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ANNUAL DEER SEASON REPORT
1978-79

Big Cypress Wildlife Management Area

INTRODUCTION

Very little information has been documented about the deer herd(s) in the Big Cypress Swamp or about hunting pressure/distribution, thus the information collected during the managed hunts this year (and future years) will be of extreme importance. These information collection efforts can be put into two broad objectives; 1) Determination of the amount of hunting pressure and the concentrations of pressure, and 2) collection of biological data from harvested animals.

The description and history of the Big Cypress is well documented and will not be discussed here, however, the hunting conditions and hunting methods used is worth mentioning.

Due to the abundance of water and the vastness of the area, the Big Cypress is relatively inaccessible to conventional vehicles and hunting methods. Basically, two types of vehicles are used to hunt the area. In the area south of Loop Road and along the mangrove line south and east of Ochopee, airboats are the primary mode of travel. Hammocks within the wet prairies are searched (usually with dogs) and flushed deer are shot or pursued by the airboats. This appears to be a relatively efficient way to harvest deer in this type habitat. Swamp buggies are used primarily in the remaining portion of the Big Cypress. Some hunters use the buggies only as transportation to their camps or general hunting areas, while the great majority do all of their hunting from the buggy. This, in essence, involves riding in the buggy with guns ready and shooting any legal deer which flushes. These buggy hunters are limited to the more

open areas, thus the strands and sloughs are not hunted to any extent at all.

METHODS

Modes of Information Collection

Three modes of information collection were used; 1) Check stations, 2) area surveillance, and 3) cooperation from wildlife officers.

Check Stations

During the archery season three check stations were in operation, on weekends only. They were located at Forty Mile Bend (intersection of US 41 and east end of Loop Road), Monroe Station (management area headquarters), and Bear Island (intersection of SR 84 and Turner River Road). These stations were manned by Division of Wildlife personnel.

Four check stations were set up the first ten days of the general season. In addition to the locations above, an additional station was set up at the intersection of Turner River Road and US 41. After the first ten days, three stations were open on weekends only (and holidays). Check station operators came from four sources; 1) Regular Division of Wildlife personnel, 2) OPS personnel, 3) National Park Service rangers, and 4) a Commission employee donating her off time.

Area Surveillance

Continuous surveillance, predominantly by ground vehicle, was made to check camps and camping areas, count vehicles, etc. Extensive helicopter flights (donated by the Park Service) were made opening weekend.

Cooperation from Wildlife Officers

Invaluable cooperation was given by wildlife officers from Collier and Dade Counties. They assisted greatly by reporting numbers of hunters and primary concentrations, directing hunters to the check stations, reporting deer killed and not brought through check stations, and by bringing

deer skulls and guts to the check stations. Without this cooperation much valuable data would have been lost.

Determination of Hunter Usage and Kill

Hunter usage and distribution and number of deer harvested was determined as stated in the foregoing paragraphs. The term checked deer refers only to those that check station operators personally saw and took measurements, etc. Reports by wildlife officers and hunters were used in making estimates.

A meaningful statement of hunter success was attempted by looking at areas of hunter concentration and number of deer killed, rather than simply comparing total kill with total number of hunters.

Biological Data Collection

Biological data was taken in accordance with instructions from the Regional Biologist and recorded on the Deer Biological Data Sheet furnished by the Regional office.

When possible, abomasal and rumen samples were also taken. Abomasal samples were collected and preserved in the prescribed manner. Rumen contents were placed on a drying screen, washed thoroughly, dried, packaged, and frozen (if necessary).

If possible, all deer jaws were pulled and examined by Biologist Pylant for consistency of aging and detailed study.

Analysis of Biological Data

Separation into Two Distinct Herds

Deer data collected came from predominantly two areas; the Bear Island Unit and the area in the Stairsteps Unit known as "South of the Loop". Because of the linear distance between the two areas (74 miles)

and the difference in habitats, a distinction was made between these herds and data analyzed accordingly. The Bear Island area is a relatively dry area with good habitat diversity and distribution, while the area "South of the Loop" is predominantly wet prairie and marsh with scattered hammocks and pineland.

