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Integrated Pest Management for Honey Bee Pests and Predators in the Northeast Part II: Managing Varmints and Bears

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Key Words

Mechanical method: a non-chemical method for managing pests in an IPM program. Examples include barriers, traps and fences.

Cultural method: a broad class of methods for managing pests in an IPM program emphasizing management strategies. Examples include apiary site selection, apiary management and hunting.

If you are a new beekeeper, you need to be aware of the many predators that enjoy feeding on your bees cause them serious damage. Most of these predators are described in several excellent chapters in the third edition of *Honey Bee Pests, Predators & Diseases* (1997). I strongly recommend that you own a copy – and read it. Today, I want to talk about ways to control the most troubling predators in the northeastern US – varmints and black bears.



1. Bare, dug out ground in front of the hive indicates skunk scratching damage.

Common varmints include skunks and raccoons. A family of skunks can seriously damage all of the colonies in a large apiary if permitted to do so. These nocturnal creatures scratch near the hive entrance, on the ground, on the alighting board and on the bottom board. The scratching brings bees out of the entrance where they are quickly gobbled up. After a few nights of feasting, the ground in front of the hive usually becomes bare and dug out, with clear indications of scratching (Fig. 1). Scratch marks in the grass or dirt in front of a hive should alert you to the presence of skunks. It is also common to see animal droppings and small clumps of chewed up bee remnants in front of the hive. In addition to depleting your colonies of bees, skunks and raccoons leave the surviving bees in a very bad mood, and the increased stinging alone should motivate you to deal with the problem.

CULTURAL CONTROL METHODS

Apiary selection

Bear management begins with the selection of an apiary site. Generally, the higher the density of people, the lower the density of bears. If you select remote sites or sites near forests and mountains, you are more likely to be in bear territory. Don't let bears scare you away from a good apiary site, just be sure to protect your bees if you put them in a high risk area. Skunks and raccoons, on the other hand, are present nearly everywhere, and they are not deterred by

the presence of humans. That means you will need to be on the alert for varmint damage wherever you put your bees.

Apiary management

Visit your apiaries often. Bears often return night after night, so if you catch damage early, you can take preventative measures to protect the rest of your bees and equipment. The same advice applies to varmints.

Hunting

In cases where other control measures fail to stop predators from damaging your bees, you may need to hunt them. Contact the state agency responsible for regulating hunting in your area to determine the appropriate action.

CHEMICAL CONTROLS

There are no effective chemical measures for protecting bees from bears or varmints. Beekeepers often lace an egg with a dash of strychnine and leave it in the apiary for skunk control. This is illegal and unnecessary.

MECHANICAL CONTROL METHODS



2. Chicken wire stapled to front of hive.

Barriers

You can control skunks and raccoons by stapling chicken wire in front of a hive (Fig. 2). I cut the wire mesh 20 " wide and 36" long. I double it over and place it up against the front of the hive, with a couple of inches overhanging on each side. Then, I fix it in place with several ½" staples. The theory is simple. The skunk gets its claws caught on the wire as it scratches, becomes discouraged, and goes looking for easier prey. I prefer this method to some others I have tried, like the board with 100 nails coming up through from the bottom. That method will work, but it poses some danger to your feet, should you accidentally step on it at night or after it has been hidden by an overgrowth of grass.

Traps

Cage traps can be effective for catching skunks and raccoons. The trapped animals must be relocated. As with hunting, be sure to contact the state agency responsible for regulating trapping in your area to determine the appropriate action.

Skunk Fence

For small apiaries, you can use a non-electric fence for varmint control. A three-foot high wire mesh fence will keep skunks and raccoons out. Be sure to extend the fence six inches beneath the ground surface to keep skunks from digging under it.

Electric Fence

The electric fence is very effective for bear control (Fig. 3), so long as the bear does not encounter it while running through the woods, in which case, it will likely run right through it. Beekeepers often place strips of bacon on the hot wires to catch the bear's attention and bring it to the fence more slowly. You can set up a temporary bear fence, which is quick and easy, or a permanent one, which is not so quick or easy. I suggest that you use a temporary fence for a new yard. It is fast and inexpensive, about \$200.00 per fence. If the yard proves to be a good honey producer, you can invest in a more substantial fence.

You can make a temporary fence from round fiberglass fence rods, some polywire or ribbon wire, insulators, a fence energizer and a battery. (Fig. 4). Round fence poles are not as rigid as the T-type poles, but with round posts, you do not have to worry about their orientation when you put them into the ground because the insulators will swivel on them to whatever position you require. Since fiberglass posts are not very substantial, I recommend putting one in every 5 feet. I also recommend three or four wires. The first one should run 6" above the ground, the rest should be placed at 12" intervals above the bottom one. Turn the insulators so that the wire runs on the outside of the poles – this will give the fence more strength (Fig. 5). Use a heavy duty, deep-cycle marine battery. It will tolerate repeated cycles of charging and discharging. Select a energizer appropriate to your needs - you are running bees, not cattle - a 10-mile energizer is fine.



