

Proposal for Wild Harvest and Export of Invertebrates submitted for approval under EPBC Act 1999

1. Title and introduction

This section should identify the species concerned, the management authority (if applicable), relevant State and Commonwealth legislation and a general introduction to the management regime. Suggested content includes:

- 1.1 Scientific name(s)
- 1.2 Common name (if applicable)
- 1.3 Location of harvest
- 1.4 Description of what is being harvested (for example, live animals; skins; meat; larvae; eggs; branches; whole plants), including size and (juvenile or mature) age of the specimen(s). Where possible, please include a photograph of the specimen.
- 1.5 Is the species protected under State or Federal legislation? If so, provide details of the legislation and the status of the species under the legislation.

1. **Introduction**

The purpose of this proposed operation is to supply local and over-seas insect collectors with legally harvested insect specimens. The applicant has collected insects in SE NSW for approximately 20 years and is very familiar with the species and habitats of the area. This knowledge and experience is invaluable in determining where and when to collect, as well as what quantities per taxon are suitable for sustainable harvesting.

Taxa covered

This proposal covers the harvest of invertebrate species included in the taxa listed in Attachments 1 and 2, except for those species listed under the EPBC Act as threatened (excluding the conservation dependent category), endangered, or vulnerable. Attachments 1 and 2 also include an annual quota to be harvested per taxa that must not be exceeded.

The list can be amended by DEH if additional information becomes available on a particular species within a taxon. The list can be amended by:

- Reducing the quota or stopping the harvest of a particular species; or
- Imposing restrictions relating to the harvest or export of that species.

The list is amended when DEH has notified the proponent of the amendment in writing.

Location of harvest

All locations proposed for harvesting are situated in SE NSW and are privately owned or leased. The applicant has been granted permission to harvest on these properties (please see attached letters). These properties are:

170 Acres at Michelago, NSW
100 Acres at Michelago, NSW
130 Acres at Forbes Creek, NSW
360 Acres near Berridale, NSW
200 Acres near Cooma, NSW
2910 Acres near Cooma, NSW

Description of what is to be harvested

Specimens are caught live and only perfect adult specimens are kept. Any specimens that are caught in a damaged state are released and left to continue their life cycle. This selectivity greatly minimizes any impact on species population and the local environment.

Is the species protected under State or Federal Legislation?

The applicant will not collect any species listed under the EPBC Act as threatened or listed under NSW legislation as endangered or vulnerable.

2. Statement of general goal/aims

This section should briefly outline the objectives of the operation.

2. General goal / aims

- To supply local and international collectors with high quality, legally harvested insect specimens;
- To increase the knowledge of species diversity, distribution, habitat, and life strategies of Australian invertebrates;
- To increase awareness of private land owners of the need for habitat conservation to promote healthy insect populations and overall biodiversity.

3. Harvest Details

Provide details of the harvesting operation, including all management measures employed to ensure that the specimens are taken in accordance with relevant State or Federal legislation, eg licensing of harvesters and dealers, tagging requirements and provisions for determining quotas.

Suggested content includes:

- 3.1 Details of the area where harvesting is to take place, including an indication of the size of the area and, if appropriate, a sketch or map and photographs.
- 3.2 Details of land ownership - if private property, please provide a brief description. Detail any restrictions placed by the landowner or the permits/licences.
- 3.3 What quantity do you intend harvesting and how will this be measured? Please specify and define the units to be used, for example 1 bunch = 25 stems.
- 3.4 What are the methods of harvesting and equipment to be used (for example, by hand; net; heavy machines)? Is the method of harvesting selective or non-selective?
- 3.5 What is the timing and duration of the harvesting period - the time of year and length of harvest season?

3. Harvest Details

Details of properties where harvesting is to occur:

1. 170 Acres of mixed Eucalyptus / Acacia / Bursaria woodland and grassland near Michelago, NSW;
2. 100 Acres of mixed Eucalyptus / Acacia / Bursaria woodland and grassland near Michelago, NSW;
3. 130 Acres of dry sclerophyll forest and native grassland at Forbes Creek, NSW.
4. 360 Acres of dry sclerophyll forest of Eucalyptus / Acacia woodland near Berridale, NSW;
5. 200 Acres of sub-alpine woodland (1200m elevation) between Cooma and Adaminaby, NSW;
6. 2910 acres of sub-alpine / dry sclerophyll woodland and grassland (from 900m to 1300m elevation) between Cooma and Adaminaby, NSW.

