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CONTINUED MONITORING OF GRAZING EFFECTS
AND POPULATION DYNAMICS OF FERAL PONIES
ON ASSATEAGUE ISLAND, 1982-1983

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ABSTRACT

This study was the continuation of a long-term effort to collect data on the NPS pony population on Assateague Island National Seashore. The primary objectives of the study were to determine for 1982 and 1983: (1) the size, sex, and age structure of each pony band through direct observation; (2) the foaling rate for the pony population; and (3) the effects of feral ponies on the island's vegetation by using exclusion cages.

Seven one-male harem bands were observed on the island in 1983, an increase of one band over 1982. Four multi-male bands, two consisting of all young males and two consisting of several young male and female ponies, were also present.

Twenty-three foals were born in 1983, the largest number born in any year since the study began in 1975. The 1983 foaling rate (number of foals born/number of sexually mature females) was 54.8%. Eighteen foals were born in 1982 and the foaling rate was 51.4%.

The pony population as of September 1, 1983 was 104 ponies, an increase of 16.3% over the 1982 population.

The effects of pony grazing on the dune vegetation were studied by using exclusion cages in which pony grazing was prevented. These results suggested that the effects of grazing seem to have caused a gradual deterioration of the dune vegetation.

METHODS

Population Dynamics and Social Organization of the Ponies

Through the summers of 1982 and 1983, data were collected on the size, sex and age composition of each of the bands living on the Maryland portion of Assateague Island. Each individual animal was identified on the basis of sex, size, color, and markings. Data were also collected on the number of foals born in 1982 and 1983. Information recorded included the birth date of each foal, its sex, and the age and identity of its mother. These data were then compared with similar data collected since 1975 and were also used to provide information on the rate of population increase.

Home Range of the Ponies

The home range of each pony band was determined by visually locating each band and recording the daily position on maps of the island.

Effects of Pony Grazing

Effects of pony grazing on the dune vegetation were studied using exclosures constructed in 1978. The exclosures were constructed on primary dunes, two near the northern tip of the island and eight at one mile (1.6 km) intervals starting just south of Dune Crossing One. Each exclosure was 5 square meters ($5m^2$) surrounded by a single strand of barbed wire strung at a height of 78 cm above the ground.

As in previous years, the ponies were given the opportunity to graze around the cages during the summer growth period. On August 31, 1982 and September 24, 1983, ten randomly selected $30cm^2$ vegetation samples were cut from within and from outside each cage. The vegetation was cut at ground level using hedge shears and collected in plastic bags. The bags were sent immediately to the laboratory at the Mont Alto Campus of The Pennsylvania State University. Each sample was oven-dried for one week at $45^\circ C$ and weighed on a torsion balance.

Table 1. Composition of the Pony Population on Assateague Island National Seashore as of December 21, 1982.

Band	<u>Adult (> 2 years old)</u>		2 year old ^a	Yearling ^a	Foal ^a	Total
	Male	Female				
O	2	0	3 (1 M, 2 F)	0	0	5
M	1	6	0	3 (3 M)	3 (2 M, 1 F)	13
T	1	9	1 (1 F)	2 (1 M, 1 F)	3 (1 M, 2 F)	16
J	1	5	5 (2 M, 3 F)	2 (2 M)	3 (1 M, 2 F)	16
N	1	6	3 (1 M, 2 F)	1 (1 F)	3 (1 M, 2 F)	14
K	1	3	3 (3 F)	0	3 (2 M, 1 F)	10
L	1	4	0	1 (1 M)	2 (1 M, 1 F)	8
R	4	0	0	0	0	4
Other	0	0	1 (1 M)	0	0	1
TOTAL	12	33	16 (5 M, 11 F)	9 (7 M, 2 F)	17 (8 M, 9 F)	87

^a M = male, F = female

Table 3. Composition of the Pony Population on Assateague Island National Seashore As of September 1, 1983.

Band	<u>Adult (> 2 years old)</u>		2 Year Old ^a	Yearling ^a	Foal ^a	Total
	Male	Female				
M	1	4	1 (1F)	2 (2M)	3 (3M)	11
J	1	4	1 (1M)	2 (1M, 1F)	3 (3M)	11
C	1	4	0	1 (1F)	3 (2M, 1F)	9
K	1	6	0	3 (2M, 1F)	4 (4M)	14
T	1	11	0	2 (2M)	7 (3M, 4F)	21
N	1	8	1 (1M)	3 (1M, 2F)	2 (2F)	15
L	1	4	0	2 (1M, 1F)	1 (1M)	8
O	2	2	0	0	0	4
Q	4	0	0	0	0	4
B	2	1	0	0	0	3
R	2	0	0	0	0	2
Other	2	0	0	0	0	2
TOTAL	19	44	3 (2M, 1F)	15 (9M, 6F)	23 (16M, 7F)	104

