

ENTOMOLOGICAL SOCIETY NEWSLETTER



December 2020

**FROM THE PRESIDENT,
Anne Wignall**

Kia ora koutou,

Welcome to the final newsletter of 2020 – and what a year!

After having to cancel our annual conference earlier this year, preparations are well under way for Otago 2021. Huge thanks go to Jenny Jandt and her team for their work to organise, cancel and then re-organise the conference. We plan on combining meetings with the Australian Entomological Society in 2022.

Congratulations to Morgane Merien, our new Outreach Officer, who is the presenter of a fantastic new TV show called 'Bug Hunter' on TVNZ. It also features guest presenter Olly Hills in a few episodes who's invited presentation you may remember from our 2018 conference in Whanganui.

Meanwhile, the next issue of The Wētā (Vol. 55) is filling up with several articles available through the new Online Early platform already. The platform now also features digital submission via the The Wētā website. Many thanks to Simon Hodge and Aaron Harmer for getting the system up and running, and to Grace Hall for taking on the task of mailing it out to everyone.

After 6 years on the executive, Leilani Walker is stepping down as membership officer. She has been an integral member of the exec and we thank her for all her outstanding work. Thanks to Jonathon Ridden for taking on this important role.

I hope you all have a relaxing summer break, with many exciting entomological finds and I look forward to seeing you at the conference in April next year.

Entomological Society Newsletter

Conference Announcement:

The Entomological Society of New Zealand's Annual Conference is back on for 2021. Next year's conference will be hosted by Jenny Jandt and colleagues at the Otago Museum in Dunedin (what was meant to be this year). The conference will return to our regular timing of the week after Easter – **7-9 April 2021**. Look out for more future announcements and hope to see you all there!



In Memoriam of John Dugdale:

4th September 2020: It is with a heavy heart that we share the news on the recent passing of esteemed entomologist John Dugdale.

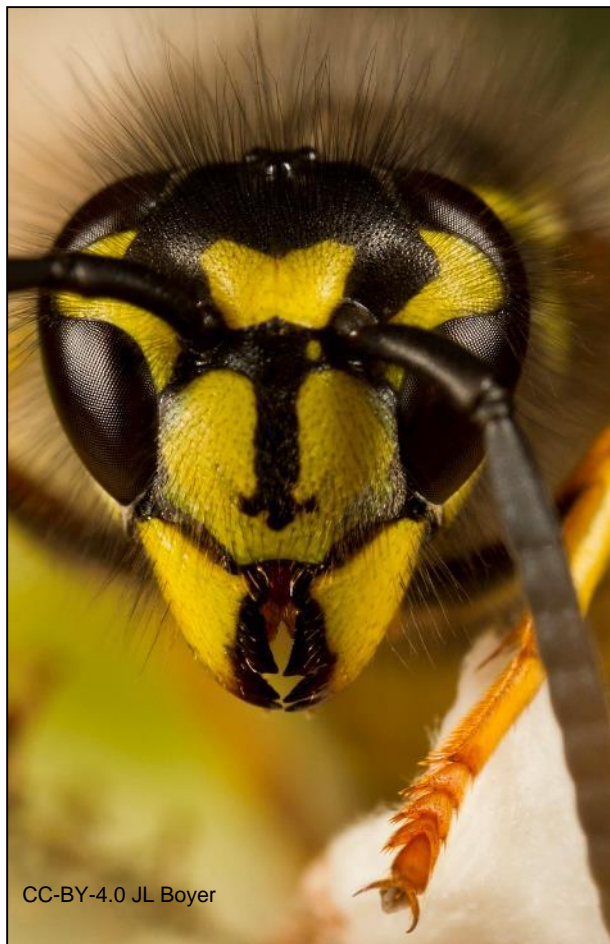
John Dugdale has been an important figure in New Zealand entomology since the 50's, and has been involved with the society from its early years. His speciality was the systematics of Lepidoptera and the biology of phytophagous insects. In 2001, he was elected a Fellow of the Entomological Society in recognition for his extensive contribution to entomology. He leaves behind a remarkable legacy of research on moths and cicadas, as well as general natural history of many insects. He was also a mentor to many who met him. Our condolences go out to the family and friends of John.



