INTERIM REPORT

As Required by

THE ENDANGERED SPECIES PROGRAM

TEXAS

Grant No. TX E-141-R

Endangered and Threatened Species Conservation

Bracted twistflower (*Streptanthus bracteatus*): ecological characterization and data base construction

Prepared by:

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25 October 2012

INTERIM REPORT

STATE: ____Texas_____ GRANT NUMBER: ___TX E-141-R-1__

GRANT TITLE: Bracted twistflower (*Streptanthus bracteatus*): ecological characterization and data base construction

REPORTING PERIOD: ____1 Sep 11 to 30 Sep 12_

OBJECTIVE(S). To improve our understanding of the habitat requirements of *S. bracteatus*, and assemble a GIS data base that includes all known past and present *S. bracteatus* locations and ecological information for each location.

Segment Objectives:

Tasks:

Sept-Dec 2011	Obtain occurrence records from TWPD. Obtain DOQQs (aerial photographs) from TNRIS. Put in place computer hardware and software required for the project.
Jan-March 2012	Complete basic data base (most recent DOQQ's plus occurrence records). Define study polygons. Obtain and enter soil and topographic data. Obtain geological maps, scan, enter, and geo-rectify. Obtain older aerial photographs, scan if necessary, enter, and georectify. Contact others who may have additional location data; add this information to the data base. Schedule field trips.
April-May 2012	Verify and refine location of each population. Collect GPS data from all plants or clusters of plants in each population. Collect GPS data for points and polygons where occurrence records and/or recollections of other workers indicate plant locations in past years. Enter GPS data into data base Begin collection of other field data
June-July 2012	Collect physical environment data and vegetation data in the field, including canopy photographs. Enter field data.
Sept 2012-Dec 2012	Data analysis: descriptive data, statistical analysis, niche modeling. Draft report and paper for peer-reviewed journal. Complete data base and submit to TPWD.
Jan 2013-Aug 2013	Complete report. Complete and submit paper.

Significant Deviations:

None.

Summary Of Progress:

Please see Attachment A.

Location: Uvalde, Medina, Bexar, Hays, and Travis Counties, Texas.

Cost: Costs were not available at time of this report, they will be available upon completion of the Final Report and conclusion of the project.

Prepared by: Craig Farquhar Date: 25 October 2012

Approved by:  Date: 25 October 2012

C. Craig Farquhar

ATTACHMENT A

Title: E-141-R "Habitat of the bracted twistflower (Streptanthus bracteatus): ecological characterization and data base construction."

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Reporting Period: 1 Oct 2011 – 30 Sep 2012

Summary of Progress

Task 1: Collect field data from Streptanthus bracteatus populations. This task has been accomplished.

From May 23, 2012, through July 7, 2012, we collected new GPS records of plant locations. For each known population we recorded GPS co-ordinates for each plant and recorded several plant characteristics, including maximum height, number of siliques, lengths of siliques, and evidence of herbivory and powdery mildew. In total, we identified 1117 individual plants and clusters of plants in Travis, Bexar, Medina, and Uvalde Counties. Due to large population sizes, in the Medina County records some GPS co-ordinates represent centers of clusters, rather than individual plants; otherwise we mapped individual plants. The census data from San Antonio populations was supplied by Wendy Leonard, park naturalist for the City of San Antonio. We were denied access to Bright Leaf Preserve and to the site in Hays County, so no census data were obtained from these sites in 2012.

We revisited each location from July 11, 2012, through September 6, 2012, to measure physical environmental variables and describe plant communities. Hemispherical photographs were taken to measure tree and/or shrub cover. Rectilinear photographs were taken of rock cover in locations where *S. bracteatus* grew. To quantify the plant communities, we located circular plots and recorded the identities and numbers of herbaceous, shrub and tree species in each plot. The same variables were measured in comparison plots (or 'absence plots') located near known populations. Soil depth measurements were recorded within both types of plots. In total, we gathered data from 81 presence plots and 37 absence plots.

Task 2: Create a GIS data set. This task is in progress.

This fall we are assembling a set of GIS layers, including GPS co-ordinates of new and historical *S. bracteatus* populations, soil units, geological formations, digital elevations and slopes, and recent aerial photographs. Our own data will provide additional GIS layers. We are working closely with Cullen Hanks (TPWD) to integrate the existing TPWD records (both original records and Element Occurrence Records) with the rest of the data.

Task 3: Quantify *S. bracteatus* habitat by analyzing these data. This task is beginning.

Task 4: Provide the results and completed data base to TPWD staff. Not yet done; we'll wait to do this until the data base is complete, unless Cullen Hanks wants parts of it before then.

Significant deviations

We are behind schedule because I unexpectedly got a sabbatical semester at the University of Sheffield during the spring of 2012. I thought it best not to start the GIS data base construction until I was back in Texas to supervise it. This has postponed the project but not otherwise affected it.

I know of no remedy for the sites to which we could not obtain access. However, we do have the GPS coordinates of those sites, and older data from TPWD files and from volunteer Ross Bee. We will also have soil, geology, and other information from the electronic data bases for these sites.