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BIG CYPRESS NATIONAL PRESERVE

DEER AND HOG ANNUAL REPORT

1990-91

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EXECUTIVE SUMMARY

During the past several years a number of rules and regulations have been enacted on the Big Cypress National Preserve (BCNP) to either reduce white-tailed deer (Odocoileus virginianus) and wild hog (Sus scrofa) harvest or to reduce recreational pressure on the area. These actions have included reduced quotas, additional quota periods, restrictions on off-road vehicles (ORV's), implementation of a designated trail system on selected high use areas, prohibition of deer or hog hunting with dogs, increased antler length requirements on legal deer (five inch minimum antler length), elimination of raccoon hunting at night, closed or modified seasons on selected units (Deep Lake), and an overall reduction in the length of the hunting season. Many of these changes appear relatively minor but when considered in conjunction with other actions the impact is significant. Interpretation of deer and hog data collected from hunter killed animals is always difficult and it becomes nearly impossible when rules are constantly changing. Prior to the 1990-91 season the National Park Service (NPS) and the Game and Fresh Water Fish Commission (GFC) agreed to several regulation changes with the proviso that additional changes be held to a minimum for a period of five years.

Hunting pressure during the 1990-91 Big Cypress season (14,340 man-days) was down 34% from the previous year (21,660 man-days) and at the lowest level since the 1980-81 season. This dramatic decrease in hunter pressure was the result of several factors including new regulatory changes on the BCNP, elimination of unauthorized back country camps and increased license fees. Hunting pressure declined on all units of the BCNP and was most pronounced on Deep Lake and Stairsteps. Deep Lake was closed until General

Gun season with archery only allowed, while Stairsteps was probably most affected by the prohibition of deer or hog hunting with dogs, restricted access due to low water levels, and elimination of unauthorized camps. Pressure on the popular Bear Island Unit also decreased for the second straight year.

Total deer harvest (182) was similar to 1990-91 while hog harvest (180) was modestly higher. The most striking increase in deer and hog harvest occurred in the Corn Dance and Turner River Units. During General Gun season deer harvest declined slightly (9%) while hog harvest increased by 24%. Hunter success (game checked/man-day) was at a record high (0.025), up 56% from last year. This increase in hunter success resulted from the dramatic decrease in hunter pressure on the BCNP in 1990-91 without a corresponding decrease in harvest.

White-tailed deer, in general appeared to have similar condition values in 1990 as compared to the previous year. Morphometric values including body weight, and antler characteristics were slightly lower than mean values reported last year, but still within the upper range of values recorded since the implementation of the 5-inch antler rule. Parameters measuring the physical characteristics of wild hogs harvested in 1990 were higher, especially body weight which showed a 17% increase from the previous year. Higher morphometric and condition values for deer and hogs in recent years could be related to the availability of more nutritious food. Increased prescribed burning and favorable hydrological conditions could have played an important role in improving forage quality on the BCNP.

INTRODUCTION

Deer and wild hog are important game animals on Big Cypress National Preserve (BCNP). Deer and hog hunting constitutes a significant component of recreation on the area (Jansen 1986). Deer and hog are also important food items for the Florida panther (Felis concolor coryi) (Belden 1983, Maehr et al. 1990). The purpose of this report is to provide census, harvest and biological information collected on these species during 1990-91 on BCNP.

Hunting

Hunts were held as scheduled with deer and hog hunting permitted during Archery (30 days), Muzzleloader (16 days) and General Gun (46 days) hunts. In addition to statewide rules these hunts were governed by specific regulations for BCNP (Appendix A). Major regulation changes have been enacted since the 1984-85 hunt season. Many of these new rules were continued through the 1990-91 season or have been replaced by more restrictive regulations. The following is a summary of major regulatory changes on the BCNP that have been adopted in the past six years.

Regulation changes in 1985-86 included: reductions in the number of quota permits, elimination of ATC's for hunting and a prohibition on the use of dogs for hunting beyond the nine day quota hunt in those units where use of dogs is permitted. Dogs used for deer and hog hunting were already prohibited in the Bear Island and Loop Road Units. Regulations enacted for the 1990-91 hunt season allowed ATC's for hunting, but the total number of off-road vehicles (ORV's) registered on the BCNP could not exceed 2,500 vehicles. The use of dogs for deer and hog hunting was also prohibited throughout the preserve during the 1990-91 season.

In 1986-87, the minimum antler size for legal deer was increased from one inch to five inches. The intent of this rule was to eliminate the fawn age class from the legal harvest and to reduce illegal harvest pressure on the same age class. This action was taken as a safeguard since available information indicated that both legal and illegal harvest exerted relatively mild pressure on the 0.5 year age class (Schortemeyer and McCown, 1986). This rule was continued through the 1990-91 season. For 1987-88 substantial reductions in small game and raccoon seasons were enacted but these changes had little impact on deer and hog hunting.

A major change in Management Area regulations for 1988-89 was mandatory check-in and check-out for all hunters using the area. In addition to this change National Park Service regulations were enacted which exclude ORV's from the Deep Lake Unit and re-define units within the preserve. The new units include the creation of the Corn Dance and Turner River Units in the former Monument Unit and the transfer of the southern portion of the Deep Lake Unit to the Turner River Unit.

Other new rules enacted during the 1988-89 season included a season long quota in Bear Island of 250 hunters per day whenever deer and hog hunting was allowed and a prohibition on tracked vehicles enacted by the Park Service. All these new regulations were continued through the 1990-91 season except that the Bear Island quota was reduced to 200 hunters per day.

In 1989-90, a designated trail system for Bear Island was established with the intent of reducing hunting pressure, minimizing impact on the resources and improving the quality of the hunt on the area. This regulation was still in effect during the 1990-91 hunt season. The increase in hunting license and

management area stamp fees had a minimal impact in 1989-90 since it did not take effect until well into the season (Oct. 1).

Other significant changes in Management Area regulations were enacted for 1990-91 in addition to the reduction in the number of quota permits for Bear Island, prohibition of deer or hog hunting with dogs, and permitting ATC's for hunting but only under a total ORV cap of 2500 vehicles. Other regulatory changes for 1990-91 include: elimination of raccoon hunting at night, closure of the Deep Lake Unit until General Gun season with only archery equipment allowed for hunting, requiring quota hunt permits for three separate periods (Nov. 17-25, Nov. 26 - Dec. 2, and Dec. 24 - Jan. 1) during the General Gun season on all units, prohibition of wheeled vehicles south and east of Dayhoff Slough and Gum Slough (southeast Stairsteps), restricting ORV's to a designated trail system in the Lostman's Pines area of the Stairsteps Unit, and an overall reduction in the total length of deer and hog hunting season.

This year, the opening date (Nov. 17) of the General Gun hunt on BCNP was nearly three weeks later than the previous year and three weeks after the opening date (Oct. 27) in the South zone of the statewide framework. The Central zone opened Nov. 10 while the Northwest zone opened Nov. 22. The closing date for General Gun season on the BCNP (Jan. 1) was the same as last year and five days earlier than the statewide South zone (Jan. 6). General Gun season on the BCNP was reduced from 58 to 46 days during 1990-91. Archery season was extended by one week, however the total length of the deer and hog hunting season was still reduced by five days.

Check station operations were similar to last year, but with expanded hours of coverage. Provisions were made to operate a total of four check stations approximately 16 hours a day, 7 days a week through all deer and hog

seasons. Check station locations are shown on the map in Appendix A. The only difference from last year was that the check station at Oasis Ranger Station was moved to Monroe Station. This allowed coverage of the west end of Loop Road, a popular ORV staging area and access points for Turner River, Corn Dance and western Stairsteps Units.

Only two of the check stations, Forty Mile Bend (FMB) and Bear Island (BI), were operated during the Archery season due to budget constraints and a lack of suitable operators. During Muzzleloading and General Gun the check stations were operated according to plan. When the check stations were not staffed hunters could check in or out using forms and self deposit boxes at each of the four stations.

Environmental Conditions

Primary environmental factors affecting both deer and hog on BCNP are water levels and fire. Both of these factors may have a positive or negative impact on deer and hog populations.

Figure 1 shows the general hydrological conditions for BCNP in 1990. This map was generated during semi-annual wading bird surveys flown over the area. Hydrological conditions were classified as wet, transitional or dry. Classifications are determined by the amount of surface water present on the area: wet - 90% or more, transitional - between 5 and 90 percent and dry - less than 5%. Areas with greater than 10% of the area in upland habitat were classified as wet whenever 100% of the wetland areas were inundated. As indicated by Figure 1 the area showed drier than average conditions during the middle of the dry season (March) with most of the area being dry with inclusions of transitional areas. This was similar to the 1989 March survey except for more transitional areas in Bear Island and Loop Road Units and drier conditions

prevailing in the Corn Dance Unit. The August survey indicated wetter conditions than the previous wet season (1989) and a return to a more normal wet season hydrological pattern. Figure 2 shows recorded water levels at NPS gauge P-34. This gauge, located near the S.E. corner of the Stairsteps Unit also shows below average water levels for a significant part of 1990. It was particularly dry until late May and June when above average rainfall recharged the water system. In 1990 the low water levels during the spring should have provided good conditions for both deer and hog reproduction, particularly enhancing fawn recruitment (February through mid-May). Deer censuses in the Bear Island (BI) and Stairsteps Units did not substantiate this hypothesis. However, information from radio-instrumented does in BI did indicate at least moderate recruitment in 1990 (see "Reproductive Status and Fawn Mortality Rates").

Fires during 1990 burned 73,058 acres on the BCNP (Table 1). Prescribed fires account for 86% of this acreage burned, while human caused (accidental or arson) and natural fires accounted for 13% and 1% respectively. The National Park Service's (NPS) prescribed burn program has become more aggressive over the last five years, particularly in the last two years. This year the total number of prescribed burn acres (62,950) is more than 4.5 times the average prescribed burn acreage (13,657) on the BCNP in the previous 11 years. Significant prescribed fires were conducted in the Bear Island Unit, on pine islands and prairies in the Turner River Unit and in the Lostman's Pines area, and wet prairies of the Stairsteps unit.

CENSUS DATA

In the past, pre- and post-hunt surveys have been conducted, although the value of post-hunt surveys has been questioned for a number of years. For

example, in Bear Island the apparent reduction in the deer population indicated by pre-and post-hunt surveys in Table 1 for the 1984-85 and 1985-86 seasons averaged 192 and 520 animals, respectively. Survey data for 1986-87 indicated that the population increased by eight animals after the hunt season. As a result of these shortcomings and in an effort to standardize deer surveys within BCNP a recommendation was made to conduct annual surveys in May-June of each year. These plans were implemented in 1987 and continued through 1990. Original census data are presented in Appendix B.

Bear Island

Deer track counts were conducted on Bear Island from 1977 to 1988 (Table 2). Prior to 1984-85 track counts were done without preparation of the tracking surface. Four permanent transects were established in 1984 (Fig. 3). These transects are measured and divided into suitable and unsuitable tracking portions for each survey. Also, two of the transects were disc-harrowed to improve and standardize tracking conditions. During 1987 and 1988 transects were not disc-harrowed due to lack of equipment and manpower. As a result the tracking conditions on all four transects continued to deteriorate.

The 1988 track count shows a decline in mean tracks/mile (Fig. 4), and in deer density to 1 deer per 138 acres based on suitable transect length (Table 2). As a result of the wide variability observed, the deteriorating condition of the transects, and field observations it was concluded that track counts as presently conducted were not suitable for the Bear Island Unit. Spotlight counts were conducted in this unit in 1989 to determine the feasibility of this alternate census method (Table 3).

In 1988 an experimental survey using spotlight counts in the Deep Lake Unit indicated a deer population of 378 or 1 deer per 128 acres. Spotlight counts

were not conducted in this area in 1989, but were employed in the Bear Island Unit. Estimated deer densities were 1 deer per 28 acres in western Bear Island (East Hinson Marsh) and 1 deer per 72 acres in eastern Bear Island (north of Cypress Lane, near Little Marsh). These estimates coincided with field observations and harvest data.

In 1990 deer spotlight counts in Bear Island decreased by 82% compared to last year. Five replications of the Western Bear Island survey produced a high count of only 4 deer observed in 5 miles of transect and a density of 1 deer in 137 acres. The Eastern Bear Island survey route was replicated 4 times with a high of only 2 deer seen in 6.4 miles of transect and a density of 1 deer per 584 acres. Both population estimates were low and inconsistent with diurnal field observations of deer and fall harvest data. Deer harvested (39) in Bear Island during the 1990-91 season was virtually the same as the previous three years suggesting that the spotlight census data were biased by deer remaining in heavy cover or bedded down during the June surveys.

Despite the low deer counts in 1990, we recommend the continued use of spotlight counts as the primary census method in Bear Island due to the deteriorating condition of suitable tracking medium along track count transects in this unit. However, this survey technique needs further refinement to yield consistent estimates.

In August 1990 an antler/antlerless aerial survey was conducted in Bear Island and produced an estimated ratio of 1:1.9 (8 antler/15 antlerless). For comparison, the only previous antler/antlerless aerial survey was conducted in the Stairsteps Unit during September 1986. This survey resulted in a ratio of 1:4.9 (10 antler/49 antlerless) which is skewed toward non-antlered deer and probably represents the upper range of this ratio in the Big Cypress.

The August 1990 aerial survey was also used to calculate a Petersen Estimate for a portion of the BI deer herd based on the number of radio-collared (marked) deer vs. non-collared (unmarked) deer observed in the open marsh and prairie habitats (primarily East Hinson Marsh, Little Marsh, and Okaloacoochee Slough). A population estimate of 112 ± 43 deer was calculated for this area which appears to be an underestimation of the actual population.

Corn Dance

Deer track counts have been conducted in the Corn Dance (CD) Unit since 1981 (Table 4). Ten permanent transects were established in 1985 (Fig. 5) and are remeasured each year to provide 1 mile of suitable tracking medium. As Figure 6 indicates, mean deer tracks per mile of transect have varied between 2.6 in 1985 and 3.9 in 1987. In 1990, the number of deer tracks observed per mile of transect increased slightly from the previous year (3.4 and 2.7 respectively). The population estimate for CD in 1990 was 1,500 deer or 1 deer per 189 acres (Table 4).

Turner River

Deer track count surveys in the Turner River Unit have been conducted along a buggy trail in the Mullet Slough area since 1988. The mean number of deer tracks observed per mile of suitable tracking medium was 6.9 in 1990, a slight increase over the 6.0 tracks/mile in 1989. In 1990 the Mullet Slough portion of the Turner River Unit had a population estimate of 345 deer or a density of 1 deer per 93 acres (Table 5). This represents a 15% increase over the 1989 population estimate of 300 deer or 1 deer per 107 acres and a dramatic increase (nearly six fold) from the 1988 track count census estimate of 58 deer or 1 deer per 549 acres. Harvest data and increased hunter success in the Turner River

Unit during the 1990-91 season also reflect an increase in deer abundance.

Stairsteps

Deer surveys have been conducted in the Stairsteps Unit since 1978. Some track count surveys were conducted in the western portion of the unit while aerial surveys were the type most frequently conducted in the eastern portion (Table 6). The eastern portion of the Stairsteps is largely open Everglades marsh adjacent to Shark Slough. This portion of the Stairsteps comprises approximately 50,000 acres. Density estimates ranged widely with these surveys. Prior to 1985-86 the aerial surveys were flown on north-south transects at two mile intervals. In 1985, the methodology was changed to conform to standards developed by Everglades National Park for systematic reconnaissance flights (SRF). These standards include east-west transects flown at two kilometer intervals with the survey area divided into two kilometer square cells. This technique provides an opportunity to estimate both density and distribution (Fleming 1984). Figure 7 shows the eastern Stairsteps survey area.

Table 6 also provides the results of the first annual surveys conducted in late May and early June 1987 in the eastern Stairsteps Unit. The number of deer observed on these two surveys were 4 and 2 respectively (Appendix B, Table C). These numbers are extremely low and indicate a population under 100 animals (Table 6). Prior and subsequent surveys, harvest levels and field observations on the area indicate that these population estimates are invalid. Abnormally wet conditions, other environmental conditions and unknown factors account for these low counts.

The 1990 annual Stairsteps survey yields deer densities ranging from 1 deer per 113 acres to 1 deer per 227 acres. Deer population estimates declined by 64% compared to last year (1 deer: 41-83 acres). Despite the low water

conditions prevalent in the spring which normally enhances fawn production, aerial deer counts were lower than average (Figure 8). This could be due to a visibility bias or unknown environmental/biological parameters. Deer harvest levels were down in 1990-91, but this was consistent with the corresponding decrease in pressure on the Stairsteps Unit.

An aerial survey in eastern Stairsteps during May 1990 was used to estimate a deer recruitment rate of 31% (18 fawns : 40 adults). This type of survey has not been conducted for years on the Big Cypress, therefore, no comparisons are made.

Labisky et al. (1990) conducted aerial censuses (6 replications) in the southeast Stairsteps Unit of BCNP during late June/early July 1990. Estimates ranged from 1.17 deer/km² (uncorrected) to 4.50 deer/km² (adjusted for visibility bias). These density estimates are similar to previously reported densities of 2.5 to 5.0 deer/km² for the prairie/tree island portion of Stairsteps (Schortemeyer et al. 1989).

HUNTING

During all big game seasons only antlered deer were legal game. Since the 1986-87 season the minimum antler length has been five inches. Wild hogs with a minimum shoulder height of 15 inches were also legal game. Hunting pressure on BCNP was estimated at 14,340 man-days for the Archery, Muzzleloading and General Gun seasons (Table 7). This estimate of pressure was 34% below the estimate of 21,660 man-days recorded last year and the lowest since the 1980-81 season. Deer harvest (182) was similar to 1989-90 (186) but was down (13%) from the record 208 in 1987-88. The relatively high harvest level overall in 1987-88 was due in part to good fawning conditions in 1985 and 1986 which was

reflected in a high representation of these age classes in the harvest. By contrast there are indications that the 1988 fawn class probably experienced poor survival as a result of high water, and 1989 and 1990 were moderate recruitment years. Hog harvest was 17% higher than the prior year (180 vs. 154) and reached the highest level since the record years of 1983-1985 (201 and 195).

Hunter success (game checked/man-day) was at a record high (0.025) and up 56% from the prior season (Table 7). With the exception of the 1990-91 and 1987-88 seasons, hunter success has remained fairly constant for the past nine years (0.015-0.016). The mandatory check of hunters has not directly impacted these calculations since that information was not utilized in estimating man-days of hunting. Hunting pressure was calculated by comparing Saturday vehicle counts with base year surveys.

Figure 9 shows hunter activity and checked harvest for each of the last eleven years. Hunter pressure appears cyclical with rising pressure from 1980-1984 followed by a dramatic decrease in 1985. After 3 years of stable hunter pressure (1985-1987) another sharp increase occurred in 1988 and was followed by a precipitous decline in 1990. Dramatic changes in hunter pressure are due in part to major regulatory changes on the BCNP. Deer harvest has fluctuated, but has remained fairly stable since the 1987-88 season, while hog harvest has been gradually increasing over the past three years. Declines in harvest of one species have often been offset by increases in harvest for the other species.

Table 8 summarizes deer and hog harvest by season compared to the average for the prior two years. Relatively low levels of harvest during Archery season approximated the trends over the past two years. During Muzzleloading season both deer and hog harvest exceeded the prior 2 year average. However, deer harvest was down 9% during General Gun while hog harvest increased by 24%

compared to the previous 2 years. Hunter success ratios for every season equalled or exceeded the prior 2 year averages. This increase in hunter success resulted from a dramatic decrease in hunter pressure on the BCNP during the 1990-91 season without a corresponding decrease in harvest.

Harvest and hunter pressure are compared by unit and season in Table 9. Generally, the trends for individual units follow the overall trends already discussed. The most pronounced increases in deer harvest occurred in the Corn Dance and Turner River Units. All other units on the BCNP experienced a decline in the number of deer harvested, except for BI where harvest was similar to previous years. Hog harvest was higher on all areas except Deep Lake and Stairsteps. Corn Dance and Bear Island hog harvest were most dramatic increasing by almost 2.5 times and 46% respectively. Stairsteps and Deep Lake both experienced declines in deer and hog harvest in 1990-91. Deep Lake Unit was closed during Archery and Muzzleloading and was restricted to archery only hunting during General Gun season. The elimination of dogs for deer or hog hunting coupled with low water levels for airboats during General Gun contributed to the decline in deer and hog harvest on Stairsteps.

Overall, hunting pressure declined on all BCNP Units. The most pronounced decreases in pressure occurred on Deep Lake and Stairsteps, 86% and 43% respectively. For the second straight year pressure decreased on the popular Bear Island Unit (by 29%) after 4 years of increasing use on the area. In general, the length of the hunting season and the large land area have created low hunter densities on BCNP. Normally there are between 50 - 500 hunters daily on the entire BCNP, resulting in a hunter density of 450 - 4,600 ha per hunter (Schortemeyer et al. 1991).

The overall decrease in 1990 hunting pressure on the BCNP was the result of several factors including new management area regulations, removal of unauthorized camps and increased license fees. The full impact of the October 1989 hunting fee increases was not felt until the 1990-91 season because most hunters purchase their license and stamps prior to October. Management area regulations also became more restrictive during 1990-91. Changes include the elimination of dogs for deer and hog hunting, decreasing the number of quota permits for BI, shortening of General Gun season by 12 days, closure of Deep Lake Unit until General Gun season with only archery hunting allowed, two additional quota periods for General Gun, prohibition of raccoon hunting at night and further restrictions on ORV use in the Stairsteps Unit.

These new and previous BCNP regulations restricting hunting use, hunting fee increases, and other factors had the combined effect of making alternate hunting areas more appealing or deterring hunting altogether during the 1990-91 season.

Archery Season

Archery season was open September 8 through October 7. This 30 day season was a week longer than previous years. During Archery 6 deer and 13 hogs were checked which was down from last year (Table 10). However, the total harvest of 19 animals was the same as the prior two year average. Hunting pressure (1660 man-days) was slightly lower (5%) than the prior two year average, despite the extra week.

Muzzleloading Season

For the sixth year Muzzleloading season was 16 days long (October 13 through October 28). A new regulation in 1990 reduced the BI quota from 250 to 200 hunters during the first nine days. During the Muzzleloading hunt, deer

harvest (37) was up dramatically (45%) over the prior two year average while hog harvest (33) was slightly higher (Table 11). Eighty-seven percent of the harvest occurred within the first nine days of the season. Hunting pressure declined by almost one-third when compared to the prior two year average.

General Gun Season

The 1990-91 General Gun season was shortened from 58 days to 46 days and opened three weeks later than previous years (November 17 through January 1). For the fifth year, antler requirements on deer were a minimum of five inches. In 1990, several new restrictions were added to the existing regulations from prior years (see "Hunting" in Introduction for details). Hunter activity and harvest during the General Gun season are summarized in Table 12.

Hunter activity was estimated at 11,055 man-days, a dramatic decrease (37%) from the prior two year average. Deer harvest (139) was down 9% from the prior two year average while hog harvest (134) was up 24%.

Between 1980 and 1982 several different methodologies were utilized to estimate hunter pressure. Efforts to measure use were intensified in 1983 and 1984. During these years a consistent effort was made to improve estimates of hunter use by combining check station information, vehicle surveys and other information (Jansen, 1986). Hunter use in 1990 was calculated by multiplying the 1984 hunter activity (base year) estimate by the ratio of the 1990 vehicle survey to the 1984 vehicle survey (base year). The results of the vehicle surveys are summarized in Appendix C. While the vehicle surveys do not directly measure hunter pressure they do provide a good index and therefore the trends over the past seven years can be analyzed.

Figure 10 compares hunting pressure by week of General Gun season over the past seven years. In general, use is highest during the first nine days followed

by Thanksgiving week. Use levels decline after that until the end of the season. Use levels at the end of the season increase, but generally remain below levels in the first two weeks. Levels presented for the first week are actually for the first two days only (opening weekend). The remaining weeks cover a full seven day period, except for 1990-91 in which week eight is only two days.

