

# Wildlife Habitat and Conservation

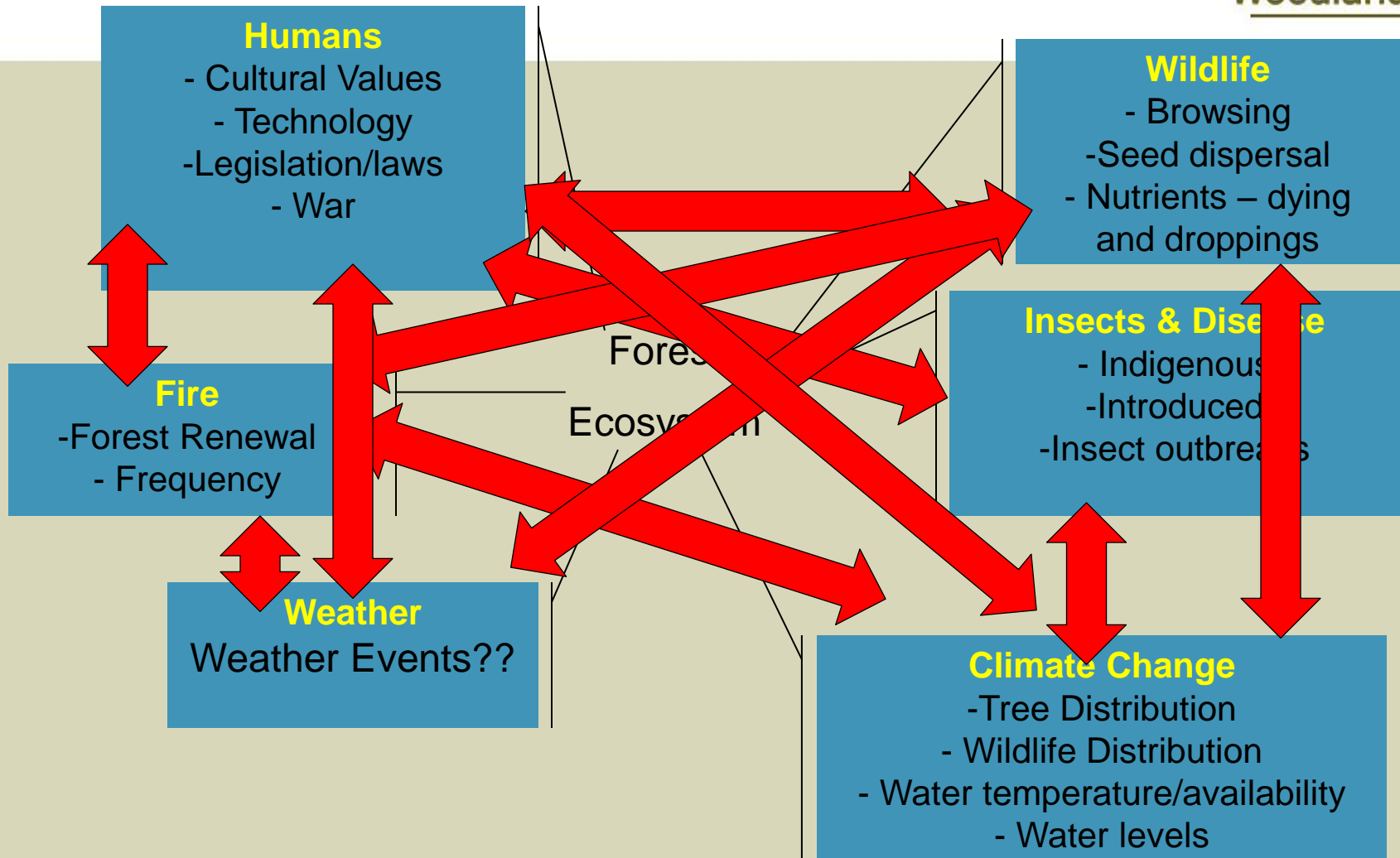
## SFI Training – module 4

# Wildlife reacts to "stress" as well



Am I going  
to survive?

All of these boxes are interconnected and changes can cause stress on wildlife, plants...and us



65,000 years ago – cold trend





15,000 years ago –  
warming trend



15000 Before Present (BP)  
warming trend

Shrub birch, willows, ground plants

Spruce - 10000 - 9000 BP

Larch - 9000-8000 BP

Balsam fir, poplar & white birch -  
9000 - 8000 BP

Jack Pine & Red Pine - 9000-8000 BP

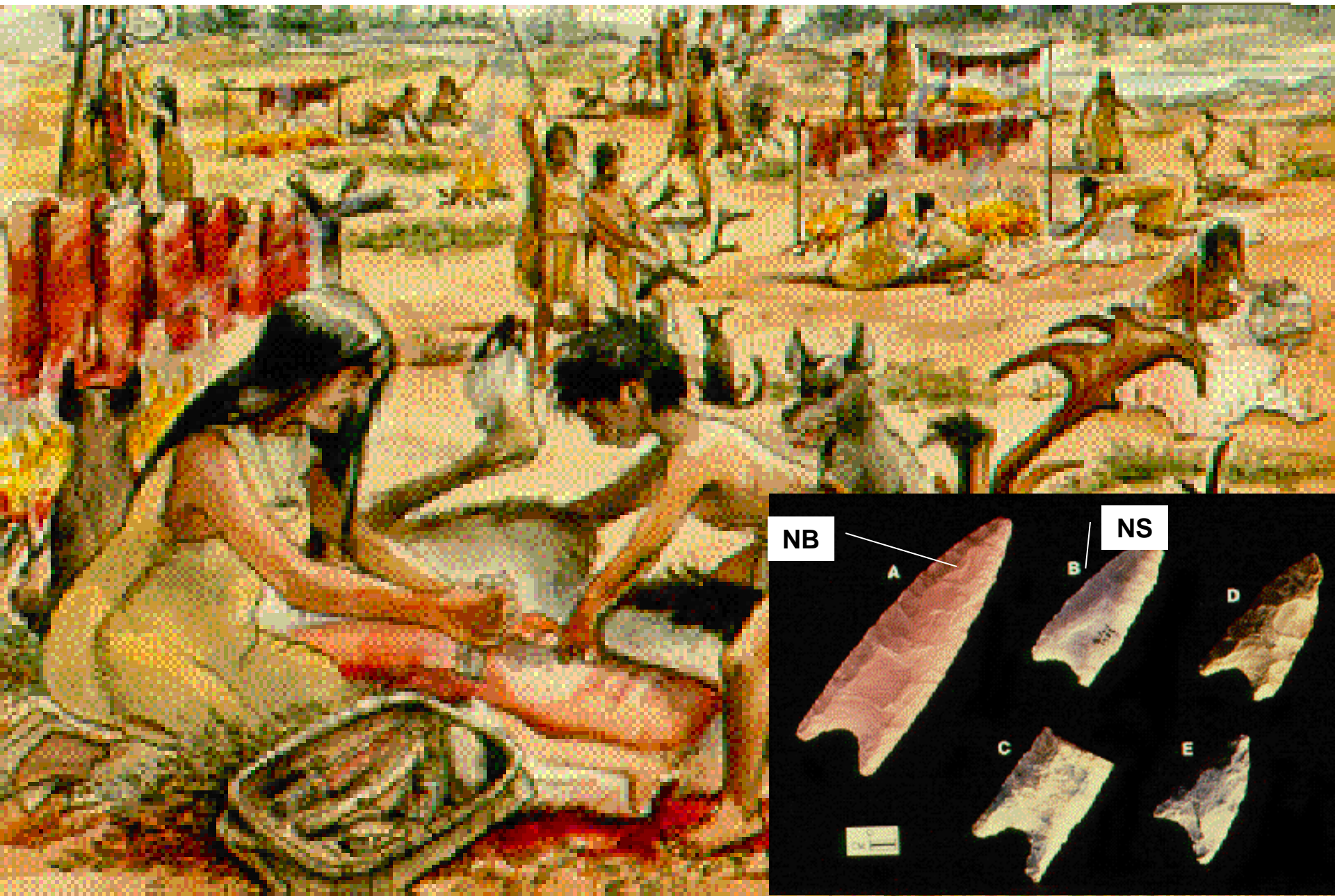
Red Oak - 8000 BP

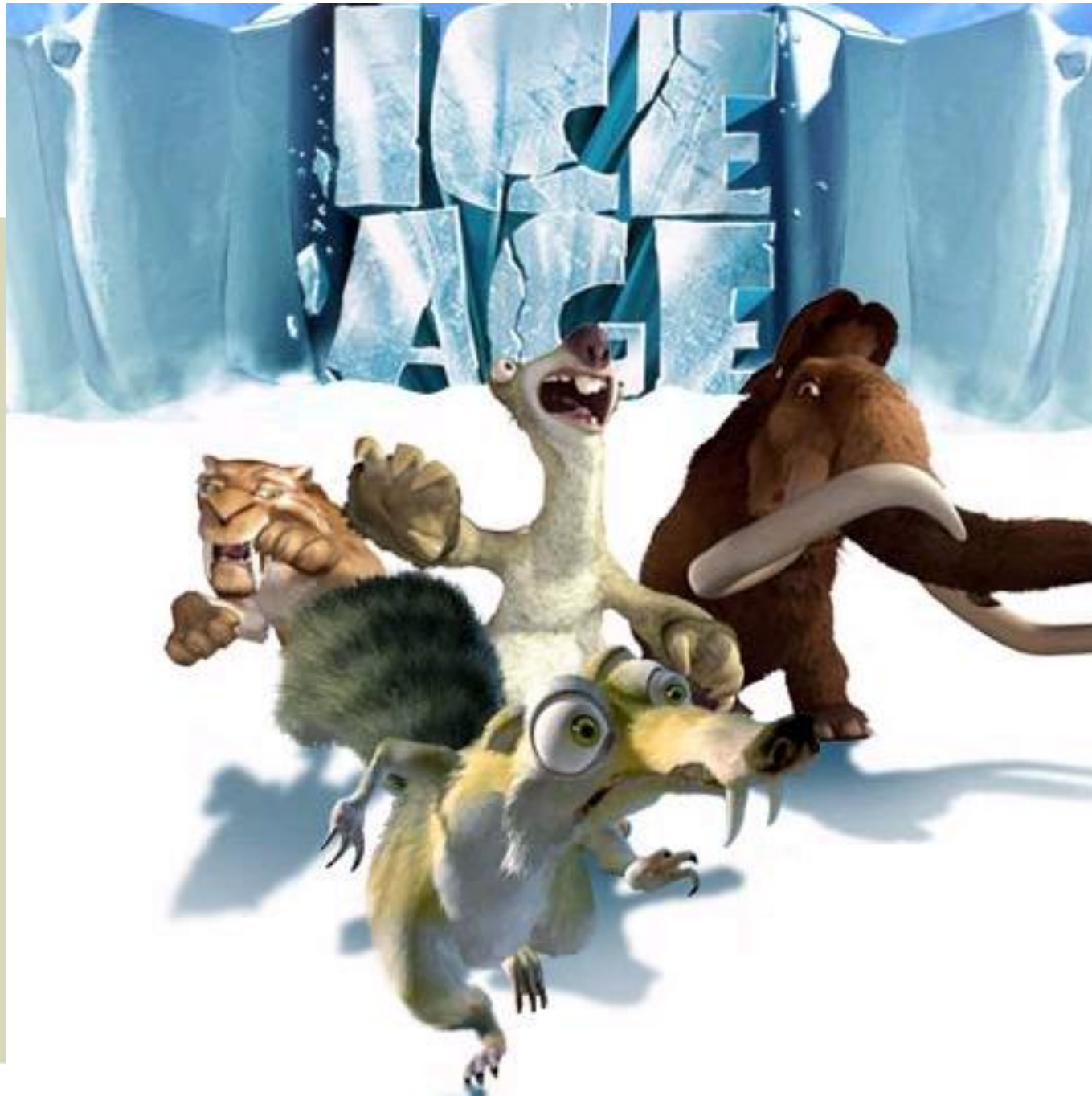
White Pine - 7000 BP WP More  
abundant 5000 BP than present

