

## MANAGING WILDLIFE

(Narrator) There are nearly as many black bears as moose in some parts of northern New England. So why don't we see more of them? Moose meat is one of the leanest forms of protein out there. Are you ready for a new take on hunting for food? And songbirds spend most of their time in the tropics. So how protective can we be of these "visitors"?

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(Linda Greenlaw, host) Many of us who were raised in northern New England remember a time when moose, black bear, bald eagles, even white-tailed deer, were seldom seen. We learned that certain species were extirpated, or locally extinct. Fortunately that's no longer the case. Their numbers are on the rise, and in many areas, some species have recovered to the point of becoming nuisances.

Hi I'm Linda Greenlaw. Evolution, adaptation, natural selection, survival of the fittest...science tells us that change is nature's way. But what happens when humans really put nature to the test – as we sometimes do? And, the most intriguing question, can we take credit for getting our wildlife back? Or, are rebounding populations part of the natural cycle?

(Narrator) This is northern New England today. It can be as wild as it is serene. You can find tundra on the summits of Mt. Katahdin in Maine and the Presidential Range of New Hampshire, as well as on Mt. Mansfield and Camel's Hump in Vermont. The boreal coniferous forests of Canada reach into the Northeast Kingdom of Vermont, and over vast sections of northern New Hampshire and Maine. Hardwood forests seem to have no boundaries, and stretch from the Green Mountains to the White Mountains into the hills of western and southern Maine. New Hampshire and Maine also share a coastal plain with headlands and wetlands full of biological marvels. And a vital part of this remarkable region is its abundant wildlife. But it hasn't always been like this.

When settlers of European descent came to northern New England, the first order of business was clearing away dense forests. By the mid-1800s, up to three-quarters of the region was chopped wide open to make way for farming. Northern New England became a land of clear-cuts, pastures and croplands. Without the protective cover of trees, the hills and mountains could no longer hold the soil, and much of it eroded away. Some scientists say it was a "biological wasteland." Without question it was devastating to the wildlife.

(Ken Elowe, Maine Inland Fisheries & Wildlife) Early on the science was completely dedicated to "Let's stop the radical decline of these species before we lose them altogether."

(Narrator) Fifty years later, wildlife is on the rebound, but scientists know there is still much to learn.

(Susan Morse, Wildlife Habitat Specialist) I prefer to think that we'll reach a time, hopefully very soon, when we'll be appropriately motivated to realize that we're just part of a larger community of life. That we ought not to shape everything and have everything scrambling to keep up with us out there.

(Narrator) Among the species that nearly vanished from northern New England after our forests were cleared...were black bears. Even when the forests and bears came back, these animals were often shot on sight. Bounties were still being offered for black bears as late as the 1940s for they were considered threats to people, livestock, and crops. Once hunting was controlled and managed by the states, bear numbers began increasing. Maine is now home to an estimated 23,000 bears, more than any other state except Alaska. In addition, there's probably 4,000 bears in New Hampshire and 3,500 in Vermont, with populations on the rise. But as bears become more numerous, they find themselves in trouble again - for being dangerous and a nuisance. Tom Decker is the wildlife biologist who gets many of the "problem bear" telephone calls from Vermonters.

(Tom Decker, Vermont Fish & Wildlife) All bears are capable of developing a Yogi Bear personality. Bears are generally shy and elusive animals, but they do have distinct personalities. Some are more brazen than others.

(Narrator) Today northern New Englanders are just as apt to encounter black bears in their backyards as they are on the Appalachian Trail.

(Tom Decker, Vermont Fish & Wildlife) We do have those cases that are becoming more and more frequent, where bears show up in the middle of the day, with 35 people at a barbeque, and don't run away. Or get scared. They hang around for food. We've had break-ins, not as many as some of the other northern New England states, where bears break into houses. And I don't mean unoccupied camps. I mean when someone's home, and they hear a noise, and it's actually a bear in the kitchen trying to get into their refrigerator.

(Ben Kilham, Licensed Bear Rehabilitator) There is no such thing as “nuisance” bears. There are nuisance people. It’s people who leave food around that attracts bears.

(Narrator) Ben Kilham is licensed to “rehabilitate” black bears for both New Hampshire and Vermont.

