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Dr. Robertson

A PRELIMINARY REPORT --  
POPULATION DYNAMICS OF THE  
SHARK VALLEY DEER HERD

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#### OBJECTIVE:

This preliminary research was conducted to determine the population dynamics of the deer herd, Odocoileus virginianus seminolus, within the seven square mile (18.3 square kilometers) study area of Shark Valley, Everglades National Park, Dade County, Florida.

Data collected would enable a more accurate estimate of the number of deer visible under defined weather conditions and time of day. By using this study area as a control, after determining a good estimate of deer numbers, aerial census techniques may be evaluated as to their degree of accuracy under certain weather and time of day conditions for the unique Everglades habitat. The evaluation of the aerial census technique is crucial to accurate measurements of future census projects in similar habitats.

#### METHODS:

Ground surveys were conducted from a mass transit vehicle (tram) along a fifteen mile (24 kilometers) loop road through the center of the study area. Deer sightings were made by the 20-50 visitors on board the tram, and confirmed by the National Park Service interpreters with them. These sightings were recorded on a map (see Appendix) of the study area, indicating the location and sex and/or age of the deer (buck, doe, fawn, yearling). Fawns were denoted by the presence of spots on their backs and small size; yearlings by their smaller stature than adults; and bucks by their antlers (in velvet at the time of the study). The bucks were further identified from one another by the size of their antlers using the eastern point system, total points on entire rack.

The two hour surveys were conducted between two and four times a day for a period of two weeks. The weather conditions and time of sighting were also recorded on the map by the interpreter.

The data recorded on the maps was later compiled as to consistent groupings, families, and locations of deer. Weather conditions and time of sighting were also compiled.

#### DATA:

Thirty-three surveys were completed within the two week period, June 14-28-- a total of 66 hours in the field.

The maximum number of deer seen on one two-hour survey was ten deer (1 buck, 7 doe, 1 yearling, 1 fawn). No deer were observed on three of the surveys.

The compiled data, based on consistent groupings of deer and locations, indicates the presence of 18-20 deer within the study area (approximately 7 square miles). Of these deer, 8-10 are doe, 4 fawn, 2 yearling, and 4 bucks (6 pt., 4 pt., 2 pt., 2 pt.). The location and apparent groupings of these deer are indicated on the data tally sheet (Figure 1).

Weather conditions and time of survey were compiled based on the number of deer observed on the individual survey (Table 1).

#### DISCUSSION:

By utilizing a large number of observers (50) and repetition of the survey, 33 times, within a two-week period a good conservative estimate of the deer

numbers (20) and location of the deer within the study area was possible. By intensifying the study in a two-week period, error due to emmigration or immigration and fawn/yearling misidentification was minimal. Sufficient data was obtained to indicate consistencies in location and groupings of deer, essential to good results in this study.

This deer density of 3 deer per square mile concurs with Harlow and Jones (1965) who estimated 2-3 deer per square mile for the Everglades habitat. However, the estimate is slightly less than the 4-5 deer per square mile density estimate made by Lovelace (1959) for the same habitat.

Visibility of the sawgrass portion of the study area, approximately 65%-70%, was good, while visibility in the bayheads and hammocks was very poor. The literature indicates a daytime preference for the open sawgrass areas, when the water levels are below 2 feet (60 cm.), especially during windy conditions to minimize the ectoparasite problem. In most cases the deer were observed feeding on the sawgrass.

The mass transit vehicle (tram) proved to be the best means of observing the deer as they have become accustomed to the tram in the study area. Their feeding behavior within 30 feet (10 meters) of the tram indicates this. New fawns may be the exception in this case, appearing to be more frightened of the tram. When approached on foot or bicycle, the deer are very nervous and run away for some distance.

Identification of the bucks by antler development proved very effective, as antler development was nearly maximal at the onset of the study.

There appears to be no correlation between the number of deer observed on an individual survey and the time of day or weather conditions. Surveys earlier and later in the day should be made; however, accuracy may be limited due to fewer observers (no visitors available to act as observers).

