Technical Report No. 257

DYNAMICS OF SMALL MAMMAL POPULATIONS AT THE COTTONWOOD AND OSAGE SITES, 1972

Elmer C. Birney
Bell Museum of Natural History
The University of Minnesota
Minneapolis, Minnesota

GRASSLAND BIOME
U.S. International Biological Program

May 1974

TABLE OF CONTENTS

ABSTRACT

Live-trapping of grids at two network sites (Osage and Cottonwood) on the northern Great Plains during 1972 provides the basis for estimates of small mammal standing crop biomass density at three times during the growing season.

As in 1970 and 1971, small mammal densities at Cottonwood were relatively low at all three collecting periods in 1972. Wet weight and dry weight (in parentheses) biomass density estimates were 137.5 (41.2) g/ha, 245.5 (73.6) g/ha, and 139.7 (41.9) g/ha, respectively, for the June, July, and September samples. The consistently low mammalian populations at this site are discussed, with special consideration of the relationships between density and vegetative cover.

Small mammal densities on an ungrazed grid at Osage were high in May and decreased from then until October. On a grazed grid the reverse pattern obtained. Biomass density for the ungrazed habitat was 3763.1 (1128.9) g/ha in May, 3741.1 (1122.4) g/ha in August, and 1858.4 (557.4) g/ha in October. Corresponding values for the grazed grid at the respective sampling periods were 137.1 (41.1), 735.6 (220.9), and 1105.0 (331.5).

The decrease in biomass density on the ungrazed grid resulted from reduction in the contribution of _Microtus ochrogaster_ from 3048.9 (914.7) g/ha to 2388.9 (716.7) g/ha to 201.4 (60.4). The impact of this reduction was partially mitigated by concomitant increases in the contribution of _Sigmodon hispidus_ from 495.4 (148.6) to 1185.0 (355.5) to 1445.6 (433.6). These two species also were largely responsible for the changes observed on the grazed area. Biomass density of _Microtus_ increased from 0 (0) to 173.1 (51.9) to 431.3 (129.4) while that of _Sigmodon_ underwent corresponding increases from

0 (0) to 185.8 (55.7) to 423.3 (127.0). Marked increase in density of these two species in grazed habitat is discussed and considered to be a result of incomplete grazing on part of the so-called grazed grid.

Mammals larger than those captured in Sherman live-traps were censused by means of roadside transects. A survey of disturbance caused by small mammals was conducted at each site. Demographic trends of small mammals on both sites during the three years 1970 to 1972 are considered.

INTRODUCTION

The purpose of the studies reported herein was to survey the status of, and provide population estimates of, small mammal populations on two sites in the Comprehensive Network Program of the IBP Grassland Biome Project. During the period May to October, 1972, field parties from the University of Minnesota studied and collected mammals during three collection periods at Osage and Cottonwood (see Fig. 1), in the northern and central plains. Results of work accomplished at these sites in 1972 are reported herein and considered with results from 1970 and 1971. The composition of field crews varied, with the following persons involved: E. C. Birney, S. H. Fritts, L. R. Heaney, J. G. Petrie, M. E. Stair, and M. D. Tuttle. Mammals collected have been catalogued in the Bell Museum of Natural History at the University of Minnesota.

METHODS

Grids

Grids were a square of 12 X 12 stations (144 total). The interval between each station in the rows and columns was 15 meters, giving the grid an area of 2.72 hectares. Each grid station was semi-permanently marked with a wooden stake, which was numbered with its row and column position. Two of the three grids trapped in 1972 were those used by Hoffmann et al. (1971) in 1970 and Hoffmann and Birney (1972) in 1971. The third was established at Osage in May 1972 in a moderately grazed pasture north of the ungrazed grid.

Trapping

Two Sherman live-traps were placed at each station on the live-trap grids, baited with a mixture of rolled oats and peanut butter, and set for

