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Epiphyte Distributions Vary with Structural Heterogeneity in Acer Macrophyllum

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Epiphyte distributions vary with structural heterogeneity in *Acer macrophyllum*

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**Introduction**

- Epiphyte diversity is attributed to microhabitat specialization
- Microhabitats are created by climatic and structural factors
- Previous epiphyte studies on *Acer macrophyllum* surveyed too broadly and didn’t measure structural features
- **Goal:** Survey *Acer macrophyllum* extensively to determine the effect of structural heterogeneity on epiphytes
- Prediction: epiphyte species will be specialized to microhabitats created by distinctive tree structural features

**Methods**

- *Acer macrophyllum* in Hoh rainforest
- Dot-intercept method using acetate sheets – identify epiphyte species under each random dot
- Noted structural features (broken branch, hole, etc.)
- Trunk: every 1 m around trunk
- Branch: every 1 m along 3 branches for 3 meters
- Analyzed with ANOVA and NMS

**Results**

- **Prediction:** epiphyte species will be specialized to microhabitats created by distinctive tree structural features

  **Species on E side were different from S and W sides; S and W had similar species.**

- **Species found on South and West sides represent all species found in zone.**

**Discussion**

- Species richness varied with structural heterogeneity, indicating that some epiphytes are specialized to distinct structural features which likely generate unique microhabitats
- Tree orientation also had an effect, particularly in the upper trunk and branches
- Species distributions varied among zones, suggesting height-related preferences among mosses
- Since epiphytes are biological indicators of ecosystem health, knowing their normal distributions is beneficial for conservation
- The tree model can be used to show these patterns in diversity using 3-D printing and virtual reality.

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