Hemlock - 6000 BP 5000 BP  
drastic decline in Hemlock (disease?)  
3000 BP achieved its present range.

Beech - 5000 BP

Hickory and Chestnut?????





**Some animals became extinct.**

Prior to:  
Guns, poisons,  
pollution,  
roads,  
bounties on  
them, or  
Europeans  
being here.  
Note: Even  
before farming,  
forestry,  
mining,  
subdivisions  
and shopping  
centers !

# North American Mammoth Locations.

All mammoth species are included.

All are extinct.

Fornebu  
Lumber  
Woodlands



Extinct  
Game  
over

Lights out

No turning  
back

No "see ya  
later"



# Mammoth Appetite.....Mammoth Extinction

They ate 200 pounds of vegetation per day!

## Trees and Shrubs

*Pinus* (Pine)  
*Abies* (Fir)  
*Picea* (Spruce)  
*Larix* (Larch)  
*Thuja/Juniperus* (Cedar/Juniper)  
*Alnus* (Alder)  
*Betula* (Birch)  
*Celtis* (Hackberry)  
*Fraxinus* (Green Ash)  
*Juglans* (Walnut)  
*Populus* (Cottonwood)  
*Quercus* (Oak)  
*Salix* (Willow)  
*Ulmus* (Elm)

## Land Plants

Poaceae (thinwalled) (grass)  
Asteraceae *Artemisia* (sagebrush)  
*Ambrosia* type (ragweed)  
Tubiflorae-undif. (redroot)  
Liguliflorae  
Chenopod-*Amaranthus* (pigweed)  
Ranuncul.-*Thalictrum* (meadow rue)  
Ranuncul.-*Ranunculus* (buttercup)  
Rosaceae (rose)  
Saxifragaceae (currant)  
Lamiaceae (mint)  
Fabaceae (guajillo)  
Apiaceae (water hemlock)  
Brassicaceae (mustard)  
Polygonaceae -*Rumex* (dock)

## Water Plants

*Potamogeton* (pond weed)  
*Polygonum* - (*P. persicaria*) (smartweed)  
*Myriophyllum* (parrotweed)  
*Acorus* (sweet flag)  
Cyperaceae (sedge)

**Would they have had enough food and habitat available?**



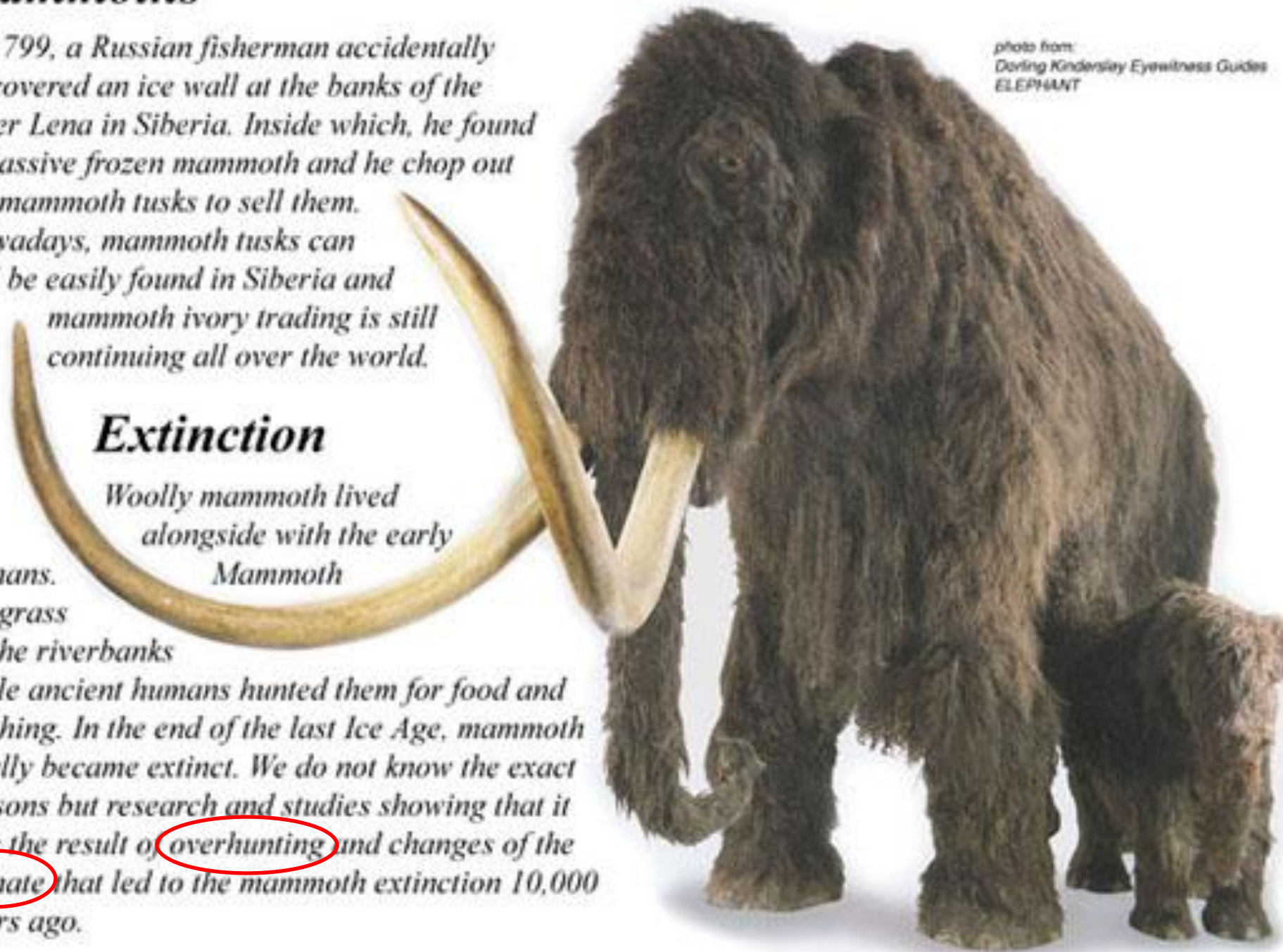
# Mammoths

*In 1799, a Russian fisherman accidentally discovered an ice wall at the banks of the River Lena in Siberia. Inside which, he found a massive frozen mammoth and he chop out the mammoth tusks to sell them. Nowadays, mammoth tusks can still be easily found in Siberia and mammoth ivory trading is still continuing all over the world.*

## Extinction

*Woolly mammoth lived alongside with the early humans. Mammoth ate grass by the riverbanks while ancient humans hunted them for food and clothing. In the end of the last Ice Age, mammoth finally became extinct. We do not know the exact reasons but research and studies showing that it was the result of overhunting and changes of the climate that led to the mammoth extinction 10,000 years ago.*

photo from:  
Dorling Kindersley Eyewitness Guides  
ELEPHANT





**Mass extinction**  
**Hyper Disease?**



# Can we “un-extinct” an animal?

## How to clone a mammoth



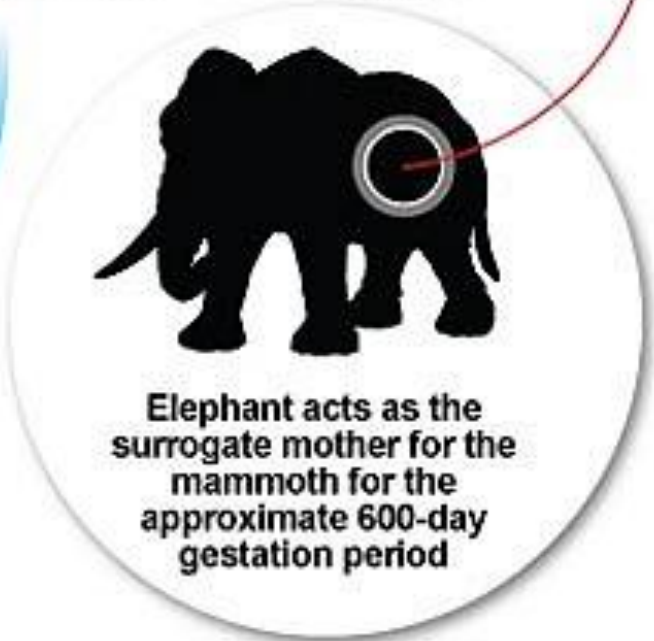
The woolly mammoth, extinct for thousands of years



