Reporting template – Information for inclusion in Australia's sixth National Report to the Convention on Biological Diversity

As Australia's national focal point for the Convention of Biological Diversity, the Department of the Environment and Energy is producing Australia's 6th National Report to the Convention.

To meet our international obligations, Australia is required to report every four years on the measures we have undertaken to implement the Convention, the effectiveness of our actions and general progress against the targets we have previously set in our National Biodiversity Strategy and Action Plan, which is Australia's Biodiversity Conservation Strategy 2010-2030.

To create a holistic report which encompasses not only action taken at the Commonwealth and State levels, we are seeking your input on any case studies that have been previously prepared that we could utilise for this Report.

Case Study

If you have an existing case study/example of activities which you would like to put forward for inclusion in the report, please use the below template or if it is already freely available on the internet, please provide the link.

If you are reporting more than one case study, please duplicate the below table for each case study.

Name of activity	ClimateWatch – Citizens recording phenology of Australia's biodiversity
Location where activity is happening (State or region is fine)	Australia wide
If applicable: Which National Target(s) does the activity best contribute to?	Target 1. By 2015, achieve a 25 per cent increase in the number of Australians and public and private organisations who participate in biodiversity conservation activities. Target 10. By 2015, establish a national long-term biodiversity monitoring and reporting system.
Which Aichi Target(s) does the activity address?	**Target 1** - By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. **Target 19** -By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied. **Target 10** -By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning
Case Study text	ClimateWatch is an app-based initiative that allows all Australians the ability to observe and record seasonal changes in species. Data is validated and used by scientists and land managers to determine patterns and changes in species life cycles, changes in species relationships, the relationship with climate change, and how this can have consequences on our biodiversity. For example, a long-term study from Central Victoria has shown red ironbark forests have failed to flower at an increasingly higher rate than previously recorded. Their flowers are a vital food

	source for woodland birds, therefore likely contributing to the declines in woodland birds found in that forest (Keatley, Chambers and Beggs, The Conversation, 2015). At present there are large gaps in the information available on the patterns of life-stages of plants and animals. Most reports of phenology changes in species have come from the Northern Hemisphere (Chambers et al 2013). Through continual and increased use, ClimateWatch has aims to fill these data gaps in Southern Hemisphere data; whilst simultaneously making Australians more aware of the impacts of climate change, the importance of biodiversity and how they can contribute. Understanding the timing of phenological processes enables us to optimise the management and conservation of the natural systems humans depend upon. It better informs us of when to harvest crops, when to manage for invasive species and assess the vulnerability of species to help prioritise where we should utilise our limited conservation dollars. In this way, ClimateWatch helps build important scientific and conservation outcomes. But ClimateWatch also has significant educational outcomes too. Since 2014, ClimateWatch has been used as a powerful educational tool connecting biodiversity monitoring and citizen science to secondary schools, tertiary institutions and recently, corporate businesses. A 2017 study led by UWA researchers illustrates that the use of ClimateWatch in their first year biological coursework results in increased student interest in scientific research and environmental engagement (http://www.news.uwa.edu.au/2017110210101/research/citizen-science-research-boosts-student-interest-biology-courses). ClimateWatch is also integrated in secondary schools through its free lessons, all mapped to the Australian curriculum (http://climatewatch.org.au/for-educators, http://www.rememberthewild.org.au/school-students-blaze-trail-in-bid-to-help-tackle-climate-change/). Through these educational activities, over 10,000 tertiary students have used ClimateWatch for their undergraduate biological coursework and over 20 secondary schools actively use ClimateWatch in their syllabus. Numerous biodiversity monitoring trails have been established across the country that can be used by the general public, but also for *ClimateWatch*: *Scientist for a Day* corporate learning days. These corporate team-building events deliver 'toolkits' to participants to encourage sustainable actions relating to biodiversity and climate change. Over 75 corporate employees have engaged with ClimateWatch learning about the relevance of biodiversity to healthy ecosystems, impacts of climate change on biodiversity, how to monitor local flora and fauna for change and how to help conserve it in urban and natural landscapes. ClimateWatch builds action through local partnerships and stewardship programs. For example, partnering with Parks

