

# Moose Research and Monitoring in New York



Jim Stickles | Region 5 Big Game Biologist

## Natural History

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- **Largest member of the deer family**
- **Bulls can weigh up to 1500 lbs. and cows up to 1000 lbs.**
- **Larger subspecies in more northern latitudes**





## Geographic Distribution of Moose

Circumpolar distribution within boreal forests



The Rut (mid-Sept to mid-Oct)



Mostly single calves born in early to mid-May. Neonates can be vulnerable to predators (e.g., black bears).

Twinning rates indicative of high-quality habitat (~30%)

# Moose Diets

Mainly browse – annual growth and buds of trees

- Maple, Birch, Aspen, Mountain Ash, Balsam Fir are preferred species
- Other hardwoods
- 40-60 lbs./moose/day

Aquatic Plants in Summer

- Water Lilies, pondweeds, sedges, horsetail



## Seasonal Habitat Use



Wetlands and riparian areas during the summer for aquatic vegetation, insect relief, and thermoregulation during warm periods.

In winter and spring, moose rely on coniferous habitats for thermoregulation. Moose are well-adapted for cold temperatures, but can overheat during warmer periods.



# History

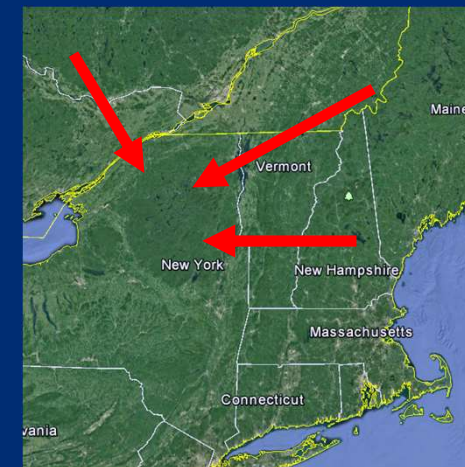
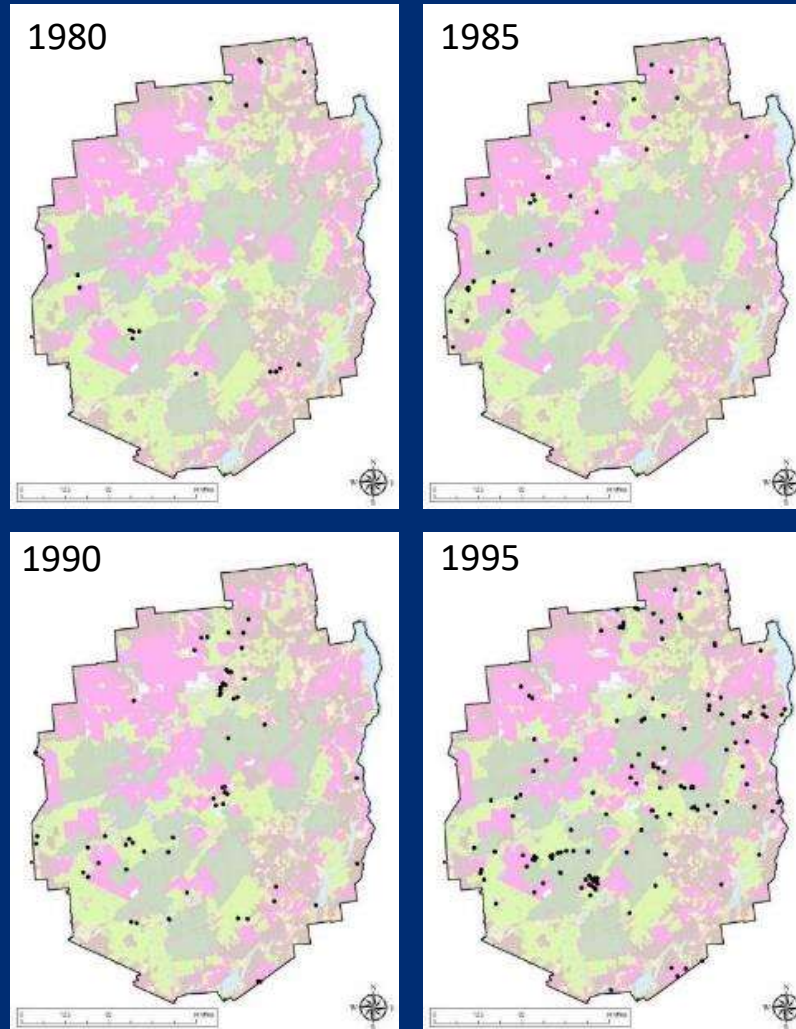
- Moose were extirpated from NY in 1892
- Similar to other species during this time, likely due to a combination of unregulated hunting and large landscape changes that altered the wildlife community





# Moose Recolonization

- Moose begin recolonizing New York in **1980s** from New England and southern Canada
- **1989**: ESF M.S. student Dale Garner completes study on the feasibility of moose translocation to the Adirondacks
- Public rejects DEC proposal in the **1990s** to augment the population and favors natural recolonization and continued population monitoring
- **1990-2014**; opportunistic sightings and collaring (A.Hicks)

