

HERBIVORY ON EPIPHYTIC FERNS OF A MEXICAN CLOUD FORESTK. MEHLTRETER¹, K. HÜLBER² & P. HIETZ³

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ABSTRACT

The often-stated hypothesis that ferns are attacked less by herbivores than are angiosperms has not been confirmed for terrestrial ferns. Several authors reported for terrestrial ferns and angiosperms the same number of insect pest species, and similar leaf damage of 5-38 percent, depending on species, leaf age, and type of vegetation. We studied five epiphytic species: *Pleopeltis crassinervata* (Fée) T. Moore, *Polypodium furfuraceum* Schltdl. & Cham., *P. plebeium* Schltdl. & Cham., *P. polypodioides* (L.) Watt, and *P. rhodopleuron* Kunze, in a Mexican cloud forest to test the hypothesis that epiphytic ferns have less leaf damage than terrestrial ferns. For each species we tagged 14-30 sections of tree branches and marked each fern leaf individually. For each leaf, herbivory was estimated as leaf area loss for each pinna, using a scale of seven damage classes (0%, less than or equal to 10%, ≤ 25%, ≤ 50%, ≤ 75%, ≤ 100%, 100%), in February 2003 and February 2004. In 2004, we counted the number of marked and unmarked new leaves to calculate leaf life-span. Leaf damage depended strongly on species and leaf life-span, but generally did not differ from the values reported for three terrestrial fern species in the same forest site (5.8-11.1%). *P. furfuraceum* and *P. rhodopleuron* were the least damaged species in both years with 8.4 - 10.7 % mean leaf area loss, while *P. plebeium* had the highest leaf area losses of 21.2 - 22.0 %. The highest leaf damage in *P. plebeium* might be a consequence of its longer leaf life-spans of 29.5 ± 3.4 months, while *P. rhodopleuron*, the least damaged species, had the shortest leaf life-span of less than 12 months.