CITY OF AUSTIN
WHITE-TAILED DEER SURVEY PROGRAM

BALCONES CANYONLANDS PRESERVE ANNUAL REPORT
Fiscal Year 2001-02

The City of Austin
Water and Wastewater Utility
Wildland Conservation Division
Balcones Canyonlands Preserve Program

Prepared by

Jackie Davis M.S., Biologist

Donald L. Koehler, Ph.D., BCP Program Manager

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I. DEER CENSUS METHODS

There are several census techniques which can be used to perform ground deer censusing, i.e. the Hahn, Spotlight, and Mobile Line techniques. As with previous monitoring years, the City of Austin (COA) used the Spotlight technique to census deer on the Balcones Canyonlands Preserve (BCP) tracts. The Spotlight technique determines deer populations by counting the number of deer spotted along a census line, calculating the number of acres seen along this census line, and dividing the number of acres by the number of deer observed to give an estimate of the deer population (expressed as acres per deer).

A standard Texas Parks & Wildlife Department (TPWD) "visibility form" allows the census taker to calculate the number of acres observed along the route of the census. At intervals of 0.2 mile, the distance in yards which can be seen to the right and to the left are noted on the form. When this distance (usually 5 miles for the BCP census) is divided by the number of stops (usually 26), an average width of the census strip is determined. Through a formula provided by TPWD, the total number of acres seen (acres of visibility) for that specific survey can then be determined:

_____	/	_____	X	_____	/	4840	=	_____
Total visible yards (n miles)		No. of readings (5n + 1)		Length of line in yards (1760 n)		Sq. yards / acre		Acres of visibility

The number of deer seen during that survey will then be expressed as acres per deer:

_____	/	_____	=	_____
Acres of visibility		Total # of deer		# of acres per deer

The Spotlight technique involves using high intensity spotlights to count deer at night. The COA biologists usually use a pickup, with two crew members sitting in the back of the pickup, counting the deer, and the driver of the pickup marking the data on the "visibility form." The count is begun between 30 to 45 minutes after sundown. The vehicle speed is generally between 2 mph to 6 mph, and visibility readings are taken every 0.2 mile. We determine sex and age (fawns) when possible. All other animals (invertebrates, reptiles, birds, mammals) which are encountered along the route are recorded.

II. RESULTS AND DISCUSSION

The surveys conducted in the fall of 2002 were the fourth in a series of consecutive annual monitoring studies conducted by COA biologists to determine the approximate numbers of deer on the COA BCP tracts. The same locations, routes and distances which were used in the Fall Surveys of 1999, 2000 and 2001 were used again for the Fall Survey 2002. The

three location sites are as follows: **(1) Upper Bull Creek**, extending from the west side of the Canyon Creek tract, crossing through the uplands of the Hanks tract, then traversing down and through the lowlands of the Franklin and Lanier tracts, and then onto the WTP#4 tract; **(2) Emma Long City Park**, extending from City Park Road on the northern side down to an off-road trail on the uplands portion, then continuing down City Park Road into the campground area along the river; **(3) South Lake Austin Macrosite**, extending from the Baldwin tract south of Bohls and traversing the uplands on the west side of Bohls up to the river overlook; the survey then resumes on the private road which bisects Reicher Ranch; and lastly, the survey resumes on a portion of Double J&T at the very eastern end of Kollmeyer Drive, traversing the lowlands along the river.

Three surveys were conducted for the Upper Bull Creek location, producing an average density of one deer for every 14.14 acres. The average densities for the years 2001, 2000 and 1999 were 9.57 acres/deer, 5.4 acres/deer and 11.5 acres/deer, respectively.

Three surveys were conducted for the Emma Long City Park location, producing an average density of one deer for every 2.17 acres. The average densities for the years 2001, 2000 and 1999 were 1.53 acres/deer, 1.34 acres/deer and 1.2 acres/deer, respectively. The 2002 data continue to confirm that the Emma Long City Park has a severe problem with over-population of the deer herd. The deer were small in stature and weight (visual determinations).

Two surveys were conducted for the South Lake Austin Macrosite location, producing an average density of one deer for every 3.49 acres. The average densities for the years 2001, 2000 and 1999 were 6.63 acres/deer, 4.14 acres/deer and 3.17 acres/deer, respectively.

III. CONCLUSIONS

The 2002 deer survey data continue to support BCP staff's conclusion of previous years, i.e., deer densities are unacceptably high and continue a long-term trend of negatively impacting the endangered species habitat of the BCP, as well as the overall health of the BCP ecosystem. The severe deer browse has prevented the regeneration of many generations (at least 20-25 years) of native hardwoods and understory woody shrubs on the BCP tracts. (See Leland Russell's dissertation "Effects of White-tailed Deer on the Dynamics and Structure of Spanish Oak Populations on the Eastern Edwards Plateau, Texas" and his paper "Rarity of Oak Saplings in Savannas and Woodlands of the Eastern Edwards Plateau, Texas" for further discussions o the effects of deer browse on hardwoods.)

