



ADF&G wildlife biologist Gail Blundell observes a caged marten during Chichagof Island study.

Diane Wirth

Tracking the Martens of Chichagof Island

by Rod Flynn

As we approached the northeastern lobe of Chichagof Island from Juneau that March day, waves were gently breaking along the rocky coastline and low clouds hung in some of the larger valleys. Rugged mountains, some over 3,000 feet above sea level, extended through the mist and above the conifer-dominated temperate rain forest. The Super Cub banked south at Hoonah and followed the familiar east shore of Port Frederick for the 16 miles to Salt Lake Bay. Skirting a snow squall drifting along the mouth of Seagull Creek, Brent dropped the plane to the 1,000 foot level. New snow carpeted the tops of the old-growth hemlocks and spruce. As we approached Salt Lake Bay, I could see the upper portion of Port Frederick extending west past 8-fathom Bight to the narrow Portage, which leads to Tenakee Inlet. Beyond lay Tenakee Inlet, the upper portion frozen by the cold air mass that had drifted down from Glacier Bay in January.

I turned on the radio receiver to search for signals from the 25 martens that had been radio-collared during the previous seven months. January had been an especially busy month. The below-freezing weather and moist maritime air had deposited 18 inches of light snow on top of the three feet of wet December snow. The snow conditions had been favorable for travel by snow machine and allowed Kip Kermoian and me to set 40 live traps along the 20 miles of logging road. The small wire box traps were set under logs and tree roots along the road, beach, and trails. A piece of tarp was placed over each trap to keep a captured marten dry from the frequent rain and snow. After capture, the animals were injected with an immobilizing drug, then weighed, measured, ear-tagged, a small premolar tooth pulled for aging, and their sex determined. Small radio-collars were attached around their necks to enable us to relocate the animals periodically throughout the year.

Suddenly, over the dull groan of the airplane engine, I heard

a faint beep coming through my headphones. A quick check indicated that the collar of marten #10 had been picked up by the antenna and was "on the air." The weakness of the signal meant that this adult female marten was either still one to two miles away, or that she was nestled under the roots of a large western hemlock right below us. When I told Brent that we had contact with a marten, he slowed the Super Cub and began to make a broad circle in the direction that I motioned. The signal remained off the left wing and became stronger as the circle closed. After a few minutes, we were circling 500 feet above a stand of old-growth forest. Because the radio signal was booming in now, it suggested the marten was probably resting in a small cavity near the top of a 140-foot western hemlock. I recorded the marten's location on an aerial photograph along with the time, forest type, and physiographic position before I turned the scanner on again.

We flew over the entire 50 square mile study area from the Portage to near the headwaters of Indian River and Game Creek looking for the radio-collared martens, and on this March day we located 17 animals. The 8 "missing" martens would later be found up to 25 miles from the primary study area, far beyond today's search pattern.

This study of marten habitat and population ecology was begun in 1990 as a cooperative project between the Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation, and the U. S. Forest Service (USFS). The study was designed to determine habitat selection and spatial use patterns by martens and provide information on their population dynamics. With the depletion of high value old-growth forests in southeast Alaska and the relatively high price offered for marten pelts, both agencies became concerned about the impacts of timber management on marten populations in the Tongass National Forest. Because forest management activities were expected to affect habitat capability and marten pelts represented

a significant economic value to local residents, martens were selected as a management indicator species by the USFS for the revision of the Tongass National Forest Land Management Plan. Old-growth forests, especially stands on the more productive sites, were identified as special habitats for martens in southeast Alaska. Although most of the original forested land was in an old-growth condition, logging has removed about 400,000 acres, with most of the timber taken from the most productive stands.

Most previous studies have found that mature, coniferous forests provide optimal habitat for martens. In other areas, this habitat has provided martens protection from potential predators including owls and eagles and abundant small mammal prey in the lush understory. Snags and fallen logs provide important resting sites, especially in winter and for denning.

Southeast Alaska is blessed with a number of unique animals that are now uncommon in much of their former natural ranges. The marten, or *Martes americana* as named by scientists, is one of these animals. Once common throughout the coniferous-forest regions of North America, marten populations have declined or been extirpated in many areas with the removal of suitable habitat and increased human access. Martens are closely related to the Russian sable, Japanese marten, and the pine marten of Europe. Although indigenous on only the mainland and a few islands, martens are now common throughout most of southeast Alaska. Natural populations appear to occur on only Kuiu, Kupreanof, Mitkof, and Revillagigedo, of the larger islands of the Alexander Archipelago. During the period from 1930 to 1950, martens were introduced to many of the larger islands including Chichagof, Baranof, and Prince of Wales. Although no records of transplants to Admiralty Island exist, martens may have escaped from a fur farm on nearby Windfall Island in 1918. Red squirrels were introduced to Chichagof and Baranof islands during 1930-31 because they were thought to be an important food source for the newly released martens. A valuable natural resource and the focus of the fur industry in southeast Alaska, an average annual harvest of 2,770 martens has been recorded between 1984 and 1988 according to ADF&G records.

Although the marten study has been underway for only one year, much interesting information has already been collected. Of the 28 martens (21 males and 7 females) captured last year, 16 were juveniles and 12 were older than one year, with the oldest being a 5-year-old female. Fifteen of these radio-collared martens (12 males and 3 females) remained on the primary study area throughout the year while the rest traveled extensively across northern Chichagof Island. Four martens were located more than 20 miles from their initial capture sites. Resident martens were mostly adults (80 percent), and the transients and temporary residents were juveniles (85 percent) or yearlings. A male's home range area overlapped little with its male neighbors and female home ranges were completely exclusive, but male and female home range areas overlapped extensively. Males usually used a larger home range area compared with



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females, averaging 2.4 square miles compared with 1.7 square miles.

During last winter, radio-collared martens showed a preference for higher-volume, old-growth forest types, especially western hemlock and western hemlock/Alaska cedar stands. Clear-cuts and other nonforest types were not used at all, and lower volume old-growth forests were used relative to their abundance. Although a preference was shown for forest stands at low elevation, martens were occasionally found above 1,500 feet. Actually, one juvenile male spent the entire winter in a mountain hemlock stand at 1,500 feet elevation.

Since that March afternoon, an additional 11 martens (7 males and 4 females) have been captured and radio collared on the Salt Lake Bay study area. The movements and home ranges of several animals have become familiar now, while the movements of animals newly collared this summer are eagerly anticipated. Another winter's field work should provide further insight into the life history of these unique forest animals.

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