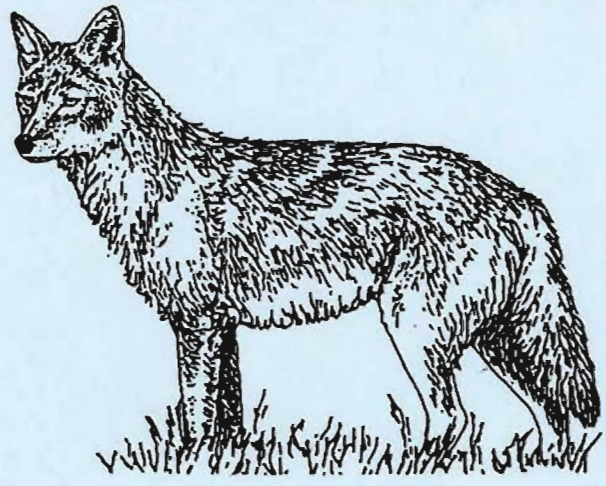
THE STATUS AND IMPACT OF EASTERN COYOTES IN NORTHERN NEW YORK



by

Bureau of Wildlife

Division of Fish and Wildlife

New York State Department of Environmental Conservation

and

Cornell Cooperative Extension

Department of Natural Resources

New York State College of Agriculture and Life Sciences

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THE STATUS AND IMPACT OF EASTERN COYOTES IN NORTHERN NEW YORK

EXECUTIVE SUMMARY

In 1990, the Legislature passed a bill that would have allowed year-round hunting of coyotes in New York's Northern Zone, as opposed to the current system of open and closed hunting seasons established annually by Department of Environmental Conservation (DEC) regulation. The bill generated such controversy that it was withdrawn pending a study by DEC. The objectives of the study were to: (1) assess the role of the coyote in northern New York in relation to people, wildlife and livestock; (2) provide adequate opportunity for citizens to express their opinions concerning coyotes; and (3) prepare a status report with coyote information and management recommendations.

The study consisted of: (1) a review and analysis of available scientific literature; (2) consultations with leading coyote researchers and wildlife damage management specialists; (3) a survey of DEC field staff and County Cooperative Extension agents in northern New York; and (4) the solicitation and analysis of both written and verbal public opinion. As a result, given that a strong social demand or biological need could not be demonstrated, the DEC recommends against a year-round coyote hunting season for the following reasons:

- The majority of people who provided input do not support a year-round coyote hunting season.
- Human concerns and complaints about coyotes are not a major public issue, and are influenced by one's background, perspective, personal interests, and geographic location.
- Coyote problems appear to be localized rather than spread throughout the Northern Zone.
- Existing law allows landowners to take specific coyotes injuring private property.
- Deer harvest data indicate, on the whole, Northern Zone deer numbers have been growing in the presence of well-established coyote populations.
- The random removal of coyotes resulting from a year-round hunting season will not: (a) control or reduce coyote populations; (b) reduce or eliminate predation on livestock; or (c) result in an increase in deer densities.
- Few people would take advantage of this additional hunting opportunity.
- Potentially valuable fur would be wasted since late spring, summer, and early fall coyote pelts have little monetary value.

The DEC will continue with its current coyote regulatory, extension, and monitoring programs. In view of the strong demand for additional information about coyote ecology, management, recreation, and damage prevention techniques, the DEC, within the constraints of current staffing and funding, will strive to:

- Develop educational and natural resource information programs, in cooperation with other agencies and organizations, including the preparation of extension materials for people with coyote complaints.
- Increase extension efforts and on-site investigations of coyote damage complaints.
- Expand and promote recreational opportunities for hunters and trappers.

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ACKNOWLEDGEMENTS

For the past ten months, two dozen people have been involved in putting together the following report. What began as a small group of loosely-knit Bureau of Wildlife staff, soon evolved into a larger, cohesive team that included wildlife biologists, communications specialists, coyote researchers, Cornell Cooperative Extension agents, and support staff from the Bureau of Wildlife, Cornell University, the College of Environmental Science and Forestry, Jefferson Community College, and four County Cooperative Extension offices. Everyone had a role, a purpose, and a function; and everyone contributed to make this a successful team effort. One person characterized this effort as "...one of the most productive, enjoyable, morale-boosting efforts in recent Bureau history." Another stated that the public meetings were the best he had ever attended. Bureau of Wildlife staff were brought closer together, and working relationships between Bureau staff and outside agencies and institutions improved. It is to this team that this acknowledgement page is dedicated.

Special recognition is due the following individuals for their significant contributions in bringing this report together: Gordon Batcheller, for developing the basic outline that guided our efforts, for summarizing the written comments, and for being the strong, motivating force that kept us properly focused and on track; Paul Curtis, for obtaining the assistance of the four County Cooperative Extension agents who moderated the public meetings, and for overseeing the preparation and summary of the public meeting comments; Wayne Jones, for developing the public meeting handouts, writing news releases and letters, conducting mailings, and developing, instituting, and summarizing the survey of known predation incidents; and Kathlene Loconti-Lee for assembling countless bits and pieces of information, preparing several figures, combining the numerous writing styles of the various contributors, organizing and editing the report into a readable, understandable document.

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THE STATUS AND IMPACT OF EASTERN COYOTES IN NORTHERN NEW YORK

INTRODUCTION

Purpose of this Report

Eastern coyotes have been one of New York's most controversial wildlife species since they were first documented in New York during the 1920's. Coyotes have expanded their range despite countless attempts to eradicate or control them. They can elicit countless stories from friend and foe alike, highlighting their role in the ecology of the North Country.

It is this range of perceptions about the coyote's role that creates controversy, making it a difficult wildlife species to manage. Some people believe that current coyote numbers are negatively impacting deer populations in northern New York. For instance, at the last seven Adirondack deer forums, about one-half of the attendees stated that coyotes were controlling deer populations in the Adirondacks. They feel that hunting and trapping seasons are not adequately controlling the coyote population, or reducing predation by coyotes on deer. In addition, some livestock producers are concerned about coyote depredation to sheep and cattle. Producers often blame coyotes for livestock losses.

A controversial bill allowing year-round hunting of coyotes in the Northern Zone was passed by the Legislature in 1990. At the request of the Governor, the bill was withdrawn by its sponsors, Senator Ronald B. Stafford and former Assemblyman Glenn H. Harris, in anticipation of a study by the New York State Department of Environmental Conservation (DEC).

Scope of this Report

The DEC was directed to review the impact of coyotes on domestic and wild animals, based upon an analysis of available scientific information and public opinion. The major elements of the study, which are reported here, include:

1. An analysis of deer population abundance in northern New York, as it relates to food supply, to help determine the role of coyote predation versus deer starvation.

2. The effect of hunting and trapping in controlling the coyote population.

3. Information from appropriate groups on known instances of livestock and deer predation by coyotes.

4. An analysis of the effects of previous coyote control measures.

5. An evaluation of alternate control measures and recommendations for the future management of coyotes.

Geographic Area of Concern

New York's Northern Zone contains 15,866 square miles, including all or parts of the 14 northern-most counties. DEC delineated the Northern Zone in 1954 for the purpose of deer management programs. It is described in Environmental Conservation Law Section 11-0103 (16)(a).

For the purposes of this report, four major northern New York land areas are considered: Central Adirondack Land Area, Tug Hill Land Area, Foothill Land Area, and the Plains/Valleys Land Area (Appendices A, B, and C). Together, they comprise the entire Northern Zone.

NATURAL HISTORY OF THE EASTERN COYOTE

Identity and Description

Early researchers believed that eastern coyotes were crosses between dogs and wolves, or dogs and western coyotes. They are often called "coydogs" by northern New Yorkers for this reason. However, studies show that these animals are a distinct species and are not hybrids.

Male adult eastern coyotes weigh between 35 and 45 pounds. Females are usually 5 to 10 pounds lighter than males. Individuals weighing more than 50 pounds have been verified. However, because their winter coat is long, they appear much heavier than they actually are.

Total body lengths of eastern coyotes range from 48 to 60 inches. Their colors range from blond, to reddish blond, to dark tan washed with black. Legs, ears, and cheeks are usually reddish. The most important identification features are the erect ears and the full, "bottle-brush" tail which usually is held downward.

Reproduction

Female eastern coyotes, unlike their western counterparts, usually do not breed until their second winter. They have one heat period each year that lasts 4 or 5 days. Studies in Maine and New Hampshire showed that the average litter size is 7 pups. The pups are born in April after a gestation period of 61 to 66 days.

Females will not breed if food is in short supply. They also will not breed if their numbers are too high for the available food and space. Additionally, litter size is lower in areas with inadequate food resources.

Social Organization

The social life of coyotes revolves around the mid-winter breeding season when pairs are formed. Coyotes sometimes travel in small groups or packs (around 3-4 animals) during the late winter. The formation of packs appears to help in the killing of prey. A pack usually contains some females who do not breed. If the breeding female is removed, a nonbreeder may take her place.

Territory

Much of the movement of coyotes apparently is associated with patrolling territorial boundaries, or in avoiding other coyotes that are defending territories. A mated pair marks their territorial boundaries with urine scent posts and droppings where other coyotes will find them. Coyotes regularly advertise their presence by howling, a ritual which has become familiar to many rural residents of northern New York. Coyotes also will defend their territories from others by fighting. Many rural landowners have reported that their dogs have been harassed by coyotes. The coyotes were probably defending their territories from the dogs.

A Vermont study showed that eastern coyotes living in farmland defended territories averaging about 3.5 square miles. Due to the distances and patterns of observed movement, it was concluded that the coyote population was at "saturation density" and would not tolerate any additional coyotes. In a central Adirondacks study, coyote territories averaged 7.5 square miles, and these animals also

appeared to be at saturation densities. The difference in average territory size probably indicates that farmland is better coyote habitat with a richer prey base than forest land.

Dispersal - Long Distance Movement

Young coyotes usually start leaving their parents' territory when they are about 5 months old. Fewer young coyotes disperse from a coyote population that is hunted or trapped. Harvest mortality lowers coyote numbers thereby allowing room for some of the pups to remain within their parents territory.

Young coyotes typically move about 30 miles from the area of their birth, but movements of 120 miles have been recorded in New York. In Vermont, young coyotes moved between 12 and 89 miles, and 2 of the 11 studied coyotes moved into New York. The differences in length of movement probably are related to the availability of vacant range. Coyotes will move longer distances if vacant range is not found nearby.

Mortality and Diseases

The causes of coyote deaths are difficult to document, but studies have shown that mortality rates are high. In Alberta and Wyoming, about 70% of the pups died within one year. In Minnesota, 81% of coyotes of all ages died annually from human factors (harvest, car kills).

Coyotes are subject to many natural diseases and parasites. In New York, mange is reported more than other diseases. Although mange often is fatal, the total level of mortality caused by this disease is unknown. Other coyote diseases and parasites include viruses, bacteria, fungi, tapeworms, roundworms, mites, lice, ticks, and fleas.

Food Habits

The diet of the eastern coyote has been studied intensively. In northern New York, three studies were performed during 1956-1961, 1975-1980 and 1986-1989. They were based on the examination of coyote droppings or scats. The studies showed that coyotes eat many food items including varying hare, deer, domestic livestock, and insects. They also eat plants such as fruit, seeds, grass, and ferns, and small rodents such as mice and squirrels. Coyotes are true opportunists, and eat whatever is available and easy to obtain.

The 1986-1989 study, conducted in the central Adirondacks, showed that deer consumption was highest during the winter months, ranging from 85% in March to 10% in September. Raspberries, apples and insects were important food items during the late summer and fall. This reflects the scarcity of other prey and food items during Adirondack winters. In contrast, a Vermont researcher who observed the behavior of coyotes in farmland, found no evidence that coyotes pursued deer in his study area. He felt that other food was more abundant and easier to obtain than deer.

History of Presence in New York

There are two theories to explain the presence of the eastern coyote in New York. The first is that they have historically been here, even during the period when New York was first settled. Europeans did not have the word "coyote" in their vocabulary. It is likely that any wild canid would have been called a "wolf." There are early references to "large" and "small wolves", suggesting that both wolves and coyotes may have been present.

During the 1800's, settlers cleared much of the state. Up to 75% of New York's forest cover was removed, transforming the landscape. Populations of animals that required forest cover were greatly reduced. Examples include the passenger pigeon, wild turkey, beaver, white-tailed deer and, if present, the eastern coyote. In addition, any animal seen as a threat to man and his livelihood, such as cougars, bears, and "wolves" or coyotes was reduced or purposely eliminated.

The second theory is that coyotes are a relatively new species in New York, having moved here from the western United States via Canada. This theory suggests that western coyotes hybridized with timber wolves and became a distinct subspecies, the "Eastern coyote." They thrived under suitable habitat conditions after becoming established in the state. Regardless of which theory may be true, coyotes now are distributed widely in New York, and are here to stay.

Reports of coyotes in northern New York were recorded in the 1920's and have increased in number since that time. A study completed in the early 1970's showed that the eastern coyote expanded its range from two (St. Lawrence and Lewis) to sixteen northern New York counties between 1940 and 1960. Coyotes now occur in every area of the State, except for New York City and Long Island.

MANAGEMENT OF THE EASTERN COYOTE IN NEW YORK

Past Management

The coyote was an unprotected furbearer until 1976. It could be harvested at any time of year by hunting or trapping. In fact, from 1949 to 1956, the then New York State Conservation Department hired people to kill coyotes. The program eventually was discontinued because it was too expensive and ineffective in reducing coyote numbers.

In addition, some counties paid a bounty for coyotes. In the 1800's, bounties were paid for "wolves" in St. Lawrence and Franklin Counties. Some of the "wolves" could have been eastern coyotes. From 1946 until 1970, bounties were paid by nine northern New York counties. Bounties on wildlife were prohibited in New York starting in 1971. For more detailed information about the history of bounties in New York, refer to the section of this report titled, "Coyote Control Efforts in New York State."

In 1976, a law protecting the coyote was passed. The law was strongly supported by the DEC, NYS Trapper's Association and the NYS Conservation Council. It classified coyotes as a game animal for which open and closed trapping and hunting seasons were established. DEC writes the regulations to implement that law.

Present Management

All trapping and hunting regulations are written on the basis of Wildlife Management Units (WMUs). A WMU has similar land forms, human land use patterns, plants, and animals within its area. Wildlife populations within WMUs are monitored to determine appropriate trapping and hunting seasons.

Coyote harvest is estimated using the pelt tag system, similar to that used for beaver, otter, bobcat, fisher, and marten. Successful hunters and trappers are required to tag each coyote carcass or pelt with a paper tag provided by DEC (tags are available at all Department offices). Prior to sale of the coyote pelt, or after the close of the coyote season, the paper tag must be exchanged for a "seal." The plastic seal is attached to the pelt by a Department employee.

Harvest of coyotes by hunters and trappers is estimated by counting the paper tags. Regional harvest trends can be determined because county, town, and WMU of take are recorded on the carcass tag. This information allows DEC to monitor the status of the coyote in New York on a town, county, and WMU basis.

Coyote Trapping and Hunting Seasons in Northern New York

The northern New York coyote hunting season occurs from approximately the third week in October to the end of March (Table 1). The trapping season is shorter to avoid the potential overharvest of fisher. Fisher may be caught in traps set for other land mammals such as fox, raccoon, and coyote. Therefore, the trapping season for each of these species usually coincides to protect the fisher from overharvest. There is no bag limit for coyotes taken by trappers or hunters.

Table 1. General coyote trapping & hunting seasons in northern New York, 1979-80 to 1990-91.