In general, the 1990-91 weekly hunting pressures on the BCNP were down from prior years and this was particularly true for holiday periods. It is interesting to note that pressure associated with the Thanksgiving holiday (week 3, 1990) was very low (down approximately 80%) compared to the two previous years (week 5, 1988 & 1989) (Figure 10). Perhaps the additional regulations restricting hunter activity, unfavorable water levels for airboats (Stairsteps), and camp removal adversely affected hunter pressure. In 1990-91, for example only 96 total airboats were counted, compared to 621 in 1989-90. Only 14 airboats were counted after opening weekend in 1990-91 while 399 were observed the prior year.

Use estimates derived from mandatory check-in and check-out will be presented in a separate report. However, preliminary results from 1990-91 indicate that estimates of hunter pressure based on vehicle surveys are comparable to direct measurements from mandatory hunter check-in/out forms. Three methods are utilized in calculating hunter pressure from mandatory check-in and check-out cards: Calendar Days, Calendar Days with Daylight, and Mandays. Each day is counted as a "Calendar Day" of hunting pressure beginning with the day a hunter checked-in through the eventual date of departure from the management area (checked-out). This would be the most liberal estimate of hunting pressure since obvious non-hunting opportunities (such as late Friday night check-ins) would be counted. "Calendar Day Of Daylight" estimates attempt

to address this deficiency and are similar to the Calendar Day computation except that a hunter checking-in with less than 2 hours of hunting daylight (1.5 hours before sunset) or hunting excursions of less than 1 hour will not be credited as hunting for that particular day. It is assumed that the hunter is setting up camp or in the latter case will not have enough time to hunt due to travel time. "Man-day" estimates from hunter check-in/out cards credit a hunter with a man-day of hunting pressure depending on how many hours elapsed between check-in and check-out. If over 50% of the huntable daylight hours were spent in the field then the hunter receives a whole man-day of pressure, otherwise a half man-day. This is the most conservative estimate of pressure and more closely resembles actual hunting activity. None of these methods evaluate noncompliance with the mandatory check-in rule. In 1990-91, the estimate of total hunter pressure (Archery through General Gun) based on vehicle count surveys (14,340 man-days) was similar to the Man-day estimate from check-in cards (14,076 man-days), but lower than Calendar Day with Daylight (15,992 man-days) and Calendar Day (17,202 man-days) estimates. During General Gun season total vehicle count estimates (11,055 man-days) were well within the range of the other three estimates compiled from the hunter check-in forms (10,132 - 12,164 man-days). However, hunter pressure calculated from vehicle counts tended to be somewhat lower than the direct measurements from check-in cards for Archery and Muzzleloading seasons. Overall, Saturday vehicle counts were reasonable estimates of hunter pressure when compared to estimates from mandatory check-in and check-out.

WHITE-TAILED DEER BIOLOGICAL DATA

Herd Composition

Sex ratios were determined from 357 and 370 spotlight observations made in the Corn Dance and Bear Island Units, respectively, since August 1984. The sex ratios of adult deer in the Corn Dance and Bear Island Units are 1:3.6 and 1:2.3 (buck:doe), respectively.

Appendix D summarizes biological data collected on 149 male deer harvested during the 1990-91 season. These deer were aged by tooth wear and eruption (Severinghaus 1949). Age structure of the 1990-91 BCNP harvest continued its upward trend. In 1990-91 the harvest declined slightly for the 1.5 year age class and only one deer was harvested (illegally) in the fawn age class. The hunter claimed that he could not find the antlers from this fawn illegally harvested from the Loop Road Unit. The 1.5 year age class constituted 21.1% of the harvest, while the 2.5 year age class accounted for 40.8%. The 3.5+ age class accounted for 37.4% of the harvest which was the highest percentage ever recorded on the BCNP. Harvest in the 4.5 and 5.5+ age classes were particularly strong (10.2%, 8.2% respectively) with one-third of the "older" deer being taken from the Turner River Unit. The shift in harvest to older age classes has continued since the implementation of the five-inch minimum antler rule in 1986. This regulation has significantly altered the age structure of harvested bucks on the BCNP (χ^2 -test, $p = .005$) (Table 13). The initial response (1986) to the five-inch minimum antler requirement was a reduction in the total number of bucks harvested and the elimination of the fawn age class from the checked harvest. In subsequent years (1987-1990), older bucks have increased in the harvest while yearlings (1.5 year-olds) have been substantially reduced. As predicted under

the five-inch minimum antler regulation, the age structure has shifted to older age classes for harvested bucks on the BCNP.

Table 14 summarizes deer age structure by unit of harvest. The Bear Island Unit had the highest portion (48%) in the 1.5 year age class. The Stairsteps Unit had the highest percentage of deer (59%) in the 2.5 year age class, while the Corn Dance and Turner River Units had the highest portion (52% and 48% respectively) in age classes greater than 2.5. Overall, the age structure data indicated moderate recruitment in recent years. Field observations, surveys, documented harvest, and information from radio-collared deer (see reproductive status) have indicated fluctuating recruitment rates over the past four years. For example, Bear Island based on radio telemetry data showed improved neonate fawn survival in 1989 and this was represented by a large percentage (48%) of 1.5 year old bucks checked in the harvest. Conversely, data from Stairsteps Unit indicated low survival of fawns in 1989 (Labisky et al. 1989) and this was represented by a poor harvest of 1.5 year olds from that unit in 1990 (10%).

Physical Characteristics

Table 15 summarizes antler characteristics and dressed weight by age class and unit of harvest. Overall, values in 1990-91 are similar to those reported since the implementation of the five-inch antler rule (1986-87), but slightly lower than the mean values recorded last year (1989-90). For instance, average dressed weight of all animals ranged from 73 pounds in 1989 to 67 pounds in 1986 and was measured at 71 pounds in 1990. Likewise, antler circumference was 6.3 cm in 1990 compared to earlier years (5.6 to 6.4 cm). In 1990, antler length (22.1 cm) also tended towards the high range when compared to previous years (18.8 to 23.3 cm). Average number of points per deer matched last years high of 4.8. The higher values for dressed weights, antler measurements and number

of points in recent years are primarily a function of an overall increase in the age structure of harvested bucks. However, some of this improvement could be related to better forage quality with increased prescribed burning and favorable hydrological conditions playing an important role.

Table 16 summarizes the occurrence of spikes by age class and unit of harvest. The overall percent spikes by age class was similar to last year. Only 29 harvested deer were spikes in 1990 which was nearly identical to 1989 (28). The percent spikes in the harvest appears to have stabilized since the enactment of the 5 inch antler regulation in 1986-87.

Twenty-nine adult does were collected from Bear Island (BI, n=6) and Corn Dance (CD, n=5) Units of BCNP, the Fakahatchee Strand State Preserve (FS, n=6), Collier Enterprise lands (CE, n=6), and the Florida Panther National Wildlife Refuge (PR, n=6) (Fig 11). Prior to necropsy body measurements were taken (Table 17). Necropsies were performed in cooperation with S.R. Telford, University of Florida School of Veterinary Medicine and followed procedures of Nettles (1981). A physical condition value of 1-12 was assigned each animal according to levels of endogenous fat on the tail, pericardium, heart, and kidneys (Stockle et al. 1978) (Table 18). Abomasal contents were removed and examined for parasite loads (Eve and Kellogg 1977). Reproductive tracts of females were removed and fetuses were counted (Table 19).

Overall, white-tailed deer condition in 1990 was similar to the previous year. Necropsy results indicated that CE and BI deer were in better physical condition than deer from other sample areas in 1990. CE and BI deer were ranked highest in mean condition values (Fig. 12), kidney fat indices (Fig. 13), and body weights of 2.5 year old does (Fig. 14). As in previous years, deer in good physical condition have lower APC values while those in poor condition have

higher values (Fig. 15). Mean APC values for Bear Island deer improved dramatically in 1990. In 1989, BI deer had the highest mean APC values (1,123) of any sampled area, while in 1990 BI had one of the lowest mean APC's (582).

Within BCNP, the physical condition of BI deer is better than that of CD which is consistent with prior years. As previously noted (Schortemeyer et al. 1991, McCown 1988) the better habitat of BI is primarily responsible for this observation. In general, deer herd densities in CD are low, while APC values are comparatively high. Much of CD consists of expansive prairies of dwarf cypress (Taxodium distichum) growing over bare mineral soil with a scattering of pine islands and few hardwood hammocks. Palatable forage in CD is spatially and temporally isolated resulting in deer concentrating around forage producing areas. This facilitates the transmission of parasites and the lack of nutritious forage lowers deer condition values. In contrast, BI supports a denser deer herd which is in better physical condition than CD. A mosaic of habitat types including freshwater marshes, sloughs, prairies, strands, cypress, pine and hammock forests along with more fertile soil conditions are primarily responsible for the better physical condition of BI deer.

Reproductive Status

The reproductive status of deer was determined by necropsy and by observations of radio-instrumented does. Twenty-four of 28 (86%) adult does necropsied were pregnant (Table 19). Nonpregnant deer were ranked in the lower physical condition classes. Three of six adult does from FS were not pregnant. The incidence of twinning was highest in FS and OE (fetuses/pregnant doe: 1.7 and 1.6 respectively) and lowest in CD and PR (none). CD deer were estimated to be in the poorest physical condition of all areas sampled in 1990, while the condition of deer from PR had deteriorated since 1989.

Nine of 16 radio-instrumented does in BI were observed with fawns of the year during spring 1991 for a 56.2% fawning success rate. This rate is comparable to the 1988 rate (50%), both of which were substantially lower than fawning success in 1990 (83%) and 1989 (80%).

Fawn Mortality Rates

Data from collected does in Bear Island show that 93.1% of does should be pregnant with an average of 1.2 fetuses/doe (McCown 1991). By applying these values to 1991's observations of fawning success, it is possible to estimate neonate fawn mortality. Of the 16 does with known fawning success, 14.9 should have been pregnant ($16 \times .931$) and produced 17.9 fetuses ($14.9 \text{ does} \times 1.2 \text{ fetuses/doe}$). This suggests a spring 1991 neonate fawn mortality of 49.6% [$1 - (9 \text{ observed fawns} / 17.9 \text{ estimated \# of full-term fetuses})$].

This neonate fawn mortality rate is comparable to 1988's 55.2% and much higher than 1989's and 1990's rates of 28.4% and 20.4% respectively. These fluctuations in neonate fawn mortality may be related to water level during the spring fawning season. The 1988 and 1989 rainy seasons (June to November) produced below normal rainfall totals leaving drought conditions in southwest Florida, which were particularly acute during the normally dry springs. Low water conditions may have allowed does to disperse, instead of concentrating on higher ground, for selecting birth sites and hiding cover for neonates. This may have reduced the chances of fawn predation. The average neonate fawn mortality rate was $38.4\% \pm 16.6 \text{ SD}$.

The BI radio-telemetry study was also designed to provide information on neonate fawn mortality. We attempted to capture neonates using methods developed in areas with high density herds, good visibility, and easy access to fawns (Downing and McGinnes 1969, Bolte et al. 1970, Logan 1972, and

Epstein et al. 1985). These methods were unsuccessful on BI but we did utilize a helicopter to radio tag 13 fawns. Unfortunately only two of these were neonates. However, this fawn sample enabled us to estimate the survival pattern for the 6 month period prior to their first birthday. Of the thirteen animals that began the 6 month to 1 year age interval, 12 survived. The only mortality was the result of bobcat predation. These data suggest that fawns in BI have a 92.1% chance of surviving to their first birthday once they are at least 6 months of age. In contrast, the annual survival rate of fawns in the Stairsteps Unit was low (0.2188, N=8) and lower still in the nonhunted Everglades National Park (ENP) herd (0.0695, N=8) (Labisky et al. 1990).

Adult Mortality Agents and Survival Rates

Twenty-three radio-instrumented or ear-tagged deer have died since the beginning of the study (Sept. 1986). Bobcats (Felis rufus) are the most important predators on white-tailed deer in Bear Island, preying upon at least 6 and perhaps as many as 9 deer. Florida panthers have preyed upon 4 radio-collared deer. Humans have taken 3 deer legally, two were ear-tagged bucks and the third was a doe harvested off the Preserve during the antlerless season. Two other does were illegally killed during general gun season 1988. Four does died of natural (non-predator) causes; one suffered a broken leg, another suffered a broken jaw, and the third died of an unknown infectious agent and related pneumonia. The fourth deer died after twin fetuses became lodged in the birth canal and could not be expelled (D. Forrester, pers. comm.). This doe, dead for < 24hrs, was subsequently scavenged by a bobcat. The last two deer died of unknown causes. Labisky et al. (1990) found similar results in the Stairsteps Unit where bobcat predation was the leading cause of mortality for collared deer (16 deer or 40% of all recorded deaths).

Calculations of survival rates for BI deer followed Trent and Rongstad (1974) and Heisey and Fuller (1985). The year was divided into 3 intervals, summer (June to onset of hunting season), hunting season (November and December) and spring (January through May). The hunting season corresponded with general gun season. Archery and muzzleloader seasons, 38 days in Sept.-Oct., were not included in the hunting interval because hunting pressure is 5 times less and documented harvest is 7 times lower than in general gun (Schortemeyer et al. 1989) and thus the impact on the deer herd was assumed negligible in comparison to general gun. Survival rates for deer during each interval were calculated by the formula:

$$S_i = [(X_i - Y_i)/X_i]^{1/n}$$

where S_i is the interval survival rate, X_i is the number of radio-transmitter days, Y_i is the number of animals dying during the interval, and n is the length of the interval in days (Table 20).

White-tailed does in BI, regardless of age, had an average survival rate of 0.813 (95% CI = 0.68, 0.94), meaning that 81% of all collared deer would survive any given year. There were no differences in survival rates between the three seasons (summer, hunting, and spring) either within a particular year or across all years. The annual survival rate of adult females in Stairsteps (0.808, N=15) was comparable to BI and was substantially higher than the nonhunted herd in ENP (0.453, N=14) (Labisky et al. 1990).

Home Range Size

Doe home ranges varied from 76-961 ha in size. Large home ranges resulted from extensive movements (2-10km) by several does outside of their typical use areas. Average home range size was 239 ha which falls among reported doe home ranges in upland habitats of Florida: 85 ha (Marchinton and

Jeter 1967), 270 ha (Bridges 1968), and 342 ha (Smith 1970). White-tailed buck home ranges were 454-1560 ha based on data from two adults. No significant shifts in deer home range were associated with the hunting season based on 44 radio-collared deer in BI (Schortemeyer et al. 1991).

WILD HOG BIOLOGICAL DATA

Whenever possible, biological data was collected from harvested hogs when they were examined at the check station. Parameters normally measured included weight, body length, tail length and shoulder height. Measurements were taken on approximately 840 of the 1276 hogs checked over the past eight years.

Table 21 summarizes average gutted weights, lengths, and shoulder heights for hogs harvested during the last eight years. Average weight, length and shoulder height were all greater than the previous year. In fact, mean body weight, length and shoulder height measurements were the second highest values ever recorded on BCNP. Average dressed weight this year was 77 lbs. compared to 66 lbs. in 1989-90. This represents a 17% increase over the prior year and only 7% less than the record high of 83 lbs. recorded in 1988-89. Availability of more nutritious food or perhaps a preponderance of older animals in the hog harvest of 1990-91 could explain these increases in hog measurements. Good mast production, increased prescribed burning and favorable water conditions also may have contributed to improved forage quality and quantity.

Table 22 compares physical characteristics of male and female hogs harvested over the last eight years. Males were larger in every category in 1990-91. Males outweighed females by 31% or 20 pounds (85 pounds vs. 65

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Table 1. Number of acres burned in Big Cypress National Preserve, 1979-1990.

Year	Total Acres	Human Caused	Prescribed	Natural
1979	24,147	21,482	2,642	23
1980	27,717	20,052	7,440	225
1981	217,378	215,037	1,683	658
1982	49,218	44,691	4,527	0
1983	11,474	1,297	9,950	227
1984	23,064	4,013	17,713	1,338
1985	16,595	2,510	8,729	5,356
1986	51,443	32,718	18,355	370
1987	27,998	3,775	21,767	2,456
1988	40,866	23,751	17,031	84
1989	58,080	17,051	40,386	643
1990	73,058	9,913	62,950	645
TOTALS	621,038	396,290	213,173	12,025
AVG./YR.	51,753	33,024	17,764	859

(Unpublished data from BCNP, March 1991)

Table 2. Population estimates for white-tailed deer in the Bear Island unit (38,000 acres) of the BCNP based on track count surveys, 1977-88.

Time of Survey	Source	Population Estimate	Density (deer:acre)
1988 Annual	Schortemeyer & McGrady 1988	81-265	1:451-138
1987 Annual	Schortemeyer & Ramsey 1987	214-545	1:171-67
1986-87 Pre hunt	Schortemeyer & Ramsey 1987	176-567	1:208-64
1985-86 Post hunt	Schortemeyer & Ramsey 1986	128-187	1:285-195
1985-86 Pre hunt	Schortemeyer & Ramsey 1986	513-842	1:71-43
1984-85 Post hunt (2 of 2)	Schortemeyer & Ramsey 1985	81-104	1:451-351
1984-85 Post hunt (1 of 2)	Schortemeyer & Ramsey 1985	62-123	1:589-297
1984-85 Pre hunt	Schortemeyer 1984	160-410	1:228-89
1983-84 Post hunt	McGrady & Jansen 1984 Bear Island Deer Track Counts	100	1:365
1983-84 Pre hunt	McGrady & Jansen 1984 Bear Island Deer Track Counts	461	1:79
1982-83 Post hunt	Pylant, memo, 11 April 1983	600	1:60
1982-83 Pre hunt	Pylant, memo, 30 Sept. 1982	713	1:51
1981-82 Post hunt	Pylant, memo, 21 April 1982	508	1:72
1980-81 Post hunt	Pylant, memo, 28 Dec. 1981	584	1:62

Table 3. Population estimates for white-tailed deer on the Big Cypress National Preserve based on spotlight counts, 1988-1990.

Time of Survey	Source	Unit	Number of Surveys	Deer Count High/Average	Calculated Size of Survey Area (acres)	Population Estimate	Density (deer:acre)
1990 Annual	Schortemeyer & Manor June 1990	Western Bear Island	5	4/2.4	19,129	140	1:137
1990 Annual	Schortemeyer & Manor June 1990	Eastern Bear Island	4	2/1.3	19,129	33	1:584
1989 Annual	McGrady, Manor & Schortemeyer May 1989	Western Bear Island	3	24/11.3	19,129	683	1:28
1989 Annual	McGrady, Manor & Schortemeyer June 1989	Eastern Bear Island	2	11/7	19,129	266	1:72
1988 Annual	McGrady April 1988	Deep Lake	1	8/8	48,356	378	1:128

Table 4. Population estimates for white-tailed deer in the Corn Dance Unit of the BCNP, 1980-90.

Time of Survey	Method	Source	Calculated size of unit (acres)	Population Estimate	Density (deer:acre)
1990 Annual	Track Counts	McCown 1990	283,791	1500	1:189
1989 Annual	Track Counts	McCown 1989	283,791	1215	1:234
1988 Annual	Track Counts	McCown 1988	283,791	1412	1:201
1987 Annual	Track Counts	McCown 1987	283,791	1720	1:165
1986 Annual	Track Counts	McCown 1986	283,791	1260	1:225
1985-86 Pre-hunt	Aerial Counts	Schortemeyer 1985	283,791	280-385	1:1013-737
1985 Annual	Track Counts	McCown 1985	283,791	1140	1:249
1984-85 Pre-hunt					
1983-84 Post hunt					
1983-84 Pre hunt					
1982-83 Post hunt	Track Counts	Pylant, memo, 11 April 1983	270,000	1268-2250	1:213-120
1982-83 Pre hunt					
1981-82 Post hunt	Track Counts	Pylant, memo, 21 April 1982	270,000	1080-1875	1:250-144
1980-81 Post hunt	Track Counts	Pylant, memo, 28 Dec. 1981	300,000	1620	1:185

Table 5. Population estimates for white-tailed deer in the Turner River unit (Mullet Slough) of the BNCP, 1988-1990.

Time of Survey	Method	Source	Calculated Size of Survey Area (acres)	Population Estimate	Density (deer:acre)
1990 Annual	Track Counts	Schortemeyer & Manor May 1990 (b)	32,000	345	1:93
1989 Annual	Track Counts	McGrady & Manor May 1989 (b)	32,000	300	1:107
1988 Annual	Track Counts	McGrady April 1988 (a)	32,000	58	1:549

a) Track counts conducted off Cypress Lane, two replications.

b) Track counts conducted off Cypress Lane, three replications.

Table 6. Population estimates for white-tailed deer in the Stairsteps unit (eastern portion) of the BCNP, 1977-90.

Time of Survey	Method	Source	Calculated size of unit (acres)	Population Estimate	Density (deer:acre)
1990 Annual	SRF Aerial Counts	Schortemeyer and Manor	50,000	200-442	1:227-113
1989 Annual	SRF Aerial Counts	Schortemeyer and McGrady	50,000	602-1220	1:83-41
1988 Annual	SRF Aerial Counts	Schortemeyer and McGrady	50,000	485-980	1:103-51
1987 Annual (1 of 2)	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	38-76	1:1322-661
1987 Annual (2 of 2)	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	19-38	1:2643-1322
1986-87 Post-hunt	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	250-500	1:200-100
1986-87 Pre-hunt (2 of 2)	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	330-660	1:152-76
1986-87 Post-hunt (1 of 2)	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	280-560	1:180-90
1985-86 Post-hunt	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	240-480	1:210-105
1985-86 Pre-hunt	SRF Aerial Counts	Schortemeyer and Ramsey	50,000	410-820	1:120-60
1984-85 Post-hunt					
1984-85 Pre-hunt	Aerial Counts	Schortemeyer 1984	50,000	316-633	1:158-79

Table 6. continued

Time of Survey	Method	Source	Calculated size of unit (acres)	Population Estimate	Density (deer:acre)
1984 Post Production (2 of 2)	Aerial Counts	Schortemeyer 1984	50,000	117-220	1:427-227
1984 Post Production (1 of 2)	Aerial Counts	Schortemeyer 1984	50,000	70-132	1:714-379
1982-83 Post-hunt	Aerial Counts	Pylant, memo, 11 April 1983	50,000	379-543	1:132-92
1982-83 Pre-hunt	Aerial Counts	Pylant, memo, 30 Sept. 1982	50,000	833-1190	1:60-42
1981-82 Post-hunt	Track Counts	Pylant, memo, 21 April 1982	50,000	171	1:135
1980-81 Post-hunt	Track Counts	Pylant, memo, 28 Dec. 1981	141,800	1013	1:140
1979-80 Post-hunt	Track Counts	Pylant, memo, 28 Dec. 1981	140,300	954	1:147
1978-79 Post-hunt	Track Counts	Pylant, memo, 28 Dec. 1981	140,000	954	1:147
1977-78 Post-hunt	Track Counts	Pylant, memo, 28 Dec. 1981	141,000	1102	1:128
1977-78 Post-hunt	Track Counts	Bowman, memo, 9 June 1978	140,600	743	1:190

Table 7. Big Cypress National Preserve deer harvest, hog harvest and hunting pressure, 1980-91.

Year	No. of Man-days	No. of deer Harvested	No. of hogs Harvested	Hunter Success (a)
1980-81	14,240	103	81	0.013
1981-82	16,539	104	44	0.009
1982-83	18,625	145	141	0.015
1983-84	23,015	140	201	0.015
1984-85	24,360	205	195	0.016
1985-86	17,195	156	111	0.016
1986-87	17,290	127	153	0.016
1987-88	17,525	208	138	0.020
1988-89	21,567	185	144	0.015
1989-90	21,660	186	154	0.016
1990-91	14,340	182	180	0.025

(a) Hunter Success = (deer and hog harvest)/man-days of hunting.

Table 8. Big Cypress National Preserve deer and hog harvest, and hunter success ratio by season.

DEER				
SEASON	No. Harvested		Hunter Succ. Ratio (a)	
	1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.
Archery	6	7.5	0.004	0.004
Muzzleloader	37	25.5	0.023	0.011
General Gun	139	153.5	0.012	0.009
HOG				
Archery	13	11.5	0.008	0.007
Muzzleloader	33	29.5	0.020	0.012
General Gun	134	108.5	0.012	0.010

(a) Success ratio = no. of animals harvested/no. of man-days.