(Ben Kilham, Licensed Bear Rehabilitator) You have to be very diligent about food. We in the East, bears are relatively new. But you go out West and you go to any of the national parks and there are big signs warning about bear country and how you’re supposed to behave. But we’re in bear country! And that’s how we’re supposed to behave.

(Narrator) Kilham often gets called upon to be a surrogate “mother” to orphaned bear cubs. He has even acquired the nickname, “Mother Bear Man.” Once his orphans grow up, he releases them in the woods near his home in western New Hampshire.

(Ben Kilham, Licensed Bear Rehabilitator) If you get to know, if you see a bear like Yoda in her natural circumstances, this is how she is with other bears. This is her area. She’s relaxed, she’s a personable animal. That’s how these bears are.

(Narrator) Kilham keeps tracks of his grown bears by radio collar and he visits them regularly for his own research. Often he brings his own video camera along and documents how bears leave messages for one another.

(Ben Kilham, Licensed Bear Rehabilitator) I’ve identified what I call the hobo tree...They’ll simply backrub and bite the tree. And they do it at all of their natural feeding areas as well as people’s backyards where birdseed is left out. But meantime wherever a bear travels, he leaves scent. And any bear, and they do, will follow it.

(Narrator) Other trees are used as “babysitting trees” so foraging sows know their cubs are high and safe. So if bear numbers are increasing, why don’t we see them in the woods more often? Do they have a magical ability to make themselves invisible?

(Ben Kilham, Licensed Bear Rehabilitator) We don’t see bears a lot because if you’re walking in the woods making any noise at all, the bears simply just stand back and hide behind a tree or hide behind a boulder. They’re not like a white-tailed deer or moose that flags and crashes off into the brush. They just step back and let you go by. They know that you can’t see them.

(Narrator) And what about the rare occasion when you meet up with a bear that appears aggressive? Especially one with cubs?

(Ben Kilham, Licensed Bear Rehabilitator) If you have a sudden encounter with a bear, that bear is very nervous. He’s a upset as you are. And you don’t want to do anything to heighten the situation.

Typically they’ll square off their upper lip, and have a drawn look to their face, and they’ll start chomping. Chomp- chomp-chomp. And there’ll be huffing. Huff-huff-huff. And they’re likely to swat the ground, to false-charge. They’re likely to make a gulping vocalization. Gulp-gulp-gulp. Generally all those indicate that a bear is scared...Typically if you just hold your ground and keep your eye on the bear, they’re going to calm down and walk away. The real excitement and tense period only lasts for a matter of seconds. They can rush you headlong, swatting the ground with all four paws, and really make your heart beat. But don’t run, don’t try to run up a tree. Just hold your ground and keep your eyes, look him over and stay there.

(Tom Decker, Vermont Fish & Wildlife) Ben Kilham is a very knowledgeable person...Through his observation with rehabilitating young cubs, he’s come up with some ideas about basically how we are miscommunicating some things to nuisance bears when they get into suburban situations, damage situations.

The reality is while you’re still providing the food source, the birdseed or the trash, those things no matter, many types, even Ben’s types of aversion can’t overcome that impetus for having that hunger feeling fulfilled. It’s a very strong thing to overcome.

But as wildlife managers, it does provide some insight into other tools in the toolbox, other than electric fencing, rubber bullets, that may be very meaningful to get a bear to stop coming into an area.

(Narrator) What scientists have learned about black bears comes from rehabilitators like Ben Kilham and from their own population studies where radio collars are used to track movements. Maine has been at it since 1975 – one of the longest running studies of bears in the world.

(McLaughlin, Maine Inland Fisheries & Wildlife) You can’t study a long-lived animal like a bear with a snapshot study. In other words, you can’t say a whole lot about a bear by looking at it in one year. Long term studies are needed because these animals have very low reproductive rates. Everything they do takes time. Takes time for them to grow to adulthood. Takes quite a bit of time for them to produce offspring. They’re an animal whose population changes usually occur over long periods of time.

Actually Chuck that’s 0465 there...

(Narrator) With these wildlife biologists, bears go by numbers, they're never given names. But studying bears is not all serious work. It can be a lot of fun when one encounters newborn cubs.

(McLaughlin, Maine Inland Fisheries & Wildlife) The cubs stay with the adult, the family group stays together for 14-18 months. So the first year. Next year, when they are what we call yearlings, they will be denning with her. Not necessarily in this spot. They rarely use the same den sites. But they'll go into a den, and if these cubs survive, they will be right there with her. So we'll be able to count heads and determine how many were able to survive.

