

Wildlife Species

This chapter contains information on species featured in each of the ecoregions. Species are grouped by Birds, Mammals, Reptiles, Amphibians, and Fish. Species are listed alphabetically within each group. A general description, habitat requirements, and possible wildlife management practices are provided for each species. Wildlife management practices for a particular species may vary among ecoregions, so not all of the wildlife management practices listed for a species may be applicable for that species in all ecoregions. Refer to the WMP charts within a particular ecoregion to determine which practices are appropriate for species included in that ecoregion.

The species descriptions contain all the information needed about a particular species for the WHEP contest. However, additional reading should be encouraged for participants that want more detailed information. Field guides to North American wildlife and fish are good sources for information and pictures of the species listed. There also are many Web sites available for wildlife species identification by sight and sound.

Information from this section will be used in the Wildlife Challenge at the National Invitational. Participants should be familiar with the information presented within the species accounts for those species included within the ecoregions used at the Invitational.

It is important to understand that when assessing habitat for a particular wildlife species and considering various WMPs for recommendation, current conditions should be evaluated. That is, WMPs should be recommended based on the current habitat conditions within the year. Also, it is important to realize the benefit of a WMP may not be realized soon. For example, trees or shrubs planted for mast may not provide cover or bear fruit for several years.

Index to Wildlife Species

Note: Refer to this list for the correct spelling and capitalization of species for Activity I (Wildlife Challenge).

Birds (86)

American bittern	golden-cheeked warbler	prairie falcon
<u>American black duck *</u>	golden-fronted woodpecker	prothonotary warbler
American kestrel	golden-winged warbler	pyrrhuloxia
American robin	grasshopper sparrow	red-cockaded woodpecker
American wigeon	great horned owl	red-eyed vireo
<u>American woodcock *</u>	greater prairie-chicken	red-tailed hawk
barred owl	greater roadrunner	redhead
<u>black-backed woodpecker*</u>	greater sage-grouse	ring-necked pheasant
black-bellied whistling duck	hairy woodpecker	rock pigeon
black-capped chickadee	house finch	ruby-throated hummingbird
black-throated sparrow	house sparrow	<u>ruffed grouse *</u>
blue-winged teal	house wren	sage thrasher
Brewer's sparrow	ladder-backed woodpecker	scaled quail
broad-winged hawk	lark bunting	sharp-tailed grouse
<u>brown thrasher*</u>	Lawrence's goldfinch	song sparrow
California quail	loggerhead shrike	sooty grouse
California thrasher	long-billed thrasher	southwest willow flycatcher
Canada goose	mallard	spotted sandpiper
common nighthawk	marbled murrelet	spotted towhee
crested caracara	mountain bluebird	Virginia rail
crissal thrasher	mourning dove	western bluebird
dickcissel	northern bobwhite	western kingbird
dusky grouse	northern flicker	white-tailed ptarmigan
eastern bluebird	<u>northern goshawk *</u>	white-winged dove
eastern meadowlark	northern harrier	<u>wild turkey *</u>
European starling	northern pintail	Wilson's snipe
ferruginous hawk	Nuttall's woodpecker	wood duck
Gambel's quail	<u>ovenbird *</u>	yellow-rumped warbler
golden eagle	peregrine falcon	

Mammals (34)

American beaver
American marten
big brown bat
black bear
black-tailed jackrabbit
black-tailed prairie dog
bobcat
Brazilian free-tailed bat
collared peccary
Columbian black-tailed deer
common muskrat
coyote

desert cottontail
eastern cottontail
eastern fox squirrel
eastern gray squirrel
elk
fisher *
gray fox
Indiana bat
mink
moose *
mountain cottontail
mountain lion

New England cottontail *
pronghorn
raccoon
red fox
red squirrel *
river otter
Rocky Mountain mule deer
snowshoe hare *
white-tailed deer *
wild pig

Reptiles (9)

eastern box turtle
eastern indigo snake
eastern snapping turtle

Gila monster Texas horned lizard
gopher tortoise timber rattlesnake
plains hog-nosed snake western diamond-backed rattlesnake

Amphibians (7)

American bullfrog
crawfish frog
Monterey salamander
northern red-legged frog

rough-skinned newt
tiger salamander
wood frog *



Fish (6)

bluegill *
channel catfish
Coho salmon

cutthroat trout
largemouth bass*
rainbow trout

Range map keys for wildlife species

Range map key for birds: Range map key for mammals, Range map key for fish:
reptiles, and amphibians:

Year Round Native Range
Year Round Introduced Range
Summer
Winter
 Winter
 Migratory

American black duck

General information

The American black duck is a large dabbling duck similar in size to mallards, ranging from 19 to 25 inches in length. They resemble the female mallard in color, though their plumage appears darker. The male and female black duck are similar in appearance. They have orange legs and feet and violet wing patches. The male black duck has a yellow to green bill, whereas hens have olive bills. Black ducks interbreed regularly and extensively with mallards. American black ducks frequent forested wetlands, tidewater areas, and coastal marshes of the eastern United States. They feed in a variety of shallow wetlands and agricultural fields. Their nests are built of vegetation and lined with down, found most often on the ground along edges of heavy cover, and generally close to water.

Habitat requirements

Diet: aquatic plants, invertebrates, waste corn, and grain are primary diet items

Water: obtains water through diet

Cover: forested and emergent wetlands for loafing; they also will feed in flooded grain fields

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to degrade loafing or foraging cover in wetlands or nesting cover in uplands

Leave Crop Unharvested: to provide a winter food source

Livestock Management: livestock should be excluded from wetlands managed for waterfowl

Plant Food Plots: shallowly flooded grain plots can provide a beneficial food source for migrating and wintering black ducks

Plant Native Grasses and Forbs: where nesting cover is lacking

Repair Spillway/Levee: if not functioning properly **Set-back Succession:** *Prescribed Fire* to rejuvenate vegetation in nesting areas and to maintain proper water and vegetation interspersions in wetlands

Tillage Management: eliminating fall tillage can provide waste grain in the winter

Water Control Structure: control water level in wetlands managed for waterfowl

Water Developments for Wildlife: shallow impoundments can be important for migrating and wintering waterfowl; flooding grain fields and planting food plots in winter makes food more available



Wildlife or Fish Survey: black ducks are secretive and are often in woody emergent wetlands where accurate surveys are difficult. Nonetheless, flush counts and aerial surveys are most often used to estimate black duck populations.

