so impressed with the spirit of the turkey, he petitioned congress to make it the national bird.

Unfortunately for "Tom" the bald eagle won, and we continue to revere this bird only on the dinner table. The water turkey is closely related to the cormorant although it is named a turkey, it's really a wading bird.

press the escape key to hide me...

Hawk

The hawk hunts from a perch or while soaring overhead on thermal air currents. They rely on the element of surprise to capture their prey, and do this by diving from above at incredibly high rates of speed. Their vision is two to three times more precise than humans. That means what a person sees clearly at twenty feet away the hawk sees just as clearly at a distance of sixty feet.

As with many birds of prey, the female is the larger of the two sexes and is solely responsible for incubating eggs. The male guards the nest and brings food to the female. Smaller birds that end up as dinner for the hawk have developed an interesting strategy for driving the predator away. It's called "mobbing" and it's done by a few brave birds dive bombing the hawk while a multitude of others keep up a constant din of scolding.

Harris' hawk is found more commonly in the Southern United States, Cooper's hawk is found in the West and the red-tailed hawk is the most common throughout the entire U.S.

press the escape key to hide me...

Goose

Geese are real endurance athletes. They spend their summer nesting in the far northern reaches of Alaska and migrate as far south as the Gulf coast of Texas in the winter. They can fly both day and night and cover several hundred miles in one flight. As geese can live to be a ripe old age, they have come to know where the good stop-over places are and will return to the same ones year after year.

It's interesting to note that the migratory pattern of birds can change quite rapidly. When the ecosystem changes, the reason for the migration may change. For example, New England used to be nothing but a stop-over for the Canada goose. With the creation of parks, farmland, golf courses and long expanses of manicured lawns, the goose now stays year round. These types of terrain provide the goose with loads of acreage for grazing tender green plants, its' main food source.

The brant goose is found almost nowhere else but near salt water shores. The white goose and blue goose where once thought to be separate species, but it's been found that it's the same goose with two distinct color phases to it's plumage. Today's domestic goose looks very similar to the white goose.

press the escape key to hide me...

Duck

Ducks spend their winters as far north as ice free water will allow. The water provides them food and protection. When domestic ducks are not properly fenced in, predators such as raccoons can walk right out on the ice and snatch them. The duck is well insulated from the cold. A layer of fat under the skin combined with down covered by waterproof primary feathers keeps the bird toasty warm. But what about those feet?

Just thinking about those skinny little paddles submerged in icy water makes most of us cringe, but the duck has an interesting pattern of blood circulation to keep it from getting frost bitten. Arteries carry warm blood to the feet and pass right next to veins which return cold blood to the body. The warm arteries pass some of the heat to the cold venous blood, effectively preheating it before it enters the main part of the body. There are about one hundred species of ducks.

The mallard is the most commonly known and it feeds by "tipping up" to reach aquatic plants and wildlife. The shoveler duck has an amazing bill which is longer than it's head. The bill is filled with a bristle-like material which filters out small plant and animal matter from the water. Male mandarin ducks are exotic-looking and colorful. The wood duck is also very striking and is a cavity nester. The harlequin duck can be found in fast moving water, either salt or fresh, and gets its' food by walking or swimming underwater to catch aquatic insects.

press the escape key to hide me...

Pelican

This shore bird can be brown or white and has a large pouch under its' bill which is used to capture and hold fish. Although the bird is quite clumsy on land, it's beautiful in flight and makes breathtaking dives from up to fifty feet above the water.

Brown pelicans are exclusively salt water shore birds, whereas white pelicans can also be found inland on lakes, working together to corral schools of fish for easy feeding.

press the escape key to hide me...

Pheasant

This native of China is America's most hunted bird because of the wily chase it gives the hunter. It hides in the brush and will only move if the hunter is going to stumble over it.

The pheasant then explodes, nearly vertically, out of the cover. The male is unmistakable with bold red patches on his face and a long tail feather that is heavily barred.

press the escape key to hide me...

Albatross

To "have an albatross around your neck" means you have a problem in your life which keeps you from making progress. This saying must have been coined by someone who'd only seen an albatross lurching around on land! True, the bird looks awkward even when standing still with a large body, narrow wings, and a slightly bulbous beak.

