



Guadalupe-Blanco River Authority
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Major Research Gives New Insights into the Needs of Whooping Cranes

Texas A&M Scientists Release Results of 7-year, \$2 million-Study

For More Information

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SEGUIN, TX - At a joint meeting of the boards of directors of the Guadalupe-Blanco River Authority and the San Antonio River Authority on Wednesday, April 29, 2009, researchers from Texas A&M University presented the results of a seven-year, \$2 million study known as the San Antonio Guadalupe Estuarine System (SAGES) study.

The report, "Linking Freshwater Inflows and Marsh Community Dynamics in San Antonio Bay to Whooping Cranes," (executive summary) was prepared by Dr. R. Douglas Slack, Dr. William E. Grant, Dr. Stephen E. Davis III, Dr. Todd M. Swannack, Dr. Jeffrey Wozniak, Danielle M. Greer, and Amy G. Snelgrove.

The Texas A&M team investigated the diet, behavior and habitat of whooping cranes at Aransas National Wildlife Refuge (ANWR) on the Texas coast around San Antonio Bay, and evaluated the relationship between freshwater inflows feeding San Antonio Bay and the health of its endangered whooping crane population. The population of whooping cranes at ANWR increased from 133 in 1994 to 270 this last winter in 2008 before 23 of them died over the winter.

"What the research showed is that the whooping crane diet and the impact of inflows and other stimuli on whooping cranes is very complex," said Slack, professor and associate department head of Undergraduate Programs, Department of Wildlife and Fisheries Sciences at Texas A&M.

"Prior to this study, there was little detailed science about the effects of freshwater inflows on whooping crane ecology," explained Dr. Lee Wilson, president of Lee Wilson and Associates, an environmental consulting firm that was retained to ensure the study's independence. "The premise was that low fresh water inflows would increase bay salinity, adversely impact blue crabs, and lead to increased crane mortality." One of the goals of the Texas A&M study was to evaluate this premise, but also to build a more robust overall model of crane habitat and feeding."

The SAGES research, however, indicate that while in the salt marsh, whooping crane diet consisted of wolfberry fruit, blue crabs, clams, snails, insects, fiddler crabs, snakes and fish. Wolfberry fruit and snails and insects were consumed in the highest quantities and required the least effort to obtain by the cranes during foraging.

Additionally, the research showed that while blue crabs were the most optimal food for the cranes in relation to protein, clams proved to be a substantial source of biomass. An adverse effect of salinity on crabs and cranes was not observed. However, it is recognized that more research is needed to fully understand the bay and marsh ecosystems.

In summarizing the study, researchers commented that in nearly all conditions simulated, the food supply for whooping cranes appears to be more than adequate to meet their energy needs. "During extended droughts, there are environmental changes to the landscape, and some of these are related to fresh water inflows. Whooping cranes will be affected under these extremes as are other wildlife," noted Dr. Todd Votteler, GBRA project manager for the study.

In an effort to secure the study's objectivity and provide peer review support to the research team, Wilson recruited a diverse group of professionals to serve on the SAGES Scientific Advisory Panel. Members and their affiliations in 2003 and 2004 included Dr. Kenneth Rose and Dr. Robert Twiley, Louisiana State University; Dr. Fred Sklar, South Florida Management District; Dr. Edward

Rykiel, Washington State University; Tom Stehn, U.S. Fish and Wildlife Service; Dr. Felipe Chavez-Ramirez, Platte River Maintenance Trust, Inc.; Dr. Thomas Minello, National Marines Fisheries Service; Vince Guillory, Louisiana Department of Wildlife and Fisheries; Dr. Daniel Childers, Florida International University; Dr. Denise Reed, University of New Orleans; Brian Johns, International Whooping Crane Recovery Team, Canadian Wildlife Service; and Tom Wagner, Texas Parks and Wildlife Department.

Slack estimated thousands of hours of fieldwork were completed over the seven years of research. Similar amounts of time were spent completing work in the laboratory, university offices and computer labs at College Station. In addition to the study authors, participants included two post-doctoral scientists, eight doctoral students, six masters students and more than two dozen undergraduate students.

The SAGES study was primarily funded by the Guadalupe-Blanco River Authority (GBRA) and San Antonio River Authority (SARA). The sponsors were interested in assessing impacts from the Lower Guadalupe Water Supply Project (LGWSP) in which GBRA water rights would have been leased to San Antonio Water System (SAWS) and SARA and water would have been diverted from near GBRA's Salt Water Barrier in the lower basin, which is about 11 miles from San Antonio Bay. In considering whether the water diversion could affect the bay, the entities involved in the LGWSP initiated the SAGES study through Texas A&M University's Department of Wildlife and Fisheries Sciences.

When the LGWSP was canceled in 2006, SAWS discontinued its funding of the SAGES study. SARA and GBRA continued to fund the study, recognizing its importance and the potential for other water supply projects and future growth and economic development needs. Other monetary funding and in-kind support for the SAGES study was provided by the Texas Water Development Board, the U.S. Fish and Wildlife Service, and the U.S. Geological Survey.

Additionally, SARA and GBRA entered into an agreement with researchers with the University of Texas at Austin to study the San Antonio Bay estuary system [known as the Estuarine Responses Project (ERP)], headed by George Ward, research scientist and associate director of the Center for Research in Water Resources.

"Without having other partners, GBRA and SARA could not afford to fund both studies simultaneously," Bill West, GBRA general manager said.

"Both of these studies will be important to consider as state officials try to determine requirements for the environmental flows process, which was established in Section 2 of the omnibus water bill (Senate Bill 3) from the 2007 Legislative Session," added Suzanne B. Scott, SARA general manager.

The GBRA was established by the Texas Legislature in 1933 as a water conservation and reclamation district. GBRA provides stewardship for the water resources in its 10-county statutory district, which begins near the headwaters of the Guadalupe and Blanco rivers, ends at San Antonio Bay, and includes Kendall, Comal, Hays, Caldwell, Guadalupe, Gonzales, DeWitt, Victoria, Calhoun, and Refugio counties.

SARA is entrusted to protect and preserve its shared water resources and, together with its partners, pursue innovative solutions that will serve generations to come. SARA's district spans Bexar, Goliad, Karnes and Wilson counties.

A copy of the SAGES report will be available at www.gbra.org and www.sara-tx.org.