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CONTROL OF NUISANCE PESTS IN SUBURBIA

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To a rancher or high-rise apartment dweller, problems with vertebrate pests in suburbia may seem insignificant. But when one stops to consider that last year over 2 million acres of farmland were converted into urban and industrial use, then it takes a different perspective.

Farmland usually provides good wildlife habitats. When a large housing or industrial developer moves in with bulldozers and clears and levels the land, this can mean but one thing--the animals are going to be on the move. Some will find temporary shelter, but most will keep moving until they find permanent food and cover. Of course, some will be killed trying to cross the freeways. Those that can dodge the trailer trucks, campers, boat trailers, and other motor vehicles may soon become your problem.

The problems often start before the buildings are completed. While a house is still under construction some furry creatures and some not so furry (snakes, black widow spiders, etc.) may enter the framework and insulate and subsist on the remnants of workmen's lunches. Others may burrow into the banks or hide under rubbish piles. When landscaping is started the area is invaded by a variety of pests.

Another less spectacular condition arises when individual homes are built in farming or rural areas. Often these areas have been open to hunting for a number of years, but eventually the human population becomes so great that entire cities, towns, or townships may be closed to hunting. This can be accomplished by simply prohibiting the use of firearms. Without hunting pressure on the game birds and mammals, they add to the suburbanite's problems.

I have had my share of problems, and may have talked myself right into the job of preparing this paper. I moved into a new tract close to the Box Springs Mountains in southern California, and made the mistake of being one of the first to put in a lawn and the accompanying landscaping. Jackrabbits and cottontails and pocket gophers soon moved in. Well, I figured to have a little more "know-how" on these matters than the average homeowner. I planted and replanted, and trapped and poisoned. This was partially successful, but my small green oasis was attracting animals from a vast dried-up mountainside.

Now let's see what animals are involved and the damage one may expect. This will vary in different geographical areas, but I will try to give some representative examples.

Some mammals are protected--game animals and fur bearers are usually protected by Fish and Game Departments. Cottontail rabbits, deer, and tree squirrels are examples of game animals, and muskrats, foxes, badgers, and raccoons are examples of fur bearers. In California a number of birds and mammals have no protection; these are English sparrows, American or black-billed magpies, crows, California or scrub jays, Steller's or crested jays, starlings, moles, opossums, coyotes, weasels, skunks, cougars, bobcats, and rodents including ground squirrels, rats, mice, gophers, and porcupines. Other birds and mammals may be controlled under varying conditions (see references). For example, blackbirds may be killed when they are committing or about to commit serious depredations upon ornamental or shade trees or agricultural crops. Still others may be killed under supervision of the Agricultural Commissioners or a permit from the Bureau of Sport Fisheries and Wildlife. Some of these classifications vary from state to state, and if you have any doubt about the legality it's best to contact your state fish and game department, the state department of agriculture, or the Bureau of Sport Fisheries and Wildlife.

Nonprotected animals are often taken with traps, guns, or poisons, but in suburbia or within city limits the use of these items may be restricted or too hazardous.

In most instances vertebrate pest control in suburbia is an individual problem and should be handled by the property owner or tenant. A lot of information is available to help the individual solve his problem, and a number of agencies, both private and governmental are available to assist. One big problem is communication--knowing what is available and how to apply it. Some sources are listed below.

Sources of information: (1) Agricultural Extension Service: Farm Advisors, County Agents, (2) State Department of Agriculture: County Agricultural Commissioners, (3) State Department of Fish and Game: Fish and Game Wardens, Conservation Officers, (4) State Health Department: Local Health Departments, (5) U. S. Dept. of the Interior: Bureau of Sport Fisheries and Wildlife, (6) Humane Society, (7) Society for the Prevention of Cruelty to Animals (SPCA), (8) Animal Rescue League.

All these except the Agricultural Extension Service and Health Departments can also provide services, supplies, or assistance, as can local pest control operators. All of the agencies listed should maintain up-to-date information on control methods, sources of supplies, lists of live traps, repellents, scare devices, poisons, etc., and the legal aspects.

