

Affects of climate change to birds worsened by housing development

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Although climate change may alter the distributions of many species, changes in land use may compound these effects. Now, a new study by PRBO Conservation Science (PRBO) researcher Dennis Jongsomjit and colleagues suggests that the effects of future housing development may be as great or greater than those of climate change for many bird species. In fact, some species projected to expand their distributions with climate change may actually lose ground when future development is brought into the picture. The study, "Between a rock and a hard place: The impacts of climate change and housing development on breeding birds in California," appears online in the journal *Landscape Ecology*.

Conservationists have long known that changing land use and development may pose a major threat to wildlife through habitat loss and degradation. Yet, many recent studies have focused solely on how the [changing climate](#) will impact species. It is now clear that focusing on only one of these threats may underestimate the actual risk to species from future environmental changes.

"We know that climate changes will cause species to shift distributions, but where a species will be able to persist into the future is also determined by the availability of good habitat," said lead author Dennis Jongsomjit. "We wanted to examine both of these major threats together to get a better sense of the role each may play on [bird populations](#). This information can help to improve management actions on the ground."

Using data collected at thousands of locations across California, the

PRBO scientists project current and future statewide distributions for 64 bird species using [climate models](#) developed at UC Santa Cruz. These climate driven projections were combined with models of future housing growth to assess the relative impacts of each. The results varied among species and across habitats. Species associated with oak woodlands, for example, were projected to see up to 80% of their losses related to housing development. Species associated with coniferous forests, on the other hand, were projected to see most of their losses related to [climate change](#), with relatively little impact from development.

"The places that are projected to undergo the greatest changes in climate aren't always the places with the greatest future development pressures, but where they coincide, species are caught between the proverbial rock and a hard place, with nowhere to go," said Dr. John Wiens, PRBO Chief Scientist.

The impacts of a changing climate on species are already being detected, and they are likely to increase in the future. The results of this study suggest that reducing the exposure of species to other stressors, such as development, may be an important strategy for adapting to climate change. To be effective, such actions will require the close cooperation of conservation practitioners and land-use planners, something that is in short supply today.

More information: D. Jongsomjit, D. Stralberg, T. Gardali, L. Salas, J.A. Wiens. 2012. Between a rock and a hard place: The impacts of climate change and housing development on breeding birds in California. *Landscape Ecology* link.springer.com/article/10.1007/s10980-012-9825-1

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