

Western Ecological Research Center

Publication Brief for Resource Managers

Release:

March 2004

Contact:

Dr. John Y. Takekawa

Phone:

707-562-2000

Email:

john_takekawa@usgs.gov

San Francisco Bay Estuary Field Station, USGS Western Ecological Research Center, P.O. Box 2012, Building 505, Azuar Dr. and I St., Vallejo, CA 94592

Winter Distribution and Survival of a High-Desert Breeding Population of Canvasbacks

The southernmost major breeding area of canvasbacks is located at Ruby Lake National Wildlife Refuge, Nevada, in the high desert of the western Great Basin. USGS scientist Dr. John Takekawa, University of Wyoming professor Dr. James Lovvorn and graduate student Kammie Kruse, and refuge biologist Jeffrey Mackay conducted band analyses as part of studies examining this unique breeding population. They determined winter distributions, recovery rates, and survival for canvasbacks banded in Nevada from March to November 1968–2000. Results of this study are reported in a recent issue of *The Condor*.

Winter recovery distributions did not differ by sex or age, but differed between direct recoveries (same year as banding) and indirect recoveries (after year of banding), indicating variable site use between years. Of direct band returns (October–March), 92 % were from the Pacific Flyway and 56 % were from California alone. In California, recovery distributions shifted from southern California and the San Francisco Bay estuary in the 1970s to the Central Valley in the 1980s and 1990s. In the 1990s, their use of the San Joaquin Valley increased dramatically, and there were no recoveries in San Francisco Bay, historically the major wintering area for canvasbacks in the Pacific Flyway.

Adult and juvenile survival decreased by 24 % between the 1980s and 1990s. Ruby Lake canvasbacks exhibited weaker fidelity to wintering sites than canvasbacks wintering on the Atlantic and Gulf coasts. Moreover, no major concentrations occurred during fall migration, unlike patterns in eastern North America. Shifts in distribution and survival may correspond to effects of El Niño weather on habitat conditions in Nevada and San Francisco Bay, and to major improvements in

Management Implications:

- These canvasback distribution changes, especially the dramatic declines in San Francisco Bay and the Imperial Valley in the 1990s, suggest major changes in habitat conditions, hunting effort, or both.
- Canvasbacks that breed in the western Great Basin migrate across arid intermountain regions to winter in California and Mexico and use a number of small, scattered wetlands that vary widely in annual availability. To conserve these populations, attention must be paid to water-use practices over broad areas in the context of an extreme and highly variable climate.
- With expanding human use of water in the western United States, wintering areas in Mexico may become increasingly important to canvasbacks; however, these wetlands are poorly known and largely uncharacterized.

water delivery and wetland restoration in the Central Valley. Canvasbacks that use widely distributed and variable habitats may be good indicators of the effects of changing climate and water-use practices on water-birds throughout this arid region.

Kruse, K. L., J. R. Lovvorn, J. Y. Takekawa, and J. Mackay. 2003. Winter distribution and survival of a high-desert breeding population for canvasbacks. Condor 105:791–804.