

APPENDIX H: PLANT INVESTIGATION STUDY

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Report on Western Arterial Loop Plant Investigation

Prepared by

Brent Baker

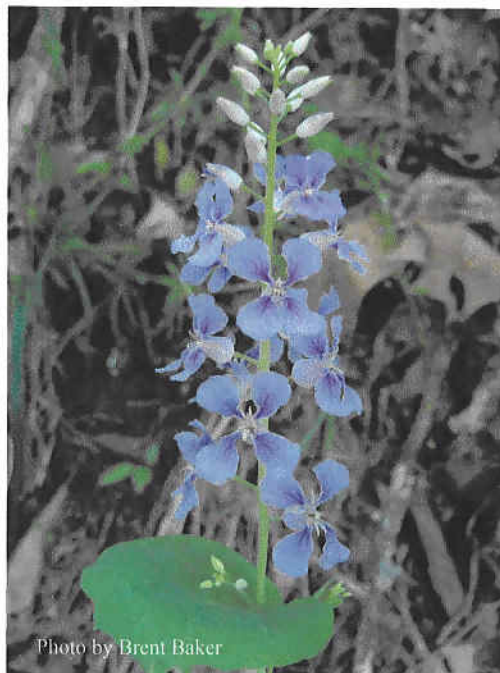
**1621 N. 2nd St.
Dardanelle, AR 72834-2843**

Submitted to the City of Conway Street and Engineering Department

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INTRODUCTION

As part of the Environmental Assessment of the proposed route of the Western Arterial Loop, populations of sensitive/threatened plant species that could be impacted by the construction of this new road had to be evaluated. Based on information previously received from both the City of Conway Street and Engineering Department and the Arkansas Natural Heritage Commission (an agency of the Department of Arkansas Heritage), concern had been expressed over the possible presence of *Streptanthus maculatus* Nutt. subsp. *obtusifolius* (Hook.) Rollins [a twistflower] within the Western Arterial Loop route impact zone. *S. maculatus* subsp. *obtusifolius*, a member of the Brassicaceae (mustard) family, is endemic (found in no other part of the world) to the Ouachita Mountain ecoregion, with documented Arkansas occurrences in Faulkner, Garland, Hot Spring, Howard, Montgomery, Pike, Polk, Pulaski, and Saline Counties (NatureServe 2004, Smith, USDA). NatureServe has designated a global rank of G3T3 and an Arkansas state rank of S3 to *S. maculatus* subsp. *obtusifolius*. These ranks indicate that there are between 20 and 100 distinct population occurrences known (NatureServe 2004). Although *S. maculatus* subsp. *obtusifolius* can occur in large numbers in some of these populations, other populations consist of a limited number of individuals (NatureServe 2004, USDA). Populations of any size could be susceptible to large-scale disturbances (i.e., road construction). A *S. maculatus* subsp. *obtusifolius* specimen record (Geo. C. Haas #1195) collected in the area of Gold Creek (Faulkner County) indicated that a population had existed there in the past (UCAC). *S. maculatus* subsp. *obtusifolius* is an annual plant, completing its life cycle (seed – growth – bloom – seed) in a single growing season (USDA). The main bloom period (slightly variable from year to year) is between early April and mid June (ANHC 2003).



OBJECTIVE

The objective of this survey was to locate and document any populations of sensitive/threatened plant species within the proposed route of the Western Arterial Loop, namely *Streptanthus maculatus* subsp. *obtusifolius*.

METHODOLOGY

This survey consisted of a walking search of appropriate habitat (dry, often rocky sandstone, shale, novaculite glades, rock outcrops, and woodlands with an open understory on ridgetops and slopes [ANHC 2003]) within the proposed Western Arterial Loop route. The survey was conducted from mid April 2005 through early June 2005, as this was when the plants would be in bloom and most easily identifiable. Populations of *S. maculatus* subsp. *obtusifolius* were pinpointed with GPS (global positioning system).

