

Crown Land is administered by the *NB Department of Natural Resources.*

Fornebu Lumber Woodlands is the Crown Licensee responsible for forest management of License #3 covering approximately 1 million hectares.

Woodlands

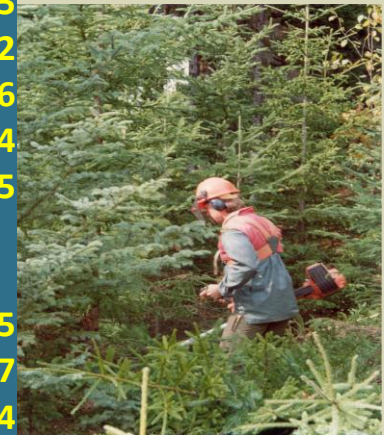
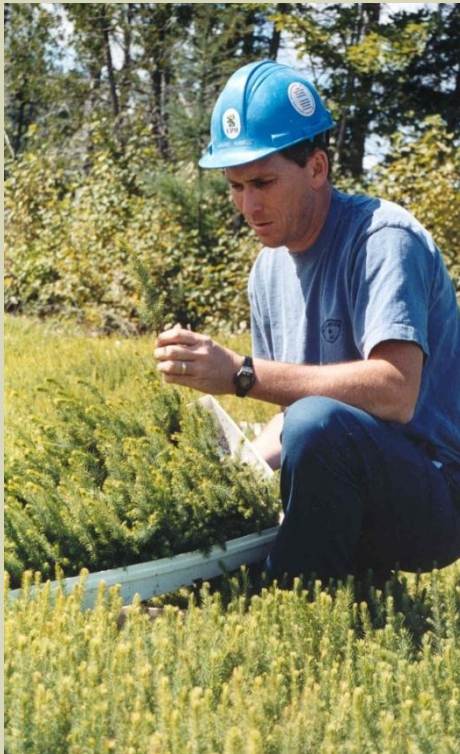
More than 900

NEPISQUIT-MIRAMICHI LICENSE 3 WOODLANDS WORKFORCE 2011

Fornebu Staff	20
Forestry	15
Harvest/Roads/Trucks	213
Silviculture	
Pre Commercial Thinners	281
Tree Planters	61
Site Preparation	9
Operating Sublicensees	
Delco	46
Groupe Savoie	31
Miramichi Lumber	44
J.D.Irving	35
Westwood	12
Chaleur	56
Legere Firewood	4
Balmoral Cedar	5
First Nations	
Red Bank	15
Eel Ground	17
Big Cove	24
Burnt Church	44
TOTAL	932

Fornebu
Lumber
Woodlands

siguit area.



Wildlife Habitat and Conservation

SFI Training – module 4

This is a very “informal session!”
It is based on science and history.

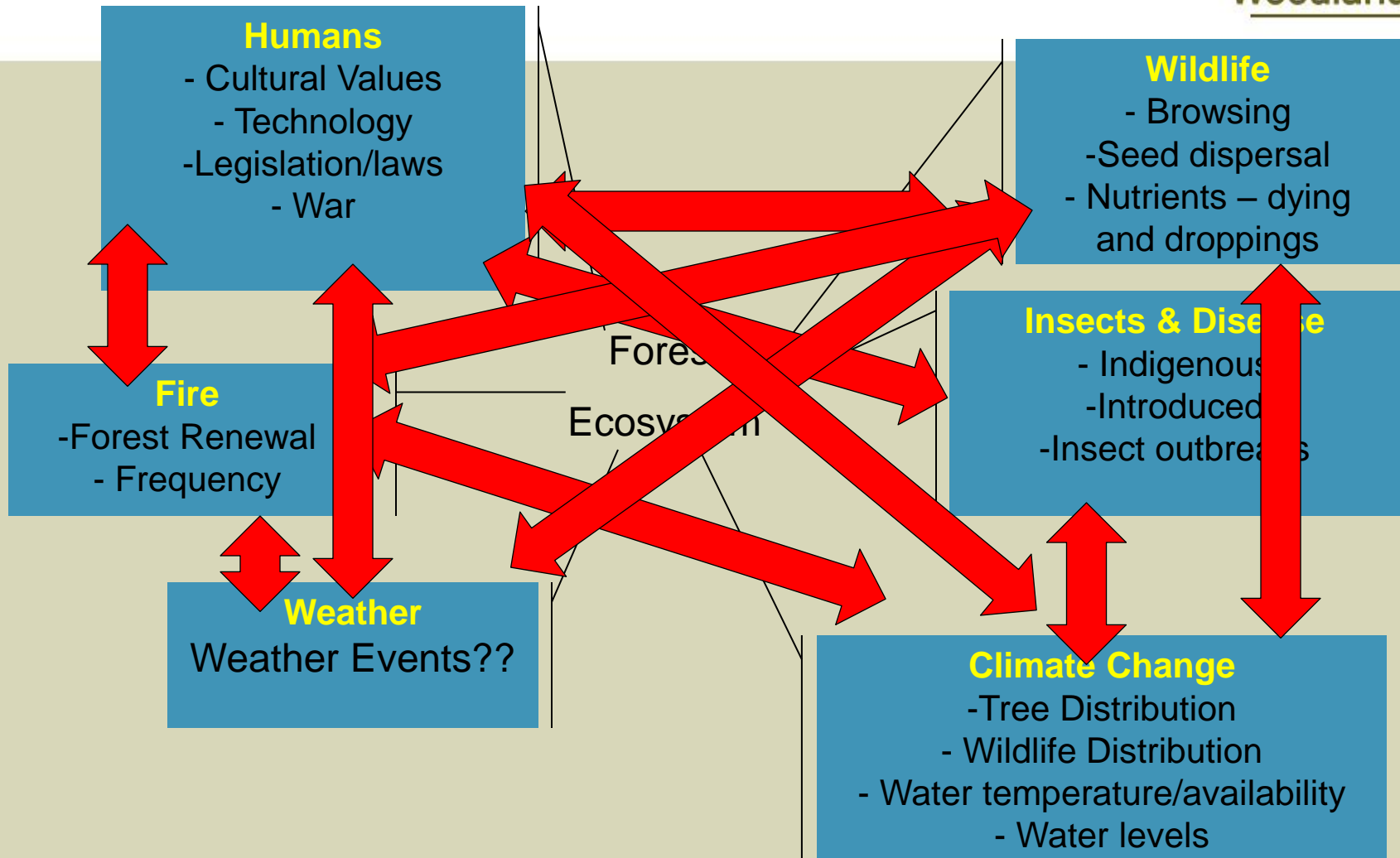
Ask questions, good discussions...we are not biologists...so we may not have the answers.