Cell nuclei taken from the skin or muscle tissue of mammoth



Nuclei is then inserted into the egg cell of an African elephant



Elephant acts as the surrogate mother for the mammoth for the approximate 600-day gestation period

# Extinct Animals – New Brunswick Since European contact

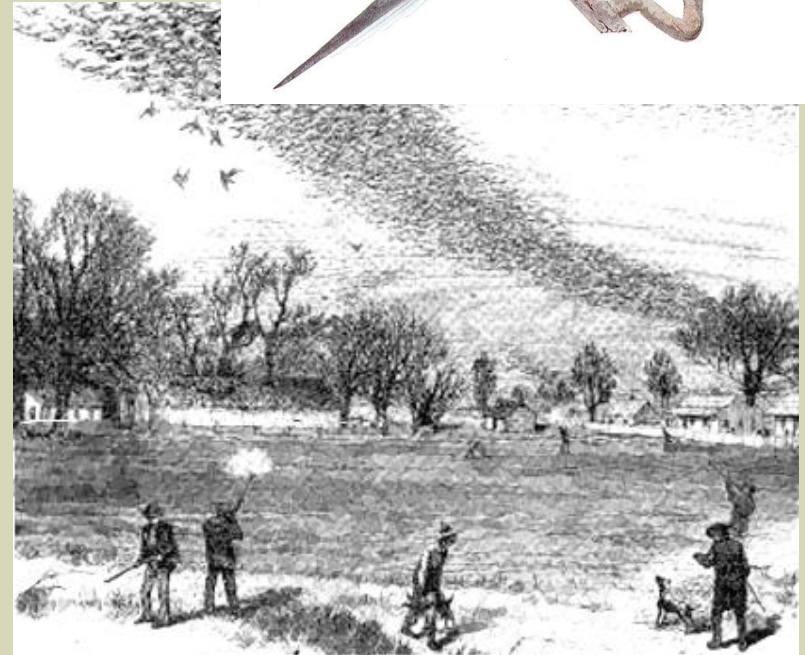
Some estimate there were  
3 to 5 billion birds

They were “excessively” hunted (poor  
person’s food?, fun, and even pig  
food)

**On September 1, 1914, Martha, the  
last known Passenger Pigeon, died**

Another significant reason for its extinction was [deforestation](#).

The birds traveled and reproduced in prodigious numbers, [satiating predators](#) before any substantial negative impact was made in the bird's population. As their numbers decreased along with their habitat, the birds could no longer rely on high population density for protection. Without this mechanism, many ecologists believe, the species could not survive.





### Labrador Duck

- Meat tasted bad
- Eggs and feathers valued?
- Humans consumed their food – mussels, other shellfish



### Great Auk

Food, eggs, down,  
bait for fishing  
1844 last pair were  
killed



### Sea Mink

Fur trade  
Last known  
specimen may  
have been in NB on  
1890?



**More extinct NB Animals  
Since European contact.**

*What do they have in  
common?*





Camp Exchange — The Home Camp in summer, above, and winter, right.

**Arthur Pringle – Big Game hunting guide  
Bald Mtn area – early 1900's**





# Extirpated

Once lived in a place but is now  
found somewhere else



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# The “remnant” of our great woodland caribou herd

The Atlantic-Gaspésie woodland caribou -is classified as **endangered**, which means it is at imminent risk of **extirpation** or **extinction**.





# Extirpated



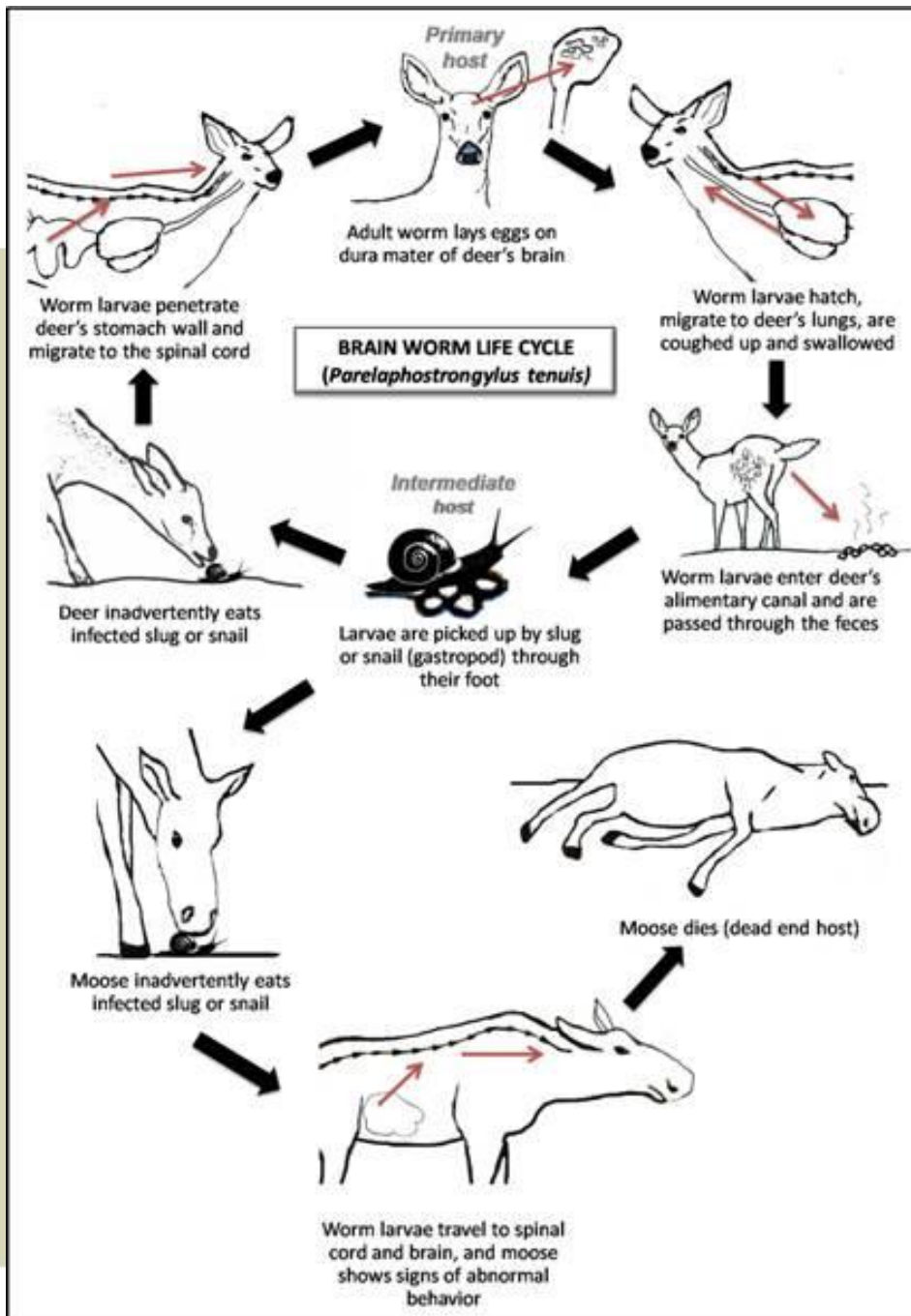
**The Maritime population  
is considered extirpated.**

Sometimes, non-native animals, or plants, naturally fill a void left by wildlife that is extinct or extirpated.

Sometimes an animal or plant moves in and it seems like it belongs here.







**What “stresses” might White Tail Deer place on other wildlife?**

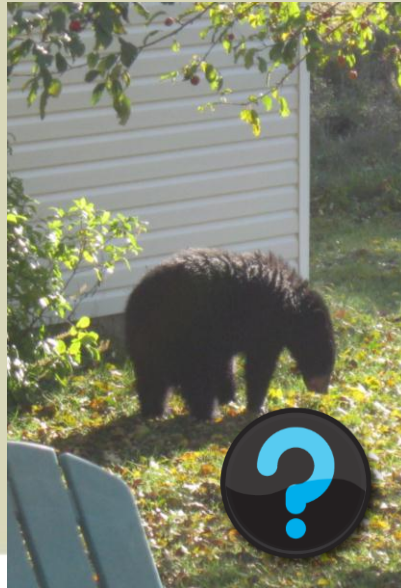
***P Tenuis***

The brainworm present in the eastern white-tailed deer prevents other ruminants like moose and caribou from entering their territory and creating a competitive environment.

It can also kill sheep and goats.



# What “stresses” might White Tail Deer experience?







- Eastern Coyotes are coywolves (hybrid)
- Appears they are an emerging “species”
- Adaptable like coyotes
- Hunt in packs and take down large game like wolves
- Bolder and more intelligent than regular coyotes?





**Western Coyote**

**58 lbs 6 oz – Near Dalhousie**





**86 lbs – Near Caraquet**

## **Extirpated?**

**Wolves were considered extirpated from NB. ( 15 shilling bounty on them in 1858...last one was killed in 1876)**

**Extirpated animals and plants can “re-colonize”**

# Laws and our value of wildlife

**6 years later**

**66<sup>th</sup> Annual Report of the Crown Land Department  
of the  
Province of New Brunswick  
For the year ended 31<sup>st</sup> October 1926**

***Beavers have been protected for a number of years back, some years ago permits were granted in limited number to trap them in season, but this resulted in abuses and was discontinued. I humbly submit that the close season on them be extended another three years.***

**In that same report...**

***Paid out a bounty of \$13,946 on 2790 wildcats killed  
We have been asked to increase the bounty from \$5 to \$10, but I could not recommend this as I believe the drain on the treasury is now too great.***

***I recommend that the close season for partridge be continued for another year as they are apparently as scarce as they have been for the last two or three years***

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*They thrive best where forests are kept young and vigorous by occasional clear-cut logging, or fire, and gradually diminish in numbers as forests mature and their critical food and cover resources deteriorate in the shade of a climax forest.*

**Predation – owls, goshawks**

**Winter – At least 10% perish**

**Weather - Tough winter – hens may not produce as many eggs in Spring  
- Injuries during escape**



*The factors responsible for these periodic fluctuations remain poorly understood, and appear to involve a number of different factors interacting with one another in different ways at different times. The one factor which does not appear to be important is hunting during the period of fall dispersal.*





What happened to  
the beaver population  
“rebound”?

