

# Population Management Practices

## Decrease Harvest

### General description

Regulated hunting, trapping and fishing regulations are primary tools used to manage many wildlife and fish species. State and federal wildlife agencies set regulations for hunting, trapping, and fishing seasons and bag and creel limits. Landowners can choose to take the maximum allowed or less than that, depending on local populations and personal management objectives.

### Gamebirds and mammals

Decreasing harvest may be necessary when data indicate populations are declining, especially in areas with good habitat. However, harvest through hunting and trapping is seldom the reason for declining wildlife populations. Rather, habitat quality is usually the reason for widespread low or declining populations. If food, cover, water, or space is limiting, populations may remain low or decline. Appropriate habitat management practices should enhance habitat and allow populations to stabilize or increase.

Disease and, less often, unsustainable mortality from predation are other reasons for low or declining populations. If populations are low or declining because of predation, it is likely related to habitat (poor-quality cover) or possibly an abnormally high predator population. In this scenario, habitat management and possibly a reduction in the predator population can address low or declining gamebird or mammal populations. Possible examples, though relatively rare, include abnormally high predation rates on deer fawns by coyotes or abnormally high predation rates on wild turkey eggs and poult from raccoons.

**NOTE: *Decrease Harvest*** is not an option for migratory species, such as waterfowl and mourning dove, because the U.S. Fish and Wildlife Service sets bag limits and individual landowners cannot influence population levels of migratory species.

### Largemouth bass/bluegill

#### ***Balanced bass/bluegill populations***

*Documented via seine sampling:* Young largemouth bass present. Many newly hatched bluegills and some intermediate (3-5 inches) bluegill present.

*Documented via angler sampling:* Proportional Size Distributions (PSDs) – Between 40 percent and 70 percent of 8 inch or larger largemouth bass caught are at least 12 inches long and 40 percent to 60 percent of 3 inch or larger bluegill caught are at least 6 inches long.

#### ***Decrease bass harvest when:***

Seine sampling reveals young bass may or may not be present, many intermediate-sized bluegills in poor condition but no recent hatch of bluegills. If angling reveals few bass present but > 60 percent of the bass caught are at least 12 inches long while < 50 percent of bluegill are at least 6 inches long, return all bass. The lack of bluegill reproduction and poor condition of intermediate bluegill suggests the bluegill population may be too high and food is a limiting factor. Reduce bass harvest (catch and release is ok) to increase predation pressure on intermediate-sized bluegills.

#### ***Decrease bluegill harvest when:***

Seine sampling reveals no young bass present and many recently hatched bluegills but few intermediate bluegills present. If angling reveals < 20 percent of bass caught are at least 12 inches long and > 80 percent of bluegill are at least 6 inches long, return all bluegill. Assess if other species of fish (such as green sunfish) may be competing with bluegill and if so, consider draining or renovating pond and restocking.

### Channel catfish

As angler catch rates of channel catfish decline, impoundments are usually restocked with additional fingerlings (rather than reduce harvest) in order to maintain angling opportunities.

### Coho salmon

A number of populations of Coho salmon in the southern portion of its range are in decline and have been listed as federally endangered or species of concern; therefore harvest is not allowed.

### Cutthroat and Rainbow trout

Decrease trout harvest when seine and fishing records of a pond reveal that fish are in good condition and there are few medium and large fish and many small fish.

## Increase Harvest

### General description

Regulated hunting, trapping and fishing regulations are primary tools used to manage many wildlife and fish species. It is the responsibility of state and federal wildlife agencies to set hunting, trapping, and fishing seasons and bag and creel limits. Landowners can choose to take the maximum allowed or less than that, depending on local populations and personal management objectives.

### Gamebirds and mammals

Increased harvest of gamebirds and mammals may be needed when animals show signs of stress and overpopulation, such as destruction of habitat by overgrazing or overbrowsing, poor body condition and weight loss, low reproductive rate, and increase in prevalence of parasites and diseases. Regulated hunting and trapping is the most effective and efficient practice to remove surplus animals and keep wildlife populations in balance with available habitat. When scientific data indicate animals are above carrying capacity, it is often necessary to increase harvest. Increased harvest through regulated hunting or trapping also can be used to reduce numbers of a particular game species if that species is causing damage to another species. Examples may include increased harvest of raccoon if they are limiting wild turkey recruitment, increased harvest of coyotes if they are limiting white-tailed deer recruitment, or increased harvest of white-tailed deer if they are degrading habitat for various forest songbirds. See **NOTE:** under **Wildlife Damage Management Techniques** on page 243 for discussion on determining whether to recommend **Increase Harvest** or **Wildlife Damage Management Techniques**.



*Increased harvest may be necessary where populations approach or exceed carrying capacity of the area being managed. When population reduction for white-tailed deer is necessary, the harvest should concentrate on females which will reduce animal numbers and can adjust the sex ratio.*

**NOTE:** **Increase Harvest** is not an option for migratory species, such as waterfowl and mourning dove, because bag limits are set by the U.S. Fish and Wildlife Service and individual landowners cannot influence population levels of migratory species.

