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November 1, 2005

SANTA CRUZ

Climate change threatens California oaks

BY SORAYA GUTIERREZ
SENTINEL STAFF WRITER

If trends in climate change continue, the effects could endanger the area's native species, including the beloved banana slugs, researchers at UC Santa Cruz say.

Climate change is the latest threat facing California's iconic oak woodlands, and the focus of a new study to be published online this week in the Proceedings of the National Academy of Sciences and will appear in the Nov. 8 issue of the Journal.

The researchers found a drastic reduction is likely in areas in which oaks and other plant and animal species thrive.

Lara Kueppers, a postgraduate researcher at UCSC and first author of the study, said the blue oak and valley oak are an example of which species may suffer from climate change. Species more prevalent in Santa Cruz County, such as redwoods, also will feel the effects of climate change, she said: "Climate change is going to affect a lot of species."

As a result of global warming, the areas of the state where the climate is suitable for these species to grow will shift northward, and could shrink to nearly half their size, the researchers found.

Professor of Earth sciences and study coauthor Lisa Sloan said the findings focus on the importance of regional climate changes.

A warming trend has been observed since the late 19th century, according to the U.S. Environmental Protection Agency. Observations from the last century suggest an average land surface temperature has increased 0.8-1.0 degrees Fahrenheit.



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If an increase in sea surface temperatures occurs along the coast, Sloan said, there could likely be a reduction in fog, and there would be too little moisture to support the redwoods. In turn, animals that thrive around these trees, such as the banana slugs, would feel the effects.

"All this stuff you wouldn't think at first glance is connected really is," she said.

The researchers used global and regional climate models to project what California's climate may be like in the final decade of the 21st century. If changes are not made for ongoing emissions of greenhouse gases, they predict, various species are likely to shift because of climate change.

Valley oak grows on deeper soils along rivers and streams, particularly in the Central Valley. Blue oak is found in Santa Clara and Salinas Valley. Both species are sensitive to temperature and rainfall, and don't occur naturally outside the state.

Tim Hyland, environmental scientist with the State Parks department, said the study is certainly a concern, not only for oak species but for the entire ecosystem.

"All Californians are affected by the degradation of natural communities," he said.

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