

Appeal for the preservation of habitat
at
Lot 2 DP 809106
Arizona Road,
Charmhaven

Attention: Brent Devine
Development number: SSD-14082938

Addendum – Species seen on second walk conducted 28/9/2023 between 05:45 and 08:45pm, added in grey.

A brief interaction lasting a few hours (6:15 to 8:30pm, 22/09/2023) at the Charmhaven site, gave me the impression it has much more depth of invertebrate and other wildlife diversity to be observed. The conditions, on which I first walked it, were following several hot days and warm nights, and cold rains the night before, sapping heat, and likely dropping delicate species numbers which would take some time to emerge again.

Arriving on dusk, before I had even entered the sites gate I was greeted by whistling moths, calling as they zigged and zagged their figure 8 paths above my head. Several small well fed spiders were amongst the vegetation, as was a large mantis sitting in wait of prey.

By the entrance of the site, dumped material such as doors, carpet and metal, were utilised as shelter by wildlife, permitting for a quick and gentle exploration of those sheltering beneath, including:

- Huntsman spiders.
- Scarab beetle larvae (suggested to look like *Anoplognathus*, Christmas Beetles sp.) ID thanks to Vrata Noviny).
- Centipedes of varying ages. Westwood's Green Centipede, *Cormocephalus westwoodi* (ID thanks to Nick Volpe).
- A water skink.

Throughout the trail a diversity of well fed and feeding spiders would be seen on, or in, webs between vegetation, sitting on trunks, or wandering the ground. Including:

- Beautiful Badge Huntsman, *Neosparassus calligaster*
- St Andrews Cross Spider, *Argiope keyserlingi*
- Orbweaver, *Salsa sp*
- Tangle web spider, *Theridion sp*
- Robust Sac Spider (possibly) *Clubiona robusta*
- Orbweaver - *Araneidae*
- Jumping Spider – “*Sandalodes* or *opisthoncus* but *opisthoncus* seems more likely”
- Garden orb weaving spider, *Hortophora sp.*
- Jungle Huntsman Spider, *Heteropoda jugulans*
- Whip spider, *Ariamnes colubrinus*
- Sac Spider, *Cheiracanthiidae sp*
- Long Jawed Orbweaver, *Tetragnatha sp*
- House spider, *Badumna sp.*
- Giant Water Spider, *Megadolomedes sp*
- Net Casting spider (female), possibly *Asianopsis sp*
- Huntsman, *Isopedella sp*

- Leaf curling spider, Family Phonognathidae
- Ant eating spider, possibly Euryopis
- Orb weaving spider, *Socca sp.*
- Spider, either *Araneidae*, *Poltys* or *Acroaspis*
- Huntsman, *Neosparassus sp*
- Wolf spiders
- Silver orb weaving spider
- False black widow, *Steatoda sp*
- Two tailed spider, *Tamopsis fickerti*
- *Australomimetes* egg sac.
- Spider, Thomisidae
- Mirror spider, *Thwaitesia sp.* Possibly Black-spotted Thwaitesia, *Thwaitesia nigronodosa*
- Spider, Tetragnathidae
- White tailed spider, White-tailed Spider, *Lampona sp*
- Scorpion tailed spider, *Arachnura higginsi*
- White striped Cytaea, *Cytaea alburna* (pair seen in nest together)
- Grey Huntsman, *Isopeda villosa*

Lepidoptera:

- One of the small ant blue butterflies, likely host ant species on site (possibly Pea Blue, *Lampides boeticus*)
- Frass caterpillars
- Green caterpillar
- Concealer moth, *Oecophoridae sp*
- Plume moth
- Curved Horn Moth, *Gelechioidea sp*
- Other green caterpillar
- Brown caterpillar

A diversity of case moth caterpillars would be seen throughout the walk on vegetation in their cases.

- Possibly Saunder's Case Moth, *Metura elongates*
- Possibly *Lepidoscia arctiella*
- Others.

Ants were active in nests, and being predated upon

- Gravel Ants, *Iridomyrmex purpureus*– in nest, and farming lerps
- *Polyrhachis*, Subgenus *campomyrma*.
- Green Ants, *Rhytidoponera aspera*
- Sugar Ant, *Camponotus sp*
- Ants, possibly *Crematogaster sp*

- *Camponotus* Possibly *Camponotus aeneopilosus*
- *Ants, Iridomyrmex sp*

Wasp

- Wasp galls were present on several plants of a mix of species.
- Mud wasp nests

Dragonflies & Damselflies

Adult dragonflies and damselflies were present, indicating within range their aquatic aspects of their lifecycle and respective requirements for aquatic prey were being met.

