

EFFECTS ON VERTEBRATES OF RIPARIAN WOODLAND MANAGEMENT FOR CONTROL OF PIERCE'S DISEASE

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INTRODUCTION

It is vital to the wine industry to be aware of the potential effects of control programs for disease, insects and other pests that might affect wildlife in riparian zones, as the health of these zones is important to properly functioning ecosystems as well as to the public and regulatory agencies. This study undertook to evaluate the effects on a variety of vertebrates of the removal of vegetation as well as planting of non-disease reservoir plants in riparian zones to control or reduce the incidence of Pierce's disease. Studies were initiated in 1997 with the establishment of eight plots, three on Conn Creek (open, managed, and not managed), and three on the Napa River (Ecological Reserve, managed, and not managed) in Napa County, and two (managed and not managed) on Maacama Creek in Sonoma County.

OBJECTIVES

1. Determine what influence habitat manipulation for Pierce's disease control will have on birds, mammals, reptiles and amphibians in riparian zones.

RESULTS AND CONCLUSIONS

Five sampling procedures were used per plot as follows:

- i. Two Trailmaster bait stations once per month for 7 days (1997-1999)
- ii. Fifteen Sherman live traps for small mammals one night per month (1997-1999)
- iii. Three point census plots for birds once per week during the breeding season (spring-early summer 1998 and 1999)
- iv. Eight nesting boxes for birds (Dahlsten and Copper 1979) checked weekly during the breeding season (1998 and 1999) and
- v. Six 4-square foot reptile boards checked approximately twice per month (1998 season).

The bait stations showed the most common mammal to be the opossum, followed by squirrels, raccoons, rats, and foxes. Larger mammal activity was lowest in the open grassy plot, and highest in the Maacama Creek managed plot and the Ecological Reserve unmanaged plot. There were no significant differences in totals of all species between the managed and unmanaged pairs of plots. The most common mammal in the live traps was the deer mouse, *Peromyscus* spp. Activity was highest in the open unmanaged plot and lowest in the Conn Creek unmanaged plot, with no significant differences between the managed and unmanaged paired plots. The most common species in order were swallow species, European starling and American robin. Out of 66 and 72 species identified on the study plots during 1998 and 1999 respectively, with plots averaging about 38 species each. Numbers of birds did not vary significantly between treated and untreated plot pairs except for one pair in 1999 (plots 2 and 3). Numbers decreased significantly overall from 1998 and 1999, especially

in plots 4 and 5. Eight species of birds used the nest boxes and the highest occupancy rate was in the unmanaged area on the Napa River, followed by the managed area at Conn Creek. The Reserve area had the lowest occupancy rate. No patterns were evident in use between pairs of managed and unmanaged plots. The reptile boards were used by four species of lizards, two species of snakes, the Pacific tree frog, western toad, and a salamander. The most common organism was the western fence lizard. The highest use was in the managed plot on Conn Creek; with the other plots being similar to each other, with no significant differences in total numbers between managed and unmanaged plot pairs.

Analyses of our data support the hypothesis that the vegetation management used in this study does not affect numbers of mammals, birds, and reptiles significantly in these riparian areas. Significant overstory differences (plots without many large trees vs. all others with large trees) do show effects with some mammals and birds, and there are also some differences between the Napa Valley plots and the Sonoma plots.

REFERENCES

Dahlsten, D. L. and W. A. Copper. 1979. The use of nesting boxes to study the biology of the mountain chickadee (*Parus gambeli*) and its impact on selected forest insects, pp. 217-260. *In: The Role of Insectivorous Birds in Forest Ecosystems*, J. G. Dickson, R. N. Connor, R. R. Fleet, J. A. Jackson, and J. C. Kroll (eds.). Academic Press, New York.