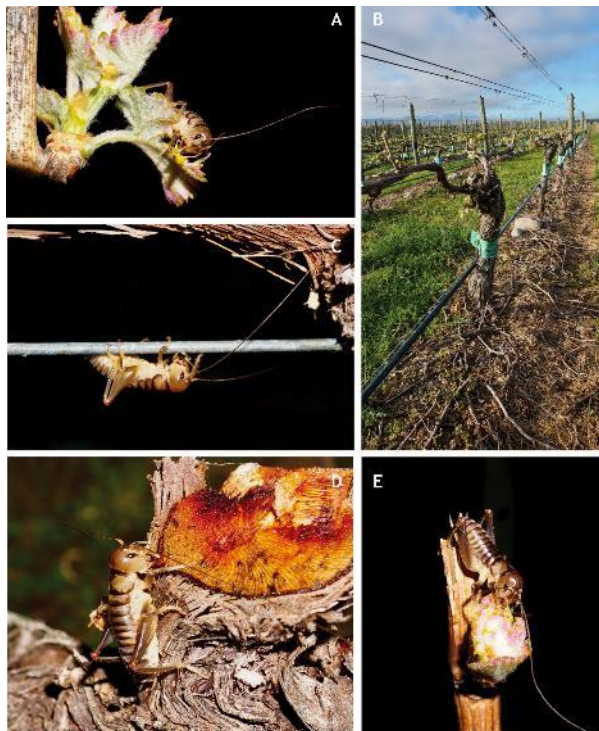
Entomological Society Newsletter

Featured work from our members

The potential of CRISPR as a tool for controlling invasive wasps: Professor Phil Lester and his team of researchers have recently published a report on the potential for a CRISPR gene drive to be used as a method of pest control for invasive wasps. The research looked into the genes involved in the production and development of sperm, and the potential for modifying these genes. Models show that this could lead to population suppression, allowing us to keep control on the level of wasps around. An important obstacle is the public's perception of a modified organisms. In order for this type of technology to be used, the approval and acceptance of the public is needed. Read more about it on the [National Science Challenges website](https://www.national-science-challenges.org/) and in *Scientific Reports* 10: Article 12398 (2020) <https://doi.org/10.1038/s41598-020-69259-6> (Figure 1 below).



CC-BY-4.0 JL Boyer



New species of 'lightning' wētā discovered in Marlborough Sounds:

Four newly discovered species of wētā were described in August. Part of that group is the lightning wētā (*Hemiandrus sterope*), so called for its lightning quick body drumming, likely used as a form of communication. This work comes from Professor Steve Trewick, Dr Briar Taylor-Smith and Professor Mary Morgan-Richards. Read more about it here: <https://www.tandfonline.com/doi/full/10.1080/03014223.2020.1790396> and here: <https://www.stuff.co.nz/science/new-species-of-lightning-weta>.

Entomological Society Newsletter

Featured work from our members

Getting the job dung:

Dr Henrik Moller and PhD student Emma Curtin were featured in the Otago Daily Times in August, talking about the importance of dung beetles to our ecosystem, especially in the agricultural format. New Zealand already has an array of native dung beetle species, however they are not suited to pastures and tend to be forest dwellers. A number of exotic dung beetle species have already been approved for introduction, but the project is slow going. Increased community and government contribution will hopefully speed things up, so that we can start reaping the benefits of these incredible ecosystem engineers sooner rather than later! Read more here:

<https://www.odt.co.nz/lifestyle/resilient/getting-job-dung>



CC-BY-SA-3.0 Simulakrum



CC-BY-SA-2.5 Richard Bartz

There are wasps in the yard. You'd better get to know them:

Now that summer is upon us, the presence of wasps is as ubiquitous as the sound of cicadas. Dr Jennifer Jandt was recently interviewed by The New York Times to explain why there are so many wasps around, and what they are doing exactly. As she explains, they are social insects. From spring onwards, the queen of the colony will continually lay eggs until she dies. To feed those developing offspring, the workers are constantly on the hunt, foraging for organic matter to bring back to the nest. They make short work of decomposing carcasses and rotting matter. They are important decomposers. Read more about it here in the New York Times

<https://www.nytimes.com>.

Entomological Society Newsletter

Featured work from our members

Sub-lethal exposure to a mammalian pesticide bait alters behaviour in an orthopteran: Adele Parli, a Masters student supervised by Dr Sheri Johnson, Dr Priscilla M. Wehi and Dr Anne Besson had her work on wētā personality and baits featured in New Zealand National Geographic earlier this year:

<https://www.nzgeo.com/stories/poison-snack/?source=homepage>.

