One goal of systematics is for classifications to reflect evolutionary history. Although one can never be certain what the evolutionary history of a particular group is, the branching patterns can be estimated by cladistic methods. In flowering plants, one problem in developing these patterns is the independent acquisition of similar characters, or parallel evolution. This problem is shown in Monomorium Cerv., which, historically, has been divided into three subgenera based primarily on the size of the flowering heads. This character has evolved in parallel within the genus and is therefore not useful as an indicator of the subgenera. This was shown as a result of a cladistic study of the genus. The three subgenera recognized here represent what are believed to be three monophyletic lines within the genus. The subgenera are based on several characters including: type of receptacular bracts, shape of disc florets, type of scheme dispersal, shape of the involucre, and habit. Within two of the three subgenera several prominent characters show parallel evolution including: size of head, length of pales, polyploidy and ecological zonation. Some of these characters are interrelated, for instance, the polyploid species are all large trees growing in cloud forests. Also, the length of the pales increases as the size of the head. These results would have been difficult to determine without using cladistics. Failure to determine such parallelisms can result in artificial classifications which are non-predictive and can lead to false estimations of relationship.

The Gentianaceae and Menyanthaceae of Ohio. Barbara K. Andreas and Tom S. Cooperider. Department of Biological Sciences, Kent State University, Kent, Ohio. 46240

From field studies and a survey of Ohio herbaria, county dot distribution maps and floristic data were prepared for the 13 native and one adventive species of the Gentianaceae and for the one native and one adventive species of the Menyanthaceae found in the Ohio flora. Of the 14 native species, 11 have been proposed for designation as "endangered", 'threatened', or 'potentially threatened' elements in the Ohio flora. Of the 5 species of the genus Gentiana proposed as "endangered", Gentiana clausa is limited to the glaciated Allegheny plateau in northeastern Ohio; G. villana is limited to the southeastern counties in the unglaciated Allegheny plateau; G. papyrophylla is confined to the Lake and Till Plains of western Ohio; G. alba is limited to western and southcentral Ohio; and G. salpinx, once widely scattered in the western half of Ohio, is now known only from Lucas County.

In Ohio, the distribution ranges for Gentiana cincta and G. procera overlap. Whether these two fringed species are one species or two has been the subject of recent debate. Using a combination of floral characters, Ohio specimens are readily separable into two taxa.

Gentiana andrewsii, G. clausa and G. saponaria appear similar in the field. Careful examination of the vegetative and floral characters can be used to distinguish these taxa.

Systematics of the Achillea Americana Polyploid Complex (Compositae: Heliantheae) in the Southeastern U.S., Mexico, and Central America. Robert K. Jansen. Department of Botany, The Ohio State University, Columbus, Ohio. 43210.

Achillea A. Rich., a genus recently separated from Spiranthus Jacq., is widespread throughout tropical America, Africa, and Asia. Within the southeastern U.S., Mexico, and Central America there is a closely related group of taxa characterized by their orange-yellow ray and disc florets and prostrate perennial habit. These taxa, referred to as the A. americana complex, were previously divided into eight species and eight varieties and forms based on morphological criteria by A. H. Moore. Chromosome counts from approximately two-hundred populations throughout the range of the complex reveal a high degree of polyploidy with taxa at the diploid, tetraploid, and hexaploid levels. Recent morphological, field, and chromosomal investigations support the recognition of five diploid species, each of which is narrowly restricted both geographically and ecologically. Two of the diploids restricted to Belize and eastern Guatemala are known to hybridize in nature. Three tetraploid species, one of which has a variety at the hexaploid level are also recognized. The tetraploids are very widespread and weedy whereas the hexaploid is restricted to marshes in the states of Jalisco and Michoacan, Mexico. In addition to clarifying the relationships among the taxa of the A. americana complex, the present study considers hypotheses concerning the origin of the polyploid taxa.

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