

Matariki Subterranean Stars



out of sight - not unsightly



Join us to explore Aotearoa New Zealand cave biodiversity

Waitomo 24 June - 26 June 2022



SUBTERRANEAN CAVE
BIODIVERSITY
NEW ZEALAND

Biospeleological Workshop Waitomo New Zealand 2022

Welcome to our first biospeleological get together in quite a while. The driving aims of the weekend are to:

1. Find out what a cave animal is and where to look in caves for them.
2. Learn how to record cave animals in caves - including taking macro shots.
3. Hear what's currently happening with cave animal research and conservation in New Zealand.

At the end of the weekend, hopefully we will have compiled enough information to create a simple field guide (with photos) of the most common cave animals you can encounter in Waitomo caves.

Itinerary

Friday 5pm onwards. Welcome bbq at the ASG hut. Salads will be provided. Bring along your own choice of meat/not meat and drinks.
Pre bbq spontaneous caving trips possible! Friday evening is also a chance for talks with our experts.

Saturday

9am - *What is a cave animal and where to look in caves for them.* We will have a brief introductory lesson on the two main types of cave animals you will see in caves (trogllobites and trogllophiles), and where to find them.

We will learn how to record and note cave animal sightings in caves, along with who to pass the information onto.

There will be a chance to test your camera macro settings and practice how to take effective shots (top/profile) before embarking off to local caves for practice in the field.

11am - Depart to caves for a day of practising and working towards our mini-field guide project.
Take lunch, hot drinks etc.

7pm - Please make sure you are ready by 7pm back at the hut for our evening talks. This will be a chance to find out more about current research and how we can support subterranean biodiversity.

Speakers: Julia Kasper (TePapa) Trans Tasman Glow-worm project and Phil Sirvid (TePapa) on cave critters and harvestmen.

Sunday

9am - A chance to go over photos from the previous day and share them with our NZSS conservation officer. We will have a wrap up of the weekend and feedback for future bio speleological weekends.

10am - An opportunity to continue visiting local caves and recording cave animals or to just go caving.

2pm - Conclusion of workshop weekend.

In addition I would like to thank those landowners who kindly allowed access to their caves for this workshop.

The Importance of Caves as Habitats

Caves provide a habitat for many species, some of which are wholly dependent on the cave to survive. The unique characteristics of cave environments offer the specific conditions required by many animals, as well as some plants that utilise cave entrances.



*Native plants and mosses at a tomo entrance
(photo Pete Baxter)*

Many caves contain cave-obligate biota, and without caves, these species would cease to exist. Most cave species are largely unknown; they have small populations, restricted ranges, and low rates of reproduction.

Threats to Cave Ecosystems

In order to protect cave ecosystems and cave animals, it is important to understand how external factors impact them. The most common causes to changes in cave ecosystems come from clearing vegetation around cave entrances, changes in water quality entering the caves and altering cave entrances (including mining).

Why Should Cavers Record Cave Animals?

New Zealand cave ecosystems are very poorly understood. Surface changes can have a big impact on them. Without knowing what is living in caves, it is impossible to make recommendations for protection or conservation of these animals.

Cavers have the ability to go into caves that scientists are unable to visit. They are able to photograph and record cave animals in situ, allowing them to be mapped and recorded. This information can then be used to make informed decisions about conservation and protection of cave systems.

Without cavers recording cave dwellers, many cryptic species will go unrecorded and unprotected.



What Lives in Our Caves?

Many different types of animals live in caves. They can be divided into three main groups, permanent, semi-permanent and occasional visitors. Nearly all are invertebrates.

Permanent Cave Animals have Special Adaptations to Living in Caves:

Over time, those animals that migrated into caves developed special adaptations.



Cave adapted beetles (smaller, lighter coloured, longer limbs, smaller eyes, thinner (less food available)) versus surface beetles. (photos landcare nz)



Cave Hendea species versus surface Hendea species. Note the colour and longer legs of the cave harvestman (photos Anna Stewart and Pete Baxter)

Semi-Permanent Cave Dwellers - Just as Important

Semi-permanent (troglaphiles) and occasional visitors to caves are just as important to the caves ecology and biodiversity as troglotic residents.

Examples include wētā, glowworms, spiders, surface beetles, surface harvestmen, eels, freshwater koru and more.

It is important to document their presence in caves as well to give a good indication of cave health and, in some areas could themselves be new species to science. Recently, caves on the west coast of the South Island have been closed to protect the Nelson cave spider, a semi-permanent cave animal.



How to Photograph Cave Animals:

1. Scale - have a scale to compare your animal too
2. Take a side or profile photo - this helps experts to identify them
3. Take a front view and top view
4. Remember - VIDEO is also great!



Recording/Mapping and Sharing your Discoveries:

Not everything you photograph will be able to be identified. But the records are still important and can be used in conservation efforts.



Record as accurately as possible where in the cave you saw it. Most cave dwellers are in the entrance zone/twilight area of the cave. Some will be further into the cave or in active streamways, under pebbles etc.

Send your findings to: nzss-conservation@caves.org.nz

Example:

<div>Persephone Plant Hopper</div> <div></div>	<div>DATE: 23.10.2021 NEW ZEALAND (NN)</div> <div>Cave name/location Takaka, Roots Cavern</div> <div>GPS -40.86073306859765, 172.8056693531016</div> <div>Taken by: A. M. Stewart</div> <div>Where in cave: 1m above the streamway on the cave wall in plant roots. At the locked entrance gate 10 metres into the cave.</div>
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A Delicate Balance

Cave animals are unable to survive for long outside of a cave. They have an almost 100% mortality rate due to their inability to regulate body temperature. (Caves stay at a pretty constant temperature year round, so the ability is lost in cave adapted animals). It is not necessary to remove them from caves for photos, even just writing down or noting you saw something is great.

Cave animals should not be removed or collected from caves without specific scientific research purposes and written permission - or in the case of caves on Department of Conservation land, a collection permit issued by DoC. Additional training can be given to those cavers interested in this area.

For the purposes of this workshop, we will be focusing on photographing and recording animals.

Lightless not Lifeless



Anna Stewart
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