BUILDING YOUR OWN
'DEER FACTORY'

Are Predators Really Hurting Your Herd?

Deciding whether or not predator control would yield benefits for a deer-management program requires an honest appraisal of the situation.

by Ben H. Koerth



Predators kill deer. Thus, if you want to protect your investment in the deer herd where you hunt, you should reduce the number of predators, right?

In a simplistic world, that is exactly what you would do. However, the issue of predator control is not as black and white as it might seem. As in management of most other biological situations, there are many varying shades of gray.

We biologists have long been ingrained with the concept that predators are responsible for only minor deer losses and that any mention of lethal control is virtually sacrilegious. Others contend that some predator control is nearly always necessary to maintain a balance between predators and prey. Depending on the situation, both sides can be right . . . or wrong.

My position is not to specifically advocate one side or the other, but to present some of the pros and cons of predator control. Perhaps this will help you decide if controlling predators on your deer land actually would have positive benefits or simply make you feel good about having done something to help the herd. In the end, the decision about the particular role it should play in your management program is up to you.

THE PREDATOR IN HISTORY

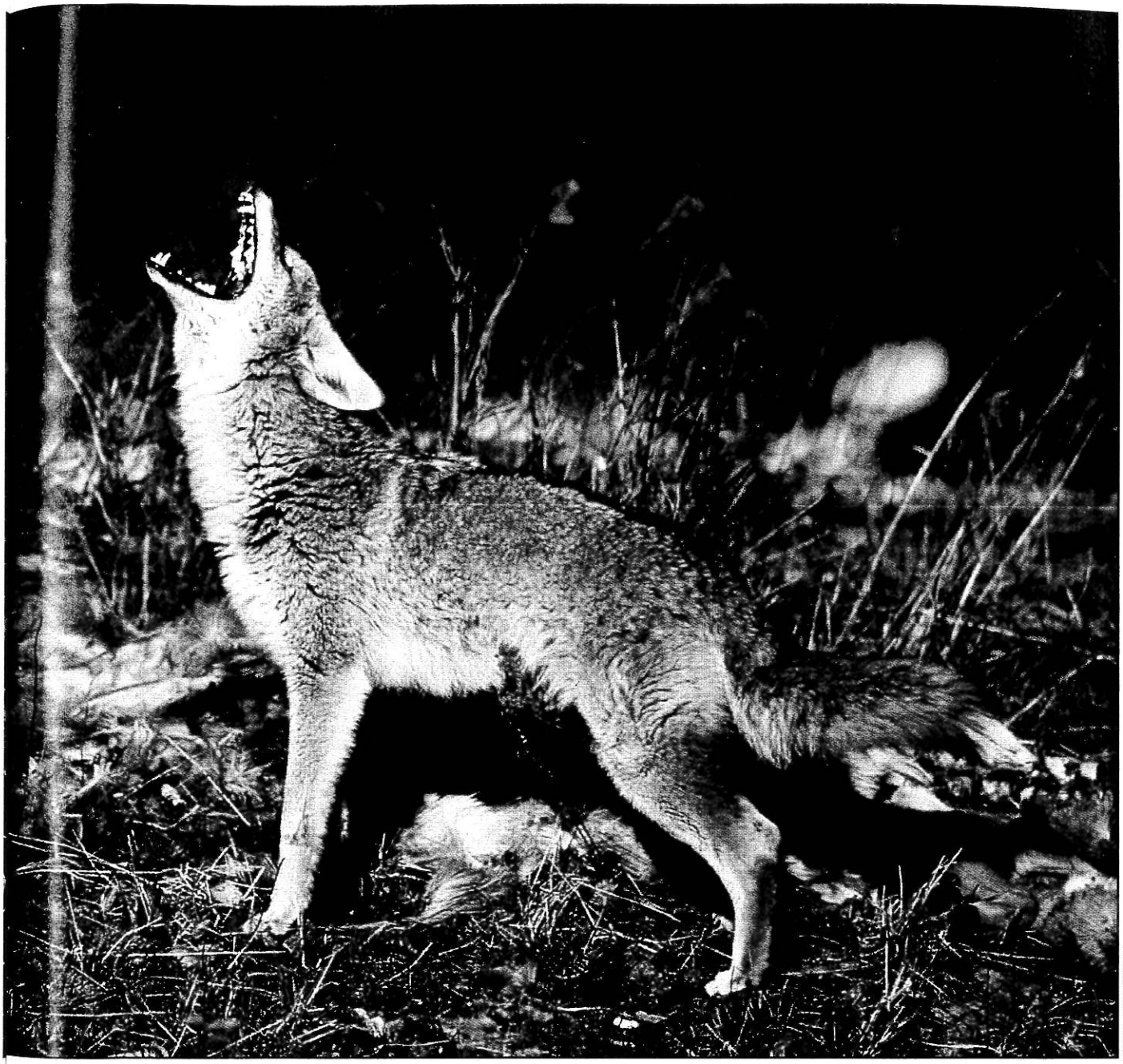
Most people just like to hate predators. This notion probably stems from somewhere in our ancestral heritage. Prehistoric people presumably killed predators, at least in part, because they competed with them for food. There was little question that predators were a threat, either directly to the person's safety or to the availability of food.