(Narrator) Of the 2,000 bears they've monitored over the last quarter century, only three have been involved in nuisance complaints, probably because most Maine bears live in the sparsely populated northern areas. It's a very different story in New Hampshire, which gets up to a thousand bear complaints a year. That state's *Something's Bruin* campaign provides a long list of do's and don'ts to help keep black bears from becoming problem bears. New Hampshire's also in the middle of a three-year study of bear behavior. Kip Adams and other biologists are monitoring three bears wearing collars that use the global positioning system or GPS.

(Kip Adams) The GPS collars allow us to get over 2,000 locations over the course of a given year. And that's many more than we could ever get using traditional methods following them around with an antenna.

(Narrator) This map of Berlin, New Hampshire shows bear location data from a five-month period. Each dot represents a visit by one of the three bears to the town. Besides the exact locations, the GPS data give biologists the dates and times of day of the visits.

(Kip Adams) These bears have all been involved in nuisance situations.

And what we found is the three bears we had collared, were responsible for probably 95% of the nuisance complaints within that town. So that's important information because there tends to be fewer bears causing a lot of problems rather than a lot of bears each causing a few acts.

(Narrator) Wildlife biologists have learned something else. Bears are far more flexible in habitat requirements than we originally thought. And that can create problems.

(Ken Elowe, Maine Inland Fisheries & Wildlife) They are much more adaptable than observational data would have told us 20-30 years ago. When you look at where bears live now relative to where we thought they could survive... They don't need wilderness in order to survive in most cases. They do need freedom from disturbance. But that can occur in some cases in a suburban neighborhood. And that's both fortunate and unfortunate. Because when bears live in a suburban environment, there's going to be conflicts. (laugh).

(Narrator) Conflicts with people are even more common with moose, the largest member of the deer family. The comeback of moose has been described as "nothing less than amazing," particularly in Vermont and New Hampshire where they bounced back after dwindling to fewer than a dozen individuals. There's now an estimated 50,000 moose in northern New England. This is remarkable given that moose are one of several species that are pushing the southern limits of their range in the northern boreal forests. Our region is unique because it's also an area where other species are at the northern end of where they survive best; this is true of many of our amphibians. Wildlife managers, like Kris Bontaites, are always concerned about the health of moose and other borderline species. Check stations, like this one at Kilkenny, New Hampshire, are where a lot of biological data are collected. To bystanders, it's the weigh-in of a moose that's the big attraction. But to wildlife biologists, the check station allows for a detailed biological profile of the moose herd.

(Kris Bontaites, New Hampshire Fish & Game) When they get here, we weigh them, all of them, and for the bulls, we will take the antler beam diameter measurement, the spread of their rack... from that we get pretty good information on the nutritional level of these animals. For the cows... what we take from them is the reproductive tract. From that, we remove the ovaries, section these ovaries, from that we will determine how many eggs they ovulated. That's pretty good indication of how many calves they would have this winter or spring. That's a good indicator of their nutrition level. We age them all, take an approximate age, looking at the wear on their teeth. And we'll take two of their front bottom teeth... send those away to a lab. They'll section those, take a paper-thin sample from those teeth and... that will give us a definitive age.

(Narrator) Added to this database is an array of information from hunters themselves.

(Kris Bontaites, New Hampshire Fish & Game) By and large, where we derive most of our information, interestingly enough, is from the deer hunters of the state. We ask all hunters that got a deer to fill out a diary card for their hunting season. Telling us where they hunted, how many hours they hunted, and how many moose they saw.

(Narrator) Biologists then enter the data into computers and use mathematical models to generate valuable information about moose and other wildlife populations.

(Kris Bontaites, New Hampshire Fish & Game) We are on the southern edge of moose range. And one of the reasons it is the southern edge of moose range is they don't do well when it's hot. And the calves don't grow, the adults don't feed. So then in the wintertime, they are poorer equipped because they haven't gained sufficient weight or size to make it through the winter.

(Narrator) There was public outrage in Vermont and New Hampshire when moose hunting was first allowed in the 1980s and 90s. But that was before highway collisions became common, resulting in the deaths of both moose and people. But even highway mortality and hunting pressure are not enough to stop the moose population explosion.

