Department of Sustainability and Environment

advisory list of threatened invertebrate fauna in Victoria - 2009



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Cover image

Myrmecia species (17), a threatened bullant from central Victoria. Photography by Gary Backhouse.

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Introduction

Purpose of the List

This advisory list of invertebrate taxa that are considered threatened, poorly known, near threatened or extinct in Victoria is maintained by the Department of Sustainability and Environment.

The information in this list may be of use in a range of planning processes, such as the preparation of National Park Management Plans, Forest Management Plans, local government planning schemes, regional catchment strategies and in setting priorities for actions to conserve biodiversity.

Together with the range of programs and other resources available, lists of this type serve to increase community awareness of threatened species and may encourage community members to become involved in activities to protect threatened species, thereby reducing the risk of their conservation status worsening.

Relationship to Statutory Lists

This advisory list is not the same as the statutory list of threatened taxa established under the Victorian **Flora and Fauna Guarantee Act 1988** (FFG Act). There are no legal requirements or consequences that flow from inclusion of a species in this advisory list.

However, some of the species in this advisory list are also listed as threatened under the FFG Act. The FFG Act Threatened List only includes items that have been nominated, assessed by the Scientific Advisory Committee and approved for listing by the responsible Minister.

There are also species on this list that are listed under the Commonwealth **Environment Protection and Biodiversity Conservation Act 1999**. This information is included in the tables. Readers who are interested in learning more about this Act should visit the Commonwealth Department of the Environment, Water, Heritage and the Arts website www.environment.gov.au

Composition of the List and Assessment of Taxa

For simplicity, the term 'threatened' is used in the title of this list. However, this term actually only applies to taxa that are classified as either vulnerable, endangered, critically endangered, or extinct in the wild. Taxa that are classified as extinct, data deficient or near threatened are not considered to be threatened in the strict sense.

The procedure used to assess which taxa are eligible for listing is that recommended by the IUCN Species Survival Commission (IUCN 2001) [www.iucnredlist.org]. For species that occur widely outside Victoria, the guidelines for applying the IUCN criteria at a regional level (IUCN 2003) were used.

The preparation of this advisory list primarily involved seeking expert opinion from specialists on various invertebrate groups. These specialists were asked to identify likely threatened species, provide information on occurrence and threats (if known) and make a preliminary assessment of conservation status. This information was checked against any published literature (e.g. National Action Plan for Australian Butterflies: Sands & New 2000) and, for those species listed under the FFG Act, information in the listing nomination. The formal conservation status assessments were then undertaken by DSE staff using IUCN Red List categories and criteria (IUCN 2001).

Taxa were only considered for inclusion in this List where they have been formally described or, for undescribed taxa, where a manuscript-ready taxonomic description of the species was available, there are adequately curated voucher specimens and the taxon is recognised by Museum Victoria. Several invertebrates proposed for inclusion in this List by relevant experts did not meet these criteria and were not included. Taxa were not considered for inclusion in this List if they occur in Victoria only as vagrants i.e. rarely, irregularly and in small numbers. Some examples of vagrants to Victoria are the Orchard Butterfly *Papilio aegeus* and the water beetle *Gyrinus convexiusculus*.

It needs to be understood that there are inherent biases in the preparation of this List, which is indicative of the expertise that is available on the various invertebrate groups. For instance, this List includes coverage of only six of the 33 phyla of invertebrates. Even within these six phyla, coverage is very

limited, and only the butterflies and freshwater crays have had a comprehensive conservation status assessment of all species occurring in Victoria. The List is also heavily biased towards freshwater invertebrates, with minimal coverage of terrestrial and marine invertebrates. There is virtually no information available on which to assess the conservation status of species in the other 27 phyla of invertebrates, which reflects the general lack of systematic surveys for invertebrates.

