CSI: Pukekawa

Citizen Science Investigations

Tāmaki Paenga Hira Auckland War Memorial Museum

Field Guide

Welcome to Pukekawa

Museum scientists Ruby and Dhahara want to start investigating the biodiversity we have in our backyard, Pukekawa. But because this is a big task we need your help!

Please help us find out what lives in Pukekawa!

Citizen science lets everybody participate in collecting data for scientific observations and experiments

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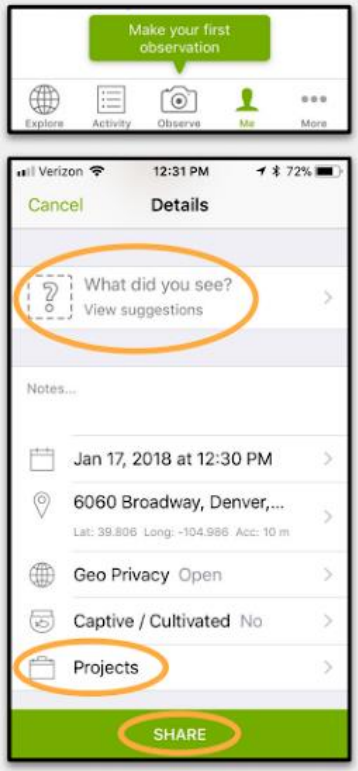
Use iNaturalist to record observations

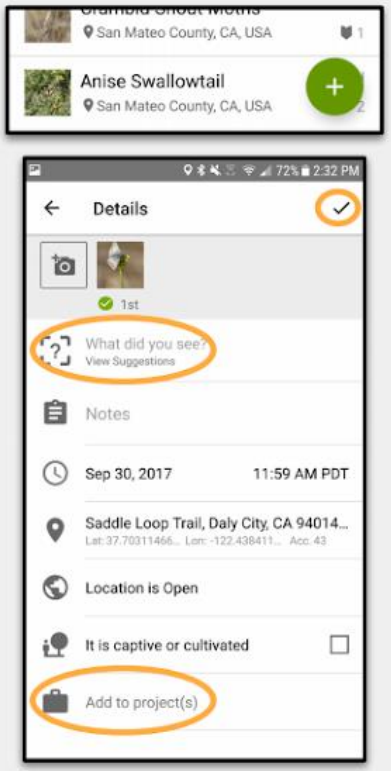
iPhone

1. Tap “Observe” at the bottom of the screen
2. Take a photo or choose one from your gallery -you can add multiple photos!
3. Enter what you think it is. You will see suggested species if you have service
4. Make sure all the information is filled in, and don’t forget to select the Denver Metro City Nature Challenge in “Projects”!
5. Tap “Share” to save your observation
6. Your observations may not upload immediately if you don’t have service. Tap “Me” at the bottom of the screen, then tap “Upload” once you have service
7. **Repeat!**



Android

1. Tap “+” at the bottom of the screen
2. Take a photo or choose one from your gallery -you can add multiple photos!
3. Enter what you think it is. You will see suggested species if you have service
4. Make sure all the information is filled in, and don’t forget to select the Denver Metro City Nature Challenge in “Add to project(s)”!
5. Tap “✔” to save your observation
6. Your observations may not upload if you don’t have service. Return to “My Observations”, then tap the green “Upload” bar once you have service
7. **Repeat!**



You can also make observations without a smartphone! Just take pictures of your observations with a camera, then sign into your iNaturalist account on a computer and upload your observations there. For more information visit: https://www.inaturalist.org/pages/getting+started

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Challenges

How many of these can you complete?

- A bird
- Something that crawls
- A chewed leaf
- Something native
- Something exotic
- Something that lives on another living thing
- Something that isn’t in the guide
- Something you can find at your school

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Guidelines:

- Don’t stray too far!
- Please stay on tracks
- Stay with your adult at all times
- Protect yourself: use sunscreen if sunny, or raincoats if rainy
- Respect the environment
- Respect users of the domain

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Tips for finding species

- Many NZ species aren’t visible at first
- If looking for an animal, stay quiet
- If turning over logs, always roll it back to where you found it

Always look. Sometimes touch. NEVER eat!