Some parts of these properties have been previously cleared for grazing, but much has now regenerated with species native to the region. Only the last property listed (2910 acres) is currently being used for cattle and sheep grazing, all other properties are not currently being used for stock grazing.

All properties are freehold or lease title.

Proposed quantity of harvesting

The amount of insects harvested will depend on demand, which is expected to be quite small. However, there are annual quotas set for each species within each taxa (see Appendix 1 and 2).

Harvesting Methods

- A. Light attracting: A strong light source (typically 400W mercury vapor or UV lamp) will be used at night to attract moths and beetles. The light will be placed on white sheets that the insects will land on. Any unwanted specimens will be left to fly away once the light source is turned off.
- B. Butterfly net
- C. Hand: mostly used for collecting beetles from flowers and leaves.
- D. Baited Fruit Traps: Fresh fruit is placed in a container, attracting beetles to feed. Beetles are caught live, unwanted material is released daily.

All specimens are caught live. Any unsuitable specimens are released unharmed.

Harvesting will take place all year-round, but particularly during the warmer months of the year (typically September to May) when the southern invertebrate species are most active and abundant.

4. Impact of harvest on the taxa and the relevant ecosystem

Provide details of the likely impact of the harvest on the species and the ecosystem. Include impacts due to the size of harvest, harvest methodology and where relevant how the harvest site is accessed by the harvester. In estimating the likely impact it is necessary to consider the species' biology, its role in the ecosystem and in some cases its susceptibility to pathogens introduced during the harvest operation.

Provide reasons why you believe there is or isn't any impact. Clearly state if the information provided is based on personal observations and include references for sources quoted.

4. Impact of Harvest on the taxa and local environment

Insect collecting is very well known as a “minimal impact” activity. Due to the life strategies of insects, selectively removing individuals from a population results in no

measurable impact on the species population or biodiversity of the environment from which they are taken. It is also not possible to objectively quantify invertebrate populations in the same way as vertebrate populations. Invertebrate numbers fluctuate from season to season depending on many factors including, but not limited to: local weather conditions, availability of adult and larval food sources, and predator abundance. The scarcity or absence of a particular species in an area where it was numerous the previous years is not necessarily any indication of a declining conservation status. Where it is noticed that a particular species is steadily declining, the applicant will reconsider the collecting quota for that species.

The management practices of the landholders where harvesting is to take place are designed to maintain the biodiversity of the properties. Most landholders concerned are not grazing any stock and there are no plans to modify the existing natural habitats on these properties.

When compared to the impact on insects (and other animals) of vehicles, land clearing, and insecticides, the proposed methods of harvesting will result in negligible impact on the species collected and their supporting environment.

5. Monitoring and assessment

Please provide details of the direct and indirect monitoring procedures employed and include an outline of the analyses performed on data obtained from these monitoring procedures.

5.1 Has there been a resource assessment of distribution and abundance (for example, population survey) for the harvest area? If yes, provide details.

5.2 Will there be independent supervision of the harvesting? If so, provide details (for example, State/Territory control) and how this will be achieved.

5.3 Outline the methods to be employed to monitor the harvesting of the specimens to identify whether the species or other species in the ecosystem are affected by the harvesting.

5.4 Describe any other biological and environmental monitoring proposed for the harvesting area.

5. Monitoring and Assessment

It is well known that insect populations fluctuate according to many environmental factors, which is not in itself an indication of declining conservation status. Where it is noticed that a particular species is steadily declining, the applicant may reconsider the collecting quota for that species. However, the collecting quotas for each species are such that they will not be affected by, nor affect natural fluctuations of species abundance.

For each calendar year, one specimen from each species harvested must be lodged as a voucher specimen with an institution as advised by the DEH. The voucher specimen should be lodged within one month from the date the first specimen of that species was harvested.

6. Management strategies

How will you respond to population changes if/when detected?

6. **Management Strategies**

Specimens are harvested only as required and only during the warmer months of the year. This greatly limits any impact on the local environment and on species numbers in general. Given the life strategies of insects (and their abundance in any environment) it is not possible to over-collect any species, particularly given the quota for each harvest year.

The owners of the properties that are to harvest have no future plans to change the bio-structure of their properties. This means that species population and survival can be easily observed independent of human changes of the local environment.

7. Compliance

What methods are available to ensure that only legally obtained material enters commercial trade?

7. **Compliance**

The NSW Government does not independently monitor the harvesting of non-protected invertebrates. However, given that the applicant has collected insects in the region for 20 years, the applicant's knowledge of the insect fauna of the region is quite extensive.