Invertebrate Conservation

The vast majority of living animals are invertebrates, with insects comprising the largest group of invertebrates. Yet, with few exceptions, the conservation of invertebrates has received very little attention, although their conservation is vital. Invertebrates are involved in virtually all of the major ecological processes, and are critical in maintaining functioning ecosystems. Invertebrates are major predators of plants, themselves provide food for many animals, are important in decomposition for nutrient cycling, and in plant pollination, seed dispersal, harvesting and germination. Invertebrates provide food for and products used by humans, are crucial in human food production, and have a largely unrealised potential in biotechnology.

The overwhelming majority of threatened species will be invertebrates, simply because of the vast number of invertebrate species. Scientists have estimated that, for every species of plant that has become extinct, up to 15 species of animals (mostly invertebrates) also become extinct. However this situation is unlikely to be ever reflected in any formal lists of threatened species, because of the lack of information on virtually all invertebrates. Only about one-third of the estimated number of invertebrate species have even been described. There are also problems in determining the conservation status of species for which there is some information. Invertebrates can be abundant in a very small area, experience large fluctuations in numbers in different parts of their life cycles or between seasons, and some have complex life cycles involving several distinctly different stages. Considering the degree of habitat loss and modification in Victoria, there are likely to be many more threatened invertebrates than indicated by this List.

Arrangement of the List

The threatened invertebrate taxa in this List are arranged by Phylum and, for the arthropods, further divided into subphyla due to the relatively large number of arthropod taxa assessed as threatened. Within each phylum (or subphylum), taxa are listed alphabetically by scientific name within each conservation status category. The categories are as follows:

Conservation Status in Victoria

Extinct (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Regionally Extinct (RE)

As for Extinct but within a defined region (in this case the State of Victoria) that does not encompass the entire geographic range of the taxon. A taxon is presumed Regionally Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout the region have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Extinct in the Wild (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal,

annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Critically Endangered (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see IUCN 2001), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see IUCN 2001), and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see IUCN 2001), and it is therefore considered to be facing a high risk of extinction in the wild.

Near Threatened (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

Data Deficient (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

Conservation Status in Australia (EPBC)

National conservation status is based on the **Environment Protection and Biodiversity Conservation Act 1999** (EPBC Act) list of taxa considered threatened in Australia. In some instances the scientific and/or the common names of animals may have changed since the taxon was first listed under the EPBC Act. In such instances the EPBC Act status has been applied to the circumscription intended at the time of listing under the Act. This information is accurate as at July 2009. For further information regarding the EPBC Act and, in particular, for the most up-to-date listings under the Act, refer to the following web site: http://www.environment.gov.au/epbc/ The categories are as follows:

Extinct (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual of the taxon has died.

Critically Endangered (CR)

A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

Endangered (EN)

A taxon is Endangered when it is not critically endangered but is facing a very high risk of extinction in the wild in the near future.

Vulnerable (VU)

A taxon is Vulnerable when it is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-term future.

Conservation Dependent (CD)

A taxon is Conservation Dependent when it is the focus of a specific conservation program, the cessation of which would result in the taxon becoming vulnerable, endangered or critically endangered within a period of five years.

Status under the Flora and Fauna Guarantee Act 1988 (FFG)

This column provides information on the listing status under the provisions of Part 3 of the **Flora and Fauna Guarantee Act 1988.** A taxon may be listed as threatened if it has been nominated, assessed by the Scientific Advisory Committee and approved by the Minister for Environment and Conservation. Any person may make a nomination for listing. This information is accurate as at January 2007. For the most up-to-date listings under the Act, refer to the following web site: http://www.dse.vic.gov.au

Listed (L)

Listed as threatened.

Nominated (N)

Nominated for listing as threatened but has not yet completed the listing process. In some cases, the taxon may have received a preliminary or final recommendation indicating that it is eligible or ineligible for listing. In other cases, the nomination might not yet have been considered.

Invalid or ineligible (I)

Nominated but rejected for listing as threatened on the basis that the taxon was considered to be invalid (either undescribed or not widely accepted) or ineligible (taxon does not satisfy any of the primary listing criteria).

Delisted (D)

Previously listed as threatened but subsequently removed from the Threatened List following nomination for delisting.