American woodcock

General information

The American woodcock is a ground-dwelling, migratory shorebird of the eastern United States and southeastern Canada that primarily inhabits moist, young forest and shrubland. They breed, nest, and raise their broods from March to June in their northern range. Nests are located in slight depressions among dead leaves on the forest floor. They migrate to their southern range in the fall through winter. This gamebird has declined steadily over the past 25 years as a result of land-use changes that have resulted in forest maturation, fire suppression, and increased human development. High-quality woodcock habitat has a diverse arrangement of dense, young forest (and must include some moist sites) on 80 percent of the area, interspersed with large fields and small openings in close proximity.

Habitat requirements

Diet: invertebrates (earthworms represent 60 percent of diet)

Water: obtained through diet

Cover: openings with sparse herbaceous groundcover and scattered shrubs and/or young trees; for courtship and roosting; young hardwood forest 2- to 25-year-old, for foraging, nesting and brood rearing or shrub cover on moist sites

Wildlife management practices

Control Nonnative Invasive Vegetation: may be necessary if habitat quality is degrading and the native plant community is being outcompeted

Edge Feathering: will create a soft edge between openings or agricultural fields and the forest that will encourage shrub and/or young tree growth

Forest Management: Forest Regeneration, especially clearcut and Group Selection, can provide dense structure in young stands that woodcock select for several years, especially when a mosaic of openings and young forest is well-interspersed

Livestock Management: exclude livestock from areas managed for American woodcock

Plant Shrubs: where there is a lack of interspersed shrubs for foraging, nesting, courtship, or roosting cover

Plant Trees: where there is a lack of forest cover

Set-back Succession: *Prescribed Fire, Chainsawing, Drum-chopping,* and *Herbicide Applications* can be used to maintain young tree/shrub cover; *Chainsawing, Root-plowing,* and *Dozer-clearing* can be used to create forest openings

Wildlife or Fish Survey: surveys on singing grounds can be used to estimate the relative size of the woodcock breeding population



Richard Baetsen



Black-backed woodpecker

General information

Black-backed woodpeckers are primarily found in recently burned forests, specifically coniferous forests, where they eat bark beetles and other wood-boring beetles. Abundance of black-backed woodpeckers declines with time since fire. Habitat generally remains for 7-8 years post fire.

Habitat requirements

Diet: bark beetles and wood-boring beetles in recently burned, old-growth coniferous forests

Water: water is obtained from food

Cover: nest in the sapwood of relatively hard, dead trees with little decay that have been recently burned with high concentrations of beetle larvae.

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive species begin to reduce habitat quality for black-backed woodpeckers

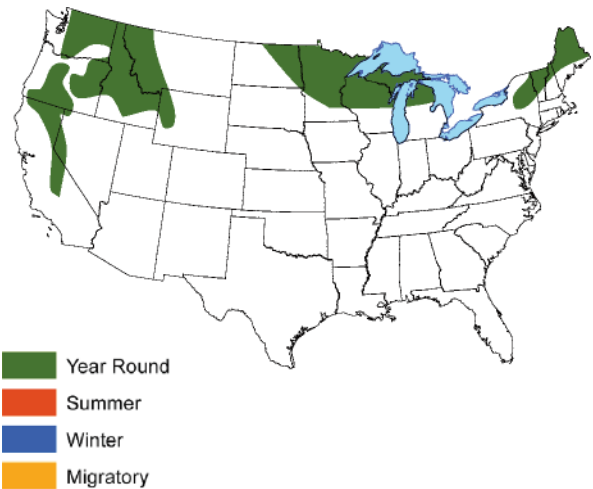
Plant Trees: in areas where forest regeneration is not occurring, trees may be planted to provide future habitat for the black-backed woodpecker. However, it will be many decades before these trees are of sufficient size to provide habitat for this woodpecker.

Set-back Succession: relatively intense *Prescribed Fire* in old-growth coniferous forests is necessary for the occurrence of black-backed woodpeckers. However, logging post-fire significantly decreases their occurrence.

Wildlife or Fish Survey: point counts can be conducted to listen for the distinctive drumming of the black-backed woodpeckers during the mating season



GenTapix



Brown thrasher

General information

Brown thrashers occur in the eastern two-thirds of the U.S. They are normally found in shrub and bramble thickets, hedgerows, shelterbelts, young forests, forest edges, and brushy riparian areas. Brown thrashers forage primarily on the ground, using their beaks to turn over leaves and debris looking for food. More food is available when there is substantial ground litter (leaves and debris). Nests are usually found in bushes or small trees 1 to 10 feet aboveground.



Habitat requirements

Diet: invertebrates and plant seeds are main items in diet, but soft and hard mast are also eaten

Water: water requirements are not known

Cover: dense shrubs and brambles interspersed with some trees are used for nesting and escape cover; will use areas that have only shrubs; need a minimum of 2.5 acres of habitat to support a breeding population

Wildlife management practices

Control Nonnative Invasive Species: when nonnative invasive species begin to compete with native species and degrade habitat for brown thrashers

Edge Feathering: will enhance habitat around the edge of fields

Field Borders: of brambles and shrubs will provide additional nesting and foraging cover

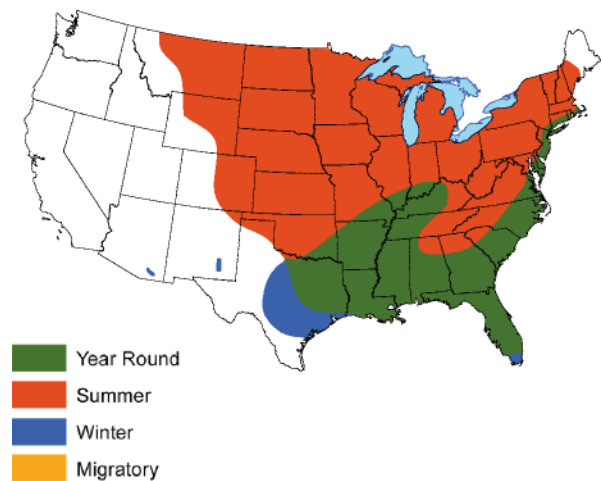
Forest Management: *Forest Regeneration*, especially *Clearcut*, *Shelterwood*, and *Seedtree* will improve vegetation structure for nesting and foraging; *Timber Stand Improvement* can improve habitat by stimulating understory development

