

Welcome everyone, thank you for coming. My name is _____. I'm with *Speaking for Wildlife*, a wildlife volunteer program run by the University of New Hampshire Cooperative Extension. *Speaking for Wildlife* is a program that brings wildlife presentations and nature walks to communities throughout the state.

In today's *Speaking for Wildlife* presentation, I'll be talking to you about the history of New Hampshire wildlife. I'll talk for about 35 minutes, and then we'll have some time for questions at the end. But if you have questions about the slides I'm showing, feel free to raise your hand during the presentation.

History of New Hampshire Wildlife

- History of how people have used the land



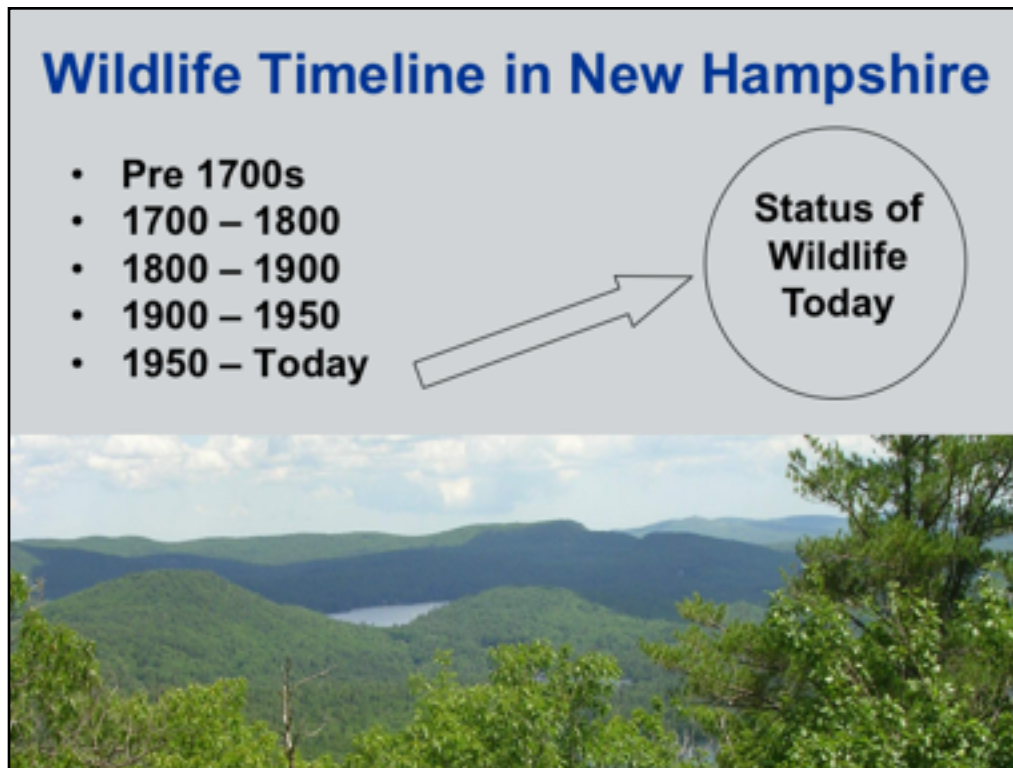
- Our relationship with wildlife over time



- To really understand the history of wildlife in NH, we have to look at two other things (ADVANCE SLIDE)

- The history of how people have used the land in New Hampshire (ADVANCE SLIDE)
- How human attitudes towards wildlife has changed over time.

- Our hope is that by understanding the connection between wildlife and our history, we can all make better decisions about our land that help conserve wildlife for the future.



Like most historical stories, we'll start in the past and move forward to today, starting in the 1600s, before Europeans had started to settle in New Hampshire in significant numbers.

To keep things relatively simple, we've grouped time into centuries up until the 20th century, when we'll break the timeline into the first half of the 20th century and the second half through to today.

At the end of my presentation, I'll spend some time describing how the changes in New Hampshire's wildlife populations and our landscape over time have affected groups of wildlife, particularly those that are rare in the state today. And hopefully you will leave with a some ideas of how you can help conserve wildlife in New Hampshire.

So, let's get started!



-We're going to start our history about 350 years back in the mid 1600s.

-To give you some context, at this time Europeans have arrived in New England and the fur trade is underway, but very little of interior New Hampshire has been settled.

-In fact the state was about 95% forested, and to give you an idea of what those forests might have looked like let's think about what types of disturbance would have occurred on the landscape during this time.

-(Ask audience) Can anyone give me an example of natural events that would cause large-scale disturbance in a forest? (answer: hurricanes, wind storms, ice storms, beaver, etc)

Prior to 1700 - Pre-Settlement



- In addition to potentially large-scale disturbances such as hurricanes, wind storms, and ice storms, small scale disturbances are also important.
- Single trees would fall here and there, creating small gaps throughout the forest where young trees could take advantage of the sunlight and begin to grow.
- Beavers also had a big impact on the landscape by periodically flooding large areas along almost every watercourse in the state.

Prior to 1700 - Pre-Settlement



- In addition to natural disturbances, humans also had an impact on the landscape during this time.

- Native Americans cleared the land on a small-scale for agriculture, especially in areas with rich, fertile soils such as the Connecticut River valley.

- They also burned the understory of the forest to improve hunting opportunities, so fire was another disturbance that affected the landscape.