#### CONCLUSION:

Although no allusion is made to the precise accuracy of this survey, a good estimate of the deer numbers in the Shark Valley study area has been determined. With this study as the starting point, further studies are undoubtedly called for. A follow-up aerial survey is needed for a check on the ground and aerial survey technique. Additional ground surveys earlier and later in the day are needed. Seasonal repetition of this ground survey technique in the study area should be conducted for trend evaluation purposes.

A standard error may be estimated for a particular aerial census technique using this study area with a determined number of deer, prior to utilizing the aerial survey technique over similar habitat under similar weather and time conditions.

Additional deer studies are needed to assess the effect of water levels on deer mobility, home range, food preference and availability. Accidental road kills of deer inside the park should be studied and utilized thoroughly to reveal more information on the status of the herd within the park.

A total understanding of the Everglades ecology requires a thorough study of the role of its largest herbivore, the whitetail deer, in this unique habitat.

REFERENCES:

- Harlow, Richard F. & F. K. Jones, Jr. 1965. The White-tailed Deer in Florida.  
Technical Bulletin No. 9, Florida Game and Fresh Water Fish Commission.
- Lovelace, Charles M. 1959. The Everglades Deer Herd Life History and Management.  
Technical Bulletin No. 6, Florida Game and Fresh Water Fish Commission.

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TABLE 1.

| <u>No. of Deer<br/>Observed<br/>On Survey</u> | <u>Weather</u>   | <u>Approximate<br/>Wind Speed<br/>m.p.h.</u> | <u>Wind<br/>Direction</u> | <u>Time of Survey</u> |
|-----------------------------------------------|------------------|----------------------------------------------|---------------------------|-----------------------|
| 0                                             | Rain             | 15                                           |                           |                       |
| 0                                             | Rain             | 5                                            | E                         | 1500-1700             |
| 0                                             | Sunny            | 10                                           | N                         | 1200-1400             |
| 1                                             | Sunny            | 5                                            | SE                        | 1100-1300             |
| 2                                             | Sunny            | 5                                            | SE                        | 1200-1400             |
|                                               |                  |                                              | SE                        | 1200-1400             |
| 2                                             | Rain             | 10                                           | SE                        | 1600-1800             |
| 2                                             | Partly Cloudy    | 5                                            | NE                        | 1300-1500             |
| 3                                             | Overcast-Drizzle | 10                                           | SE                        | 1100-1300             |
| 3                                             | Sunny            | 10                                           | SE                        | 1400-1600             |
| 3                                             | Low Overcast     | 15                                           | E                         | 1400-1600             |
| 3                                             | Sunny            | 10-15                                        | SE                        | 1600-1800             |
| 3                                             | Light Rain       | 10-15                                        | SE                        | 1100-1300             |
| 4                                             | Partly Cloudy    | 5                                            | SE                        | 1300-1500             |
| 4                                             | Cloudy-Rain      | 10                                           | NE                        | 1400-1600             |
| 4                                             | Partly Cloudy    | 15                                           | SE                        | 1000-1200             |
| 4                                             | Cloudy-Drizzle   | 10-15                                        | SE                        | 1100-1300             |
| 4                                             | Partly Cloudy    | 5-10                                         | SE                        | 1000-1200             |
| 4                                             | Overcast         | 5-10                                         | SE                        | 1400-1600             |
| 4                                             | Partly Cloudy    | 5-10                                         | N                         | 1100-1300             |
| 5                                             | Rain             | 10-20                                        | SE                        | 1300-1500             |
| 5                                             | Overcast         | 10                                           | SE                        | 1500-1700             |
| 5                                             | Rain-Overcast    | 10                                           | NW                        | 1600-1800             |
| 6                                             | Overcast         | 15                                           | SE                        | 1300-1500             |
| 6                                             | Sunny            | 0-5                                          | SE                        | 1300-1500             |
| 6                                             | Cloudy           | 10-15                                        | N                         | 1400-1600             |
| 7                                             | Overcast         | 5-10                                         | E                         | 1600-1800             |
| 8                                             | Partly Cloudy    | 5-10                                         | SE                        | 1100-1300             |
| 8                                             | Cloudy           | 0                                            | -                         | 1200-1400             |
| 8                                             | Sunny            | Slight                                       | SE                        | 1100-1300             |
| 9                                             | Partly Cloudy    | 10                                           | SE                        | 1300-1500             |
| 9                                             | Sunny            | 5-10                                         | SE                        | 1000-1200             |
| 9                                             | Overcast         | 10                                           | SE                        | 1300-1500             |
| 10                                            | Overcast         | 0-5                                          | SE                        | 1100-1300             |

