

# Environmental processes, water quality degradation, and decline of waterbird populations in the Rio Cruces Wetland, Chile

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Changes in wetland ecosystems may result from the interactions of endogenous processes with exogenous factors such as environmental fluctuations and anthropogenic influences. Since mid-2004, the Rio Cruces wetland, a Ramsar site located in southern Chile (40°S), exhibited a sudden increase in mortality and emigration of the largest breeding population of Black-necked swans in the Neotropics, a massive demise of the dominant macrophyte *Egeria densa* (the main food of swans and several aquatic birds), and a seasonal appearance of turbid waters. We compared annual variation in rainfall, river flow, and radiation over the period 2000-2005 to assess the role of environmental factors on these wetland changes. Those factors, with the exception of a decrease in river flow during 2004, did not show significant inter-annual differences. However, when comparing Landsat images, we found in the visible and near-infrared spectrum, a corresponding increase and decrease in water reflectance for 2005 with