

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).

Highlighted Species are Great Plains Grasslands - Shortgrass Prairie

Birds (86)

American bittern	golden-cheeked warbler	prairie falcon
American black duck	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
American woodcock	greater prairie-chicken	red-tailed hawk
barred owl	greater roadrunner	redhead
black-backed woodpecker	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	ruffed grouse
blue-winged teal	house wren	sage thrasher
Brewer's sparrow	ladder-backed woodpecker	scaled quail
broad-winged hawk	lark bunting	sharp-tailed grouse
brown thrasher	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	northern goshawk	white-winged dove
eastern meadowlark	northern harrier	wild turkey
European starling	northern pintail	Wilson's snipe
ferruginous hawk	Nuttall's woodpecker	wood duck
Gambel's quail	ovenbird	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
gopher tortoise
plains hog-nosed snake

Texas horned lizard
timber rattlesnake
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:

 Year Round
 Summer
 Winter
 Winter
 Migratory

*Range map key for mammals,
reptiles, and amphibians:*

 Year Round

Range map key for fish:

 Native Range
 Introduced Range

American kestrel

General information

The American kestrel is a common, widespread, small raptor resembling the size and shape of a mourning dove. The males are a colorful slate-blue on the top of the head and on the wings, with a reddish colored back and tail. Females have reddish brown wings, but both sexes have characteristic black slashes on the sides of their face. They can be found in a variety of open environments, including deserts and grasslands. Often spotted perching on power lines or other tall structures searching for prey, they swiftly move their tail to keep balanced in the wind. Because of their small size, American kestrels are preyed upon by larger raptors, such as northern goshawks and red-tailed hawks, and even snakes. They nest in cavities (often old woodpecker cavities or natural tree hollows) with loose material on the floor and have been noted to readily use man-made nesting boxes. Males search out and sometimes even defend a cavity, and later present it to a potential mate. Clutches usually contain 4 to 5 eggs. Chicks are altricial, meaning they are helpless for a couple weeks after hatching and must be fed and cared for. The American kestrel is declining in some areas of North America, including the Pacific Coast and Florida, where it is listed as threatened. The decline in these areas can be attributed to poor habitat quality with a lack of nesting cavities, early successional cover, and food resources.

Habitat requirements

Diet: primarily insects and small mammals associated with open areas

Water: obtain necessary water from diet and do not need water for drinking

Cover: nest in tree cavities and other sites including holes in cliffs, canyon walls, and artificial nest boxes

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation competes with native plant species and reduces habitat quality for kestrels or their prey

Create Snags: where needed for perches and increase potential nest cavities

Field Borders: to increase cover for prey around row crop fields

Livestock Management: to prevent overgrazing and maintain sufficient cover for prey and maintain early succession vegetation with scattered shrub cover

Nesting Structures: can be used where a lack of natural nesting cavities is limiting the population; nest boxes can be placed on fence posts in open areas, and even on the back of road-side signs in open landscapes



Robert Burton



Plant Native Grasses and Forbs: where necessary to provide desirable cover for prey

Plant Shrubs: in large open areas where shrub cover is limiting

Plant Trees: where trees are lacking for future perching sites and cavities for nesting

Set-back Succession: *Prescribed Fire, Chaining, Drum-chopping, and Herbicide Applications* can maintain shrub cover and stimulate herbaceous cover; *Dozer-clearing* and *Root-plowing* can be used to convert forest to early succession

Tillage Management: will facilitate hunting prey when waste grain is available

Wildlife or Fish Survey: observation counts, point counts, and nest box usage rates may be used to estimate trends in populations

Blue-winged teal

General information

The blue-winged teal is a relatively small dabbling duck associated with ephemeral wetlands, inland marshes, lakes and ponds. They inhabit shorelines more than open water and primarily nest within a few hundred feet of wetlands in the prairie pothole ecoregion of the northern Great Plains. Nests are found primarily in dense grassland cover. Hayfields sometimes will be used for nesting if adequate grass stubble remains. Blue-winged teal are surface feeders and prefer to feed on mud flats or in shallow water where floating and shallowly submerged vegetation is available, along with abundant small aquatic animal life. Shallow wetlands with both emergent vegetation and open water are required for brooding cover. During spring and fall migration, shallow wetlands and flooded fields are used for loafing and feeding. Blue-winged teal begin fall migration before any other waterfowl. They winter along the Gulf Coast in the Deep South and in Central and South America.

