



Kakadu Plum insect visitors 2025

Insect identification network for Aboriginal bushfood producer's project

Managed by Northern Australia Aboriginal Kakadu Plum Alliance Cooperative (NAAKPA).

Grant funding from the Department of Agriculture, Forestry and Fisheries, Northern Australian Quarantine Strategy program.

In collaboration with Western Australian Department of Primary Industry and Regional Development (WA DPIRD) & Northern Territory Department of Agriculture and Fisheries (NT DAF).

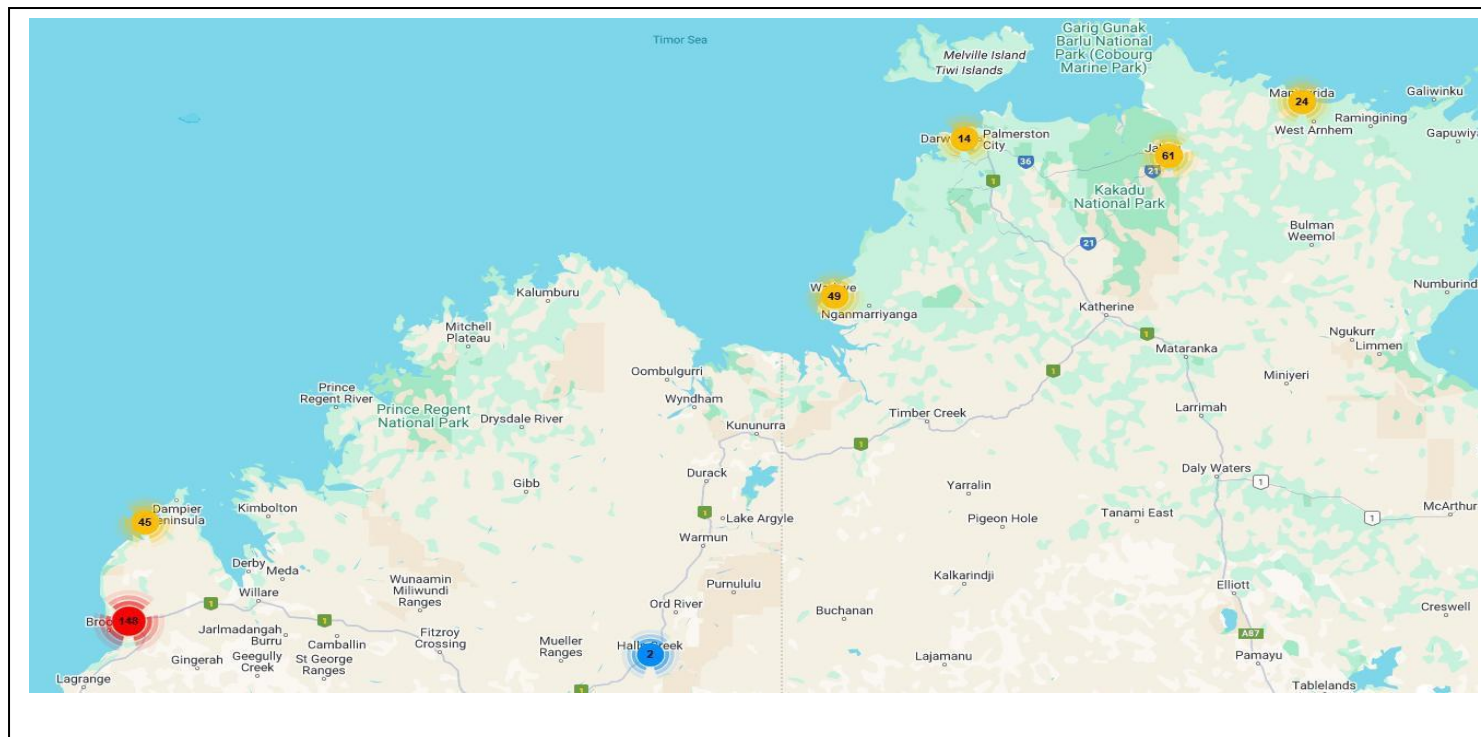
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This document is a collection of data generated by the Insect identification network for Aboriginal bushfood producers project managed by the Northern Australia Aboriginal Kakadu Plum Alliance Cooperative (NAAKPA) funded through a grant from the Department of Agriculture, Forestry and Fisheries, Northern Australian Quarantine Strategy program.

This project is a collaboration with Western Australia Department of Primary Industries and regional Development (WA DPIRD) and the Northern Territory Department of Agriculture and Fisheries (NT DAF) insect specialists with the objective of monitoring insect visitors to Kakadu plum (*Terminalia ferdinandiana*) trees across northern Australia. The project utilises WA DPIRD's MyPestGuide to create a shared database of insect observations in and around Kakadu plum trees and link these observations with other insect specialists. The primary objective was to engage with Aboriginal producers harvesting Kakadu plum and other native foods. Map of the insect identification network with number of reports between November 2023 and March 2025.