Once in flight, though, the albatross becomes master of the ocean skies. The body and wing shape allow it to fly over high expanses of ocean without tiring. The beak has a special adaptation. Tubes around the nostrils are part of a salt elimination system which allows the bird to drink sea water.

press the escape key to hide me...

Avocet

The slight upturn to the avocet's beak make it look as if it has a perpetual smirk. The purpose of the curve is to allow the bird to skim the top layer of water and mud in its' search for food. The courtship ritual of the avocet is nothing short of amazing.

If a suitable flat rock can be found, a dozen or so birds will gather and dance around it. They appear to use their heads in a complicated form of communication. Scientists have noted that if a proper stone can't be found, or if there are less than ten birds present, the show won't go on!

press the escape key to hide me...

Anhinga

Seeing an anhinga out of the corner of your eye, you might mistake it for a baby sea serpent! The bird swims with its' entire body submerged, only the head and neck are above the waterline. It's also commonly called a snake bird for this reason.

All four toes of the bird are webbed which give it the power and speed needed to dive after small fish. The anhinga has a streamlined body and a long tail which is can use as a rudder.

press the escape key to hide me...

Bobolink

This member of the blackbird family prefers hayfields to all other habitats, but anyplace with tall grasses will do. The female will build her nest on the ground in the cover of dense grass and goes to great lengths to keep its' location a secret. She'll never fly straight to or from the nest.

To make sure she's not being followed, she'll walk through the maze of foliage first and then begin her flight. Once she's on the nest, nerves of steel keep her from being flushed off it. The distance for a round trip migration from southern Canada to South America is a whopping ten thousand miles! No wonder the female bobolink doesn't want to leave her nest!

press the escape key to hide me...

Catbird

Once you hear a catbird's call, there's no doubt why it has the name it does! A distinct "meow" can be heard when the bird is annoyed or curious about something. It's also a very good mimic of other bird's calls and will sometimes serenade unappreciative humans when the moon is bright.

The bird is all gray with the exception of a black cap and brown under the tail. It's the only bird in the United States to wear that combination of colors.

press the escape key to hide me...

Purple Martin

These "apartment dwellers" of the bird world would drive a real estate agent mad! They form colonies of six to sixty or more that get bigger every year. They'll only nest near open spaces - no trees within thirty feet, if you please, and it must be in full sun. Humans go to great lengths to provide perfect housing for these bug eating machines.

Early Native Americans even strung up dried hollowed out gourds in the hope of attractive a colony. The purple martins are appreciative tenants, if you provide them with just the right home, they'll return year after year to keep your home virtually bug free.

press the escape key to hide me...

Flamingo

This tall wading bird's color depends on its diet. Carotene rich foods found in their habitat determine the amount of color in their plumage which ranges from the palest blush to vivid scarlet.

Flamings in the zoo are given a special supplement in their food to maintain the color. If carotene rich foods are not found, their color fades to white and their breeding cycle is disrupted. The flamingo has a specially shaped beak with a built in sieve so they can strain out algae and other microorganisms.

press the escape key to hide me...

Flicker

Although this bird is in the woodpecker family, it doesn't spend much time banging its head against a tree! The flicker's full time job seems to be patrolling the base of trees in search of ants. . . they eat an estimated three thousand ants per day!

At one time, flickers found in the east, west and desert areas of the United States had different names because their colors differed slightly. Scientists have found them to be the same bird because they will interbreed where their habitats overlap.

press the escape key to hide me...

Grosbeak

Classified as a perching bird, there are several kinds of grosbeaks in a range of colors. In some breeds, the brightly colored males incubate the eggs. Not only does the eye-catching male sit on the nest, he also sings in full voice!

It's a wonder that every predator in the area isn't attracted to the nest site. Grosbeaks are very communal birds, feeding, roosting, nesting and even courting in large flocks.

press the escape key to hide me...

Ostrich

The ostrich belongs to a family of flightless birds called ratites. It has lost many of the characteristics that allow for flight. The breast bone is much flatter and the legs are enormous with heavy muscles. The legs are the ostrich's source of defense. Running is always preferred, but when cornered, it can deliver a stunning blow.

The phrase "to hide your head in the sand" came from early people observing an ostrich from a distance. Humans assumed the ostrich saw them, and stuck their heads in the sand in an effort to hide. (The old "if-I-can't-see-you,-you-can't-see-me" mentality!) In truth, the ostrich was totally unconcerned about the human's presence and was simply eating.

press the escape key to hide me...

