

American Marten Winter Monitoring Surveys in Northern Wisconsin

2020-21

by Jim Woodford

Summary. The annual track surveys for American martens (*Martes americana*) were completed from December 2020 through February 2021. This marked the 40th consecutive year that this winter survey targeting this state-endangered mammal was completed. Methods followed those originally described by Kohn and Eckstein (1987) with additional refinements based on findings from McCann et al. (2017). Snow tracking conditions were average during the season and we were able to complete all routes in the Chequamegon and most routes (Figure 1) in the Nicolet, which comprise much of marten range in northern Wisconsin.

This winter marked the 3rd year of trail camera monitoring for the Nicolet marten population area. Marten occupancy of camera sites was down slightly for both martens and fishers during this past winter.

Track Surveys. DNR Biologists observed 9 marten, 13 fisher (*Pekania pennanti*), and 7 bobcat (*Lynx rufus*) tracks along 90.4 miles of interior forest roads surveyed in the Chequamegon survey area. Observers recorded 14 marten, 24 fisher, and 6 bobcat tracks along 91 miles of interior forest roads surveyed in the Nicolet survey area. Marten track rates decreased 24% in the Nicolet but increased 15% in the Chequamegon area when compared to the previous year's results. Fisher track rates increased 83% in the Nicolet and increased 19% in the Chequamegon area when compared to track rates from the previous year. The ratio of fisher tracks to marten tracks decreased slightly in the Chequamegon and increased by a much greater amount in the Nicolet when compared to last year's results. Snow conditions were reported as average for track identification during the season but snow events were less numerous than in the past two years. The 3-year moving averages for marten track rates continued to increase in the Nicolet but remained in decline in the Chequamegon survey area (Figure 2).

Tracking summaries for:

Chequamegon Area

- 9 martens (10.0 detections/100 miles)
- 13 fishers (14.4 detections/100 miles)
- 1:0.7 (fisher:marten ratio)

Nicolet Area

- 14 martens (15.4 detections/100 miles)
- 24 fishers (26.4 detections/100 miles)
- 1:0.6 (fisher:marten ratio)

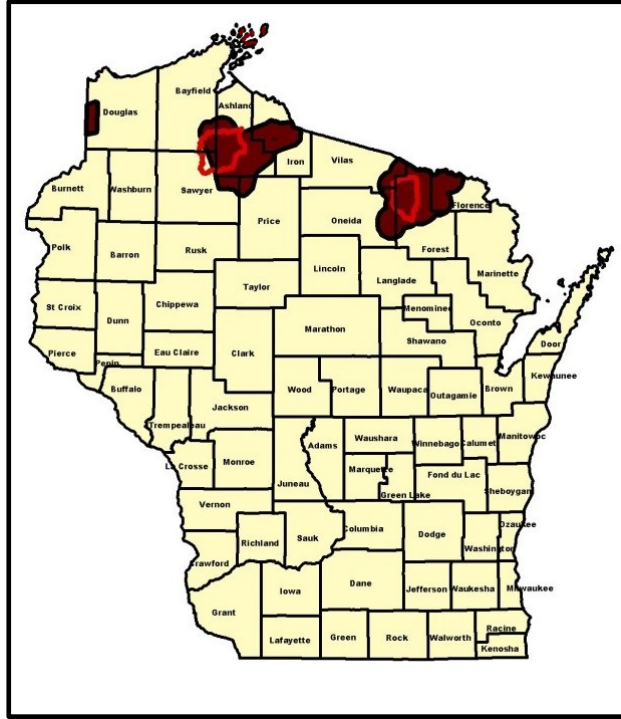


Figure 1. American marten range (dark brown) and Marten Protection Areas (MPAs; red outline) in Wisconsin, 2020-21.