RESULTS

This survey revealed the presence of one population of *S. maculatus* subsp. *obtusifolius* within the proposed route of the Western Arterial Loop. The population exists on a north-south oriented ridge just to the west of the community of Gold Creek in the northwest ¼ of Section 5, Township 4 north, Range 13 west at the coordinates of 35.01752° north and 92.41767° west {NAD83}. Approximately 200 individuals were seen, scattered over several acres of the east facing side of the ridge in open areas alongside a dirt road and widely scattered in surrounding oak-hickory forest. Associate species include: *Quercus stellata* [post oak], *Quercus marilandica* [blackjack oak], *Carya tomentosa* [mockernut hickory], *Carya texana* [black hickory], *Aesculus pavia* [red buckeye], *Crataegus spathulata* [pasture hawthorn], *Rhus aromatica* [fragrant sumac], *Glandularia canadensis* [rose vervain], *Triodanis perfoliata* [Venus' looking glass], *Helianthus* sp. [woodland sunflower], *Tradescantia ohiensis* [Ohio spiderwort], *Penstemon arkansanus* [Arkansas beardtongue], and *Echinacea pallida* [pale purple coneflower]. A voucher specimen (B. Baker #2276) was collected on May 4 and will be deposited in the Herbarium of the University of Central Arkansas (UCAC). It is important to note that there is a shale pit at the summit of this ridge and that no *S. maculatus* subsp. *obtusifolius* plants were found within disturbed areas in or around the pits. No other populations were located.

During the search for *S. maculatus* subsp. *obtusifolius*, a small population of another sensitive/threatened plant species was noted: *Eleocharis wolfii* (A. Gray) A. Gray ex Britton in Patt. [Wolf's spikerush]. *E. wolfii*, a member of the Cyperaceae (sedge) family, has been given a global rank of G3G4 by NatureServe, indicating a wide range (currently or historically existing in 19 states) but an apparent rarity throughout its range (NatureServe 2005). An Arkansas state rank of S2 has also been assigned to *E. wolfii* indicating an imperiled status with 5 to 20 known occurrences (ANHC 2004, NatureServe 2005). The population exists north of Round Mountain and north of the Cresthaven subdivisions in the southeast ¼ of the northwest ¼ of Section 35, Township 5 north, Range 14 west at the coordinates of 35.03046° north and 92.46603° west

{NAD83}. A dense patch approximately $\frac{1}{4}$ square meter was seen, in a seep/stream head in an open hardwood forest, near a pond. Associate species include: *Acer rubrum* [red maple], *Quercus phellos* [willow oak], *Liquidambar styraciflua* [sweet gum], *Eleocharis tenuis* var. *verrucosa* [slender spikerush], and a *Sphagnum* sp. [sphagnum moss]. A voucher specimen (B. Baker #2277) was collected on May 4 and will be deposited in the Herbarium of the University of Central Arkansas (UCAC).

Sources Cited:

Arkansas Natural Heritage Commission (ANHC). 2003. Arkansas' Globally Rare Plant Species (unpublished document). Rare and Invasive Plants of Arkansas Conference (October) at University of Arkansas, Fayetteville.

Arkansas Natural Heritage Commission (ANHC). *Annual Report 2004*. Available at <http://www.naturalheritage.com>.