Macaw

Macaws are classified as members of the parrots and are found in warm southern climates and the tropics. Parrots are extremely diverse, with species ranging in size from four inches to over three feet. The toes have a unique arrangement, two toes face forward and two face backward.

This gives the bird great agility in "climbing" trees while searching for nuts and berries. The sharp hooked beak and strong jaws can crack open the toughest nut or snip off a man's finger! Most species are brilliantly colored and very outgoing.

press the escape key to hide me...

Meadowlark

This misnamed bird isn't a lark at all, but in the same family as the blackbird. A male may mate with several females each season. The female is a ground nester and chooses a site in dense cover. She then works tirelessly for up to a week constructing a nest that is anchored to surrounding plants.

The nest has a domed roof with only one entrance which protects the eggs and young from flying predators, but leaves them vulnerable to ground hunters. The meadowlark pair lays claim to three to fifteen acres as its' territory, one of the largest territory needs of non-raptors.

press the escape key to hide me...

Peacock

The extremely gaudy plumage of the peacock is a product of natural selection. The peahen chooses her mate based solely on how impressed she is with his display. With tail feathers averaging three and a half feet in length, the peacock struts around like a true dandy. They're not particularly good flyers and during courtship season they fill the air with ghostly cries.

Even the peacock can have a "bad hair day". Whenever it rains, they appear to be a muted brown. All birds with blue, green or purple plumage actually have brown feathers with a refractive coating. If the feathers get wet in the rain, the light can't refract and you're left with a dull bird.

press the escape key to hide me...

Hornbill

The male hornbill of Africa is a paranoid bird indeed. After choosing a suitable mate, he finds a tree cavity and a nest is built. The female enters the cavity to lay her eggs. Luckily, she doesn't suffer from claustrophobia, because the male immediately seals her into the cavity with a mixture of mud and dung.

Only a small hole large enough to allow for the passage of food is left open. The male will feed the female while she incubates the eggs and will continue to provide for his family until the chicks are old enough to leave the nest.

press the escape key to hide me...

Killdeer

Although technically a shorebird, the killdeer is just as easily found in Kansas as on the coastlines. Its' call sounds like a Bostonian native saying "kill-deeah". The killdeer is a farmer's best friend as ninety-eight percent of the birds diet is made up of insects picked from crop fields.

The bird is also an academy award winning actor! When a predator comes near the nest, the adults will feign broken wings and cry loudly to distract it. The killdeer will also confuse predators by sitting on nothing as if it were an active nest site.

press the escape key to hide me...

Phoebe

The phoebe is a member of the flycatcher family. It usually has a favorite perch from which it hunts insects. Human habitation has actually been good for the phoebe, we have created many more open water areas than would occur naturally. The phoebe also likes to make it's nest on ledges, so they're very attracted to window ledges and rafters in barns and other outbuildings.

The bird stands on it's perch, flicking it's tail and waiting for an unsuspecting bug to fly by. It shoots off the perch and catches the bug in midair. If you listen carefully, you can hear it's bill snap shut! The phoebe then veers back to it's perch to await the next meal on the wing.

press the escape key to hide me...

Puffin

The puffin is a comical looking bird with a short squat body and thin wings. In flight, it looks as if it labors to stay aloft and requires a very rapid wingstroke. When it dives for prey, however, it's body and wing shape allow it to "fly" through the water. Puffins nest in large colonies in northern waters.

Although they are a relatively peaceful species they're not above stealing a great looking clump of grass from someone else's nest or trying to seduce another bird's mate. The result is a loud squabble among those directly involved with quite a few neighbors joining in.

press the escape key to hide me...

Redpoll

This frosty little finch likes it cold. No other songbird lives as far north as the redpoll. Only when arctic winters become truly extreme will the redpoll migrate south to the northernmost United States. They live and travel in large friendly flocks of goldfinches, siskins and the like.

As with many other finches, it eats mostly seeds but will occasionally vary it's diet or feed it's young with insects. The female constructs her nest with twigs, grass and moss, and always finishes the project by lining the cup with ptarmigan feathers.

press the escape key to hide me...

Sandpiper

What an amazing bird the sandpiper is! Like most shorebirds it nests in arctic tundra in shallow depressions in the gravel. When migrating it stays in huge tightly packed flocks which give them protection from birds of prey. Within all the species of sandpipers, most forms of mating can be found. Some are extremely monogamous, returning year after year to the same nesting area.