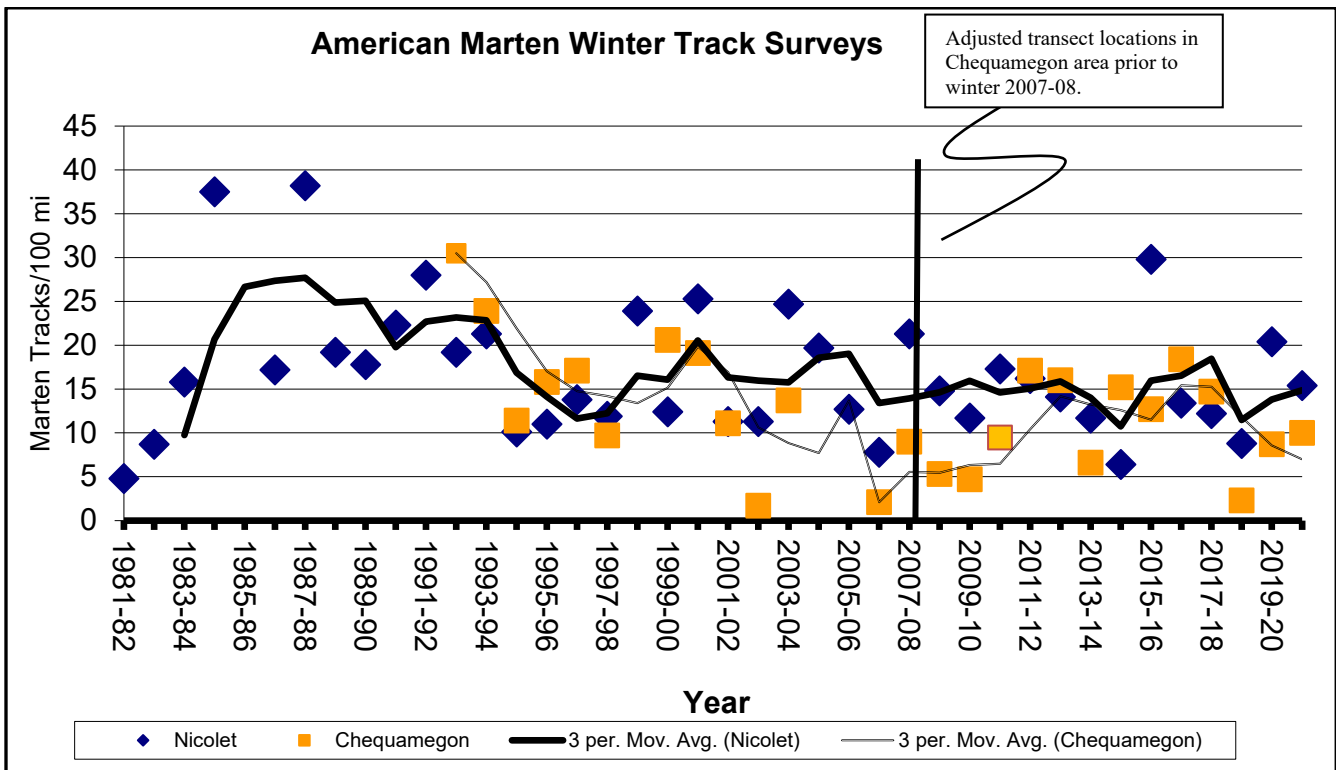


Figure 2. Marten track counts from 1981-2021 within and adjacent to the Nicolet and Chequamegon MPAs in northern Wisconsin.

Research Projects. Results published from recent marten and fisher research within Wisconsin have allowed us to refine and determine the relative accuracy of our marten track identification skills (McCann et al. 2017). Based on their findings, we have confirmed that our approach of 1) determining the track gait, 2) collecting track straddle widths to the nearest millimeter, and 3) following tracks into the forest to interpret an animal’s behavior (e.g., path sinuosity, subnivean and cavity explorations), is able to accurately identify tracks of American martens $\geq 95\%$ of the time.

Inferences that can be drawn from carnivore snow track counts are highly variable and somewhat limited due to animal densities, behaviors, and snow tracking conditions. In addition, American marten populations can fluctuate greatly from year to year due to prey abundance or other environmental conditions (Flynn and Schumacher 2009). Researchers from Wisconsin DNR and UW-Madison have continued to investigate ways to improve our ability to make inferences from winter track counts using newer methodologies like occupancy modeling (Manlick et al., 2017).

Marten Trail Camera Project (Nicolet population area). Wisconsin DNR and the Chequamegon-Nicolet National Forest partnered to complete a third winter of field work for this trail camera project. We documented martens at 22 out of 120 (18%) camera stations, fishers at 22 out of 120 (18%) camera stations, and both species were observed at 9 of the 120 (8%) stations. These results were similar to those documented in the previous two winters (Table 1).

Table 1. Occupancy of 120 Camera Monitoring Sites in the Nicolet National Forest in northeast Wisconsin, 2018-21.

Winter Field Season (yr)	Camera Sites [#, (P)] with Martens Observed	Minimum Individuals (#)	Camera Sites [#, (P)] with Fishers Observed	Minimum Individuals (#)	Sites (#) Occupied by Both Species
2018-19	29 (24)	35	24 (20)	24	8
2019-20	25 (21)	28	26 (22)	26	7
2020-21	22 (18)	25	22 (18)	25	9

P = proportion of camera sites in study area with martens or fishers present.

Acknowledgements. Track and trail camera surveys were completed with the assistance of the following WDNR staff: Laura Jaskiewicz, Carly Lapin and Ryan Magana. Scott Anderson and Jeremy Hubbard assisted with the trail camera field work. Support for this work was provided by the WDNR’s Bureau of Natural Heritage Conservation, a Federal Wildlife Restoration Grant (W-160-P37), and through the Good Neighbor Authority cooperative agreement.

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