Table 10. Archery season harvest summary Big Cypress National Preserve,
1990-91.

WEEK		DEER		HOG		HUNTER ACTIVITY (man-days)	
1990-91 dates		1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.
1 (9-8 to 9-9)		1	3.0	4	2.5	490	599
2 (9-10 to 9-16)		2	3.0	2	7.0	440	393
3 (9-17 to 9-23)		0	1.0	4	1.5	275	448
4 (9-24 to 9-30)		1	0.5	1	0.5	240	310
5 (10-1 to 10-7)		2	-	2	-	215	-
TOTAL		6	7.5	13	11.5	1660	1750

Table 11. Muzzleloader season harvest summary Big Cypress National Preserve, 1990-91.

WEEK	DEER		HOG		HUNTER ACTIVITY (man-days)	
1990-91 dates	1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.
1 (10-13 to 10-14)	10	11.0	9	13.0	745	998
2 (10-15 to 10-21)	20	8.0	22	10.5	485	703
3 (10-22 to 10-28)	7	6.5	2	6.0	395	678
TOTAL	37	25.5	33	29.5	1625	2379

Table 12. General Gun season harvest summary, Big Cypress National Preserve, 1990-91.

WEEK		DEER		HOG		HUNTER ACTIVITY (man-days)	
1990-91 dates		1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.	1990-91	Prior 2 yr. avg.
1 (11-17 to 11-18)		24	41.5	26	22.5	1875	3068
2 (11-19 to 11-25)		46	38.5	31	24.5	2540	2818
3 (11-26 to 12-02)		11	12.5	14	21.0	645	1913
4 (12-03 to 12-09)		13	8.0	24	6.5	1220	1453
5 (12-10 to 12-16)		22	14.5	14	10.0	1390	3050
6 (12-17 to 12-23)		11	8.5	14	6.0	1155	1495
7 (12-24 to 12-30)		10	14.5	9	5.5	1550	1385
8 (12-31 to 01-01)		2	9.0	2	5.5	680	1318
9		-	6.5	-	6.5	-	990
TOTAL		139	153.5	134	108.5	11055	17490

Table 13. Age structure of male white-tailed deer harvested from Big Cypress National Preserve before and after the implementation of the 5-inch minimum antler regulation (adapted from Schortemeyer 1991).

Age Class	One-inch Antler		Five-inch Antler			
	1983-1985 (3-year average)		1986 (transitional)		1987-1990 (4-year average)	
	Percentage	N	Percentage	N	Percentage	N
0.5	6.7	21	0.0	0	0.2	1
1.5	46.6	146	44.6	33	25.8	149
2.5	29.1	91	29.7	22	43.4	251
3.5	9.9	31	14.9	11	19.9	115
4.5+	7.7	24	10.8	8	10.7	62
N		313		74		578

Table 14. Age structure of male white-tailed deer harvested on the Big Cypress National Preserve by unit of harvest, 1990-91.

AGE CLASS	BEAR ISLAND		TURNER RIVER		LOOP		STAIRSTEPS		CORN DANCE		ALL UNITS COMBINED	
	#	%	#	%	#	%	#	%	#	%	#	%
0.5	0	-	0	-	1	4.5	0	-	0	-	1	00.7
1.5	13	48.1	8	32.0	3	13.6	5	10.2	2	8.7	31	21.1
2.5	6	22.2	5	20.0	10	45.5	29	59.2	9	39.1	60	40.8
3.5	4	14.8	3	12.0	5	22.7	10	20.4	6	26.1	28	19.0
4.5	2	7.4	6	24.0	2	9.1	2	4.1	3	13.0	15	10.2
5.5+	2	7.4	3	12.0	1	4.5	3	6.1	3	13.0	12	8.2
Sample Size	27		25		22		49		23		147 (a)	

(a) Includes 1 deer from Deep Lake unit.

Table 15. Weight and antler characteristics of male deer harvested during 1990-91, Big Cypress National Preserve.

AGE CLASS	SAMPLE SIZE BY UNIT						AVERAGE DRESSED WEIGHT (LBS.)					
	I(a)	III	IV	V	VI	ALL	I	III	IV	V	VI	ALL
0.5	-	-	-	-	-	-	-	-	-	-	-	-
1.5	11	5	3	3	2	24	72	80	63	58	63	70
2.5	2	4	8	17	4	36	71	64	62	64	75	66
3.5	4	2	5	6	1	18	77	85	62	64	75	69
4.5	2	4	2	2	0	10	78	87	63	76	-	78
5.5+	1	2	1	2	1	7	105	90	90	80	90	89
TOTAL	20	17	19	30	8	95	75	80	64	65	74	71

AGE CLASS	AVERAGE ANTLER MAIN BEAM CIRCUMFERENCE (cm)						AVERAGE ANTLER MAIN BEAM LENGTH (cm)					
	I	III	IV	V	VI	ALL	I	III	IV	V	VI	ALL
0.5	-	-	-	-	-	-	-	-	-	-	-	-
1.5	5.0	5.0	6.3	5.6	5.0	5.2	16.1	18.0	12.9	10.3	11.6	15.0
2.5	5.8	4.8	5.6	6.0	6.1	5.8	21.6	15.6	19.4	19.4	22.0	19.7
3.5	6.5	7.1	6.3	7.1	7.5	6.9	29.3	25.5	24.2	25.3	28.4	26.2
4.5	7.7	7.6	7.2	7.4	7.8	7.6	32.7	29.8	27.3	26.1	30.7	29.6
5.5+	7.5	10.0	10.0	9.2	8.6	9.0	32.8	35.3	33.5	40.9	35.8	36.1
TOTAL	5.8	6.5	6.2	6.4	6.8	6.3	21.6	23.4	21.7	21.0	25.2	22.1

AGE CLASS	AVERAGE NUMBER OF POINTS					
	I	III	IV	V	VI	ALL
0.5	-	-	-	-	-	-
1.5	3.8	3.7	4.7	3.0	2.0	3.6
2.5	5.0	3.5	3.9	4.5	5.1	4.4
3.5	4.5	5.0	4.4	5.6	5.3	5.1
4.5	8.0	5.6	4.0	4.0	5.7	5.6
5.5+	6.5	8.0	8.0	7.0	8.0	7.5
TOTAL	4.8	4.7	4.4	4.6	5.4	4.8

(a) Units: 1 = Bear Island, III = Turner River, IV = Loop, V = Stairsteps,
VI = Corn Dance
"ALL" column includes 1 deer from the Deep Lake Unit

Table 16. Number of spikes, percent spikes and average main beam length of adult deer harvested on the Big Cypress National Preserve, 1990-91.

AGE CLASS	NUMBER OF SPIKES						% SPIKES IN AGE CLASS						MAIN BEAM LENGTH OF SPIKES (inches)			
	I(a)	III	IV	V	VI	ALL	I	III	IV	V	VI	ALL	0-1	1-3	3-5	>5
1.5	4	4	1	3	2	14	40.0	57.1	33.3	60.0	100.0	51.9	-	3	4	7
2.5	1	2	3	6	1	14	16.7	50.0	37.5	24.0	12.5	26.9	-	1	3	10
3.5	-	-	1	-	-	1	-	-	20.0	-	-	4.2	-	-	-	1
4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.5+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(a) Units: I = Bear Island, III = Turner River, IV = Loop, V = Stairsteps, VI = Corn Dance.
"ALL" includes 1 deer from Deep Lake Unit.

Table 17. Morphometric values of adult does collected in southwest Florida, October, 1990.

NO.	AREA ¹	SEX	AGE	WEIGHT (kg)	LENGTH (cm)	GIRTH (cm)
382	FS	F	2.5	40.9	121.5	76.0
383	FS	F	2.5	31.8	123.0	64.0
386	FS	F	2.5	37.7	122.5	73.0
387	FS	F	2.5	41.8	120.5	72.0
407	FS	F	1.5	28.2	122.0	63.0
408	FS	F	3.5	46.8	136.5	80.0
388	CE	F	3.5	50.0	132.0	84.0
389	CE	F	3.5	45.5	123.5	75.5
391	CE	F	5.5	44.5	121.5	77.0
392	CE	F	2.5	42.3	117.0	70.0
393	CE	F	2.5	44.5	128.5	73.5
394	CE	F	3.5	37.3	121.5	72.5
396	BI	F	2.5	39.1	122.0	74.0
397	BI	F	1.5	41.4	124.5	76.0
414	BI	F	1.5	34.1	128.5	69.5
415	BI	F	2.5	49.1	138.0	82.5
417	BI	F	2.5	36.4	123.0	71.5
418	BI	F	3.5	52.3	145.5	80.0
398	PR	F	2.5	33.2	121.5	71.0
399	PR	F	3.5	38.6	128.0	79.0
401	PR	F	2.5	42.3	125.5	73.0
402	PR	F	4.5	44.1	125.0	73.0
404	PR	F	2.5	38.6	121.0	73.5
405	PR	F	5.5	47.7	132.0	76.0
410	CD	F	2.5	30.9	125.5	71.0
411	CD	F	2.5	28.6	113.5	65.0
412	CD	F	1.0	25.0	105.0	59.5
413	CD	F	3.0	38.6	123.5	70.5
420	CD	F	3.0	38.6	125.0	78.5

(1) FS = Fakahatchee Strand State Preserve
CE = Collier Enterprises
BI = Bear Island Unit of BCNP
PR = Florida Panther National Wildlife Refuge
CD = Corn Dance Unit of BCNP

Table 18. Physical condition values of adult does collected in southwest Florida, October, 1990.

NO.	AREA ¹	SEX	AGE	KIDNEY FAT INDEX	TAIL FAT ²	HEART FAT ²	PERI- CARDIAL FAT ²	KIDNEY FAT ²	CONDITION VALUE ³
382	FS	F	2.5	14.0	5	5	5	3	8
383	FS	F	2.5	7.2	2	1	1	1	6
386	FS	F	2.5	22.5	5	5	8	8	11
387	FS	F	2.5	27.5	8	6	8	8	11
407	FS	F	1.5	7.1	2	2	2	2	5
408	FS	F	3.5	24.7	5	5	5	8	8
388	CE	F	3.5	34.6	7	6	8	9	11
389	CE	F	3.5	26.8	8	8	8	8	11
391	CE	F	5.5	39.9	8	8	8	9	11
392	CE	F	2.5	31.2	8	6	8	9	11
393	CE	F	2.5	13.4	8	7	8	7	6
394	CE	F	3.5	13.6	5	5	5	5	8
396	BI	F	2.5	29.6	5	5	6	7	8
397	BI	F	1.5	23.7	8	5	6	7	8
414	BI	F	1.5	16.6	5	5	5	5	8
415	BI	F	2.0	49.0	9	8	8	8	11
417	BI	F	3.0	15.4	5	6	5	4	8
418	BI	F	3.5	55.5	8	8	8	9	11
398	PR	F	2.5	18.4	2	2	2	5	5
399	PR	F	3.5	9.8	2	2	2	1	5
401	PR	F	2.5	41.3	5	5	8	8	8
402	PR	F	4.5	23.9	5	5	8	8	8
404	PR	F	2.5	14.0	2	2	2	2	2
405	PR	F	5.5	45.3	8	7	8	8	11
410	CD	F	2.5	7.8	1	2	1	1	5
411	CD	F	2.5	24.8	5	5	2	4	8
412	CD	F	1.0	10.1	2	2	1	1	5
413	CD	F	3.0	31.8	8	8	8	7	11
420	CD	F	3.0	9.0	4	5	2	2	6

1. FS = Fakahatchee Strand State Preserve

BI = Bear Island Unit of BONP

PR = Florida Panther National Wildlife Refuge

CE = Collier Enterprises

CD = Corn Dance Unit of BONP

2. Depots of fat were assigned values of 1-9 with 1 representing nonexistent or very low levels and 9 representing heavy deposits.

3. Physical condition values of 1-12 were estimated with 1 representing very poor condition and 12 extremely good.

Table 19. Reproductive status of adult does collected in southwest Florida, October, 1990.

NO.	AREA ¹	AGE	PREG?	FETUS NO.
382	FS	2.5	N	0
383	FS	2.5	N	0
386	FS	2.5	Y	2
387	FS	2.5	Y	1
407	FS	1.5	N	0
408	FS	3.5	Y	2

388	CE	3.5	Y	2
389	CE	3.5	Y	2
391	CE	5.5	Y	2
392	CE	2.5	Y	1
393	CE	2.5	N	0
394	CE	3.5	Y	1

396	BI	2.5	Y	1
397	BI	1.5	Y	1
414	BI	1.5	Y	1
415	BI	2.5	Y	1
417	BI	2.5	Y	1
418	BI	3.5	Y	2

398	PR	2.5	Y	1
399	PR	3.5	Y	1
401	PR	2.5	Y	1
402	PR	4.5	Y	1
404	PR	2.5	Y	1
405	PR	5.5	Y	1

410	CD	2.5	Y	1
411	CD	2.5	Y	1
413	CD	3.0	Y	1
420	CD	3.0	Y	1

(1) FS = Fakahatchee Strand State Preserve
CE = Collier Enterprises
BI = Bear Island Unit of BCNP
PR = Florida Panther National Wildlife Refuge
CD = Corn Dance Unit of BCNP

Table 20. Survival rates for radio-collared white-tailed does, Bear Island Unit, Big Cypress National Preserve, Florida, May 1987 to May 1991.

Interval	Number of deer	Number of deaths Yi	Number of radio-days Xi	Interval length (days) n	Interval survival Si	Annual survival
Summer87	15	1	2277	159	0.930	
Hunting87	16	1	893	58	0.937	
Spring88	14	2	1926	149	0.856	0.748
Summer88	18	1	2692	150	0.946	
Hunting88	25	2	1400	58	0.920	
Spring89	25	3	3635	157	0.880	0.765
Summer89	22	0	3278	149	1.000	
Hunting89	29	1	1625	58	0.965	
Spring90	34	3	5083	158	0.911	0.880
Summer90	30	3	4712	169	0.900	
Hunting90	26	0	1196	46	1.000	
Spring91	24	1	3555	151	0.958	0.860
Average Annual Survival						0.813
95% confidence interval						(0.68, 0.94)

Table 21. Physical characteristics of wild hogs harvested on the Big Cypress National Preserve, 1983-91.

YEAR	SAMPLE SIZE	AVERAGE DRESSED WEIGHT (lbs.)	AVERAGE BODY LENGTH (cm.)(a)	AVERAGE SHOULDER HEIGHT (cm.)
1983-84	126	71(20-198)	114(42-170)	59(15-90)
1984-85	119	71(18-350)	116(77-164)	61(40-90)
1985-86	67	75(18-175)	116(54-152)	64(28-90)
1986-87	75	70(20-155)	115(78-155)	63(36-88)
1987-88	101	71(16-245)	115(75-166)	62(39-98)
1988-89	108	83(20-238)	120(68-158)	63(22-85)
1989-90	110	66(25-180)	117(85-171)	61(45-87)
1990-91	134	77(25-165)	118(71-160)	63(18-90)

(a) Body length does not include tail

Table 22. Comparison by sex of physical characteristics of wild hogs harvested on Big Cypress National Preserve, 1983-91.

YEAR	SEX	SAMPLE SIZE	AVERAGE DRESSED WEIGHT (lbs.)	AVERAGE BODY LENGTH (cm.)	AVERAGE SHOULDER HEIGHT (cm.)
1983-84	F	52	58(22-145)	113(42-170)	55(16-76)
	M	74	81(20-198)	115(47-149)	61(19-90)
1984-85	F	64	62(18-150)	113(77-142)	58(40-74)
	M	55	82(18-350)	120(78-164)	65(41-90)
1985-86	F	29	61(20-125)	115(57-146)	62(28-75)
	M	38	85(18-175)	117(54-152)	65(31-90)
1986-87	F	40	59(20-150)	111(78-145)	60(36-79)
	M	35	83(20-155)	118(78-155)	66(40-88)
1987-88	F	45	53(16-101)	109(75-145)	57(39-74)
	M	56	85(22-245)	120(87-166)	66(42-98)
1988-89	F	45	67(20-156)	116(68-144)	60(22-80)
	M	62	93(30-238)	122(84-158)	65(42-85)
1989-90	F	54	59(25-150)	115(85-171)	59(46-80)
	M	56	73(25-180)	118(88-162)	62(45-87)
1990-91	F	58	65(25-145)	114(71-139)	60(18-85)
	M	76	85(25-165)	122(84-160)	66(18-90)

Table 23. Comparison of wild hogs harvested on the Big Cypress National Preserve in the Stairsteps and Bear Island units, 1983-91.

YEAR	UNIT	SAMPLE SIZE	AVERAGE DRESSED WEIGHT (lbs.)	AVERAGE BODY LENGTH (cm.)	AVERAGE SHOULDER HEIGHT (cm.)
1983-84	Bear Island	70	77(24-198)	115 (47-170)	61(19-90)
		38	61(20-135)	110 (42-144)	55(24-72)
1984-85	Bear Island	49	74(20-350)	115 (81-164)	61(42-90)
		44	62(18-136)	113 (77-148)	59(40-82)
1985-86	Bear Island	21	92(50-155)	121(100-143)	68(59-90)
		23	55(18-145)	111 (76-141)	61(40-82)
1986-87	Bear Island	22	71(20-150)	113 (78-136)	65(36-88)
		31	80(30-155)	119 (78-155)	65(46-83)
1987-88	Bear Island	35	80(25-245)	118 (96-166)	69(48-98)
		39	60(16-151)	110 (75-140)	57(39-76)
1988-89	Bear Island	47	97(30-238)	122 (84-158)	69(47-85)
		37	73(32-150)	118 (90-153)	60(42-80)
1989-90	Bear Island	49	69(30-180)	118 (85-162)	62(47-87)
		31	67(25-160)	115 (88-147)	61(47-80)
1990-91	Bear Island	70	76(30-165)	116 (71-154)	64(22-88)
		22	69(25-140)	118 (86-142)	64(43-79)

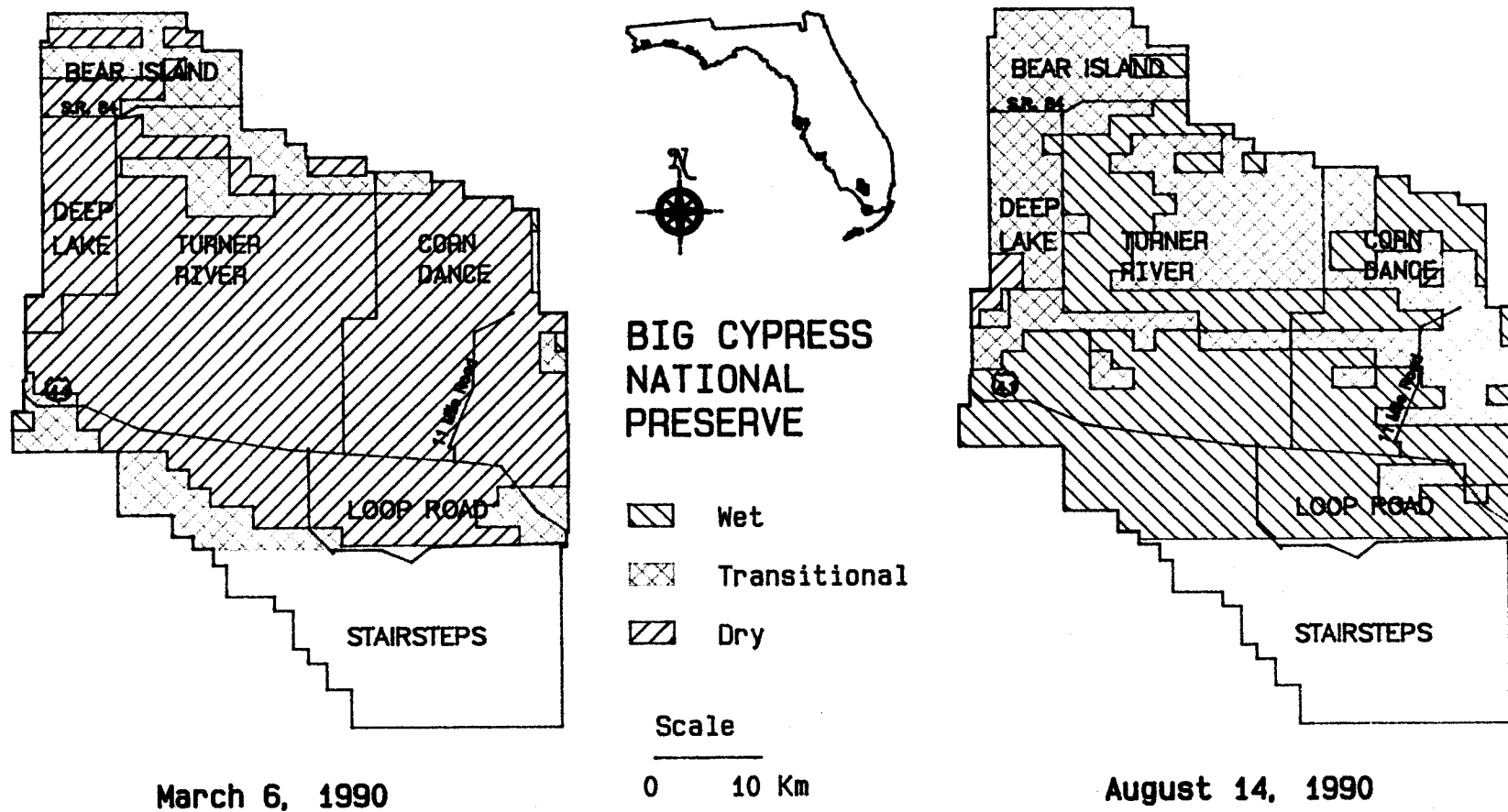


Figure 1. Comparison of dry and wet season hydropatterns on the Big Cypress National Preserve, 1990.

STAGE AND RAINFALL AT P-34

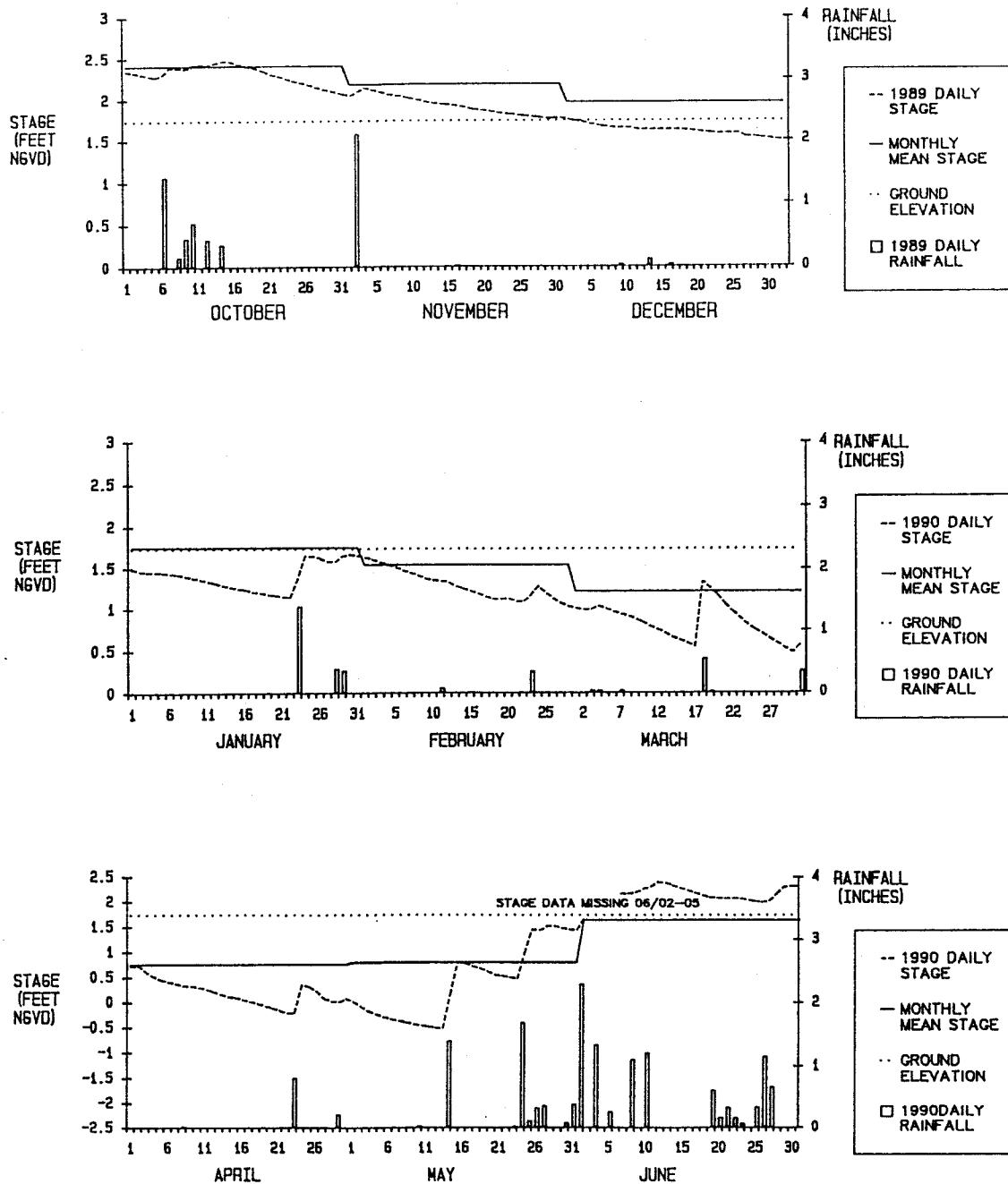


Figure 2. Water levels at NPS gauge #34, southeastern Stairsteps, October 1989 - June 1990 (From Hydrology Synopsis, Everglades National Park, October 1989 - June 1990). Information from July - September 1990 is not available.

