



Managing Nuisance Wildlife

Photo by Teri Hoisington.

By Joel Jackson

The rash of recent fatal alligator attacks on humans has focused our attention on the wildlife-human interface as growth and development moves into former wilderness. Thankfully fatal encounters such as these are extremely rare in the big scheme of things, but other natural behaviors of animals as they learn to adapt to man's presence can be a nightmare if you are maintaining a golf course.

Wildlife inventories on golf courses commonly include large vertebrates like alligators, armadillos, coyotes, deer, fox, opossum, raccoons and snakes. Other animals that don't make the list but can be a nuisance are feral cats and dogs and the lowly mole that loves to tunnel under the turf.

It is the daily feeding and foraging habits of many of these animals that become the major nuisance for golf course superintendents. What are some of the damages done by these critters? Sand traps become playgrounds for deer and dogs. Bunker edges are constantly dug out by armadillos in search of food. The hole is not the only problem; the soil scattered into the bunker contaminates the sand.

Any area on the golf course is subject to damage as armadillos, opossum, skunks, raccoons and sandhill cranes search for grubs and worms. I can vividly remember numerous sections of fairway on the 16th hole on Disney's Magnolia Course being ripped up during the night and requiring extra mow-

ing and grooming in the morning. This was taking place during the PGA Tour's annual Disney Classic in October.

It also didn't take long to discover that colorful annual beds weren't much more than a sumptuous salad bar for our large resident deer population. Meanwhile, I must admit some of the aggravation is worth it to have the daily opportunity to observe wildlife on the course. However, our primary job is to maintain the golf course and help ensure the safety of our golfers. In that spirit, I offer some tips and resources to help you do your job.

GET THE FACTS

Thanks to the Internet you can get specific information on a wide range of nuisance animal problems. If you can't find a solution from your local chapter peers try going to the Florida Wildlife Conservation Commission site (www.myfwc.com) and search for Nuisance Animals or Animal Control. Your local county Extension office may have literature on nuisance animals and, if not, you can access UF/IFAS information on its Web site: <http://edis.ifas.ufl.edu>. You can also Google Animal Control or Nuisance Animals and get a wider range of choices. The first ones mentioned above will be more Florida specific naturally, but you may find access to control products cheaper on the web.

GENERAL RULES OR POLICIES

Post signs in or around the clubhouse and 1st and 10th tees – Do Not Feed the Animals (or Wildlife). Animals

lose their fear of man and come to associate man as a food source.

Don't leave food or personal items open or accessible in golf carts. I have seen everything from squirrels, crows, Muscovy ducks and raccoons rummaging through a golf cart and everything from fruit, chips, sandwiches and gold watches have been pilfered.

Do not use any lethal means of removal until you have checked local regulations and game laws. Some species may be protected or some means of removal (firearms) may be illegal in your location. Even catch-and-release trapping should be investigated for legality.

The Florida Constitution has designated the Florida Game and Fresh Water Fish Commission as the legal steward of the native wildlife resources of the state. There are various laws and rules governing the taking and possessing of wildlife, so be aware of the rules like this one:

Chapter 39-12.009, F.A.C. allows the killing of destructive mammals except deer, fox, or bear on your property by means other than gun and light, steel traps or poison, provided that the destructive mammals are killed only within the immediate locality where damage is occurring. Using a gun and light at night, poison, or traps for the purpose of killing damaging birds or mammals may be authorized by a permit issued by the Commission. Birds other than blackbirds, cowbirds, grackles, and crows may be killed only under authority of a special permit issued by

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the U.S. Fish and Wildlife Service.

This rule and other laws and tips for managing nuisance animals can be found in document WEC-20, one of a series of the Wildlife Ecology and Conservation Department Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication: December, 1990, as SS-WIS-20.

ALLIGATORS

Keep clear of large alligators. Period. Mating season and nest defense can make these reptiles unpredictable. I once had a 2-3 footer bump the toe of my rubber boot as I was planting some spike rush in the shallows along a lake bank on the Disney Osprey Ridge Course. Scared the beejebers out of me, but I wasn't worried about an actual attack from one that size.

Golf clubs have different policies regarding what they consider nuisance

gators. Some wait until threatening or suspicious behavior is reported before taking action. Other clubs set size limits on gators that they feel they can tolerate without danger. Many clubs set limits at 4 to 6 feet. Once a gator reaches that size or larger, a club may call the nuisance gator hotline at 866-FWC-Gator (866-392-4286) for removal by a licensed trapper. You should be aware that most of the trapped gators are killed and their hides and meat sold by the trapper. That is how the state is able to pay for the service.

