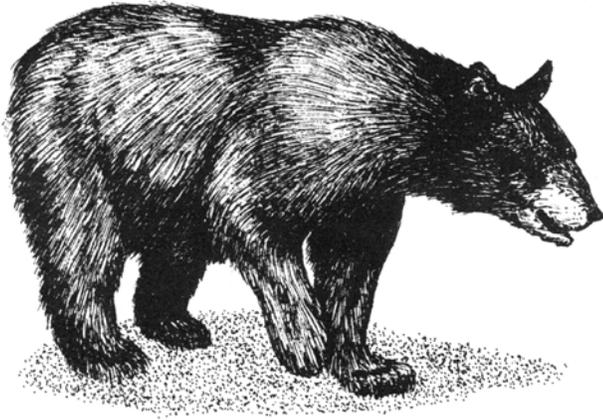


# Black Bears



*Black Bear*

# Bears and Beehives in North Carolina

## Problem

Black bears are common in many areas of North Carolina and reports of damage to bee hives caused by bears occur every year. Bears raid bee hives primarily to eat the honey, but they may also be after larva or the bees themselves. Bee hives placed in areas inhabited by bears are prime targets and may suffer repeated raids. Bear damage can have a serious economic impact on honey producers, since a raid can result in the loss of numerous hives and their honey.

## Description of Animals

As the only bear species found in the southeast, black bears are large, bulky animals, black or dark brown and have short tails. Adult bears are 2 to 3 feet high at the shoulders and 5 to 7 feet long. They weigh from 100 to 300 pounds.

## Life History

Bears are omnivores and will take advantage of any food supply. They are solitary animals and are not usually found in groups except for a female with cubs. Breeding females have young at two-year intervals. Generally, 1 or 2 cubs are born in winter and may remain with their mother a year. Young bears are weaned early the following fall. Sometimes young “dispersing” bears are the ones which cause problems, particularly in urban areas.

## Control

Bear damage to bee hives can usually be prevented by constructing an electric fence around the hive area. It is important to install a fence before a bear raid if hives are located in an area near bear habitat. Once a bear has been rewarded by gaining access to an unprotected hive it is more likely to return for another taste of honey. An electric fence constructed after an initial raid can still be very effective, but a bear is more likely to attempt to gain entry through the fence if it has already been successful before.

A bee hive platform can also be a very effective deterrent for bears. However platforms are expensive and difficult to construct. They are only practical in areas where bee hives will be placed for many years.

Negative behavioral conditioning can also be effective in deterring a determined bear from raiding bee hives. Shooting the bear with rubber stinger shells, beanbag shells, or rubber slugs in a shotgun may prevent a bear from returning.

# North Carolina Animal Damage Control Manual

Trapping and relocating bears is not a solution. If beehives are located in an area in or near bear habitat, other bears would soon move in to take advantage of the food source. Relocating bears simply moves the problem to another area for other people to contend with.

## **Legal Requirements**

Bears are a game animal in North Carolina and hunting seasons are established in the eastern and western parts of the state (consult the NC Wildlife Resources Commission regulations digest for information on hunting seasons in your area). Bears are not endangered and hunting is an acceptable method of managing and controlling bear populations.

A landowner or lessee may take bears on his land without a permit during their closed season only when they are in the act of damaging or destroying his property and only by using firearms. During the open season, the landowner or lessee does not need a permit to take bears while committing depredations; the taking may be by any lawful method (consult the NCWRC's annual digest of hunting and trapping regulations for those methods which apply to bears). In addition, during the open season a landowner or agricultural lessee does not need a permit or license to hunt bears as a sportsman on his own land (nonagricultural lessees must buy a hunting license). He may only take up to the applicable bag limit in this manner, but the bears taken can be kept or disposed of following general hunting laws.

All bears killed for depredations must be reported to the NC Wildlife Resources Commission within 24 hours by calling the 24 hour hotline (1-800-662-7137). Bears killed for depredation purposes (which do not include animals taken under sport hunting laws) must be turned over to wildlife personnel or buried in a safe and sanitary manner on the property of the landowner or lessee who killed the animal while it was committing depredations. The killing and disposal method of every bear taken for depredations must be reported to the NCWRC within 24 hours.