We are not starving

Laws



We have made some great habitat for them

No \$ in trapping

No current desire to wear furs



# How can we, as forest workers, and citizens of NB, reduce “stress” on wildlife?

## Any thoughts??? Don't be shy!!!



1. Know the species under the most stress (animals and plants in our training and green book supplement)
2. Notify supervisors when you see nest, den or special habitat sites
3. Discourage any introduction of “non-native” species
4. Respect mapped habitat areas, follow the law
5. Support and assist studies that help us better understand wildlife and ecosystems
6. If an animal is under stress, even little things can make a difference!

# NB Species and Canadian Species at Risk Act



**1. Know the species under the most stress  
(animals and plants in our training and green  
book supplement)**

**Species at Risk Act – SARA**

**NB Endangered Species Act**

**COSEWIC list depicts which species are at risk (Committee on  
the Status of endangered wildlife in Canada)**

**Internet, news articles related to wildlife under “stress”**

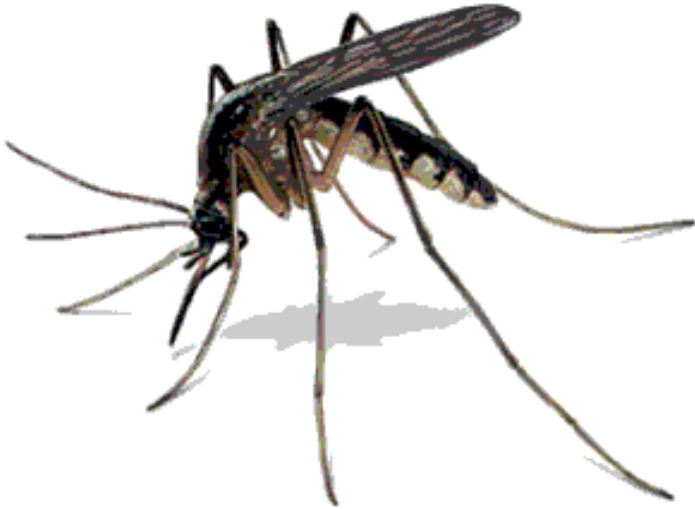


Southern Twayblade	8/1/2009	Cranberry Lease	<Null>	Reported by Ocean Spray Environmental Assessment
Wood Turtle	7/1/2009	Cains R./Sabbies	<Null>	James McKervill ( camp partner ) in discussion with TVB noted that wood turtles use island for nesting purposes. Many turtle tracks, sand mounds in the area.
Wood Turtle	5/29/2010	Bartibog	<Null>	Reno Sonier noted turtle while he was fishing.
Wood Turtle	5/30/2010	Cains river	<Null>	Rick Gorges and Phil Riebel noted turtle while they were canoeing.
Common Nighthawk	6/15/2010	Former Douglastown	Tony Vanbuskirk	Noted a pair of nighthawks flying over a field.
Common Nighthawk	6/17/2010	Tower Road Blackville Area	Tony Vanbuskirk	billy Donahue reported a night hawk at this location
Common Nighthawk	7/20/2010	Rennie Road Area	<Null>	Billy Donahue reported several night hawks in the evening in this area.
Canada Lynx	5/11/2011	River Road Nepisiguit	Tony Vanbuskirk	Lynx crossed road and then stared at me from the woods. Could not get camera ready in time!
Wood Turtle	6/21/2011	Half Way Spring - Cains Road	<Null>	Reported by Howard Russell - Wood turtle
Canada Lynx	3/17/2012	Fraser Burchill Road	Tony Vanbuskirk	Howard Russell took a picture of a Lynx enjoying St.Patrick's Day!
Wood Turtle	6/20/2012	Prison Farm Rd. Underwood brook	Tony Vanbuskirk	Billy Donahue reported a wood turtle at this location.
Wood Turtle	6/20/2012	Road	Tony Vanbuskirk	Billy Donahue reported his second turtle of the day.
Wood Turtle	6/16/2012	Old mullin Stream Rd.	Tony Vanbuskirk	Howard Russell noted a wood turtle.
Wood Turtle	6/16/2012	Renous Hwy.	Tony Vanbuskirk	Jean Godbout noted a wood turtle.
Wood Turtle	7/16/2012	Whitney Brook	Tony Vanbuskirk	Peter Dignam noted a turtle on the roadside.
Nighthawk	8/1/2012	Douglastown	Tony Vanbuskirk	4 nighthawks flying over field beside house



# How Do Bats Help People?

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Bats **eat bugs** so the bugs don't bug people! Bats keep the insect population down. One small brown bat can eat 1,000 mosquitoes in one hour!





## Endangered (threatened COSEWIC)

Common Nighthawk (species in our green book supplement  
“Wildlife, Special Sites and Invasive Species Guide”)



- flying insects are its preferred food
- Nests on the ground. Eggs and young are susceptible to predators

Areas surveyed over the last three generations have shown an almost **50 percent decline** in the species! Reasons for its decline may include **reductions in the number of insects** and **loss of the open habitat** in which it thrives.

# Questionnaire



## ATLANTIC SALMON

**Gaspe- Southern  
Gulf of St. Lawrence  
Population  
“Special Concern”**

*You can make a difference:  
your comments are important!*



# ATLANTIC SALMON

## Gaspe-Southern Gulf of St. Lawrence

Information Summary for the Consultation on Adding  
Atlantic Salmon, Gaspe-Southern Gulf of St. Lawrence  
Population to the List of Wildlife Species at Risk under  
the *Species at Risk Act*

November 26, 2012 to March 1, 2013

Today, hundreds of wildlife species face the risk of extinction in Canada. Some are symbols in our diverse cultures and heritage; some are the last of their kind in the world – and all of them have an essential role to play in the environments where they live.

ornebu  
umber  
odlands





# Adding a population to the **LIST OF WILDLIFE SPECIES AT RISK**

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The process of listing a species under the *Species at Risk Act* consists of several steps. It starts with a status assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and ends with a government decision whether or not to add the population to the List of Wildlife Species at Risk.

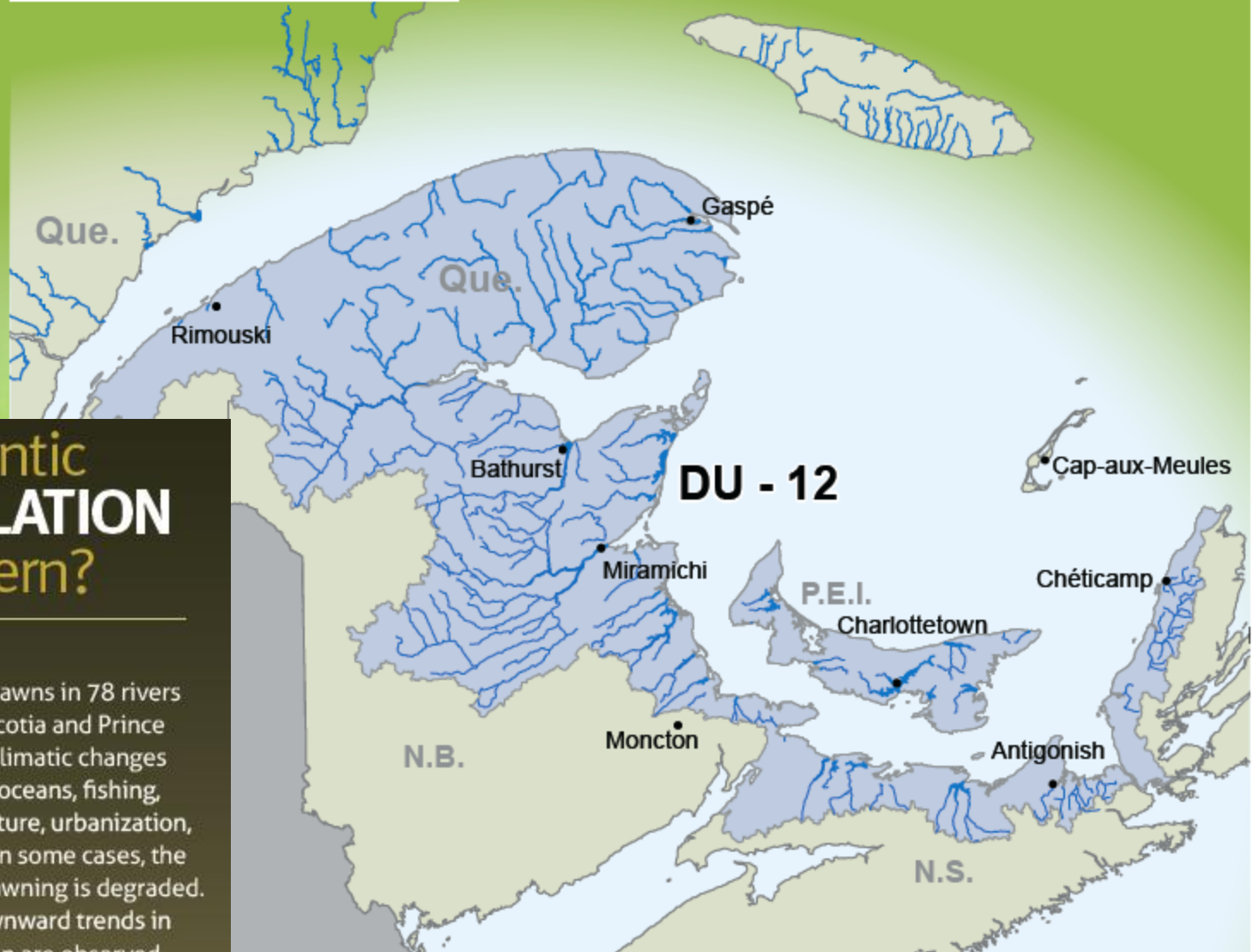
If it is listed as special concern:

Management Plan must be developed to reduce threats and set goals and objectives

Plan would be in cooperation with provinces and Aboriginal people

- Main salmon rivers
- Designatable Unit (DU)**
- 12 - Gaspé-Southern Gulf of St. Lawrence

**Range**  
of this Atlantic Salmon population  
(Gaspé-Southern Gulf of St. Lawrence)  
targeted for this consultation



## Why is this Atlantic Salmon **POPULATION** of special concern?

This Atlantic Salmon population spawns in 78 rivers in Quebec, New Brunswick, Nova Scotia and Prince Edward Island. It is threatened by climatic changes and environmental changes in the oceans, fishing, obstructions in fresh water, agriculture, urbanization, aquaculture and invasive species. In some cases, the freshwater habitat required for spawning is degraded. For this population, significant downward trends in the number of small or large salmon are observed.