| Pests | | | | | |
|---------------|------------------------------------|------------------------|----------------|---|--------------------|
| Family | Scientific name | Common name | Family | Plant part | Pest Status |
| Coleoptera | | Leaf beetles | Chrysomelidae | Leaves, stems, flowers, fruit and seeds | Medium |
| | <i>Dilochrosis brownii</i> | Sunburst flower beetle | Scarabaeidae | flowers, over ripe and damaged fruit | Minor |
| Diptera | <i>Bactrocera tryoni</i> | Queensland fruit fly | Tephritidae | Fruit | Major |
| | Gall midges | Leaf galls | Cecidomyiidae | Leaves and stems | Minor |
| Hemiptera | <i>Colgaroides acuminta</i> | Mango planthopper | Flatidae | Shoots, flowers and fruit | Medium |
| | <i>Graptostethus servus</i> | Graptostethus bug | Lygaeidae | Stems and branches | Minor |
| | <i>Riptortus</i> spp. | Bean pod sucking bugs | Alydidae | Fruit | Minor |
| | <i>Mictis profana</i> | Crusader bugs | Coreidae | Fresh shoots | Medium |
| Lepidoptera | <i>Patissa stenopteralis</i> | | Crambidae | Fruit | Major |
| | | Leaf miner | Gracillariidae | Leaves | Medium |
| | | Case moth | Psychidae | Leaves | Minor |
| | <i>Teleclita dryinopa</i> | Leaf-tailed prominent | Notodontidae | Leaves | Minor |
| | | Leaf roller | Tortricidae | Stems, roots, buds or seed | Medium |
| | <i>Euproctis aliena</i> | Tussock moth | Erebidae | Leaves | Minor |
| | <i>Orgyia australis</i> | Painted Pine Moth | Erebidae | Leaves | Minor |
| Orthoptera | <i>Stenocatantops angustifrons</i> | Tropical sharp-shooter | Acrididae | Leaves | Minor |
| | | Matchstick grasshopper | Eumastacidae | Leaves | Minor |

Pests

Blattodea (cockroaches and termites)

?*Microcerotermes* sp., Termite (Termitoidae)

Worker are soft-bodied and off-white in colour. Soldiers are also soft-bodied and off-white in colour but they have a orangey-brown rectangular head with curved mandibles. They feed inside galleries built on plants to protect them from the sun and from predators as they travel between their underground nest and the new feeding area. Soldiers are required for identification to

species. Size: 0.5-0.7 mm in length.

Coleoptera (beetles)

Leaf beetles (Family Chrysomelidae)

Leaf beetles come in a wide range of colours including yellow and red, brown, metallic blue, orange and black and many more. Larvae are grub like and various colours. Adults and larvae feed on leaves, stems, flowers, fruit and seeds. Some larvae feed below ground on roots. Size: 4-15 mm in length.

***Dilochrosis brownii*, Sunburst flower beetle, (Scarabaeidae)**

Adults are shiny, wing covers brownish-orange in colour, yellowish-orange thorax with a brown spot. They are found on flowers, over ripe and damaged fruit. Larvae are creamy grubs with six legs that feed below ground on rotting wood. Size: Adult up to 30 mm in length.

Diptera (flies)

***Bactrocera tryoni*, Queensland fruit fly (Tephritidae)**

Adults are yellowish-brown in colour with yellow markings, the wings are clear. Larvae are creamy white in colour with black marking and look like a typical 'maggot'. Larvae feed on the fruit tissue which allows for the introduction of bacteria which speeds up the spoiling process and leads to rotting of the fruit. Size: Larvae 8 mm in length.

Gall midges (Cecidomyiidae)

Adult gall midges are tiny flies with delicate wings, long antennae and legs. Larvae are tiny maggots and can be white, red or orange in colour. Damage to leaves is done by the larvae boring into the plant tissue and the plant responds by creating scar tissue around it. Size: Adult 0.5-3 mm in length.

Hemiptera (true bugs)

***Riptortus* spp., Bean pod sucking bugs (Family Alydidae)**

These bugs have elongated slender bodies with a yellowish band along the sides. Nymphs look similar to ants. They are found under the leaves or on pods where they feed by sucking sap. Damage is seen as black or brown lesions. They usually feed on leguminous plants like soybean beans, mung beans and snake beans. Size: Adults up to 20 mm in length.

***Mictis profana*, Crusader bug (Family Coreidae)**

Adults are brown in colour with a yellow cross on the back. The hindlegs are bigger and thicker than the others. They have spines on the shoulders and the antennae have orange tips. Nymphs are dark brown, late instar nymphs have two orange dots on the abdomen and orange striped legs Crusader bugs feed on fresh shoots by piercing the plants with their mouthparts and sucking out the sap, which causes wilting. Shoots become brown and dieback. These bugs squirt out a nasty smelling liquid when disturbed. Size: Adults 20-30 mm in length, Nymphs 5-25 mm in length.

***Colgaroides acuminata*, Mango planthopper (Family Flatidae)**

Adults are green or whitish green and 'tent' shaped. They have a tiny red spot in the center of each wing. Nymphs These planthoppers lay their eggs in an oval shaped masses usually on leaves or fruit. Newly hatched nymphs are pale green with red markings and become pale green with a pointed head and white waxy filaments protruding from the end of the abdomen as they mature. Both adults and nymphs suck sap from shoots, flowers and fruit. There can be 3-4 generations a year. Size: 10-15 mm in length.

