
IMPLICATIONS FOR LANDOWNERS: INTEGRATING SCIENCE AND MANAGEMENT FOR FOREST CARNIVORES

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OUTLINE

- **Chapter 1 – What we've learned about forest carnivores in the PNW**
- **Chapter 2 – Relevant learnings from elsewhere**
- **Chapter 3 – What can private forest landowners offer**



1. WHAT WE'VE LEARNED: MARTEN

- **“Our study suggests that martens are more flexible in their habitat use than previously believed, and that relative abundance of prey and understory structure may be more important than forest age.”**
- **Den structures occurred in a variety of ages and distances from edges or roads.**
- **Marten are high energy systems, long distance movements that require abundant/accessible prey, susceptible to mortality from numerous sources.**



1. WHAT WE'VE LEARNED: FISHER

- **Reintroductions of fisher in OR – population not expanding.**
- **Populations showing little response to improvements in forest practices.**
- **But policy makers proactively engaging landowners and land managers for voluntary conservation efforts.**
- **Remaining questions on management options.**



1. WHAT WE'VE LEARNED: SIERRA NEVADA RED FOX

- **Limited status and distribution information in Oregon.**
- **High elevation distribution may limit overlap with private forest landowners.**
- **Life history characteristics and low densities challenge research.**



NEWFOUNDLAND MARTEN: AN ISLAND MAMMAL



NEWFOUNDLAND MARTEN: HABITAT

“The paradigm that mature and overmature coniferous forests are preferred by martens over young regenerating forests was not supported by our results.” Hearn et al. 2010



Photo by Steve Schley/Seven Islands



NEWFOUNDLAND MARTEN: PREY



NEWFOUNDLAND MARTEN: MORTALITY

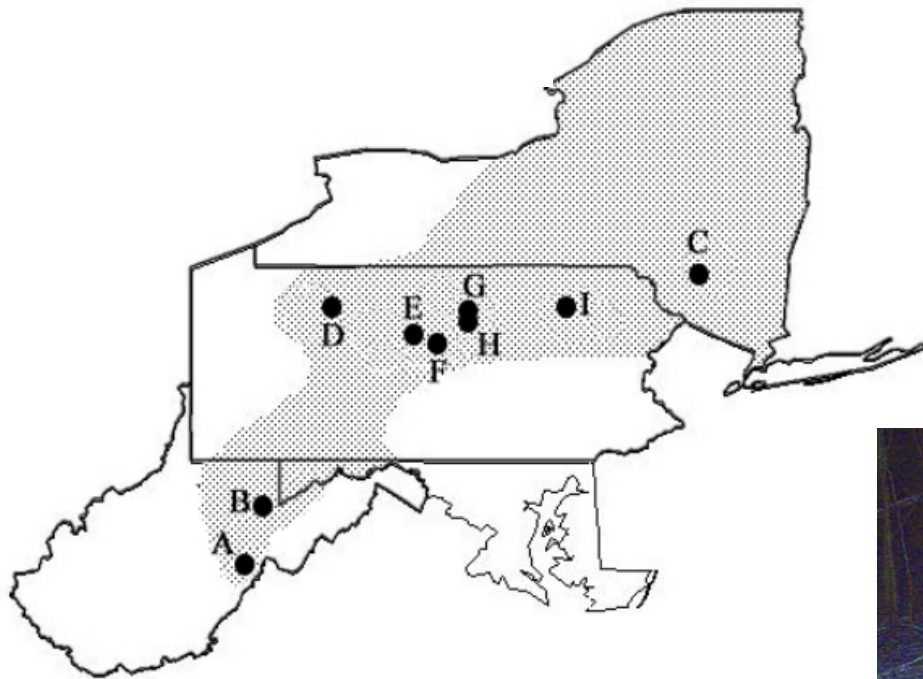
- **Limited potential predators compared to mainland**
- **Bycatch from traditional harvesting of snowshoe hares required new partnerships**



Behavioral Plasticity + Stakeholder Involvement



FISHERS IN EASTERN U.S.



WV: 1969

NY: 1979

PA: 1994-1998

Extirpations in the 1800's

- Habitat conversion – deforestation
- Unregulated harvest
- Predator control programs