(Susan Morse, Wildlife Habitat Specialist) They could overwhelm their habitat, much in the same way deer are doing now on a smaller scale. They eat a lot; 25 to 35, as much as 45 pounds a day of stuff. The impact of 50,000 moose on what may be, well, never mind 50,000. It's estimated in portions of the Northeast, moose populations are growing 10-15% a year. You do the math. There's 50,000 now. How many will we have in 25 years? It's staggering concept. (laugh).

(Narrator) Given the prospect of continued population increases, filling freezers with game meat can be considered a form of "harvesting," an idea that is appealing to many people, like forester and wildlife habitat specialist, Susan Morse.

(Susan Morse, Wildlife Habitat Specialist) I'm an omnivore. And living in a northern climate, I think I'm meant to be. Be that as it may be, it's a simple equation for me. Meat has to come from somewhere. And I frankly feel a lot more comfortable eating venison from a deer I harvested – hunting.

To me that feels more natural than eating a cow that's been raised in a feedlot and fed a lot of garbage to boot. To say nothing of the whole transportation system that has to get that cow to Maine. And on and on.

(Narrator) Morse and others point to all the food that can come from our forests. For instance, half of a moose is boneless meat, which means there's an average of 300 pounds of high-quality meat per moose.

(Cedric Alexander, Vermont Fish & Wildlife) Moose is good food because it tastes good, it's very high in protein, but low in fat and cholesterol. So it's healthy food for you. And when you choose moose as a food, you're taking your sustenance from an ecosystem that is relatively natural still. It's not dominated by man; it's not a soybean field...it's not a cornfield.

(Narrator) Cedric Alexander is a wildlife biologist whose specialty is moose.

(Cedric Alexander, Vermont Fish & Wildlife) People understand that when you're eating soybeans or tofu, you're really depending on an agricultural plant that's grown 1,000 miles away. And there's fuel that's used to cultivate the plants to process the plant. Maybe refrigerate it. There's some packaging even if you buy it in an organic food store. So it comes at an expense to wildlife habitats and wildlife that live wherever it's being grown.

With all that has happened with technology's impacts, and acid rain and so forth, the fact that we have a healthy enough ecosystem to support 3 to 4,000 moose in this state, 6 to 9,000 moose in New Hampshire, 35,000 moose in Maine, whatever the estimate is now, I think that is amazing and something that's worth celebrating.

(Narrator) For some wildlife species, once they're gone, it's nearly impossible to get them back. And that is what happened to wild turkeys which were nearly eradicated by a combination of uncontrolled hunting and the clearing of forests in the 1800s. Now they're back in unprecedented numbers...after being restored one region at a time. Ironically it was sportsmen who led efforts to bring wild turkeys back. They convinced biologists that they had to re-stock their states with the birds. Beginning in the late 1960s, the transplants for Vermont and New Hampshire came from New York and Pennsylvania. A few years later, Vermont biologists were supplying Maine with birds from their own wild stocks. These days, as a result of population increases, biologists from all three states are getting their first calls about "problem" wild turkeys.

(Kim Royar, Vermont Fish & Wildlife) It's just very interesting to go from 30 years ago, not having these species in the state, to where they've recovered enough so that you're actually get calls from people about conflicts with turkeys.

(Ken Elowe, Maine Inland Fisheries & Wildlife) Wildlife is generally not a problem to most people until it's in their backyard. We see that often with bear, skunks, raccoons, but more and more with turkeys. We have an unbelievable amount of calls from people complaining about having turkeys at their birdfeeder because they really go through the birdseed.

(Don Kleiner, Maine Inland Fisheries & Wildlife) Yes there are certainly turkey nuisance complaints now, which is a whole new thing for us. Farmers are certainly very sensitive. Strawberry farmers we've had complaints from. I know this winter, I talked to a farmer just the other day, and he had turkeys in his silage pit. And he wasn't real happy. (laugh).

(Narrator) The fact that turkeys will eat just about anything, up to 600 different kinds of plants and animals, means they're probably

here to stay.

(Don Kleiner, Maine Inland Fisheries & Wildlife) The population has expanded rapidly for the past 10 years. And in fact, we're seeing turkeys in places we never dreamed we would.