***Graptostethus servus*, Graptostethus bug (Family Lygaeidae)**

Adults are orange-red with a cross pattern on the folded wings. Nymphs are similar in colour to the adults but without wings. They are widespread throughout Australia and feed mainly on the seeds of legumes and grasses. In the dry season the adults can swarm in large numbers into agricultural and horticultural areas. When these bugs swarm, they generally do not feed but can cause physical damage to plants by breaking off stems because of their huge numbers or making scratch marks on leaves, flowers and fruit. Size: Adults 7-9 mm in length.

Lepidoptera (moths and butterflies)

***Patissa stenopteralis* (Family Crambidae)**

Adults are white with golden bands. Larvae are creamy white in colour with tan coloured bands. The larvae bore into stems and fruit and will weave silk to link mature pieces of fruit together on a Kakadu plum raceme. It is major pest of the fruit. Size: Adult wingspan 16 mm across.

***Euproctis aliena*, Tussock moth (Family: Erebidae)**

Adult moths have hairy snowy white wings and feathery antennae. Larvae are bright yellow-orange with black spots and white dots running along the length of the body. Larvae feed on fruit stems. Size: Adult wingspan 25 mm across.

***Orgyia australis*, Painted Pine Moth (Family Erebidae)**

Adults have orangey-brown forewings with a white spot on the edge that fans out into a band across the wing, hindwings are brown. Females have a bulging body covered in creamy-yellowish hair and are wingless. Larvae are brown and covered in many hairs. They have four clusters of yellow or brown hairs on the upper side of segments one to four and two white clusters on segments one and two. The head is red with two groups of knobbly black long hairs. These caterpillars can cause itching. Size: Adult male wingspan 30 mm across, Larva up to 30 mm in length.

Leaf miners (Gracillariidae)

Adult moths are micromoths with narrow wings lined with delicate hairs. Larvae are tiny caterpillars that are flattened and segmented, usually pale yellow in colour. The larvae cause the damage by feeding between the epidermis of the leaf leaving a transparent spiraling trail. Size; Adult wingspan 2-20 mm across.

***Teleclita dryinopa*, Leaf-tailed prominent, (Notodontidae)**

Adults have greyish-brown forewings and white hindwings with a brown patch. Larvae are green with a white line along each side of the body, a pinkish line on the top of the body and are covered in yellow dots. They have a pinky brown horn of the thorax. The tail end of the body is flattened and it can be bent back over the body to show off the underside, it looks leaf like. Larvae feed on leaves.

Case moths (Family Psychidae)

Adult females of many case moth species are flightless and look like the larva with only small wings, legs, and mouthparts. Adult males usually brown in colour with various coloured markings. Their wings are strong, broad and covered in thin hairs rather than scales like most moths. Case moth larvae build their cases out of silk, twigs, leaves, flower parts and general debris to protect themselves. They continue to add to the case as they grow and will eventually pupate inside it. Flightless females stay in the case for their entire lives. Size: Case 6-152 mm in length.

Leaf rollers (Tortricidae)

Most adults are small and usually dull brownish colours with mottled patterns. Larvae are green with a brown head. They usually feed on leaves and make leaf rolls. Size: Adult wingspan up to 30 mm across.

Orthoptera (grasshoppers and crickets)

Stenocatantops angustifrons, Tropical sharp-tail (Family Acrididae)

Adults are mottled brown in colour with brown and white striped legs. Nymphs are lime green and without wings. It feeds on a wide range of hosts and may cause damage in gardens and orchards. Size: Female 60-75 mm in length.

Eumastacidae (Matchstick grasshoppers)

Adults are usually grey-brown in colour, slender and elongated with a long cone shaped head, They often have reduced wings or are wingless. Nymphs are similar but without wings. The majority of species are nocturnal. They feed on a wide range of hosts. Size: Adults 11-40 mm in length.



?*Microcerotermes* sp. damage, Termite (Termitoidea)



Swarming leaf beetle damage (Chrysomelidae)



Rhyparida sp., Swarming leaf beetle adults (Chrysomelidae)



Dilochrosis brownii, Sunburst flower beetle adult (Scarabaeidae)



Bactrocera tryoni, Queensland fruit fly adult (Tephritidae)



Gall midges (Cecidomyiidae)



Riptortus sp., Bean pod sucking bugs (Alydidae)



Mictis profana, Crusader bug adult (Coreidae)



Colgaroides acuminata, Mango planthopper adult (Flatidae)



Graptostethus servus,
Graptostethus bug adults
(Lygaeidae)



Patissa stenopteralis larva
(Crambidae)



Patissa stenopteralis adult
(Crambidae)



Euproctis aliena, Tussock moth
(Erebidae)



Orgyia australia, Painted pine
moth (Erebidae)



Leaf miner damage (Gracillariidae)



Leaf miner damage (Gracillariidae)



Teleclita dryinopa, Leaf-tailed
prominent larva (Notodontidae)



Case moth (Psychidae)



Case moth (Psychidae)



Case moth (Psychidae)



Leaf roller larva (Tortricidae)



