

Repellents and Wildlife Damage Control

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Every year, wildlife causes millions of dollars of damage in Georgia. Losses may be economic (like damage to crops) or aesthetic (for example, damage to landscapes or golf courses) and can range from physical damage to vehicles or equipment to public health issues like water pollution and disease transfer to humans, pets or livestock. However, not everyone needs to undertake a wildlife damage control program. Before starting a control program:



Damage to a suburban yard from rooting wild pigs.

1. Be certain there is a wildlife damage problem. Control programs can be expensive and time-consuming. Some damage may be only cosmetic -- for example, squirrels burying acorns in flower beds.
2. Identify the species or individuals causing damage. Not all control techniques work with all species. A program to control rabbit damage will not control caterpillar damage. If only one or two individuals are causing the problem, it is often easier and cheaper to control them than to try to control all members of the species.
3. Although losses may be other than monetary, assess the damage in monetary terms when possible.
4. Determine control program costs and the degree to which they can be expected to be effective. Do not overlook costs in terms of your time, environmental damage and hazards to people or domestic animals.
5. Compare benefits (damage reduction) to costs (materials, labor and management). Is control worth what it will cost? Are you willing to pay this much for greater yield, peace of mind, prestige, aesthetics or elimination of a health hazard?

Only start a control program after examining all of these factors.

There are several ways to control wildlife damage, including the HERL model. The HERL method includes a step-by-step approach to addressing a damage problem: H - habitat modification or harassment; E - exclusion, including fencing; R - repellent or removal; and, finally, L - lethal control. Each step has its advantages and disadvantages.

Many chemical compounds are suggested for repelling birds and animals; some are regulated by state and federal laws while others are untested but widely sold to the public. It is important to remember to read and follow all label instructions. As with any pesticide, repellents should only be used for registered purposes and in amounts, ways and against species as specified on the label. Also, buyer beware - if a product sounds too good to be true, it probably is!

Area Repellents

Area repellents (also called olfactory repellents) are applied across the area to be protected. They may smell bad or have an odor that causes fear. The animal does not need to physically touch or ingest these products. Contact (or taste) repellents are also applied across the area to be protected but require that the animal ingest (taste or eat) them. Some contact repellents may cause skin irritation.

Many area repellents such as rags dipped in bone tar oil, bags of human hair, animal dung and soap are not effective. Research has not shown any lasting effect from use of these products. Other products such as predator urine may have short-term effects in some situations. Some products, like sulphur sold as a snake deterrent, are both ineffective at repelling snakes and can be dangerous if it gives the user a false sense of security.

Coyote urine has been demonstrated to repel herbivores such as rabbits from flower beds and gardens; however, strange or novel odors may also attract coyotes and neighborhood dogs.

Some repellents, like mothballs, may be offensive to an animal but it is illegal to use them outdoors and using them in attics or crawl spaces can be harmful to humans and pets. This product is a pesticide and should not be used to repel bats or snakes from a home.

Some area repellents use rotten eggs as the active ingredient and seem to be moderately effective at repelling deer. However, any product containing rotten or putrescent egg must not be used on gardens or any food item intended for human consumption.

Oils like garlic and mint can be used as area repellents with some success. Products containing these ingredients (sometimes with putrescent eggs) are widely available at home and garden centers.



Deer damage to watermelon.



Processed sewage sludge sold as a turf amendment is effective as deer repellent.

Recently, specially treated sewage sludge has been tested as a deer repellent for food plots, turf and horticulture plantings. This product is not labeled as a deer repellent but research results show that it is effective in repelling deer. It is sold as a fertilizer in many home improvement and garden centers.

There are several disadvantages to area repellents that must be kept in mind. Many area repellents are washed away by rain or diluted to the point of being ineffective. Most are volatile and must be renewed, generally weekly. Some cannot be put on plant parts that will be consumed by humans or domestic animals. Ingredients in others may stain. If a large area is to be protected, costs can be high. As with any technique, area repellents may be ineffective if not used properly.