With the efficient food-production capabilities in today's world, wildlife often is valued more for recreation and enjoyment than as a survival concern. Yet, there might be times when controlling the number of predators can enhance the production of what we consider to be a more desirable species of animal. The trick is determining when predator control will have a beneficial outcome.

TRUE DEER PREDATORS

In regard to the white-tailed deer, I think there would be little argument that the coyote is the main predator of concern. Mountain lions certainly can have a localized influence, but because of their limited numbers and distribution, they probably are not an important overall threat to whitetail populations. Bobcats and lynx kill some fawns and an occasional adult deer, but likewise do not appear to be a major threat overall.

A host of other predators, including foxes, alligators, feral hogs, eagles and bears, have occasionally been known to prey on whitetails, particularly fawns. However, their effect on the size of a deer population is minimal at best.



PAUL T. BROWN

Where wolves exist, they can be a different story. They are considered a major historical predator of deer and can have a tremendous impact on local populations. (**Editor's note:** See our "Forum" department.) However, the limited range in which wolves and deer now exist together makes these predators minor players over most of the whitetail's range.

THE COYOTE PROBLEM

In most cases, then, if predation of whitetails is occurring, it primarily will be limited to coyotes. And it will have one of three possible effects on the deer population.

The first possibility is that the predation is having no effect at all. Now, I think we probably can dispense with this one right away. We don't have to dig through the literature to know that coyotes kill and eat deer.

Predation, by definition, is individuals of one species killing and eating those of another species. Thus, any removal of animals will affect the prey population in some way — "good," "bad" or otherwise.

The other possibilities are that coyotes are either regulating or limiting deer populations. This might seem a game of semantics, but there are real differences in the two, and those differences indicate whether predator control actually would benefit your deer-management program.

If the role of a predator is *regulation* of a prey species, the predator is helping to stabilize that population over time. In this case, coyotes and other predators are unwittingly giving us a helping hand. As hard as this might be to accept, it's true. Their role is helping to keep deer from exceeding the herd's food supply.

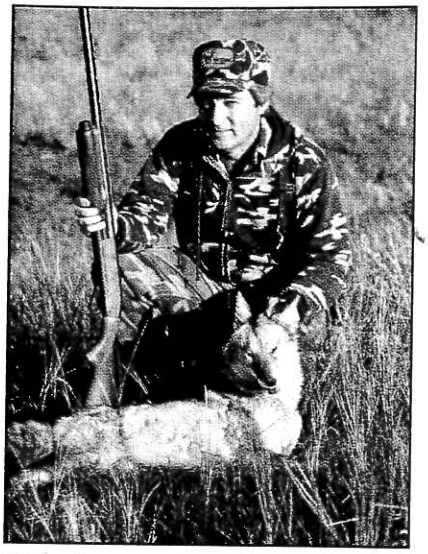
Coyotes normally can't control deer numbers on their own. At best, they provide a dampening or suppressing effect on the population. In areas where the deer herd is near or exceeding the habitat's carrying capacity, where deer are depredating crops or where you have to plead with hunters to harvest more does to control the

population, it would be foolhardy to attempt to reduce predator numbers. To do so only would heighten the negative habitat effects the deer already are having. And as much as we might hate to admit it, this is the case in most of the whitetail's range today.

This is not to say you can't affect the deer population if you remove enough predators. However, if you do, you'd better be ready to step in and make up the difference in deer production with increased doe harvest. Otherwise, your management program might suffer some consequences you weren't expecting.

Take, for example, a study conducted on the Rob and Bessie Welder Wildlife Refuge in South Texas. In this study, a 966-acre pasture was surrounded with a predator- and deer-proof fence and all predators inside it were removed. The deer herd inside the fence was monitored and compared to the herd outside the fence, which was still exposed to predation.

Initially, deer numbers inside the fence greatly expanded, primarily as a result of increased fawn survival.



