

EcoCommons Australia: A Powerful New Tool for Ecological Modelling

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Ecological modelling platform EcoCommons Australia is transforming biodiversity protection and deepening our understanding of how environmental policies advance international biodiversity goals.

A new article published in [Environmental Modelling and Software](#) outlines how EcoCommons was created to help researchers and policy decision-makers conduct trusted ecological modelling more efficiently than ever before.

One of the experts behind EcoCommons is Professor Brendan Mackey, Director of the Griffith Climate Action Beacon at Griffith University, and a Coordinating Lead Author on the 2022 Intergovernmental Panel on Climate Change Sixth Assessment Report.

Prof Mackey said, “The EcoCommons platform provides seamless and accessible access to advanced modelling tools and trusted data for biodiversity and climate, with results that can be relied upon by researchers, practitioners and decision makers in academia, business and government.”

Ecological modelling, at speed

Dr Jenna Wraith, senior data scientist for EcoCommons at the Queensland Cyber Infrastructure Foundation (QCIF), explains, “EcoCommons streamlines the labour-intensive aspects of ecological modelling. Instead researchers may concentrate on choosing, testing and interpreting models to inform decisions about restoring, protecting, and conserving vital habitats for a biodiverse future.

“For example, coding and data preparation previously took days to support analysis and mapping of habitats for Australia’s rare Purple Copper Butterfly, found only in New South Wales’ Central Tablelands. Now, with EcoCommons, this process can be completed in minutes.

“EcoCommons also enables researchers to easily reproduce and ‘tweak’ the analyses shared by others, promoting democratised research and ensuring transparency and best practices in science and decision-making,” said Dr Wraith.

Scalable technology for environmental decision-making

EcoCommons leverages years of development from legacy laboratories and programs, such as ecocloud and BCCVL, supported by research infrastructure providers and universities. This technology underpins the success of both EcoCommons and Biosecurity Commons, enhancing capabilities in environmental and biosecurity modelling, respectively. Together, these platforms provide one of the most

comprehensive spaces in Australian digital research technology for researchers to use trusted datasets and models that can directly impact research and policymaking.

End-user needs have always been a paramount concern. The recent article describes how the EcoCommons team adopted a user-centred design approach to redevelop the platform. They analysed nearly 400 survey responses from approximately 150 organisations to prioritise improvements and expand functionality, continuing to reduce barriers to using ecological models. Crucial updates ensure the platform adheres to internationally-recognised scientific standards for species distribution modelling.

The re-invigorated platform features close to 60,000 datasets, a direct portal to a further 100,000, and more than 30 integrated algorithms—all freely available to researchers and policymakers thanks to collaborative efforts with its partners.

EcoCommons is hosted at QCIF in partnership with the Australian Research Data Commons (ARDC), and supported by The University of Melbourne Centre of Excellence for Biosecurity Risk Analysis (CEBRA), Atlas of Living Australia, TERN, CSIRO, Macquarie University and UNSW. Griffith University and The Queensland Government's Research Infrastructure Co-investment Fund (RICF) also supported EcoCommons development.

Visit ecocommons.org.au

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About the Australian Research Data Commons (ARDC)

The ARDC accelerates Australian research and innovation by driving excellence in the creation, analysis and retention of high-quality data assets. The ARDC is enabled by the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS). Visit ardc.edu.au

About the Queensland Cyber Infrastructure Foundation (QCIF)

QCIF is a non-profit organisation that provides cutting-edge digital infrastructure capabilities for research and innovation across Queensland and Australia. Visit qcif.edu.au