Parents share the duties of incubating eggs and raising young. All sandpiper chicks are born quite capable. Within twenty-four hours they can run, hide and peck at a few insects. Parents distract predators from the nest by running low to the ground and squeaking like a rodent. At the other end of the mating spectrum there are sandpipers that are extremely promiscuous.

Males mate with females over a large area and are heading back to the tundra long before the eggs hatch. The females are none too picky either! One female may sit on a clutch of eggs fertilized by many different males.

press the escape key to hide me...

Shrike

A demurely colored songbird, the shrike appears to be a model of avian gentility. If you examine it closely, however, the viscous looking bill gives the birds' true nature away. It's a meat eating bird that doesn't have the equipment for the kill.

The shrike has no strong talons for gripping, no breathtaking diving skills to cleanly pounce on it's prey. The bird must bludgeon it's prey to death by repeatedly battering it to the ground from above. This horrible task can take up to half an hour.

The shrike then hauls it's stunned or dead prey to it's larder, usually a thorn bush or barbed wire fence. It impales the prey, rips off the head and may eat immediately or save it for another time. It's no wonder the shrike is commonly known as the "butcher bird".

press the escape key to hide me...

Oriole

Most people are familiar with the name "Baltimore" oriole. Ornithologists now feel this bird is the same as Bullock's oriole, so they've changed the name of both birds to Northern oriole. It's interesting to note that the Baltimore oriole was named by the Maryland colonists in honor of Lord Baltimore whose family crest sports the same colors.

All orioles are colorful birds related to blackbirds and eat insects and fleshy fruits. The female builds a precarious looking nest shaped like a pouch which hangs from the end of a high branch. This intricately woven nest is very difficult for predators to reach, even though it hangs in plain sight.

press the escape key to hide me...

Tanager

This stunning bird nests in the northeast quadrant of the United States yet few people have ever seen one. They prefer to live in the mature forests and stick to the canopy. The bird sits still for long periods of time, and the males bright red feathers appear black in the shade.

The nest is a gossamer creation with the bottom being so thin you can see the eggs through it. The tanager seems to be the favorite foster family of the brown headed cowbird, which sneaks its eggs into other birds nests.

press the escape key to hide me...

Warbler

As insect eaters, some warblers migrate from Alaskan nesting sites to South American wintering grounds following the food supply. There is a tremendous difference in migration timing from one type of warbler to another, as much as two months!

This may be due to weather conditions or availability of food. Some other warblers migrate only within the confines of the United States. The name warbler has been given to this family of birds because of the trilling cascade of the calls.

press the escape key to hide me...

Waxwing

The name of this bird describes them well. They have waxy red tips on their wings. They also have a yellow tail band that no other North American bird has. Waxwings travel in large flocks and are attracted to fruit and berry trees. This food preference makes them unpredictable migrators and they don't have a true north-south migratory pattern.

Waxwings have a very strange courtship custom. A pair will pass a flower or insect back and forth for long periods of time. Flock members will also perform a similar ritual by lining up on a tree limb and passing a cherry from one end to the other and back again.

press the escape key to hide me...

Titmouse

This outgoing friendly little bird is a common sight at backyard birdfeeders. Sunflower seeds will guarantee a visit. Their glittering jet black eyes set in a gray head no doubt helped to name them.

A titmouse will hang upside down while looking for food, and with patience, the bird may be coaxed to eat out of your hand. They nest in natural cavities of trees and snakeskins and fur seem to a favorite lining for the nest.

press the escape key to hide me...

Wood Pee-wee

A member of the flycatcher family, the wood pee-wee displays many similar traits of other flycatchers. It sits on a perch for long periods of time and darts out to catch insects on the wing. Their nondescript color makes it difficult to see them in the woods.

The wood pee-wee lacks the eye ring usually associated with flycatchers. Its nest is an amazing construction of moss, rootlets and plant material strengthened with spider silk. It's made to look like a natural extension of a tree limb. The bird's plaintive cry of "pee-o-wee" is one of the most restful sounds in the bird world.

press the escape key to hide me...

Egret

Many different kinds of egrets can be found in both salt and fresh water. They require shallows in which to stalk their prey. Some birds wait silently for a frog or crab to come near. Others spread their wings to attract small fish to the shade. Egrets range in size from four feet tall to a delicate eighteen inches.

