

Marten rediscover the western Kenai Lowlands

by *Andy Baltensperger*

The American marten, once a rarity on the Kenai National Wildlife Refuge, appears to have expanded its distribution across the western Kenai Peninsula over the past 20 years. An aerial survey of winter tracks using videography in March 2006 detected 32 sets of marten tracks widely distributed across the Refuge from as far south as the Caribou Hills, as far north as Point Possession and the Chickaloon Flats, westward to the Swanson River drainage and eastward to the Mystery Hills.

Furthermore, 19 marten have been trapped or captured in the northwestern Peninsula since 2006, and a collection of incidental reports of marten sign have revealed another 9 locations on the Refuge during the same period. Together these detections indicate that at a minimum, marten are now dispersed widely across the western Kenai Peninsula, though population densities in most locations are still quite small.

Although historic lowland populations may have never approached the high densities commonly found in the Kenai Mountains, at least 11 marten were trapped on the western peninsula around the turn of the 20th century. However, between 1910 and 1960, just three marten were recorded on the entire Refuge, and these were just west of the mountains in 1940. This conspicuous gap in observations could represent a historic decline in marten densities, or it may simply reflect a reduction in trapping and sampling effort during that time period. However, tracks near Botenintin Lake in 1955 were considered by Refuge biologists at that time to be the first record of marten west of the mountains in the previous 30 years.

Between 1970 and 2004, reports of marten on the Refuge increased. Six marten were trapped and 12 sets of tracks were recorded during this period. Although they occurred widely across the western Peninsula, many of these observations were not well documented. Until 2006, marten were still considered effectively absent from Refuge lands, outside of the mountains.

It looks like 2002 may have been a pivotal year. In that year, a juvenile marten was accidentally captured by Refuge staff in the Swanson River oilfield, and some local trappers reported new observations in

the western Lowlands around this same time, stirring the notion of an expanding marten population. The aerial videography survey in 2006 was the first systematic marten survey conducted on the Refuge and has now confirmed the wider presence of marten across the western Kenai.

The reasons for any decline in marten densities on the Refuge over the past century are likely to remain speculative at best, but the recent expansion may have some plausible explanations. Until recently, marten were presumably not commonly found on the Refuge because habitat, snow conditions and prey abundance were unsuitable to sustain a breeding population. The recent widespread sightings, however, indicate that these factors may be changing in ways that are more favorable for marten.

Marten tend to prefer mature, closed-canopied forests containing large amounts of course-woody debris (downed trees, logs, stumps, etc). The smaller diameter black spruce-dominated Lowlands and shallow snow cover seemed to provide the most plausible explanation for the absence of marten. Indeed, black spruce forests alone do not provide marten with the level of canopy closure and course-woody debris that they prefer for protection and resting sites, although they may offer decent foraging opportunities. In contrast, upland white spruce/birch forests that are common in the Lowlands do provide ample forest structure and canopy closure conducive to the survival of marten. The patchwork of mature white spruce/birch and black spruce forest across the Lowlands appears to provide marten with suitable habitat in many areas.

The large fires in 1947 and 1969 likely played an important part in determining the amount of habitat available for marten on the Refuge during the past half century. Marten generally do not respond well to forest fires, as they dramatically reduce overhead cover and debris, and can limit prey numbers. The 1947 and 1969 fires collectively burned 390,000 acres and created early successional forests that, while great for moose, were poor for marten.

It has been 60 years since the 1947 burn, and its white spruce forest has matured to the point where marten are utilizing the area again. Small mammal

densities may have also rebounded as the forest matured, providing marten with more prey as well as better cover. The aerial video survey detected three times as many tracks proportionally within the 1947 burn as within the 1969 burn, suggesting that the 1969 burn forest is still not mature enough to support a significant marten population.

Ample snow cover was also hypothesized to be a limiting factor for marten, because marten must have rest sites capable of insulating them from cold temperatures. Snow depths greater than six inches are capable of providing this insulating layer. In the eastern Kenai Mountains where marten populations are well-established, maintaining this minimum layer of snow is not normally an issue throughout the winter. However, on the western peninsula, where freeze/thaw cycles are more common, relying on snow to insulate resting marten becomes more of a problem.

Average snow depths on the western peninsula vary wildly from year to year and do not appear to demonstrate any significant trends over the past 40 years. Nevertheless, marten have managed to persist and indeed expand across the Kenai Lowlands during this period despite unreliable snowpacks and cold tem-

peratures. This suggests that marten are in fact highly adaptable and may be relying on alternate forms of insulation (resting in squirrel middens, for example) in order to mitigate thermodynamic stress during years of shallow snowpack.

As with so many landscape-level phenomena, the explanations behind the recent marten expansion are complicated and will require further investigation. While marten appear to have expanded their range across the Peninsula, I nevertheless urge an awareness of conservation. Marten are easily over-trapped and excessive harvesting pressure could be devastating to these newly emerging populations. Marten population numbers are, at this time, still small and will undoubtedly continue to be dynamic both in size and range in the future, especially as Kenai's climate and habitats change.

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