PLANT SCIENCES

MORPHOLOGY, CYTOLOGY AND FLAVONOIDS CHEMISTRY OF MONTANOA
SUBGENUS MONTANOA, Vicki A. Funk. Department of Botany, The Ohio State University, Columbus 43210.

Widespread in Latin America, Montanoa Cerv. is distinctive in the Compositae in being a genus of shrubs with white ligules, enveloping pales and no pappus. The genus was described by Cervantes in 1825 and since then over 80 species have been recognized. Montanoa was last revised in 1899 by Robinson and Greenman, at which time it was divided into three subgenera. Of the three, subgenus Montanoa is morphologically distinct. The 14 species of this subgenus share similar fruiting pale structure as well as similar habit, pubescence, achene number, achene dispersal mechanism and capitulum size. They also share similar habitats. Within the subgenus, however, widespread morphological variation and inadequate species circumscriptions combine to make identification of members of this subgenus difficult. Four trips to Mexico and Central America have brought an understanding of the morphological variation which has led to a reduction in the number of species from 14 to 6. All species chromosomally are n = 19, and the flavonoid chemistry also is relatively uniform. The morphological distinctness of this subgenus and the flavonoid and chromosomal similarity of the species suggest a very natural group within the genus Montanoa.

A PALEOLINGEOLOGICAL INVESTIGATION OF ACID STRIP MINE LAKE RECOVERY.
Sherilyn C. Fritz and Robert E. Carlson. Department of Biological Sciences, Kent State University, Kent, Ohio. 44242.

Our knowledge of the biotic succession in the recovery of acid strip mine lakes is largely from studies comparing several lakes in various stages of recovery. In this study the recovery of an acid mine lake was determined using paleoecological techniques which provided a continuous record of the changes in the chemical and biological environment during the succession from an acidic to an alkaline state. A sediment core was taken from a 60 year old, recovered acid strip mine lake in Tuscarawas County, Ohio. Sediment density, pH and chemical variables including Al, Fe and Mn were analyzed at centimeter increments throughout the core. Corresponding changes in the diatom density, species composition and community structure are used as indicators of the pattern of biotic recovery. The correlations among biotic and abiotic variables are discussed in relation to recovery.

REPRODUCTIVE CAPACITY AND SEED SIZE IN LUPINUS TEXensis, Barbara A. Schaal. Department of Botany, The Ohio State University, Columbus, Ohio 43210.

Ovule and seed production, seed weight, seed and seedling survivorship, and the relationship between seed size and number were studied in a large population of Lupinus texensis located in central Texas and in greenhouse grown plants derived from that population. The average number of ovules produced per plant in the field is much greater than the average number of seeds per plant. On the average, each plant produces approximately 2,000 ovules; of these ovules 2.5% develop into seeds. Of these seeds, one fourth is lost due to abortion and a small amount, 0.3%, is lost due to predation on the plant. Mature seeds from this population exhibit a five fold range in weight, from 10 to 56 mg. The distribution of seed weights in the field population is skewed and leptokurtic. Seed weight is positively correlated with both seed germination and seedling survivorship. Heritability of seed weight is 0.03. There is no correlation between average seed weight per plant and total number of seeds per plant, seeds per pod, or legumes per plant.