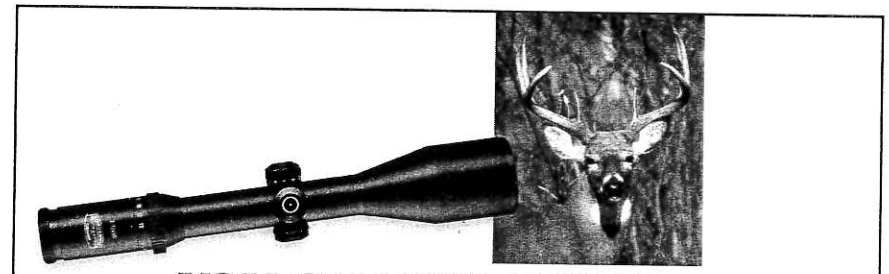
Many hunters pursue predators during the off-season. But it takes real effort to kill enough of them to boost deer numbers. Photo by Tom Evans.

However, after a couple of years of this elevated population, forage availability and deer health began to decline. Parasite loads increased, does began conceiving later, and overall reproductive performance decreased. Eventually, the population declined to levels comparable to those outside the enclosure, but with the individual deer in less healthy condition: not at all a situation we would like to see on our own hunting grounds.

In this example, coyote predation was not limiting but *regulating* the deer population. In essence, it was serving to help maintain a healthy deer population within bounds of the habitat. In the long run, deer mortality rates remained about the same as before, but the specific cause of the mortalities changed.

This is what we biologists mean when we talk about *compensatory* mortality. If a coyote kills a deer that was doomed to die by other means anyway, is that necessarily a bad thing? In other words, if by killing one individual the survival or productivity of another individual is enhanced, there are no long-term harmful effects to the prey population.

Also, most managers seldom look past the initial impacts of predator control. In deer management, preda-

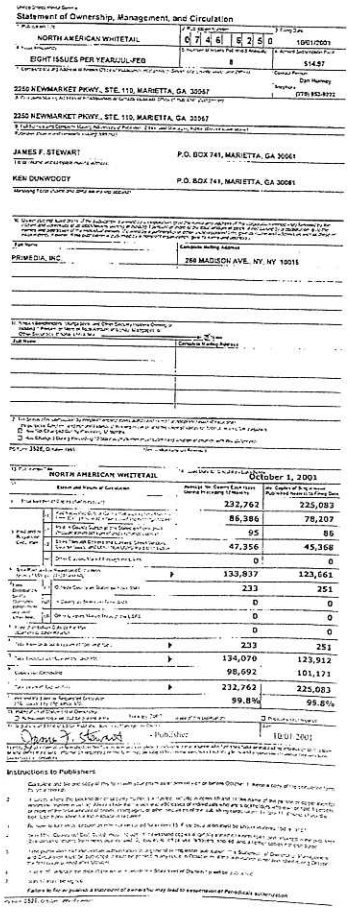


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tor control normally is initiated in an attempt to increase fawn survival and, to a lesser extent, reduce predation on adult animals. However, other detrimental effects might cascade through the web of creatures farther down the food chain. Coyotes prey not only on deer, but also on a host of other species. As such, they can influence the abundance and distribution of other animals in the ecosystem.

For example, experimental removal of coyotes in a West Texas study resulted in drastic changes in small mammal diversity. Whereas 12 species of rodents previously could be found in the study area, after coyote removal only one species remained. Jackrabbit numbers increased threefold. Such midlevel predators as skunks, foxes, badgers, bobcats and raccoons also gained in numbers.

Whether or not these changes in return for higher fawn survival are considered "good" is a value judgment. However, there is little doubt the dynamics of the ecosystem have been changed in such an instance.

The last scenario is one in which a predator population actually *limits* deer numbers. In this case, predation would be the primary reason deer numbers cannot increase. In fact, this predation might even be causing a *decline* in deer numbers. This situation has led to coining the term "predator pit," wherein a prey population simply cannot increase because of predation, no matter how much food is available in the habitat. It's as if the deer are in a predator-lined hole and cannot get out and expand.

This scenario is a possibility where deer are at very low densities relative to the habitat's carrying capacity. It can occur when otherwise normal deer populations suffer a debilitating setback of some sort (such as disease) or are colonizing new habitat.