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Nature Guide

Kingdoms of Animalia and Plantae

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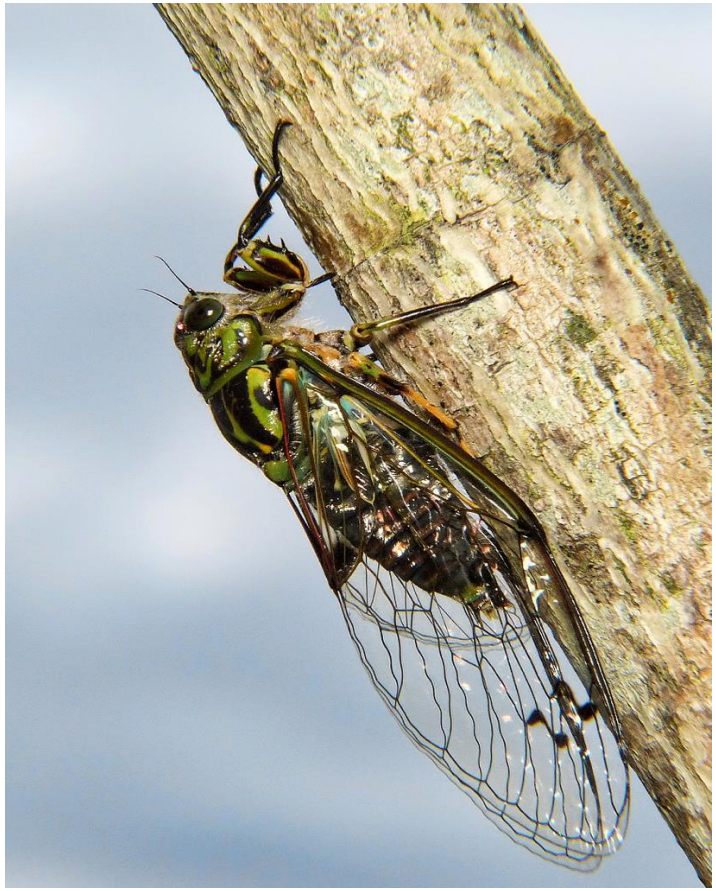
Taxonomy of animals

Kingdom of Animalia						
Invertebrates (no backbone)			Vertebrates (has a backbone)			
Insects	**Arachnids**	**Crustaceans & Molluscs**	**Mammals**	**Birds**	**Fish**	**Reptiles**
Chorus Cicada Tree wētā Pūriri moth Sentry dragonfly Mayfly	Harvestman			Tūī Kererū Fantail	Banded kōkopu	

Kihikihi-wawā
Chorus Cicada
Amphipsalta zelandica



Status	Endemic, widespread
Habitat	Forest and open bush. All over NZ
Diet	Sap from trees
Life history	Eggs are laid in thin soft branches, and you can see herring bone paterned scars on tree trunk. Larvae live in soil, feeding on sap from plant roots. In summer, the nymph crawls out of the soil, and the adults ‘hatch’.
Risks	Birds, wasps, spiders, fungal diseases
How to look for it	• Scars on tree branches (often on kawakawa) • Listen for “singing” – males sing to attract females • Find cicaca cases on trunks

Tree wētā

Hemideina thoracica

Status	Endemic
Habitat	Found in North Island NZ. Common in gardens and forest.
Diet	Leaves
Life history	Horsehair worm (parasites)
Risks	Look under fern fronds. Young weta can be found in rotting logs.
How to look for it	Endemic

Pūriri moth

Aenetus virescens

Status	Endemic
Habitat	Pūriri trees
Diet	The eggs are laid on the forest floor. The larvae hatch and spend about a year living on the forest floor before they move inside the trunk of their puriri tree host. The larva lives inside a constructed tunnel, and feeds on the bark of the tree. After it pupates, it emerges as the adult moth. Six years a grub, 48 hours a moth!
Life history	Ruru, Kākā, bats, cats, possums, people
Risks	Look for the round scars on pūriri trees
How to look for it	Endemic

Ururuoroa
Sentry dragonfly
Hemicordulia australiae

Status	Self-introduced, not threatened
Habitat	Australia, and now established in New Zealand. They require an aquatic habitat during the juvenile phase.
Diet	Insects
Life history	Both adult and larvae dragonflies are predators of other insects.
Risks	They are the top predator!
How to look for it	It flies low over the water. It may be seen far from water hovering above head height over bare ground in gardens and parks. The nymphs are found in wetlands and slow flowing streams. Sometimes you can find the shed skins on the edge of ponds.

Piriwai
Mayfly
Zephlebia sp.


Larvae


Adult

Status	Most common and widespread mayfly in NZ
Habitat	Fast-flowing, cool, well-aerated water. Mayflies are “sensitive” to poor water quality.
Diet	Thin layers of algae that grows on rocks and woody debris.
Life history	Eggs are laid around the stream. The nymphs hatch out, and go through a number of moults and live in the water before they become adult, flying mayflies.
Risks	Fish (banded kōkopu, īnanga, eels), spiders
How to look for it	In streams. Ask educator to help scoop one out in a net.

