

BOTANY

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ABSTRACTS

Species Importance and Apportionment within Virgin and Timbered Beech-Maple Forest Ecosystems. DIANA L. ADAMS and GARY W. BARRETT, Department of Zoology, Miami University, Oxford, Ohio 45056. —A virgin forest, Hueston Woods in southwestern Ohio, and a selectively-cut forest, Lewis Woods in east central Indiana, were sampled by a modified point-quarter method in order to evaluate the impact of timbering on community structure. Timbering occurred in Lewis Woods in 1910, 1925, and 1955. Specifically, importance values and MacArthur's broken-stick model for contiguous non-overlapping niches were computed for each species encountered (> 1 dbh) within each study area in order to determine the timbering impact on species-rank importance and apportionment, respectively.

Hueston Woods was clearly dominated by sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) with importance values of 132.6 and 117.3, respectively. Lewis Woods was characterized by more even importance distribution patterns, although sugar maple and American beech were still found to be of greatest importance with values of 120.8 and 76.8, respectively. Sixteen species were encountered in Lewis Woods as compared to 13 species for Hueston Woods. Both study areas differed significantly ($P \leq .05$) from the expected importance values as generated by the broken-stick model. However, the model does appear to be a potential tool for evaluating man-made stress on natural forest ecosystems; stressed communities appear to fit the expected apportionment model better.

Foliar Morphology of *Platanus*, JULIE VAN HORN and DAVID L. DILCHER, Department of Plant Sciences, Indiana University, Bloomington, Indiana 47401. —The monotypic family Platanaceae is an ancient angiosperm family which has a world-wide distribution. The foliar morphology of *Platanus* is under active investigation. Gross form, venation and epidermal features have been studied, using cleared leaf material and cuticular preparations for light microscopy and scanning electron microscopy. Both mature leaves and various developmental stages of leaves of several species were used. Developmental studies have been carried out on leaves of seedlings and growing shoots of mature trees. The gross leaf form, of the various species recognized, differs in number of lobes, depth of sinuses, and nature of the margin. The toothtype appears to be unique to this family and genus. The venation of mature leaves is predominately palmate except for one Asian species. In the

seedling and growing shoots on mature trees, a developmental sequence from pinnate to palmate venation pattern was observed at successively older nodes. Five types of trichomes were recognized on mature and seedling leaves. The trichome types appear to be characteristic of maturation stages and individual species. The appearance of the stomatal apparatus (exterior leaf surface), as viewed in scanning electron microscopy, is diagnostic and consistent in the family. It is characterized by a raised striated ring of cuticle. The organization of the mature stomatal complex is unique. Each guard cell is slightly elevated in relation to the 2-4 lateral subsidiary cells which subtend it. The development of the stomatal apparatus has been investigated with the aid of Paragon stain. It is mesoperiginous.