ARMADILLOS

Who among us hasn't bemoaned the damage done by armadillos rooting on the golf course? More than 90 percent of the armadillo's diet is made up of insects and their larvae that live in the soil. They also feed on earthworms, scorpions, spiders, and other invertebrates. Armadillos are most



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active at night, when they make cone-shaped holes in the ground while rooting for food. They live in dens 12-15 feet long and can undermine cart paths and restroom slabs.

There are no successful repellents, toxicants, or fumigants registered for armadillos. The use of insecticides to reduce food sources also has not been proven to stop armadillo digging. A fence slanted outward at a 40-degree angle, with a portion buried may be a somewhat effective barrier under certain conditions. Although live trapping of armadillos is very difficult, some people have experienced limited success by using a 10x12x32-in. (25x30x80 cm) live or box trap. The bait used by successful trappers is earthworms in a ball of dirt and placed in the toe of an old nylon stocking. Trapping is most effective when leaf litter or soil is placed over the trap entrance. Armadillos caught in these traps can be released in an area where

you have obtained landowner permission several miles away from your home.

Shooting is another effective method to eliminate nuisance armadillos. However, discharging firearms is illegal in some areas and it also is illegal to use artificial lights other than outdoor house lights to aid in shooting at night. Whenever I felt the need to conduct an armadillo patrol on the course at night, I always called Security to tell them I was riding the course checking irrigation. It wouldn't pay to have someone come charging up with lights flashing. Armadillo meat is reportedly edible if properly prepared; however, the story circulated some time ago about these animals hosting a virus that causes leprosy killed my appetite.

DEER

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Grazing in the roughs is tolerable. It's when deer feed in flower beds that they become a nuisance. Photo by Joel Jackson.

time to time and made a mess in a few bunkers, but their biggest nuisance factor is when they choose to graze in the landscape beds on the course or around the clubhouse. There are registered deer repellents but, thanks to our frequent irrigation or rainfall, having to apply these materials repeatedly can become expensive.

The best solution is to find landscape plant materials that have shown resistance to deer feeding.

The following annuals, perennials and bulbs have shown resistance and rare or minor damage by deer in Florida: ageratum, aloe, angel flower, angels trumpet, anise, black eyed susan, bush daisy, century plant, cone flower, coreopsis/tickseed, crown of thorns, devil's trumpet, dusty miller, ginger lily, heliconia, lily family, lily of the Nile, lupine, marigolds, peace lily, periwinkle, petunia, rotunda, sage, shasta daisy, ti tree, trillium, wake robin, turks cap, verbena and yucca.

For resistant vines and ground cover try allamanda, asparagus fern, aztec grass, Boston fern, English ivy, holly fern, pampas grass, shield fern, society garlic, star jasmine, wandering jew, and yellow jessamine.

The following shrubs are recommended: banana shrub, bird of paradise, blackberry, bottlebrush, camellia, carissa, Chinese holly, croton, gardenia, heavenly bamboo, ixora, Japanese

boxwood, juniper, lantana, mahonia, myrtle-leaf holly, needle palm, oleander, philodendron, plumbago, ruddy, silver thorn, southern Indian azaleas, sweet/tea olive, viburnum and wax myrtle.

If you plant accent trees on the course, the following have proven deer resistance: Australian pine, bottlebrush, butterfly/cabada palms, cabbage/palmettos, Christmas palms, coconut palms, crape myrtle, date palms, edible fig, eucalyptus, fishtail palms, flowering dogwood, ligustrum, live oak, loquat, magnolia, orchid tree, paurotis palm, persimmon, pineapple guava, podocarpus, pomegranate, ponytail, bottle palm, queen palm, royal palm, thatch palm and yaupon.

RACCOONS, SKUNKS, AND OPOSSUMS

Except for the skunks we usually get a smile on our faces when we catch sight of these critters ambling around the golf course. Unfortunately, they quite often make pests of themselves by getting into garbage cans, eating pet food, getting into attics or beneath houses, and eating home-grown fruits and vegetables. Raccoons are a major carrier of rabies in Florida.

