You might find a rare species in your backyard: How global citizen science contributes to biodiversity knowledge

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The Clara's satin moth Thalaina clara is a strikingly beautiful moth species frequently seen during the moth night activities organized as part of the 2021 City Nature Challenge. Credit: Doug Evans/ Luis Mata

While it can be hard for us to notice as we go about our busy lives, cities

are filled with indigenous plants, fungi, insects, spiders and other little creatures, as well as birds, frogs and reptiles.

Urban sprawl and population growth mean it is critical to understand what indigenous and introduced plants and animals live in Melbourne's bush reserves and across public and private greenspace.

Bioblitzes like the City Nature Challenge give us a snapshot of how widely species are distributed in particular areas. They provide vital information on species that may be at risk or under threat, and on non-native species introduced into a local area.

A bioblitz is a type of biological census. Citizen scientists collect photographs or audio recordings of living organisms they can see or hear at a designated time and place, providing a snapshot of an area's biodiversity.

Contributing to biodiversity knowledge and informing policy

Participating in the City Nature Challenge provides individuals with the tools and knowledge to become more active citizen scientists and contribute high-quality data on the biodiversity in their local areas.

A recent study, co-designed by researchers and practitioners from eight eastern Melbourne councils and published in *BioScience*, has highlighted how the City Nature Challenge is contributing to biodiversity knowledge and informing local government practice.

In 2021, 291 citizen scientists contributed 4,638 observations of 974 different species to the Melbourne node of the City Nature Challenge. Among these were 135 animal, plant and fungi species previously

unrecorded for the area.

A stunning find was the multi-spotted darner, a vibrant-colored large dragonfly typically found in small mountain streams, which had never been recorded in the City of Boroondara before.

They also found 26 species that had not been recorded in eastern Melbourne for at least 30 years. One rare species rediscovered was the thin strawberry weevil, a tiny species that had not been seen for more than 44 years.

This strawberry weevil was rediscovered in Melbourne after 44 years. Credit: Reiner Richter

Unleashing the power of citizen science

Observations are typically made through online social platforms like iNaturalist.

Sightings can be recorded by uploading photographs and audio files, which are publicly available but may only be contributed and curated by registered members. Participants can choose between providing taxonomical identifications themselves or leaving it to other iNaturalist community members to do so.

Thousands of citizen scientists are getting ready for the 2024 City Nature Challenge urban bioblitz, a 10-day event running from April 26 to May 5 across more than 600 cities worldwide.

Excitingly, Metropolitan Melbourne will be represented this year by a collaboration of over 25 councils, from Mitchell to Mornington Peninsula and Hobson Bay to Yarra Ranges.

This powerful partnership enables residents to unleash the power of citizen science and embrace the City Nature Challenge.

Doug Evans, Strategic Environment Planner at Maroondah City Council, and co-author of the study points out that since joining the City Nature Challenge in 2021 the council has "…quadrupled our local network of citizen scientists collecting valuable data that has deepened and broadened our understanding of Maroondah's local biodiversity."

Beyond the academically rigorous evidence of the benefits of citizen science events, the study also found insights that could make bioblitzes even more useful. This includes ideas about how to conduct them across seasons or at night and about tools and training for people to collect high-quality data.

Helping residents connect with nature

As the citizen science movement grows, there is more potential for participants to contribute timely, targeted and high-quality records to shape local policies, as well as management, education and research.

One of the great benefits of the City Nature Challenge experience is the opportunity for councils to facilitate activities that invite residents to connect with nature and capture records as part of their day-to-day routine.

The use of iNaturalist is also opening opportunities to connect with nature in a nonphysical space, with features like commenting and agreeing with observations, thereby enabling access to biodiversity for other community members who had reduced capacity to visit the bushland environments in person.

Another positive benefit is the increased exposure to local conservation groups and bushland reserves.

Through the organized City Nature Challenge activities, local communities are becoming more aware of their local reserves and biodiversity and for some people, the time spent in these places is fostering a greater familiarity and appreciation for these sites.

Stewards of biodiversity

This is translating to a more active network of residents participating in a wider range of programs, including wildlife gardening, nature strip planting, friends-of groups and other related program focused on sustainability and environmental stewardship.

We hope events like the City Nature Challenge will continue to empower and enable residents to become stewards of biodiversity and seek out practical ways to support local biodiversity in their gardens, streets, local parks and reserves.

The City Nature Challenge began in 2016 when staff at the Natural History Museum of Los Angeles and the California Academy of Sciences conceived a friendly competition between San Francisco and Los Angeles to see which city could record the largest number of species by the largest number of participants over eight days.

Participants can sign up here.

More information: Estibaliz Palma et al, The city nature challenge: A global citizen science phenomenon contributing to biodiversity knowledge and informing local government practices, *BioScience* (2024). DOI: 10.1093/biosci/biae012

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