- Common Flatwing, *Austroargiolestes icteromelas*
- Percher Dragonfly, *Diplacodes sp*
- Wandering ringtail, *Austrolestes leda*

Yabby

Earwig

Opiliones

Snail

- Hadrinae subfamily

Orthopterans & Blattodea:

- Katydid, adult, sp?
- Bent twig katydid, *Zaprochilus australis*, sub adult
- Native roach, *Pseudophyllodromiidae* family.
- Native roach
- Roach with egg case
- Bush cricket, *Coptaspis sp*
- Bark-Mimicking Grasshopper, *Coryphistes ruricola*

Diptera

- Hover fly, *Toxomerus sp.*
- Yellow headed parasitic snail blowfly

Hemiptera:

- Leafhopper, Squathoppers Family Eurybrachidae, *Hackerobrachys viridiventris*
- Spittle bugs, Family Aphrophoridae

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- Leafhopper nymph
- *Poecilometis sp*
- *Cottony cushion scale*

Lacewings

- Small green lacewings observed flying around after entering.
- Lacewing eggs on vegetation.
- Lacewing larvae, wearing assortment of other invertebrates body parts.

Mantids

- Possibly *Archimantis latistyla*
- *Orthodera sp*

Phasmids

- Phasmid nymph, suspected *Phasmatini sp*

Beetles

- Darkling beetle - *Tenebrionidae*
- Leaf beetle - Subtribe *Paropsina*
- Scarable beetle grub – " Looks like *Anoplognathus*" (Christmas beetles)
- Red Weevil, *Rhinotia haemoptera*

Termites

- 2 different species were seen on site.

Centipedes:

- Westwood's Green Centipede *Cormocephalus westwoodi*

Frogs

- Common Eastern Froglet, *Crinia signifera* (multiple heard calling)
- Striped Marsh Frog, *Limnodynastes peroni* (a few heard calling)
- Broad Palmed Rocket Frog, *Litoria latopalma* (3 individuals seen, 2 photographed)

Reptiles

- Water Skink
- Skink egg, possibly Delicate Garden skink. *Lampropholis delicata*

Birds

- **Powerful Owl Active nesting site 5km away. Observed 20/09/2023**
 - They can eat 250 to 350 possums per year.
 - Appears at least one suitable tree for nesting hollow on site, time for independent targeted search may reveal additional.



1 Powerful owl, *Ninox strenua*

Returning with ringtail possum to calling chick on nest 20/9/2023

Conclusion:

The Charmhaven sites intersecting gradients of vegetation types, moisture, slopes, ground cover and aspects for sun penetration and shelter, provide opportunities for ectotherms & warm blooded wildlife to perform staggered life cycle events on site. As part of the broader ecosystems this site is a part of on the coast, it adds resiliency and redundancy in the event of recurring and novel threats.

Beyond traditional challenges species may face within typical and atypical climatic conditions with seasonal and extra seasonal extremes of prolonged heat, storms, flooding, dry & cold – the breadth of habitat niches and diversity in genetics permits adaption and better capacity to survive in sufficient numbers to sustain biodiversity.

The typical threats of habitat loss, degradation, fragmentation & feral pests, will be exacerbated with invasive fire ants now no longer being managed, cane toads, chytrid fungus and various plant threats such as myrtle rusts & root rot.

Confounding factors:

- Limited timeframe to perform observations, being made aware of this site a little over a week before appeals to its development were due.
- My first time walking that particular track (although I have walked many others, including one nearby).
- Limited by weather events and seasonality. Several seasons would be preferable to account in seasonal variation of species in varying stages of their lifecycle and their interdependence on one another, for example:
 - Food chains and reliance on prey species more available later in season.
 - Triggering emergence events of heat / humidity before storms
 - Seasonal cues for frog breeding.

Recommendations:

- **Protect this site from development.**
- Additional time should be allocated to performing independent surveys of vulnerable species:
 - Fishing bats
 - Adults and larvae of endangered dragonflies. *Petaluria gigantea*, South Eastern Petaltail (observed on property of a nearby resident at Bluehaven)
 - Powerful Owl utilisation of the site.
 - Vulnerable mammals such as Antechinus.