Habitat requirements

Diet: aquatic vegetation, seeds and aquatic insects; feeding primarily confined to wetlands

Water: relatively shallow wetlands required for brood rearing, feeding, and loafing

Cover: dense native grass cover used for nesting; brooding cover consists of a mix of open water and emergent vegetation

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to compete with native vegetation and degrade habitat quality

Leave Crop Unharvested: to provide additional food if the grain can be shallowly flooded

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

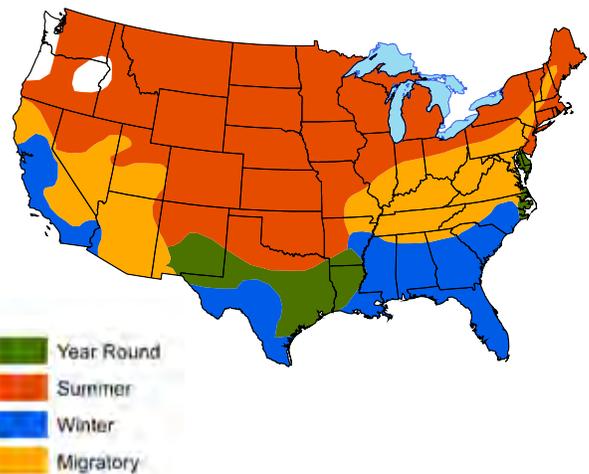
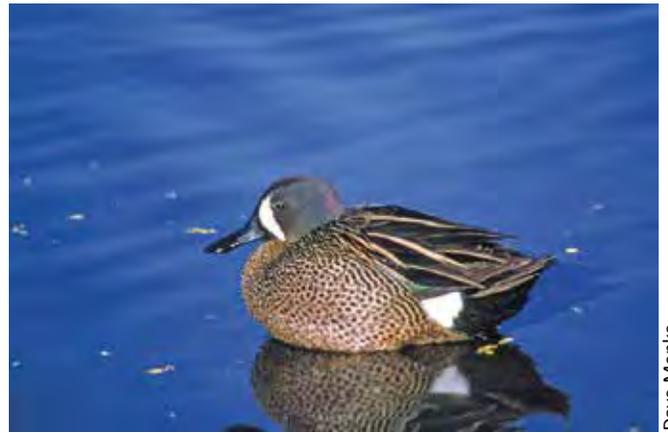
Plant Food Plots: can provide additional food resources during migration and winter if the area is shallowly flooded when the ducks arrive

Plant Native Grasses and Forbs: for nesting cover where suitable cover is lacking

Repair Spillway/Levee: if not functioning properly

Set-back Succession: *Prescribed Fire, Disking, and Herbicide Applications* can be used to maintain wetlands and associated upland nesting cover in the desired structure and composition

Tillage Management: delaying cropland tillage, especially wheat, in spring may allow nesting in standing stubble



Water Control Structures: if none present to allow managers to manipulate water levels in wetlands as needed

Water Developments for Wildlife: flooded fields provide important areas for teal during migration; constructing small dikes for temporary flooding provides shallow sheet-water teal prefer for feeding and loafing

Wildlife or Fish Survey: flush counts can provide estimates of nesting teal

Lark bunting

General information

Lark buntings are found in the Great Plains and the arid Southwest. They prefer shortgrass prairies during the breeding season, but also are found in mixed grass prairies. They nest on the ground, usually under a shrub. Nests contain 2-6 eggs. Lark buntings feed on the ground in open areas, and avoid foraging under cover. Lark buntings migrate into the southern Great Plains and Mexico during winter where they frequent grasslands, deserts, shrublands, and cultivated fields.

Habitat requirements

Diet: insects are the primary item in the diet, but seeds, soft mast, and grain are consumed as well, especially during winter

Water: necessary water is obtained from food

Cover: adequate grass cover is necessary, particularly during the nesting season

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative vegetation begins to compete with native vegetation and reduce habitat quality for lark buntings; sod grasses are problematic because they can limit mobility of lark buntings while foraging

Delay Crop Harvest: delaying hay harvest until after nesting season can increase nesting success

Livestock Management: grazing should be managed so that adequate nesting cover is available

Plant Native Grasses and Forbs: may be necessary to restore native cover where native grasslands have been converted to nonnative species

Set-back Succession: *Prescribed Fire* is critical for maintaining native prairie for this and many other grassland birds; *Chainsawing* may be used to clear trees; *Herbicide Applications* may be used to kill trees; *Prescribed Fire*, *Chaining*, *Root-plowing*, and *Drum-chopping* may be used to set-back shrub cover and stimulate herbaceous groundcover

Wildlife or Fish Survey: point counts are used to monitor populations



James W. Arterburn



Mallard

General information

The mallard is a migratory waterfowl with one of the most extensive breeding ranges of any duck in North America, extending across the northern one-third of the U.S., and up to the Bering Sea. Mallards winter south of Canada, throughout the U.S. and south to Central America. Mallards nest in tall grasses and forbs or in shrubby cover. They need open water with associated emergent aquatic vegetation to raise young. They may be found in any type of wetland with standing water and also use various upland vegetation types for foraging, especially harvested grain fields. Mallards are dabbling ducks, which means they feed at or near the surface of the water by filtering food items, such as invertebrates, seeds, and other plant material. Dabbling ducks are often seen tipping upside down in the water to reach food at the bottom of a wetland. Unlike diving ducks, they feed in much shallower water and do not dive to obtain food. Mallards have become a nuisance in some areas, particularly urban and suburban parks with ponds where they are fed. Mallards may breed with domestic ducks and with other wild duck species, especially the American black duck.