The birds will nest in colonies or alone, and nests can be found eighty feet up in a deciduous tree or at almost ground level in a mangrove swamp. Their beautiful plumes were used heavily in the fashion industry during the early 1900s and they were hunted almost to the brink of extinction. Strong protection measures taken since the 1960s has ensured a stable population today.

press the escape key to hide me...

Flycatcher

Flycatchers form a family that includes phoebes and wood peewees. A small bird, the flycatcher does just what its name implies. . .catches insects as they fly by. They migrate with the insects, leaving their northern most homes in late summer while there's still lots of food flying around.

It usually makes its way to South America alone, although it may join up with a few others for part of the trip. Male flycatchers are extremely territorial, often engaging in aerial dogfights with other flycatchers, hawks, crows or even the occasional low flying airplane!

press the escape key to hide me...

Grebe

The bird with the odd name is rather odd looking as well! Grebes are in an order all by themselves and ornithologists are unsure which other type of waterfowl is their closest living relatives. Their toes aren't webbed, but lobed. The legs are so far back on the body that the bird is rarely seen on land. This same characteristic makes the grebe an exceptional diver.

A courting pair will run over the surface of a lake in perfect synchronization. The grebe builds it's nest on a carefully constructed island of floating debris and it's attached to water plants below the surface to keep it from drifting. The chicks are quite self sufficient within a few days after hatching.

press the escape key to hide me...

Plover

Found all over the world, plovers prefer shorelines and open areas of any kind. Their family is huge, over fifty species! They are devoted parents. To keep their eggs from overheating the bird will stand over the nest and act as an umbrella or soak their breast feathers in water and settle over the eggs to provide a cool soak.

After hatching, chicks are only helpless for a matter of hours. Then they begin to run, peck at food and hide if a predator comes around. The chicks are so self sufficient that adult plovers begin their amazing migration from Alaska to Venezuela several weeks before their offspring.

press the escape key to hide me...

Red-eyed Vireo

Often mistaken for a warbler, the red-eyed vireo is a common North American songbird. Even when other birds' enthusiasm for singing is dampened by extreme summer heat, the vireo's song is a persistent "here I am! Here I am! See me? See me?".

In fact, the red-eyed vireo can sing its phrase over twenty thousand times in a single day! No wonder this bird is also known as a "preacher bird"!

press the escape key to hide me...

Grackle

People could see how beautiful this bird is if they could just get past its bad reputation. Jet black from beak to toes, the grackle shines with a rainbow of colors in the sun. They strut around forests and suburbia alike looking very full of themselves.

Humans consider them a nuisance because they pillage grain fields, flock by noisy thousands in the fall and winter, and love to dine on eggs and hatchlings of other birds.

press the escape key to hide me...

Junco

Juncos freely roam the entire United States in small bands throughout most of the year. They prefer to eat seeds on the ground. The junco is a common sight at birdfeeders if millet and cracked corn are provided.

Some time in April, they head north to Canada to nest. Occasionally a small nest can be found low in a tree branch, but usually it's built on the ground, well hidden by brush and grass.

press the escape key to hide me...

Towhee

If you're walking through the woods and suddenly hear furious scratching with bits of leaves flying everywhere, you've probably caught a towhee looking for it's dinner!

The towhee roots around in leaf litter using both feet at the same time to disturb the insects. It's name comes from it's song. The true song may sound like "drink your teeeeee" but it's often abbreviated to "t'whee".

press the escape key to hide me...

Tickbird

This native of Africa provides a valuable service to grazing animals such as giraffes, water buffaloes and rhinos. It will ride on the animals bodies, picking off parasitic insects which make up the bulk of it's diet. The birds also act as an early warning system.

When they fly off, the animals assume a predator is near and become extra vigilant. The animals also provide a service to the birds. They stir up a smorgasbord of insects from the grass as they walk and graze.

press the escape key to hide me...



National Wildlife Refuges

A symphony of sounds, a panorama of painted canvases, a canopy of Canada geese, or a field of fragrant flowers beckon you to visit National Wildlife Refuges to experience nature first-hand, first ear, or first eye.

Welcome to your National Wildlife Refuges. Managed by the U.S. Fish and Wildlife Service, this diverse System of 500+ refuges encompassing almost 92 million acres of lands and waters spans the continent from Alaska's Arctic tundra to the tropical forests in Florida; from the secluded atolls of Hawaii to the moose-trodden bogs of Maine.