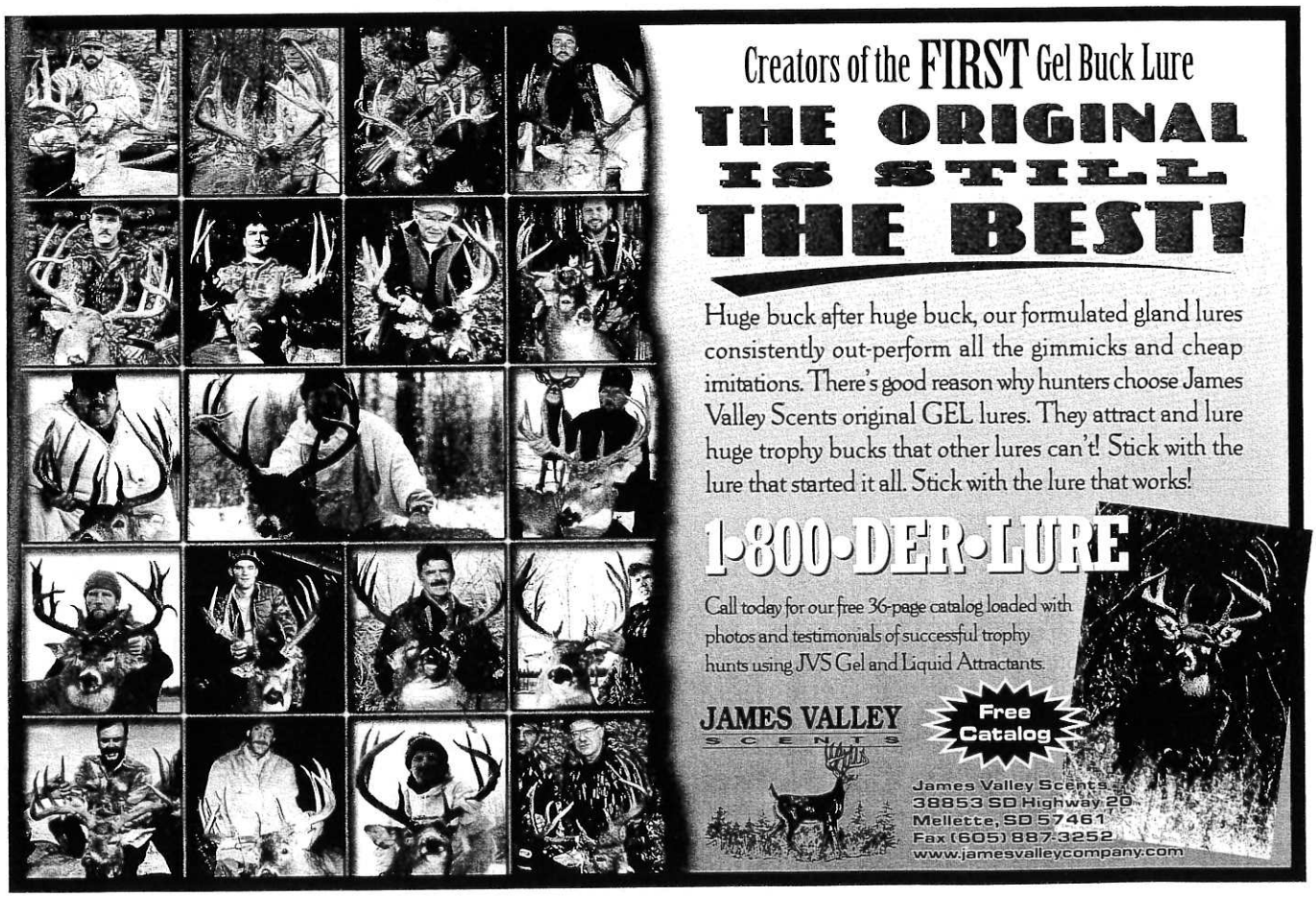
In such scenarios, predator removal can greatly enhance deer production in the short term. However, while a predator-removal program can provide a quick fix to get a herd on the road to recovery, eventually the deer will saturate their range and become limited more by nutrition, as in the predator-regulated example above.

Nevertheless, there are a couple of other situations in which predator control might prove to be warranted. The first is one in which predators are new to the prey population.

Historically, coyotes were denizens of the Western and Southern United States. Deer and coyotes evolved together there, so normal predator-prey relationships were developed long ago. However, within the past 50 years, coyotes have greatly expanded their range to include the Southeast and East Coast regions. They have been found as far to the northeast as Nova Scotia and New Brunswick within the past 30 years.

At least theoretically, it is likely that predators could have a far greater influence on a population where predator-avoidance strategies have not had much time to develop. In this case, the "rules of the game" and the "playing field" have been changed.

