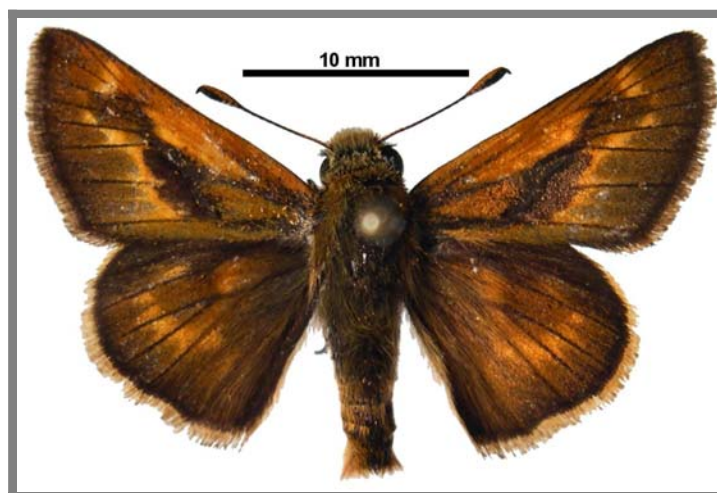


COSEWIC
Assessment and Status Report

on the

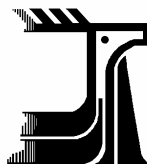
Sonora Skipper
Polites sonora

in Canada



SPECIAL CONCERN
2006

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA



COSEPAC
COMITÉ SUR LA SITUATION
DES ESPÈCES EN PÉRIL
AU CANADA

COSEWIC status reports are working documents used in assigning the status of wildlife species suspected of being at risk. This report may be cited as follows:

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Production note:

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Sonora Skipper— Provided by the author.

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COSEWIC Assessment Summary

Assessment Summary – April 2006

Common name

Sonora Skipper

Scientific name

Polites sonora

Status

Special Concern

Reason for designation

This skipper occurs in some moist grassy openings in a forested landscape. It is known from only six locations in a small, restricted area of Canada where its distribution is very patchy and it does not occupy all apparently suitable available habitats. The ability of Canadian populations to benefit from immigration from other Canadian populations or from populations in adjacent Washington State is likely limited at best. The skipper is threatened by intensive grazing and habitat loss due to natural habitat change and road construction. However, it shows some ability to make use of some man-made habitats, such as grassy roadside areas, agricultural meadows and small clearcuts, but only if these habitats are moist or mesic.

Occurrence

British Columbia

Status history

Designated Special Concern in April 2006. Assessment based on a new status report.



COSEWIC
Executive Summary

Sonora Skipper
Polites sonora

Species information

The Sonora Skipper is a butterfly of the skipper family Hesperiiidae. Adults have a wingspan of 25 to 30 mm. The upper side of the wings is a combination of rusty orange and brown with blackish wing borders. The under side of the forewings has a basal black patch, tawny and pale areas in the median area, and a dark brown border. The ventral surface of the hindwings is ochre brown with a distinct semicircular band of pale spots. Canadian specimens do not fit the description of any named subspecies, but only one entity exists in Canada and the entire entity is the subject of this status report.

Distribution

The species is widely distributed in western North America, from extreme southwestern British Columbia south to Baja California and east in the United States to Wyoming and Colorado. The known Canadian distribution is limited to the Cascade Mountains and adjacent Thompson Plateau, south of Princeton, British Columbia. There are some old records of the species from sites that have not been verified recently and some recent records from six Canadian locations, as well as one unconfirmed record.

Habitat

Known habitats for the Sonora Skipper are moist grassland openings in mountainside forests, logged areas and an agricultural clearing in a valley bottom.

Biology

Very little is known about the biology of the Sonora Skipper in Canada or elsewhere. It has been reared successfully in the laboratory on several grass species, but the larval food plants used in nature are unknown. Adults have been found from 21 June to 13 August.

Population sizes and trends

The sizes and trends of individual Canadian populations of the Sonora Skipper are unknown. Only small numbers of adults have been observed in Canada.

Limiting factors and threats

The most likely limiting factor for the Sonora Skipper is the availability of moist grassy habitat without tree cover in an area where coniferous forests predominate. Intensive grazing, forest ingress into meadows, and fire may have a negative impact on populations. Logging has increased habitat supply in one location, but future plantation growth will render the habitat unusable if grassy openings are not maintained.

Special significance of the species

The Sonora Skipper is one of several butterfly species that have a primarily southern distribution in North America and reach their northern range limits in extreme southern British Columbia. The Canadian population is part of an apparently disjunct population group that occurs only in the north Cascade Mountains near the border between British Columbia and Washington, with six of the eleven (55%) known locations of the group occurring in Canada.

Existing protection

If the Sonora Skipper is still extant in Manning and Cathedral Provincial Parks, it is protected under provincial legislation. There is no specific legislation that protects this species in Canada.



COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5th 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

DEFINITIONS (2006)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and it is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.



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The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

COSEWIC Status Report

on the

Sonora Skipper

Polites sonora

in Canada

2006

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SPECIES INFORMATION

Name and classification

Polites sonora (Scudder, 1872) is a butterfly in the skipper family, Hesperidae. The subspecific status of Canadian populations is uncertain, as noted by Pyle (2002). Canadian populations were assigned to subspecies *sonora* in Guppy and Shepard (2001), Llewellyn-Jones (1951), McDunnough (1938), and Pyle (2002), and to subspecies *siris* (W.H. Edwards, 1881) in Dornfeld (1980), Holland (1931), Layberry *et al.* (1998), Howe (1975), Scott (1986), and Tilden and Smith (1986). Based on existing literature, it is impossible to conclude whether Canadian populations belong to either subspecies *sonora* or *siris*.

