

BIODIVERSITY GENOMICS AUSTRALIA

A national fund to deliver insight into Australia's unique biodiversity and provide data driven decision making for Australia's National Priorities

Biosecurity

Proactive responses: assess risk, prevent, respond and recover from threats to our economy and environment

Conservation

Combat extinction rates and boost species and ecosystem resilience

Primary Industry

Safeguarding Australia's food security, primary production (Agriculture, fisheries and forestry) and export markets

Education

Advance Australia's world leading workforce through genomic data informed decision making

Biodiversity

Identification of novel species to enable robust and accurate biodiversity monitoring and management

Biodiscovery

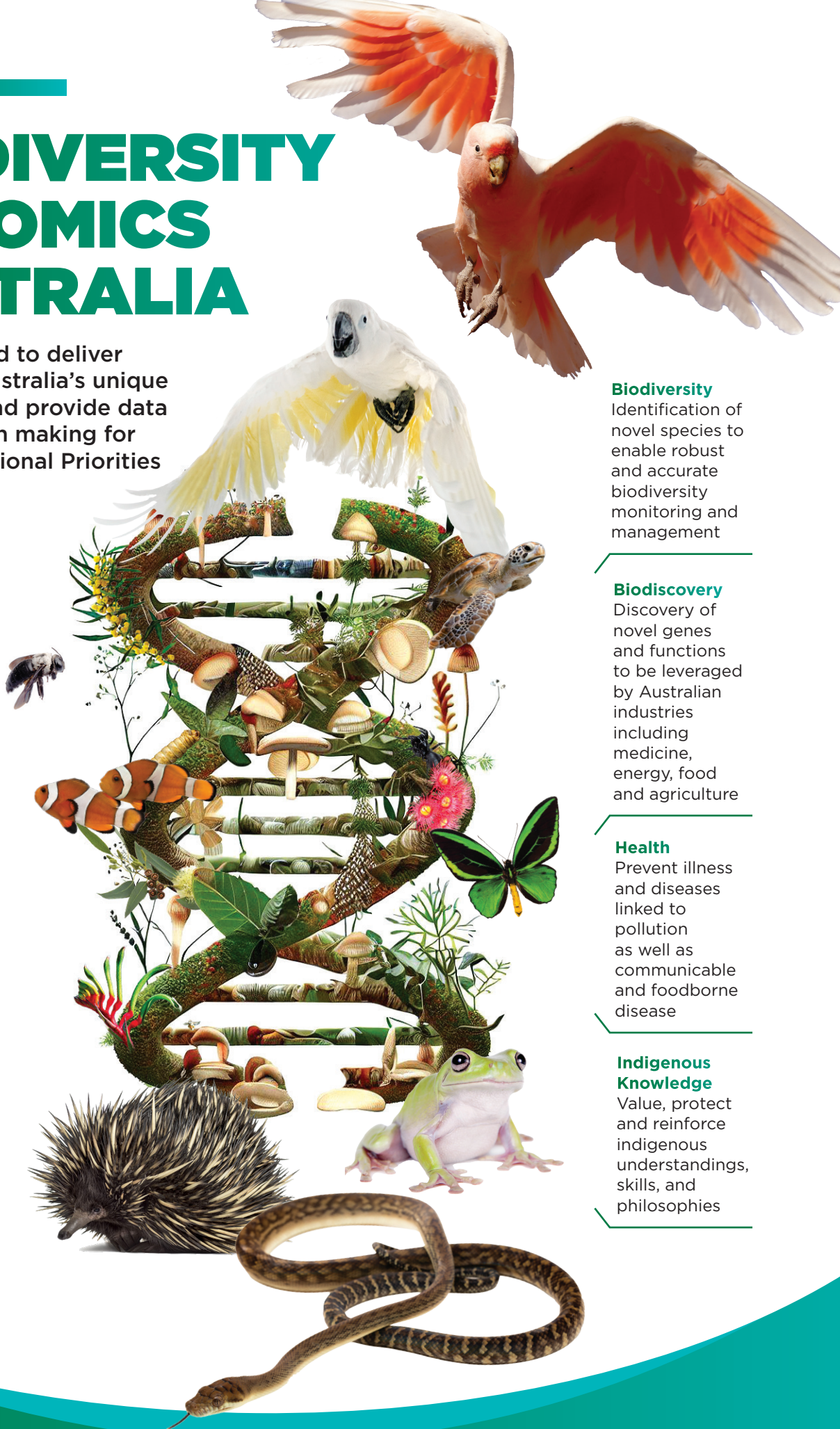
Discovery of novel genes and functions to be leveraged by Australian industries including medicine, energy, food and agriculture

Health

Prevent illness and diseases linked to pollution as well as communicable and foodborne disease

Indigenous Knowledge

Value, protect and reinforce indigenous understandings, skills, and philosophies



Acknowledgement of Country

We acknowledge the traditional custodians and stewards of Australia's vast and diverse terrestrial, marine and estuarine ecosystems. We acknowledge their continuing connection to, and deep knowledge of Australia's biodiversity and pay our respects to Elders both past, present and emerging.