- [Note about fire as natural disturbance – rare but occasional fires on mountain tops and in pine barrens...probably rare in Upper Valley]

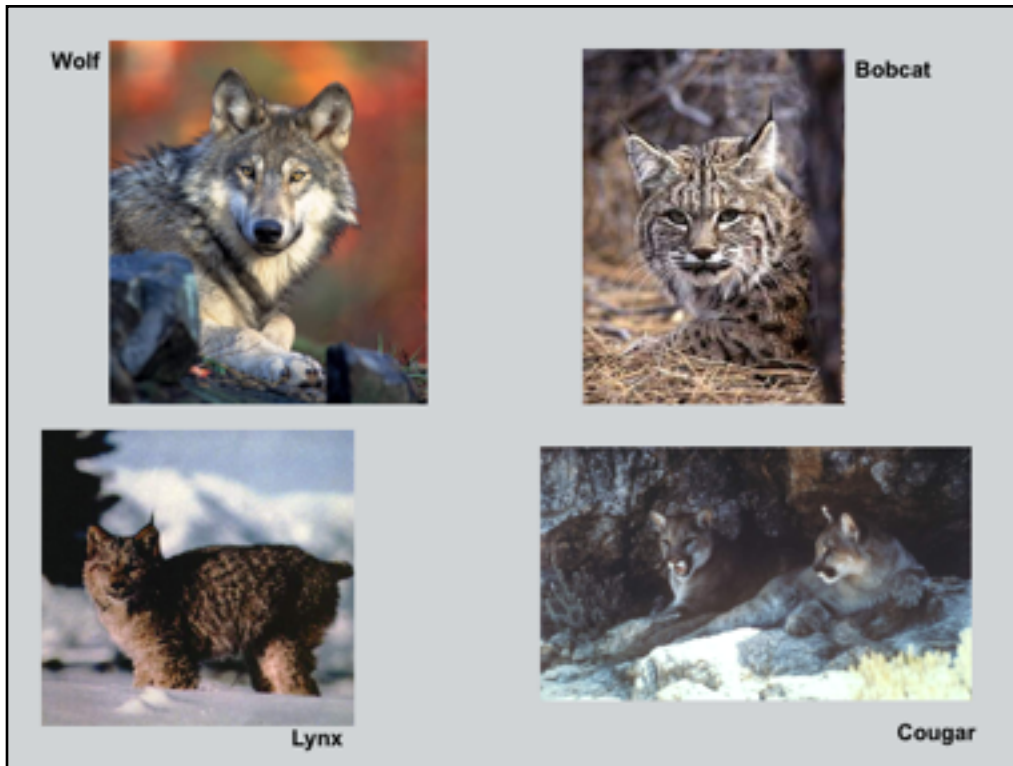


•With all the natural and human disturbances happening on the land, you can begin to imagine what the forest might have looked like: a patchwork of old and young forest, dotted with wetlands and abandoned beaver meadows; a really diverse landscape.

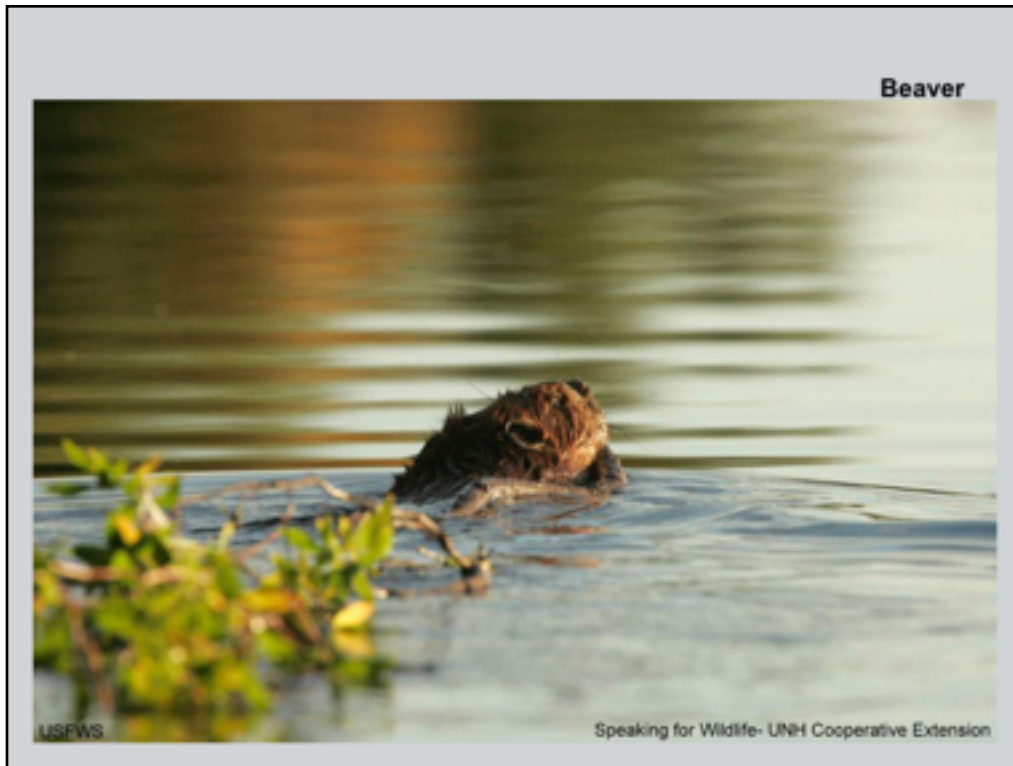


And wildlife was very abundant during this time...