Local ordinances, such as those regarding the discharge of a firearm within city limits, may also have a bearing on how a particular animal damage control method is used and, consequently, must be checked.

## **Electric Fences**

Solar-charged or 110 volt electric fencing is one of the most effective methods to reduce black bear damage. An electric fence must be well grounded, sufficiently charged at all times, and maintained on a regular basis.

Maintenance includes clipping or applying herbicide to vegetation growing under the fence and ground mat, recharging the battery, and checking wire voltage with a voltmeter. If proper maintenance or constant electrification is not possible, remove the fence immediately. Once a bear penetrates a fence, it will likely challenge fences in the future.

**Permanent and semi-permanent electric fences** can be made from multiple strands of electric wire or woven wire attached to wood, steel or fiberglass posts. An electric or solar charger, an energizer and a battery are required to charge the fence. One example of an effective permanent electric fence measures 50 feet x 50 feet (often smaller) and costs approximately \$1,200 (Figures 1 and 2).

There are two common designs for **temporary electric fences**. A temporary 30 x 42 foot electric fence can hold 32 colonies and costs approximately \$300 (Figure 3). A woven-wire electric fence is built with nine steel T-posts driven vertically into the ground (Figure 4). If the soil is sandy or soft and wet, substitute wooden posts in the corners.

Put 1 1/2 inch PVC pipe over the steel posts as an insulator. Secure 32-inch high woven wire 6 to 8 inches above the ground outside the enclosure. Use a loop of baling wire at the top and bottom of the wire to attach it to the PVC pipe. Four strands of high tensile wire, spaced at 6, 16, 28 and 40 inches above the ground, can be used instead of woven wire (Figure 5). Place an energizer cut-off switch on one of the posts to allow easier access to the hives. However, it may encourage tampering with the hives.

Other temporary fences can be constructed with electroplastic netting, electrified twine or hot tape attached to posts or trees. Costs range from \$200 for fences using hot tape to \$750 for electroplastic netting. Effectiveness often reflects price.

Key features of fence design are strand spacing, energizer type and grounding effectiveness. Wire strands on a permanent fence should be no more

than 8 inches apart, and no more than 12 inches apart on a temporary fence. For both types, the bottom wire should be no more than 8 inches above the ground. The top wire does not need to be more than 3 1/2 feet high.

A New Zealand style energizer provides a stronger shock (at least 4,000 to 5,000 volts is needed) than a strip grazing energizer. It also decreases maintenance by reducing the need to clip vegetation growing under the fence. Ground the energizer by connecting it with a wire and a ground connector clamp to a half-inch by 6-foot rod driven into the ground.

A chicken wire mat 3 feet wide can be placed around the perimeter of the fence to ensure that the bear is grounded when it touches the fence. Connect the chicken wire to the grounding rod and pin it to the ground to prevent wind from blowing it into the fence. The chicken wire mat is difficult to pick up if beehives are moved frequently or if a lot of vegetation grows through it. Under these conditions, as well as when livestock are present, the mat can be omitted.

To protect the energizer and battery from theft and from damage by animals, place them inside the fence. To provide additional protection against theft, put them in a hive body modified to exclude bees. Place active hive bodies above the one containing the electronic equipment.

Although bears seldom break through a properly constructed and maintained fence, some failures have occurred when hives were placed close to the fence. Therefore, locate beehives at least 3 feet from the fence.