These three mammals are opportunistic and have adapted well to urbanization. They will eat any plant, insect, or other animal food that is readily available and that includes



Raccoons are fun to watch until they start going through the trash cans.

food dumped into trash cans on the golf course. Golf course maintenance is normally a morning routine and the course set-up person is the one responsible for emptying trash cans in the morning, but that's the problem: the garbage sits all night in containers on the course, inviting these critters to feast on the leftovers.

My radical suggestion is to have a member of golf operations — say a ranger — empty the trash cans at the close of business. If maintenance must shoulder the task alone, then investing in secure trash receptacles is the only other option, and even then I know of a couple of workers who surprised a raccoon dumpster diving in a closed trash can with a push-in flap.

These omnivores can also cause havoc by ripping the turfgrass in search of insects and their larvae in the soil. Of course control of the insects plays a large part in deterring and controlling damage.

Live traps baited with sardines or cat food can be effective if necessary. Once an animal is caught, another problem is created — what to do with it? Trap and release of wildlife is seldom biologically sound. Areas that appear suitable for release probably are not. Areas without a resident population of the same species as the relocated animal most likely do not meet its habitat requirements. Relocation to already occupied areas causes problems for both the relocated animal and the resident population of the same species. Relocation permits from the

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Florida Game and Fresh Water Fish Commission (GFC) are required to transport and release any native wild-life species. Relocation of raccoons is discouraged and relocation permits will not be issued in many areas because of the possibility of spreading rabies.

MOLES

Nothing can ruin your day like riding the course and seeing a mole tunnel cutting across one of your greens. There are many home remedies for mole control but moth balls, chewing gum and vibrating devices have never earned scientific proof of their effectiveness. While moles do have natural predators like copperhead and black rat snakes, barred owls, red fox and raccoons, you can't wait for them to remove your problem when a green's playability is at stake.

Since moles are insectivores who tunnel through the soil looking for insects and earthworms to eat, controlling obvious insect infestations with approved insecticides is one way to prevent mole activity, but it's no guarantee. Repellents like Mole Out and Whole Control are one option, but for a large space like a golf course they may not be practical over time. They last longer in heavier soils and tend to dissipate faster in sandy soils.

Killing the moles unfortunately is likely the best option since the repetitive damage especially to a putting green can be critical. One hands-on method not for the squeamish is to tamp down the raised tunnel roof and then wait to see if the mole reopens the partially collapsed tunnel. When a person armed with a pitchfork sees the renewed active tunneling, they stab the tunnel with the pitchfork.

Another more detached method is to use a spring or harpoon trap. After again tamping down a section of the tunnel, the trap is cocked and the tines of the harpoon are placed against the top of the tamped soil. When the mole comes through to rebuild the tunnel he trips the trap and its curtains for Mr. Mole. The drawback of this method on a green is the appearance of the device and the potential for an accident if left

unattended. If a trap is used, place a bucket upside down over it to discourage meddling.

If traps or having a designated mole hunter is not feasible you might try a couple of new baits which appear to be having some success - Mole Patrol and Talpirid.



Most snakes are harmless, but people just don't like them being around. Photo by Joel Jackson.

SNAKES

People are not born with an innate fear of snakes. It is merely one of those things we were taught at an early age much like our attitudes toward touching the kitchen range or going into the street. As we grew older we learned that ranges and streets weren't the terrible things that we once thought, but they should be respected. However, our fear of snakes was continually reinforced and many people have never learned that there is no logical reason to have an extreme dread of all snakes. Statistics show that the potential danger of highway accidents is at least a hundred times greater than the chance of being bitten by a venomous snake. There are over 100,000 cases of dog bite reported in Florida each year compared to only an estimated 200 people bitten by venomous snakes. Snake-bite-related deaths have occurred at a rate of about one every four or five years in Florida. Mortality figures for lightning strikes

and bee stings are much greater. Snakes are not aggressive and will not charge or chase after people. Their typical reaction to a human intruder is to crawl away and hide. However, snakes may react differently if they feel threatened. Some will hiss, shake their tail, and even try to bite an intimidating object. All snakes stick out their tongue frequently to smell their environment much the same way a dog sniffs at things.

There are no repellents, toxicants, or fumigants registered for snakes. Many home remedies such as blood, hair, and various chemicals may seem to work in some situations. However, unless the item has been scientifically tested, its effectiveness is questionable. The frequency of snake visits to your yard and home can be reduced by eliminating firewood stacks, debris, boards and other objects lying close to the ground creating preferred cool, damp, and dark shelter or prey habitat areas.