Leaf roller damage (Tortricidae)

| Beneficials | | | | |
|--------------------|------------------------------|---------------------|----------------|-------------|
| Family | Scientific name | Common name | Family | Type |
| Araneida | | Long jawed spiders | Tetragnathidae | Predator |
| Blattodea | | Termites | Termitoidae | |
| | | Click beetles | Elateridae | Pollinator |
| | <i>Microcaria mulsanti</i> | Ladybird | Coccinellidae | Predator |
| Hymenoptera | <i>Homalictus</i> spp., | Solitary native bee | Halictidae | Pollinator |
| | <i>Oecophylla smaragdina</i> | Green tree ants | Formicidae | Predator |
| | <i>Thynnus</i> spp. | Flower wasps | Tiphiidae | Pollinator |

Beneficials

Araneida (spiders)

Long jawed spiders (Family Tetragnathidae)

Adults have elongated bodies with very long legs and chelicerae (mouthparts). They are various colours. Spiderlings are similar to adults but smaller. They build webs with open centres to catch insects which are usually found in sunlit areas and are leaning horizontally. These spiders catch prey, bite it and then wrap in silk. Size: Adults 4-30mm in length.

Coleoptera (beetles)

Microcaria mulsanti, Ladybird (Coccinellidae)

Adults are dome shaped, orange with brown markings. Adults and larvae feed on aphids, psyllids and other soft bodied sap sucking insects. Size: 7mm in length.

Hymenoptera (bees, wasps and ants)

Oecophylla smaragdina, Green tree ants (Family Formicidae)

Worker ants have a yellow head and thorax with a green abdomen. Queens are larger and have wings when they disperse to start a new colony. Larvae are grub-like and white. Pupae are white and found inside the nest. These ants predate on various insects but will also feed on honeydew obtained from sap sucking insects like mealybugs and scales with they 'farm'. Queen green tree ants disperse from the nest to form new colonies. The queens gather together and lay eggs which they tend until they are mature, then the newly emerged workers can continue to build the new nest and look after new eggs and larvae. They make nests by weaving leaves together with larval silk. Colonies may consist of many nests, not all nests contain queens. Development from egg to adult (worker) is about 30 days. Size: Adult worker 7-9 mm in length, queens 15-21mm in length.

Homalictus spp., Solitary native bee (Halictidae)

Adults in this genus are golden green, blue and orange with fine hairs on their bodies. Larvae are white and grub like until they pupate and start to look more like the adult. These bees are pollinators feeding on nectar and pollen. They usually nest in the soil, occasionally in rotting

wood. Australian species may be solitary or communal, with two to many females sharing a nest, each female provisioning and laying eggs in her own cells. Size: Adults: 8mm in length.

Thynnus spp. Flower wasps (Family Tiphiidae)

Adult males are larger than females. They black and yellow, orange, brown and yellow. Most of the Australian species are sexually dimorphic (that is males have wings and females are wingless). Males can be seen carrying a female during a mating flight from flower to flower so she can feed. Adult males usually feed on nectar. Females are ground dwellers and dig into the soil to look for prey to lay an egg into. The larvae that hatch are parasites of beetle larvae in the soil. Size: Adults 3-35mm in length.



Long jaw spider adult (Tetragnathidae)



Microcaria mulsanti, Ladybird adult (Coccinellidae)



Oecophylla smaragdina, Queen green tree ant (Formicidae)



Homalictus sp., Solitary native bee adult (Halictidae)



Thynnus sp., Flower wasp male and female in cop (Tiphiidae)

Other miscellaneous Insects found on Kakadu plum and surrounding plants

Araneida (spiders)

Garden orb weavers (Araenidae)

Adult spiders are fat, reddish brown or grey spiders with patterns on their triangular shaped abdomens. Some species have a stripe on the back which can be white or brown edged with white. Spiderlings are similar to the adults but smaller. They build webs at night to catch their prey, eating the web as morning breaks. Size: Adults up to 40 mm in length.

?*Neosparassus* sp., Badge huntsman spiders (Sparassidae)

Adults are generally light brown or grey on the back, with white, orange, black or yellow coloured bands on the underneath of the abdomen and underside of the front legs. They are large spiders with long legs and flattened bodies. They are generalist predators feeding on insects and other vertebrates. Size: Adults 15-20 mm in length.

Jumping spiders (Salticidae)

Adults are various colours including brown, grey, black, red, white and yellow. They have two large eyes in the middle of the front row. They are generalist predators and can jump a large distance to catch prey. Size: up to 7 mm in length.

Comb-footed spiders, (Theridiidae)

Adults are small spiders with long legs. They have a row of spines on the tip of their fourth legs that they use to cover their prey in silk. They usually have an hourglass shaped abdomen and can be various colours. These spiders make small messy webs low in the vegetation and feed on small and tiny insects. This family includes the widow spiders which are part of the same family (such as red-backs, black widows, brown widows). Size: 4-7 mm in length.

Thomisus spectabilis, Spectacular Crab Spider (Thomisidae).