We do not have sufficient data here in Travis County to determine at what deer density the native vegetation of hardwoods and understory will begin to experience regeneration. Estimates for an acceptable average number of deer in relation to the carrying capacity of the land vary widely and range from a low estimate of one deer for every 11-14 acres (Kerr Wildlife Management Area), to a medium estimate of one deer for every 20-40 acres, to a high estimate of one deer per 100 acres. As stated in the BCP Land Management Plan (Vol. 1, Management Handbook): "A majority of the BCP could be classified as a mature oak-juniper forest with an understory of deciduous species requiring little light. The carrying capacity of this oak-juniper forest could be as high as *one deer per 100 acres* because of the sensitive nature of these understory plants."

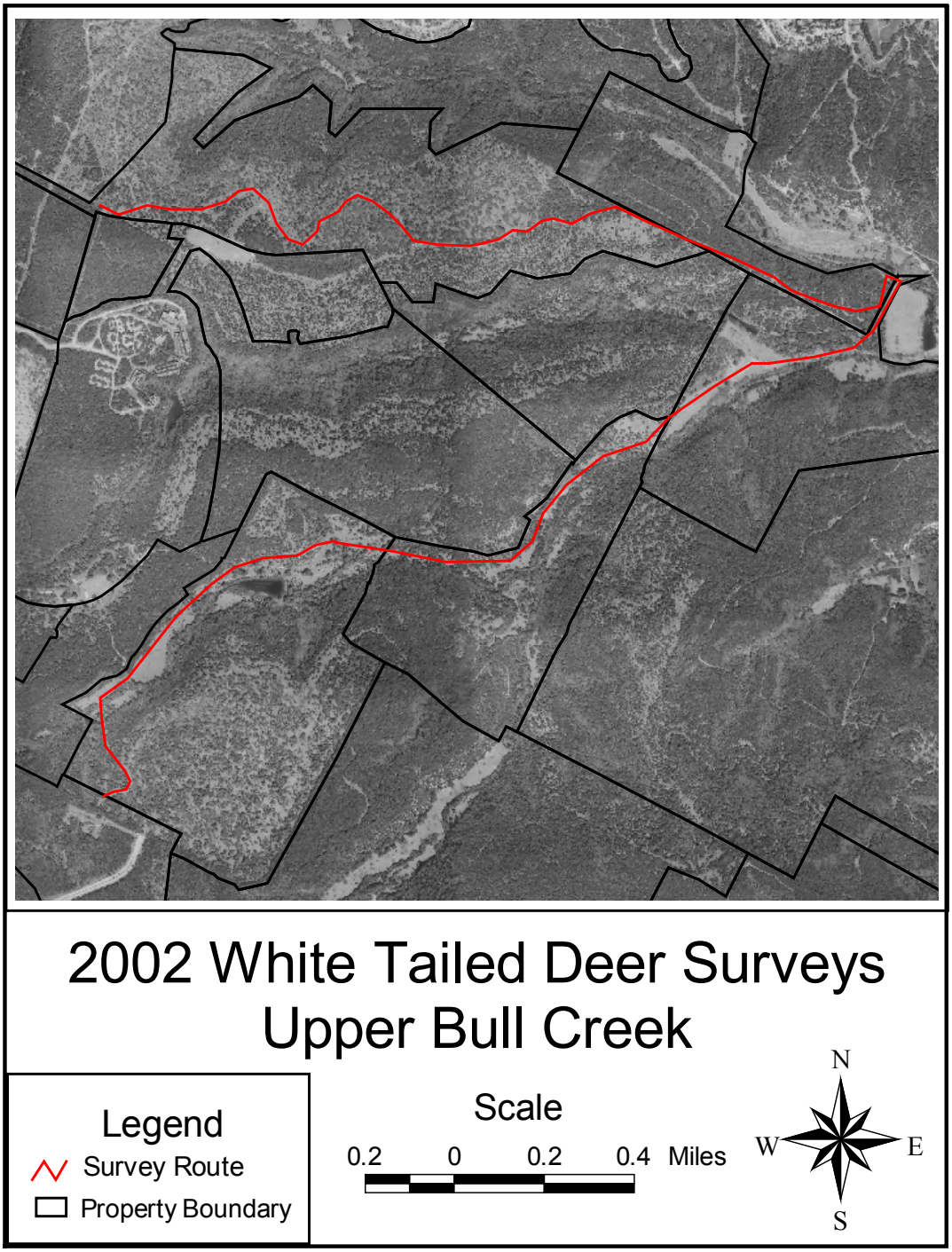
A briefing paper on the current status of the Ctiy's deer populations was jointly written by COA BCP and Water Quality Protection Lands (WQPL) staff ("Environmental Evaluation of Proposed Reduction of White-tailed deer Populations on City of Austin Balcones Canyonlands Preserves and Water Quality Protection Lands", Oct. 5, 2001). The paper discussed impacts to the City's preserve land and proposed actions to protect the City's natural resources. Based on the briefing paper and the data from the on-going white-tailed deer survey program, a deer management and culling program was initiated in 2001.

