

## Dynamics of Fisher (*Pekania pennanti*) Populations in Albany, NY and the Pacific Northwest

The fisher, *Pekania pennanti*, is a mesocarnivore that is found in forests with dense canopy cover and substantial amounts of trees with holes for denning (U.S. Fish & Wildlife Service n.d.). Being a part of the Mustelidae family includes close relations to martens and weasels and the fishers eventually became genetically distinct and were reclassified into their own monospecific genus with three subspecies (Hapemen et al. 2017). They are old-growth obligates that were historically found in the Pacific northwest but were eventually extirpated, due to the value of their fur (Merrill 2022). The western populations also decreased due to habitat destruction for timber harvesting and wildfires (Aubry and Lewis 2013, Jeffery 2022). However, the population in Albany, NY has been doing increasingly well. This is interesting and calls for investigation because fishers historically do not do well in urban areas near humans (LaPoint 2013). Another possible reason fisher populations are not thriving in the northwest is because of niche compression due to the similar ecology of the marten, *Martes americana* (Kautz et al. 2021). However, fisher populations have been in the process of rehabilitation and under better management. Investigated in this paper are three topics concerning the populations of fishers: why they are failing in the Pacific northwest, reintroduction efforts and further management action, and the possible reasons for success in the Albany population.

The populations in the Pacific northwest were historically prominent, but fell due to a variety of reasons. The main reason for their endangerment was over-trapping and habitat destruction; the range decreases lead to isolated populations, furthering their classification as an endangered species (Fogarty et al. 2022). Luckily, since 2015, their status has been restored to least concern, but some populations in the west still struggle (IUCN 2015). Niche compression is another viable reason for their decline. American martens have a very similar ecology to fishers, shown in an overlap in habitat, distribution, and niche. It is possible that even though martens are often outcompeted by fishers, the destruction of the fisher population might have opened some space for the martens (Manlick et al. 2017). Habitat destruction due to logging and wildfires has

put fisher populations at great risk. These animals are old-growth obligates, so their habitat is already hard to come by and is being further destroyed by humans (Aubry et al. 2003).

Reintroductions in the Pacific Northwest have been valiant, but often unsuccessful. In Washington state, the Department of Fish and Wildlife set out to reintroduce 90 fishers to the Pacific Northwest in the course of three years. This Olympic Fisher Reintroduction Project ended with most of the fishers dead or with unknown status. It is also known that projects since 2014 have had success in re-establishing breeding populations, but they just are not at the magnitude of their previous populations (Lewis et al. 2012). In the Great Lakes region, there were efforts to relocate individuals from stable populations in the northeast like those in the Adirondack Park in New York State. When reintroduced, the populations gained sound genetic structure, which aided in the establishment of the new population (Hapeman et al. 2017). Another reason fisher populations are being able to compose themselves again is an increase in focus of fur harvests and managing the ways and numbers of animals allowed to be taken. Aspects like harvest limit, season length, and number of trappers are all important when considering the recovering fisher populations and how they can be protected (Hiller et al. 2011). Further, data from trapping of fur-bearing forest carnivores can be used to improve management of these animals, which can be used as a turn around for the destruction the fur trade had previously brought these populations (Suffice et al. 2020).

Urban populations of fishers are quite rare, but the one in Albany, NY has found itself to be quite successful. Behaviorally, fishers have changed their patterns by changing their active hours to avoid humans. Also, they utilize the city during the times when the streets are empty to travel over large areas since the roadways make it less energy intensive (LaPoint 2013). While urban areas are often seen as a negative effect to wild animal populations, they are sometimes able to help them; for example, learning how to use urban corridors can help species' adapt through climate change in order to survive better (Olson et al. 2014). Another facet to urban populations is the ecological naivety of their prey; the inability of the prey to recognize a new predator is detrimental to the prey, but can be incredibly beneficial to the predator (Jolly et al. 2021). Because fishers are not often found in areas where there are humans, any species that is used to a human presence will not be used to the new predator; this means urban animals like squirrels will be easy for fishers to catch since they are not expecting to be attacked. The

conditions of naive prey and human-made corridors have the potential to be advantageous for animals like fishers, which can be an unforeseen positive to the detriment humans have caused.

To examine the differences between fisher populations in the Pacific northwest and Albany, NY, this study looked at the reasons why fisher populations are not doing well and have historically failed, how reintroduction efforts have been either successful or unsuccessful, and what makes urban areas possible places for fishers to live. The history of fishers are similar to that of many fur-bearing mammals, and the matter of their populations is variable, with large sections of populations doing quite well and others doing comparatively poor (Lewis 2022). The main factor to their conservation, regardless of their classification, is likely the maintenance of their optimal habitat since it is so hard to come by. The ecology of the fisher is well known, and so is the nature of their reintroductions, since their populations took such a heavy hit from human impacts (Hapeman et al. 2017). To provide for these mammals in the future, it is important to look at what had happened to them in the past to learn from the ways of previous humans. These meso-carnivores are special to the habitats they occupy and they should be respected as much.

## Sources

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