Region-specific climate modeling studied

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University of California-Santa Cruz scientists say human-caused climate change might pose an even greater than previously thought.

Impending climate change is expected to cause shifts in species habitat ranges, but the global climate modeling used to estimate such changes often fails to distinguish ecologically important features, such as mountain ranges and valleys, scientists said. But regional climate models may be able to focus on such details.

To test the difference between predictions based on such climate models, Lara Kueppers and colleagues analyzed the projected shifts in two California oak species resulting from climate changes expected during the next 100 years.

Using the regional climate model and a routine scenario of greenhouse gas emissions, the researchers determined potential future ranges of the oaks would shrink to 54 percent to 59 percent of their current range sizes. By contrast, the global climate model predicted the oaks would maintain up to 80 percent of their current range sizes.

The scientists say the results highlight the importance of using region-specific climate models whenever possible in planning conservation efforts.

The study is detailed in the online early edition of the Proceedings of the National Academy of Sciences.