The private agencies generally charge a fee, but they usually have the knowledge and equipment to accomplish the mission. The governmental agencies will often assist property owners where a health problem and public utilities are involved or where the animal has a wide daily range and many properties are involved. Examples of public health problems are skunks or other wild carnivores infected with rabies, or ground squirrels or other rodents infected with plague. Rats living in sewers or storm drains may create a community problem. An example of an animal with a wide home range involving many properties would be the coyote, which required control in the Hollywood section of Los Angeles County.

The services I am going to mention have all been in use at one time or another. I am not implying that they are the final answer for all conditions or circumstances, but they are examples of what can be done if there is sufficient interest.

(1) Where pheasants, cottontails or other game animals are causing damage, your state fish and game department may live-trap the animals and move them to other areas. (2) Where animals are infected with plague or rabies, some governmental agencies may assist in controlling the animals or furnish poisoned bait for use by the property owner or tenant. (3) In some instances the only safe and effective method for removal of the animal pest is trapping. Often special traps are necessary and these may be extremely costly or not readily available. Farm Advisors, County Agents, or Agricultural Commissioners sometimes sell these special traps or loan them for short periods. The loaning of traps was first viewed with considerable skepticism, but the percentage of traps returned has been extremely high and everyone has been greatly pleased. (4) Special poisons are sometimes available for sale by Agricultural Commissioners or the Bureau of Sport Fisheries and Wildlife. (5) Commercial pest control operators are often available and equipped to control vertebrate pests--the yellow pages in your telephone directory will list them. (6) In Los Angeles the Department of Animal Regulations, Superintendent of Shelters, will assist property owners in the control of miscellaneous wild animals by use of live traps, etc. Other cities may offer similar services. (7) In San Diego the Humane Society has completed the first year of its new program to relieve local citizens of problems with "odd" animals such as skunks, opossums, foxes, and bobcats by trapping. A charge is made to the citizen depending on the distance and service required. Twenty-four hour service is available.

SPECIFIC CONTROL METHODS APPLICABLE TO SUBURBIA

The specific control methods recommended for suburbia are often less effective, more time consuming, and more costly than methods used in sparsely populated farm or ranch lands. The reason is simple--in suburbia there are more people (children) and pets, and the risk of accidental or secondary poisoning is greater. Therefore more reliance must be given to less toxic materials, live traps, and repellents. To temporarily complicate the procedure is the matter of registrations. Chemicals, whether toxic or repellent, can only be recommended for their registered use. A tremendous amount of time and money goes into the research necessary to register a product for a specific use. Later it may be found that this same product has other similar uses, but until the supplemental registration has been granted, the product cannot be officially recommended for these other uses. An example would be the anticoagulants; to my knowledge these are registered only for the control of rats and mice, but it is known that they are used for ground squirrels and jackrabbits with apparent success and with less hazard than registered products. Basically the regulation is a good one, even though it is causing some temporary problems.

Frightening devices such as acetylene exploders and exploding shotgun shells are frequently used to scare birds, but if used in suburbia one would probably be "ticketed" for disturbing the peace.

In the time allotted, it will be impossible to fully describe all the different control methods for the different species found in suburbia. However, I would like to mention some of the more frequent pests and my views on methods that can be safely used in densely populated areas.

RABBITS

Strychnine is probably the most commonly used poison to control jackrabbits, but I am not in favor of using it in suburbia. Most of the hazard involves "valuable" dogs eating the dead rabbits. If poisons must be used I prefer one of the anticoagulants in a protected bait station. An attractive bait will have to be exposed for several days before a lethal dose will be consumed. Box traps and wire cage traps may be used for cottontails, but jackrabbits seem to avoid them. Rabbits are easiest to trap when the ground is covered with snow. Where the damage is frequent a rabbit-proof fence may be the solution. A netting of 1-inch galvanized mesh wire 2 1/2 to 3 feet high will suffice. To prevent burrowing under the fence, it is usually advisable to bury 6 inches of the wire in an L-shape on the outside of the fence. If this fence is placed along the outside of a rail fence or border plantings it is very inconspicuous.