Adele's research demonstrates how brodifacoum influenced the personality traits and expression of Wellington tree wētā (*Hemideina crassidens*). The NZ National Geographic article is based on Adele's thesis, submitted in 2019, and a paper published in the Journal of Insect Conservation (24: 535–546) earlier this year <https://link.springer.com/article/10.1007/s10841-020-00222-6>

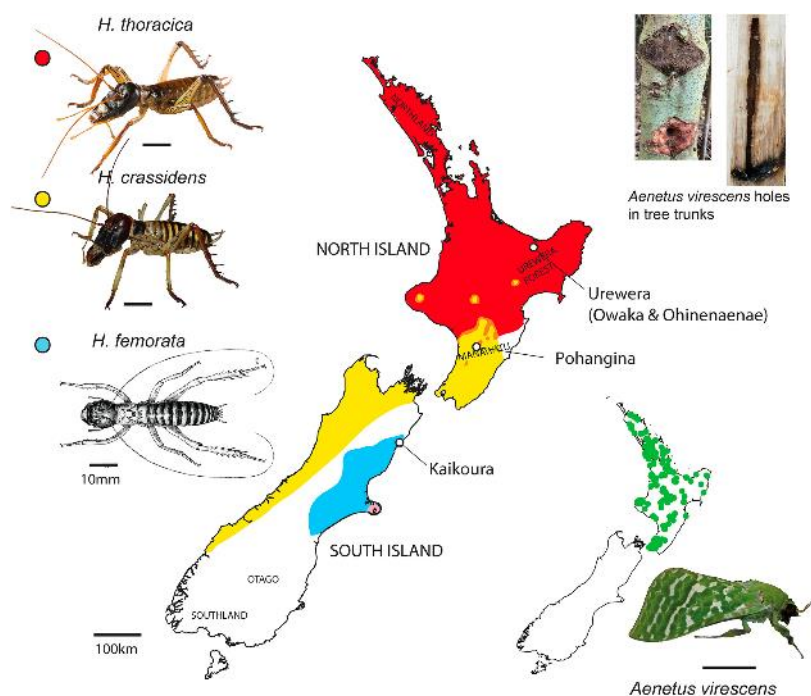


Figure 1 (from paper): Distribution of three New Zealand tree wētā species (*Hemideina thoracica* red, *H. crassidens* yellow, and *H. femorata* blue) with field sites and locations mentioned in text. The distinctive external holes created by the caterpillar of the pūriri moth (*Aenetus virescens*) are shown at top right, together with the internal cavity bored in the tree. The moth distribution based on i-Naturalist records is shown at bottom right. Scale bars for insects = 10 mm.

Indigenous plant naming and experimentation reveal a plant–insect relationship in New Zealand forests: Research led by Dr Priscilla Wehi, along with Dr Gretchen Brownstein and Dr Mary Morgan-Richards, showed that by drawing understanding of ecological systems from both Indigenous and ‘Western’ scientific knowledge offers the opportunity to incorporate and better inform how we practice conservation science. In their recent publication (which was also covered by Stuff <https://www.stuff.co.nz/science/123173786/mori-nailed-it-kaiwt-is-a-tree-on-which-wt-feast>), they demonstrate a “two-eyed” approach which weaves both Indigenous ecological knowledge and experimental data to investigate regional plant-insect interactions in New Zealand forests. Read more about it here: <https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.282>.

Entomological Society Newsletter

Student Profile: James Crofts-Bennett

Department of Botany, University of Otago

James has just completed his Masters degree at the University of Otago | Te Whare Wānanga o Otāgo, supervised primarily by Janice Lord with help from Barbara Barratt (AgResearch). His research focused on spider ecology, a topic which he plans to continue on with his PhD!

“Howdy, I’m James Crofts-Bennett. I am exceptionally fond of arachnids, always have been and always will be. Insisting on making a career out of liking arachnids, I’ve just finished and handed in my Masters thesis regarding lesser-known aspects of spider ecology. The joke being that most of New Zealand’s spider ecology is largely unknown. It is a monumental task to approach but my basis in the Botany department provided a hidden advantage as there is a large body of literature from around the world suggesting that spiders and plants are more than just casual acquaintances.”



“While the work from New Zealand is still sparse, a simple experiment regarding mistletoes in deciduous and evergreen trees as seasonal change occurred was put together. The data were processed, and we found that mistletoes were indeed functioning as over winter refugia for not just spiders, but invertebrates in general. This was exciting as we had both uncovered information regarding spider ecology and mistletoe ecology. Moving forward with this first taste of success, I have every intention of developing a career in liking spiders further with a PhD. Currently the project is looking at retracing Ray Forster’s collection around the Otago area and surrounding regions. There are plenty of spiders out there that have been overlooked and need better coverage, we had already encountered a number of them during the masters project.”



