

PREDATOR MANAGEMENT: PART OF A COMPREHENSIVE PLAN FOR THE WILD

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The wild turkey is an important game bird that has ecological, economical, social and recreational values. It has been restored to its historic range and beyond. The rapidly increasing populations attracted much interest and created an army of turkey hunters. The “explosive” population phase has been followed by some population declines. One would expect a decline because of habitat degradation and/or density dependent factors (e.g., predation). However, research has documented what might be termed excessive predation rates, resulting in turkey numbers lower than what might be supported by some habitats. Thus, I have raised the issue of predator management to increase turkey reproduction and recruitment rates.

Turkey reproduction (i.e., population size) is affected by an array of factors, such as habitat conditions (quantity, quality), weather conditions, predation, etc. Habitat types and conditions vary greatly over the turkey range. Habitat quantity can be evaluated grossly as poor to excellent by an expert, but quality cannot really be measured. Another problem is that turkey density (number/square mile) cannot be accurately or practically ascertained. In fact, a turkey population response to any habitat management practice (e.g., prescribed burn) has never been documented.

Measured responses (survival) to management of nest/brood habitats are lacking. We remain “artists”; this is good

for the turkey. Predictions as to nest success or poult survival rates cannot be made.

Recruitment, defined as the addition of reproductively active hens to a population, has seldom been calculated. Hen:poult counts in the late summer are not the same as a recruitment rate. Juvenile hen survival rates and cause-specific mortality are generally lacking, and have not been correlated to habitat conditions.

Habitat is the foundation for turkey populations, yet we cannot calculate turkey density or habitat carrying capacity for a given area. Expert opinion can be used. Turkey managers or biologists cannot directly manage the turkey on a large scale (landscape) basis. Turkey habitat management is conducted by private and industrial foresters (silviculture), and farmers and ranchers (agriculture). Developers and the human demand for space, food, and fiber “manage” turkey habitats. Government agencies manage turkey habitats through large scale programs (dairy buyout, CRP, forest incentive, etc.). Turkey habitat conditions are byproducts of our land uses or abuses. Economics drive turkey habitat management!

Weather (e.g., flooding, drought) affects turkeys in direct and indirect ways. It is important to state that recent studies conducted in New York and Mississippi reported that daily nest survival was negatively associated with both daily

rainfall and cumulative departure from normal seasonal rainfall in New York. They suggested that nest success decreased during wet weather because moisture increased the efficiency of nest predators. In Mississippi, predation of incubating hens and nests was related to the last rainfall event. Successful hens (hatched eggs) were associated with fewer rainfall events than in successful hens. A “wet hen theory” was developed and centers on wet hens emitting a strong odor which facilitates a predator locating a hen. We cannot manage weather.

A variety of diseases affect the wild turkey and predators of the turkey. Some diseases (e.g., blackhead) are thought to be density-dependent. Also, some diseases of predators are believed to be density-dependent, such as rabies and distemper. The field of wildlife diseases is complicated and not well understood. We cannot at present manage diseases of the turkey or its many predators. We just wait for something to happen.

The turkey is a prey species. A host of predators (carnivores, omnivores), furbearers, mid-size mammals, raptors, and snakes prey on turkey eggs, poults, juveniles and adults, particularly hens. The general ecology of most of the predators has been reported. However, the impacts of multiple predators have not been documented adequately. Usually, density of predators in a given area is unknown. Densities or most predators of the wild turkey may be at all time high levels.

Recently, I completed a review of the literature on predation of the wild turkey. This 38 page manuscript summarizes published material for each state and subspecies of turkey. One

sentence can serve as a general conclusion: Predation has been documented (empirical evidence) to be the primary cause of nest (eggs) destruction, and poult and hen mortality. Predation of hens was reported to be particularly high for reproductively active (i.e., egg-laying, incubating, brood-rearing) hens. After studying most aspects of turkey ecology and management for 25 years, Dr. Dan Speake, retired professor with Auburn University, said, “The great importance of predation on nesting success, brood survival and hen survival during spring and summer and its impact on recruitment stands out in importance.” After studying most aspects (e.g., population dynamics, habitat ecology, diseases, predator ecology, etc.) for 25 years in Mississippi, I totally agree with Speake’s statement.

Some examples of predation of the wild turkey are presented below. You should be aware of the fact that published data (rates) are minimal or conservative.

Mississippi. Most (95%) hen mortality was caused by predation. Average nest initiation rate was 63%, nest success was 38%, reneest initiation 22%, and reneest success 25%. The main cause of nest loss was raccoon predation.

Wisconsin. Mammalian predation accounted for 92% of all nest losses and predation was the primary factor affecting reproductive success. Annual hen survival averaged 53%, and predation caused 71% of all hen mortalities.

Massachusetts. Predation was the dominant cause of hen mortality. Poult survival through summer was 23%.

Alabama. Nest predation averaged 44%, but this represents only those hens that reached incubation! Losses of nests not complete are not included. Poult losses averaged 74% by September 1. Losses of hens during the nesting period could be high enough to seriously limit population increase.

Georgia. Predation accounted for 88% of the 106 identified poult deaths. During the 5-year study only 34 of 344 poults. The raccoon was the leading cause of poult mortality.

The specific predator of turkey eggs, poults, or hens can not always be identified. However, summarizing the many research projects, one finds the predominant predators of eggs to be raccoons, opossums, skunks, snakes, and crows. The main predators of poults are raccoons, birds and hawks, and snakes whereas the main predators of hens are bobcats, coyotes, foxes, great-horned owls, and feral dogs.