Year	Trapping Dates	Hunting Dates
1976-77	Oct. 16-Jan. 2	Oct. 16-March 13
1977-78	Oct. 15-Jan. 1	Oct. 15-March 12
1978-79	Oct. 14-Dec. 10	Oct. 14-March 11
1979-80*	Oct. 13-Dec. 9	Oct. 13-March 16
1980-81	Oct. 25-Nov. 30	Oct. 25-April 1
1981-82	Oct. 24-Nov. 29	Oct. 24-March 28
1982-83	Oct. 23-Nov. 28	Oct. 23-March 27
1983-84	Oct. 19-Dec. 4	Oct. 19-April 1
1984-85	Oct. 17-Dec. 2	Oct. 17-March 31
1985-86	Oct. 26-Dec. 1	Oct. 19-March 30
1986-87	Oct. 25-Nov. 30	Oct. 18-March 27
1987-88	Oct. 31-Dec. 6	Oct. 24-March 27
1988-89	Oct. 29-Dec. 4	Oct. 22-March 26
1989-90	Oct. 28-Dec. 3	Oct. 21-March 25
1990-91	Oct. 27-Dec. 2	Oct. 20-March 31

*This was the first year that tagging requirements for coyotes went into effect.

Coyote Harvests in Northern New York

The total coyote harvest for northern New York has varied from a low of 249 in 1990 to a high of 1,207 in 1984. The ten year average (1981 through 1990) is 896. About half of the coyotes are taken by hunters and half by trappers (Figure 1). As the coyote's range has expanded in New York, the proportion of the state's total harvest taken from northern New York has declined. In a 10 year period, this proportion declined from 78% to 57%.

The coyote harvest in northern New York was distributed evenly in the four land zones, except for the very low take reported from the Tug Hill area (Figure 2). This probably is due to its relatively small land area. With the exception of Tug Hill, the trends over a 10 year period were roughly parallel. Coyote harvest levels are related closely to their pelt value (Figure 3). In years when coyote pelts were valuable, reported harvest levels were relatively high. At the present time, pelt values are very low, and consequently the reported coyote harvest is the lowest on record.

Although coyotes may be hunted from mid-October to late March in most of northern New York, the majority of the actual harvest occurs during a relatively short period of time in late October and early November (Figure 4). This time period closely coincides with the big game season, suggesting that a large proportion of the harvested coyotes are taken by big game hunters rather than by people specifically hunting for coyotes. It is unlikely that an extended hunting season would result in an increase in the average annual coyote harvest.

Coyote densities rarely are reduced through hunting and trapping. In fact, studies have shown an increase in reproductive rates in areas where coyotes were intensively removed. It has been estimated that over 65% of a coyote population (adults and young) would have to be

removed annually to overcome their reproductive potential and lead to an overall population decline. Although coyotes die of natural causes (especially juvenile animals), a large proportion of the breeding adults would have to be removed by hunting or trapping, to significantly reduce coyote numbers.

Although accurate coyote population estimates are not available for New York, it is estimated that at least 10,000 coyotes would have to be harvested each year in northern New York to lower the coyote population there. In the absence of an extraordinary increase in pelt prices and the number of people hunting or trapping coyotes, this level of harvest will not occur in New York. Therefore, extended coyote hunting and trapping seasons will not reduce coyote densities or eliminate them from any areas of the state.

Figure 1. Reported coyote hunting and trapping harvest in northern New York (1981-1990).

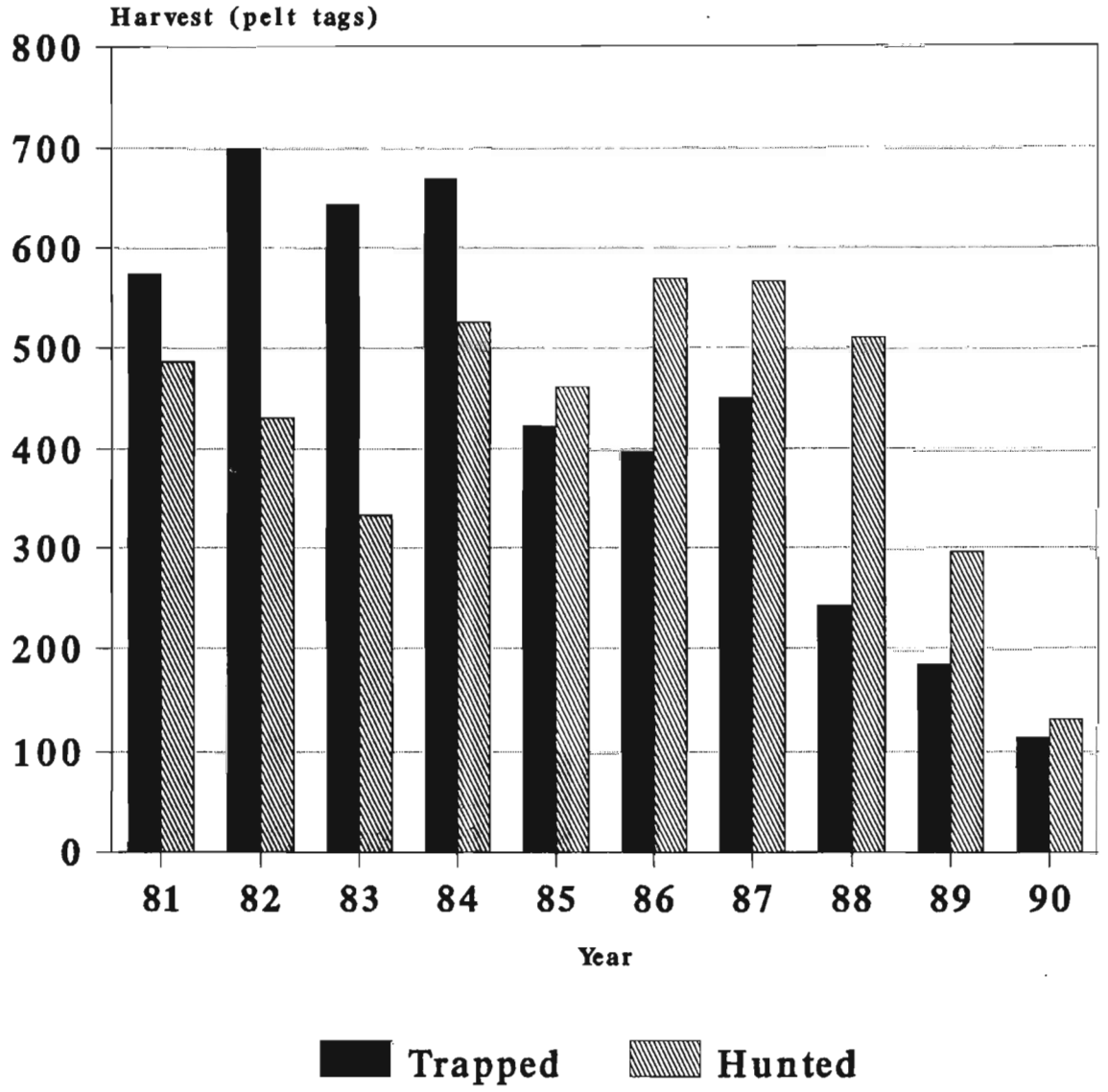


Figure 2. Reported coyote harvest in the four northern New York land areas (1979-1990).

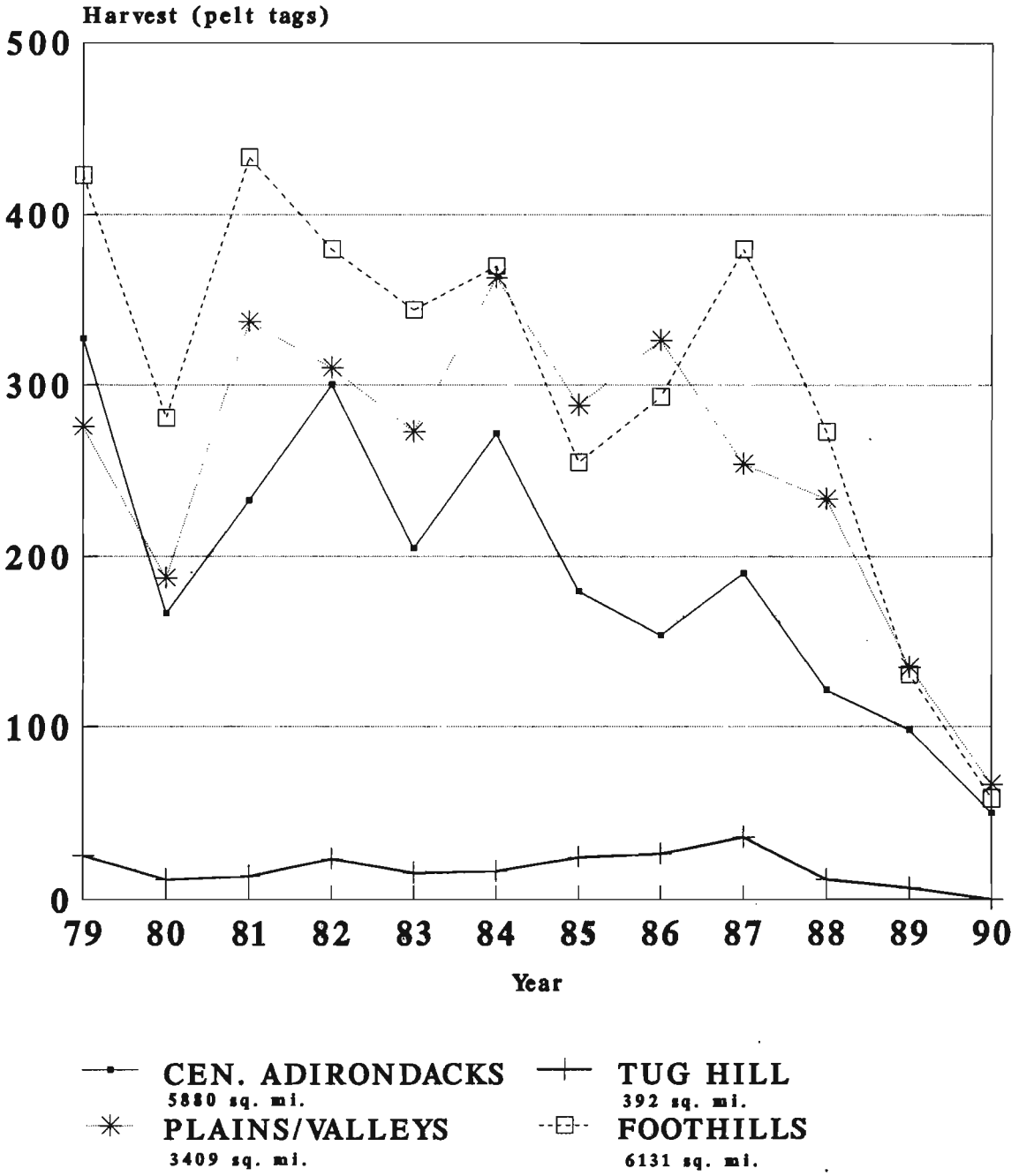
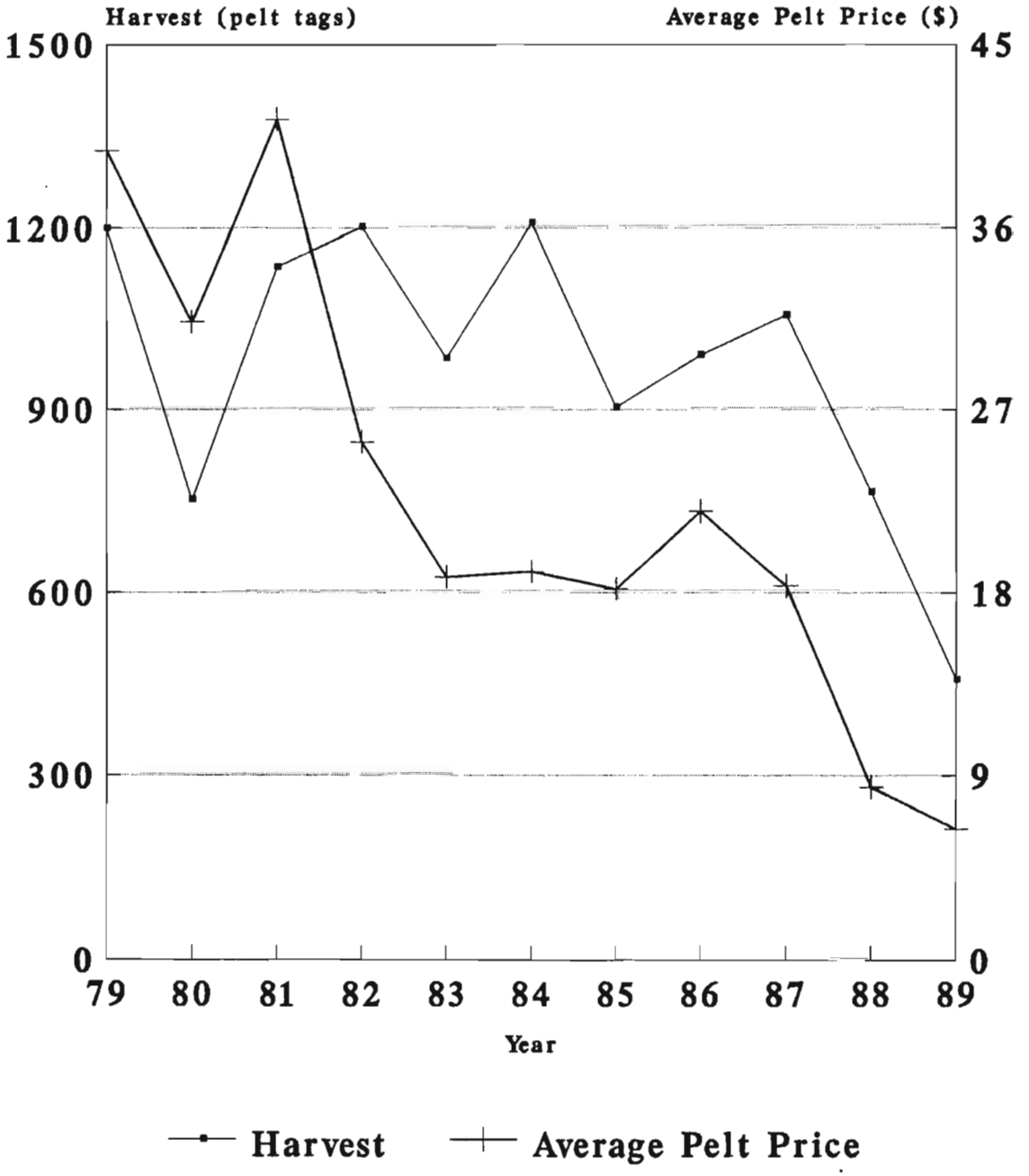
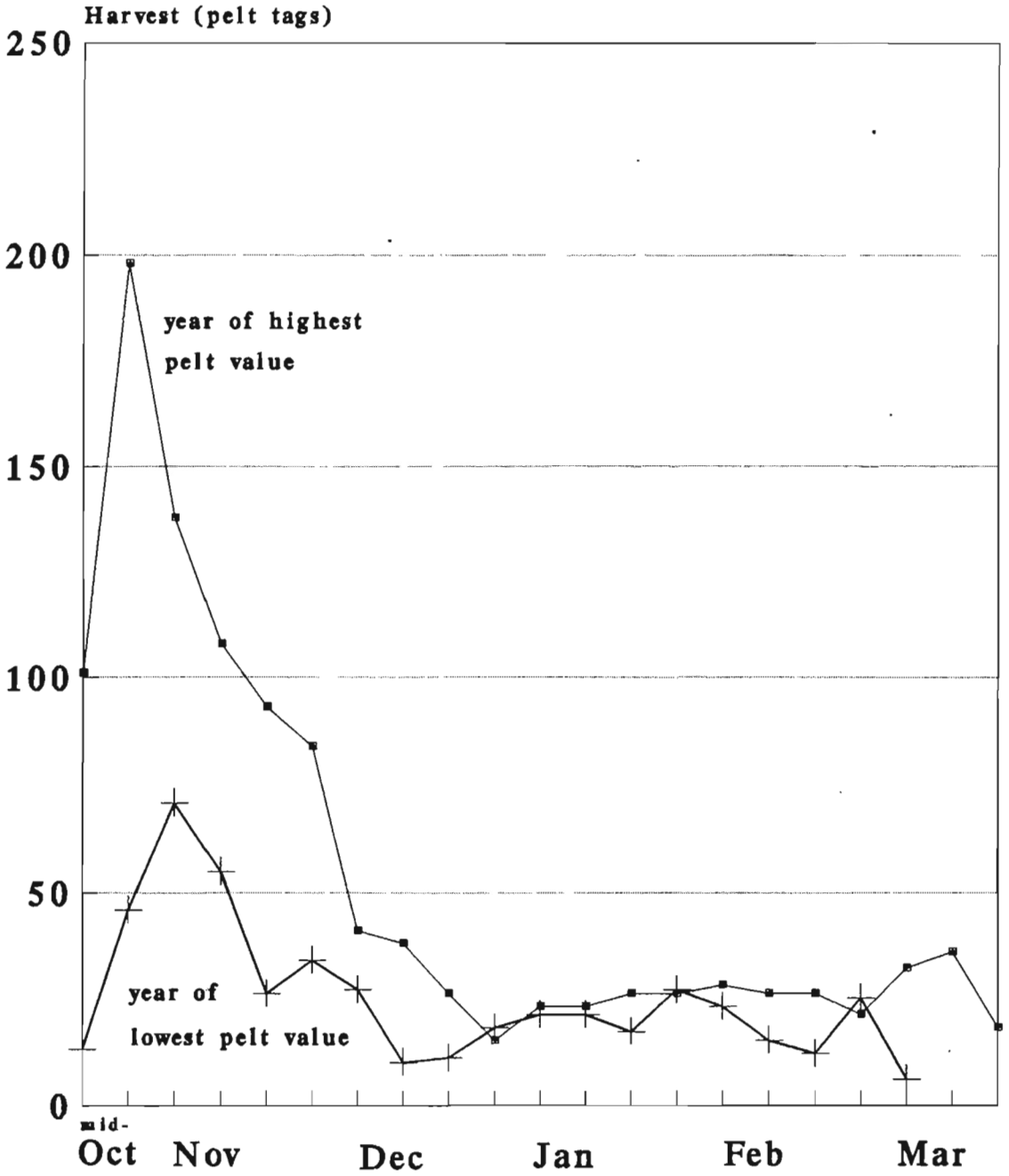