Donna Dewhurst



Habitat requirements

Diet: aquatic plants, insects and other invertebrates, hard mast (especially acorns), grains and other seed are primary components in the diet; ducklings eat mostly aquatic insects

Water: see cover requirements below

Cover: nest in grass and forbs and sometimes in shrub cover, preferably within one-half mile of a wetland that provides open water with some emergent aquatic vegetation; brooding cover is open water with considerable emergent aquatic vegetation for protection from predators; ideally, wetlands have a minimum of 50 percent open water and 10 to 20 percent emergent vegetation; in wintering areas, mallards often loaf on more open water, such as warm-water sloughs, streams, rivers, and flooded fields

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive species, such as purple loosestrife, water hyacinth, parrotfeather, hydrilla, and reed canarygrass, begin to reduce habitat quality for mallards

Delay Crop Harvest: (in some ecoregions) hay and crop harvest adjacent to wetlands should be conducted after nesting season

Forest Management: (in some ecoregions) *Forest Stand Improvement* can favor mast-producing species, especially oaks, in bottomland hardwoods that can be flooded to increase mast production

Leave Crop Unharvested: unharvested grains, such as corn, to provide a winter food source; this does not apply

to hay forages or soybeans

Livestock Management: livestock should be excluded from nesting areas

Plant Food Plots: shallowly flooded grain plots can provide an important food source for migrating and wintering mallards

Plant Native Grasses and Forbs: (in some ecoregions) where nesting cover is limiting and planting is necessary to increase coverage of native grasses and forbs

Repair Spillway/Levee: if not functioning properly

Set-back Succession: *Prescribed Fire* should be used to rejuvenate dense vegetation in nesting areas and to increase or maintain proper water and vegetation interspersions in emergent wetlands that become dry in summer; *Disking* emergent wetlands and fields that will be flooded later will stimulate annual grasses and forbs that are important food plants; *Herbicide Applications* can be used to control unwanted woody species; *Chainsawing* can be used to create openings in bottomland forests that can be flooded

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

Water Control Structures: should be used to control water level in wetlands managed for mallards and other wildlife

Water Developments for Wildlife: shallow impoundments can be used to flood grain fields and bottomland hardwoods in winter to provide a valuable food source and loafing areas

Wildlife or Fish Survey: aerial surveys are commonly used to estimate trends in the mallard population

Mourning dove

General information

Mourning doves may be found throughout much of the lower 48 states. They prefer areas of annual and perennial grasses and forbs for feeding with some shrubs and trees nearby for perching, nesting, and roosting. Interspersed bare ground is an important component of foraging sites because mourning doves do not scratch in the litter to find seed. Bare ground is also beneficial for doves to obtain grit (small gravel) to help in digesting food. Nests are made of twigs and placed on branches of shrubs or trees. Nests also may be placed on the ground in areas where trees are generally lacking. Mourning doves often use agricultural areas for feeding on a variety of grass and forb seeds. They also forage on waste grain from cropland and livestock feedlots. Mourning doves prefer shallowly sloping or flat shorelines without vegetation for drinking.

Habitat requirements

Diet: a variety of grass and forb seeds, as well as several agricultural grains; small areas of bare ground are beneficial for obtaining grit (small gravel) to help digest food

Water: freestanding water required daily

Cover: shrubs and trees are used for nesting and loafing; areas with open ground space required for foraging

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to compete with native vegetation and reduce habitat quality for mourning dove; sod grasses, such as tall fescue and bermudagrass, are particularly problematic because they have no food value and their structure at ground level limits mobility of ground-feeding doves and their ability to search for seed

Delay Crop Harvest: (in some ecoregions) in spring to avoid nest destruction

Leave Crop Unharvested: for a variety of small grain crops, such as wheat, millets, grain sorghum, corn, and oats, to provide additional food resource

Livestock Management: should prevent overgrazing, which can eliminate preferred forbs that produce seed for mourning dove; in some cases, livestock can be used to reduce vegetation height and increase bare ground; livestock should be excluded from food plots

Plant Food Plots: grain plots may be planted in areas where food is lacking and to facilitate recreational hunting

Plant Native Grasses and Forbs: where food may be limiting, especially to increase some of the many native forbs that are extremely important sources of seed for mourning dove

