

Study finds two billion birds migrate over Gulf Coast

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Credit: Kyle Horton/Cornell Lab of Ornithology

A new study combining data from citizen scientists and weather radar stations is providing detailed insights into spring bird migration along the Gulf of Mexico and how these journeys may be affected by climate change. Findings on the timing, location, and intensity of these bird movements are published in the journal *Global Change Biology*.

"We looked at data from thousands of eBird observers and 11 [weather radar](#) stations along the Gulf Coast from 1995 to 2015," says lead author Kyle Horton, an Edward W. Rose Postdoctoral Fellow at the Cornell Lab of Ornithology. "We calculated that an average of 2.1 billion birds crosses the entire length the Gulf Coast each spring as they head north to their breeding grounds. Until now, we could only guess at the overall numbers from surveys done along small portions of the shoreline."

eBird is the Cornell Lab's worldwide online database for bird observation reports. Sightings from [bird watchers](#) helped researchers translate their radar data into estimates of bird numbers. Weather radar detects birds in the atmosphere in a

standardized way over time and over a large geographical area.

The radar data reveal when birds migrate and what routes they take. The timing of peak spring migration was consistent over 20 years along the 1,680-mile coastline. But the researchers found that the 18-day period from April 19 to May 7 was the busiest—approximately one billion birds passed over the Gulf Coast in that time span. Not all locations were equally busy, with key hotspots showing significantly higher levels of activity.

The highest activity, with 26,000 birds per kilometer of airspace each night, was found along the west Texas Gulf Coast," says Horton. "That region had 5.4 times the number of migrants detected compared with the central and eastern Gulf Coast from Louisiana to Florida." The data show Corpus Christi and Brownsville as having the highest level of migration traffic along the western coast of Texas.

Knowing where and when peak migration occurs means efforts can be made to turn off lights and [wind turbines](#), which are known threats to migratory birds.

Migration timing is also critical for birds. Although migration has evolved in the past as climates changed, the current rate of change may be too rapid for birds to keep pace. This study shows that the earliest seasonal movements are starting sooner, advancing by about 1.5 days per decade, though peak activity timing hasn't changed, which may be cause for concern. These findings provide important baseline information that will allow scientists to assess the long-term implications of [climate change](#) for [migratory birds](#).

"If [birds](#) aren't changing their migration timing fast enough to match the timing for plants and insects, that's alarming," Horton says. "They may miss out on abundant resources on their breeding grounds

and have less reproductive success."

Scientists from the Cornell Lab of Ornithology, the University of Oxford, the Smithsonian Migratory Bird Center, the University of Delaware, and the University of Oklahoma conducted this research.

More information: Kyle G. Horton et al, Holding steady: Little change in intensity or timing of bird migration over the Gulf of Mexico, *Global Change Biology* (2019). [DOI: 10.1111/gcb.14540](https://doi.org/10.1111/gcb.14540)

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