

BIRDS *of* PREY

Norma Jean Venable



West Virginia University
Extension Service

Fall 1996

BIRDS *of* PREY

Norma Jean Venable

West Virginia University
Extension Service

ACKNOWLEDGMENTS

REVIEWERS:

LeJay Graffious, president,
Brooks Bird Club;

Jim Phillips, naturalist,
Pipestem Resort State Park.



ARTISTS:

Debbie Dennis, owl illustration on cover;

Doug Pifer, Pennsylvania Game
Commission, raptor drawings;

Cindie Brunner, drawings of red-tailed
hawk, American kestrel, and
great horned owl.

APPRECIATION IS EXPRESSED TO...

Edmond B. Collins, WVU Extension
Service division leader, for
administrative support for the
natural resources publications;

Joyce Bower, Extension Service
publications specialist, for editing;

Brandon R. Vallorani, Extension Service
graphic artist, for layout and design.

Norma Jean Venable is a natural resources
specialist with the WVU Extension Service
and author of the publications in the Natural
Resources Series.

Programs and activities offered by the West Virginia University Extension Service are available to all persons without regard to race, color, sex, disability, religion, age, veteran status, sexual orientation or national origin.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Director, Cooperative Extension Service, West Virginia University-- Fall 1997

Printing Cost: \$6.00

CONTENTS

INTRODUCTION..... 1

BIRDS OF PREY
THROUGH THE AGES 3

HAWKS 7

Vultures 10

Turkey Vulture 10

Black Vulture 12

Eagles 13

Bald Eagle 13

Golden Eagle 14

Osprey 15

Harrier 17

Northern Harrier or Marsh Hawk 17

Accipiter Hawks 19

Sharp-Shinned Hawk 19

Cooper's Hawk 20

Northern Goshawk..... 20

Buteo Hawks 22

Red-Shouldered Hawk 22

Red-Tailed Hawk 23

Broad-Winged Hawk..... 24

Rough-Legged Hawk 25

FALCONS 27

American Kestrel 27

Peregrine 28

Merlin 29

OWLS 31

Barn Owl 34

Eastern Screech Owl..... 35

Great Horned Owl 36

Barred Owl 37

Long-Eared Owl 38

Short-Eared Owl 38

Northern Saw-Whet Owl 39

Snowy Owl 41

CONSERVATION OF
BIRDS OF PREY 43

Attracting Birds of Prey 43

Owling 48

Raptor Surveys 48

Raptor Rehabilitation Centers 48

Hawk Migration Counts 49

Hawk Migration Data Sheet 50

REFERENCES 51

INTRODUCTION

DEFINITION OF BIRDS OF PREY

Owls, hawks, and hawklike birds including vultures, osprey, eagles, harriers, and falcons, are birds of prey. Birds of prey, especially hawks and their relatives, are also called raptors, a Latin word meaning “plunderer.”

CLASSIFICATION

Hawks belong to an order or group of birds with the scientific name *Falconiformes*. This order includes vultures, osprey, harriers, kites (southern hawks), accipiter and buteo hawks, eagles, and falcons.

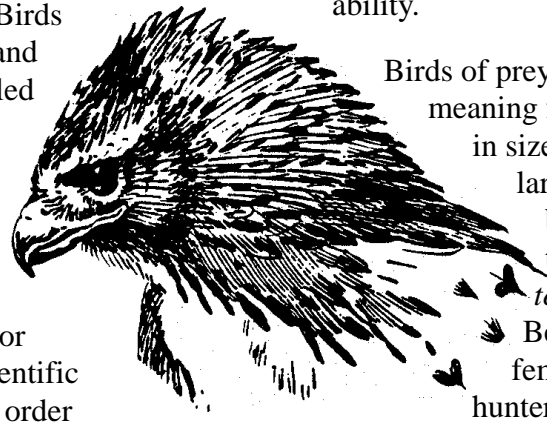
Hawks are called “diurnal,” meaning they are active during daylight. Worldwide, there are about 280 species of diurnal birds of prey, ranging from the small 3- to 8-ounce sharp-shinned hawk, which lives from Alaska to the southern United States, to the immense 20-pound harpy eagle of South America. More than 35 hawk species occur in North America. Sixteen kinds of hawks can be found in West Virginia.

Owls belong to an order or group of birds with the scientific name *Strigiformes*. They are nocturnal birds, meaning they hunt at night, filling the nighttime feeding niche. Worldwide, there are over 130 species of owls, 18 of which live in North America. Eight kinds of owls live in West Virginia.

Hawks and owls are not closely related, although they have similar adaptations for hunting.

ADAPTATIONS FOR HUNTING

Birds of prey have special characteristics and adaptations for hunting that set them apart from other birds. Raptors are characterized by strong legs, powerful feet with sharp talons, a hooked beak used to tear prey, keen eyesight, and excellent flying ability.



Birds of prey are sexually dimorphic, meaning female and male birds differ in size. Females are up to a third larger than males. The male bird of prey is called a tiercel, from the Latin word *tertius*, meaning third.

Because of their larger size, females are more aggressive hunters than males. Their superior strength and hunting ability make them preferred birds for use in falconry.

Other birds—including warblers, vireos, and shrikes that catch insects and herons that catch fish—are not considered birds of prey because they lack true raptor characteristics.

PREDATION

Hawks and owls are predatory birds. Predation is an interaction between two species in which one species becomes food for the other. Predation has evolved through the ages, acting as a natural way to keep populations balanced.

Raptors are a diverse bird group, with each species adapted to prey on animals smaller than itself. Prey includes mammals, amphibians, reptiles, insects, fish, and birds. The type of prey consumed differs according to the individual species. Bald eagles and osprey are fish-eaters; broad-winged hawks consume primarily insects and snakes; red-tailed hawks prey heavily on mammals;

sharp-shinned and Cooper's hawks prey extensively on birds; harriers catch mice, rats, frogs, snakes, and insects; and kestrels take mice, birds, bats, and insects. Owls eat mice, rats, small- and medium-sized mammals, birds, and insects.

PELLETS

Hawks and owls disgorge undigested parts of their prey in the form of a pellet. Pellets

usually consist of fur, feathers, bones, teeth, hard exoskeleton of insects, and other indigestible parts. Pellets are usually gray or brown, oval or oblong, and 1 to 3 inches long, depending on the size of the bird. An analysis of the pellet contents provides information about the raptor's cuisine.

A unique group of birds, raptors play an important environmental role in keeping prey populations balanced and add regal splendor to West Virginia's skyways.

BIRDS *of* PREY THROUGH *the* AGES

BIRDS OF PREY IN ANCIENT CIVILIZATIONS

Birds of prey have played an important part in the life and culture of ancient civilizations. Eagles, hawks, falcons, vultures, and owls were associated with deities and religious rites symbolic of kings and great power. The ancient civilizations of western Asia, including Sumeria, Babylonia, and Assyria, revered and worshiped eagles for their great strength and power. In Egypt, as long as 10,000 years ago, the falcon image was an important theme. Falcons were depicted in Egyptian hieroglyphics, often representing kings. Egyptians worshiped falcons in their temples and buried falcons in their tombs.

Birds of prey were also important in Greek and Roman civilizations. Coins dating from the fourth century B.C. show Alexander the Great with a falcon on his fist, indicating the use of falcons for hunting in Grecian times. For the Romans, owls—perhaps because of their nocturnal habits and stealthy hunting patterns—were symbols of misfortune and death. Even today, owls are associated with mystery and ghostly happenings.



Birds of prey were also important to New World civilizations. Drawings of birds of prey, such as hawks, eagles, and condors, have been found on textiles and stone sculptures of the ancient cultures of the Andes in South America. In North America, the Pueblo Indians kept birds of prey in captivity, using their molted feathers for decorations and in religious rites. The

Maya and Aztecs of Mexico used birds of prey to represent their deities. Some Plains Indians thought that hawk and eagle feathers had magical powers.

THE MIDDLE AGES AND FALCONRY

Birds of prey, especially falcons, are associated with the art of falconry, or the use of raptors for hunting. At its height in Europe from 500 to 1500 A.D., this pastime was popular with all classes of society.

Falconry still is practiced today and is legal in many states. Before they are licensed, falconers must undergo extensive training in the care and handling of the birds.

The origins of falconry are obscure, but it probably originated in China, where cormorants were trained to dive into the

water and catch food for their human owners. The first falconer may have been someone who captured a falcon or eagle and realized the raptor, like the cormorant, might be useful for catching food. So, birds of prey were trained and then used to catch birds. Thus falconry actually started as a method of hunting. In time, falconry developed into a sport. In the times of Genghis Khan, eagles were used to chase and capture wolves. In Japan, emperors and shoguns rode on magnificently decorated horses to engage in falconry.

Falconry became popular in Europe during medieval times in the 11th, 13th, and 14th centuries, when Crusaders returning from the East brought back trained falcons. Falconry was so popular during these times that nuns carried birds of prey to chapel, and a 14th-century French husband advised his wife to take her “hawk” with her everywhere, even to church.

The art of falconry was at its zenith during the Renaissance, from the 14th century to the 16th century.

FALCONRY AND SOCIAL STATUS

During those times, there were distinct social classes. Falconry was popular with all social sets from servants to kings. The species of bird used for falconry reflected social status. Majestic and mighty eagles were reserved for emperors. Kings hunted gyrfalcons (the Norse word means “spear falcon”), largest of the falcons at 22 inches in length, with plumage varying from white to black and brown. These beautiful, excellent hunters nest in Greenland and the Arctic.

Peregrine falcons were prized by royalty and used for hunting by princes, earls, dukes, and barons. Noted for their strength and hunting ability, peregrines are THE hunting

bird. Peregrines occur worldwide and are found on every continent except Antarctica. There are some 22 species. Peregrines are the fastest and most aerial of the predatory birds and may reach over 200 miles per hour in a “stoop” or dive after a bird.

Merlins, about 12 inches long, nest in North America, Canada, Russia, and Finland. They were milady’s falcon, carried on a lady’s fancy bejeweled glove. Mary, Queen of Scots—who was ordered beheaded by her sister, Queen Elizabeth I of England—probably flew merlins. Mary was even allowed out of captivity to go on falcon expeditions.

Last on the social order were knaves, persons of humble birth. Knaves flew the common kestrel, a small falcon 13 inches long. Kestrels are one of the most common falcons in the world, nesting in the Americas, Africa, the Middle East, and Central Asia.

Falconry was an elaborate affair. Expeditions were conducted on horseback on extensive estates. Hunting parties were lavish.

The sport was so popular that a book was written describing the art of falconry. From this book, it is known that early devices for training falcons are still in use among falconers today. Today’s falconer, like his counterpart of old, fits a hood over the bird’s head. Birds so hooded cannot see, remain quiet, and usually are easier to handle. Silver or brass bells placed on the bird’s legs are held on by thin leather strips called bewits. Jesses, leather straps about 8 inches long, are placed on the hawk’s legs below the bells. The free end of the jesse is passed through a swivel to which the leash is attached. The leash is used to attach the bird to its block, so it cannot fly away. In training, the falconer uses the lure and feathered lure, pieces of leather containing

meat, which serves as dummy prey. The falcon is carried on the gloved fist (the glove is called a gauntlet) by holding the jesses between the fingers. When the bird is released to hunt, the jesses and bells stay on the bird's legs.

When falconry was in its heyday, falcons or the “noble hawks” were among the most valued possessions of the aristocracy. There were strict rules and laws about ownership. Harsh punishments were given to those who harmed wild falcons, robbed eyries (nests), or stole other people's hawks. Every manor had a place for hawks, and falconers probably took better care of the birds than they did of themselves. The office of falconer held high rank.

For a thousand years, birds of prey enjoyed popularity and some protection from human molestation.

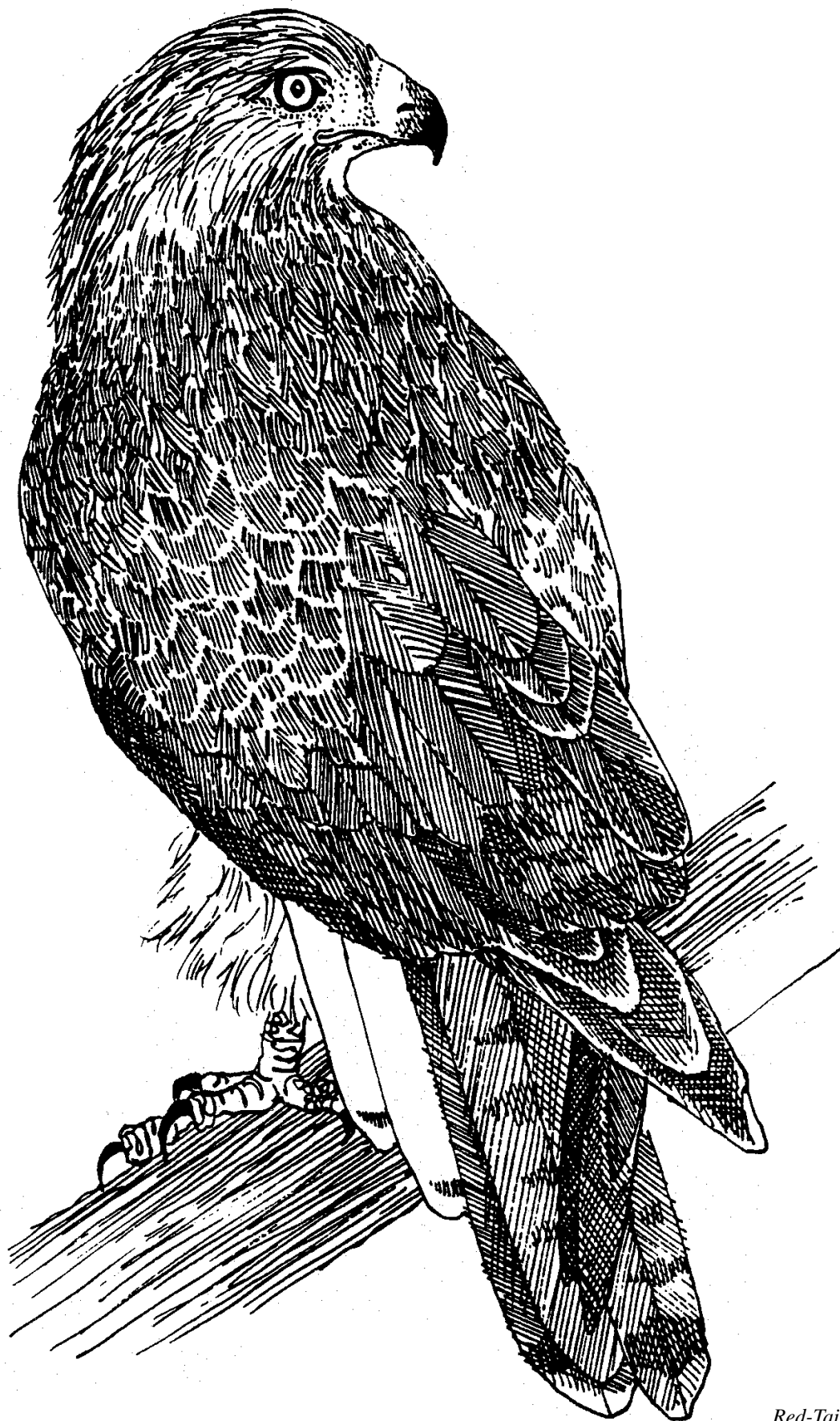
RECENT TIMES

The development of guns for hunting and the intensive management of game preserves brought changes at the end of the Renaissance and the beginning of the 17th century, which led to a decline in the popularity of falconry. Throughout the 18th, 19th, and 20th centuries, birds of prey were less venerated and considered “vermin” by gamekeepers and their landlords in Europe. Waterfowl hunters in North America killed thousands of birds. Birds of prey were shot, poisoned, and trapped, and their eggs and

young destroyed. Some states offered bounties to hunters for killing hawks, adding to the destruction. Shooting hawks was considered sport. Peregrines, merlins, kestrels, and other hawks fell to hunters' guns at such infamous shooting grounds as Hawk Mountain in Pennsylvania. After the slaughter of large numbers of birds, conservationists intervened, purchased Hawk Mountain, and formed the Hawk Mountain Sanctuary in 1933. This ushered in a new era of enacting hawk protection laws and programs. The protection of migrant raptors was made part of the 1972 Migratory Bird Treaty between the United States, Canada, and Mexico, providing federal protection for all raptors. It is illegal to kill hawks.

