

Regardless of what management practice is used to reduce or eliminate wildlife damage or health hazards, there are some general guidelines that can increase the success of a wildlife damage management program. Be absolutely positive that you have correctly identified the type of wildlife causing the damage. An integrated wildlife damage management program is strongly recommended, meaning the combination of two or more wildlife damage management practices. Wildlife are very much creatures of habit, and will get used to a foreign object in their area the longer that object is left there (this is called habituation). The more diverse and varied the management techniques used, the less chance for habituation to occur and the more successful the wildlife damage management program. Another factor that will increase the success of a wildlife damage management program and combat habituation is randomness. The more random the application of the wildlife management techniques, the more the successful one will be in reducing or eliminating damage because the wildlife will never be sure when it is safe to be in the area. Not all wildlife damage management practices are equally effective or applicable in all areas; many times it is necessary to develop a wildlife damage management program specific to the area where the problem is occurring. And finally, make sure you know all of the local, state and sometimes federal laws that regulate the wildlife you are trying to manage, especially when using lethal management techniques.

Wildlife damage management may be recommended in addition to the practice of increasing bag/creel limits if individual animals are causing damage or health hazards.

- Predator control techniques like relocation, trapping, toxicants on livestock collars, and selectively shooting only problem animals are commonly used and are effective.
- Non-lethal methods of predator control include livestock confinement and herding, use of guard dogs, and the use of exclusion fences.
- Methods of controlling herbivores (deer, rabbits, etc.) include exclusion, taste and odor repellents, harassment techniques, habitat modification, changing human behaviors that attract problem-causing wildlife, and shooting. Trapping and relocating large animals like deer and elk is not cost-effective.
- Methods of bird control include exclusion, taste and visual repellents, harassment techniques, habitat modification, changing human behaviors that attract damage-causing wildlife, trapping and relocating or euthanizing, and shooting.

Knowledge Area No. 3: Wildlife Species and Habitat Needs

Participants need to know as much information as possible about the species whose habitat they will be evaluating. Refer to *Activity 1: Wildlife Identification* and the detailed information for each species. Each species has information on habitat preferences and requirements, as well as some incidental facts.

Some coaches indicate contestants have found it helpful to prepare index cards with species photos and habitat requirements in preparation for the contest. Others have worked as a team to prepare PowerPoint presentations, interactive quizzes or other learning tools.

Knowledge Area No. 4: Interpreting Wildlife Habitat from Aerial Photographs

Learning to interpret aerial photos allows participants to view areas of the state where they may not have a chance to visit personally. From topographic maps, aerial photos and satellite images they can see land forms, get an idea of the amounts and kinds of cover available, and see the availability of water. Looking closer at the maps, photos and images can show the amount and type of edge available, any barriers that might exist, agricultural fields, grassland and forest lands. Use of aerial photos before arriving at a contest site allows participants to

ground proof what they have seen on the photos. Programs like Google Earth, TerraServer and Google Maps can be helpful in understanding photos as a useful tool. Additional maps and resources can be found online through the Spatial Analysis Laboratory (SAL) at the University of Arkansas – Monticello and the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas – Fayetteville.

Contestants may be asked to:

- Identify map features from aerial photographs. Map features may include roadways, pine trees, deciduous (hardwood) trees, rivers, ponds, streams, creeks, mountains, valleys, grasslands, row crop fields, rice fields, ballparks, buildings, latitude/longitude, scale and time/date of photograph.
- Select one aerial photograph representing the best habitat for a particular wildlife species.
- Rank a set of up to four aerial photographs in relation to habitat needs for wildlife species in the region.

When looking at aerial photos, imagine how the countryside would look if you were a bird flying over it. If you have flown in an airplane, you know how it looks. The way a bird or pilot sees land is the way it appears on an aerial photograph (except in one dimension). For example, a silo appears round, buildings look like squares or rectangles, woods are rough and fields are smooth.

When reading aerial photographs, hold them so that shadows of objects fall toward the reader. Otherwise valleys appear as ridges, and vice versa. All objects are small, but you can determine what they are by comparing their size with the size of a known object. Other things that help are tone (shade of gray or color), shape and shadow. The length of shadow indicates the height of an object. The tone may vary with the seasons of the year, so it is important to recognize the season when aerial photographs were made.