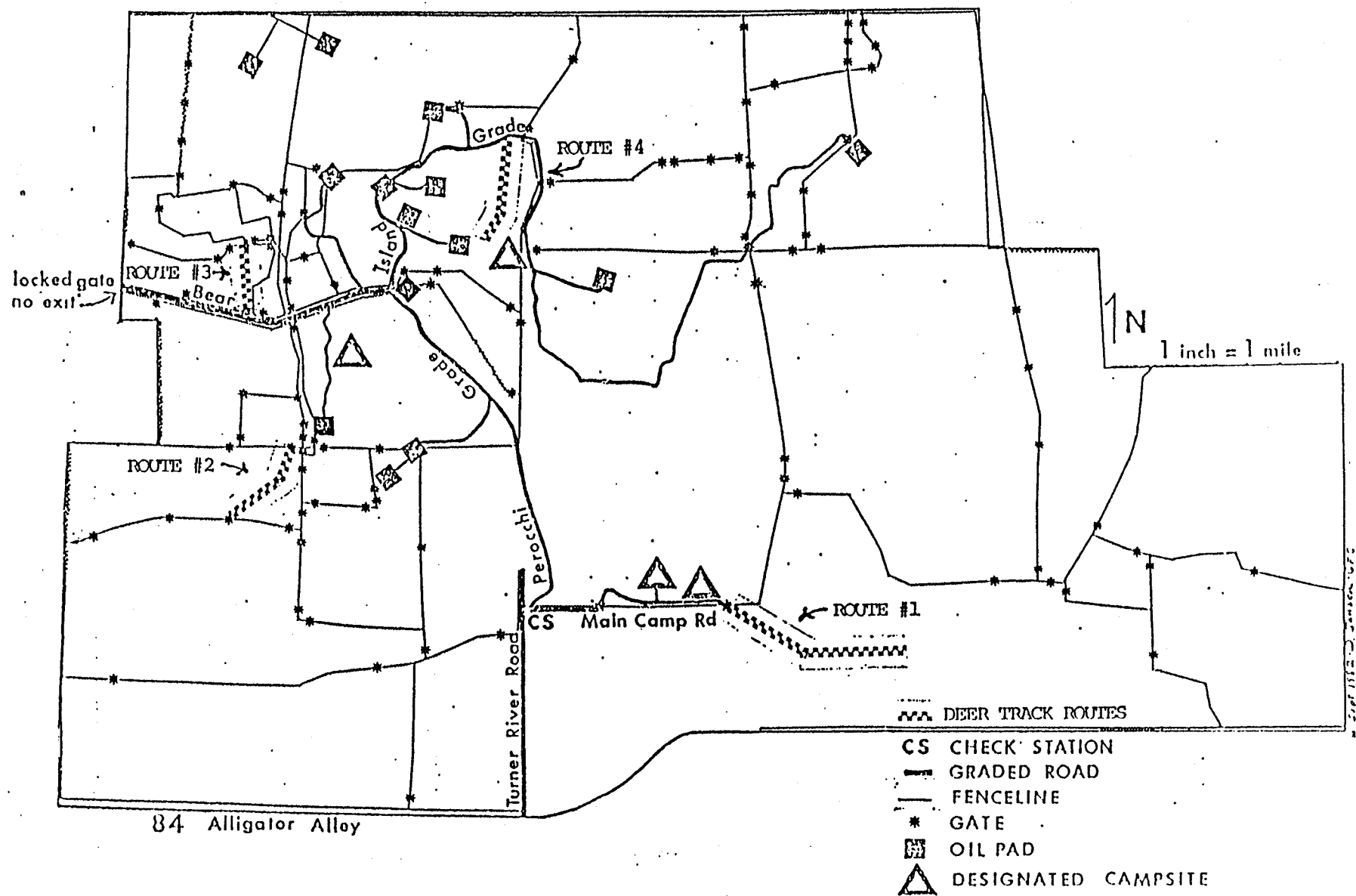


Figure 3. Deer track survey routes, Bear Island unit, Big Cypress National Preserve.

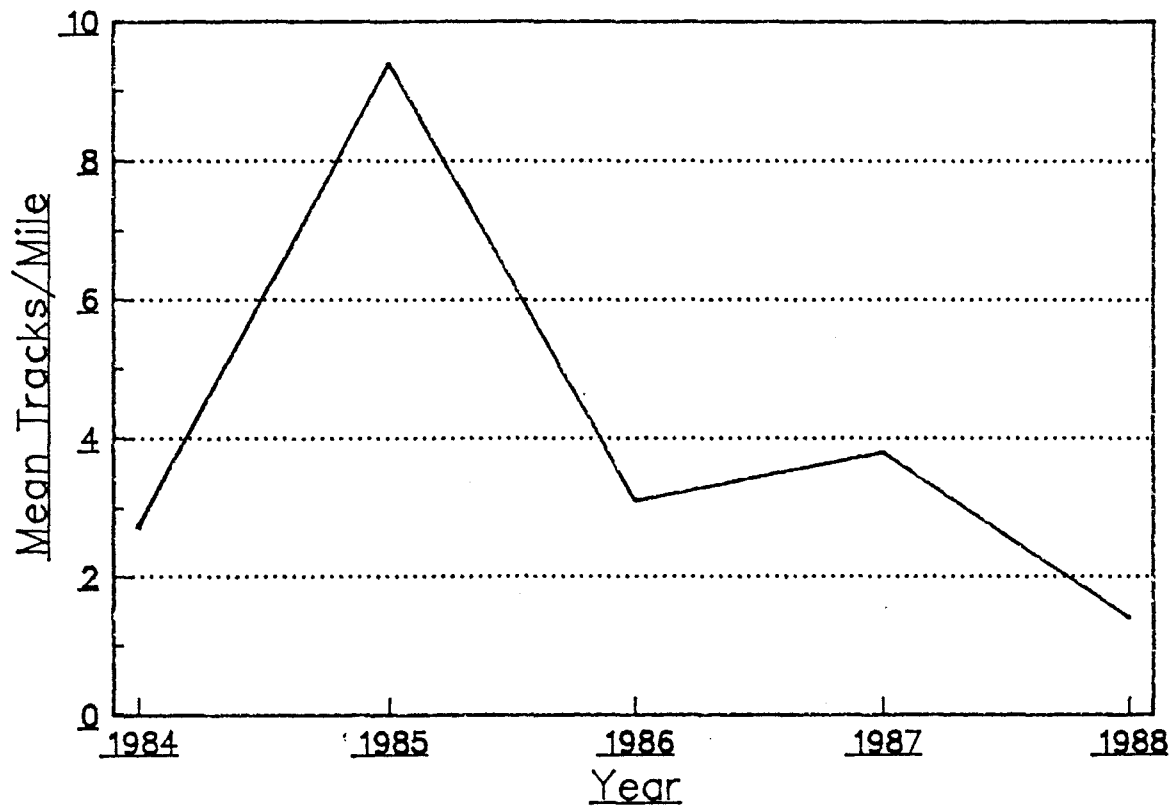


Figure 4. Mean number of deer tracks per one mile transect in Bear Island unit, BCNP, 1984-1988.

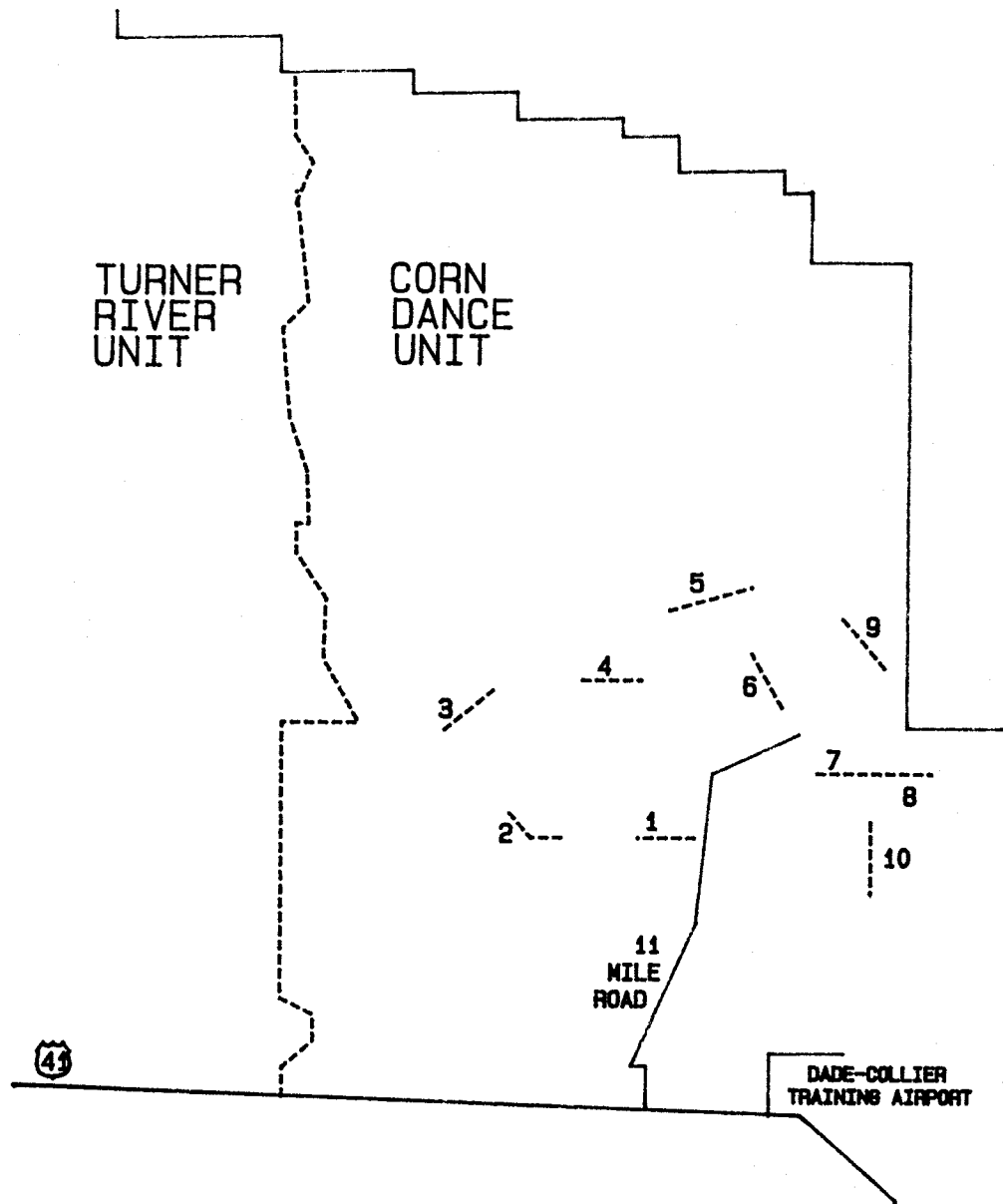


Figure 5. Deer track survey transects, Corn Dance Unit, Big Cypress National Preserve, 1985-1990.

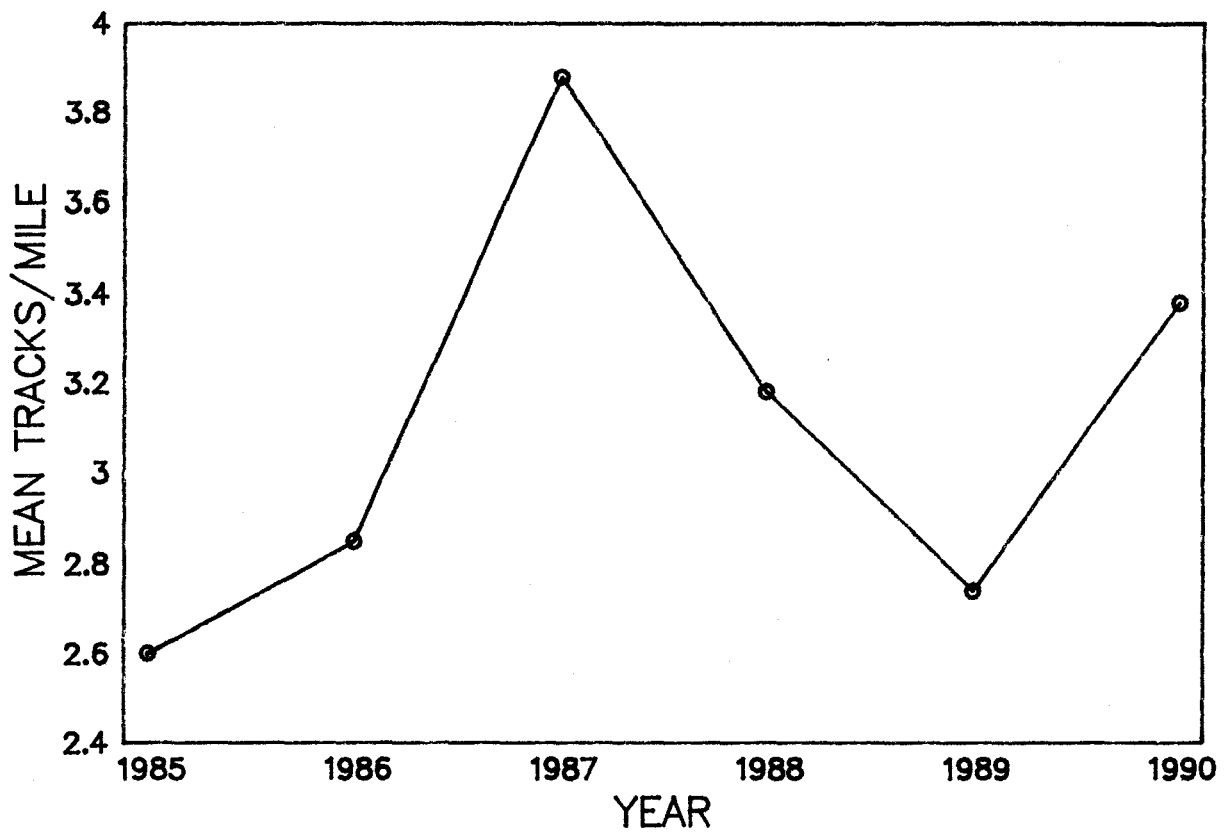


Figure 6. Mean number of deer tracks per one mile transect in the Corn Dance Unit of Big Cypress National Preserve, 1985-1990.

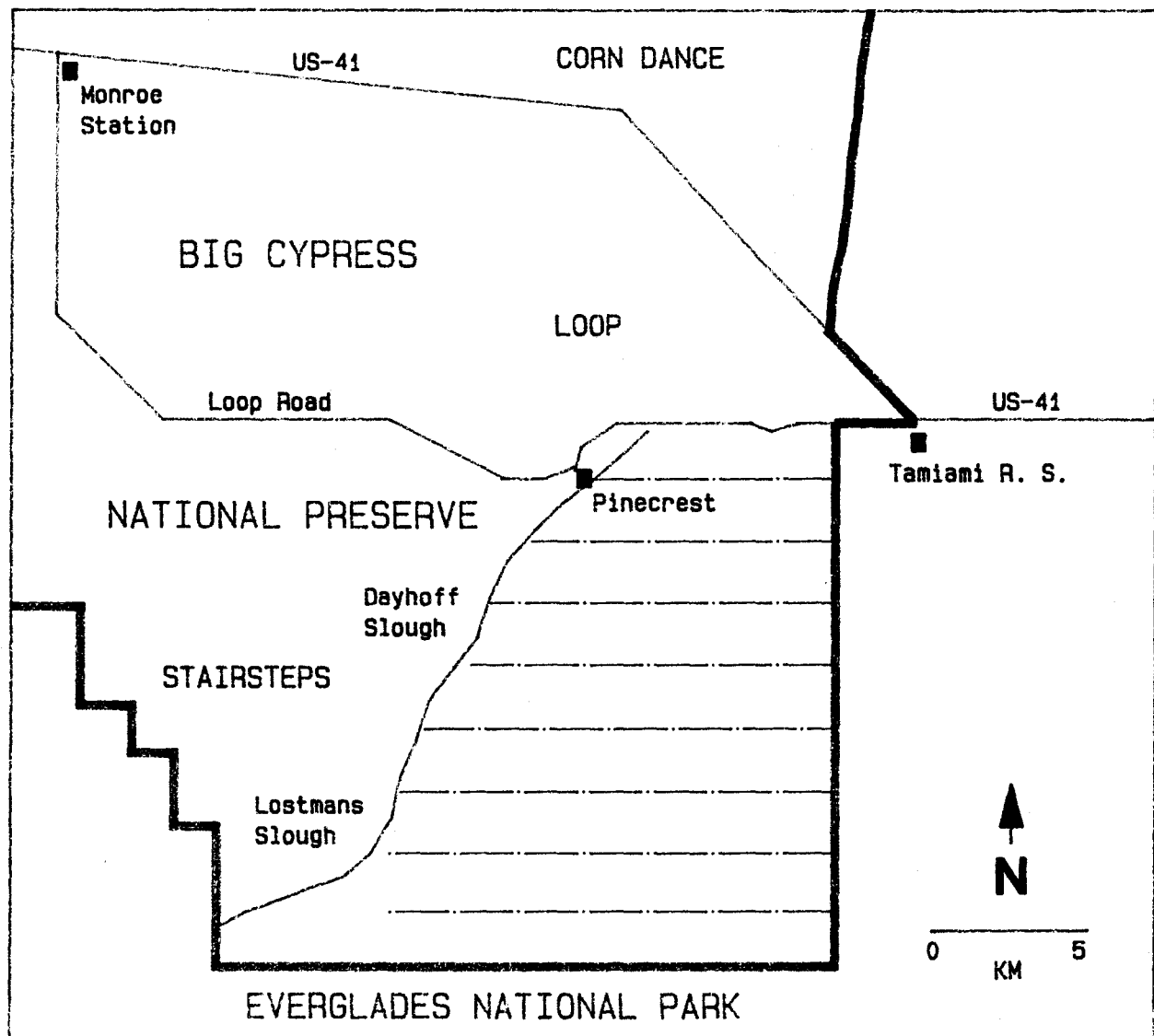


Figure 7. Survey transects and general survey area for aerial deer census, eastern Stairsteps Unit, BCNP, 1985-1990.

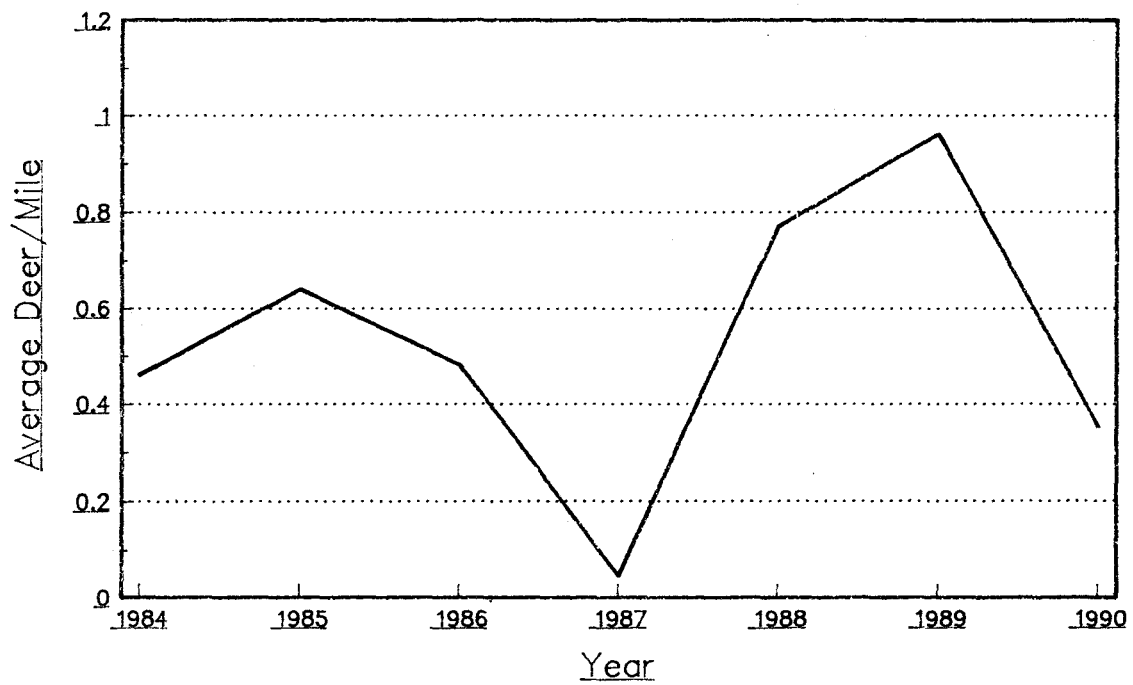


Figure 8. Average number of deer observed per mile in the eastern Stairsteps Unit, BCNP, 1984-1990.

