

Bring the bird music back across New Zealand

Every day, all around New Zealand, the dawn chorus tells us that our birdlife is one of our greatest treasures. Yet, New Zealand's native birds are under threat from introduced predators such as possums, rats and stoats. How can modern information technology help to solve this problem?

The problem

New Zealand is the second-worst country in the world for species loss, and many of the species that are left are in danger or decline. Improved trapping approaches are needed and a way to measure the effect of these and other conservation efforts.

The solution

The Cacophony Project is developing a set of technologies to lure, identify and eliminate specific predators, as well as to monitor bird song to measure the impact of this more efficient trapping.

To be able to evaluate the success of these tactics on bird populations, the project used a mobile phone-based 'bird monitor' to capture thousands of recordings. Specific bird calls were manually tagged to develop a model that can analyse more than 5000 sounds to identify which of these are the call of an individual species.

From this, the make-up of a bird population of an area can be identified. This is analysed over time to see how individual bird populations have changed.

The outcome

This project has successfully created a set of recordings for the future development of a machine learning algorithm for automated analysis of bird calls.

Use of a mobile phone-based, low-cost bird monitor is part of the project's strategy to provide an affordable and robust means of collecting bird call information to help determine the effectiveness of pest control activities. The solution can also be used to monitor bird health using a large number of bird monitors.

Technology

A Cacophony Bird Monitor is powered by a solar panel and connects to the internet for automatic uploading of recordings to the Cacophony server.

Recordings of one minute every hour and one minute every 10 minutes during the hour before and after dawn and dusk were recorded in a Hamilton park.

Manual annotation of the 250 hours of audio recordings of bird calls was used to train a machine-learning algorithm to automatically detect bird calls.

The Cacophony project is an open source project - <https://cacophony.org.nz/>

Website, contact information, logo

[So have Cacophony project and Wintec?]