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Wildlife Diversity Program
Science for Stewardship

The Texas Natural Diversity Database
Wildlife Diversity Program, Texas Parks & Wildlife Department

NatureServe

The TXNDD Report

Data Highlights: Biotics 5 Conversion, One Year Later

On December 17th, 2014 the TXNDD officially converted to the newest version of our database software, Biotics 5. With just over one year of experience with the software it seems like a good time to look back at the previous year, review the changes that have occurred, discuss the lessons learned along the way, and preview the modifications that are on the horizon for the TXNDD.

In preparing for the conversion from Biotics 4 to Biotics 5 there was one major task that needed to be completed, incorporating the information from the Texas Chapter of The Nature Conservancy (TX-TNC) database into the TXNDD. This monumental task not only involved bringing in all of the data that were unique to TX-TNC, but comparing records that were common to both TX-TNC and the TXNDD to ensure that no data were lost in the reconciliation. When this process was completed, the TXNDD had 1,401 new Element Occurrence (EO) records for Species of Greatest Conservation Need (SGCN). With the database reconciliation complete, TXNDD staff were free to focus on preparing the existing data and the spatial base layers for Biotics 5.

Biotics 5 is a database that is maintained "in the cloud" and is hosted and maintained by a vendor, NatureServe. It also represents a significant upgrade in GIS software, taking advantage of current ESRI technology rather than relying on a 20 year old GIS program like the previous version of the database. Once the data were prepared, exported from the existing database, and readied to ship off to NatureServe we ceased production in Biotics 4. The final database instance for Texas data was sent to NatureServe's Central Database, and the TXNDD staff waited for Biotics 5, and our data, to "go live" in its new online environment. In just a few days we received the message that Biotics 5 was ready and the newest chapter for the TXNDD began.

As with every software upgrade, be it database software or the newest version of Microsoft Office, there is an adjustment period. This was true especially for the TXNDD staff that had been working the longest in Biotics 4. Fundamentally, the database hasn't changed, but the process for performing certain tasks has; buttons are in different places, labels are different, and the procedure for completing basic tasks have changed, sometimes significantly. In some cases, certain functionality was lost completely. These transformations were made to take advantage of advances in technology since the development of Biotics 4, but that didn't make it any less confusing in the beginning.

The biggest adjustment occurred on the GIS portion of the database. In Biotics 4, we were using a full version of ArcView that was loaded on a local computer. With Biotics 5 being a cloud based application, we no longer have the luxury of the database consisting of a full version of ArcGIS with incorporated tabular data. Despite Biotics 5 being well designed for data entry and export, TXNDD staff were comfortable using Biotics to prep and manipulate the data before entering it. We now prep data for entry in ArcGIS 10.x before bringing it into Biotics 5.

Once past the learning curve, the design of the database and the software advances have resulted in more efficient mapping and tabular data entry that is at least as efficient as it was in Biotics 4. There is also promise of greater efficiency on the horizon. While we don't expect to always keep the pace set in June, the TXNDD staff are now fully comfortable with Biotics 5, and the efficiency of data entry is only limited by the complexity of the datasets being entered.
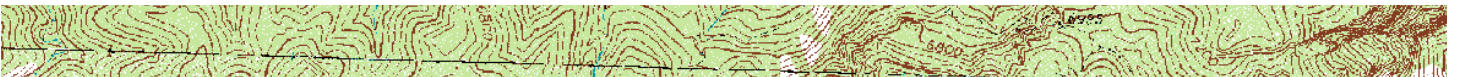
Since the transition, we have continued to answer requests for information while maintaining our high standards for accuracy and response time. In fact, despite needing to work out a new process of responding to information requests, TXNDD staff were able to respond

to more information requests in FY15 (**1,600+**) than in any of the three previous years.

The most prominent development resulting from the conversion to Biotics 5 is being experienced by TPWD employees that do not work directly on the database (non-TXNDD staff). The database's web browser interface means that the Wildlife Diversity Program biologists and Wildlife Habitat Assessment (WHAB) staff have unprecedented access to TXNDD data from any work location because all that is needed is an internet connection. After a two-day long TXNDD Training session conducted by TXNDD staff, and with TXNDD staff ready to assist as needed, the Wildlife Diversity Program biologists and WHAB staff have the basic skills necessary to search and retrieve TXNDD data as needed. More than simply querying data, Wildlife Diversity Program biologists are also entering new data into the database, and updating species conservation ranks. They are also analyzing information for SGCN species to ensure that TPWD efforts are being allocated to the species with the greatest conservation need. With the extra effort of the Wildlife Diversity Program biologists, the TXNDD staff have more time to concentrate on larger, more complex datasets. All of these changes are part of an effort to ensure that the TXNDD is as complete and accurate as possible.