(Narrator) Another northern New England native that required our help is the fisher. These prized fur-bearers were trapped to near extinction in our region by the mid-1800s, except for a few that survived in the northern forests of New Hampshire and Maine. Their comeback was exceptionally slow. These snapshots were taken from cameras mounted in trees with shutters triggered by animals taking bait. These photos belie the fisher's reputation for fierceness. These large sleek weasels are often called "furry snakes" or "black ghosts."

(Don Kleiner, Maine Inland Fisheries & Wildlife) ...Thinking about when I trapped, and the animals caught that were meaner than others, big male fisher? I take nothing away from him. His intent when you came up to him was to clean your clock. It didn't matter if you were 50 times his size, he wanted to clean your clock. So they've got the personality to do it.

(Narrator) All three states now want fishers in their forests to help keep porcupines in check. In a region with many wood-based industries, tree-killing porcupines create problems. So wildlife biologists re-colonized the fisher hoping they could control porcupines.

(Kim Royar, Vermont Fish & Wildlife) It has a very unique way of predating porcupines. Apparently they come at the front end at the nose, and flip it over, go through the stomach. It's not a pleasant topic, but they can sort of turn the animal inside out, and it's pretty slick I guess. I've never seen it done myself, but that's the accounts.

(Narrator) In the early 1970s, Maine traded fishers for Vermont wild turkeys. Now there are healthy populations of fishers in all three states and this has caused some complaints.

(Kim Royar, Vermont Fish & Wildlife) They've always had the reputation of being aggressive and fierce, and when they were first brought in, there were rumors of them taking cattle, and keep your children indoors, and things like that. I've been exposed to fisher when we've done some live-trapping and transfers to other states, and although they defend themselves and they are aggressive, those are the kind of tales that get blown out of proportion. But there have been calls, a lot of calls recently, about fisher taking domestic cats. It seems to be something that we're hearing more and more about.

(Narrator) But is the fisher mean enough to prey on one of our region's rarest wildcats? It's been just a few years since Maine biologists concluded there is a breeding population of Canada lynx in northern Maine. These wildcats require large tracts of undeveloped boreal or coniferous forest to survive. Even northern reaches of Maine are considered the extreme southern edge of the lynx's range. After being put on the federal endangered species list in the year 2000, biologists are now trying to figure out just how many lynx inhabit our region. The lynx resembles the bobcat, but has grayer fur, wider, snowshoe-type feet - for traveling over deep snow - and tall tufts of fur on its ears. Maine is conducting a radio tracking study of the lynx in the Allagash Wilderness. But a mysterious predator is killing them. The evidence points to the fisher as the culprit.

(Ken Elowe, Maine Inland Fisheries & Wildlife) That's one of those situations where we'll never quite know whether we're right or not. Did he do the deed? Or was he just taking advantage of a dead lynx afterward? It's never an exact science.

(Narrator) There is yet another wildcat that once roamed our northern forests. It has a variety of names: catamount, mountain lion, panther, and puma, but to biologists here in northern New England, it is the Eastern Cougar. Although the cougar was thought to be completely eradicated from our region over a century ago, there are still regular sightings and the rumor persists that these cats are still with us. But so far the best evidence is just a few fleeting seconds of blurry tape.

(Kim Royar, Vermont Fish & Wildlife) We really don't know. We have been keeping a database, probably for the last 5 years, we get 30 to 50 sightings every year. Some of them seem very credible. Others range to the ludicrous. But there are some real credible sightings.

(Narrator) One explanation is that they migrate here from the west. Or that they are pets that have escaped or been released into the wild. No one who has seen a cougar is likely to forget it. This is North America's largest wildcat, known to reach as much as eight feet in length. One thing is certain: if the eastern cougar really is here, or if it shows up in the future, it will be protected -because it is on the federal endangered species list.

There is another well-known mammal that we believe has invaded from the western states. Over the last century, which is very recent in biological terms, eastern coyotes have become numerous throughout New England. Coyotes were first sighted here in the 1930s and 40s, and quickly spread over the entire region. Although they may have migrated here from the west, Eastern Coyotes are not identical to western coyotes. They're bigger, weighing 5-10 pounds more on the average. So where did our coyote come

from? Federal and state wildlife biologists are still trying to figure this out.