Plant Shrubs: (in some ecoregions) to provide nesting, roosting, and loafing sites in areas where shrub/tree cover is limiting



Dave Menke



Plant Trees: (in some ecoregions) to provide nesting, roosting, and loafing sites in areas where shrub/tree cover is limiting

Repair Spillway/Levee: if not functioning properly

Set-back Succession: *Disking, Prescribed Fire,* and *Herbicide Applications* can be used to maintain annual forbs and grasses and provide bare ground; *Chaining, Drum-chopping, Root-plowing, Herbicide Applications,* and *Prescribed Fire* may be used to reduce shrub cover; *Chainsawing, Dozer-clearing,* and *Root-plowing* may be used to remove trees and clear forests and promote early successional plant communities

Tillage Management: tillage may be eliminated in the fall to allow access to waste grain; tillage may be delayed in spring (in some ecoregions) to allow nesting in standing stubble (especially wheat)

Water Control Structures: should be installed if none are present in existing dams or levees to allow water level manipulation

Water Developments for Wildlife: where water is limiting, small ponds, shallow impoundments, guzzlers, and windmills may be created or installed to provide freestanding water

Wildlife or Fish Survey: point counts and observation counts are commonly conducted to estimate trends in populations

Northern harrier

General information

Northern harriers are medium-sized hawks that occur throughout North America. They nest throughout Canada and Alaska and much of the western U.S., and winter throughout most of the U.S. Northern harriers are found gliding low over grassland, croplands, and open wetlands searching for prey. They nest on the ground in grasslands and emergent marshes. The nest contains 4-5 eggs and they raise one brood per year. Males are mostly gray, whereas females are mostly brown.

Habitat requirements

Diet: small mammals, especially rodents, but also rabbits; songbirds and sometimes ducks

Water: necessary water obtained from diet

Cover: large, undisturbed grasslands and emergent wetlands

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to compete with native vegetation and reduce habitat quality for northern harriers and their prey; sod grasses on upland sites are particularly problematic

Delay Crop Harvest: hay harvest should be delayed until midsummer if possible to avoid ground nests

Leave Crop Unharvested: to encourage prey availability in fall and winter

Livestock Management: grazing should be managed to maintain a diverse vegetation structure conducive to prey and hunting efficiency for northern harrier

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

Set-back Succession: *Prescribed Fire* should be used to rejuvenate and maintain grasslands and wetlands when conditions permit; *Chaining* and *Drum-chopping* can be used to reduce shrub cover and encourage more herbaceous groundcover; *Chainsawing*, *Dozer-clearing*, and *Root-plowing* can be used to convert forest and extensive shrubland to more open grassland and early successional cover; *Herbicide Applications* can be used to reduce shrub and tree cover and encourage more open grassland

Tillage Management: delay fall tillage to facilitate hunting prey when waste grain is available

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



Greg Lavaty



Scaled quail

General information

Scaled quail are found in arid grasslands with a shrub, cactus, and yucca component in the southwestern U.S. Sparse herbaceous cover characterizes the arid environment in most years. However, areas with abundant cover have higher scaled quail densities. A variety of shrub species provide important escape and loafing cover, though scaled quail will avoid areas where shrubs exist in high densities. Proper grazing management is an important component in maintaining habitat for scaled quail. They nest on the ground, usually under relatively dense, low-growing shrub or grass cover

Habitat requirements

Diet: various seeds of forbs and shrubs are major components of diet; insects are readily consumed and are critical for chick survival; green herbaceous material and soft mast of various native plants also are consumed
Water: necessary water may be obtained from diet; however, free-standing water from ponds, tanks, and streams may increase survival during drought years
Cover: brushy cover (shrubs or cacti) overhead with an open structure at ground level is critical, particularly for nesting; scattered patches of shrub and cactus with a good cover of native warm-season grasses and forbs provide excellent cover

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for scaled quail; cheat grass and other bromes, weeping and Lehman lovegrass, and Old World bluestems are various plants that may be problematic
Field Borders: to increase usable space around crop fields
Leave Crop Unharvested: to provide additional food source through winter
Livestock Management: should not allow overgrazing to limit herbaceous cover
Plant Native Grasses and Forbs: where nesting and brood cover is lacking and planting is necessary
Plant Shrubs: where there is less than 60 percent shrub cover
Set-back Succession: *Prescribed Fire* may increase herbaceous cover needed for food and cover; *Chaining*, *Drum-chopping*, and *Disking* can be used to reduce or thin shrub cover if needed and if increased herbaceous groundcover is needed
Tillage Management: to provide waste grain
Water Developments for Wildlife: guzzlers and dugouts can provide supplemental water, especially in drought years



Greg Lavaty



Decrease Harvest: may be necessary if populations are declining and data suggest mortality from hunting is additive or limiting population growth
Wildlife or Fish Survey: aerial or ground transects are used to estimate population trends

Sharp-tailed grouse

General information

Sharp-tailed grouse are gamebirds of the northern Great Plains. Ideal habitat contains about two-thirds native grassland interspersed with shrubs, cropland, and scattered trees. Sharp-tailed grouse require bare or grassy ridges and natural rises that offer good visibility for breeding displays. Sharp-tailed grouse gather on these sites in the spring where males dance in front of the females to attract a mate. These areas are called “dancing grounds.” It is important to maintain areas of thick grass and shrub cover within several miles of dancing grounds.