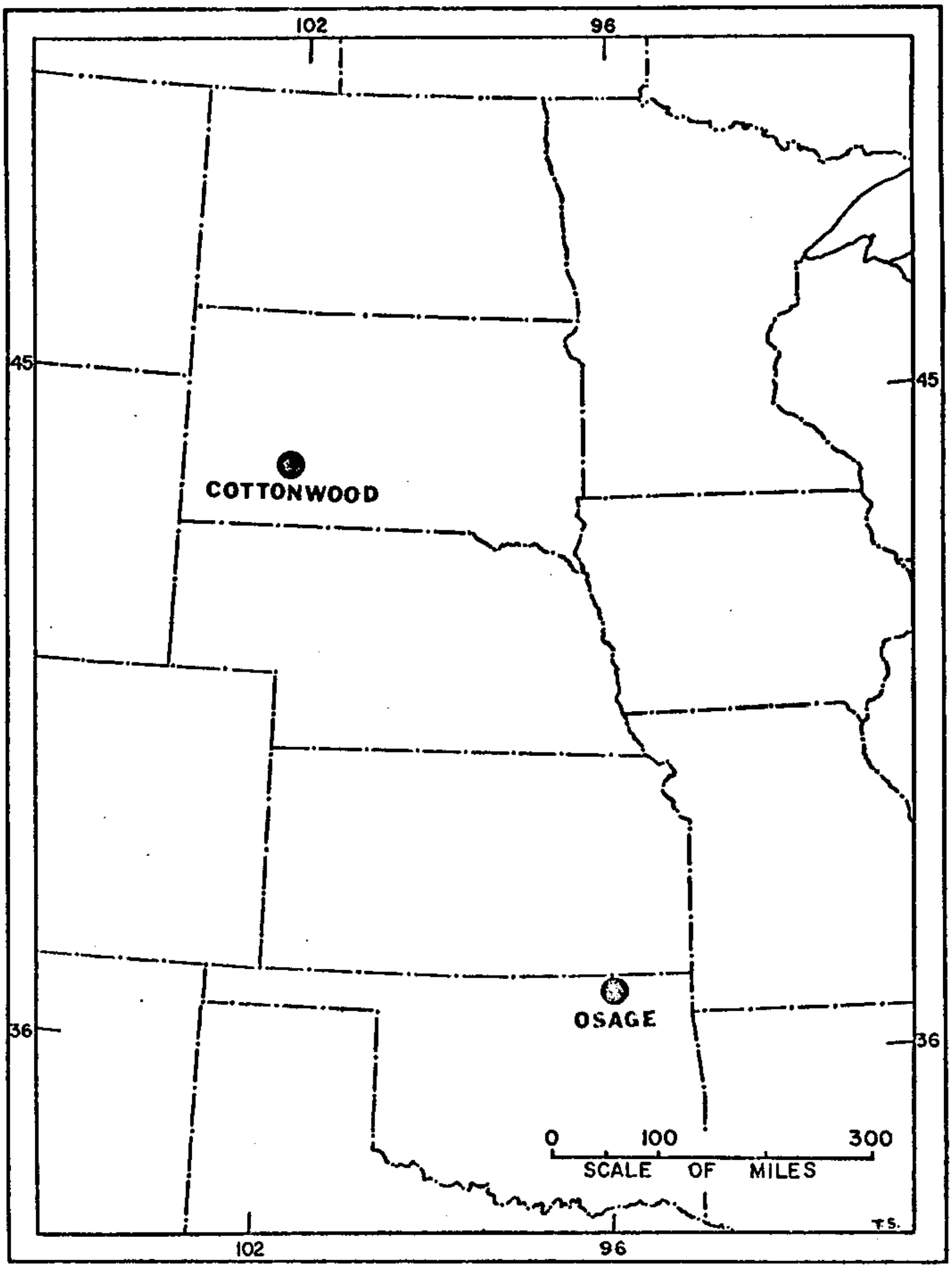

Fig. 1. Map of Northern Great Plains showing location of the two IBP sites included in this report.

seven consecutive days unless rainy weather interfered, in which instance trapping was suspended for a night. Traps were set in the late afternoon (usually between 1700 and 2000) each day. They were checked early in the morning (usually between 0600 and 0800) and all were sprung at that time. Immediately following grid trapping at Osage, traps were moved to assessment lines (see Smith et al., 1971 and Swift and French, 1972) for three additional nights. Because grids were near roads and other disruptions of habitat, some assessment lines were incomplete. Numbers of small mammals at Cottonwood were so low that trapping assessment lines would not have improved estimates of density and therefore was not attempted.

In addition to live-trapping, animals were kill-trapped in Museum Special snap traps (Animal Trap Company) from areas of similar habitat well removed from live-trap grids. Kill-trapped specimens were autopsied for evaluation of diet and reproductive activity.

Data Types

Five data types were recorded on small mammals from the grids. Examples of data sheets are included with this report (Appendix I). Information from the live-trap grids were recorded on a "vertebrate--live-trapping" data sheet. Recorded on this sheet was the generic and specific identity of the animal and its condition in the trap (normal, torpid, escaped, or dead). All small mammals were marked by toe clipping and the code number of each was recorded. Four toes were used on each foot for clipping, starting with the left hind foot. The relative age (juvenile, subadult, or adult) and reproductive condition (females--inactive, cornified, or vulva turgid, or pregnant or lactating; males--non-breeding, questionably breeding, or breeding) of each specimen was recorded. If an animal was found to be molting, the stage of molt was noted. Finally, the grid location where the specimen was captured was recorded.

