AN ABSTRACT OF THE THESIS OF

Andrea M. Ruchty for the degree of Master of Science in Botany and Plant Pathology presented on October 6, 2000. Title: The Association of Epiphytic Macrolichens and Bryophytes with Riparian Stand Types along a Valley Continuum, Oregon Coast Range.

I surveyed epiphytic macrolichens and bryophytes in six stands in each of seven riparian stand types in the Oregon Coast Range. This study (Chapter 2) describes the association of epiphytes with stand types and the corresponding potential of forest canopy conversions to affect epiphyte communities. Species composition, diversity, and representation of functional groups differed among stand types. Epiphyte communities changed along a valley continuum, from higher elevation, older, conifer-dominated stands along constrained stream reaches bounded closely by slopes, to lower elevation, hardwood-dominated stands on broad floodplains along unconstrained rivers or streams. Epiphyte communities also appear to be affected by bark pH. We conclude that riparian canopy conversions in the Oregon Coast Range have great potential to affect epiphyte communities.

A transplant study (Chapter 3) examined whether canopy environment is important in determining associations between lichen species and canopy type in Oregon Coast Range riparian forests. The growth of four lichen species was compared beneath three canopy types. If canopy environment is important in determining the distribution of individual transplant species, then transplant species should show growth response patterns under the different canopy treatments that correspond to their known habitat preferences. We found that the survival, health, and growth of individual transplant species did not differ by canopy type, though, as a group, lichen transplants were less healthy and did not survive as often under bigleaf maple canopies. *Hypogymnia inactiva* grew less well and was less healthy

than the other three lichen species, though its survival rate was similar to that of the other transplant species.

Chapter 4 supplements data presented in Chapter 2 by, (1) describing where and with what abundance ROD-listed epiphyte species were found, (2) reporting species found to be rare and, (3) reporting absent species that we had expected to find. Of the nine ROD-listed ”riparian” lichens, five were encountered in our surveys. Sixteen additional ROD-listed lichen and 2 bryophyte species were encountered during surveys. Of all the ROD-listed riparian species that were encountered more than once, none were restricted to a specific stand type. Many rare species (present in less than 5% of sampled stands) are more common on other substrates or in nearby habitats. Though suitable habitat was available, we found some lichen and bryophyte species less often than expected; these species may be more rare than has been previously recognized. This information improves our understanding of the habitat requirements of riparian epiphyte species and allows us to assess their rarity within the Oregon Coast Range.