### Largemouth bass/bluegill

#### **Balanced bass/bluegill populations**

*Documented via seine sampling:* Young largemouth bass present. Many newly-hatched bluegills and some intermediate (3-5 inches) bluegill present.

*Documented via angler sampling:* Proportional Size Distributions (PSDs) – Between 40 percent and 70 percent of 8 inch or larger largemouth bass caught are at least 12 inches long and 40 percent to 60 percent of 3 inch or larger bluegill caught are at least 6 inches long.

#### **Increase bass harvest when:**

Seine sampling reveals young bass may or may not be present, but there are many recently hatched bluegills and few or no intermediate-size bluegills. If angling reveals < 20 percent of the bass caught are at least 12 inches long and in poor condition, and > 50 percent of bluegill are at least 6 inches long, increase harvest of bass < 12 inches beginning with 10-20 per surface acre per year. The increase in bass harvest will reduce competition for food among small bass and allow the remaining small bass to grow more quickly making more of the forage resource available to them (bass can only swallow bluegill about one-third of their length, for example, a 12-inch-long bass can only consume bluegill < 4 inches long).

**NOTE:** This existing pond scenario is desirable if the pond owner is willing to sacrifice bass size for a primary goal of producing large bluegill.

#### **Increase bluegill harvest when:**

Seine sampling reveals no recently hatched bluegills but many intermediate bluegills in poor condition. If angling reveals 20- to 60 percent of bass caught are at least 12 inches long but < 50 percent of bluegill are at least 6 inches long, increase intermediate bluegill harvest by angling, seining, and/or shoreline rotenone application. Increased bluegill harvest should decrease competition for food among intermediate bluegill. Make sure excessive turbidity (visibility < 15 inches) or weed growth (> 50 percent coverage of the pond) is not limiting largemouth bass access to bluegill.

### Channel catfish

Increase channel catfish harvest when angler-caught catfish are extremely thin (underweight), which is indicative of a population exceeding carrying capacity of the impoundment. Also, increase harvest whenever the

total weight of channel catfish nears or exceeds 1,000 pounds per surface acre during the summer months.

### Coho salmon

Coho salmon populations in Alaska remain robust and support thriving commercial and recreational fisheries. Harvest can be increased based on state and federal statutes when population estimates trend upward for these Alaskan populations.

### Cutthroat and Rainbow trout

Increase harvest when seine or angler harvest records reveal many small fish and in poor condition. In many areas, extremely cold water reduces trout growth. In these situations, increased harvest may not be beneficial.

## Wildlife or Fish Survey

### General description

#### Wildlife surveys

Monitoring trends of wildlife populations and physical attributes (such as body weight) is important for wildlife managers. Data on various species are routinely collected by wildlife biologists using observation counts, roadside counts, call counts, point counts, check-in stations, infrared-triggered cameras, transects, questionnaires, and other techniques. These data are used to prescribe future harvest or land management strategies.

#### Wildlife Survey Techniques

**Observation counts:** species and number of animals are recorded as they are seen. Counts may be made while conducting other activities or during official observations, such as counting ducks on a wetland

**Roadside counts:** usually involve driving a predetermined route and counting the number of individuals of a species while driving the route

**Call counts:** recording the number of individuals or groups (such as a northern bobwhite covey) of a species

while waiting and listening at a specific location

**Point counts:** recording the numbers of a species observed or heard at specific, predetermined points along a transect

**Check-in station:** data are collected from game animals when hunters bring the animals to an official check-in station, which may be at various places, such as a Wildlife Management Area or local country store

**Infrared-triggered cameras:** “trail” cameras are placed in areas where animals frequent and the pictures are used to estimate population density, sex ratio, age structure, etc.

**Transects:** predetermined routes are used to collect observation data, point counts, dropping (“pellet”) counts, call counts, etc.

**Questionnaires:** groups of people, such as hunters or school bus drivers, are asked about their observations of animals

**Harvest Trends:** if hunting/trapping efforts remain relatively constant, trends in annual harvest rates can be used to estimate trends in populations.

#### Fish surveys

Pond balance should be checked during early summer by seining at intervals around the pond. Balance is determined by comparing age groups, condition, and numbers of bass and bluegill caught in the seine during the summer months, and from year-round angler catch records. Recent young-of-the-year fingerlings of both bass and bluegill collected in the seine indicate the fish population is balanced (see **Decrease Harvest** and **Increase Harvest** sections under **WMPs** for more information). Angler catch records should be used to record the numbers, total lengths, and weights (fish caught in the fall only) of all bass and bluegill harvested. Fish caught by hook-and-line can be evaluated on body condition or Relative Weight (fat, skinny, size of head in relation to body) and population size structures based on Proportional Size Distributions. Trotlines, rod and reel, and gill nets can be used to sample channel catfish. Seining is usually not effective for collecting fish in



*Infrared-triggered cameras are a great tool to survey populations of several wildlife species.*

streams. Fish in streams are usually collected by electro-shocking or by fishing. Electro-shocking involves running a small electrical current between two conducting rods, which are moved up and down the stream. Stunned fish float to the surface and the age, condition, and numbers are recorded to determine stream balance. The fish are then returned to the stream.