Age Classification

After much thought and discussion, deer were put into age classifications as used by Loveless. Due to the apparent breeding cycle of the deer in this area, this method seems to be as good as any. The classes used were; $1\frac{1}{2}$ -2, $2\frac{1}{2}$, $3\frac{1}{2}$, $4\frac{1}{2}$,....

Weights and Measurements

The arithmetic mean (average) of the antler measurements by age class was determined. When only one antler was present, the measurements of that antler were used for the missing antler and the average spread of all others in that age class used.

Average body measurements were determined by age class.

Body weights were computed to live weights and the average, by age class, determined.

RESULTS AND DISCUSSION

Hunter Usage

Archery Season

During the archery season a total of 828 man-days were spent pursuing this sport in the Big Cypress Management Area. Table 1 shows number of hunter days by week and unit. Distribution of hunters was fairly even over the management area in relation to their sizes.

Hunting technique was conventional except for the area "South of the

Loop", where airboats were used, allegedly for more than transportation to hunting areas.

Table 1. Hunter usage (hunter days) on the Big Cypress Wildlife Management Area during archery season (September 9-October 1, 1978).

Unit	Sept. 9-10	Sept. 11-17	Sept. 18-24	Sept. 25-Oct. 1	Total
Bear Island	65	50	32	20	167
Deep Lake	40	55	22	11	128
Stairsteps	90	175	80	55	400
Loop Road	40	55	20	18	133
Total	235	335	154	104	828

General Season

A total of 7,904 man-days were spent by hunters in the field during the general gun season (Nov. 11, '78-Jan. 7, '79). Of those, 7,239 were man-days spent hunting deer. The Stairsteps Unit was the heaviest hunted for deer (4,384 man-days) followed by the Bear Island Unit (1,100 man-days), Loop Road Unit (1,015 man-days) and Deep Lake Unit (750 man-days).

Areas of Concentration

On the Bear Island Unit, approximately 80 percent of the hunting was done on the eastern one-half of the area. Most hunting was done by "buggy riders". The strands, mixed hardwood swamps, and dense hammocks were very lightly hunted. The maximum number of hunters on the Unit at any one time was approximately 150, for hunter density of one hunter per 243 acres.

The southern one-half of the Deep Lake Unit apparently received the highest pressure, but here again, most were "buggy riders" and the thick or wet areas were lightly hunted. The hunter density on the peak usage day was one per 750 acres.

The predominant hunter concentration in the Stairsteps Unit was in the area "South of the Loop" in "airboat country". Good numbers of buggy riders hunted the dry prairies and open pinelands just south of US 41 and west of Loop Road as well as a few walk-in hunters.

This year the Loop Road Unit was closed to vehicular travel and most hunting done here was around the perimeter of the area. Hunter density here was one per 1,140 acres on the day of heaviest usage.

Periods of Activity

Periods of hunting activity were consistent over the entire management area. As expected, two peaks occurred, one the first two weekends and another the last weekend. Figures 1 and 2 illustrate the weekly levels of activity on the Bear Island and Stairsteps Units.

Hunter Kill and Success

Archery Season

A total of six deer were checked during the archery season for a success ratio of one deer killed per 138 days of effort. We estimated that another six deer were harvested, bringing the success ratio of one deer killed per 69 days of effort. It is interesting to note that five checked and five estimated came from the area "South of the Loop".

General Gun Season

A total of 52 deer were checked during the general gun season. It was estimated that another 69 were taken for a total of 121. This is an extremely conservative number as we based our estimates only on reports from wildlife officers and other persons we deemed reliable.

Figure 1. Periods of activity, hunter days, and kill during the general gun season (Nov. 11, '78-Jan. 7, '79) on the Bear Island Unit, Big Cypress Wildlife Management Area

Hunter Days and (Number of Deer Killed)

