

CHAPTER 8. REGULATION OF WILD ANIMAL POPULATIONS AND REDUCTION OF INTERFERENCE WITH MISSION ACTIVITIES AND LIVING CONDITIONS

8-1. Regulation of Animal Populations.

8-1.1. Scope. If animal mortality did not approximate reproduction, the earth soon would be overflowing with animals. Animal populations, if kept free of man's impact, would be regulated by natural means. However, there are probably few, if any, places in the United States where animals or their habitat are not affected by mankind. The effects may be beneficial or detrimental, deliberate or incidental. Many situations in which man now feels it necessary to regulate populations of wild animals have been created inadvertently. Conflicts with desirable wildlife species have developed when airfields have been sited in desirable wildlife habitat.

8-1.2. Justification for Control. Regulation or control, in addition to that imposed by nature, is often justified by economics, health, and safety. Wildlife can cause loss of crops, stored grains or food, damage to property, and interference with man's activities. Bird-aircraft strikes can result in damage to an airplane and injury or loss of life to its occupants. Also, birds such as gulls in the vicinity of an airport or deer along a runway may create hazards to aircrews and passengers. Certain diseases can be transmitted from wildlife to man. There has been some concern that bubonic plague may be contracted from the large numbers of ground squirrels on some installations. Histoplasmosis, an airborne fungal disease which attacks the lungs of man, is spread through bird dropping buildup. Therefore, bird roosts constitute a definite health hazard. Large roosts of blackbirds, starlings, house sparrows, and pigeons in or near housing, hangars, or other buildings can cause unsanitary conditions, economic losses and constitute a nuisance. Other situations where control is needed include highways flooded due to culverts blocked by beavers, and fish ponds drained by burrowing muskrats. An example of yet another reason for regulatory control is that uncontrolled deer populations may overbrowse their habitat causing starvation, emaciation, heavy parasitism and disease.

8-1.3. Approaches. Although man has exercised considerable control over wild animal populations, his influence probably has been greatest through

land use changes and environmental impacts unrelated to wildlife management. However, deliberate management efforts, including those intended to control or regulate animal damage or interference, have been based, in part, on habitat management. In such instances, the approach has been to render a site unattractive to offending animals. Other approaches to control include: deliberate removal of offending animals by shooting, poisoning, or trapping (in the latter case, the animals are killed or released elsewhere); biological control by natural predators; chemical control by either killing animals or keeping them away with chemical repellents; physical control by scaring animals with various noise and distress call devices or excluding them from a site with fences; bird proof designed building construction; cultural control by selecting varieties of crops resistant to damage; and by planning the timing and methods of planting and harvesting.

8-2. Regulation As a Function of Management. The regulation of wild animal populations is a function of wildlife management. Habitat management, regulation enforcement, and predator control are three approaches of wildlife management.

8-2.1. Habitat Management. When developing management programs, possible conflicts with the military mission should be kept in mind at all times. Installation areas where wildlife may pose a hazard, or interfere with the military mission, should be managed in such a way that they are not attractive to wildlife. At installations with airfields, for example, precautions should be taken to avoid water, attractive cover or sources of food near or along runways or approaches to the airport. Fish ponds or reservoirs, which attract birds, and food plots, which tend to concentrate wildlife, should be separated from areas where wildlife is not wanted. Habitat management practices to enhance wildlife should be avoided in such areas.

8-2.2. Regulations. Animal populations can be controlled to some degree by regulating fishing, hunting, and trapping seasons and daily bag or creel limits. However, the setting of seasons and daily

limits must be coordinated with appropriate state game and fish agencies and correspond with Federal regulations for migratory species.

8-2.2.1. Hunting. There are limitations to hunting as a control method since too many hunters can create safety problems. A "safe" ratio of acres per hunter depends in large part upon cover type, terrain, type of weapons and ammunition, hunter discipline, hunter visibility, and type of clothing worn. Many states require deer hunters to wear some fluorescent orange or red material. With the use of shotguns and buckshot, a ratio of one hunter per 50 acres is considered a reasonable safe hunter density. The number of hunters can be increased for small upland game hunting. Special doe seasons designed to cut the annual production of deer may be arranged with the approval of the respective state fish and game department, or the length of hunting season may be extended to take more deer. In areas where firearms cannot be permitted for safety reasons, bow-and-arrow hunting may be feasible. In other areas, muskets or primitive weapons may be used, contributing to the recreational value.