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

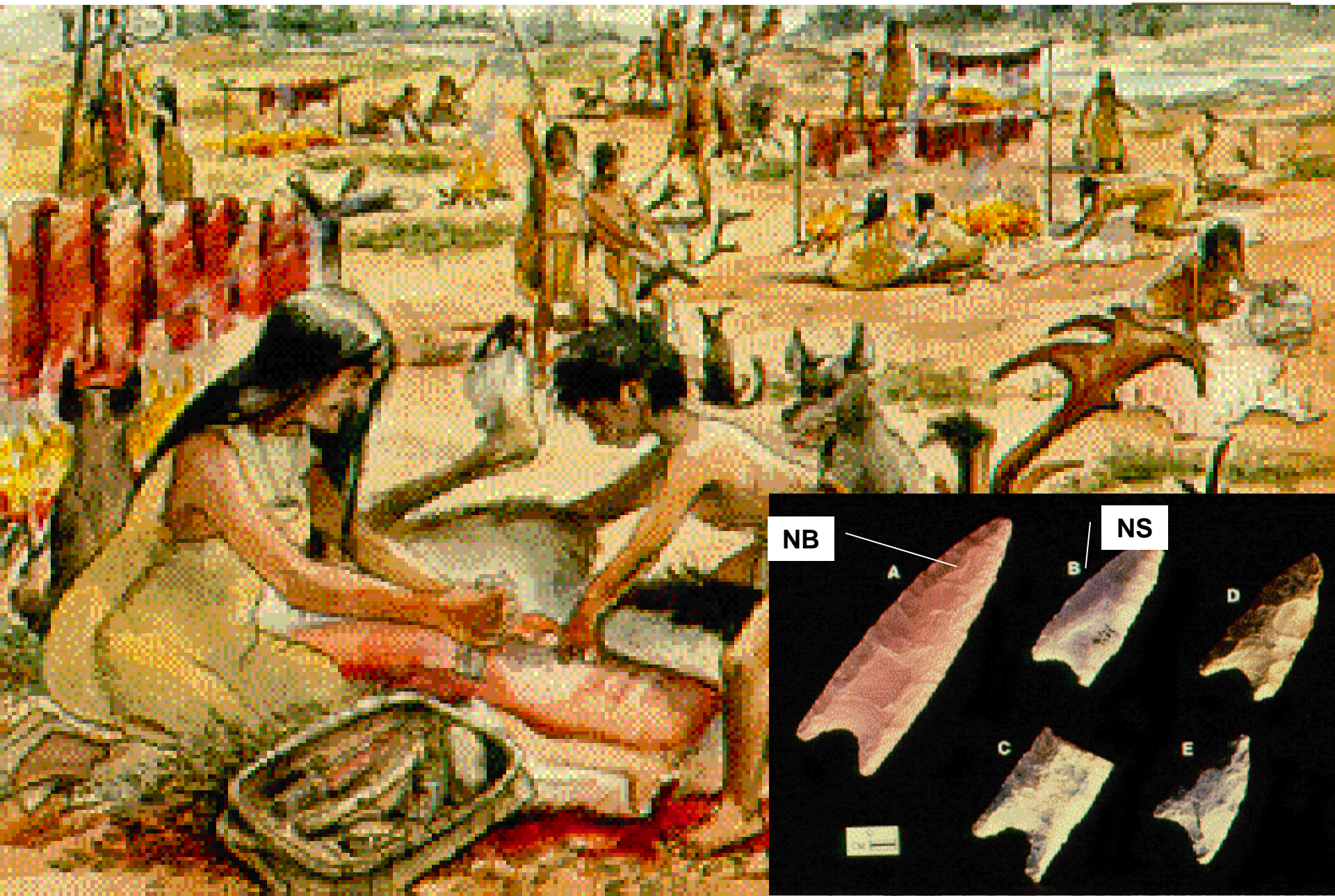
White Pine - 7000 BP WP More
abundant 5000 BP than present

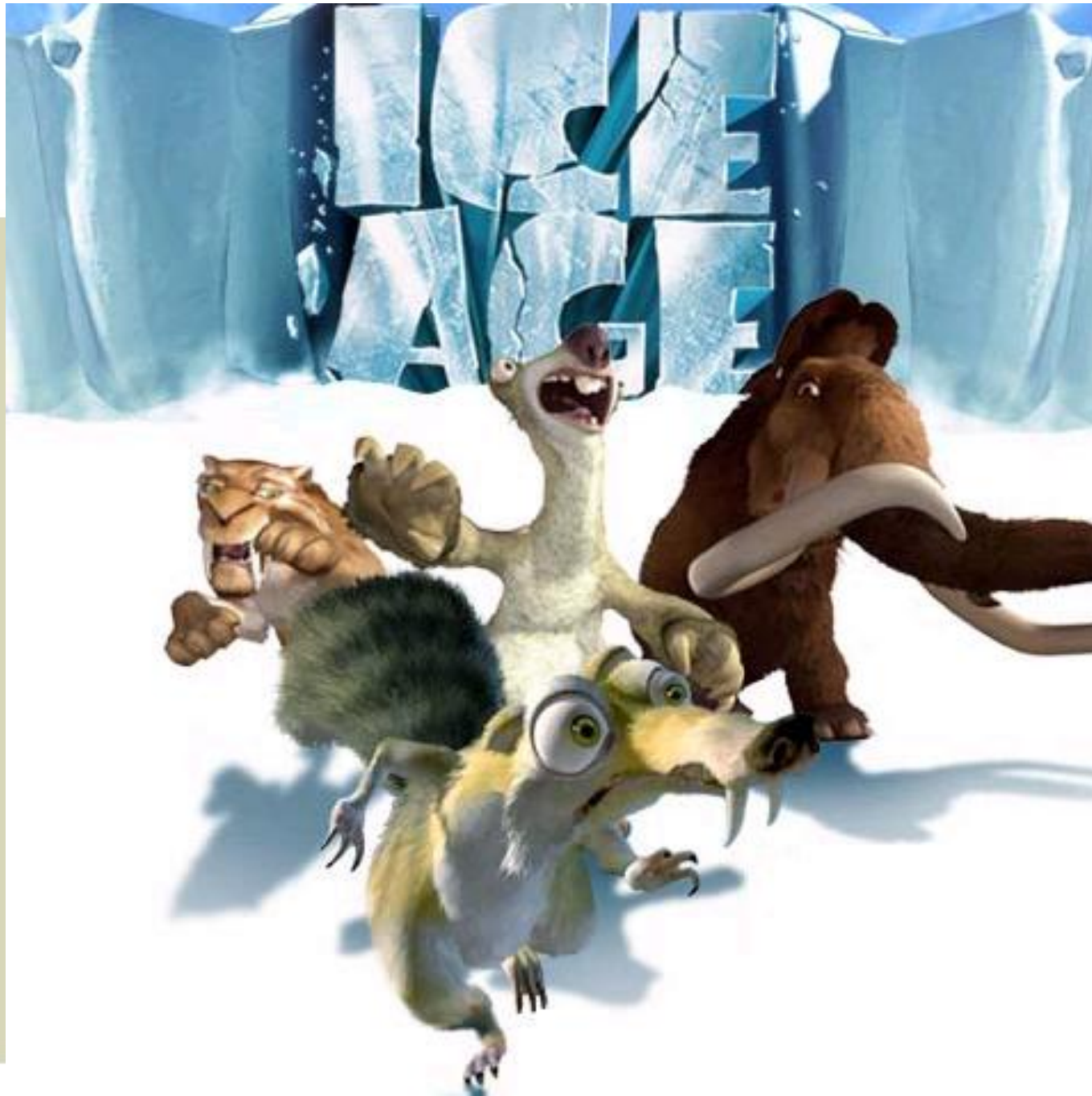
Hemlock - 6000 BP 5000 BP
drastic decline in Hemlock (disease?)
3000 BP achieved its present range.