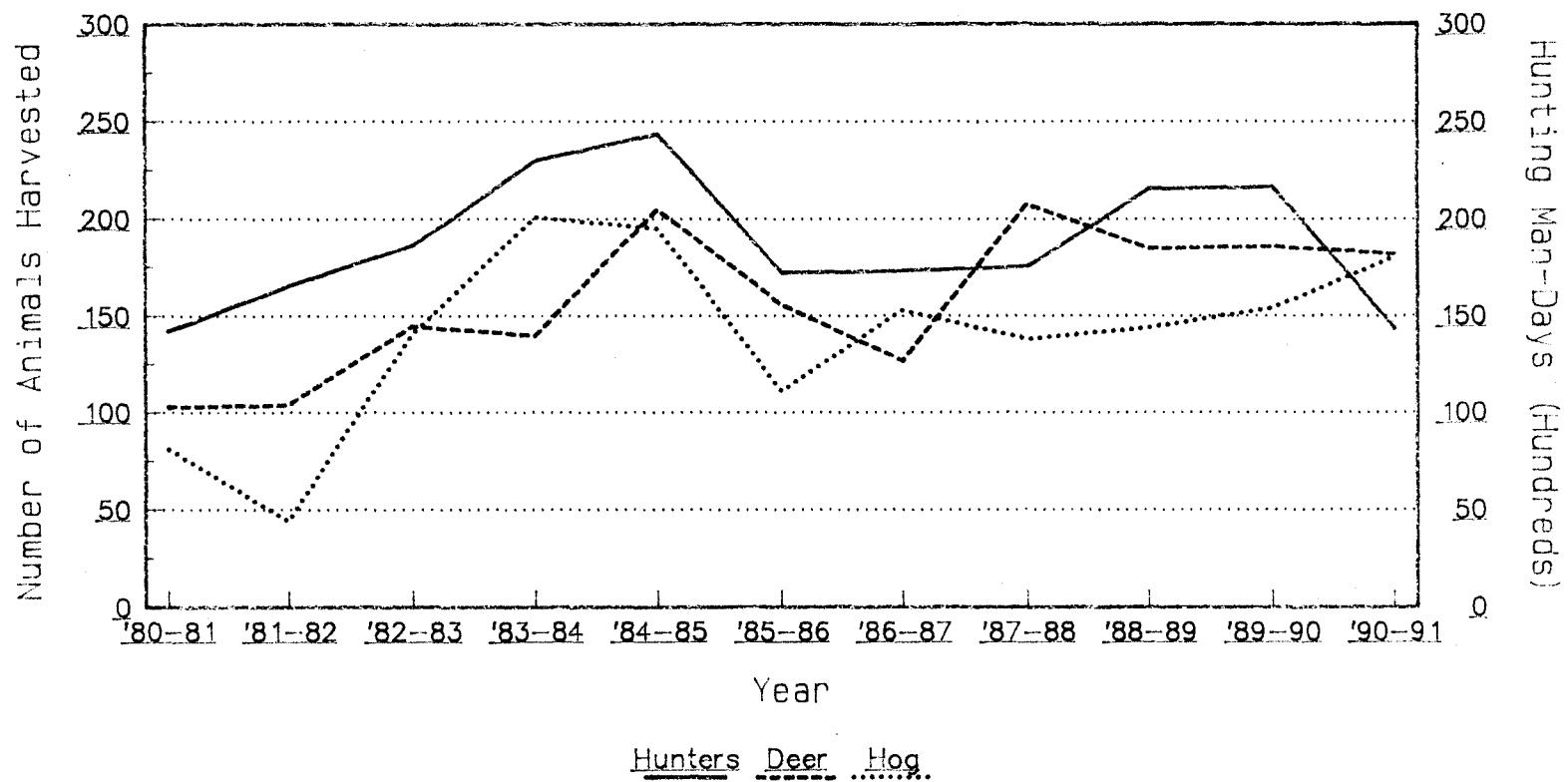


Figure 9. Hunting pressure and harvest of wild hog and white-tailed deer on the Big Cypress National Preserve, 1980-1991.

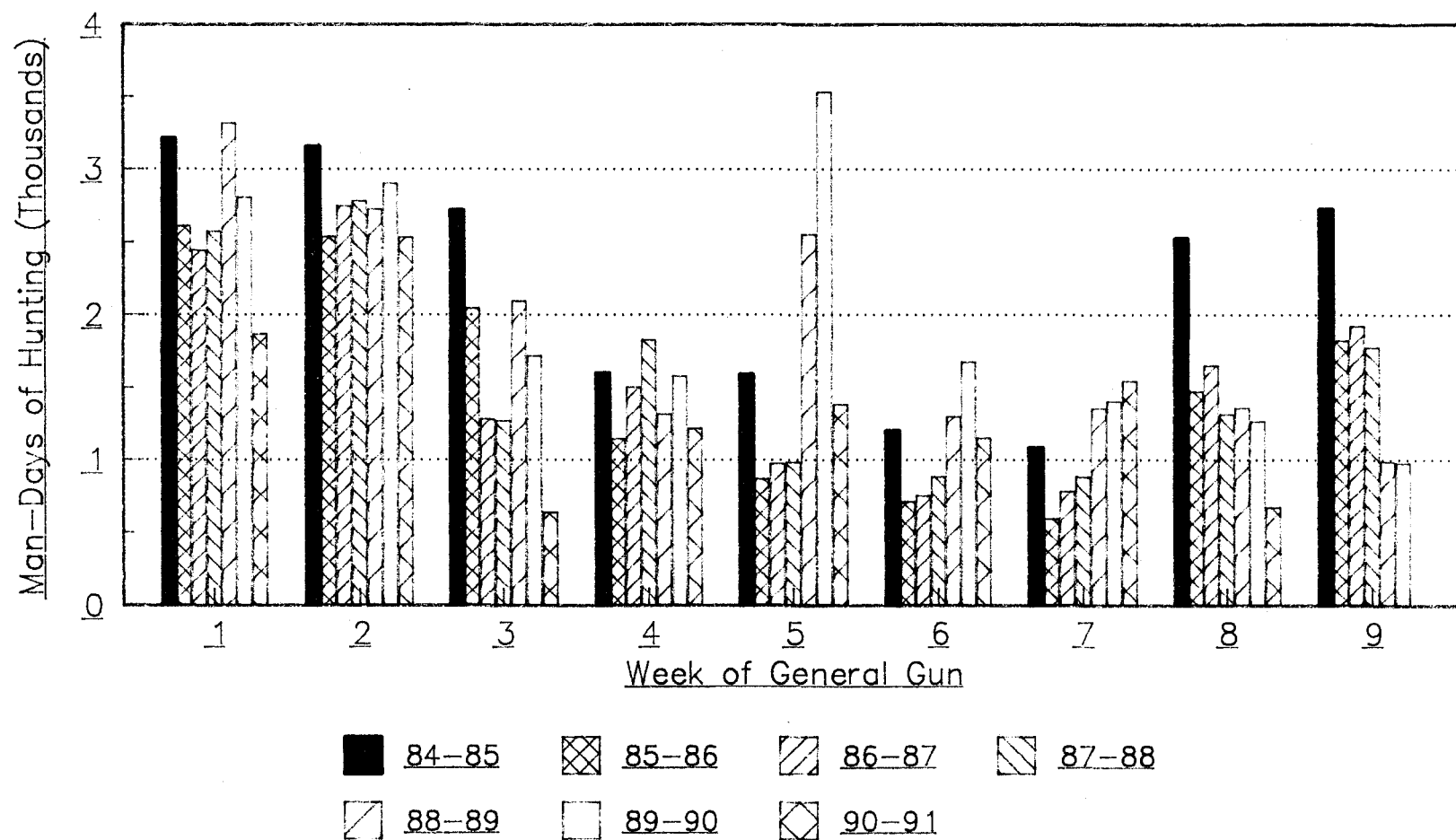


Figure 10. General Gun season hunting pressure by week, Big Cypress National Preserve, 1984-1991.

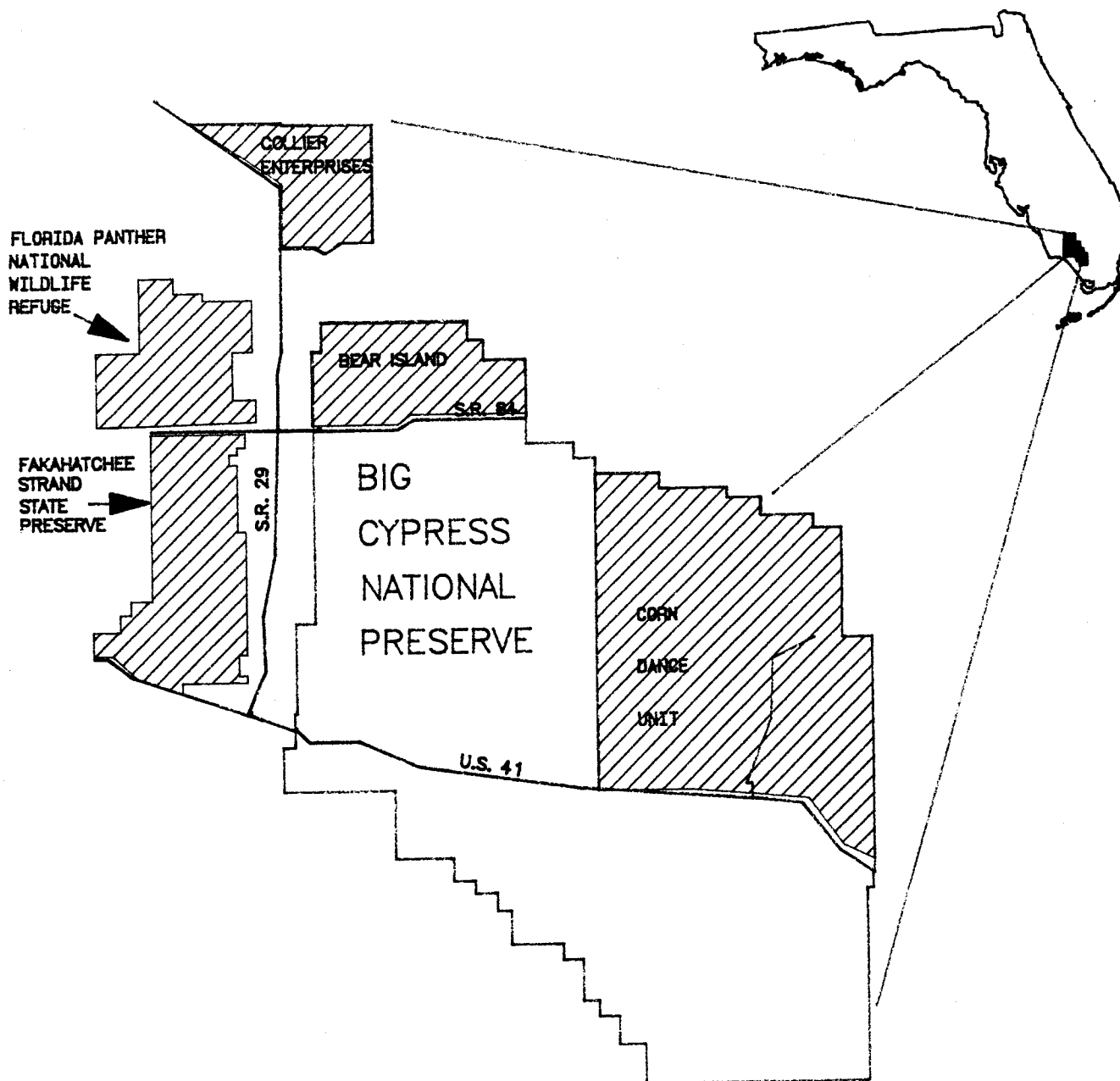


Figure 11. Southwest Florida study areas, deer health and reproductive status, 1990.

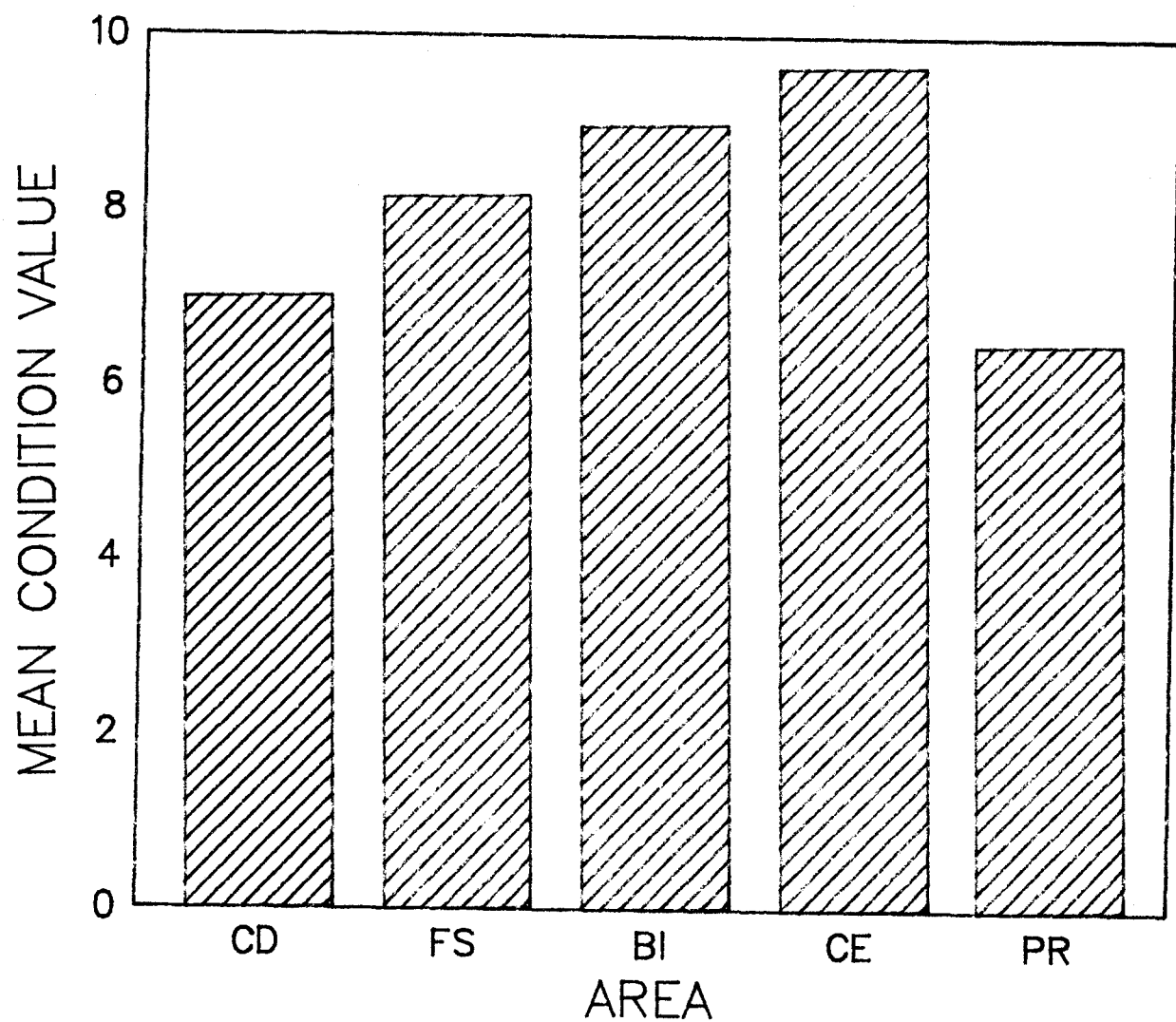


Figure 12. Mean condition values of adult does, October 1990. Areas include Bear Island (BI) and Corn Dance (CD) Units of Big Cypress National Preserve, Collier Enterprises (CE), Fakahatchee Strand State Preserve (FS) and Florida Panther National Wildlife Refuge (PR).

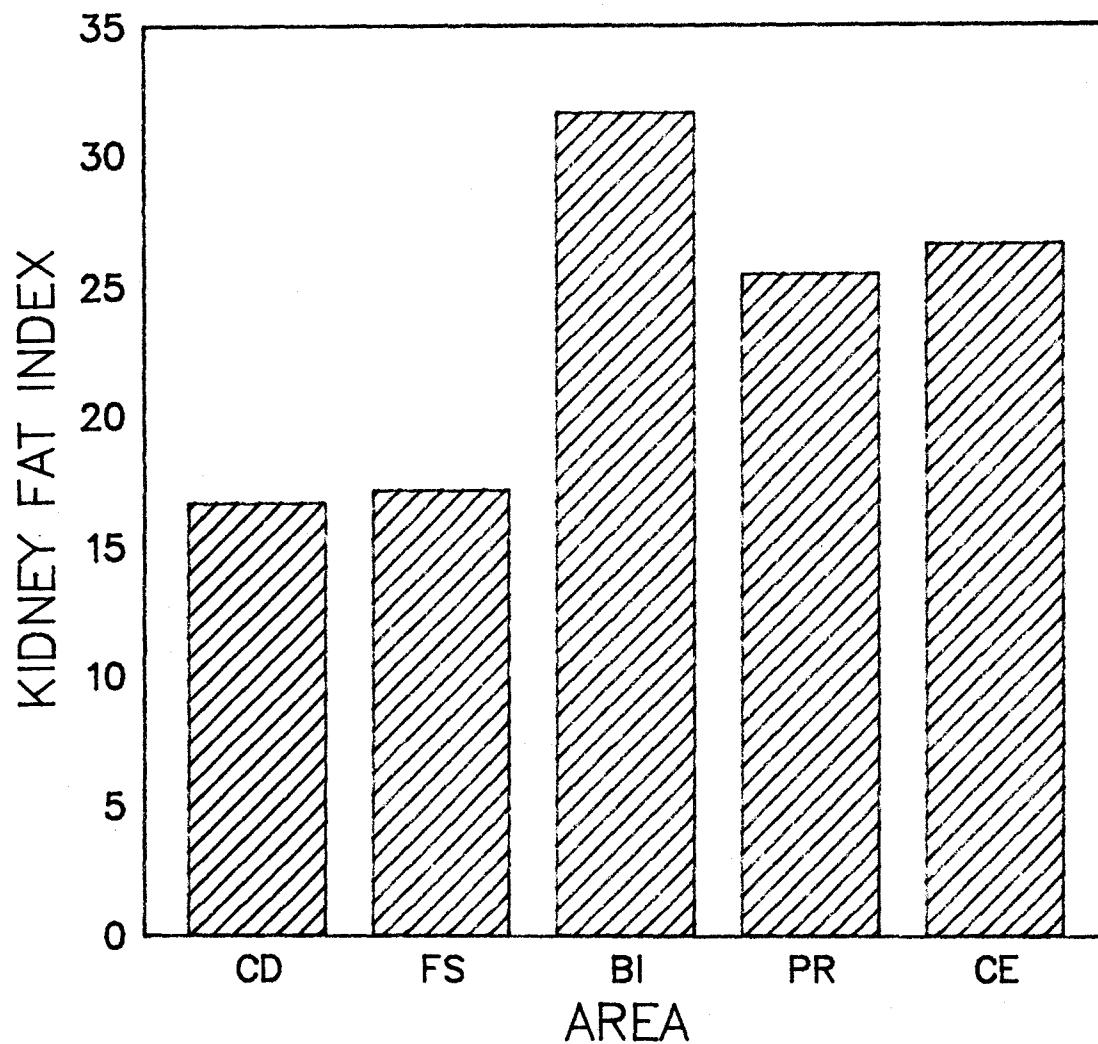


Figure 13. Mean kidney fat index values for adult does, October, 1990. Areas include Bear Island (BI) and Corn Dance (CD) Units of Big Cypress National Preserve, Collier Enterprise (CE), Fakahatchee Strand State Preserve (FS) and Florida Panther National Wildlife Refuge (PR).

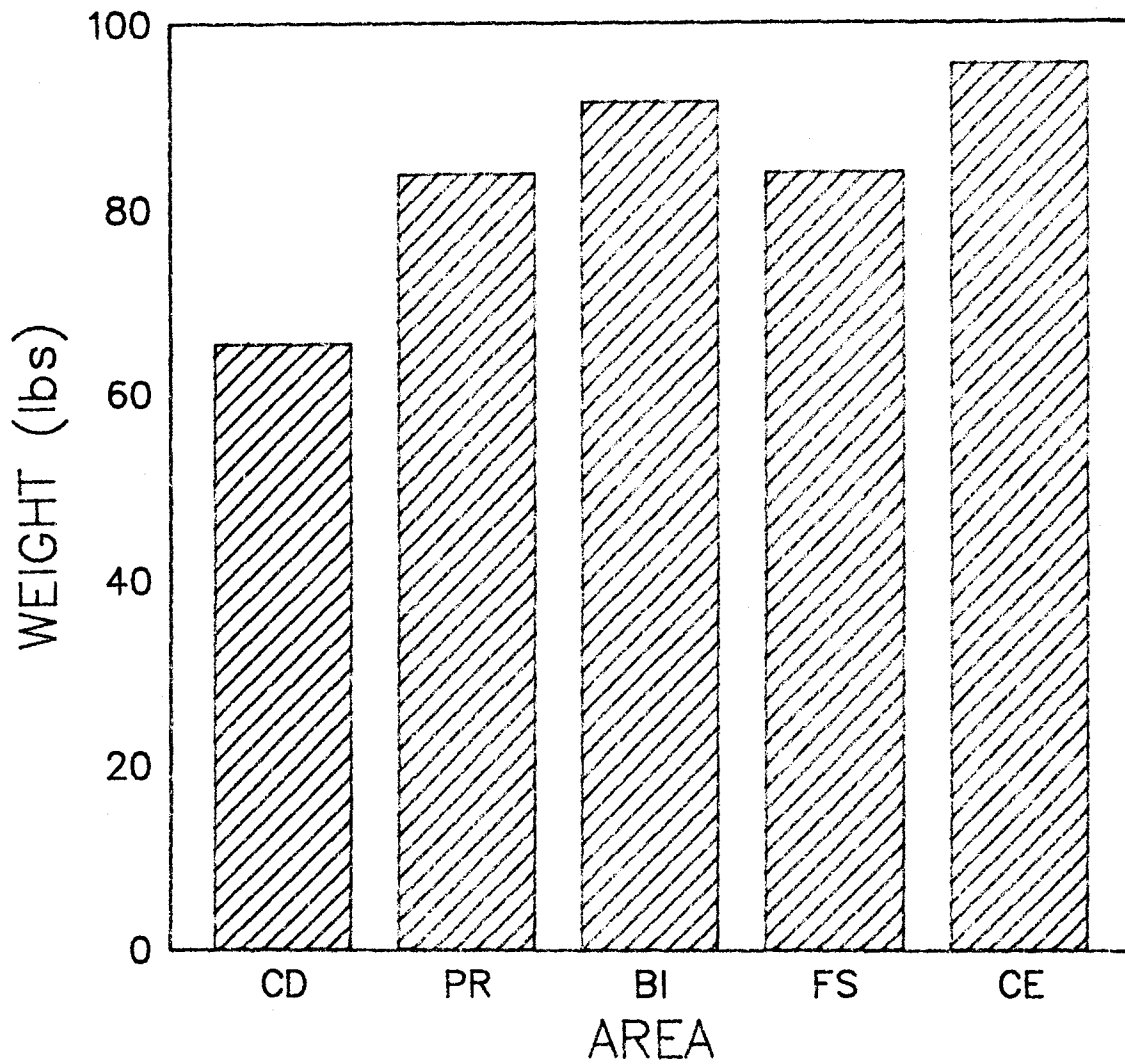


Figure 14. Mean live body weights of 2.5 year old doe deer, October, 1990. Areas include Bear Island (BI) and Corn Dance (CD) Units of Big Cypress National Preserve, Collier Enterprise (CE), Fakahatchee Strand State Preserve (FS) and Florida Panther National Wildlife Refuge (PR).

