

## ATLAS OF THE RARE VASCULAR PLANTS OF ONTARIO (ATLAS DES PLANTES VASCULAIRES RARES DE L'ONTARIO)

GEORGE W. ARGUS and DAVID J. WHITE (Editors). 1982. National Museums of Canada. National Museum of Natural Sciences, Botany Division, Ottawa, Ontario K1A 0M8. 95 Species Pages published to date. (Apparently available free on request).

Naturalists and biologists are becoming increasingly concerned about the loss of threatened species and their often unique habitats. Such depletions represent irretrievable losses of gene resources and impoverishment of our natural heritage. Concern about rare and endangered species began with mammals and birds, but now includes plants as well. The last half-dozen years, especially, have seen intensive efforts to ascertain the distributions, habitats, and status of rare plants in the provincial and state, as well as national, floras of Canada and the United States. Such studies not only call attention to endangered species but assist in land-use and conservation planning by identifying environmentally sensitive areas and habitats with concentrations of rare species.

This publication represents the second phase of the study of Ontario rare plants, following "The Rare Vascular Plants of Ontario" (Argus and White 1977, *Syllogeus* No. 14, National Museums of Canada, Ottawa). The

latter, unlike subsequent numbers of this series covering the rare plants of Saskatchewan, Manitoba and the Yukon, lacked provincial distribution maps. The present Atlas does more, however, than add Ontario distribution maps to the 1977 list (based largely on published and unpublished information, herbarium searches by the authors themselves, and the opinions of various correspondents); it re-evaluates Ontario's rare plants, involving specialists for each of the different taxonomic groups. These specialists have been asked to borrow specimens of the species in their group from herbaria with Ontario plants for verification of identification, recording of label data, information summarization, and mapping. The taxonomic treatments (i.e. recognition of species, varieties, etc.) and verification of voucher specimens for locality records are those of the contributing specialists, who are most knowledgeable about particular plant groups, but the editors insure consistency in evaluation of rarity status.

Rarity status as defined here is based on both geographic (i.e. restricted area of occurrence) and demographic (i.e. low numbers wherever found) criteria. Essentially the species' numbers must be so low, or it must be restricted to such small areas in Ontario, that the plant would be potentially vulnerable to human-caused environmental changes, especially if restricted to a specialized habitat. Present information has usually allowed only the recognition of "rare" status (i.e. low numbers and/or restricted range), but the editors believe it now essential to distinguish Ontario

plants that may be truly "threatened" (i.e. likely to become endangered), "endangered" (i.e. whose existence in Ontario as a whole is under threat of immediate elimination from human activities), or already "extirpated" (i.e. no longer existing in the wild in Ontario).

The introduction to the Atlas explains the background, objectives, definitions, criteria used, format and methods, followed by cited references and three appendices, listing respectively the herbaria consulted, literature sources indicating rarity outside Ontario, and the contributing authors. The bulk of the publication consists of the separate species sheets in family fascicles with covering family title pages which list the Ontario rare species included for that family, and those candidates excluded with reasons.

Each species sheet is complete for one species, giving the scientific name, pertinent synonyms (if any), common name (when available), dot-type distribution maps for Ontario, and a line-type overall North American range map. The variously shaded dot symbols indicate the collection dates, and herbarium acronyms printed directly on the maps indicate where the voucher specimens are filed. Reference sources are printed on the North American range maps. Recording and mapping of specimens by collection dates reveal possibly declining or already extirpated species known mainly or entirely from old specimens. Below the maps are brief habitat descriptions, status elsewhere, and notes on rarity in Ontario or on taxonomic or nomenclatural problems. The text is bilingual with parallel English and French columns.

The pages of this Atlas are being published at irregular intervals in groups of family fascicles to be filed in a loose-leaf binder as they become available. This makes the information available more quickly and permits insertion or substitution of additional or updated

species pages. To date, one issue has been published with 11 authors contributing to only three Monocot families — Cyperaceae, Liliaceae, and Orchidaceae, but including a total of 95 species, due to the disproportionately high numbers of rare plants in the sedge and orchid families.

The production of this Atlas under the capable direction of Dr. Argus seems to overcome a common weakness of many such plant atlases, — i.e. an inadequate verification of herbarium records for the literature reports, although the many contributing authors may differ in taxonomic approaches. Considering that the 1977 list of Ontario rare plants included 638 species in 93 families, there is still a great deal of work before completion of this Atlas.

The mapping of North American ranges is very useful but, the extralimital ranges may, at least sometimes, be less than accurate based as they are on literature sources. Among the species in this first issue, a distortion of the Saskatchewan ranges on the North American maps was noted for the following species: *Carex heleonastes*, *C. loliacea*, *C. raymondii*, *Disporum trachycarpum*, and *Listera borealis*.

The *Atlas of the Rare Vascular Plants of Ontario* represents an important contribution to North American rare plant studies. Although it contains rare species also occurring here it could serve best as a model for the production of a similar atlas of the rare plants of Saskatchewan, or of the western provinces of interest to naturalists in the Prairie Provinces. — Reviewed by V. L. Harms, Fraser Herbarium, University of Saskatchewan, Saskatoon, Saskatchewan. S7N 0W0

EDITOR'S NOTE: Part 2 of the Atlas is now available covering the following ten families: Adiantaceae, Aspleniaceae, Asteraceae, Clusiaceae, Gentianaceae, Isoetaceae, Melastomataceae, Ophioglossaceae, Ranunculaceae and Xyridaceae.