Beech - 5000 BP

Hickory and Chestnut?????

Paleoecology





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.



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?



Mass extinction
Hyper Disease?

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



Can we “un-extinct” an animal?

How to clone a mammoth



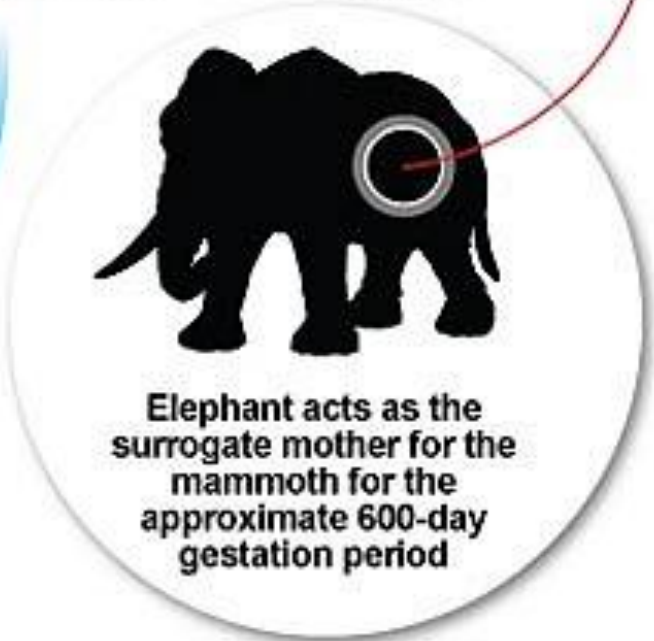
The woolly mammoth, extinct for thousands of years



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

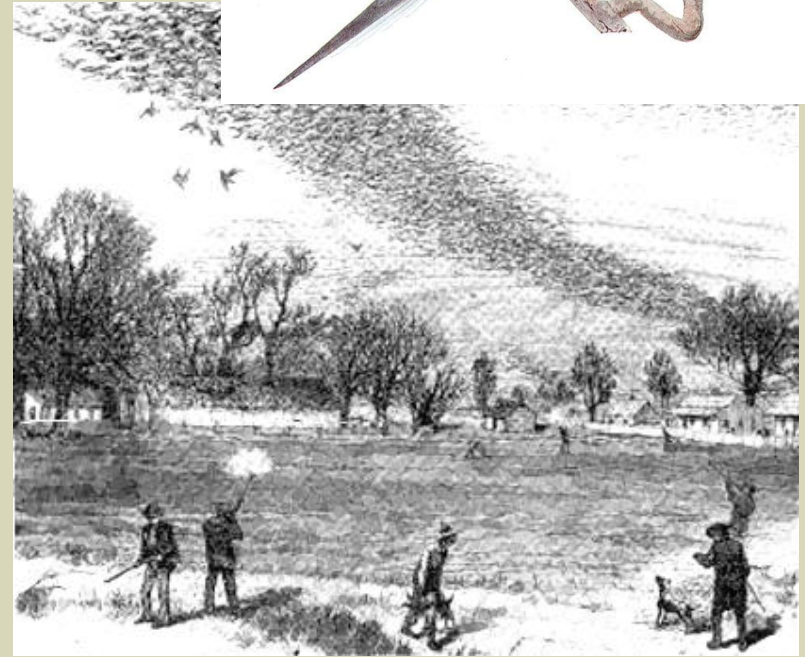
Some estimate there were
3 to 5 billion birds

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**.
- Under Quebec **legislation**, it has been classified as vulnerable since 2001.
- Gaspésie Provincial **Park** was established in 1937 to protect the declining herds.
- **Hunting** inside the park was **banned** in the 1930s and **logging** ended in 1977, yet the population declined from about 500 to 1,000 individuals in the 1950s to about 200 in the 1970s.
- The population stabilized in the 1990s after a national recovery plan called for strategies such as **coyote control** and management of **tourist activities**.
- Since 1999, a **special forest management plan** was implemented for the habitat area outside the park boundaries



Extirpated

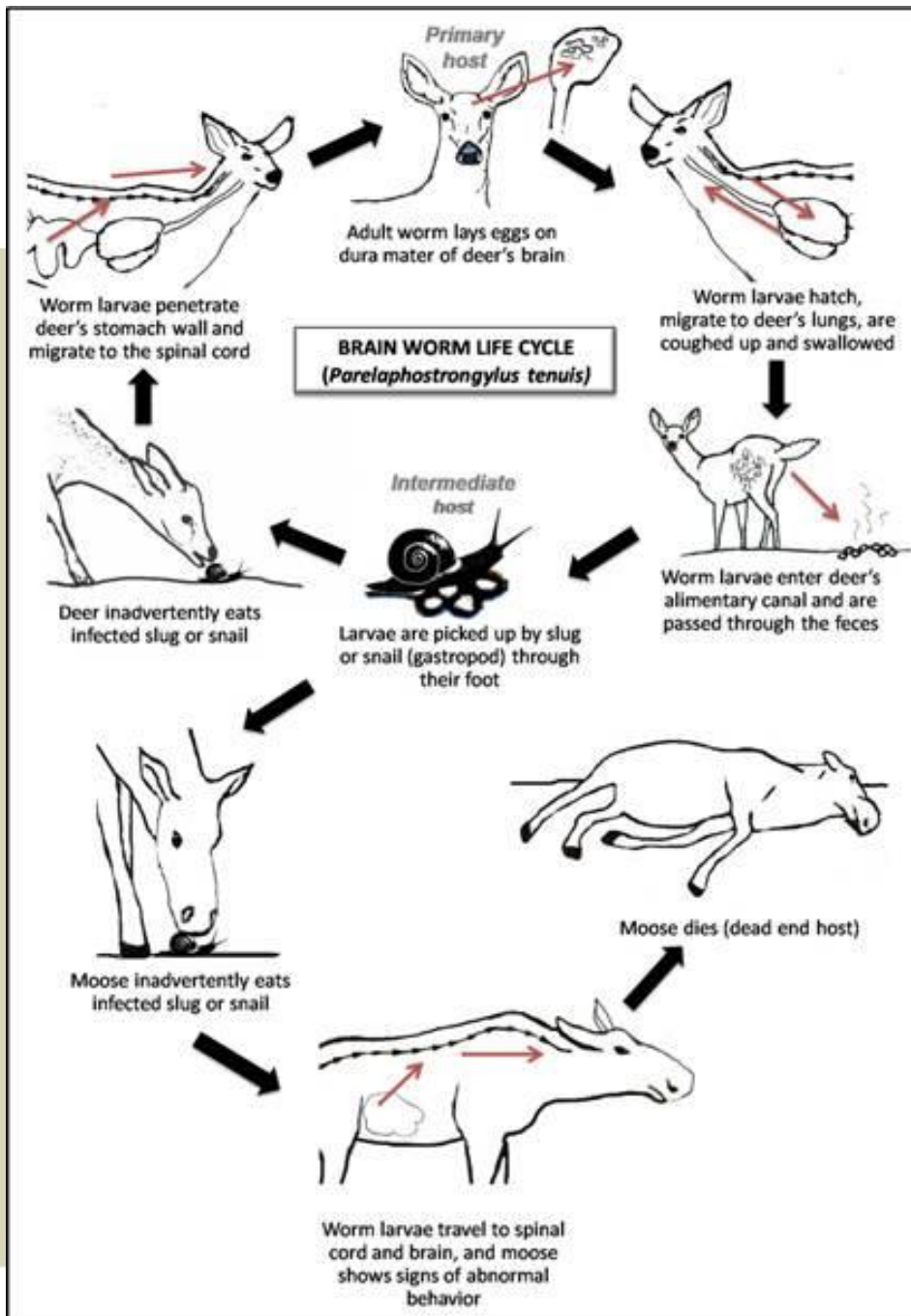


The Maritime population is considered extirpated.