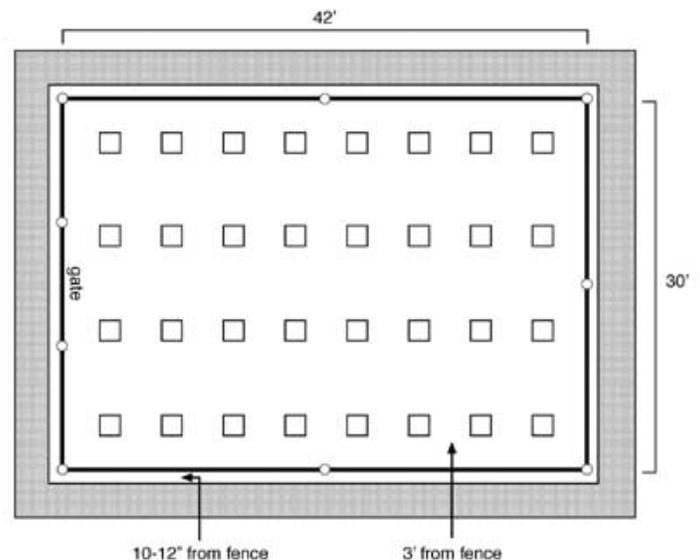
### TIPS FOR BEAR FENCES

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 wires 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.

### Temporary Woven-Wire Electric Fence



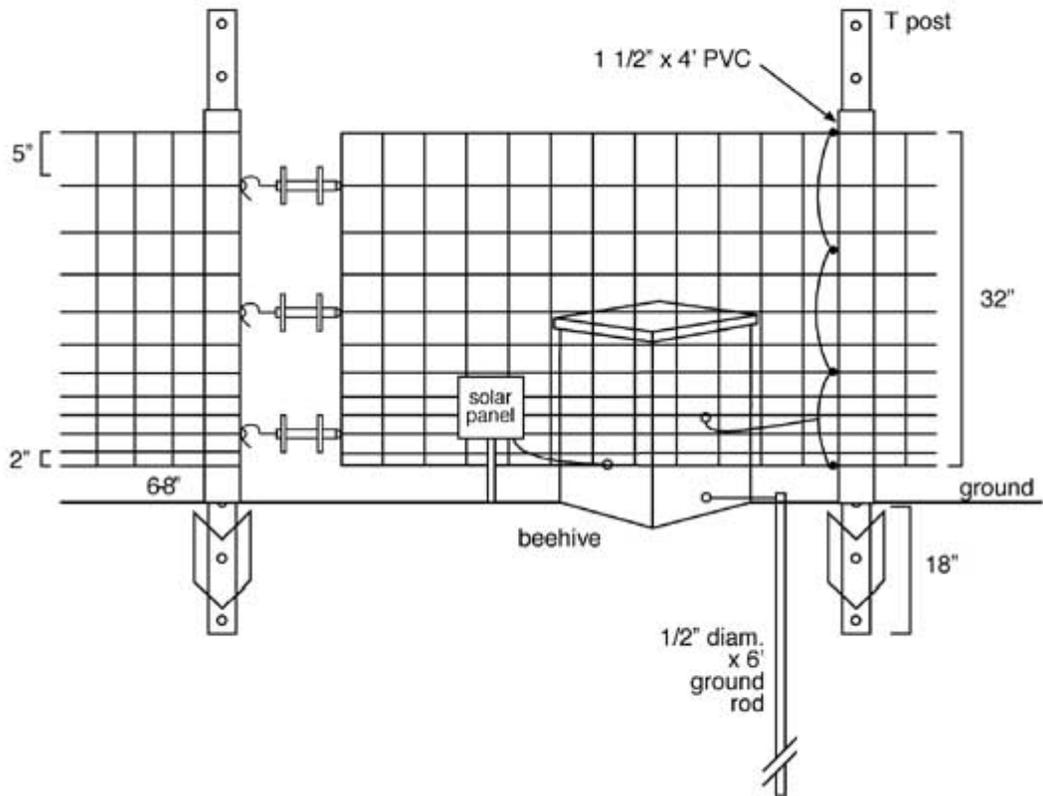
A temporary woven-wire electric fence and a temporary high-tensile electric fence designed to protect beehives from bears, showing spacing of posts and the position of beehives and chicken wire grounding apron relative to the woven-wire electric fence. Another "T" post is added to each of the longer sides of the temporary high-tensile electric fence.

