

# Beavers in New Hampshire

“Ecosystem Engineers”

# Range

- Only representative of family Castoridae in North America.
- *C. canadensis* (North America)
- *C. fiber* (Europe)
  - Separate species
- *Castoroides*
  - Believed to be extinct as of 10,000 years ago
  - Black bear sized beaver



# Description

- A large clumsy humped-backed animal that rarely travels far from water.
- Adapted to exploit aquatic environments
  - Webbed feet
  - Rudder tail
  - Nictitating membrane
    - Translucent eyelid
  - Intranarial epiglottis
    - Blocks airway underwater
  - Highly insulative fur



# Description

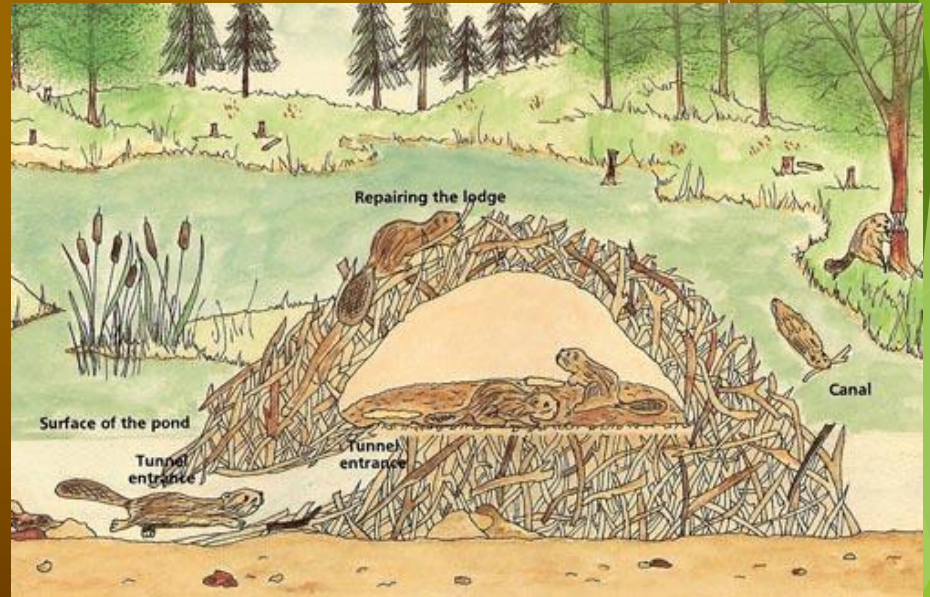
- Large incisor teeth





# Lodge

- Safety and Warmth



# Habitat

- Slow moving streams
- Ponds
- Springs
- They are termed “Ecosystem Engineers” for a reason!



# Life History

## ■ Reproduction

- Age of maturity (breeding) occurs around 21 months
- Breed late October – March in southern climates
- Breed January – March in northern climates





# Mortality

- Prenatal
- Under ice starvation
- Malnutrition
- Water fluctuations (floods)
- Predation (bobcat, coyote, otter, avian)
- Disease (Tularemia – effect liver, lungs and lymph nodes)
- Trapping
- Road crossings



# Population Density and Dynamics

- Highly variable depending on habitat quality
- Group size can vary from 3 – 8 individuals

# Home Ranges

- Average .8 miles of stream length
  - Habitat quality effects home range size



# Food Habits

- Food caches
  - 50-75% unused
- 1 - 2.8 pounds consumed daily
  - Herbaceous material consumed during summer
  - Woody material consumer during winter
  - Bacteria consume the plant material, beavers digest the bacteria.



