

Conservation Matters:
Contributions from the Conservation Committee

Formal Protection of Lepidoptera species in Alberta, Canada

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Like most other jurisdictions, Canada has only recently begun to look at insects from a conservation perspective. Legislation that was developed primarily for bird and mammal species is now being brought to bear on these less conspicuous entities that make up the vast majority of living species. Naturally, butterflies were the first insect group to be considered, but several moth species are being examined as well. As a member on both the provincial and federal scientific subcommittees charged with doing species assessments, I'll attempt to demystify the process here. Unfortunately, some of the agencies involved have long names, so beware, this article has a high acronym count.

Alberta is one of Canada's largest and most diverse provinces. With an area of about 662,950 km², it borders the Northwest Territories at 60°N, and Montana to the south at 49°N, spanning a distance of about 1220 km north to south. The western boundary follows the crest of the Rocky Mountains along the Continental Divide, to about 54° latitude. Because most of the province was covered by ice during the last glaciation, virtually all living things have migrated into the regions within the last 10,000 years and there are few endemics. However, the fauna is quite rich, due to the diverse communities of the Boreal, Cordilleran and Grassland regions in the province. A map of the province and its ecoregions has been published on the World Wide Web by the Natural Regions Committee (2006). The last published checklist of Alberta Lepidoptera was published over fifty years ago (Bowman 1951). The

butterflies were most recently treated by Acorn (1993), Bird et al.(1995) and Layberry et al.(1998). A new checklist by the author and others is in the final stages of preparation, and should be published by the end of 2009. It lists 175 species of butterflies and 2185 species of moths reported from the province (Pohl et al., in prep.).

Federal Protection

Federally in Canada, species are protected by the Species At Risk Act (SARA). Protection under SARA makes it illegal to kill or harm a species on federal lands, to possess or traffic in them, or to destroy their residences. These laws are enforced, and carry a maximum penalty of \$1,000,000 or five years imprisonment. As well, the federal Department of the Environment, in cooperation with provincial and other federal departments, is obligated to develop and implement recovery plans for protected species. The minister is required to present a recovery plan within four years of a species being listed under SARA, and to report on the implementation of that plan every five years. However, there are no rigorous requirements that the goals of these recovery plans are met, so their success varies.

Species are assessed for conservation status by the Committee On the Status of Endangered Wildlife In Canada (COSEWIC). COSEWIC reports to the Canadian Endangered Species Conservation Council (CESCC), which is made up of federal, provincial, and territorial ministers responsible for the management of species at risk. That body in turn makes recommendations

to parliament, which can designate protected status under SARA.

COSEWIC is composed of 30 voting members from a variety of organizations to facilitate national agreement on species at risk in Canada:

- Four members from federal government departments (the Canadian Wildlife Service, Department of Fisheries and Oceans, Parks Canada, and the Canadian Museum of Nature on behalf of the Federal biodiversity Information Partnership)
- Thirteen members from provincial and territorial governments
- Three members from national non-government scientific, conservation or environmental organizations
- Nine scientific specialists on particular taxonomic groups (chairs of Species Specialist Subcommittees; see below)
- One chair from the Aboriginal Traditional Knowledge (ATK) Specialist group

Candidates for COSEWIC are appointed to a four-year renewable term. Each of the nine Specialist Subcommittees focuses on a particular taxonomic group. They are made up of scientific experts and at least one expert from the ATK Subcommittee. SSC members are also appointed to four-year renewable terms, and are expected to conduct assessments with strict impartiality and independent of non-scientific considerations.

Lepidoptera are handled by the Arthropod Specialist Subcommittee. This group is also actively assessing

odonates, tiger beetles, bees, and selected other arthropod taxa. The subcommittee maintains a prioritized candidate list, and puts names forward for consideration by the parent committee (COSEWIC) to consider for funding an evaluation. From the species put forward by the various SSCs, COSEWIC selects a small number of species each year and commissions status reports on them. A significant percentage of these have been insect species in recent years. COSEWIC may also accept unsolicited reports from the public. These reports are then approved by the subcommittee and used to suggest assessments of the species' risk of extinction or extirpation. The assessment is a rigorous process based on population size, geographic range, and the perceived threats to the species. The result is a status recommendation; the species is deemed not *at risk*, *threatened*, *endangered*, *extirpated*, or *extinct*. Additionally, a species can be deemed to be of *special concern* if it does not quite meet the requirements of

threatened or *endangered*, but the subcommittee has a good reason to recommend that it be protected nevertheless. A species can also be deemed *data deficient*, meaning that not enough is known about the species, to make an accurate designation. Assessments of *threatened*, *endangered*, or of *special concern* result in a recommendation for protected status under SARA. At that point, the recommendations are reviewed by the Canadian Endangered Species Conservation Council, and then sent to parliament for debate before (hopefully) being passed into law. Species are re-assessed every ten years to see if a status change is warranted.

