Threatened Species Assessment

Hesperilla flavescens
Yellow Sedge-skipper Butterfly

Taxonomy

Hesperilla flavescens Waterhouse, 1927

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2003).

Categorised as Vulnerable in the 2009 Advisory list of threatened invertebrate fauna in Victoria (DSE 2009).

Proposed conservation status

Endangered in Victoria

Criterion B2ab(ii,iii,v)

Species Information

Description and Life History

Adults fly rapidly near the larval food plant, *Gahnia filum (*Thatching Grass). Eggs are laid singly, generally on the under surface of lower leaves of the saw-sedge. The young larva makes a shelter near the top of the saw-sedge by joining several leaves with silk or rolling a single leaf. Larger shelters are made as the larva grows and these shelters can be detected by the presence of a folded leaf below the shelter. Larval feeding occurs at night and the larva rests in the shelter during the day. Pupation occurs in the final larval shelter often deep within the tussock. Most adults emerge in the spring but there is a second smaller flight in the autumn but this may be an extended emergence from the spring and not a second brood. The larval stage overwinters.

Generation Length

The generation length of *Hesperilla flavescens* is estimated to be 12 to 15 months. Generally there is a one year life cycle but some larvae seem to develop slowly, emerging in the autumn, giving the appearance of a second generation.

Distribution

This endemic Australian taxon is restricted to western Victoria and south eastern South Australia. The butterfly occurs in isolated populations around saline lakes. Its range has declined because of swamp drainage. It can still be found in small numbers around the edge of salt lakes near Altona, west of Melbourne, on the Bellarine Peninsula and near a number of saline lakes in western Victoria.

Habitat

The taxon inhabits open sedgelands where the larval food plant *G. filum* grows in slightly saline swamps and along the edge of lakes. As this habitat is very fragmented and patchy in distribution, the taxon tends to occur in discrete, highly localised colonies (Braby 2000).

VICTORIA State Government | Environment, Land, Water and Planning

Threats

The main cause of habitat loss for the taxon has been swamp drainage, mainly for industrial developments but also for residential developments. Other immediate threats include weed invasion, fire, rubbish dumping and urban and industrial expansion; the latter has already caused the loss of one colony at Corio.

Altona populations listed by Crosby (1990) are threatened by pollution by pesticides or water-borne chemicals from local industry, human interference (trampling, dust, dumping of rubbish), animal interference (grazing and trampling by stock), inappropriate fire regimes, changed hydrology, weed invasion and smothering, in addition to direct threats to the butterflies by butterfly collectors.

IUCN Criteria

Criterion A. Population size reduction.
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4

	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.

A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [*(a) cannot be used for A3*]

A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.

based on any of the following:

(a) direct observation [*except A3*]

(b) an index of abundance appropriate to the taxon

(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

(d) actual or potential levels of exploitation

(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites

Evidence:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 108 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

There is unlikely to any movement between sites as individuals tend to remain in their breeding areas. Individual occurrences are considered severely fragmented based on the taxon's limited dispersal ability, the barriers to dispersal and/or the lack of habitat separating them. Such fragmentation precludes the possibility of recolonisation in the event of local extinction.

It has a continuing decline in (ii), (iii) and (v) above, based on the impacts of the identified threats.

Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals				

Evidence:

Eligible under Criterion C2 as Vulnerable

It is estimated that there are 4,000 to 6,000 mature individuals, based estimates made by Crosby (1990) at 27 sites in Victoria.

There is an estimated continuing decline, and the number of mature individuals in each subpopulation is possibly fewer than 1000.

Criterion D. Very small or restricted population			
	Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)	< 50	< 250	< 1,000
D2 Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.	-	-	D2. Typically: AoO < 20 km2 or number of locations ≤ 5

Evidence:

Eligible under criterion D2 as Vulnerable

The taxon is estimated to be very restricted.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

Braby, M. F. (2000) *Butterflies of Australia: Their Identification, Biology and Distribution.* Vol. 2. pp. 155-156. ANIC/CSIRO Entomology: Canberra. CSIRO Collingwood.

Crosby, D.F. (1990) A management plan for the Altona skipper butterfly *Hesperilla flavescens flavescens* Waterhouse (Lepidoptera: Hesperiidae). *Arthur Rylah Institute for Environmental Research, Technical Report Series, No*. 98. Melbourne.

DSE (2009). *Advisory list of threatened invertebrate fauna in Victoria - 2009*. Department of Sustainability and Environment, Melbourne.

Field, R.P. 2013.*Butterflies: Identification and life History* pp.82-83. Museum Victoria

SAC (2003). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 658 *Hesperilla flavescens flavescens*