A Plant Group

The Genus *Epilobium* (Onagraceae) in Australasia. A Systematic and Evolutionary Study. PETER H. RAVEN and TAMRA ENGELHORN RAVEN. Illustrations by Keith R. West. New Zealand Department of Scientific and Agricultural Research, Christchurch, 1976. 322 pp. NZ$20. New Zealand Department of Scientific and Industrial Research Bulletin 216.

The appearance of a taxonomic monograph for a portion of one genus in one geographical area is not a novel event in botany. However, this monograph of Australasian—chiefly New Zealand—species of *Epilobium* is not only a coherent unit but an outstanding example of what a taxonomic monograph can be. The Australasian species of *Epilobium* form a monophyletic group. Thus the study of their radiation and speciation presents an unusually intricate opportunity. The challenge has been met admirably in the monograph by Raven and Raven, which is definitive in every conceivable way. Few monographs would give such extensive treatment, for example, to hybridization (pp. 34–67). This account includes the results of experimental hybridizations. When one realizes the tremendous knowledge and materials gathered by Raven and Raven within the confines of a sabbatical visit to New Zealand, this "model monograph" becomes even more astonishing.

Other unusual features include a multidimensional and artistically sophisticated account of ecological preferences of species and species groups. Sympatric occurrence is carefully documented. Scanning electron micrographs of seeds are used in a telling fashion. The colored drawings of species and colored distribution maps are an unusual luxury, but the quality of the stippled ink drawings alone would qualify this monograph for an award for botanical graphics. The discussion of potential means of dispersal will interest phytogeographers even if it is of necessity speculative, because it takes into account so many factors. Raven and Raven are not only courageous enough to ask that simple but frightening question, "Why are there so many species of *Epilobium*?," they answer it—to this reviewer's satisfaction, at least. Needless to say, the formal taxonomic paraphernalia are handled with completeness and expertise.

Each group to be monographed presents special problems that require special techniques. Perhaps the methodologies used by Raven and Raven for *Epilobium* do not comprise the entirety of approaches usable in today's highly diversified "biosystematics," but they are unerringly the right ones. From the incredible array of tools available to the biosystematist, any worker must choose those that are appropriate—or, as sometimes happens, those that are not beyond his or her abilities. Some readers might note the absence of comparative chemical data in the present monograph. This is entirely reasonable, because the primary problems presented by *Epilobium* in Australasia have to do with speciation in relation to habitat niche and patterns of hybridization. This monograph is, in fact, to be especially praised for not attempting to cover all possible waterfronts, but for making informed use of appropriately selected methods.

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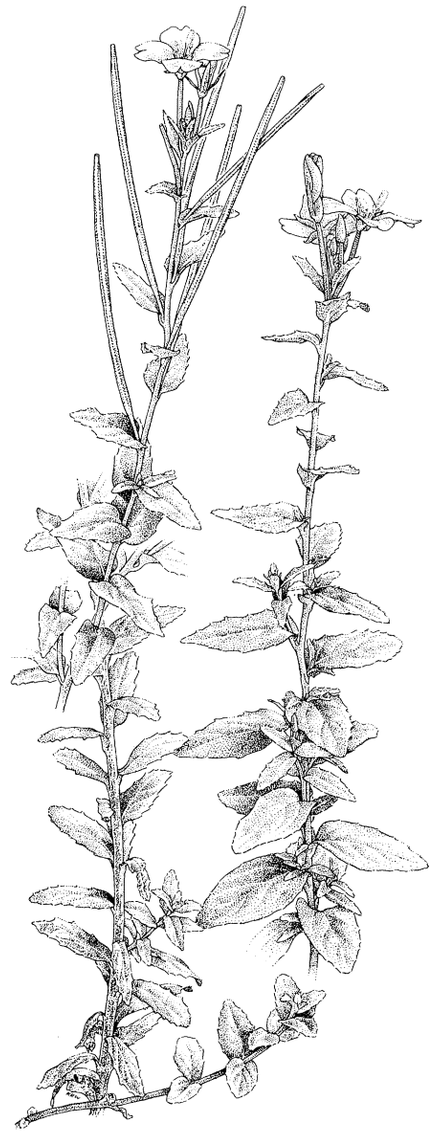

Epilobium billardierianum Sér. subsp. *hydrophilum* Raven & Engelhorn (Barrington Tops, N.S.W., Australia). This illustration shows a large-flowered form of the subspecies. "*Epilobium*, comprising some 200 species, is by far the largest genus in the Onagraceae. Most of these species are found at relatively high latitudes or altitudes, and in the tropics the genus is confined to the mountains. Within these limits, the distribution of the genus is worldwide; but the distribution of species is not uniform. In Eurasia there are approximately 80 species, of which 22 are found in Europe. In North America there are about 45 species, displaying the greatest diversity in morphology and chromosome number found anywhere in the world. There are about 30 species in South America. Africa has 10, of which only four are not shared with Europe. This general pattern of species abundance is continued in Australia and New Guinea, where there are 13 species. It is sharply broken in New Zealand, where, even by the conservative taxonomic standards adopted in this bulletin, there are 37 native species of great ecological and morphological diversity." [From *The Genus* Epilobium *(Onagraceae) in Australasia*]

Books Received

Animal Health. Programs and Trends in the Americas, 1976. Proceedings of a meeting, Caracas, Venezuela, Apr. 1976. Pan American Health Organization, Washington, D.C., 1976. xiv, 172 pp. Paper, $4.

Archaeology for Everyone. Mark Feldman. Quadrangle (New York Times), New York, 1977. xiv, 366 pp. $12.50

Asimov on Numbers. Isaac Asimov. Doubleday, Garden City, N.Y., 1977. xviii, 250 pp., illus. $9.95.

An Atlas of Insect Diseases. Jaroslav Weiser. Junk, The Hague, and Academia, Prague, ed. 2, 1977. 240 pp. Dfl. 75.

Biological Machines. A Cybernetic Approach to Life. Peter Calow. Arnold, London, 1976 (U.S. distributor, Crane, Russak, New York). viii, 134 pp., illus. Cloth, $19.50; paper, $9.95. Special Topics in Biology Series.

The Biology of Adolescence. Herant Katchadourian. Freeman, San Francisco, 1977. xii, 274 pp., illus. Cloth, $9.95; paper, $6.95.

Biomembranes. Vol. 8. Lionel A. Manson, Ed. Plenum, New York, 1976. xii, 244 pp., illus. $22.50.

The Brotherhood of Oil. Energy Policy and the Public Interest. Robert Engler. University of Chicago Press, Chicago, 1977. xii, 338 pp. $12.50.

Charged Gels and Membranes. Part 2. Papers from a NATO Advanced Study Institute, Forges-les-Eaux, France, 1973. Eric Sélégney, Ed. Reidel, Boston, 1976. xii, 244 pp., illus. $26.50.

Child Sense. A Guide to Loving, Level-Headed Parenthood. William E. Homan. Basic, New York, ed. 2, 1977. xii, 302 pp. $10.95.

Comparative Morphology of the Inner Ear in Salmanders (*Caudata: Amphibia*). R. Eric Lombard. Karger, Basel, 1977. viii, 140 pp., illus. Paper, $31.25. Contributions to Vertebrate Evolution, vol. 2.

Comparative Pathobiology. Vol. 1, Biology of the Microsporidia. Lee A. Bulla, Jr., and Thomas C. Cheng, Eds. Plenum, New York, 1976. xvi, 372 pp., illus. $37.50.