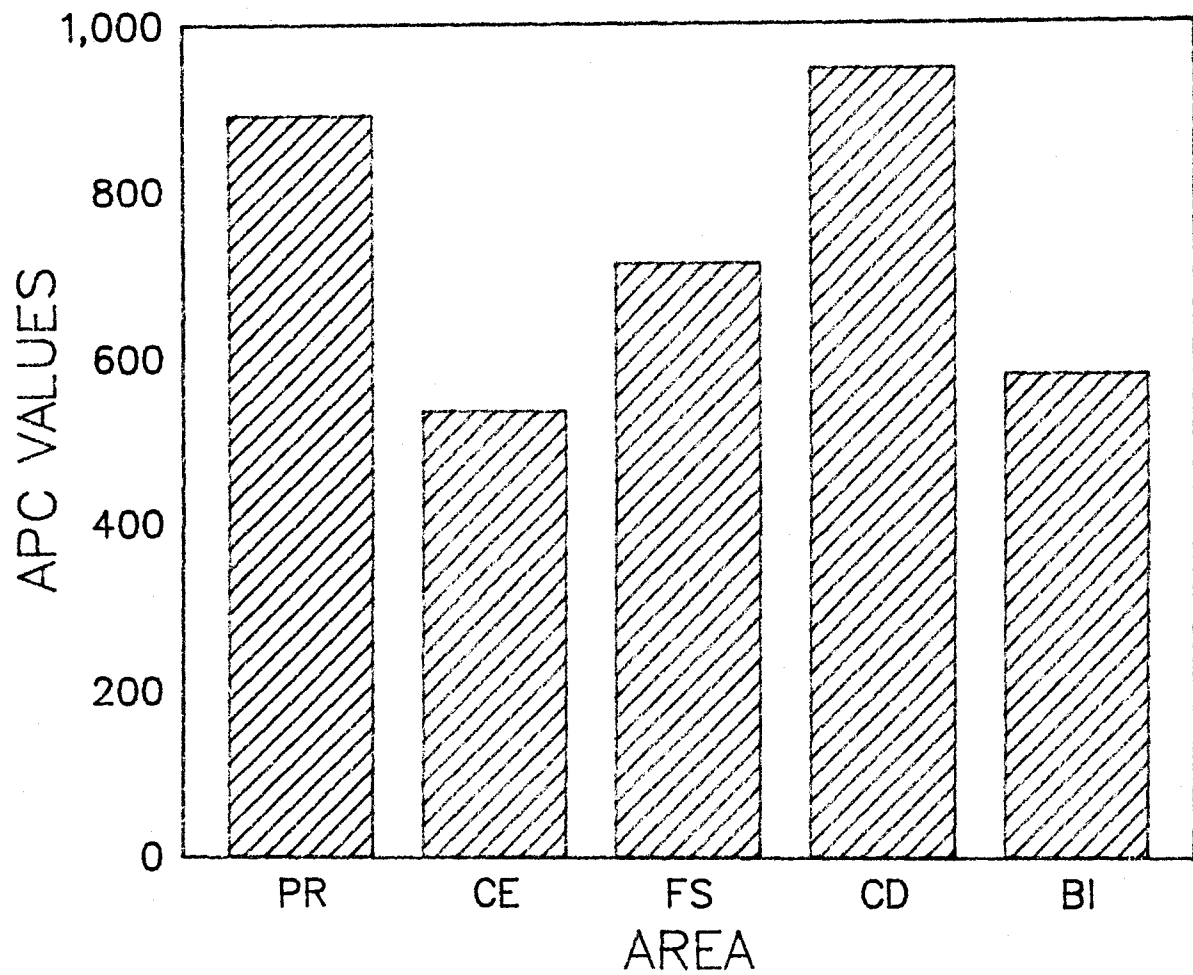


Figure 15. Mean APC values from adult deer, October, 1990. Areas include Bear Island (BI), and Corn Dance (CD) Units of Big Cypress National Preserve, Collier Enterprise (CE), Fakahatchee Strand State Preserve (FS) and Florida Panther National Wildlife Refuge (PR).

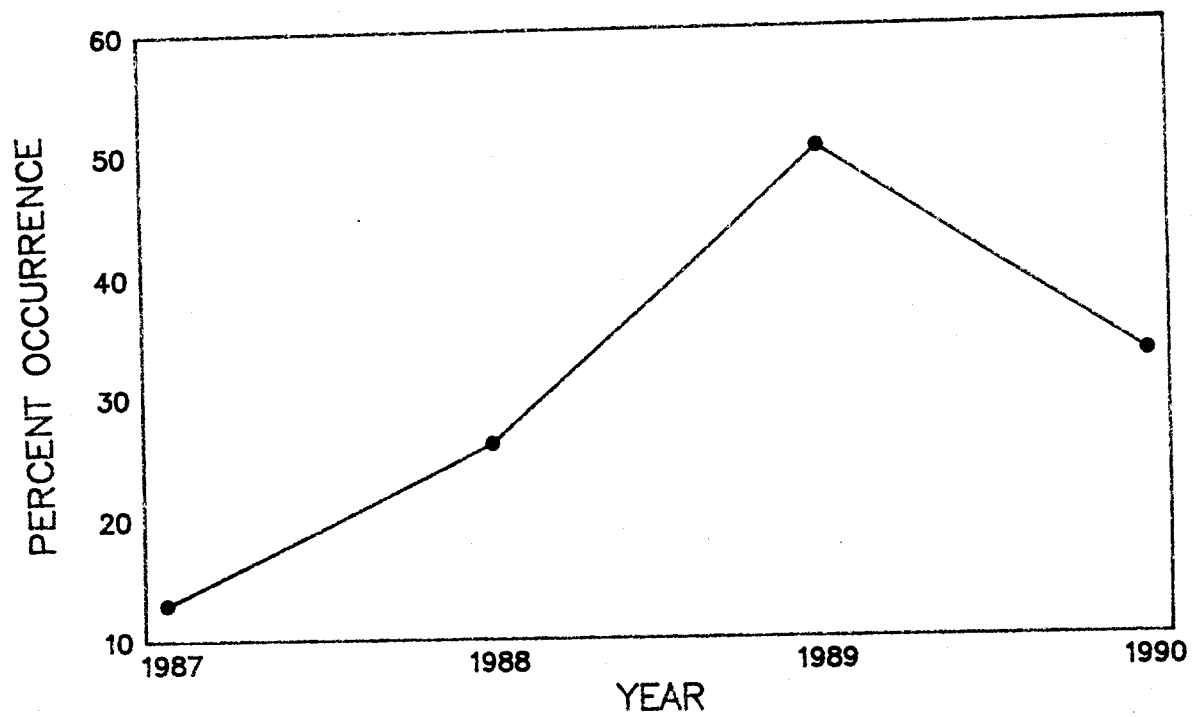
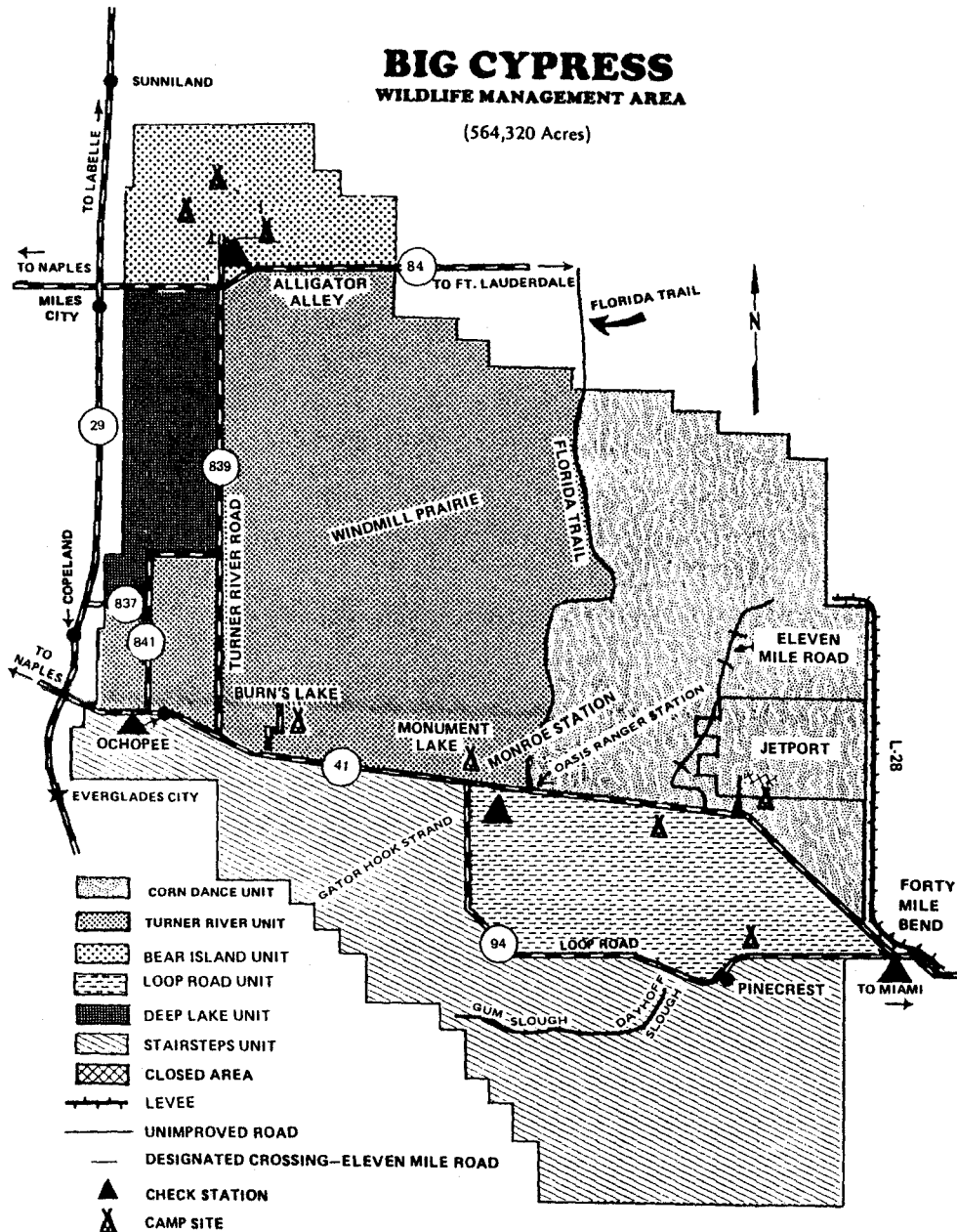


Figure 16. Abundance of wild hog sign on white-tailed deer track count transects in the Corn Dance Unit of BCNP, 1987-1990.

Appendix A. Big Cypress Wildlife Management Area Regulations, 1990-91.

BIG CYPRESS WILDLIFE MANAGEMENT AREA

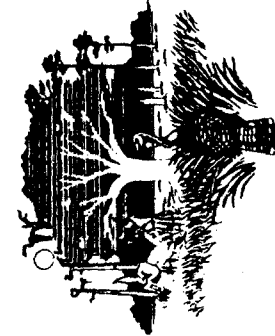
(564,320 Acres)



BIG CYPRESS

WILDLIFE
MANAGEMENT
AREA

1990-91
REGULATIONS
SUMMARY
AND AREA MAP



A COOPERATIVE PUBLIC HUNTING AREA
NATIONAL PARK SERVICE
FLORIDA GAME & FRESH WATER FISH
COMMISSION

An Equal Opportunity Agency

This brochure is designed to provide the public with information and a summary of regulations pertaining to hunting on the Big Cypress Wildlife Management Area. For the exact wording of the wildlife laws and regulations, see Florida Game and Fresh Water Fish Commission's wildlife code on file with the Secretary of State and state libraries. This brochure and the quota hunt application form should provide the information necessary for you to plan your hunting activities.

For information pertaining to hunting on private lands and trapping, consult the current Florida Hunting Handbook and Guidelines for the Taking of Furbearing Animals in Florida. These publications are available from any Commission office as well as county tax collectors and their subagents.

PERMIT, STAMP AND LICENSE INFORMATION:

Persons utilizing the wildlife management areas are required to have appropriate licenses, stamps and permits. Florida residents who are 65 years of age or older and residents certified totally and permanently disabled may obtain exemption certificates for most licenses, stamps and permits from the county tax collector. Hunters under age 16 are exempt from all permit, stamp and license requirements on this area.

Unless exempted, each hunter on this wildlife management area must have the following in his possession and display them upon request of any Commission employee.

1. Hunting License: Florida hunting licenses may be purchased from offices of county tax collectors or their subagents. Information on the categories and costs of hunting licenses is available in the Florida Hunting Handbook.

2. Wildlife Management Area Stamp: This \$25 stamp may be purchased from county tax collectors or their subagents.

3. Quota Permits: A no-cost regular quota hunt permit is required to hunt on the Bear Island, Stairsteps, Loop Road, Corn Dance, Turner River and Deep Lake units of this wildlife management area November 17 through 25, November 26 through December 2 and December 24 through January 1 of the general gun season. A no-cost special quota hunt permit is required to hunt on the Bear Island Unit from October 13 through 21 of the muzzleloading gun season.

A daily permit (available at the check station) is required for hunting each day during non-quota periods of general gun and muzzleloading gun seasons on the Bear Island Unit.

Regular quota permits are available in the following numbers by management unit: Bear Island 200, Stairsteps 1,000, Deep Lake 200, Corn Dance 300, Turner River 500 and Loop Road 250. There are 200 special quota permits available for the muzzleloading gun hunt in the Bear Island Unit.

Regular and special quota hunt permit applications are available from county tax collectors or their subagents on or about June 1. To apply for either permit, obtain a regular or special quota hunt application and follow the printed instructions.

Transfer of Permits: Quota hunt permits are transferable. No other permits may be transferred. The sale or purchase of any quota hunt permit is prohibited.

4. Archery Stamp: This \$5.00 stamp is required when hunting during the archery season. This stamp is available from county tax collectors or their subagents.

5. Muzzleloading Gun Stamp: This \$5.00 stamp is required when hunting during the muzzleloading gun season. This stamp is available from county tax collectors or their subagents.

6. Wild Turkey Stamp: This \$5.00 stamp is required if hunting turkeys and may be purchased from county tax collectors or their subagents.

7. State Waterfowl Stamp: This \$3.50 stamp is required while hunting ducks and may be purchased from county tax collectors or their subagents.

8. Federal Duck Stamp: Any hunter 16 years of age or older must possess a federal duck stamp while hunting ducks. The \$12.50 stamp is available at post offices.

9. U.S. Park Service Off-Road Vehicle Registration Permit: Any vehicle used off roads on the Big Cypress Wildlife Management Area must have this permit. This includes any 4-wheel-drive vehicle having a current license plate. The U.S. Park Service off-road vehicle registration permit is available at the Oasis Ranger Station. Call for more information: (813) 695-4111 or (813) 695-2000.

BAG AND POSSESSION LIMITS:

1. Deer, wild hogs and bearded turkeys—Daily limit 1, season limit 2 for each game species (all hunts combined).

2. Gray squirrel, quail or rabbit—Daily limit 12, possession limit 24, for each game species.

3. Raccoon, opossum, armadillo, beaver, coyote, skunk and nutria—No bag limit.

4. Migratory game birds—See Migratory Game Bird Hunting Regulations pamphlet.

GENERAL WILDLIFE MANAGEMENT AREA REGULATIONS:

In addition to the regulations which follow, all general laws and regulations relating to wild animal life or freshwater aquatic life shall apply unless specifically excepted for this wildlife management area. Hunting or the taking of wildlife or fish on this area shall be allowed only during the open seasons and in the manner set forth herein.

1. Driving a metal object into any tree or hunting from a tree in which a metal object has been driven is prohibited.

2. It is illegal to cut or damage cattle fences.

3. Wild hogs may not be transported alive.

4. Fires are permitted only on designated camping areas or in back country campsites and must be completely extinguished prior to the user leaving the campsites.

5. It is unlawful for any person to leave any garbage or refuse or in any way litter in the management area.

6. Hunters using the Bear Island Unit shall enter and exit ONLY through the designated entry point at the north end of Turner River Road.

7. Entering any fenced area within the Jetport area is prohibited.

8. The wanton or willful waste of wildlife is prohibited.

Appendix A. Continued

9. The removal of any plant is prohibited.
10. The head and evidence of sex may not be removed from the carcass of any deer on the area. Portions of the carcass may be removed immediately prior to cooking.
11. No person shall release any wildlife on this wildlife management area.
12. It is illegal to hunt over bait or place any bait or other food for wildlife on this wildlife management area.
13. The taking of fox is prohibited.
14. Killing swimming deer is prohibited.
15. The use of live decoys, traps, snares, nets or recorded game calls is prohibited.
16. Any person hunting deer or accompanying another person hunting deer shall wear at least 500 square inches of daylight fluorescent orange material above the waistline as an outer garment. This is not required when hunting during an archery-only season.
17. Deer and turkey may be dismembered in the field or camp, but each portion shall have a tag affixed to it identifying the name, address and hunting license number of the person who killed it; the date and location at which it was taken; and shall be readily traceable to the portion of the animal bearing the sex identification.

GUNS OR DOGS:

18. Hunting with gun and light is prohibited.
19. Hunting wildlife or the display or use of a gun in a manner capable of taking wildlife on or from the right-of-way of County Roads 837, 839, 841, State Roads 84, 94, U.S. Highway 41 and Burns Road is prohibited.
20. Authorized hunting equipment or dogs may be taken onto the area after 8 a.m. one day before the opening of the hunt and shall be removed from the area before 6 p.m. one day after the hunt.
21. For taking non-migratory game, only shotguns, rifles, pistols, longbows (including compound and recurved bows), crossbows (during the general gun hunt only) or birds of prey may be used.
22. For hunting deer, muzzleloading guns firing a single bullet must be at least .40 caliber; those firing two or more balls must be 20 gauge or larger.
23. Hunting deer with full jacketed bullets or any rifle cartridge is prohibited.
24. Fully automatic firearms, silencer-equipped firearms, centerfire semi-automatic rifles having a magazine capable of holding more than five rounds, explosive or drug-injecting devices and seguns are prohibited.
25. Guns or dogs allowed only during periods in which their use for hunting is allowed.
26. No person shall have a gun in manual possession while under the influence of alcohol or drugs.
27. Children under the age of 16 may not be in possession of a firearm unless in the presence of a supervising adult.
28. The possession of any firearm containing shells or cartridges or any capped or primed muzzleloading gun is prohibited at campsites or check stations. The discharge of firearms is prohibited on, from or across any campsite or check station.
29. Hunting deer or hogs with dogs is prohibited. All dogs are prohibited in the Loop Road and Deep Lake units. The possession of dogs customarily used for hunting (other than bird dogs and waterfowl retrievers) is prohibited during any period.
30. No person shall allow any dog to pursue or molest wildlife during any period in which hunting with dogs is prohibited.
31. No person shall possess any dog during any period in which hunting with dogs is prohibited, unless such dog is a non-hunting breed and under restraint.

VEHICLES:

- NOTICE: Prior to the hunting season, the National Park Service may implement vehicle use regulations different from those printed in this brochure, and these new rules may affect your use of the preserve. You are strongly encouraged to contact the Big Cypress National Preserve office, State Road, Box 110, Ochopee, FL 33943 (813/695-2000) regarding any new vehicle use regulations prior to your use of the preserve.
32. All vehicles used off roads shall have a U.S. Park Service off-road vehicle registration permit. See permit, Stamp and License Requirements for more information.
 33. Vehicles shall not be parked in such a manner as to obstruct roads, gates or trails.

34. Vehicle access or use for the purposes of hunting, fishing or frogging is prohibited except by vehicles with three or more rubber tires of nine-inch minimum width. Airboats are permitted except in the Bear Island and Loop Road units. Vehicles are prohibited on Loop Road Unit and south and east of Dayhoff Slough and Gum Slough in the Stairsteps Unit except as otherwise indicated. Vehicles shall not be operated off designated roads and trails or outside designated vehicle access areas. In management units other than Loop Road and Deep Lake units, if vehicle access trails or areas have not been designated, vehicles may be operated throughout the unit.
35. No vehicles allowed on the Loop Road and Deep Lake units at any time.
36. Only vehicles equipped with pneumatic tires may be operated on Jetport Road. Parking on the paved portion of the Jetport road is prohibited.
37. Vehicular use by the public on Eleven-Mile Road or the Florida Trail is prohibited. Vehicles may cross Eleven-Mile Road at designated and marked points only. Maps showing the location of crossings over Eleven-Mile Road are available at the Oasis Ranger Station.
38. No motor vehicle shall be operated on any part of this area posted as closed to vehicular traffic.

CAMPING:

39. Camping on the Bear Island Unit is permitted only at designated campsites by the use of tents, trailers or self-propelled camping vehicles. Camping and the use of trailers or other camper units on the Corn Dance, Turner River, Deep Lake, Stairsteps and Loop Road units is restricted to designated sites except that primitive camping (tents) is permitted throughout these units.

CHECK STATIONS:

40. Hunters shall check in and out at a designated check station when entering the area and check out at the same check station when exiting the area.
41. All game taken must be checked and tagged at a check station prior to removal from the area. It is important that as much of the animal as possible remains intact and that it be brought to the check station as soon as possible. Important biological data are obtained from the following animals or animal parts: Deer (head, heart, kidney, liver), hog (head), turkey (wings and tail). If the animal is processed in the field, the above items should be brought to the check station along with the meat. Deer jawbones shall be saved and brought to the check station.

SEARCHII:

42. A wildlife officer may search any camp, vehicle or boat when he reasonably believes a violation has been committed.

ARCHERY:

September 8 through October 7, except in Deep Lake Unit where hunting dates are November 17 through January 1.

Permit, Stamp and License Requirements--Hunting license, wildlife management area stamp, archery stamp (not required in Deep Lake Unit). State and federal waterfowl stamps (if hunting ducks). Quota hunt permits (see no. 3 under Permit, Stamp and License Information).

Legal to Take--Deer with one or more antlers at least five inches in length visible above the hairline, wild hogs with a shoulder height of 15 inches or more, gray squirrel, quail, rabbit, opossum, raccoon, beaver, coyote, armadillo, skunk and nutria.

Regulations Unique to the Archery Hunt: In addition to these regulations, all General Wildlife Management Area Regulations shall apply.

1. Possession of firearms or crossbows is prohibited, except that during the early duck season shotguns are permitted for duck hunting on all units except Bear Island and Deep Lake.
2. The transportation of archery equipment on airboats is prohibited.

MUZZLELOADING GUN:

October 13 through 28, except in the Deep Lake Unit.

Permit, Stamp and License Requirements--Hunting license, wildlife management area stamp, muzzleloading gun stamp, and special quota

permit (if hunting on the Bear Island Unit during the first 9 days), daily permit (after first 9 days).

Legal to Take--Deer with one or more antlers at least five inches in length, visible above the hairline, wild hogs with a shoulder height of 15 inches or more, gray squirrel, quail, rabbit, opossum, raccoon, beaver, coyote, armadillo, skunk and nutria.

Regulations Unique to the Muzzleloading Gun Hunt: In addition to these regulations, all General Wildlife Management Area Regulations shall apply.

1. Only muzzleloading guns are allowed.
2. The transportation of muzzleloading equipment on airboats is prohibited.

GENERAL GUN:

November 17 through January 1, except in the Deep Lake Unit.

Permit, Stamp and License Requirements--Hunting license, wildlife management area stamp, regular quota hunt permit (if hunting during designated quota periods, see Permit, Stamp and License Information), daily permit required on Bear Island Unit if hunting during non-quota periods, state and federal waterfowl stamps (if hunting ducks) and wild turkey stamp (if hunting turkeys).

Legal to Take--Deer with one or more antlers at least five inches in length visible above the hairline, wild hogs with a shoulder height of 15 inches or more, gray squirrel, quail, rabbit, opossum, raccoon, beaver, coyote, armadillo, skunk, nutria. Bearded turkeys or gobblers may be taken only on the Corn Dance, Turner River and Loop Road units.

Regulations Unique to the General Gun Hunt: All General Wildlife Management Area regulations shall apply and bird dogs and retrievers are permitted except in Loop Road and Deep Lake units.

SMALL GAME:

January 2 through February 12, except in the Deep Lake Unit.

Permit, Stamp and License Requirements--Hunting license, wildlife management area stamp. State and federal waterfowl stamps (if hunting ducks).

Legal to Take--Gray squirrel, quail, rabbit, opossum, raccoon, beaver, coyote, armadillo, skunk and nutria.

Regulations Unique to the Small Game Hunt: In addition to these regulations, all General Wildlife Management Area Regulations shall apply.

1. The possession of centerfire rifles is prohibited.
2. Bird dogs and waterfowl retrievers are permitted, except in the Loop Road and Deep Lake units.

SPRING TURKEY:

March 9 through April 14, except in the Deep Lake Unit.

Permit, Stamp and License Requirements--Hunting license, wildlife management area stamp and wild turkey stamp.

Legal to Take--Bearded turkeys or gobblers.

Regulations Unique to the Spring Turkey Hunt: In addition to these regulations, all General Wildlife Management Area Regulations shall apply.

1. Legal shooting hours are one-half hour before sunrise until 1 p.m.
2. No person shall possess any dog provided that dogs not normally used for hunting and kept under restraint may be possessed.

MIGRATORY GAME BIRDS:

Mourning doves, white-winged doves, snipe, ducks, coots, woodcock and crows may be hunted during seasons established for these species which coincide with the muzzleloading gun, general gun and small game hunts. Ducks may also be taken during the early duck season (except in the Bear Island and Deep Lake units).

Permit, Stamp and License Requirements--Hunting license, wildlife management area stamp. State and federal waterfowl stamps (if hunting ducks). Quota permit if hunting during any designated quota period.