Contributors & Acknowledgements:

Shane David – Assistance searching on nearby walk where nesting powerful owl was observed.

Ben Kurek – Massive assistance with spider and other invertebrate identification.

Dan Kurek – Ant identification.

Annette Friz Fraser-Dunn – Preliminary spider identification.

Boris Branwhite – Site history, botanical knowledge and appeal application support.

Vrata Noviny – Beetle identification.

Matthew Ross – for initially sharing awareness of the cause.

Rick Wood – Preliminary spider identification.

Megan Quirks – Assistance searching on second walk.

Peter Street – Photography, preliminary ID & Compiling this submission.

Submitted 2/10/2023

Photographs:

All images taken on site at Charmhaven with exception of the Powerful Owl, which was photographed 5km away.

Photographed using a Canon 7D, a 60mm lens using pop up flash and a homemade milk bottle diffuser.

Contact: Peter Street - 0417364620

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Spiders



2 Beautiful Badge Huntsman, *Neosparassus calligaster*



3 St Andrews Cross Spider, *Argiope keyserlingi*

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4 Orbweaver, *Salsa* sp



5 Tangle web spider, *Theridion* sp



6 Beautiful Badge Huntsman, *Neosparassus calligaster*



7 Robust Sac Spider (possibly) *Clubiona robusta*



8 Orbweaver - *Araneidae*



9 Jumping Spider – “*Sandalodes* or *opisthonus* but *opisthonus* seems more likely”



10 Garden orb weaving spider, *Hortophora* sp.



11 Jungle Huntsman Spider, *Heteropoda jugulans*



12 Whip spider, *Ariamnes colubrinus*



13 Sac Spider, *Cheiracanthiidae* sp



14 Long Jawed Orbweaver, *Tetragnatha* sp



15 House spider, *Badumna* sp.



16 Giant Water Spider, *Megadolomedes* sp



17 Net Casting spider (female), possibly *Asianopis* sp

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18 Huntsman, *Isopedella* sp



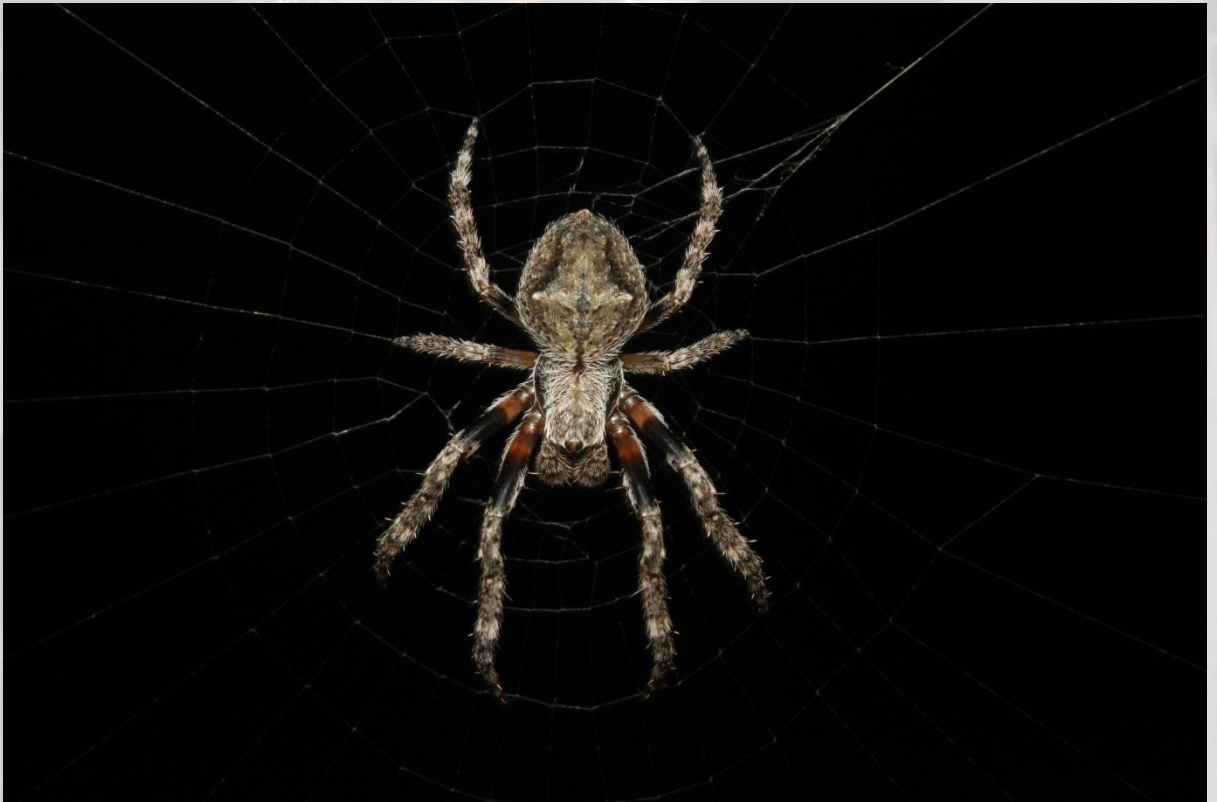
19 Leaf curling spider, Family Phonognathidae