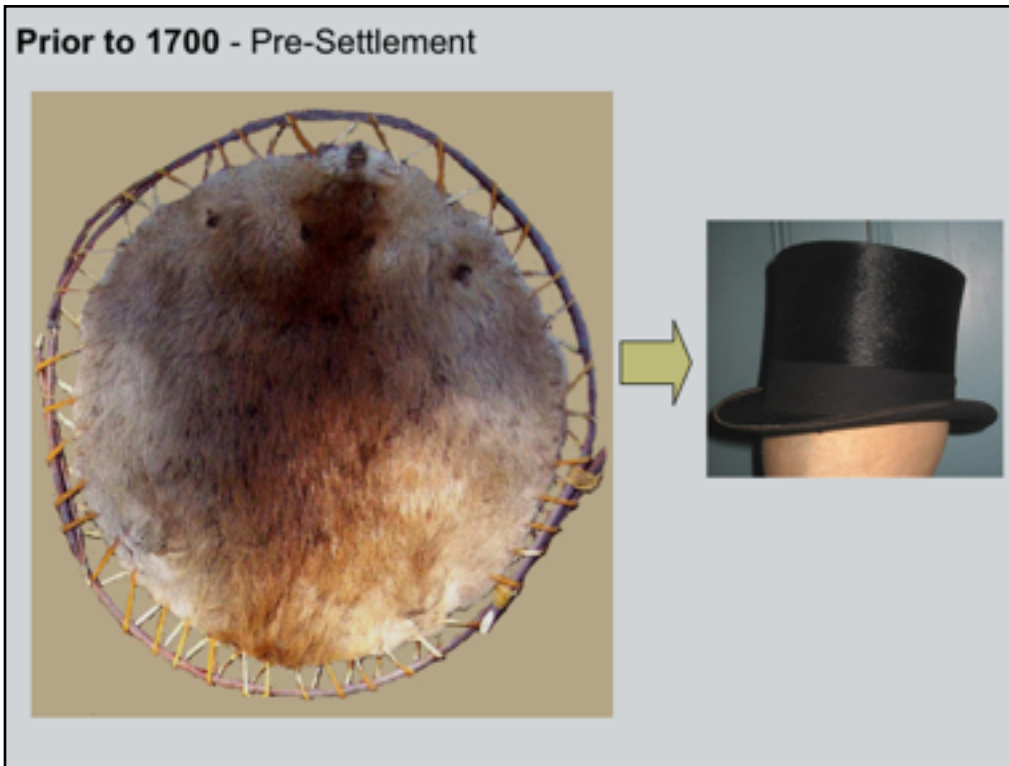
- Deer (ADVANCE SLIDE)
- Moose (ADVANCE SLIDE)
- Turkey (ADVANCE SLIDE)
- Woodcock (ADVANCE SLIDE)
- And passenger pigeons (ADVANCE SLIDE) were all plentiful



•Bobcats, lynx, wolves and even cougars were common.



As I mentioned, beaver, and also muskrats, occurred in almost every watercourse in the state



- Let's think about the human attitude towards wildlife at this time.
- (Ask audience) How do you think people viewed wildlife? (answer: as a valuable resource)
- Wildlife was a valuable source of food to both Europeans and Native Americans.
- Fur was used widely by native Americans & Europeans as currency (furs would be traded for useful items) – and this put a high premium on fur-bearing mammals, especially beaver, whose pelts were especially valuable for making fur hats in Europe.
- Native Americans also used wildlife to make clothing, shelter and tools.

1700-1800



- Now that we have an understanding of what was going on before 1700 let's move to the next century.
- During the early 1700s we begin to see the settlement of interior New Hampshire
- There is an increase in land clearing for both agriculture and pastureland and as you might imagine, if you've ever noticed the amount of rocks around here, the going was tough.
- Wild game was still often the primary food source and became increasingly important as the human population grew, but keep in mind that there were no hunting seasons and no limits on what a person could take, so any species was fair game at any time of the year.



- As the shift towards agriculture begins we also see a shift in attitude towards wildlife.
- While game species are still considered a valuable source of food, other wildlife species are seen as a nuisance.
- For example, raccoons, bears and porcupine could damage crops
- Marten, fox and skunks might raid the hen house.
- Wolves, bobcats, lynx, and cougars are a threat to livestock and are readily killed.
- By this time, the fur trade has essentially ended in New England due to competition from Canadian markets, and a significant decrease in the beaver population due to over-trapping.

1800-1900



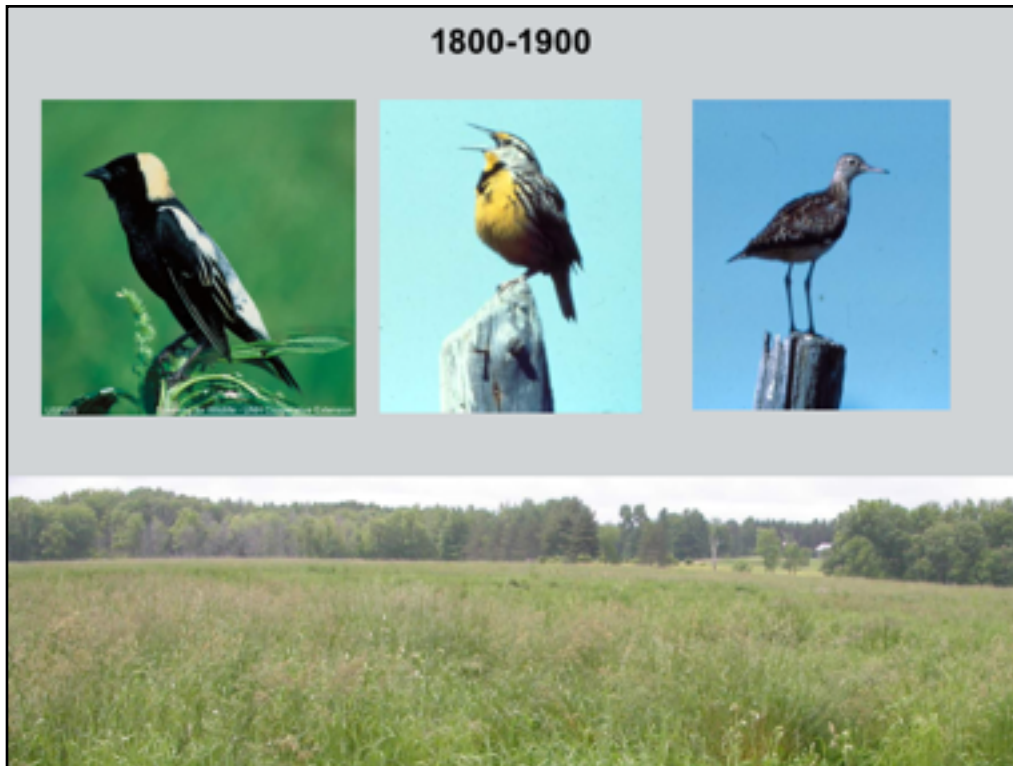
- We are beginning to see a real shift in both land use and human attitudes towards wildlife, and this continued on through the next century.
- By 1830 we have reached the peak of agriculture in New Hampshire, with approximately 60-80% of New Hampshire cleared for crop or pasturelands.