All populations in the United States east of the Sierra Nevada Mountains have been assigned historically to subspecies *utahensis* (Skinner, 1911), but recently Austin (1998) described the subspecies *flaviventris* and *longinqua* from Nevada. These three names do not apply to Canadian populations.

The Canadian populations may be an undescribed subspecies (Kondla 2003). Regardless of the subspecies-level taxonomy, only one entity exists in Canada and the entire entity is the subject of this status report.

Morphological description

The Sonora Skipper in Canada is an average-sized skipper with a wingspan of 25 to 30 mm (Figure 1). Colour illustrations of Canadian specimens are available in Layberry *et al.* (1998), Guppy and Shepard (2001), and Kondla (2003). The dorsal wing surface is a combination of rusty orange and brown with blackish wing margins. The ventral surface of the forewings has a black basal patch, some tawny and pale areas in the median portion of the wing, and an olive-green marginal area that is most pronounced at the apex. The ventral surface of the hind wings is olive-green with a distinct semicircular band of pale spots as well as one, linear, pale spot near the wing base. Males have a black, elongated stigma on the forewing. Females are similar to males, except they lack a stigma and are usually larger.

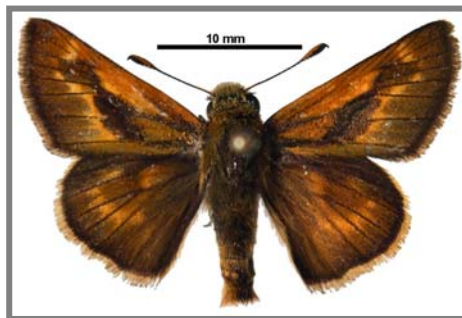


Figure 1. Dorsal view of a male *Polites sonora* from British Columbia.

Some of the immature stages of *Polites sonora* have been described as follows by Newcomer (1967) from an unstated location in Washington, and hence the subspecies is unknown:

“EGG. – Basal diameter 1.0 mm, height 0.7 mm. Color very light green. Spherical with small flattened base, not flanged. Finely reticulate.

LARVA. – FIRST INSTAR. – Head width 0.6 mm, shiny black. Body length 1.75 mm, creamy white, a few setae on last two segments; cervical shield black.

SECOND INSTAR. – Head width 0.75 mm, black. Body length 3-5 mm, greenish, covered with numerous minute brown dots; cervical shield black.

THIRD INSTAR – Head width 1.0 mm, solid black, punctate. Body length 5 mm, grayish green with many fine black setae and a few longer ones on posterior segment.”

Scott (1992) stated that the egg of subspecies *utahensis* is pale green when laid but later develops an orangish flush. He described the first and second instar larvae as yellow-cream with a light orange-brown neck and a dark brown collar and head. Scott also noted that the pupa is very similar to that of the Long Dash Skipper, *Polites mystic* (W.H. Edwards, 1863).

Genetic description

The Guelph Centre for DNA Barcoding has assembled the mitochondrial DNA sequence of cytochrome C oxidase from two specimens of *P. sonora* collected from the Copper Mountain road near Princeton, British Columbia.

DISTRIBUTION

Global range

The Sonora Skipper occurs in a roughly triangular area of western North America: from Baja California in the south, northeast to eastern Wyoming, northwest to southwestern British Columbia, and west in the United States to the Pacific coast. Within this general area, the species is represented by three major disjunct groups of populations plus two small populated areas (in southern California and northern Baja California), which in total constitute a relatively small portion of North America (Figure 2). The group of populations that occurs in Canada is apparently restricted to the northern Cascade Mountains and the adjacent Thompson Plateau of British Columbia and adjacent Washington (Figure 3).