Livestock Management: should exclude livestock from riparian areas, shrublands, and forests to allow shrubs and trees to regenerate

Plant Shrubs: in open areas of at least 2.5 acres to create additional cover for nesting/foraging

Set-back Succession: *Prescribed Fire*, *Chaining*, and *Herbicide Applications* can be used to maintain and rejuvenate shrub cover when habitat quality begins to decline; *Chainsawing* and *Dozer-clearing* can be used to clear woods and create additional brushy cover

Wildlife or Fish Survey: point counts can be used to survey populations



Northern goshawk

General information

Northern goshawks are relatively large raptors found throughout the northern, central, and western regions of the U.S. They prefer dense, mature woodlands where they nest 20 to 80 feet aboveground on a large horizontal limb of a mature tree. Nests are often used for up to five consecutive years. As a raptor, goshawks are fierce predators, commonly eating large birds, squirrels, rabbits, and hares. Goshawks perch while hunting and descend on prey. They will pursue prey for quite a distance when necessary. Goshawks do not prefer to be around human establishments.



Karen Laubenstein

Habitat requirements

Diet: mostly small- and medium-sized birds and mammals **Water:** obtain necessary water from diet

Cover: mature forest and woodland; nest in mature trees

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to compete with native vegetation and reduce habitat quality for northern goshawk and their prey

Create Snags: when perching sites are limiting; at least one large snag per acre may be provided

Forest Management: *Forest Regeneration (Single-tree Selection)* and *Timber Stand Improvement* can enhance habitat for prey; snags should be retained during forest management

Plant Trees: in large open areas to eventually provide habitat for goshawks

Wildlife or Fish Survey: observational counts are used to estimate population trends



Ovenbird

General information

The ovenbird is a ground-dwelling warbler found in uplands of closed-canopy, mature deciduous or mixed deciduous-coniferous forests throughout the eastern third of the U.S. Territorial males are quite vocal with their characteristic “teacher-teacher-teacher” song. Ovenbirds are typically found in mature forests with relatively little underbrush and plenty of leaf litter that harbors abundant insects and other invertebrates. They often forage in the leaf litter, but also may glean insects from leaves and tree bark. They construct a dome nest of dead leaves, grasses, bark, and hair with an oval side entrance that usually faces downhill, all in the shape of an outdoor bread oven; hence the name. The nest is usually well hidden in herbaceous vegetation on the forest floor, often near a fallen tree or regrowth within a canopy gap. Ovenbirds are rather unique in that after the clutch (3-6 eggs) hatches, the female takes half the brood and parts ways with the male, who remains with the other half of the brood. Ovenbirds may produce 1-2 broods per year.

Habitat requirements:

Diet: adult beetles and larvae, caterpillars, ants, and flies

Water: usually obtain necessary water from diet, but may use free-standing water when available

Cover: mature deciduous forest with sufficient leaf litter for nesting and foraging

Wildlife management practices

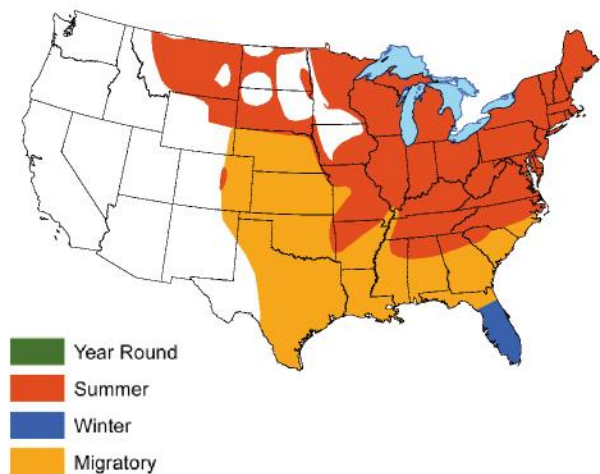
Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for ovenbirds; several nonnative species, such as Japanese stiltgrass, threaten to reduce habitat quality for ovenbird in the **Eastern Deciduous Forest**

Forest Management: *Forest Regeneration (Single Tree Selection)* may produce scattered small canopy gaps that enhance nesting cover

Livestock Management: livestock should be excluded from forests managed for ovenbirds

Plant Trees: in large open areas to produce future habitat

Wildlife or Fish Survey: point counts are used to estimate population trends



Ovenbird nest

Ruffed grouse

General information

The ruffed grouse is a relatively large gamebird that occurs across southern Canada, the more northern latitudes of North America, and down the Appalachian range. Ruffed grouse are found in a variety of deciduous forest types as well as mixed deciduous-conifer forest, but are particularly closely associated with aspen, especially young stands with relatively dense structure. Male ruffed grouse attract females during the mating season in spring by standing on downed logs, usually in dense cover, and flapping their wings to their breast, which causes a low drumming sound. This activity is called drumming. Ruffed grouse populations are decreasing across their range where forest management has been limited.



Habitat requirements

Diet: buds, hard and soft mast, insects and other invertebrates, and leaves of forbs

Water: necessary water obtained from diet

Cover: 6- to 20-year-old stands are required for cover provided by the dense stems; mature forest in close proximity to young stands may be used for feeding on acorns and other hard mast; a variety of forest types and age classes are used for nesting

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative vegetation reduces habitat quality for ruffed grouse; Japanese stiltgrass can be especially problematic in many forests, and tall fescue and orchardgrass are problematic in forest openings and along woods roads

Create Snags: where drumming logs are limiting, large-diameter (18+ inches), non-mast producing trees may be killed or felled

Forest Management: *Forest Regeneration (Clearcut, Shelterwood, Group Selection)* within mature forest will stimulate regeneration that will provide optimum cover within 6 years; *Timber Stand Improvement* practices can be used to stimulate desirable structure and stem density and enable crowns of desirable trees to grow and produce additional mast

Livestock Management: livestock should be excluded from areas managed for ruffed grouse

Plant Shrubs: where additional soft mast is needed and to develop thickets and shrub cover in openings **Plant**

Trees: in relatively large openings where planting is necessary and where mast-producing trees are limiting



Set-back Succession: *Prescribed Fire* can be used to maintain and rejuvenate dense stem cover and enhance herbaceous cover important for brooding cover, particularly in aspen stands; *Chainsawing* can be used to remove trees and increase stem density in the forest understory