For each animal from off-grid snap-trapping and any dead animals from the live-trap grid, additional information was recorded on two data sheets--"mammal collection" and "mammal reproductive". The mammal collection sheet had information on grid location of capture, generic and specific identity, field collector's number, external measurements, stage of molt, and type of specimen prepared. Saved from most specimens were ectoparasites, and stomachs for analysis of contents. On the mammal reproductive sheets, reproductive condition and relative age were noted as for the live-trapped animals. In addition, for males, the length and width of the testes and the condition of the epididymides and seminal vesicles was noted. The condition of the mammary glands and pubic symphysis was recorded for females. The following information was obtained during autopsy: number and size of embryos, number of embryos being resorbed, number of old and new scars, number of corpora lutea, presence or absence of corpora albicantia, and weight of the reproductive tract if it contained embryos.

Other Censusing Methods

Lagomorphs, deer, and carnivores were censused at night by spot-lighting a 50 yard strip on one side of a slowly moving vehicle. All mammals observed in a 10 mile census strip at each site during each of the three collection periods were recorded. Width of the census strip was estimated, and error of estimate determined by measuring the distance to an object estimated to be 50 yards distant after each mile traversed.

Disturbance of the habitat resulting from the activities of small mammals was estimated at both sites. A series of ten one-meter square quadrats was selected at random (by lottery) on the grids for study. Each quadrat was outlined with string and searched to determine the number of and area effected by runways, burrows, mounds, and other disturbances.

For additional discussion of methods used in small mammal sampling, see Swift and French (1972), Hoffmann et al. (1971), and Hoffmann and Birney (1972).

Statistical Techniques

The Zippin method (Zippin, 1956) of estimating population size was applied to the live-trap data. Unless otherwise noted all weights used in calculations of biomass were adjusted by subtraction of stomach weight from total body weight. Insofar as possible, weights, stomach weights, and estimated age composition of the population of each species were derived from autopsied specimens trapped at the same site and time period. Origin of other weights used is noted. If an autopsy sample was unavailable to derive age composition, estimated ages of the animal obtained on the live-trap grid were used in calculations. To convert wet body weight to dry body weight, the wet weight was multiplied by 0.3. This conversion factor is based upon results obtained by Golley (1960:197) for *Microtus pennsylvanicus*.

Explanation of Codes

In the figures througout this report and on all original data forms, scientific names of mammals are reduced to four letter codes. These code names are derived from the first two letters of the generic name followed by the first two letters of the specific name. The code names used herein represent the species indicated in parentheses immediately following each code: Bl br (*Blarina brevicauda*; listed as *B. carolinensis* by Jones et al., 1973); Cr pa (*Cryptotis parva*); Sp tr (*Spermophilus tridecemlineatus*); Th ta (*Thomomys talpoides*); Pe hi (*Perognathus hispidus*); Re fu (*Reithrodontomys fulvescens*); Re me (*Reithrodontomys megalotis*); Re mo (*Reithrodontomys montanus*); Pe le (*Peromyscus leucopus*); Pe ma (*Peromyscus maniculatus*); Si hi (*Sigmodon hispidus*); Mi oc (*Microtus ochrogaster*); and Mu mu (*Mus musculus*).

STUDY AREAS

Mammalian populations were studied at two Comprehensive Network Sites, Osage and Cottonwood. These two sites are discussed briefly below. Information is presented on types of grids used, location of grids, vegetation on grids, and general climate and topography of the area.

Cottonwood

The grid at the Cottonwood site was located on the Cottonwood Range Field Station, which is two miles east of Cottonwood, Jackson County, South Dakota. It was placed in summer pasture 3, which has been lightly grazed since 1942. The grid had both north-and south-facing slopes, which met toward the center and drained toward the west. Cottonwood Creek and a small dam and reservoir were about one-half mile to the northwest of the grid. In 1970 and 1971, the grid was near the opposite place in the pasture from watering tanks and salt troughs. In 1972, however, both were placed on the east edge of the grid. This resulted in considerable trampling and disturbance by cattle and probably in slightly heavier grazing on the grid than in previous years.

The average annual temperature on the station is about 47°F with the average daily temperature in January being 32.5°F and in July 90.8°F. The average annual rainfall at the station is 15.22 inches with May (2.78 inches) and June (2.99 inches) being the wettest months.

