

Humboldt Marten Denning Ecology in a Managed Redwood-Dominated Forest Landscape¹

Desiree A. Early,² Keith A. Hamm,² Lowell V. Diller,² Keith M. Slauson,³ and William J. Zielinski³

Abstract

The Humboldt marten (*Martes caurina humboldtensis*) historically occurred in California's coastal redwood (*Sequoia sempervirens* (D. Don) Endl.)-dominated forests from northern Sonoma County, California to the Oregon border. The subspecies was thought to be extirpated due to over-trapping and loss of habitat until a small, remnant population was rediscovered in 1996 on the Six Rivers National Forest (Slauson, personal communication). Surveys conducted from 2004 to 2011 on managed forests owned by Green Diamond Resource Company to the west of the remnant population yielded marten detections at several stations in the Pecwan and Bear Creek watersheds. To better understand the composition, movements, fates, and habitat use of marten on these managed lands, a collaborative effort between Green Diamond, the U.S. Department of Agriculture Forest Service Pacific Southwest Research Station, the California Department of Fish and Wildlife, and the Yurok Tribe was initiated in 2012. Between October 2012 and August 2016, 33 individual marten were captured (18 male, 15 female), and 24 (13 male, 11 female) were radio-marked. More than 2,000 telemetry locations have been obtained to date, resulting in 115 rest sites. After documenting reproduction in 2014, all adult female marten were monitored throughout each denning season (2014 to 2016) to determine denning phenology, kit production, site fidelity, and the characteristics and spacing of denning structures.

Sixteen female marten were monitored, resulting in 12 reproductive efforts and 34 confirmed den sites. Eleven female marten successfully weaned a minimum of 17 kits. Two reproductive efforts failed because the adults died prior to kit independence, and one reproductive effort was assumed to have failed due to lack of observation of the female with kits during August. Females less than 2 years of age did not attempt reproduction. The majority of confirmed dens (74 percent) were located in cavities of live trees or snags. The den trees/snags contained complex structural features (i.e., complex crowns, large limbs, broken tops, basal hollows, multiple cavities, and others) and were larger diameter trees than those within the surrounding stand. The location of den structures ranged from 6.1 to 610 m (20 to 2,000 ft) from the nearest manmade edge (road or recent harvest unit) and were located in a variety of stand ages. Fifty percent of reproductive females monitored for at least two breeding seasons reused a den structure from a previous season, and 60 percent reused a den structure within the same season. This study is ongoing and has the promise of providing important insights on how managed forests in the redwood region can provide denning habitat for coastal marten.

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² Green Diamond Resource Company, 900 Riverside Road, Korb, CA 95550.

³ USDA Forest Service, Pacific Southwest Research Station, Arcata, CA 95521.