### Materials for a Temporary Woven-Wire Electric Fence

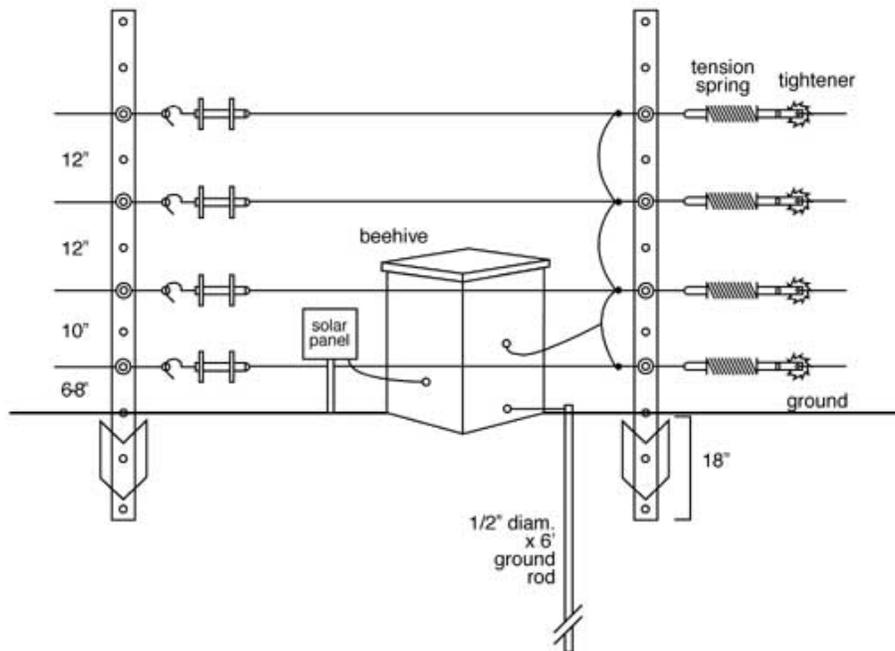
- 1 Solar charger and a 5.5 watt solar panel
- 1 Interstate PC1270 jell cell battery
- 15 ft Insulated cable
- 3 Insulated gate handles
- 9 1 1/2 inch x 4 foot PVC pipes
- 150 ft 32 inch wide light (about 18 gauge) woven wire with square mesh and wire spacing ranging from 2 inches on the bottom to 5 inches on top.
- 9 6 1/2 foot steel "T" posts
- 150 ft 36 inch wide chicken wire
- 40 Metal tent stakes or home-made no. 9 wire pins

