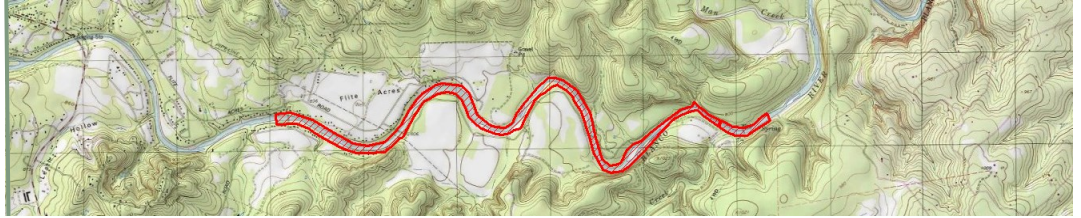


The TXNDD Report



Ben Hutchins: Karst Invertebrates

Over 20% of Texas is classified as karst (a landscape in which dissolution of bedrock has created features such as caves, pits, springs, and sinkholes). A suite of rare and unusual subterranean vertebrates and invertebrates depend on the dark, relatively stable, low-energy conditions afforded by these subterranean habitats. Many of these species are known from only a handful of specimens, or even from a single cave, and because of their small ranges, and low reproductive potential (an adaptation to low-energy environments), these species are inherently vulnerable to disturbances and habitat loss. Along the Balcones Escarpment, which roughly corresponds to the I35 corridor between San Antonio and Austin, rapid urban development is putting increased pressure on both terrestrial and aquatic subterranean habitats and the species that call them home. As a result, 12 cave- or spring-obligate invertebrates have been listed as federally endangered and an additional 179 cave- or spring-obligate invertebrates across the state have been identified as Species of Greatest Conservation Need (SGCN) by the Texas Parks and Wildlife Department. This represents nearly 40% of all of Texas' SGCN invertebrates.

Ben Hutchins began working for Texas Parks and Wildlife's nongame and rare species program in February, 2014, and with an academic and professional background studying the ecology and conservation of cave and karst aquifer species, he has a keen interest in some of Texas' most imperiled and poorly known species. For the majority of these species, effective management is hindered by a lack of basic information such as population size, range extent, and occupancy. Detectability is low for most karst invertebrates. Caves, springs and wells where animals can be collected represent windows into a potentially vast and three-dimensionally complex habitat.

To help fill in some of our knowledge gaps, Ben Hutchins is employing a variety of sampling techniques to gain a better understanding of where species occur. In addition to traditional visual searches, baited traps, and nets: all standard tools in the karst biologist's toolbox, Ben uses some less traditional methods. He recently began using a Bou-Rouch pump to sample for groundwater species that may reside just beneath the river bottom in many of Texas' spring-fed streams. This tool, which consists of a hollow steel spike and hand-driven piston pump is hammered several feet into the gravels of streams to pump out groundwater and the animals that live there. Although this sampling device has been used for decades in Europe, it is uncommon in North America.

Ben is also teaming up with Andy Gluesenkamp, TPWD's state herpetologist, to look for terrestrial cave animals such as spiders, beetles, and isopods, in some unlikely places. Manmade water wells are obvious places to look for cave adapted aquatic species, but these wells can also intersect air-filled caverns that are home to terrestrial, cave organisms. Ben and Andy are developing trapping methods to collect these rare species from these voids that would be completely inaccessible otherwise.

Through these efforts, Ben is slowly working to piece together the conservation status of Texas' subterranean fauna. He is working closely with taxonomic experts to facilitate and participate in the identification and, in some cases, description of these species. These data are then communicated to the Texas Natural Diversity Database (TXNDD) where they will be used to inform management decisions and to prioritize additional conservation efforts.



Ben Hutchins examining invertebrates in a cave at Hill Country SNA.

