The Role of Citizen Science in Pest Surveillance

Colin Meurk meurkc@landcareresearch.co.nz
Jon Sullivan, Jerry Cooper, Steve Pawson, Murray Dawson

Biosecurity Bonanza 17th May, 2016

Be in touch: info@naturewatch.org.nz
NZBRN Trust: www.facebook.com/nzbrn/
Twitter - @NaturewatchNZ
Blog: www.blog.naturewatch.org.nz
Mobile – sign in to the iNaturalist app

Thanks to MPI
NatureWatch NZ - NZBRN since 2006

- largest, longest-running, most versatile citizen bioscience facility in NZ. Secured ¼ mill observations, 1/3 mill photos, of 10 500 spp, by 4600 observers, of whom 1000 have provided >100 000 crowd-sourced IDs. 1/2 mill devices downloaded 3.5 mill unique page views. Fully interactive & conversational (60 000 comments). Part of global iNaturalist open source network (2.7 mill records; map layer in 0.5 bill GBIF records)

- Its fundamental purposes: engage, inform, raise awareness about natural heritage, biosecurity & ecological interactions; conservation literacy by supporting community-based projects, enhancing educational & tourism experiences; provide authentic basis for place-making/identity. Aims to demystify science & provide valuable, robust data that can be used to unravel taxonomic & ecological questions.

- Observations can be anecdotal or part of structured monitoring within projects or places—for plants, fungi, animals, pests, flowers, fish, on land, in freshwater or in the sea. Locations may be hidden or obscured (automatic for red-listed species).
Its multi-functional attributes include:

- Crowd-sourced **IDs & conversations** - ‘Fb’ of natural history
- **Archived** reliable data supports **Science**; easy comms with **URLs**
- Place- & Project-based **lists, journal** - **Search & mapping engines**
- **Custom Fields** can be added or created
- **Surveillance** of pests or target spp & **Alerts**
- Pictorial **Guides** and Simple **keys** for places or taxa
- **CSV bulk up/down load**
- **Photos, video links, sound** recording (copyright options)
- **Apps** are available to support field data entry
- Research grade data to Global Bio Information Facility (**GBIF**)
Fun Facts

NatureWatch NZ’s interactivity, conversations, messaging (anonymous), camera skill & diagnostics training, personal life lists, diaries, dashboard, calendar, journals, Fb, blog, twitter, Google community help forum

Within this buzz important discoveries are being made: new native species, first detections of pests, new populations of critically rare species, extensions to species distributions, previously undocumented natural history such as new behaviours and interactions, and how species distributions, phenology and behaviour are modified by climate change, pest invasion, land use and restoration. See top discoveries http://naturewatch.org.nz/pages/discoveries-nz
• Aid to **Biosecurity Surveillance**!
  • Random (discovery), **Targeted** or **Repeat surveys/monitoring**
  • **ID Please** – learn pests by crowd sourcing!
• **Quick Assessment** before committing resources
• **Alert & Guides** with Pictures!
Discovery
Observation of the day in iNaturalist

- Over 40 comments
Scutellista caerulea, observed by stho002 on April 17, 2013

Comments & Identifications

stephen_thorpe's ID: Scutellista caerulea, a member of Chalcid Wasps (Superfamily Chalcidoidea)

That's an interesting tiny little thing. What a big head and big eyes.
I found several accounts of this being a useful parasitoid of soft scale insects in crops about the world (e.g., hero and here). Do you know if this a purposeful biocontrol introduction to New Zealand?

I don't see it listed on NZOR at all. Is this another omission or does it have a synonym?

See details here: http://species.wikimedia.org/wiki/Category:Scutellista_caerulea_%28New_Zealand%29

Introduced for biocontrol in 1921, but thought to have failed to establish, which is why it isn’t on any current lists!

Interesting indeed. Auckland and 2013 are a long way from Nelson and 1921. Perhaps it is more plausible that it's arrived from Australia.

Good spotting!
Weed Range Extensions

Description

To my surprise, I found two mignonette (Maderia) vines establishing in the northeastern corner of Lincoln's Mahoe Reserve, presumably sourced from a nearby garden. I've never seen this weed in Canterbury before.

I've collected a herbarium specimen.