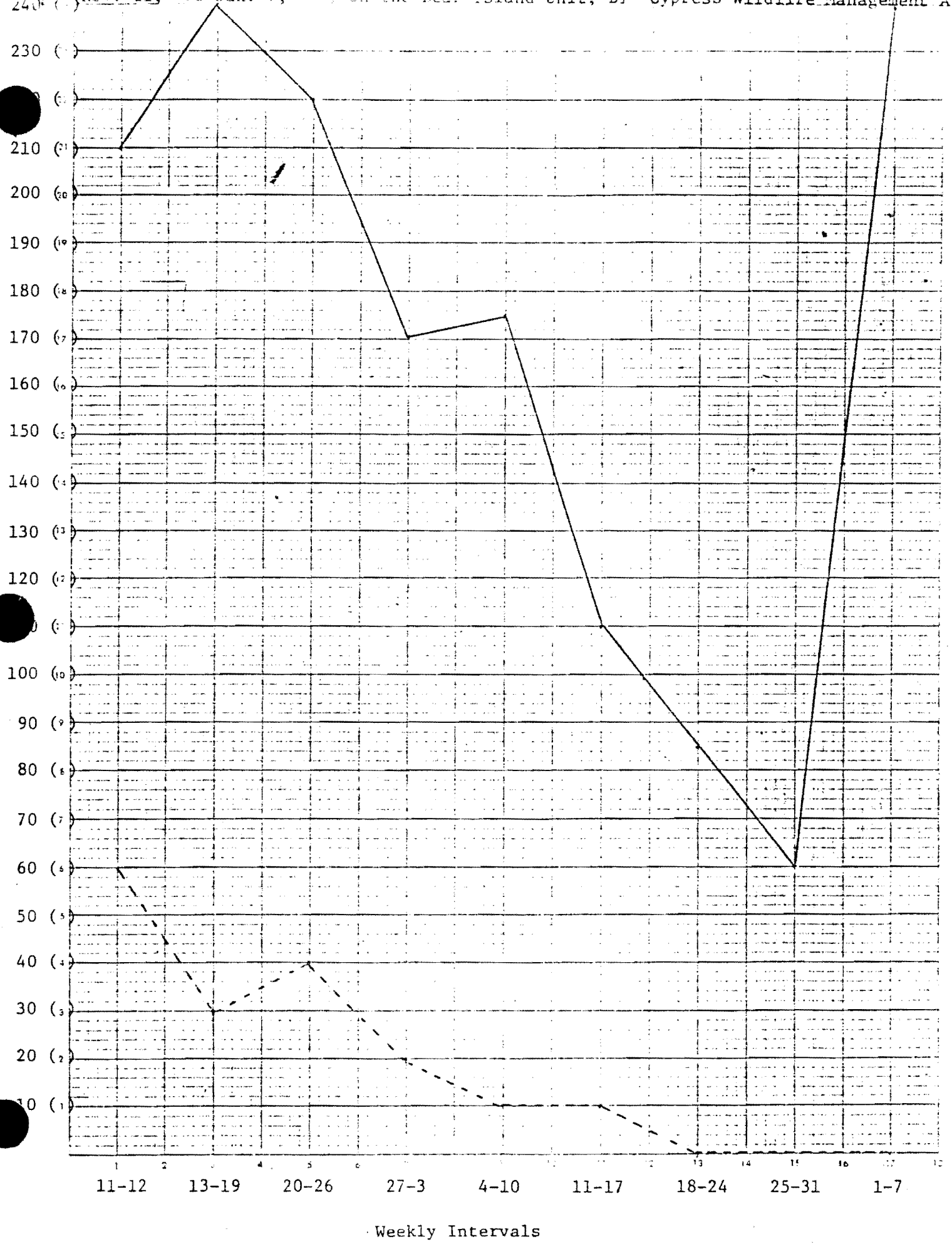
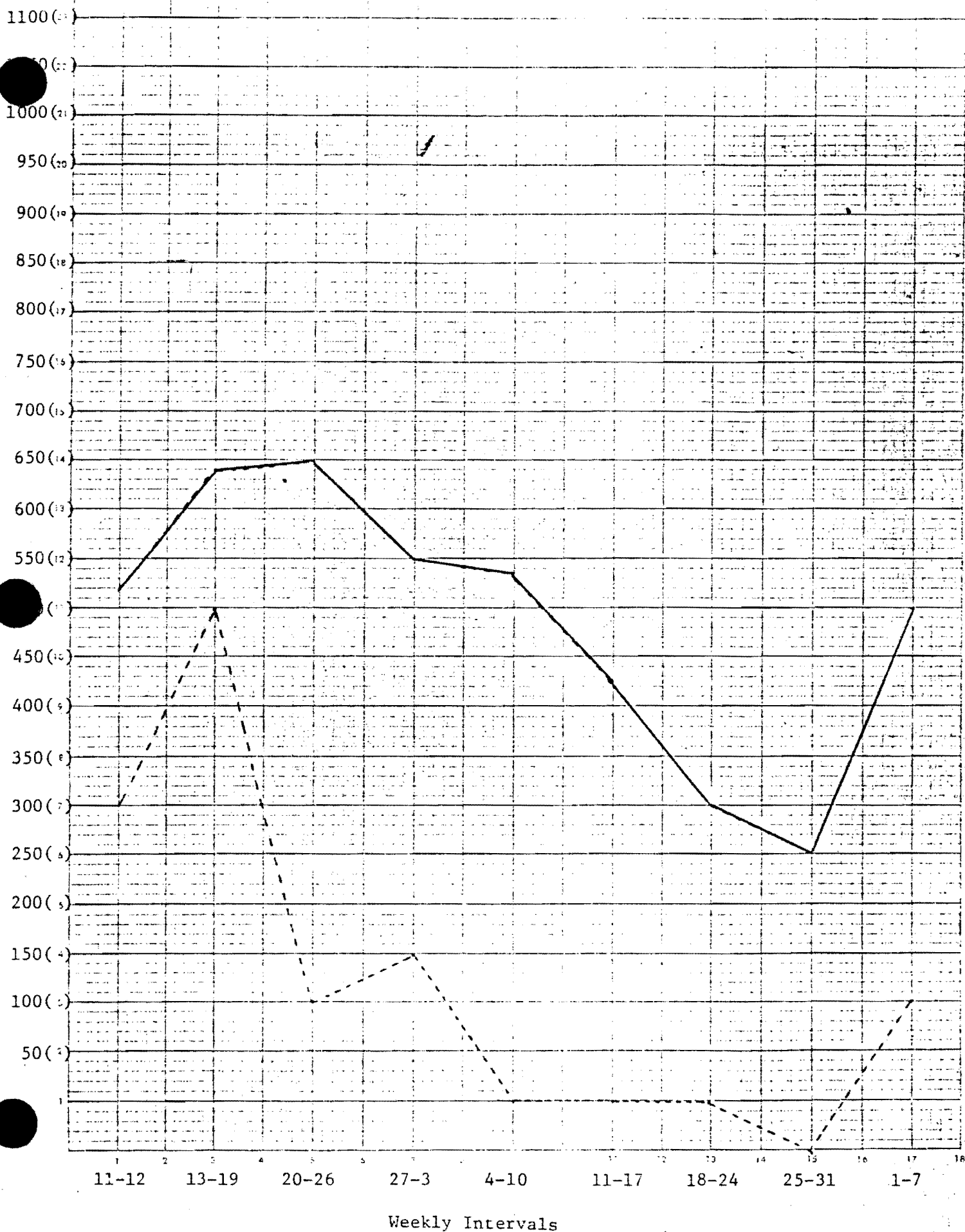