A number of repellent materials are available for use on flowers, shrubs, and trees. These may be sprayed or painted on the plants. During the growing season it is important that all new growth be covered, and this may require weekly treatments. During the dormant season one application in the late fall or early winter may be adequate. The most effective repellents contain thiram (Tetramethylthiuramdisulfide), Zac (Zinc dimethyl-dithiocarbamate-cyclohexylamine), TNBA (Trinitrobenzene-aniline complex), or nicotine sulfate.

POCKET GOPHERS

Specially designed traps are effective in removing gophers from residential areas. The animals will be more rapidly trapped if the traps are set in pairs--one pointing in either direction of the main runway. Treated baits containing not over 0.5% strychnine alkaloid or 1% zinc phosphide may be used. Strychnine is usually used on grains or a mixture of grain and dried fruit, such as raisins. Strychnine or zinc phosphide may be used on fresh carrots or sweet potatoes. All baits must be placed in underground burrows. The reason that strychnine is recommended for gopher control and not for rabbit control is that gopher baits are placed underground and practically all gophers die there, whereas rabbit baits are placed on the surface of the ground and all animals die above the ground.

A new chemical, a "gopher-icide" if you will, known as DRC-714, shows great promise, and you will hear more about that later in this conference.

MOLES

A variety of traps are available that are accurately described by their names: harpoon, scissors, and choker. The traps should be set in active runways, and it is important that the main runways be located because most runways are laterals and are used only once while the animal is searching for food. The main runways can be determined by stomping down short sections of a lot of runways and marking each with a flag or stake--those that are repeatedly pushed back up are the main runways and are the places to set your traps. A large part of the mole's diet consists of insects and worms found in the soil. Mole control can be indirectly accomplished if the insects and worms in the soil are removed by the use of proper soil insecticides. Sometimes small areas such as bulb plantings, seed beds, or "fish worm" plots sustain excessive and persistent mole damage; enough to justify the installation of a sheet-metal or hardware-cloth fence. Such a fence should begin at the ground surface, go to a depth of at least 12 inches, and then bend outward at a 90° angle for an additional 10 inches. Connections and joints in the fence must be secure and snug, since food-hunting moles will travel along the fence searching for an entrance. Dusting bulbs with thiram before planting tends to repel the moles and prevent them from eating the bulbs.

SQUIRRELS

Ground squirrels may be effectively controlled by gassing the animal in its burrow. A number of fumigants are available, and all must be used with great care because they produce highly toxic gases or present a fire hazard. Commonly used materials are carbon disulfide, cyanide, methyl bromide, carbon monoxide (car exhaust), or gasoline (a pint is

poured in the hole, which is then plugged with newspaper). When only a few burrows are involved I prefer cyanide dust because it is available in small quantities, it does not require any specific equipment, and there is no fire hazard.

Anticoagulants may be used as described for jackrabbits. Strychnine is not recommended in densely populated suburban areas because some of the squirrels will die on the surface of the ground and may be a hazard to pets. Number "0" or "1" steel traps or special choker traps may be used.

Tree squirrels frequently get into attics and become very annoying and often very destructive. Sometimes they can be prevented from entering buildings by being kept from jumping on roof tops from nearby trees. Metal bands about 2 feet wide, fastened around the trunks at a height of 6 to 8 feet, will keep squirrels from climbing isolated trees, but are useless if squirrels can jump from tree to tree. Squirrels may be prevented from gnawing into buildings by coating the wood with paint treated with repellents such as copper or zinc naphthenate. If these are not successful and the squirrel gets into the attic, it may be repelled by liberal use (4-5 lbs.) of paradichlorobenzene crystals, naphthalene flakes, or moth balls. As a last resort, squirrels may be live-trapped in cage traps or any of the small mammal traps baited with nut meats, pumpkin or sunflower seed, peanut butter, rolled oats, etc. Anticoagulant rat baits with the addition of a small amount of ground nut meats or peanut butter are effective, although one always takes the risk of having the animals die in the house. Special permits are often required when traps or toxic baits are used.

SKUNKS, OPOSSUMS, RACCOONS, ETC.