Even with protection, populations of birds of prey declined in the 1950s and '60s due to the use of pesticides, especially DDT, which affected calcium production, causing thin egg shells. This resulted in broken eggs as the birds tried to incubate. Populations of osprey, sharp-shinned hawks, and peregrine falcons were exterminated in parts of their range because the birds could not raise young.

With the banning of DDT in 1972, restrictions on pesticide use, conservation measures, and hawk reintroduction programs—including osprey and peregrine reintroduction efforts in West Virginia—birds of prey once again soar over their native skies.



Red-Tailed Hawk

HAWKS

During the day, hawks often can be seen soaring in the sky or perched in a tree, in many kinds of habitats, from woods and forests to suburban areas.

HAWK CHARACTERISTICS

All members of the hawk family have a strong, hooked beak for tearing flesh. Nostrils, small and slitlike, open in the soft part of the upper beak, which is called the *cere* and often is brightly colored. The neck is short and strong; the head is round. Feet are strong and usually yellow, with sharp curved talons adapted to strike and capture prey. Raptors “mantle” prey after killing it, crouching and spreading their wings, making a shield to hide the prey from other predators. Raptors may feed on the ground or carry their meal to a special feeding spot, often a post or tree limb, where the bird tears the meat apart with its beak. Hawks tear up their food, unlike owls which swallow food whole or in large chunks.

Different kinds of hawks eat different kinds of prey. Large soaring hawks consume rats, mice, rabbits, squirrels, and other small mammals. Over half of the diet of red-tailed and rough-legged hawks consists of mice and rats, giving them the name “living mousetraps.” These hawks feed on rats and mice and also consume birds. This eating of small birds is nature’s way of controlling

their numbers to maintain balanced populations.

A hawk’s plumage is usually blended grays and browns on the back, with pale, whitish feathers on the underside, sometimes with streaks or bars. (Streaks are vertical; bars are horizontal.) A hawk’s eyes—which are usually yellow, orange, red, or brown—are large, with little movement in the sockets. The bird’s fierce appearance is heightened by a bony shield over the eyes. Its eyesight is possibly the keenest of any animal. Male and female hawks tend to look alike, with the exception of harriers.

IDENTIFICATION

Hawks are identified by special markings, such as the rufous on the tail of a red-tailed hawk, wing and tail shape, calls, behavior, and habitat.

The first step in hawk identification is to make sure that the bird is actually a hawk. Hawks are soaring birds; they tend to soar in circles, either gliding for long times without flapping their wings (such as a red-tailed) or flapping for a few beats, then gliding (such as a Cooper’s hawk). Most hawks appear brown or dark above and light below. Other birds that soar include ravens, swallows, herons, gulls, terns, and sometimes crows.

The best way to learn how to recognize hawks is to study their silhouettes and markings and have actual experience in the field.

FALL HAWK MIGRATION

An excellent time to see hawks is during their fall migration.

Hawks in the northeastern United States and Canada migrate in the fall and return in the spring because less food is available in winter. For instance, broad-winged hawks prey on snakes and insects that hibernate or die with the onset of cold temperatures. Sharp-shinned and Cooper's hawks prey mostly on insect-eating songbirds, which also migrate south to get enough to eat. Fish-eating raptors, such as osprey and bald eagle, must migrate where the waters are not frozen.

Migration does not occur all at once. Most fall migration takes place from September to November. Spring migration northward occurs between March and May, although some hawks may migrate each month of the year in the Northeast as they seek better habitat.

Different species have different migration times, and some migrant birds can be seen from late August until December. Rough-legged and red-tailed hawks are seen moving south well into December.

Migratory hawks have an internal mechanism that lets them know that the angle of the sun and the amount of daylight reaching the earth's surface indicate it's time to migrate. In general, good hawk flights in autumn occur after the passage of a cold front. Why this is so is not known, but birds are reluctant to fly in squall lines associated with frontal activity; the birds back up behind the front. When the cold front passes, the birds begin to move. It also is possible that the birds are taking advantage of a favorable tail wind. Whatever the reason, the time to look for migrating hawks in fall is after the passage of a cold front in association with northwesterly winds. (During spring migration, more birds are seen in association with a warm front.)

Once hawks begin to migrate, stimulated by clear skies and following winds, their movements are influenced by weather and topography—birds tend to avoid squalls and bad weather, remaining earthbound until

fronts pass. They orient visually to certain routes, such as mountain ridges and coastlines. These geographic features are called “leading lines.”

The system of ridges running northeast to southwest in the Appalachian Mountains is one such line that attracts many hawks, which frequently travel from midmorning through midafternoon, primarily to take advantage of air currents.

One such air current is termed a “thermal.” This is a bubble of air warmed from the earth’s surface. Thermals are initiated when the sun raises the surface temperature, usually at midmorning. The bubble of air, being buoyant, rises. Thermals consist of a series of rising air bubbles. Soaring birds take advantage of the expanding air bubble for long distance travel, using the updraft of the thermal to climb, then glide, then climb again. Large soaring birds may achieve a glide ratio (the ratio of forward speed to sinking speed) of 12 to 1, illustrating the energy-saving success of this method of travel. At times, hundreds of hawks can be seen in a single thermal. With outstretched wings and fanned tails, hawks soar higher and higher. Broad-winged hawks are noted

especially for this behavior, which is termed “kettling.”

Another type of air current, a deflective air current, results from the forced ascent of air over mountains. Soaring birds utilize these air currents when possible, typically following north-south mountain chains to take advantage of both thermals and deflective air currents. Soaring birds—especially eagles, vultures, and hawks with their long, broad wings—are specially adapted to take advantage of these air currents. However, birds of prey are capable of sustained flight without these special air effects.

Ideal conditions for hawk watching include clear skies, recent passage of a cold front, and a time from about midmorning to late afternoon when there are thermals and maximum visibility. Between 11:30 a.m. and 1:30 p.m., hawks tend to fly too high to be seen, however.

The southward migration of thousands of hawks over West Virginia’s mountain ridges is a spectacular sight, providing watchers the best opportunity to see the 16 species occurring in the state.

VULTURES

FAMILY *CATHARTIDAE*

Vultures, large, dark birds with long wings, often are seen soaring in circles in the sky. Vultures are primarily scavengers, but occasionally take live prey. They are sometimes called buzzards, an incorrect term applied by early settlers who thought vultures were related to European hawks.

Active in the daytime, vultures search for carrion to eat. Sometimes they perch in trees or stand on the ground, usually near a dead animal. Vultures are social, tending to roost and feed together. When perched, they often spread their wings, appearing to sun themselves or dry their feathers.

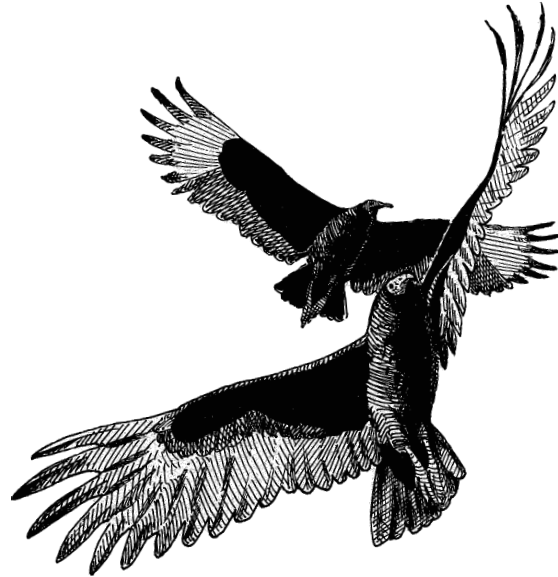
West Virginia has two species of vultures: turkey vulture and black vulture. The turkey vulture, found in most of the United States, is most common, while the black vulture is a southern species. The third and largest North American raptor is the California condor, now extremely rare.

TURKEY VULTURE

CATHARTES AURA

Length about 30 inches, with a wingspan to 6 feet.

Adults weigh between 4-1/2 and 5-1/2 pounds.

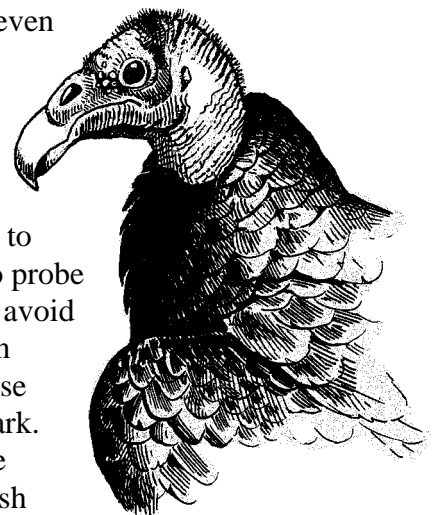


Turkey Vultures

DESCRIPTION

The main avian scavenger in West Virginia (and the United States), turkey vultures are black-brown, and the male and female look alike. Seen from underneath, the turkey vulture's wings appear two-toned, the flight feathers lighter in color than the rest of the feathering. The primary or main flight feathers are often separated as shown in the illustration. Turkey vultures soar with wings held above the horizontal, forming a V shape. The big birds rock and tilt in the air. The two-toned, V-shaped wings and rocking motion quickly identify turkey vultures even from a distance.

The head and neck of the turkey vulture are unfeathered, to allow the bird to probe into carrion and avoid getting messy. In young birds, these skin areas are dark. Adult birds have noticeable reddish



heads and necks. The bill has a sharp hook at the end for tearing, and the turkey vulture's toes have strong, curved talons.

Vultures do not have voices, as they lack a syrinx, or voice box, but they can hiss and grunt. Unlike many birds, vultures have large olfactory organs, giving them a keen sense of smell. This along with excellent vision helps them locate carrion.

HABITAT

Turkey vultures are seen throughout West Virginia in various habitats.

NEST

Preferred nesting habitat includes remote areas, such as caves, cliffs, and hollow logs or stumps in dense thickets to deter predators. They also may nest in abandoned farm buildings and dead trees or snags.

There is little or no nest, other than gravel, sawdust, or debris on the ground. Nests are hard to find. The birds sit tight on the nest and are silent.

EGGS

Usually 1-3, with dull white shells and irregular brown spots.

INCUBATION

Both parents incubate, 30-40 days, and young remain in the nest 4 weeks. The young birds eat carrion regurgitated to them by the parents.

FEEDING HABITS

Diet for vultures includes carrion of all sorts, including road-kills, domestic animals, fish,

slaughterhouse refuse, and whatever else might be dead. Both captive and wild turkey vultures have been seen killing smaller birds.

NATURAL HISTORY

Vultures are gregarious, and groups of 10 to 30 birds including adults and young may soar together or roost in trees. At evening you often can see vultures flying in to join a communal roost.

Turkey vultures are excellent at soaring, their long, broad wings keeping them aloft like sailplanes. In a rising current of air called a thermal, a vulture can keep or even increase altitude without flapping its wings. Along with other hawks and falcons, vultures migrate along mountain ridges, using updrafts to keep airborne. They are graceful flyers. Life-span is at least 20 years.

STATUS

Formerly a more southern species, turkey vultures have extended their range into Canada during this century. Increasing populations of white-tailed deer and the proliferation of garbage dumps may be factors in range extension. Turkey vultures are fairly common summer residents in West Virginia and populations are increasing. There are nest records from several counties.

Fall migration takes place late—in October and November. Wintering grounds include the southern United States and Mexico. Flocks of vultures often are seen at autumn hawk watch stations, although during the early fall they may not be migrating birds.

In southern West Virginia and some northern locations, turkey vultures are year-round residents.

BLACK VULTURE

CORAGYPS ATRATUS

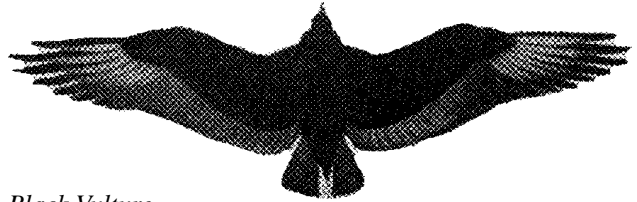
Length, about 2 feet, with a 5-foot wingspan; weight, 4-1/2 to 6 pounds.

DESCRIPTION

Smaller than the turkey vulture, the black vulture has a short tail and a black head (not red). Airborne, it shows distinctive white patches on the undersides of the wings near the tips. These white patches are very noticeable in flight. Wings are held more horizontally than the turkey vulture's.

Behavior, food, and nesting habits are similar to the turkey vulture. Eggs, usually 2 per clutch, are slightly larger than the turkey vulture's and are gray-green, bluish white, or dull white, with brown blotches. Incubation, by both sexes, takes 28-39 days. Black vultures sometimes place bits of trash and

broken glass in their nest areas. They are not as good at soaring as turkey vultures, and fly using several rapid wing flaps followed by a short sail. Although found primarily in the southeastern United States, black vultures occasionally can be seen as far north as Maine.



Black Vulture

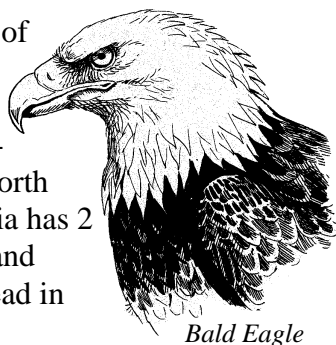
STATUS

Black vultures are local summer residents in the state; we have nesting records from the Eastern Panhandle. They are winter residents, also. Black and turkey vultures may be seen together.

EAGLES

FAMILY ACCIPITRIDAE

Eagles are large birds of prey, with broad wings and broad, round tails. There are 4 species of eagles in North America. West Virginia has 2 kinds of eagles, bald and golden, both widespread in North America.



Bald Eagle

BALD EAGLE

HALIAEETUS LEUCOCEPHALUS

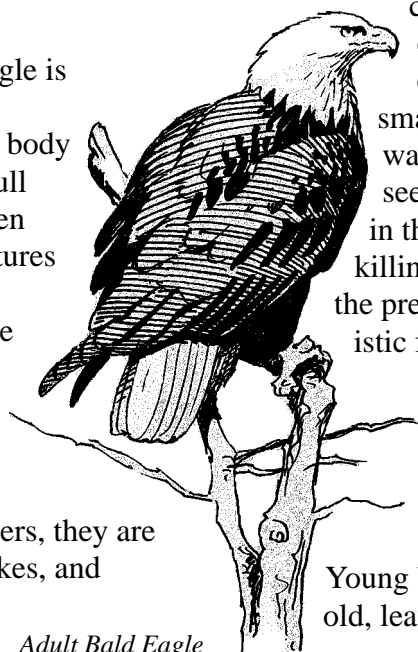
Adult birds can reach a length of 30 to 40 inches long and a wingspan of 7 feet. Females weigh 10 to 14 pounds, and males weigh 8 to 10 pounds. Bald eagles are the largest eastern raptor. Eagles are distinguished in flight profile from other raptors by their large size. An immature is shown at the right to help you identify young eagles.