Figure 2. Periods of activity, hunter days, and kill during the general gun season (Nov. 11 '78-Jan. 7, '79) on the Stairsteps and Loop Road Units, Big Cypress Wildlife Management Area 1150()

Hunter Days and (Number of Deer Killed)



Tables 2 and 3 compare the kill data against acreage and hunter days. We feel these raw figures are somewhat misleading in that the hunters tended to cluster in two particular areas, and the kill from those areas reflect this. On the Bear Island Unit, hunter interviews, surveillance flights, ground surveillance, and buggy tracks indicate that a full 80 percent of the hunting was done on the eastern half of the Unit (18,250 acres). This would place the acres per deer figure at one per 700 acres. In the Stairsteps Unit, 75 percent of the hunting was done south of the Loop (approximately 60,000 acres). Sixty of the checked and estimated deer came from this area, bringing the acres per deer figure to approximately one per 1,000 acres. Also, only a very small portion of the Loop Road Unit was hunted due to the no vehicles regulation.

Figures 1 and 2 show a graphic correlation between number of hunters and kill on the Bear Island and Stairsteps Unit. It is highly probable that antler drop had a significant impact on the kill later in the season. Several deer checked had one antler dropped, many "does" were seen, and several hunters commented that they had killed legal bucks in velvet in the past. Loveless found that Everglades deer began dropping antlers in November.