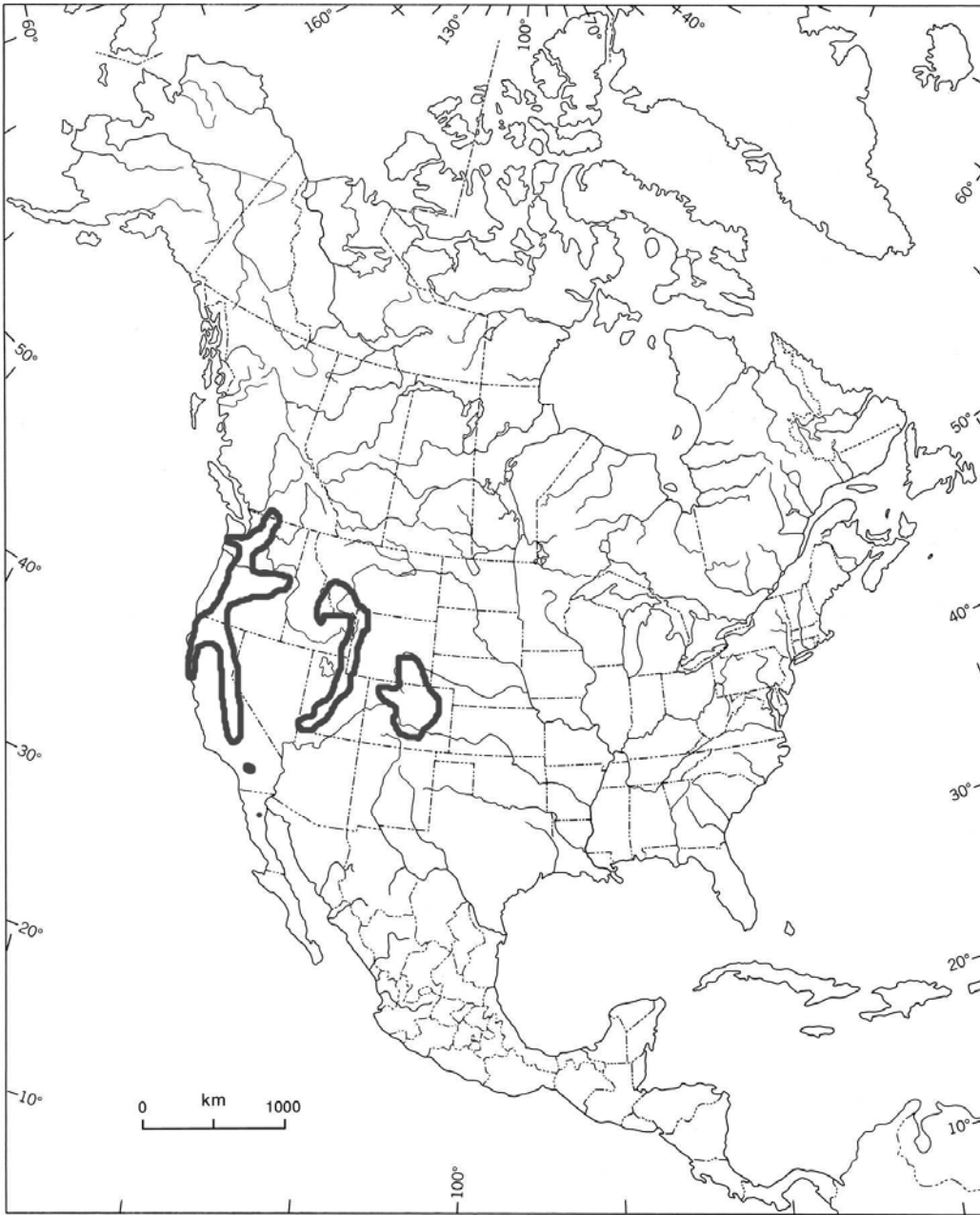


Figure 2. Global range of *Polites sonora*.