DESCRIPTION

The head of a mature bald eagle is covered with gleaming white feathers. Its tail is white. The body and wings are dark brown. Full adult plumage is attained when the bird is 5 years old. Immatures lack the white head and tail, having some white only in the wing linings.

HABITAT

Since bald eagles are fish-eaters, they are found mostly along rivers, lakes, and shores.



Adult Bald Eagle

NEST

An eagle's nest is called an eyrie. Constructed of sticks and branches with a lining of moss, grass, and weeds, it is about 5 inches deep and 20 inches in diameter. A pair of eagles may use the same nest year after year, adding new layers of branches, until the nest becomes quite large. Nest sites are near lakes, rivers, and reservoirs. Nest building can begin as early as February.

EGGS

1-3, dull white, and unmarked.

INCUBATION

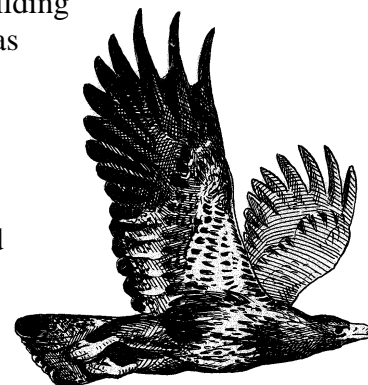
By both parents, for about 35 days. Both parents feed the young eaglets. A large hatchling may kill a small, weaker one.

FEEDING HABITS

Bald eagles feed mainly on fish, which comprise 60 percent to 90 percent of their diet, either living or as carrion. They also eat birds and small mammals. Eagles soar above water or sit on a perch, and when they see a fish, swoop down and snatch it in their talons. Talons are used for killing prey, and their heavy bills tear the prey apart. Eagles are also opportunistic feeders. Eagles will follow vultures, ravens, and crows to find carcasses.

NATURAL HISTORY

Young bald eagles begin to fly at 3 months old, leaving the parents in the autumn to



Immature Bald Eagle

begin several years of wandering, sometimes traveling hundreds of miles. When a bald eagle is 4 to 5 years old, it chooses a mate with whom it remains for several years or life. Eagles begin their southward migration when ice appears in the fall. They find places with open water and enough food for winter. When the weather begins to warm in the spring, they head north, often returning to the nest used the previous year. Bald eagles are seen soaring, often with other eagles. The wings are held flat, but sometimes with a slight dihedral or V-shape. Voice is a series of harsh cackles. Bald eagles can live to 30 years.

STATUS

In 1782 when the Continental Congress designated the bald eagle our national bird, it probably nested in every state and throughout North America in suitable habitat. Its breeding range traditionally covered all of North America south of the Arctic Circle. Loss of habitat, draining of wetlands, indiscriminant shooting, and pesticides contributed to low populations by the mid-1900s. The pesticide DDT was perhaps the most serious cause of the decline.

The first bald eagle nest in West Virginia was documented in 1981. Currently, there are several nest sites, all located in the Eastern Panhandle. There are records of non-breeding bald eagles from most areas of the state. Bald eagle populations have increased in recent years.



Immature Golden Eagle

GOLDEN EAGLE

AQUILA CHRYSAETOS

Body length is 30-40 inches; the wingspan is 6-1/2 to 7-1/2 feet. Females weigh from 9-13 pounds; males from 8-10 pounds.

DESCRIPTION

Golden eagles have rich, dark brown body plumage, with gold-tipped feathers on the neck and head.

The legs have feathers down to the toes. Adults resemble immature bald eagles, but golden eagles are darker.

Immature goldens have white wing patches and, for their first several years, a broad white band at the base of the tail. The call is a series of rapid, sharp chirps.

Prey includes small rodents, rabbits, birds, reptiles, fish, and carrion. Golden eagles

are birds of remote mountainous areas. They are reported as reaching a flight speed of over 100 miles per hour.

STATUS

Golden eagles are rare fall migrants, rare winter visitants, and rare local permanent residents, seen in mountainous areas throughout the year. They are reported from hawk-watching stations from late September to early October. While it is possible that the birds nest here, the species is not listed in the *West Virginia Breeding Bird Atlas*.



Adult Golden Eagle

OSPREY

FAMILY *PANDIONIDAE*

OSPREY

PANDION HALIAETUS

Ospreys are large, eagle-like hawks nesting from Alaska and Newfoundland south along the coasts. They are widespread in the Northern Hemisphere and in Australia.

Ospreys are 21-24 inches from bill to tail, and standing height is 1-1/2 feet.

Wing span is from 4-1/2 to 6 feet. Male and female are closer in size than other hawks. They weigh about 2-4 pounds.

DESCRIPTION

Plumage is dark on the back, and white on the undersides. The head is largely white, with a black patch across each cheek. A conspicuous crook in the wings and black “wrist” marks—visible from below—are good field identifiers. Call is a series of loud rather high-pitched whistles, sounding like “cheep, cheep.” The sexes are similar in plumage, but females are somewhat larger. Immatures are similar to adults but the back has a “scaly” look because of white feather edges.

HABITAT

Ospreys inhabit seacoasts and areas near large rivers and lakes. In West Virginia, they show up along rivers, and creeks, and

around wetlands such as Canaan Valley. Ospreys are often seen during late summer and during fall migration.

NEST

Ospreys build bulky nests of sticks and twigs, lined with grasses and bark. Sometimes they add cans, bits of rope and fishnet, shells, and other items.

The prominent nests are placed in trees; on man-made structures, including poles, buoys, billboards, and chimneys; and on the ground. Nests are used year after year and can become large.



EGGS

2-4, usually 3; white or pinkish white with brown blotches.

INCUBATION

The female incubates 32 days, and young leave the nest when they are 51-59 days old.

FEEDING HABITS

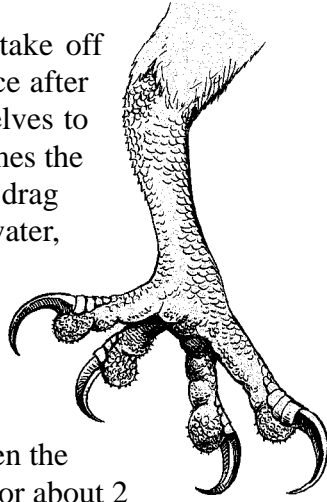
Ospreys primarily eat fish, including carp, pike, perch, and trout, but like an occasional turtle, bird, or small mammal. Waterways must be able to produce enough fish to support osprey populations.

NATURAL HISTORY

Ospreys hover 50-150 feet high, then plunge to the water with a great splash for their fish prey, sometimes going under the water. Ospreys carry the captured fish head first.

The osprey's foot has spicules on its toes for gripping slippery fish and reversible inner toes for carrying prey.

The birds are able to take off from the water's surface after a dive, shaking themselves to remove water. Sometimes the birds swoop down and drag their feet through the water, perhaps to clean them. The male performs courtship flights, usually while carrying a fish and calling constantly. When the young are in the nest, for about 2 months, the male brings fish to the female who tears the fish and feeds the young. Life-span is 20 years.



Food tubes are used so young birds do not associate food with humans. About midsummer, the young ospreys are able to fly; by late August or September, they will migrate to Central and South America, where they remain 2 to 3 years until mature.

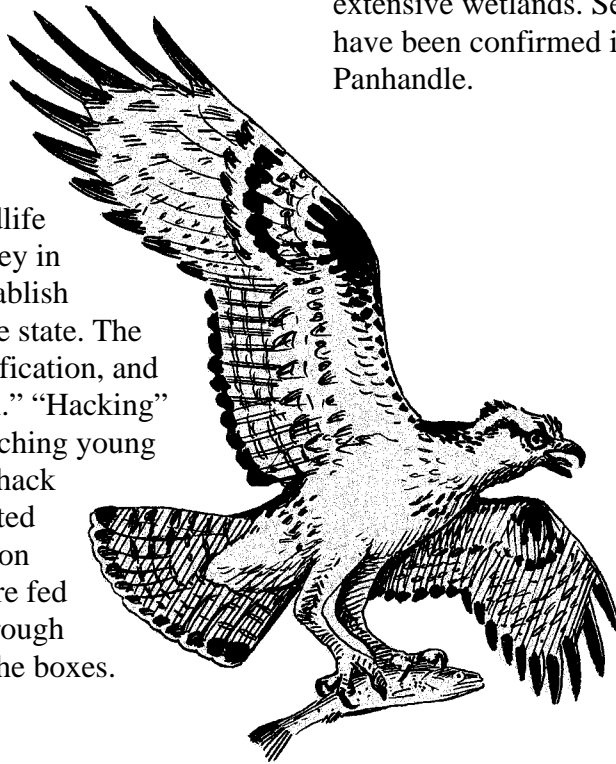
The birds then migrate back north to areas where they learned to fly to find mates and begin nesting.

Osprey have been released at various sites in the state, including Blennerhassett Island in the Ohio River, South Branch of the Potomac, and Tygart Lake Dam.

The osprey has not been a common nesting bird in the state, probably due to lack of extensive wetlands. Several nesting sites have been confirmed in the Eastern Panhandle.

STATUS

The West Virginia Division of Natural Resources' Nongame Wildlife Program has released osprey in several places to try to establish breeding populations in the state. The birds are banded for identification, and then placed in a "hack box." "Hacking" is a falconer's term for teaching young birds of prey to hunt. The hack boxes are large, open-fronted plywood boxes with raccoon guards. The young birds are fed a pound of fish per day through food tubes in the back of the boxes.



HARRIER

FAMILY ACCIPITRIDAE

Harriers are medium-sized, long-legged, and long-tailed raptors, with an owl-like facial disk and usually a conspicuous white rump patch. Adult male and female have different plumages. There is one species in North America, nesting as far north as Alaska.

NORTHERN HARRIER OR MARSH HAWK

CIRCUS CYANEUS

Harriers are 19-24 inches long, with a wingspan of 50-56 inches, weighing around 1-1/2 pounds.

DESCRIPTION

Adult males have pale, bluish gray backs, white underparts, and a gray tail with dark bands. Females have brown backs, undersides with light brown and dark streaks, and tail barred with black and tan. Young birds resemble the female. Harriers have a white rump patch conspicuous from a distance, which helps with identification. They hold their wings in a V-shape and often fly close to the ground seeking prey. They are birds of open country. Voice is a weak, nasal “pee, pee, pee.”

HABITAT

Harriers live in marshes, wet meadows, bogs, and flat open farmland.



Harrier

NEST

The nest is on or near the ground, sometimes in fields and sometimes on a branch over water. Nest is made of straw, sticks, and grasses lined with feathers.

EGGS

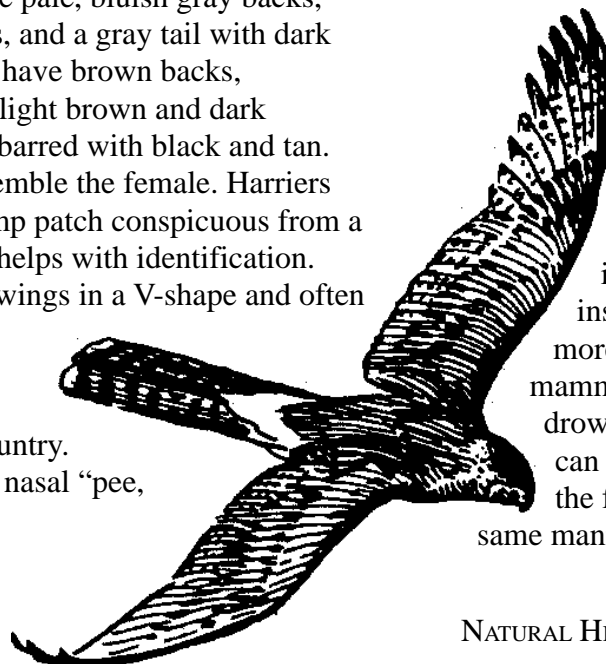
About 5, oval, dull white to pale blue.

INCUBATION

Mostly by the female, for about a month.

FEEDING HABITS

These hawks hunt with a distinctive quartering flight, flying low over the ground and attacking when they see prey, including mice, small birds, insects, and rabbits. Males prey more on birds and females more on mammals. Harriers are reported to drown waterfowl. Northern harriers can locate prey by sound, aided by the feathers on the facial disk, in the same manner as owls.



NATURAL HISTORY

Harriers get their name from the word “harrier,” meaning to plunder. Unlike most hawks, harriers have an unusual hunting flight flying only about 20 feet above the

ground, flapping the wings and gliding back and forth searching for a meal. Because these birds hunt primarily in fresh-water marshes and open grasslands, it is often possible to see them from a great distance. Unlike other hawks, harriers do not usually perch in high trees, but prefer fence posts and low stumps. They sometimes have communal roosts, like vultures, during winter. Males have a spectacular courtship flight, rising hundreds of feet into the air, then divebombing to within 10 feet of the female, then sweeping back up. The male feeds the female while she is incubating; the

female flips on her back to catch with her talons the food dropped by the male. Most harriers do not return to their nesting grounds year after year as do other hawks. Life-span is to at least 16 years.

STATUS

This bird is almost out of its range in West Virginia, perhaps because of limited wetlands. There are a few nesting records, and the bird can be seen in suitable habitat and during fall migration.

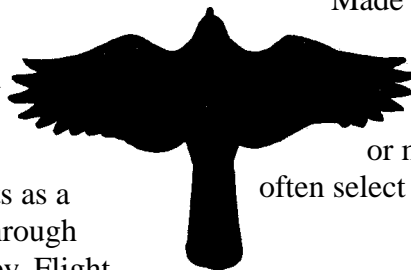
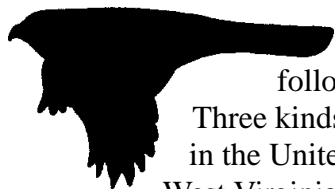
ACCIPITER HAWKS

FAMILY ACCIPITRIDAE

Accipiters are woodland hawks. The word "accipiter" means bird of prey. Accipiter hawks have long tails (as opposed to *buteo*'s rounded tails) and short, rounded wings. The long tail acts as a rudder, permitting quick turns through woods as the hawks chase prey. Flight

pattern is several quick wing beats followed by a glide.

Three kinds of accipiters live in the United States and in West Virginia.



HABITAT

This hawk prefers large, remote woods.

NEST

Made of sticks and twigs, about 2 feet across, usually in a conifer 10-60 feet high; or the birds may use a nest of a squirrel or crow or may nest in a rock crevice. They often select a new nest site each year.

EGGS

March-July, usually 4-5, white or pale blue, with brown blotches.

INCUBATION

Both adults share duties during incubation, about 34 days. The young fly a couple of weeks after hatching.

FEEDING HABITS

Diet consists mostly of small birds, including pigeons, and occasionally mice, moths, and insects.

NATURAL HISTORY

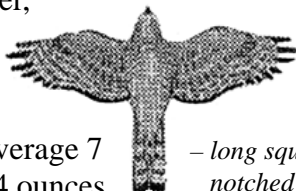
Although these jay-sized hawks are small, they will chase birds larger than themselves, including herons and screech owls. Their main way of hunting is to pounce from trees onto prey. Life-span is at least 10 years.

STATUS

Uncommon permanent resident; common fall migrant. They can be seen throughout the year.