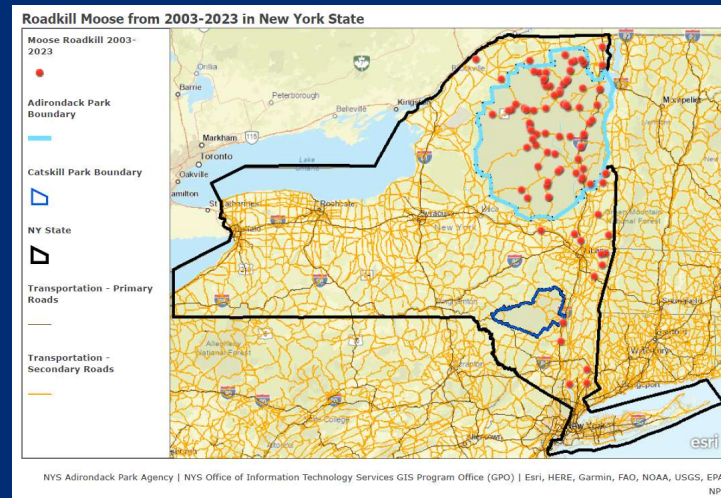
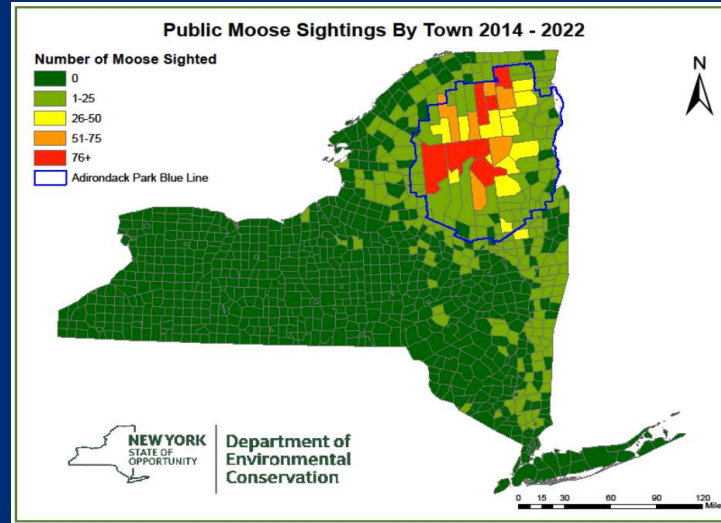
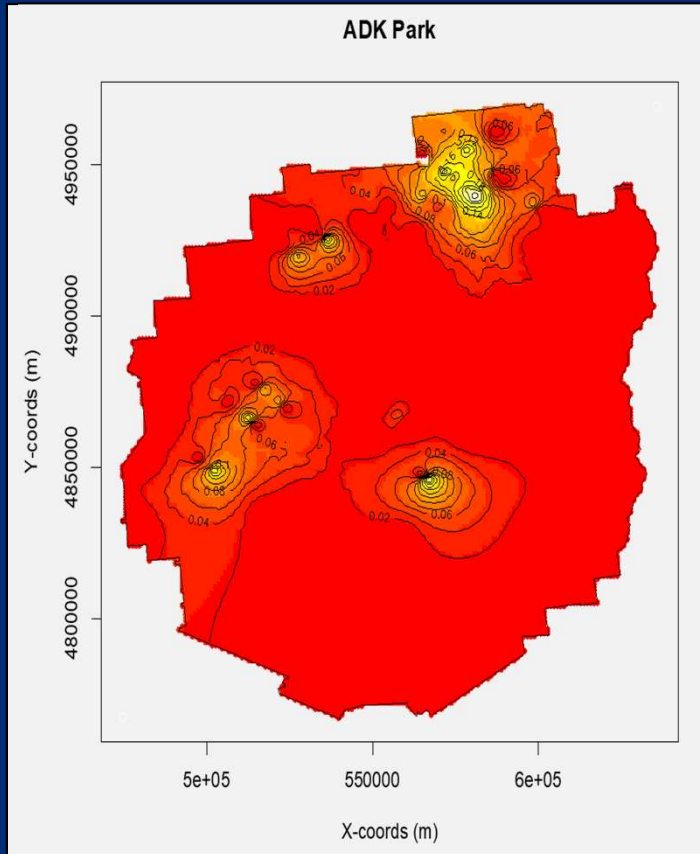