1800-1900



•This is a big change in the landscape. New Hampshire went from being MOSTLY forest to now being MOSTLY open.

(View from Crufts Ledge, Bethlehem, NH)



- We begin to see some species of wildlife that may not have occurred in New Hampshire before this time.
- For example, grassland birds came eastward into New Hampshire as the forests were cleared. These are birds that make their nests in grass, so the newly created farmland looked pretty attractive to them.
- Three examples of specific grassland birds are bobolinks, meadowlarks and upland sandpipers.
- An interesting fact about grassland birds is that different species require different sizes of grassland to build their nests.
 - Bobolinks will build nests in grasslands as small as 5 acres.
 - Eastern meadowlarks require grasslands 15 acres or larger
 - Upland sandpipers require grasslands >100 acres in size
- So you can imagine the scale of some of the land clearing if Upland Sandpipers began to make a home in New Hampshire.

1800-1900



- While things looked good for grassland birds, they were not looking so great for a lot of other wildlife species
- This century was also the height of market hunting, where wildlife was hunted to sell for profit, not just for personal consumption.
- Keep in mind there are STILL no hunting seasons or bag limits. This led to large decreases in moose, deer, turkey, grouse and many other wildlife species.
- The photo on the left is of harvested ducks. On the right is a picture of a “punt gun” which was mounted on a small boat, and shot out up to 5 pounds of metal. The scattershot could kill a whole flock of ducks or geese as they rested in the water, especially lethal with several boats working together.

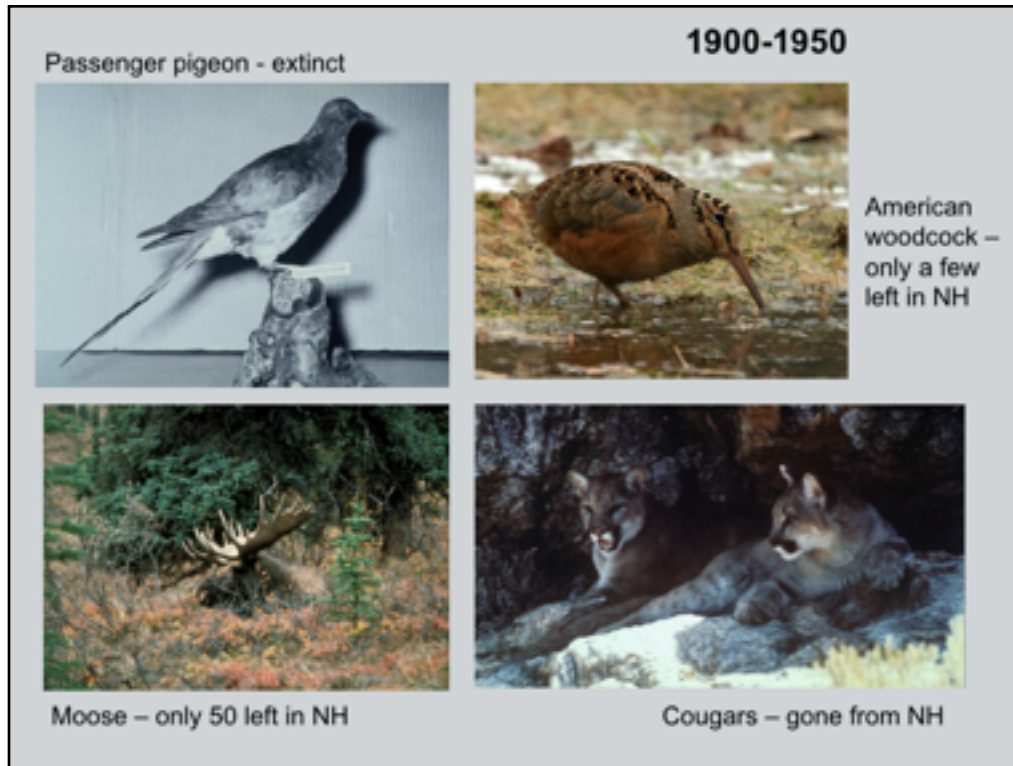
1800-1900



- The peak of land clearing marked the end of large-scale agriculture in NH. The flat, tree-less prairie with its rich, rock-free soil proved a significant improvement over New England's landscape for farming.
- People abandoned their New Hampshire farms, going west or to the cities for paid work, a trend that continued for over a century.
- Abandoned fields and farms quickly began reverting to young forest.



- This brings us to the beginning of the 20th century.
- What did the landscape look like now? As forests matured land clearing still occurred, but this time through forestry for the value of the trees. Wood was vital for making boxes and shipping crates before the invention of cardboard.



- Big things began to change for wildlife during the 20th century.
- By 1900...
 - the passenger pigeon is extinct
 - wolves, cougars, turkey, and beaver are all extirpated from the state, which simply means they no longer existed in New Hampshire, though they still existed elsewhere
 - Woodcock numbers were so low, they were expected to become extinct
 - Moose, deer, grouse, bobcat, marten, and fisher were all at their lowest numbers ever. There were believed to be only about 50 moose in NH.