Table 2. Deer hunter days, deer checked, deer estimated and hunter success on the Big Cypress Wildlife Management Area during the general gun season (Nov. 11, '78-Jan. 7, '79).

Unit	Hunter Days	Deer Checked	Man-days per Deer	Deer Checked & Estimated	Man-days per Deer
Bear Island	1100	17	65	27	41
Deep Lake	750	0	-	10	75
Stairsteps	4384	31	141	74	59
Loop Road	1015	4	254	10	102
Total	7249	52	139	121	60

Table 3. Acres per deer killed on the Big Cypress Wildlife Management Area during the general gun season (Nov. 11, '78-Jan. 7, '79).

Unit	Unit Size (Acres)	Deer Checked	Acres per Deer	Deer Checked & Estimated	Acres per Deer
Bear Island	36,500	17	2147	27	1352
Deep Lake	45,000	0	-	10	4500
Stairsteps	135,000	31	4355	74	1824
Loop Road	55,000	4	13,750	10	5500
Total	271,500	52	5212	121	2240

Age Structure

Age structures of the Bear Island Herd and the South of the Loop herd are shown in Figures 3 and 4.

Bear Island Herd

The age structure of the Bear Island herd seems to indicate fairly normal reproduction (58.5% $2\frac{1}{2}$ and younger). More $1\frac{1}{2}$ -2 would probably

Figure 3. Age pyramid of male deer taken during the archery and general gun seasons (Sept. 9, 1978-Jan. 7, 1979) on the Bear Island Unit, Big Cypress Wildlife Management Area.