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Featured Field Trip: Invertebrate monitoring on Mangere and Rangatira Islands

In November Chrissie Painting (Te Aka Mātuatua School of Science | University of Waikato) and I enjoyed a DOC biodiversity trip to the Chatham Islands lead by botanist (and invertebrate enthusiast) Catherine Beard (DOC, Kirikiriroa). We were tasked with the invertebrate monitoring established by Warren Chinn (DOC, Ōtautahi) in 2018, to assess the forest floor invertebrate community available to robins in a remnant of indigenous bush compared to a 50-year-old restoration planting, to monitor the Nationally Vulnerable Coxella weevil *Hadramphus spinipennis*, and to check the status of other large vulnerable insects known to the Mangere and Rangatira Islands.

With Chrissie's expertise we also undertook a pilot study to learn about the large Rangatira spider, *Dolomedes schauinslandi*, much to the delight of the rest of our team of seven. Chrissie also spent a morning at Te One school engaging with the local kids about the amazing invertebrates in their takiwā.

Highlights of the 3 week trip were;

- Recording 208 *H. spinipennis* in a single night on Mangere Island
- Finding 36 Rangatira spiders on a 200m mark-resight transect on Rangatira Island
- Sighting the Naturally Uncommon flightless click beetle *Amychus candezei* on both islands, and a possible new distribution record for the carpet moth *Dasyuris partheniata* (ID confirmation pending)
- Helping our local DOC Senior Ranger get over her fear of spiders to the point she was letting *D. schauinslandi* walk across her face!
- Crayfish, cod and paua dinners...

Warren Chinn and Hannah Shepherd (DOC, Mahaanui) are currently trawling diligently through the extremely full pitfall samples and we are looking forward to sharing their results!

Tara Murray, DOC | Te Papa Atawhai, Ōtepoti



H. spinipennis on *Aciphylla dieffenbachii*
(Photo: T Murray)



Dolomedes female with egg sac (Photo: C. Painting)

Entomological Society Newsletter

Regional Updates: Auckland Branch

What has been happening in Tāmaki Makaurau, in the year that was 2020? Of course, COVID-19 got in the way with two lockdowns putting the kibosh on some of our field trips and evening talks, but the branch still managed to have some fun.

In June we had an informative talk on the Darwin's ant eradication campaign on Waikawa/Portland Island, Hawke's Bay from the ever-enthusiastic Chris Green and then squeezed in our annual dinner in July. It was a great fun evening full of masks, music and munching.



October 2020 provided a talk from the bearded Curculionidae lover Samuel Brown on 'Weevils that he has never collected'. A rollicking adventure in pursuit of rare and interesting specimens that are out there, yet not within his grasp. In November we finished our evening talks series for the year with a double deal two-talks evening. Shaun Bennett (MPI) gave a talk on responding to *Bactrocera facialis* and *Bactrocera tryoni* Fruit Fly detections in 2019, and Quentin Paynter from Manaaki Whenua Landcare Research gave us an update on Bugs that munch weeds for their lunch - Weed Biocontrol agents: News from the frontline.

October field trip: Karekare Beach West Auckland – Leader Robert Hoare

Sunday 18 October: The sun was shining for our first post lockdown field trip to the wonderful west coast beach of Karekare. Our branch president Dr Hoare lead us through Pohutukawa grove along a secret path, all the way to Tunnel Point. Along the way we enjoyed spotting many interesting insects.

Of particular interest was our search, in a 'secret grove', for signs of the leaf miner *Elachista* sp. on *Carex virgata*. We were also treated to the wonderful sight of kanuka leaf miner, *Heliozela catoptrias* in their 1000s visiting manuka flowers. Thanks to all the branch members who attended to make it a memorable day.



Alan Flynn – Auckland Branch Secretary

Entomological Society Newsletter

Regional Updates: Wellington's Pepeke

Our series of talks and activities around insects and other invertebrates continued in 2020. As usual, entomophile came together in the "The Giant Squid" at Te Papa's collection building on a Wednesday between 7pm and approx. 9 pm to chat about their favorite critters over lots of nibbles and drinks.

In February, our theme was Pollination. 23 people came to listen to Veronica H-Stevenson from Humble Bee when she talked about Australian native bees that are using a natural plastic to plaster their nests: <https://www.humblebee.co.nz/>.

Summer scholar students Mary Knowles and Thomas Rosenberg presented their studies on pollen, sampled off the historic GURR bumblebee collection and showed us, how to get fungus gnats back on the radar with Q GIS and LUCID (www.lucidcentral.org/lucid-builder/).