# Sample Data Sheet

Shark Valley Road  
Everglades National Park  
1 mile =  $1\frac{3}{8}$ "

Tram Driver

Date:

Time:

Weather (at Deer Sighting)

Wind Speed:

Direction:

## Legend

B - buck (pts)

pts = total on rack

D - doe

Y - yearling

F - fawn

⊖ - widen canal

p - pull-off

⚡ - 1st sight of tower

••• - Selected Trees

Appendix

U.S. 41

Other Cave

4th Borrow Pit

Oil Site

3rd Borrow Pit

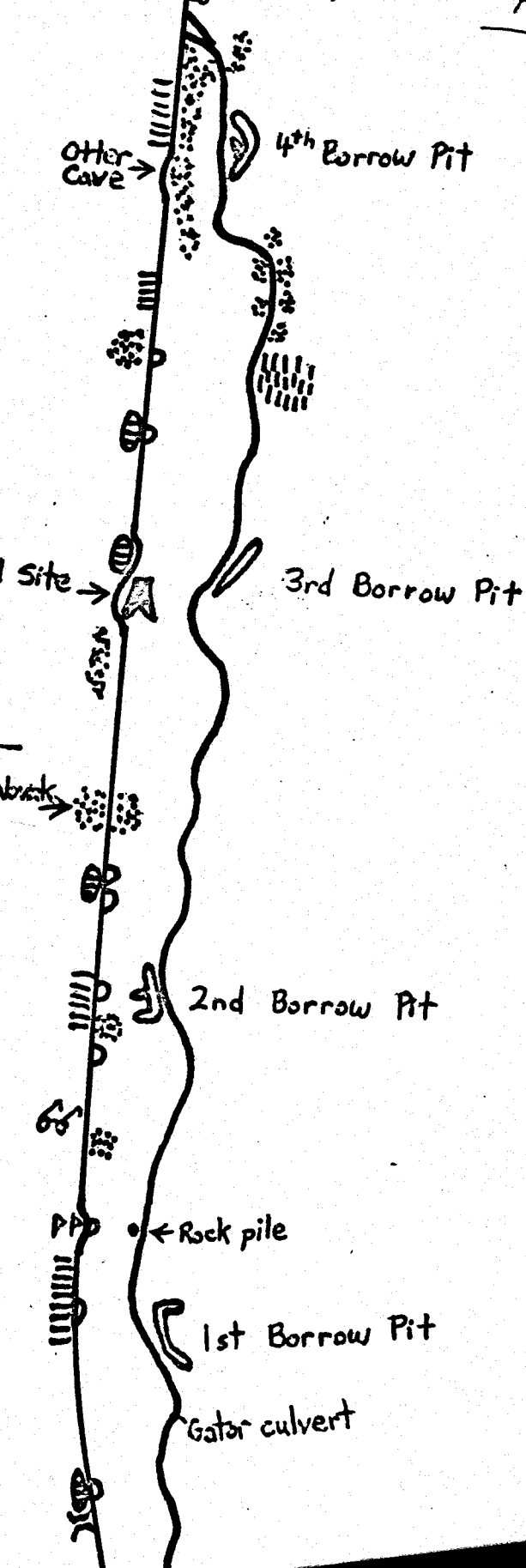
Mt. Noddy

2nd Borrow Pit

1st Borrow Pit

Gator culvert

Rock pile



Shark Valley Road  
Everglades National Park  
1 mile =  $1\frac{3}{8}$ "

## Data Tally Sheet

4 Buck 6pt, 4pt, 2pt,  
2pt.

8-10 Doe

4 Fawn

4 Yearling

20 Total

## Legend

B- buck (pts)  
pts = total on rack

D- doe

Y- yearling

F- fawn

⊖ - widen canal

P - pull-off

⚓ - 1st sight of tower

⋄ - Selected Trees

⋄ - Cattails

⋄ - Alligator Flag Plant

- Bridge