Legal to Take: See Migratory Game Bird Hunting Regulations pamphlet. Regulations Unique to Migratory Game Birds--See Migratory Game Bird Hunting Regulations pamphlet. In addition to these regulations, all wildlife management area regulations contained in this pamphlet shall apply.

FISHING AND FROGGING:

Permitted throughout the year.

NATIONAL PARK SERVICE REGULATIONS:

This area is a national preserve. In addition to these regulations, all Big Cypress National Preserve regulations shall apply. For further information, contact the Big Cypress National Preserve Office, SR Box 110, Ochopee, Florida 33943, phone (813) 695-2000.

1. Camping is limited to a total of 30 days in a calendar year.
2. The intentional destruction, defacement, or removal of any natural or cultural feature or nonrenewable resource is prohibited.
3. Draining or dumping refuse or wastes from any trailer or other vehicle is prohibited.
4. The collection of plants, rocks, minerals, animal life or other natural objects is permitted only in accordance with written permits obtained in advance from the Superintendent.
5. Constructing a building or other structure is prohibited.
6. Vehicles are prohibited on the Loop Road and Deep Lake units. Vehicles are prohibited on the Florida Trail. Vehicles are permitted only on designated trails in the Bear Island Unit.
7. Motorized vehicles shall not be operated in a manner causing significant damage to wildlife habitat, or to cultural or vegetative resources. The creating of new trails by cutting vegetation or by the use of fill is prohibited.

GENERAL INFORMATION:

1. Small tracts of private property are located within the boundary of the wildlife management area. These lands may be posted against trespass and should not be considered as part of the wildlife management area.
2. If you have any questions about this material, please call the Game and Fresh Water Fish Commission at (407) 640-6100.
3. Effective June 1, 1991, it will be unlawful for any person born on or after June 1, 1975 to take wild animal life without having first successfully completed a hunter safety course.

COOPERATION REQUESTED:

Please do not discharge firearms at anything other than legal game while in a wildlife management area. Target practice and random discharge of firearms have become increasing threats to the quality of the hunting experience.

PLEASE DO NOT LITTER. TAKE TRASH OUT WITH YOU.

In recent years, unauthorized and uncontrolled fires have caused severe damage to area wildlife and wildlife habitats. Controlled fires are beneficial only when they are of the proper size and location, and when area conditions are suitable. UNCONTROLLED FIRES DO NOT BENEFIT WILDLIFE. Please use caution with campfires, smoking materials and vehicles to prevent damage to wildlife habitats.

The U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex, or handicap. If you believe that you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: The Office for Human Resources, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Your purchase
of hunting equipment
supports
Wildlife Restoration



This publication is one of 67 produced at an annual cost of \$54,265.81 or \$.06 per copy to provide information to the public about hunting on Florida's Wildlife Management Areas.

Appendix B. Deer survey data, Big Cypress National Preserve,
1984-1990.

Table A. Number of deer tracks observed by transect and survey
Bear Island unit, 1984-88.

Survey	Transect #	No. of Deer Tracks by day			Total	Mean
		1	2	3		
Pre-hunt Aug. 1984	1	2	6	6	14	4.7
	2	2	2	5	9	3.0
	3	0	0	0	0	0.0
	4	3	6	1	10	3.3
					-----	-----
					33 (a)	2.75
Post-hunt Feb. 1985 1 of 2	1	0	0	3	3	1.0
	2	2	2	0	4	1.3
	3	0	0	1	1	0.3
	4	2	2	1	5	1.7
					-----	-----
					13 (b)	1.1
Post-hunt Feb. 1985 2 of 2(c)	1	4	2	0	6	2.0
	2	0	1	2	3	1.0
	3	0	0	0	0	0.0
	4	3	2	3	8	2.7
					-----	-----
					17 (d)	1.4
Pre-hunt Sept. 1985(c)	1	1	7	4	12	4.0
	2	2	8	5	15	5.0
	3	2	5	4	11	3.7
	4	23	30	22	75	25.0
					-----	-----
					113 (e)	9.4
Post-hunt Feb. 1986(c)	1	2	5	2	9	3.0
	2	2	10	0	12	4.0
	3	0	0	0	0	0.0
	4	2	0	4	6	2.0
					-----	-----
					27 (f)	2.3
Pre-hunt Sept. 1986	1	3	6	0	9	3.7
	2	1	1	0	2	0.7
	3	0	1	4	5	1.7
	4	8	9	4	21	7.0
					-----	-----
					37 (g)	3.1

Appendix B., Table A. continued

Survey	Transect #	No. of Deer Tracks by day			Total	Mean
		1	2	3		
Annual	1	0	2	5	7	2.3
May 1987	2	11	12	6	29	9.7
	3	1	0	0	1	0.3
	4	0	7	1	8	2.7
					-----	-----
					45 (h)	3.8
Annual	1	0	1	1	2	0.7
June 1988	2	0	1	3	4	1.3
	3	1	1	1	3	1
	4	2	4	2	8	2.7
					-----	-----
					17 (i)	1.4

(a) Pre-hunt 1984-85 based on 12 miles of transect =
2.75 deer/mile = 1 deer /230 acres;

Pre-hunt 1984-85 base on measured 8.24 miles of suitable
transect = 4.00 deer/mile = 1 deer/160 acres.

(b) Post-hunt 1984-85 based on 12 miles of transect =
1.1 deer/mile = 1 deer/580 acres;

Post-hunt 1984-85 based on 6.04 miles of suitable
transect = 2.15 deer/mile = 1 deer/300 acres.

(c) Transects #1 and #2 harrowed.

(d) Post-hunt 1984-85 based on 12 miles of transect =
1.42 deer/mile = 1 deer/450 acres;

Post-hunt 1984-85 based on 9.28 miles of suitable
transect = 1.83 deer/mile = 1 deer/350 acres.

(e) Pre-hunt 1985-86 based on 12 miles of transect =
9 deer/mile = 1 deer/71 acres;

Pre-hunt 1985-86 based on 7.31 miles of suitable
transect = 14.77 deer/mile = 1 deer/43 acres.

(f) Post-hunt 1985-86 based on 12 miles of transect =
2.25 deer/mile = 1 deer/284 acres;

Post-hunt 1985-86 based on 8.24 miles of suitable
transect = 3.28 deer/mile = 1 deer/195 acres.

Appendix B., Table A. continued

- (g) Pre-hunt 1986-87 based on 12 miles of transect =
3.08 deer/mile = 1 deer/208 acres;

Pre-hunt 1986-87 based on 3.72 miles of suitable
transect = 9.95 deer/mile = 1 deer/64 acres.

- (h) Annual 1987 based on 12 miles of transect =
3.75 deer/mile = 1 deer/171 acres;

Annual 1987 based on 4.68 miles of suitable transect =
9.62 deer/mile = 1 deer/67 acres.

- (i) Annual 1988 based on 12 miles of transect =
1.42 deer/mile = 1 deer/451 acres;

Annual 1988 based on 3.66 miles of suitable transect =
4.64 deer/mile = 1 deer/138 acres.

Appendix B. continued

Table B. Number of deer tracks observed by transect, Monument/Corn Dance Unit, 1985-90.

SURVEY DATE	TRANSECT NUMBER	DAY							TOTAL	MEAN
		1	2	3	4	5	6	7		
May 1990	1	3	4	4	6	6	5		28	4.7
	2	5	7	6	3	5	1		27	4.5
	3	3	3	4	1	1	3		15	2.5
	4	2	1	2	4	2	3		14	2.3
	5	3	4	4	2	2	2		17	2.8
	6	3	3	2	5	4	2		19	3.2
	7	5	2	3	3	5	3		21	3.5
	8	1	3	1	7	3	4		19	3.2
	9	1	4	4	7	5	1		22	3.7
	10	3	3	3	4	4	4		21	3.5
									---	---
									203	3.4
May 1989	1	7	4	1	4	3	-		19	3.8
	2	7	2	2	3	0	-		14	2.8
	3	5	3	2	3	3	-		16	3.2
	4	4	3	3	5	3	-		18	3.6
	5	2	4	2	2	2	-		12	2.4
	6	3	2	1	4	6	-		16	3.2
	7	4	2	3	0	2	-		11	2.2
	8	3	2	0	1	2	-		8	1.6
	9	3	3	1	2	0	-		9	1.8
	10	3	3	2	3	3	-		14	2.8
									---	---
									137	2.7
May 1988	1	5	5	7	4	-	-		21	5.3
	2	3	3	5	6	-	-		17	4.3
	3	4	1	1	3	-	-		9	2.3
	4	3	3	4	0	-	-		10	2.5
	5	4	6	7	3	-	-		20	5.0
	6	2	2	1	2	0	3		10	1.7
	7	3	0	4	4	3	4		18	3.0
	8	2	3	3	0	3	4		15	2.5
	9	2	2	2	1	3	4		14	2.3
	10	3	7	4	3	3	5		25	6.3
									---	---
									159	3.2

Appendix B., Table B. continued

SURVEY DATE	TRANSECT NUMBER	DAY							TOTAL	MEAN
		1	2	3	4	5	6	7		
May 1987	1	2	2	0	3	13	7		27	4.5
	2	0	10	7	8	7	5		37	6.2
	3	2	11	6	4	6	6		35	5.8
	4	2	6	9	5	12	3		37	6.2
	5	5	8	4	3	6	6		32	5.3
	6	4	0	2	1	8	4		19	3.2
	7	1	1	0	1	3	0		6	1.0
	8	0	2	2	2	3	3		12	2.0
	9	3	2	3	3	1	0		12	2.0
	10	1	1	3	1	6	4		16	2.7
									-----	-----
									233	3.9
May 1986	1	1	3	3	0	3	4	3	17	2.4
	2	4	7	7	5	5	1	3	32	4.6
	3	3	0	1	1	3	4	4	16	2.3
	4	2	1	3	1	1	4	2	14	2.0
	5	2	3	3	5	3	4	7	27	3.9
	6	4	4	4	5	2	5	3	27	3.9
	7	1	6	3	6	2	3	1	22	3.1
	8	1	3	3	2	2	0	2	13	1.9
	9	2	2	4	5	1	3	2	19	2.7
	10	1	1	0	3	3	1	3	12	1.7
									-----	-----
									199	2.9
May 1985	1	2	1	4					7	2.3
	2	4	3	2					9	3.0
	3	1	2	3					6	2.0
	4	2	1	1					4	1.3
	5	2	0	1					3	1.0
	6	8	6	7					21	7.0
	7	2	4	3					9	3.0
	8	4	1	1					6	2.0
	9	0	2	2					4	1.3
	10	3	1	4					8	2.7
									-----	-----
									77	2.6

Appendix B. continued

Table C. Number of deer observed per mile during aerial surveys of the eastern Stairsteps unit, 1984-90.

Survey	Transect #	Left Observer	Right Observer	Total Deer	Average deer/mile
Pre-hunt	1	0	10	10	1.03
Aug. 1984	2	0	3	3	0.31
	3	1	2	3	0.31
	4	0	2	2	0.21
				-----	-----
				18	0.46 (a)
Pre-hunt	1 (55)	0	1	1	0.16
Aug. 1985	2	3	2	5	0.81
	3	0	2	2	0.27
	4	6	9	15	1.72
	5	3	0	3	0.30
	6	1	4	5	0.51
	7	4	2	6	0.54
	8 (62)	1	3	4	0.36
				-----	-----
				41	0.64 (b)
Post-hunt	1 (55)	0	0	0	0.00
Feb. 1986	2	0	1	1	0.16
	3	2	1	3	0.40
	4	4	4	8	0.92
	5	2	2	4	0.40
	6	2	3	5	0.51
	7	0	0	0	0.00
	8 (62)	1	2	3	0.27
				-----	-----
				24	0.38 (c)
Pre-hunt	1 (55)	0	0	0	0.00
Aug. 1986 (1 of 2)	2	0	1	1	0.16
	3	0	7	7	0.95
	4	2	5	7	0.80
	5	2	0	2	0.20
	6	2	0	2	0.20
	7	0	3	3	0.27
	8 (62)	3	3	6	0.54
				-----	-----
				28	0.44 (d)

Appendix B., Table C. continued

Survey	Transect #	Left Observer	Right Observer	Total Deer	Average deer/mile
Pre-hunt Aug. 1986	1 (55)	0	1	1	0.16
	2	2	0	2	0.32
	4	7	9	16	1.83
	5	0	3	3	0.30
	6	0	2	2	0.20
	7	1	1	2	0.18
	8 (62)	3	4	7	0.63
				-----	-----
				33	0.52 (e)
Post-hunt Feb. 1987	1 (55)	0	0	0	0.00
	2	0	0	0	0.00
	3	0	0	0	0.00
	4	4	3	7	0.80
	5	4	0	4	0.40
	6	3	2	5	0.51
	7	3	0	3	0.27
	8 (62)	6	0	6	0.54
				-----	-----
				25	0.39 (f)
Annual May, 1987 (1 of 2)	1 (55)	0	0	0	0.00
	2	2	0	2	0.32
	3	0	0	0	0.00
	4	0	1	1	0.11
	5	0	0	0	0.00
	6	0	0	0	0.00
	7	0	0	0	0.00
	8 (62)	0	1	1	0.09
				-----	-----
				4	0.06 (g)
Annual May, 1987 (2 of 2)	1 (55)	0	0	0	0.00
	2	0	0	0	0.00
	3	0	0	0	0.00
	4	1	0	1	0.11
	5	0	0	0	0.00
	6	1	0	1	0.10
	7	0	0	0	0.00
	8 (62)	0	0	0	0.00
				-----	-----
				2	0.03 (h)

Appendix B., Table C. continued

Survey	Transect #	Left Observer	Right Observer	Total Deer	Average deer/mile
Annual May 1988	1 (55)	0	1	1	0.22
	2	3	0	3	0.42
	3	0	0	0	0.00
	4	8	4	12	1.45
	5	3	2	5	0.59
	6	4	0	4	0.41
	7	10	4	14	1.35
	8 (62)	6	6	12	1.16
				-----	-----
				51	0.77 (i)
Annual June 1989	1 (55)	0	9	9	1.96
	2	5	0	5	0.70
	3	2	3	5	0.67
	4	9	13	22	2.66
	5	3	2	5	0.59
	6	0	2	2	0.20
	7	2	0	2	0.19
	8 (62)	10	4	14	1.35
				-----	-----
				64	0.96 (j)
Annual June 1990	1 (55)	1	0	1	0.20
	2	3	0	3	0.41
	3	0	3	3	0.38
	4	6	4	10	1.24
	5	0	3	3	0.37
	6	2	1	3	0.32
	7	0	0	0	0.00
	8 (62)	0	0	0	0.00
				-----	-----
				23	0.35 (k)

(a) Density estimates based on 5.7% area coverage:

1. 100% of animals observed: .46 deer/72.7 acres x 1/1.00 = 1 deer/158 acres,
2. 50% of animals observed: .46 deer/72.7 acres x 1/.50 = 1 deer/79 acres.
3. 40% of animals observed: .46 deer/72.7 acres x 1/.40 = 1 deer/63 acres.

Appendix B., Table C. continued

(b) Density estimates based on 10% area coverage:

1. 100% of animals observed: $.64 \text{ deer}/79.3 \text{ acres} \times 1/1.00 = 1 \text{ deer}/124 \text{ acres},$
2. 50% of animals observed: $.64 \text{ deer}/79.3 \text{ acres} \times 1/.50 = 1 \text{ deer}/62 \text{ acres}.$
3. 40% of animals observed: $.64 \text{ deer}/79.3 \text{ acres} \times 1/.40 = 1 \text{ deer}/50 \text{ acres}.$

(c) Density estimates based on 10% area coverage:

1. 100% of animals observed: $.38 \text{ deer}/79.3 \text{ acres} \times 1/1.00 = 1 \text{ deer}/209 \text{ acres},$
2. 50% of animals observed: $.38 \text{ deer}/79.3 \text{ acres} \times 1/.50 = 1 \text{ deer}/104 \text{ acres}.$
3. 40% of animals observed: $.38 \text{ deer}/79.3 \text{ acres} \times 1/.40 = 1 \text{ deer}/83 \text{ acres},$

(d) Density estimates based on 10% area coverage:

1. 100% of animals observed: $.44 \text{ deer}/79.3 \text{ acres} \times 1/1.00 = 1 \text{ deer}/180 \text{ acres},$
2. 50% of animals observed: $.44 \text{ deer}/79.3 \text{ acres} \times 1/.50 = 1 \text{ deer}/90 \text{ acres}.$
3. 40% of animals observed: $.44 \text{ deer}/79.3 \text{ acres} \times 1/.40 = 1 \text{ deer}/72 \text{ acres}.$

(e) Density estimates based on 10% area coverage:

1. 100% of animals observed: $.52 \text{ deer}/79.3 \text{ acres} \times 1/1.00 = 1 \text{ deer}/152 \text{ acres},$
2. 50% of animals observed: $.52 \text{ deer}/79.3 \text{ acres} \times 1/.50 = 1 \text{ deer}/76 \text{ acres}.$
3. 40% of animals observed: $.72 \text{ deer}/79.3 \text{ acres} \times 1/.40 = 1 \text{ deer}/61 \text{ acres}.$

(f) Density estimates based on 10% area coverage:

1. 100% of animals observed: $.39 \text{ deer}/79.3 \text{ acres} \times 1/1.00 = 1 \text{ deer}/200 \text{ acres},$
2. 50% of animals observed: $.39 \text{ deer}/79.3 \text{ acres} \times 1/.50 = 1 \text{ deer}/100 \text{ acres}.$
3. 40% of animals observed: $.39 \text{ deer}/79.3 \text{ acres} \times 1/.40 = 1 \text{ deer}/80 \text{ acres}.$

(g) Density estimates based on 10% area coverage:

1. 100% of animals observed: $0.06 \text{ deer}/79.3 \text{ acres} \times 1/1.00 = 1 \text{ deer}/1,322 \text{ acres}.$
2. 50% of animals observed: $.06 \text{ deer}/79.3 \text{ acres} \times 1/.50 = 1 \text{ deer}/661 \text{ acres}.$
3. 40% of animals observed: $.06 \text{ deer}/79.3 \text{ acres} \times 1/.40 = 1 \text{ deer}/529 \text{ acres}.$

Appendix B., Table C. continued

(h) Density estimates based on 10% area coverage:

1. 100% of animals observed: $0.03 \text{ deer}/79.3 \text{ acres} \times 1/1.00 =$
1 deer/2,643 acres.
2. 50% of animals observed: $0.03 \text{ deer}/79.3 \text{ acres} \times 1/.50 =$
1 deer/1,322 acres.
3. 40% of animals observed: $0.03 \text{ deer}/79.3 \text{ acres} \times 1/.40 =$
1 deer/1,057 acres.

(i) Density estimates based on 10% area coverage:

1. 100% of animals observed: $0.77 \text{ deer}/79.3 \text{ acres} \times 1/1.00 =$
1 deer/103 acres.
2. 50% of animals observed: $0.77 \text{ deer}/79.3 \text{ acres} \times 1/.50 =$
1 deer/51 acres.
3. 40% of animals observed: $0.77 \text{ deer}/79.3 \text{ acres} \times 1/.40 =$
1 deer/41 acres.

(j) Density estimates based on 10% area coverage:

1. 100% of animals observed: $0.96 \text{ deer}/79.3 \text{ acres} \times 1/1.00 =$
1 deer/83 acres.
2. 50% of animals observed: $0.96 \text{ deer}/79.3 \text{ acres} \times 1/.50 =$
1 deer/41 acres.
3. 40% of animals observed: $0.96 \text{ deer}/79.3 \text{ acres} \times 1/.40 =$
1 deer/33 acres.

(k) Density estimates based on 10% area coverage:

1. 100% of animals observed: $0.35 \text{ deer}/79.3 \text{ acres} \times 1.00 =$
1 deer/227 acres.
2. 50% of animals observed: $0.35 \text{ deer}/79.3 \text{ acres} \times 1/.50 =$
1 deer/113 acres.
3. 40% of animals observed: $0.35 \text{ deer}/79.3 \text{ acres} \times 1/.40 =$
1 deer/91 acres.

Appendix C. Summary of vehicle surveys conducted on the Big Cypress National Preserve during selected hunting seasons, 1983-91.

	Vehicles Only								ATC								Swamp Buggy								
	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	

ARCHERY																									
Opening weekend	52 a	141	90	91	140	109	109	99	41 a	56	21	6	2	4	6	6	22 a	32	38	32	53	45	63	51	
1st week	41 a	74	60	42	58	100	49	71	18 a	18	4	3	2	2	0	5	14 a	19	18	11	29	33	28	34	
2nd week	63 a	61	45	58	52	80	54	43	26 a	36	2	8	2	1	1	4	24 a	13	21	17	16	37	44	33	
3rd week	36 a	79	56	56	49	67	64	53	22 a	29	9	3	6	4	0	6	11 a	23	29	28	26	34	48	24	
4th week	--	--	--	--	--	--	--	51	--	--	-	-	-	-	-	3	--	--	--	--	--	--	--	24	
MUZZLELOADING																									
Opening weekend	196	179	111 d	155	104	178	137	133	85	54	10 d	6	1	2	4	10	84	87	39 d	73	71	100	104	65	
1st week	75 b	121	71	110	81	150	68	74	12 b	48	9	3	0	6	2	6	17 b	53	55	48	54	67	69	48	
2nd week	82 b	97	81	103	90	141	78	82	28 b	31	7	6	0	4	1	5	41 b	43	38	42	61	64	50	33	
GENERAL GUN																									
Opening weekend	367	406	348	371	389	422	373	285	142	134	41	34	11	34	14	14	164	219	157	165	191	246	174	143	
Midweek	112	53	49	---	---	---	---	---	24	28	12	---	---	---	---	---	60	61	61	---	---	---	---	---	
1st week	204 b	242	179	224	208	235	176	244	98 b	66	33	18	4	15	17	19	60 b	94	91	107	132	96	125	97	
2nd week	272 a	307	171	152	139	289	220	98	90 a	96	10	6	0	9	13	6	96 a	87	60	58	80	124	114	42	
3rd week	172	206	250	210	181	190	227	204	84	69	17	21	2	7	8	11	65	64	110	79	121	60	89	63	
4th week	103 a	225	137	141	114	306	369	217	55 a	63	10	4	2	19	24	53	56 a	68	49	60	75	122	180	69	
5th week	104 a	177	105	126	125	190	242	204	33 a	52	9	3	4	3	5	9	31 a	59	50	56	67	69	107	61	
6th week	81	138	78	115	126	194	218	200	13	55	4	6	8	3	9	11	19	43	45	53	53	103	97	68	
7th week	88 a	245	167	182	138	179	194	145	24 a	89	7	5	2	7	6	14	36 a	93	67	74	62	107	82	31	
8th week	231	338	249	247	234	92	147	---	109	79	10	7	0	16	3	--	112	93	92	102	84	53	50	--	

Appendix C. continued

	Airboat								Totals							
	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91
ARCHERY																
Opening weekend	10 a	4	5	2 c	12 c	15 c	32 c	2 c	125 a	212	154	131	207	173	210	158
1st week	8 a	7	12	4 c	0 c	9 c	17 c	8 c	81 a	118	94	60	89	144	94	118
2nd week	0 a	6	4	17 c	19 c	25 c	29 c	7 c	113 a	116	72	100	89	143	128	87
3rd week	7 a	10	0	15 c	0 c	5 c	15 c	8 c	76 a	141	94	102	81	110	127	91
4th week	-	--	-	--	-	-	--	4 c	--	--	--	--	--	--	--	82
MUZZLELOADING																
Opening weekend	26	19	9 d	7 c	15 c	13 c	23 c	6 c	391	339	169 d	241	191	293	268	214
1st week	10 b	12	7	6 c	28 c	31 c	17 c	13 c	114 b	234	142	167	163	254	156	141
2nd week	26 b	9	7	6 c	8 c	47 c	40 c	4 c	177 b	180	133	157	159	256	169	124
GENERAL GUN																
Opening weekend	140	140	128	114 c	146 c	227 c	222 c	82 c	813	899	674	684	737	895	783	524
Midweek	50	24 c	29 c	--	--	--	--	-	246	166	151	--	--	--	--	--
1st week	39 b	57	32	50 c	74 c	89 c	103 c	8 c	401 b	459	335	399	418	435	421	368
2nd week	5 a	30	21	29 c	36 c	55 c	44 c	0 c	463 a	520	262	245	255	477	391	146
3rd week	31	26	2	32 c	46 c	44 c	37 c	0 c	352	365	379	342	350	301	361	278
4th week	22 a	31	16	18 c	35 c	41 c	103 c	0 c	236 a	387	212	223	226	488	676	339
5th week	24 a	7	11	12 c	21 c	53 c	57 c	6 c	192 a	295	175	197	217	315	411	280
6th week	9	15	10	17 c	28 c	31 c	18 c	0 c	122	251	137	191	215	331	342	279
7th week	10 a	16	18	31 c	36 c	38 c	26 c	0 c	158 a	443	259	292	238	331	308	190
8th week	46	33	12	56 c	62 c	20 c	11 c	-	498	543	363	412	380	181	211	--

a) Excluding Loop Road, Pinecrest to Monroe Station; and/or County Roads 837 and 841; and/or U.S. 41, TRR to west boundary; and/or Loop Road, 40 Mile Bend to Pinecrest.

b) Excluding several locations.

c) Includes Mitchell's Landing.

d) Main campground (Bear Island) not counted.