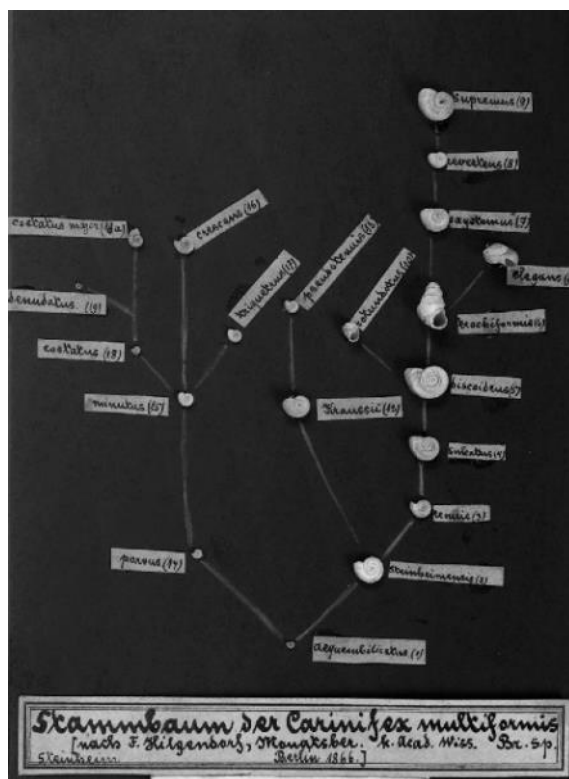
We could witness on the screen how a fungus gnat pollinated a spider orchid, fooled to visit a mushroom instead. While gossiping over wine and food, Ashleigh Immers taught us, how to database a bumble bee and I, how to build a nest for native bees for the backyard.

As you know, we were interrupted by covid in April. After a long break, people were still quite reluctant to gather together. So it wasn't very surprising that only 15 people came in June to our Freshwater themed meeting (1 visited via zoom) to learn about community-based water monitoring: connecting stream communities with local communities This was a talk, presented

by guest speaker Amanda Valois from NIWA, before we could watch live samples under the stereo microscope. Please find a very helpful macroinvertebrates identification key here:

<https://stroudcenter.org/macros/key/>.

Our own Rodrigo B. Salvador amazed us with Fossil snails from Lake Steinheim in Germany.



In the Miocene Lake Steinheim, a single species of *Gyraulus* snail went through a large radiation event. This resulted in a wealth of species with different shell shapes. The image shows the snails' evolutionary tree, proposed by the German paleontologist (then a PhD candidate) Franz M. Hilgendorf in 1867. Image reproduced from Rasser (2013: *Zoosystematics and Evolution* 89, pp. 13-20).

Entomological Society Newsletter

Regional Updates: Wellington's Pepeke continued...

And after Uwe Schneehagen showed us his beautiful pictures for an Inverts memory game, we voted for our branch logo. The winner was a wētā on Wellington's government building designed by Julia Eloff. Well done Julia!



Due to another covid alert we could not meet at Te Papa and had a Dinner at Southern Cross in August instead. In October, our Halloween theme was back - This time with parasites, visited by 26 people.

Allen Heath gave us a great overview of invertebrate parasites, including his beloved ticks of course.

I couldn't resist showing close-up videos of bloodsucking ticks, jumping fleas and a tsetse fly in labour, giving birth to a single gigantic maggot, while people had a go, identifying flea species of the Pilgrim collection under the microscope. One of our highlights was Phil Lester's talk about parasitoids of the Monarch butterfly with some unexpected results, THANKS TO LOCKDOWN.

We have 82 members and attendance to the meetings is around 20 people. Our Facebook site has 62 likes, 285 followers.

<https://www.facebook.com/EntoSocWgt n/>

The Wellington branch has initiated the 100 years moth project in partnership with Zealandia from 2019 –2020, now being extended by 2 years, with day sweeping added as an allowed method. 868 observations added to iNaturalist under the 100 Year moth project, 189 species recorded to date, and more specimens pinned and made available for accession into Te Papa 13 moth trips organised to date about 7 of which were this year.

[TVNZ:](#) *Insect experts catching moths to see if their NZ population has declined.*

[RNZ Our Changing World:](#) *100-year moth project – in the footsteps of George Vernon Hudson.*

A Speargrass Weevil survey being organised/discussed as a trip for early 2021.

*Julia Kasper – Wellington Branch
President*

Entomological Society Newsletter

Regional Updates: Otago Branch

Insect Isolation Initiative

Over the Covid-19 Level 3 & 4 lockdown period, the Otago Entomology Society ran the Invertebrate Isolation Initiative (III). The purpose of the III was to keep members actively engaged with the society and entomology in a fun way within the confines of their lockdown restrictions. As such, all observations had to be made within the travel confines of Level 3 & 4, and observations had to be made within the lockdown period beginning 26th March and ending 13th May 2020. Observations were recorded within a custom-made project on iNaturalist which you can check out here:

<https://www.inaturalist.org/projects/invertebrate-isolation-initiative>. At the first post-lockdown meeting, we held an awards night. Knowledgeable judges were assigned to each of the major observation categories and given free reign to select winners based on rarity, interesting biological interactions, photographic skills, or just plain awesomeness!

