

but their effectiveness varies. It is advisable to establish the morphospecies-taxonomic species relationship for a particular target group before adopting it in studies involving morphospecies inventories.

Epiphyte ecology: temperate and tropical rain forest affinities

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In tropical rain forests, epiphytes can contribute significantly to species diversity and biomass, a feature not generally associated with temperate forest systems. This study investigates lianoid-epiphytic diversity and biomass on three host trees (two species *Dacrycarpus dacrydioides* Podocarpaceae and *Nothofagus menziesii* Fagaceae) of varying height and architecture, in different positions in a South Island, New Zealand temperate rain forest 45° 43' S. Cover of epiphytic and lianoid species (vascular and non-vascular) was recorded in 5 m vertical height segments (trunk), on four aspects (north, south, east and west); and in three sections (inner, middle and outer branches) on four branch faces (positions: topside, both sides, underside) on each tree. Inclination, branch face, and diameter of branch/trunk substrate, height above ground, duff thickness and location on tree (trunkfoot, main trunk, inner branches, middle branches, outer branches, branch extremes) were all recorded in 359 samples. Epiphytic biomass was derived for one phorophyte. Sixty-one vascular and 96 non-vascular species were recorded. Eight communities associated with the highly vegetated inner branches and main trunk, and seven indicative of the less vegetated middle to outer branches, were recognised. Thirteen communities were present on a forest interior *D. dacrydioides* tree, nine on a riverside *D. dacrydioides* tree and seven on a *N. menziesii* tree. All measured environmental variables were statistically significant in relation to ordination analysis of the samples. Dry mass per unit area and dry bulk density recorded were $350 \pm 125 \text{ g dm}^{-2}$ and $118 \pm 13 \text{ g dm}^{-2}$, respectively (trunkbase), and $206 \pm 21 \text{ g dm}^{-2}$ and $91 \pm 4 \text{ g dm}^{-2}$, respectively (inner & middle branches combined). Epiphytic community analyses that do not include vascular and non-vascular flora are potentially flawed. Values for epiphytic dry weight for the trunkfoot of one tree appear to exceed comparable figures recorded from tropical rain forest systems. Within-tropics epiphytic comparisons potentially ignore significant conducive conditions for both epiphytic diversity and mass that may occur in equally perhumid climates of temperate rain forests. Comparisons are made with a comparable study conducted in Bolivian cloud forest.

Virus spread

Paul Guy

This was a litany of concerns about viruses as invaders of plant communities.