National Wildlife Refuges were established for many different purposes. Most were established to protect and enhance wetlands for the conservation of migratory birds; some were established to provide habitat for the Nation's endangered species. Within refuge habitats exist a diversity of plants and animals that have their own special requirements for survival.

As you experience the sites and sounds of these refuges, consider your special place in them. The wildlife-dependent recreational and educational opportunities provided on most refuges help you experience nature and learn how management

of these areas ensures that future generations continue to enjoy fish and wildlife and their habitats.

Management activities may include shifting areas of public use on a refuge to protect nesting bald eagles, setting a controlled burn to rejuvenate certain plants for food or cover, restoring wetlands for waterfowl, or growing crops that attract wildlife back to their native homes.

When visiting these homes for wildlife, be on the lookout for a brown and white binoculars sign. This sign represents a partnership of Federal and State agencies and private conservation organizations who are promoting "Watchable Wildlife" opportunities to help you enjoy your public lands and learn about the value of America's wildlife and their special places.

Tips For Visiting National Wildlife Refuges

Contact the refuge prior to your visit to receive the latest information on access, special activities, regulations, weather conditions, and more.

Leave only footprints -- take only memories. The flower you pick today may be the food that feeds the butterfly tomorrow.

Keep your distance from wildlife. It is dangerous for you and the wildlife to get too close. When you approach wildlife, they may defend themselves or flee; either way robbing them of precious energy.

Plan to arrive in the early morning or late afternoon when wildlife is most active. Wildlife generally rest during the heat of the day and stay hidden in the shadows where they are less likely to be seen.

When driving a tour-route or road, you should remain in your vehicle as it makes an excellent blind. Wildlife is less wary of a slow-moving or stationary vehicle than it is of a potential predator on foot.

For further information about refuges please contact any of the Fish and Wildlife Service offices listed below

Region I

911 NE 11th Avenue, Eastside Federal Complex
Portland, OR 97232-4181
(CA, ID, HI, NV, OR, WA)

Region II

P.O. Box 1306, Albuquerque, NM 87103
(AZ, NM, OK, TX)

Region III

1 Federal Drive, Federal Building
Fort Snelling, MN 55111-4056,
(IL, IN, IA, MI, MN, MO, OH, WI)

Region IV

1875 Century Blvd.
Atlanta, GA 30345-3203
(AR, AL, FL, GA, KY, LA, MS, NC, SC, TN, PR)

Region V

300 Westgate Center Drive, Hadley, MA 01035-9589
(CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, WV)

Region VI

Box 25486, Denver Federal Center, Denver, CO 80225
(CO, KS, MT, NE, ND, SD, UT, WY)

Region VII

1011 East Tudor Road, Anchorage, AK 99503
(AK)

Washington Office

US Fish and Wildlife Service,
4401 N. Fairfax Drive, Webb Bldg., MS 130
Arlington, VA 22203



Alabama

Wheeler NWR

Rt. 4 -- Box 250 -- Decatur, AL 35603

Best Wildlife Viewing Seasons:

fall, winter

Activities:

educational programs, hiking trails, wildlife viewing sites, archeological sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only,

For Your Information:

food/lodging nearby, refuge literature available



Alaska

Kenai NWR

PO Box 2139 -- Ski Hill Road -- Soldotna, AK 99701

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends

For Your Information:

food/lodging nearby, refuge literature available



Arizona

Buenos Aires NWR

PO Box 109 -- Sasabe, AZ 85633

Best Wildlife Viewing Seasons:

spring, summer, winter, fall

Accessibility:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, hunting

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Arkansas

Felsenthal NWR

PO Box 1157 -- Crossett, AR 71635

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

auto-tour route, hiking trails, wildlife viewing sites, archeological sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only