Under good range conditions, the vegetation of the field station is dominated by midgrasses, especially western wheatgrass (*Agropyron smithii*) and green needlegrass (*Stipa viridula*) with an understory of shortgrasses, mainly consisting of blue grama (*Bouteloua gracilis*) and buffalo grass (*Buchloe dactyloides*). An introduced annual grass, Japanese brome (*Bromus japonicus*), is abundant over most of the grid. Several forbs are conspicuous during the early part of the year. See Lewis (1970) for additional information on plants of the Cottonwood site.

Osage

The Osage site is located on the K. S. Adams Ranch at a place 12 miles north and five miles east of Shidler, Osage County, Oklahoma. The average January temperature at Osage is 36.9°F and the average July temperature is 81.8°F. The average annual precipitation is 36.6 inches with 25.0 inches being received from April to September.

One live-trap grid was located in an ungrazed pasture just to the west of the ranch headquarters. Rows 11 and 12 were located in an area that was cultivated 13 years ago but has not been worked since; the successional vegetation in this area was noticably different from the tallgrass on the remainder of the grid, having a dense, tall growth of forbs. To the north and west of this grid are roads, which are bounded by moderately grazed pastures. About 150 meters south of the grid is a shelterbelt and about 250 meters beyond this is a small lake. There appeared to be little or no slope on this grid.

The other live-trap grid was located in the moderately grazed pasture northeast of the ungrazed grid and almost due north of the main ranch house. This new grid sloped gradually toward a weedy draw to the north. Although the draw was not a part of the grid, the northern stations were in rocky, shallow soil associated with it. The southern one-third of this grid was fenced in spring 1972, apparently to protect certain recording equipment from trampling. In May the fenced portion differed little if at all from adjacent unfenced habitats. By early August (second sampling period), this third differed markedly in vegetation and cover from the northern two-thirds of the grid. The difference persisted but became only slightly more noticeable by mid-October (third sampling period).

This general area of northeastern Oklahoma is characterized by tallgrass prairie in uncultivated upland areas and deciduous trees along the canyons and streams. Common grasses (Risser, 1970) in the pasture where the grids were placed included big bluestem (Andropogon gerardii), little bluestem (A. scoparius), switchgrass (Panicum virgatum), Scribner panicum (P. scribnarianum), sideoats grama (Bouteloua curtipendula), blue grama (B. gracilis), Indiangrass (Sorghastrum nutans), tall dropseed (Sporobolus asper), and fall witchgrass (Leptoloma cognatum). Forbs in the area were heath aster (Aster ericoides), wild indigo (Baptisia leucophaea), dotted gayfeather (Liatris punctata), and white prairieclover (Petalostemum candidum).

RESULTS

Total live weight biomass of small mammals in grams per hectare is shown in figure 2 for each of the three sampling periods for both grids at Osage and the single grid at Cottonwood. Four species of small mammals were captured on the live-trap grid at Cottonwood during 1972 (Fig. 3). Microtus ochrogaster and Spermophilus tridecemlineatus were present at each of the three sampling periods. Peromyscus maniculatus was present in June and September but was not captured in July although the species probably was present in low numbers. Reithrodontomys montanus was captured on the grid only in September.

Biomass density of small mammals on this grid remained low and fairly constant throughout the summer with a slight peak in July when ground squirrels were most abundant (Tables 1-3). Best estimates of small mammal biomass in grams (wet weight) per hectare at Cottonwood for the three trapping periods are 137.5, 245.5, and 139.7, respectively.

Off-grid collecting at Cottonwood yielded specimens of each of the four species trapped on the grid together with specimens of 13 other species. These are Eptesicus fuscus, Myotis leibii, Cryptotis parva, Sylvilagus floridanus,