Only specimens from species that have been named and described in a scientific publication can be exported.

8. Reports

Periodic reports (at least annually: requirements will be specified in the declaration approving the operation) must be provided to DEH on implementation of the proposal. These reports may be made available to the public

8. Reports

An annual report is to be provided to DEH, the report should cover the calendar year and be submitted by 31 January of the following year. The report should include information on all specimens harvested (regardless of whether the specimen is exported) and for each species should include: location (property); numbers and sex ratio; details and numbers of any bycatch; and details of the area/habitat from where the specimens were collected. Totals should be provided for each month and grand totals for each year.

If requested by DEH, the applicant will provide reports at other times of the year on a timely basis.

APPENDIX 1

The proponent can harvest any species included in the following table of taxa, except for species listed by the EPBC Act as threatened, or listed by the NSW Government as endangered or vulnerable.

This list will be amended when DEH has notified the proponent of the amendment in writing.

The quantities on this taxa list applies to the following harvest locations:

1. 170 Acres of mixed Eucalyptus / Acacia / Bursaria woodland and grassland near Michelago, NSW;
2. 100 Acres of mixed Eucalyptus / Acacia / Bursaria woodland and grassland near Michelago, NSW;
3. 130 Acres of dry sclerophyll forest and native grassland at Forbes Creek, NSW.
4. 360 Acres of dry sclerophyll forest of Eucalyptus / Acacia woodland near Berridale, NSW;
5. 200 Acres of sub-alpine woodland (1200m elevation) between Cooma and Adaminaby, NSW;

TAXA COVERED	BIOLOGY NOTES	ANNUAL QUOTA PER SPECIES PER PROPERTY
ORDER: COLEOPTERA (Beetles)		
Family: Carabidae Common Name: Ground Beetles	Predatory on other insects, active day and night.	50
Family: Buprestidae Common Name: Jewel Beetles	Beetles breed in living timber, adults feed on flowers and foliage.	50
Family: Scarabaeoidea Common Name: Chirstmas Beetle, Scarab Beetle, Dung Beetle, (die – back beetles)	Adults feed on foliage, animal dung, sap flows. Larvae live in the soil feeding on plant roots and decomposing organic matter (including animal waste). Very abundant during the summer months.	100
Family: Cerambycidae Common Name: Longhorn Beetles	Adults feed on injured trees and plants. Larvae feed inside living trees	50
Family: Curculionidae Common Name: Weevils	Adults feed on living and dying plant matter.	50
Family: Rhipiphoridae Common Name: Hump-back Beetles	Beetle nymphs are predatory on other insects and rotting vegetation	50
Family: Tenebrionidae Common Name: Pie-dish Beetles	Adults feed on dead organic matter	50
Family: Staphylinidae	Feed on dead vertebrate carcasses	50

Common Name: Rove Beetles		
Family: Silphidae Common Name: Carrion Beetles	Feed on dead vertebrate carcasses	50
Family: Cicindelidae Common Name: Tiger Beetles	Adults feed on sap flows, flowers and fruit. Larvae feed on rotting vegetation	50
Family: Passalidae Common Name: Passalid Beetles	Adults live in rotting logs	50
Family: Chrysomelidae Common Name: Leaf Beetles	Adults feed on living foliage, as do their larvae.	50
Family: Geotrupidae (No Common Name)	Larvae feed on rotting vegetation. Adults attracted to lights. Active on dusk.	50
Family: Trogidae Common Name: Carcass Beetles	Adults attracted to light, and found around drying animal carcasses (where larvae feed).	50
ORDER: LEPIDOPTERA (Butterflies and Moths)		
Family: Anthelidae, Noctuidae, Geopetridae, Sphingidae, Hepialidae, Cossidae, Arctidae, Aganidae, Uraniidae, Notodontidae Common Name: Moths	Larvae feed on living vegetation. Most are Polyphagous. Adults often attracted to light sources most species being active at night. Adults can lay hundreds of eggs.	50 per species per property
Family: Pieridae, Lycaenidae, Nymphalidae, Papilionidae, Hesperidae. Common Name: Butterflies	Larvae feed on living vegetation, some being closely associated with ants. Adults are day-flying. A single female can lay hundreds of eggs.	50 per species per property
ORDER: HYMENOPTERA (Ants, Bees, Wasps)		
Family: Formicidae Common Name: Ants	Adults found in all habitat types, feeding on other insects and dead vertebrates, flowers, and sap.	50
Family: Anthophoridae Common Name: Bees	Adults feed on flowers	50
Family: Chrysididae Common Name: Wasps	Adults prey on other insects to feed their larvae	50
ORDER: DIPTERA (Flies)		
Family: Platystomatidae Common Name: Flies	Most larvae feed on organic matter (plant and animal), or are predators and parasites of other insects. Adults feed on fluids, such as sap, nectar, and animal blood.	50
ORDER: HEMIPTERA (Sucking bugs)		
Family: Tessaratomidae (No Common Name)	Adults feed on liquids, such as sap, nectar, and blood of other insects	50
Family: Belostomatidae (No Common Name)	Adults feed on liquids, such as sap, nectar, and blood of other insects	50
Family: Cicadidae Common Name: Cicadas	Adults feed on liquids, such as sap, nectar, and blood of other insects	50
ORDER: ODONATA (Dragonflies)		
Family: Libellulidae (No Common Name)	Adults and larvae are predatory, feeding on other insects and spiders	50
Family: Gomphidae (No Common Name)	Adults and larvae are predatory, feeding on other insects and spiders	50
Family: Petaluridae (No Common Name)	Adults and larvae are predatory, feeding on other Insects and spiders	5
ORDER: ORTHOPTERA (Grasshoppers)		