For Your Information:

food/lodging nearby, refuge literature available



California

Tijuana Slough NWR

2736 Loker Ave. W. -- Suite A -- Carlsbad, CA 92008

Best Wildlife Viewing Seasons:

spring, summer winter, fall

Activities:

educational programs, hiking trails, wildlife viewing sites

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Colorado

Arapaho NWR

PO Box 457 -- Walden, CO 80480-0457

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

auto-tour route, hiking trails, wildlife viewing sites, hunting, fishing

Accessibility:

visitor center/contact station, day use only

For Your Information:

food/lodging nearby, refuge literature available



Connecticut

Stewart B. McKinney NWR

733 Old Clinton Rd. -- PO Box 1030 -- Westbrook, CT 06498-1030

Best Wildlife Viewing Seasons:

spring, fall

Activities:

hiking trails, wildlife viewing sites, archeological sites

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only

For Your Information:

food/lodging nearby, refuge literature available



Delaware

Bombay Hook NWR

Rt. 1 -- Box 147 -- Smyrna, DE 19977-9764

Best Wildlife Viewing Seasons:

spring, fall

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, hunting

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Florida

St. Marks NWR

PO Box 68 -- St. Marks, FL 32355

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Georgia

Piedmont NWR

Rt. 1 -- Box 670 -- Round Oak, GA 31038

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, archeological sites, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Hawaii

Hakalau Forest NWR

154 Waiuanue Ave. -- Room 219 -- Hilo, HI 96720

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

hunting

Accessibility:

walk-in areas only, day use only

For Your Information:

refuge literature available



Idaho

Grays Lake NWR

74 Grays Lake Road -- Wayan, ID 83285

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

wildlife viewing sites, archeological sites, non-motorized watercraft, hunting

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

refuge literature available



Illinois

Savanna District

Post Office Bldg. -- Savanna, IL 61074 (MN)

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

hiking trails, wildlife viewing sites, archeological sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

walk-in areas only

For Your Information:

food/lodging nearby, refuge literature available



Indiana

Muscatatuck NWR

12985 East U.S. Hwy. 50 -- Seymour, IN 47274

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, non-motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Iowa

McGregor District

P.O. Box 460 -- McGregor, IA 52157

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

wildlife viewing sites, archeological sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, walk-in areas only

For Your Information:

food/lodging nearby, refuge literature available



Kansas

Flint Hills NWR

P.O. Box 128 -- Hartford, KS 66854-0128

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

hiking trails, wildlife viewing sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, walk-in areas only

For Your Information:

food/lodging nearby, refuge literature available



Louisiana

Cameron Prairie NWR

Rout 1 -- Box 643 -- Bell City, LA 70458

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

hiking trails, wildlife viewing sites, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, day use only

For Your Information:

food/lodging nearby, refuge literature available



Maine

Moosehorn NWR

PO Box 1077 -- Calais, ME 04619-1077

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

hiking trails, wilderness areas, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Maryland

Blackwater NWR

2145 Key Wallace Dr. -- Cambridge, MD 21613-9536

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Massachusetts

Monomoy NWR

Wiki Way -- Morris Island -- Chatham, MA 02633-2556

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

hiking trails, wilderness areas, non-motorized watercraft, motorized watercraft, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Michigan

Seney NWR

HCR #2 -- Box 1 -- Seney, MI 49883

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, wilderness areas, non-motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Minnesota

Tamarac NWR

HC 10 -- Box 145 -- Rochert, MN 56578-9735

Best Wildlife Viewing Seasons:

spring, fall

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Mississippi

Panther Swamp NWR

Route 5 -- Box 25 -- Yazoo City, MS 39194

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

auto-tour route, wildlife viewing sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only

For Your Information:

food/lodging nearby, refuge literature available



Missouri

Mingo NWR

RR 1 -- Box 103 -- Puxico, MO 63960-9714

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, wilderness areas, non-motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Montana

Medicine Lake NWR

223 North Shore Rd. -- Medicine Lake, MT 59247-9600

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft, hunting, fishing

Accessibility:

walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Nebraska

Fort Niobrara NWR

Hidden Timber Rt. -- HC 14 -- Box 67 -- Valentine, NE 69201

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Nevada

Desert National Wildlife Range

Box 14 -- HCR 38 -- Las Vegas, NV 89124

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas

Accessibility:

visitor center/contact station, visitor center open weekends

For Your Information:

food/lodging nearby, refuge literature available



New Hampshire

John Hay NWR

Weir Hill Road -- Sudbury, MA 01776-1427

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

educational programs, hiking trails

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



New Jersey

Edwin B. Forsythe (Brigantine) NWR

Great Creek Road -- PO Box 72 -- Oceanville, NJ 08231-0072

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, wilderness areas, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, day use only,