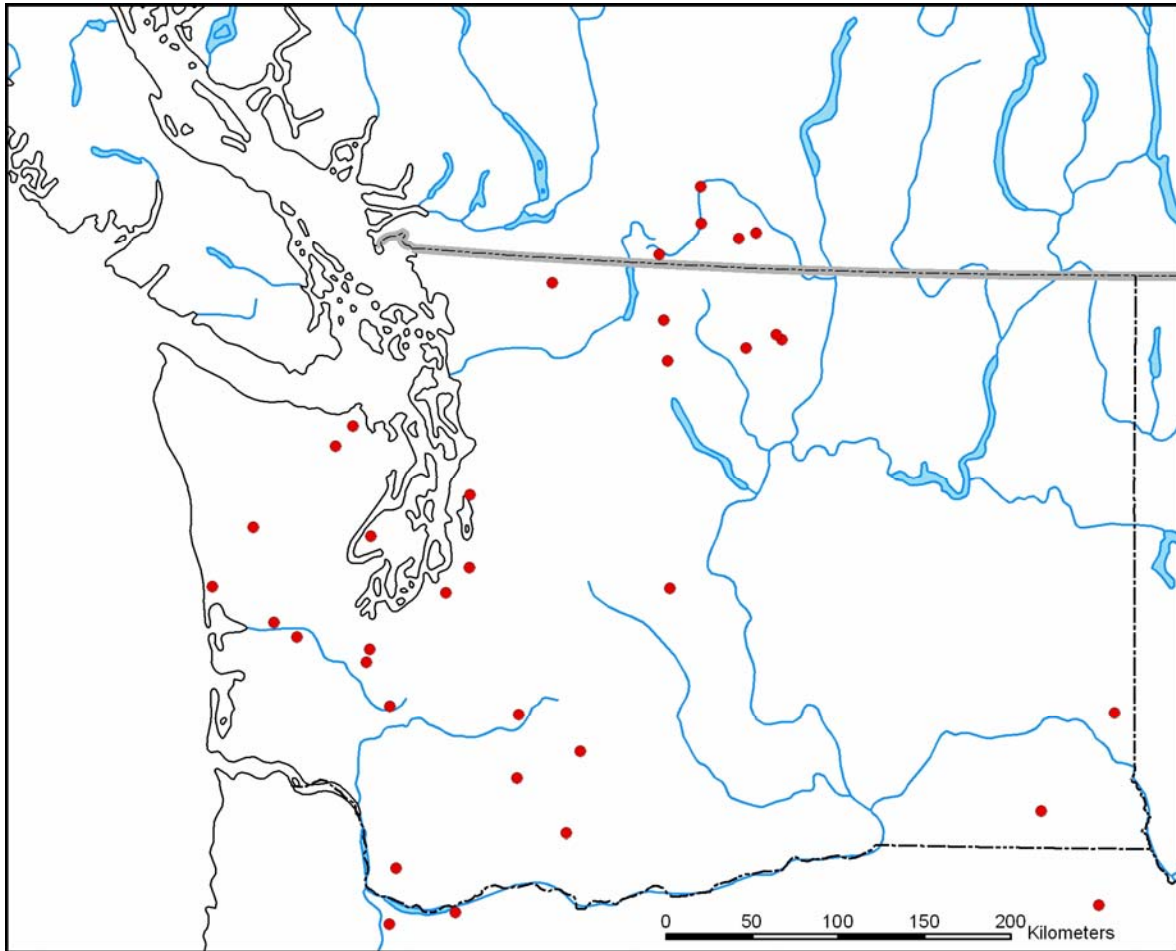


Figure 3. Distribution of *Polites sonora* in southern British Columbia and adjacent United States (adapted from Guppy and Shepard, 2001).

Canadian range

The Canadian range of the Sonora Skipper is limited to south central British Columbia (Figure 4, see Appendix I for a list of Canadian specimen records). In the past, Sonora Skippers were known from three reasonably precisely defined locations, two on Crater Mountain and one at Twenty-minute Lake in Manning Provincial Park. A 1989 record exists from an undefined location in “Manning Park”, which may or may not be Twenty-minute Lake. The species was also known from one or two imprecisely defined locations in the “Hope Mountains”, a historical term referring to the Cascade Mountains between Hope and Princeton. Crater Mountain is in the Okanagan Range, and Manning Park and the “Hope Mountains” are in the Hozameen Range. Both ranges are in the Cascade Mountains. The Canadian range of the Sonora Skipper is estimated to be less than 1% of the species’ global range.

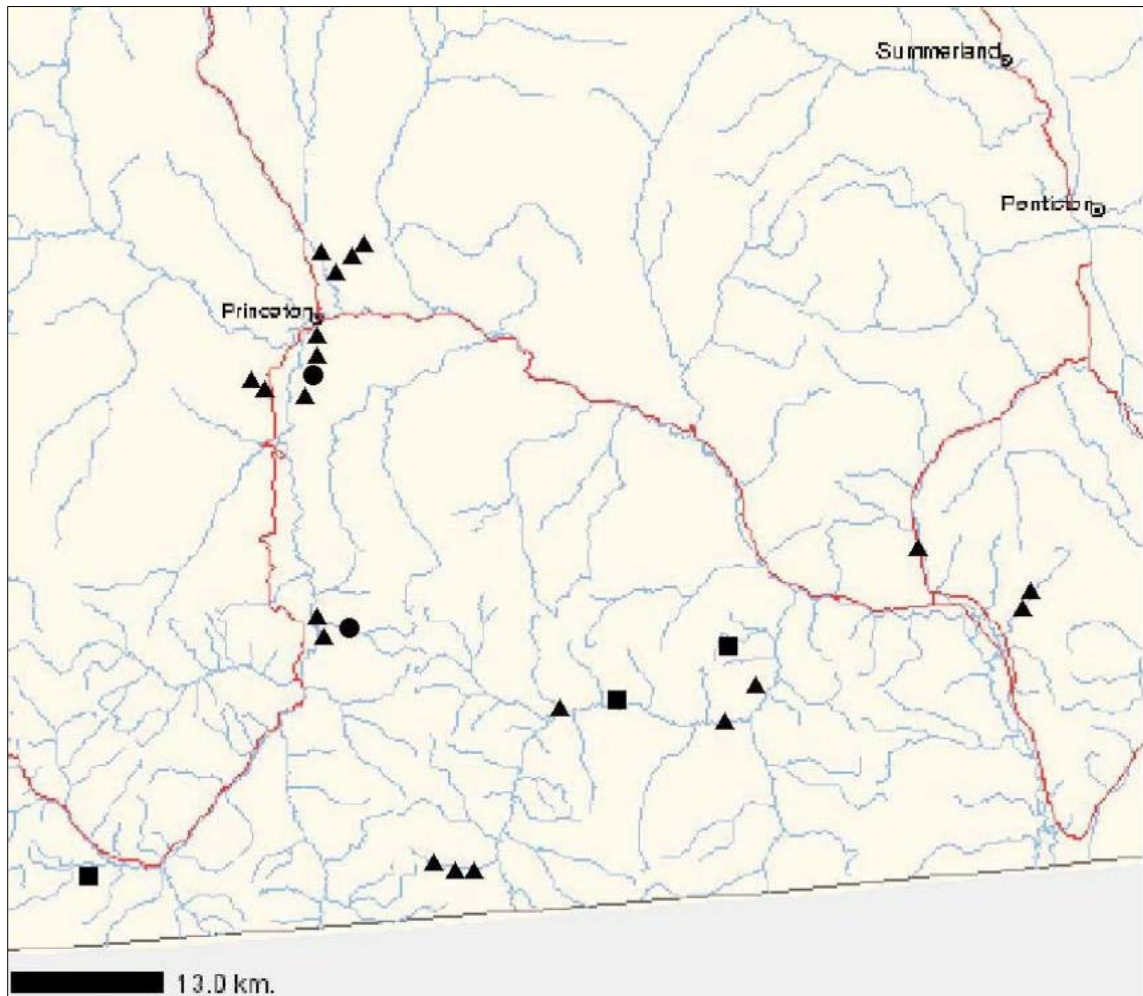


Figure 4. Canadian distribution records of *Polites sonora* (square=previously known locations, not surveyed in 2003; circle=new locations found in 2003; triangle= locations surveyed in 2003 but no *P. sonora* found). Note: due to map scale, not all locations can be displayed as individual symbols.