1 6 foot by 1/2 inch ground rod and clamp

## Temporary Woven-Wire Electric Wire Fence

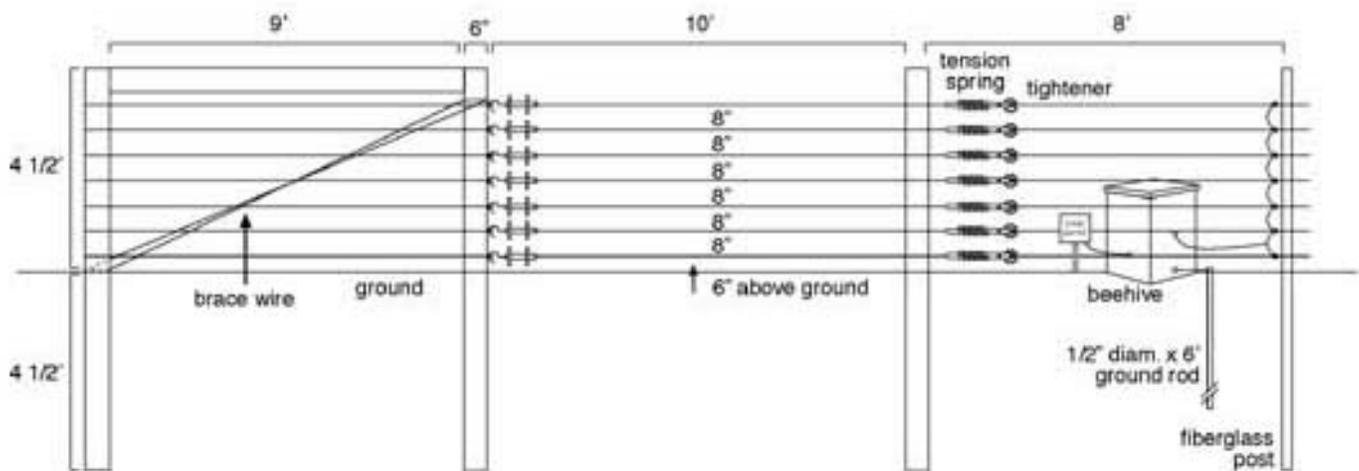


## Temporary High-Tensile Electric Wire Fence



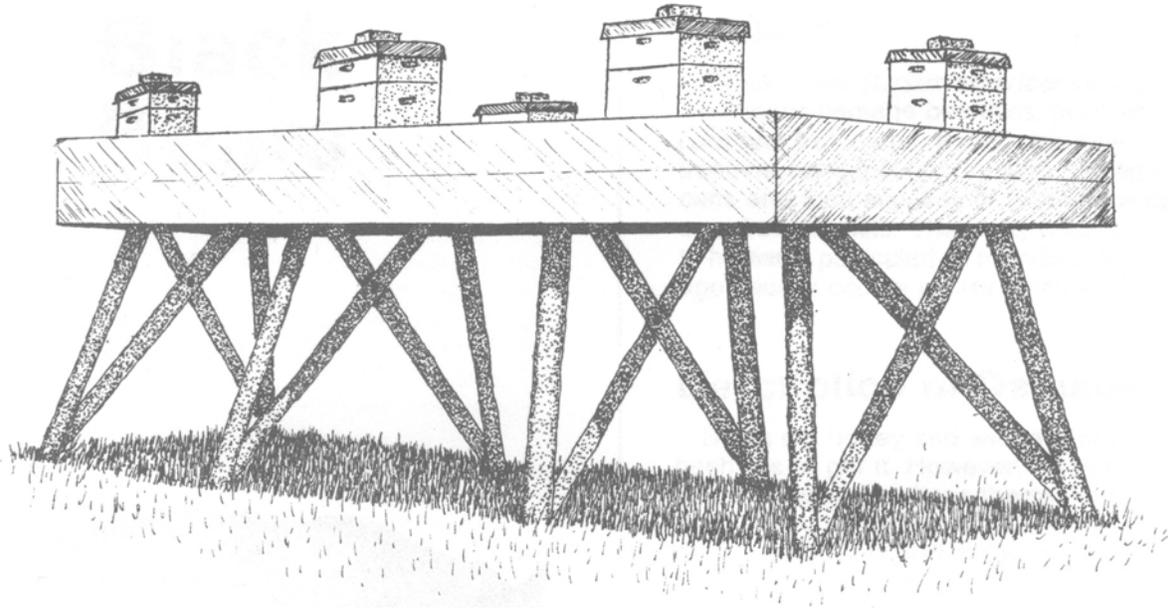


## Permanent High-Tensile Electric Wire Fence



### Materials for Permanent Electric Fence

- 1 New Zealand style 12 volt energizer
- 1 85 amp-hour deep-cycle battery
- 1 20-watt solar panel
- 1 Lightning arrestor
- 13 9 foot x 6 inch wood corner posts (CCA treated)
- 8 9 foot x 4 inch wood top rails (CCA treated)
- 11 7 foot x 1.2 inch fiberglass line posts
- 1 1,500 foot coil 12 1/2 gauge high-tensile wire
- 70 ft 1 x 19 galvanized aircraft cable
- 100 ft 12 1/2 gauge insulated wire
- 100 ft Insulated tubing
- 7 Heavy-duty gate handles
- 7 In-line strainers (ratchet-type)
- 7 In-line tension springs
- 1 bag 12 1/2 gauge compression sleeves
- 1 box 3-4 Nicotap sleeves
- 20 10 inch x 3/8 inch H-brace pins
- 5 lbs 2 inch zinc barbed staples
- 240 ft 36-inch wide chicken wire
- 40 Metal tent stakes or home-made no. 9 wire pins
- 1 6 foot x 1/2 inch ground rod and clamp



***Beehive Platform***

Suppliers

Electric Fences: farm supply stores, hardware stores;  
Snell Systems, Inc., P.O. Box 17769 San Antonio  
TX 78217

PREPARED BY

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