Decrease Harvest: may be necessary if populations are declining in areas where habitat quality is good and data suggest mortality from hunting is additive or limiting population growth

Wildlife or Fish Survey: drumming counts are most often used to estimate population trends

Wild turkey

General information

Wild turkeys are large gamebirds found across the U.S. They are adapted to use a wide variety of vegetation types, from deciduous forest to desert shrub to open grassland interspersed with tree-lined riparian areas. Their distribution is largely limited only by snow depth and persistence to the north, which limits their ability to forage on the ground, and by trees or large shrubs needed for roosting at night in arid regions. Wild turkeys flock together during fall and winter. Breeding occurs in spring when males gobble to attract females. Nests are a slight depression on the ground, usually placed adjacent to a log, shrub, or some other structure to aid in concealment. Shrub cover is often used for nesting, but wild turkeys also nest in open woods and in fields. Nests are lined with leaves and other vegetation and usually contain about 12 eggs. Poults (young turkeys) are precocial, meaning they are able to walk around with the hen and forage for themselves soon after hatching. Herbaceous openings, especially those with a forb canopy and open ground structure, are preferred for brooding. Although wild turkeys spend most of their time on the ground, except when they fly up into trees in the evening to roost for the night, they can fly well and often take flight for short distances to escape predators.

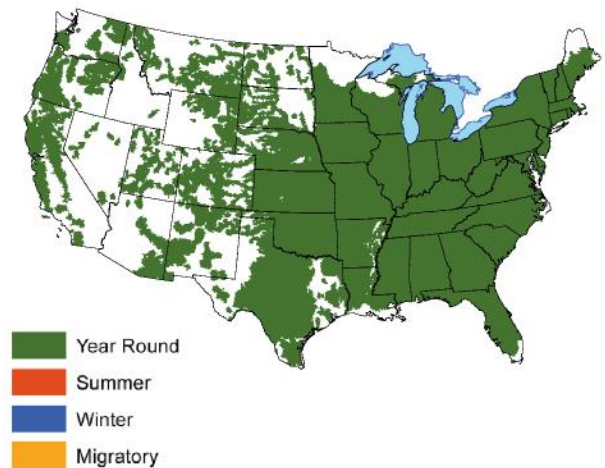
Habitat requirements

Diet: extremely varied; hard mast, especially acorns and beechnuts in the fall and winter; soft mast, such as blackberries, mulberries, and black cherry; insects and other invertebrates, including spiders and snails, are especially important for young poults and hens prior to nesting; miscellaneous seeds; leaves from forbs and grasses; grain from a variety of agricultural crops **Water:** obtain water from diet, but may use free-standing water when available

Cover: mature forest, young regenerating forest, brushy areas, and old-fields for nesting; mature forest; herbaceous openings; grain fields for foraging; trees or tall shrubs for roosting

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for wild turkeys; common examples include sod grasses, such as tall fescue, bermudagrass, and others, such as cogongrass, which limit mobility for turkey poults and food availability; kudzu and shrub honeysuckle are other species that often degrade habitat in forested areas **Edge Feathering:** can enhance nesting and brooding cover around fields



Field Borders: to increase usable space for nesting and brooding around row crop fields

Forest Management: (in some ecoregions) *Forest Regeneration (Clearcut, Shelterwood, Group Selection, Seed-tree)* can enhance nesting and brooding cover and stimulate increased soft mast and miscellaneous seed for a few years after harvest; *Timber Stand Improvement* can improve the structure of the understory for nesting and brood rearing, increase production of soft mast and miscellaneous seed, and enable crowns of desired trees to grow and produce additional mast

Leave Crop Unharvested: especially corn, soybeans, and grain sorghum, to provide supplemental food source during fall and winter

Livestock Management: should prevent livestock from degrading habitat by overgrazing and damaging planted trees and shrubs and food plots

Plant Food Plots: to provide supplemental foods where food may be limiting; corn, soybeans, wheat, and clovers are often used

Plant Native Grasses and Forbs: where herbaceous cover is limiting and planting is necessary

Plant Shrubs: where additional soft mast or brushy cover is needed

Plant Trees: where additional hard mast production, especially acorns, is needed and where roosting sites are limited

Set-back Succession: *Prescribed Fire* is recommended to maintain herbaceous openings, rejuvenate shrubland, and improve understory structure and composition for foraging, brooding, and nesting in forests, woodlands, and savannas; *Disking* can be used to maintain herbaceous openings and reduce thatch build-up; *Herbicide Applications, Chaining, Root-plowing,* and *Drum-chopping* can be used to reduce shrub cover and stimulate more herbaceous groundcover; *Chainsawing, Dozer-clearing,* and *Root-plowing* can be used to remove trees and create herbaceous openings, especially where brooding cover may be limiting

Tillage Management: eliminate tillage in the fall to provide additional waste grain during winter, especially when adjacent to tall shrub or forest cover

Water Developments for Wildlife: can be useful when there is little or no free-standing water

Decrease Harvest: may be necessary if populations are declining and data suggest mortality from hunting is additive or limiting population growth

Increase Harvest: where populations can sustain additional harvest pressure for hunting recreation and where populations need to be lowered

Wildlife Damage Management: may be necessary in rare instances when wild turkeys are depredating crops

Wildlife or Fish Survey: gobbler surveys, poult surveys, and hunter success rates are used to estimate population trends

Fisher

General information

Fishers are furbearers found in forests in the upper Great Lakes area and the mountains of the Pacific and northeastern U.S. Fishers were once a valuable fur resource that led to over-trapping and population decline in many areas. Fishers are likely more adept at preying on porcupines than any other predator. A desire to control porcupines in some areas because of the damage they cause to trees has led to large-scale reintroduction of fishers throughout many portions of their former range. Fishers are now re-established as far south as West Virginia and Pennsylvania along the Appalachian Mountain range.