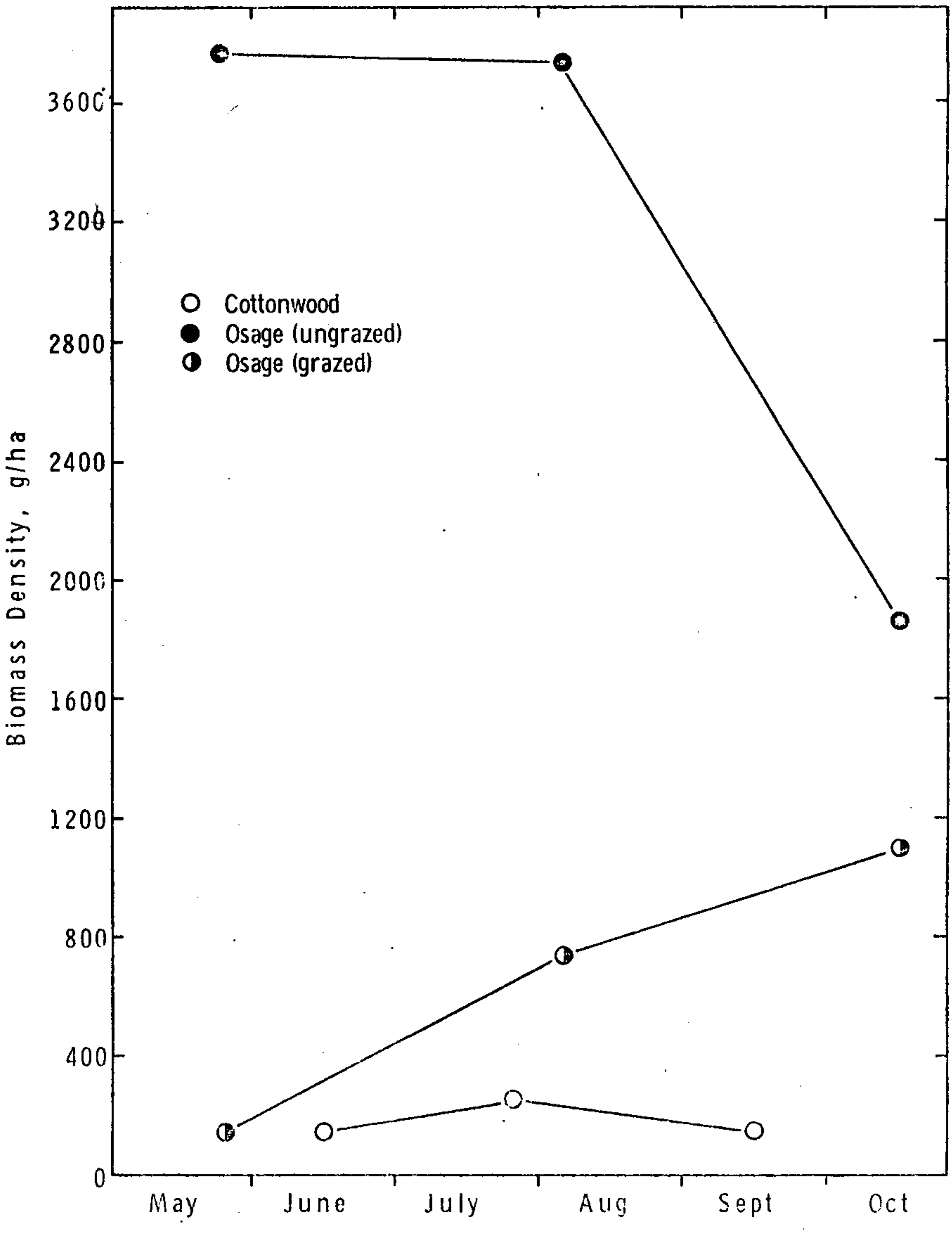

Fig. 2. Graph showing small mammal biomass (g wet weight/ha) for one grid at Cottonwood and two grids at Osage, 1972.