Sue Reilly & Laura Zebehazy: The TPWD Transportation Staff

Sue Reilly and Laura Zebehazy joined the Wildlife Diversity staff at TPWD in 2014. Collectively known as the TPWD Transportation Staff, Sue is the Transportation Assessment Liaison and Laura is the Transportation Conservation Coordinator, and both are within the Wildlife Habitat Assessment Program. The Texas Department of Transportation (TxDOT) provides funding for these TPWD positions under the 2013 Memorandum of Understanding (MOU) between the two agencies. Under the MOU, TPWD reviews TxDOT projects to provide recommendations to avoid and minimize adverse impacts of transportation projects on the state's fish and wildlife resources. Transportation project reviews were previously completed by the other five biologists in the Wildlife Habitat Assessment Program. Due to the establishment of the TPWD Transportation Staff positions, the other Wildlife Habitat Assessment Program biologists can focus their time and effort on reviewing other development projects such as pipelines, liquified natural gas (LNG) facilities, lignite mines, wind farms, and cell towers.

Sue and Laura review TxDOT projects ranging from road widening to county road bridge replacements to major roads in new locations. The TXNDD provides data that are invaluable for these reviews. During project planning, TxDOT considers TXNDD records within a 1.5-mile buffer and a 10-mile buffer of the project footprint, and this information is used to evaluate habitat and species impacts by the proposed transportation project. If the project meets certain "triggers" as defined in the MOU, TxDOT sends project documentation to TPWD for coordination. The TXNDD records that are near, or within, the project area can indicate that potentially suitable habitat is present in the area for Species of Greatest Conservation Need (SGCN), which is one factor that can trigger project coordination with TPWD. Additionally, records of remnant native vegetation communities in the project area trigger coordination under the MOU. Another aspect of the MOU is that it requires TxDOT and TPWD to jointly train TxDOT staff on the use of the TXNDD as it relates to transportation projects. It also requires that TxDOT provide completed reporting forms for observations of tracked SGCN occurrences within TxDOT project areas to the TXNDD. The TxDOT does numerous surveys statewide for SGCNs, and their data are a valuable addition to the TXNDD and may be used to inform conservation decisions.

Along with completing reviews of individual TxDOT projects, Sue and Laura also participate in agency scoping meetings on future large transportation projects, provide comments on regional and nationwide planning efforts that are evaluating environmental factors and looking for additional ways to minimize overall transportation impacts on natural resources, and develop conservation projects that will involve TxDOT. Recently, Sue and Laura have been working with TxDOT on revising the programmatic agreements (PA) associated with the MOU, particularly the PA for best management practices (BMPs) for road projects. With the assistance of the TPWD Wildlife Diversity Program taxa biologists the revised programmatic agreement will include BMPs to minimize impacts to 138 SGCN animal species, all SGCN plant species, water quality, and other important natural resources. Sue and Laura will assist in training TxDOT staff on how to use the TXNDD during environmental reviews in August, and they will also attend the TxDOT Environmental Conference in September. Because TxDOT projects occur throughout the state and may potentially impact many species and habitats, the TPWD Transportation Staff cooperate with numerous non-governmental organizations and agencies, including Bat Conservation International, the U.S. Fish and Wildlife Service, and the Botanical Research Institute of Texas. Sue and Laura are constantly researching advancements in road ecology (a new subdiscipline of ecology that focuses on understanding the interactions between road systems and the natural environment), additional BMPs to minimize construction impacts, and potential conservation projects.

As the motto goes, everything is bigger in Texas, and that includes the organizational structure of TxDOT. There are 25 TxDOT districts across the state that are responsible for planning, designing, building, operating, and maintaining the state transportation system, and each district has their own suite of environmental concerns and issues. Sue and Laura assist each of these districts and their staff as well as the staff at the TxDOT Environmental Division based in Austin.