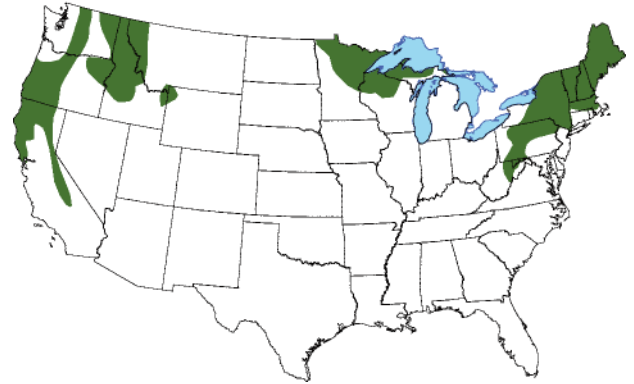


Habitat requirements

Diet: primarily small rodents and snowshoe hare; will readily consume other rodents, rabbits, porcupines, insects, reptiles, soft mast, and carrion; and small domestic pets

Water: necessary water obtained from diet

Cover: mature conifer or mixed hardwood forests with abundant down woody debris; den in hollow logs, snags, or live trees



Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation is competing with native vegetation and reducing habitat quality

Create Snags: in forested areas where denning cavities are suspected to be limiting the population

Forest Management: *Forest Regeneration (Single-tree Selection, Group Selection)* can improve forest structure for several prey species; *Timber Stand Improvement* can increase understory development that can lead to increased prey populations; forest management can also increase down woody debris

Plant Trees: in large open areas where additional forest cover is needed (should maintain >50 percent canopy cover)

Decrease Harvest: may be necessary when trapping pressure is limiting population growth and additional fishers are desired

Increase Harvest: where populations can sustain additional trapping pressure or a reduction in the population is desired

Wildlife Damage Management: may be necessary if small domestic pet depredation is a problem

Wildlife or Fish Survey: scent stations, track counts, trapper harvest data, and trail cameras may be used to estimate population trends

Moose

General information

The moose is the largest member of the deer family. Adult males can reach 1,800 pounds and females may weigh 1,000 pounds. Males exhibit palmated (flattened or palm-like) antlers, whereas most other members of the deer family have a dendritic (twig-like) antler configuration. Moose are herbivores and inhabit both boreal and mixed deciduous forests in temperate and subarctic climates. Moose are typically solitary and do not group into herds. Predators include wolves, bears, and humans. Moose are typically found around wetlands (such as swamps, streams, lakes) because of the abundance of browse and aquatic plants moose prefer. The moose is the only deer species that can dive underwater to reach plants on stream, marsh, and lake bottoms. An adult moose can consume as much as 70 pounds of vegetation per day. In spring, moose are often drawn to roadways to satisfy their sodium requirements where they lick salt applied to road surfaces to melt snow and ice. This habit leads to moose-vehicle collisions wherever roads are salted during winter. Moose populations have rebounded over the past 30-40 years as pollution in waterways has been reduced and abandoned farms have succeeded into shrub-dominated and young forest cover.

Habitat requirements

Diet: leaves and twigs of willow, maple, aspen, mountain ash, and birch trees, as well as aquatic vegetation, including submerged aquatic vegetation, which may represent as much as half of the diet

Water: water requirements are met through consumption of aquatic vegetation and standing water where they are typically found

Cover: riparian areas along streams and rivers, edges of marshes adjacent to thick upland cover, mature softwood stands during extreme cold and/or deep snowfall

Wildlife management practices

Control Nonnative Invasive Vegetation: may be necessary when native plant communities, both upland and aquatic, are being threatened by nonnative invasive vegetation and habitat quality for moose is declining

Forest Management: *Forest Regeneration (Clearcut, Shelterwood, Group Selection)* will provide increased browse

Plant Shrubs: may be necessary in large open areas where additional shrub cover is needed

Plant Trees: may be necessary in large open areas where additional forest cover is needed

Repair Spillway/Levee: if not functioning properly



Set-back Succession: *Prescribed Fire and Chainsawing* can be used to rejuvenate and enhance low-growing woody cover and increase browse

Water Control Structures: should be installed in existing dikes and levees if not already present to manipulate water levels and maintain aquatic vegetation surrounding wetlands

Water Developments for Wildlife: shallow impoundments can be created if a lack of wetlands are limiting the presence or abundance of moose

Decrease Harvest: may be necessary if hunter harvest has limited the population and a population increase is desired, or if winter mortality, particularly from winter tick loads on calves and yearlings, is excessive

Increase Harvest: may be implemented if the moose population needs to be lowered

Wildlife or Fish Survey: aerial surveys may be used to monitor moose populations

New England cottontail

General information

The New England cottontail (NE cottontail) is found in isolated areas of Maine, New Hampshire, New York, Connecticut, Massachusetts, and Rhode Island. The USDA-NRCS included them in its Working Lands for Wildlife Initiative. NE cottontail is often confused with the eastern cottontail, which looks very similar, and because the eastern cottontail is more of a habitat generalist, it has been displacing the NE cottontail since the eastern cottontail was introduced to the New England states in the early 1900s. Because this region has dense human populations, habitat distribution for NE cottontail has declined by 86 percent since 1960. In addition to reduction of habitat distribution, urban sprawl also indirectly reduces habitat quality and quantity because of land-use changes (fire suppression, aesthetic mowing, afforestation, and the reduction of timber harvest). The remaining habitat is largely fragmented and isolates local populations, making them more vulnerable to overall population decline. Early successional cover in at least 25-acre blocks is desirable. Habitat may be provided in old-fields, cleared areas (such as utility and railroad right-of-ways), young regenerating forest, shrubby fringes around swamps and beaver ponds, managed early successional openings, and coastal shrublands. Nests are constructed of fur, grass, and leaves on the ground in a 4-inch depression.



Habitat requirements

Diet: forbs, grasses and soft mast in late spring and summer; grasses, leaves, soft mast, and buds in fall; bark, twigs, buds, and grasses in winter

Water: obtained through diet

Cover: early successional cover consisting of shrubs, forbs, and perennial native grasses; evergreen shrubs and trees are critical for escape and thermal cover in winter

Wildlife management practices

Conservation Easement: can protect critical habitat for this declining species

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for NE cottontail

Edge Feathering: to enhance cover and forage availability between fields and forest

Field Borders: to increase usable space around crop fields

Forest Management: *Forest Regeneration (Clearcut, Shelterwood, Seed-tree)* will enhance habitat for a few years

Livestock Management: should exclude livestock from food plots and prevent overgrazing to allow sufficient

herbaceous vegetation for nesting, cover, and forage

Plant Native Grasses and Forbs: where herbaceous vegetation is limiting and planting is necessary to establish desirable cover

Plant Shrubs: where there is a lack of shrub cover and none is regenerating naturally

Plant Trees: evergreen species may be planted in areas lacking thermal cover in winter

Set-back Succession: *Prescribed Fire, Herbicide Applications, and Disking* can be used to maintain early successional areas; *Prescribed Fire* can be used to rejuvenate and maintain shrub cover; *Chainsawing, Dozer-clearing, and Root-plowing* can be used to convert forest to early successional cover

Decrease Harvest: may be necessary if the local population is declining or cannot withstand harvest.