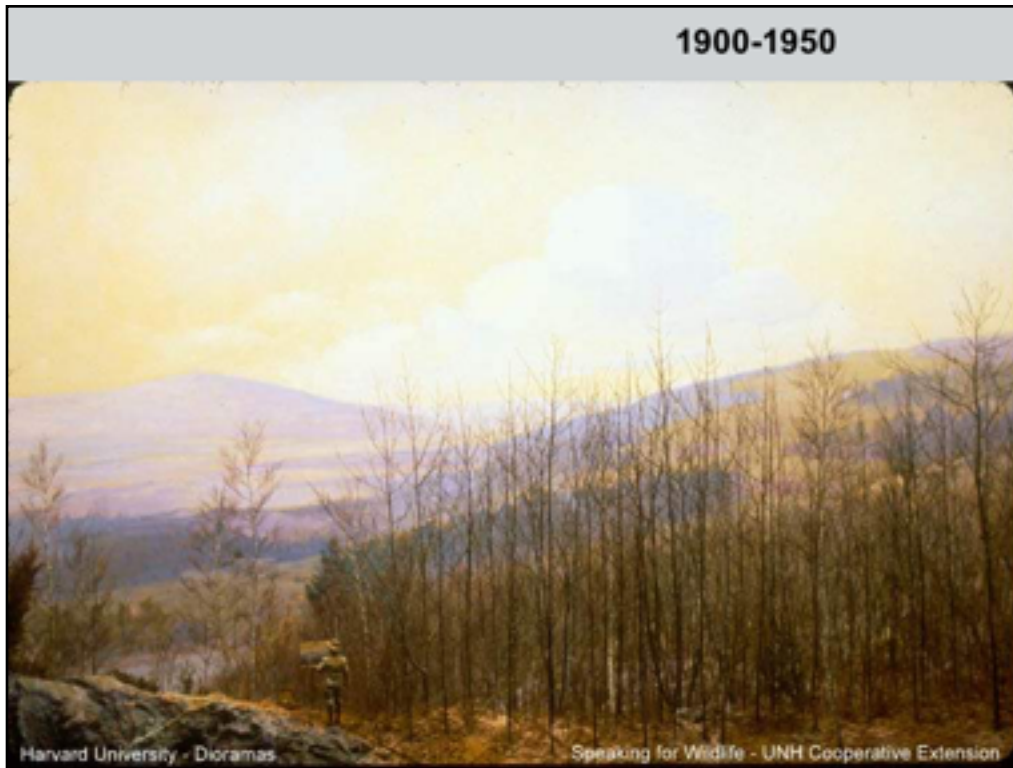
- Now, this sounds pretty dire, but these extreme drops in wildlife populations helped spurn the foundation of a conservation ethic.
- Unregulated hunting was clearly not sustainable – people realized wildlife populations were finite! While NH Fish and Game was established in 1865, it wasn't until the end of the 19th century and beginning of the 20th that they took an active role in establishing hunting seasons and bag limits, requiring hunting licenses, and enforcing hunting regulation.
- Wildlife refuges also begin to be established, protecting land for the express purpose of protecting wildlife.



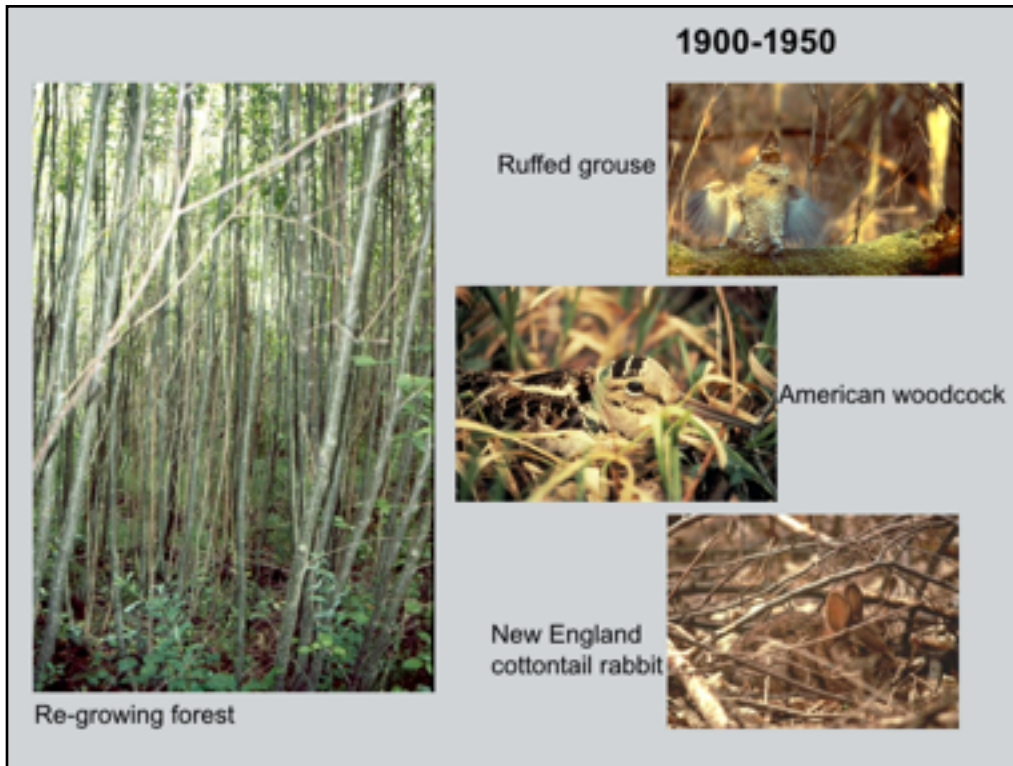
- Fueled by this new conservation ethic, Congress passed the Federal Aid in Wildlife Restoration Act in 1937, commonly referred to as the Pittman-Robertson Act.
- The Pittman-Robertson Act ear-marked a 10% tax on ammunition and firearms used for sport-hunting to be distributed to individual states for wildlife restoration
- The act has been critically important in the recovery of wildlife habitat and species throughout the last 70 years, and still plays an important role in funding wildlife habitat management, species conservation, land acquisition, scientific research, and wildlife and hunting education.