Figure 3. Reported total of northern New York coyote harvest, and average pelt price in the same years (1979-1989).



Average pelt price paid in Minnesota.

Figure 4. Seasonality of coyote harvest in northern New York during the years of highest (1981) and lowest (1989) pelt value.



CONTROL OF COYOTE DAMAGE

Controlling Damage to Livestock

Damage control methods that simply kill individual, depredating coyotes may provide immediate relief, but ultimately leave the livestock producer as vulnerable to losses as before. Lethal control must be accompanied by preventive practices. Similarly, the payment of cash to a producer who has lost stock may satisfy the producer, but does not address the underlying problem -- the vulnerability of livestock to predators. The best long-term preventive techniques are those which keep predators away from livestock in the first place. Following is a list of methods with various levels of effectiveness. Often the best control is obtained by using a combination of these techniques.

1. Electric pasture fencing - Some producers in New York State report adequate protection of sheep by adding charged wires to existing pasture fencing. Others require more extensive electric fencing to protect sheep against coyotes such as the addition of portable electric fencing within boundary fences. Frequent inspection and maintenance is required.

2. Electrically protected night pastures - When the cost of electrically fencing the entire pasture is too high, some sheep producers drive or attract their sheep to smaller pastures at night. These night pastures can be protected with electric fencing at a lower cost. Other producers use roofed, wire-sided areas to protect their sheep at night, during inclement weather, and during lambing.

3. Confinement of sheep or calves to barns or small shelters at night - Effective protection against coyotes often is achieved with half-doors or gates on barns or shelters that are sufficient to keep stock inside. Coyotes seldom enter buildings for any reason.

4. Improved pasture management - Pastures often provide cover for stalking predators in the form of tall grass or shrubs. Because such cover is not food for grazing stock, and may actually be shading out forage plants, it is advisable to clip mature pasture grass in mid-summer and remove woody shrubs and tree seedlings. This practice extends the period and the effective acreage of forage production. It also reduces the opportunities for predators to stalk livestock.

5. Improved animal husbandry practices - Ewes should be confined to sheds at lambing and during nursing. Producers should count lambs and ewes at regular intervals to determine if losses are occurring. Growers should immediately remove and dispose of stock lost to diseases or accidents by burial or cremation of carcasses.

6. Guard dogs - The most effective breeds are those trained to identify with, and imprint upon sheep, so that they are content to stay with sheep (not with the shepherd and his family). Such dogs often are expensive and require training to be effective. This method can be used successfully for those producers who enjoy working with dogs, but it is not for every producer.

7. Burros, donkeys and llamas - These animals may be more cost effective in protecting sheep and goats than guard dogs. They need no training, live on the same forage as sheep, and apparently are easily bonded to sheep. Donkeys are said to be more fierce and aggressive toward coyotes and dogs than guard dogs that usually just bark at intruders. Llamas even have defended sheep against bears.

8. Predator removal - Predator removal may be a necessary part of a comprehensive program that includes non-lethal, preventive measures. There is little benefit to be gained from only trapping or shooting coyotes at large. Because coyotes are territorial, those that are removed soon will be replaced by their neighbors. Shooting or trapping of the offending coyote after livestock have been killed provides immediate relief but is only a short-term solution. It also is very expensive. A Maine study showed that each trapped adult coyote required 473 trap-days of effort; pups required 270 trap-days per catch.

   The Environmental Conservation Law (ECL) allows landowners or lessees to destroy coyotes on their land when they have injured or threatened livestock. This gives landowners maximum flexibility in defending their livestock but does not imply that the state is responsible for damage done by wildlife.

   There have been large scale campaigns in the western U.S. that involved scattering large quantities of poisoned baits containing strychnine, cyanide salts, or compound 1080. These efforts have not resulted in long-term control of coyote populations. Additionally, this technique affects many non-target wildlife species, without discrimination. Such poisoning is illegal in New York State.

9. Compensation - Under Article 7 of the Agriculture and Markets law, owners of livestock that have been killed or injured by domestic dogs may file a claim for payment. The owner must have taken reasonable precautions to prevent the damage. There is no provision for compensation of coyote depredation under the Environmental Conservation or Agriculture and Markets Laws.

The following methods have been, or are currently being evaluated by research biologists, primarily in the western United States under the guidance of the U.S. Department of Agriculture.

1. Aversive training - This concept involves putting chemicals (such as lithium chloride) in baits that would cause severe illness to coyotes that eat them. In the case of sheep, the chemicals would be placed in pieces of mutton.

2. Fertility control - This concept would involve presenting birth control chemicals to coyotes in baits, or the surgical removal of parts of male or female reproductive tracts. Due to problems with delivering chemicals or trapping animals, this method is currently impractical.

3. Toxic collars - The concept of fastening a packet of poison on the neck of a lamb or ewe has been studied. Though many of the trials resulted in the death of the sheep-killing coyote, the collared lamb was often destroyed also. This method is being used successfully by producers in some western states with specific "target flocks" of lambs and ewes. However, this technique is illegal in New York.

The goal of damage control is to prevent livestock-predator interactions rather than to kill wildlife causing the damage. To achieve this goal, the property where the livestock is housed must be protected from the intrusion of predators. In the case of sheep, for example, the method that will best protect these animals from coyote depredation also will protect them from dogs. Because New York sheep producers are few in number and widely scattered, neither dog quarantines nor the destruction of coyotes at large is likely to protect sheep from isolated predation events. Therefore, growers must be responsible for secure fencing and buildings on their farm to provide adequate protection.

When a combination of effective protection methods has been adopted, it is most economical to extend the period of protection for as many months or years as possible. For these reasons, electric fencing of pastures, buildings for night or lambing shelter, and improved animal husbandry practices provide the most effective and economical, long-term protection against coyotes and dogs.

Coyote Control Efforts in New York

Attempts to control predators in New York date back to the Revolutionary War period of the 1780's and 1790's when many newly settled New York State towns were being organized. Often among the first resolutions of newly organized town boards were motions to pay "wolf" and panther (mountain lion) bounties.

The state Legislature authorized "wolf" and panther bounties in 1815 which allowed county governments to match state bounty payments. In St. Lawrence and Franklin counties, for example, up to $40 was paid for each animal between 1816 and 1820. The Legislature passed another bounty law in 1870 which resulted in 98 "wolves" being presented for bounty payments by 1899. Most of these animals came from northern New York.

In 1926, a "wolf" scare occurred in Orleans County. Though the animals were identified as coyotes, $900 in bounties were paid for the destruction of three animals. Out of fear that generous bounties would lead hunters to bring coyotes into New York, the Legislature passed a law in 1926 to prohibit importing or owning destructive wild animals without permit.

A 1960 survey of county clerks indicated that Warren and Washington counties paid $100 for "wolf" bounties in 1935. Livestock protection presumably would have been part of the reason for these payments. However, there are no early records of livestock losses in northern New York counties. During the 1950's and 1960's, Clinton, Franklin, Herkimer, Lewis, St. Lawrence, Warren and Washington county clerks continued to pay bounties for "wolves" and coyotes in spite of a 1955 state law that stipulated a county shall not be reimbursed for any bounties paid for the taking of wildlife. Prices ranged from $25 to $50 per animal. Bounties were outlawed in 1971.

A limited attempt was made to control coyotes in northern New York during the 1950's. Trappers were hired by the New York State Conservation Department to institute a program based on trapping methods developed by federal Animal Damage Control (ADC) people, but this effort was ineffective. The coyotes were found to have been too widely distributed for a small force to control.

In 1986, the NYS Department of Agriculture and Markets and the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) signed a cooperative agreement to control coyote depredations on sheep farms. The expenses for this program were shared by the two agencies. Work was conducted by the New York State Animal Damage Control Unit of APHIS.

The objective of the program was to "reduce or prevent sheep losses to coyotes through educational and lethal or non-lethal control efforts, with emphasis on long-term predation control through preventive management practices". Two areas of the state were designated as having "high rates of predation" and ADC personnel were stationed there. One area was in western New York, the second in southeast New York. Also, Saratoga and St. Lawrence counties were to receive services if feasible.

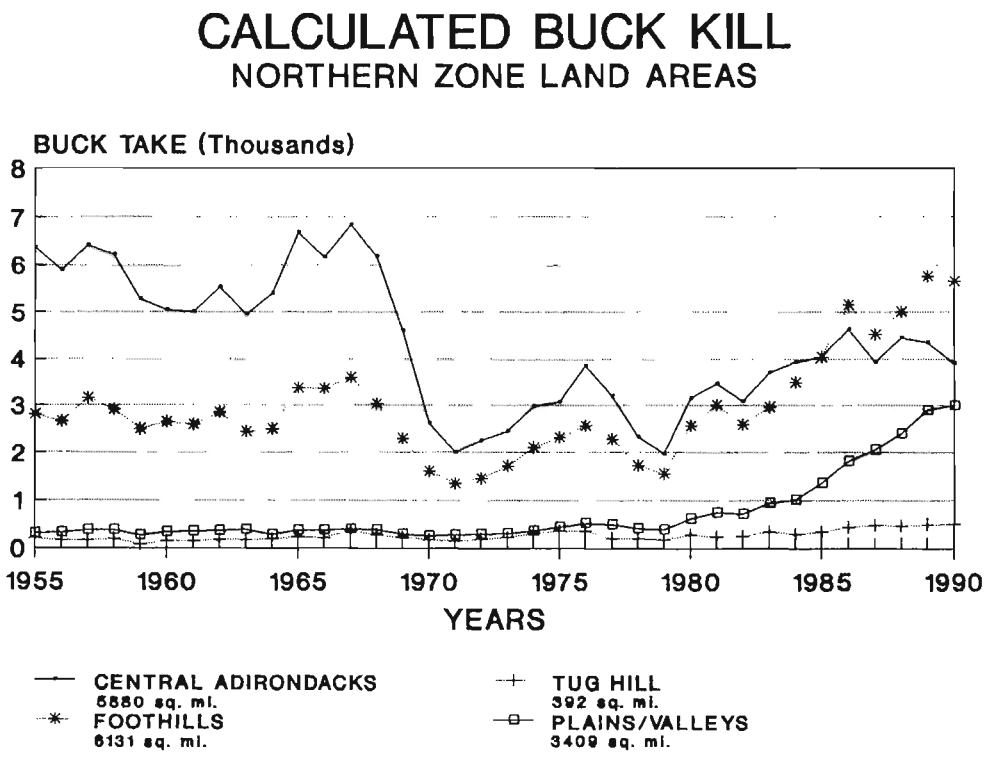
The program was operational from 1986-1989. In the two full years that services were provided (1987 and 1988), 42 coyote damage complaints were verified, involving the loss of 97 sheep on 20 farms in 7 counties. A total of ten coyotes were destroyed during those years, and an electric, coyote-proof demonstration fence was erected around a three-acre sheep pasture at a cost of $1900. The program was subsequently discontinued, however, due to a lack of state matching funds.

DEER POPULATIONS AND FOOD SUPPLY

Northern Zone Deer Populations and Habitat Conditions

A major focus of many who condemn the coyote is concern for the white-tailed deer. The relative importance of habitat or food limitations and the effect of coyote predation on deer can be assessed by reviewing information about Northern Zone deer populations and their habitats.

Deer harvest records provide a readily available index of deer populations. When deer hunting pressure and success remain stable, and the deer population is not experiencing any major fluctuations, trends in the antlered male harvest (buck take or buck kill) will reflect changes in the total population. Buck kill data for the four major land areas in northern New York (described in Appendix A) are presented in the following graph (Figure 5).



Similarities can be seen in the harvest trend for each area. The declines in both the late 60's and 70's coincide with the occurrence of severe winters. During the 1980's winters were generally mild and harvests rose. With the exception of the Central Adirondacks, buck harvests are as high now as any time on record. Possible reasons for the lower Central Adirondack harvests include lower hunting pressure now than during the peak years of the 1960's, and continuing maturation of the forests.

Many factors influence the size and condition of an area's deer population. Soils and climate largely dictate the types of vegetation in an area, but natural and man-made events also can influence vegetation. The resulting mix of plant communities determines an area's capacity to support deer because these communities comprise the deer's habitat. The habitat must include adequate vegetation for food and cover. Unbroken expanses of mature forest generally produce less food, and will support fewer deer, than areas with scattered openings or young forests.

