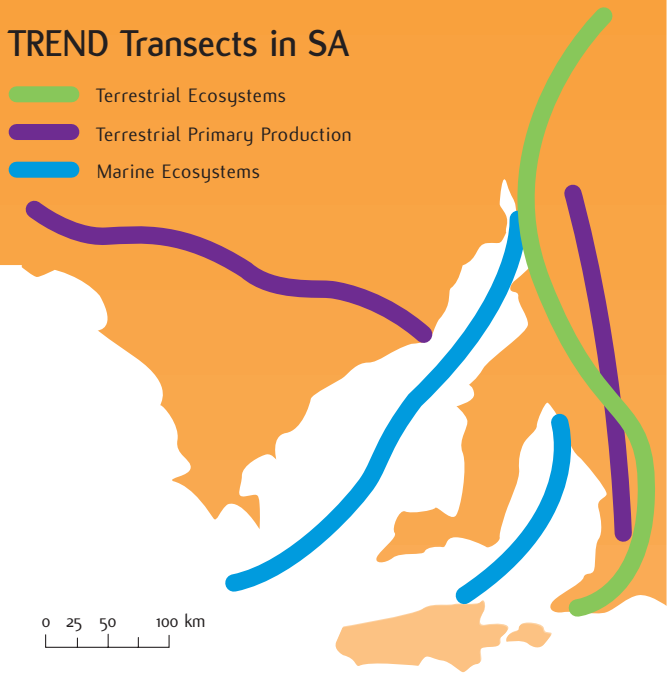
## Citizen Science

Citizen Science is a key focus of TREND and allows the community to understand and become involved in vital climate-adaptation research. As we move towards times of more climatic uncertainty, TREND's Citizen Scientists can use the latest technologies to contribute directly to data collection, and access current research and information on the implications for South Australia.

Our Citizen Science program recognises the wealth of untapped skills, knowledge and enthusiasm present in our communities and uses this much-overlooked resource to maximise South Australia's research capabilities.

By bringing together community members, researchers and policy makers, TREND opens up needed channels of communication, ensuring South Australia can make informed preparations for any future environmental change.

## TREND Transects in SA




## Benefits

TREND is a dynamic project and will grow over time; continuously collecting and synthesising data that will help South Australia make informed decisions to adapt to a changing environment.

By building world-class monitoring transects along natural environmental gradients in terrestrial and marine systems, TREND is providing information on state and national policy questions and priorities.

Recommendations based on the real-world evidence collected by TREND in the field will assist managers of natural resources and agricultural systems to incorporate predicted environmental change into their planning.

The TREND project will provide South Australia with:

- A greater understanding of the current environment and likely changes under diverse climatic conditions
- Identification of systems and species most susceptible to changes in climate and other threats
- Comprehensive datasets to assist in predicting the response of ecosystems to warming temperatures and changing climatic conditions
- Combined knowledge gained from biodiversity and agriculture for monitoring in the future
- Engagement of the wider community and contribution to policy and decision-making.

## For more information

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trend™

Transects for Environmental Monitoring and Decision-Making

Helping South Australia adapt to a changing environment

## Overview

TREND is monitoring South Australia's environment to evaluate the impacts of potential climatic and environmental shifts, providing:

» A system of data collection across native ecosystems, agricultural regions and marine environments

» An early-warning system for changes in South Australia's diverse environments

» A legacy of long-term monitoring, informed policy and proactive response to environmental change

The TREND program focuses on transects of bushland, farmland and marine environments in South Australia that follow specific environmental gradients.

These transects overlap, ranging from the comparatively high rainfall region of the southern Mt Lofty Ranges to the hotter and drier northern Flinders Ranges, sites across the Eyre Peninsula, and ecologically sensitive marine areas.

Within the transects, the distribution, structure, life cycle, overall health, appearance and genetic variation of species and communities are being monitored.

## Partnerships

TREND consists of researchers from the University of Adelaide and the South Australian Research and Development Institute (SARDI) working in partnership with the Department of Environment and Natural Resources (DENR) as well as interested individuals and community groups.

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THE UNIVERSITY of ADELAIDE

Government of South Australia
Department of Environment and Natural Resources

SARDI
SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

*TREND is supported by the South Australian Government through the Premier's Science and Research Fund, and the Australian Government through the National Collaborative Research Infrastructure Strategy and the Super Science Initiative (via TERN).*

## Terrestrial Ecosystems

The Terrestrial Ecosystems Research Group is establishing a major transect to monitor intact ecosystems vulnerable to changes in climate, sampling environmental gradients relevant to climate predictions for the near future.

The Terrestrial Ecosystems transect spans strong temperature and rainfall gradients, as well as a wide range of ecosystems. These ecosystems are of interest because they contain unique organisms that occur nowhere else and might be vulnerable to changing environmental conditions.

The Group aims to detect regional patterns and trends by researching a combination of species composition and change, shared distribution patterns, morphological variation and genetic variation.

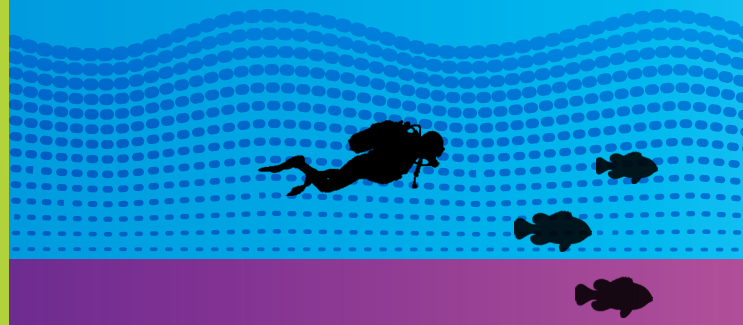
By understanding the adaptive capacity of species, TREND aims to predict where target species will persist under drier, warmer conditions.

## Marine Ecosystems

South Australian seas contain some of the world's most geographically concentrated natural temperature and salinity gradients.

By examining changes across these gradients, researchers from the Marine Ecosystems Research Group are predicting how potential environmental changes could alter the distribution and abundance of marine invertebrates, a key component of marine ecosystems.

The Group aims to project the geographical distribution of marine invertebrate species under realistic future climate predictions, by constructing spatial models using data from settlement plates and clearance experiments, and climate model forecasts.



## Terrestrial Primary Production

South Australian farmers manage a challenging climate; a warming and drying trend will increase emphasis on matching crops to the environment and improving the efficiency of water use.

Warmer and drier conditions will change the spectrum of pests and disease due to less rainfall and changes in the range of crops grown.

The Primary Production Research Group looks at current conditions in areas with similar climatic conditions to those projected under various climate change scenarios, and assesses their usefulness for understanding potential impacts and adaptation options available to our rural industries.