SHARP-SHINNED HAWK *ACCIPITER STRIATUS*

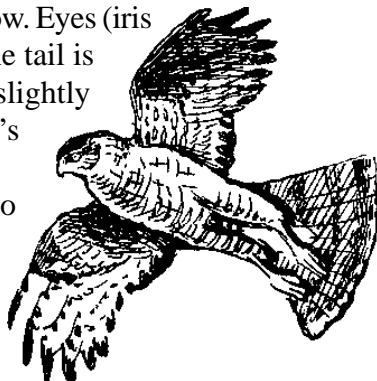
This hawk is similar to the Cooper's Hawk, but is smaller, 10-14 inches long, with a wingspan of 20-27 inches. Females average 7 ounces and males 4 ounces, about robin size.



– long square or notched tail
– rusty chest

DESCRIPTION

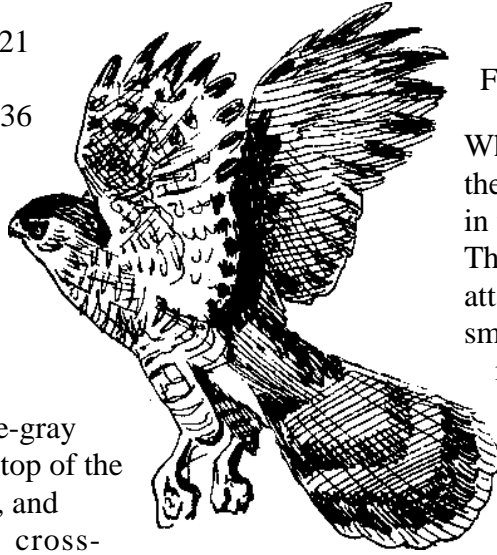
Adults have blue-gray upperparts, with white underparts heavily barred with red-brown. Legs are yellow. Eyes (iris color) are scarlet. The tail is square at the end or slightly notched (the Cooper's hawk has a rounded tail). Call is similar to the Cooper's hawk, but higher—"kik kik kik."



COOPER'S HAWK

ACCIPITER COOPERII

Crow-sized, 14-21 inches long, wingspan of 27-36 inches. Females average 20 ounces, males 13 ounces.



DESCRIPTION

Adults have blue-gray upperparts. The top of the head is blackish, and underparts are cross-barred white and red-brown. The tail is crossed by 5 or more grayish bars. Eyes (iris color) are yellow to red. Immature birds have brown upperparts, and the belly is streaked with brown. Voice is a rapid "kek, kek, kek"; the birds are noisy around the nest.



-long, round tail
-rusty chest

HABITAT

Mixed woodland.

NEST

Platform of sticks and bark in a tree 10-60 feet above the ground; sometimes in a crow's nest. Cooper's hawks do not tolerate the smaller and competitive sharp-shinned hawks in the same woodland.

EGGS

April-June, usually 4-5, white to green-white.

INCUBATION

Mostly by the female, about 24 days.

FEEDING HABITS

When hunting, Cooper's hawks fly through the woods in low swift flight, catching prey in the air or on the ground with their talons. This bird is the "chicken hawk," known for attacking farm poultry. These hawks eat small mammals, such as chipmunks; birds, including starlings and doves; and fish.

Cooper's hawks may drown their prey in any nearby water source.

NATURAL HISTORY

During the 1950s and '60s, this bird's nesting success was threatened by pesticides, and it is still not a common bird in West Virginia. Life-span is at least 10 years.

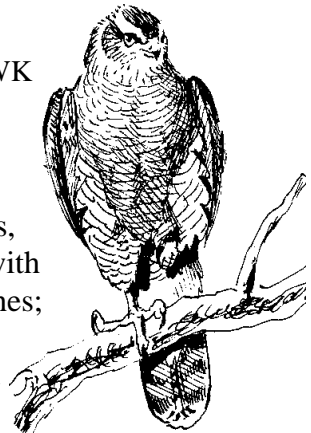
STATUS

Rare to uncommon permanent resident; fairly common fall migrant; occasional winter visitor. Cooper's hawks occur throughout the state, widely distributed through farmlands, if there are woods for nesting. They prey on small birds at bird feeding stations. Cooper's hawks are not common at higher elevations.

NORTHERN GOSHAWK

ACCIPITER GENTILIS

Northern goshawks are slightly larger than crows, 19-27 inches in length, with a wingspan of 40-47 inches; females average 37 ounces, males 29 ounces.



DESCRIPTION

Adults have a black head with a white line above the eye. The back is slate-blue, and underparts are pale blue-gray with fine black barring and some vertical black streaking.

The tail is dark gray, with 3 or 4 indistinct

dark bands. The

eye (iris color) is deep red.

Legs are yellow. Cere is

greenish yellow. When the

bird is perched, wingtips extend halfway to

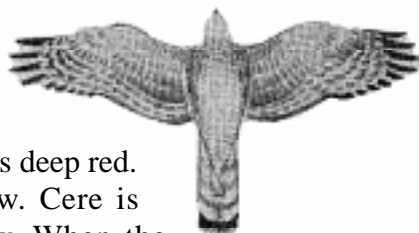
the tail tip. Young birds have brown heads

and a pale eyebrow line. Their eyes (iris

color) are yellowish. The back is brown,

with cream colored underparts with heavy

black-brown streaks. Voice is a harsh “ca ca ca ca,” especially around the nest.



HABITAT

Wooded areas.

NEST

75 feet up in a tree; nests are bulky, 3 or 4 feet in diameter. Pair often uses the same nest year after year.

EGGS

3-4, off-white, and usually unmarked.

INCUBATION

36-38 days by the female. Goshawks defend their nests fiercely and are vocal around them.

FEEDING HABITS

Goshawks eat birds and small mammals, often pursuing their prey on foot through thick underbrush.

NATURAL HISTORY

Also known as the blue darter, the goshawk is the largest of its family in North America, and well known for its hunting ability.

Unlike raptors, which feed at the top of the

food chain and thus take in the highest

concentrations of pesticides and toxins,

goshawks avoid some chemical poisoning

by feeding lower on the food chain. They

catch birds, including crows, doves, and

gamebirds, and such mammals as squirrels.

Goshawks protect their nests, mounting

fierce attacks on intruders. Life-span is to 20

years.

STATUS

This northern bird nests in Canada and Alaska, reaching the southern extent of its

range in West Virginia. Goshawks are

expanding their range, perhaps because of

the increase in wooded lands. There are

several nesting records in West Virginia.

BUTEO HAWKS

FAMILY ACCIPITRIDAE

Buteos are large, stocky hawks with broad wings and wide, rounded tails. They soar high in wide circles. Sexes are similar in color. "Buteo" is Latin



meaning a kind of hawk or falcon. Of the 13 species of buteo hawks living in the United States, 4 occur in West Virginia.

RED-SHOULDERED HAWK

BUTEO LINEATUS

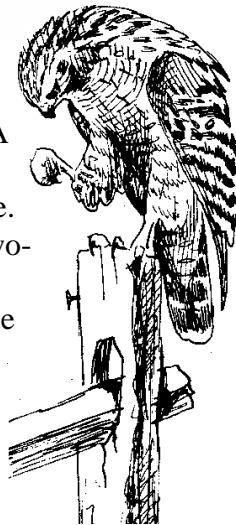
17-24 inches long; wingspan of 32-50 inches. Females average 1 pound, 8 ounces; males average 1 pound, 3 ounces.



-tail bands
-red breast
-white wing "windows"

DESCRIPTION

The adults have a brown back and underparts barred with red, brown, and white. A reddish patch on each shoulder is not always visible. In flight, the wings appear two-toned, with a translucent "window" or patch at the base of the primaries (flight feathers), although this window is not always visible. The tail has heavy



dark bands. Immature birds have underparts heavily streaked with brown, with little or no red shoulder patches. The voice is a 2-syllabled scream, "kee-yer."

HABITAT

Swamps, wooded river bottoms, remote areas, and farming country.

NEST

Made of sticks, twigs, and bark; often deep, 20-60 feet up in a hardwood or conifer. In spring, the adult pair is noisy, uttering loud, rapidly repeated calls. The pair or succeeding generations may occupy the same territory for dozens of years.

EGGS

March-June, usually 3-4, white spotted with brown.

INCUBATION

By both sexes, for about 28 days. Young leave the nest when they are 35-42 days old.

FEEDING HABITS

Red-shouldered hawks often use an old nest as a feeding platform. They eat mice, shrews, rabbits, birds, frogs, grasshoppers, beetles, spiders, and snails.

NATURAL HISTORY

This hawk needs large areas of forest interspersed with wetlands. The nest tree is often near water. They avoid roads and buildings. The red-shouldered hawk is not as widely distributed in West Virginia as the red-tailed. Life-span is at least 20 years.

STATUS

Permanent resident; sometime winter visitant and summer resident; and uncommon migrant. In summer, they are distributed throughout the state.

RED-TAILED HAWK

BUTEO JAMAICENSIS

19-25 inches long; wingspan of 46-58 inches. Females weigh 3 pounds, 8 ounces; males, 2 pounds, 8 ounces.



—belly band
—red tail (adult)

DESCRIPTION

Adults have dark brown backs and white undersides, with brown streaks on the lower neck and a broad band of dark streaking across a white belly. The upper side of the tail is rufous red, which can be seen when the bird veers in flight. From below, the tail is pale but transmits a hint of red. Immature birds have dark gray tails. There is much variation in the red-tail's plumage. Some birds have no visible belly streaking; others are dark or occasionally albino. When the red-tail is perched in a tree or on a post, its white breast is distinctive and an identifying characteristic. The call is a wheezy "keeer—k," slurring downward, often delivered when soaring overhead.



HABITAT

Open country and mountains.

NEST

Large, bulky, 2-1/2 feet across, built of sticks and twigs, and lined with bark; often built in oak and pine trees, 15-70 feet above the ground; often in the tallest tree near a wood's edge.

EGGS

February to June, usually 2-3, dull white, with some brown spots.

INCUBATION

Mostly by the female, but the male provides food for her on the nest for about 30 days. The young fly when about 45 days old.

FEEDING HABITS

Red-tails often watch for prey from a perch on a tree or post, taking off, then gliding, and snatching prey from the ground with their talons. Prey is mostly rodents and includes house mice, field mice, rats, rabbits, shrews, skunks, small birds, snakes, lizards, crickets, beetles, and fish. This hawk is an important natural source of rodent and insect control.

NATURAL HISTORY

Red-tailed hawks are thought to mate for life, and pairs tend to claim the same territories year after year. In courtship, the pair soar about, screaming. The smaller male may dive from great height at the female and the two engage in mock combat. Courtship flights may occur anytime of the year. Red-tails have lived in captivity to 29 years old.

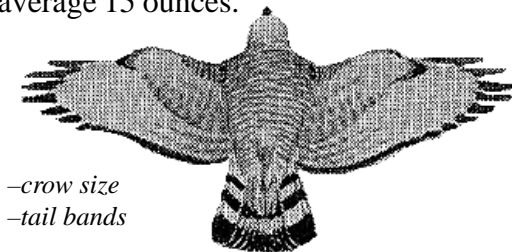
STATUS

Red-tails breed throughout the state, but are most numerous in lowlands and farming areas where there are trees for nesting and habitat for prey species. Red-tails are often victims of indiscriminant shooting. Red-tails are frequently seen in migration, usually single, or in 2s and 3s; peak migration occurs in October. Some red-tails winter throughout the state.

BROAD-WINGED HAWK

BUTEO PLATYPTERUS

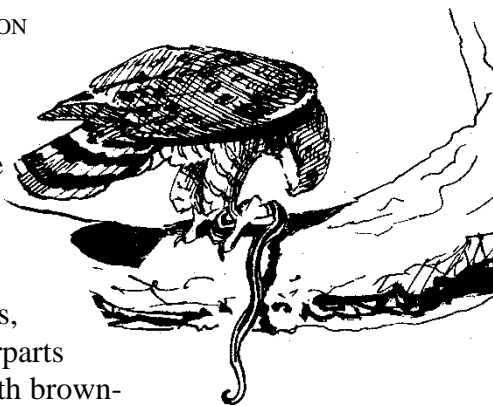
13-19 inches long; wingspan of 32-39 inches; females average 1 pound, 1 ounce; males average 15 ounces.



Broad-winged hawks, the smallest of the American buteos, are about crow size.

DESCRIPTION

Broad-winged hawks are chunky, with dark brown upperparts, and underparts barred with brown-red. The wing undersides are silver-white with black tips. The tail has conspicuous bands, usually 3 black and 2 white, about equally wide. Immature birds have cream-colored underparts with dark blotches, and more numerous tail bands. The call is a high-pitched, shrill “pweee.”



HABITAT

Extensive hardwood forest or mixed conifers/hardwoods around lakes, streams, and swamps.

NEST

Usually near water in the woods; built by both members of the pair of twigs and bark and lined with lichens; 14-21 inches in diameter, 20 or more feet above the ground. Broad-wings may use an old squirrel's or crow's nest.

EGGS

Mid April-June, usually 2 to 3, white blotched with purple and brown.

INCUBATIONS

Done by both parents, for about 25 days; young leave the nest after about 41 days.

FEEDING HABITS

These hawks often sit quietly on a low limb in the woods, watching for prey, which includes toads, frogs, snakes, chipmunks, small birds, beetles, earthworms, ants, and dragonflies.

NATURAL HISTORY

Except during migration, these birds are found mainly in forested areas. They are very protective of their nests and will attack human intruders. Life-span is to at least 7 years.

STATUS

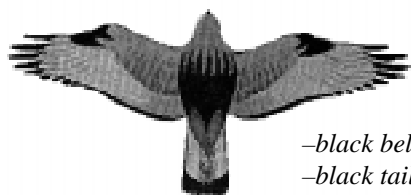
Common spring and fall migrant; common summer resident; and winter visitant. From mid- to late September, flights of broad-

wings occur along mountain ridges to the east, such as over Dolly Sods in Tucker County. As many as 7,000 birds have been counted in a single day; it's the only raptor known to migrate in large flocks. Broad-wings winter in Central and South America, although some stay in Florida and Cuba. During the summer months, broad-wings can be found in woodlands throughout the state. Range is restricted to eastern North America.

ROUGH-LEGGED HAWK

BUTEO LAGOPUS

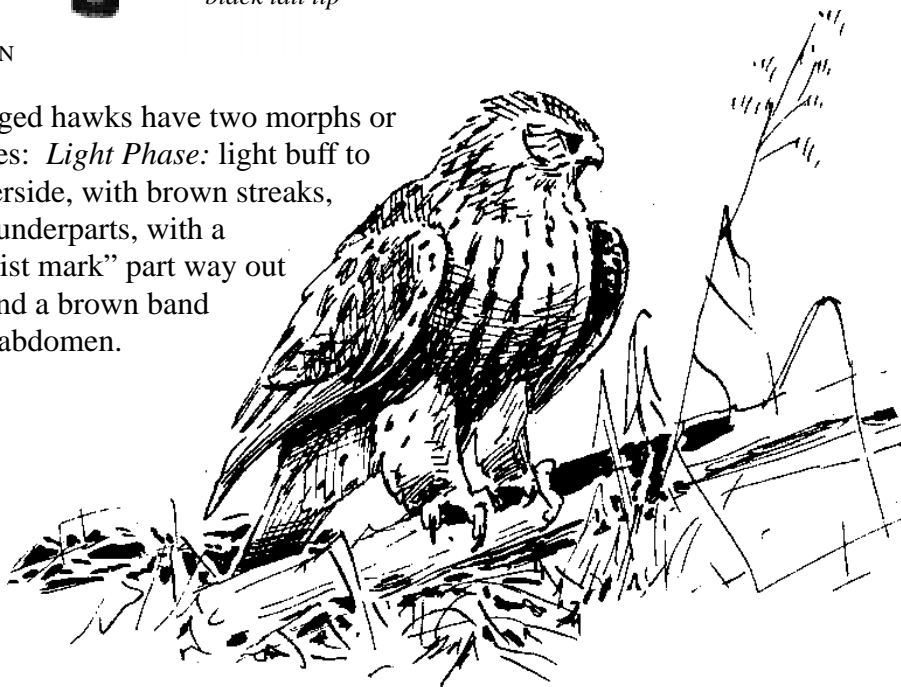
19-24 inches long; wingspan, 50-56 inches; weight, 2 pounds.