Statistics

Category											
Group	EX	RE	EW	CR	EN	VU	NT	DD	Total	FFG	EPBC
Cnidarians	0	0	0	0	0	2	0	0	2	1	0
Platyhelminths	0	0	0	0	0	1	0	1	2	0	0
Molluscs	0	0	0	3	2	5	0	0	10	10	0
Annelids	0	0	0	0	1	0	0	0	1	1	1
Arthropods											
Crustaceans	1	0	0	3	15	26	1	7	53	18	0
Insects	0	5	0	14	10	37	6	30	102	35	1
Echinoderms	0	0	0	0	0	8	0	0	8	7	0
Total	1	5	0	20	28	79	7	38	178	72	2

Table 1: Conservation status classification of threatened invertebrates, by group

Abbreviations: EX = Extinct; RE = Regionally Extinct; EW = Extinct in the Wild; CR = Critically Endangered; EN = Endangered;

VU = Vulnerable; NT = Near Threatened; DD = Data Deficient; FFG = Listed under the FFG Act; EPBC = Listed under the EPBC Act

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Phylum Cnidaria (sea anemones, jellyfish)						
Vulnerable						
Australonmedusa baylii	Brackish Jellyfish					
Ralpharia coccinea	stalked hydroid	L				
Phylum Pl	atyhelmintha (flatworms)					
Vulnerable						
Spathula tryssa	flatworm					
Data Deficient						
Spathula gourbaultae	flatworm					
Phylum Mollusca	(slugs, snails, shellfish, squids))				
Critically Endangered						
Austropyrgus grampianensis	Dairy Creek Austropyrgus Snail	L				
Hyridella glenelgensis	Glenelg Freshwater Mussel	L				
Notopala sublineata	river snail	L				
Fndangered						
Pernagera gatliffi	land snail	L				
Victaphanta compacta	Otway Black Snail	L				
Vulnerable						
Allocharopa erskinensis	land snail	L				
Bassethullia glypta	chiton	L				
Geminoropa scindocataracta	land snail	L				
Platydoris galbana	marine opisthobranch	L				
Rhodope species	marine opisthobranch	L				
Phylum A	nnelida (annelid worms)					
Endangered						
Megascolides australis	Gippsland Giant Earthworm	L	VU			
Phylum Arthropoda-	Subnhylum Crustacea (crustace	ans)				
Tratin et		unsy				
	nhrastaisid isonad					
Crenoicus mixius	phreatolcia isopod					
Critically Endangered						
Engaeus sternalis	Warragul Burrowing Cray	L				
Engaeus urostrictus	Dandenong Burrowing Cray	L				
Gramastacus insolitus	Western Swamp Cray	L				
Endangered						
Austrogammarus australis	Dandenong Freshwater Amphipod	L				
Engaeus curvisuturus	Curve-tail Burrowing Cray	L				
Engaeus hemicirratulus	Gippsland Burrowing Cray					

Subphylum Crustacea (crustaceans) (cont.)