Wildlife or Fish Survey: because differentiating New England cottontails from Eastern cottontails is very difficult and only reliable under genetic testing or morphological skull identification, wildlife agencies request hunters submit heads of harvested rabbits for identification and analysis of population trends

Red squirrel

General information

Red squirrels are relatively small tree squirrels that occur in the Rocky Mountains, Great Lakes, and New England regions, and down the Appalachians. As their name implies, they are reddish or yellowish on back and sides with a white belly. They are found primarily in boreal coniferous forest and mixed deciduous-coniferous forest. Red squirrels den in tree cavities, but will make ball nests on large tree limbs close to the trunk or in underground burrows if cavities are not available. They will tunnel in snow and store conifer seeds in caches. Red squirrels often eat from the same stump or downed log where hulls of nuts and cones accumulate. Young are born in spring and late summer.

Habitat requirements

Diet: wide variety of seeds (especially pine seeds), eggs, and mushrooms

Water: freestanding water required regularly

Cover: coniferous and mixed deciduous-coniferous forest; nest in tree cavities and build nests of shredded bark, grass, leaves, twigs

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for red squirrels

Forest Management: *Timber Stand Improvement* can improve species composition and help increase mast production; snags should be retained for possible cavities

Livestock Management: livestock should be excluded from forests managed for red squirrel

Plant Trees: in large open areas to provide future habitat for red squirrels

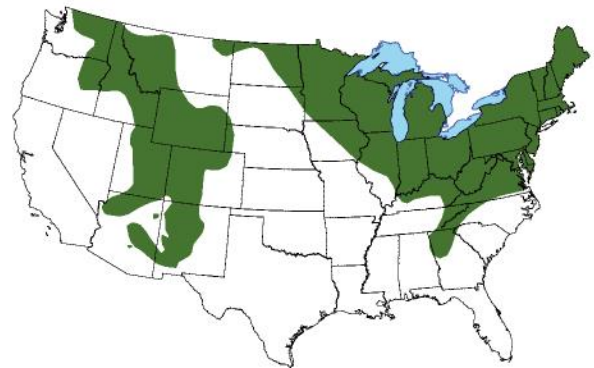
Decrease Harvest: if hunting pressure is limiting population growth where an increase is desired

Increase Harvest: where populations can sustain additional hunting pressure for recreation and where populations need to be lowered

Wildlife or Fish Survey: observation surveys can be used to estimate population trends



Giles Gonthier



Snowshoe hare

General information

Snowshoe hares are found in the northern U.S., the Rocky Mountains, the Sierra Nevada, and the Appalachians. They have large feet but smallish ears for a hare. Their summer coat is dark brown and their winter coat is white. They are commonly found in both young and mature coniferous and deciduous forest, but prefer dense cover, especially near low wet areas. They forage in recently regenerated forest and forest openings. Snowshoe hares do not use dens. Home range is about 10 acres. They have 2-3 litters of 2-4 young, which are born April-August.

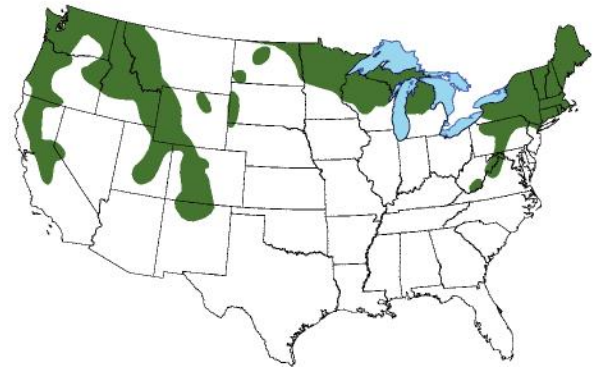


Habitat requirements

Diet: forbs, grasses, soft mast in spring and summer; browse and bark in winter

Water: probably obtain necessary water through diet

Cover: dense thickets and young forest cover; mature forest with dense understory; seldom far from dense cover; forest openings and riparian areas; give birth under a shrub or fallen log



Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for snowshoe hares

Forest Management: *Forest Regeneration (Clearcut, Shelterwood, Seed-tree)* will provide dense cover and increased soft mast for several years after harvest; *Timber Stand Improvement* can enhance understory development and soft mast production; *Forest Road Maintenance* may involve daylighting roads and planting clovers where forage may be limited

Livestock Management: livestock should be excluded for forests managed for snowshoe hare; should prevent overgrazing in forest openings to maintain sufficient cover and forage for snowshoe hares

Plant Food Plots: (in some ecoregions) forest openings may be planted in forages where food may be lacking

Plant Shrubs: where dense shrub cover is lacking and planting is necessary

Plant Trees: in relatively large open areas to maintain at least 80 percent forest cover

Decrease Harvest: if hunting pressure is limiting population growth where an increase is desired

Increase Harvest: when populations can sustain additional hunting pressure for recreation and when population reduction is desired

Wildlife Damage Management: when snowshoe hare populations eat the bark of commercially valuable trees during winter

Wildlife or Fish Survey: track counts, observation counts, and hunter observation data can be used to estimate population trends

White-tailed deer

General information

The white-tailed deer is the most important game animal in North America. There are more than 30 subspecies of white-tailed deer that occur throughout the U.S. and southern Canada, except for California and Nevada. They are extremely adaptable and are found in a wide variety of areas including deciduous and coniferous forests, tropical evergreen forest, dry grasslands, and shrub desert. They are adaptable to humans and exploit suburban areas very well. Whitetails thrive in areas with fragmented areas containing several well-interspersed vegetation types and successional stages. White-tailed deer are ruminants and are classified as browsers, but have distinct dietary preferences through the seasons. Where overabundant, they can cause significant damage to ornamental plantings and row crops and can be hazardous for motor vehicles.