—black belly
—black tail tip

DESCRIPTION

Rough-legged hawks have two morphs or color phases: *Light Phase*: light buff to white upperside, with brown streaks, and white underparts, with a brown “wrist mark” part way out the wing and a brown band across the abdomen.



Dark Phase: black or sooty brown, with white at the base of the underside of the tail. It is the only buteo with the black belly and white tail with dark band. The feet are feathered to the toes, giving it the name “rough-legged.” This hawk often hovers over fields, beating its wings rapidly like a kestrel. Call is a slurred “keer” and whistles.

Rough-legged hawks prefer open country, feeding on such small rodents as lemmings. Low populations of prey animals during some years result in the hawks moving south to find alternative food sources.

STATUS

This large buteo nests in the far north in the Arctic, but is sometimes seen in West Virginia during fall migration and during the winter at such locations as Canaan Valley.



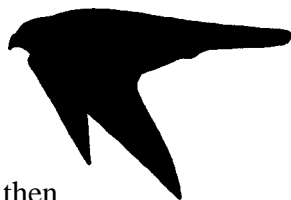
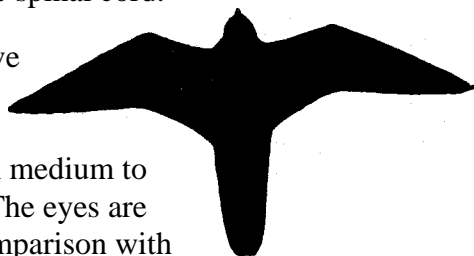
American Kestrel

FALCONS

FAMILY *FALCONIDAE*

Members of the falcon family resemble hawks with hooked bills and taloned feet. However, falcon's beaks are notched, enabling them to kill vertebrate prey by severing the spinal cord.

Falcons have long, pointed wings, with medium to long tails. The eyes are dark, in comparison with hawk's eyes, which are yellow or orange in older birds. Falcon feathers are hard and firm, while hawk's plumage is softer. Falcons are active predators; some, especially the peregrine, are noted for their swooping power dives. Falcons feed primarily on other birds, often flying at considerable heights, then descending at rapid rates (called a stoop) to deliver a violent strike with the hind talon that may smote prey dead in the air. Falcons may capture prey in midair, or retrieve it from the ground. Hawks, on the other hand, hunt by stealth, perching motionless on a branch or snag, then gliding swiftly through the trees, taking quarry by surprise. Falcons sometimes eat carrion. They do not build their own nests, but use tree cavities, cliff



ledges, or suitable nests made by other raptors or crows. They also use man-made structures, including nest boxes, bridges, and ledges on buildings. Falcons are birds of open country and seldom found in woods.

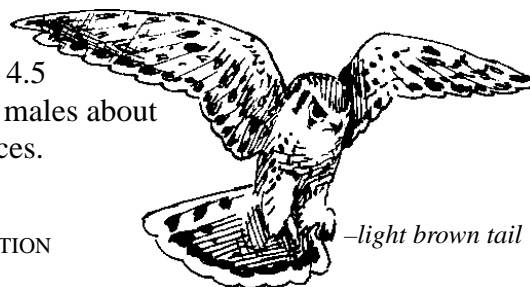
Nine species of falcons occur in the United States, 3 of which live in West Virginia.

AMERICAN KESTREL *FALCO SPARVERIUS*

This robin-sized bird is the smallest and most common North American falcon, 9-12 inches long, with a wingspan of 20-24 inches; females average 4.5 ounces, males about 3.5 ounces.

DESCRIPTION

Adults have a short neck; a small head with black-and-white pattern and dark, vertical, whiskerlike marks on the sides of the head; slender, pointed wings; and rufous red tail, with black subterminal band and narrow white tip. Male and female are colored differently. Females have rufous backs and wings barred black; males have rufous backs and blue-gray wings. Call is a rapid "klee, klee" or "killy, killy."



HABITAT

Kestrels favor open habitat, borders of woods, and farm country.

NEST

Prefers nesting cavities of flickers and hollows in trees, but will nest in bird boxes built for it, typically 10 to 30 feet off the ground.

EGGS

April to June, usually 4-5, cream or pale pink with brown blotches.

INCUBATION

Mostly by the female, about 30 days; the male calls the female from the nest to feed her. Young leave the nest about 31 days after hatching.

FEEDING HABITS

Kestrels hunt mostly in morning and midafternoon, and fly with rapid wingbeat and short glides, often hovering in midair with rapidly beating wings—a key identification feature. Kestrels swoop to grasp prey and fly to a perch to eat it. When perched, the bird often flicks its tail—another identification feature. These little falcons eat insects, bats, mice, birds, and frogs.

NATURAL HISTORY

Once known as the sparrow hawk, this is the smallest North American falcon. It often is seen in populated areas, where it perches on utility poles and wires. Often they are found around open farm lands, hovering above the ground in search of prey. Kestrels will

sometimes nest under eaves and in holes in buildings. Their range is all of North America except Alaska. Those in the northern part of their range migrate to the southern states to winter. They can live to at least 6 years, but usually less in the wild.

Status

Kestrels nest throughout the state, but are less common in heavily forested areas. The species has declined in the last decade.

PEREGRINE

FALCO PEREGRINUS

Length of 15-20 inches; wingspan of 38-46 inches; 1-1/2 to 2-1/2 pounds in weight.

DESCRIPTION

Peregrines are slate blue, barred darkly on the back. The head has a black cap and “mustache” mark below the eye. Young birds are more brown and heavily streaked below. Peregrines have long, pointed wings and fly with quick, rowing wingbeats. Voice is a repeated “we-chew,” or a rapid “cack, cack, cack.” There are 3 North American forms, differing in size and plumage.



HABITAT

Open country, but this bird has adapted to city conditions and nests on building ledges in cities, where it preys on pigeons.

NEST

On cliffs, crevices, ledges of buildings.

EGGS

4-5, whitish with reddish markings.

INCUBATION

30 days, by the female.

FEEDING HABITS

Peregrines can dive at speeds of over 200 miles per hour, striking prey with their talons. The prey usually is killed instantly and falls to the ground, where the falcon retrieves it and carries it to a perch.

NATURAL HISTORY

Peregrines nested in the state in some places, but breeding populations in West Virginia and the East were considered extinct in 1965 due partly to egg shell thinning caused by DDT. After DDT was banned in 1972, a private foundation called the Peregrine Fund was founded with the mission of restoring peregrines to their former range. Several state and federal agencies participated in this effort. In 1987, West Virginia's Nongame Wildlife Program personnel began releasing captive-hatched peregrine chicks at the New River Gorge using hacking techniques. Additional chicks were released from 1988-1990 at other hack sites, including Grant and Pendleton counties. Subsequently, peregrines have been seen along North Fork Mountain, the New River Gorge, the Bluestone Gorge, and the Blackwater Gorge. Life-span is at least 20 years.

STATUS

Although peregrines occasionally are seen in the state, they are not listed as nesting birds in the *West Virginia Breeding Bird Atlas*.

MERLIN

FALCO COLUMBARIUS

Merlins look like small peregrines, are 10 to 13 inches in length, and have a wingspan of 24 to 26 inches.

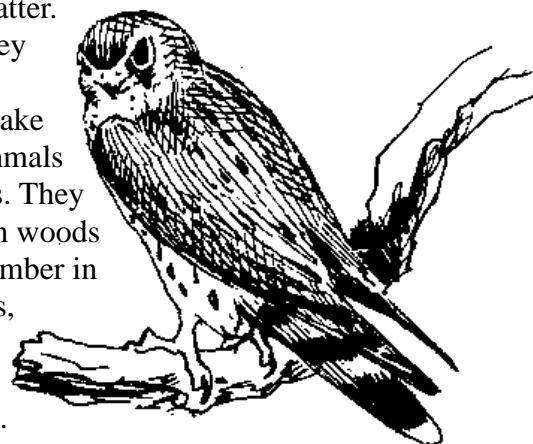


–tail with black bands
–streaks on chest

DESCRIPTION

Males are blue-gray above with black bands on the tail. Females and young birds are dusky brown above and white below. Voice is a rasping chatter.

Merlins prey mostly on birds, but take small mammals and insects. They prefer open woods or heavy timber in wild places, preferably with cliffs for nesting.



NATURAL HISTORY

Names for this bird include “bullet hawk” and “blue streak,” indicating the ability of this little falcon to maneuver and turn in flight. They hunt throughout the day, but are most likely to be active in the late afternoon.

STATUS

Merlins nest in northern and western North America. In West Virginia, they are rare migrants and casual winter visitants.



Great Horned Owl

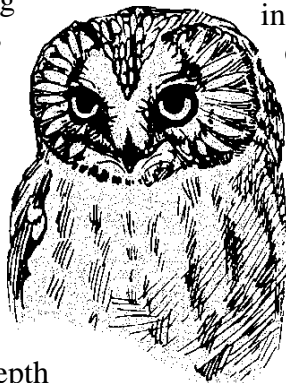
OWLS

Subject of many a myth and legend of the night, owls have fascinated the human imagination for thousands of years. Owls' nocturnal habits and distinctive appearance, with large head and eyes, short neck, soft feathers, and chunky body, set them apart from other birds.

OWL CHARACTERISTICS

Owls are well adapted for hunting and capturing prey at night. Eyes are very large, allowing them to see in limited light. Their eyes are also set close together in the head and face forward. This provides binocular, or three-dimensional vision—that is, vision in which both eyes see the same scene, from slightly different aspects. This helps in depth perception.

Because their eyes are set so close together, owls have a narrow field of view, but they compensate for this with their remarkable ability to rotate their head about 270 degrees. A specialized set of muscles and 14 neck vertebrae provide this flexibility of movement. Owls can't swivel their eyes the way mammals do. Instead, they must turn their head and stare directly at an object. This posture of staring directly at an object conveys a feeling of concentrated attention, giving the "wise old owl" impression.



Saw-Whet Owl

Owls supplement their excellent vision with equally exceptional hearing. Using this refined hearing, barn owls can capture prey in the total absence of light. Barn owls can perceive frequencies as high as 20,000 cycles per second (8,500 cycles per second is the highest audible sound for humans). This acute hearing is made possible by adaptations in ear structure. Owls do not have small round ear openings, as do most birds, but instead have two long vertical slits in the skull. In many owls, the two ear openings differ in size and shape. The right ear opening may be higher than the left and formed differently. These differences help the owl to detect more accurately the distance and direction from which sound is coming.

In addition, the ear openings are surrounded by deep, soft feathers, which the owl can move to control the size of the ear opening. This enables the bird to scan for sound, somewhat similar to the way rabbits wiggle their ears. The forest that seems silent to the human listener may be a chorus of nocturnal sound to the owl.

Since this keen hearing would not be useful if owls were noisy flyers and warned potential prey of their approach, owl feathers have special modifications in their structure to allow silent flight. Owl feathers are long and soft, which helps eliminate noise. Also, the leading edge of the first

flight feather has a soft, wavy edge, which reduces noise made by the passage of air over the wings. Owls are also lightweight and have a large wing area, giving them a buoyant, effortless flight and eliminating the need for noisy wing flapping.

Owls' legs and toes are usually covered with feathers, which helps add insulation in cold weather. Owls have four toes on each foot. An owl may perch with either two toes forward and two back, or with three forward and one back, the way songbirds do. Owls strike prey on the ground or from the air with their powerful talons, carrying prey back to their roost to eat.

As is the case with most hawks and falcons, female owls are somewhat larger than males. This sexual dimorphism helps them exploit various food sources. The male owl can utilize his smaller size and agility to maneuver to catch smaller prey. The stronger female can catch larger prey.

THREAT DISPLAYS

Owls are efficient predators at the top of the food chain, but they still must defend themselves against predators, including other owls. In the threat display pose, the owl lowers its head and fans its wings and tail. The extended wings and fluffed feathers make the owl appear threateningly large. Glaring eyes and bobbing head add to the ferocity of the threat display posture. If more action is called for, the owl can snap its bill by pulling the lower part of the beak under the hooked upper beak. Owls can hiss, also. The combination of threat display, bill snapping, and hissing presents a formidable aspect to a would-be attacker.

NESTING

Owls are not particularly efficient nest builders. Usually they appropriate an abandoned woodpecker's hole or natural tree cavity or an abandoned crow's or hawk's nest. Some owls begin nesting activities during the early winter. In West Virginia, the great horned owl may begin courtship and nesting activities in January. An incubating horned owl may be coated with snow during a blizzard, but the long, fluffy feathers of the owl keep the eggs warm. Barred and screech owls also may begin nesting activities in January and February. Owls are vocal during the nesting season. They may exchange courtship and territorial calls that both enhance the pair bond necessary to raise the young owls and discourage other intruding owls.

There are reasons why nesting activities begin so early. It takes owls a long time to grow up. Incubation requires a month before the owlets emerge from the eggs. Owlets, covered with white down, are born (unlike hawks and eagles) with their eyes closed, and it may take two months before young owls can fly. Even then, the owl parents help feed the young until late summer and early fall when the young have learned to hunt successfully on their own. Perhaps it is necessary for the survival of these raptors that they begin nesting early enough so the young owls will have enough strength and hunting ability to enable them to meet the demands of a harsh winter or to migrate if necessary to find suitable habitat. Another reason for early nesting is that when the young owlets are hatched and especially as they grow, the food supply is increasing and becoming more plentiful with the return of spring.

YOUNG OWLS

Nestlings found in the same nest are of different sizes. This is because the female starts incubation as soon as the first egg is laid, whereas most birds begin incubating only after all eggs are laid. As much as two weeks may elapse between the laying and hatching of the first and last egg. If the food supply is adequate, all the young owls will be fed by the parents. If the food supply is inadequate, the older and stronger owlets will receive the most food and have a better chance of survival.

OWL PELLETS

As with other raptors, owls regurgitate remains of their prey in the form of a pellet, usually cast several hours after a meal. One mouse results in one pellet. Larger owls have larger pellets. Since owls have weak stomach muscles, pellets contain intact skeletons of the owl's prey. Identification of the skeletons can indicate the owl's diet. Examination of owl pellets indicates that owls consume many rats and mice and other rodents as well as insects. Thus owls serve as an important natural control for many pests.

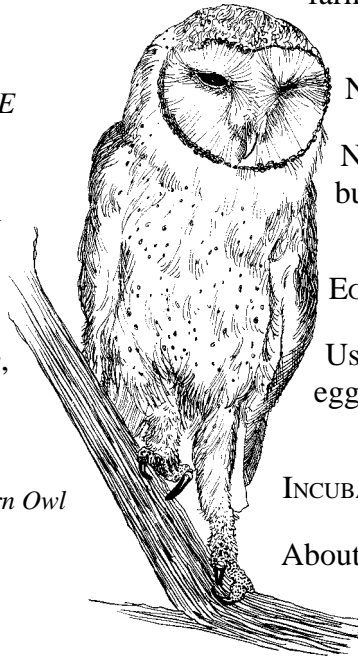
OWLS

FAMILIES

TYTONIDAE AND *STRIGIDAE*

Of the 18 species of owls that reside in North America, 8 can be found in West Virginia, as either year-round residents or seasonal visitors. Barn owls belong to the family *Tytonidae*, while the other West Virginia owls are members of the *Strigidae* family.