8-2.2.2. Trapping. Beaver, nutria, and muskrats which are causing problems should be trapped. Trapping for fur production must be conducted in accordance with state regulations. Nuisance animal trapping must be coordinated with state wildlife officials.

8-2.3. Predator Control. Predators and certain rodents merit special attention in connection with population control.

8-2.3.1. Predators. Predators are meat-eaters and feed largely upon foraging species. They are a part of natural ecosystems and help maintain a balance among the thousands of species making up animal populations. If a wildlife management program requires intensive management for endangered or newly reintroduced species, some predator control may be justified. Normally with suitable habitat conditions, good populations of game species along with the predators can be maintained without predator control. The esthetic and recreational values of many predators should not be overlooked.

8-2.3.2. Rodents. Often, certain rodents, such as the woodchuck or groundhog, are classified as "vermin" or nongame animals and are subjected to unregulated hunting. The woodchuck, a burrowing animal, digs holes valuable to other wildlife, such as skunks and rabbits, which take refuge in ground dens. Ammunition storage sites involving soil-covered bunkers are particularly attractive to woodchucks. The burrows can be detrimental in some

cases causing culvert maintenance problems and soil erosion. From the standpoint of wildlife management, hunting these animals should be controlled.

8-2.3.3. Predator Harvest. It is fortunate that the productivity of many game species, as well as that of predators and rodents, can withstand heavy mortality from hunting or trapping. Studies have indicated that up to three-fourths of many animal populations existing after the reproduction period can be harvested without interfering with the annual population levels. Both game species and predators can be harvested in reasonable numbers, but harvesters should not discriminate against so-called predators. Should there be a rabies outbreak involving fox, skunk, or other animals, assistance and advice from the state conservation department or health authorities should be sought. Usually, there is no valid justification for special control of predators.

8-2.3.4. Dogs and Cats. Free-roaming dogs and cats are predators in a slightly different category. From the standpoint of management to enhance wildlife populations, they should be controlled. Dog and cat owners should keep their pets on leash or under control at all times to avoid undue harassment and killing of wildlife on an installation. Regulations to this effect should be strictly enforced.

8-3. Deliberate Reduction of Mammal and Bird Interference. There are situations which require prevention or control of animal damage to, or interference with, the military mission. Control may be based upon environmental, physical, biological, chemical, or cultural conditions.

8-3.1. Environmental Control. Environmental management is a major approach to controlling animal damage at airports. Although much of the interference or damage and most of the potential hazard to human life is caused by birds, either resident or transient, other animals are involved. Information concerning means of reducing bird-aircraft strikes appears in Airport Services Manual: Part 3 (app B, No. 47). While detailed analyses of bird problems and control methodologies are not possible here, the general approaches (which also apply to other types of military facilities) are as follows.

8-3.1.1. Development and Maintenance. Birds occur on or over airports to obtain food, water, cover, and a place to breed, nest, roost, or find safety. They may fly over an airport runway or across airplane approaches during migration or in daily flights to and from feeding, roosting, or resting sites. Their

food may be: edible garbage, aquatic organisms from ponds or other wetland or water areas, insects from vegetation or the air space above the airport, earthworms which crawl on the surface of the ground or runways after a heavy rain, seeds of crops or grass, grass itself, and small mammals such as voles, lemmings, and ground squirrels which are consumed by owls, hawks, and other birds of prey. Environmental management for existing airports should be directed towards making the airport unattractive to birds and other wildlife. Methods include: better garbage disposal; filling of borrow pits, ponds, and wetland areas; restrictions on farming and other agricultural pursuits; and vegetation management resulting in the least attractive food or cover. Pine or other coniferous plantations or thickets of deciduous vegetation conducive to large roosts of starlings and blackbirds may need to be thinned. Care should be taken in landscape planting to select, in so far as possible, species or spacings which are unattractive to birds and other wildlife. Depending upon the problem species of bird, the maintenance of grass at heights from seven to nine inches may reduce their occurrence on grass-covered areas near runways.

8-3.1.2. Construction. New buildings should be well constructed, with a minimum of decorative ventilation openings, ledges, and I-beams covered by sheltering eaves which provide nesting or roosting sites for such species as the house sparrow, starling, and pigeon. Informational and directional signs should be designed with sharp points or trim along the upper surface to discourage birds from perching.

8-3.1.3. Sanitation. Good sanitation, including retrieval and disposal of waste paper, may be helpful. Waste paper blowing across a surface may attract gulls, presumably because the gulls associate garbage with a food source.