Habitat requirements

Diet: young grouse eat insects and small seeds; adults eat a variety of leaves, buds, seeds, and grains; buds of shrubs and small trees are most important during winter

Water: necessary water is obtained from diet

Cover: nests are on the ground in grass or sparse shrub cover; thick shrubs and tall herbaceous vegetation is required for winter cover; tall dense vegetation associated with wetland edges also is used for winter cover

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for sharp-tailed grouse

Delay Crop Harvest: delaying hay harvest until after nesting season (June) can increase nesting success

Field Borders: to increase usable space around crop fields

Leave Crop Unharvested: to provide additional food source through winter; alfalfa, sunflowers, and grain sorghum are often used

Livestock Management: should maintain a diverse structure throughout the grassland; some dense grassland areas should be maintained to provide nesting cover; more sparse areas containing forbs and insects should be adjacent to nesting areas for brood cover; on sandy soils, both of these conditions may be present together; proper stocking rate is critical; delay grazing on portions of grasslands to provide tall undisturbed cover during the primary nesting season (May-June)

Plant Food Plots: food plots containing alfalfa or sunflowers may be planted where winter foods may be limiting or to enhance hunting opportunities

Plant Native Grasses and Forbs: where high-quality native grassland habitat does not comprise at least 60 percent of the area; should be recommended only on sites where planting is necessary to establish native grass cover



Richard Baetsen



Plant Shrubs: small groups of shrubs may be planted in natural draws and idle land areas where cover and winter food may be limiting; woody cover should not be planted on upland sites that historically did not support woody cover

Set-back Succession: *Prescribed Fire* is recommended to increase grassland vigor, which will increase availability of insects and seeds; *Chainsawing* and *Herbicide Applications* can be used to remove trees

Tillage Management: grain stubble should be left through winter to provide a food source; stubble height of 6 inches or more is preferred

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

Wildlife or Fish Survey: observational surveys, especially on dancing grounds in the spring, are used to estimate population trends

Black-tailed prairie dog

General information

The black-tailed prairie dog is the most widely distributed of the North American prairie dogs. They live in densely populated colonies (20 to 35 per acre) among subterranean burrows in grassland or sparse shrubland communities. Some areas of colonies will be bare ground where there is a high prairie dog density. They often establish colonies near intermittent streams, water impoundments, homestead sites, corrals, and windmills. They do not tolerate tall vegetation well—they avoid brush and timbered areas. In tall and mixed-grass rangelands, prairie dogs have a difficult time establishing a colony unless large grazing animals (bison or livestock) have closely grazed the vegetation. Prairie dogs often select heavily grazed or trampled areas. Periodic disturbance, such as grazing, is required to maintain suitable conditions for prairie dogs, particularly in areas where rainfall is sufficient to support shrub and tree cover. Prairie dogs occupied up to 700 million acres of western grasslands in the early 1900s. In Texas, the largest prairie dog colony on record measured nearly 25,000 square miles. Since 1900, prairie dog populations have been reduced by as much as 98 percent in some areas and eliminated in others. Today, only about 2 million acres of prairie dog colonies remain in North America. Colonies must be linked to other adjacent colonies (generally less than 1 mile) as colonies periodically move or disappear only to be repopulated by nearby colonies. Therefore, multiple adjacent colonies are critical for long-term population persistence. Although prairie dogs can cause substantial damage to agriculture, prairie dogs are a keystone species on native range and part of a healthy range system. The loss of prairie dog colonies affects many other plant and animal species.