With the initial TXNDD Training successfully completed, TXNDD staff conducted a second training in February for TPWD employees whose job duties will be enhanced with access to TXNDD data. This training included staff from Inland Fisheries, Coastal Fisheries, and the Wildlife Division. This training concentrated on the use and interpretation of TXNDD spatial data that can be imported into ArcGIS for planning and analyses. It also included an overview of the basics of our spatial methodology and navigating through Biotics 5 to access both the spatial and detailed tabular information for specific records, providing biologists with the clearest picture of what is known from an area.
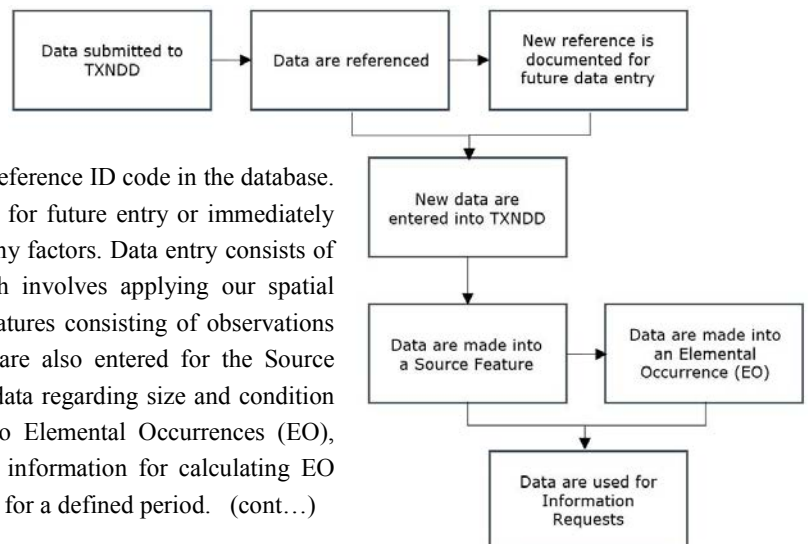
Unlike the previous version, Biotics 5 is a dynamic piece of software with functionalities that NatureServe will continue to develop throughout its lifetime. As functionality is added and changes are implemented, the TXNDD staff will adapt to take advantage of these innovations. We will continue to search for opportunities to increase the speed and efficiency with which data are entered, explore ways to make the data more accessible and useful, and implement new procedures to ensure the quality and accuracy of the data. The TXNDD staff strives to update and maintain the TXNDD such that it remains the best source of nongame species and vegetation community information to guide on-the-ground conservation efforts in Texas.

Food for Thought: What Happens to Your Data...

...after you submit them to the Texas Natural Diversity Database (TXNDD)? First, database staff conducts an initial check of the data to see if any information is missing, and to follow-up with the submitter for more details if needed.

Next, the data are formally referenced and acquire a unique Reference ID code in the database. Once referenced, the data are then either put into the queue for future entry or immediately entered into the database; the method chosen depends on many factors. Data entry consists of first, and sometimes only, creating Source Features, which involves applying our spatial methodology to the data in an ArcGIS platform, creating features consisting of observations buffered by any error associated with them. Tabular data are also entered for the Source Features. Depending on the availability of habitat data, and data regarding size and condition of the population, Source Features may be aggregated into Elemental Occurrences (EO), which represent populations. These additional data provide information for calculating EO Rank, indicating the likelihood that the population will persist for a defined period. (cont…)

Once data are entered into the TXNDD, how does TPWD use the data? The Wildlife Habitat Assessment Program uses these data to inform recommendations for Pre-project Planning, and TXNDD staff uses the data to answer information requests from other governmental and non-governmental agencies (NGOs), the public, and TPWD staff. Sometimes species or location-specific information requests are submitted to the TXNDD. For these requests we provide more specific information to better inform conservation decisions being made by the requestor. With all data requests, the limitations of the data are made clear. Ultimately, the goal of the TXNDD is to prevent siloing of data. Instead, we aim to maintain and provide an easy-to-use, spatial platform with the ability to input, query, and export up-to-date rare species data. This information can contribute significantly to decision-making processes that inform conservation of rare species and their habitats, internally and externally to TPWD.

Spotlight: A Story of Private Landowner Data Submission

Private landowners play an integral role in fulfilling our agency's mission of managing and conserving the natural resources of Texas and one way they can assist is by sharing their data with the TXNDD. A private landowner submitting data to the TXNDD?! Believe it or not, sometimes we receive data directly from private landowners. Their reasons for submitting data are varied, but in the end sharing data will likely benefit their land and conservation of species. The TXNDD staff is most appreciative of such willing landowners and have even created a certificate of appreciation available for distribution to these landowners.

The development of this certificate was prompted by the request of Mr. Randy Egger, an east Texas land manager for Bradley Oaks Ranch. The landowner, Mr. Brad Heppner, wanted to display something acknowledging his contribution of Bald Eagle data to the TXNDD; hence, the TXNDD Landowner Appreciation Certificate was born. The TXNDD staff worked with Chris Hunt, TPWD Creative Services, to design the certificate and it was ultimately approved by TPWD Executive Director Carter Smith, who also signs it.

In addition to Mr. Heppner, a certificate has been given to Ms. Mary Jo Bogatto, owner/manager of Cactus Creek Ranch, in south Texas. She has supplied the TXNDD with multiple years of Texas tortoise and Texas horned lizard observations. Although we have only distributed two certificates, TXNDD staff hopes that more landowners will regularly share observations with the TXNDD. The overall purpose of this certificate is to acknowledge those landowners who are actively observing and managing rare species on their property and voluntarily sharing these data with the TXNDD.

If you know landowners who are documenting rare plants and animals on their properties, please encourage them to contact TXNDD staff or visit our webpage for more information: http://tpwd.texas.gov/txndd/.