Range in colour from green, white, yellow, brown or grey. They have eight eyes in two rows of four which are usually surrounded by a ring of white and raised on small tubercles. Their legs are held in a crab-like position with the two front pairs pointed to the front. Males are smaller than females and rarely seen. They do not have webs, instead ambushing prey that come to feed on nectar. Size: 2-12 mm in length.



Orb weaver adult (Araenidae)



?*Neosparassus* sp., Badge Huntsman spider adult (Sparassidae)



Jumping spider adult (Salticidae)



Comb-footed spider adult (Theridiidae)



Thomisus spectabilis, Spectacular crab spider adult (Thomisidae)

Blattodea

Melanozosteria circumdata, Native cockroach (Blattidae)

Adults are dark brown with a whitish stripe running around the outside of the body. These cockroaches feed on detritus and native plant leaves.



Melanozosteria circumdata,
Native cockroach adult
(Blattidae)

Coleoptera (beetles)

***Microtragus* sp., Longhorn beetle (Cerambycidae)**

There is little biological data on this group but they are often found hiding under rocks or in grass clumps. They appear to be mimicking both in behaviour and colour female mutilid wasps and possibly Amycterine weevils that inhabit the same dry habitats. They will also often hiss or squeal very loudly as a defence if they feel threatened.

Leaf beetles (Chrysomelidae)

Leaf beetles come in a wide range of colours including yellow and red, brown, metallic blue, orange and black and many more. Larvae are grub like and various colours. Adults and larvae feed on leaves, stems, flowers, fruit and seeds. Some larvae feed below ground on roots. Size: 4-15 mm in length.

***Polyphrades* sp., Broad nosed weevil (Curculionidae)**

Adult dull brown to grey with lines of dots running down the wing covers and a long snout. Larvae are creamy-yellow grubs with an orange-brown head. Adults feed on leaves. Size: Adults up to 5 mm in length.

Weevils (Curculionidae)

Adult weevils are various colours and sizes, most have a long snout. Larvae are c-shaped legless grubs and typically soil dwelling. The adults have a wide host range, they feed on foliage, pollen, dead wood, seeds, wood, fruit and fungi. Size: 1-60 mm in length.

Net-winged beetles (Family Lycidae)

Adults have wings with a net-like pattern and are orange in colour with black markings. They have long, serrated antennae. Males are smaller than females. Larvae have a segmented, flattened body with short legs. They are heavily armoured, brown or black in colour with orange markings. Some adults feed on nectar, some don't feed at all. Larvae feed on decaying plant material and moulds. Size: Adults 5-22 mm in length.

***Glycyphana darwinensis*, Flower beetle (Scarabaeidae)**

Adults are dark brown with white patches. Larvae are c-shaped cream coloured grubs that live in rotting wood. Adults feed on nectar and pollen. Size: Adult up to 8-11 mm in length.

***Hemipharis insularis*, Green flower chafer (Scarabaeidae)**

Adults are shiny metallic green. Larvae are c-shaped legless grubs that feed on roots in the soil. Adults feed on nectar and pollen from flowers. Size: Adult 30 mm in length.



Microtragus sp., Longhorn beetle adult (Cerambycidae)



Leaf beetle adults (Chrysomelidae)



Polyphrades sp., Broad nose weevil adult (Curculionidae)



Weevil adult (Curculionidae)



Net-winged beetle adult (Lycidae)



Glycyphaha darwiniensis, Flower beetle adult (Scarabaeidae)



Hemipharis insularis, Green flower chafer adult (Scarabaeidae)

Diptera (flies)

Hermetia illucens, Black soldier fly (Family Stratiomyidae)

Adult flies have a black body and a thorax that reflect metallic blue and green with the tip of abdomen reddish. The legs are black with white tarsi. Antennae are two times as long as the head and the wings are folded along the top of the body when at rest. Larvae 'maggots' are dirty cream in colour with defined segments. The larvae of these flies are essential decomposers of organic matter, returning nutrients to the soil. The adults do feed on solid food, use up the energy reserves they amassed as larvae, sometimes they drink water or nectar. Size: Adults: 15-20 mm in length.



Hermetia sp., Black soldier fly adult
(Stratiomyidae)

Hemiptera (true bugs)

***Melanacanthus scutellaris*, Small brown bean bug (Alydidae)**

Adults have an elongated brown body with a cream stripe along each side. They have long antenna and spines on the shoulders. Nymphs are olive green in colour and look a lot like ants. Adults and nymphs suck sap from bean pods causing pitting and shriveling. They can also damage flowers and flower buds. Size: Adult 10-12 mm in length.

***Macrotristria intersecta*, Corroboree cicada (Family Cicadidae)**

Adults vary in colour from green to brown and sometimes orange and black. They have a pattern on the thorax. Larvae live in the soil feeding on the sap from plant roots 4 to 5 years before digging a tunnel to the surface of the soil to undergo their final molt and emerging as adults. Adults can be found sitting in the upper branches, stems and trunks of trees feeding on sap. The males sing to attract females. They live for about 3 weeks. Size: Adult forewing 31-43 mm in length.