The distribution map in Layberry *et al.* (1998) incorrectly shows the record for “Hope Mountains” at the location of the town of Hope, as demonstrated by the Canadian Biodiversity Information Facility database (<http://www.cbif.gc.ca/portal/digir-toc.php>) having the coordinates of Hope associated with the record for the “Hope Mountains” specimen in the Canadian National Collection of Insects, Arachnids and Nematodes. The distribution map in Layberry *et al.* (1998) shows a record for Merritt on the Thompson Plateau for which the supporting information could not be located; this record is considered here to be a mapping error and is not included in Figures 3 and 4. The “Merritt” dot is precisely north of the Manning Park dot, suggesting that the latitude was incorrectly entered into the mapping database for one of the Manning Park records.

Field work in 2003 by N. Kondla resulted in an additional location for the Sonora Skipper in the Wolfe Creek valley south of Princeton, and another in the Placer Creek

valley east of Manning Park. No voucher specimens from these two new locations appear to have been deposited in a public collection, but some reside in the private collection of N. Kondla. The known Canadian range of the Sonora Skipper consists of portions of the Cascade Mountains from Manning Park east to Crater Mountain and the Thompson Plateau immediately south of Princeton.

The full distribution of the Sonora Skipper in Canada will only become known through a carefully designed inventory program. Additional unsampled suitable habitat that is not accessible by the road system likely occurs in this portion of southern British Columbia. Based on the presently known distribution, the potential maximum extent of occurrence of the Sonora Skipper in Canada is in the order of 2100 km² (based on the area of the convex polygon that encompasses the geographic distribution of all known sites where the species is believed to be extant). However, this range consists primarily of obviously unsuitable alpine, forest and arid grassland habitats, with apparently suitable moist grassland habitat occurring on only a small fraction of the total range. Thus, the maximum current area of occupancy, based on a visual estimate of potentially suitable habitat from satellite images, is less than 5% of the potential maximum extent of occurrence, or about 100 km². However, the species does not occupy all apparently suitable habitats, as discussed in the next section. Kondla and Guppy estimate, from the limited existing data and based on their personal experience, that the area of occupancy is certainly less than 100 km² and may be less than 20 km².

HABITAT

Habitat requirements

Locations known to be occupied by the Sonora Skipper include a grassy roadside area along the upper Ashnola River, mesic grassy forest openings on the northeast slope of Crater Mountain (elevation 1160 and 1670 metres), a moist agricultural meadow south of Princeton, and moist grassy logged areas near Placer Creek. On Crater Mountain near Keremeos, the habitat description of “dry grassy slopes” given in Guppy and Shepard (2001) is poorly phrased and, according to C. Guppy, was intended to contrast with the distinctly wet meadow habitats of the two *Polites* species discussed in the pages immediately prior to the treatment of *P. sonora*, rather than referring to truly “arid” grassy slopes. Kondla conducted comparative searches of nearby moist, mesic and dry habitats on three days (dates and locations not provided) in 2003 at and near the Placer Creek population. The species was only seen in the moist and mesic vegetation types. Figures 5 and 6 illustrate two habitat patches occupied by the Sonora Skipper in 2003.



Figure 5. Sonora Skipper habitat in an agricultural field near Princeton.

Pyle (2002) describes *Polites sonora* habitat in Washington and Oregon as “flowery meadows, cloverly pastures, forest lanes and roadsides, stream banks, grassy clearings in woodland, and swampy springs”; “boggy edges of logging roads”; “an artificial meadow at an abandoned logging camp”; and “subalpine turf”. Layberry *et al.* (1998) report the habitat as “moist grassy areas from low elevations high into the mountains”. The few known Canadian locations range in elevation from 765 m to 1700 m.



Figure 6. Sonora Skipper habitat in a logged riparian area SW of Princeton.

The detailed habitat requirements of the Sonora Skipper are unknown, but it is significant that this species does not occur in all visually suitable habitat and is sometimes present in only a small portion of an occupied habitat patch. According to

J. Pelham (pers. comm.), “colonies can be extremely colonial and local” in Washington State. This was also the case at the two Canadian locations examined by Kondla in 2003. At Wolfe Creek, the skipper was present in only one of the four visually suitable habitat patches searched. Several hours of searching revealed that within the occupied habitat patch of approximately 105,000 m², the skippers were present only in an area of approximately 400 m² (0.4%). A similar situation occurred at Placer Creek.

Habitat trends

The total area of suitable habitats for the Sonora Skipper may have increased in response to the removal of closed canopy forests. Tree removal by agriculture and forestry generally creates temporary habitats with a longevity measured in decades. However, forest ingrowth is a significant factor reducing the size and number of meadows available to the Sonora Skipper within the butterfly’s known range in British Columbia. Wildfire control may have decreased the amount of suitable natural habitat by increasing the total area occupied by mature forests. Turner and Krannitz (2000) have documented ingrowth of trees into meadows and grasslands, and point out that there is likely a positive interaction between grazing and fire suppression that hastens forest ingrowth. Gayton (2003) also notes that the areas near sites where the Sonora Skipper has been found are biodiversity hotspots with high species richness and concentrations of species at risk within areas undergoing rapid grassland changes. Within the range of the skipper, patches of suitable habitat are continually created and lost. Hence the net benefit of human-created habitats depends on the rate at which habitat patches are created and colonized compared to the rate of loss of habitat patches to more intensive agricultural activity or forest regeneration.