	Victoria, schools and community groups utilize ClimateWatch trails to monitor impacts of climate change on plant and animals species within Parks. This information informs Parks management strategies for biodiversity. All data is collated and uploaded to the Atlas of Living database using the Climatewatch app or website. Data gathered helps us understand and manage behavioural and geographical changes to Australia's biodiversity. For example, are Australian Magpies swooping and breeding much earlier in the year? ClimateWatch data indicates so. Are invasive Asian House Geckos moving further south as the climate warms? ClimateWatch data and other research suggests so. Are Jacaranda blooming much earlier in the year? ClimateWatch data indicates so. More than 110,000 observations made by Australian citizen scientists are feeding answers to these and hundreds of other questions into the ClimateWatch database at Earthwatch Australia, collecting biological information on scales and time-lines that would otherwise not be feasible through traditional scientific research methods. With funding continuing to the end of 2019, ClimateWatch will use the next 12 months to continue engaging with Australians in biodiversity monitoring and climate change research and utilise platforms such as the 6th National Report to the Convention on Biological Diversity to illustrate how citizen science programs like ClimateWatch are helping to increase the number of individuals and private organisations participating in climate change awareness and biodiversity conservation activities.
If applicable: **Does your activity include engagement with/participation by Indigenous Australians?** **If yes, please provide details.**	Anyone, anywhere in Australia can participate in ClimateWatch. Discussions with indigenous eco-tourism companies in the Northern Territory have been made and plans to develop indigenous ClimateWatch Trails using traditional phenology calendars are of high importance to the program. While engagement in these areas is proving to be slow, small achievements have been made, where the first ClimateWatch Trail in the Northern Territory was recently established at one of Darwin's largest Parks, East Point Reserve. The ClimateWatch Trail connects local indigenous rangers to app-based technology to monitor seasonal changes in species of high conservation interest, such as the Atlas Moth (https://www.abc.net.au/news/2015-01-30/from-military-degradation-to-reintroducing-moths/6056128)

Australian Biodiversity Conservation Strategy

https://www.environment.gov.au/biodiversity/publications/australias-biodiversity-conservation-strategy

Australian Biodiversity Conservation Strategy Targets
Target 1. By 2015, achieve a 25 per cent increase in the number of Australians and public and private organisations who participate in biodiversity conservation activities.
Target 2. By 2015, achieve a 25 per cent increase in employment and participation of Indigenous peoples in biodiversity conservation.
Target 3. By 2015, achieve a doubling of the value of complementary markets for ecosystem services.
Target 4. By 2015, achieve a national increase of 600,000km^2 of native habitat managed primarily for biodiversity conservation across terrestrial, aquatic and marine environments.
Target 5. By 2015, 1,000km^2 of fragmented landscapes and aquatic systems are being restored to improve ecological connectivity.
Target 6. By 2015, four collaborative continental-scale linkages are established and managed to improve ecological connectivity.
Target 7. By 2015, reduce by at least 10 per cent the impacts of invasive species on threatened species and ecological communities in terrestrial, aquatic and marine environments.
Target 8. By 2015, nationally agreed science and knowledge priorities for biodiversity conservation are guiding research activities.
Target 9. By 2015, all jurisdictions will review relevant legislation, policies and programs to maximise alignment with Australia's Biodiversity Conservation Strategy.
Target 10. By 2015, establish a national long-term biodiversity monitoring and reporting system.

Convention on Biological Diversity and the Aichi Targets

https://www.cbd.int/sp/targets/

Aichi Targets
Target 1 - By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
Target 2 - By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
Target 3 -By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
Target 4 -By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.
Target 5 -By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
Target 6 -By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
Target 7 -By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
Target 8 -By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
Target 9 -By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
Target 10 -By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.
Target 11 -By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
Target 12 -By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
Target 13 -By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
Target 14 - By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
Target 15 - By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16 - By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.
Target 17 - By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
Target 18 - By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.
Target 19 -By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
Target 20 -By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.