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551 N. Military Trail
West Palm Beach, Florida 33406

September 30, 1982

M E M O R A N D U M

TO: Robert Ellis, Regional Wildlife Biologist
FROM: David Pylant, Wildlife Biologist DP
SUBJECT: Deer Census on the Big Cypress W.M.A.

Enclosed are the pre-hunt census figures for the Bear Island, Deep Lake, and the South of the Loop portion of the Stairsteps Unit. Due to abnormally high water levels which have our track count routes inundated, I have not been able as yet to finish the Monument, Loop, and western Stairsteps. Things were looking real good until the rains this past week. If the rains stop shortly, it will only take a week or possibly two to finish up.

DBP:ckp

Enclosure

cc: Major O.G. Kelley
Reading file ✓

Stairsteps Unit

South of the Loop Sample Area

The South of the Loop sample area is located in the Southeastern portion of the Stairsteps Unit. It is bordered to the east and south by Everglades National Park, to the north by the Loop Road, and to the west by Lostman's Pines. The area encompasses approximately 50,000 acres. (See attached map)

Major habitat types are freshwater marsh, wet prairie, and scattered tropical and temperate hammocks. This is our "airboat country."

The census method we chose to employ was the aerial transect method. After conferring with Regional Biologist Robert Ellis and Biologists John West and Tim Breault, all familiar with aerial census in the Everglades, we proceeded with setting up the transects. Initially, we set up north-south transects covering the entire 75,000 acres south of Loop Road. Each transect was ten miles long, spaced two miles apart. The transects were to be flown at 70-75 knots indicated airspeed, at an altitude of 200 ft. Those deer seen within 100 yards either side of the airplane were to be counted. The flights were to begin at approximately 0800.

On September 2 and 3, 1982, the transects were flown. The weather each day was ideal. Wind was 0-5 knots, clear skies, unlimited visibility, and a temperature of 74-76 degrees F. at 0800. Observers were David Pylant and Jeff McGrady.

A total of 49 deer were seen over transect on 9-2-82. On 9-3-82, 58 deer were observed. This averages out to 55 deer. (See Table 1.)

Table 1. Deer observed over transects on 9-2-82 and 9-3-83, on the South of the Loop sample area, Stairsteps Unit, Big Cypress W.M.A.

Date	Transect Number						Total
	1	2	3	4	5	6	
9-2-82	25	6	8	5	3	2	49
9-3-83	28	10	8	4	4	4	58
Average	27	8	8	5	4	3	55

In analyzing the data for determination of a population estimate, only the first four transects were used. There were several reasons for this. The first four transects covered our 80 square mile sample area of marsh and prairie. The western most 40 square miles is comprised of a distinctly different habitat type (s), pine and cypress, and while the overstory density is thin, the observability of the deer was obviously lower to a great degree. I felt that inclusion of this area in our aerial survey would serve no useful purpose and quite probably bias the findings. Also, we have another sample area in the Stairsteps Unit which is pine and cypress habitats.

Because we have no way of knowing exactly what percentage of the deer we are seeing on the transects, I calculated population estimates and density using 100%, 90%, 80%, and 70% deer seen on transects. To arrive at the population figures, the following was known:

- Total length of transect - 40 miles
- Total acreage of transect - 2900
- Average Number of deer seen - 48
- Total acreage of sample area - 50,000

Table 2. Population estimate and density estimate of white-tailed deer, based on aerial surveys, on the South of the Loop sample area, Stairsteps Unit, Big Cypress W.M.A.

Percentage Observed	Population Estimate	Density Estimate (acres per deer)
100	833	60
90	909	55
80	1041	48
70	1190	42

A significant factor needs to be noted when interpreting these figures. Fifty-six percent of the deer seen on the four transects were observed on the first transect. There are primarily three reasons for this, all somewhat related. One, this transect is one mile from the Everglades National Park boundary, where no hunting is allowed. Two, this transect goes over Rattlesnake Ridge, a slightly elevated area. Abnormally high water most likely moved deer from the Park and from areas in the Big Cypress to the west, into this area. Thirdly, and also related, is the fact that many rock outcroppings are associated with this ridge and accessibility to hunters and other airboat users is much more difficult and in fact impossible during low water. Therefore, this area is hunted much less effectively than other parts. I would expect a more evenly distributed population during normal water levels.

BEAR ISLAND

The Bear Island sample area included the entire Bear Island Unit. Two of the four routes had to be changed due to high water, but we were able to still get good distribution and habitat variety.

Route Number 1, located in the southeastern portion of Bear Island, is the same route as the post-hunt survey. Primary habitat types were cypress forest and pine forest. Tracking conditions were good to excellent.

Route Number 2 was located in the northwestern portion of the area. Habitat types included mixed swamp, pine, and hammock. Tracking conditions were fair to good.

Route Number 3 was located in the northeastern part of the area. Habitat types were cypress and pine/hardwood. Tracking conditions were good.

Route Number 4, located in the western part of the area, was the same route as the post-hunt. This route ran through an area of abandoned fields and wet prairie with scattered hammocks. Tracking conditions were fair to good.

The routes were run three times each from August 23 to August 28, 1982. A total of 150 tracks were observed over the 12 miles. By using the standard formula, the population estimate was determined to be 713 or one deer per 51 acres.

The post-hunt density was one deer per 72 acres. The 30 percent increase in population is most probably due to births and possibly somewhat to high water moving the deer to the higher grounds.