Habitat requirements

Diet: forbs, browse, acorns, beechnuts, grains, grasses, and mushrooms; in the northern parts of the range, coniferous browse is important in winter

Water: obtain most of their water from diet, but will drink free-standing water when available

Cover: dense woody vegetation as well as relatively tall early successional cover, including native grasses, forbs, and shrubs; at the northern edge of their range white-tailed deer use wintering areas, which are usually dense stands of spruce, fir, cedar, and hemlock to avoid deep snow and cold winds

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for white-tailed deer; sod grasses and sericea lespedeza can be particularly problematic in fields and Japanese stiltgrass often reduces forage availability in forests; although white-tailed deer may eat many nonnative invasive plants in some seasons to some extent, control of many of those plants, such as kudzu, Japanese honeysuckle, and Chinese privet, can lead to increased plant species diversity and increased forage quality during various seasons

Edge Feathering: to increase forage availability around fields and enhance fawning cover

Field Borders: to increase forage availability (forbs and brambles) around crop fields

Forest Management: *Forest Regeneration (Clearcut, Shelterwood, Seed-tree, Group Selection)* will provide increased browse, soft mast production, and dense escape cover; *Timber Stand Improvement* can provide



Steve Hillebrand



increased browse and soft mast production and stimulate better cover in stands with a poorly developed understory; both methods are often used at the northern edge of their range to manage the quality and vigor of coniferous cover within a deer wintering area

Leave Crop Unharvested: to provide additional food resource, especially near escape cover

Livestock Management: livestock should be excluded from forests managed for deer to avoid destruction of the forest understory; livestock should be excluded from riparian areas, especially in the **Great Plains Grassland** ecoregion; should prevent overgrazing in woodlands and savannas; livestock should be excluded from food plots

Plant Food Plots: when naturally occurring food sources are limited, food plots may provide additional nutrition, particularly in late summer and winter of most ecoregions **Plant Native Grasses and Forbs:** where early successional cover is limiting and planting is necessary for establishment

Plant Shrubs: where needed to provide additional soft mast, brushy cover, and browse; often useful in ravines, field borders, other idle land areas and across large open

areas to provide travel corridors

Plant Trees: (in some ecoregions) in large open areas to maintain at least 30 to 40 percent forest cover;

where mast producers are lacking, particularly oaks

Set-back Succession: *Prescribed Fire* and *Disking* is recommended to maintain herbaceous openings;

Prescribed Fire is recommended to stimulate the forest understory for increased forage and soft mast; *Chaining*

can be used to rejuvenate shrub cover; in areas

dominated by mesquite, *Root-plowing* combined with seeding grasses and legumes may be the best way to

increase herbaceous groundcover; *Chainsawing*,

Dozer-clearing and *Root-plowing* when converting

forest to early successional cover to increase forage and enhance fawning cover, and to kill or remove

undesirable trees in woodlots and other areas

Tillage Management: eliminate fall tillage of grain crop residue adjacent to cover to make waste grain available as an additional food source

Water Developments for Wildlife: where lacking (within one-half mile), dugouts, ponds, and shallow impoundments can provide freestanding water

Decrease Harvest: if hunting pressure is limiting population growth where an increase is desired

Increase Harvest: when populations can sustain additional harvest pressure for hunting recreation and when populations need to be lowered because of overpopulation and habitat degradation; in these cases, it is necessary to concentrate increased harvest on females

Wildlife Damage Management: fencing, repellents, and scare tactics may be helpful to keep deer from ornamental plantings, vegetable gardens, and crops; reducing the population through shooting females is recommended when widespread overabundance is causing crop depredation and increasing vehicle collisions

Wildlife or Fish Survey: camera surveys, browse surveys, aerial surveys (in open areas such as South Texas, Kansas, or Oklahoma, and northern portion of range during winter when there is extensive snow cover), pellet surveys, and hunter observation and harvest data are used to estimate population trends

Wood frog

General information

Wood frogs have the most extensive range of any North American frog or toad. They occur from the southern Appalachian mountains of Georgia to northern Canada, and westward throughout the Great Lakes region, Canada, and Alaska (not shown on map below). In the northern climates, wood frogs bury themselves in the leaf litter to escape freezing temperatures. They also are able to withstand extended periods of sub-freezing temperatures by increasing blood-glucose levels, which serve as cryoprotectants (antifreeze). Individuals can survive whole-body freezing for more than a week. Wood frogs are closely associated with closed-canopy deciduous and boreal forests. Adults are largely terrestrial, but make annual migrations to ephemeral ponds to breed. The breeding seasons are short (6-14 days) and eggs develop rapidly (4-30 days) in the shallow ponds. Tadpoles grow quickly and generally transform in 6 to 15 weeks.

Habitat requirements

Diet: adults eat terrestrial invertebrates, such as beetles, crickets, spiders, and earthworms; tadpoles filter phytoplankton from the water

Water: breed in shallow water within closed-canopy forests; breeding ponds are usually fishless and are dry at some time of the year

Cover: optimum habitat consists of >70 percent canopy cover in deciduous or boreal forests; prefer areas with moist soils, abundant leaf litter, and downed woody debris

Wildlife management practices

Control Nonnative Invasive Vegetation: where nonnative invasive vegetation creates undesirable conditions for wood frogs, limiting movement to breeding ponds

Livestock Management: livestock should be excluded from forests and from ponds that may be used as breeding ponds for wood frogs; livestock watering facilities should be developed away from pond

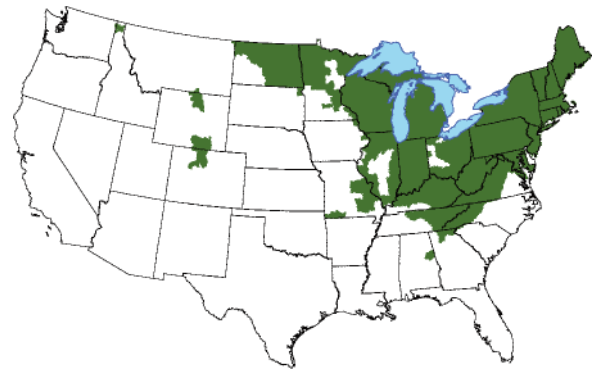
Plant Trees: in large open areas where additional forest cover is needed (should maintain >70 percent canopy cover)

Water Developments for Wildlife: maintain ephemeral pools; create small, fishless ponds or impoundments if additional breeding sites are needed

Wildlife or Fish Survey: call counts are used to estimate population trends



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Fish

Bluegill

General information

The bluegill is one of the most abundant Sunfish species. It thrives in a variety of conditions, ranging from freshwater lakes, ponds, and slow moving streams, to brackish waters of coastal areas. The bluegill's native range is the eastern U.S. from southern Canada to Florida and Texas, but they have been successfully introduced throughout the U.S.