***Thopha sessiliba*, Northern double drummer (Cicadidae)**

These large cicadas are native to Queensland, the Northern Territory and 20 northern Western Australia. Adults perch almost exclusively on ghost gums. As the species shows some variation in intensity of pigmentation and variation in the male song, there may be more than one species in this particular taxon. As it's only known to be associated with Eucalyptus trees, it is not a pest of Kakadu plum and is likely just resting before flying on to a suitable Eucalyptus.

Burrower bugs (Cydnidae)

Adults are oval shaped and shiny black or brown in colour with spiny legs. They mostly live in the soil and feed on plant roots, fallen stems and leaves. There are some that live above ground and feed on the sap of plants. Size: Adult up to 20 mm in length.

Armoured scales (Diaspididae)

Adult scales are usually elongate or oval shaped. They can be various colours including white, red, orange, purple, brown, and yellow. They all have a wax covering with the cast skins of 1 or 2 instars visible. Immatures are like adults but smaller. They feed by sucking sap from almost all parts of plants. Size: 1-3 mm in length.

***Cystococcus* sp., Bloodwood apples (Eriococcidae)**

Adult female looks like a grub, yellowy-green in colour and oval in shape. They are surrounded

by a woody gall that is soft and fleshy on the inside. The galls are the result of feeding by the female on the stems of inland species of bloodwoods (*Corymbia* spp). Females and males live within the gall, feeding on the nutritious lining of a large internal chamber. The large female in this instance had over 1000 attending males inside the chamber with her. The gall has an apical opening which is sealed by the tip of the female's abdomen. Early in her life she produces male nymphs which feed inside their mother's gall until they are mature. When adult males leave the gall they carry some first instar females on their abdomens, dispersing them onto new trees as crawlers which eventually induce new galls to form. Size: Females 40 mm in length, males 8 mm in length.

Eurybrachid planthoppers (Eurybrachidae)

Adults are mottled brown or grey so they can blend in with their environment, they have large forewings. Nymphs have no wings and usually have long tails. They are sap suckers. The genus *Platybrachys* sp. in Australia is found on Eucalyptus trees, while *Olonia* sp. and *Dardus* sp. are found on Acacia. Size: Adults up to 30 mm in length.

Shield bugs (Pentatomidae)

Adults are usually shield shaped with 5 segmented antennae with a large triangular scutellum and a smallish head. They come in a variety of colours. Nymphs are similar to adults but without wings. Shield bugs can be predators or plant feeders. Size: 12-20 mm in length.

***Choerocoris paganus*, Ground shield bug (Family Scutelleridae)**

Adults are a head and legs that are deep blue, the thorax is also deep blue at the sides but red and brown along the center line. The scutellum and abdomen are red with a large blue spot towards the front and two smaller spots to the rear. Nymphs look like the adults but have no wings. They feed primarily on fallen and green seeds of hop-bush, *Dodonaea viscosa*. Size: up to 10 mm in length.

***Lampromicra senator*, Green Jewel Bug, (Scutelleridae)**

Adults range in colour from metallic green to purplish blue and have orange markings. Nymphs are similar to adults but without wing and rounder in shape. Green jewel bugs can be found in non-feeding aggregations during hot dry periods. They generally feed on *Breynia* spp. and *Ficus* spp. some ferns by sucking on the plant juices. Size: Adults 15-20 mm in length.

***Tectocoris diophthalmus*, Cotton Harlequin Bug, (Scutelleridae)**

Adult females are mainly orange but can have small patches of metallic blue scattered over the body. Males are red with metallic blue patches. Males are smaller than the females in size. Nymphs are brightly coloured metallic bluey-green with patches of red. Adults and nymphs suck sap from the young shoots of plants in the family Malvaceae which includes hibiscus and cotton. They are the minor pest of cotton, feeding on young shoots and bolls. Size: Adults 15-20 mm in length.



Melanacanthus scutellaris, Small brown bean bug adult (Alydidae)



Macrotristria intersecta, Corroboree cicada adult (Cicadidae)



Thopha sessiliba, Northern double drummer adult (Cicadidae)



Burrower bug adult (Cydnidae)



Armoured scales (Diaspididae)



Cystococcus sp., Bloodwood apples (Eriococcidae)



Eurybrachid planthoppers eggs (Eurybrachidae)



Eurybrachid planthoppers adult (Eurybrachidae)



Choerocoris paganus, Ground shield bug nymph (Family Scutelleridae)



Lampromicra senator, Green Jewel Bug adults (Scutelleridae)



Tectocoris diophthalmus, Cotton Harlequin Bug adult female and eggs (Scutelleridae)

Hymenoptera (bees, wasps, ants)

***Camponotus* spp., Sugar ants (Family Formicidae)**

Sugar ants are generally orangey brown, brown or black in colour or combinations of both. There are minor, medium and major workers (sterile females), an egg laying queen and winged females and males. They are usually active at night and are predators of insects but will also scavenge for food. Sugar ants will also tend honey dew producing insects such as aphids, scale and mealybugs. Size: 7-13 mm in length.

***Polyrhachis* spp. Spiny ants (Formicidae)**

Worker is black with a golden abdomen, body has spines. They do not have a sting and can spray acid from a pore in the abdomen to deter predators. Size: 5-10 mm in length.