Climate further influences deer populations because winters, particularly those with deep, long-lasting snows, can have a large impact on deer survival. Studies have documented a positive correlation between the number of days with snow depth of 20 inches or more and winter deer mortality. Malnutrition, due to inadequate or nutritionally poor food supplies, is the cause of this mortality. Fawns make up the bulk of such losses, but prime age animals also can be lost during extremely hard winters. Further, indirect losses occur as the productivity of surviving females diminishes following severe winters. A negative correlation between winter severity and buck harvest the following year also has been documented.

The number of deer lost to winter starvation is an indicator of the ability of an area to support deer. These losses are attributable most directly to the quantity and quality of food within wintering areas. They also reflect how well an area allows a deer to "fatten-up" for the winter. A deer population that is too large for winter food supplies will experience heavy losses during a severe winter. If winter range (food) quality is poor or marginal, a population will be even more vulnerable to such losses.

Two other indicators of the ability of an area to support deer are the degree of browsing on vegetation in wintering areas, and the antler growth of yearling males. Severe browsing eliminates the deer's preferred food (plant) species, and may limit the growth of poor or less-preferred food species. Overbrowsing is evidence that a deer population has exceeded its winter food supply. The resultant shortage of food, usually in both quantity and quality, causes rapid depletion of body energy reserves during the winter. In the extreme cases, mortality occurs.

A depletion of energy reserves also impacts antler development. Food eaten the following spring is used primarily for rebuilding the body, and antler development suffers. The diameters of yearling males' antlers, measured one inch above the antler base, is an index of the food resource available during the previous winter. In general, yearling males in an area where the quantity and quality of food is adequate, will produce antlers with beam diameters of 18 mm (about 0.7 inches) or greater. Lower values indicate a herd which exceeds its winter food supply, or which lives on inherently poor range.

There are a variety of climate conditions, habitats, and resulting deer population levels within northern New York. Its four major land areas (described in Appendix A) provide a good basis for discussing Northern Zone deer populations. The following discussion reviews some of the basic indicators of each area's deer population and ability to support deer.

Central Adirondacks:

The major limiting factors on the ability of this area to support deer are the predominance of older-aged forests and severe winter conditions. The Central Adirondacks have a high percentage of public land that is managed under the Forest Preserve Laws. Therefore, barring

major fires or blow downs, its ability to support deer cannot be expected to increase, and may decline further as the forests age. Snow accumulations of more than 20 inches persisting for 35 to 45 days are not uncommon. These deep, long-lasting snows contribute to chronic and occasionally very high winter mortality of deer.

During the 1980's, the Central Adirondacks were characterized by moderate to very heavy browsing on preferred food species, in some cases causing their elimination. Browsing on lower choice foods, which generally are nutritionally poor foods, was light to moderate, with localized exceptions where even these were browsed heavily. Severe overbrowsing commonly is observed in the proximity of artificial feeding sites, where unnatural concentrations of deer occur. Average yearling antler beam diameters in the Central Adirondacks were greater than 17 mm in only one year from 1978 to 1989.

Foothills:

A greater mix of vegetation types, (as a result of forest management practices on private lands), and abandoned agricultural lands, provide habitat conditions that are somewhat better than those in the Central Adirondacks. Winter snow conditions also are less severe. Snow depths of over 20 inches for extended periods of time are rare. As a result, winter losses are lower and occur less frequently.

Browsing on preferred food species was moderate to heavy during the past several years throughout much of the Foothills area. Average yearling antler beam diameters were greater than 17 mm in most years, and occasionally approached 18 mm. Antler beams exceeded 18 mm in only one year since 1978.

Tug Hill:

The extreme winter conditions of this area have a major influence on deer numbers. Lake-effect snows from Lake Ontario produce the greatest snowfalls in the state. Accumulations of over 20 inches for 70 days or more are common. This results in chronic and high winter mortality. Deer populations fluctuate in response to the depth and duration of winter snows.

Browsing on preferred species generally was light to moderate during recent years. However, it has been heavy in areas where deer are restricted during periods of deep snow. Winter severity has been below average for the past decade, and the level of browsing probably is less than it has been historically. Average yearling antler beam diameters have ranged from 13 mm to almost 19 mm since 1978. There is a strong correlation between beam diameters and the conditions of the previous winter.

Plains/Valleys:

Land use trends, including a high rate of farm land abandonment, have led to improved deer habitat conditions during the past two decades. Conditions are expected to continue improving. Young forests developing on abandoned farmlands provide an abundance of cover and browse. Agricultural crops supplement the diet of deer in some areas. Snow accumulations rarely exceed 20 inches for extended periods.

Winter mortality to date has not been noted as a problem. Rapidly expanding deer populations in the Plains/Valleys area are placing a strain on food supplies in some localities. Overall browsing levels are light to moderate in most of the area. Average yearling antler beams have exceeded 20 mm for the past five years, and were greater than 19 mm during most years since 1978.

In summary, the Central Adirondacks contain the poorest deer range in northern New York. In fact, studies reviewing deer weights and reproductive rates have found the Adirondacks to be some of the poorest habitat in the state. Deer populations, barring a major blow down, forest fires, or a change in State policy or law, cannot be expected to increase. They periodically will be set back by severe winters. At the other extreme, the Plains/Valleys contain some of the best deer range in northern New York. Land abandonment and vegetation changes are improving habitat quality for deer.

The Tug Hill deer population will always be at the mercy of the heavy lake-effect snow falls. The Foothills deer population likely will fluctuate with the extent of forest management activities and occasional, severe winters.

COYOTE/DEER INTERRELATIONSHIPS

Northern New York

Coyotes and deer commonly inhabit the same area and have a few food items they share. There also are some diseases and parasites that may pass from one to the other. But without question, the most important interrelationship of these species is that of predator and prey. This relationship is well-documented and the cause of much of the condemnation of the coyote. Coyotes are capable of taking deer, including apparently healthy adults, at any time. It is the killing of fawns during spring and summer, and of all age classes of deer during winter, that raises the most concern.

Fawns largely are immobile during the first few weeks of their lives, and are susceptible to predation when discovered. Work at the Huntington Forest in the Adirondacks concluded that coyotes are responsible for taking less than 5% of the fawns during this period. Fully mobile fawns are less vulnerable to predators, but predation and other causes can still account for many losses.

Winter can produce conditions which make any deer more vulnerable to predation. Deep snows and ice give a coyote an advantage when pursuing deer. During late winter deer are at a low point physically, particularly those that live in poor habitat. This can make them easier prey. The fact that coyotes can and do take deer on ice, and within wintering areas, is well-documented.

The impact coyotes have on a deer population cannot be evaluated simply on the fact that coyotes kill deer. A number of other factors influence deer population size, including reproductive rates, habitat, weather, and losses to other predators (including man). These factors complicate the determination of impacts attributable to coyotes.

Deer have evolved in the presence of predators, including the coyote, and their habits and reproductive capacity allow populations to tolerate some predation. This is not to say coyote predation cannot influence a deer population. It is likely, however, that only when other factors, such as poor habitat, harsh winters, and other forms of predation are severe and chronic that coyote predation limits the growth of a deer population. When all these factors are combined, there is some evidence that a deer population, on a localized basis, may be suppressed by coyotes.

Whether predators really do or do not affect prey populations adversely is a controversial topic. Some researchers have argued that predation increases prey populations in some circumstances. Coyotes have been present in northern New York for at least 70 years. Available information indicates their numbers likely have been stable for many years. At the same time, a review of the buck harvest data for northern New York indicates that buck harvests have generally been increasing. They are as high now as ever recorded in most areas.

Only in the Central Adirondacks, where harvests are below historic highs, might there be a question whether coyotes have held deer numbers down. This area also has poor to marginal habitat and harsh winters, which limit deer populations. The continued maturation of the forests and lower than historical deer hunting pressure also could contribute to the lower, current deer harvests.

An intensive study would be necessary to determine definitively the impact coyotes are having on deer populations. Recent deer population trends, and knowledge of other factors limiting deer, do not suggest the coyote is causing any wide-scale, adverse effect upon deer in northern New York.

The effect deer have on coyotes is much more straight forward. Deer provide an important food item for the coyote. At certain times, and in some locations, the availability of deer may be critical to the survival of coyotes.

Examples from the Scientific Literature

Several studies have documented possible benefits of predators to prey. These examples illustrate some possible relationships of coyotes to prey species. In these instances, predation may improve the overall health of the prey population.

1. Coyotes as agents of isolation and removal of prey with contagious diseases or parasites.

   A study of bighorn sheep in Idaho caused some observers to suspect that eagles and coyotes were killing lambs in sufficient numbers to slow population growth. An investigation indicated that bighorn sheep (especially lambs) are very susceptible to several diseases. Contrary to initial suspicions, the eagles and coyotes preyed mostly on lambs that were sick and weak. This prevented highly infective lambs from associating with healthy sheep.

2. Coyotes as agents in alleviating prey population pressure on limited food supplies during critical periods.

   In a Texas study, where coyotes were removed from an 860-acre fenced exclosure, the immediate effect was an increase in deer numbers. However, deer reproduction decreased as the deer population exceeded the carrying capacity of the area. Females in the exclosure also began to conceive fawns later in the year than usual. Deer numbers began to decline 4 to 5 years after coyotes were removed from the exclosure. It was concluded that predator control should not be started without first determining the carrying capacity of the habitat.

   This may pertain to the predation that occurs on deer that winter in the Central Adirondacks or Tug Hill, where survival food is chronically inadequate. The deaths of some deer through coyote predation, before the critical winter period, may serve to keep deer numbers in line with habitat and help improve the chances of survival for other deer.

SURVEY OF KNOWN PREDATION INCIDENTS

Methods

Field workers who are evenly distributed throughout the Northern Zone were questioned to determine the frequency of reports of coyote predation on deer and domestic animals. Four types of field workers who are likely to witness or receive reports of predation were contacted. The following groups were sent a letter requesting their cooperation, and a survey form (Appendix D) on March 1, 1991:

1. Environmental Conservation Officers and Supervising Environmental Conservation Officers (collectively called ECO's) in DEC Regions 5 and 6 (n=64).

2. Forest Rangers (Rangers) in DEC Regions 5 and 6 (n=46).

3. Bureau of Wildlife Field Staff (WL) in DEC Regions 5 and 6 (n=25).

4. Cornell Cooperative Extension Agents (CCE) in DEC Regions 5 and 6 plus Oswego County (n=14).

Results and Discussion

Response Rate:

Over half of the 149 questionnaires were completed and returned from all groups except Cornell Cooperative Extension Agents, who returned 4 of the 14 (29%) surveys sent. To obtain more uniform coverage, agents were surveyed by telephone on March 25, 1991. Personnel able to answer the survey were contacted in 5 additional offices, making the response rate similar to other groups (Table 2).

Table 2. Response rate for coyote complaint and predation survey.*

Group	Surveys Mailed	Responses	% Response
ECO	64	42	66
Ranger	46	29	63
WL	25	13	52
CCE	14	9	64
TOTAL	149	93	62

*Geographic coverage by respondents was widespread, representing all counties in the Northern Zone.

Complaints:

Respondents were asked to estimate the number of complaints they received about coyotes in the past 12 months in three general areas: wildlife-related; livestock-related; and other. Complaints were defined as "a citizen or organization asking for assistance, information, or action to solve a problem related to predation or damage caused by coyotes" (Table 3).

Table 3. Frequency of complaints about coyotes showing the number of respondents receiving complaints.

Group Surveyed	0 Complaints	1-5 Complaints	6-10 Complaints	>10 Complaints	Response Totals
ECO	14	15	6	7	42
Ranger	15	10	2	2	29
WL	4	7	0	2	13
CCE	5	4	0	0	9
Total	38	36	8	11	93
% of total	41%	39%	8%	12%	100%

Complaints were received by 59% (55 of 93) of the respondents. Over half of the Forest Rangers and Cornell Cooperative Extension agents, and about one-third of the ECO's and wildlife staff received no complaints at all. Forty-one percent of all respondents received no complaints, and 80% of respondents received fewer than 6 complaints. Since only 12% of the respondents received more than 10 complaints over the last year, the mean number of complaints was two per year. It appears that complaints about coyotes generally are quite uncommon.

According to comments of respondents, the frequency of complaints appears to be higher in areas where housing and rearing of sheep and poultry interface with areas of large woodlands. However, no reliable geographic differences could be found. For instance, only 7 complaints were reported in Saratoga County, while 70 were reported from neighboring Washington County. The level of activity and interest in coyotes of individual field staff may be the most significant variable, since 60 of the Washington County complaints were reported by a single officer.

Nature of Complaints:

There were 218 wildlife-related complaints (Table 4), 103 livestock-related complaints (Table 5), and 84 other complaints. The latter category included questions about the safety of pets, children, and adults, as well as worries about the number of coyotes in the area, and discomfort associated with the howling of coyotes. It should be noted that complaints do not necessarily relate to experienced problems, but rather reflect concerns and questions which people have about coyotes. The number of complaints received far exceeds the number of actual incidents of coyote predation witnessed by field workers and/or reported by the public.

Table 4. Number of deer complaints and kills by coyotes.

Group	Complaints*	Suspected Deer Kills	Confirmed Deer Kills
ECO	129	85	54
Ranger	61	36	47
WL	25	8	4
CCE	3	2	1
Total	218	131	106

*Complaints may include a few wildlife-related concerns other than deer, but respondents noted only deer-related kills.

Table 5. Number of livestock-related complaints and predation incidents.

Group	Complaints	Suspected Incidents*			Confirmed Incidents*		
		sheep	poultry	other**	sheep	poultry	other**
ECO	59	5	10	10	6	6	10
Ranger	17	0	3	3	0	10	2
WL	18	9	4	3	1	2	1
CCE	9	2	2	1	0	0	0
TOTALS	103	16	19	17	7	18	13

* "Suspected" incidents do not include "confirmed" incidents. The two categories are additive.
** "Other" includes animals other than sheep or poultry. Respondents listed only 1 heifer and 2 calves killed. One respondent listed 2 missing calves as probably being taken by coyotes. Other counts may have included dogs and cats taken or suspected being taken by coyotes, but species were not listed.

Cases of confirmed or suspected mortality to deer and livestock due to coyote predation are even more uncommon than complaints (Table 6). The majority of respondents (55%) could not recall a single deer killed. A total of 84% of respondents listed 5 or fewer deer kills. Nearly three-fourths (73%) of respondents did not know of a single case of predation on livestock. A total of 96% of the respondents listed 5 or fewer livestock predation incidents.

Table 6. Frequency of confirmed and suspected kills by coyotes.
(Number and Percent of Respondents Reporting Kills*)

Number of Kills Reported	Respondents Reporting Deer Killed		Respondents Reporting Livestock Predation Incidents	
	no.	%	no.	%
0	51	55	68	73
1-5	27	29	21	23
6-10	6	6	3	3
>10	9	10	1	1

* Kills in this table means the combined total of both Confirmed and Suspected kills reported.

Field staff were asked to list the number of coyote complaints they received not related to wildlife or livestock. ECO's received 55 such complaints; Rangers - 9; Wildlife Staff - 19; and Cornell Cooperative Extension staff received 1 complaint in this category. Most respondents provided few details about these complaints, so a numerical analysis is not possible. The topics in this category listed in order of frequency were: (1) concern for the safety of pets; (2) general concern about the increased number of sightings of coyotes; (3) concern for the safety of children and campers; (4) dislike of hearing coyotes howl; and (5) a case of damage to maple sap collecting equipment by deer being chased by coyotes.

