

BLACK BEAR DEPREDATION ON BEE YARDS IN FLORIDA

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INTRODUCTION

The development of procedures for dealing with nuisance black bears in Florida has followed many years of antagonism between beekeepers and the State's wildlife agency as well as an intensive effort to mitigate the problem. With an apparently decreasing black bear population and increasing public sentiment for the bear, the pressure to develop acceptable management guidelines has become great. This paper summarizes the Florida Game and Fresh Water Fish Commission's efforts in documenting and mitigating the bear-beekeeper problem in Florida.

HISTORICAL PERSPECTIVE

Florida is one of the leading honey producing states in the United States (Sanford 1982). It also supports one of the most widely distributed black bear populations in the southeastern U.S. The coincidence of highly productive bee pasture with excellent bear habitat has led to a conflict between bears and beekeepers. This conflict has become increasingly acute with the rapid growth of Florida's human population and concomitant urban, agricultural, and recreational pressures on the state's remaining wild lands. Elimination of vast tracts of forested landscapes due to pasturization, housing developments, phosphate mining and other land uses has directly decreased the amount of habitat available to bears as well as to beekeepers. As a result, intensified use by beekeepers of the remaining swamps and forests in Florida has increased the chances for conflict between bears and bees.

The black bear's attraction to beeyards is not surprising. Food habits studies have shown that black bears regularly utilize native colonial insects in Florida (Maehr and Brady 1984). With the introduction of beekeeping in Florida, black bears were inadvertently presented with a preferred food of great abundance and easy accessibility. Further, most beekeeping activities in bear habitat occur during spring when natural foods are least available.

It has long been recognized that beekeepers are responsible for a sizeable illegal bear kill in Florida (Harlow 1961, Smith 1971, Pelton and Nichols 1972, McDaniel 1974, Williams 1979). Pearson (1954) linked the extirpation of black bears in Levy County, Florida to beehive depredations and resultant hunting by local residents. Often, though, measures are not

taken by beekeepers to discourage damage to their hives (Maehr and Brady 1982a). Detailed descriptions of electrified fences to control bears were published as early as 1938 (Storer et al.) and 1939 (Dacy, McAtee). More recently, Wisenhunt (1958), Robinson (1961, 1963, 1965), and Caron (1978) reviewed the use of electric fences to reduce black bear depredations on beehives. Raised platforms were once recommended in Florida to eliminate access by bears to beehives. However, the high cost of construction and inherent maintenance problems made platforms very impractical. Today, raised platforms are primarily used to protect apiaries from seasonally high water.

In recognition of the precarious nature of most segments of Florida's black bear population, the animal was placed on the State's threatened list in 1974. Since this time, it has been the goal of the Florida Game and Fresh Water Fish Commission to maximize black bear populations throughout the state. This has resulted in a concentrated effort to minimize confrontations between bears and beekeepers.

PROBLEM EXTENT

According to a 1981 survey of beekeepers, Florida experiences an annual loss to bear depredation of over \$100,000.00 (Maehr and Brady 1982a). Depredations occur over a wide area and have been reported in 41 (61%) of 67 Florida counties. Visits by bears to beeyards can occur in any month of the year, although an annual peak in beeyard attacks occurs in May. These findings illustrate the wide geographic as well as temporal extent of the bear-bee problem.

PREVENTIVE MEASURES

Many beekeepers have recognized the potential threat by black bears and have voluntarily constructed electric fences to protect their apiaries. According to our survey (Maehr and Brady 1982a), electric fences were used more than any other method to protect apiaries from bears. Our field experience indicates that electric fences are usually effective and their cost and maintenance are much less than the losses sustained in an unprotected apiary. Fences need not be elaborate nor expensive to effectively repel bears. An easily constructed fence used in south Florida was described in detail by Maehr (1982). One of the most unique aspects of this design was the lack of individual wire insulators and the use of a solar powered fence charger. These fences are still in the experimental stage, but appear to be 100% effective in maintaining a stable charge to the fence. A very attractive aspect of this charger is the reduced amount of maintenance required to keep the fence operational.