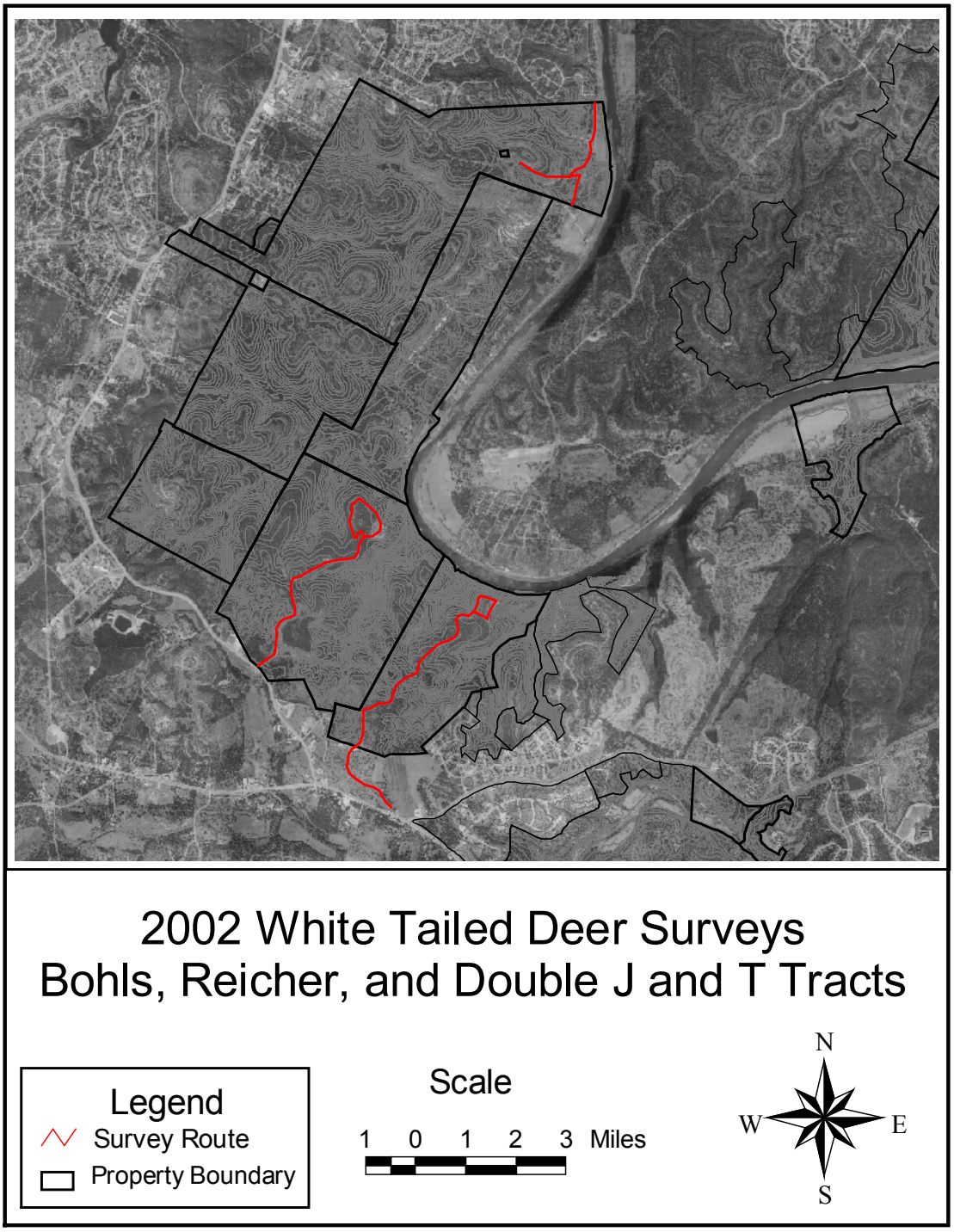
DEER SURVEYS
COA/BCP
FALL SEASON, 2002

Date	**Upper Bull**	**Emma Long**	**So. Lk. Austin**
9/18/02	12.27 acres/deer		
9/25/02			3.48 acres/deer
10/1/02		2.5 acres/deer	
10/11/02		1.31 acres/deer	
10/14/02	16.02 acres/deer		
10/16/02			3.50 acres/deer
10/31/02		2.72 acres/deer	
11/1/02	(no deer sighted*)		
Average	**18.50 acres/deer**	**2.17 acres/deer**	**3.49 acres/deer**