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20 Ant eating spider, possibly *Euryopis*



21 Orb weaving spider, *Socca* sp.



22 Spider, either Araneidae, Poltys or Acroaspis



23 Wolf spider

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24 Huntsman, *Neosparassus* sp



25 Silver orb weaving spider, *Leucauge* sp.

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26 False black widow, *Steatoda* sp



27 Two tailed spider, *Tamopsis fickerti*



28 *Australomimetes* egg sac



29 Crab Spider, Thomisidae

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30 Mirror spider, *Thwaitesia* sp



31 Spider, Tetragnathidae

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32 White tailed spider, White-tailed Spider, *Lampona* sp



33 Grey Huntsman, *Isopeda villosa*



34 Scorpion tailed spider, *Arachnura higginsii*



35 White striped Cytaea, *Cytaea alburna* (pair seen in nest together)

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Lepidoptera



36 One of the small ant blue butterflies, likely host ant species on site (possibly Pea Blue)



37 Frass caterpillar



38 Green caterpillar



39 Concealer moth, *Oecophoridae* sp



40 Plume moth



41 Curved Horn Moth, *Gelechioidea* sp



42 Other green caterpillar



43 Brown caterpillar

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44 Possibly Saunder's Case Moth, *Metura elongates*



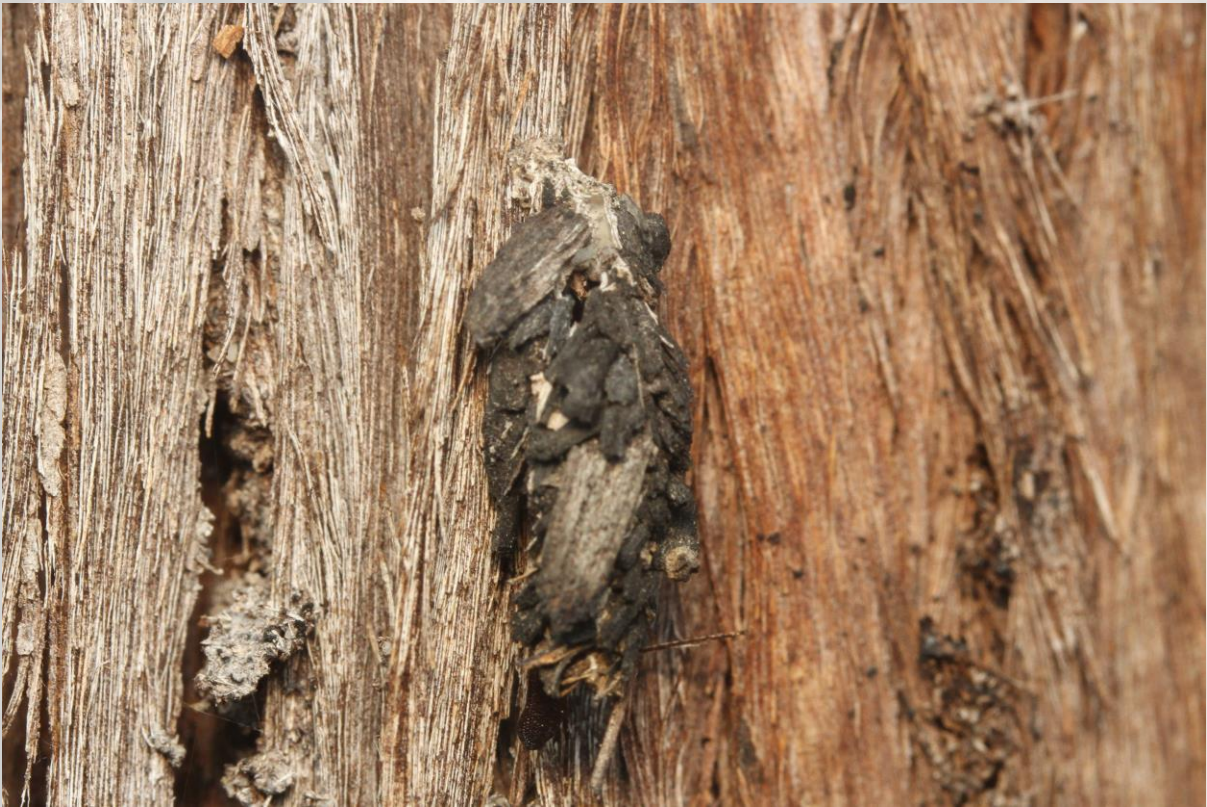
45 Possibly *Lepidoscia arctiella*

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46 Other case moths

Ants



47 Gravel Ants, *Iridomyrmex purpureus* – farming (nesting mounds nearby)



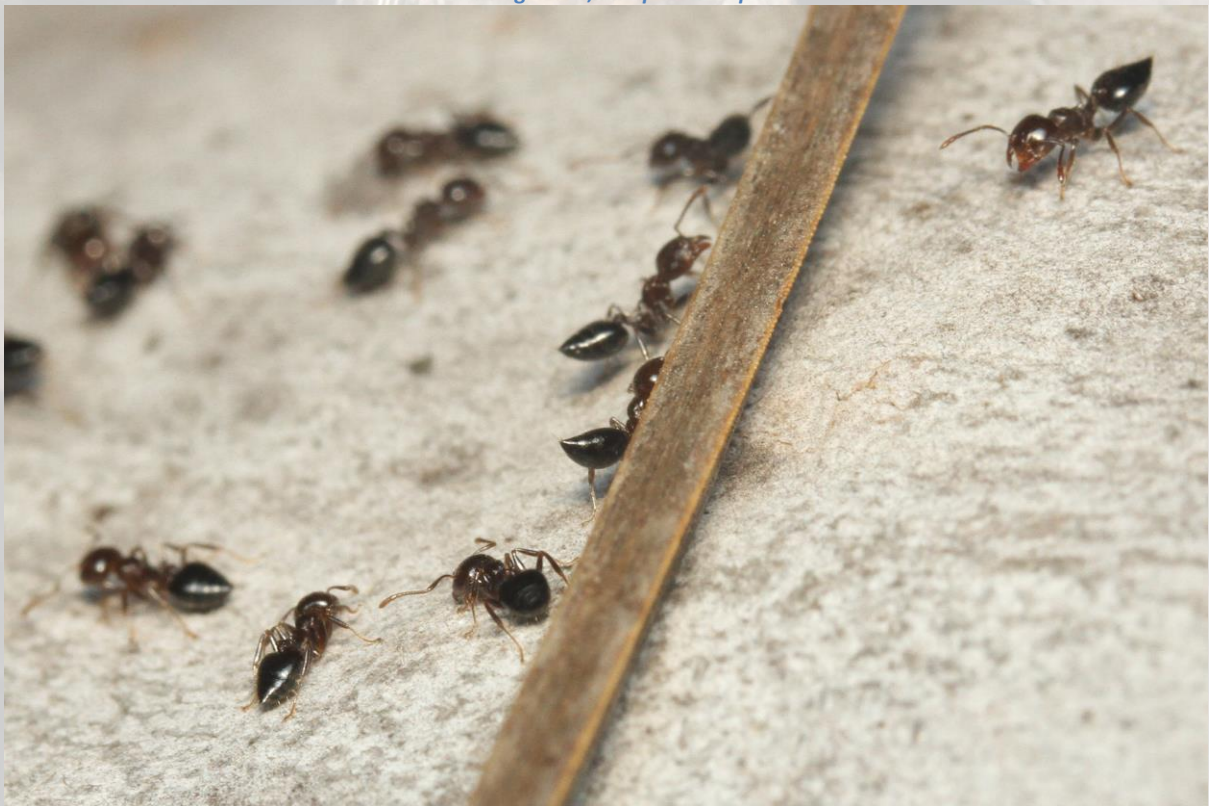
48 *Polyrhachis*, Subgenus *campomyrma*.