3. Electric fence.



4. Electric fence made from round, fiberglass poles and ribbon wire



5. Insulators on outside of poles.

An old super with a couple of 2 x 2's nailed to the bottom to keep it off the ground will provide a good housing for your battery and energizer (Fig. 6). Be sure to waterproof or paint the outside of the super, especially the bottom. Use an old outer cover to cover the super. Pass the hot and ground wires from the energizer to the fence through one or two holes drilled in the side of the super. Fit the holes with short pieces of snug fitting, flexible plastic tubing and run the wires through the tubing. Place the super inside the perimeter of the fence.

Use black, 12-gauge wire and a ground post clamp to connect your energizer to a metal ground rod (Fig. 7). Use red, 12-gauge wire to connect the energizer to the fence hot wires. Always connect the hot wires on the fence posts with a strip of wire to ensure that they are all hot. Depending on your soil type and moisture conditions, you might want to run chickenwire or wide-mesh hardware cloth on the ground around the outside of your fence and connect it to the ground post (Fig. 8). This will ensure a good contact under all conditions. Keep the mesh about 4 inches way from the fence. Use long stakes to fix it to the ground.



6. Good housing for your battery and energizer.



7. Metal ground rod.



8. Chickenwire or wide-mesh hardware cloth connected to the ground post.

A solar-powered energizer is an alternative to a battery-powered energizer. It consists of a solar panel, a battery and some electronics, all of which are usually contained in some sort of housing. The fence connects to leads coming out of the housing. Solar fences have advantages and disadvantages. On the positive side, you do not have to visit your apiaries as often to replace batteries, or worry about them running down if you forget them. On the negative side, the solar unit is somewhat more expensive, highly visible and prone to theft. I recommend painting your unit with a camouflage design and mounting it a low as possible. The Red Snapp'r model from Mann Lake is self-contained and comes with a 6-volt gel battery. The battery must be replaced every year or two, but the replacement cost is modest. Mount the unit on a post with the collecting surface facing south and in clear view of the sun.



9. Voltmeter

Purchase a voltmeter for measuring the voltage running through your fence (Fig. 9). Whether you use a battery- or solar-powered energizer, be sure that you measure at least 5,000 volts between the fence and the ground. Check the literature on the energizer before purchasing it to make sure you are getting adequate voltage.



Testing the voltage

PARTS FOR A 25' x 15' FENCE WITH 3 WIRES

- 240' polywire
- 6, 5' round fiberglass fence poles
- 48, insulators (be sure to select the proper insulators for your type of post and wire)
- 3, insulated gate handles
- portable battery-powered fence energizer (10 mile service)
- 2, deep cycle marine battery (heavy duty with voltage to match fence energizer)
- 1, 3/4" x 6' grounding rod
- 1, ground post clamp
- 10' No. 12 insulated wire – black
- 10' No. 12 insulated wire – red
- 1, voltage tester
- 1, home made equipment box
- 6", 3/8" or 1/2" flexible plastic tubing
- 80', 1" chicken wire 3' wide, or, 1/2" hardware cloth (optional)
- 20, long stakes for holding down wire mesh

TIPS FOR BEAR FENCES

1. install the fence before a bear starts to feed on your bees
2. use at least 5' of ground rod in the ground - the deeper you ground the fence, the better it will work during dry spells
3. to avoid grounding out your battery, keep the grass mowed around the fence
4. do not use an energizer with a capacity that is greater than what is needed - you are running bees, not cattle - a 10 mile energizer is fine
5. check your fence each time you visit your apiary - adjust the distances between the sires if needed - keep an eye out for short circuits
6. measure the fence voltage each time you visit the apiary
7. purchase two batteries for each fence - keep the second one charged and switch it with the run-down battery when you visit your apiary , that way you can avoid an extra trip and potentially dangerous 'down time' when the fence is not protecting your bees because you are recharging your battery
8. for protection in dry areas, fix chicken wire or hardware cloth to the ground along the outside of the fence perimeter and connect it to the ground post
9. do not leave garbage in the vicinity of your apiaries
10. do not locate your apiary beneath overhanging branches that may fall on your fence

RECOMMENDED BOOKS

Honey Bee Pests, Predators and Diseases. 3rd edition (R.A. Morse and K. Flottum eds.). The A. I. Root Company, Medina, OH



Links

Check out the following websites. They contain lots of useful information on protecting your bees from bears.

<http://www.colostate.edu/Depts/CoopExt/PUBS/NATRES/06519.html>

http://www.umass.edu/umext/bookstore/black_bears/status.htm

<http://dep.state.ct.us/burnatr/wildlife/factshts/bear.htm>

http://maarec.cas.psu.edu/bkCD/Bee_Diseases/disease_index.html

<http://www.agric.gov.ab.ca/agdex/600/1600002.html>



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