(Michael Amaral, US Fish & Wildlife Service) Boy, the coyote has figured in Native American mythology for thousands of years, so why should we be any different? Maybe then the coyote occurred here and it was bigger than its western cousin. There was a lot of confusion about what this animal was. Was it a cross between western coyote and feral dogs? Was it a plot by wildlife biologists to bring the coyote here and interbreed it with wolves or something? There were all kinds of myths. And what it was was the coyote doing what it does best.

(Narrator) The coyote is a brand new predator that filled a vacant niche that was occupied long ago by the gray wolf. Coyotes are certainly wolf-like, but they're slightly smaller, more opportunistic, and better suited to the forests of the 21st century. The coyote can live alongside people and still remain wild - two traits we increasingly require of wildlife. But its genetic makeup is still a subject of intense debate.

(Michael Amaral, US Fish & Wildlife Service) Now we pretty much understand that what we have here is a coyote that has some wolf genes, or southern Ontario wild canid genes, introgressed within it, and it is slowly filling in some of the niches that were vacated by the wolf that was here

I've seen it described right now that we have five forms of canids in North America. We have gray wolves, we have red wolves, and then we have coyotes, And if you drew a circle around the gray wolves, and a larger circle around red wolves, you have a contact zone between the two. And that's another form of wild wolf. And then between the red wolves or an Algonquin wolf and the coyotes, there's another contact zone and another form. And if you drew that on a chalkboard, you'd have five forms of wild canids in North America. And they don't stay fixed on the landscape. There can be movement north and south and east and west. It's a complex picture and it doesn't fit into nice neat boxes where there's no spillage out of those boxes.

(Narrator) Coyotes have been and still are controversial, primarily because they kill deer!

(Wally Jakubas, Maine Dept. of Inland Fisheries & Wildlife) The whole idea that coyotes take a lot of deer in Maine is absolutely true. They do kill deer. That is one of their main foods, especially in the wintertime. To jump to the next conclusion to saying that coyotes in Maine are responsible for holding down our deer populations, that's quite a leap, and I wouldn't be comfortable making that at this time. What is limiting Maine's deer population in northern Maine, is a lack of good winter cover for these animals, not coyotes.

(Kim Royar, Vermont Fish & Wildlife) I don't think there's another animal that's more maligned than the coyote. I really don't...It certainly takes the heat for many things that happen out there... I think he's part of the landscape now. And I think in Vermont that's how we view him, as part of our fauna that's out there now.

(Narrator) In Maine, it is legal to hunt, trap, and "snare" coyotes. Snaring is killing a coyote by placing a loop of wire, two or three feet off the ground, on its known runways.

(Wally Jakubas, Maine Dept. of Inland Fisheries & Wildlife) Right now the department has been requested by the legislature to snare coyotes in order to try to help northern deer populations.

(Narrator) But scientists now think snaring probably does more damage than good to deer populations.

(Wally Jakubas, Maine Dept. of Inland Fisheries & Wildlife) The whole idea of trying to reduce the coyote population, if you want to talk about a myth, now there's a good myth. You would have to remove over 70% of the animals before you actually lower the number of coyotes in the area.

(Narrator) Coyotes have a remarkable ability to produce larger litters whenever their numbers are threatened, making it almost impossible to get rid of them.

(Michael Amaral, US Fish & Wildlife) For those people who perceive the coyote as a real problem, they only have to look back at how the wolf was treated and realize they brought it upon themselves. By eliminating the wolf, they opened up a niche now occupied by the coyote. And the coyote can't be eliminated. We tried in the Midwest, we've tried in Texas, wherever the coyote occurs, and the livestock industry is present, they've tried to persecute that animal and it always survives.

(Narrator) Late spring and summer is an incredibly vibrant time of the year in northern New England, due in part to the presence of colorful songbirds. In May, the forest comes alive with sound as countless migratory songbirds arrive here from their wintering grounds.

(Chris Rimmer, Vermont Institute of Natural Science) We all have to resist the temptation to consider these as "our" birds. Because in fact they're spending more than half of their lives annually in other countries...And the reasons that many of them are having

problems relate to issues and situations all along the route, their annual routes.

(Narrator) The fact is, many songbirds spend most of the year thousands of miles south of here in the southern U.S., Central and South America, and the West Indies. They visit us for only four months, just enough time to breed. They may be temporary “visitors,” but breeding is serious business for them, and the males of each species sing to proclaim their territory, treating us to some of nature’s finest music.