All: Excluded S-12's, S-12A and Bear Island - other Sites.

Appendix D. Summary of biological data collected on deer harvested during the 1990-91 hunting seasons on the Big Cypress Wildlife Management Area (zone: 1 = Bear Island, 2 = Deep Lake, 3 = Turner River, 4 = Loop Road, 5 = Stairsteps, and 6 = Corn Dance).

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		1			2		3	
		AGE CLASS:			AGE CLASS:		AGE CLASS:	
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	2.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
RIGHT BEAM CIRCUMFERENCE (CM):	N	12.00	6.00	3.00	1.00	8.00	4.00	3.00
	NMISS	1.00	0.00	1.00	0.00	0.00	1.00	0.00
	MEAN	4.94	5.98	6.33	5.80	5.03	4.95	7.17
	STD	0.67	1.24	0.76	.	0.83	0.61	0.29
	STDERR	0.19	0.51	0.44	.	0.29	0.31	0.17
	MAX	6.00	8.20	7.00	5.80	6.80	5.80	7.50
	MIN	3.50	4.90	5.50	5.80	4.40	4.50	7.00
LEFT BEAM CIRCUMFERENCE (CM):	N	12.00	6.00	3.00	1.00	8.00	3.00	3.00
	NMISS	1.00	0.00	1.00	0.00	0.00	2.00	0.00
	MEAN	5.08	5.63	6.60	5.20	4.97	4.63	7.00
	STD	0.66	0.62	0.66	.	0.81	0.32	0.00
	STDERR	0.19	0.25	0.38	.	0.29	0.19	0.00
	MAX	6.00	6.60	7.30	5.20	6.50	5.00	7.00
	MIN	4.00	5.00	6.00	5.20	4.00	4.40	7.00
RIGHT BEAM LENGTH (CM):	N	12.00	6.00	3.00	1.00	8.00	4.00	3.00
	NMISS	1.00	0.00	1.00	0.00	0.00	1.00	0.00
	MEAN	15.55	21.48	28.17	21.50	17.59	17.25	25.67
	STD	4.06	8.75	4.75	.	7.13	8.47	3.06
	STDERR	1.17	3.57	2.74	.	2.52	4.24	1.76
	MAX	24.00	34.50	33.00	21.50	26.50	29.50	29.00
	MIN	10.00	12.00	23.50	21.50	4.50	10.50	23.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTILER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMA_s DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		1			2	3		
		AGE CLASS:			AGE CLASS:	AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	2.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
LEFT BEAM LENGTH (CM):	N	12.00	6.00	3.00	1.00	7.00	3.00	3.00
	NMISS	1.00	0.00	1.00	0.00	1.00	2.00	0.00
	MEAN	16.30	21.63	30.50	8.50	18.54	13.43	25.33
	STD	4.12	7.79	2.60	.	7.50	4.08	3.21
	STDERR	1.19	3.18	1.50	.	2.83	2.36	1.86
	MAX	24.50	32.50	32.00	8.50	27.00	16.50	29.00
	MIN	12.00	10.50	27.50	8.50	5.00	8.80	23.00
INSIDE SPREAD (CM):	N	11.00	5.00	2.00	0.00	5.00	3.00	2.00
	NMISS	2.00	1.00	2.00	1.00	3.00	2.00	1.00
	MEAN	13.95	19.66	22.25	.	16.36	13.50	18.25
	STD	3.63	5.99	1.06	.	6.45	1.73	4.60
	STDERR	1.09	2.68	0.75	.	2.89	1.00	3.25
	MAX	20.00	26.80	23.00	.	22.00	15.50	21.50
	MIN	6.00	12.50	21.50	.	6.00	12.50	15.00
POINTS ON RIGHT ANTILER:	N	13.00	6.00	4.00	1.00	8.00	5.00	3.00
	NMISS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MEAN	1.54	2.50	1.75	1.00	1.87	1.60	2.67
	STD	1.20	1.22	1.50	.	1.36	0.89	0.58
	STDERR	0.33	0.50	0.75	.	0.48	0.40	0.33
	MAX	4.00	4.00	3.00	1.00	4.00	3.00	3.00
	MIN	0.00	1.00	0.00	1.00	1.00	1.00	2.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMA's DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		1			2	3		
		AGE CLASS:			AGE CLASS:	AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	2.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
POINTS ON LEFT ANTLER:	N	13.00	6.00	4.00	1.00	8.00	5.00	3.00
	NMISS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MEAN	1.69	2.50	2.25	1.00	1.50	1.40	2.33
	STD	1.18	1.22	1.71	.	1.31	1.14	0.58
	STDERR	0.33	0.50	0.85	.	0.46	0.51	0.33
	MAX	4.00	4.00	4.00	1.00	4.00	3.00	3.00
	MIN	0.00	1.00	0.00	1.00	0.00	0.00	2.00
LIVE WEIGHT (LBS):	N	13.00	5.00	4.00	1.00	6.00	5.00	2.00
	NMISS	0.00	1.00	0.00	0.00	2.00	0.00	1.00
	MEAN	95.26	106.55	102.03	110.19	102.37	92.26	111.39
	STD	5.15	15.60	7.34	.	12.45	19.93	8.54
	STDERR	1.43	6.98	3.67	.	5.08	8.91	6.04
	MAX	100.00	130.00	110.19	110.19	123.47	116.00	117.43
	MIN	87.00	87.24	93.28	110.19	85.00	75.16	105.36
CONDITION INDEX:	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NMISS	13.00	6.00	4.00	1.00	8.00	5.00	3.00
	MEAN	.	.	.	.	.	.	.
	STD	.	.	.	.	.	.	.
	STDERR	.	.	.	.	.	.	.
	MAX	.	.	.	.	.	.	.
	MIN	.	.	.	.	.	.	.

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		1			2		3	
		AGE CLASS:			AGE CLASS:		AGE CLASS:	
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	2.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
SHOULDER HEIGHT (CM):	N	11.00	5.00	4.00	1.00	2.00	3.00	2.00
	NMISS	2.00	1.00	0.00	0.00	6.00	2.00	1.00
	MEAN	90.18	90.30	89.12	92.00	89.50	85.67	83.00
	STD	4.05	3.96	2.46	.	2.12	5.13	4.24
	STDERR	1.22	1.77	1.23	.	1.50	2.96	3.00
	MAX	100.00	96.00	91.50	92.00	91.00	90.00	86.00
	MIN	83.00	85.00	87.00	92.00	88.00	80.00	80.00
BODY LENGTH (CM):	N	11.00	5.00	4.00	1.00	3.00	3.00	2.00
	NMISS	2.00	1.00	0.00	0.00	5.00	2.00	1.00
	MEAN	139.38	136.70	136.75	128.00	142.00	125.67	141.00
	STD	12.63	2.95	7.09	.	15.72	13.05	12.73
	STDERR	3.81	1.32	3.54	.	9.07	7.54	9.00
	MAX	161.00	140.00	143.00	128.00	160.00	138.00	150.00
	MIN	124.00	132.00	128.00	128.00	131.00	112.00	132.00
CHEST GIRTH (CM):	N	11.00	5.00	4.00	1.00	2.00	2.00	2.00
	NMISS	2.00	1.00	0.00	0.00	6.00	3.00	1.00
	MEAN	79.29	83.20	82.50	79.00	79.25	76.50	59.50
	STD	2.10	6.21	6.66	.	1.06	12.73	38.89
	STDERR	0.63	2.78	3.33	.	0.75	9.00	27.50
	MAX	85.00	90.50	92.00	79.00	80.00	85.50	87.00
	MIN	78.00	74.50	77.00	79.00	78.50	67.50	32.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMA's DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		1			2	3		
		AGE CLASS:			AGE CLASS:	AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	2.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
HIND FOOT LENGTH (CM):	N	10.00	5.00	4.00	1.00	2.00	3.00	1.00
	NMISS	3.00	1.00	0.00	0.00	6.00	2.00	2.00
	MEAN	45.53	44.70	40.75	43.50	45.25	45.00	46.00
	STD	1.57	1.68	10.05	.	0.35	2.65	.
	STDERR	0.50	0.75	5.03	.	0.25	1.53	.
	MAX	48.00	46.50	48.50	43.50	45.50	48.00	46.00
	MIN	44.00	42.50	26.00	43.50	45.00	43.00	46.00
ABOMASAL PARASITE COUNT:	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NMISS	13.00	6.00	4.00	1.00	8.00	5.00	3.00
	MEAN	.	.	.	.	.	.	.
	STD	.	.	.	.	.	.	.
	STDERR	.	.	.	.	.	.	.
	MAX	.	.	.	.	.	.	.
	MIN	.	.	.	.	.	.	.
HAEMONCHUS COUNT:	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NMISS	13.00	6.00	4.00	1.00	8.00	5.00	3.00
	MEAN	.	.	.	.	.	.	.
	STD	.	.	.	.	.	.	.
	STDERR	.	.	.	.	.	.	.
	MAX	.	.	.	.	.	.	.
	MIN	.	.	.	.	.	.	.

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		4				5		
		AGE CLASS:				AGE CLASS:		
		0.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
RIGHT BEAM CIRCUMFERENCE (CM):	N	1.00	3.00	9.00	5.00	5.00	28.00	9.00
	NMISS	0.00	0.00	1.00	0.00	0.00	1.00	1.00
	MEAN	0.00	6.33	5.61	6.10	5.50	5.87	7.00
	STD	.	1.15	1.29	1.34	2.55	1.04	2.25
	STDERR	.	0.67	0.43	0.60	1.14	0.20	0.75
	MAX	0.00	7.00	8.00	8.00	10.00	8.00	10.50
	MIN	0.00	5.00	3.50	5.00	4.00	4.00	4.50
LEFT BEAM CIRCUMFERENCE (CM):	N	1.00	3.00	8.00	5.00	5.00	26.00	9.00
	NMISS	0.00	0.00	2.00	0.00	0.00	3.00	1.00
	MEAN	0.00	6.17	5.50	6.40	5.70	6.06	7.11
	STD	.	1.26	1.25	1.14	2.71	1.47	2.23
	STDERR	.	0.73	0.44	0.51	1.21	0.29	0.74
	MAX	0.00	7.50	8.00	8.00	10.50	11.50	10.50
	MIN	0.00	5.00	4.00	5.00	4.00	3.50	4.50
RIGHT BEAM LENGTH (CM):	N	1.00	3.00	9.00	5.00	5.00	28.00	9.00
	NMISS	0.00	0.00	1.00	0.00	0.00	1.00	1.00
	MEAN	0.00	13.33	19.22	24.50	10.40	19.37	26.17
	STD	.	8.02	5.85	5.57	4.39	5.53	8.91
	STDERR	.	4.63	1.95	2.49	1.96	1.05	2.97
	MAX	0.00	21.00	27.00	32.00	15.00	29.00	40.00
	MIN	0.00	5.00	10.00	18.00	4.00	7.00	14.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTILER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		4				5		
		AGE CLASS:				AGE CLASS:		
		0.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
LEFT BEAM LENGTH (CM):	N	1.00	3.00	8.00	5.00	5.00	26.00	9.00
	NMISS	0.00	0.00	2.00	0.00	0.00	3.00	1.00
	MEAN	0.00	12.50	19.56	23.90	10.10	19.47	24.33
	STD	.	7.50	7.89	6.93	4.04	6.12	9.74
	STDERR	.	4.33	2.79	3.10	1.81	1.20	3.25
	MAX	0.00	20.00	30.00	32.00	15.00	29.00	38.50
	MIN	0.00	5.00	8.50	15.50	4.00	5.00	11.50
INSIDE SPREAD (CM):	N	1.00	3.00	7.00	5.00	5.00	23.00	8.00
	NMISS	0.00	0.00	3.00	0.00	0.00	6.00	2.00
	MEAN	0.00	15.33	17.50	18.90	11.00	19.13	24.62
	STD	.	6.71	4.65	3.44	2.26	5.17	6.62
	STDERR	.	3.88	1.76	1.54	1.01	1.08	2.34
	MAX	0.00	23.00	24.00	23.50	13.00	31.00	33.50
	MIN	0.00	10.50	10.00	15.00	7.50	8.00	14.50
POINTS ON RIGHT ANTLER:	N	1.00	3.00	10.00	5.00	5.00	29.00	10.00
	NMISS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MEAN	0.00	2.67	1.70	2.20	1.60	2.03	2.40
	STD	.	1.53	0.95	0.84	0.89	1.02	1.26
	STDERR	.	0.88	0.30	0.37	0.40	0.19	0.40
	MAX	0.00	4.00	3.00	3.00	3.00	4.00	4.00
	MIN	0.00	1.00	0.00	1.00	1.00	0.00	0.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMA's DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:							
		4				5			
		AGE CLASS:				AGE CLASS:			
		0.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	
POINTS ON LEFT ANTLER:	N	1.00	3.00	10.00	5.00	5.00	29.00	10.00	
	NMISS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MEAN	0.00	2.00	1.80	2.20	1.40	2.07	2.30	
	STD	.	1.00	1.03	0.84	0.55	1.19	1.34	
	STDERR	.	0.58	0.33	0.37	0.24	0.22	0.42	
	MAX	0.00	3.00	3.00	3.00	2.00	4.00	4.00	
	MIN	0.00	1.00	0.00	1.00	1.00	0.00	0.00	
LIVE WEIGHT (LBS):	N	1.00	3.00	10.00	5.00	4.00	18.00	6.00	
	NMISS	0.00	0.00	0.00	0.00	1.00	11.00	4.00	
	MEAN	65.00	85.22	79.77	83.85	78.14	86.47	86.23	
	STD	.	18.45	15.48	12.33	10.48	11.13	19.26	
	STDERR	.	10.65	4.90	5.51	5.24	2.62	7.86	
	MAX	65.00	105.36	99.32	105.36	93.28	111.39	123.47	
	MIN	65.00	69.12	50.00	75.16	69.12	69.12	69.12	
CONDITION INDEX:	N	0.00	0.00	0.00	0.00	0.00	1.00	0.00	
	NMISS	1.00	3.00	10.00	5.00	5.00	28.00	10.00	
	MEAN	.	.	.	.	.	0.00	.	
	STD	.	.	.	.	.	.	.	
	STDERR	.	.	.	.	.	.	.	
	MAX	.	.	.	.	.	0.00	.	
	MIN	.	.	.	.	.	0.00	.	

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:							
		4				5			
		AGE CLASS:				AGE CLASS:			
		0.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	
SHOULDER HEIGHT (CM):	N	1.00	3.00	9.00	5.00	4.00	17.00	6.00	
	NMISS	0.00	0.00	1.00	0.00	1.00	12.00	4.00	
	MEAN	85.00	89.50	88.50	90.60	85.75	87.53	87.08	
	STD	.	5.41	5.68	2.30	2.75	7.24	6.08	
	STDERR	.	3.12	1.89	1.03	1.38	1.76	2.48	
	MAX	85.00	94.00	98.00	93.00	89.00	98.00	96.00	
	MIN	85.00	83.50	80.00	87.00	83.00	68.00	81.50	
BODY LENGTH (CM):	N	1.00	3.00	10.00	5.00	4.00	18.00	6.00	
	NMISS	0.00	0.00	0.00	0.00	1.00	11.00	4.00	
	MEAN	108.00	129.33	119.57	130.00	124.00	127.17	121.42	
	STD	.	5.51	6.34	4.74	6.65	12.94	10.41	
	STDERR	.	3.18	2.00	2.12	3.32	3.05	4.25	
	MAX	108.00	133.00	130.00	138.00	130.00	172.00	138.50	
	MIN	108.00	123.00	112.00	126.00	114.50	112.00	108.00	
CHEST GIRTH (CM):	N	0.00	0.00	2.00	2.00	1.00	2.00	0.00	
	NMISS	1.00	3.00	8.00	3.00	4.00	27.00	10.00	
	MEAN	.	.	74.50	77.50	89.00	78.25	.	
	STD	.	.	3.54	3.54	.	2.47	.	
	STDERR	.	.	2.50	2.50	.	1.75	.	
	MAX	.	.	77.00	80.00	89.00	80.00	.	
	MIN	.	.	72.00	75.00	89.00	76.50	.	

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:						
		4				5		
		AGE CLASS:				AGE CLASS:		
		0.5 YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS	1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
HIND FOOT LENGTH (CM):	N	1.00	3.00	10.00	5.00	5.00	15.00	6.00
	NMISS	0.00	0.00	0.00	0.00	0.00	14.00	4.00
	MEAN	38.00	45.67	42.15	43.20	44.40	44.43	40.00
	STD	.	1.15	6.03	2.86	1.56	1.35	7.01
	STDERR	.	0.67	1.91	1.28	0.70	0.35	2.86
	MAX	38.00	47.00	48.00	47.00	46.00	47.00	45.00
	MIN	38.00	45.00	27.00	40.00	42.00	43.00	26.00
ABOMASAL PARASITE COUNT:	N	0.00	0.00	0.00	0.00	0.00	1.00	0.00
	NMISS	1.00	3.00	10.00	5.00	5.00	28.00	10.00
	MEAN	.	.	.	.	.	0.00	.
	STD	.	.	.	.	.	.	.
	STDERR	.	.	.	.	.	.	.
	MAX	.	.	.	.	.	0.00	.
	MIN	.	.	.	.	.	0.00	.
HAEMONCHUS COUNT:	N	0.00	0.00	0.00	0.00	0.00	1.00	0.00
	NMISS	1.00	3.00	10.00	5.00	5.00	28.00	10.00
	MEAN	.	.	.	.	.	0.00	.
	STD	.	.	.	.	.	.	.
	STDERR	.	.	.	.	.	.	.
	MAX	.	.	.	.	.	0.00	.
	MIN	.	.	.	.	.	0.00	.

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:		
		6		
		AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
RIGHT BEAM CIRCUMFERENCE (CM):	N	2.00	9.00	5.00
	NMISS	0.00	0.00	1.00
	MEAN	5.25	6.03	7.50
	STD	0.35	1.00	1.00
	STDERR	0.25	0.33	0.45
	MAX	5.50	8.00	9.00
	MIN	5.00	4.50	6.50
LEFT BEAM CIRCUMFERENCE (CM):	N	2.00	8.00	5.00
	NMISS	0.00	1.00	1.00
	MEAN	4.75	6.22	7.50
	STD	0.35	1.00	1.00
	STDERR	0.25	0.35	0.45
	MAX	5.00	8.00	9.00
	MIN	4.50	5.00	6.50
RIGHT BEAM LENGTH (CM):	N	2.00	9.00	5.00
	NMISS	0.00	0.00	1.00
	MEAN	11.25	20.50	28.00
	STD	1.06	7.62	5.83
	STDERR	0.75	2.54	2.61
	MAX	12.00	31.50	34.00
	MIN	10.50	9.00	20.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:		
		6		
		AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
LEFT BEAM LENGTH (CM):	N	2.00	8.00	5.00
	NMISS	0.00	1.00	1.00
	MEAN	12.00	23.62	28.80
	STD	1.41	7.63	4.49
	STDERR	1.00	2.70	2.01
	MAX	13.00	35.50	33.00
	MIN	11.00	14.00	23.00
INSIDE SPREAD (CM):	N	2.00	8.00	5.00
	NMISS	0.00	1.00	1.00
	MEAN	11.50	19.81	20.30
	STD	1.41	5.69	4.27
	STDERR	1.00	2.01	1.91
	MAX	12.50	26.00	23.00
	MIN	10.50	12.00	13.00
POINTS ON RIGHT ANTLER:	N	2.00	9.00	6.00
	NMISS	0.00	0.00	0.00
	MEAN	1.00	2.67	2.83
	STD	0.00	1.00	0.75
	STDERR	0.00	0.33	0.31
	MAX	1.00	4.00	4.00
	MIN	1.00	1.00	2.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:		
		6		
		AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
POINTS ON LEFT ANTLER:	N	2.00	9.00	6.00
	NMISS	0.00	0.00	0.00
	MEAN	1.00	2.11	2.50
	STD	0.00	1.17	0.55
	STDERR	0.00	0.39	0.22
	MAX	1.00	4.00	3.00
	MIN	1.00	0.00	2.00
LIVE WEIGHT (LBS):	N	2.00	4.00	3.00
	NMISS	0.00	5.00	3.00
	MEAN	84.22	99.32	91.44
	STD	12.81	6.97	23.51
	STDERR	9.06	3.49	13.57
	MAX	93.28	105.36	110.00
	MIN	75.16	93.28	65.00
CONDITION INDEX:	N	0.00	0.00	0.00
	NMISS	2.00	9.00	6.00
	MEAN	.	.	.
	STD	.	.	.
	STDERR	.	.	.
	MAX	.	.	.
	MIN	.	.	.

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMA: DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:		
		6		
		AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
SHOULDER HEIGHT (CM):	N	2.00	4.00	3.00
	NMISS	0.00	5.00	3.00
	MEAN	87.50	86.00	88.33
	STD	4.95	6.68	5.86
	STDERR	3.50	3.34	3.38
	MAX	91.00	95.00	95.00
	MIN	84.00	80.00	84.00
BODY LENGTH (CM):	N	2.00	3.00	3.00
	NMISS	0.00	6.00	3.00
	MEAN	126.00	131.67	123.33
	STD	2.83	2.08	0.58
	STDERR	2.00	1.20	0.33
	MAX	128.00	134.00	124.00
	MIN	124.00	130.00	123.00
CHEST GIRTH (CM):	N	0.00	0.00	1.00
	NMISS	2.00	9.00	5.00
	MEAN	.	.	80.00
	STD	.	.	.
	STDERR	.	.	.
	MAX	.	.	80.00
	MIN	.	.	80.00

(CONTINUED)

Appendix D. Continued

SUMMARY OF ANTLER, MORPHOLOGIC AND CONDITION DATA FROM BUCKS HARVESTED ON WMAs DURING THE 90-91 SEASON

WILDLIFE MANAGEMENT AREA: BIG CYPRESS

		ZONE DESIGNATION:		
		6		
		AGE CLASS:		
		1.5 YEAR- OLDS	2.5 YEAR- OLDS	3.5+ YEAR- OLDS
HIND FOOT LENGTH (CM):	N	2.00	4.00	3.00
	NMISS	0.00	5.00	3.00
	MEAN	43.00	44.50	42.67
	STD	1.41	1.29	3.21
	STDERR	1.00	0.65	1.86
	MAX	44.00	46.00	45.00
	MIN	42.00	43.00	39.00
ABOMASAL PARASITE COUNT:	N	0.00	0.00	0.00
	NMISS	2.00	9.00	6.00
	MEAN	.	.	.
	STD	.	.	.
	STDERR	.	.	.
	MAX	.	.	.
	MIN	.	.	.
HAEMONCHUS COUNT:	N	0.00	0.00	0.00
	NMISS	2.00	9.00	6.00
	MEAN	.	.	.
	STD	.	.	.
	STDERR	.	.	.
	MAX	.	.	.
	MIN	.	.	.

(CONTINUED)