^a M = male, F = female

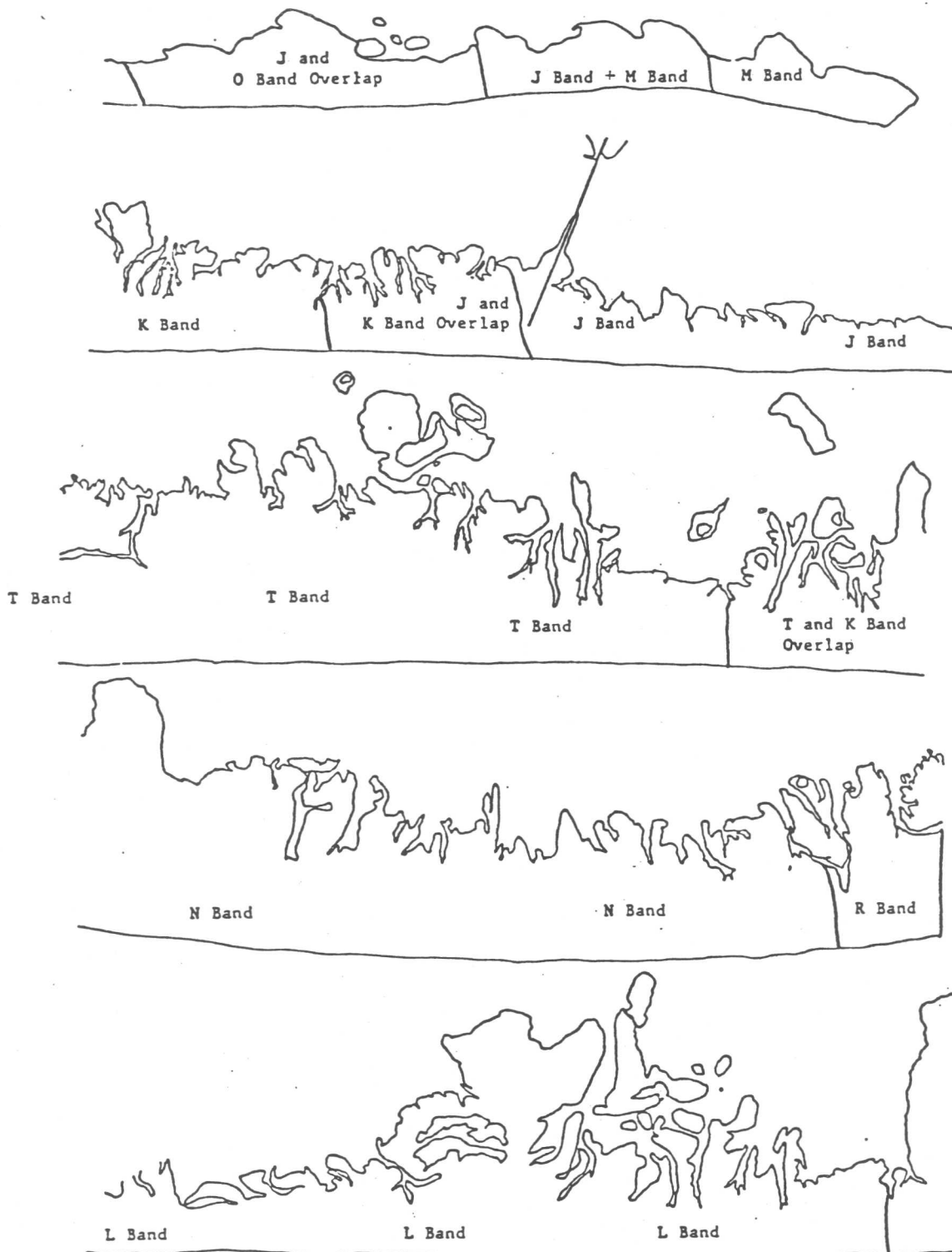


Figure 1. Home ranges for pony bands on Assateague during 1982.