By the end of the III, 15 observers and 91 identifiers had recorded a total of 698 observations!

And the winners were.....

Most observations:

1st place & Grand Champion:

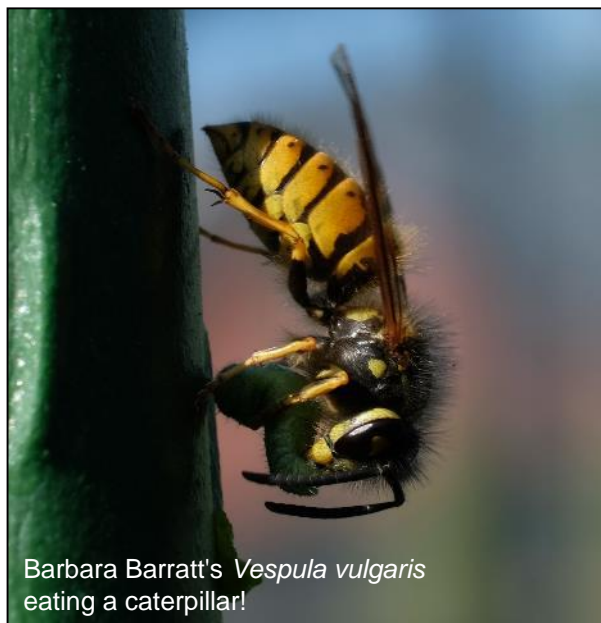
James Tweed with 228 observations!

2nd place: Danilo Hegg (162 obs)

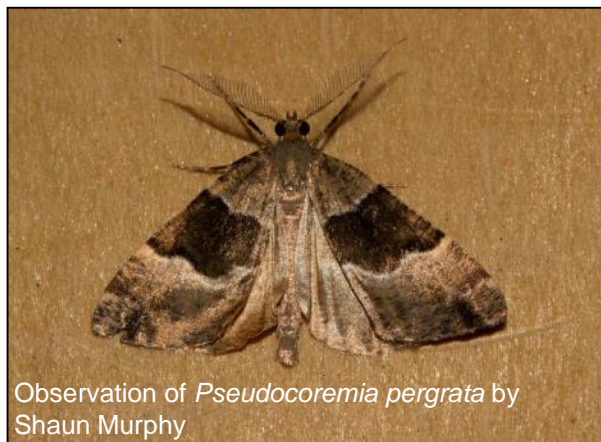
3rd place: Shaun Murphy (96 obs)

Most identifications: Steve Kerr (167)

Emma Curtin – Otago Branch President



Barbara Barratt's *Vespula vulgaris* eating a caterpillar!



Observation of *Pseudocoremia pergrata* by Shaun Murphy



The weevil *Stephanorhynchus curvipes* by James Tweed

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Mason Wasps: Help Needed!

Kia ora! My name is Keziah D'Souza and I'm a MSc student at the University of Auckland. My work focuses on New Zealand's native (naturalised) mason wasps, *Pison spinolae*. Female mason wasps build compartmented nests from mud, into which they pack in paralysed orb-web spiders which they have hunted. They lay an egg in each compartment and seal the nest, leaving their young to feast on the spider prey as they grow to maturity, with the females eventually repeating the cycle. This cycle is fascinating, but not many people have taken much interest in *P. spinolae*.

There are two major questions I would like to answer with my research - how do these female mason wasps find their prey, and how do they find their way back to their nests? I'm interested in what they might be using to decide what spider, and what nest, is the 'correct' choice - visual cues, chemical cues, or a mix of both?

This all begins, however, with finding study sites in Auckland, and my study sites are dependent on wherever I can find a nest! Mason wasps build their nests during the summer months, on warm, dry days - they're seen usually between October and April. They love brick houses, wooden decks, kitchen corners, even lawn chairs! I will be searching for study sites within the Auckland region until the end of February - these sites may be bush, but include private property (houses) as they are predominantly an urban species that love living alongside humans. If you spot one around your property, live within the Auckland region and would be comfortable with me conducting choice-tests in your backyard, please let me know!

Contact: kdso828@aucklanduni.ac.nz



Bevan Weir CC-BY



Andrew Blayney CC-BY



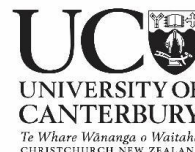
Keziah D'Souza



Entomological Society Newsletter

Postgraduate Opportunities

Phytophagous insect community ecology of kōwhai



Kōwhai (*Sophora* spp.) is an iconic genus of native trees. It is distinctive in the landscape due to its striking yellow flowers.