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.





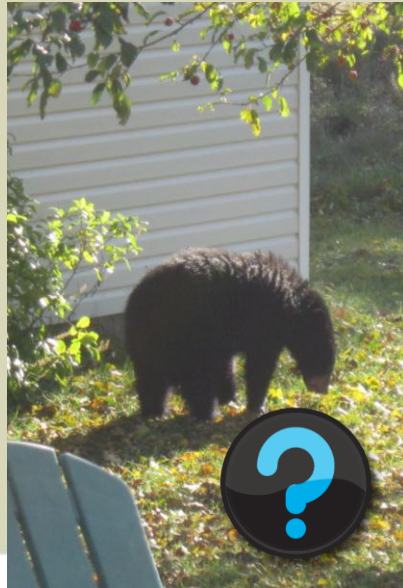
What “stresses” might White Tail Deer place on other wildlife?

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

**66th Annual Report of the Crown Land Department
of the
Province of New Brunswick
For the year ended 31st 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



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, 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)**

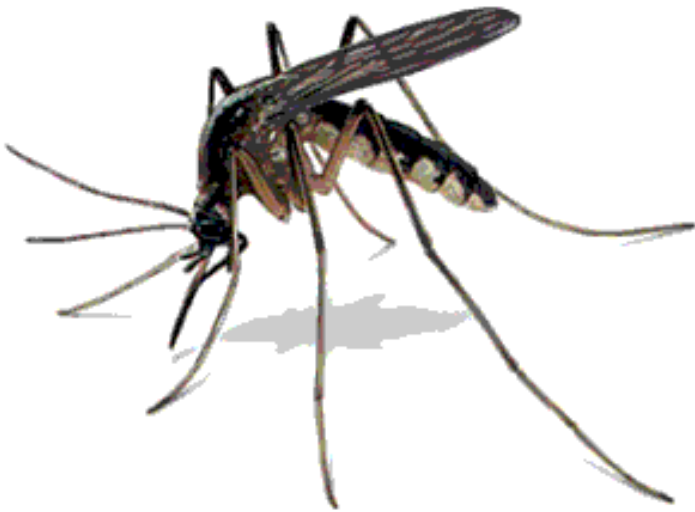
Species at Risk Act – SARA

NB Endangered Species Act

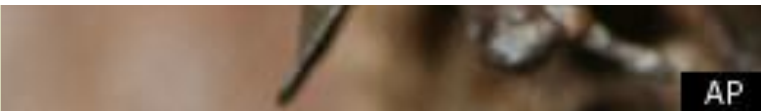
**COSEWIC list depicts which species are at risk (Committee on
the Status of endangered wildlife in Canada)**

Internet, news articles related to wildlife under “stress”

How Do Bats Help People?



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**

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.

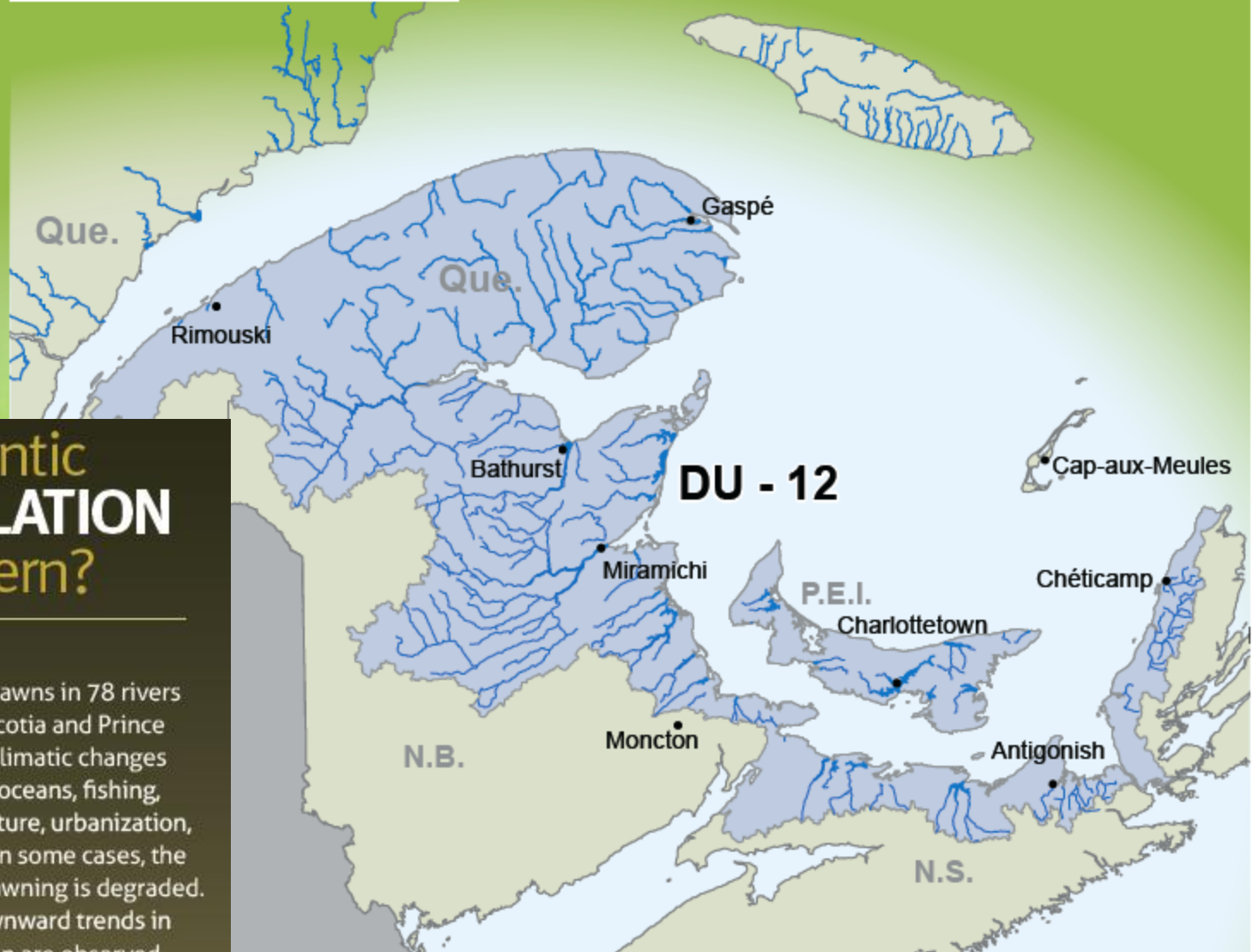
If it is listed as special concern:

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.