(Chris Rimmer, Vermont Institute of Natural Science) You go on the wintering grounds of the Bicknell’s thrush, black-throated blue warbler, you’re not going to hear the same chorus that you hear up here in the summer when they’re on their breeding territories. Advertising for mates, or territories themselves. So it’s very different. You know in a way this is where, this is where their lives are focused. They go back to the breeding grounds, getting their young off. That’s what their whole lives are geared towards. In a way, I don’t think it’s totally wrong to think of them as our birds. We just have to realize that we share the responsibility of conserving them with many other people.

(Narrator) Conservationists estimate that one in every six bird species in North America is in decline. Biologists keep track of bird populations with the help of data collected in the annual surveys and with information from bird-banding projects. Volunteers do a lot of the work. One of the songbirds that is being closely monitored now is the little-known Bicknell’s thrush. In New England, Bicknell’s thrushes are restricted in their nesting to high elevation stunted evergreen forests.

(Chris Rimmer, Vermont Institute of Natural Science) Well they’re on mountaintops and these mountaintops are essentially islands of habitat throughout the landscape. We call them “sky islands” because they’re fragments of habitat. They’re not lumped into one nice contiguous block. So these mountains are isolated. They’re difficult to get to in many cases. The habitat on the mountain is what we call fir-spruce forest is very dense and difficult to penetrate, unless you’re on a trail. The weather can be exceedingly adverse. The black flies can be tremendous. It sort of goes on and on. The terrain is steep and rocky. There are lots of reasons why any self-respecting biologist would stick to something that yielded more abundant, and perhaps more easily-collected data.

(Narrator) Their hard-earned research has led to a totally unexpected discovery with the Bicknell’s thrush mating patterns.

(Kent McFarland, VINS) We use small video cameras, placed at each nest, for four hours at a time to get videotape of birds coming in. When you do that you find in almost every nest, there are multiple males feeding the young in these nests, but only one female. Some nests can have up to four males. And we’ve gone a step further and said, who is the father of these chicks in the nests. If there are four males here and four chicks, which one was the father of the chicks? What we find at nearly every nest, I think every nest actually, mixed paternity. There is more than one father in every nest. So there is this really strange mating system going on that you don’t see in other songbirds.

(Narrator) DNA analysis of four nests confirmed that the chicks did indeed have different fathers.

(Kent McFarland, VINS) The traditional, the bird gets a territory, and the female builds a nest, and they live happily ever after, turns out not to be true for just about every species people have dug into. It’s usually much more interesting than that. Not necessarily as well as Bicknell’s thrush having four males...

(Narrator) Why so many fathers per nest? It may have something to do with the stress of losing forest habitat in their tropical winter homes. Even though the alarm over songbird declines went off long ago, scientists are only just beginning to understand what’s going on with individual species, like the Bicknell’s thrush.

(Narrator) As much as we love our birds and mammals, there are many other animals in northern New England that deserve our attention. In the past most people paid little attention to the frogs, toads, salamanders, and snakes living all around us. But that’s changing. “Herps,” which is scientific slang for reptiles and amphibians, are suddenly “cool.” These slithery, cold-blooded creatures are really amazing to watch.

(Philip deMaynadier, Maine Dept. of Inland Fisheries & Wildlife) In April, when the snows are first starting to melt and the first spring rains, these droves of wood frogs and spotted salamanders and blue-spotted salamanders migrate down off the forested hills surrounding this pool. It’s really a fantastic migration. It’s probably the most fascinating wildlife migration that we have in the Northeast. And it really goes unnoticed because it happens on cool wet spring nights when most people are not out and about. Just in the period of two to three weeks, often less, after an explosive breeding episode, the animals all disperse back into the uplands. None of the adults are here right now.

(Narrator) Vernal pools may be dry most of the year, but come April, May and June they’re full of water and teeming with amphibians, to the absolute delight of naturalists like deMaynadier.

(Philip deMaynadier, Maine Dept. of Inland Fisheries & Wildlife) It’s really fascinating that for only two or three weeks a year they

come here to lay their eggs. The other 95% of the calendar year, they're unseen, under logs, under small mammal burrows, under the leaf litter, hundreds, sometimes thousands of feet in the upland forest around a pool. That's why it's so critical to protect a pool you need to protect the relatively intact forested landscape as well.