Endangered (cont.)		
Engaeus karnanga	South Gippsland Burrowing Cray	
Engaeus merosetosus	Western Burrowing Cray	
Engaeus phyllocercus	Narracan Burrowing Cray	L
Engaeus rostrogaleatus	Strzelecki Burrowing Cray	L
Engaeus tuberculatus	Tubercle Burrowing Cray	
Engaeus victoriensis	Foothill Burrowing Cray	
Euastacus bispinosis	Glenelg River Spiny Cray	L
Euastacus crassus	Alpine Spiny Cray	L
Euastacus diversus	Orbost Spiny Cray	L
Euastacus neodiversus	South Gippsland Spiny Cray	L
Geocharax falcata	Western Cray	
Geocharax gracilis	Otways Cray	
Vulnerable		
Athanopsis australis	Southern Hooded Shrimp	L
Australatya striolata	Eastern Freshwater Shrimp	L
Austrogammarus haasei	Sherbrooke Amphipod	L
Calamoecia australica	calanoid copepod	
Calamoecia expansa	centropagid copepod	
Canthocamptus dedeckkeri	harpactacoid copepod	
Colubotelson joyneri	phreatoicid isopod	
Colubotelson searli	phreatoicid isopod	
Engaeus australis	Lilly Pilly Burrowing Cray	Ι
Engaeus fultoni	Otway Burrowing Cray	
Engaeus mallacoota	Mallacoota Burrowing Cray	L
Engaeus sericatus	Hairy Burrowing Cray	
Engaeus strictifrons	Portland Burrowing Cray	
Euastacus bidawalus	East Gippsland Spiny Cray	
Euastacus claytoni	Clayton's Spiny Cray	
Euastacus yanga	Variable Spiny Cray	
Eucalliax tooradin	ghost shrimp	L
Gariwerdeus beehivensis	phreatoicid isopod	
Gariwerdeus ingletonensis	phreatoicid isopod	
Gariwerdeus turretensis	phreatoicid isopod	
Michelea microphylla	ghost shrimp	L
Naiopegia xiphagrostis	phreatoicid isopod	
Phreatoicopsis raffae	phreatoicid isopod	
Phreatoicopsis terricola	phreatoicid isopod	
Synamphisopus ambiguus	phreatoicid isopod	
Synamphisopus doegi	phreatoicid isopod	
Near Threatened		
Euastacus armatus	Murray River Spiny Crav	L

Subphylum Crustacea (crustaceans) (cont.)

Data Deficient	
Boekella nyoraensis	calanoid copepod
Canthocamptus longipes	harpactacoid copepod
Canthocamptus mammillifurca	harpactacoid copepod
Canthocamptus sublaevis	harpactacoid copepod
Cherax destructor albidus	Common Yabby subspecies
Fibulacamptus gracilior	harpactacoid copepod
Miralona victoriensis	cladoceran

Phylum Arthropoda–Subphylum Uniramia–Class Insecta (insects)

Regionally Extinct			
Heteronympha cordace wilsoni	Western Bright-eyed Brown	L	
Hypocysta adiante	Orange Ringlet	L	
Ogyris idmo halmaturia	Large Bronze Azure	L	
Synemon theresa	Cryptic Sun Moth	L	
Xylocopa aeratus	Metallic Green Carpenter Bee	L	
Critically Endangered			
Acrodipsas myrmecophila	Small Ant-blue	L	
Candalides heathi 'Wimmera form'	Rayed Blue (Lake Wyn Wyn subspecies)	L	
Leptoperla kallistae	Kallista Flightless Stonefly	L	
Ogyris otanes	Small Bronze Azure	L	
Peronomyrmex bartoni	ant	L	
Riekoperla darlingtoni	Mount Donna Buang Stonefly	L	
Riekoperla isosceles	stonefly	L	
Synemon discalis	Small Orange-spotted Sun Moth		
Synemon jcara	Reddish-orange Sun Moth		
Synemon nais	Orange Sun Moth	L	
Synemon plana	Golden Sun Moth	L	CR
Synemon selene	Pale Sun Moth		
Tanjistomella verna	caddisfly		
Triaenodes vespertina	caddisfly		

Endangered

Acrodipsas brisbanensis cyrilis	Large Ant-blue	L
Antipodia atralba	Diamond Sand-skipper	L
Caliagrion billinghursti	Large Riverdamsel	
Hemiphlebia mirabilis	Ancient Greenling	L
Marteena rubricincta	Large Yellow-spotted Cicada	
Oreixenica latialis theddora	Small Alpine Xenica	L
Paralucia pyrodiscus lucida	Eltham Copper	L
Riekoperla intermedia	stonefly	L
Theclinesthes albocincta	Bitterbush Blue	L
Trapezites luteus luteus	Yellow Ochre	L

Class Insecta (insects) (cont.)