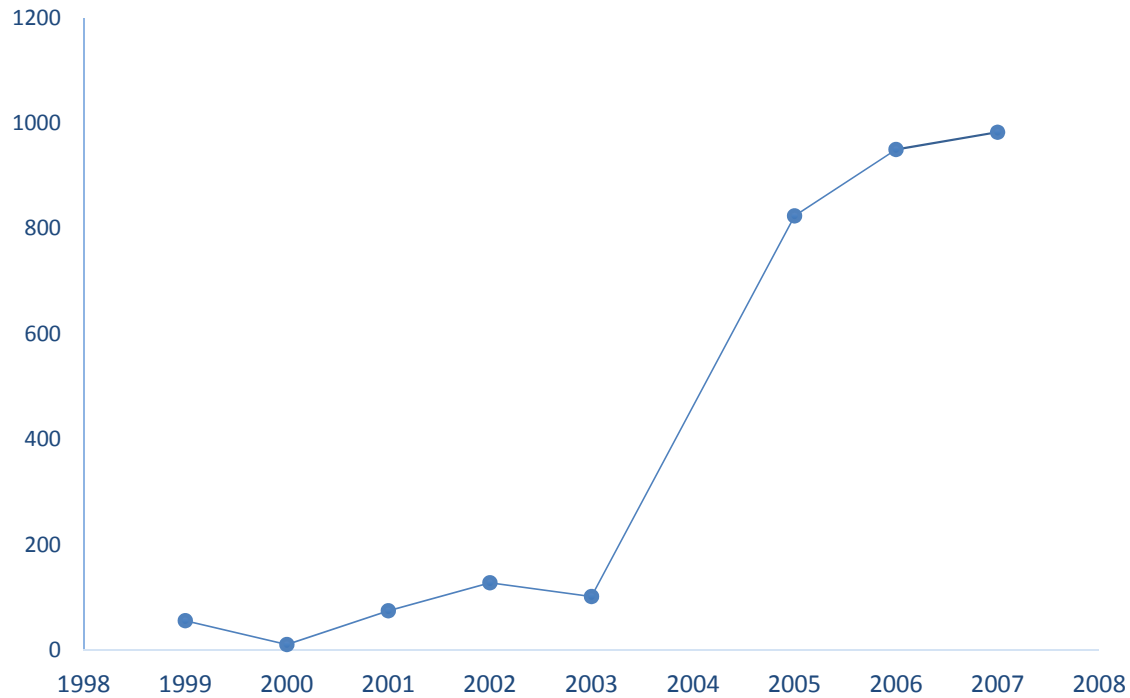


A. Fuller

PENNSYLVANIA

- **Reintroductions and natural expansion from adjacent states**

Estimated Number of Fisher Captures



HUMAN CARRYING CAPACITY



LIVING WITH WILDLIFE FISHERS IN MASSACHUSETTS



The fisher is found throughout Massachusetts, except on Nantucket and Martha's Vineyard. Due to its alert, secretive nature and solitary habits, most people have never seen this interesting predator. It disappeared from the state by the 19th Century due to agricultural land clearing. Fishers have since made an amazing comeback, and now live in populated areas that offer mature forest habitat and the squirrels it preys on.

DESCRIPTION

The fisher is one of the largest members of the Mustelid or weasel family. Fishers exhibit sexual dimorphism, which is physical differences in body size between females and males. Adult males weigh 8 to 16 pounds and measure approximately 3 feet in length. Adult females weigh 4 to 6 pounds and measure approximately 2 feet in length. In both sexes, the tail accounts for approximately one-third of the total body length.

LIFE HISTORY

Fishers breed from February to March and exhibit a reproductive strategy called "delayed implantation." The adult female breeds within days after giving birth, but the fertilized eggs remain dormant in her uterus for the next 10–11 months. The fertilized eggs then implant in the uterine wall and begin normal development. The young are born 1–2 months after implantation. Females produce 1 litter each year consisting of 1–4 kits, with an average litter size of 3.

The young are born helpless, blind, and sparsely furred. Maternal dens, typically located in a cavity high in a large tree, are used for the first 8–10 weeks. Once the kits become mobile, they are moved from the maternal den to one on or below the ground. It is believed that the maternal den protects the helpless young from aggressive male fishers and ground predators. The female nurses the kits until they reach



2. LESSONS FROM ELSEWHERE

So what?

- **Marten and fisher can alter their behaviors in response to changing environmental conditions.**
- **Stakeholder involvement is necessary for success.**



WHAT'S MISSING?

A background image of a blue puzzle with several red pieces missing, arranged in a circular pattern that resembles a globe. The missing pieces are labeled with the following terms: Prey, Energetics, Climate, Landscapes, and Competition.

Prey

Energetics

Climate

Landscapes

Competition

CHALLENGING PARADIGMS

- **Do you see what you see because you saw it? Or because you didn't look elsewhere?**
 - If you only study natural, less disturbed landscapes, that is your inferential scope.
 - We need to think on bigger time scales.
 - Habitat changes
 - Science advances
 - Forest structure not stand age.
 - Plasticity in prey, behaviors.



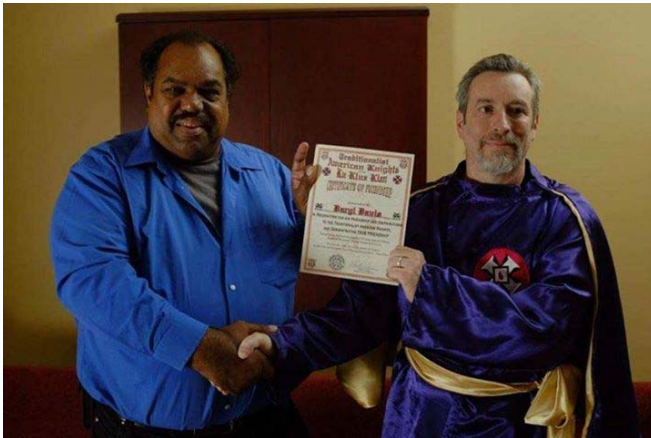
STRONG PARTNERSHIPS

- **Motivations**
 - Policy to provide the carrot, not the stick.
 - Shared commitment to solutions.
- **A foundation of trust lowers barriers to collaboration**
 - Involvement early and often.
 - Broad stakeholder involvement.
- **Use the principles of Team Science for success**
 - Diverse backgrounds.
 - Emotional intelligence.
 - Collaborations can have greater success than individual accomplishments.



PRIVATE LANDOWNERS

- **Conservation is an investment, not a roadblock.**
- **Find the common ground.**
- **Liaise the science with management and policy.**
 - Operational realities
 - Participate in the science
 - Communicate the results



SUMMARY

- 1. Baseline science of forest carnivores has grown substantially to include fine-scale habitat selection, movements, prey.**
- 2. Marten and fisher can adapt to changes in prey and habitat, but under what conditions?**
- 3. High-performing, diverse teams lead to the best outcomes.**



COLLABORATION NOT CONFLICT