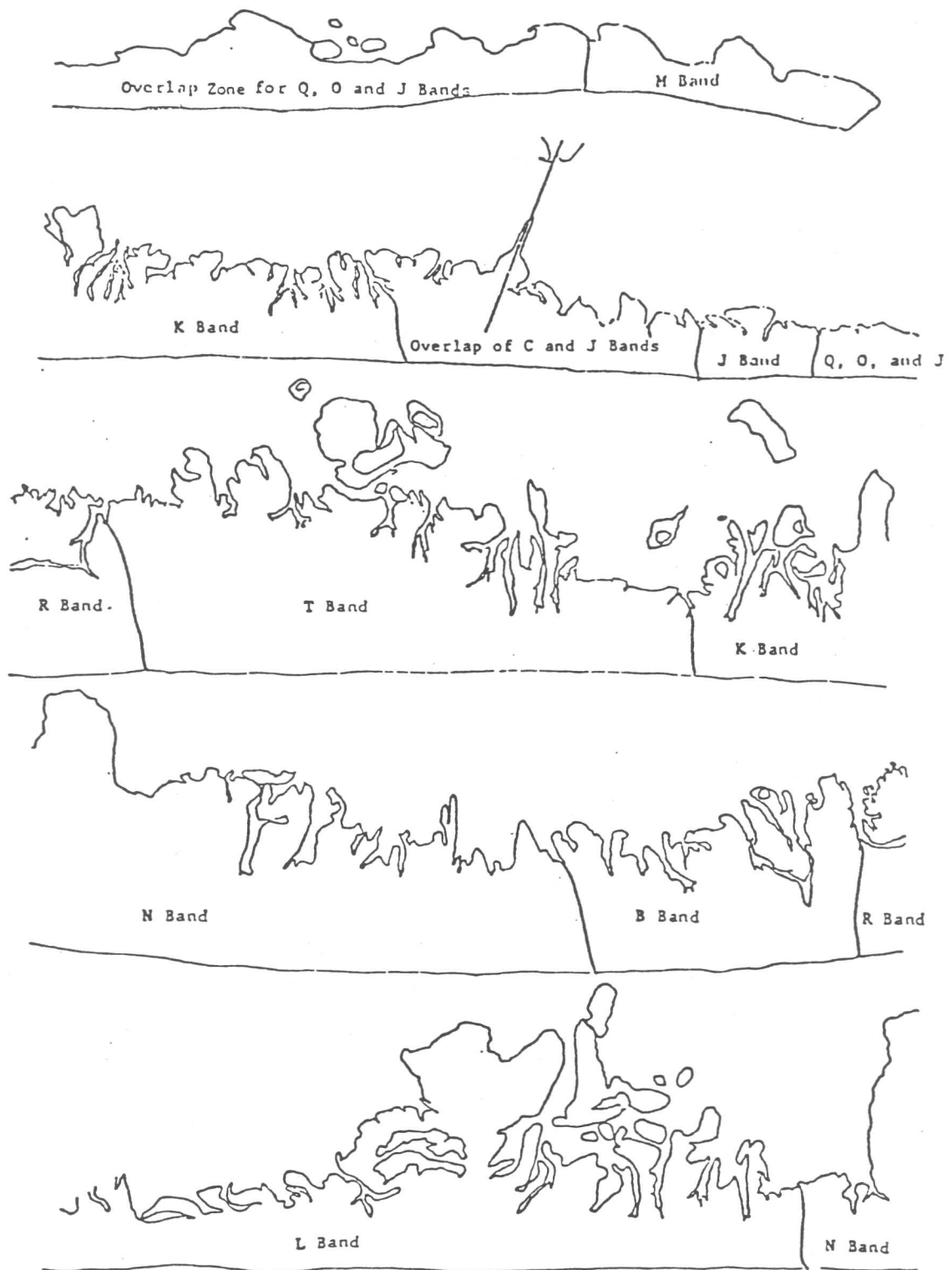


Figure 2. Home ranges for pony bands on Assateague during 1983.

CONCLUSIONS

1. The pony population on Assateague Island National Seashore exceeded 100 animals in 1983 and continued population growth can be expected. Even though the foaling rate has not increased over the eight years of study, the number of sexually mature females has reached 42 animals, more than double the number of breeding mares in the years 1975-78. Only 11 of the breeding mares are older than 10 years of age and even these may continue to breed for another 5-10 years. On the other hand, in 1983 10 of the mares were 3 year olds which have a foaling rate of only 30%. The number of foals born in the next few years may very likely increase over the 23 born in 1983 as these young mares mature.

2. Pony grazing seemed to have a slight, though continuing, negative impact on the dune vegetation. Biomass samples taken from outside the exclusion cages weighed less than similar samples cut in 1978 and 1982, but the differences were not always significant. As the pony population grows, the effects of grazing may increase, especially if bands grow in size and occupy constant home ranges. For example, T band has increased from 15 animals in 1981 to 16 animals in 1982, to 21 animals in 1983; yet the size of the home range of T band has decreased over that period of time. If bands split to form new, smaller bands (such as the splitting of the 1982 J band into C and J bands in 1983), and if new bands occupy different home ranges from the old band, then grazing pressure may be distributed over a larger area.