Different types of contest questions can be asked using aerial photos. Contestants may be asked to identify a map feature, such as a creek, power line, deciduous trees, ponds, rivers or residential buildings. Contestants may be asked to rank two, three or four habitats, or identify which habitat is best (or least) suited for a particular species. Contestants may be provided an aerial photo or satellite image with a list of species and asked to select the species which is best suited for the habitat.

Following is a discussion about ranking four aerial photos for several wildlife species. The aerial photos can be found at the end of this section. Being able to accurately rank four aerial photographs will help prepare contestants for this portion of the contest.

- Using American kestrels, the areas would be ranked 2, 3, 4 and 1. These birds prefer large open areas in Stages 2 and 3 of plant succession interspersed with areas in Stages 4, 5, and 6 of plant succession. Area 2 fits this well. Area 3 also supplies this type of habitat, but has less area in Stage 2 or 3 of plant succession and is rated lower than Area 2. Area 4 has large open areas, but has little interspersion of other plant succession Stages and is ranked third. Area 1 does not have any open areas and thus is ranked last.
- Brown thrashers would prefer the areas in the order 3, 2, 1, 4. Thrashers prefer dense shrub thickets. Area 3 supplies the greatest amount of this type of habitat. Area 2 has more area in Stage 4 of plant succession than either Area 1 or 4. Areas 1 and 4 are difficult to

judge. In this instance, we would assume there is more shrub cover associated with the woodland area in Area 1 than what is shown in Area 4.

- Bluebirds would prefer the areas in the order 4, 2, 3, 1. They like to nest in tree cavities adjacent to open fields and prefer open fields for feeding.
- Doves also would prefer the areas in the order 4, 2, 3, 1. Since doves prefer open fields for feeding, this rating order is based on the amount of open fields available.
- For cottontails, the area should be rated 2, 3, 4, 1. Area 2 is preferred because it has nearly the proper ratios of habitat components for rabbits (one-third grassland, one-third cropland, and one-third shrub cover), and they are well interspersed (mixed together). Area 3 doesn't have enough grass or cropland and too much cover, but it has more habitat variety than Area 4. Area 4 is lacking interspersion but has more habitat diversity (different kinds of habitat) than Area 1.
- These areas would be rated 1, 3, 2, 4 for gray squirrels, hairy woodpeckers and ovenbirds. This is based simply on the amount of Stage 5 and 6 deciduous woodland available.
- For bobwhite quail, the areas would be ranked 2, 3, 4, 1 – the same as for rabbits. The reasons are similar in this case. However, in some judging instances, areas may be rated differently for quail than for rabbits. For example, quail do not need quite as much shrub cover as rabbits.
- Raccoons would prefer the areas in order 3, 4, 2, 1. Areas 3 and 4 both have streams that attract raccoons. Area 3 is ranked ahead of 4, since it has more shrubs and trees along the stream. Area 2 is ranked ahead of Area 1 because of the interspersion of areas in different successional Stages.
- For ruffed grouse, the areas would be ranked 3, 1, 2, 4. Ruffed grouse need successional Stages 4, 5 and 6 interspersed together. Area 3 supplies the greatest amount of this type of habitat. Area 1 lacks interspersion, but has more Stage 5 and 6 vegetation than either 2 or 4. Area 2 is ranked ahead of Area 4 because of the amount of Stage 4, 5 and 6 vegetation.
- For turkeys, the areas would be listed 3, 2, 1, 4. According to the *Wildlife Species* section, turkeys need one-fourth to one-half of their range open, and one-half to three-fourths mature woodland. Area 3 is preferred because it has roughly one-half the area in mature woodlands, and nearly one-fourth the area is open. Area 2 is second, as it has both open areas and mature woodland. However, it does not meet the mature woodland requirement as well as area 3. Area 1 is ranked third because it has more timber than Area 4 and more cover in general. Due to the absence of woodland, it is doubtful if Area 4 could support a turkey population.
- For deer the area would be rated 3, 2, 1, 4. Deer prefer woodland areas interspersed with areas in various Stages of succession. Area 3 fits this well; it includes 3 Stages. Area 3 is ranked ahead of 2, since it has more successional Stages and interspersion of the various Stages. Area 2 is selected over area 1 because of the variety of succession it offers. Area 4 is too open, so Area 1 is picked third and 4 last.