Australia's hidden biodiversity - Most species are difficult to observe or identify

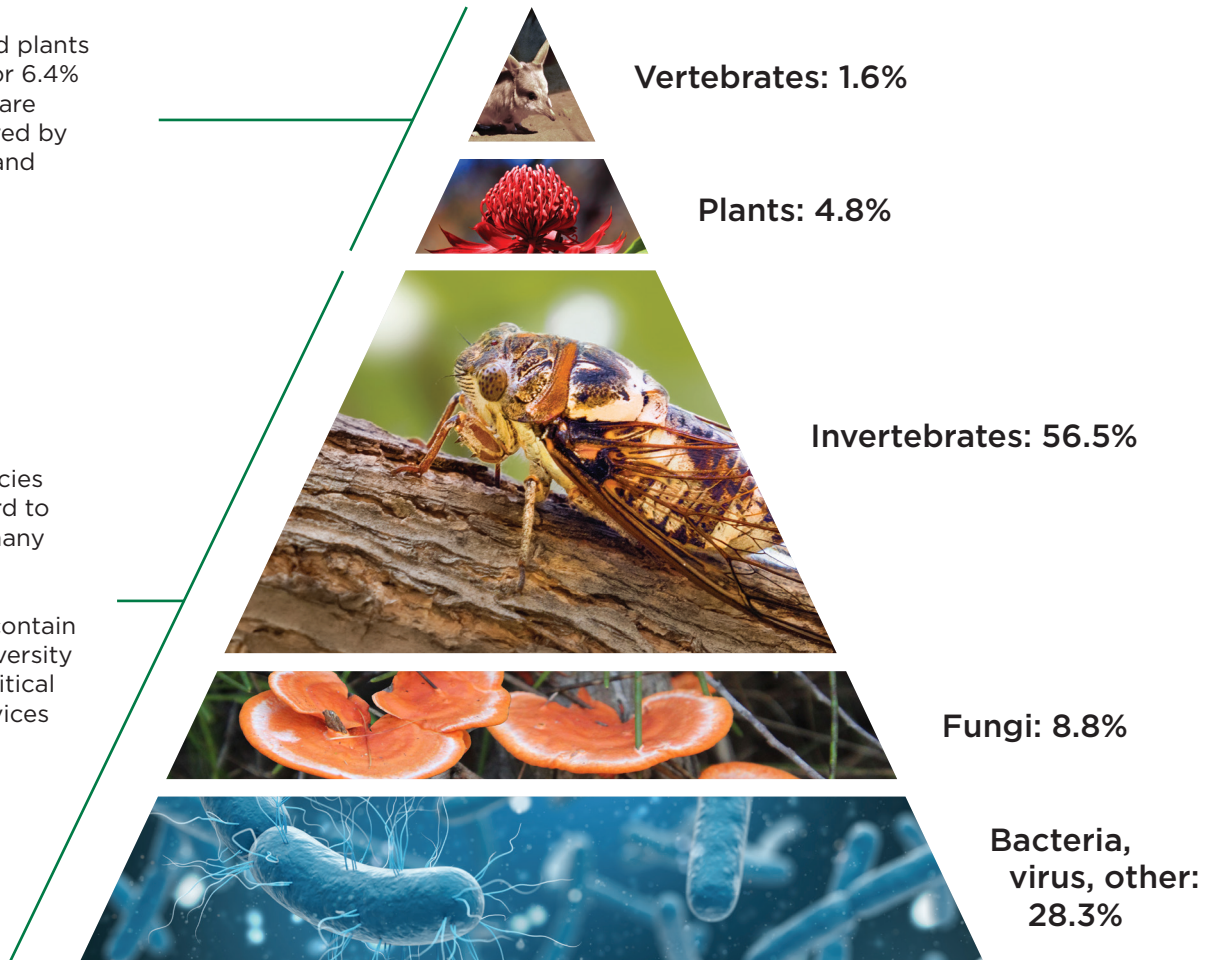
“Seventy percent of Australian species have never been described and have no name”

(Australian Academy of Science 2018, Discovering Biodiversity: A decadal plan for taxonomy and biosystematics in Australia and New Zealand 2018–2027: 16)

Vertebrates and plants only account for 6.4% of species and are largely monitored by visual surveys and citizen science

Majority of species (93.6%) are hard to observe, and many are unnamed

These groups contain the greatest diversity and perform critical ecosystem services



Biodiversity Genomics Australia will enable data informed management of Australia's unique biodiversity, ecosystems and associated industries by:

Enabling accurate assessment of Australia's unique and iconic biodiversity

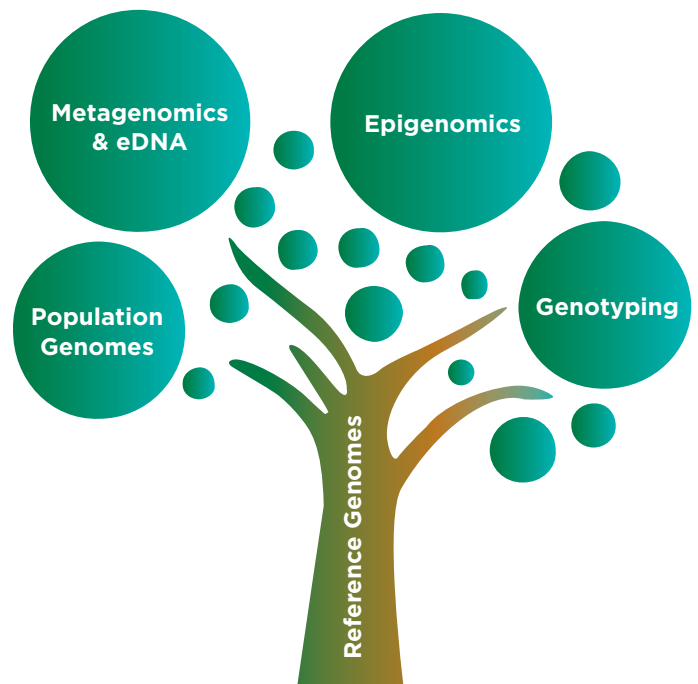
Developing data driven decision making for management of Australia's threatened species and ecosystems

Safeguarding Australian's primary industries through sustainable environmental management

Supercharge surveillance, early detection and monitoring in biosecurity

Driving sovereign innovation through biotechnology

Genomics provides precision tools to discover, monitor and manage Australia's unique 'mega-diversity'



“More than 1900 Australian species and ecological communities are at risk of extinction”

(Commonwealth of Australia 2019, Australia's Strategy for Nature 2019-2030: 6)

Reference genomes provide foundational data resources that inform the analysis and interpretation of other types of genomic data



Species Discovery & Accelerated Identification

Genomic data gives scientists and government the tools to identify, describe and catalogue Australia's unique biodiversity. Species discovery underpins all biological and ecological understanding of biodiversity



Advance bio-surveillance and monitor change through rapid identification at scale

Sequenced specimens will form a reference library for detecting Australian or exotic species – wild organisms, agricultural or pests, diseases and vectors, imported goods, or trace DNA samples strategies



Understand biological functions & Ecological interactions

Genomes of reference specimens and species populations enables in depth understanding of all aspects of species' biology, evolution, adaptation and resilience.

Shared national infrastructure – Digital information – Interoperable science

Alignment to International Efforts

Global genomics efforts are underway to characterise, understand and sustainably manage biodiversity. Australia has a significant role to play, given the large number of species unique to our continent. Major reductions in the cost of DNA sequencing mean that this is feasible.

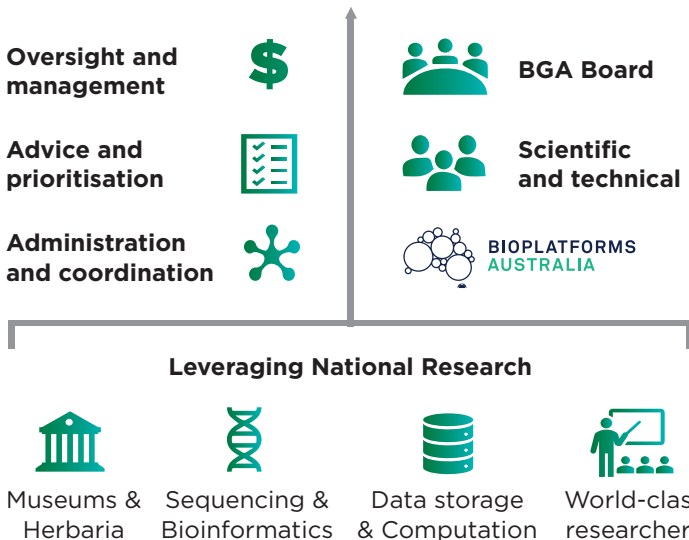
Biodiversity Genomics Australia will provide the mechanism to deliver Australia's commitment to the United Nations Convention of Biological Diversity (CBD) as described by the 3 key goals in Australia's Strategy for Nature (2019-2030): Goal 1) Connect all Australians with nature; 2) Care for nature in all its diversity; 3) Share and Build Knowledge.



Governance and Operation

Biodiversity Genomics Australia will be a national fund administered by a Board with responsibility to support and sustain a systematic effort to identify, characterise and understand the function and interactions of Australia's unique biodiversity in order to inform holistic management of our biodiversity and natural ecosystems. The Board will operate programs to provide merit-based grants to support this mission following guidance from expert scientific and technical committees, with facilitation and administrative support from Bioplatforms Australia.

Biodiversity Genomics Australia funds will be applied to systematic sequencing programs in Australia, including genome sequencing, population genomics for priority species and eDNA analysis for monitoring environmental health. There will be a need for the development of sampling methodologies that include indigenous engagement and benefit-sharing, curation of the reference libraries, ensuring long-term preservation of specimens and DNA, and other ancillary activities approved by the Board.



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