Family: <i>Pyrgomorphidae</i>	Feeding on a wide variety of plant material e.g.: grasses, bushes, trees and dead leaves to lichens, algae and bark.	50
Family: <i>Tettigoniidae</i>	Same information as Pyrgomorphidae (above)	50
Family: <i>Cryllacridoidea</i>	Same information as Pyrgomorphidae (above)	50
Family: <i>Acrididae</i>	Same information as Pyrgomorphidae (above)	50
ORDER: MANTODEA (Mantids)		
Family: <i>Mantidae</i> Common Name: Mantids, Stick Insects	Adults feed on foilage and are predatory on other insects.	25

APPENDIX 2

The proponent can harvest any species included in the following table of taxa, except for species listed by the EPBC Act as threatened, or listed by the NSW Government as endangered or vulnerable.

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Family: Trogidae Common Name: Carcass Beetles	Adults attracted to light, and found around drying animal carcasses (where larvae feed).	200
ORDER: LEPIDOPTERA (Butterflies and Moths)		
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Family: Belostomatidae (No Common Name)	Adults feed on liquids, such as sap, nectar, and blood of other insects	200
Family: Cicadidae Common Name: Cicadas	Adults feed on liquids, such as sap, nectar, and blood of other insects	200
ORDER: ODONATA (Dragonflies)		

Family: Libellulidae (No Common Name)	Adults and larvae are predatory, feeding on other insects and spiders	200
Family: Gomphidae (No Common Name)	Adults and larvae are predatory, feeding on other insects and spiders	200
Family: Petaluridae (No Common Name)	Adults and larvae are predatory, feeding on other	5
ORDER: ORTHOPTERA (Grasshoppers)		
Family: Pyrgomorphidae	Feeding on a wide variety of plant material e.g.: grasses, bushes, trees and dead leaves to lichens, algae and bark.	200
Family: Tettigoniidae	Same information as Pyrgomorphidae (above)	200
Family: Cryllacridoidea	Same information as Pyrgomorphidae (above)	200
Family: Acrididae	Same information as Pyrgomorphidae (above)	200
ORDER: MANTODEA (Mantids)		
Family: Mantidae Common Name: Mantids, Stick Insects	Adults feed on foliage and are predatory on other insects.	100

Invertebrate species listed by EPBC / NSW Government as threatened, vulnerable, or endangered:

Argyreus hyperbius (Laced Fritillary)
Archaeophya adamsi (Adam's emerald dragonfly)
Branchinella buchananensis (Buchanans fairy shrimp)
Dryococelus australis (Lord Howe Island Phasmid)
Meridolum corneovirens (Cumberland Land Snail)
Notopala sublineata (River snail)
Nurus atlas (Atlas Rainforest Ground-beetle)
Nurus brevis (Shorter Rainforest Ground-beetle)
Ocybadistes knightorum (Black Grass-dart)
Panesthia lata (Lord Howe Is Wood-eating Cockroach)
Paralucia spinifera (Bathurst Copper Butterfly)
Pericryptodrilus nanus (Lord Howe Earthworm)
Petalura gigantea (Giant Dragonfly)
Phyllodes imperialis southern subspecies (Pink Underwing Moth)
Placostylus bivaricosus (Lord Howe Placostylus)
Synemon plana (Golden Sun Moth)
Thersites mitchellae (Mitchell's Rainforest Snail)