So far, COSEWIC has assessed 29 butterfly and moth species for conservation status; 10 of these occur in Alberta (Table 1). Detailed status reports and regular summary reports of species at risk are available on the COSEWIC website (Committee On the Status of Endangered Wildlife in

Canada 2009). A list of species protected under SARA is available on the SARA registry website (Species at Risk Public Registry 2008).

Provincial Protection in Alberta

Provincially in Alberta, protected status for threatened and endangered species is designated under the Alberta Wildlife Act. Species are assessed by the Scientific Subcommittee of the Alberta Endangered Species Conservation Committee (AESCC). The scientific subcommittee is made up of experts from across all biological disciplines, and deals with plants and animals. Like its federal counterpart on COSEWIC, the subcommittee commissions status reports and makes status recommendations to the parent committee, the AESCC. However, unlike its federal counterpart, the AESCC includes members from industry and non-governmental organizations, as well as from government departments. With such a diverse group of stakeholders at the table, in a province whose economy

Species	Common Name	Assessment Date	COSEWIC Recommendation	SARA Protection
<i>Schinia avemensis</i> (Dyar)	Gold-edged Gem	2006	endangered	endangered
<i>Satyrrium semiluna</i> Klots	Half-moon Hairstreak	2006	endangered	endangered
<i>Prodoxus quinquepunctella</i> (Chambers)	Five-spotted Bogus Yucca Moth	2006	endangered	endangered
<i>Tegeticula corruptrix</i> Pellmyr	Non-pollinating Yucca Moth	2006	endangered	endangered
<i>Tegeticula yuccasella</i> (Riley)	Yucca Moth	2002	endangered	endangered
<i>Schinia verna</i> Hardwick	Verna's Flower Moth	2005	threatened	pending
<i>Danaus plexippus</i> (Linnaeus)	Monarch	2001	special concern	special concern
<i>Limenitis weidemeyerii</i> Edwards	Weidemeyer's Admiral	2000	special concern	special concern
<i>Melaporphyria immortua</i> Grote	Dark-banded Flower Gem	2005	data deficient	none
<i>Copablepharon grandis</i> (Strecker)	Pale Yellow Dune Moth	2007	special concern	pending
<i>Copablepharon longipenne</i> Grote	Dusky Dune Moth	2007	endangered	pending

Table 1. *Lepidoptera* species occurring in Alberta that have been assessed for conservation status by COSEWIC, and resulting SARA protection. See photos pp. 93.

is based on resource extraction, the AESCC's review of protected status recommendations can be a politically-charged process. For example, protected status for the Grizzly Bear, a contentious species with an Alberta population somewhere under 1000, has been stalled for years as stakeholders debate its status as either a game animal or threatened species. If a species' status recommendation passes review by the EASCC, a recommendation is made to the provincial Minister of Sustainable Resource Development, to designate protected status under the Alberta Wildlife Act. Under the act, it is illegal to purposely harm or kill a protected species on provincially-controlled or private land in Alberta, and a recovery plan must be developed and put into action for the species. Implementation of recovery plans is another matter; the involvement of diverse stakeholders means that the will and resources to change land usage are often lacking. We have seen meaningful steps taken for charismatic species such as the Peregrine Falcon and Swift Fox, but recovery actions for other species are often stalled at the planning stage.

A major problem with the Alberta Wildlife Act is that invertebrates are not currently covered under it, so there is no official provincial protection at this time for them. Members of the AESCC are currently working to propose changes to the Provincial Species at Risk Act, to extend protection to invertebrate species. Despite the

current lack of legislated protection for them, the AESCC has assessed a few insect species that had already been designated federally. So far, three Lepidoptera species have been evaluated: Weidemeyer's Admiral (*Limenitis weidemeyerii* Edwards) has been designated "Special Concern"; the Yucca Moth (*Tegeticula yuccassella* (Riley)) has been recommended for "Endangered" status; and Verna's Flower Moth (*Schinia verna* Hardwick) has been designated as "data deficient". Provincial status reports and other information can be found on the AESCC website (Alberta Endangered Species Conservation Committee 2009).

General Status Rankings

Besides the aforementioned federal and provincial assessments of selected species, general status assessments are carried out on selected taxonomic groups in Canada. Like global G-ranks (NatureServe 2009), these rankings do not confer any protected status, but they provide a general perspective on the conservation status of wild species. Federally, the National General Status Working Group (NGSWG) assigns federal and provincial rankings to all species in certain target groups, and produces a report every five years. The NGSWG is made up of representatives from each of the 13 Canadian provinces and territories, as well as representatives from federal agencies that deal with wild species. Butterflies were first ranked in 2000 (Canadian

Council 2001); selected moth groups (saturnids, sphingids, and arctiine noctuids) are scheduled to be included in the 2010 report.

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