

## Introduction

Documenting and describing the flora and fauna of a region is the first step in the long process of implementing its conservation. The All Taxa Biodiversity Inventory (ATBI) that is held at the Big Thicket National Preserve (and other national parks) is an initiative that aims to provide this baseline information for managers and conservation practitioners upon which decisions can be made.

The objective of this project is to document the composition and abundance of the herpetofauna of the Big Thicket National Preserve. Some excellent work on the region has been done but information from within the preserve borders is scant.

## Methodology

The diversity of morphology and life history of the reptiles and amphibians that inhabit the Big Thicket region of Texas is immense. Every environmental niche is exploited and as a consequence a project that seeks to document the entire assemblage must factor this in. We plan to obtain data on as many specimens of as many species as possible. We will perform standardized passive trapping techniques,

- Upland drift fence arrays and pitfall traps,
- Drift fence and pit fall traps around wetlands,
- Minnow traps for aquatic amphibians,
- Modified crab traps for turtles,
- Cover boards, and
- PVC tube shelters.

We will also perform standardized active search techniques,

- Visual encounter surveys (VES),
- Audio surveys, and
- Seining and dip netting wetlands.

All our methods will be carried out in a manner that allows replication with times, trap- and man-hours documented. All cover boards, PVC shelters, and traps will be numbered, their GPS coordinates noted, and a description on the physical environment into which the trap was placed will be recorded. All individuals captured will have capture method (including trap number if caught in a trap) recorded. Each individual captured will be identified to species, have its gender determined, all its pertinent morphological measurements taken, any distinguishing marks or characteristics will be noted, as well as its GPS coordinates recorded. A subset of amphibians collected will be swabbed for the presence of chytrid fungus (*Batrachochytrium dendrobatidis*) within the preserve. This disease has been shown to be the causative agent in the decline of many species of amphibian across the world. A data sheet will be developed to ensure comprehensive consistency in data collection.

Our initial site selection will be made in October or November of 2008. The site will be inside the Turkey Creek subunit of the preserve. Once the site has been selected the PI's and a small group of volunteers (staff from Houston Zoo) will spend a few days installing drift fences, digging pit fall traps, laying cover boards and PVC tubes. Once the equipment is in place the pit fall traps will be covered up to prevent individuals from entering them outside of active trapping sessions.

The project will start in December 2008 and monthly visits of 5 days will commence until December 2009. Once we arrive for a field session we will "activate" traps by removing covers to pitfalls and setting out other traps. We anticipate that if traps (and PVC pipe, cover boards, etc.) are left in the habitat between survey events, individuals will become acclimated to their presence and be less likely to avoid it, as is what might be expected initially. Traps will not go longer than 12 hours before being checked and traps for turtles and other aquatic traps will be checked much more frequently. While traps and other survey equipment is active, staff will perform VES and process data in the field that has been collected the previous day.

We have been granted permits by the National Park Service (Study # BITH 00051, Permit # BITH 2008-SCI 0022) for the amphibian component of this research and have communicated with David Roemer about expanding the scope to all reptiles as well.

The anticipated outcome of this project is two fold. The first is that we will have estimates of the abundance and composition of the entire herpetofauna of the Turkey Creek subunit of the Big Thicket National Preserve. This information will serve as a baseline for which can serve as a starting point for monitoring population fluctuations and/or species declines. The second outcome is related to the phenology of the assemblage. It is hoped that by starting in December we can observe the major life history events of all the herpetofauna in the area. We can build a dataset that shows when species are most likely to be using a certain habitat type. This has implications for the management of the natural resources with the preserve.

## **Budget**

The total project budget for 2008 and 2009 will be \$27,409.92 (2008 - \$5,565.92, 2009 - \$22,770.00). The total we are requesting from the Thicket of Diversity Grant is \$3,440.92 (2008 - \$1,735.92, 2009 - \$1,705.00). This covers field equipment and supplies (~15% of total costs) HZI will fund staff time, benefits and lodging (~85% of project costs). We feel we have put together a realistic and appropriate budget for the scope of the work to be performed. It is anticipated that in the years to come the trap arrays can be moved and other areas can be surveyed, this will reduce the costs of future equipment needs.

Please see accompanying Excel spreadsheet called "ToD HZI Project Budget 2008 09" for a detailed breakdown.

## Contact

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## **Personal Backgrounds:**

*Paul Crump*, Amphibian Conservation Manager: Paul is the Houston Zoo's primary Amphibian custodian. He has been working with amphibians since he completed an internship in the Cincinnati Zoo's Amphibian department in 2001. Paul serves on a special committee to the AZA's Amphibian Taxonomic Advisory Group specifically dedicated to *ex situ* North American amphibian conservation and on the Houston Toad Recovery Team. Experience in the field in Texas and in Panama with a broad variety of survey methods as well data curation, will be invaluable in field work in the Big Thicket.

*Peter Riger*, Assistant Director of Conservation and Science: Peter oversees the management and facilitation of the Houston Zoo's Naturally Wild Conservation Program, a \$500,000 a year program with over 20 projects in 11 countries. Peter has 20 years of captive management experience in the zoological field and is involved in field research and conservation efforts in both Asia and North America, including regional projects focusing on mammals, reptiles and amphibians within the State of Texas. Peter will be the administrator of any grants for the Houston Zoo related to this program.

*Rachel Rommel*, Conservation Programs Manager: Rachel's involvement with the Houston Zoo's conservation program include facilitation of local field projects including Diamondback Terrapin within Galveston Bay, Houston Toad field surveys, East Texas Black Bear education and media information programs. Rachel specializes in both amphibian and turtle field conservation and education initiatives.