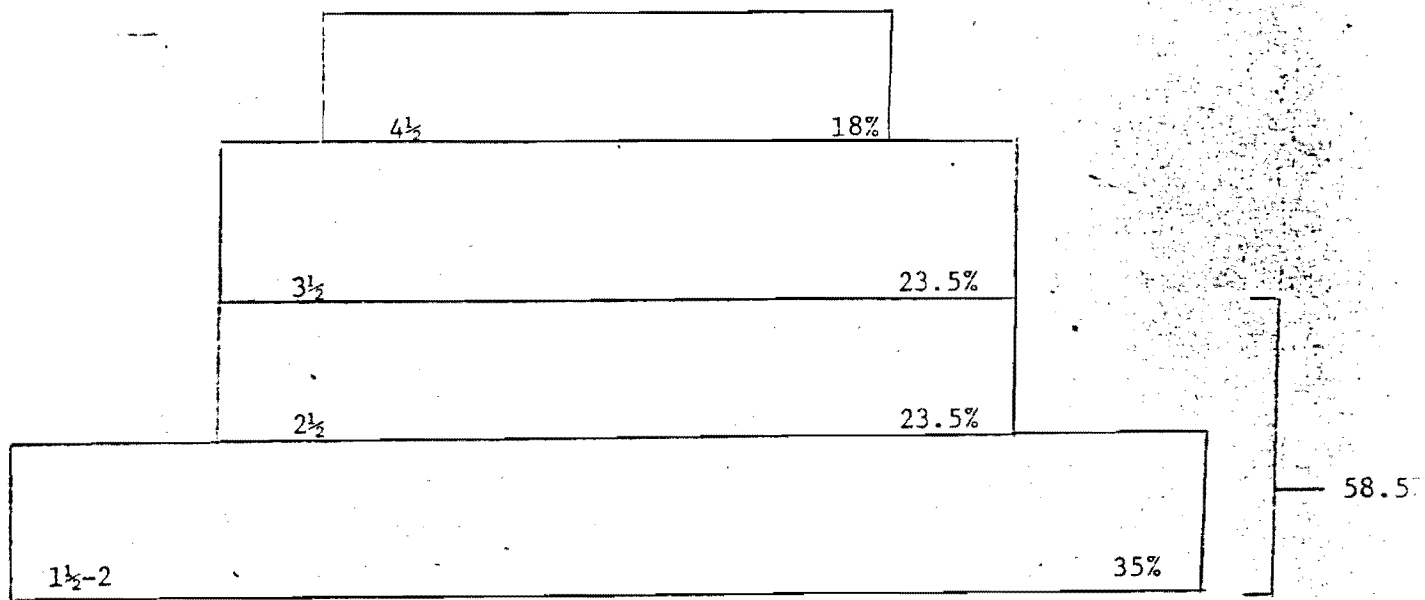
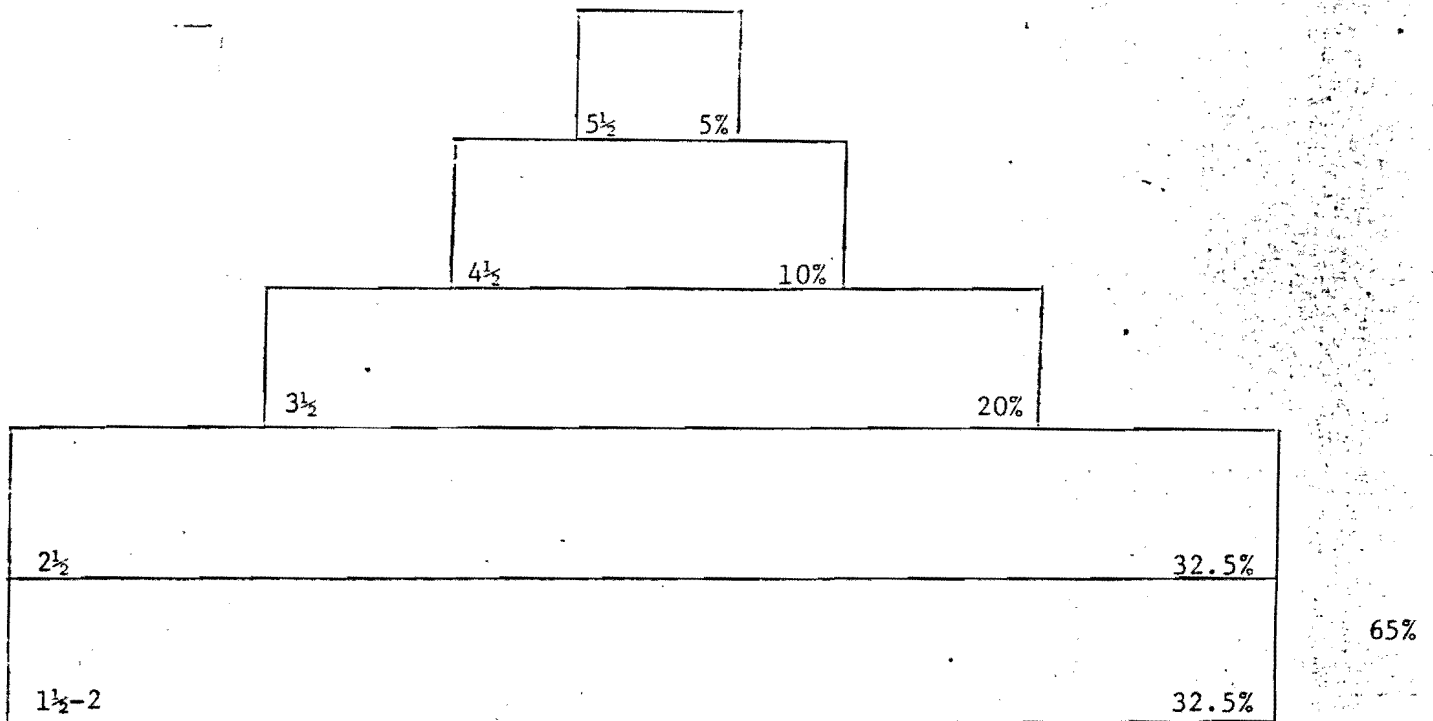


Figure 4. Age pyramid of male deer taken during the archery and general gun seasons (Sept. 9, 1978-Jan. 7, 1979) on the Stairsteps and Loop Road Units, Big Cypress Wildlife Management Area.



show up if bucks with antlers less than five inches were legal. The relative abundance of the older age classes seems to indicate that the herd is not being heavily cropped. The sample size is fairly small and one or two more deer in any age class would change the pyramid considerably.

South of the Loop Herd

The age pyramid here shows a classic stable population with normal reproduction (when $1\frac{1}{2}$ -2 and $2\frac{1}{2}$ are combined). Again, the presence of the older age classes indicate that the herd is not being heavily harvested. The larger sample size here makes the pyramid somewhat more indicative of what is the actual structure of the population.