Predation is a complex and poorly understood ecological process. Predation is affected by many factors, such as prey and predator abundance, plant community characteristics, landscape features, harvest rates of predators by hunters and trappers, weather conditions, and man's activities. For instance, forest management practices (e.g., clearcutting, exclusion of fire, herbicides, etc.) affect patchiness/fragmentation, amount and location of edge, roads and trails, habitat type, and juxtaposition. Several of these factors aid and abet predation.

Predation is part of the "Natural Balance," but in most areas the balance has been greatly altered. We (turkey managers)

must deal with severely degraded, diminished, and not natural systems. The top carnivores, red wolf and cougar, were eliminated. Harvest of important predators of the wild turkey, e.g., raccoon has greatly decreased.

We live in man-habitats and man-systems. Man can again become manager via predator management. One manager stated that an imbalanced assemblage of predators should be dealt with by direct attention to the predation problem. Turkey management can be passive, do nothing (preservation): it can be indirect, try to manage some habitats; or it can be direct and proactive (preemptive, anticipate). Predator management should be a part of a holistic (comprehensive, integrated) turkey management plan. Think of predator management as one piece of the turkey production puzzle.

The goal of a predator management program is to annually reduce predator populations on selected areas so that nest success, and poult and hen survival rates increase. In other words, managers would have many of the dominant predators removed to increase the odds or probabilities that a hen would complete her clutch (eggs), and successfully incubate her eggs and raise most poults. Also, more hens would survive.

At this point, I could write a thesis on the pros and cons of predator management. Obviously I am pro, and I subscribe to Herb Stoddard's "formula" for turkey management: (1) regulation of the kill by man, (2) moderate control of certain predators if or when necessary, and (3) common-sense control of vegetation with fire. Number 1 has been in place, we have

many regulations. Number 3 has been “lost”, fire is gone for most areas. Number 2? I am working on establishment of a Predator Management Program.

Where. In Mississippi, predator management is being conducted on well-organized hunting clubs and a variety of privately-owned properties, such as commercial deer/turkey hunting areas, ranches, farms, and combinations of property types and goals. Area size varies from 5,000-30,000 acres. An owner with just 1,500 acres can have the program by enlisting neighboring properties. All small areas quickly increase in size when adjacent owners find out trappers are present.

When. Regulations for hunting (e.g., raccoon, bobcat) and trapping vary by state. In Mississippi, raccoon hunting is allowed from July 1 - October 1, with a limit of 1/party/night. From Oct. 2-Oct 31, raccoon, opossum, and bobcat can be taken. The trapping season runs from Nov.1-Feb. 28 (no limits). Predator management can be conducted over a long period, but the most intensive reduction should take place during February, as close as possible to the beginning of the turkey nesting period (March).

Who. Predator management is conducted by trappers and hunters. Mississippi has few trappers, so I depend on out-of-state trappers. These trappers can be found through various avenues (e.g., National and State Trapper Associations). By word-of-mouth and connections, many highly professional and greatly experienced trappers have been located and now trap in Mississippi. Trappers are evaluated on experience, equipment, and references. Minimum period of trapping is three weeks.

Most trappers work all of February. Deer hunting usually precludes trapping in much of January. A long relationship is expected between landowners and trappers so that the program continues on each property. Caretakers or club members are expected to assist trappers. State regulations are adhered to, and a variety of traps (e.g., leg-hold, conibear, snares, cage) are used. Have traps will travel!

Local and out-of state raccoon hunters are part of the predator management program. It is a win-win situation when local coon hunting clubs or individuals are given the right to coon hunt on private hunting clubs. On some clubs, the caretaker is also a coon hunter and trapper. He is provided equipment and incentive to reduce predator numbers. The program is flexible and designed for each property and conditions.

Cost. As coordinator of the predator management program I make suggestions to trappers and hunt club officers or private landowners. Final details are concluded by the two parties. Again, the program is flexible and is designed for each property.

It is mandatory that a club or landowner provide adequate housing for the trappers or visiting hunters. It is helpful if a skinning shed, cooler, and freezer are available. Usually, clubs or owners provide gas money and groceries to help trappers.

“Bounties” or financial incentives to take many predators are often applied. Depending on a trapper’s performance, clubs will provide a bonus and/or reimburse the cost of the trapping license.

Is the predator management program

cost effective? Hunt clubs and private landowner make that decision. To date, all properties have remained in the program, and 98% of all trappers have returned to their assigned properties. If you consider the financial value of one guided turkey hunt, \$350-550/day, it is easy to believe the cost of reducing predator populations to increase numbers of turkeys on a property. Hunt clubs already spend a small “fortune” for land, leases, housing, roads, food plots, etc. A few hundred dollars more is not a problem.

Success of predator reduction is “measured” by the clubs or landowners. The gauge is number of turkeys observed, gobblers heard, worked, and harvested.

Other. Professional trappers also perform a valuable service for clubs and landowners. While on the property trappers remove nuisance animals, e.g., furbearers like beaver, nutria, muskrat, etc. Ranchers and catfish producers target certain species that are causing economic losses.

Turkey management includes habitat, food plots, regulations/law enforcement, research, information/education, public relations, surveys, etc. If excessive predation, particularly during the turkey’s reproduction period, is limiting the number of turkeys, then I think we should manage the problem, i.e., manage predators. We should be trying to increase turkey production. Turkey productivity and recruitment are affected by an array of factors; which factor might be dealt with to increase nest success (hatch), and poult and hen survival? As with other wildlife management issues, private landowners will make their own decision.