- "tagging" a grilse (first season returning salmon)
- must be less than 63 cm in length
 - Each individual with a "salmon" license can keep 8 tagged grilse







Acadian Forest Management Strategy







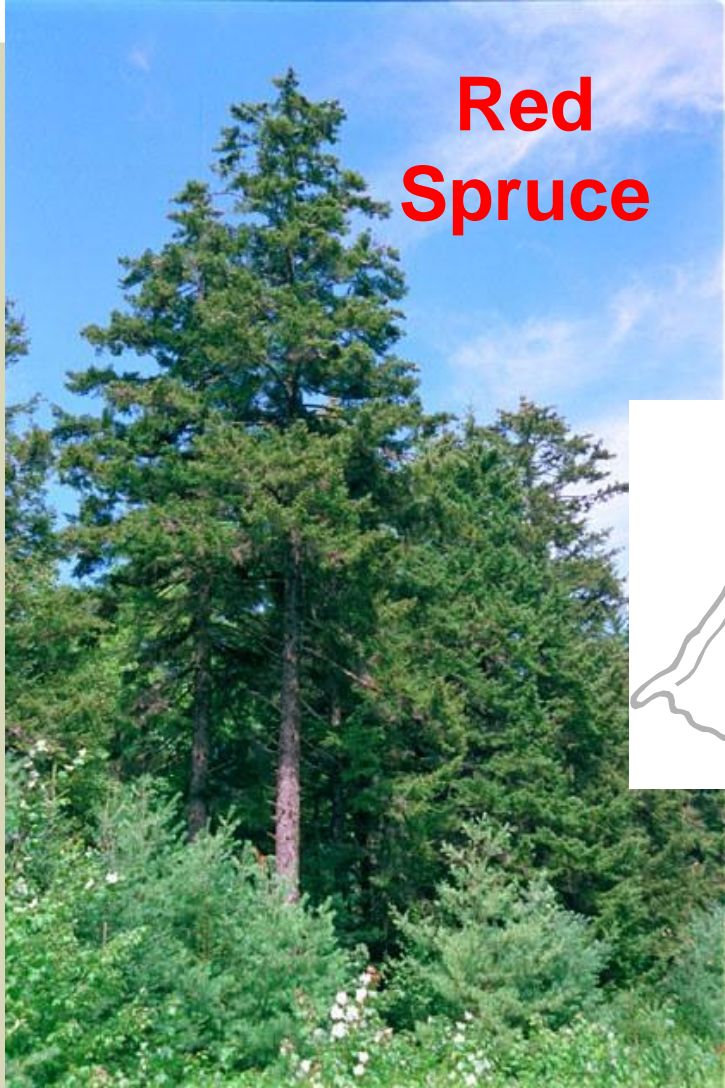
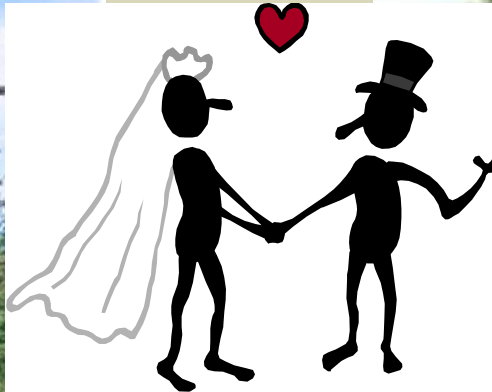


Black/Red Spruce “Hybrid”