Additional Information

- The Pittman-Robertson Act was named for Senator Key Pittman of Nevada and Representative Willis Robertson of Virginia
- Today the tax on ammunition and firearms is 11% and includes hand guns and archery equipment
- In order to receive funding a state must have a law prohibiting the diversion of hunting license fees paid by hunters for any purpose other than the administration of the state's fish and game department



- This new conservation ethic certainly had a positive impact on wildlife populations during the 20th century
- But it was the continued reversion of farmland to forest and the resulting abundance of young forest across the state, which allowed many of our wildlife species to begin to recover during first half this century.



•Young forests are particularly important to wildlife because they provide dense, thicket-like growth, that is ideal habitat for species such as grouse, woodcock, moose, deer and New England cottontail rabbits among many other species.

1900-1950



- As these wildlife populations began to increase, we even see a new species enter the state.
- The coyote was first seen in New Hampshire in 1944. They most likely came to New Hampshire because of the increase in prey such as rabbits and grouse, and a lack of competing predators as there were no longer wolves or cougars in the state.



-This brings us into the second half of the 20th century.

-If any of you have been in New Hampshire for a long time, you've likely noticed how quickly a field can turn into a shrubby tangle of young forest, and how that young forest matures faster than we might expect.

-Today, about 83% of New Hampshire is forested, and we are the 2nd most forested state in the country, behind Maine.

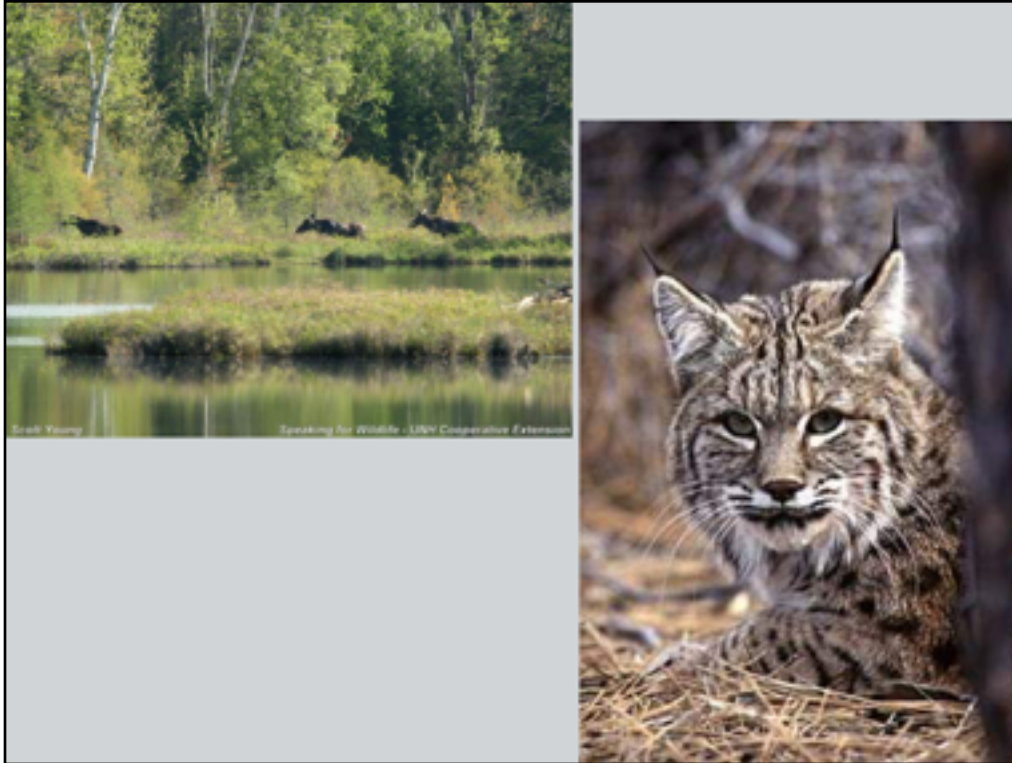
1950-Today



- With an increase in the amount of mature forests we are certainly seeing an increase in the wildlife species associated with them.
 - Wild turkey were successfully reintroduced in 1975 when NH Fish and Game released 25 turkeys into the wild. We now have around 30,000 turkeys in New Hampshire.
 - The reintroduction of turkeys is an example of how the Pittman-Robertson Act has been used successfully in New Hampshire.



•Deer are so abundant the population has to be kept in check through regulated hunting.

