Biodiversity Month

Bryanna Minchin and Sophie Johnstone

What is Biodiversity?

Biodiversity is often characterised as 'the web of life'; it encompasses all living things and their ecosystems (Department of the Environment and Energy, 2019). Biodiversity seek to protect the genetic diversity within a species, species diversity within an environment and ecosystems diversity within an area (Australian Museum, 2018).

September is the National Biodiversity Month. Every year biodiversity month is held to help promote the importance of protecting, conserving and improving biodiversity.

What are some of the threats to biodiversity?

Unfortunately, there are a significant number of threats to Australia's biodiversity, such as habitat destruction, introduced species, poor fire management and climate change. Unfortunately, most of these threats are associated with activities by humans.

Source: PerthNow

Humans have extensively modified the earth in the pursuit of urban development, natural resources and land for agriculture (Hostetter, 2005). In Australia, it has been estimated that approximately 44% of our forests and woodlands have been cleared (Commonwealth of Australia, 2016). Land clearing causes the loss and fragmentation of natural vegetation, leads to the degradation of soil and land, which can reduce and isolates species populations (Commonwealth of Australia, 2008).

Introduced species, also referred to as invasive species, pose a considerable threat to many native species. The most notable invasive species include the cane toad, weeds, fox, domestic cat, rabbit and feral goats and pigs. Invasive species threaten biodiversity by competing with native species for resources, preying on native species and introducing foreign diseases. Some species even can permanently alter an ecosystem (Commonwealth of Australia, 2008).

What is Biodiversity Month?

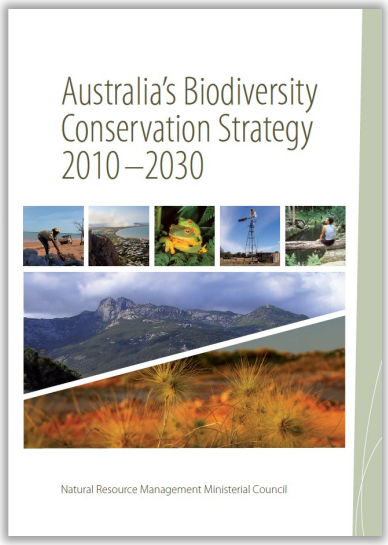
September is the National Biodiversity Month. Every year biodiversity month is held to help promote the importance of protecting, conserving and improving biodiversity.

Another major cause of biodiversity decline is climate change. Climate change is changing the environment and how species interact with their ecosystem. Human activities such as land clearing and fossil fuel burning have resulted in increased generation of greenhouse gases, which has raising the Earth temperature. Rising temperatures are greatly affecting the survival of species within ice/snowy biomes, where the temperature is a critical component of the environment (Hostetter, 2005). In Australia, our northern wetlands and the Great Barrier Reef are some of the most vulnerable communities threatened by climate change though reduce rainfall and increasing ocean temperature (Commonwealth of Australia, 2008).

How can we protect biodiversity?

We can protect biodiversity by preserving habitats and ecosystems (Australian Museum, 2018). We can assist in protecting Australia's natural biodiversity by:

- Creating a natural ecosystem in your garden,
- Replacing non-native vegetation with local native species,
- Not releasing unwanted pets into the natural environment,
- Trying to keep pets inside (or contained in a secure environment),
- Utilising the natural environment in an environmentally sustainable way, i.e. clean up after yourself and not picking wildflowers,
- Supporting or volunteering with a not-for-profit organisation that protects biodiversity values,
- Make responsible food choices - Be an informed eater, purchasing food from socially and sustainably responsible growers. Try to reduce food wastage by only buying what you need.



Source: Department of the Environment and Energy

Australia's efforts towards biodiversity conservation

Australia is one of the world's biggest biodiversity hotspots. Most of our plant and mammal species and nearly half of our bird and marine species are endemic (Department of the Environment and Energy, 2019). In Australia there is a wide range of programmes protecting biodiversity values:

Australia's Biodiversity Conservation Strategy 2010 - 2030

The Australian Government has developed a Biodiversity Conservation Strategy to act as the guiding framework for the conservation of national biodiversity. The aim is to engage all governments, businesses and the communities in directing efforts towards achieving healthy, resilient biodiversity and sustainable living (Department of the Environment and Energy, 2019).

The strategy was revised after the first five years of its implementation to improve its ability to drive change and to align with international biodiversity commitments. The three key goals of the revised strategy are: to connect all Australians with nature, care for nature in all its diversity, and build and share knowledge (Biodiversity Working Group, 2017). You can read the draft revised version "Australia's Strategy for Nature 2018-30" here.

CSIRO

CSIRO's research helps us understand our national biodiversity values so that we can improve our environmental management measures (CSIRO, 2019) . Some of the biodiversity projects that CSIRO is involved in include:

- **CSIRO's Biodiversity Book** – This book documents the latest scientific knowledge concerning Australia's biodiversity. You can download the whole book or chapters from the CSIRO Website for free.
- **National Research Collections Australia** – CSIRO has many collections of animal and plant species which are vital for biological research.
- **Mapping Australia's soil biodiversity** – CSIRO is working with various partners to map Australia's soil microbial diversity in the Biomes of Australian Soil Environments (BASE) map. Understanding soil microbes could help us support ecosystem health and resilience.
- **Great Western Woodlands** – working with Australia scientist to understand and manage the world's largest remaining Mediterranean-climate woodland, which covers 16 million hectares in Western Australia and is home to many diverse ecosystems.