Physical Characteristics

Bear Island Herd

Antler Measurements

Table 4 shows the average antler measurements by age class. The sample size is too small for a detailed statistical analysis, however, as expected, antler development of the $2\frac{1}{2}$ age class is considerably greater than the $1\frac{1}{2}$ -2 age class.

Weights

The average computed live weight of all age classes was 126.5 pounds. The heaviest checked was a 157 pound $4\frac{1}{2}$ year old. Table 5 shows the computed average live weights by age class.

Body Measurements

Average body measurements by age class is shown in Table 5.

Table 4. Average antler measurements by age class of 17 male deer taken from the Bear Island Unit, Big Cypress Wildlife Management Area, Collier County, Florida, from September 9, 1978 to January 7, 1979^a.

Age Class	Sample Size	Circumference (in.)		Length of Main Beam (in.)		Spread (in.)	Number Points	
		R	L	R	L		R	L
1½-2	6	2.1	1.8	6.5	6.3	7.1	2	1
2½	4	2.9	3.0	9.5	9.7	9.1	3	3
3½	4	2.5	2.7	8.8	9.8	8.6	3	3
4½	3	3.7	3.5	14.2	13.9	13.3	4	5
Overall average								

^aOne killed in September, 16 between November 11 and January 7.

Table 5. Average body sizes by age class of 11 male deer taken from the Bear Island Unit, Big Cypress Wildlife Management Area, Collier County, Florida, from September 9, 1978 to January 7, 1979^a.

Age Class	Sample Size	Computed Live Weight (lb.)	Shoulder Height (in.)	Total Length (in.)	Girth (in.)	Hind Foot (in.)
1½-2	3	122	34.0	61.3	30.0	16.6
2½	2	109	34.5	59.2	31.7	17.0
3½	4	125	35.5	60.2	30.9	17.3
4½	2	154	36.2	61.5	33.2	16.7
Overall average		126.5				

^aOne killed in September, 10 between November 11 and January 7.

South of the Loop Herd

Antler Measurements

Average antler measurements are shown in Table 6. Nothing un-ordinary was found here either.

Weights

Table 7 shows the average computed live weight by age class. Overall, the average weight was 99 pounds.

Body Measurements

Average body measurements are shown in Table 7.

Herd Comparison

Antler development was very comparable between the two herds. With the small sample size, no detailed statistical analysis was done at this time. Body weights, however, did vary considerably between the two herds. The overall average differed by about 28 pounds. Body measurements were fairly close except total length, where the South of the Loop herd appears shorter.

Overall, the two herds seem in good health with only one checked being considered in "fair" condition, the rest being good or excellent. The abomasal worm counts should prove interesting. The age structure appears to be what we would want, although we need a larger sample size to say anything definite.

Table 6. Average antler measurements by age class of 40 male deer taken from the Loop Road and Stairsteps Units, Big Cypress Wildlife Management Area, Collier County, Florida, from September 9, 1978 to January 7, 1979^a.

Age Class	Sample Size	Circumference		Length of Main Beam		Spread	Number of Points	
		R	L	R	L		R	L
1½-2	13	2.0	2.0	5.9	5.6	6.5	1	1
2½	13	2.7	2.8	9.0	9.4	9.1	3	3
3½	8	2.8	2.8	10.0	9.4	9.5	3	4
4½	4	3.3	3.1	11.7	11.1	10.0	4	4
5½	2	3.9	3.9	8.6	14.0	11.1	5	5
Overall average								

^aFive taken on September 9, 35 from November 11 to January 7.

Table 7. Average body sizes by age class of 26 male deer taken from the Loop Road and Stairsteps Units, Big Cypress Wildlife Management Area, Collier County, Florida, from November 11, 1978 to January 7, 1979.

Age Class	Sample Size	Computed Live Weight	Shoulder Height	Total Length	Girth	Hind Foot
1½-2	10	77	33.1	55.4	27.8	17.2
2½	9	113	34.3	60.9	28.0	16.9
3½	3	99	35.7	57.1	32.7	17.1
4½	3	112	36.2	55.7	32.7	17.2
5½	1	140	36.0	61.0	33.0	16.5
Overall average						

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