Habitat protection/ownership

If the populations of Sonora Skippers previously reported from Manning Provincial Park and Cathedral Provincial Park still exist, they may be protected from infrastructure development and some other human activities (depending on park development), but may be threatened through forest and shrub encroachment. The other known locations are on provincial Crown land and private land and presently lack protection.

BIOLOGY

Life cycle and reproduction

Adult Sonora Skippers have been found in Canada from 21 June to 13 August, with the later dates being at higher elevations. The species has one generation per year and has the typical life cycle of Lepidoptera. The skipper has been reared in the laboratory on lawn grass and blue bunchgrass (*Festuca idahoensis*) (Newcomer 1967) in Washington and on Kentucky bluegrass (*Poa pratensis*) in Colorado (Scott 1992). The larval food plant(s) used in nature are unknown. One or more grass species are the likely larval food plants in Canada.

Predation

There is no information on predators or parasitoids of Sonora Skippers. Typical predators of butterflies in Canada are insectivorous birds, small mammals, spiders, and predacious insects. Typical parasitoids are various species of flies (Order Diptera) and wasps (Order Hymenoptera) (Guppy and Shepard 2001).

Physiology

There is no information on the physiology of *P. sonora*.

Dispersal/migration

There is no information on dispersal in the Sonora Skipper. A related species, *Polites sabuleti*, has apparently undergone a considerable range extension northward in Washington State and British Columbia in the last 50 years, suggesting considerable dispersal and colonization ability. Pyle (2002) notes significant ability by *P. sonora* to colonize newly available suitable habitats in Washington State. *Polites sonora* appears to be able to colonize new suitable habitat as long as it is not too distant from an occupied site. The distance over which the skipper will disperse across unsuitable habitat is unknown, but is thought to be likely less than 10 kilometres. There is no evidence for migration in any *Polites* species, including *P. sonora*.

Interspecific interactions

There is no information regarding interspecific interactions involving *P. sonora*.

Adaptability

The Sonora Skipper is apparently somewhat adaptable with respect to its habitat requirements, given its occurrence in habitats created by agricultural and forestry activities.

POPULATION SIZES AND TRENDS

Search effort

Guppy and Shepard (2001) show only three (two overlapping) distribution dots for the entire Canadian range of *P. sonora*. Layberry *et al.* (1998) show four distribution dots, of which one (Merritt) is unconfirmed and is considered by Guppy and Kondla to be an error. Guppy and Shepard (2001) omitted the "Hope Mountains" record from their distribution map because of lack of locality precision, while Layberry *et al.* (1998) apparently mapped those specimens as being from "Hope". Therefore there are four confirmed locations that have not been recently checked, two of which are on Crater Mountain. Kondla found two additional locations through focused search in 2003 (detailed data and search effort information not available), for a total of six locations.

The few Canadian records are from an area of southern British Columbia that has been frequently visited for purposes of recreational and research-related insect collecting for more than 100 years. There are many thousands of specimens and specimen records of butterflies for this area, in stark contrast to the few records of *Polites sonora*. It is therefore reasonable to conclude, solely on the basis of historical information, that *Polites sonora* is not a common species that has been consistently overlooked by many observers over many years. In contrast, Anna's Blue (*Plebejus anna* or *Lycaeides anna* (W.H. Edwards, 1861), depending on taxonomic preference) is a common species in the same area as the Sonora Skipper and occupies natural mesic meadows and logged areas. Its flight period also overlaps that of the Sonora Skipper. Guppy and Shepard (2001) show 15-20 distribution records for Anna's Blue in the same area as the known distribution of the Sonora Skipper. These distribution records are evidence that observers were present in the right habitats at the right time of year to have noticed the Sonora Skipper if it had been present.

In 2003, Kondla conducted presence/absence searches (no dates or location information provided) on 11 days during the flight period within the plausible range of this species. Searches were conducted in 10 areas comprising more than 40 sites in conditions suitable for butterfly flight activity. Two additional areas with multiple sites were searched under marginal conditions for butterfly flight, so presence or absence of the species in these areas is inconclusive. Search methodology consisted of walking through potential occupied habitat, stopping periodically, disturbing herbaceous and shrubby vegetation and observing. Flowers and puddling sites were also examined. Searches were made of moist, mesic and dry non-forested habitats. Sites were selected based on access practicalities and presence of suitable vegetation structure. One 'site' consisted of a 6-km trail transect through natural habitat with ample visually suitable habitat patches.

This focused searching resulted in confirming the presence of Sonora Skippers in two areas at four sites. This low frequency of occurrence within potentially suitable habitat is consistent with the lack of records and supports the interpretation that the Sonora Skipper is a highly localized species within its extremely limited Canadian range.