Red
Spruce



Black
Spruce



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



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

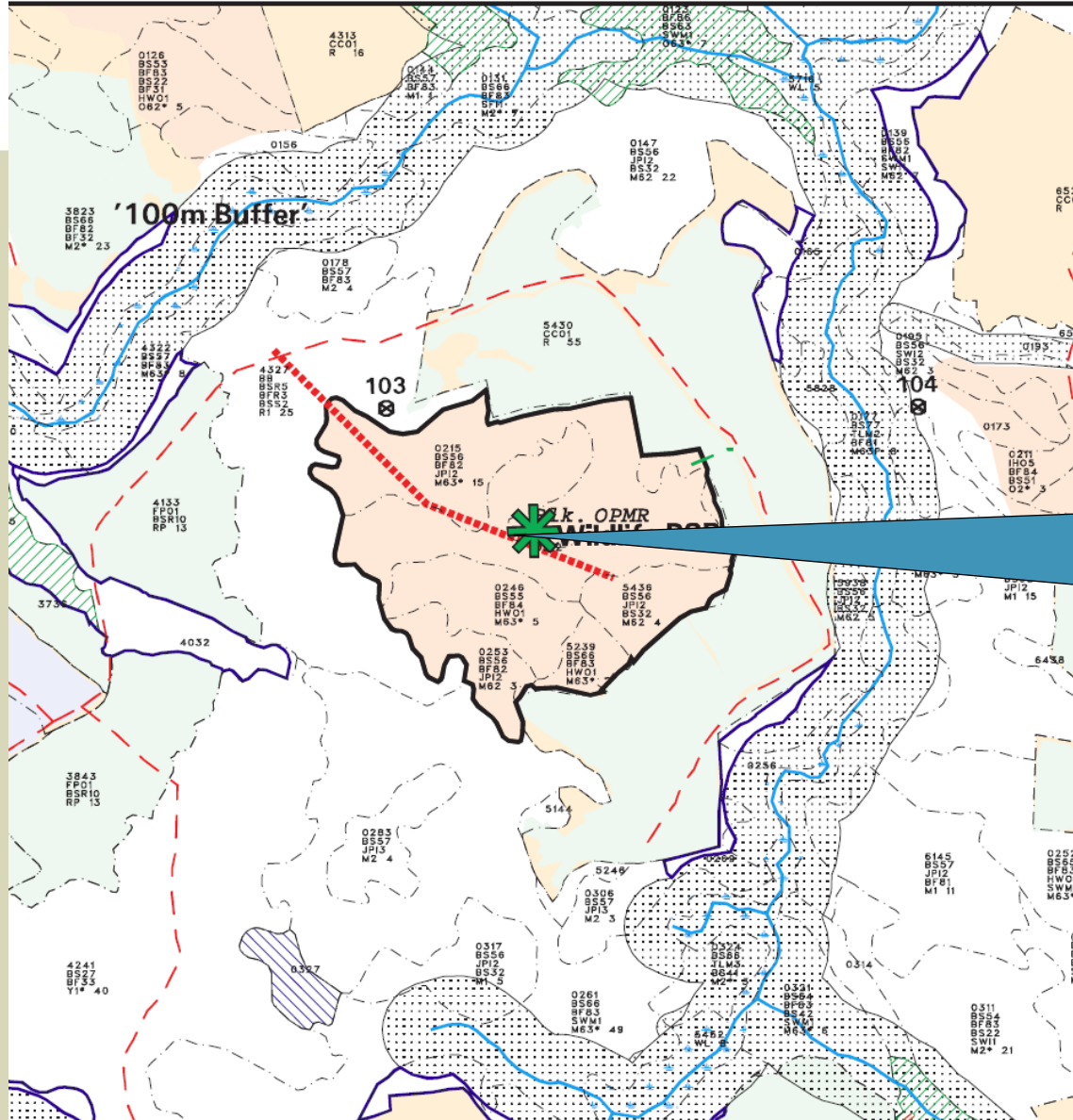
Gross Area: 38.8

Scale: 1:12500

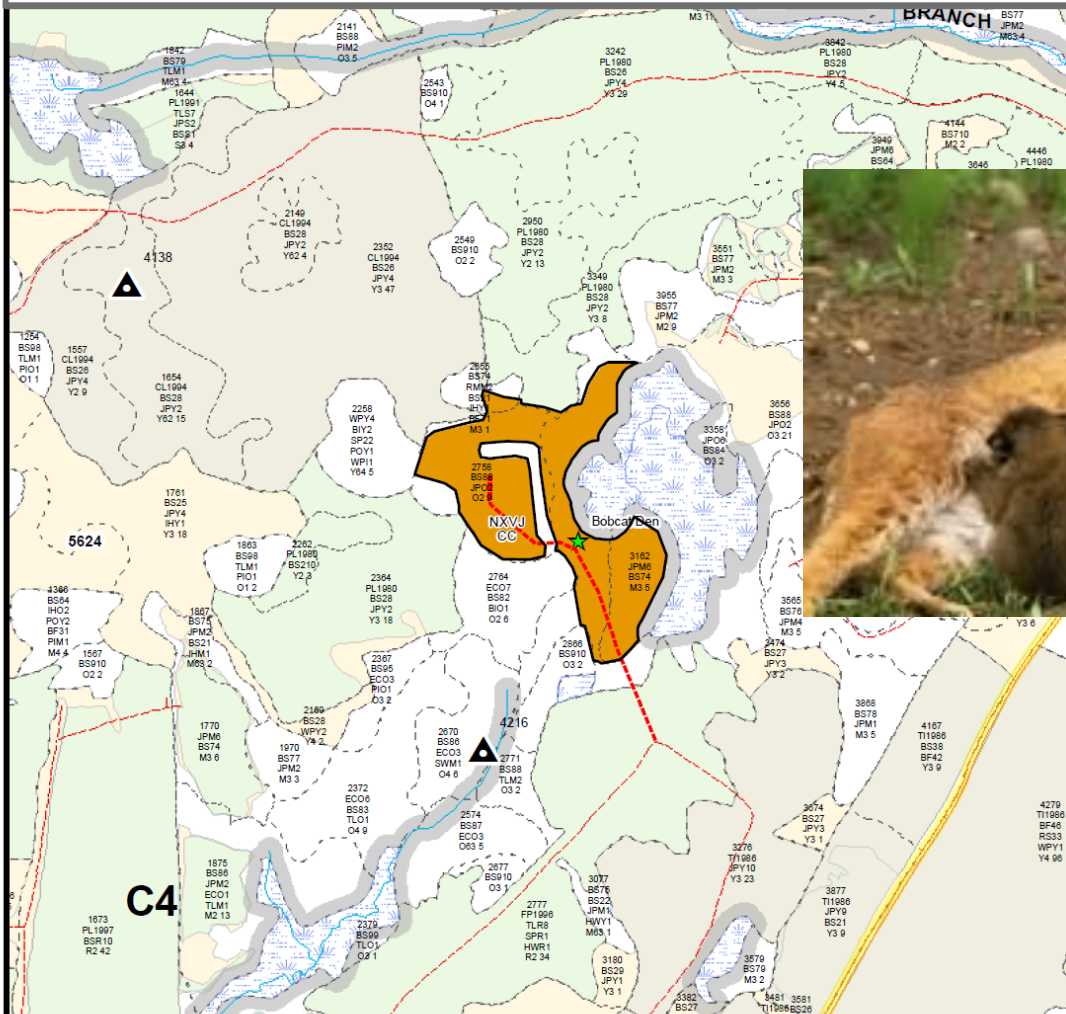
Net Area:

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
Total	1672

- 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**

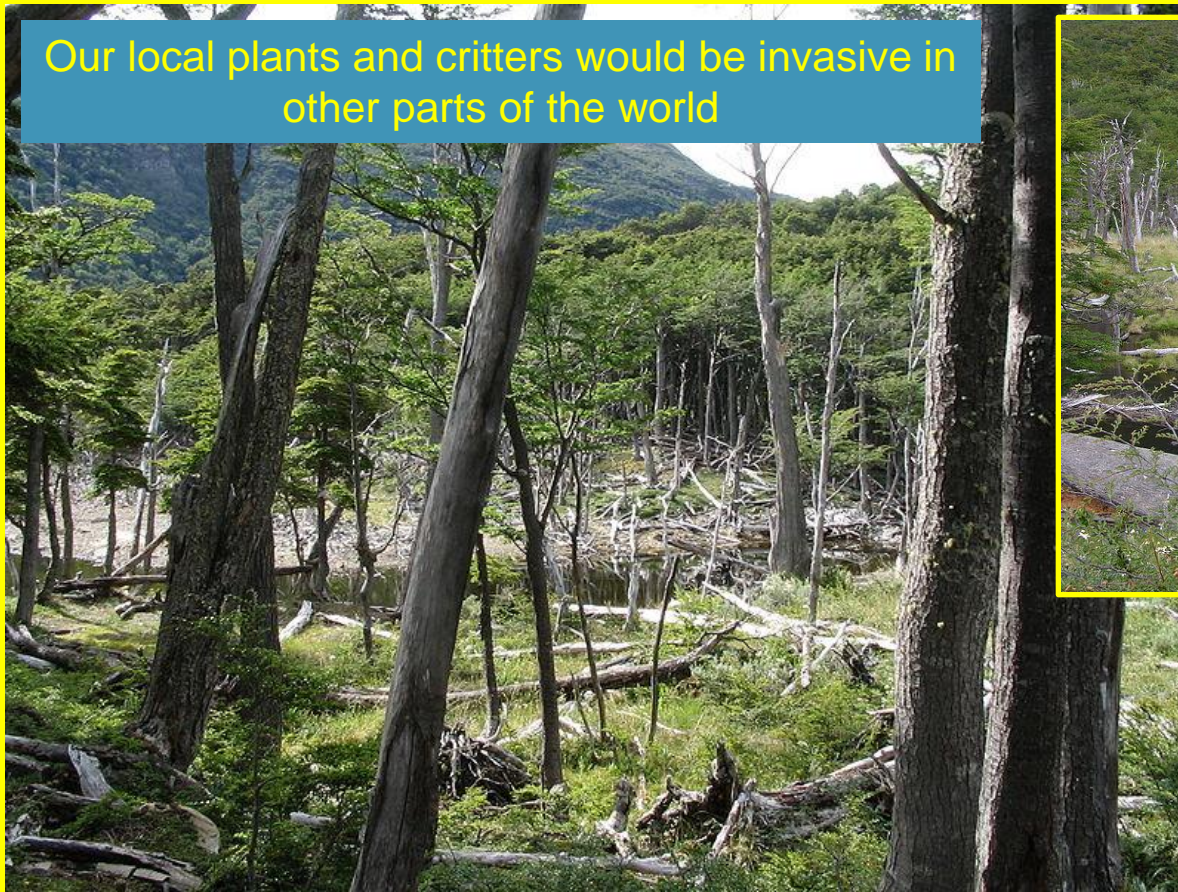


A photograph of a dense forest of beech trees. The trees are tall and slender, with green leaves. The ground is covered with fallen leaves and low-lying vegetation. A blue text box is overlaid in the upper right corner of the image.