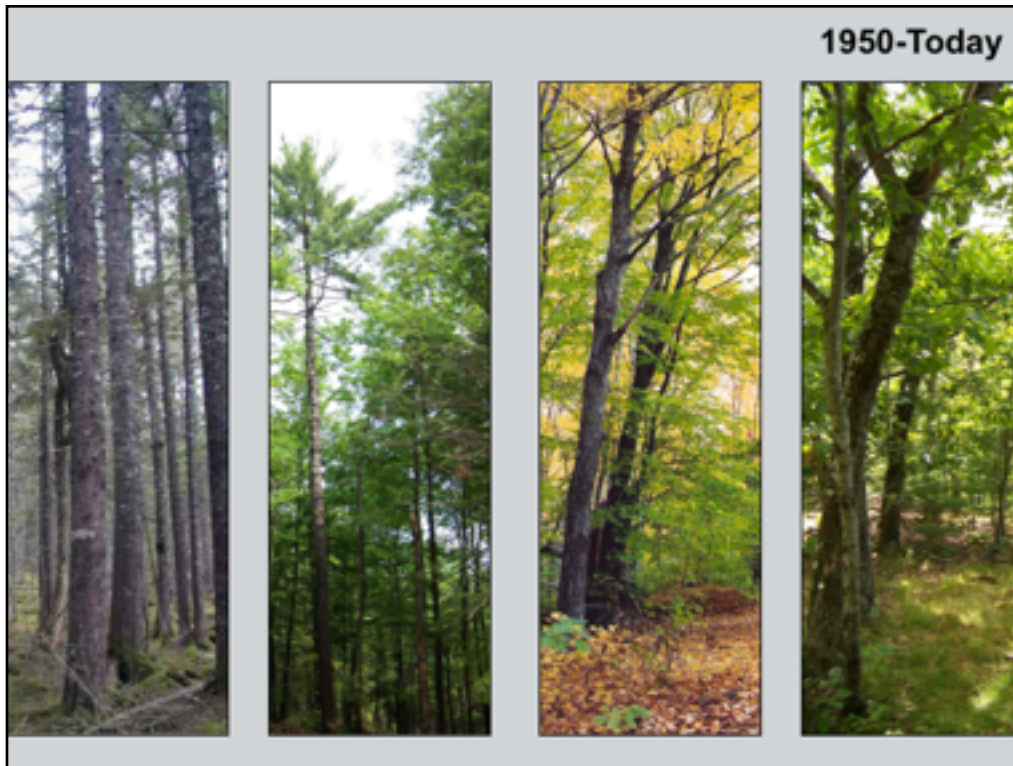


- Moose and bobcats can be found in every part of the state.

(Presenter's note: Moose are not currently a threatened or endangered species in New Hampshire. However, the moose population has declined in New Hampshire over the last decade, from over 7,500 moose in the 1990s to around 4,000 currently. Biologists attribute some of the decline to increasing parasite loads and a combination of other factors. One thing that is certain is that there has been, especially in the northern parts of the state, a correlation between winter tick infestations and a decrease in the number of moose. Warmer, shorter winters are allowing ticks to survive longer, and many moose suffer anemia from loss of blood. NH Fish & Game and the University of New Hampshire are currently working to study the causes of moose mortality and how they might respond to those threats.)



•And now beaver are found again in nearly every watercourse in the state.



-BUT these forests are not quite like the forests that were here before European settlers arrived.

-Regardless of how diverse today's forests may look, most are between 70-100 years old, having grown up during the first half of the 20th century after the period of turn-of-the century land clearing.

-We have also reduced some of the natural disturbances on the land. For example, we prevent flooding by our use of dams and suppress fires.

-So today's forests are not nearly as old, diverse, or "patchy" as they may have been 400 years ago.

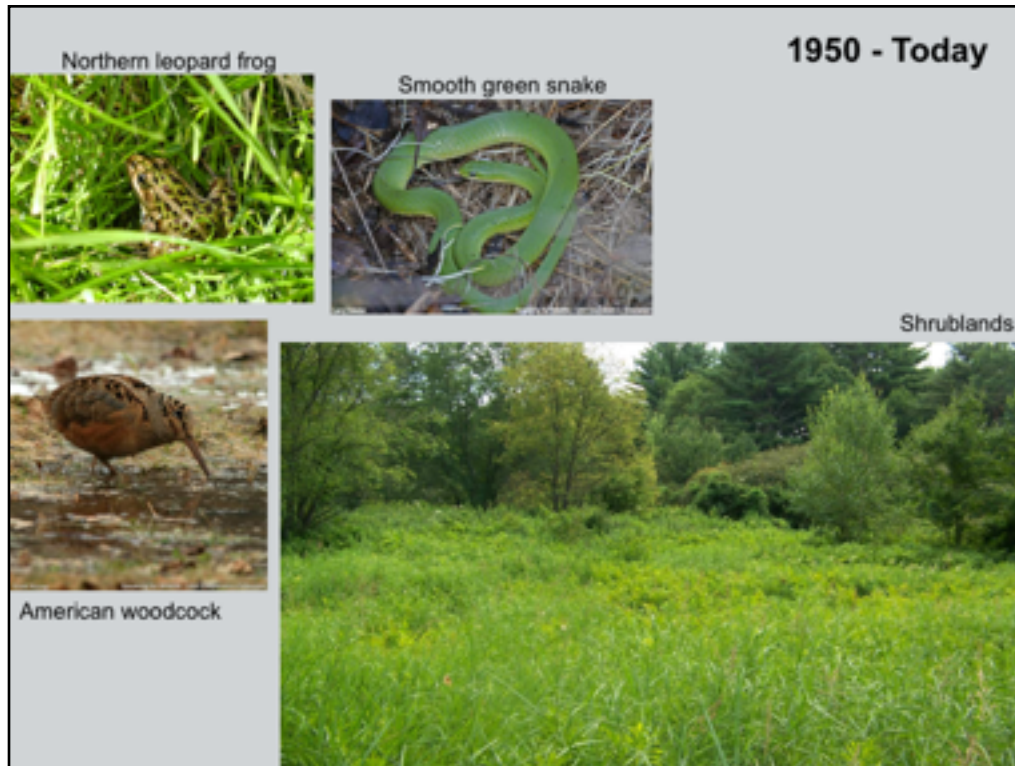


- Today's forest is also different because it is "fragmented" or broken-up by human settlement, both in cities and in suburban and scattered development across the landscape.
- This development is probably the biggest threat to wildlife today.
- (Ask the audience) Why do you think that is? What sets development apart from other impacts on the land like natural disturbances and farming? (ANSWER: it's much more permanent)
- Much of the impact we've had on the landscape in the past (like farming, forestry, hunting) has been temporary; even if the landscape changed dramatically, it was able to recover.
- But as development continues it will become increasingly important to identify areas that are particularly valuable to wildlife and work to conserve them.