Unsolicited Comments:

Although one respondent felt that deer populations were impacted by coyotes, and another stated that coyote predation contributed to the downfall of the local sheep industry; most comments noted that respondents did not see any problem with coyotes. These included notes that coyotes were present, but not a problem; there were no calls about coyotes received in the past three years; and that the only call about coyotes was the report of a sighting in 1987. Two respondents noted that coyotes were valuable because of predation on rodents and other small animals.

Conclusions

It can be concluded that coyotes are not a great enough concern to cause many people to complain to the agencies surveyed. Most respondents receive very few, if any complaints. (41% received no complaints and 80% received fewer than 6 complaints.) Comments and individual conclusions of respondents generally support this conclusion.

Reports of predation on deer exceeded reports of predation on livestock. This may be due to the fact that the Northern Zone has less farmland than forest land. One respondent noted that coyote predation is likely to be reported as dog kills since farmers receive reimbursements for dog predation, but not coyote kills. The majority of respondents listed no incidents of predation on either livestock (73%) or deer (55%) which may indicate that concerns about coyote predation based on first-hand experiences are extremely uncommon.

PUBLIC INPUT

Procedures for Obtaining Public Opinion

Four public meetings were held during January and February 1991 to provide opportunity for individuals and organizations to express their desires and opinions concerning coyote management in northern New York. Additionally, a direct mailing of about 2,000 letters (Appendix E) was done to solicit comments from persons or groups interested in New York's wildlife program. This mailing list was developed in the fall of 1989 as part of the Wildlife Program Management System. All areas of New York were covered by that mailing list.

A statewide news release (Appendix F) was issued in January as another means of obtaining public input. Written comments were accepted through March 1991. Written input consisted of 190 letters and comment forms (Appendix G) sent to the Bureau of Wildlife.

The initial public meetings were at Watertown and Saranac Lake on January 29th and 30th, respectively. Other meetings were held at Herkimer (February 5) and Ballston Spa (February 7).

The format of all four meetings was similar. Each attendee was asked to register so that a summary of the public comments could be mailed to them at a later date. A coyote fact sheet (Appendix H) was available at the registration table. Cornell Cooperative Extension (CCE) county agents from Jefferson, Hamilton, Herkimer, and Saratoga counties acted as facilitators. Following a brief introduction, explaining the meeting's purpose and procedures, a 20-minute slide presentation which summarized the ecology and status of the coyote in northern New York was made by a DEC biologist. A panel of coyote experts then answered questions from the audience for 30-45 minutes. Following the question and answer period, people were divided into 5-6 working groups, and group facilitators (DEC and CCE staff) recorded comments. After receiving public input for 30-45 minutes, the small groups reassembled and group facilitators presented the highlights of their session to the entire audience. Approximately 570 individuals attended the public meetings.

CCE and DEC staff summarized public attitudes and perceptions about coyote management based on verbal and written comments obtained at the meetings, and comment forms and letters received at regional and central DEC offices. Public comments were placed into seven major issue areas so that related topics could be reviewed together.

All verbal input obtained at the public meetings was listed, and the location for specific comments was recorded. The percent of occurrence for each comment could not be calculated because a comment heard in a single small group discussion was recorded only once, even though more than one person might have agreed with that comment. However, a rank of "high," "medium," or "low" was given to each comment, depending on its relative frequency of occurrence among all the small group comments from all four meetings.

All written input (letters and comment forms), whether received at the meetings or sent to a Bureau of Wildlife office, was summarized using the same categories as the verbal input. Percent of occurrence values were calculated for the written comments. These percentages are based on the total number of letters or completed comment forms received ($n=190$). Since one letter may have contained a number of different types of comments, the percentages do not add up to 100%.

An overall summary of written input was completed by categorizing each letter and comment form as either for or against the bill. In addition, the position of organizations was summarized separately.

Agricultural Perspectives

Public Meetings:

Farmers at 3 of the 4 public meetings stated that coyotes will kill or harass livestock (Table 7). Coyotes also were perceived to provide control of woodchucks or other rodents. Farmers requested that funding be spent on research and extension education concerning nonlethal coyote damage management methods, and emphasized that producers needed assistance to implement control techniques.

Several people said that farmers have more problems with free-roaming dogs than coyotes. People were divided concerning the value of coyotes. Approximately one-half emphasized the benefits of having this animal on their property, while the remainder highlighted costs. One farmer wanted coyote control to reduce damage to newborn calves, but also expressed concern that hunters afield during the summer field season could be a safety hazard. Agriculturalists appear to be equally divided regarding the benefits of year-round coyote hunting.

Written Input:

Four comments, in relatively equal numbers, were most frequently made. There was no clear consensus on the role the coyote plays in northern New York's agricultural scene (Table 7). For instance, a nearly equal number of people said that coyotes are usually not a danger to livestock, and will readily kill or harass livestock. A number of correspondents (6%) wrote that coyotes control rodents, and that farmers already have the authority to destroy nuisance coyotes (4%).

Social Perspectives

Public Meetings:

Many people said that the coyote is a valuable natural resource that should be respected and conserved, and people enjoy seeing and hearing coyotes (Table 8). Citizens also were concerned about killing coyotes during the breeding season, and thought year-round seasons may give animal activists an opportunity to attack the sportsmen's image. A clear majority of the comments in this category indicated opposition to a year-round coyote hunting season.

Written Input:

Generally, the written comments were similar to input obtained at the public meetings. The most frequent comment (9%) was that coyote hunting is objectionable (Table 8). The second-most frequent comment was that it is not ethical to take coyotes during the breeding season. An equal number of comments (3%) indicated that people like to see and hear coyotes, consider the coyote a valuable natural resource, and that a year-round season would provide an opportunity for animal activists to attack the sportsmen's image.

Table 7. Agricultural perspectives relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
Coyotes will readily kill or harass livestock	W,H,B	Med	7	4
Coyotes control woodchucks and small rodents	W,S,B	Med	12	6
Farmers need assistance with protecting livestock	W,B	Low	1	<1
Funding better spent on nonlethal coyote control research and extension education for farmers	H,B	Low	3	2
Farmers have more problems with free-roaming dogs than coyotes	W	Low	3	2
Guard dogs would more effectively protect livestock than a year-round season	S,B	Low	3	2
Promote the uses of an extension trapper and hunter system to reduce livestock losses	W,H	Low	1	<1
Coyotes harassing cattle leads to fence destruction	W	Low		
Fencing costs too much for livestock protection	W	Low		
Not all farmers experience livestock losses	W	Low		
Farmers can already legally kill damage-causing coyotes at any time	W	Low	9	4
Difficult to distinguish between dog and coyote kills	W	Low	1	<1
A year-round season would help protect livestock	S	Low	2	1
Deer damage problems more important than coyote losses for most farmers	H	Low		
Deer chased by coyotes tear down tubing in sugar-bush stands	H	Low		
Coyotes have killed deer in captive herds	B	Low		
Coyotes will take domestic waterfowl and poultry	B	Low	1	<1
Need to consider reimbursing farmers for coyote losses	B	Low	2	1
Proper care of livestock is farmers' responsibility, government shouldn't pay for coyote control	B	Low		
Coyotes are usually not a danger to livestock	B	Low	8	4
Guard dogs may not always protect sheep from coyotes	B	Low		
Damage control must be location-specific			2	1
Year-round season would not help sheep farmers			1	1

1 If a comment does not have a meeting location listed, this means that it was received in written format only.

2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

3 For each comment, the "number" refers to the number of individual letters in which that comment appeared. The percentage (%) is calculated on the basis of the total of 190 letters or comment forms. The total of the percentages is greater than 100% since a letter may have multiple comments. Some percentages were less than one percent; this is shown as <1.

Health and Safety Concerns

Public Meetings:

Many people expressed concern about personal or pet safety, or the safety of other recreational users, from firearms use during a year-round season (Table 9). On the other hand, there was concern that pets or people (especially children) may be directly attacked by coyotes, or that coyotes could spread diseases to domestic animals. Although some people believed that coyote populations should be reduced, year-round hunting seasons were not considered the most appropriate management tool. It appears the safety issue regarding the year-round discharge of firearms must be addressed before a majority of citizens would approve an extended coyote season.

Written Input:

A large number of people (21%) with comments in this category expressed concern for their personal safety if a year-round coyote season was held (Table 9). A smaller number (4%) were concerned about the safety of their pets.

Sportsmen Perspectives

Public Meetings:

Many people perceived that coyotes have reduced small game populations and therefore compete directly with hunters, or that coyotes compete with more valuable furbearers such as the red fox (Table 10). Some people felt that a year-round coyote season would increase hunting opportunities. Several people said that coyotes were a valuable game or furbearer species, and that habitat quality was the primary factor controlling small game numbers.

There also was concern that coyotes are causing a reduction in the deer population, and DEC staff overestimates the abundance of deer. Sportsmen appear to be divided concerning year-round coyote seasons, but a slight majority may support longer coyote hunting seasons.

Written Input:

Only 16 comments specifically related to sportsmen issues were received in writing (Table 10). This is not to suggest that sportsmen did not write a large number of letters but their letters predominantly concerned other issues (e.g., ecological, social, enforcement concerns). The three most frequent comments received in equal percentages (2%), related to sportsmen perspectives were: (1) coyotes are a valuable furbearer, (2) a year-round season would waste valuable pelts, and (3) there is no advantage in having an extended season.

Table 8. Social perspectives relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
People like to see and hear coyotes	W,S,H,B	High	5	3
Coyote is a valuable natural resource that should be respected and conserved	W,S,H,B	High	5	3
Year-round season will give animal activists a chance to attack the sportsmen image	S,H,B	Med	5	3
It's not ethical to take coyotes during breeding season	W,H,B	Med	8	4
Coyotes are a varmint - destroy them at any time	S,H	Med		
Year-round open season may make people "feel better" but will not impact coyote numbers	S,B	Low		
Coyote hunting is objectionable	W,B	Low	16	9
Varmint status would lower the value of a coyote	W,H	Low		
Posted land inhibits access and coyote removal	W	Low	1	<1
People fear and misunderstand coyotes	S,B	Low		
Opposed to a year-round season on any species	W	Low		
If coyote control is needed, it must be done humanely	W	Low		
Deer are more valuable than coyotes	S	Low		
People will hunt less intensively during a longer season and may remove fewer coyotes	S	Low		
DEC should have a sound overall management program for game, nongame, and endangered species	S	Low		
Hunters blame coyotes for lack of deer hunting success	H	Low		
Some coyote values are unknown, difficult to quantify	H	Low		
Wildlife management seems inconsistent, introduce some predators (lynx) but eliminate coyotes	H	Low		
Year-round season would impact human quality of life	H	Low		
Coyotes cause disturbances in urban areas	B	Low		
Poisoning or bounty systems to kill coyotes would be unacceptable to the public and be of little value	B	Low		
Trappers needed to manage wildlife			1	3

1 If a comment does not have a meeting location listed, this means that it was received in written format only.

2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

3 For each comment, the "number" refers to the number of individual letters in which that comment appeared. The percentage (%) is calculated on the basis of the total of 190 letters or comment forms. The total of the percentages is greater than 100% since a letter may have multiple comments. Some percentages were less than one percent; this is shown as <1.

Table 9. Health and safety concerns relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
Concern for personal safety with a year-round season due to firearms use	W,H,B	High	39	21
Pets may be directly killed by coyotes - esp. cats	W,S,H,B	Med	6	3
Concern for pet safety with a year-round season due to firearms use	S,H,B	Med	7	4
Coyotes may be a vector for mange and other diseases	S,H,B	Med		
Concern for personal safety from coyotes, especially children	W,H,B	Low	6	3
Concern for safety of other recreational users with longer season due to firearms use	W,S	Low		
Hunting dogs may be killed by coyotes	S	Low		
Safety not a problem with lengthened coyote seasons	H,B	Low		
If season is lengthened, only daytime hunting should be permitted in problem areas		Low		
Large packs of coyotes are more aggressive towards people	W	Low		
Coyote numbers are so high they are now seen in urban locations	S	Low		
Coyote's impact on pets is negligible	S	Low		
Need to treat diseased coyotes in the field, especially mange	H	Low		
Coyotes may harass people in certain locations	H	Low		
Raccoons, other wildlife greater disease threat to people than coyotes	B	Low		
Coyotes pose no direct threat to people	B	Low		

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2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

3 For each comment, the "number" refers to the number of individual letters in which that comment appeared. The percentage (%) is calculated on the basis of the total of 190 letters or comment forms. The total of the percentages is greater than 100% since a letter may have multiple comments. Some percentages were less than one percent; this is shown as <1.

Regulatory/Enforcement Issues

Public Meetings:

Many comments in this category indicated opposition to a year-round season and that the current coyote season was adequate (Table 11). There was concern that year-round coyote seasons may lead to greater deer poaching. Although a few statements directly supported year-round hunting for coyotes, a majority of the comments in this category opposed a change in the current coyote season regulations.

Written Input:

About 80% of the comments in this category specifically opposed a year-round coyote season (Table 11). Twelve percent specifically supported a year-round season. The only other comments in five or more letters were: (1) the current coyote season length is adequate, (2) longer trapping seasons are needed, (3) nontarget species may be threatened by longer coyote seasons, and (4) year-round seasons may encourage greater deer poaching.

Policy, Educational, or Research Issues

Public Meetings:

The most important concern voiced in this category was that coyote control must be focused in localized problem areas, not the entire Northern Zone (Table 12). Many people said that DEC should provide more opportunities for education about coyotes, especially to stimulate hunting and trapping interest, but also to teach people about coyote ecology. People also believed that year-round seasons would be costly to manage, and these costs would exceed the benefits. A few people said that the public meeting format did not adequately measure public opinion, and that a referendum or vote was needed. There also was concern that the coyote bill was introduced for political, not biological reasons, and biologists should manage wildlife species, not the politicians.

Written Input:

Thirteen people (7%) said that "biologists should manage wildlife, not politicians" (Table 12). Nine people (5%) wrote that DEC should not listen to small vocal minorities.

Environmental/Ecological Issues

Public Meetings:

The concept that the coyote is an integral part of the natural ecosystem, and the "balance of nature," was supported by the largest number of comments (Table 13). Many people also felt that coyotes kill too many deer and other wildlife whereas an equal number felt that coyotes have no effect on deer populations and that habitat has more influence on deer and coyote numbers than either deer or coyotes impact each other. A small number felt that free-roaming dogs are a bigger problem for deer than coyotes.

Table 10. Sportsmen perspectives relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
Coyotes have reduced small game populations, compete with hunters	W,S,H,B	High		
Coyotes are a valuable game/furbearer species	W,S,H,B	Med	4	2
Year-round season would increase hunting opportunities	W,S,B	Med		
Coyotes compete with more valuable furbearers - red fox	W,H,S,B	Med		
Habitat is the primary factor controlling small game numbers	B	Med		
Coyotes cause declines in turkey populations	B	Low		
Year-round season would waste valuable pelts	B	Low	3	2
Year-round season would help protect deer and small game populations	S	Low		
DEC has underestimated the coyote population	H	Low		
Coyotes have no impact on turkeys (numbers increasing)	W	Low		
Most deer taken by coyotes have been crippled or killed by hunters	H	Low		
Sportsmen's image would be damaged by year-round season	W	Low		
DEC overestimates the current deer population	W	Low		
Coyotes harass deer resulting in indirect deer losses	W	Low		
Promote coyote hunting through contests	H	Low		
Coyotes interfere with deer hunting success by running deer	H	Low		
No advantage of an extended season			4	2
Coyotes are one of the most elusive game animals in New York			1	<1
People don't know how to hunt coyotes			1	<1
Coyotes respond to turkey calls			1	<1
People aren't hunting coyotes now			1	<1
Hunting clubs should allow trappers on their land			1	<1

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2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

3 For each comment, the "number" refers to the number of individual letters in which that comment appeared. The percentage (%) is calculated on the basis of the total of 190 letters or comment forms. The total of the percentages is greater than 100% since a letter may have multiple comments. Some percentages were less than one percent; this is shown as <1.