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

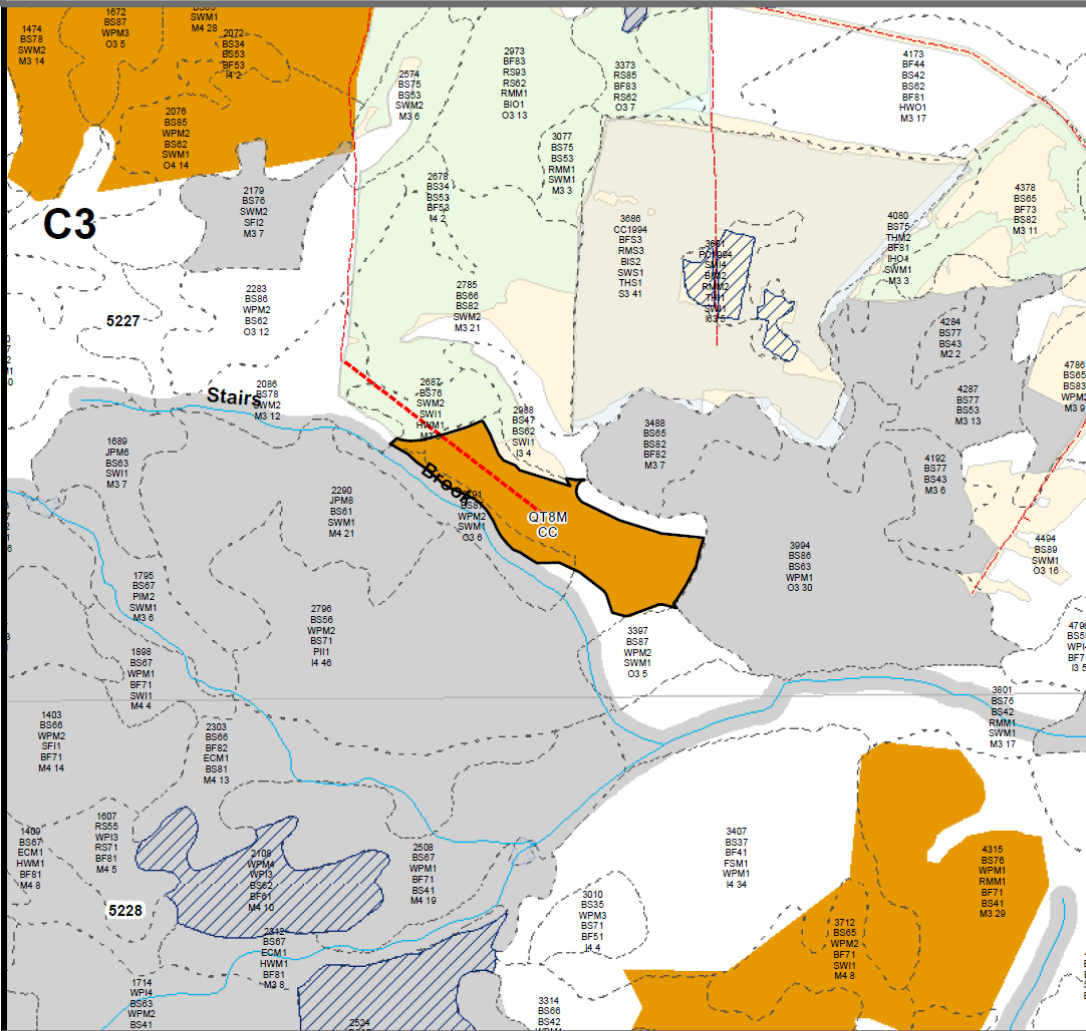


What “stresses” did the beaver bring to this ecosystem versus our ecosystem?

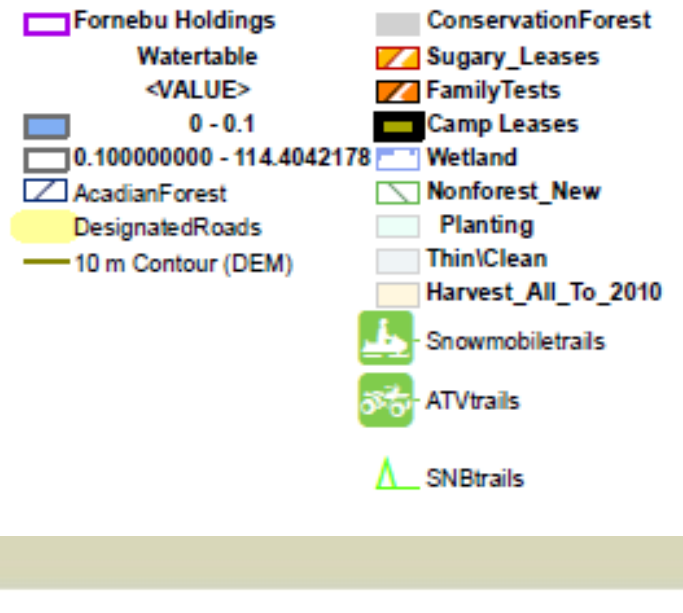
Beavers were introduced to Chile and Argentina in 1946 to develop a commercial fur trade. The project failed and beavers were released into the wild. "The change in the forested portion of this area is the largest landscape-level alteration in the last 10,000 years"

- 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

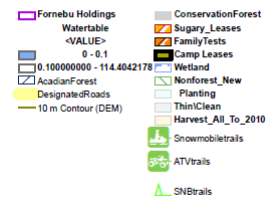


4. respect mapped habitat areas



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

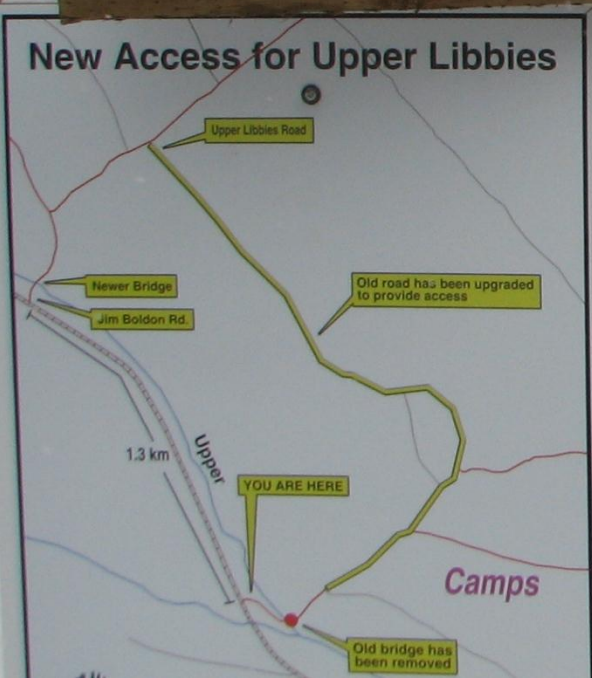
Species	Volume (m3)
Spr.Fir, Jp	1157
Tol. Hwd	37
Int. Hwd	37
Poplar	0
Cedar	0
Pine	257
Hemlock	0
Total	1488