***Sphex* sp., Digger wasps (Sphecidae)**

Most digger wasps are large and colourful although male wasps are usually black in colour with pale coloured wings and have dense soft hairs on the thorax. Males are usually smaller than females. Adults feed on nectar/pollen and are usually very docile animals but are capable of delivering a painful sting if they feel threatened. Most species are sociable and nest in groups of a few individuals. Females catch grasshoppers and crickets to provision their nests. They lay an egg and seal it shut leaving the offspring to develop on its own. Size: 15-35 mm in length.



Camponotus sp., Sugar ant worker (Formicidae)



Polyrhachis sp., Spiny ant worker (Formicidae)



Sphex sp., Digger wasp adult (Sphecidae)

Lepidoptera (moths and butterflies)

***Utetheisa* sp., Tiger Moth (Arctiinae)**

Adults are white with red and black patterns. Larvae are black with orange spots and covered with long hairs. The caterpillars feed on various plants from the family boraginaceae and fabaceae including the weed Paterson's curse also known as Salvation Jane, *Echium plantagineum* and *Crotalaria*. Size: Adult wingspan 30 mm across, larvae up to 30 mm in length.

***Diaphania indica*, Cucumber moth (Crambidae)**

Adults are white with a dark brown band around the edge of the wing. The abdomen has a dark brown band and there is a tuft of brown hairs at the tip. Larvae are pale to dark green with a white stripe running the length of the body. Larvae feed on cucurbit leaves and fruit. Size: Larva up to 15 mm in length, Adult wingspan 20-25 mm across.

***Omiodes diemenalis*, Soybean leafroller (Crambidae)**

Adults are orange with brown patterns on the wings. Larvae are greyish-green with yellow heads. Larvae roll up leaves and glue them together with silk to give themselves shelter while they feed. They mature the leaves will be totally skeletonised. Size: Adults wingspan 20 mm across, Larvae up to 20 mm in length.

***Scirpophaga innotata*, Rice white stemborer (Family Crambidae)**

Adults are white, mature larvae are creamy-white with a dark line running along the back with a brown head. They feed on rice. Size: Female wingspan 33 mm across, larvae up to 25 mm in length.

***Amata* spp., Wasp Moths (Family: Erebidae)**

These moths are black and bright orange in colour to warn predators that their body is toxic when eaten. The caterpillars are rarely seen but they are usually quite hairy and dark in colour. There are over 50 species of them in Australia and their identification is not easy due to the often- overlapping features. The wasp moths are part of the subfamily Arctiinae which includes Footmen, Woolly Bears, Tigers, Ermines, and Wasp Moths.

***Eudocima materna*, Fruitpiercing moth (Erebidae)**

Adult moths have mottled light brown wings with white lines and dark patches. The hindwings are orange with a dark spot in the middle and dark edge around the wing. Larvae are velvety and are either black or grey with two white or orange and black eyespots on each side. Larvae feed on Menispermaceae vines, adults feed on fruit. Size: Adults 70-100 mm wingspan across, Larvae up to 55 mm in length.

***Dysphania numana*, Four o'clock moth (Geometridae)**

Adult moths have dark blue and orange striped bodies with dark blue wings with transparent areas and dot of oranges around the edge of the hind wings. Larvae are bright yellow with black pairs of black spots running down the back. Larvae feed on Carallia, Litchi and Melicope plants. Size: Adult wingspan 80 mm across.

Looper moths (Geometridae)

Looper moths can be extremely difficult to tell apart as the majority of species are very similar - being beige, grey, brown mottled and cryptically coloured and marked with subtle differences between individuals as well as between species. The majority of these moths have not been associated with their caterpillars - these will be typical loopers or inch worms, often hiding in plain sight pretending to be part of a branch or stem. The adult moths are important food for our night active birds such as owls and boobooks as well as local native bats.

***Euploea corinna*, Australian Crow (Family Nymphalidae)**

Adults are dark brown with large white spots on the inside of the wings and small white spots on the edges of the wings and four legs. The larvae are bright orange, black and white with eight black tentacles. The pupa is very shiny silver to gold. The main host is Oleander, *Nerium oleander* although it has also been found on other hosts including Morton Bay Fig, *Ficus macrophylla*, Desert rose, *Adenium obesum* and frangipanni, *Plumeria alba*. The adults feed on nectar and help with pollination. Size: Adult wingspan 70 mm across.

***Cepora perimale*, Caper Gull (Family Pieridae)**

Adults are white with wide black margins that have white spots on the edge of the wings. The larvae are green with yellow dots and white hairs along the length of the body. They are found across the tropical north of Australia and along the eastern portion of Australia. They are typically found in semi-deciduous monsoon vine thickets and savannah woodland where their larval food plants *Capparis* spp. grow. Size: adult wingspan 40 mm.

***Psilogramma casuarinae*, Southern privet hawk moth (Family Sphingidae)**

Adult moth forewings are grey with darker grey patterns, hindwing are brownish with patterns. The

thorax is grey with a black line along each side, body is grey with darker brown sides and a dark brown stripe down the centre of the abdomen. Newly emerged larvae start out green with a brown horn at the rear end. As they mature they can be two colours, either green with white stripes or green and brown with white stripes. Larvae are pest of olives but have also been found on Clerodendrum and Duranta. Size: Adult wingspan 100 mm across, Larvae up to 80 mm in length.