Abundance

There are no empirical data on the population sizes of this species in Canada or elsewhere. In 2003, at least 15 adult Sonora Skippers were seen at the Wolfe Creek site and at least 15 were also seen at the collective Placer Creek sites. All past collections are of one or a few individuals; no large populations are known. Kondla and Guppy did not do any quantitative survey work, but based on their experience and knowledge of butterflies in general, believe the total plausible population size in Canada to be in the order of 3,000 to 5,000. This is their best guesstimate and is not based on any "hard" data.

Fluctuations and trends

There is insufficient information to identify empirical or even estimated population fluctuations or trends for *P. sonora* in Canada.

Rescue effect

The Sonora Skipper is known to occur in Canada at six locations, each of which may represent a population that is more or less isolated from the other Canadian populations by areas of unsuitable habitat. Two of these populations are quite close together. The others are separated from the closest population by a distance of 10 to 65 km. Because of the fragmented nature of the species' distribution, there is likely little or only limited exchange of individuals between most of the population clusters in Canada.

There are only a few known locations occupied by the Sonora Skipper in the northern Cascade Mountains of Washington (Hinchliff 1996), and there is an apparent 50-km disjunction between the nearest known of these populations and the nearest Canadian location. This apparent disjunction may be explained by the possible existence of inaccessible and unsurveyed suitable habitat in the 50-km area. Despite insufficient survey effort to determine whether the apparent disjunction is a sampling artifact, there is indirect evidence that the disjunction is real. A review of United States Geological Survey (USGS) topographic maps and satellite images indicates that the area of the apparent disjunction is entirely forested below the subalpine zone (about elevation 1900 m). Therefore the apparent lack of suitable habitat for the Sonora Skipper in the 50-km area indicates that there is a low probability of the skipper occurring at other, more northern sites in Washington State. South of the few known localities in the northern Cascade Mountains of Washington, there is another apparent disjunction of approximately 130 km in the known distribution of the Sonora Skipper in the US (Fig. 3). Consequently, natural re-establishment of Sonora Skippers from the known Washington locations, in the event that the species were to become extirpated from Canadian locations, is unlikely to occur.

LIMITING FACTORS AND THREATS

The most significant limiting factor for the Sonora Skipper is the limited availability of moist, open grassy areas in a landscape that consists primarily of closed canopy coniferous forest. What little grassland exists is predominantly too arid for Sonora Skippers. Plausible threats to Sonora Skipper habitat are intense livestock grazing, natural succession of open areas to closed canopy forests, road construction, and aging of forestry plantations to a closed canopy. Wildfires or controlled burns, although likely to increase habitat availability, may also be a threat to existing populations.

SPECIAL SIGNIFICANCE OF THE SPECIES

This species is one of a small group of butterflies that reach the northern limit of their global range in the Cascade Mountains area of extreme southern British Columbia. The six known Canadian locations for the skipper, each of which may represent a population, are part of an apparently disjunct population group that occurs only in the north Cascade Mountains, with six of the eleven (55%) known locations of the group occurring in Canada.

EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS

Any populations of Sonora Skippers that may still exist in Manning and Cathedral Provincial Parks are protected under the British Columbia Provincial Parks Act, except from park development. The skipper has status as “Identified Wildlife” under the Forest and Range Practices Act of British Columbia.

The Nature Conservancy ranks the Sonora Skipper G4, N1 in Canada, N4 in the United States, S1 in British Columbia, and S4 in Washington.

TECHNICAL SUMMARY

Polites sonora

Sonora Skipper

Range of Occurrence in Canada:

Hespérie du Sonora

Extent and Area Information	
• <i>Extent of occurrence (EO)(km²)</i>	2100 km ²
• <i>Specify trend in EO</i>	unknown
• <i>Are there extreme fluctuations in EO?</i>	Unknown, but probably not
• <i>Area of occupancy (AO) (km²)</i>	20-100 km ²
• <i>Specify trend in AO</i>	Unknown, may be declining due to grazing and forest ingrowth
• <i>Are there extreme fluctuations in AO?</i>	Unknown, but probably not
• <i>Number of known or inferred current locations</i>	2 known plus 4 previous but recently unverified
• <i>Specify trend in #</i>	Unknown
• <i>Are there extreme fluctuations in number of locations?</i>	Unknown, but probably not
• <i>Specify trend in area, extent or quality of habitat</i>	Some gains and some losses; overall unknown, but may be declining
Population Information	
• <i>Generation time (average age of parents in the population)</i>	One year
• <i>Number of mature individuals</i>	Unknown
• <i>Total population trend:</i>	Unknown
• <i>% decline over the last/next 10 years or 3 generations.</i>	Unknown
• <i>Are there extreme fluctuations in number of mature individuals?</i>	Unknown
• <i>Is the total population severely fragmented?</i>	Likely
• <i>Specify trend in number of populations</i>	Unknown
• <i>Are there extreme fluctuations in number of populations?</i>	Unknown, but probably not
• List populations with number of mature individuals in each: (Note: this is a list of known locations for the species and it is assumed that they also represent separate populations.) Hope Mountains – unknown Manning Provincial Park – unknown Placer Creek – unknown Wolfe Creek – unknown Ashnola River valley – unknown Crater Mountain - unknown	
Threats (actual or imminent threats to populations or habitats)	
<ul style="list-style-type: none"> - forest ingress into meadows - aging of forestry plantations - road construction - intense livestock grazing - fire 	