Vulnerable		
Antiporus williamsi	aquatic beetle	
Arachnocampa species	Mount Buffalo Glow-worm	L
Austroaeschna flavomaculata	Alpine Darner	
Dinotoperla walkeri	stonefly	
Ecnomus neboissi	caddisfly	
Ecnomus nibbor	caddisfly	
Hesperilla flavescens flavescens	Yellow Sedge-skipper	L
Hygrobia australasiae	aquatic beetle	L
Hypochrysops ignita ignita	Fiery Jewel	L
Jalmenus icilius	Amethyst Hairstreak	L
Leptocerus souta	caddisfly	
Myrmecia species (17)	bullant	L
Notomicrus tenellus	aquatic beetle	
Notoperata sparsa	caddisfly	
Oecetis quadrula	caddisfly	
Ogyris genoveva araxes	Southern Purple Azure	L
Ogyris subterrestris subterrestris	Mildura Ogyris	L
Pasma tasmanica	Two-spotted Grass-skipper	
Plectrotarsus gravenhorstii	caddisfly	
Pseudalmenus chlorinda fisheri	Silky Hairstreak	Ι
Pseudocloeon hypodelum	mayfly	
Ramiheithrus virgatus	caddisfly	
Tamasia furcilla	caddisfly	
Taskiria otwayensis	caddisfly	L
Telicota eurychlora	Southern Sedge-darter	L
Thaumatoperla alpina	Alpine Stonefly	L
Thaumatoperla flaveola	Mount Stirling Stonefly	L
Themognatha flavocincta	jewel beetle	
Themognatha maculiventris	jewel beetle	
Themognatha sanguinipennis	jewel beetle	
Themognatha tricolorata	jewel beetle	
Triaenodes cuspiosa	caddisfly	
Triaenodes resima	caddisfly	
Triaenodes uvida	caddisfly	
Westriplectes angelae	caddisfly	
Westriplectes pedderensis	caddisfly	
Wundacaenis flabellum	mayfly	
Near Threatened		
Austrolestes aridus	Inland Ringtail	
Austropetalia tonyana	Alpine Redspot	
Coenagrion lyelli	Swamp Bluet	
Eusthenia nothofagi	Otway Stonefly	D
Hecatesia exultans	Small Whistling Moth	
Orphinotrichia justini	caddisfly	

Class Insecta (insects) (cont.)

Data Deficient		
Acrodipsas aurata	Bronze Ant-blue	
Antipodia chaostola chares	Heath Sand-skipper	
Archaeophylax canarus	caddisfly	L
Austrogomphus angelorum	Murray River Hunter	
Candalides absimilis subspecies	Common Pencil-blue	
Castiarina cyanipes	jewel beetle	
Castiarina insularis	jewel beetle	
Castiarina jekelli	jewel beetle	
Castiarina militaris	jewel beetle	
Castiarina mimus	jewel beetle	
Dendroaeschna conspersa	Wide-faced Darner	
Donuca spectabilis	White-spotted Owl Moth	
Ecnomus karakoi	caddisfly	
Ecnomus karawalla	caddisfly	
Griseargiolestes eboracus	Grey-chested Flatwing	
Hesperilla mastersi mastersi	Chequered Sedge-skipper	
Hestiochora rufiventris	forester moth	
Hestiochora tricolor	forester moth	
Notalina gungarra	caddisfly	
Oecetis asmanista	caddisfly	
Oecetis parka	caddisfly	
Perelytrana rana	Grassland Froghopper	
Thaumatoperla robusta	stonefly	
Thaumatoperla timmsi	stonefly	
Themognatha barbiventris	jewel beetle	
Themognatha congener	jewel beetle	
Themognatha duboulayi	jewel beetle	
Themognatha fortnumi	jewel beetle	
Themognatha pascoei	jewel beetle	
Themognatha sanguinea	jewel beetle	

Phylum Echinodermata (starfish, sea cucumbers)

Vulnerable		
Amphiura triscacantha	brittle star	L
Apsolidium densum	sea-cucumber	L
Apsolidium falconeri	sea-cucumber	
Apsolidium handrecki	sea-cucumber	L
Ophiocomina australis	brittle star	L
Pentocnus bursatus	sea-cucumber	L
Thyone nigra	sea-cucumber	L
Trochodota shepherdi	sea-cucumber	L