Habitat requirements

Diet: green grasses and forbs

Water: necessary water is obtained from diet

Cover: open grassland with relatively short vegetation; burrows provide escape cover

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for black-tailed prairie dogs

Livestock Management: grazing can promote suitable grassland structure for prairie dogs

Plant Native Grasses and Forbs: where planting is required to provide forage where limited



Elise Smith



Set-back Succession: *Prescribed Fire* is used to maintain grasslands; *Chaining*, *Drum-chopping*, and *Root-plowing* can be used to reduce shrub cover and promote grass/ forb community

Decrease Harvest: on native range where shooting or other population reduction methods have reduced prairie dog colonies to the point where they are approaching unsustainable levels

Increase Harvest: where populations can withstand increased hunting for recreation; can be used to limit population growth where additional prairie dogs are not desired

Wildlife Damage Management: registered control techniques, such as toxicants (toxic baits), fumigants, and shooting can be used to reduce populations where damage is occurring to agricultural interests

Wildlife or Fish Survey: observation counts, aerial surveys, and extent of colonies are used to estimate population trends

Coyote

General information

Coyotes are found throughout the continental U.S. and have even been observed in large cities and urban areas. Grasslands, shrubland, and farmland provide optimal habitat for coyotes, but they also use forested areas as well. Coyotes den in a variety of places, including brush-covered slopes, steep banks, rock ledges, thickets, and hollow logs. Coyotes are most active at night, during early morning, and around sunset, but they may be active throughout the day. Coyotes live in packs, alone, or in mated pairs, depending on the time of year. Coyotes have an extremely varied diet that fluctuates with the seasons.

Habitat requirements

Diet: rodents, rabbits, and other small mammals, insects, birds, eggs, deer, carrion, and soft mast; livestock and wild ungulates (deer, elk, pronghorn) usually are represented in coyote stomachs as carrion; however, in some cases, coyotes prey heavily on deer and pronghorn fawns, and can limit reproductive success in some situations

Water: requirements are not well documented; necessary water probably is obtained in diet

Cover: grasslands, shrublands, regenerating forest, mature forest; crevices and burrows along river banks, rock ledges, brushpiles, and holes under stumps or abandoned buildings are used as den sites for raising pups

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation reduces habitat quality for coyote prey species

Edge Feathering: (in some ecoregions) to increase cover and food availability for prey species around fields

Field Borders: to increase usable space for prey species around fields

Forest Management: (in some ecoregions) *Forest Regeneration (Clearcutting, Shelterwood, Seed-tree, Group Selection)* and *Forest Stand Improvement* can improve habitat for prey and lead to more abundant prey

Livestock Management: should maintain adequate cover for prey species

Plant Native Grasses and Forbs: where additional early successional cover is needed for prey and planting is necessary

Plant Shrubs: in areas where additional shrub cover is needed to attract prey and provide security cover for coyotes

Set-back Succession: *Prescribed Fire, Disking, Chaining,* and *Herbicide Applications* are recommended to maintain



Steve Thompson



herbaceous openings; *Prescribed Fire* can be used to enhance forest understory structure and composition; *Chainsawing* can be used to create additional forest openings where necessary

Decrease Harvest: where hunting or trapping has limited population and additional coyotes are desired to control a prey species that is overburdened

Increase Harvest: through hunting or trapping where coyote populations need to be lowered

Wildlife Damage Management: may be necessary where livestock or pet depredation is a problem

Wildlife or Fish Survey: track counts, trapper harvest data, and camera surveys are used to estimate population trends

NOTE: Situations in which landowners would manage for coyotes are exceptionally rare. However, the coyote is a native predator and plays an important role in many ecosystems. Although management is rarely, if ever, implemented to promote coyotes, management for their prey helps both prey populations and coyote populations and promotes a healthy ecosystem.

Pronghorn

General information

Pronghorns are hooved ungulates found in open prairie and sagebrush desert of the western U.S. Although somewhat similar in appearance, the pronghorn is not an antelope, goat, or deer. The pronghorn is the second-fastest land mammal in the world, reaching a top speed of about 55 mph (cheetahs can run short distances up to 75 mph). Both the male and female pronghorn have horns that are covered in a black keratin sheath, which is shed annually. The sheath curves backward and has a prong which points forward (hence the name, pronghorn). Pronghorns of females are much smaller than those of males. According to location, some pronghorn populations migrate long distances between their summer and winter ranges. Corridors that allow safe passage are a management concern for migrating pronghorn. Pronghorns are generally tan with white markings on the face, neck, stomach, and rump. When alarmed, pronghorn often raise the white hairs on their rump to signal danger to other pronghorn. Pronghorns have fantastic vision, which helps them identify predators in the open country they inhabit.