Rescue Effect (immigration from an outside source)	
• <i>Status of outside population(s)?</i>	USA: Ranked S4 in Washington state
• <i>Is immigration known or possible?</i>	Not known and unlikely
• <i>Would immigrants be adapted to survive in Canada?</i>	Probably
• <i>Is there sufficient habitat for immigrants in Canada?</i>	Possibly
• <i>Is rescue from outside populations likely?</i>	No, unless there are unrecorded populations just south of the Canada-US border
Quantitative Analysis	No quantitative analysis is available.
Current Status	
COSEWIC: Special Concern (2006) NatureServe: G4; Canada-N1; BC-S1; United States-N4; WA-S4 General Status: May be at risk	

Status and Reasons for Designation

Status: Special Concern	Alpha-numeric code: None applicable
Reasons for Designation:	
<p>This skipper occurs in some moist grassy openings in a forested landscape. It is known from only six locations in a small, restricted area of Canada where its distribution is very patchy and it does not occupy all apparently suitable available habitats. The ability of Canadian populations to benefit from immigration from other Canadian populations or from populations in adjacent Washington State is likely limited at best. The skipper is threatened by intensive grazing and habitat loss to natural habitat change and road construction. However, it shows some ability to make use of some man-made habitats, such as grassy roadside areas, agricultural meadows and small clearcuts, but only if these habitats are moist or mesic.</p>	
Applicability of Criteria	
Criterion A: (Declining Total Population): Not applicable	
Criterion B: (Small Distribution, and Decline or Fluctuation):	
<ul style="list-style-type: none"> - the extent of occurrence is smaller than 5,000 km² (2,100 km²) - the area of occupancy is smaller than 500 km² (20-100 km²) - and the population is severely fragmented - but there are no known continuing declines, particularly as some habitat is lost but some is also gained - and no extreme fluctuations are known 	
Criterion C: (Small Total Population Size and Decline):	
<ul style="list-style-type: none"> - the total population is likely fewer than 10,000 (based on a guesstimate of 3,000-5,000) mature individuals - but there are no documented population declines (no population trends) 	
Criterion D: (Very Small Population or Restricted Distribution): not applicable	
Criterion E: (Quantitative Analysis): not available.	

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The following organizations and persons were contacted for pertinent information:

Lower Similkameen Indian Band, Keremeos, BC
Okanagan Nation Alliance, Westbank, BC
Osoyoos Indian Band, Oliver, BC
Penticton Indian Band, Penticton, BC
Upper Similkameen Indian Band, Keremeos, BC
Bob Elner, Canadian Wildlife Service, Delta, BC
British Columbia Ministry of Water, Land and Air Protection

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BIOGRAPHICAL SUMMARY OF REPORT WRITERS

Norbert Kondla is a graduate of the University of Calgary. He has been actively researching butterflies in western Canada for 33 years. He has authored and co-authored numerous reports and scientific papers on the butterflies of this area, including status assessments for all butterflies in British Columbia, Yukon, Northwest Territories and Nunavut as well as several reports on butterflies of conservation interest in Alberta. He has also co-authored one book on butterflies and contributed to several others. Norbert has field experience with *P. sonora* in British Columbia and Nevada.

Crispin Guppy is a graduate (B.Sc., M.Sc.) of the University of British Columbia. He has been actively researching butterflies in British Columbia for 30 years. He has authored and co-authored numerous scientific papers and reports on the butterflies of this area, including status assessments for all butterflies in British Columbia, Yukon, Northwest Territories and Nunavut. He has conducted many inventory projects in British Columbia for butterflies of conservation concern and their habitats. He has co-authored the book *Butterflies of British Columbia* (2001), and edited two books on Russian butterflies. He has field experience with *P. sonora* in British Columbia.

COLLECTIONS EXAMINED

The following collections were examined in person: C.S. Guppy, N.G. Kondla, J.H. Shepard, Canadian National Collection of Insects, Arachnids and Nematodes, Royal British Columbia Museum, and Spencer Entomological Museum. Additional collections that contribute to the Canadian Biodiversity Information Facility were 'examined' via the Internet.

Appendix I. Known Canadian specimen records for *Polites sonora*.

Location	Date	Collector (Institution)*
Keremeos; Crater Mountain [NE slope], el. 3800 feet	21 June 1975	C.S. Guppy (CSG) J.L. Gordon (JHS/OSU)
Keremeos; Crater Mountain [NE slope], el. 5000 feet	15 July 1978	J.H. & S. Shepard (JHS/OSU)
Manning Provincial Park [Twenty Minute Lake]	23 July 1945 27 July 1945	G.A. Hardy (RBCM)
Manning Provincial Park	7 August 1989	P. Klassen (MMMN)
Hope Mountains, el. 5500 feet	13 August 1932	A.N. Gartrell (CNC)
Hope Mountains	16 July 1906	E.H. Blackmore (UBC)
Ashnola River (upper)	22 July 1973	D.L. Threatful (VM)
Wolfe Creek	11,12 July 2003	N.G. Kondla (NGK)
Placer Creek	24,25,28 June 2003	N.G. Kondla (NGK)

*Institutions holding specimens are: CSG = C.S. Guppy collection; JHS/OSU = J.H. Shepard collection recently transferred into the Oregon State University collection; MMMN = Manitoba Museum of Man and Nature; NGK = N.G. Kondla collection; RBCM = Royal BC Museum collection; UBC = Spencer Entomological Museum collection at the University of British Columbia, VM = Vernon Museum.