PredatorFree
Hawke's Bay
Whakaorangia Te Matau-a-Māui

Citizen science in Predator Free Hawke's Bay
2019 update

Introduction

This report provides a review of the use of citizen science in Predator Free Hawke's Bay (PFHB), which includes the projects Poutiri Ao ō Tāne, Cape to City and Whakatipu Māhia.

Citizen science data is made up of species observations gathered by members of the public (as opposed to professional scientists or technicians), which are usually housed in online data repositories. Monitoring by citizen scientists is generally unstructured: individuals will visit locations of interest to them and will use their own survey methods (from Gormley and MacLeod, 2016 unpublished report).

Assessment of Data Sources for Monitoring Birds in Cape to City – unpublished Manaaki Whenua - Landcare Research report LC2622.

Andrew Gormley and Catriona MacLeod, 2016.

The objectives of the report:

- to describe the issues associated with aggregating unstructured citizen science data and present recommendations for how citizen science can be designed to provide reliable information on species distribution over time.
- to describe the various data sources that are currently and potentially available for native birds within the Cape to City footprint and discuss their value for providing information on the status and changes in bird distribution.

The report discusses and describes sources of error that need to be accounted for in citizen data including:

- Aggregating unstructured data
- What the data cannot tell us (such as species absence)
- Metrics that can be tracked over time
- Species characteristics affecting reporting rates and reporting bias
- Spatial bias and representativeness
- Pseudo-replication
- Variable search effort

The authors go onto discuss potential solutions for current data including:

- Not utilising the data

- Accounting for imperfect detection
- Sub-setting the data
- Reducing the region of inference

Recommendations for future data include:

- Co-ordination of effort and standardised monitoring
- Structured bird monitoring,
- Tier 1 monitoring,
- Surveys of landowners

Citizen science sources of data for Cape to City identified in the report are:

- NZ Garden Bird Survey
- Citizen science databases
    - EBird
    - NatureWatch NZ

Citizen Science tools used by Cape to City and Poutiri Ao ō Tāne

New Zealand Garden Bird Survey

Manaaki Whenua annually conducts the Garden Bird Survey to build a picture of birdlife across New Zealand, and general trends can be tracked. Data is collected by members of the public who are asked to observe a chosen area for an hour, recording the highest number of any one species seen at one time (not cumulative). Observations are collated by Manaaki Whenua. Resources such as aid with bird identification and tally sheets are provided through their website. Surveys occur over a specified week in winter.

PFHB are involved in promotion of the survey through social media and publications/newsletter. After the survey, a summary report is prepared of Garden Bird Survey data looking at both differences in species counted between years, and observer participation. Observers in Hawke's Bay are typically biased to urban areas and southern Hawke's Bay with few observations north of Bayview.

The Garden Bird survey can also be useful for tracking the movement of species that are yet to establish widespread populations such as eastern rosellas.
https://www.landcareresearch.co.nz/science/plants-animals-fungi/animals/birds/garden-bird-surveys

iNaturalist

iNaturalist is an online way of sharing species observations with the aim of building a living record of life in New Zealand that scientists and environmental managers can use to monitor changes in biodiversity through citizen science. iNaturalist allows the public to access professional help with species identification and has led to significant discoveries such as a critically rare fungus that was rediscovered 44 years after the first find and a banded tui who travelled from Akaroa to Lyttelton, Leithfield and back to Akaroa.

PFHB promote the use of NatureWatch, and have utilised the tool whilst delivering education in the environment context programmes with a number of schools including in Te Mata Schools Bioblitz.
https://www.inaturalist.org/
Note: Nature Watch NZ merged with iNaturalist in 2018.

Trap.NZ

Cape to City adopted use of Trap.NZ to collect trapping data in December 2016 and has become involved in development and promotion shortly after. Poutiri Ao ō Tāne began using Trap.nz for trap data collection in 2017.