Snakes that frequent buildings can be trapped using a rodent glue board. Up to 4-foot rattlesnakes have been captured using that method. When locating the board on the floor along a wall, make sure you have it attached to a long enough handle that you can pick it up without getting bit. If you think your crew or club members need more safety training about avoiding and/or understanding snakes, you might give Jim Mendenhall of Squamata Reptiles a call at 352-663-9827. Jim has made presentations to three or four FGCSA chapters so far this year.

EXTRA BONUS

While the cicada killer wasp is not a vertebrate pest, I have vivid memories of this 3-inch long wasp flying in and out of burrows dug in sand traps just below the turf lip. Like most wasps, they can sting. They use their stinger to sedate and paralyze cicadas. Cicada killers will hunt cicadas during the summer months when populations are active. They will find a cicada, sting it and bring it back to its nest. Next they will drag the cicada down into the burrow where the paralyzed cicada will serve as food for the young cicada killers.

Most egg burrows will have one or two cicadas for every egg that is laid. Nests usually only have one egg chamber, but when populations are high, cicada killers will dig extra chambers or extra nests to accommodate reproduction capabilities. This will vary from year to year as the cicada population varies. Old folklore states that cicadas are active every seven or 12 years, but in fact some will emerge every year, depending on the region. Cicada killer populations will vary depending on the hatch or release of cicadas. In general, the more cicadas, the more cicada killers.

Cicada killers are a nuisance because they dig large, unsightly nests that are sometimes thought to be from a vertebrate because they are so big.

Cicada killers will spend their days foraging and if you watch the nest, you may catch them entering or leaving. Since they are so large, most people are petrified of them. In fact, cicada killers are generally not aggressive, but don't irritate them. Stay clear of their nests and be sure to keep children away from them as well.

Since the nest will not go away on its own and will probably be active every year, it is best to treat it as soon as you see it developing. The treatment method you choose largely depends on the cost and your comfort level.

If you have one or two nests and are seeing only one or two adults, control should be easy. Use CB Wasp Freeze for a quick knockdown of adults as they are entering or leaving a nest. CB Wasp Freeze uses a combination of active ingredients that work on a wasps even as large as cicada killers.

Be careful of less expensive, over-the-counter aerosols. Many such formulations are not strong enough for this type of wasp.

Once the adult has been sprayed and is dead, watch the nest for a few days. If no activity is noted, you have probably solved the problem. If you see new activity the following year, you will need to go to the second treatment option to ensure they don't come back.

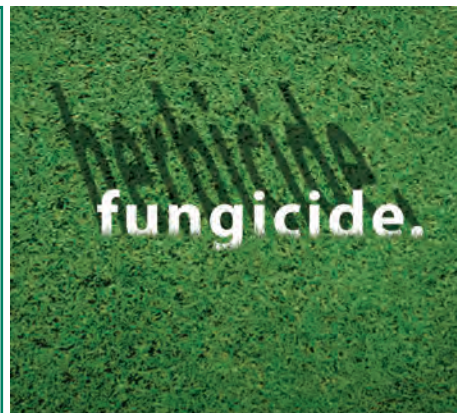
The second option is to use liquid concentrates if you don't want to get close to the nest or if you have several nests that need to be treated. Liquid treatments should be done at night so there is little risk of conflict with adults. Liquid treatments are cheaper than using Wasp Freeze and will enable you to treat large infestations economically. More importantly, liquid treatments will provide some residual in the hole so you may be able to kill newly hatched or developing larva, which could prove important when dealing with chronic infestations.

The best way to treat with liquids is to use a pump-up sprayer. Take the tip off the extension wand so the material will flow like a water faucet. It is important to be able to have a high flow rate to flood the hole. This ensures it will sink to the egg chambers.

Use cypermethrin and a spreader-sticker mixed together. Cypermethrin will persist for a month or more. The Spreader sticker allows the treatment to penetrate the adults quicker, which kills them before they know what is happening. This eliminates the possibility of being stung. Since nests can have more than one egg chamber, you should treat with up to two quarts per nest. This ensures proper coverage and distribution throughout the chambers. Since most active areas have several nests, liquid treatments are more economical than using Wasp Freeze.



These large wasps are often seen around bunker lips on golf courses. Photo by James Castner, courtesy UF Entomology and Nematology Dept.



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