Soil sampling sites across Australia. Source: CSIRO

IBSA: Index of biodiversity surveys for assessments

The IBSA compiles data collected through biodiversity surveys conducted in Western Australia. These biodiversity surveys are required to support environmental assessments and compliance under the *Environmental Protection Act 1986 (WA).* The Index is managed by the Department of Water and Environmental Regulation (DWER) and is accessible to the public. Regulators and Industry can use IBSA to make informed decisions concerning biodiversity values (The Western Australian Biodiversity Science Institute, 2019).

eFlora

Western Australian Biodiversity Science Institute (WABSI) is currently working in partnership with the Western Australian Herbarium on eFlora: an electronic resource that will provide current flora information for WA, replacing the conventional (and often outdated) printed Flora resources and assisting in the efficient identification of native plant species (The Western Australian Biodiversity Science Institute, 2019).

The future of biodiversity

There are several opportunities currently emerging that can help us protect and preserve biodiversity in Australia. Improvements in technology for biodiversity monitoring and management (Commonwealth of Australia, 2016) and increasing social engagement in biodiversity efforts can potentially halt the loss of biodiversity.

The development of new technologies, including drones and image recognition algorithms, has made it easier to collect and study environmental

data (Guerrini, 2015). Improved dataset storage capacities and data presentations have also made it easier and more cost-effective to analyse biologic data (Commonwealth of Australia, 2016). Scientists can use this data to identify biodiversity hotspots, track species at risk and understand how ecosystems operate so that we can implement improved environmental management strategies.

Society is becoming increasingly educated and involved with sustainable efforts. People are more aware of the effect climate change has on biodiversity and are now implementing small sustainable changes to their lifestyles. Citizen science projects, where anyone can use a smartphone app to record sightings of a species, are becoming more popular. These projects are increasing public engagement and education on biodiversity while helping scientists gather data on threatened species (Jake Snaddon, 2013). Other activities like beach clean-up events and voluntary site restorations are small but important steps towards protecting our local ecosystems.

Why not spend some time this biodiversity month learning about Australia's biodiversity? There are many local organisations around protecting our biodiversity and native species or promoting sustainability, that will appreciate your support. If society, governments and industry all contribute to the implementation of sustainable practices, we may be able to reduce the loss of biodiversity we are currently experiencing.

Should you or your business have any questions regarding the protection of biodiversity or require any assistance with minimising environmental impacts, please contact Integrate Sustainability on 08 9468 0338 or enquiries@integratesustainability.com.au.

Integrate Sustainability

Primary Business Address
Lower Ground Floor
3 Richardson St
West Perth, 6005
Western Australia

Phone: (+618) 9468 0338
E-mail: enquiries@integratesustainability.com.au

References

Australian Museum. (2018, November 12). *What is Biodiversity?* Retrieved September 10, 2019, from The Australian Museum: https://australianmuseum.net.au/learn/science/biodiversity/what-is-biodiversity/

Biodiversity Working Group. (2017). Australia's strategy for nature 2018-2030. Commonwealth of Australia. Retrieved September 10, 2019, from https://www.environment.gov.au/system/files/consultations/4601b513-c4dc-4bc1-808a-b8cfa0755b3b/files/strategy-nature-draft.pdf

Commonwealth of Australia. (2008). *Chapter 5 - Threats to Australian Biodiversity.* Retrieved from Department of the Environment and Energy: https://www.environment.gov.au/system/files/resources/e9f0d376-78eb-45cc-9359-797c6b0f72ff/files/chapter5.pdf

Commonwealth of Australia. (2016). *New technologies, solutions and innovations*. Retrieved September 16, 2019, from Australia State of the Environment: https://soe.environment.gov.au/theme/biodiversity/topic/2016/new-technologies-solutions-and-innovations

Commonwealth of Australia. (2016). *Regional and landscape-scale pressures: Land clearing*. Retrieved September 11, 2019, from Australia State of the Environment Report: https://soe.environment.gov.au/theme/land/topic/2016/regional-and-landscape-scale-pressures-land-clearing

CSIRO. (2019). *Biodiversity*. (CSIRO) Retrieved September 10, 2019, from https://www.csiro.au/en/Research/Environment/Biodiversity

Department of the Environment and Energy. (2019). *Australia's Biodiversity Conservation Strategy*. (Australian Government) Retrieved September 10, 2019, from https://www.environment.gov.au/biodiversity/conservation/strategy

Department of the Environment and Energy. (2019). *Biodiversity Month*. Retrieved from Department of the Environment and Energy: https://www.environment.gov.au/biodiversity/biodiversity-month

Guerrini, F. (2015, October 27). *How Emerging Technologies Could Help Protect Biodiversity.* Retrieved September 16, 2019, from Forbes: https://www.forbes.com/sites/federicoguerrini/2015/10/27/halting-biodiversity-loss-with-drones-and-smartphones-not-just-wishful-thinking/#2350d54355ef

Hostetter, T. (2005, Novemeber 21). *Humn Impact on Biodiversity*. Retrieved from goshen.edu: https://www.goshen.edu/bio/Biol410/bsspapers05/Trishahostette.htm#How

Jake Snaddon, G. P. (2013, February 23). *Biodiversity technologies: tools as change agents.* Retrieved September 16, 2019, from Biology Letters: https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2012.1029

Pixaby. (2019, August 26). Retrieved August 26, 2019, from https://pixabay.com/images/search/biodiveristy/

The Western Australian Biodiversity Science Institute. (2019). *eFlora of Western Australia*. Retrieved September 10, 2019, from https://wabsi.org.au/our-work/projects/eflora-of-wa/

The Western Australian Biodiversity Science Institute. (2019). *IBSA: Index of biodiversity surveys for assessments*. Retrieved September 10, 2019, from https://wabsi.org.au/our-work/projects/index-of-biodiversity-surveys-for-assessments/

integrate SUSTAINABILITY

environment safety community