

# GREAT NZ BUG SEARCH



## WHAT DOES THAT WORD MEAN?

- **ECOSYSTEM:** a community of interacting species and their environment
- **FRASS:** debris or excrement produced by insects
- **HABITAT:** a place that an animal or plant lives that provides food, water and shelter
- **INSECTIVOROUS:** describes an animal or plant that mainly consumes insects
- **INVERTEBRATE:** an animal without a backbone, or bony skeleton
- **RIPARIAN:** planting specifically along the edge of a waterway
- **TERRESTRIAL:** describes a creature that lives on or in the ground

## WHERE CAN WE FIND EVEN MORE INFORMATION?

- Your local library is always a good start! Heaps of colourful, hands-on, kid-friendly resources that don't need to be connected to a power outlet or the internet.
- iNaturalist; an app for your smartphone that will help you source experts from around the world to identify creatures you've found. Free to download and super easy to use. More information [here](#)
- Countdown *Super Insects Activity and Collector's Album 2020*, Woolworth's NZ Ltd, Auckland. Highly-engaging and information-filled resource, designed with kids in mind.
- Crowe, Andrew *Life-Sized Guide to Insects and other Land Invertebrates of New Zealand 2015*, Penguin Books, Auckland. Brilliant, locally-produced book, colourful and easy to understand
- Ruud Kleinpaste, our very own NZ Bugman has put out lots of books and a series of videos on YouTube
  - [Backyard bugging series](#)
  - [Yucky bugs](#)
- Information packed websites:
  - [Department of Conservation](#)
  - [Manaaki Whenua / Landcare Research](#)
  - [Te Ara – The Encyclopedia of New Zealand](#)
  - [Science Learning Hub Pokapū Akoranga Pūtaiao](#)



**ABOVE ALL ELSE.....HAVE FUN!**

# WATER BUGS



## WHAT GEAR DO WE NEED?

- Colander or sieve on a stick
- Large, shallow pan with white bottom
- White spoons
- Magnifying glass
- Patience



## HOW DO WE FIND THESE BUGS?

- Dip the colander in the water and use a figure 8 motion.
- Focus around vegetation near the edge of the pond. Try to avoid scraping your colander along the bottom.
- Gently roll creatures out of colander and into your flat-bottom pan.
- Use your spoon and magnifying glass to examine individuals more closely.
- Move around to different areas of the waterway to see what else lives there.
- Return creatures back to the water gently.

# WATER BUGS

## WHY ARE THESE BUGS SO IMPORTANT?

Water invertebrates play an important part in freshwater ecosystems. They:

- Help to keep pondweed and phytoplankton in check;
- Provide food for fish, eels, amphibians, and birds;
- Contribute to nutrient capture and recycling as part of natural food chains and webs; including terrestrial habitats;
- Purify water by feeding on algae and various forms of organic waste;
- Are often a good indicator of water quality.



## WHAT CAN WE DO NEXT?

- Bug census: Count who lives where.
- Comparative observations
  - Change up when you go (time of day, season, etc)
  - Change up where you go (compare to a known healthy/polluted waterway)
- Correlative observations: What else can you change/monitor?
  - number of predators
  - water temperature
  - amount of recent rainfall, nearby vegetation
- More in-depth study on individual creatures
- Art study
- River/pond restoration, monitoring
- Native riparian planting (planting natives along a river's edge to help prevent soil erosion and provide further habitats)

# AIR BUGS

## WHAT GEAR DO WE NEED?

- **Sweep net** - heavier duty and sturdy for pulling through long thick grass to collect unseen bugs
- **Aerial net** - lighter net for dragging across the top of the grass or bringing down on a bug.
- Plastic containers with magnifying lids



## HOW DO WE FIND THESE BUGS?

- Sweep across long grass with your net.
- Twist end of net to hold bugs in. Roll net up slowly to see what you've caught.
- Gently transfer critters into pots.
- Sweep higher or lower across grass to capture different bugs.
- Release creatures back into grass.

# AIR BUGS

## WHY ARE THESE BUGS SO IMPORTANT?

- Adults drink nectar and pollinate plants (mosquitos, bees, butterflies).
- Many bugs browse on dead and rotting vegetation. They remove rotting material and leave behind nutrient-rich frass (poop) which helps feed new and existing plants.
- They are food for predators; such as birds, larger invertebrates, reptiles, amphibians;
- Some special bugs can disperse plant seeds.



## WHAT CAN WE DO NEXT?

- Building a butterfly garden
  - To build a successful butterfly garden you will need leafy vegetation for caterpillars as well as flowering plants for butterflies
  - Caterpillar plants: Nettle, Legumes, Meuhlenbeckia (butterfly bush)
  - Butterfly plants: Hebe, Lacebark, many exotic flowering plants
- Participate in a Citizen Science initiative:
  - Ahi Pepe / Moth Net
    - Ahi Pepe MothNet is a citizen science project that aims to engage teachers, students, and whānau with moths, and through moths with nature and science.
    - More information [here](#)
  - Te Papa is running a citizen science census around mosquitos in New Zealand
    - Catch, Freeze, Send samples to Te Papa to help map which mosquitos are where in Aotearoa
    - More information [here](#)



# LAND BUGS



## WHAT GEAR DO WE NEED?

- Magnifying glass
- Head torch
- Patience

## HOW DO WE FIND THESE BUGS?

- Recognise habitat: many bugs like cool, damp, shady areas with lots of leaf litter or decaying logs.
- Check trees for crevices where bugs can burrow to hide from predators (other bugs, lizards, insectivorous birds)
- Learn to look for evidence of bugs like
  - Spider webs
  - Slime trails from snails and slugs
  - Eggs or egg cases
- Remember as guests in their home, it's important to make sure to leave the area the way you found it.



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## WHAT CAN WE DO NEXT?

- Create a bug friendly habitat
  - Build some wētā motels. Use willow or aged pine. Include a 10- 18mm entrance hole at the top or sides (not the bottom)
  - Build a Bug hotel. Include different materials (bark, paper, cork) to attract helpful bugs to your garden.
  - Plant a pollinator-friendly garden
    - Provide over-wintering places to shelter (upside down flower pots, corrugated cardboard, rock or log piles, leaf litter amongst garden.
    - Plant plants like muehlenbeckia or nettles.
    - Plant nectar-rich flowers that bloom at various times to provide continuous food source.
    - Provide water sources; bird bath, puddles, shallow pans that fill up with rain water
  - Avoid herbicides and pesticides (if vital, apply after sundown when most pollinators have settled for the evening)
- Create corridors of habitat; planting natives that link bug friendly areas
- Trap small rodents that feed on our native creatures