Another protective device that is still being field tested is a battery operated noise maker. The noise maker was developed by Tomko Enterprise, Riverhead, New York, and contains a programmable solid state mechanism that has been used to control white-tailed deer (*Odocoileus virginianus*) in agricultural land. The equipment contains a light-sensitive timer that can be programmed to produce a metal-on-wood sound at irregular intervals during daylight, darkness or 24 hours.

Over a period of 4 months, 3 noisemakers were in operation in 3 south Florida beeyards known to have sustained bear damage in the past. None of the yards were disturbed during this period. Although we have not concluded the field test, the results are encouraging thus-far. If the use of this device is proved to be feasible, we would recommend its use as an adjunct to an operating electric fence.

Several attempts have been made to create apiary-avoidance behavior in black bears (Colvin 1975, Gilbert and Roy 1977, Gunson 1977). The results, however, have been inconclusive. A recent experiment in Florida suggests that apiary aversion may be created by trapping and handling nuisance bears at the site of damage (Brady and Maehr 1982). Apparently, the trauma associated with trapping (leghold snare), tranquilizing (ketamine hydrochloride), tooth-pulling (for aging purposes), tattooing, and ear-tagging instilled an aversion to that apiary. None of the bears returned to the bee yard where they were captured.

The above field tests and literature review suggests that beeyards in Florida can be efficiently and inexpensively protected (when compared to potential damages). It is recognized, however, that not all black bears are always repelled by protective measures. A regular maintenance schedule must be kept by the beekeeper to assure proper functioning of battery operated equipment and prevent human error from allowing easy access to bears. Potential current shorts (vegetation, improper wiring) must be eliminated and only fully-charged, dependable 12-volt batteries used. Occasionally, a fully operational, properly constructed electric fence will not prevent bear depredation. These cases must involve individual animal control. In recognition of the various situations presented by nuisance bears, a series of handling procedures was developed, based on our studies and field experience.

GUIDELINES FOR DEALING WITH BLACK BEAR DEPREDATION COMPLAINTS IN FLORIDA

1. Upon Receipt of a Complaint:

- A. All beeyard depredation complaints will be directed to the Regional Wildlife Resources Biologist or to the Regional Land Management Biologist if the depredation occurs on a Wildlife Management Area.
- B. The initial response to a beeyard depredation complaint will be technical advice concerning the

construction of a proven effective fence design. Complainants should be advised that recurring attacks are likely and that an electric fence should be installed immediately. The complainant will be responsible for materials and construction of appropriate fencing.

2. Response to Recurring Depredation:

- A. Bears causing damage to beeyards protected by proven effective electric fences will be considered nuisance individuals and will be snared and released at the capture site. Trapping activities will be coordinated by the biologist receiving the complaint.
- B. Captured bears should be immobilized with injected drugs, eartagged, tattooed, and measured. A tooth should be extracted for aging purposes. Data collected from such bears will be forwarded to the Wildlife Research Laboratory in Gainesville.

3. Dealing with Persistent Nuisance Bears:

- A. In the event that an individual bear that has been previously captured and tagged as a depredating bear persists in damaging beeyards, extreme actions may be taken with the approval of the Director of the Division of Wildlife. These actions will include relocation or destruction of the bear.
- B. Relocation sites will be recommended by the responding regional biologist and approved by the Director of the Division of Wildlife.
- C. If relocation is not deemed appropriate under the prevailing circumstances, the bear should be killed. Appropriate personnel at the Wildlife Research Laboratory in Gainesville should be notified prior to killing the bear so that provisions can be made to maximize the scientific use of the carcass.

Although the last option for resolving a nuisance bear complaint is extreme, all possible attempts will have been made to halt depredation in a non-lethal manner. Further, the emphasis of beekeeper responsibility for initial protection creates an atmosphere of cooperation between apiarists and the Commission. It also avoids the undesirable aspects of a state-funded reimbursement program that may inadvertently encourage false damage reports while discouraging adequate protective measures.

Finally, the future of a productive honey business in Florida depends upon the preservation of the State's remaining swamp and forest lands. Inherent in this concept is that black bears are also dependent upon these forested landscapes. The nectar producing species so important to honey production are the very same sources of summer and fall mast utilized by black bears (Maehr and Brady 1982b). The development, by beekeepers, of a conservation ethic realizing the interdependence of bears and bees in Florida would considerably lessen our existing conflict.

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