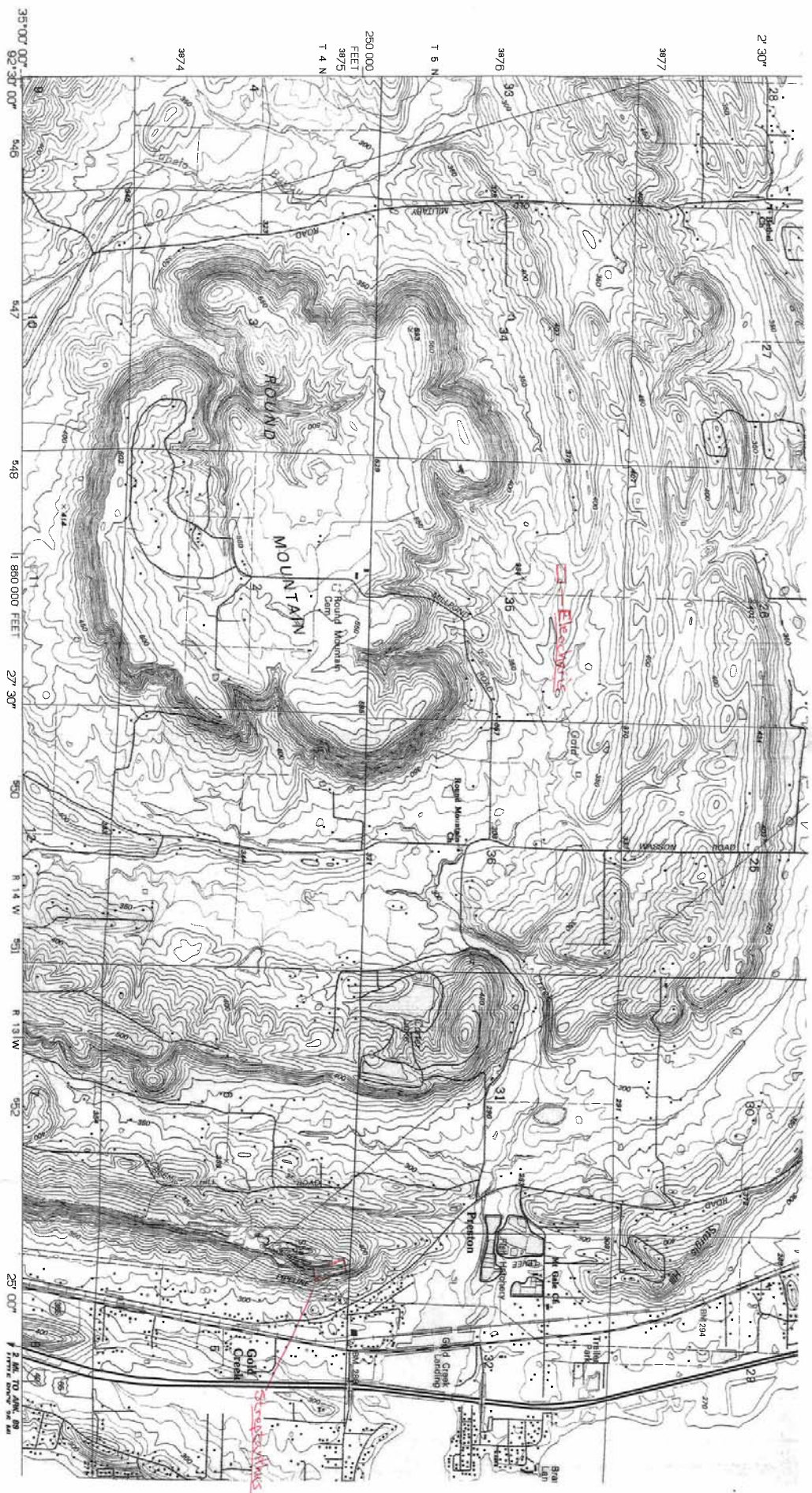
NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.0. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: November 1, 2004).

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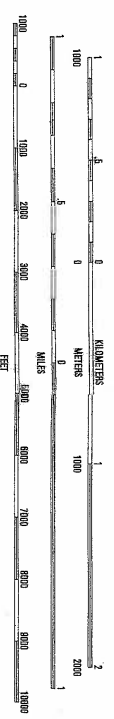
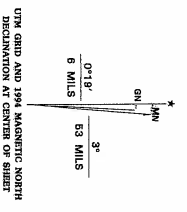
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United States Department of Agriculture (USDA), Natural Resource and Conservation Service (NRCS). 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, Louisiana. (Accessed: November 1, 2004).

University of Central Arkansas Herbarium (UCAC). Lewis Science Center, University of Central Arkansas. Conway, Arkansas.



From:
 Conway Quadrangle
 Arkansas-Faultless Co.
 7.5 Minute Series (Topographic)
 United States
 Department of the Interior
 Geological Survey



SCALE 1:24000
 CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

CONWAY, ARK.
 SW 1/4 CONWAY 1E QUADRANGLE
 35092-A4-TF-024
 1994
 DMA 754 III SW - SERIES 1984