Still, coyotes might not be the demon many whitetail managers think. In light of the burgeoning deer populations throughout much of this range, coyotes apparently are not a limiting factor overall. However, predator control in localized areas where deer populations remain low



could prove to be fruitful. It still remains to be seen if the deer in this area can sustain the current rate of hunter harvest in addition to predation by an unchecked and apparently growing predator population.

Also, with continued human manipulation of the landscape, we could be developing another situation in which predator control plays a significant role. Highly fragmented habitats essentially create islands of deer habitat surrounded by country that provides little for deer. Even when these islands are connected by fencerows or brush strips, the narrow, linear shape of the strips makes predators much more efficient hunters.

The same goes for some areas that have been high-fenced for deer management. As with island habitats, small tracts surrounded by high fences essentially present coyotes with a captive audience and lessen the search time necessary to find prey.

EFFECTIVE CONTROL

Predator control will continue to be a divisive issue, and not all of the answers can be provided by anyone. But if you decide you need to reduce predator numbers in your management program, how much is enough?

There have been many cases in which someone has tried predator control and found it made no difference. The implication then is that predators weren't affecting deer numbers. On the other hand, the manager simply might not have killed enough predators to have a noticeable effect. Remember: It's not the number of coyotes you take out, it's the number you *leave* that is important.

To really be effective, predator control needs to be intensive. Unfortunately, too many people approach predator control in a somewhat lack-adaisical manner. For instance, many deer hunters seemingly have a "shoot on sight philosophy" about coyotes as long as they feel the disturbance of shooting a coyote would not have a negative effect on the outcome of their deer hunt. While this practice might give the hunter a temporary feeling of accomplishment, in reality opportunistic shooting usually falls well short of removing the number of animals necessary to effectively curtail coyote populations.

Even recreational calling and shooting of coyotes after deer season will have little lasting effect. Effective control takes more than a superficial effort that simply skims off the easy ones. *Computer simulations conducted by experts on coyote-population dynamics suggest you could remove up to 70 percent of the coyote population each year and have no effect on their long-term number. You have to remove more than three-quarters of the coyote population annually to begin to see any substantial reduction in their number.*

The key word here is *annually*. Coyote control is not a one-time deal. Short-term efforts to control predators usually do little more than aggravate the situation.

In areas where the deer herd is near or exceeding the habitat's carrying capacity, where deer are depredating crops or where you have to plead with hunters to kill more does to control the population, it would be foolhardy to try to reduce predator numbers.

Timing of predator control is equally important. *The best time to control coyotes is when their population is at its lowest point for the year.* This equates to a couple of months between late winter and early spring before they give birth to their young.

This time period also has direct ties to the deer. Late winter, after the rut, is when most predation on adult bucks takes place. During this time, bucks are recovering from rutting activities and commonly are in their poorest shape of the year. Predator control during late spring also allows fawns to be born with less danger of becoming immediate victims.

IS THERE A PAYOFF?

This brings up a final item of consideration: How many of the deer you save from coyotes actually make it into harvestable age-classes? Do you as a hunter really get to take advantage of a surplus?

Unfortunately, most studies indicate that in herds already near the carrying capacity of the habitat, any surplus deer saved from predation have a much higher chance of succumbing to other factors long before they reach the hunter's bag. Deer can become more vulnerable because of their own success. Too many animals in a finite habitat can lead to more disease, increased parasite loads and/or other stress-related conditions that ultimately diminish their health and reproductive success.

QUESTIONS TO ANSWER

Predator control certainly has a place in deer management. However, it's not a cure for poor management. In deciding if predator control can be effective on your land, you need to consider several questions:

(1) What are your deer numbers, relative to the habitat's carrying capacity? Is there really room for more healthy deer?

(2) If there *is* more room for deer, why are deer numbers currently so low? All possibilities need to be explored before placing the blame on predators. Yes, coyotes kill deer, so that seems the obvious answer. But coyotes have been killing deer for thousands of years, and we still have plenty of both. The easy answer is not always the right one.

(3) Is effective predator control even feasible? With your skills and resources, can you remove enough predators to actually help the deer herd? This is where the record-keeping discipline we have written about so many times comes into play. If you have been monitoring deer numbers and reproductive success, you can use your numbers before and after predator control to determine how effective your efforts might have been.

(4) Lastly, are the extra deer you produce worth more than the cost of producing them, and will they be utilized?

CONCLUSION

Predator control might be justified if your deer numbers can be increased at a reasonable cost and the extra deer will be used. But such control likely will have little lasting effect on deer herds that are well established, have adequate nutrition, are actively reproducing and have ample cover so that fawns and adults are not exposed to excessive predation. You, as the deer manager, must make that decision.