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In the mountainous and heavily wooded areas of the Mid-Atlantic region, bears are a serious threat to beekeeping operations. Bears can do a great deal of damage to hives and equipment in a short period of time. Bee damage is most common in early spring and summer (April to June) when young adults come out of hibernation, but can also occur during October and November, when the colonies are slowing down reproduction, preparing for winter and have adequate stored honey. It is this time in the fall before bears enter hibernation dens that they are looking for a sweet and protein rich meal. They normally visit apiaries at night, smashing hives to get to the brood and honey and scattering frames and equipment around the apiary. Once bears locate an apiary, they return again and again.

Destruction of beehives by bears is not new, but in recent years the problem has escalated. Black bears once ranged over the entire Mid-Atlantic region. Increased urbanization, cultivated acreage, and the trend toward monocultural agriculture have rapidly reduced both bee pasture and suitable bear habitat. Today, bears are mostly limited to wilderness areas but increasingly are appearing in subdivisions and outlying areas. The extensive use of herbicides and insecticides has reduced bee pasture and forced beekeepers to move their outyards into remote areas to avoid pesticide kills. Therefore, some of the safest/best bee forage is located in areas of high bear density. Most of the states in the Mid-Atlantic region have areas that have high bear populations per square mile, and bear population estimates based on bear kill records show an increase for all states in the Mid-Atlantic region. Pennsylvania, one of the most heavily bear populated states in our region, may have as many as 18,000+ bears, and in some areas in Virginia the population exceeds 2 bears per square mile.

Solutions to the complex bee/bear conflict are highly political, expensive, and have not been totally effective. Concessions need to be made by all sides. Beekeepers, game commission personnel, sportsmen, and environmentalists must work together to help save both bee and bear habitat and work to develop management schemes that will be favorable for both animals.

There are several precautions the beekeeper can take to reduce the chances of bear damage. Typically, bears move through their home ranges with preferred travel lanes or bear crossings. These bear trails often



follow along certain ridges, ravines, streambeds, or the forest edge. While these are not necessarily beaten paths, they may be. Beekeepers can thus help avoid damage from bears by careful selection of the apiary site. Placement of colonies on or near bear crossings, wild berry foraging sites, or garbage dumps that bears frequent, are more likely to result in problems. Spreading litter around an apiary site or leaving bits of burr/brace comb and pieces of drone brood removed from frames on the ground around the hive may invite trouble. Research has shown that the farther beeyards are located from the forest edge and ravines, the less chance there is of bear visitation.

Getting to know game commission personnel in your area, before bear damage occurs can be invaluable. They can provide estimates on the size of the bear population for different areas and help identify known bear crossings. Whenever possible, game commission personnel try to get the bear to move on or trap nuisance bears and move them to areas where damage is less likely to occur. They use baited culvert traps mounted on a small trailer, or special foot snares, to capture problem bears. Such programs are expensive and relocated bears may become someone else's problem. Repeat offenders are sometimes killed.

Non-lethal controls can be used to deter a bear from gaining access to property or a community. Examples include:

- Loud noises (e.g. horns, clapping, shouting, pyrotechnic salutes), bright lights or other harassment techniques
- Bear hounds or guard dogs to ward off bears
- Habitat manipulation (e.g. removal of protective cover) to make a site unsuitable for or unattractive to bears
- Bear fences.

An apiary can be protected from bears by erecting an electric fence but this must be done before bears begin to damage colonies. Therefore, if your apiary site is in bear country this should be one of the first tasks for site preparation to ensure the safety of your colonies. Such fences must be dependable, relatively cheap to construct, and capable of operating in the wilderness. An electric fence must be well grounded, sufficiently charged at all times and maintained on a regular basis (e.g. cutting or applying herbicide to vegetation growing under the fence and ground mat, recharging the battery, maintaining the integrity of the fence and checking wire voltage with a voltmeter).

Permanent or temporary electric fences can be made from multiple strands of electric wire or woven wire attached to wood, steel or fiberglass posts. Key features of fence design are strand spacing, energizer type (solar fence chargers are available and can be obtained in 'cattle strength') and grounding effectiveness. Wire strands on a permanent fence should be no more than 8 inches apart and not more than 12 inches apart on a temporary fence. The bottom wire should be no more than 8 inches above the



ground; the top wire need not be higher than 3 1/2 feet. Here is a link to instructions for constructing a relatively inexpensive (~\$450.00) bear deterrent fence from the Pennsylvania Game Commission; http://www.thebeeyard.org/wp-content/uploads/2013/03/Bear_Fencing_PA_Game_Comm.pdf.pdf

This fence was featured in an article in “Bee Culture” magazine ‘Bear Fence Rules’ (June 2005) by Craig Cella.

If a bear has located an apiary site it is imperative that all fence designs have some kind of bait (e.g., suet, bacon strips, peanut butter or pork rind) attached to the wires. The bait gives the bear a proper introduction to the electricity when it touches the tempting morsels with its moist tongue or nose. Without the bait, the bear is likely to crash right through the wire, and their thick fur is as impervious to the electricity as it is to bee stings.

Fences are totally ineffective if not installed and managed properly. They also are of little help if a bear has already established a pattern of visiting an apiary site. Avoid sites with overhanging trees, because limbs falling across the wires may render the fence inoperable. It is also quite common for bears to climb trees and then drop down inside the fence. To ensure continued successful operation, you must control grass and weeds along the fence so that they will not contact the charged wires and short them out. If wires are too far apart and a bear can get its head inside the fence, it will tend to lunge forward when subsequently shocked destroying your barrier.

If you have any particular questions about the laws and regulations surrounding a bear attack or damage to an apiary site there are many state agencies that can provide you with information regarding bear removal, trapping, and or damage compensation. Please see the following links for each state:

Delaware: <http://www.dnrec.delaware.gov/fw/Hunting/Pages/Wildlife.aspx> (Note: bears are currently not found in Delaware)

Maryland: <http://www.dnr.maryland.gov/wildlife/>

New Jersey: <http://www.state.nj.us/dep/fgw/>

Pennsylvania: <http://www.pgc.state.pa.us/portal/server.pt/community/pgc/9106>

Virginia: <http://www.dgif.virginia.gov/>

West Virginia: <http://www.wvdnr.gov/>

Additional information can be found at these sources:

- Alberta (www.agric.gov.ab.ca/agdex/600/1600002.htm)
- Colorado State University (www.ext.colostate.edu/pubs/natres/06519.html)

- Virginia Tech (www.ext.vt.edu/pubs/wildlife/420-200/420-200.html) have good extension leaflets on bears and bear fencing.
- Chapter 15. Mammals by Hood and Caron IN: Honey Bee Pests, Predators and Diseases. A.I. Root CO., Medina, OH (1997)
- <http://www.dgif.virginia.gov/wildlife/bear/blackbearmanagementplan.pdf>
- http://www.portal.state.pa.us/portal/server.pt/community/black_bear/14343
- Kencove Fencing <http://www.kencove.com/fence/>

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