Habitat requirements

Diet: varies with season; grasses, forbs, and cacti in spring and summer; primarily browse in winter

Water: free-standing water is required

Cover: native grassland and desert sagebrush with flat to rolling terrain that allows long-range visibility

Wildlife management practices

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

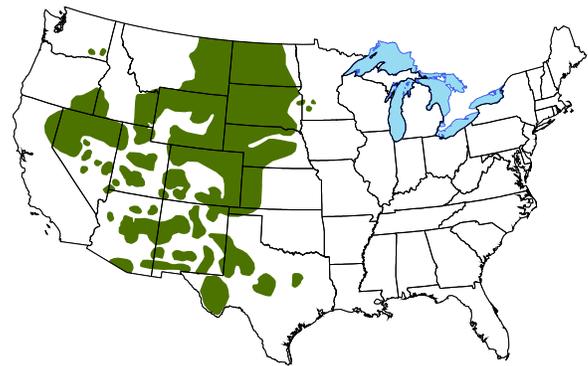
Livestock Management: should maintain appropriate stocking rate to prevent overgrazing and maintain adequate herbaceous groundcover; fencing should be kept to a minimum with at least 16 inches between the ground and the bottom wire, which should be smooth, not barbed; the top wire should not be more than 42 inches aboveground; large blocks of rangeland should be maintained, and no more than 30 percent of a management area should be cropland

Plant Food Plots: in areas where there is adequate rainfall, food plots can provide high-quality forage, such as alfalfa, for increased nutrition

Plant Native Grasses and Forbs: where herbaceous vegetation is lacking and planting is required to establish desirable groundcover



James C. Leupold



Set-back Succession: Prescribed Fire, Chaining, and Root-plowing are recommended to stimulate additional herbaceous groundcover in large expanses of shrubland

Water Developments for Wildlife: where water is limited or absent within two miles, development of dugouts, windmills, and spring developments is warranted

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 where populations need to be lowered

Wildlife Damage Management: may be necessary in areas where crop damage is occurring

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

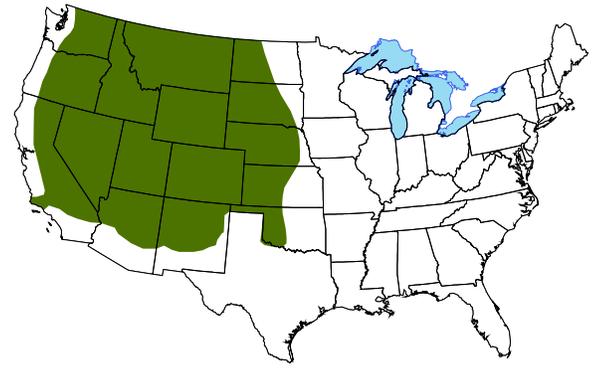
Rocky Mountain mule deer

General information

Rocky Mountain mule deer, a subspecies of mule deer, occur in western North America (from Oklahoma to California and northward to Northern Canada), just north of the range of the desert mule deer. They are adapted to a wide range of



Tupper Ansel Blake



western plant communities from prairie to alpine to semi-desert, but prefer a mixture of early successional areas with scattered shrubs and mature forest. Mule deer are ruminants (animals with a four-chambered stomach) and are adapted to eat higher-quality forages, more often than other ruminants (such as elk or cattle). Rocky Mountain mule deer that occupy ranges with high elevations migrate to lower elevations in winter for access to preferred forage, avoidance of deep snow cover, and protection from cold winds. Mule deer can cause significant damage (ornamental plantings, forest crops, and row crops) when overabundant and can be hazardous for motor vehicles.

Habitat requirements

Diet: forbs, browse, soft mast, grains, and grasses

Water: free-standing water is required nearly daily in dry ecoregions and during summer; water should be available within one mile

Cover: dense woody vegetation and relatively tall early successional cover, including native grasses, forbs, and shrubs; rock outcrops and ravines for loafing cover; in the *Intermountain* ecoregion, 50 percent young and mature forest, well interspersed with herbaceous and shrubby cover is optimal

Wildlife management practices

Control Nonnative Invasive Vegetation: if nonnative invasive plants are competing with native vegetation and reducing habitat quality for Rocky Mountain mule deer

Edge Feathering: (in some ecoregions) to create an ecotone between openings and forest that will provide increased browse and enhance fawning cover

Field Borders: (in some ecoregions) to increase fawning cover and forage availability around row-crop fields

Forest Management: (in some ecoregions) *Forest Regeneration (Clearcut, Shelterwood, Seed-tree, Group Selection)* can stimulate herbaceous cover and provide additional brushy cover for a few years; *Forest Stand Improvement* can stimulate additional herbaceous cover and browse in the understory where needed

Leave Crop Unharvested: (in some ecoregions) to provide additional food resource, especially near cover

Livestock Management: grazing intensity should be managed to maintain forbs for forage, adequate cover for fawning, and shrubs and young trees for browse and cover;

livestock should be excluded from forests to prevent destruction of the understory where mule deer is a focal species; livestock watering facilities may be necessary in uplands to discourage congregation in and overuse of riparian areas; livestock should be excluded from food plots

Plant Food Plots: (in some ecoregions) where naturally occurring food resources are limited; food plots may provide additional nutrition, particularly during late summer and winter in some areas

Plant Native Grasses and Forbs: where planting is necessary to increase grasses and forbs for forage and cover