Kōwhai is poisonous to humans and anecdotal evidence suggests that its timber has high natural durability, hence it is a potential candidate to establish production forest stands.

Understanding the community of herbivores and how production and ecological values can co-exist is an important first step to inform the establishment of new managed kōwhai forests.

This PhD aims to provide fundamental information on the community and population dynamics of kōwhai herbivores and their natural enemies, i.e., predators, and parasitoids. Scope exists to examine the effects of mixed species stands and how insects cope with kōwhai toxins.

Research will occur in Canterbury and Northland and will require close engagement with relevant iwi.

Supervisor: Dr Steve Pawson, School of Forestry

PhD Scholarship: \$28,000 + fees

Send a CV and one page cover letter outlining relevant experience to:
steve.pawson@canterbury.ac.nz.

Note: Prospective candidates must meet UC entry requirements. Due to COVID-19 requirements this is only open to existing NZ citizens and permanent residents. Applicants without this will not receive a response.



Predator and parasitoid dynamics of *Paropsisterna cloelia* in New Zealand *Eucalyptus* plantations



Senior supervisors: Dr Stephen Pawson, School of Forestry, University of Canterbury
Associate supervisor: Dr Toni Withers, Forest Protection, Scion.

Background: The New Zealand Dryland Forests Initiative (NZDFI) has a vision to be a world-leader in breeding ground-durable eucalypts, and to be home to a valuable sustainable hardwood industry based on eucalypt forests, by 2050. Reducing the impact of defoliating insects is critical to the success of this vision. Paropsine (Chrysomelidae) beetles are the major defoliators of eucalypts in New Zealand. *Paropsis charybdis* was the first major defoliator to establish in the early 1900s and caused widespread damage before biological control agents were introduced. Subsequently, 4 more paropsine beetles have established, culminating in the arrival of *Paropsisterna cloelia* in 2016. Since its arrival *P. cloelia* has spread from the Hawke's Bay in the North Island to the Nelson/Marlborough region of the upper South Island. Previous work has shown that *P. cloelia* is a significant defoliator of a wide range of eucalyptus species, including those that form part of the NZDFI breeding programme.

Opportunity: This PhD provide an opportunity for a suitably qualified student to research the predator and parasitoid population dynamics associated with *P. cloelia* in New Zealand. The successful candidate will implement a programme of research that includes extensive fieldwork with complimentary laboratory as required. As part of their PhD the candidate will design, establish, and monitor the effects of multi-species stand establishment to facilitate strong biological control of *P. cloelia* by generalist predatory ladybird beetles. The candidate will collaborate with other PhD students at UC and with staff at Scion (NZ Forest Research Institute) as part of their studies. The successful candidate will receive an annual tax free stipend of \$28,000NZD and payment of their tuition fees.

Eligibility: Students must meet the academic entry requirements for the UC Doctoral Programme, these can be viewed [here](#). The minimum requirement is an Honours or Master's degree with either First Class or Second Class Division I that is equivalent to UC standards. English language requirements can be viewed [here](#). This PhD requires extensive fieldwork; candidates must demonstrate experience and a willingness to work in the field as required. Candidates should have proven experience in entomology (preferably forest entomology), basic understanding of experimental design, and competence in statistical methods and R.

COVID-19 Eligibility: Due to New Zealand border restrictions only NZ citizens and permanent residents can enter the country. Applicants will only be accepted from candidates currently overseas if they are an existing NZ citizen or resident. There are no exceptions to this.

Applicants that have not demonstrated that they meet these eligibility requirements, particularly COVID-19 requirements, should not expect to receive a response with regards to their application.

Questions and Applications should be addressed to Steve.Pawson@canterbury.ac.nz.



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New Media:

PhD student Morgane Merien is the presenter of **Bug Hunter**. Bug Hunter is an exciting mini-series which explores the magical and incredible world of insects and other small critters. In this series, Morgane travels from place to place in search of answers to fun questions such as “Do bugs fart?” or “Why do bugs glow?”.