Table 11. Regulatory/enforcement issues relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
Current coyote season length is adequate	W,H,B	High	7	4
Year-round coyote hunting seasons are needed	W,S,H,B	High	22	12
Opposed to a year-round coyote season	W,S,H,B	High	152	80
Year-round seasons may encourage greater deer poaching	W,S,H,B	Med	6	3
Longer coyote trapping seasons are needed	S,B	Low	10	5
Many coyotes are shot by deer hunters but not reported	W	Low		
Snares should be legal for taking coyotes, especially wilderness sites	W,S	Low		
May be a problem regulating year-round coyote seasons	W	Low	1	<1
Summer poaching opportunities already exist	W	Low		
Nontarget species may be threatened by longer coyote seasons	W	Low	5	3
Coyote harvest numbers inaccurate due to low pelt prices	S	Low		
Deer hunting season interferes with coyote trapping	S	Low		
Fisher should not control coyote trapping season length	H	Low	2	1
Continue legal leghold trap use for coyotes	B	Low	1	<1
Replace pelt tagging system with something better	B	Low	2	1
Lengthen seasons on all predators and furbearers, but exclude breeding season	B	Low	3	2
9-month coyote season would be a good compromise	B	Low		
Subsidize fur trapping to provide adequate coyote control	B	Low	1	<1
Sell fewer hunting licenses if deer populations decline	B	Low		
Current law permits taking of depredating coyotes at any time	B	Low		
End the use of foot traps			2	1
Allow centerfire rifles at night			1	<1
Deer poaching is the problem, not coyotes			2	1
Don't prosecute people who kill coyotes out of season			1	<1
Don't allow poisons			1	<1

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2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

3 For each comment, the "number" refers to the number of individual letters in which that comment appeared. The percentage (%) is calculated on the basis of the total of 190 letters or comment forms. The total of the percentages is greater than 100% since a letter may have multiple comments. Some percentages were less than one percent; this is shown as <1.

Table 12. Policy, educational, or research issues relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
Coyote control must be focused in localized problem areas	W,S,H,B	High		
DEC should provide more opportunities for coyote education, especially to stimulate hunting and trapping interest	S,H,B	Med	1	<1
Year-round season will be costly, greater than benefits	W,S	Low	1	<1
Public meetings don't adequately measure public opinion, need a referendum or vote	W,H,B	Low		
Public has a lack of coyote ecology information	H,B	Low		
Legislation was introduced for political not biological reasons	H,B	Low	3	2
Biologists should manage wildlife, not politicians	W,B	Low	13	7
Need a bounty or other incentive to increase coyote take	W	Low	2	1
DEC wasting time and money on the coyote issue	B	Low	2	1
More coyote research is needed	B	Low	2	1
DEC needs to expend more effort for coyote control	W	Low		
Need to warn recreational users about potential gunfire if year-round season is implemented	W	Low		
DEC should take a firm stand on the coyote issue	S	Low	1	<1
People should be compensated for coyote losses	H	Low		
Coyotes can have a localized impact on deer numbers	H	Low		
DEC needs to conduct more research on coyote effects and on small game populations	H	Low		
Extended coyote seasons should be implemented only on private lands	H	Low	1	4
Current data should be reassessed before funding more research	H	Low		
If current seasons are lengthened, studies should be funded to fully measure the effects	H	Low		
Additional education is needed to improve management for deer and small game	H	Low		
Coyote hunting access should be improved through better landowner/sportsmen relations	B	Low		
Communication links should be established between sportsmen and landowners with coyote problems	B	Low		
Year-round coyote season benefits only hunters	B	Low		
DEC should not listen to small vocal minorities			9	5
A year-round season would be a setback for wildlife management			1	<1
Don't make decisions based on license sales			1	<1
Input on coyotes should come from all people of the state			1	<1
Control efforts should be location-specific			1	<1

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2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

3 For each comment, the "number" refers to the number of individual letters in which that comment appeared. The percentage (%) is calculated on the basis of the total of 190 letters or comment forms. The total of the percentages is greater than 100% since a letter may have multiple comments. Some percentages were less than one percent; this is shown as <1.

Written Input:

Thirty-five people (19%) stated that coyotes are an integral part of the natural ecosystem and contribute to the "balance of nature" (Table 13). Fourteen people (7%) believe that extended seasons will not reduce coyote numbers or coyote damage. Approximately the same number of people said that coyotes have no effect on deer populations.

Summary of Public Opinion

The public meetings were held to provide an opportunity for coyote education and to receive public opinion concerning future coyote management in northern New York State. The proposed year-round coyote season continues to be a controversial issue.

Support for, or opposition to, year-round coyote hunting depends on an individual's background, perceptions, and the specific issue being discussed. People commenting from an agricultural or sportsmen's perspective appear to be more or less equally divided on a year-round hunting season; however, a slight majority of the sportsmen may favor an extended coyote season. Based on health and safety concerns, there was no clear-cut consensus; an argument could be made to either support or reject year-round coyote hunting. However, if social, regulatory, policy/education, and environmental concerns are examined, there appears to be relatively strong opposition to year-round coyote hunting seasons.

Overall, for both the meetings and letters, comments relating to environmental/ecological and regulatory/enforcement issues were the most frequently mentioned (Table 14). Of those people commenting within these categories, most opposed a year-round hunting season. A clear majority (80%) of the letters and comment forms received were not in favor of a year-round hunting season for coyotes (Table 15). Only 4 of the 29 organizations submitting comments said that they support the bill (Table 16). Twenty-four groups (82%) oppose the bill, while 1 group (4%) remains neutral.

Table 13. Environmental/ecological issues relating to NYS coyote management mentioned during the four public coyote forums or submitted in writing.

Comment[1]	Verbal Input[2] Location	Frequency	Written Input[3] Number	%
Coyote is an integral part of the natural ecosystem, balance of nature	W,S,H,B	High	35	19
Coyotes are taking too many deer and other wildlife	W,S,H,B	High	6	3
Coyotes have no effect on deer populations	W,S,H,B	High	12	6
Habitat has more influence on deer and coyote numbers than either deer or coyotes impact each other	W,B	Med	5	3
Free-roaming dogs are a bigger problem for deer than coyotes	W,S,H,B	Med	8	4
Coyotes are taking too many fawns	W,H,B	Med	2	1
Wildlife management is not needed for any species	W	Low		
Extended seasons will not reduce coyote numbers/damage	W,S	Low	14	7
Winter weather influences deer survival, may make deer more vulnerable to coyotes	W,S	Low		
There is a need for predator control in the Northern Zone, there are too many coyotes	W,S	Low	1	<1
Limited access in Adirondacks makes coyote control difficult	W	Low		
Coyotes provide carrion which supports other species	S	Low		
Coyote populations are self-regulating, leave them alone	H,B	Low	3	2
Coyotes help keep deer within the range carrying capacity	W	Low	1	<1
Bear may also impact deer numbers	W	Low		
More deer are killed by cars than by coyotes	W	Low		
Coyotes reduce numbers of feral dogs and cats	S	Low		
Coyotes may harass and drive away black bears	H	Low		
Coyotes are an important scavenger	H	Low	2	1
Habitat management is the best way to get ecosystem balance	H	Low	3	2
Coyotes kill healthy deer, not just sick and old	H	Low		
Abundance of prey controls predators, not the opposite	B	Low	2	1
Coyote numbers are low in the central Adirondacks	B	Low		
Coyotes occupy the same niche as wolves			1	<1
With more hunting, coyote will increase			3	2
With more hunting, coyotes will decline			1	<1
Coyotes affect deer mostly in late winter			1	<1
Coyotes are not overabundant			5	3
Poaching and car kills affect deer more than coyotes do			1	<1

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2 Location codes are: W=Watertown, S=Saranac Lake, H=Herkimer, B=Ballston Spa. Frequency codes "high," "medium," "low" refer to the relative occurrence of a comment at all meetings combined.

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Table 14. Most frequently recorded public comments (comments with a "high" frequency or occurrence greater than 10% in the written correspondence).

1. Opposed to a year-round season (high, 80%).
2. Concern for personal safety with a year-round season due to firearms use (high, 21%).
3. Coyote is an integral part of the natural ecosystem, balance of nature (high, 19%).
4. Year-round coyote hunting seasons are needed (high, 12%).
5. People like to see and hear coyotes (high).
6. Coyote is a valuable natural resource that should be respected and conserved (high).
7. Coyotes have reduced small game populations, compete with hunters (high).
8. Current coyote season length is adequate (high).
9. Coyote control must be focused in localized problem areas (high).
10. Coyotes are taking too many deer, other wildlife (high).
11. Coyotes have no effect on deer population (high).

Table 15. Summary of all written input received from individuals and organizations.

Against Bill	For Bill	Undetermined	Total
153 (80%)	22 (12%)	15 (8%)	190

Table 16. Summary of written comments received from organizations (listed in alphabetical order). The positions of these organizations also are included in Table 15.

Name of Organization	-Position on Coyote Bill- Support	Oppose	Neutral
Adirondack Mountain Club		x	
Adirondack Mountain Club, Glens Falls Chapter		x	
Animal Rights Action League		x	
Association of Veterinarians for Animal Rights		x	
Camden Rod and Gun Club		x	
Environmental Planning Lobby		x	
Hamilton County Board of Supervisors	x		
Hamilton County Federation of Sportsmen's Club	x		
Hole-in-the-Wall Club, Stewart's Landing		x	
Jefferson County Fur Harvester's		x	
Leatherstocking Club		x	
Mohawk Valley Muzzleloaders		x	
National Wildlife Federation		x	
New York Chapter of The Wildlife Society		x	
NYS Humane Society		x	
NYS Poultry Industry Coordinated Effort, Inc.	x		
NYS Trapper's Association		x	
NY United Black Bear Hunters		x	
Oneida County Environmental Management Council		x	
People Against Cruelty to Animals		x	
People for Animal Rights		x	
Preserve Adirondack Wilderness		x	
Region 5 Fish and Wildlife Management Board		x	
Richfield Springs Sportsmen's Club, Inc.	x		
Saratoga County Council of Fish and Game		x	
St. Lawrence County Environmental Mgmt. Council		x	
SUNY College of Environmental Science & Forestry		x	
USDA APHIS Animal Damage Control			x
Wildlife Rehabilitation and Educational Network, Inc.		x	
Total - 29 groups	4 (14%)	24 (82%)	1 (4%)

SUMMARY AND RECOMMENDATIONS

Background

In 1990, the Legislature passed a bill that would have allowed year-round hunting of coyotes in New York's Northern Zone as opposed to the current system of open and closed hunting seasons established annually by DEC regulation. Many individuals believe that the coyote population is limiting the growth of the deer herd in the Northern Zone. The bill generated such controversy between those in favor of the bill versus those opposed that an agreement was reached between the Governor and the bill's sponsors to recall the bill pending a study by the DEC.

The objectives of the study were to: (1) assess the role of the coyote in northern New York in relation to people, wildlife and livestock, (2) provide adequate opportunity for the public to express their opinion on the coyote and, (3) to prepare a status report and other informational material on coyotes. To meet those objectives, a team of individuals that included wildlife biologists, communications specialists, coyote researchers, and County Extension agents from various state and federal agencies, academic institutions, and county governments was assembled to review and analyze pertinent scientific information specific to deer/coyote interrelationships, the effect of hunting and trapping seasons on controlling coyote populations, and the effectiveness of various coyote control measures to reduce coyote damage. In addition, the team actively solicited public input through surveys, public meetings, and a direct mailing of 2,000 letters. Ninety-three of 149 (62%) survey questionnaires were returned, approximately 570 individuals attended the public meetings, and 190 written responses were received.

Findings and Conclusions

Based on a review of the available scientific literature, discussions with coyote researchers and animal damage control experts, and both written and oral comments received from the public participation process, the following conclusions can be drawn:

1. As a whole, there is no clear-cut, overwhelming, or even majority support by the public for a year-round coyote hunting season.

   a. Comments received at the public meetings indicated that:

      - Agricultural and sportsmen perspectives appear to be more or less evenly divided regarding the benefits of a year-round coyote hunting season; however, a slight majority of the sportsmen may favor a longer hunting season.

      - From a health and safety viewpoint, there is no clear-cut consensus for or against year-round coyote hunting.

      - There appears to be relatively strong opposition to year-round coyote hunting from a social, regulatory, policy/education, and environmental perspective.

   b. Comments received in writing indicated that:

      - A clear majority (80%) do not support a year-round hunting season.

- Twenty-four (82%) of the organizations who submitted written comments opposed the bill.

2. Human concerns and complaints about coyotes are not a major public issue and appear to be localized based on one's background, perspective, personal interests and geographic location rather than spread throughout the Northern Zone.

3. Deer harvest data show that, on the whole, Northern Zone deer populations have been growing in the presence of well-established coyote populations.

   a. Although white-tailed deer may make up a large portion of a coyote's diet at certain times of the year, buck harvests have been generally increasing in most areas.

   b. It is reasonably safe to assume that coyote predation alone is not having a negative impact on the deer population. However, in localized areas, the cumulative effect of severe winters, poor habitat, low reproduction, plus all forms of predation (including hunting, bears, and coyotes), may suppress deer populations.

   c. Increasing the coyote harvest will not result in an increase in deer densities, particularly where other factors may be limiting deer growth.

4. The random removal of coyotes resulting from a year-round hunting season will not control or reduce coyote populations.

   a. It has been estimated that over 65% of a coyote population would have to be removed annually to achieve a population reduction.

   b. Intensive control measures may actually increase coyote reproductive rates and offset any losses.

   c. The payment of bounties in the 1950's, coupled with an active coyote control program plus the year-round hunting and trapping seasons in effect prior to 1976, did not eliminate or reduce the coyote population.

   d. Harvest data show that most coyotes are harvested in the fall and that few people would take advantage of a year-round season, particularly since coyote pelts are virtually worthless during the late spring, summer and early fall.

5. The random removal of coyotes from a population will not reduce or eliminate predation on livestock. Preventive techniques that reduce or eliminate damage provide the best, long-term solution. Also, site specific removal of individual animals may be a necessary action in association with preventive methods.

6. Many people attended the public meetings simply because they were interested in learning more about coyotes in particular, and wildlife in general, and not because they had a particular position or philosophy regarding coyotes.

Recommendations

Coyotes are, and no doubt will continue to be, controversial animals. It is likely that there will continue to be advocates for a year-round coyote hunting season just as there will continue to be advocates for an end to hunting altogether. These viewpoints, at least judging from the public participation process, appear to reflect minority opinions depending upon one's background, perspective, personal interests, and geographic location. Clearly, there is no universal demand for a year-round coyote hunting season in the Northern Zone.

By the same token, there does not appear to be any biological justification for starting a year-round hunting season. Past experience has shown that attempts to control or limit coyote populations on a large scale basis, or to increase a deer population by removing coyotes are of questionable value, time consuming and expensive. They actually may increase birth rates, thereby accelerating coyote population growth and expansion.

Given that a strong social demand or biological need could not be demonstrated, the DEC recommends against a year-round coyote hunting season for the following reasons:

1. There was a lack of broad-based public support for a year-round season.

2. A year-round coyote hunting season would not increase the coyote harvest measurably, or result in an increase in the deer population.