Banded kōkopu

Galaxias fasciatus

Status	Not threatened
Habitat	Freshwater streams, especially found in pools with overhanging banks.
Diet	Insects – especially moths and other land insects that fall into the stream, and are struggling on the surface of the water.
Life history	Banded kōkopu lay eggs in the estuary part of the stream, and the hatched larvae swim out to sea. When the larvae grow into small fish, they return to the freshwater, and navigate their way upstream.
Risks	Humans – young banded kōkopu are whitebait, and are fished for, and pipes, culverts and other barriers built in and over streams, preventing the young moving into their habitat.
How to look for it	Keep an eye out for movement when you see a freshwater stream. Banded kōkopu lurk below the surface

Tūī

Prosthemadera novaseelandiae

Status	Endemic, not threatened
Habitat	Forest and suburban gardens
Diet	Flowers (kōwhai, pūriri, pōhutukawa, flax etc), fruit and insects
Life history	2-4 eggs per nest, the female incubates and does most of the chick feeding. They breed at around 2 years old, and live 12 or more years.
Risks	Predation of eggs by rats and stoats etc
How to look for it	Listen for noisy scuffles in the trees – tūī are very territorial, and you often see and hear them swooping through the branches.

Kererū, kūkupa
New Zealand pigeon
Hemiphaga novaeseelandiae

Status	Endemic, not threatened
Habitat	Their nests are a platform of dead twigs – sometimes they are so flimsy you can see the egg through the twigs!
Diet	Foods include buds, leaves, flowers and fruit from a wide variety species, both native and exotic.
Life history	One egg is laid, male and female share brooding. Kererū live to about 21 years.
Risks	Feral cats, possums, stoats and ship rats, especially when nesting. Also people, for instance from window strike
How to look for it	You can listen for the quiet cooing, or you may hear something big crashing through the branches. The flight also has a distinctive sound.

Pīwakawaka
Fantail
Rhipidura fulginosa

Status	Endemic, not threatened
Habitat	Forest and well vegetated parks and gardens
Diet	Invertebrates – moths, flies, beetles and spiders
Life history	2-5 eggs each nest, both parents incubate eggs, and chicks are ready to fledge at 16 days! They live up to 5 years
Risks	Mammalian predators
How to look for it	You may hear their squeaky cheeps, and they often flit around people

Harvestman

Opiliones sp.

Status	Native
Habitat	Under decaying logs
Life history	They are arachnids, but unlike spiders, harvestmen do not have venom or silk glands.
How to look for it	Carefully look under bark on dead logs, they will often be curled up

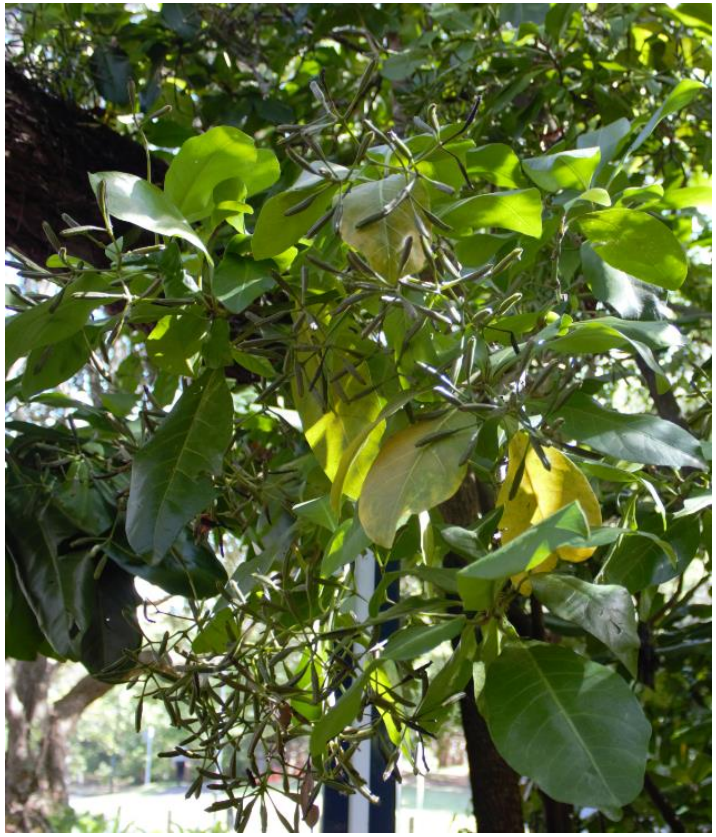
Taxonomy of plants

Kingdom of Plantae				
Don’t make seeds			**Makes seeds**	
Mosses	**Ferns**	**Seaweed**	**Gymnosperms (no flowers)**	**Angiosperms (flowers)**
	NZ Tree Fern		Kauri Tōtara	Parapara Kawakawa Nīkau palm