(Narrator) Just "bowls of water in the woods" is what David Carroll, alias "The Turtle Man," calls vernal pools. After he found his first turtle when he was 8 years old, Carroll decided he was going to spend the rest of his life looking for turtles in wetlands.

(David Carroll, the "Turtle Man") In a way I think they're like some of the larger animals or even mammals, like whales, who will migrate to a certain area where there's a very heavy breeding ground. And they absolutely feed and breed and they are able to coast on those stores for months. And these migrations corridors are extraordinarily important for many animals, but very much so for the turtles. A lot of people think of the turtle as a very stationary, lives in a mud pond, kind of an animal, but the fact, particularly spotted turtles, they move from among many wetland types. They need a real mosaic of wetlands. And that's why in many cases their declines have come about.

(Narrator) "The Turtle Man" has converted a number of people to "swampwalking" with his three illustrated books on turtles and other herps. Jim Andrews also walks the swamp – but for a different reason. He studies amphibian deformities and malformities – a topic that is receiving considerable attention.

(Jim Andrews, Middlebury College) But a visual image of a frog with an extra leg or an eye in the wrong place, or a missing part, that's a visual image that reaches people. And think that image alone is one that reaches people, who say, "Geez, that's not supposed to happen. There's something wrong there."

(Narrator) Since the 1970s, many species of amphibians worldwide have been declining...not just in polluted or overdeveloped areas...but remote, pristine ones as well in northern New England.

(Philip deMaynadier, Maine Dept. of Inland Fisheries & Wildlife) We documented a mass die-off, it seemed to be bull frogs and green frogs, in five or six ponds within 50-60 miles of one another in northern and central Penobscot County, near Mt. Katahdin and Baxter State Park. It's a big question mark about what exactly occurred. We know a lot people were calling in about the die-offs. People were raking them off the beaches. There were literally that number of animals dying. We really won't know the answer until we monitor the populations for a much longer period.

(Jim Andrews, Middlebury College) People look for fairly quick simple solutions. Figure out what it is...this is the problem. This is what's causing these malformities. And it's not going to be that simple. Even now it looks like there will be different causes for malformities. In different areas, with different species, with different combinations of factors that work together. Some of them natural, some of them anthropogenic, man-made.

(Narrator) But before we can tell what's been lost, we first need to know exactly what we have. We need to conduct surveys of reptiles and amphibians. For years, states across the country have been conducting detailed bird surveys to produce breeding bird Atlases. All three northern New England states now have herp atlases. Maine's Atlas instantly became a "best seller" and sold out its first printing. To compile atlases, volunteers did the bulk of the fieldwork, scouring the state's woods, wetlands, backyards, and pastures, to create a town-by-town list of amphibians and reptiles. Several years ago, all three states joined a national frog and toad monitoring program – the Calling Amphibian Survey – to find regional trends. In Maine alone, there are 62 routes to monitor each spring. From April to July, volunteers who have memorized frog and toad calls, drive their routes three times, stopping 12 times to record all calling frogs and toads they hear. Despite their dedication, some question the reliability of such "citizen science." But herpetologists like Andrews couldn't do their work without these volunteers.

(Jim Andrews, Middlebury College) There are people who will call into question what you might call "citizen science." The validity of scientific data gathered by amateurs. We for our atlas information, which to a large extent is volunteer-generated, we ask for photos. I have one older gentleman, who over 50% of the time, misidentifies what he sees, but he takes great photos. We can figure out what he's looking at. As long as he knows where he is, then we can get some data out of it. So we have different levels of reliability. So we're careful about what data we use and how we use it.

(Susan Morse, Wildlife Habitat Specialist) Citizens want to do something about what they see happening around them. That's why they sign up. They want to do something other than fight pitched battles in their state Capitol or town planning offices. They want to help collect information that when brought to the table, will make a difference. I'm very confident of that.

It come as a surprise to a lot of municipalities and towns and villages in New England to find out what they really have when they start looking. Think of Maine. It came as a surprise to Maine that it had a breeding population of Canada lynx. And that was very exciting.

(Ken Elowe, Maine Inland Fisheries & Wildlife) Our bottom line is we would love to help create cooperatively a landscape with

private landowners and towns, so that 100 years from now, the species that occur here now, will still occur here. That's a huge and daunting task. But it requires, it requires, that we know what wildlife needs. That's really where we're at.