A photograph of a forest scene. In the foreground, a large, textured tree trunk stands on the left. The ground is covered with fallen leaves and some green ferns. In the background, a dense forest of trees is visible, with some sunlight filtering through. A dark teal text box is overlaid on the top right of the image.

# Forest Management Plan Strategy – Red Spruce













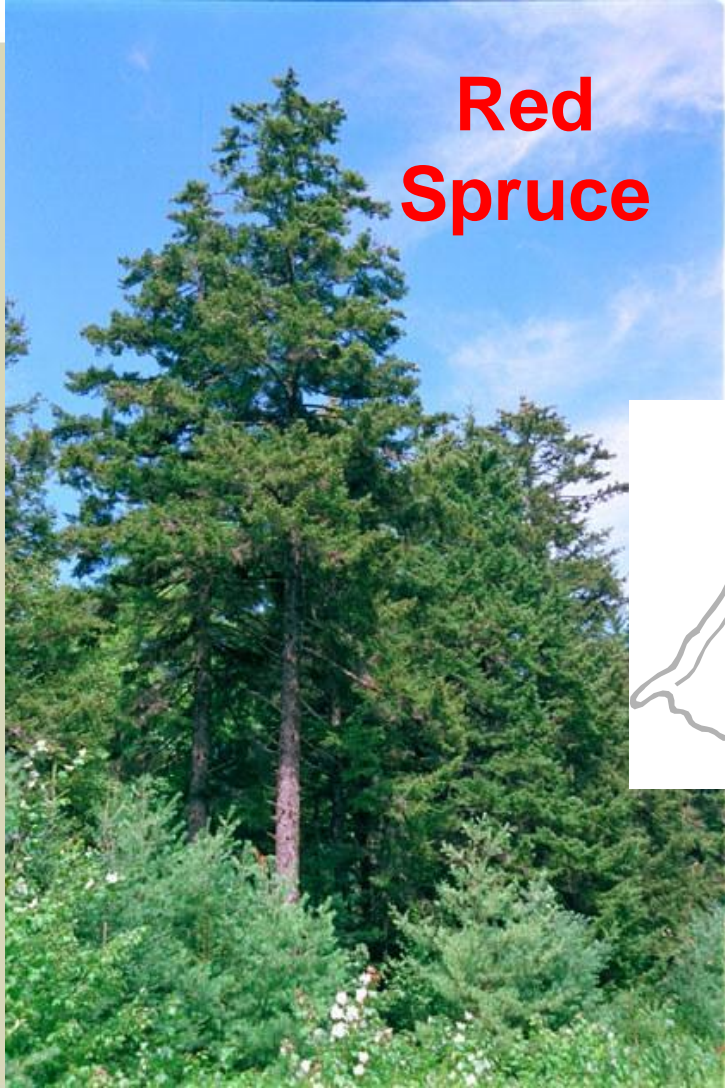
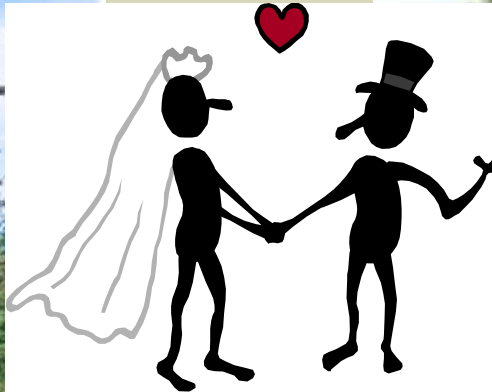


# Black/Red Spruce “Hybrid”

Red  
Spruce



Black  
Spruce



## 2. Notify supervisors when you see nest, den or special habitat sites





<b>Feature ( Nests )</b>	<b>Road Distance From Feature (Requirement)</b>	<b>Harvest Layout Nest Buffer ( Requirement )</b>	<b>Nesting Season No-Activity Zone</b>
Osprey, Merlin, American Kestrel, Great Horned Owl	Roads are to be located $\geq 50$ metres from these nests.	15 M buffer	$\geq 100$ Meters
Sharp-shinned Hawk, Northern Goshawk, Red-tailed Hawk, Broad-winged Hawk, Barred Owl, Northern Saw-whet Owl	Roads are to be located $\geq 100$ metres from these nests.	50 M Buffer ( exception in this group is Northern Saw-whet Owl – it is a 15 M buffer )	$\geq 100$ Meters
Cooper’s Hawk, Red Shouldered Hawk, Long-eared Owl, Boreal Owl, Hawk Owl	Roads are to be located $\geq 100$ metres from these nests.	100 M Buffer	$\geq 200$ Meters
Bald Eagle, Peregrine Falcon, Black Crowned Night Heron, Green Heron, Great Blue Heron	Roads are to be located $\geq 400$ metres from these nests/nesting areas.	100 M Buffer ( exception in this group is Great Blue Heron – it is a 50 M buffer )	$\geq 200$ Meters

**Refer to Fornebu Lumber Inc. – Woodlands Forestry guide "Birds of Prey Species Identification"**

**Mark all nest locations on your map, or GPS coordinates, so the location can be documented on GIS maps.**



**2. Notify supervisors when you see nest, den or special habitat sites**



**TWO WEEK  
SUBMISSION**

Map: 4825

Block: 203OPMR0010CC Photo: 05503-96

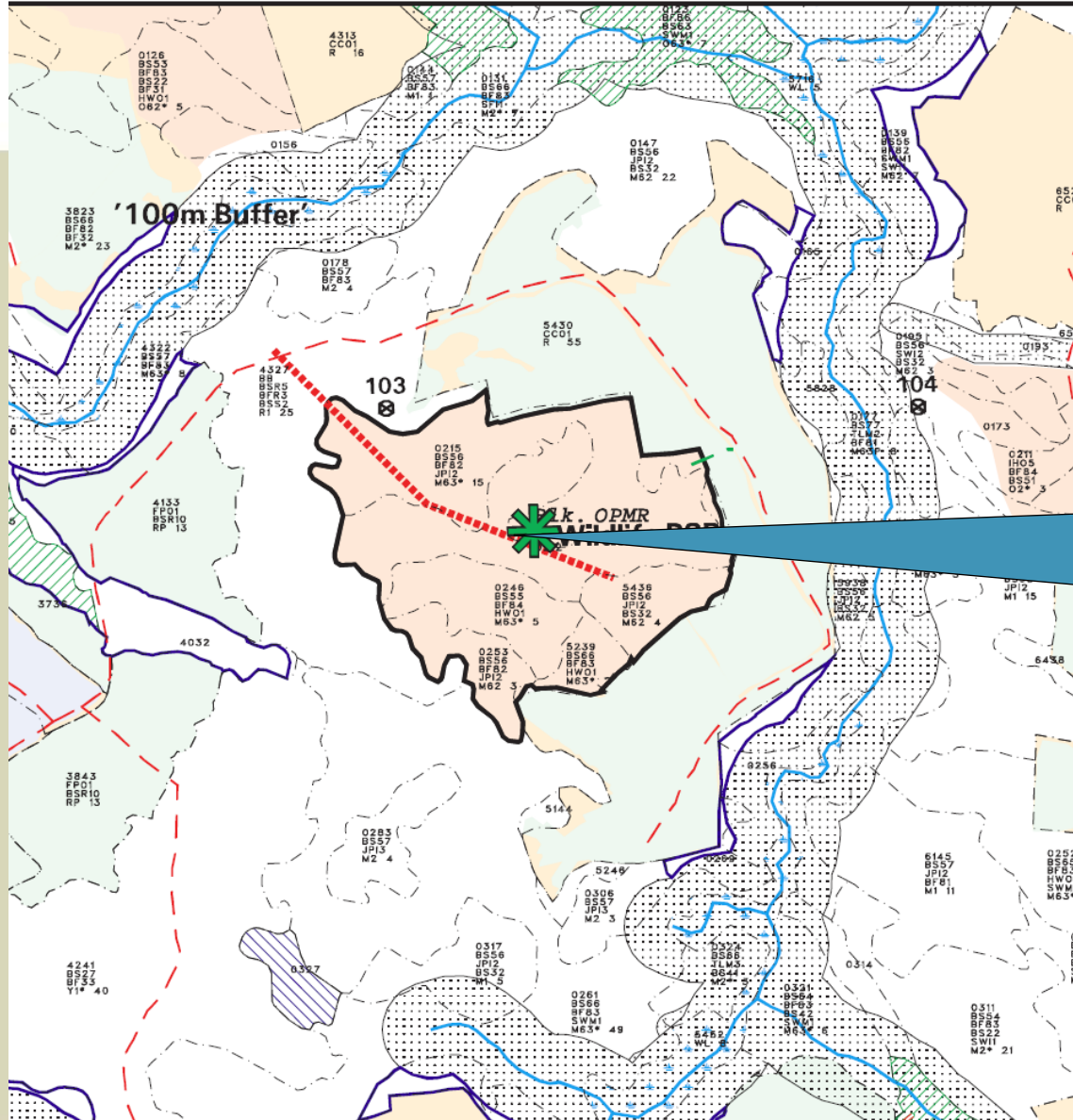
Gross Area: 38.8

Scale: 1:12500

Net Area:

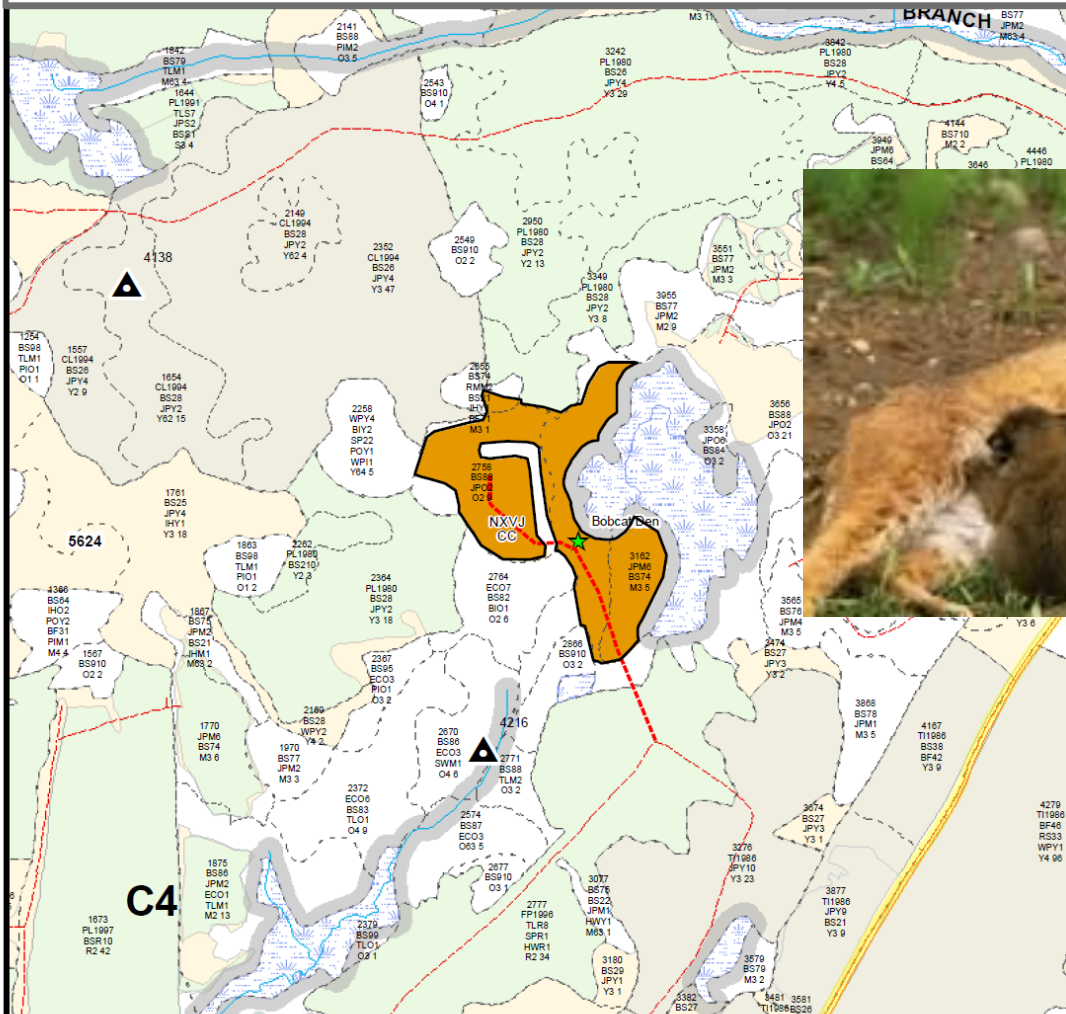
Date: June 08, 2010

**Fornebu  
Lumber  
Woodlands**



**Nest site is marked  
in our GIS system.  
Operating plan  
comment  
- Hawks nest on block.**





Treatment: **CC**  
Proposed Operator:  
Landbase: **General Forest**  
Location: **Bartibog**



Species	Volume (m3)
Spr,Fir,Jp	1512
Tol. Hwd	3
Int. Hwd	96
Poplar	10
Cedar	21
Pine	30
Hemlock	0
<b>Total</b>	<b>1672</b>

- Fornebu Holdings
- Watertable
- <VALUE>
- 0.100000000 - 114.4042178
- AcadianForest
- DesignatedRoads
- 10 m Contour (DEM)
- ConservationForest
- Sugary\_Leases
- Family/Tests
- Camp\_Leases
- Wetland
- Nonforest\_New
- Planting
- Thin/Clean
- Harvest\_All\_To\_2010
- Snowmobiletrails
- ATVtrails
- SNBtrails

Comments: **Keep ROW <= 15 m through Plantation.**  
**Confirm Bobcats have left the den before road building commenced.**

3. Discourage any introduction of “non-native” species





**Introduced  
as a sport  
fish**



**Late 1800's  
introduction**



**Introduced  
...or arrived  
by floods.  
2004  
season  
opened**



## Nightcrawlers Ruining Northern Forests?



Earthworms have long been considered a friend to farmers and home gardeners, playing a vital role in soil quality. However, recent studies have shown that glaciated forests in North America—forests that evolved without native earthworms--now face the invasion of European earthworms from agriculture and fishing.



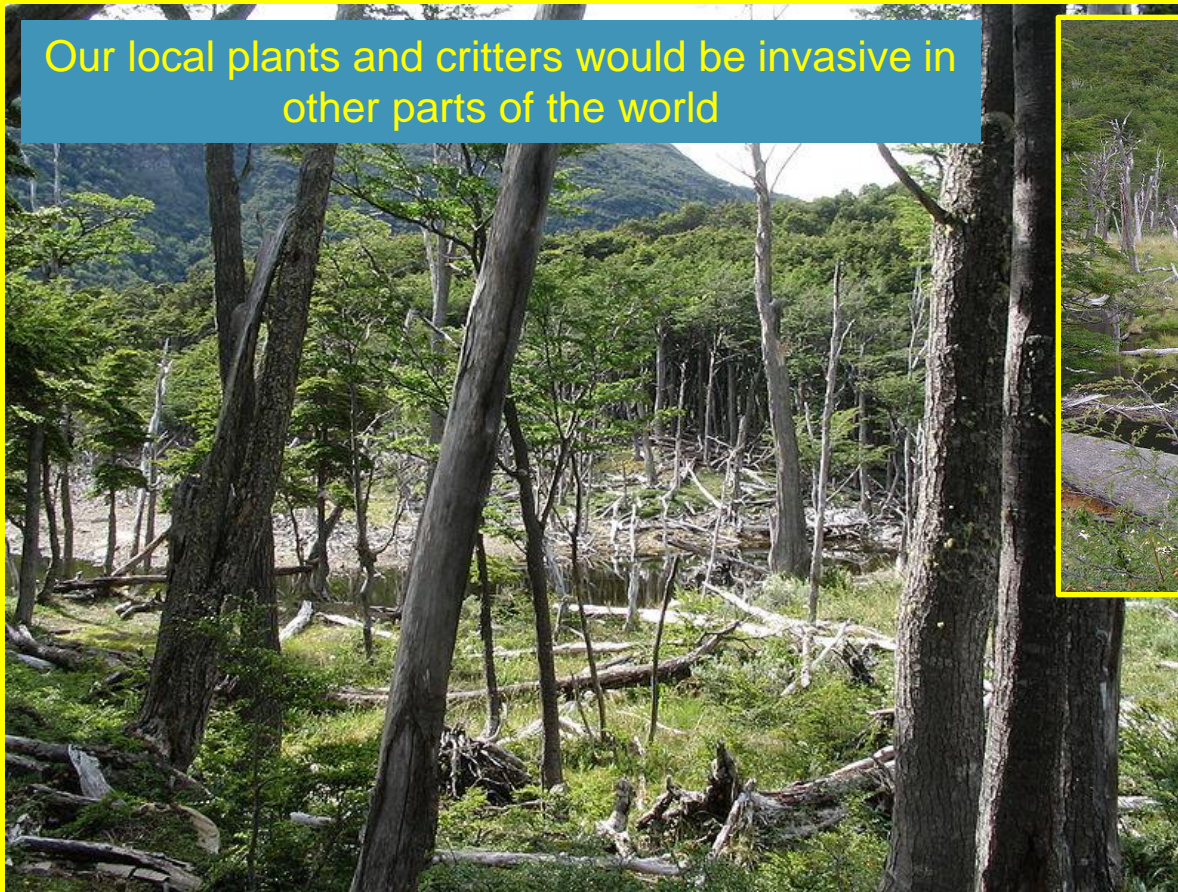
A photograph of a dense forest of beech trees. The trees are tall and slender, with green leaves. The ground is covered in fallen leaves and low-lying vegetation. A blue text box is overlaid in the upper right corner of the image.

## Beech bark disease

- Documented in Europe in 1849.
- At first, it was believed that the insect was the main cause of the disease. (non-native insect)
- 1890 European Beech trees brought to Halifax
- 1914 fungus was associated with the disease.



Our local plants and critters would be invasive in other parts of the world



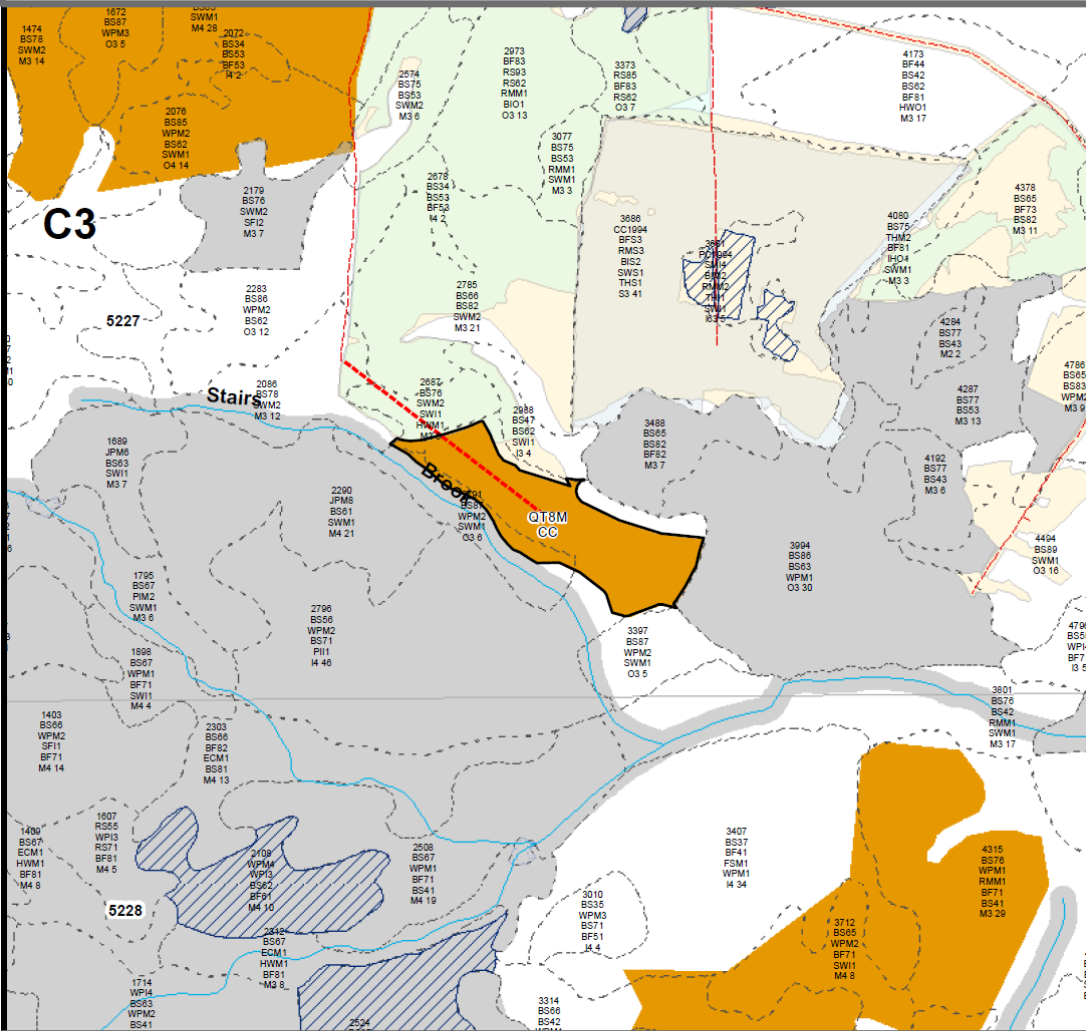
What “stresses” did the beaver bring to this ecosystem versus our ecosystem?