Barn Owl



BARN OWL

TYTO ALBA

Up to 20 inches long; wingspan of 44-47 inches; weight averages 17-22 ounces.

DESCRIPTION

Barn owls are in a different family from typical owls because barn owls have long legs and a facial disk that is triangular or heart-shaped (typical owls have a round facial disk). The inner edge on the claw of the middle toe is serrated (toothed). The barn owl is a light-colored bird with a white, heart-shaped face, and a cinnamon wash on the upper breast, the head, and upperparts. The feathers on the underparts are mainly white with dark speckling. Calls include an array of hisses, snores, and whistles. The pale color of this owl gives rise to the myths about owls and ghostly happenings.



HABITAT

Barn owls live in open country, including farms, grasslands, and woods.

NEST

Nests can be in barns, hollow trees, old buildings, and church towers.

EGGS

Usually 5-7; usually white (most owl eggs are white).

INCUBATION

About 33 days; both parents feed the young, which can eat their weight in food every night. The young leave the nest at 9-12 weeks old.

FEEDING HABITS

Barn owls hunt with silent, mothlike flight over roads, barns, and buildings around farmland, towns, and cities. Prey includes rats, mice, shrews, small birds, insects, and rabbits. Barn owls are welcome residents because of their taste for rodents.

NATURAL HISTORY

The species is declining in West Virginia because of habitat loss as farm land reverts to forest and because modern farm buildings offer few cavities for nesting. Barn owls also collide with vehicles in open areas, which is where barn owls hunt. Life-span is to at least 17 years.

STATUS

Uncommon permanent residents, barn owls nest in the state at a few locations, especially

in the Eastern Panhandle. Barn owls are found throughout the United States and much of Europe, primarily in warm areas. Lengthy periods of snow cover limit barn owl range.

EASTERN SCREECH OWL

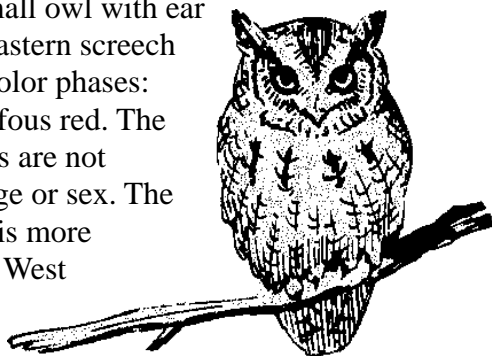
OTUS ASIO

Length, 7-10 inches; wingspan, 18-24 inches; weight averages 3-6 ounces.

DESCRIPTION

This is a small owl with ear tufts. The eastern screech owl has 2 color phases: gray and rufous red. The color phases are not related to age or sex. The gray phase is more common in West Virginia, and the red phase is more common in the southern states.

Plumage is streaked and barred with white and dark markings. Bill is pale, and the eyes are yellow. Voice is a high, whinny, whistled tremolo, on one pitch. It does not sound like a screech.



HABITAT

Woods, orchards, towns, and suburban areas.

NEST

This owl nests in trees in natural cavities and holes made by flicker or pileated woodpeckers, usually 15 to 20 feet off the ground. Screech owls will use nest boxes built for them, and will nest in suburban areas with suitable habitat.

EGGS

3-7, but usually 4 or 5. The eggs are laid at intervals of 2 or more days.

INCUBATION

About 26 days, by the female; the male provides food.

FEEDING HABITS

These owls eat mice, insects (including cockroaches and beetles), cutworms, spiders, snails, reptiles, rats, bats, shrews, chipmunks, pigeons, lizards, and earthworms. Screech owls drink water freely, like to bathe, and may bathe at night in backyard birdbaths.

NATURAL HISTORY

Males tend to maintain a territory for about 10 months of the year. The size of the territory varies. Winter territory may be only one-third of a square mile. The males may be solitary or loosely paired from September to early winter. Courtship begins in February. The female may select 1 of the winter roosting cavities—usually there are 1 or 2 winter roosts—as a nest site, during which time the owls may be quite vocal. Screech owls tolerate the presence of people and may nest close to homes and buildings. Parent birds are protective of their young, which are fed by the adult birds for 5 or 6 weeks. Life-span is to at least 13 years.

STATUS

This owl nests throughout the state, except perhaps in the high mountain areas.

GREAT HORNED OWL

BUBO VIRGINIANUS

This is the common large owl, twice the size of a crow, with prominent ear tufts. Females are up to 25 inches in length with wingspan to 60 inches; males are up to 23 inches, having a wingspan to 52 inches. Weight averages 8-9 ounces.

DESCRIPTION

Plumage is overall gray-brown to tawny, with barring on the belly. There is a white throat patch. The ear tufts are prominent and widely spaced, and eyes are yellow. Call is a rhythmic pattern of hoots, “hooo, hooo, hooo.” Male and female call on different pitches.

During courtship and pair bonding in December and January, it is possible to hear them calling each other. Later in the spring, the young owlets also emit calls begging for food.

HABITAT

Varied, including woods, wetlands, forests, and urban parks. They will live in more fragmented habitat than the barred owl.

NEST

Horned owls do not usually build or repair nests, but often select the nest of a red-tailed hawk, crow, or squirrel to use for their own. They also will nest in a hollow tree and use



a nest platform. They prefer trees offering cover, such as white pine, beech, or oak, where the leaves remain over the winter.

EGGS

Usually 2-3, but up to 6.

INCUBATION

26-35 days, by both sexes.

FEEDING HABITS

Because of their large size and strength, horned owls can take large prey, including woodchucks, Canada geese, and domestic cats. Prey includes rabbits, squirrels, mice, rats, bats, songbirds, frogs, fish, crickets, and grasshoppers—almost anything they can catch. They use a feeding roost near their nest where they tear up and eat larger prey.

NATURAL HISTORY

Given suitable habitat, including nest and roosting sites, adequate food supply, and wooded areas, horned owls winter and nest in the same vicinity year after year. One or both adult birds maintain a home range, until one dies and the survivor attracts a new mate, or other owls move in. Great horned owls are thought to mate for life. Owls may be paired in in early winter. Courting and nesting may begin in January. The owls select and defend a nesting territory close to or identical with winter hunting and roosting areas. The feeding range is usually within a quarter-mile of the nest. Depending on available food and habitat, there may be a pair of owls per 6 square miles (open country and wood), or given more optimal habitat, 1 to 3 pairs per square mile. These owls are long-lived, barring accidents; one in captivity lived to be 29 years old.

STATUS

This owl may live in every county, but nest records are few, probably because of the owl's nocturnal habits.

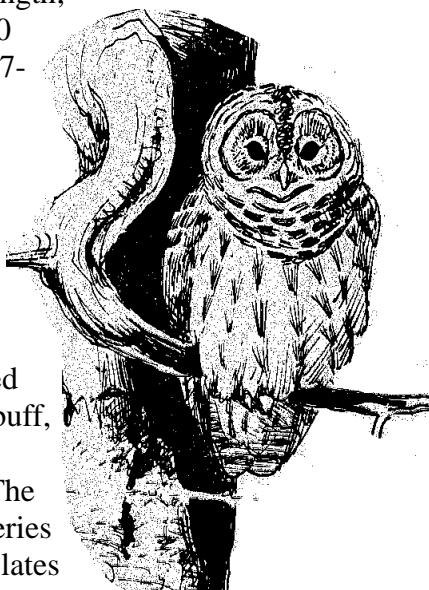
BARRED OWL

STRIX VARIA

17-24 inches in length; wingspan of 40-50 inches; weight of 7-8 ounces.

DESCRIPTION

This is a large owl, with no ear tufts. Plumage is gray-brown, barred and spotted with buff, brown, and white. Eyes are brown. The call is a distinct series of hoots that translates into "who cooks for you-aa." These owls are vocal and sometimes hunt and call in late afternoons, as they are not completely nocturnal.



HABITAT

The barred owl prefers unbroken tracts of woodland, although it will hunt in open areas.

NEST

Usually in a tree cavity or in a hollow in top of a broken trunk; sometimes they will use an old hawk's or squirrel's nest. Preferred nest sites are in densely wooded areas, with conifers.

EGGS

2-3.

INCUBATION

21-28 days, mostly by the female.

FEEDING HABITS

Prey consists of mice, rabbits, flying squirrels, mink, opossums, shrews, bats, songbirds, smaller owls, snakes, snails, beetles; they may go into the water after fish.

NATURAL HISTORY

These owls tend to be permanent residents in suitable habitat and may use the same nest spot and territory year after year. They may have a feeding roost or nest to which they carry prey. Courtship activities may begin in January; eggs are laid in January to February. The young leave the nest at 4 or 5 weeks old, and fly 40 days after hatching. They probably are fed by the parents during the summer. At 4 months old, young still have their juvenile plumage, but they have full winter plumage by early fall. Barred owls may come from 50 yards away in response to squeaking, mouselike sounds or distress calls. They are long-lived; one in captivity lived for 23 years.

STATUS

This owl is fairly common in forest areas, and is probably found in every county. There are many nesting sites.

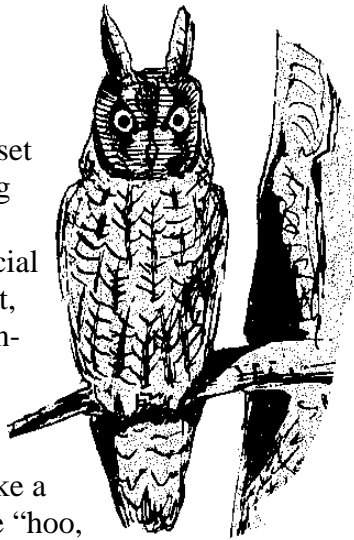
LONG-EARED OWL

ASIO OTUS

Slender, crow-sized, 13-17 inches long, with a 36- to 42-inch wingspan; weight averages 7-8 ounces.

DESCRIPTION

This owl has ear tufts set close together and long wings that extend beyond its tail. The facial disk is orange-chestnut, and the breast is brown-gray with irregular white spots. Eyes are yellow. Flight is buoyant and erratic, like a butterfly. The dovelike “hoo, hoo, hoo” call is repeated every 3 seconds or so. During the nesting season, it utters low-pitched hoots, shrieks, whines, and “wreck-wreck-wreck” alarm notes.



HABITAT

Habitat for this owl is restricted to dense evergreens and pine forests.

NEST

Usually in an old crow's or hawk's nest.

EGGS

3-8.

INCUBATION

25 days, by the female.

FEEDING HABITS

Meadow and house mice, rats, shrews, moles, bats, squirrels, rabbits, birds, insects, and snakes.

NATURAL HISTORY

By day, long-eared owls roost in dense groves, pines, or vine-covered trees and thickets. They hunt over open ground and are mainly nocturnal. In captivity, they can live for 27 years.

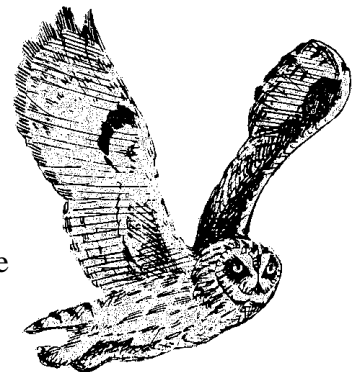
STATUS

These are uncommon owls in West Virginia, which is the southern limit of their range. Nocturnal habits and daytime concealment make them hard to find. There are a few nesting records, mostly from along the Ohio River, and winter migration records from Monongalia, Grant, Morgan, Summers, Upshur, and Webster counties. This species is considered imperiled in this state, possibly because it is out of its range, and because open area used for foraging are disappearing as the state becomes reforested.

SHORT-EARED OWL

ASIO FLAMMEUS

Crow-sized, 13-17 inches long, having a 38- to 44-inch wingspan; weights average 12 ounces. The female is not always larger than the male.



DESCRIPTION

Upper plumage is streaked and tawny or buff-brown, with large buffy areas on the

upper wing surfaces. The breast is pale and streaked with brown. Facial disks are tawny, and there are dark eye patches. It has black wrist patches on the lower surface of the wings. The small ear tufts are difficult to see. This owl appears big-headed and neckless in its buoyant, mothlike flight. Call is a raspy, barked “yip! yip! yip!”

HABITAT

Open areas including marshes, grasslands, fields, moorland.

NEST

Usually in a slight depression on the ground or in sand, lined with grass, weeds, and feathers. They may nest in colonies, starting in March. This is one of the few owls that builds its own nest.

EGGS

Up to 14, but usually 4-7.

INCUBATION

By the female for about 23 days.

FEEDING HABITS

75 percent of the diet of these owls consists of mice and voles; they also eat shrews and birds.

NATURAL HISTORY

These owls roost on the ground, often in large colonies. They may hunt over marshes and fields in large numbers. They hunt in the afternoon as well as at night, avoiding woodland and preferring open lands and freshwater marshes. The male performs spectacular aerial courtship displays, flying high, then swooping while clapping his

wings together; he concludes the display with a series of downward somersaults. Life-span is to at least 10 years.

STATUS

One of the most widespread owls in the world, occurring on every continent except Australia, short-eared owls are rare migrants and rare winter visitants in this state. There are no known nest records in West Virginia. They do nest in Pennsylvania and should be watched for in suitable habitat. A good time to look for them is late afternoon, when several may hunt together.

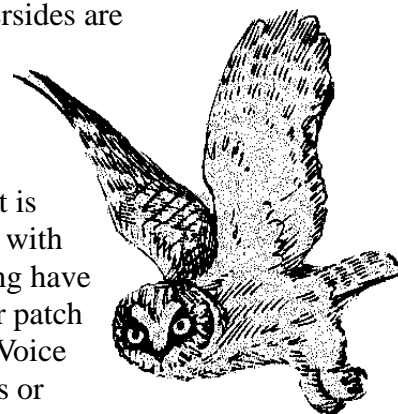
NORTHERN SAW-WHET OWL

AEGOLIUS ACADICUS

At 8 inches in length with an 18-inch wingspan, this is the smallest of the eastern owls, weighing around 3-4 ounces.

DESCRIPTION

Plumage is chocolate-brown, spotted with white. Undersides are white, spotted with dark brown. Head, eyes, and facial disk are relatively large. It is the only tiny owl with no ear tufts. Young have a white triangular patch on the forehead. Voice is a series of toots or whistles, 2 or 3 notes per second, resembling the rasping of a saw. The call is heard during the nesting season.



HABITAT

Dense woods and swamps; prefers to nest in conifers; also deciduous woodlands and edges.

NEST

In natural tree cavities or abandoned woodpecker or flicker holes. They also nest in flicker-sized nest boxes.

EGGS

4-7.

INCUBATION

28 days, by the female.

FEEDING HABITS

They eat insects, rats, birds, bats.

NATURAL HISTORY

Saw-whet owls spend the day hidden in their favorite roost, usually a pine or conifer tree

where it is well concealed. These owls are tame, as owls go, and it is possible to approach close to a saw-whet if it is roosting on a low limb. Life-span is to at least 17 years.

STATUS

These owls are residents from Alaska and Quebec to California and Pennsylvania, wintering between the Carolinas and Mexico. In West Virginia, they are approaching the southern limits of their range, and are rare and local permanent residents at such places as Cranesville Swamp and Dolly Sods. The species may nest at low altitudes, but it is primarily a bird of colder climates and higher elevations. The remote nesting habitat and strictly nocturnal habits of this owl make it hard to find.