# Moose Research & Surveys



# Where are they?



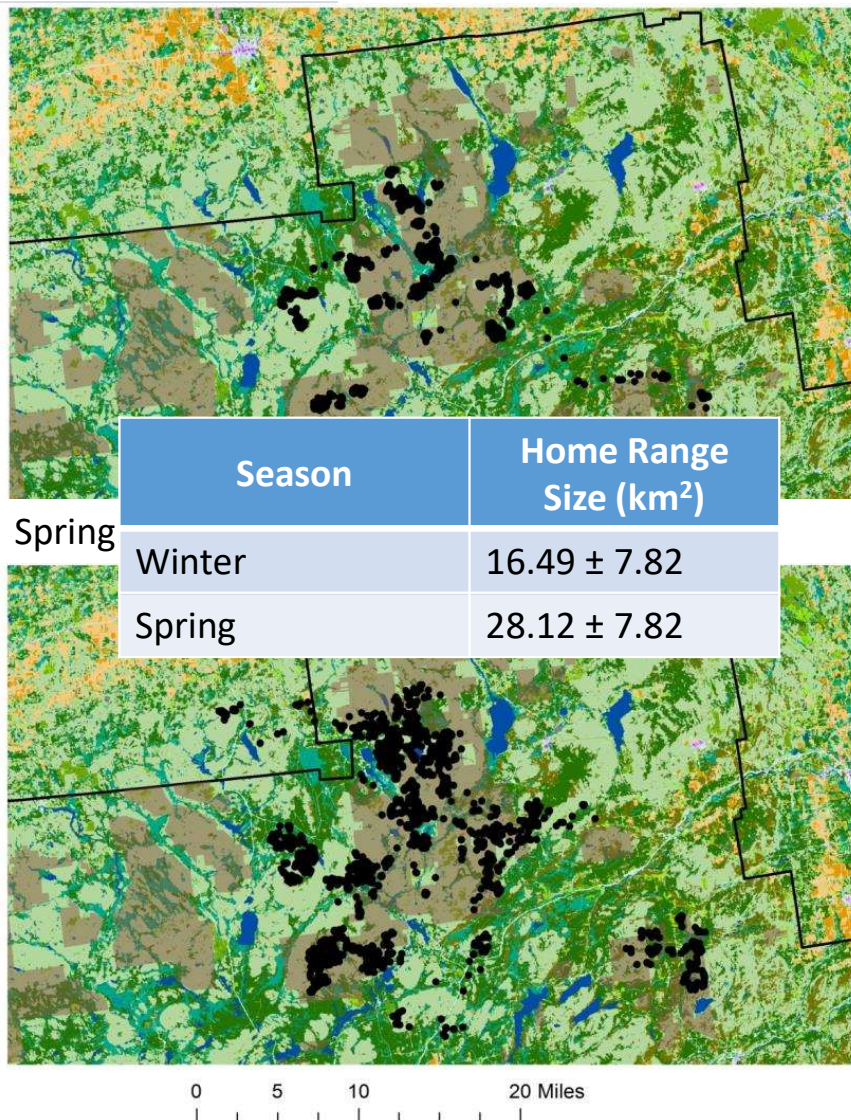
NYS Adirondack Park Agency | NYS Office of Information Technology Services GIS Program Office (GPO) | Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

# Moose Spatial Patterns

Land Use	Winter	Spring
Private	88%	82%
Public	12%	18%
Conservation Easement	76%	64%
Deciduous Forest	77%	65%
Evergreen Forest	12%	20%
GPS fixes	8136	9080

High use of previously cut, regenerating hardwoods on conservation easements

Winter: Jan 24 – Mar 23, 2015

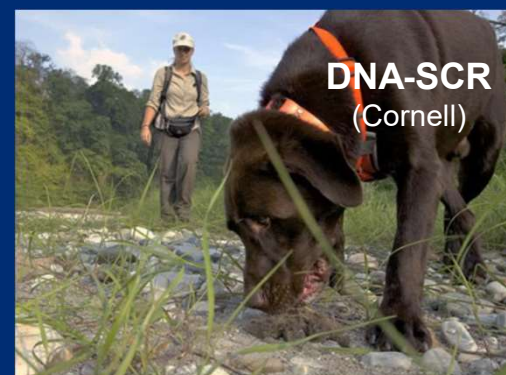


# How many?

## Two survey techniques tested

- Helicopter surveys (efficient protocol developed & adopted)
- Scat detection dogs (found to be inefficient & inconclusive)

~716 Moose (95% 566-906) w/ helicopter survey



# Limiting Factors?

## Habitat



Young forest lacking in a “forever wild” landscape, but not all young forest habitats occupied or occupied to capacity.

## Survival



Adult survival high, but young moose survival unknown.

## Recruitment



Calf:cow ratios sufficient to support growth, but herd growth has been slower than expected.

Are young moose surviving to reproduction age?



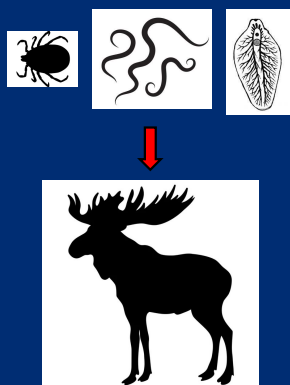
# Current Research

## Parasites:

- Brainworm, liver fluke, and winter ticks

## The role of deer in parasite distribution

## Survival & spatial analysis of young moose



# Acknowledgements

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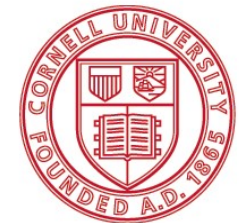




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