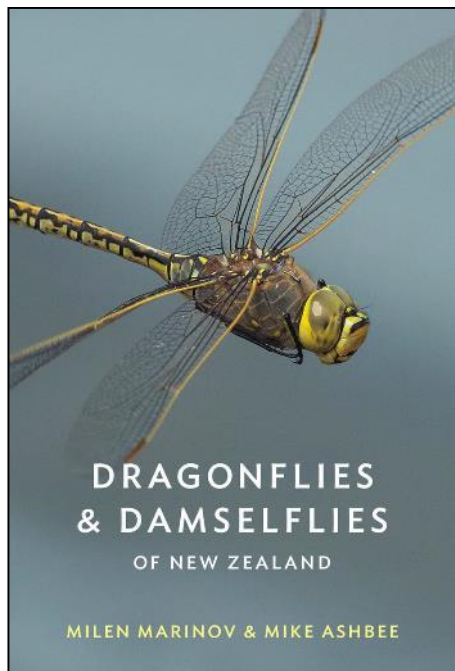
This show is aimed at 5-9 year olds, but adults will also come away with a deeper understanding of our amazing mini-beasts! Morgane says “I had a lot of fun shooting this, and met some wonderful people (including our very own cicada expert Olly Hills pictured below with Morgane) and critters along the way!” This is a New Zealand & Canada co-production between Gibson Group and Firestarter Productions.

Bug Hunter! is streaming now on TVNZ OnDemand.

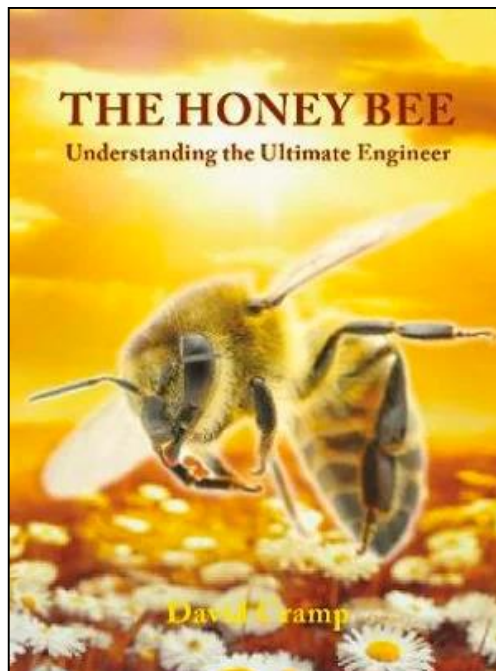


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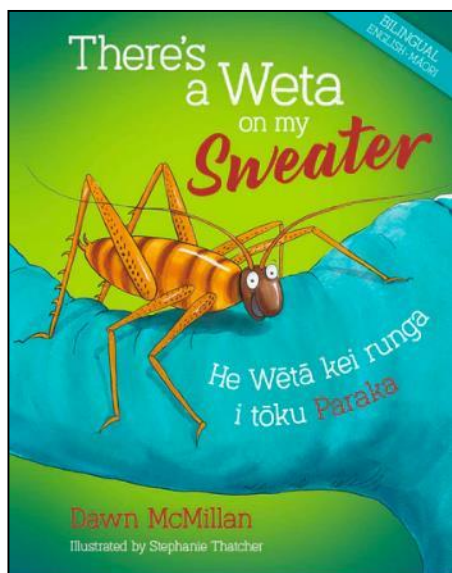
New Books:



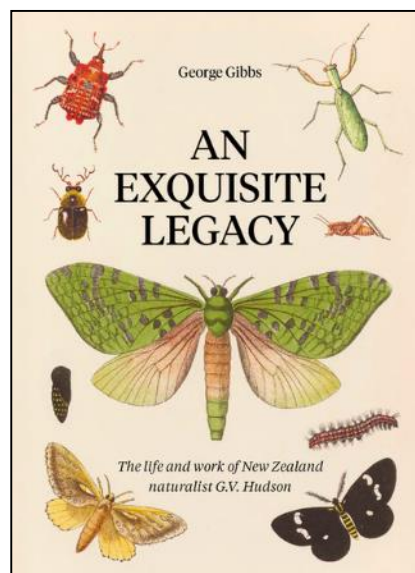
Dragonflies & Damselflies of New Zealand by Milen Marinov & Mike Ashbee was awarded for the best illustrated field guide in The 2020 Whitley Awards. A beautifully illustrated natural history & field guide to New Zealand's extraordinary dragonflies & damselflies.



Beekeeper David Cramp explores the origins & evolution of man's only truly wild, food-producing livestock, the extraordinary complexity of the hive & honey-making process, the mysteries of the life of the queen, workers & drones & their sophisticated language & navigation systems.



Wētā and friends, including beetle, centipede, stick insect & huhu, come to school with the kids. But they don't want to stay in the classroom! Can Koro help his mokopuna keep the critters safe?



George Hudson, was one of NZ's pioneer naturalists, who devoted his life to collecting & describing the NZ insect fauna. *An Exquisite Legacy* is a biography of Hudson, written by his entomologist grandson Dr George Gibbs.



Entomological Society Newsletter



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NB. Please update your contact information (especially your email address) to receive notices and the newsletter.

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Johnathon Ridden (incoming)

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