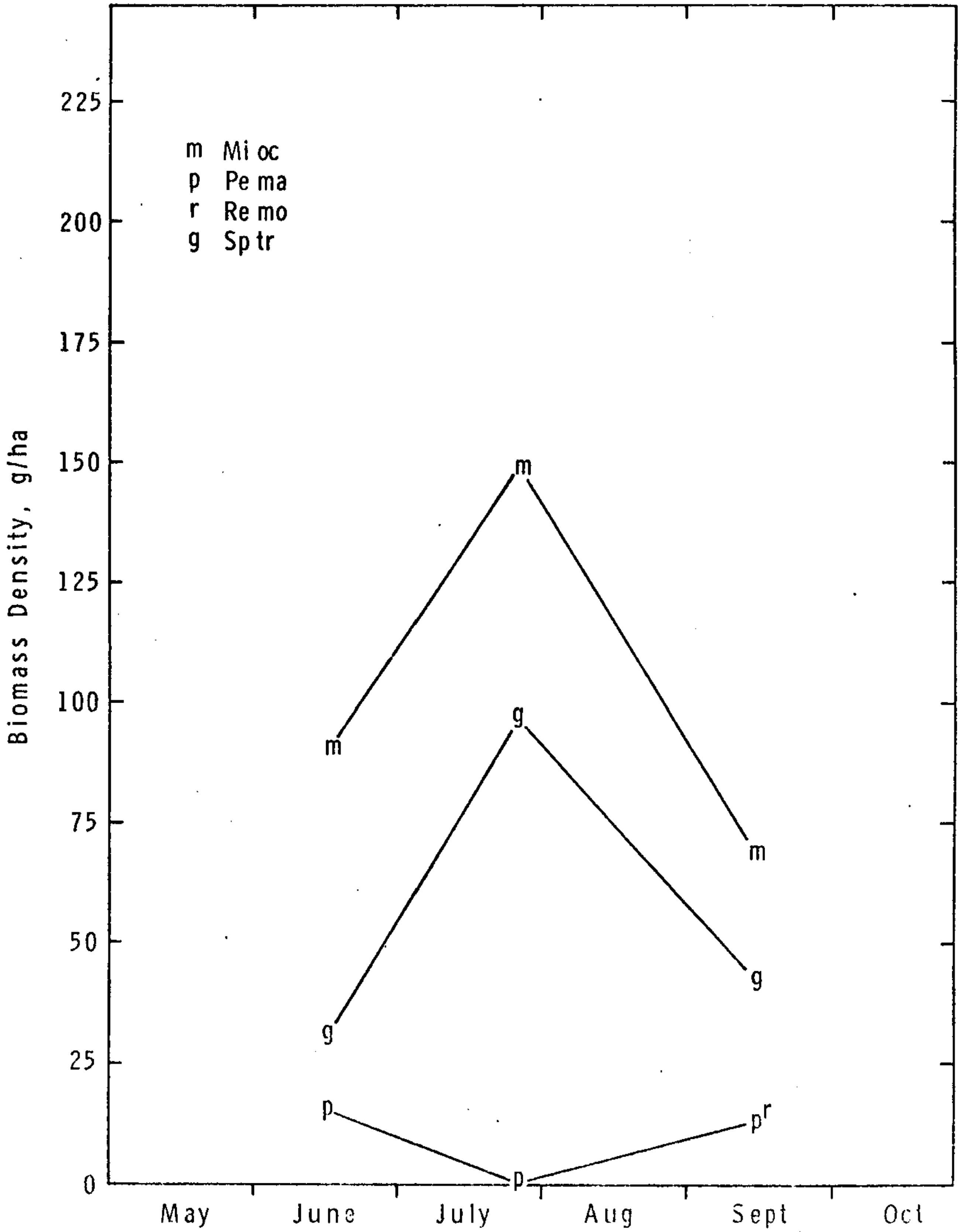

Fig. 3. Graph showing fluctuations in biomass density (g wet weight/ha) for each species of small mammal captured on the live-trap grid at Cottonwood, 1972.

Table 1. Live-trap grid--Cottonwood (11 June--18 June, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Microtus ochrogaster				
♀♀ adult	3.1	39.4	121.8	44.8
♀♀ subadult	1.2	22.5	27.9	10.3
♂♂ adult	2.2	37.3	80.6	29.6
♂♂ subadult	.6	28.0	17.4	6.4
Total	7.1		247.7	91.1
Peromyscus maniculatus				
♀♀ adult	.6	21.6	12.5	4.6
♀♀ subadult	.1	13.3	1.9	.6
♂♂ adult	1.1	19.9	21.7	8.0
♂♂ subadult	.3	16.8	4.9	1.8
Total	2.1		41.0	15.0
Spermophilus tridecemlineatus				
♀♀ juvenile	1.6	31.0	50.8	18.7
♂♂ adult	.2	119.6	19.1	7.0
♂♂ juvenile	.5	31.4	15.4	5.7
Total	2.3		85.3	31.4
TOTALS	11.5		374.0	137.5

Table 2. Live-trap grid--Cottonwood (21 July--29 July, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Microtus ochrogaster				
♀♀ adult	4.8	45.0	214.2	78.8
♀♀ subadult	1.0	21.5	20.4	7.5
♂♂ adult	3.8	40.3	153.5	56.5
♂♂ subadult	.5	34.1*	16.4	6.0
Total	10.1		404.5	148.8
Spermophilus tridecemlineatus				
♀♀ juvenile	1.0	50.3	50.3	18.5
♂♂ subadult	4.0	53.2	212.8	78.2
Total	5.0		263.1	96.7
TOTALS	15.1		667.6	245.5

*Weight from Cottonwood, July, 1971.