**Beavers were introduced to Chile and Argentina in 1946** to develop a commercial fur trade. The project failed and beavers were released into the wild. "The change in the forested portion of this area is the largest landscape-level alteration in the last 10,000 years"

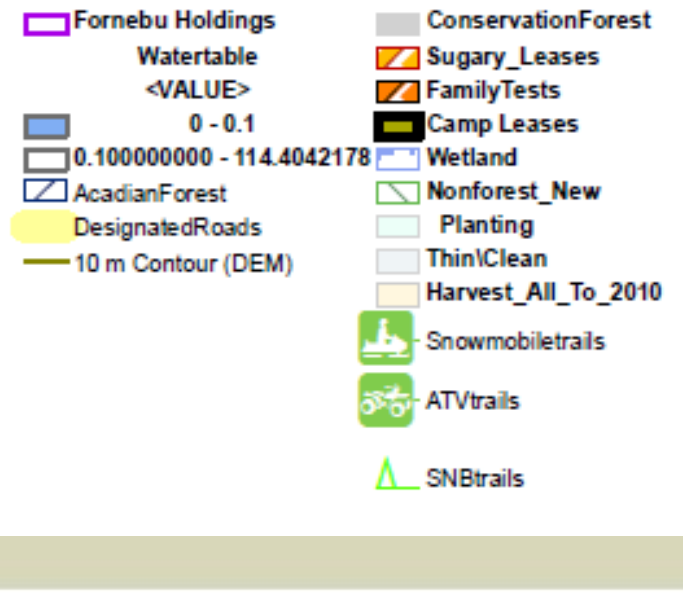
- Flooded areas not meant to be flooded!
- Made wetlands where none were needed
- Cut down trees that did not respond to growing back as suckers
- Wide scale destruction since beavers have no natural enemies in their new home.
- threaten 16 million hectares of native forest (approx 2 NB's)



# Protection of Forests with Exceptional conservation Value

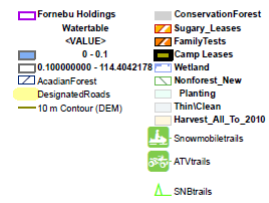


**4. respect mapped habitat areas**



Treatment: **CC**  
Proposed Operator:  
Landbase: **General Forest**  
Location: **Sheephouse**

Species	Volume (m3)
Spr, Fir, Jp	1157
Tol. Hwd	37
Int. Hwd	37
Poplar	0
Cedar	0
Pine	257
Hemlock	0
<b>Total</b>	<b>1488</b>



Comments: **Keep ROW <= 15m through PL area**



**5. Support and assist studies that help us better understand wildlife and ecosystems**





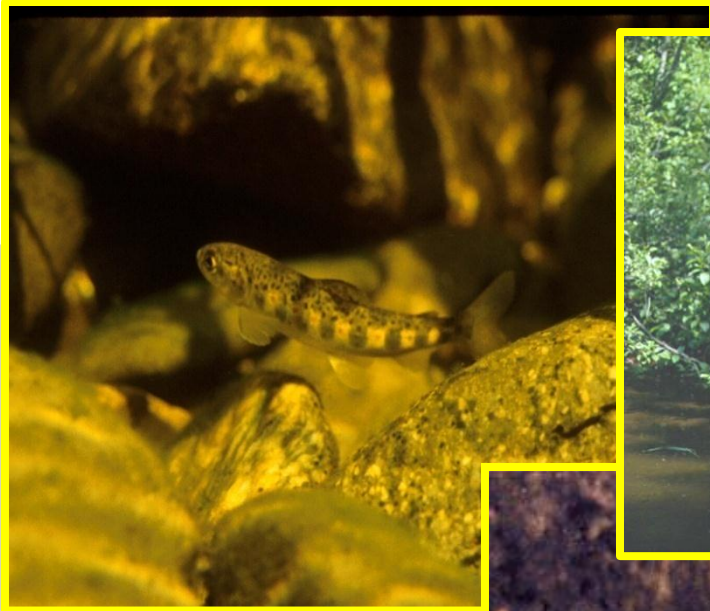
Cabela's

Catamaran Brook Research  
Commenced in 1989 – salmon focus & forestry focus





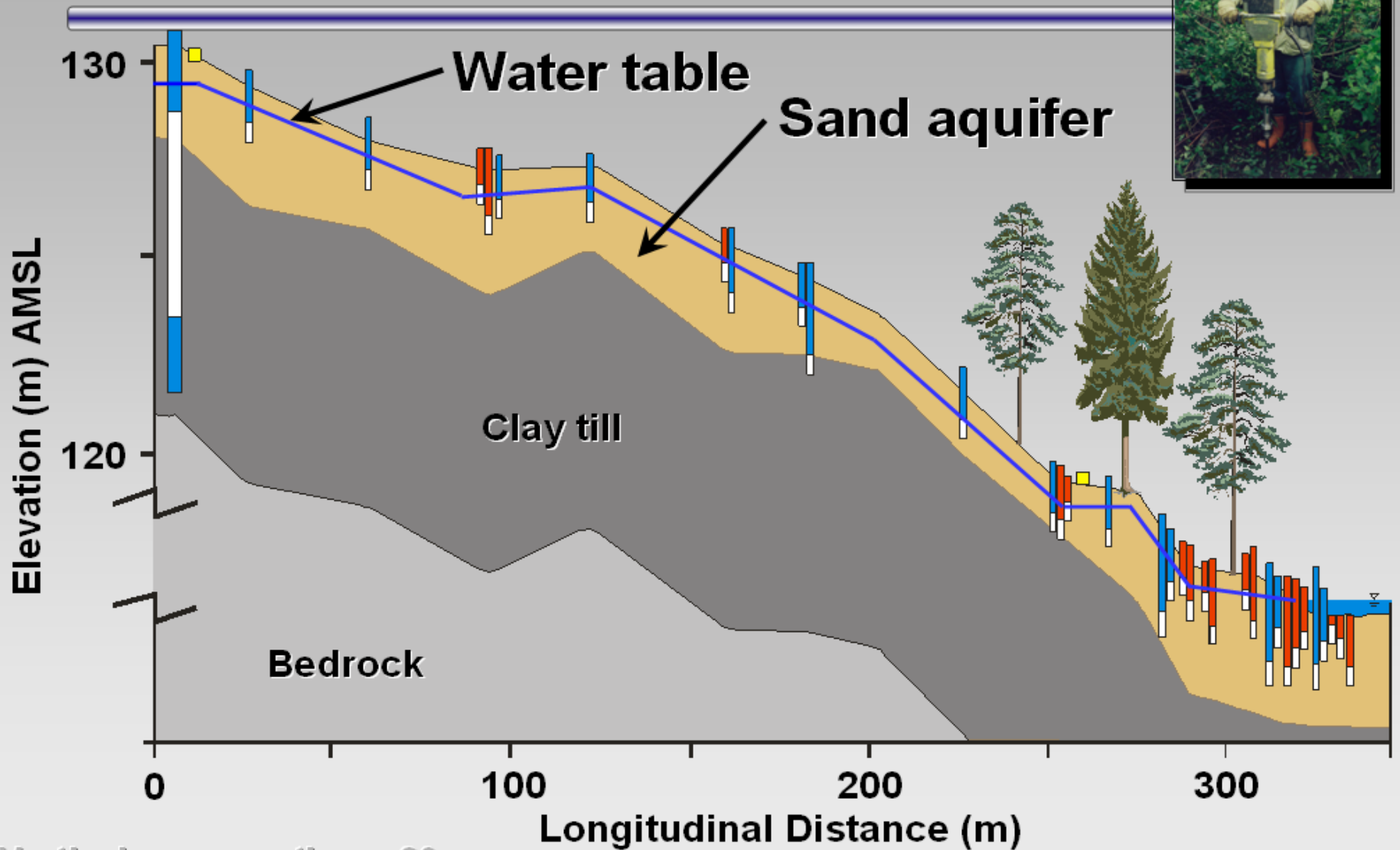




To date, over 70 publications and 26 theses have been published resulting from research conducted at Catamaran Brook.