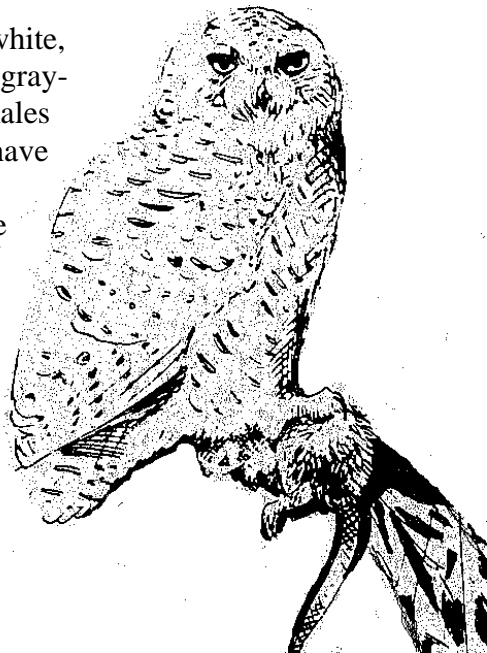
SNOWY OWL

NYCTEA SCANDIACA

Large, 20-27 inches in body length, with a wingspan between 54 and 66 inches; weighs about 3 pounds.

DESCRIPTION

Adults are white, barred with gray-brown. Females and young have many dark patches. The eyes (iris) are yellow. There are no ear tufts. Females:

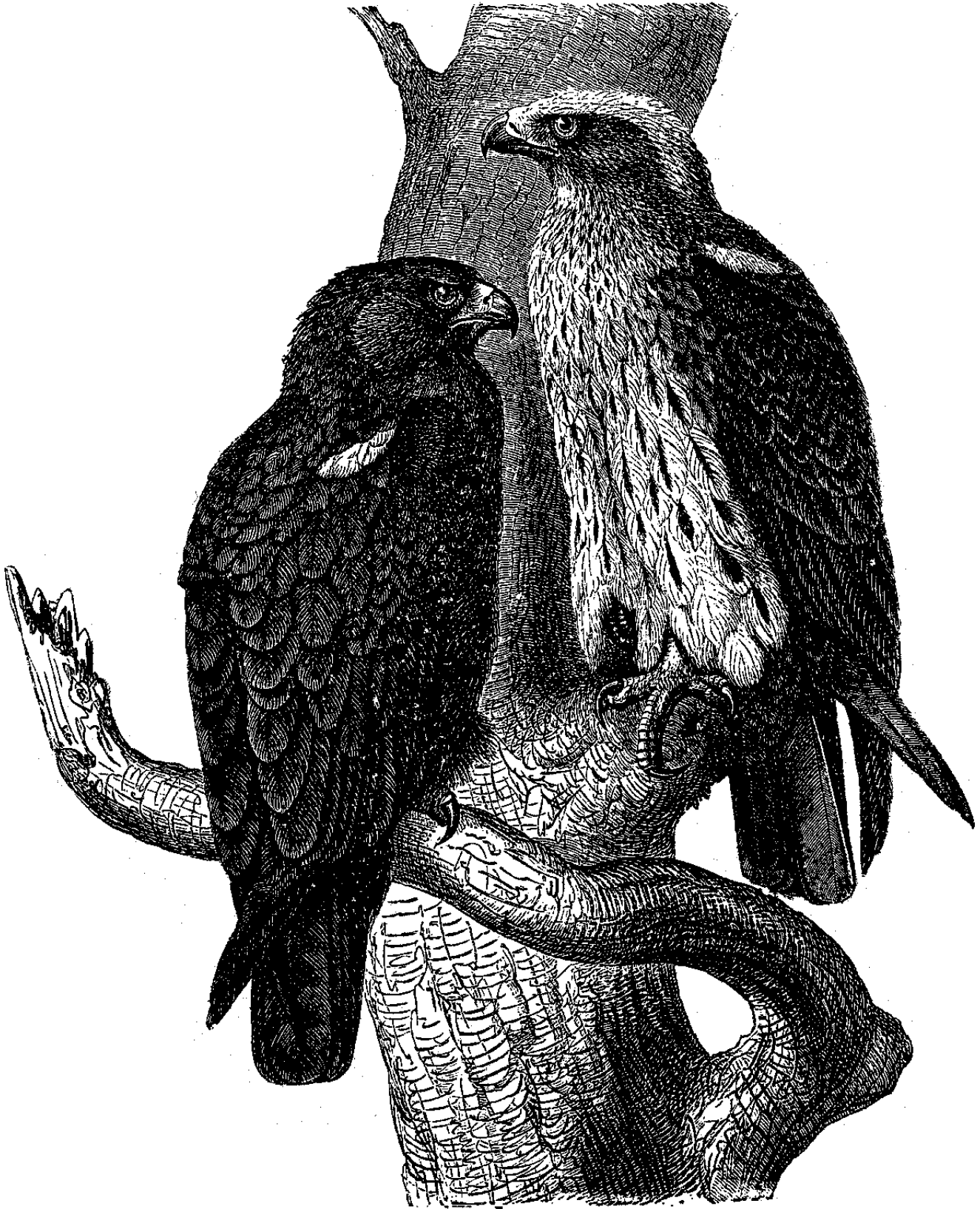


are usually darker than males so that during nesting they blend in with the tundra ground cover.

Snowy owls are inhabitants of Canada and the Alaskan tundra, where they hunt lemmings. Since there are no trees in the tundra and since the sun seldom sets in the Arctic during the nesting season, snowy owls have adapted to nesting and roosting on or near the ground, and to hunting during daylight hours. When prey populations are low, snowy owls may migrate south and occasionally enter West Virginia, where they are sometimes seen sitting on a low perch or guardrail along a road in an open situation. Life-span is to at least 14 years.

STATUS

Snowy owls are casual winter visitors to West Virginia and have been seen from early November to mid-April from the Northern Panhandle south to Kanawha County.



CONSERVATION *of* BIRDS *of* PREY

Predatory birds are extremely important as natural controls on populations of such small mammals as rats and mice, as well as insects and other prey. These birds may eliminate the need to use chemical pesticides.

In the larger picture, predation can be seen as a method of establishing a balance among populations, with the relationship between predators and prey forming a natural system of checks and balances. It should be noted that predators seldom eliminate all their prey. First, the prey population increases faster than the predators. Second, predators do not always have successful hunts, often missing their intended catch. Third, when prey populations decline, so do the predators.

Backyard bird feeders may attract birds of prey, especially the Cooper's and sharp-shinned hawks. Sometimes people feeding songbirds become concerned when the unexpected backyard raptors swoop and dive after feeder birds. Those feeding songbirds should remember that the presence of predatory hawks indicates a healthy environment of predator-prey relationships, and that hawks and songbirds have existed together for thousands of years. Far more serious threats to songbirds include habitat loss, predation from cats, nest parasitism by cowbirds, and insecticides.

Birds of prey are protected by federal law. It is illegal to kill them, and it is illegal to have

a bird of prey without a permit. Despite this, birds of prey are threatened by habitat loss, pesticides, and indiscriminant killing and shooting.

Some conservation measures, including habitat improvement and land management practices, can help attract birds of prey. Also individuals and groups can participate in educational and monitoring activities to help protect raptors and learn more about these birds and their management.

ATTRACTING BIRDS OF PREY

Perches help attract birds of prey. The birds use less energy hunting from perches than flying in the air. They use perches whenever they can, especially in dead trees or snags. Snags should be left standing for the birds' use in suitable areas.

Perches also can be built, either by adding extensions or crossbars to fence or other posts, or by placing a crossbar on top of a pole. The pole should be oriented so the birds can land on it against the prevailing wind. One perching pole every 200 feet around a field or per acre provides birds with enough perches for optimum hunting.

Maintaining wooded and open areas is necessary so that birds of prey and other wildlife have sufficient cover, food sources, water, and nesting sites.

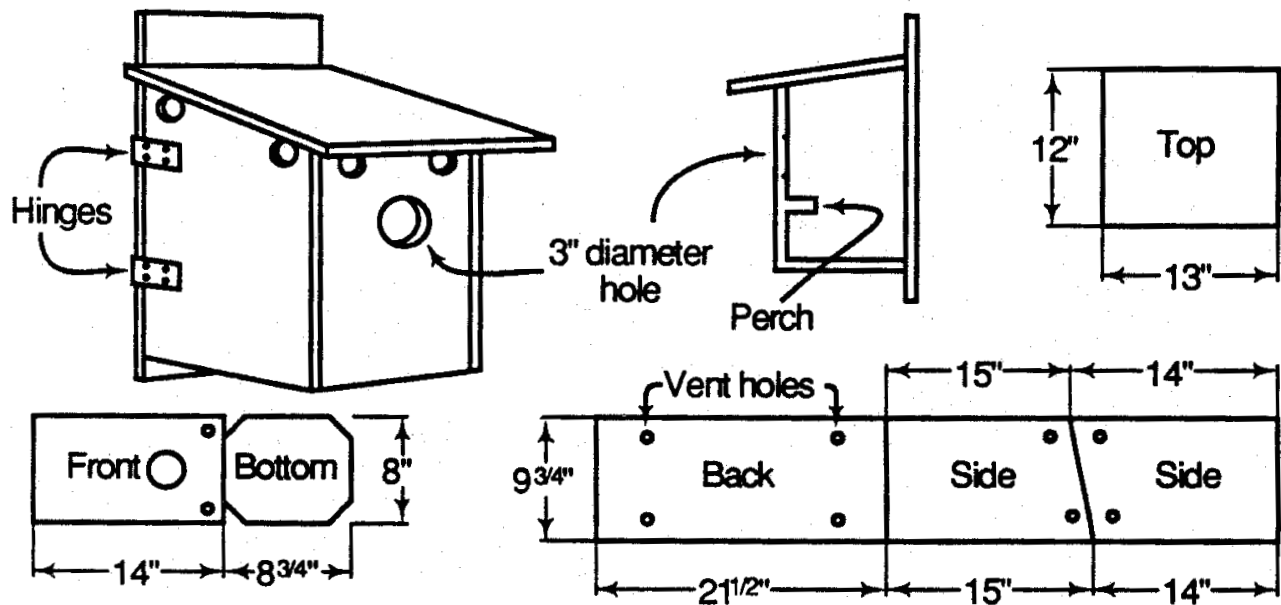
Nest sites can enhance habitat. Nest boxes can be placed for raptors that use them, including the American kestrel and the screech owl.

KESTREL NEST BOX

The diagram below shows plans for a kestrel nest box.

The nest box can be placed in open fields and groves of trees. Face the openings south or toward the sun to collect warmth during early spring. Approximately 1 box per 20 acres is needed to attract kestrels to a park or open area.

Remove unwanted birds, such as starlings and house sparrows, from the boxes as soon as possible if they begin to build nests in the boxes. Clean and repair the nest boxes at the end of the nesting season.



Source: Washington State University Extension Service

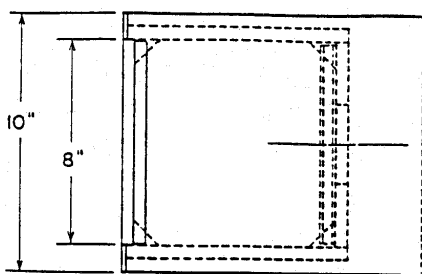
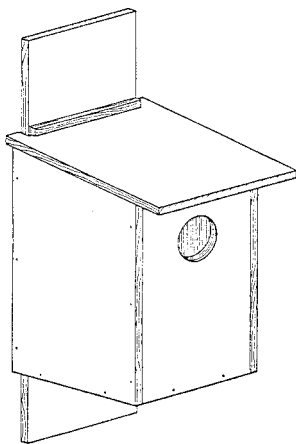
SCREECH OWL NEST BOX

Screech owls nest in urban and suburban locations and prey on small mammals and insects. They require nesting cavities in trees, but if the trees have been cut down, putting up nest boxes in suitable areas can replace this lost habitat.

The diagrams below show details of a screech owl nest box.

-put up no later than mid-January as screech owls begin courtship in January and February (late autumn would be preferable for installing boxes);

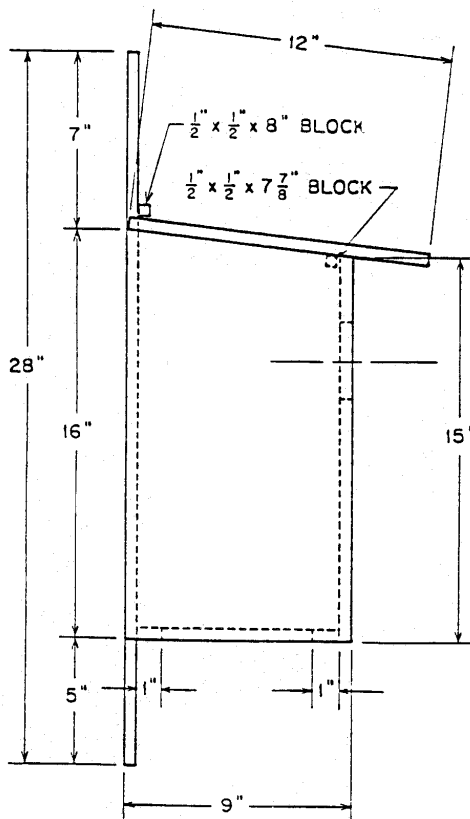
-fastened to the tree with strong wire run through a hose, and tightened with turnbuckles, to protect the tree; and



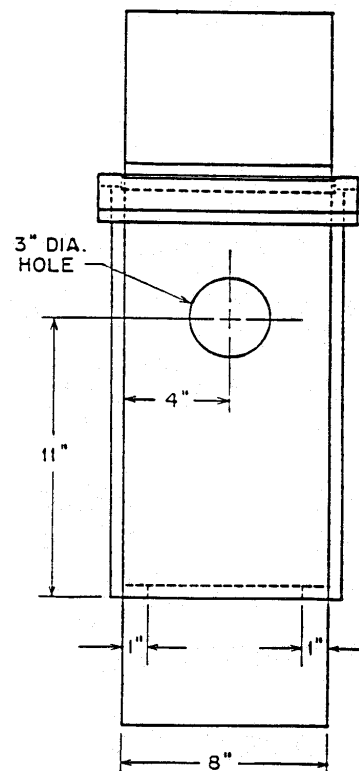
TOP VIEW

NOTES

1. BUILDING MATERIAL TO BE 1/2" EXTERIOR PLYWOOD
2. ROOF DESIGNED TO LIFT AND SLIDE FORWARD FOR EASY REMOVAL
3. CUT CORNERS OF BOX BOTTOM TO PROVIDE VENTILATION



SIDE VIEW



FRONT VIEW

PLANS

The screech owl nest box should be:

- built of fir (exterior plywood), or cedar, and not painted or stained;
- placed 15 to 20 feet up in the tree;
- placed in a hardwood tree (put in conifer tree only if there are no obstructing branches);
- oriented so it's easy for the owl to fly in and out, with no obstructing branches;

SCREECH OWL BOX DETAILS

SCALE: 0 2" 4" 6"

-cleaned once a year before nesting season (squirrels will use the boxes and their nesting materials will discourage the owls).

Screech owls like to bathe, so you might want to put a birdbath with clean water near the nest.

INSTRUCTIONS

1. Dimensions are approximate and depend on wood thickness.
2. Nails act as hinges to swing one side open for cleaning.
3. Entrance area is 20 x 8 inches, with 2-inch side strips to support the side swing door. For a front swing door, entrance can be 24 x 8 inches without the side supports.
4. Drill water drainage holes on the floor.
5. Place the box so that the entrance is facing away from prevailing winds.