Tags: restoration site, weed
Added: May 11, 2016 16:57:28 +1200
Ecol202 field trip: group name 2016: Staff
Ecol202 field trip: method: casual observation
Plant flower buds: Yes
Plant flowering: Yes
Plant immature fruit/seeds: No
Plant mature fruit/seeds: No
Plant phenology: most common flowering/fruiting reproductive stage: flowers
Count: 2
Comments & Identifications

jon_sullivan's ID: Mignonette vine (Anredera cordifolia)
Posted by jon_sullivan 2 days ago

johnvandenhoeven's ID: Mignonette vine (Anredera cordifolia)
Posted by johnvandenhoeven 2 days ago

You probably should control this before it spreads.
Posted by johnvandenhoeven 2 days ago

Yes, it's days are numbered. I didn't at the time because I want to make sure none of it survives.
Posted by jon_sullivan 2 days ago

There's only two records of this weed from Canterbury on the NZ Virtual Herbarium and one on NZPCN. There's still time to stop this weed establishing in Canterbury.
Posted by jon_sullivan 2 days ago

Add a comment  Add an identification

Sign in or Sign up to add comments
Carex pendula
http://naturewatch.org.nz/observations/3071530

Ease of Reporting

Description
serious pest plant establishing along the Avon River here. needs to be removed!

Added: May 01, 2016 20:58:20 +1200
Elevation (m): 15
Plant phenology: most common flowering/fructing reproductive stage: seed dispersed

Data Quality Assessment
Quality grade: Research Details

Carex pendula (Carex pendula) - Observed by meurk - April 26, 2016

Location: Little Hayley Park, CHRISTCHURCH, (Google, OSM)
Places: Little Hayley Park - Milbrook Reserve, NZ-CA-CC, Low Plains Ecological District, Canterbury Plains Ecological Region, SI, NZ-CA, NZ, OC, Oceania More...
Lat -43.521002, Long 172.624298
Accuracy: 10m
Geoprivacy: open Edit Hide details

Projects
Pest Plants (weeds) of NZ

View 3 from April 26, 2016

Ease of Reporting

Comments & Identifications
Your ID: hanging sedge (Carex pendula) Remove
Posted by you 15 days ago

pjdl1's ID: hanging sedge (Carex pendula)
Posted by pjdl1 14 days ago

Carex pendula, some rights reserved Add more photos

Ease of Reporting

Projects
Pest Plants (weeds) of NZ

View 3 from April 26, 2016

Ease of Reporting

Comments & Identifications
Your ID: hanging sedge (Carex pendula) Remove
Posted by you 15 days ago

pjdl1's ID: hanging sedge (Carex pendula)
Posted by pjdl1 14 days ago

Carex pendula, some rights reserved Add more photos
Spartina

http://naturewatch.org.nz/observations/3149513

Description
"estuarine"

Added: May, 11, 2016 20:30:48 +1200
add/edit more fields

Comments & Identifications

Posted by mke68lusk 5 days ago

Data Quality Assessment

Quality grade: Needs ID Details

Observation © Mike Lusk, some rights reserved
Description

Our assignment for today from @pjd1 was to search and find Spartina × townsendii that was spotted lurking at Paua and added to NW yesterday. Packed up the truck with our camera’s, garden tools and lunch we headed north and found the location easily.

As well as growing just in front of the cottage on the right hand side of the channel there is also a mass area of this growing on the left hand side of the channel bordering on the mangroves. The tide was on it’s way in but the sand that this was growing in was still damp.

These photos as well as the specimen collected for the herbarium comes from the right hand side of the channel. (Apologies about the photos - I am not usually up this early in the morning taking photos so not used to photographing in this light!)

We also spot checkered around Te Pua, Paua and Tangaroa but are happy to report that we did not spot any more. However it could be growing at Waipuna which is just around the corner from Paua and we will check there on the next trip. However it is not growing at the Petone branch of Tangaroa for which we are very grateful. Probably due to the low salinity.
On our way out of Paia we got caught in a traffic jam as there was a quad bike in front of us! We were so traumatised that we thought we may have been in Auckland traffic on our way home "LOL"

@rongoa will give a report about the root system that was discovered when a plant specimen was removed for the herbarium collection.

Added: May 13, 2016 12:56:55 +1200

Comments & Identifications

**tangatawhenua's ID: Townsend's Cord grass (Spartina × townsendii) Agree?**

Posted by tangatawhenua 3 days ago

I found a plant that was slightly on its own, but upon digging around the roots I found that the root system was a runner of a mass densely of roots and the plant itself was hard to pull out ....had a feeling it was connected under-ground to other runner roots.

Posted by rongoa 3 days ago

Just got the plant out to process and most of the yellow has fallen off - will this be a problem and do you need those as well? If so @rongoa and I can go back and get lots of the seed heads.