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

**ROAD
CLOSED**

New Access for Upper Libbies



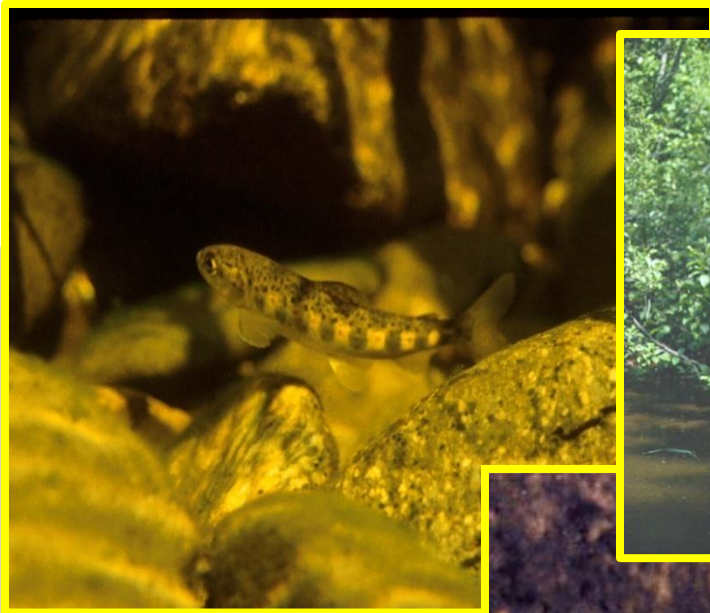
5. Support and assist studies that help us better understand wildlife and ecosystems



Cabela's

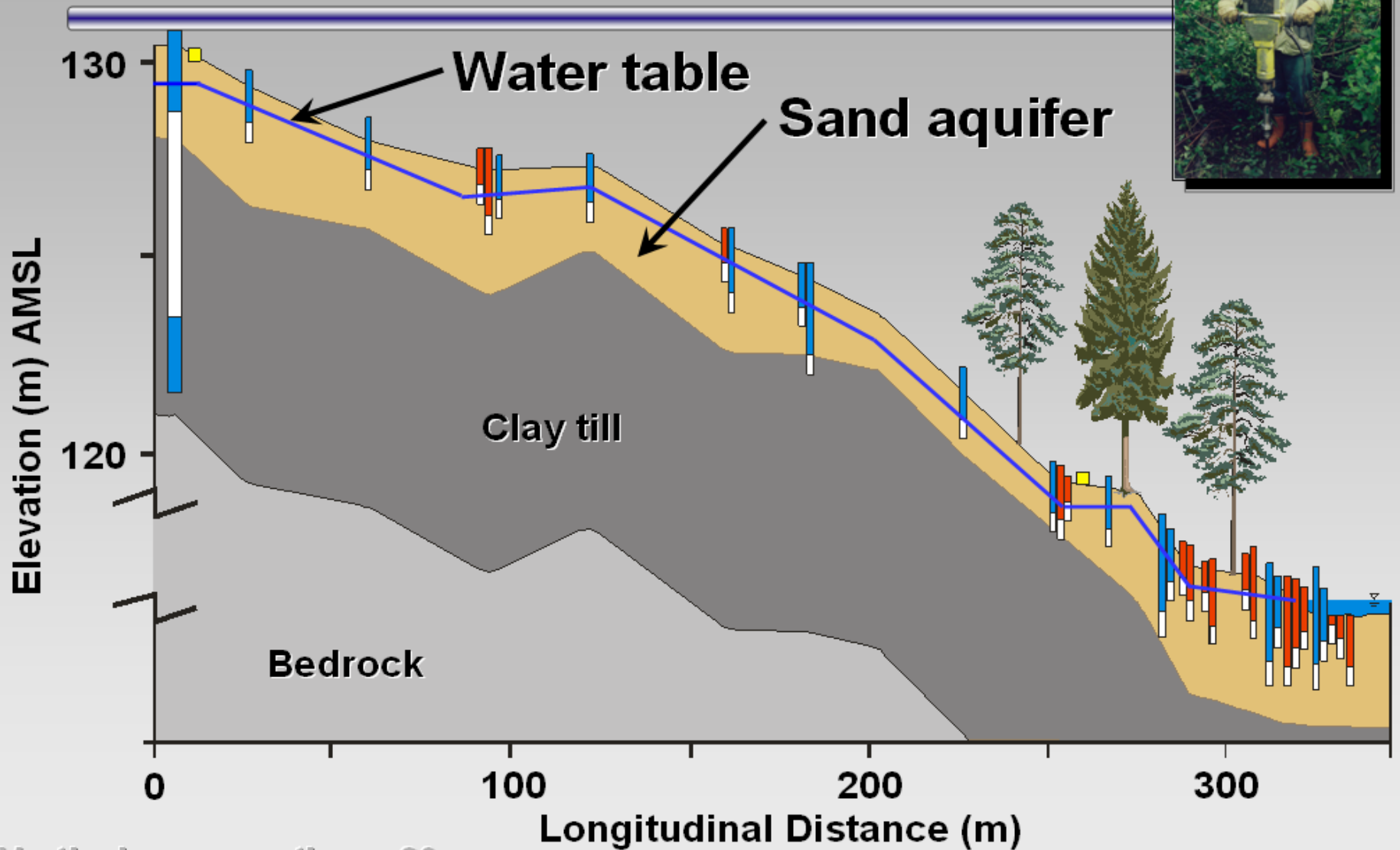
Catamaran Brook Research
Commenced in 1989 – salmon focus & forestry focus





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

- 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 rectangular box is overlaid on the right side of the image, containing the text "Woodpecker Study".

Woodpecker Study



Black-backed
Woodpecker
(*Picoides arcticus*)



American
Three-toed
Woodpecker
(*P. dorsalis*)



Field Results

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



Fieldwork

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



Radio-transmitter attached to tail



BBWO
in mist
nest

Summary

- Standing dead wood in cutblocks is beneficial to woodpeckers
- Important to maintain large patches of mature forest in landscape



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



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

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 in NB

Bonus question:

 Like many birch species, it probably does not like to live in shade

1. Name 2 common “hybrid” species found in New Brunswick forests.
2. Name 2 species (plants or animals) that fungi have infected.
3. What are 3 projects we have been involved in related to wildlife/habitat studies.

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 really 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!