- Wood ducks would prefer the order 3, 4, 1, 2. Area 3 has ponds and better cover along its streams than Area 4. Because Areas 1 and 2 have no ponds or streams, there is no difference between them; therefore, a minimum cut of 1 will be used.
- Bass and bluegill would prefer the areas in the order 3, 4, 1, 2. Only Area 3 has ponds. Areas 3 and 4 have streams, so they are preferred over Areas 1 and 2.

The “Interspersion Index” may help contestants compare the aerial photographs. Many wildlife species prefer areas with high interspersion of lands in different successional Stages. It is important to consider the amount of interspersion when ranking aerial photographs. This can be done using aerial photographs by counting the number of times the habitat changes along an imaginary north-south line across the widest part of the area, then along the widest east-west line. Next, add these two numbers together to get an interspersion index value. Compare this value with the other three areas to be judged. The higher the value, the better for quail, rabbits and other wildlife species that like areas with high interspersion. Note that a lower interspersion index benefits species which prefer continuous, unbroken habitats, such as the eastern gray squirrel. The interspersion indexes for the four areas shown on the aerial photographs are: Photo 3 (Area 3): 18, Photo 2 (Area 2): 13, Photo 4 (Area 4): 4, Photo 1 (Area 1): 0.

Aerial Photos

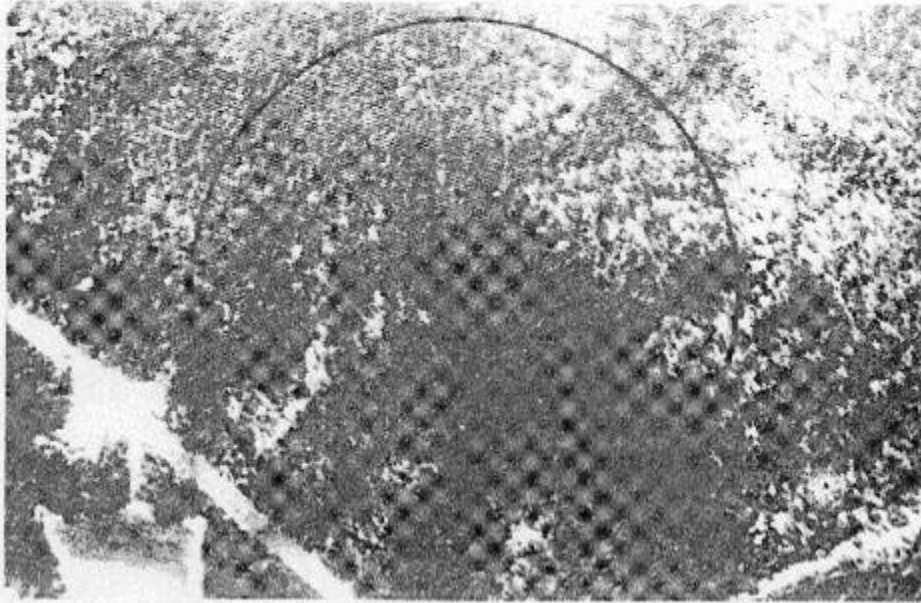


Photo 1 – Area 1

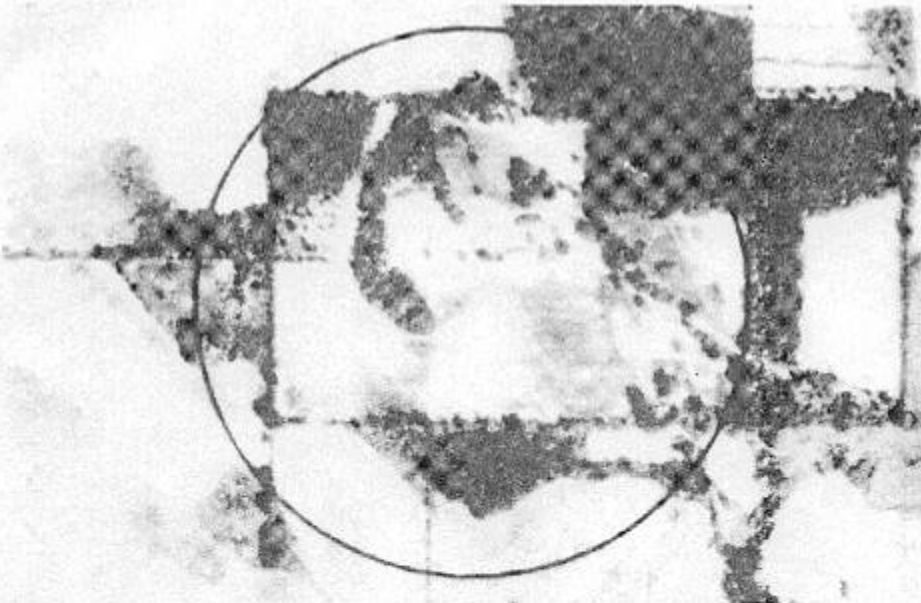


Photo 2 – Area 2

Aerial Photos

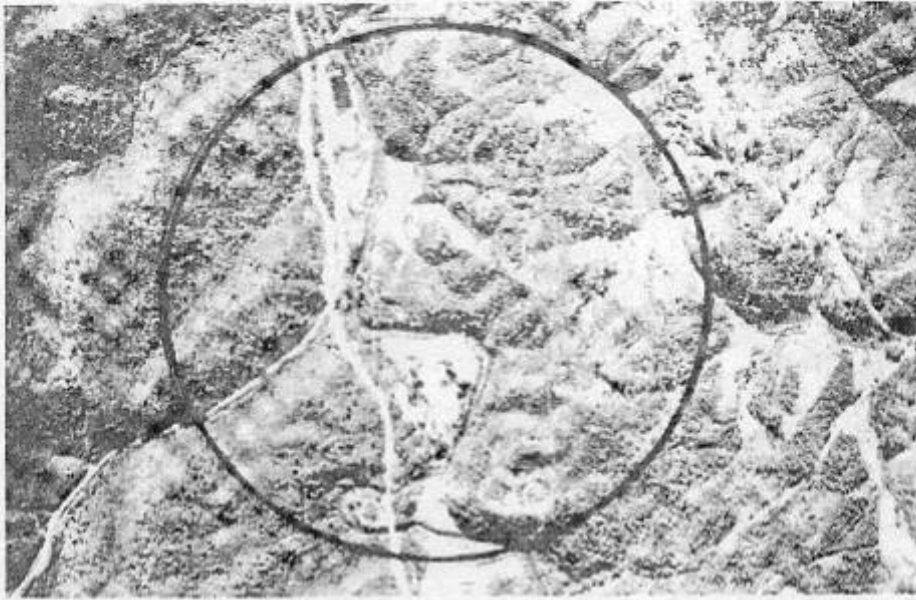


Photo 3 – Area 3

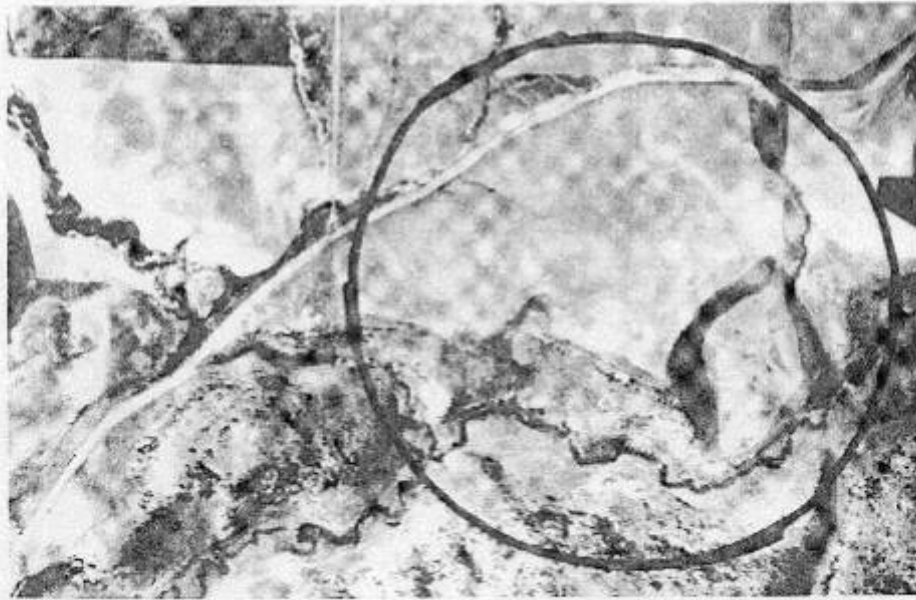


Photo 4 – Area 4