For Your Information:

food/lodging nearby, refuge literature available



New York

Elizabeth A. Morton NWR

PO Box 1246 -- Socorro, NM 87801-1246

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, hiking trails, wildlife viewing sites, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



North Carolina

Pea Island NWR

PO Box 1969 -- Manteo, NC 27954-1969

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

auto-tour route, hiking trails, wildlife viewing sites, archeological sites, non-motorized watercraft, motorized watercraft, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



North Dakota

Arrowood NWR

7745 11th St. SE -- Pingree, ND 58476-8308

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Ohio

Ottawa NWR

14000 W. State Route 2 -- Oak Harbor, OH 43449-9485

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, hiking trails, wildlife viewing sites, hunting

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available,



Oklahoma

Wichita Mountains Wildlife Refuge

Route 1 -- Box 448 -- Indianahoma, OK 73552

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Oregon

Malheur NWR

HC 72 -- Box 245 -- Princeton, OR 97721

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

wildlife viewing sites, archeological sites, wilderness areas, non-motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

refuge literature available



Pennsylvania

Erie NWR

RD 1 -- Wood Lane -- Guys Mills, PA 16327-9499

Best Wildlife Viewing Seasons:

spring, fall

Activities:

educational programs, hiking trails, wildlife viewing sites, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Rhode Island

Sachuest Point NWR

Rte. 1A -- Shoreline Plaza -- PO Box 307 -- Charlestown, RI 92813-0307

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, hiking trails, wildlife viewing sites, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



South Carolina

Pinckney Island NWR

1000 Business Center Drive -- Savannah, GA 31405 (SC)

Best Wildlife Viewing Seasons:

spring, fall, winter

Activities:

educational programs, hiking trails, archeological sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



South Dakota

Lacreek NWR

HWC 3 -- Box 14 -- Martin, SD 57551

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Tennessee

Chickasaw NWR

4343 Hwy. 157 -- Union City, TN 38261

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

auto-tour route, hiking trails, wildlife viewing sites, archeological sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station

For Your Information:

food/lodging nearby, refuge literature available



Texas

Brazoria NWR

PO Box 1088 -- Angleton, TX 77516-1088

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, non-motorized watercraft, motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, day use only

For Your Information:

food/lodging nearby, refuge literature available



Utah

Fish springs NWR

PO Box 568 -- Dugway, UT 84022-0568

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

auto-tour route, archeological sites, non-motorized watercraft, hunting

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

refuge literature available



Vermont

Missisquoi NWR

Rt. 78 -- PO Box 163 -- Swanton, VT 05488-0163

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

hiking trails, motorized watercraft, hunting, fishing

Accessibility:

walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



Virginia

Chincoteague NWR

PO Box 62 -- Chincoteague, VA 23336-0062

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, hiking trails, wildlife viewing sites, hunting, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

refuge literature available



Washington

Nisqually NWR

100 Brown Farm Road -- Olympia, WA 98516

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, hiking trails, wildlife viewing sites, non-motorized watercraft, motorized watercraft, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available



West Virginia

Ohio River Islands NWR

PO Box 1811 -- Parkersburg, WV 26102-1811

Best Wildlife Viewing Seasons:

spring, summer, fall

Activities:

non-motorized watercraft, motorized watercraft, fishing

Accessibility:

day use only

For Your Information:

food/lodging nearby, refuge literature available



Wisconsin

Trempealeau NWR

Rt. 1 -- Box 1602 -- Trempealeau, WI 54661-9781

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

non-motorized watercraft, motorized watercraft, fishing

Accessibility:

visitor center/contact station, visitor center open weekends, day use only

For Your Information:

food/lodging nearby, refuge literature available



Wyoming

Seedskadee NWR

PO Box 700 -- Green River, WY 82935-0700

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

educational programs, auto-tour route, wildlife viewing sites, archeological sites, non-motorized watercraft, hunting, fishing

Accessibility:

visitor center/contact station, walk-in areas only, day use only

For Your Information:

refuge literature available



Puerto Rico and Virgin Islands

Culebra NWR

PO Box 510 -- Boqueron, PR 00622-0510

Best Wildlife Viewing Seasons:

spring, summer, fall, winter

Activities:

non-motorized watercraft, motorized watercraft, fishing

Accessibility:

visitor center/contact station, walk-in areas only, day use only

For Your Information:

food/lodging nearby, refuge literature available