49 Green Ants, *Rhytidoponera aspera*



50 Sugar Ant, *Camponotus* sp



51 Ants, possibly *Crematogaster* sp



52 *Camponotus* Possibly *Camponotus aeneopilosus*



53 Ants, *Iridomyrmex* sp

Wasps



54 Wasp galls

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55 Wasp galls



56 Mud wasps nests

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Dragonflies and Damselflies



57 Common Flatwing, *Austroargiolestes icteromelas*



58 Percher Dragonfly, *Diplacodes* sp



59 Wandering ringtail, *Austrolestes leda*



60 Other damselfly

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Yabby



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Earwig



61 Earwig

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Opiliones



62 Opiliones

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Snail



63 Hadrinae subfamily

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Orthopterans & Blattodea



64 Adult katydid



65 Sub adult bent twig katydid, *Zaprochilus australis*

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66 Native roach, *Pseudophyllodromiidae* family

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Submitted 2/10/2023



67 Native Roach with Egg case



68 Bush cricket, *Coptaspis* sp

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69 Bark-Mimicking Grasshopper, *Coryphistes ruricola*

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Diptera



70 Hover fly, *Toxomerus* sp



71 Yellow headed parasitic snail blowfly

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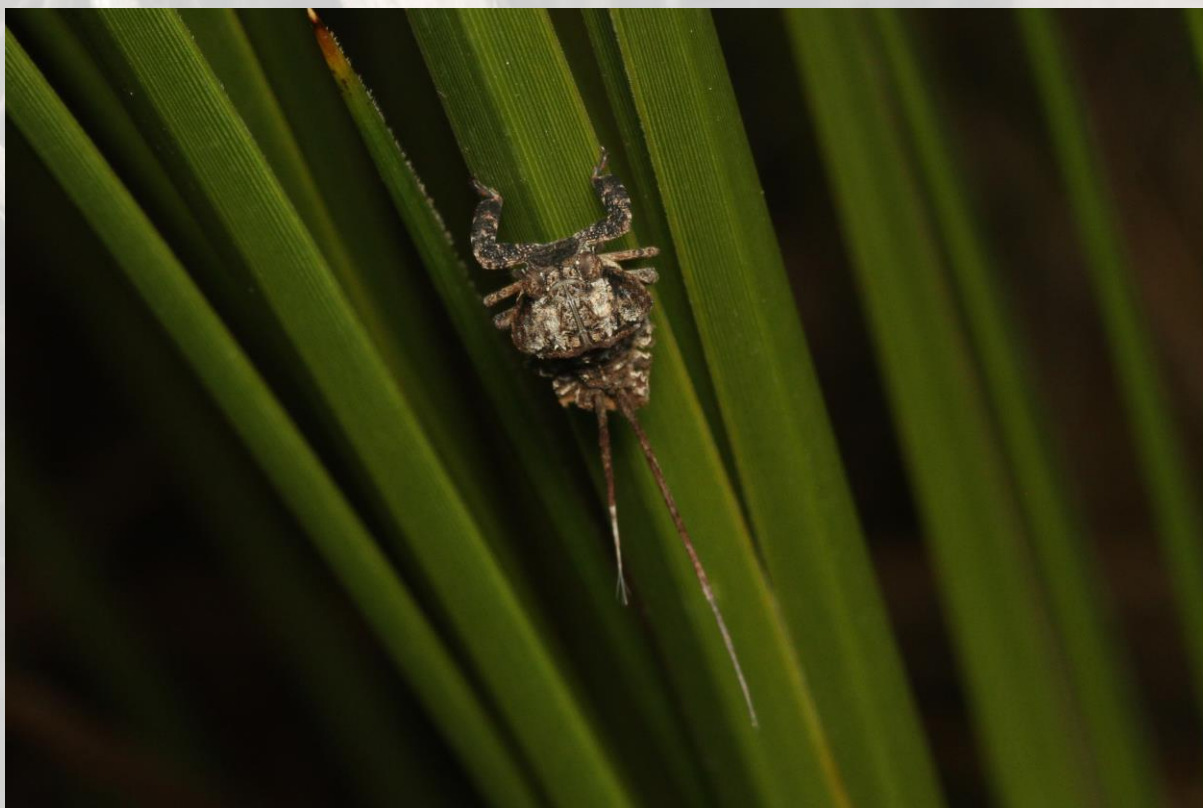
Hemiptera



