Cuttting Edge Symposium agenda: Developing a dynamic ecosystem assessment system for Australia

AGENDA

Date: 1st - 5th February 2021

Organisers: Anna Richards (CSIRO), Natasha Porter (CSIRO), Suzanne Prober (CSIRO), Fiona Dickson (DAWE), Louis Provencher (The Nature Conservancy), Colin Daniel (Apex Resource Management Solutions), Kristen Williams (CSIRO), Stephen Roxburgh (CSIRO), Garry Cook (CSIRO)

Objectives:

1. To *share knowledge* about ecosystem health assessment and forecasting tools which can support conservation planning, land management and ecosystem services assessment in the context of a changing climate
2. To *foster new collaborations* and relationships between US and Australian research and government institutions
3. To *build a community of practice* around dynamic ecosystem assessment in Australia

Monday 1st February 2021	Tuesday 2nd February 2021	Wednesday 3rd February 2021	Thursday 4th February 2021	Friday 5th February 2021
Session 1	**Session 2**	**Session 3**	**State and Transition simulation model (ST-Sim) demonstration.**	**Session 5**
10:00 am AEST/ 11:00am AEDT **Welcome to Country (Donna Jackson, Larrakia Nation)** **Symposium introduction (Fiona Dickson, DAWE & Anna Richards, CSIRO)**	10:00 am AEST/ 11:00am AEDT **Login & session introduction (Stephen Roxburgh, CSIRO)**	10:00 am AEST/ 11:00am AEDT **Login & session introduction (Natasha Porter, CSIRO)**	8:30 am AEST/ 9:30am AEDT **Login & introductions**	10:00 am AEST/ 11:00am AEDT **Login & session introduction (Anna Richards, CSIRO)**
10:25am AEST/ 11:25am AEDT **Why do we need a dynamic ecosystem assessment system for Australia and who benefits?** Learnings from the Our Knowledge Our Way guidelines – Emma Woodward (CSIRO) & Stephen van Leeuwen (Curtin University) Why state-and-transition is the right framework for designing future ecosystems – Mark Westoby (Macquarie University) & Brian Walker (CSIRO)	10:05am AEST/ 11:05am AEDT **What does a dynamic ecosystem assessment and forecasting system look like and what knowledge foundation do we build on?** From LANDFIRE to Landscape Conservation Forecasting for large western USA landscapes – Louis Provencher (The Nature Conservancy) The Australian Ecosystem Models Framework: ecosystems dynamics knowledge to support forecasting – Anna Richards (CSIRO) & Fiona Dickson (DAWE) Habitat condition assessment system: a general framework for monitoring ecosystem condition from space – Kristen Williams (CSIRO)	10:05am AEST/ 11:05am AEDT **What tools & methods do we need to bring together to develop a national ecosystem assessment and forecasting system?** Maintaining values – Victor Steffensen (Firesticks Alliance) Developing quantitative state-and-transition simulation models of landscape change using ST-Sim – Colin Daniel (Apex Resource Management Solutions) IUCN Ecosystem Red Listing methods – David Keith (University of NSW)	8:35am AEST/ 9:35am AEDT **Demonstration of the State and Transition Simulation Model (ST-Sim)** This session is being run by Dr Colin Daniel (Apex Resource Management Solutions) & Dr Louis Provencher (The Nature Conservancy). ST-Sim is a North American tool for developing and simulating quantitative state and transition models of landscape change: https://apexrms.com/landscape-change/ The session will introduce ST-Sim and present an Australian case study from the Murray-Darling Basin.	10:05am AEST/ 11:05am AEDT **Exploring futures, climate risk and building adaptative capacity** Getting ahead of the curve, the key is having the right information at your fingertips – Rebecca Spindler (Bush Heritage) Using scenario analysis to assess and enhance the capacity of ecosystems to retain biodiversity in the face of global change – Simon Ferrier (CSIRO) Exploring future land use change through scenario analysis: Examples from the Australian National Outlook project– Martin Nolan (CSIRO)
10:55am AEST/ 11:55am AEDT **Questions**	10:45am AEST/ 11:45am AEDT **Questions**	10:45am AEST/ 11:45am AEDT **Questions**	9:10am AEST/ 10:10am AEDT **Interactive exploration of ST-Sim modelling framework, including questions & discussion**	10:45am AEST/ 11:45am AEDT **Questions**
11:10am AEST/ 12:10pm AEDT **Why do we need a dynamic ecosystem assessment system for Australia and who benefits?** Why a dynamic ecosystem assessment system for Australia, a policy perspective? – Glenda Wardle (University of Sydney) A natural resource management perspective – Kate Andrews (NRM Regions, Australia)	11:00am AEST/ 12:00pm AEDT **What does a dynamic ecosystem assessment and forecasting system look like and what knowledge foundation do we build on?** Organizing and distributing ecosystem management information with the Ecosystem Dynamics Interpretative Tool – Jebediah Williamson (University of New Mexico) & Joel Brown (USDA) A national research infrastructure capability to support ecosystem forecasting – Beryl Morris (TERN)	11:00am AEST/ 12:00pm AEDT **What tools & methods do we need to bring together to develop a national ecosystem assessment and forecasting system?** From state and transition models to decision trees: using expert knowledge to inform recovery planning for endangered woodlands – Libby Rumpff (University of Melbourne) & Megan Good (University of Melbourne) Towards an open 'catalogue' of natural capital measures as a foundation for nature-based solutions – Sue Ogilvy (CSIRO/ Ecological Accounting and Investment Solutions) & Janna de Groot (ClimateWorks Australia)	10:00 am AEST/ 11:00am AEDT **Finish**	11:00am AEST/ 12:00pm AEDT **Exploring futures, climate risk and building adaptative capacity** Blending ecological and agricultural productivity models to assess climate risk for agriculture – Stuart Whitten (CSIRO) & Adam Liedloff (CSIRO) Lessons learned helping people plan to protect multiple values in the face of large and uncertain change – Nicky Grigg (CSIRO) & Michael Dunlop (CSIRO)
11:30am AEST/ 12:30pm AEDT **Discussion** *What would you like to see come out of this symposium?* *Thoughts & impressions on the need for a dynamic ecosystem assessment system, opportunities and risks.* *How do you build future thinking into present day understanding?*	11:25am AEST/ 12:25pm AEDT **Discussion** *What knowledge and systems are we missing to build a truly national and integrated understanding of ecosystem condition?* *Benefits and limitations of capturing conceptual understanding of ecosystem dynamics using state and transition models.*	11:25am AEST/ 12:25pm AEDT **Discussion** *Is there a common framework from which to integrate different tools and methods for understanding ecosystem dynamics, health and condition?* *How can we facilitate a two-toolbox approach to understanding ecosystem condition?*	**Session 4**	11:25am AEST/ 12:25pm AEDT **Discussion** *How can we use our knowledge of ecosystem dynamics to articulate climate risks and resilience of ecosystems, and options for adaptation? What do we know now and where do we need to head in the future?* *How do we develop a future-oriented assessment system that encourages learning?*

