

ENDANGERED SPECIES

Rare and endangered species of animals and plants have attracted increasing attention especially over the past decade. In Canada, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, comprising representatives of federal and provincial agencies responsible for natural resources and selected non-government organizations) has been active for several years, although formal consideration of the status of wildlife species has not yet been extended to invertebrates. However, some recent, albeit uneven, inventories of rare and endangered species in Canada include invertebrates. (The item for Nova Scotia is cited below; others are in preparation.)

General legislation to protect endangered species has been enacted in the United States of America (Endangered Species Act 1973, amended 1978), the United Kingdom (Wildlife and Countryside Act 1981), and elsewhere, in addition to more specific or local regulations. Complex legislation involving organisms and their habitats is not without difficulties, however, as the following excerpt from the Times of London newspaper suggests:

“A thorny problem: one of 62 species of plant given special protection under the Wildlife and Countryside Act is *Crobranche reticulata*, Yorkshire or thistle broomrape. It is parasitic on the woolly thistle, *Cirsium eriophorum*, and the creeping thistle, *Cirsium arvense*. The latter is a notifiable weed under the Weeds Act 1959, which obliges farmers to destroy it. To destroy the creeping thistle where the broomrapes grow would, of course, destroy the broomrapes and carry special penalties under the Wildlife and Countryside Act. Which act wins?”

(The Times, 1 Nov. 1982)

Most conservation effort in international and national arenas has emphasized the protection of vertebrates, including fur-bearers. Locally, limited legislation protects some especially showy insects such as certain birdwing butterflies, and indeed most of the effort by entomologists interested in insect conservation has been made by Lepidopterists.

Where detailed biological knowledge of many insect species is fragmentary as in Canada, a more useful general approach has often been the conservation of habitats which are unusual, or representative, and thus contain or are likely to contain species unable to survive in other habitats. Peat bogs isolated within developed terrain have attracted particular attention in this respect.

If any measure of protection is afforded to such habitats, it is usually through the creation of parks, preserves, reserves or other designated areas. In Canada, protected lands are managed by Federal, Provincial or local agencies of various sorts, and their use varies from tourism, recreation and forestry to (rarely) absolute protection, depending on the nature of the legislation creating them, and on the responsible agency. In different Canadian provinces, agencies responsible for Provincial Parks, for example, include not only ministries of the Environment and of Natural Resources as might be expected, but also Culture, Recreation and Youth, and Highways and Public Works. Federal agencies are responsible for northern lands. Different types of protected areas within a province may also be administered by different agencies. Ecological Reserves in British Columbia, for example, are governed by the Ministry of the Environment, while the Provincial Parks System there is controlled by the Ministry of Lands, Parks, and Housing.

Legislation creating protected sites has generally been established because of especially conspicuous or unique features of each site, including geological and historical as well as biological features. Less striking but no less valuable habitats continue to be eroded by developments such as drainage, conversion to agriculture, urbanization, and impoundment of water. Economic and other pressures on these lands are considerable, and have usually proven very difficult to offset. For example, Canada's wetlands are disappearing at an alarming rate, but most policies for their management are fragmentary and respond more to potentials for development than to natural resource values.

In the final analysis, cooperation will depend on knowledge: from the point of view of "endangered species", on knowledge of individual species and their biologies; and from the point of view of "endangered habitats" on whether knowledge and understanding of the natural world can be imparted to those responsible for formulating and implementing public policy. Imparting such knowledge is particularly challenging for entomologists because of the diversity and generally small size of arthropods.

[For further reading, see especially Pyle, R., M. Bentzien, and P. Opler. 1981. Insect conservation. *A. Rev. Ent.* 26: 233-258, and references cited there. In addition, helpful information and insights are provided by the following selected titles:

Brande, T. 1980. Worthless, valuable, or what? An appraisal of wetlands. *J. Soil Water Conserv.* 35(1): 12-16.

Campbell, F.T. 1982. The endangered species act: facing extinction. *Environment* 24(5): 6-13, 39-42.

Endangered insects of the world: proceedings. 1981. *Atala* 6 [1978] (1-2):1-62.

Heath, J. 1981. Threatened Rhopalocera (butterflies) in Europe. Council of Europe Nature and Environment Series, No. 23 (Strasbourg). 157 pp.

Isnor, W. 1981. Provisional notes on the rare and endangered plants and animals of Nova Scotia. Nova Scotia Museum, Curatorial Report No. 46. 71 pp + 135 maps.

Key, K.H.L. 1978. The conservation status of Australia's insect fauna. *Aust. Natl. Parks Wildl. Serv., Occas. Pap.* 1. 24 pp.

Morris, M.G. 1983. The joint commission for the conservation of British Insects. *Atala* 8 [1980] in press.

Nature Conservancy Council. 1983. The Wildlife and Countryside Act - a progress report. *Biologist* 30(1): 51-52.

Pyle, R.M. 1976. Conservation of Lepidoptera in the United States. *Biol. Conserv.* 9: 55-75.

Pyle, R.M. 1981. Lepidoptera conservation in Great Britain. *Atala* 7 [1979] (2): 34-43.

Swem, T. and R. Cahn. 1983. The politics of parks in Alaska. *Ambio* 12(1): 14-19.

Xerces Society 1979. Federally protected United States insects and other arthropods - current and proposed. *Xerces Soc. Misc. Publ.* 4 pp.]