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Climate change has endangered California's Western grebes | The Sacramento Bee

The courtship dance of Clark's grebes, which sometimes involves three birds, launches breeding and nesting at Clear Lake, one of California's primary summer habitats for grebes. (Floyd Hayes/Redbud Audubon)

CALIFORNIA FORUM

Is an iconic bird of California heading for its last dance?

BY JANE BRAXTON LITTLE
jblittle@dyerpress.com

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A pair of Western grebes floats across Clear Lake, nodding and bobbing their stylish black-and-white necks in an elaborate time-honored ritual. Suddenly they rise in unison out of the water, rushing across the lake surface in an aquatic pas de deux.

The courtship dance of the Western grebe is one of nature's most eloquent displays. Today it faces an uncertain future.

Every spring Western and Clark's grebes migrate from the open ocean off the San Francisco coast to Clear Lake and other inland waters, where they breed, nest and rear their young before flying back to the Pacific for the winter. These lakes are changing as less precipitation falls to fill them.

Declining rainfall, increased temperatures and other climate changes have some scientists predicting that grebes will lose more than 50 percent of their summer breeding habitat by 2050. By 2080, as much as 96 percent of the lakes where they now breed will be so altered they will be unsuitable for grebe nesting, according to a seven-year investigation by the National Audubon Society. Of the 588 North American bird species Audubon studied, grebes join the more than half likely to be in trouble.

"Unless new habitat comes along, they are climate endangered," said Ariana Rickard, Audubon California's chapter network director.

Instead of waiting for that dire outcome, scientists are gathering information that could contribute to grebes' future. They are tracking reproduction at Clear and Eagle lakes, Lake Almanor and Thermalito Afterbay, which support 76 percent of the total number of nesting grebes in California – and 25 percent of the world population. The 10-year project is designed to identify threats and reduce the impact of human interference on breeding grebes.

Maintaining high water levels seems key to successful reproduction. At Clear Lake in 2016, when the lake was brimming, monitors recorded the most chicks ever observed: 4,993 nests in 17 colonies. In contrast, Eagle Lake had no breeding grebes between 2012 and 2016, when it reached its lowest level in 140 years. Then there's the anomaly: Thermalito was full last year but the average population of 500 birds crashed to fewer than 200. "Where did that population go?" said Maureen Morales, Altacal Audubon grebe project coordinator.

As precipitation declines at Clear and Eagle lakes – the largest natural lakes wholly within California – pressure is mounting on managers at Almanor and Thermalito, designed for hydroelectric power production and water sales. At Thermalito, the water level depends on the price of water; at Almanor it depends on consumer demand for electricity. In 2016 grebes abandoned 701 nests at Almanor when Pacific Gas & Electric Co. suddenly dropped the reservoir level mid-way through the 23-day nesting period.

Given these ups and downs, wildlife managers are understandably concerned. As less water becomes available overall, rising human demands may well send grebes the way of the Delta smelt.

And there are other worrisome signs. Grebes at Clear Lake nested earlier much earlier in 2015 than any previous year, said Floyd Hayes, a biology professor who leads the Redbud Audubon monitoring team. Monitors at Lake Almanor recorded similar observations. Earlier egg-laying and migration can throw species out of whack with the plants and animals they depend upon, disrupting relationships among prey and predator. The ultimate consequences of these shifts are unpredictable but are likely to alter the functioning of most ecosystems the world over, said Teresa Arrate, development director at Plumas Audubon.

The Audubon report's grim alarm over grebes and other bird species may serve as a saving bell. It defines the climate conditions birds need to survive, then maps where those conditions will be found in the future as the Earth's climate responds to increased greenhouse gases. That information, combined with the 10-year grebe study, should help scientists understand the shifting patterns and know which places will become even more important to conserve as the planet warms.

Along with dependence on high water levels, the constant emerging from the grebe study is population fluctuations. Last year that brought a welcome surprise: After six seasons without producing a single chick at Eagle Lake, monitors recorded 2,272 adult grebes and 1,556 chicks. The courtship dance survives – at least for now.

Jane Braxton Little, a freelance writer, covers science, natural resources and rural Northern California from Plumas County. Contact her at www.janebraxtonlittle.com or on Twitter @JBraxtonLittle.