# Behavior

- Spring/Fall Dispersal
- Territory defense
  - Castor mounds
  - Interactions with non-family
- Tail slapping
  - Warning of threats to family group
- Daily activity
  - Sleep/nap all day
  - Work all night





# North American River Otter (*Lutra canadensis*)

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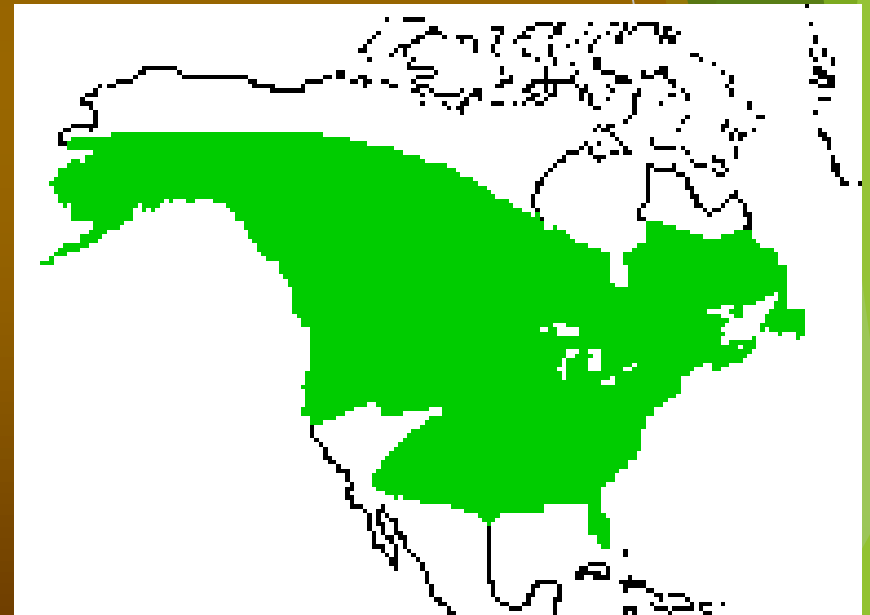
# Otter

- Aquatic carnivore
  - High metabolism
- Large Home Range
- Social with other Otters



# Distribution

- Historical- Throughout North America, excluding Arctic and arid southwest.
- Present- inhabit 45 states and all Canadian provinces.
- Re-introduction efforts have occupied the historical range.



# Description

- Land and water adaptation.
- Short stout legs, non retractile claws, heelpads, interdigital webbing.
- Ear and eye plane allow low swimming profile.





# Description

- Facial vibrissae (whiskers) assist dark water hunting.
- Short dense soft underfur protected by longer, stiff glossy guard hairs.
- 11-33 pounds; males average 17% heavier than females

# Life History

- Sexual maturity - 2 years.
- Breed annually.
- Gestation 290-380 days; Delayed implantation included.
- Actual gestation 60-63 days after implantation.

# Life History

- 2-3 young.
- Born blind and toothless.
- 3 months young weaned & travel from den.
- Remain with female for 7-8 months.



# Life History

- Longevity in wild average 6 years; 10-15 years possible; captivity up to 25 years.
- Beavers create ponds, dens and lodges; used by river otters.





# Ecology

- Adaptive to diverse aquatic habitats.
- Found in marine and freshwater environments.
- Populations do best in lowland marshes interconnected with meandering streams and small lakes.
- Highly disturbed and polluted areas impact otter populations.

# Food Habits

- Primarily fish sized 0.8 - 20 inches.
- Lesser importance are crustaceans, reptiles, birds, insects, and mammals.
- Foraging is done by investigating prey hiding places; direct pursuit and probing muddy weedy substrate.

# Behavior

## ■ Activity Patterns

- Nocturnal or crepuscular.
- Can be diurnal in undisturbed areas.
- Most active during winter months.

# Social Organizations

- Social Organizations
  - Basic group is a female with young.
  - Other otters can be accepted into the group.
  - Otters share home ranges.



# Communication

- Communication
  - Olfactory
    - Scent marking
      - Most important mode of intergroup communication.
  - Auditory
    - Maintain group cohesiveness.
    - Signal alarm or danger.
    - Express fear and anger.

## ■ Tactile senses

- Frequent muzzle touching.
- Mutual grooming.
- Wrestling (often characterized as play).
  - May be a means of assessing relative strength and dominance.

# Questions