

Species affected by climate change: to shift or not to shift?

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Golden bower bird: biodiversity managers are debating if and how to move species ahead of climate change. Image credit - John Manger

(PhysOrg.com) -- Relocating species threatened by climate change is a radical and hotly debated strategy for maintaining biodiversity.

In a paper published today in the journal Nature [Climate Change](#), researchers from CSIRO, University of Queensland and United States Geological Survey present a pragmatic decision framework for determining when, if ever, to move species in the face of climate change.

"As our climate changes more rapidly than species can adapt or disperse, natural resource managers increasingly want to know what adaptation options are available to help them conserve biodiversity," said co-author, CSIRO researcher and research fellow at the University of Queensland Dr Eve McDonald-Madden.

Managed relocation, also known as assisted [colonisation](#), of species involves moving plants or animals from an area that is, or will become, untenable because of climate change, to areas where there are more suitable [climatic conditions](#) but in which the plants or animals have not occurred previously.

"While the virtues of managed relocation of species are being debated by the scientific community, the reality is that it is already occurring.

"The decision-making framework we have developed shows that the best timing for moving species depends on many factors such as: the size of the population, the expected losses in the population through relocation, and the expected numbers that the new location could be expected to support.

"It would also rely on good predictions about the impact of [climate shifts](#) on a particular species and the suitability of areas to which they can move – an often difficult issue in the case of rare species because we just don't have this sort of detailed information," Dr McDonald-Madden said.

CSIRO researcher Dr Tara Martin said monitoring and learning about how potentially climate change-affected plants and animals function in their 'native' ecosystems will play a crucial role in ensuring that managed relocation plans succeed.

"Active adaptive management is important when we are unsure of what

the climatic changes are likely to be in the current habitat.

"Our framework provides managers with a rational basis for making timely decisions under uncertainty to ensure species persistence in the long-term" Dr Martin said.

"Without relocating species we are destined to lose some of our most important and iconic wildlife, but at the end of the day we also need viable ecosystems into which we can move species.

"Managed relocation is not a quick fix. It will be used in some specific circumstances for [species](#) that we really care about, but it will not be a saviour for all biodiversity in the face of climate change," Dr Martin said.

Provided by CSIRO

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