Posted by tangatawhenua 3 days ago

I'm in for that so we can do it when we go to Waipuna, unless these may disappear within the next few days and we have to go ASAP.

Posted by rongoa 3 days ago

I am sure @pdi will advise us what he would like done :D

Posted by tangatawhenua 3 days ago

And the book was way too small, but a 10 x 2 works nicely :)

Posted by tangatawhenua 3 days ago

Hi - Yes this is Spartina - let's call it S. xtowsendii for now and when I see a specimen we can finally decide which one it is (S. xtowsendii is rather uncommon in New Zealand). What you have done to me sounds fine. Sorry my book was too small - better write another of an appropriate size and weight! Don't worry about the yellow falling off. This grass by the way was introduced to help reclaim estuaries - so its rootstock is a complex intermeshed system that traps sediment - so what 'rongoa' describes is very
Ladybird Alert!
The pest ladybird, *Harmonia axyridis*, has just been detected in Auckland. It has displaced native ladybirds in Europe and North America. Please look out for it (e.g., eating willow aphids).

**Genus Pittosporum**
- **Observer**: johnstool
- **Date**: May 8, 2016
- **Needs ID**: View

**Inky caps Genus Coprinus**
- **Observer**: lauradillon89
- **Date**: May 16, 2016 04:14 PM NZST
- **Needs ID**: View

**Ear fungus Auricularia cornea**
- **Observer**: davidwhyte
- **Date**: May 16, 2016
- **1 ID**: Research Grade
- **2 photos**: View

**Fly Agaric Amanita muscaria**
- **Observer**: davidwhyte
- **Date**: May 16, 2016
- **1 ID**: Research Grade
- **3 photos**: View

Targeted Crowd Surveillance

See all the latest observations »
Mostly ours in NZ

Rabbit Mapping
blue blobs NWNZ, red dots GBIF
Notifications or Alerts

It can be easy to get lost in the flood of amazing observations. To make sure that you see all the observations you care about, you can **subscribe to places and taxa, and follow people**, so that you are **alerted to all new observations** of these. These alerts will come via email (unless you've turned email notifications off in your Profile) and on your [Dashboard](#).

Look out for the subscribe link on any [Taxon](#) page or [Places](#) page.
The quantity of new observations might seem overwhelming if you’re actually just interested in a particular group – perhaps you:

- are studying *echinoderms*,
- want to share your knowledge of *birds*,
- are tracking pests like *mustelids* or the *Mediterranean fanworm*, or weeds like *old man’s beard*.
- or just love seeing *slime moulds*!

Fortunately, a more targeted approach is possible (think GCSB).

With NatureWatch, you can subscribe to receive an email-notification when an observation is added from your taxonomic group of interest. (The notifications are aggregated into one daily email, so you are not deluged even if you’re following a popular group.)

First, log in (or sign up with a username and password).

Once logged in, click on “Dashboard” in the upper right corner.
In your Dashboard, scroll down to “Your subscriptions” (on the right hand side of the page), and select “Add a place subscription”.

(Don’t select “taxon subscription” without seeing more information about it below.)

Select the geographic area (e.g., New Zealand) and group of organisms you’re interested in – the “Place” and “Taxon” – and save.

Your Place of interest doesn’t have to be a country – it can be a region (e.g., Northland) or some other area already defined in NatureWatch.

Your Taxon of interest may be a species, genus, family, or even a phylum.

Rather than a place subscription, you can instead make a taxon subscription. However, this will return all observations made from that taxon from around the world.
Create your own Custom Guides/Keys

Pest animals in New Zealand

A guide to animal pests in New Zealand. This guide is restricted to introduced animals that are wild or feral and doesn't include pesky native critters.

See also ...more ↓

TAGS
- Introduced accidentally
- Introduced as domestic - gone feral
- Introduced for fur trade
- Introduced for pest control
-Introduced for rabbit control
-introduced for sport
-introduced pets - illegally released

TAXONOMY
- Arthropods
Phylum Arthropoda
- Chordates
Phylum Chordata

Rainbow Lorikeet
Trichoglossus moluccanus 7

Black Rat (Ship Rat)
Rattus rattus 2

Brown Rat (Norway Rat)
Rattus norvegicus 3

Cat (feral)
Puss in boots 4

Hedgehog
Erinaceus europaeus 8

Red Deer
Cervus elaphus elaphus

Fallow Deer
Dama dama 5

Ferret
Mustela puto 6

Goat (feral)
Capra aegagrus 7

Rabbit
Oryctolagus cuniculus 11

Mouse
Mus musculus 9

Possum, Common Brushtail
Trichosurus vulpecula 10
Widgets on your Website
Pukeko Stomp, 7 October 2015

Christchurch 360 Trail Launch, October 3 – 4 2015

Trees For Canterbury Public Planting Day, September 19, 2015

NatureWatch Recent Posts

View more observations from Travis Wetland Nature Heritage Park on NatureWatch NZ »
Using NatureWatchNZ as a Template for Restoration Monitoring

About

MEASURING plant status, performance and growth in restoration projects or plantings.

