ABSTRACT

In order to investigate successional changes, small mammals were live-trapped during three winter and three summer months of 1990-91 in Coastal Redwood-Douglas-fir stands of the Jackson State Demonstration Forest. Five clearcut sites of ages two, four, seven, 11, and 27 years that had been allowed to revegetate naturally were examined, as well as an 80-year-old stand that represented an unlogged control. Sixty live traps of two sizes were set in a randomized pattern in each site during each of the six trapping periods. Data on vegetation and other site factors from a companion study of succession were utilized to determine how the various species were correlated with habitat characteristics.

Of the ten mammalian species captured, four were much more abundant than others, in this order: Deer Mouse (*Peromyscus maniculatus*), California Red-backed Vole (*Clethrionomys californicus*), Dusky-footed Woodrat (*Neotoma fuscipes*), and Sonoma Chipmunk (*Tamias sonomae*). Chipmunk populations peaked in year two, and were correlated with three measures of woody debris. The Deer Mouse had high population levels in the four youngest sites, and correlated with early to mid-age site factors. Woodrat populations peaked very strongly in age seven and were moderately high in ages four and 11, strongly correlating with the vegetative site characteristics of these mid-aged stands. This species was absent from the 27-year-old pole timber stand and in the Control. The Red-backed Vole had very low population levels in the three youngest sites, but high levels from age 11 on. It correlated with cover of larger conifers.

By various measures, small mammal diversity was 2-3 times higher in the younger clearcuts through age eleven than in both the 27 and 80-year-old stands. Total captures were twice as high in the first four ages than in the last two, while live-weight biomass peaked in the seven-year-old stand to a value 6.6 times greater than that of the mature forest. We have concluded that small mammal diversity, total numbers, and total biomass will be high in naturally revegetating clearcuts until the canopy of conifers approaches complete closure. As stands of conifers mature, these measures decline markedly.