8-3.2. Physical Control. Wires stretched across drainage ditches or canals tend to keep birds away. Various pyrotechnic devices, such as firecrackers, rockets, flares, shellcrackers, and carbide cannons scare birds away, but they involve some fire hazard. Tape recordings of bird distress calls have been used to repel birds with some success, as have dead or model birds placed along the sides of airport runways or in other areas such as crop fields. No single scaring device is effective for long term control. A combination of techniques is necessary to prevent habituation. Fences may be used to keep deer and other large mammals from areas where they are not wanted. Some animals can be killed by live ammunition or removed by trapping. Information on trapping methods and necessary permits is ob-

tainable from the regional offices of the Fish and Wildlife Service (app C, No. 6c).

8-3.3. Biological Control. Biological control by predators has already been mentioned. From the standpoint of animal damage control, using insects or diseases probably has been more successful to control noxious insects than to control larger animals. Although peregrine falcons have been used with some success to drive away or kill birds at airports, the falcons must be trained and have specialized personnel to handle them. Falcons cannot be used in adverse weather and the protected status of birds of prey complicates their use.

8-3.4. Chemical Control. Many kinds of chemicals have been used to kill or repel birds and mammals. Environmental Assessments and, if necessary, Environmental Impact Statements must be prepared so that undesirable environmental impacts, killing or damaging of desirable species, and hazards to people applying chemicals are avoided. Chemical control action must comply with "Environmental Safeguards in Activities for Animal Damage Control on Federal Lands" (E.O. 11870, 18 July 1975), the National Environmental Policy Act of 1969 (1 January 1970, Pub. L. 91-191, 83 Stat. 852), and the Endangered Species Act of 1973 (28 December 1973, Pub. L. 93-205, 87 Stat. 884). Although some of the methods of chemical control advocated in Animal Control in Field, Farm and Forest (app B, No. 30) are outdated, this book still offers useful information on the characteristics and control of mammals.

8-3.4.1. Birds. Surfactants or detergents have had considerable success in reducing populations of starlings and blackbirds in large roosts. Surfactants when mixed with water lower the surface tension of water. When the solution is sprayed on birds, the chemical action of the surfactant breaks down the oil in the feathers, removing the birds' natural waterproofing. The insulating effect of the birds' feathers is lost, and if temperatures are low enough, the birds die. This approach has limitations and should be attempted only in cooperation with the Fish and Wildlife Service and in compliance with the directives referenced in subparagraph 8-3.4. Responsibility for the protection, conservation, and management of migratory birds, including blackbirds, and for the control of significant conflicts between migratory birds and man in the United States lies with the U.S. Department of the Interior under the protection of the Migratory Game and Insectivorous Birds Act (16 U.S.C. 701-718h) and the Animal Damage Control Act of 1931 (2 March 1931, 7 U.S.C. 426-426b, 47 Stat. 1468). Additional in-

formation on the potential use of surfactants can be obtained from the Fish and Wildlife Service.

8-3.4.2. Mammals. Chemicals to kill or repel offending mammals have a place in the control arsenal under certain conditions. The regulatory action cited in subparagraph 8-3.4. must be complied with prior to application of any chemical control program. Chemicals developed to kill rodents or other mammals may produce secondary effects, such as insecticides which kill or damage nontarget wildlife species. Thus, while use of Compound 1080 may be effective in the control of ground squirrels, a suspected source of bubonic plague, it may result in the death of other animals which consume the poisoned animals. Compound 1080 cannot be used on Federal lands except under unusual circumstances. Other poisons such as zinc phosphide, which is not passed up the food chain, are effective. The real need for extensive poisoning campaigns should be evaluated carefully.

8-3.5. Cultural Control. Cultural methods apply to installations particularly in connection with outleasing land for agricultural purposes and with

landscaping programs. Planting corn with adequate cover, harvesting promptly upon ripening, controlling corn borers, and using varieties in which the stalks tend to stand erect rather than lodging can reduce damage by pheasants. Waterfowl damage to wheat in the north-central United States may be reduced similarly by prompt harvesting. When landscaping living quarters and office buildings, shrub species unattractive to wildlife should be selected if wildlife populations are considered undesirable.

8-4. Technical Assistance. The Fish and Wildlife Service, the Agricultural Research Service (app C, No. 4 a), and the Wildlife Society (app C, No. 14) produce numerous publications on animal control. The Fish and Wildlife Service can also provide the names and addresses of its Animal Damage Control State Supervisors. Other sources of information include state agricultural experiment stations, agricultural extension services, and departments of zoology and entomology in state and local universities.