To this end, wildlife biologists, state Fish & Game staff, non-profits organizations and UNH Cooperative Extension and many other groups have been working to raise awareness about wildlife species and habitats that are rare in New Hampshire.

And in New Hampshire, this means reaching out to the 84,000 private landowners in the state. Did you know that over 80% of the land in New Hampshire is privately owned? We depend on these landowners to provide habitat – and also clean water, recreational opportunities, and other values – that all of us can enjoy.



One of the greatest wildlife concerns in New Hampshire today is the fact that, while wildlife that use mature forests are thriving, shrubland and open field habitats are some of the most rare habitats we have in the state. As a result, wildlife species that require those habitat are declining.

- For example, grassland bird populations are declining. There is only one known nesting location of Upland Sandpipers in the state.
 - Northern leopard frogs and smooth green snakes, both species associated with grassy fields and wet meadows are listed as a species of conservation concern.
 - Northern Harrier, a hawk that hunts over grasslands, and New England cottontail rabbits, which require shrubby thickets are both listed as state-endangered species.
 - There have also been marked declines in populations of American kestrels, woodcock, and many other bird species that use fields and shrublands.
- A lot of the wildlife management work that goes on today is geared specifically towards creating and maintaining grasslands and shrubby thickets to help keep these species on the landscape in New Hampshire.



And there are many other examples of habitats and species that deserve special attention in New Hampshire – for example grasslands, lowland spruce-forests, peatlands, vernal pools...

A series of brochures, aimed at private landowners, is available from UNH Cooperative Extension:

The **Habitat Stewardship Series** (have copies available for those interested) is aimed at helping anyone identify important habitat on their property

- The brochures include pictures of key wildlife species
- As well as information on what landowners can do to help these species – such as land management and conservation practices, where to report wildlife sightings, and other tips.

NH Wildlife Action Plan

- Originally developed in 2005, and updated in 2015
- Identifies 169 species and 27 habitats in greatest need of conservation
- Known and potential locations of 27 habitats mapped across the state
- Wildlife Action Plan is a tool for the state, communities and landowners







These stewardship brochures are the result of research compiled in the NH Wildlife Action Plan:

The Wildlife Action Plan was originally developed in 2005 and was recently updated in 2015, and it identifies:

- 169 species and 27 habitats in greatest need of conservation and
- The known and potential locations of 27 habitat types mapped across the state

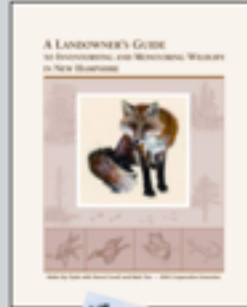
The Wildlife Action Plan is a tool for the state, communities and landowners – many groups cooperated to create the plan and are now invested in working to implement it.

Check out the map posted in the room [note: **Habitat Map** of Your County in the kit]

How can you learn more?

Explore your property or local town forest

- Learn about the history of the land.
- Take an inventory
 - What habitats are there?
 - What species are there?
- Learn to recognize species and habitats using the **Habitat Stewardship Brochures** as a guide
- Are you a landowner? Contact your UNH Cooperative Extension County Forester for a free site visit



•So, how can you learn more about wildlife today? Start with what you know already....

•A great way to get started is to explore your own property or local town forest.

•Learning about the history of a specific piece of land can tell you a lot about what wildlife has inhabited the area in the past and what species might be there now.

•Take an inventory of your land or local town property. You can use the **Landowner's Guide to Inventorying and Monitoring Wildlife in NH** to help you figure out what habitats and species you have in your area. I have a copy with me here today, you can order it from UNH Cooperative Extension, or you can access it free online.

•Learn to recognize species and habitats using the **Habitat Stewardship Brochures** as a guide – if you know neighbors who own land with some of these habitats, share the materials with them.

•If you are a landowner, you can contact your UNH Cooperative Extension County Forester for a free site visit to learn more about your property.

Get Involved!

- Sign up for *Taking Action for Wildlife* e-newsletter
- Learn about other workshops from UNH Cooperative Extension
- **NHWoods.org**
- **WildNH.com**



There are some great resources out there to get involved in wildlife conservation in New Hampshire.

You can sign up (on the sign-in sheet) for an e-newsletter called “Taking Action for Wildlife” – you can learn about upcoming events, new research, and new programs related to wildlife in New Hampshire

UNH Cooperative Extension hosts many workshops on wildlife and forest topics – if you fill out the questionnaire, be sure to provide your contact information so you will hear about similar workshops in your region.

Good Websites:

NHWoods.org = Cooperative Extension’s Forestry & Wildlife Website – learn about workshops, habitats, and land stewardship

WildNH.com = NH Fish & Game’s website – learn about wildlife species and new research

I also brought lots of handouts and brochures you are welcome to look at before you go home.



That's the end of my presentation. Before I take questions, I'd like to thank the organizations who sponsor the Speaking for Wildlife project:

- The **New Hampshire Charitable Foundation** and the **Davis Conservation Foundation** for grants that supported the creation of Speaking for Wildlife,
- **UNH Cooperative Extension** for the support of the Speaking for Wildlife volunteers that are the underpinnings of this project,
- And New Hampshire Fish and Game, whose research, presentations, and work on the Wildlife Action Plan are the basis for this presentation and who continue to provide support for the program.

Thank you for listening! Questions?