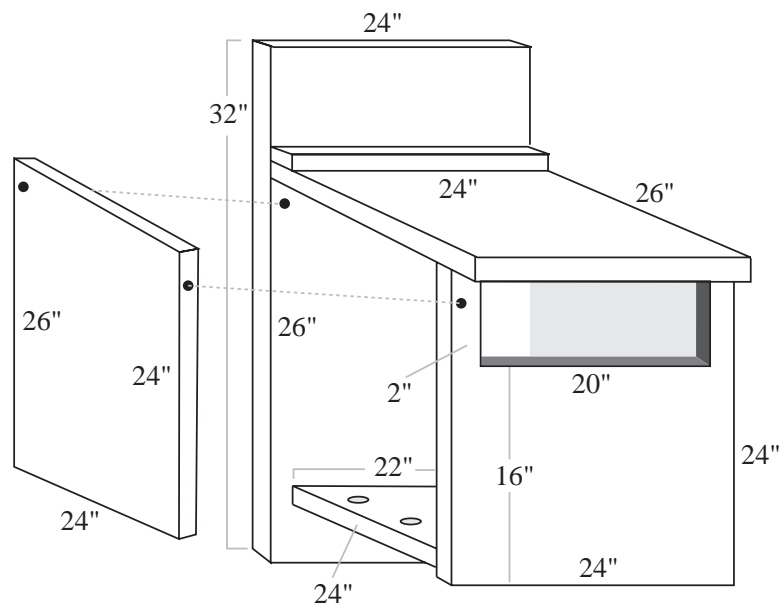
SPECIAL CAUTION

Young owls that have fledged recently cannot fly well and usually climb and perch among branches. They are seen in broad daylight. When the parents are not seen with them, there is the temptation to think that they are orphans. This is NOT so! Discourage anyone from thinking that young animals are orphans unless, of course, their nest has been destroyed and they are definitely injured. If young owls hiss, snap their bills, and fluff their feathers, they are in fine shape! Do not take them home.

The reason is that young animals, and especially young owls, “imprint” during this sensitive, critical period of their lives. If they have face-to-face human contact, they will grow up thinking that they are humans for the rest of their lives! They *cannot* be released to the wild since they will attempt to seek out humans, make a nuisance of themselves, and may be killed (most humans are not very nice!). Further, they will not socialize with their own kind. Imprinting (as a human) is a very serious psychological and social disorder of owls that can be avoided if the young are left alone.

BARRED OWL BOX

Nest box is 24 x 24 x 24 inches, with sloping sides and roof. Opening is 20 x 8 inches.

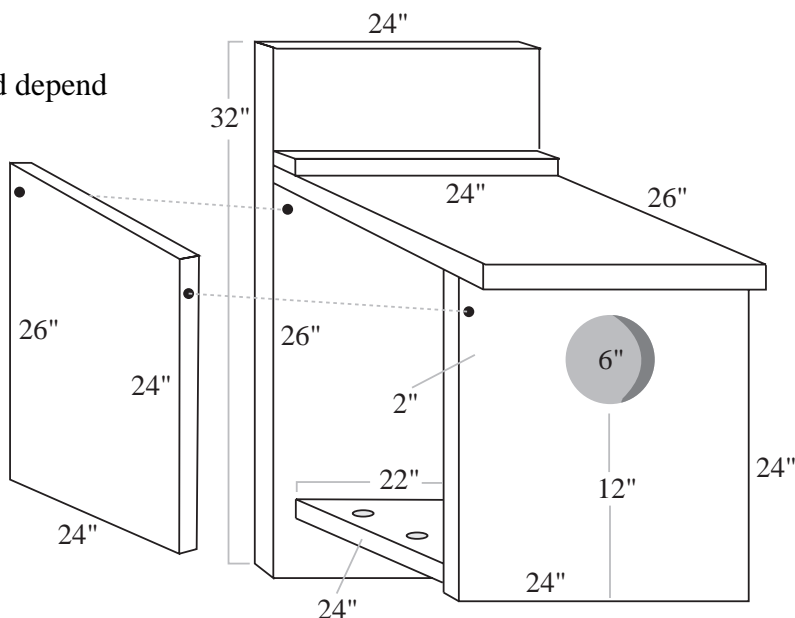


BARN OWL BOX

The following nest box plans will help the barn owl. You can help by building a nest box or by simply allowing the barn owl access to old buildings by unscreening a window, removing a slat, or making a 6-inch hole. Barn owls will nest in city or country as long as there is open habitat to hunt.

Instructions

1. Dimensions are approximate and depend on the wood's thickness.
2. Nails act as hinges to swing sides open for cleaning.
3. Entrance hole is 6 inches in diameter and 12 inches from the floor.
4. Make indentations or rough the wood inside and under the hole to enable the young to climb out of the nest.
5. Drill water drainage holes on the floor.
6. Drill small holes at the top of the sides for ventilation.
7. Place the box so that the hole faces away from prevailing winds.



OWLING

Owling, or looking for owls at night, is a popular activity for individuals and groups interested in these night birds. The first requirement for successful owling is finding places where owls live, usually wooded areas. Sometimes owls can be located by finding their pellets under trees or perches. Owl pellets usually have lots of bones and even intact skeletons of small mammals because owls swallow their prey whole. Hawk pellets tend to have more fur and feathers, because they tear their prey. Other birds, including shorebirds, crows, jays, starlings, shrikes, warblers, swallows, and swifts, also cast pellets, so care is needed to differentiate which bird has cast the pellet.

In addition to finding the right kind of pellets, one can sometimes locate owls by imitating their calls or the calls of small birds, rabbits, and other animals. A curious owl may come in fairly close to investigate the calls. Care should be taken not to call in small owls such as screech owls in the vicinity of the larger great horned owl, which will happily make a meal of the smaller owl. Also, owls should not be disturbed with calls during the nesting season because parent birds need the time to care for their young.

Another way to locate owls is to observe the behavior of other birds. Crows and jays will mob or chase owls, including great horned owls, during the day, thus giving a clue to the presence of the nocturnal hunters. One reason for mobbing behavior may be to warn other birds of the proximity of a hungry owl. (You need to exercise caution, however, not to lead crows and jays to the owl.)

After owls have been located, populations can be monitored and checks made to find young.

RAPTOR SURVEYS

The American Birding Association—in cooperation with the U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, and other agencies—publishes a book listing states where volunteers can participate in bird and raptor counts, atlasing, and monitoring. Hawk watches, and osprey and northern goshawk surveys are among those in which volunteers can participate throughout the United States and Canada.

For more information, contact the American Birding Association, PO Box 6599, Colorado Springs, CO 80934.

RAPTOR REHABILITATION CENTERS

Raptor rehabilitation centers, also called raptor centers, have been established nationwide, including West Virginia.

Raptor rehabilitation centers are places where injured birds of prey can be taken and treated until they can be released back into the wild. Injuries that birds of prey most often suffer include broken wings and other damage suffered from collision with cars and buildings, gunshot wounds, poor condition due to harsh weather or other factors, and orphaned young due to death or injury of the parent birds.

When such a bird is found, the finder should remember that raptors have sharp talons and powerful beaks. A blanket or jacket placed over the bird will help protect the handler and keep the bird quiet. In some cases,

securing the legs to the body may be necessary. The bird should then be put in a place where it can remain quiet and not further injure itself by struggling. Shoeboxes often are used to hold raptors. The local raptor rehabilitation center should be contacted, and a volunteer will pick up the bird and take it to the center. A veterinarian will determine proper treatment for the injury. Badly injured birds are humanely destroyed. Those that are treated are placed and fed in special cages until they are well enough to be released into the wild. Small birds such as screech owls can be kept in small cages, while larger birds such as red-tailed hawks need larger areas.

Birds of prey most often treated at centers include screech, barred, and great horned owls; red-tailed and sharp-shinned hawks; and sometimes eagles and peregrines.

Many raptor rehabilitation centers are staffed by volunteers, who donate their time to daily feeding, cleaning cages, securing food, and other duties. Land and facilities to house raptor centers often are donated by volunteers.

Some raptor centers are affiliated with local educational facilities, whose wildlife management or veterinary students work with the birds as part of their career training.

Raptor centers usually conduct educational programs to help people learn about birds. Some badly injured birds that cannot be returned to the wild are kept as “educational birds” and taken to schools to help educate youths about these unique animals. After receiving proper training in the handling of wild raptors, volunteers take the birds to classrooms and other educational settings, explaining raptor biology and care to interested viewers.

In order to help raise funds to feed and care for the injured birds, some centers have

adopt-a-bird programs. Individuals and groups interested in working with and learning more about raptors can volunteer to help at raptor centers.

There are two raptor centers in West Virginia:

West Virginia Raptor Rehabilitation Center, PO Box 333, Morgantown, WV, 26507. (If you find an injured bird of prey, the toll-free number to call is: 1-800-540-6390.)

The Three Rivers Raptor Center, HC 74, Box 279, Brooks, WV 25951; telephone: 1-800-721-5252.

HAWK MIGRATION COUNTS

There is increased public interest in raptors, as evidenced by the thousands of visitors who visit hawk watching stations during the autumn to view migrating raptors.

Places to hawk watch in West Virginia include:

(1) Bear Rocks in the Dolly Sods Wilderness area, Tucker County: Counts of broad-wings can exceed 5,000 a day. Many other raptors can be seen. (2) East River Mountain near Bluefield. (3) Hanging Rocks on Peters Mountain in Monroe County: Daily counts of hundreds of hawks are common.

If you need directions to these places or want to join other hawk watchers, contact the Brooks Bird Club, 707 Warwood Ave., Wheeling, WV 26003, or Bibbee Nature Club, 126 Fincastle Lane, Bluefield, WV 24701.

Other eastern hawk watch areas include Hawk Mountain, Kempton, Pennsylvania, and Cape May, New Jersey.

HAWK MIGRATION DATA SHEET

Location _____

% Cloud Cover _____

Date _____ Observers ____ Air Temp ____

Minutes Observed _____

Wind Direction & Speed _____

TOTALS

BLACK VULTURE _____

TURKEY VULTURE _____

OSPREY _____

BALD EAGLE _____

GOLDEN EAGLE _____

NORTHERN HARRIER _____

SHARP-SHINNED HAWK _____

COOPER'S HAWK _____

NORTHERN GOSHAWK _____

RED-SHOULDERED HAWK _____

BROAD-WINGED HAWK _____

RED-TAILED HAWK _____

ROUGH-LEGGED HAWK _____

AMERICAN KESTREL _____

MERLIN _____

PEREGRINE _____

UNIDENTIFIED BUTEO _____

UNIDENTIFIED ACCIPITER _____

UNIDENTIFIED FALCON _____

UNIDENTIFIED RAPTOR _____

COMMENTS _____

TOTALS _____

If you want more information about hawk counts, contact the Hawk Migration Association of North America, P.O. Box 3482, Rivermount Station, Lynchburg, VA 24503.

During migration, bird banding groups, hawk watchers, and those concerned about raptors keep counts of the types and

numbers of hawks they see, and maintain annual records to document changes in hawk populations.

The hawk watch form above lists the hawks that can be seen in West Virginia during migration. Data can be kept from year to year to help assess population trends and numbers of migrating hawks.

REFERENCES

- Alcorn, Gordon Dee, *Owls, An Introduction for the Amateur Naturalist*, Prentice Hall Books, New York, 1986. Contains detailed species accounts of North American owls. 176 pages.
- Brent, Arthur Cleveland, *Life Histories of North American Birds of Prey*, 2 Volumes, Dover Publications, 1937, reprint, 1961. A classic work on the life histories of birds of prey. Text for each species includes notes on behavior, migration, food, eggs, distribution, nesting. Includes California condor, vultures, kites, eagles, hawks, osprey, falcons, caracaras, owls. Over 800 pages, with many illustrations.
- Brett, James, *The Mountain and the Migration*, Cornell University Press, 1991. Tells the history of how Hawk Mountain, near Kempton, Pennsylvania, became a hawk sanctuary. Also contains much information on hawk identification and migration.
- Bucklew, Albert, and George Hall, *The West Virginia Breeding Bird Atlas*, University of Pittsburgh Press, 1994. Provides lists and maps of breeding birds in the state. 215 pages.
- Cade, Tom. *The Falcons of the World*, Cornell University Press, 1982. Standard reference on falcons; covers classification, distribution and migration, feeding, hunting, behavior, and complete species descriptions. Color illustrations, maps. 188 pages.
- Clark, Neal, *Eastern Birds of Prey*, North Country Press, 1983. Covers natural history of major raptors found east of the Mississippi River; includes hunting techniques and prey, migration, mating, habitat, ecological status. Illustrated. 174 pages.
- Clark, William, and Brian Wheeler, *A Field Guide to the Hawks of North America*, Peterson Field Guide Series, Houghton Mifflin Co., 1987. One of the standard field guides to hawks; has pictures, illustrations, descriptions of color morphs, references. 198 pages.
- Craighead, John, and Frank Craighead, Jr., *Hawks, Owls, and Wildlife*, Dover Publications, 1956. This is a classic study on the predatory behavior of hawks and owls. Includes winter ranges, fall and winter populations, winter food, spring and summer food habits, and the function of predation. 443 pages.
- Dunne, Peter, Debbie Keller and Rene Lochenberger, *Hawk Watch, a Guide for Beginners*, Cape May Bird Observatory, 1984. An excellent introduction to hawks and hawk watching; covers identification, how to observe hawks, interpreting hawk watch data, glossary, places to watch hawks. 80 pages.
- Eckert, Allan, *The Owls of North America*, Crown Publishers, New York, 1987. Comprehensive treatment of many owl species, excellent illustrations. 278 pages.
- Glasier, Phillip, *Falconry and Hawking*, B. T. Batsford Ltd., 1989. A comprehensive publication on falcons. Covers all phases of falcons, the art of falconry, and equipment used. Well illustrated. 322 pages.
- Grossman, Mary, and John Hamlet, *Birds of Prey of the World*, Bonanza Books. A standard reference on birds of prey. Covers birds of prey and man's effect on

them; provides complete descriptions of raptors, classification, distribution maps, 70 color illustrations, 425 range maps. 496 pages.

Hall, George, *West Virginia Birds*, Carnegie Museum of Natural History, 1983. 180 pages.

Harwood, Michael, *The View from Hawk Mountain*, Charles Scribner's Sons, 1973. Tells the story of Hawk Mountain, Pennsylvania, one of the most noted hawk watching areas in the East. 191 pages.

Heinrich, Bernd, *One Man's Owl*, Princeton University Press, 1987. Describes the author's experiences with a great horned owl. Interesting and informative. 224 pages.

Heintzelman, Donald, *A Guide to Hawk Watching in North America*, Keystone Books, 1985. A standard guide to hawk watching; covers hawk identification, field equipment, migration seasons, mechanics of hawk flight. 284 pages.

International Council for Bird Preservation, *Conservation Studies on Raptors*, Technical Publication # 5, 1985. Technical reports on status of birds of prey throughout the world. 482 pages.

O'Brien, Dan, *Rites of Autumn, a Falconer's Journey Across the American West*, Doubleday Books, 1924, 1952. A must read for anyone interested in birds, peregrine falcons, the natural world and what is happening to it. 187 thought-intensive pages.

Tyler, Hamilton, and Phillips, Don, *Owls by Day and Night*, Naturegraph Publishers, Happy Camp, California, 1988. Contains much information on owls and adaptations for hunting. 208 pages.

Ure, Stellanie, *Hawk Lady*, Doubleday & Company, Inc., 1980. Author's fascinating personal experiences with rehabilitating injured birds of prey. 215 pages.