Table 3. Live-trap grid--Cottonwood (10 September--17 September, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
<u>Microtus ochrogaster</u>				
♀♀ adult	1.8	42.0	77.3	28.4
♀♀ subadult	1.6	30.1	48.4	17.8
♂♂ adult	.2	21.0	4.8	1.8
♂♂ subadult	1.6	36.1	58.2	21.4
Total	5.2		188.7	69.4
<u>Peromyscus maniculatus</u>				
♀♀ adult	.7	19.7	12.8	4.7
♀♀ subadult	.2	13.7	2.5	.9
♀♀ juvenile	.2	11.6	2.1	.8
♂♂ adult	.3	20.4	6.8	2.5
♂♂ subadult	.7	17.1	11.6	4.3
♂♂ juvenile	.1	14.2	1.3	.5
Total	2.2		37.1	13.7
<u>Reithrodontomys montanus</u>				
♀♀ adult	2.0	12.9	25.7	9.5
♀♀ juvenile	1.0	4.7*	4.7	1.7
♂♂ juvenile	1.0	7.5*	7.5	2.8
Total	4.0		37.9	14.0
<u>Spermophilus tridecemlineatus</u>				
♂♂ adult	.5	138.4	69.2	25.4
♂♂ subadult	.5	93.3	46.7	17.2
Total	1.0		115.9	42.6
TOTALS	12.4		379.6	139.7

Lepus townsendii, Perognathus hispidus, Thomomys talpoides, Reithrodontomys megalotis, Peromyscus leucopus, Microtus pennsylvanicus, Mus musculus, Mustela frenata, and Erithizon dorsatum.

In June, one Odocoileus virginianus and two O. hemionus were observed during ten miles of roadside census at Cottonwood. In September, 19 miles of census yielded sighting of one Sylvilagus floridanus, two Lepus townsendii, two Odocoileus hemionus, and four Procyon lotor. The latter appeared to be a family group of one adult and three young.

Twenty randomly selected square meters of habitat on the live-trap grid were searched for signs of disturbance by small mammals in June and 10 square meters were searched in September. One runway believed to have been used by Microtus ochrogaster was observed in a single plot in June. No sign of disturbance was observed in the ten plots examined in September. At all three collecting periods, gopher mounds and Microtus runways could be found on and near the grid. Neither disturbance was common but neither is reflected properly by the results of this census.

Total biomass density of small mammals on the ungrazed grid at Osage was relatively high in May and August, but had decreased markedly by October (Tables 4, 5, and 6). Best estimates of biomass expressed in grams (wet weight) per hectare on this grid are 3763.1, 3741.1, and 1858.4, respectively, for the three trapping periods. Five species, Blarina brevicauda, Microtus ochrogaster, Peromyscus maniculatus, Reithrodontomys fulvescens, and Sigmodon hispidus, were represented on this grid at all three sampling periods. Two additional species, Reithrodontomys montanus and Mus musculus, were taken there in August and again in October. Figure 4 shows biomass density of individual species for each sampling period. Both species of Reithrodontomys and Mus musculus appeared to have low population numbers and thus contributed little

Table 4. Ungrazed Live-trap grid--Osage (17 May--31 May, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Blarina brevicauda				
♀♀ adult	14.4	15.1	217.4	79.9
♂♂ adult	3.6	15.0	54.0	19.9
Total	18.0		271.4	99.8
Microtus ochrogaster				
♀♀ adult	91.2	43.5	3968.9	1459.2
♀♀ subadult	14.4	26.2	377.0	138.6
♀♀ juvenile	41.4	16.0	662.1	243.4
♂♂ adult	70.4	37.1	2612.6	960.5
♂♂ juvenile	39.3	17.1	672.4	247.2
Total	257.0		8292.0	3048.9
Peromyscus maniculatus				
♀♀ adult	3.8	18.6	71.2	26.2
♀♀ subadult	3.0	22.5	67.0	24.6
♀♀ juvenile	.8	11.6	9.9	3.6
♂♂ adult	7.2	17.9	129.2	47.5
♂♂ subadult	1.7	13.5	23.1	8.5
♂♂ juvenile	.8	12.0	10.2	3.7
Total	17.3		310.6	114.1
Reithrodontomys fulvescens				
♀♀ adult	1.0	13.1	13.1	4.8
Sigmodon hispidus				
♀♀ adult	4.9	114.5	562.2	206.7
♀♀ juvenile	3.3	27.1	88.9	32.7
♂♂ adult	3.8	126.6	483.6	177.8
♂♂ subadult	1.1	65.3	71.8	26.4
♂♂ juvenile	4.9	28.7	140.9	51.8
Total	18.0		1347.4	495.4
TOTALS	311.4		10235.6	3763.1