3. A year-round season is not an effective technique in preventing predation on livestock.

4. Existing law allows landowners to take specific coyotes injuring private property.

5. Few people would take advantage of this additional hunting opportunity.

6. A potential valuable fur would be wasted since late spring, summer, and early fall coyote pelts would have little monetary value.

The public meetings clearly demonstrated a desire for additional information and knowledge about the coyote. Many people attended the public meetings not because they were for or against a year-round hunting season, but simply to learn more about the ecology and management of coyotes. In fact, some people were unsure or unaware what the controversy was all about. There also was interest in learning more about hunting and trapping coyotes and increasing recreational opportunities for harvesting coyotes. And there was interest in learning more about preventing or reducing coyote damage to private property.

The DEC's approach to coyote management is an active one. The DEC strongly supported making the coyote a game animal. That enabled the DEC to annually set hunting and trapping seasons. The DEC opposes changing the status of the coyote to an unprotected species. Coyote harvests are monitored through the pelt tagging system. Coyote forums, lectures, and hunting seminars have and will continue to be held. Technical advice is routinely and freely given to concerned citizens and landowners who have experienced or are worried about coyote damage. Nevertheless, the public meetings clearly demonstrated a desire for additional information on coyote ecology, management, recreation, and damage prevention techniques.

The DEC will continue its current coyote regulatory, extension, and monitoring programs. These include establishing annual hunting and trapping seasons; providing technical advice and information to landowners experiencing damage problems or looking for information to prevent depredation to domestic stock; responding to requests for natural history information or programs regarding the coyote; and monitoring coyote harvests with the pelt tagging system.

In view of the strong demand for additional information about coyote ecology, management, recreation, and damage prevention techniques, the DEC, within the constraints of current staffing and funding, also will strive to:

1. Develop educational and natural resource information programs, in cooperation with other agencies and organizations, including the preparation of extension materials for people with coyote complaints.

2. Increase extension efforts and on-site investigations of coyote damage complaints.

3. Expand and promote recreational opportunities for hunters and trappers, such as season adjustments and hunting and trapping workshops.

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APPENDIX A. Description of the four major land areas in northern New York.

Central Adirondack Land Area

The Central Adirondack area encompasses 5880.4 sq. miles in northern New York. Extensive forests are the dominant feature occupying over 70% of the total land area. More than 60% of the land is owned by the State of New York and is classified as Forest Preserve. These lands may not be leased, sold or logged. Restrictions on land use, together with effective fire control, have perpetuated the forest character of the area.

The topography generally is characterized as rounded mountains, with spruce-fir and northern hardwoods being important forest categories. Soils are of low productivity; growing seasons vary from 90 to 150 days. Annual snowfall ranges from 60 to 140+ inches.

The mountainous terrain, poor soil, and severe climate have governed the use of the land. The primary industries are based on forest products and recreation. Agriculture practically is non-existent. Less than 5% of the land is being used for farming. Human settlement is relatively low, and access is poor.

Tug Hill Land Area

Tug Hill occupies about 392.4 sq. miles of flat or rolling terrain in northern New York. Elevations range from 1500 to 1900 feet, and average 1700 feet. Poorly drained soils account for a large proportion of wetland areas.

This plateau is a substantial barrier for moisture-laden air from Lake Ontario storm systems. The result is annual accumulations of snow over 120 inches. Although the growing season is 135 days, summer temperatures are cool. Because of the harsh climate and poorly drained soils, the area was never well-developed for agriculture.

The area is densely forested with cutover northern hardwoods, spruce, and fir. Logging and outdoor recreation are major activities.

Foothills Land Area

The Foothills area is characterized by abandoned farmlands. It lies between the heavily forested and actively cultivated agricultural lands, encompassing 6131.3 sq. miles in northern New York. The typical land form is gently rolling plains and low hills. Elevations range from 300 to 1800 feet above sea level, with the average being 1000 feet.

Rocky outcrops and poorly drained soils of low productivity characterize the area. Annual snowfall ranges from 40 to 140 inches. The growing season averages 140 days and is similar to the Plains/Valleys area.

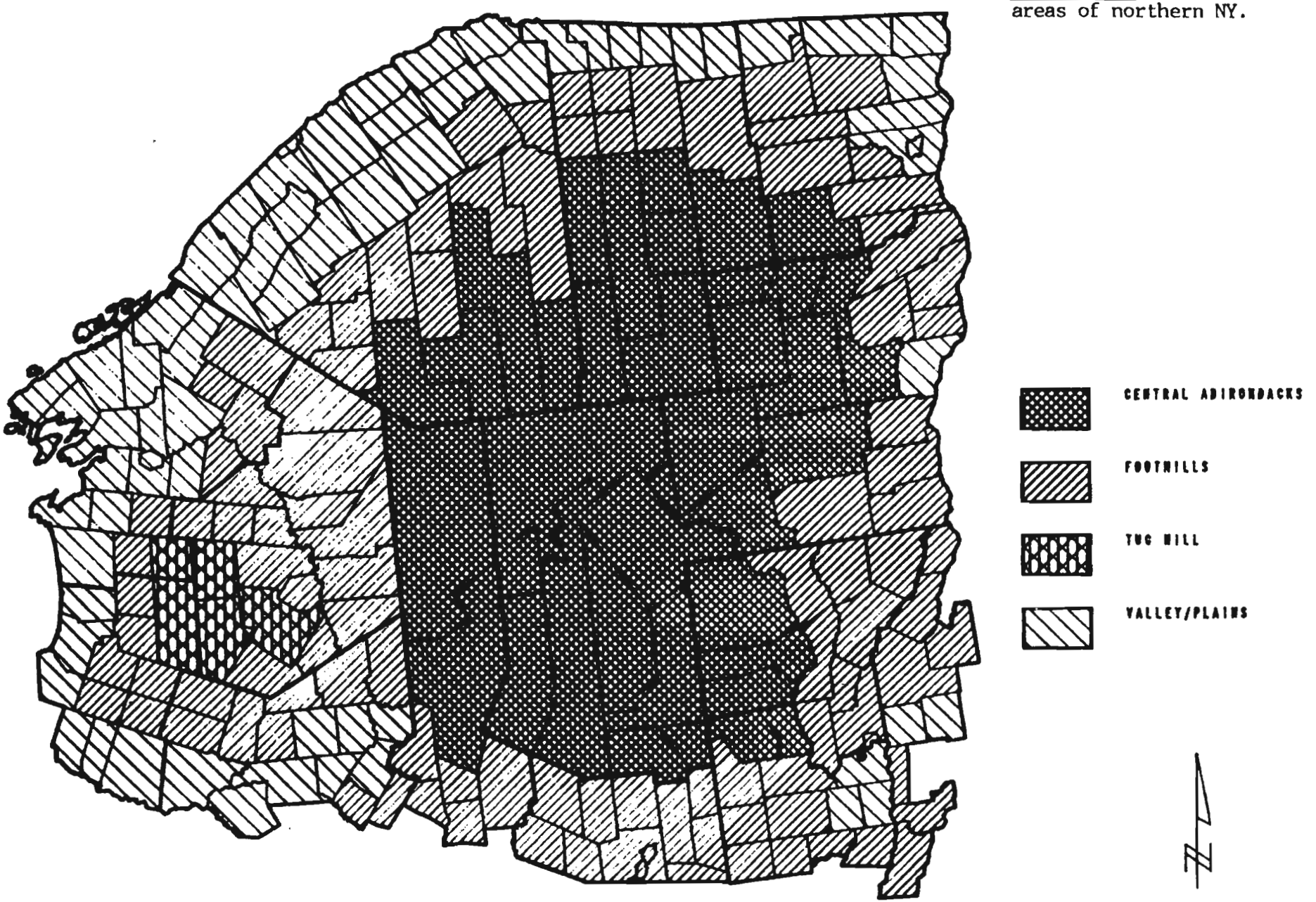
White pine, oak, and northern hardwoods are the major forest types. Eighty to 90% of the land is in private ownership and is used as a source of wood products such as pulp and firewood. Although changes in land use and vegetation have taken place, access and human population densities continue to be quite high.

Plains/Valleys Land Area

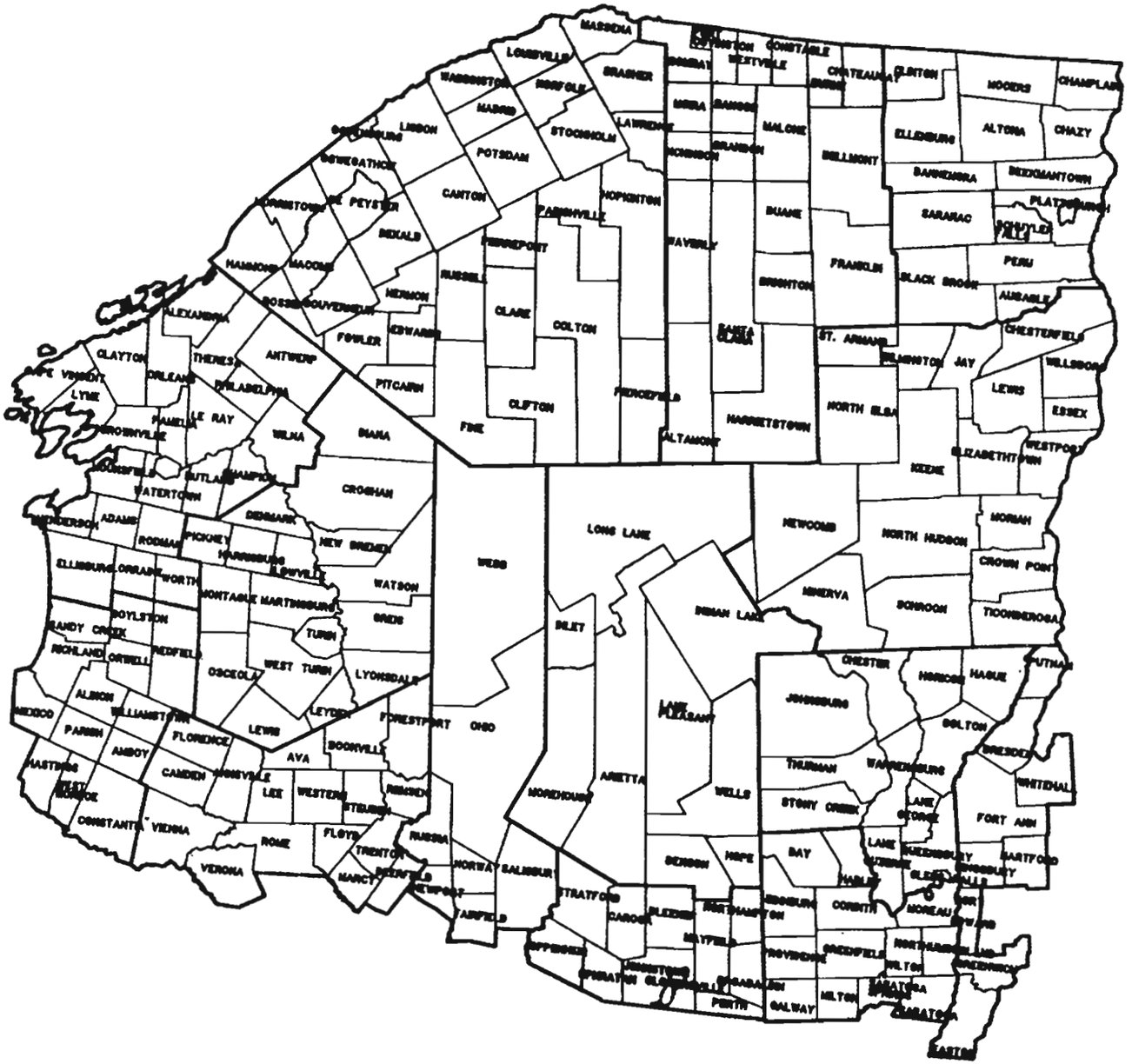
The Plains/Valleys area accounts for 3409.5 sq. miles in northern New York. The topography is generally flat to rolling plains with elevations usually less than 500 feet above sea level. Much of the area has well-drained soils and tends to be productive agriculturally.

The productive soils and relatively mild climate are conducive to dairy and fruit farming. This area has the longest growing season and lowest annual snowfall in northern New York because of the low elevation and close proximity to water.

Forest areas consist of sparse northern hardwoods, white pine, and oak in a typical, small woodlot pattern. The majority of the land is in private ownership and lends itself to intensive human use. The extensive road systems make the area very accessible.



Appendix B. Major land areas of northern NY.



Appendix C. Towns and counties included in the four major land areas of northern NY.

COYOTE COMPLAINT & PREDATION SURVEY

Name:_____ **Title**_____

Area of Coverage _____

Dates: Include only cases between March 1, 1990 and February 28, 1991.

Section I. Complaints. Please estimate how many complaints about coyotes you have received in the course of your duties during the past year. Complaints in this case means a citizen or organization asking for assistance, information, or action to solve a problem related to predation or damage caused by coyotes.

A. Complaints received: 1. Wildlife-related complaints. _____

2. Livestock-related complaints. _____

3. Other (list notes on back) _____

B. Referrals: If you referred any of these complaints to other employees or agencies, enter how many here. _____
Please list the names of the employees or agencies to which cases were referred on the back of this form.

Section II. Predation Incidents. Please estimate how many predation incidents you witnessed or received reliable information about during the past year. Do not include "missing animal" reports unless there is physical evidence of coyote predation. (*see note at bottom of page.)

	No. of reports/sightings	
	Confirmed	Suspected*
A. Deer Kills (Count 1 for each deer killed)	_____	_____
B. Livestock Kills (Count 1 for each incident)		
1.Type of Animal Killed: a. Sheep	_____	_____
b. Poultry	_____	_____
c. Other (list on back)	_____	_____
Total livestock predation incidents:	_____	_____

*"Confirmed" cases are those which can definitely be attributed to Coyotes.
"Suspected" cases might be kills by dogs; or coyotes feeding on carrion.

PLEASE COMPLETE AND MAIL BY MARCH 12 TO:
Wayne Jones, NYSDEC Wildlife Resources Center, Delmar, NY 12054-9767

New York State Department of Environmental Conservation Bureau of Wildlife 50 Wolf Rd., Albany, NY 12233-4754 January 1991

UPDATE: Public Participation in Wildlife Management

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

Greetings!

Over a year has passed since we instituted the public participation component to our Wildlife Program Management System (WPMS). The response of the public to the WPMS process during our statewide meetings and subsequent written material sent to Bureau was extremely encouraging. We are now responding to the questions and issues raised by the public. In addition, we have completed a draft version of the final needs assessment for the state. This report will be ready later this year. In the meantime, here are a few items on how the Bureau is involved in public participation, plus a copy of the Division of Fish and Wildlife's 1990 program report. Enjoy.

Gary R. Parsons, Chief
Bureau of Wildlife
Division of Fish And Wildlife

WPMS UPDATE

In October, 1989, the Bureau of Wildlife held a series of 18 public meetings in 12 separate locations to generate part of the public input for the Bureau of Wildlife's WPMS process. Recently, Cornell University's Human Dimensions Research Unit completed an evaluation of these meetings and the following are a few results/highlights for your information.

- Most (78.5%) meeting participants belonged to at least one conservation, environmental, outdoor, or fish and wildlife-related organization. About 40% belonged to more than one such organization.

- Thirty-four percent of the participants also attended a meeting as a representative of a conservation, environmental, outdoor, or fish and wildlife-related organization. The meeting attendants were members and representatives of a wide variety of organizations.