Bear Island Unit

<u>Pre-Hunt</u> <u>1981-82</u>	<u>Post-Hunt</u> <u>1981-82</u>	<u>Pre-Hunt</u> <u>1982-83</u>
Pop. Est. 584	Pop. Est. 508	Pop. Est. 713
Deer/acre 62	Deer/acre 72	Deer/acre 51

DEEP LAKE

The Deep Lake sample area comprised the portion of T51S R30E that is within the boundaries of the Big Cypress National Preserve. Three, one mile transects, the same routes as the post-hunt census, were established in a variety of habitat types.

Route 1 was comprised of dry prairie and scattered pine. Tracking conditions were good due to soft substrate.

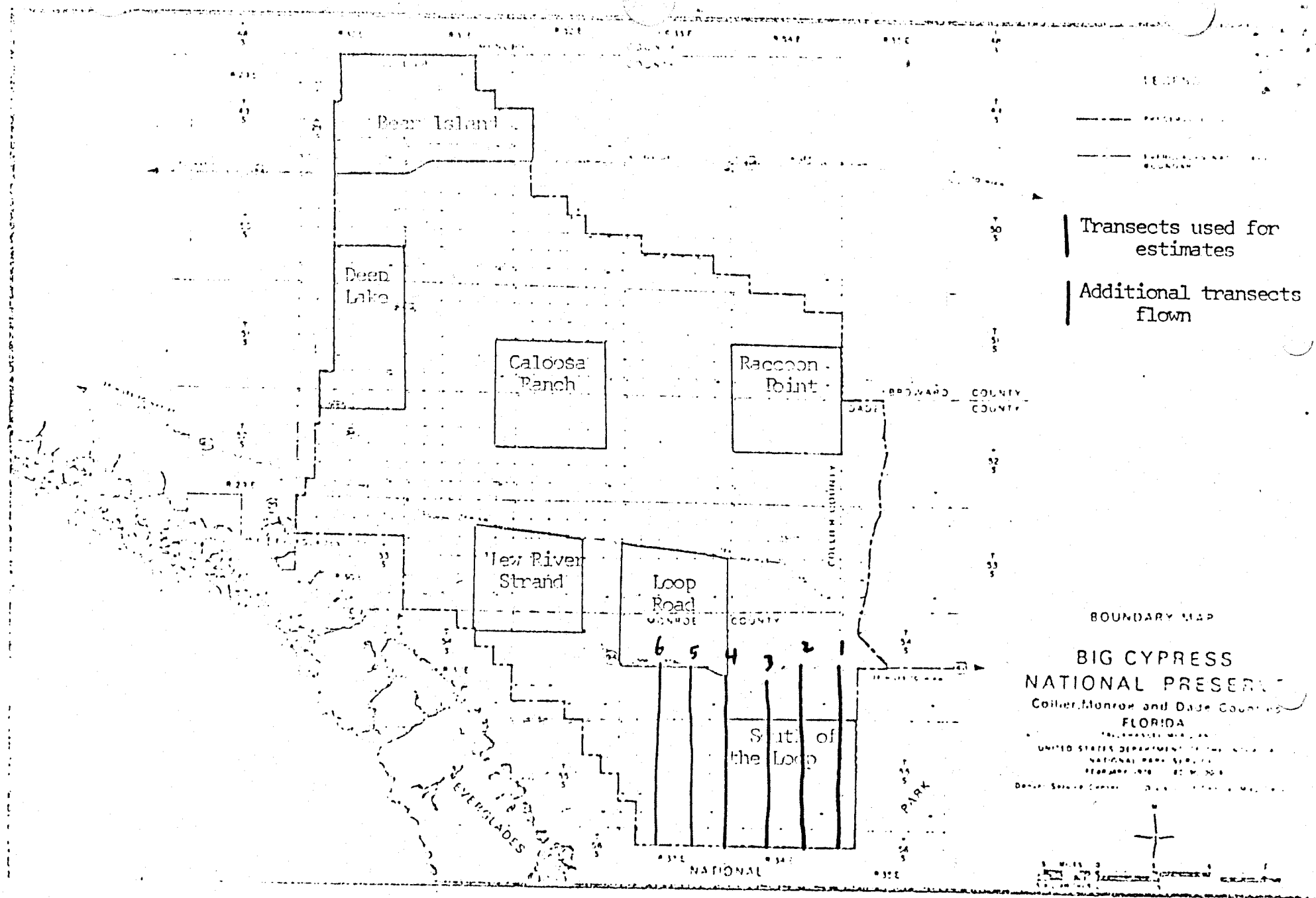
Route 2 ran through an area of cypress strand and dry prairie. Tracking conditions in the strand area was poor to fair due to high water, and good to excellent in the prairie.

Route 3 was comprised of dry prairie, pine, and cabbage palm. Tracking conditions were good.

The routes were run three times each between August 23 and August 28. A total of 76 tracks were seen on the nine miles of route. Using the standard formula, the estimate for the sample area was 211. Expanding this to the entire Deep Lake Unit, the estimate was 592 or one deer per 76 acres.

This is an increase of 31 percent over the post-hunt census. In addition to births increasing the figure, tracking conditions, on an average, were better.

<u>Deep Lake</u>		
<u>Pre-hunt 1981</u>	<u>Post-hunt 1982</u>	<u>Pre-hunt 1982</u>
Pop. Est. 338	Pop. Est. 413	Pop. Est. 592
Deer/acre 133	Deer/acre 109	Deer/acre 76



Transects used for estimates

Additional transects flown

BOUNDARY MAP

BIG CYPRESS
NATIONAL PRESERVE

Collier, Monroe and Dade Counties

FLORIDA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON, D.C. 20540

Design: Service Center