Plant Shrubs: where additional shrub cover and browse is needed

Plant Trees: (in some ecoregions) where additional forest cover is needed

Set-back Succession: *Prescribed Fire, Disking, and Herbicide Applications* is recommended to maintain herbaceous cover and revert shrubby areas and young forest back to herbaceous vegetation; *Prescribed Fire* also to stimulate the understory for increased forage and soft mast in young and mature forests; *Chainsawing, Dozer-clearing* and *Root-plowing* may be used to create additional open 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 water is limited or absent (within one mile), ponds and shallow impoundments can provide an external water source for drinking

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 populations need to be lowered

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 is recommended when local overabundance is causing crop depredation and increasing vehicle collisions

Wildlife or Fish Survey: spotlight surveys, camera surveys, and hunter harvest data help assess population trends

Plains hog-nosed snake

General information

Plains hog-nosed snakes are characterized with dark blotches down a pale tan or yellowish back with a strongly upturned, pointed snout. They are relatively thick, heavy-bodied snakes, reaching 2-3 feet in length. Plains hog-nosed snakes prefer shrubby flat or gently rolling prairies with loose, sandy soil. They use their snouts to burrow into loose soil to find food and spend the winter. Often these sandy sites are characterized by sparse vegetation in most years. Plains hog-nosed snakes have slightly toxic saliva that is not dangerous to humans, but it helps hog-nosed snakes subdue prey. Hog-nosed snakes are masters at bluff behavior. When threatened, they will flatten their heads, giving a hood appearance, similar to a cobra. Then, they often inflate themselves with air and slowly release the air with a hissing noise, similar to a rattlesnake. They may strike, but usually with a closed mouth! It is actually difficult to get a plains hog-nosed snake to bite in self-defense. It will turn over on its back, thrash back and forth, open its mouth and stick its tongue out, and feign death, while upside down.



Gary M. Stolz



Habitat requirements

Diet: mostly toads, but also other reptiles, birds, mice, and eggs

Cover: grasslands and shrubland

Water: necessary water obtained from diet

Wildlife management practices

Control Nonnative Invasive Vegetation: when nonnative invasive vegetation begins to reduce habitat quality for plains hog-nosed snakes

Livestock Management: should prevent overgrazing and leave adequate cover for prey

Plant Native Grasses and Forbs: in open areas where groundcover is lacking and planting is necessary

Set-back Succession: *Prescribed Fire* and *Chaining* are recommended to reduce woody vegetation where needed and maintain native shortgrass prairie; it is important these practices occur during the inactive season to minimize negative effects on snakes

Wildlife or Fish Survey: transect surveys are used to estimate population trends

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

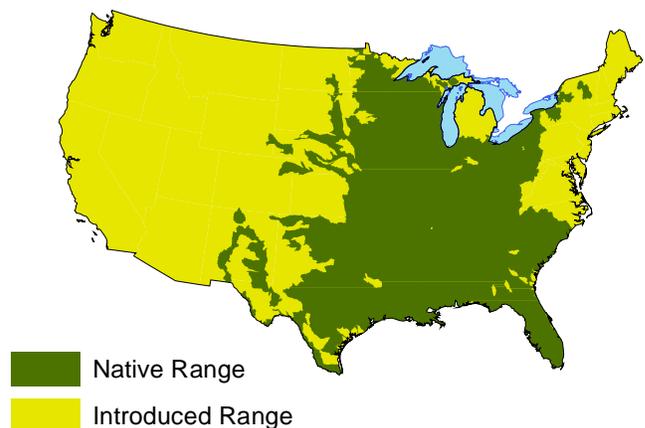
Construct Fish Pond: where no suitable water source is present or where an existing fish pond needs extensive repair, especially to the dike or dam

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



Eric Engbretson



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

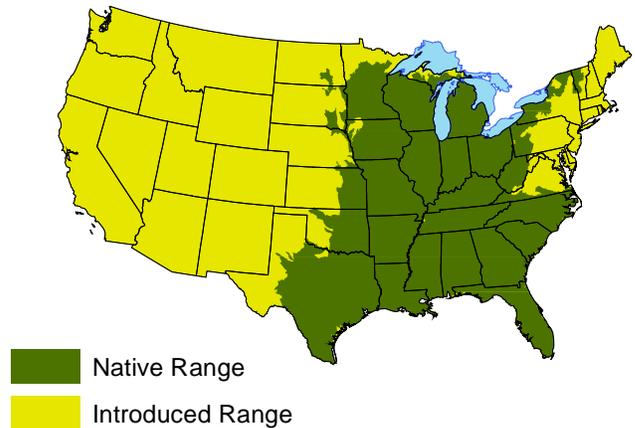
Wildlife or Fish Survey: fishing records, seining, and electro-shocking are used to survey largemouth bass populations

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