Taste or Contact Repellents

Thiram repels birds because of the taste given to seeds treated with these compounds. Hot sauce or concentrated pepper extract repels mammals like rabbits, squirrels and deer from gardens, flower beds and bird seed. Other products contain chemicals that have a very bitter taste and effectively repel many herbivores like deer and rabbits. Bitrex® is an active ingredient in many of these products.

Concord grape extract, methyl anthranilate, can be an effective repellent for keeping Canada geese away from golf courses and turf lawns. However, it is both expensive and water soluble so its efficacy is limited to high value applications. Trapping and removal may be a better long-term solution.

Some compounds do not feel good on the skin or may cause irritation when contacted. For example, resins repel birds because of their sticky feel. In order to be most effective, the user should know how a repellent works.

Visual Repellents

Most visual repellents are designed to induce fear in the problem animals. They may take many forms, including flashing lights, shiny twisting, whirling or fluttering strips or disks, cloth flagging, scarecrows and string fences.

One advantage of visual repellents is that readily available materials often can be adapted for this purpose. This means that control may be achieved relatively cheaply. A disadvantage is that animals often quickly become accustomed to the devices and in time ignore them.

Visual repellents can have limited usefulness in some situations but are not a long-term solution to the problem of nuisance wildlife.

Acoustical Repellents

Sound can be a repellent, although it is considered to be more of a harassment technique because it is often applied when the animal is present and generally requires a person to activate the acoustical device. Sound (for example, fireworks or pyrotechnical devices) can be used to move a vulture roost.

In some cases the sound induces fear, and in others it seems to be unpleasant or painful. Acoustical repellents can include gas exploders, fireworks, recorded and amplified distress signals or artificially generated sounds.

Acoustical devices that produce audible or ultrasonic frequencies are widely believed to be useless. Many have been tested and show no impact on the target species. Plug-in ultrasonic repellents that claim to rid dwellings of snakes, rats, mice and bugs are almost completely useless. Devices attached to car bumpers and sold to reduce deer-vehicle collisions have almost no value.

Some devices are available in the home or on the farm and may need little or no modification to be used for repelling. Some devices are only available through commercial outlets. Several are expensive to buy. Almost all can be public nuisances; therefore, exercise care in selection and use (in other words, notify neighbors before undertaking an acoustical repellent program). Like with visual repellents, it is necessary to shift locations since pest animals will become accustomed to these devices. Finally, certain devices may be illegal in some jurisdictions — check with local authorities before purchasing or using them.

Mechanical Devices

Mechanical devices exclude animals physically and include fences, screens, nets and wires. These devices are included in other publications under the category of “exclusion” because they are not specifically a repellent as described in this publication.

General Recommendations for Repellents

1. Choose repellents based on economics, personal feelings and pest species. Accurate identification of the pest is important for selecting an effective repellent.
2. In general, try to incorporate several kinds of repellents that will reinforce one another and make the control program more effective. All repellents will lose effectiveness over time as animals habituate to the smell or as they break down in the environment. Vary the repellent and re-apply frequently to maintain effectiveness.
3. Currently unprotected wildlife that may be taken when causing damage or constituting a health hazard include: armadillo, beaver, coyote, groundhog, English sparrow, starling, pigeon and venomous snakes. Consult with federal or state wildlife agencies before applying control methods on other species.
4. If damage has occurred in the past, have program components ready before the time when problems can be expected. If using mechanical barriers, these can be placed ahead of time. Leave indestructible parts of any system in place from one year to the next to save time and effort.
5. In every instance, start the repellent program as soon as damage is noticed. **Do not wait. Do not let animals form the habit of feeding or entering.**
6. Persistence is essential. Barriers must be maintained and chemicals must be replaced. If they are not, do not blame repellents for failure; blame yourself.
7. Evaluate the program. Compare damage with and without repellents. Determine costs including materials, labor and management. Use this information to decide whether or not to continue. In evaluating or choosing controls, do not be misled by initial costs. For example, sometimes a mechanical solution with a high initial cost but a long life might be cheaper over the years than chemicals that require frequent replacement or re-freshing.

Prior to using any chemical, read, understand and follow the label directions. Do not use any repellent chemicals in any way not consistent with the label.

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