



The Ecosystem Change Ecology team

We are a multidisciplinary team of scientists based in Perth, Western Australia. We primarily deliver to CSIRO Health & Biosecurity and collaborate widely, focusing on landscape change, species invasions and native species resilience in terrestrial ecosystems.

Our diversity

We are a diverse team of approximately 20 people, built around three research scientists, two joint appointments with the University of Western Australia, two postdoctoral scientists, an experimental scientist and two research technicians.

We add considerable value to our core team via Indigenous cadets, honorary research fellows, postgraduate students, honours students, visiting scientists and volunteer fellows.

Our expertise & knowledge

We have considerable adaptability, while carving out widely acknowledged expertise in plant, invertebrate and vertebrate ecology and management as it relates to global environmental change. Our complementary skill sets combine synergistically to provide critical expertise on the research priorities we tackle.

Recent project deliverables have spanned the fields of plant ecophysiology, invertebrate biology and physiology, herpetology, empirical field ecology at the population and community levels, modelling and GIS, RPAs (drone) surveys, remote sensing, molecular and morphometric taxonomy, plant genomics, plant-animal interactions, biogeography and ecosystem interactions, and biological control.

We generate knowledge on the mechanistic links and synergistic interactions between landscape change, species invasions and native species resilience in terrestrial ecosystems.

Working on both natural and agricultural systems, we undertake research and develop theory to underpin more effective policy and management actions for conservation, invasion and production challenges in the face of rapid global change.



Sampling plant and invertebrate biodiversity in rainforest vine thickets of the remote Kimberley region in Western Australia.

Our collaborators & customers

We thrive on collaboration. We enjoy complexity. We seek out challenges that require the bringing together of researchers and end users to deliver better solutions.

Within CSIRO, we collaborate widely in WA and interstate. Nationally, our main collaborators range from local groups targeting on-the-ground outcomes to Go8 universities:

- Natural Resource Management groups
- Indigenous groups in the Kimberley and Queensland
- Department of Biodiversity, Conservation & Attractions
- Universities (UWA, Murdoch, UoM)

Our global outlook is underpinned by established partnerships with world class institutions and field leading researchers, including:

- The Centre for Invasion Biology (South Africa)
- National Research Institute for Agriculture, Food & Environment (France)
- The Chinese Academy of Sciences (China)

We deliver our research to an increasingly diverse range of customers that include:

- Department of Biodiversity, Conservation & Attractions
- Department of Primary Industry & Regional Development
- Department of Agriculture, Water & the Environment
- Resource extraction companies (Chevron, Mt Gibson)
- Parks Australia

Our scientific engagement

We deliver our science as part of a variety of key science advocacy and research initiatives:

- The Western Australia Biodiversity Science Institute;
- The Northern Australia Environmental Resources hub of the National Environmental Science Programme;
- The CSIRO STEM Professionals in Schools program;
- The School of Biological Sciences at the University of Western Australia, via lecturing, joint appointments, collaborative research and student supervision;
- Journal editorial roles (*Insect Conservation & Diversity*, *Neobiota*, *Oecologia*, *Biodiversity & Conservation*, *Herpetological Review*).

Our innovative approach

Despite being primarily focused on non-commercial research outcomes, we regularly take an entrepreneurial approach to our science:

- We aggregated disparate alien plant data for the Pilbara region of Western Australia, making publicly available 285,000 records from a starting point of 803, which has transformed our understanding of weed risk and management priorities;
- We have developed novel strategies to guide resilient restoration of once-invaded landscapes in the south west of Western Australia, accounting for climate change drivers and species inherent adaptability;
- To enhance on-ground uptake of our pioneering work in invasive species management, we adapted our research into a [module for delivering planning advice](#) to NRM practitioners and generated an open access online [repository of global climate data](#).

Our excellent science

We convert our innovation into positive impacts through leading edge science with a focus on outcomes:

- More than 100 papers over the last five years (> 10,000 citations), including multiple papers in *Science*, *Nature*, *PNAS* and *Trends in Ecology & Evolution*, as well as numerous book chapters and reports;
- The AdaptNRM [Weeds & Climate Change](#) module;
- The [CliMond database](#) of global climate data;
- The WABSI [Mitigating Cat Impacts on Biodiversity](#) prioritised research program for Western Australia.

Our high calibre output has been recognised in various state and national awards, including:

- Australian Research Council (ARC) Future Fellowship;
- CSIRO Julius and John Phillip awards;
- CSIRO team excellence awards;
- two Endeavour Fellowships;
- Australian Institute of Policy and Science (AIPS) Tall Poppy award.

More than 20 PhD, MSc and BSc(Hons) students have graduated from the team over the past 10 years, rapidly moving on to successful careers in academia, industry, government and the not for profit sector.

Our team has a sense of adventure and we relish exploring the 'roads less travelled'. Team cohesion is built on accountability, trust and a healthy dose of mutual respect. It is a fun and rewarding place to make a contribution to our planet's future.



Implementing weed biological control solutions in the remote Kimberley region of Western Australia.



Addressing global change challenges for conservation in the Daintree region of far north Queensland.



Providing national guidance for the appropriate choice of climate resilient street trees to avoid future weed problems.



Growing plants in future climates to understand resilience limits that will prioritise management responses to invasion and climate change.

As Australia's national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.

CSIRO. Unlocking a better future for everyone.

Contact us:

Dr Bruce Webber
+61 8 9333 6802
+61 417 915 220
bruce.webber@csiro.au

www.ecosystemchangeecology.org

  @TheECETeam