*Note: Although no deer were sighted during the survey period, there were many daytime sightings at the Upper Bull location, as shown by the following chart:

Date	Bucks	Does	Fawns/Yearlings
10/2	1	1	
10/4	3	4	1
10/15	2	2	
10/16	1	3	1
10/17	2	3	1
10/19	4	4	
10/20	2	2	
10/27	2		
10/29	2		
11/4		7	3


2002 White Tailed Deer Surveys
Upper Bull Creek
Legend
Survey Route
Property Boundary
Scale
0.2 0 0.2 0.4 Miles
N
W
E
S

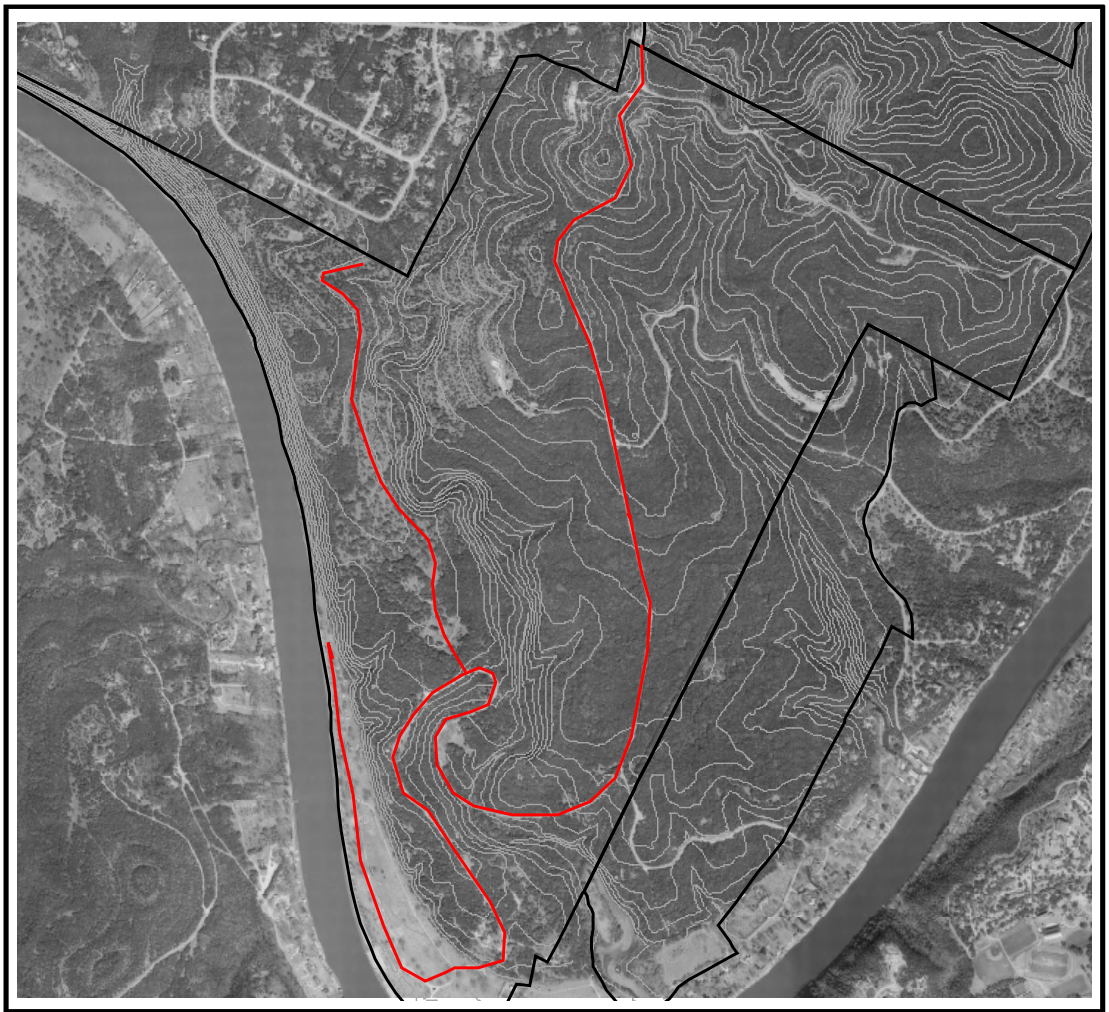


2002 White Tailed Deer Surveys
Bohls, Reicher, and Double J and T Tracts

Legend
Survey Route
Property Boundary

Scale
1 0 1 2 3 Miles

N
W E
S



2002 White Tailed Deer Surveys
Emma Long Tract

Legend
Survey Route
Property Boundary

Scale
0.6 0 0.6 1.2 1.8 Miles

N
W E
S