Trap.NZ has become a valuable tool for New Zealanders to manage their predator control projects. There are now over 2000 project groups registered with more being added on a daily basis. The launch of Predator Free 2050 and related initiatives has meant the use of Trap.NZ has accelerated rapidly which all PF2050 Ltd funded projects being contractually required to use trap.nz

Cape to City and Hawke's Bay Regional Council (HBRC) are part of a collaborative group to provide governance and the framework for ongoing support for the system to ensure that Trap.NZ can continue to be available and developed for the public good. The initial members of the Trap.NZ collaborative are Northland Regional Council, HBRC, Taranaki Mounga Project, Predator Free Wellington (which includes Wellington City Council, and Greater Wellington Regional Council), and Project Janszoon. These last three are large Next Foundation supported projects. More recently PF2050 Ltd has provided funding support to accelerate development. The members are contributing financially to development projects to significantly strengthen the value of Trap.NZ for New Zealand. Initial support and maintenance for Trap.NZ has been secured up to 30 June 2020. Discussions are also underway with other potential member councils and agencies who, on behalf of their communities, may benefit from long term interest in Trap.NZ. The intention of the collaborative is to continue to grow and support shared development benefiting predator control across the country.

The priority projects for the next few months are:

- Backyard / urban trapping interface: to support the rapid expansion of management and monitoring of predator trapping through urban residential areas, a simplified interface and phone app is being developed for the backyard trapper.
- Reporting across multiple projects and landscapes: for organisations that are running multiple projects over a large area this will provide landscape level visualisation and data summaries.
- Interface and reporting enhancements: a large amount of feedback has come from Trap.NZ users about what can be improved, and features and reports that would be useful. Trap.NZ plans to implement a number of interface improvements, provide additional reports, user guides, and information on best practices for establishing and servicing trap and bait station networks.
- Radio monitored trap integration: Trap.NZ has the ability to integrate radio monitored traps. This will be developed further to simplify the integration of any sensor network, in particular the "Internet of Things" networks being rolled out by Kordia, Vodafone, Spark and other telcos.

Great Kereru Count

The Great Kererū Count was set up to get a better understanding of kererū numbers and distribution across New Zealand. The Great Kererū Count is an annual citizen science project started in 2012 and has three more years of data to complete.

Cape to City and Poutiri Ao ō Tāne are involved in promotion of the survey through social media and publications/newsletters. In 2019, 86 records were from Hawke's Bay.
https://www.greatkererucount.nz/

Citizen Science in Cape to City and Poutiri Ao ō Tāne Education Programme

Te Mata School Bioblitz at Karituwheua Stream and Palmbrook Reserve

Te Mata School students, families and teachers undertook a bioblitz at Karituwhenua stream and Palmbrook Reserve as part of Cape to City's backyard biodiversity education programme.

The event was divided into three activities. Students conducted two minute bird calls and surveyed for any additional birds in the area or attracted by playing recordings. Site surveys were conducted using hula hoops as quadrats. The survey included all plant and animal life such as terrestrial and arboreal invertebrates, and any other animals, birds, plant life and fungi. A field base was set up for plant or animal identification found by the children using microscopes, identification books, charts etc.

This event included collaboration with Ruud Kleinpaste, Karamu High School teacher/students as mentors, support from HBRC, local reserve volunteers and other DOC staff. The students have since been uploading finds to iNaturalist.

Te Kura o Pakipaki Waipuka Water Testing

As part of Cape to City's freshwater education programme, Te Kura o Pakipaki students, their families and teachers went on a field trip to Waipuka Stream (at Ocean Beach). Using water testing kits the students measured pH levels, clarity and temperature to compare with similar tests carried out on their own stream near their kura (Karewarewa). The field trip included involved local iwi and Nga Whenua Rahui. The day included a presentation from Hans Rook on whitebait spawning and then activities on water testing, fishing for pest/non-pest freshwater fish and habitat assessment.

Conclusion

Gormley and MacLeod's 2016 unpublished report has informed use and management of citizen science within the two projects.
PFHB have utilised online tools of collecting citizen science data through Landcare Research's Garden bird survey, iNaturalist, Trap.NZ, and the Great Kererū Count, and encouraged use from members of the public as part of education and community programmes.

Recommendations

PFHB will continue to use citizen science for engagement purposes and continue involvement in development of Trap.NZ as a tool for trapping data collection.