Box traps or wire cage traps may be used to trap the animals alive and move them to other areas for disposition. Usually (almost always) the skunk will not release its scent if you gently place a piece of burlap over the trap and handle carefully. Steel traps, shooting, and poisons are not recommended in suburbia for obvious reasons. To prevent animals from getting under buildings, porches, etc., all entrances should be closed. If they should get under a building, seal all openings except one; then sprinkle a patch of flour near the opening. Examine the area after dark. If tracks show the animal has left, close off this last opening immediately. A pound of moth flakes placed in the den may hasten its departure.

A 3-foot chicken-wire fence, extending 6 inches beneath the ground and then 6 inches outward, will deter most animals except the raccoon, which is a good climber. Sometimes an electrified single-strand wire, 8 inches out from the fence and 8 inches above the ground, is used, but this is not recommended in suburbia where children are present.

BATS, RATS, AND MICE

There is nothing particularly different about the control of these animals in suburbia and elsewhere. Therefore, I am referring you to the presentations by myself and others at the First Vertebrate Pest Control Conference held in Sacramento on February 6-7, 1962.

BIRDS

Birds in suburbia are more of a nuisance than anything else. They are fond of fruits from backyard trees and vines and of the berries from ornamentals. They also like newly planted grass seed and some flowers and vegetables. In addition, birds roosting on the house or in shade trees along the street may be quite annoying. Some birds are involved in the transmission of diseases to man, livestock, and poultry, and also spread certain parasites.

During the 3 days of this conference there has been a lot of talk about bird control. There have probably been more advances in bird control research during the past 5 years than in the previous 30. Much of the research is directed toward agricultural problems and bird problems associated with aircraft.

In suburbia, poisons are generally not to be recommended for use by individuals. If the problem becomes of such magnitude that removal of large numbers of birds is necessary, then someone with professional experience should be employed. I am referring primarily to the control of pigeons.

Although my talk is mostly about what the individual home owner can do, I first want to tell you how a group of residents got together in Denver and drove off 10,000-12,000 starlings that had been roosting in trees along the street. Some 41 residents in a 6-block area were loaned records of the starling's distress call. On three successive nights, as the birds came to roost, the residents played the recordings on portables, stereos, and hi-fi sets. On the fourth night no birds attempted to enter the trees and the roost was abandoned. In other areas, similar results have been accomplished by using amplifier equipment on a sound truck and driving up and down the streets.

Now, what can the individual do to prevent birds from nesting and roosting on buildings? Chemical repellents may be applied to ledges, cornices, and other ornate stonework. Commercially available sticky substances (chicle, soybean lecithin, gun grease, or plastic), listed with the other supplies and devices in the appendix, are quite effective. These materials may also be used to prevent woodpeckers from pecking into clapboards or shingles, and some of them are available for spraying on trees to prevent birds from roosting. Probably the most spectacular use of sprays for this purpose has been along the inaugural parade route in Washington where thousands of starlings perched above the bleachers. The only permanent method of preventing birds from roosting is to eliminate ledges. Construction of new buildings and modernization of old ones should be planned with this in mind. Protruding signs or decorations and offset ledges should be eliminated. Boards, sheet metal, or mortar placed on a sharp slant will effectively keep all species off ledges or from under eaves that can be treated in this fashion. Ledges can also be protected with sharp, upright spines of stainless steel or electrically charged wires.

When birds are eating seed or damaging fruit they are extremely difficult to repel. The only sure method is to completely cover or enclose the vulnerable crops. A number of paper, nylon, or plastic netting materials are available, and although they are not economically practical to use for covering commercial fruit trees, they will protect a backyard crop.

A wide variety of noise-producing devices are available, but they are not recommended where one has close neighbors. Other devices such as imitation owls and snakes, inflated bags or balloons, paper or metal streamers, whirling objects, and countless other things have been used. Success is chiefly dependent upon timing, persistence, and constant shifting of both the devices and their locations.

REFERENCES

California Department of Agriculture, Bird Circular No. 29. Revised March 1, 1962.

California Fish and Game Code.

Federal Register, Volume 26, Number 229, Nov. 29, 1961, Title 50, Wildlife and Fisheries.

Bureau of Sport Fisheries and Wildlife, Wildlife Leaflet 469, Birds Protected by Federal Law, Compiled July 1965.