- Most meetings were attended by people from a variety of groups. However, at each meeting the mix of participants varied, and some meetings were attended by participants belonging to just a few different types of organizations.

- The meetings received generally positive reaction from those who attended and appear to hold promise as one mechanism for productive public involvement in WPMS.

PUBLIC INPUT ON COYOTES IN NORTHERN N.Y.

Public meetings about the coyote in Northern New York are coming in January and February. DEC, The Department of Agriculture and Markets and Cornell Cooperative Extension will work together in this effort. At the meetings, coyote experts will offer information about coyotes, and provide citizens with an opportunity to express their desires and concerns about this animal. The Bureau of Wildlife will also produce and distribute a coyote fact sheet and invite further comment by mail.

In announcing the meetings, DEC Commissioner Thomas C. Jorling noted: "Since coyotes were first noticed in New York around 1912, they have been one of our most controversial wildlife species; hated and persecuted by some, valued and defended by others. We intend to provide facts, and obtain a broad spectrum of public opinion about the animals at these meetings, with the cooperation of the Department of Agriculture and Markets, Cornell Cooperative Extension and the public."

The coyote controversy came to the State Legislature in 1990 with a bill which would have opened the Northern Zone to year-round coyote hunting. Hunting seasons are open only in the fall and winter, with season dates varying in different zones. Currently, hunting seasons for this animal are open from October through March in much of the Northern Zone. Coyotes causing agricultural or other damage, however, may be killed at any time without a permit or license.

Strong opinions for and against the bill showed that the public was divided on whether coyotes should be regarded as a nuisance "varmint" or a valuable part of the environment. Governor Cuomo asked the sponsors to suspend action on the bill until more information could be obtained about coyotes and public attitudes toward them.

Our wildlife biologists are now compiling information for a report on the coyote in Northern New York which will provide the information requested by the Governor. It will concentrate on the effects of coyotes on deer and livestock. It will also include a summary of public input received at the meetings and in writing. Written comments may be sent to the Bureau of Wildlife in Albany.

COYOTE MEETING DATES AND LOCATIONS:

January 29, 1991 - Watertown: State Office Building
317 Washington St., 7:00 PM
January 30, 1991 - Saranac Lake: North Country Community College, Science Bldg Auditorium, Winona Ave, 7:30 PM
February 5, 1991 - Herkimer: Herkimer County Community College, McLaughlin Center, 7:00 PM
February 7, 1991 - Ballston Spa: Saratoga County Cooperative Extension Center, 50 W. High Street, 7:00 PM

For more information, contact one of these DEC offices:
Ray Brook - Region 5 Wildlife Mgr: (518)891-1370
Watertown - Region 6 Wildlife Mgr: (315)785-2261
Delmar - Wildlife Resources Center: (518)439-8082

COLONIAL WATERBIRD MANAGEMENT PUBLIC PARTICIPATION

The management and protection of colonial waterbirds (terns, piping plover, herons, gulls, cormorants) requires the cooperative efforts of many individuals, organizations and the Department. In the Long Island/New York City region, the Long Island Colonial Waterbird Association was organized in 1984 to coordinate management and research efforts, and to protect nesting areas of colonial waterbirds. Similarly, the Great Lakes Area Working Group on Colonial Waterbirds was established to coordinate management activities for common tern, black tern, cormorant and other colonial waterbirds in upstate New York and the Great Lakes region. Participants in these groups include government agencies (DEC, U.S. Fish and Wildlife Service, Canadian Wildlife Service, town and county officials), environmental organizations (The Nature Conservancy, Seatuck Foundation, N.Y. Audubon, Audubon chapters), and individual wildlife biologists and researchers.

The protection of nesting colonies is accomplished by the posting, fencing and active patrolling of sites during the breeding season. Support for these efforts is partly provided through the "Return a Gift to Wildlife" program, and also through the voluntary assistance of active conservationists. Biological data on numbers of birds breeding and on nesting success is collected and summarized in annual reports. The effects of human disturbance and predation is monitored and recommendations considered for reducing excessive mortality to adults and chicks. The public is informed through news releases and brochures on the plight of many of these birds and the need to protect habitats essential to species survival.

The colonial waterbird management program is a continuing effort to involve wildlife managers, local public officials, environmentalists, and the general public in policy decisions and actions that balance people's land use activities with the needs of the wildlife resource.

INVOLVING PEOPLE IN DEER MANAGEMENT

To better understand how the public feels about deer, the Bureau is trying out a new citizen participation process. With assistance from Cornell Cooperative Extension, citizen task forces have been set up in many areas across the state. Task forces will help DEC set deer population levels in response to public needs.

Each task force is made up of representatives of particular interest groups, including landowners, hunters, farmers, motorists and others. Task force members meet and discuss their constituents' concerns about deer populations. After discussion, each task force agrees on a deer population recommendation for their area. Recommendation can fall into one of three categories: higher than the current deer population, lower, or about the same as now. If changes are recommended, the task force advises wildlife managers about the degree of change desired. DEC's deer managers use the task force's recommendation as a goal for the next five years. Biologists attempt to reach the desired deer population by adjusting the number of deer taken in hunting seasons.

The process has been working very well. Though some task force members have had very different (and sometimes conflicting) feelings about deer, most task forces have reached agreement after two or three meetings. More importantly, our biologists are getting better information on public attitudes and concerns about deer. By formally including the public in our deer management program, we will gain a better understanding of the values different interest groups place on deer, and the level at which deer populations should be maintained.

CITIZEN HELP WITH MOOSE DECISIONS

The Bureau of Wildlife is now assessing the possible consequences of a larger moose population in New York State. A few moose have naturally migrated into the state, but no efforts other than legal protection have been taken to encourage a larger population. A study of the question of moose restoration, including public input is essential.

The Bureau has made several efforts to insure public understanding and participation in the assessment of moose restoration. The major focus is to identify and incorporate public concerns about moose. More than 3,000 news releases requesting public input were sent to those who might have an interest in the moose restoration issue. Groups contacted included outdoor writers, news media, conservation groups, forest and agriculture organizations, major landowners and town and county officials in Northern New York. It also included all those on the WPMS mailing list. As a result of that effort, comments were received from 80 organizations and individuals. Those comments are being incorporated in the review process and will be addressed in an Environmental Impact Statement on moose restoration.

Public input efforts also helped generate media interest in moose. A number of interviews were given which resulted in news articles appearing across state. Of particular interest were three unsuccessful efforts at recollaring a bull moose, which were attended by print and television journalists.

The Bureau will continue to inform and involve the public in efforts to plan the future of the moose in New York State.

News Release
New York State Department of Environmental Conservation
THOMAS C. JORLING, Commissioner

Appendix F.

FOR RELEASE: A.M.'s, MONDAY, JANUARY 14, 1991

Environmental Conservation Commissioner Thomas C. Jorling today announced a series of public meetings in late January and early February about coyotes in northern New York. At the meetings, coyote experts will offer information about coyotes and provide citizens with an opportunity to express their opinions and concerns regarding this animal in New York's Northern Zone.

Commissioner Jorling observed: "Since coyotes were first noticed in New York around 1912 they have been one of our most controversial wildlife species, hated and persecuted by some, valued and defended by others. We intend to provide facts and obtain balanced information about the animals at these meetings, with the cooperation of the Department of Agriculture and Markets, Cornell Cooperative Extension and the public."

A controversial coyote bill was withdrawn by the legislature in 1990 at Governor Cuomo's request. The Governor asked the sponsors to suspend action on the bill until more information could be obtained about coyotes and public attitudes toward them. The bill would have opened the Northern Zone to year-round coyote hunting. Coyotes are widely distributed across upstate New York. Hunting seasons are open only in fall and winter, with season dates varying in different zones. Currently, hunting seasons for this animal are open from October through March in much of the Northern Zone. Coyotes causing agricultural or other damage, however, may be killed at any time without a permit or license.

Local cooperative extension agents will join with the department to conduct meetings at the following locations:

Tuesday, January 29 - Watertown: State Office Building, 317 Washington St., 7 p.m.

Wednesday, January 30 - Saranac Lake: North Country Community College, Science Building Auditorium, Winona Ave, 7:30 p.m.

Tuesday, February 5 - Herkimer: Herkimer County Community College, McLaughlin Center, 7 p.m.

Thursday, February 7 - Ballston Spa: Saratoga County Cooperative Extension Center, 50 West High Street, 7:30 p.m.

For more information about coyotes and the public meetings, contact one of these DEC offices:

Ray Brook - Region 5 Wildlife Manager: (518) 891-1370
Watertown - Region 6 Wildlife Manager: (315) 785-2261
Delmar - Wildlife Resources Center: (518) 439-8082

-30-

FOR FURTHER INFORMATION, CALL:
Edward S. Feldmann (518) 457-5400

91-4

New York State Department of Environmental Conservation Bureau of Wildlife, 50 Wolf Rd., Albany, NY 12233-4754 January 1991

COMMENT FORM

The Coyote in Northern New York

Your comments: If you have comments which were not expressed at the public meeting, you are invited to write them on this form or another peice of paper.

Please put this form in the box provided on your way out of the meeting, or mail it to the address at the top of this form.

Name:_____ Title (if representing group)_____

Address:_____

Group Represented:_____

New York State Department of Environmental Conservation Bureau of Wildlife, 50 Wolf Rd., Albany, NY 12233-4754 January 1991

The Coyote in Northern New York

A Fact Sheet

The Coyote: A Controversial Animal.

Some people love them and some people hate them. The coyote controversy came to the State Legislature in 1990 with a bill which would have opened the Northern Zone (see map) to year-round coyote hunting. Currently, hunting seasons for this animal are open from October through March in much of the Northern Zone. Coyotes killing domestic animals, however, may be killed at any time without a permit or license.

Strong opinions for and against the bill showed that the public was divided on whether coyotes should be regarded as a nuisance "varmint" or a valuable part of the environment. Governor Cuomo asked the sponsors to suspend action on the bill until more information could be obtained about coyotes and public attitudes toward them.

Wildlife biologists are now compiling a report to provide the information requested by the Governor. It will concentrate on the effects of coyotes on deer and livestock since this is a major focus of the controversy. It will also include a summary of input received at public meetings to be held in northern New York in January and February, 1991. **Written comments received by March 1, 1991 will also be summarized in the report.** Mail comments to N.Y.S.D.E.C. Bureau of Wildlife, 50 Wolf Road, Albany, NY 12233-4754.

For more information, contact one of these DEC offices:

Ray Brook - Region 5 Wildlife Mgr: (518)891-1370
Watertown - Region 6 Wildlife Mgr: (315)785-2261
Delmar - Wildlife Resources Center: (518)439-8082

Public Meetings

Jan. 29 - Watertown
State Office Bldg., 7 PM
Jan. 30 - Saranac Lake
North Country Community College, 7:30 PM
Feb. 5 - Herkimer - Herkimer Co. Community College, 7 PM
Feb. 7 - Ballston Spa - Saratoga Co. Cooperative Extension Ctr., 7 PM

The Eastern Coyote - at a glance

Description: The Eastern coyote looks like a medium-sized German shepherd dog, with long thick fur. The tail is full and bushy, usually carried pointing down. Ears are erect and pointed.

Length: 48 to 60 inches (including tail)
Weight: 35 to 45 pounds (males usually larger than females.)
Color: Variable, from blonde or reddish blonde to dark tan washed with black. Legs, ears and cheeks usually reddish.

Habits: Each winter, coyote pairs establish territories, and keep other coyotes out. The pups, usually born in April, are normally driven out of their parents' territory the next fall or winter. This territorial behavior limits the numbers of coyotes that can live in an area.

Food: Coyotes kill some animals and also eat dead animals they find, as well as significant amounts of plant materials. Small animals and plants are important in the warmer months; while carrion and larger animals are used more in winter. An analysis of coyote droppings found 54 different food items. The most frequently found items were: Varying hare; plant material; deer; chipmunks and squirrels; small rodents; and insects.

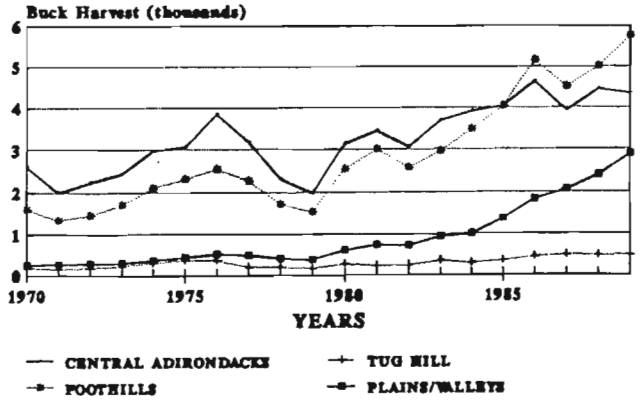
The Eastern Coyote in Northern New York: Questions and Answers

Coyotes and Deer - Some people are concerned that coyotes may reduce deer populations.

Q. *Does predation by coyotes control deer populations?*

A. Some researchers believe that coyotes can prevent growth of deer herds in some locations. In general, however, this has not happened. Deer populations in the Northern Zone have been rising in the presence of the coyote for 20 years. The graph below shows that buck harvests (good indicators of deer populations) are very high in most areas.

Northern Zone Buck Harvest
by Legal Hunting 1970 - 1989



Q. *What mortality factors can affect Northern Zone deer populations?*

A. Periodically, severe winters result in great population reductions in Northern New York, mostly due to malnutrition. Starvation, car collisions, predation by coyotes, bears and dogs, and illegal hunting are significant factors which kill deer of both sexes, and therefore exert varying degrees of control over deer populations. (Since legal hunting in the Northern Zone removes mostly male deer, it does not control population growth.) Accidents, diseases and parasites also kill deer.

Coyotes and livestock - Some people who raise animals are concerned about coyotes killing livestock.

Q. *What types of domestic animals are killed by coyotes in New York?*

A. Farmers have reported that sheep and poultry have been killed. There have also been some reports of other animals such as calves and pets being killed by coyotes.

Q. *Sheep seem to be the main agricultural concern. What effect have coyotes had on the sheep industry?*

A. Predation controls such as better fencing and keeping newborn lambs in protected areas, has been an added cost for some producers. In general, however, the industry appears to be doing well. The table below shows that sheep production has increased greatly, while predation by dogs and coyotes has decreased.

Sheep Predation Losses* in N.Y. (1985 - 1989)

	Total Sheep	*Predation Losses*	
Year	*Inventory*	*Sheep Lost*	*Percent*
1985	47,800	2,486	5.2 %
1986	46,100	3,135	6.8 %
1987	57,000	2,508	4.4 %
1988	68,700	2,061	3.0 %
1989	145,500	1,746	1.2 %

*About half of these losses are due to dogs.

Coyote Population Control - Some people are interested in eliminating or controlling coyote populations.

Q. *Do hunting and trapping control coyote populations?*

A. No. The open season for coyotes is longer than for most other animals, but the number of coyotes taken is small. Interest in taking coyotes may be low because pelt prices have been down for some time, and coyotes are not as abundant as other game.

Q. *There have been government coyote control programs in Western States. What have been the results?*

A. Government programs to trap, hunt, and poison coyotes have temporarily reduced individual ranchers' problems. Attempts to eliminate coyote populations over large areas, however, have failed.

Values of Coyotes - The positive side.

Q. *Some people seem to like coyotes. Why?*

A. Recreation - Some people enjoy viewing, listening to, hunting and trapping coyotes.

Economics - The tourism industry and related businesses benefit from recreational interests in coyotes. Coyote pelts have value, depending on the fur market.

Interest in Nature - Some people regard coyotes as a valuable part of the ecosystem.