12:00pm AEST/ 1:00pm AEDT **Finish**	12:00pm AEST/ 1:00pm AEDT **Finish**	12:00pm AEST/ 1:00pm AEDT **Finish**	3:00pm AEST/ 4:00pm AEDT **Login & session introduction (Kristen Williams, CSIRO)**	12:00pm AEST/ 1:00pm AEDT **Finish**
			3:05pm AEST/ 4:05 AEDT **What tools & methods do we need to bring together to develop a national ecosystem assessment and forecasting system?** Fusing Indigenous Ecological Knowledge and Technology – Barry Hunter (Djarnda enterprises/ Aboriginal Carbon Foundation) Using dynamic vegetation models to predict ecosystem condition – Belinda Medlyn (University of Western Sydney) Detailed & calibrated models of stand dynamics offer a mechanistic basis for vegetation management –Daniel Falster (University of NSW)	
			3:45pm AEST/ 4:45pm AEDT **Questions**	
			4:00pm AEST/ 5:00pm AEDT **What tools & methods do we need to bring together to develop a national ecosystem assessment and forecasting system?** Science opportunities and challenges for carbon and co-benefit assessment: lessons from the Land Restoration Fund **-** Don Butler (QLD Government) & Diane Allen (QLD Government) Mapping ecosystems from space: emerging tools for interpreting land cover change – Richard Lucas (Aberystwyth University) & Norman Mueller (Geoscience Australia)	
			4:25pm AEST/ 5:25pm AEDT **Discussion** *How can we develop scenarios of ecosystem condition given current understanding of ecosystem dynamics and climate change?* *How would ecosystem services markets, such as carbon and biodiversity co benefits, benefit from having a national ecosystem assessment and forecasting system for Australia – what would that system need to look like / consist of to be of use to these markets?*	
			5:00pm AEST/ 6:00pm AEDT **Finish**	