Each of the parameters relates to an individual plant (individual identifier) within a plot (plot identifier); or when an individual is NOT specified, then overall species cover (cover class) is entered for the plot/sample.

WHOLE OF SITE data is included in ‘comments’ for individual records that …more ↓
## CUSTOM FIELDS – for bird monitoring

### Simple temperature
Which of the following best describes the temperature at your site?
- Not recorded

### Simple wind
Which of the following best matches the wind conditions at your site?
- Not recorded

### Noise
Noise can make it harder to detect some species (e.g., hear bird calls).
- Not recorded

### Direct sunshine in 5 minutes
To the nearest minute, how much of your five minutes of sampling was the sun not blocked by cloud?
- Not recorded

### Precipitation type
- Not recorded

### Precipitation intensity
- Not recorded

### Minimum number of individuals SEEN
Whether you also heard them or not, you need to have seen them to count them here. The minimum, if you made multiple sightings, is the fewest individuals that could have been present.

### Number of individuals SEEN
Whether you also heard them or not, you need to have seen them to count them here. If you made multiple sightings of potentially the same individuals, estimate here the most likely number of individuals present.

### Maximum number of individuals SEEN
Whether you also heard them or not, you need to have seen them to count them here. If you made multiple sightings, this is the maximum number of individuals you could have seen had each sighting been a different individual.

### Minimum number of Individuals HEARD ONLY
Your best lower estimate of the number of birds you ONLY HEARD.

### Number of individuals HEARD ONLY

### Maximum number of individuals HEARD ONLY
Your best upper estimate of the number of birds you ONLY HEARD.
Surveillance as & for Citizen Science

Problems:

Reliability; Presence/Absence; Sampling intensity/bias; Revelation - damage NZ clean-green reputation

Solutions:

Photo verification; Custom fields for P/A can be mandatory within Projects; Entice to record ubiquitous/common/rare Target sp; Structure as rapid inventory or rigorously designed monitoring surveys; iNaturalist r-analysis package; Gaming; Trust building

Results:

10 000 eyes now with national coverage, potential of many more; Rapid interception of new incursions; Robust data; Fun & engaging & educated public; Honest relationship with trading partners
Summary … & that’s not all ...


Embed NatureWatch functionality in other websites/apps via the API

Help is always a click away – see the extensive help button at bottom of each page
matai *(Prumnopitys taxifolia)* observed by *meurk* on February 27, 2015

**Description**

planted about 2000 in shelter of cabbage trees; struggling in tall grass not yet fully shaded out.

---

**Identification Summary**

Your ID:

- Matai *(Prumnopitys taxifolia)*
  - Remove

Community ID:

- Matai *(Prumnopitys taxifolia)*
  - About

2 people agree

---

**Projects**

- Ecological Restoration... remove
- Ecological Restoration... remove

---

**Comments & Identifications**

- Your ID: Matai *(Prumnopitys taxifolia)* Remove
  - Posted by *you* 2 months ago

- glenn-nz’s ID: Matai *(Prumnopitys taxifolia)*
  - Posted by *glenn-nz* 2 months ago

- maxbuxton’s ID: Matai *(Prumnopitys taxifolia)*
  - Posted by *maxbuxton* 2 months ago

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**Data Quality Assessment**

Community-supported ID?

- Yes
  - 2 people agree
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<th>Planted Place</th>
<th>Specie</th>
<th>Field ID</th>
<th>Individual ID</th>
<th>Sample Area (m²)</th>
<th>Condition</th>
<th>Height (m)</th>
<th>Max Spread (m)</th>
<th>Min Spread (m)</th>
<th>Basal Diam (cm)</th>
<th>DBH (cm)</th>
<th>Height Growth/An (m)</th>
<th>Max Spread Growth/An (m)</th>
<th>Min Spread Growth/An (m)</th>
<th>Basal Diam Growth/An (cm)</th>
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Baseline 2000

Aver-Age 0.16 0.106 0.093 0.136