

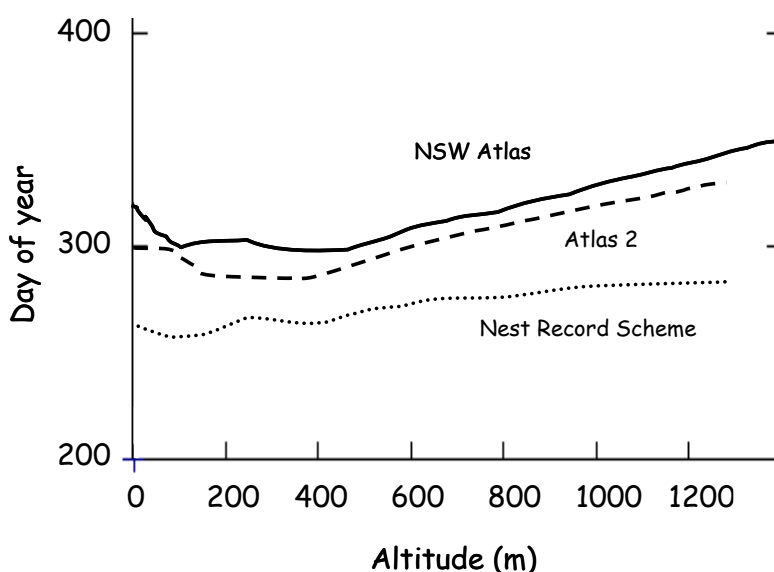
ClimateWatch

Are Australia's seasons changing?
Are our animals and plants changing with them?
What does this mean for Australia?
We don't know...yet.

In order to understand, predict and mitigate the effects of climate change on biodiversity, scientists have identified an urgent need for large-scale data gathering to assess how biological systems are responding. This is particularly pressing in Australia, where the combination of unique flora and fauna occupying a low lying, fragmented landscape will dramatically elevate extinction rates due to climate change.

Phenology is a field of science that seeks to understand the timing of natural events and their relation to climate (for example when flowers bloom or birds breed). In Europe (e.g. Nature's Calendar: www.naturescalendar.org.uk) and North America (e.g. PlantWatch: <http://www.icewatch.ca/english/plantwatch/>) phenology networks engage the public and volunteer organisations in data collection. This has great community education value and supports scientists seeking to understand the effects of climate change on species and ecosystems, and those seeking to educate.

In Australia, a few specific examples suggest the timing of natural cycles and distribution of animals are changing. Breeding in the Australian Magpie (*Gymnorhina tibicen*) is related to natural gradients in climate (altitude and latitude) and the Southern Oscillation Index (an integrated measure of climate) and this species has shown to breed later in the year as altitude increases (see Figure below).



Source: Gibbs, H. 2007. Climatic variation and breeding in the Australian Magpie (*Gymnorhina tibicen*): a case study using existing data. *Emu* 107: 284-293.

Despite the existence of many volunteer organisations in Australia that collect relevant data, combined with the high threat level and globally significant biodiversity values, no network or integrated data set to support climate change research exists. To address this, ClimateWatch (www.climatewatch.org.au) has been developed by Earthwatch Australia, in partnership with the Bureau of Meteorology and the University of Melbourne, with seed funding from the Australian Government and corporate sponsors. ClimateWatch inspires the Australian community to become citizen scientist “ClimateWatchers” and assist scientists in gathering the vast amount of data required to address the impacts of climate change on Australian biodiversity.

The ClimateWatch Science Advisory Panel, consisting of experts in biological science, has consulted extensively to create ClimateWatch’s list of common and easy to identify indicator species. Scientists expect these indicators to show a response to the changing climate and will help researchers predict climate change impacts on Australia’s unique flora and fauna. The indicator species include the Australian Magpie, Common Brown Butterfly, Silky Oak, Australian Water Dragon, Striped Marsh Frog and the Illawarra Flame Tree. Some of the indicator species are also found below.



Giant Golden Orb



Silky Oak



Grey Fantail



White-lipped Tree Frog



Australian Water Dragon

ClimateWatch allows every Australian to become a climate change scientist simply by observing and recording changes in nature. The information gathered will contribute to a leading online database for anyone studying the impact of climate on ecosystems and will help shape Australia's scientific response to climate change.

More information: www.climatewatch.org.au