Utetheisa sp., Tiger Moth adult (Arctiinae)



Diaphania indica, Cucumber moth adult (Crambidae)



Omiodes diemenalis, Soybean leafroller adult (Crambidae)



Scirpophaga innotata, Rice white stemborer adult (Family Crambidae)



Amata spp., Wasp Moth adult (Family: Erebididae)



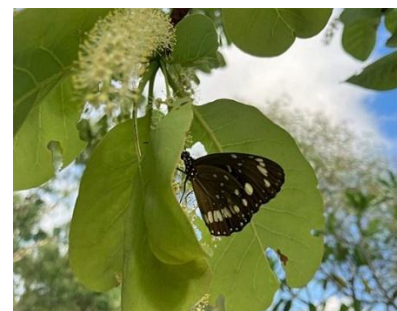
Eudocima materna, Fruitpiercing moth adult (Erebidae)



Dysphania numana, Four o'clock moth adult (Geometridae)



Looper moth (Geometridae)



Euploea corinna, Australian Crow adult (Family Nymphalidae)



Cepora perimale, Caper Gull adult (Family Pieridae)



Psilogramma casuarinae, Southern privet hawk moth adult (Family Sphingidae)

Mantodea (Mantids)

Preying mantis (Mantidae)

Adults vary in colour from light brown to green, they have an elongate body with a freely moveable prominent head with large eyes and strong jaws. The frontlegs are large and adapted for catching prey. Males have wings, females usually have reduced wings or none at all depending on species. Nymphs look like the adults with no wings. They predate on other insects but populations are usually not high enough to be effective in pest populations. Size: 10-120 mm in length.



Preying mantid ootheca (Mantidae)



Preying mantid nymph (Mantidae)



Preying mantid ootheca (Mantidae)

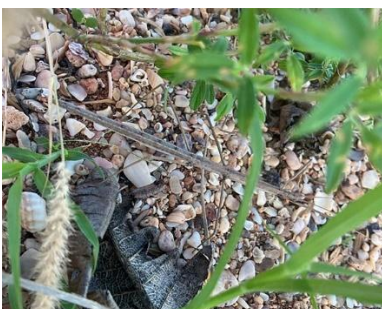


?*Tenodera* sp. (Mantidae)

Phasmida (Stick insects)

?*Denhamia* sp., stick insect (Phasmatidae)

Adults are elongate and stick like with wings and greyish brown in color. There are two species known to occur in the general area, Australian ridged stick-insect, *Denhama austrocarinata* and Lined stick-insect, *Denhama striata*. Stick insects are foliage eaters, and camouflage themselves as a defense, against predators pretending to be a stick. They are usually found in grassland and associated areas. Both the male and female are wingless.



?*Denhama* sp. adult (Phasmatidae)

Odonata (damselfies and dragonflies)

Orthetrum sabina, Slender Skimmer (Libellulidae)

Adults have a green and black striped body with a black and white abdomen, green eyes and net like wings, females are smaller. They perch motionless on plants for long periods and they prey on small butterflies and dragonflies. Size: Adult wingspan 60-85 mm across.



Orthetrum sabina, Slender Skimmer adult (Libellulidae)

Orthoptera (crickets and grasshoppers)

Valanga sp., Giant grasshopper (Acrididae)

Adults are brown to grey with variable markings. Nymphs are green and wingless. They are polyphagous and feed on leaves, usually at night. Size: Adults up to 90 mm in length.

Raspy cricket (Family Gryllacrididae)

Adults vary in colour from brown to black. They have large jaws to feed on their prey. Nymphs resemble adults but without wings. They are predators of other insects and spiders and will aggressively defend themselves with a very strong bite, against anything they perceive as a threat, including much larger animals. All raspy crickets have the ability to spin silk with their mouthparts, constructing enclosures where they spend the day such as in a curled Kakadu plum leaf. They tie leaves together or construct underground burrows that are stabilised with webbing and construct a cap for the burrow that keeps them sealed in a waterproof and predator-proof enclosure for when danger threatens. Size: Adults up to 50 mm in length.

Nicsara ?trigonalis, Katydid (Tettigoniidae)

Adults are patterned cam and brown with bulging eyes and long antennae. Nymphs are similar without wings. They tend to be nocturnal and gregarious, sharing retreats such as axils of pandanus and under loose bark during the day. They seem to feed on a wide range of flowers and fruits but are not considered a pest species.



Valanga sp., Giant grasshopper nymph (Acrididae)



Raspy cricket adult (Family Gryllacrididae)



Nicsara ?trigonalis, Katydid adult (Tettigoniidae)

Scutigermorpha (House centipedes)

House centipede (Scutigera)

Adults are brown in colour with various patterns and 15 pairs of long legs and long whip like antennae. Despite their common name they tend not to live in houses but rather crevices, rocky areas, caves and similar type of habitats. They are predatory on smaller invertebrates, specializing in eating spiders and insects, they are shy and prefer to escape than be aggressive. Size: Adult 25-35 mm in length.



House centipede (Scutigera)

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