# Site instrumentation



Vertical exaggeration = 20 x

# Conclusions Continued

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- 5) **Modelling showed that buffer strips  $> 15$  m wide provide sufficient thermal protection 7 - 8 years post-harvest**
  
- 6) **Buffer strip guidelines in New Brunswick appear sufficient to mitigate groundwater temperature increases related to clearcutting**









# Bicknell's Thrush and High Elevation Land Bird Studies







**2000 km migration**

# Bicknell's Thrush Winter Range







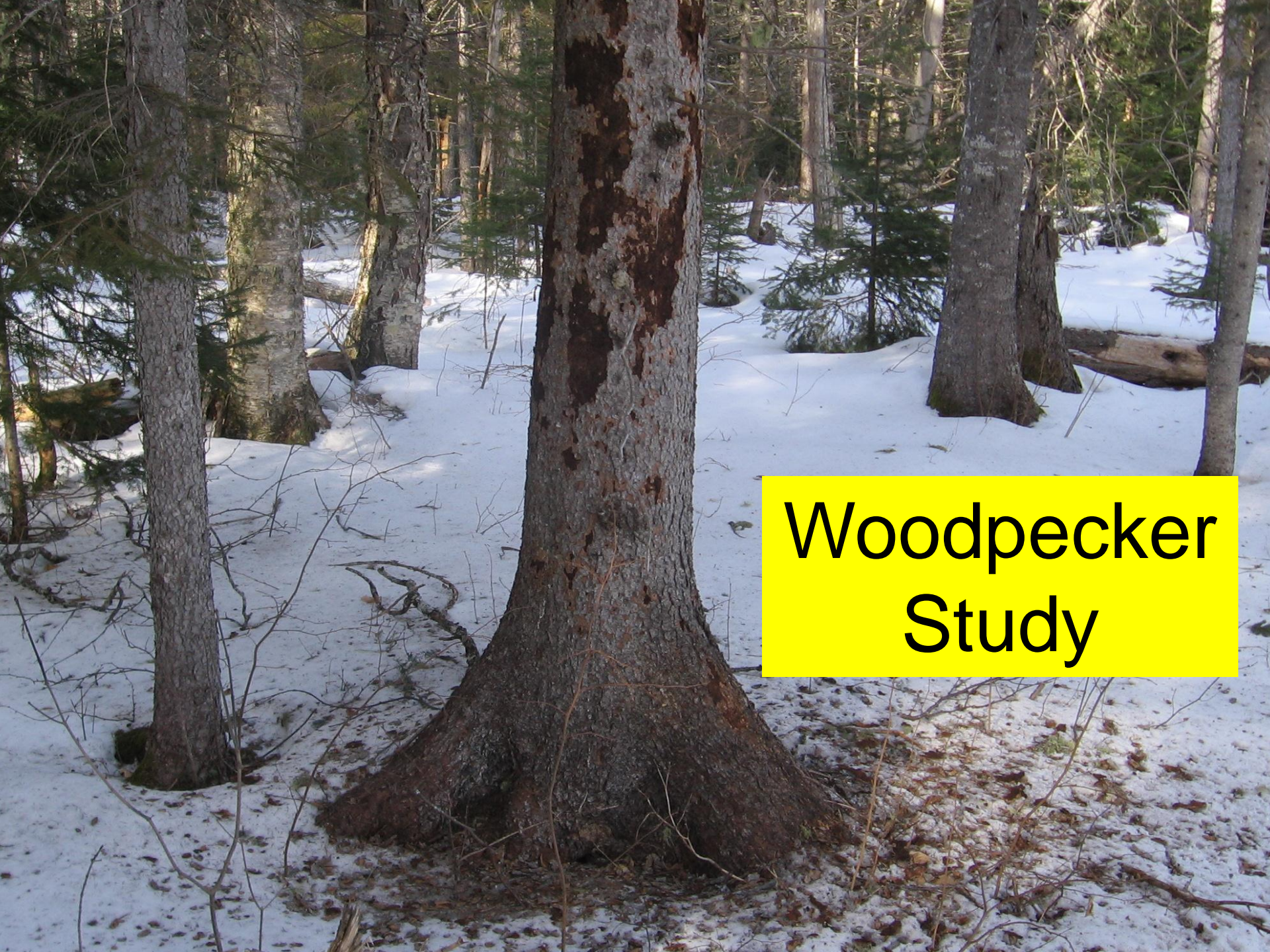










A photograph of a snowy forest. In the center, a large tree trunk has a significant hole in it, likely made by a woodpecker. The ground is covered in snow, and other trees are visible in the background. A yellow text box is overlaid on the right side of the image.

# Woodpecker Study







# Black-backed Woodpecker

(*Picoides arcticus*)



# American Three-toed Woodpecker

(*P. dorsalis*)









# Fieldwork

- May to August, 2010 and 2011
- Playback surveys
- Radio-telemetry (BBWO only)
- Colour-banding



Radio-transmitter attached to tail



BBWO  
in mist  
nest



# Field Results

- 19 BBWO nests
- 10 ATTW nests
- 7 additional nests added from previous work (2007-2009)



6. If an animal is under stress, even little things can make a difference! Example – Endangered wood turtle





# What have we learned?

10 feet (3 meters)

6 feet (1.83 meters)



- \*Tusks are straighter than a mammoths
- \*Back doesn't slope like a mammoths
- \*Longer, and flatter head than a mammoths
- \*About the size of an Asiatic elephant
- \*Ears are smaller than modern elephants
- \*Thick body hair similar to a mammoth, unlike modern elephants
- \*Teeth suggest the diet of a browser, not a grazer (unlike modern elephants and mammoths)

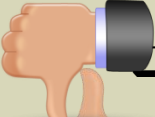







Dwarf shrub birch was probably quite common throughout New Brunswick following the ice age, but is now only found on higher mountain tops in NB (including Bald Mountain) It is common in the Canadian Arctic and Greenland.



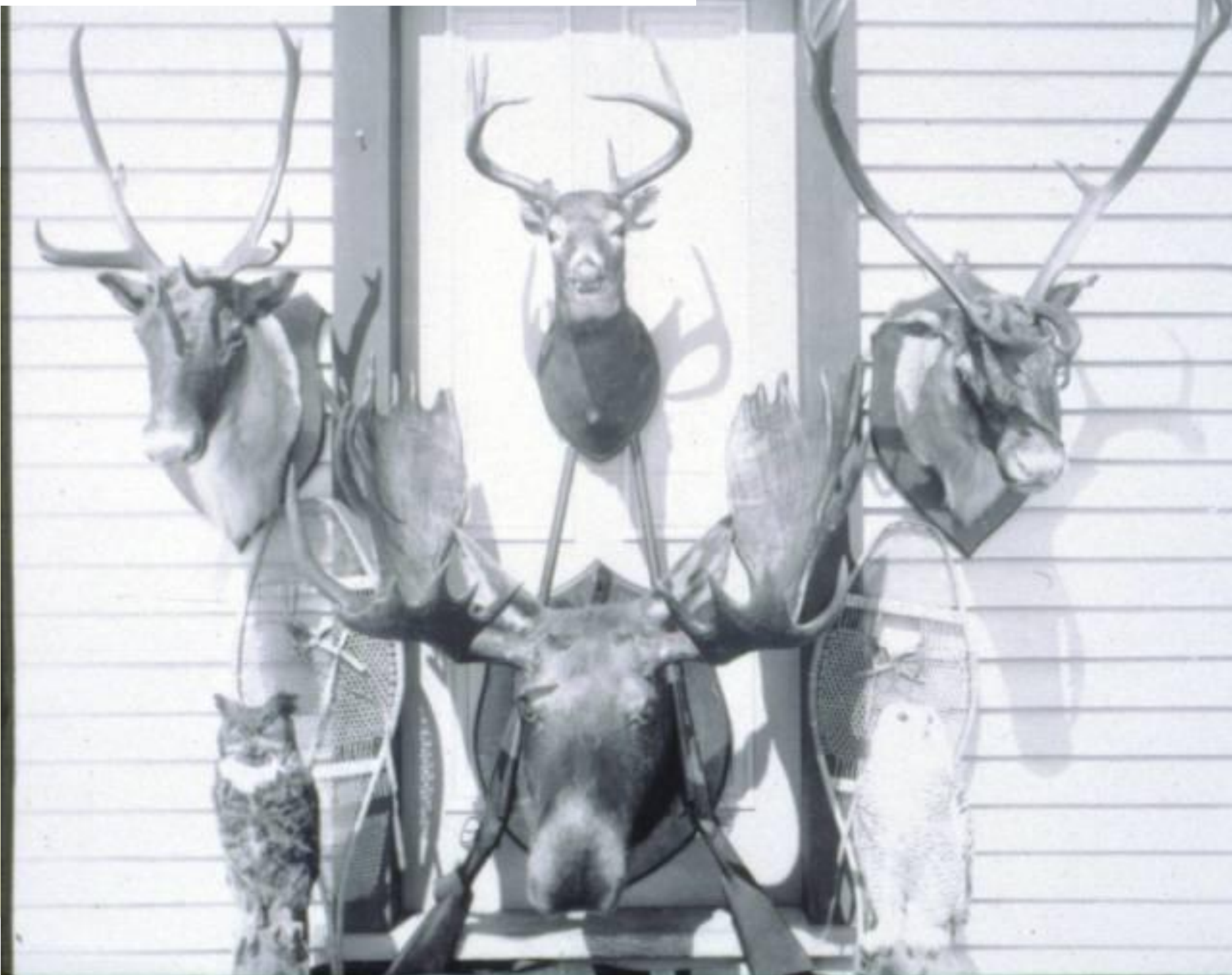
**Dwarf Shrub Birch is:**

-  Extinct in much of New Brunswick
-  An ice age survivor
-  Only found at higher elevations throughout its range
-  At the mercy of human development /activities in NB

1. Name 2 common “hybrid” species found in New Brunswick forests.
2. Name 2 species (plants or animals) that fungi have infected.
3. What type of animals are probably the most difficult to study for population levels, habits, predation, etc.?  
(Clues - H<sub>2</sub>O...migrates... )



Let's discuss this photograph!



1. Move machinery away from the area
2. Contact supervisor – we will contact DNR biologist
3. Figure out best new work area
4. Area will be mapped as a den site and work will proceed at a later approved time.

**What might have happened in 1926?**





**Though we're not really "all that bad"...name 5 things humans do to alter eco-systems and wildlife populations**

- **Intentionally, and unintentionally, introduce non-native species**
- **Remove animals we do not like**
- **Overly "Support" animal populations we like (feed songbirds, deer, etc.)**
- **We overuse resources (example – water)**
- **We "alter" and "control" natural occurrences (fire, insect infestations)**
- **Use chemicals, and we produce pollution**
- **The "paths" (roads, pipelines, etc.) we use are somewhat destructive**
- **Can add "stress" by overhunting/overfishing/overharvesting plants**
- **Alter habitat through our activities**

**Thank You!**

