



# Valuing Sustainability Future Science Platform

The Valuing Sustainability Future Science Platform uses cutting-edge approaches to work across and beyond scientific disciplines to meet society's current needs without compromising the ability of future generations to meet theirs. We will work with diverse groups in regional communities and across industries and supply chains, to co-develop and test measures of sustainability and related systems. Our goal is to do research that drives and guides investment and innovation for sustainability.

## The challenge

We know that the negative impacts that modern society has on many environments need to be urgently reversed, and that we must do this in ways that provide a just transition to a safe climate and a sustainable, equitable future. We must do more to halt biodiversity loss, reduce atmospheric greenhouse gas emissions, prevent habitat and resource degradation, and build resilient food systems and communities.

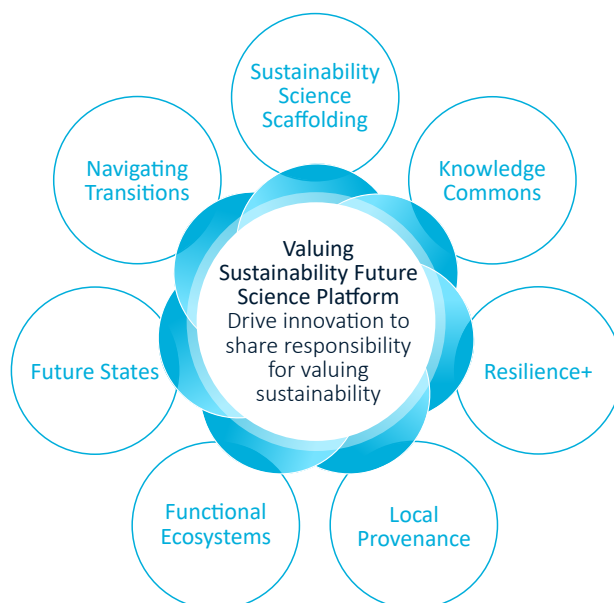
While many solutions to specific problems exist, a major challenge is coordinating action across research, policy and practice, and with industry and communities to drive outcomes at scale. We often treat problems individually, but in coming years we must rapidly drive innovation to achieve multiple goals simultaneously. In many cases, industry, investors, regulators, citizens and consumers face challenges in identifying whether their actions really improve multiple desirable outcomes. In other situations, disagreements about goals stall action.

## Our response

To address complex and linked challenges, we need to develop and implement approaches to research that work across and beyond disciplinary boundaries. The CSIRO investment in the Valuing Sustainability Future Science Platform is targeted to build this capability through a series of targeted and linked research activities. These projects will bring leading CSIRO scientists and new post-doctoral research fellows, to work together with partners and stakeholders.

## More than the sum of the parts

The seven projects, outlined below, do not work in isolation; collaboration, communication and coordination between projects is part of our design. Connections are being made both deliberately and through serendipitous interactions and emergent opportunities in accordance with our commitment to innovative research strategies. Our projects also link to other work in CSIRO and beyond. Through this design we aim to leverage off intra- and inter-project interactions to learn, develop novel solutions, and extend these well beyond the Valuing Sustainability Future Science Platform.



## Overview of our projects

Each of our seven targeted projects focus on a vital aspect of sustainability, applying world-class research and innovation to address these core challenges.



### Sustainability Science Scaffolding

This cross-cutting project examines how CSIRO and our partners can develop and put to use context-appropriate indicators, frameworks and institutional arrangements to drive innovation and investment for sustainability. To do this we are examining diverse research in Australia and around the world to better understand sustainability transitions and transformations and especially how, where and why research effectively contributes to them.



### Knowledge Commons

How should knowledge for sustainability be created and shared? We face a key challenge to design effective, equitable and trustworthy systems to generate and share data to inform innovation and investment for sustainability. A still greater challenge is ensuring that these data can be integrated into knowledge to inform diverse decision-makers. This project seeks to develop improved systems to shape how data are shared and forms of knowledge are created to influence sustainability transitions. This approach shifts focus away from siloed data and information towards a view of integrated knowledge/s that drive action and embrace diverse ways of knowing and knowledge practices.



### Resilience+

The frequency and intensity of shocks to food supply systems will increase in the future from events such as climate change, pandemics and other disruptions. This project is co-developing new methods, tools and indicators to evaluate how resilience to shocks interacts with key drivers of sustainability. It will examine cross-scale relationships between resilience in seafood supply chains, and the social, economic and environmental dimensions of sustainability, building on CSIRO's emerging capability in socio-ecological system modelling.



### Local Provenance

Global investment and supply chains are driving shifts on the ground, in local and Indigenous communities across Australia. With a growing interest in sustainability and impact investment, how can we ensure that these flows of capital drive benefits for stakeholders as well as shareholders? This project will demonstrate if (and how) fit-for-purpose methods can illuminate and incorporate community-identified values, preserve and build local knowledge systems, and support place-based sustainability through well-targeted investment models.



### Functional Ecosystems for Nature-Positive Prosperity

Can we develop and use leading indicators of ecosystem function to drive management actions towards outcomes that people care about? This project will co-develop knowledge-to-action frameworks and trusted, accessible, integrated and socially relevant indicators of soil and ecosystem health. It will also assess the utility of indicators for investors and regulators to verify that actions have led (via lagging indicators), or will lead (via leading indicators), to outcomes that people value.



### Future States

Social-ecological systems can change rapidly, especially in a changing climate and where other pressures are diverse and interacting. Understanding the dynamics, proximity to thresholds and tipping points of such systems remains elusive and challenging, but a critical component for informing sustainability. This project is co-developing ecosystem models that simulate future states and trajectories of land and seascapes, to explore how management actions and climate change impact on the values and services that flow from these social-ecological systems over time.



### Navigating Transitions

With Australia pledging to rapidly reduce greenhouse gas emissions, our society faces an unprecedented transition. Yet our sectors, regions and private individuals or households have differing motivations and capacities for such transitions. Through this project we will work with partners, stakeholders and communities to develop key tools for building capability for just and sustainable transitions and associated indicators of success.

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