Habitat requirements

Diet: a variety of zooplankton (microscopic animal life) during the first few months of life, progressing to insects and their larvae, eggs, earthworms, tadpoles, small minnows, and crayfish

Water: basic requirements include dissolved oxygen (minimum of 4 parts per million); pH between 6.5 and 9.0; and water temperature should reach at least 70 F during summer (one foot below surface in the shade)

Cover: aquatic environments with submerged rocks, woody debris, and aquatic vegetation where small fish (prey) hide

Wildlife management practices

Livestock Management: livestock should either be excluded from fish ponds or only allowed access to a small part of the fish pond; livestock watering facilities should be developed away from the fish pond

Repair Spillway/Levee: if not functioning properly

Water Control Structures: should be installed if none are present so water depth can be controlled

Decrease Harvest: refer to **Wildlife Management Practices** on page 240 for specifics on fish harvest

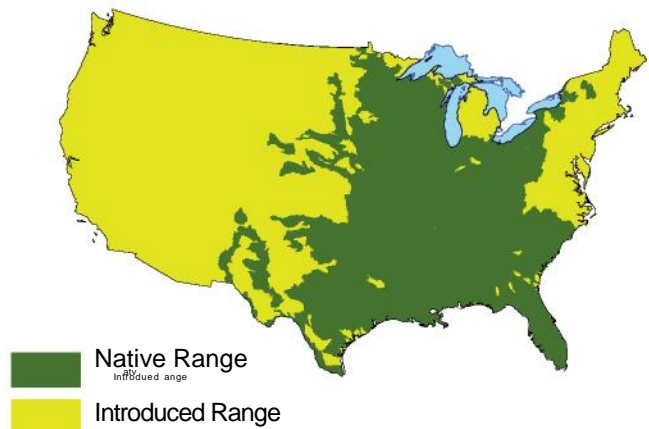
Increase Harvest: refer to **Wildlife Management Practices** on page 241 for specifics on fish harvest

Wildlife or Fish Survey: fishing records, seining, and electro-shocking are used to survey bluegill populations

Construct Fish Pond: where no suitable water source is present or where an existing fish pond needs extensive repair, especially to the dike or dam

Control Aquatic Vegetation: when necessary to discourage undesirable aquatic vegetation

Fertilize/Lime Fish Pond: fertilize to promote phytoplankton growth when visibility is more than 18 inches below the water surface; add agricultural limestone to increase soil pH if total alkalinity is below 20 ppm



Reduce Turbidity in Fish Pond: by reseeding watershed if soil is eroding into the pond and causing muddy water, by preventing livestock from entering pond, by eliminating bottom-feeding fish, or by reducing suspension of negatively charged clay particles

Restock Fish Pond: if the population is too far out of balance to correct via seining or fishing or if undesirable species are present

Largemouth bass

General information

Largemouth bass are not really bass but members of the Sunfish family. Largemouth bass are the most popular freshwater sportfish in states where they are found. They can be found in freshwater lakes, rivers, large streams, farm ponds, and brackish marshes. Their native range includes most of the eastern U.S., but largemouth bass have been stocked all over the country successfully.

Habitat requirements

Diet: young bass eat insects and other invertebrates (worms, crayfish, and zooplankton); adults eat small fish, such as bluegill, and a variety of minnows, as well as tadpoles, crayfish, and even ducklings

Cover: aquatic environments with submerged rocks, woody debris, and aquatic vegetation where small fish (prey) hide

Water: basic requirements include dissolved oxygen (minimum of 4 parts per million); pH should range between 6.5 and 9.0; water temperature should reach at least 70 F during summer (one foot below surface in shade)

Wildlife management practices

Livestock Management: livestock should either be excluded from fish ponds or only allowed access to a small part of the fish pond; livestock watering facilities should be developed away from the fish pond

Repair Spillway/Levee: if not functioning properly

Water Control Structures: should be installed if none are present so water depth can be controlled

Decrease Harvest: refer to **Wildlife Management Practices** on page 240 for specifics on fish harvest

Increase Harvest: refer to **Wildlife Management Practices** on page 241 for specifics on fish harvest

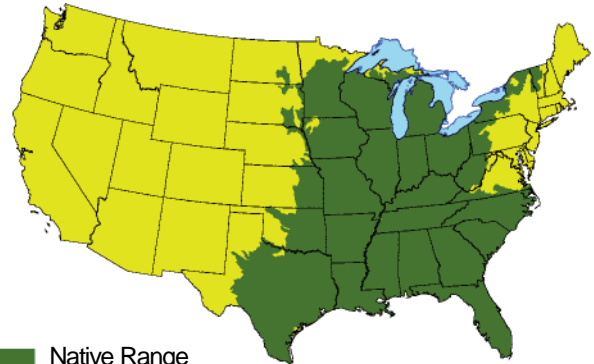
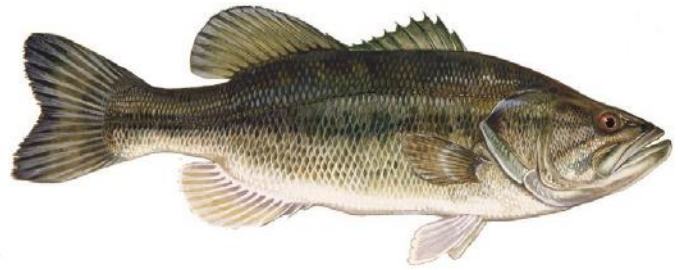
Wildlife or Fish Survey: fishing records, seining, and electro-shocking are used to survey largemouth bass populations

Construct Fish Pond: where no suitable water source is present or where an existing fish pond needs extensive repair, especially to the dike or dam

Control Aquatic Vegetation: when necessary to discourage undesirable aquatic vegetation

Fertilize/Lime Fish Pond: fertilize to promote phytoplankton growth when visibility is more than 18 inches below the water surface; add agricultural limestone to increase soil pH if total alkalinity is below 20 ppm

Reduce Turbidity in Fish Pond: by reseeding watershed if soil is eroding into the pond and causing muddy water, by preventing livestock from entering pond, by eliminating bottom-feeding fish, or by reducing suspension of negatively charged clay particles



Restock Fish Pond: if the population is too far out of balance to correct via seining or fishing or if undesirable species are present