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Emma J. Didier

University of Puget Sound

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Effect of Humus and Structural Environmental Factors on Epiphytes in *Acer macrophyllum* in the Hoh Rainforest

Emma Didier and Carrie Woods

**Introduction**

- Epiphytes studied include the moss, liverworts, lichens, and ferns that grow on Big leaf maples
- Environmental variation creates microhabitats within a single tree

**Research question:**
To what extent do branch size, height, canopy cover, tree zone, distance along branch, humus depth, and humus water content affect epiphyte distribution and diversity in Big-Leaf Maples?

**Methods**

- Climbed 3 Big-Leaf Maples and surveyed 6 tree zones
- Species counted using dot-intercept method (top left)
- Humus samples collected and dried to obtain gravimetric water content (GWC)
- Data analyzed using ANOVA, Kruskal Wallis, and CCA

**Results**

- Epiphyte Shannon’s Diversity did not vary among zones (p = 0.413)
- No difference in humus water content between zones 3 and 4 (p = 0.477)

**Discussion**

- Some species are generalists, while others are specialists
- Species composition is non-random, varies by zone, and is driven in part by structural variation within the tree
- Rather than humus driving species variation, the two may influence one another
- Epiphytes are most abundant in the inner and mid crowns (Fig. 3)

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