

## Massachusetts Butterfly Populations' Shifting Likely Due To Climate Change, Study Shows

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This March 23, 2011 file photo shows a dead Karner Blue butterfly in a lab in Concord, N.H.

By Jason McLure

Aug 21 (Reuters) - The devastation of native cold weather butterfly species in Massachusetts and the arrival of southern subtropical species is likely tied to climate warming and signals a massive shift in the butterfly population of the U.S. East Coast, a new study shows.

The research, published in the current issue of the journal *Nature Climate Change*, shows 17 of 21 species of butterflies whose habitat is centered north of Boston have declined since 1992 - some by as much as 90 percent.

Meanwhile 12 species of southern butterflies that were rare or not reported in the state in the late 1980s have seen their populations grow significantly. The population of one species that is found as far south as Florida and Texas, the frosted elfin, is estimated to have increased its numbers 1,000 percent since the early 1990s.

"It suggests the entire butterfly fauna is shifting its position northward on the eastern seaboard of North America," Greg Breed, a Harvard University researcher and co-author of the study, told Reuters on Tuesday.

The study drew on records of 19 years of sightings by the Massachusetts Butterfly Club, an organization of amateur butterfly enthusiasts.

Breed said researchers had expected to find that urbanization and changing land use patterns in Massachusetts had the greatest effect on changes in the species of butterflies found in the state.

Instead they were surprised to find that changes were much more associated with the climate and geographic ranges of the insects. Northerly-ranging butterfly species that spend the winter as eggs or larvae were among the most affected, perhaps because they are more susceptible to dehydration from warmer temperatures and declining snow cover, the researchers said.

"You have all these southern butterflies that are shifting northwards and these northern butterflies are going extinct in Massachusetts because it's probably too warm for them," said Breed.

Average temperatures in Massachusetts have increased by about 3.6 degrees Fahrenheit (2 degrees Celsius) since 1900. (Editing by Barbara Goldberg)

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