Ngārara wehi
Leather leaf fern
Pyrrosia eleagnifolia

Taxonomy	Plantae; Pteridophyta; Polypodiaceae
Status	Common climbing fern, endemic to NZ
Habitat/distribution	Coastal to montane areas of the Kermadec, Three Kings, North, South, Stewart and Chatham Islands.
Observation tips:	Look for small strap like plant hanging from the branches of pōhutukawa trees

Parapara
Bird catcher tree
Pisonia brunoniana



Taxonomy	Plantae; Nyctaginaceae
Status	Native to NZ
Habitat/distribution	Around the pacific; NZ, Norfolk Island, Lord Howe Island and Hawaii
Fact	When large birds land on the tree, the sticky seeds attach and pollinate elsewhere. But small birds should watch out, the sticky glue could get them in trouble!
Observation tips:	Look for the long sticky seeds

Karaka
New Zealand laurel
Corynocarpus laevigatus

Taxonomy	Plantae; Corynocarpaceae
Status	Endemic to NZ
Habitat/distribution	Native probably to only the northern half of the north island.
Fact	The kernels of its fruit provided an important food source for Māori. This was despite the poisonous kernels requiring considerable treatment before they could be eaten. Karaka was so significant that Māori planted it outside its natural range of northern North Island and as far afield as Bank's Peninsula and the Kermadec and Chatham Islands.
Observation tips:	Karaka has large shiny leaves and bright orange fruit

Kawakawa
Pepper tree
Piper excelsum

Taxonomy	Kawakawa, Pepper tree, Piper excelsum subsp. excelsum
Status	Endemic to NZ
Habitat/distribution	It is endemic to the North and South Islands and is common from Te Paki south to about Okarito, North Canterbury and the Banks Peninsula.
Fact	Kawakawa is an important medical plant for Māori, it can help with cuts, tooth ache and it's also a great insect repellent
Observation tips:	Look for the large heart shaped leaves, most of the leaves have little holes in them made by a caterpillar- the kawakawa looper

Kauri

Agathis australis

Taxonomy	Plantae; Araucariaceae
Status	Endemic to NZ
Habitat/distribution	Northern part of the North Island of New Zealand
Fact	Kauri is a conifer. Conifers are cone-bearing, woody seed plants
Something to ponder	Kauri forests are among the most ancient in the world
Observation tips:	One of the largest trees in NZ, look for the smooth bark and small narrow leaves

Pūriri
New Zealand Mahogany
Vitex lucens

Taxonomy	Plantae; Lamiaceae
Status	Endemic to NZ
Habitat/distribution	Three Kings Islands and North Island from Te Paki to Taranaki, Māhia Peninsula and the northern Hawkes Bay
Fact	Pūriri is one of the few native trees with large colourful flowers. Many plants in New Zealand have white or green flowers
Observation tips:	Look for a tree with 5 wrinkly leaflets and pinkish flowers & covered holes made by pūriri moth caterpillar.

Tōtara

Podocarpus totara

Taxonomy	Plantae; Podocarpaceae
Status	Endemic to NZ
Habitat/distribution	Common throughout both North and South Islands
Fact	Tōtara was the primary wood used to make waka in traditional Maori boat building due to its relatively light weight (about 25% lighter than kauri), long straight lengths and natural oils in the wood which help prevent rotting.
Something to ponder	Tōtara is remarkably resistant to rot, and fallen logs can last for incredible lengths of time
Observation tips:	Look for a large tree with small spiky leaves

Nīkau palm

Rhopalostylis sapida

Taxonomy	Plantae; Rhopalostylidinae
Status	Endemic to NZ
Habitat/distribution	Common throughout both North and South Islands
Fact	The Nīkau is the only palm species native to NZ and it is the worlds most southerly growing palm
Observation tips:	A nīkau palm usually grows about 10 to 15 metres tall. It is easy to recognise in the bush with its circular trunk, which is ringed with evenly spaced scars from fallen leaves. The fronds are up to three metres in length.