Trout do not often reproduce in ponds, so overall health of the fish is used as an indicator of pond balance. Unwanted species (such as bullheads and crappie) also may be caught in the seine or when fishing, indicating the fish population may be killed (with Rotenone) or drained.

**NOTE:** Although information from wildlife and fish surveys is always important, surveys should not be recommended if information is provided by contest organizers that indicate a survey is ongoing or has been completed recently.

## Wildlife Damage Management Techniques

### General description

Wildlife managers often have to manage wildlife to control damage. Wildlife damage management is most common in urban and suburban areas where wildlife and humans frequently interact. Examples of wildlife damage include woodpeckers hammering on the side of the house; bats or squirrels in the attic; snakes in the house; deer eating ornamental plants in the yard or depredating soybean crops; bobcats, coyotes, and owls preying on livestock or pets; rabbits and raccoons eating vegetable gardens; beavers killing trees or flooding crops and roads; red-winged blackbirds eating crops; bird strikes at airports; rock pigeons defecating on buildings; starlings roosting in urban trees and defecating on sidewalks; and Canada geese loitering on lawns and golf courses.

Wildlife managers use both lethal and nonlethal methods to control these problems. Fencing and other exclusion devices, habitat modifications, harassment techniques, scare tactics (such as propane cannons, dogs), and taste and odor repellents are examples of nonlethal methods. Changing human activity also can be effective. For example, removing the dog food or bird feeder from the deck is the easiest way to keep raccoons, rodents, and other wildlife off the deck. Often, nonlethal methods do not work and lethal methods are required. Lethal methods are intended to kill wildlife quickly without suffering and may include body-gripping traps, trap-and-euthanize (put to death without pain or suffering),

shooting, and poisoning. There are advantages and disadvantages to both lethal and nonlethal management methods.

One advantage of lethal methods is they can immediately decrease the numbers of animals in a population that are causing damage or health hazards, thereby immediately reducing the damage or hazard. In some cases, only one or a few animals are causing the problem, and lethal methods can then eliminate the damage once the individual(s) causing the damage is eliminated. Nonlethal methods typically cause the animals causing the problem to move to another location. Although nonlethal methods may reduce or eliminate the problem at one location, the animal(s) causing the problem may relocate and cause the same problem at a different location. An advantage of nonlethal methods is the public better accepts them versus lethal methods and they can be more easily used in areas with high human density. Education can help the public understand the efficacy and sensibility of many lethal methods.

Regardless of the method used, there are some general guidelines that can increase the success of a wildlife damage management program. It is important to identify the species causing the damage. An integrated wildlife damage management program that employs two or more methods is strongly recommended, especially when using nonlethal methods. It is imperative to know all the local, state, and federal laws related to the species causing the problem and the wildlife damage management method(s).

**NOTE:** For the purposes of this contest, it sometimes can be confusing when deciding whether to recommend **Increase Harvest** or **Wildlife Damage Management Techniques**. If the problem is related to an overabundant population of a gamebird or mammal and hunting or trapping is allowed on the property, **Increased Harvest** should be recommended. If the problem is related to a nongame animal, or if regulated hunting or trapping is not allowed on the property, or if control is necessary outside the regulated hunting and trapping seasons, or if the problem is related to one or a few individual animals (whether game or nongame), then **Wildlife Damage Management Techniques** would be the appropriate practice to recommend. For example, if cottontails were causing problems in a garden, control would be necessary outside the regulated hunting or trapping season (fall and winter). Thus, **Wildlife Damage Management Techniques** could be recommended during spring or summer when the problem is occurring. **Wildlife Damage Management Techniques** should be used to control nongame and

nonnative species for which there is no hunting or trapping season, such as woodpeckers damaging a building or house sparrows outcompeting bluebirds.

Although not common, **Wildlife Damage Management Techniques** also could be required if increased harvest has not been effective. Situations can occur where local regulated hunting and trapping pressure is not able to effectively lower a population and professional wildlife damage management specialists are needed to address the situation. Examples may include population reduction for white-tailed deer, raccoon, coyote, and American beaver. The person in charge of the contest will give you clues as to which WMP (**Increase Harvest** or **Wildlife Damage Management Techniques**) would be most appropriate.



Jim Phillips

Coyotes play an important role as a predator. However, they can be problematic in various situations. Problems associated with livestock depredation are often a result of one or a few local individuals. Problems associated with limiting recruitment of other wildlife species, such as white-tailed deer, are more often a result of a dense coyote population. Sustained **Increase Harvest** can help lower coyote populations. **Wildlife Damage Management Techniques** are employed to target problem individuals. Regardless, trapping is usually the recommended technique for controlling coyotes.



House sparrows often displace bluebirds from nest boxes constructed for bluebirds. This invasive nonnative species should be removed whenever possible.



Dwayne Elmore

Netting can be used to protect crops, such as grapes and blueberries, from birds and other wildlife.