72 Leafhopper, Squathoppers Family Eurybrachidae, *Hackerobrachys viridiventris*



73 Spittle bugs, Family Aphrophoridae



74 Leafhopper nymph



75 *Poecilometis* sp



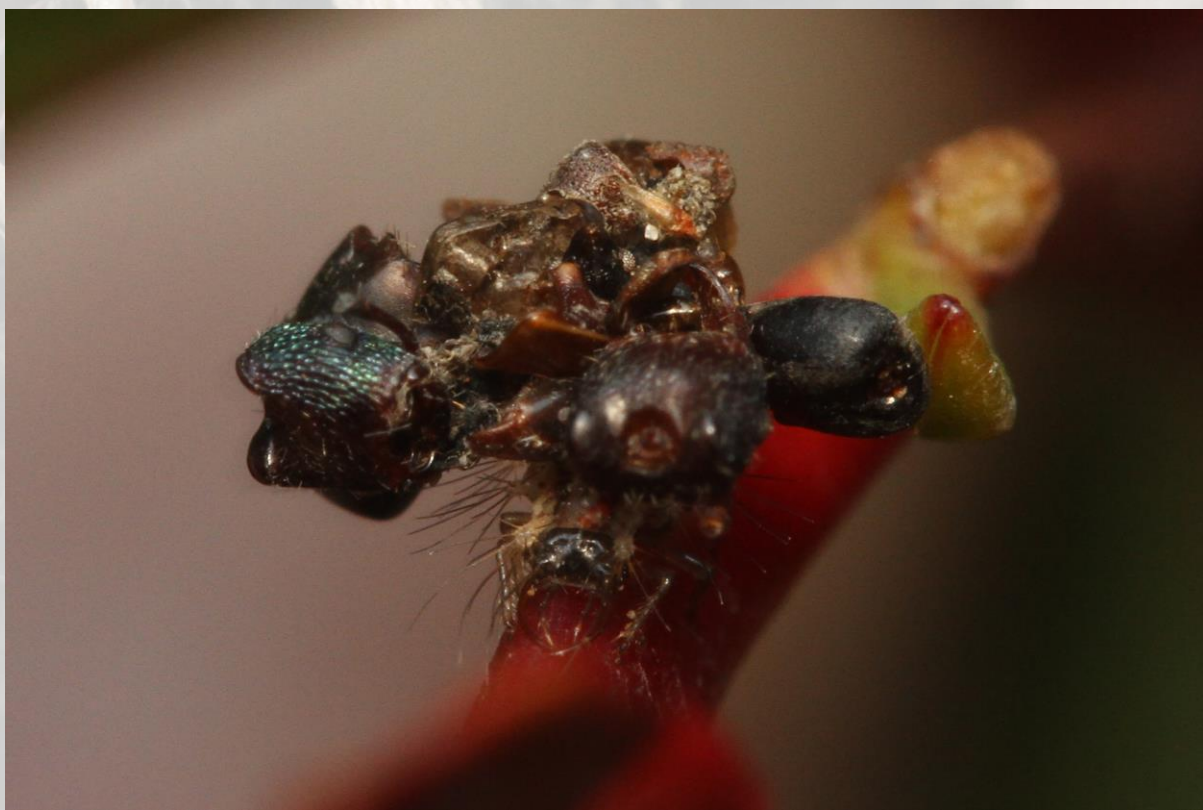
76 Cottony cushion scale

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Lacewings



77 Lacewing eggs



78 Lacewing larvae, wearing assortment of other invertebrates body parts

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Mantids



79 Possibly *Archimantis latistyla*



80 *Orthodera* sp

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Phasmids



81 Phasmid nymph, suspected *Phasmatini* sp

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Beetles



82 Darkling beetle - Tenebrionidae



83 Leaf beetle - Subtribe Paropsina

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84 Scarab beetle grub – "Looks like Anoplognathus" (Christmas beetles)



85 Red Weevil, *Rhinotia haemoptera*

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Termites



86 Two species of termites

Submitted 2/10/2023

Centipedes



87 Westwood's Green Centipede *Cormocephalus westwoodi*

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Frogs



88 Broad Palmed Rocket Frog, *Litoria latopalma*

Submitted 2/10/2023

Reptiles



89 Skink egg

Submitted 2/10/2023

Birds



90 Powerful Owl, *Ninox strenua* with Ringtail Possum- returning to calling chick in nest (5km from Charmhaven site)