In order to provide comprehensive protection and consideration of the state's natural resources when working with TxDOT, Sue and Laura appreciate any efforts made by other TPWD employees to include them in agency discussions and planning efforts with TxDOT (unless it is for improvements to TPWD properties, which are performed under a different MOU with the Infrastructure Division). Please keep them up-to-date if you are working with TxDOT on species or habitat issues or if you would like to work with TxDOT on a conservation project that will offset impacts from transportation projects.

TPWD Transportation Staff:**Sue.Reilly@tpwd.texas.gov** 512-389-8021**Laura.Zebehazy@tpwd.texas.gov** 512-389-4638

Sue Reilly & Laura Zebehazy: The TPWD Transportation Staff (continued)

Laura Zebehazy moved to Austin, Texas in 2005, and her first job was working for Travis County on the Balcones Canyonlands Preserve as a natural resources specialist. She completed preserve management tasks such as endangered and threatened species surveys, invasive plant species removal, habitat restoration, and public education programs. Before coming to TPWD, she also worked for a private consulting firm that focused on conservation planning and endangered species issues. Laura earned her B.A. in Environmental Studies with a concentration in Wildlife Biology from Warren Wilson College in Asheville, North Carolina and her M.S. in Forest Wildlife Ecology at Clemson University in Clemson, South Carolina. Her thesis evaluated forest bird community responses to prescribed fire and fire surrogates in the Piedmont ecoregion of South Carolina. Between completing her undergraduate degree and starting her graduate degree, Laura traveled the country as a seasonal wildlife biologist and worked with neotropical bird migrants in Wisconsin and Minnesota, northern spotted owls in California, bobwhite quail in Mississippi, and bobwhite quail predators, such as red and grey fox and raccoons, in North Carolina.




Photo of Laura Zebehazy assisting HawkWatch International in 2012, by releasing a banded adult Cooper's Hawk. She is at the long-term monitoring site in Cibola National Forest, Manzano Mountain Wilderness, NM.



Photo of Sue Reilly showing interested onlookers about native Texas aquatic species.

Sue Reilly earned her B.S. in Biology (Ecology, Evolution, and Conservation) at the University of Texas at Austin and her M.S. in Biology at Texas State University, with a thesis on systematics of short-tailed shrews in Texas. She has previously worked for the Texas Commission on Environmental Quality in the Water Quality Division, and in the Environmental Division of TxDOT.

<p>Executive Director Carter P. Smith</p> <p>Editor, <i>TXNDD Report</i> Stephanie L. Shelton</p>  <p>Life's better outside.®</p>	<p>COMMISSION</p> <p>T. Dan Friedkin, Chairman Houston</p> <p>Ralph H. Duggins, Vice-Chairman Fort Worth</p> <p>Dan Allen Hughes, Jr. Beeville Bill Jones Austin James H. Lee Houston Margaret Martin Boerne S. Reed Morian Houston Dick Scott Wimberley</p> <p>Lee M. Bass, Chairman-Emeritus Fort Worth</p>	<p>TEXAS PARKS AND WILDLIFE DEPARTMENT MISSION STATEMENT <i>"To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations."</i></p> <p>For information on what we track, data requests, and data submission: http://tpwd.texas.gov/txndd/</p> <p>Bob.Gottfried@tpwd.texas.gov 512-389-8744 Sandy.Birnbaum@tpwd.texas.gov 512-389-8729 Stephanie.Shelton@tpwd.texas.gov 512-389-8723 Laura.Dugan@tpwd.texas.gov 512-389-8731</p>	<p>FOR MORE INFORMATION All inquiries: Texas Parks and Wildlife Department, 4200 Smith School Rd., Austin, TX 78744, telephone (800) 792-1112 toll free, or (512) 389-4800 or visit our website for detailed information about TPWD programs: www.tpwd.texas.gov</p> <p><small>©2015 Texas Parks and Wildlife Department PWD LF W7000-2060 In accordance with Texas State Depository Law, this publication is available at the Texas State Publications Clearinghouse and/or Texas depository Libraries.</small></p>
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