



*Effects of climate  
change on the birds  
and bees ... and  
trees: Part 1*

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Scientists are studying the effects of climate change on many species. It turns out there are a lot of bird studies and a few bee studies. Tree studies involve both computer modeling and direct observation.

Global climate change has accelerated more rapidly in recent years than natural progression projections indicate. I'm not debating the causes of climate change. Rather, I'm interested in the possible effects on our environment in my lifetime.

The breeding ranges of North American birds have shifted northward over the last 30 years according to Alan Hitch, a wildlife ecologist at Auburn University. This coincides with a period of global temperature increase. The results are similar to studies conducted in Great Britain and Europe, indicating the changes extend beyond North America.

The pine siskin, which lives in our area, is one of the many species studied by the SUNY College of Environmental Science and Forestry. They studied birds in New York and found that in the last three decades the pine siskin's boundaries have extended further north by as much as 40 miles and the southern boundary has also moved north.

"We've been coming out of an ice age for thousands of years so you would expect all species to be moving northerly, but it's the rate of movement that concerns us," said Annie Woods of SUNY. "It's accelerating. All animals need to be ready to adapt but birds are highly mobile. They really have the ability to switch their home ranges and their habitat. It's a really good group of species to study because they can do that."

According to Hitch, changes in breeding range raises questions about whether these changes could be detrimental to some species. Consider mountain birds. "High-elevation species are essentially living on islands where every incremental increase in temperature is dramatically shrinking their territory," said Walter Jetz of Yale University. "Our global projections pinpoint hundreds of bird species in peril and often with nowhere to go." As temperatures warm, scientists have found that mountain species respond by shifting to higher and cooler elevations. While some species can move to neighboring mountains, bird species on isolated mountain systems, with nowhere upward to migrate, are the most threatened.

Bees are also affected by climate change. A 17-year long Canadian study links the decline of bumblebees to climate change. The study was conducted in the Rocky Mountains where flower growth was not influenced by human activity or pesticide or herbicide use. James Thomson, University of Toronto, studied wild lilies and found a mismatch between the times when flowers open and when bees emerge from hibernation.

Wayne Esaias, beekeeper and former NASA climate scientist, showed that the early blooming flowers, which most honeybees rely on to break their winter fast, are blooming two weeks earlier in Maryland than normal. According to an article in the John Hopkins Magazine, those first blooms are also the most productive, usually the time when honeybees bring home the most nectar.

While there needs to be more research in this area (and Esaias is trying to make that happen), both studies mentioned indicate that the bees and flowers are out of sync. Flower blooming is apparently responding more quickly to temperature changes than bee hibernation. This installment of Alamosa Trees considered the birds and bees. The next column will discuss the impact of climate change on trees.

*"The scientific evidence is clear that climate change is real, human-caused and a serious threat to communities across America. The erosion in both public concern and public trust about global warming should be a clarion call for people and organizations trying to educate the public about this important issue."* Edward Maibach, director of the Center for Climate Change Communication at George Mason University