Table 5. Ungrazed Live-trap grid--Osage (31 July--10 August, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Blarina brevicauda				
♀♀ adult	8.3	11.6	96.6	35.5
♀♀ subadult	5.0	10.6	53.0	19.5
♀♀ juvenile	1.7	10.8	18.0	6.6
♂♂ subadult	3.3	12.0*	40.0	14.7
Total	18.3		207.6	76.3
Microtus ochrogaster				
♀♀ adult	56.0	42.5	2380.0	875.0
♀♀ subadult	41.0	29.3	1201.3	441.7
♀♀ juvenile	7.5	26.9	201.8	74.2
♂♂ adult	44.7	45.4	2029.4	746.1
♂♂ subadult	14.8	27.7	410.0	150.7
♂♂ juvenile	14.8	18.6	275.3	101.2
Total	178.9		6497.7	2388.9
Mus musculus				
♂♂ adult	1.0	17.0*	17.0	6.3
Peromyscus maniculatus				
♀♀ adult	1.6	20.8	32.7	12.0
♀♀ subadult	.4	16.3	6.5	2.4
♀♀ juvenile	.8	56.7	44.2	16.3
♂♂ adult	4.7	18.3	86.0	31.6
♂♂ subadult	1.2	16.5	19.3	7.1
♂♂ juvenile	.4	8.9	3.6	1.3
Total	9.1		192.3	70.7
Reithrodontomys fulvescens				
♂♂ adult	1.0	16.0*	16.0	5.9
Reithrodontomys montanus				
♀♀ adult	1.0	12.6	12.6	4.6
♀♀ subadult	1.0	9.3	9.3	3.4
Total	2.0		21.9	8.0
Sigmodon hispidus				
♀♀ adult	4.3	131.3	569.8	209.5
♀♀ subadult	8.7	88.2	770.0	283.1
♀♀ juvenile	16.0	39.1	625.6	230.0
♂♂ adult	1.5	114.0	166.4	61.2
♂♂ subadult	7.3	68.1	495.1	182.0
♂♂ juvenile	14.5	41.0	596.1	219.2
Total	52.3		3223.0	1185.0
TOTALS	262.5		10175.5	3741.1

*Weight from living animals at same site and time measured to nearest gram and not corrected for stomach.

Table 6. Ungrazed Live-trap grid--Osage (12 October--21 October, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Blarina brevicauda				
♀♀ adult	12.6	12.9	162.5	59.8
♀♀ subadult	6.9	11.7	80.2	29.5
♂♂ adult	2.3	11.3	25.9	9.5
♂♂ subadult	16.0	12.6	201.8	74.2
Total	37.8		470.4	173.0
Microtus ochrogaster				
♀♀ adult	6.7	40.8	272.7	100.3
♀♀ subadult	1.0	36.4	34.9	12.9
♀♀ juvenile	.5	26.9	12.9	4.8
♂♂ adult	2.4	44.9	107.4	39.5
♂♂ subadult	2.9	30.5	87.6	32.2
♂♂ juvenile	1.9	16.6	31.7	11.7
Total	15.3		547.2	201.4
Mus musculus				
♀♀ adult	.3	19.4	6.4	2.4
♀♀ subadult	.3	9.1	3.0	1.1
♂♂ subadult	.3	10.5	3.5	1.3
Total	1.0		12.9	4.7
Peromyscus maniculatus				
♀♀ adult	.4	22.8	8.2	3.0
♀♀ subadult	.4	12.4	4.5	1.6
♀♀ juvenile	.7	12.6	9.0	3.3
♂♂ adult	1.8	18.4	32.9	12.1
♂♂ subadult	.7	14.9	10.7	3.9
♂♂ juvenile	.4	10.5	3.8	1.4
Total	4.3		69.1	25.3
Reithrodontomys fulvescens				
♂♂ adult	1.0	14.0*	14.0	5.2
Reithrodontomys montanus				
♀♀ adult	.1	13.7	1.3	.5
♀♀ subadult	.2	9.6	1.8	.6
♂♂ subadult	.5	8.7	4.0	1.5
♂♂ juvenile	.3	5.7	1.6	.6
Total	1.0		8.7	3.2

Table 6 Continued.

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Sigmodon hispidus				
♀♀ adult	8.4	87.1	730.9	268.7
♀♀ subadult	9.6	62.0	594.5	218.6
♀♀ juvenile	10.8	25.6	276.6	101.7
♂♂ adult	4.8	95.7	458.5	168.6
♂♂ subadult	18.0	71.3	1282.7	471.6
♂♂ juvenile	16.8	35.1	588.6	216.4
Total	68.3		3931.8	1445.6
TOTALS	128.7		5054.1	1858.4

*Weight from living animal at same site and time measured to nearest gram and not corrected for stomach.

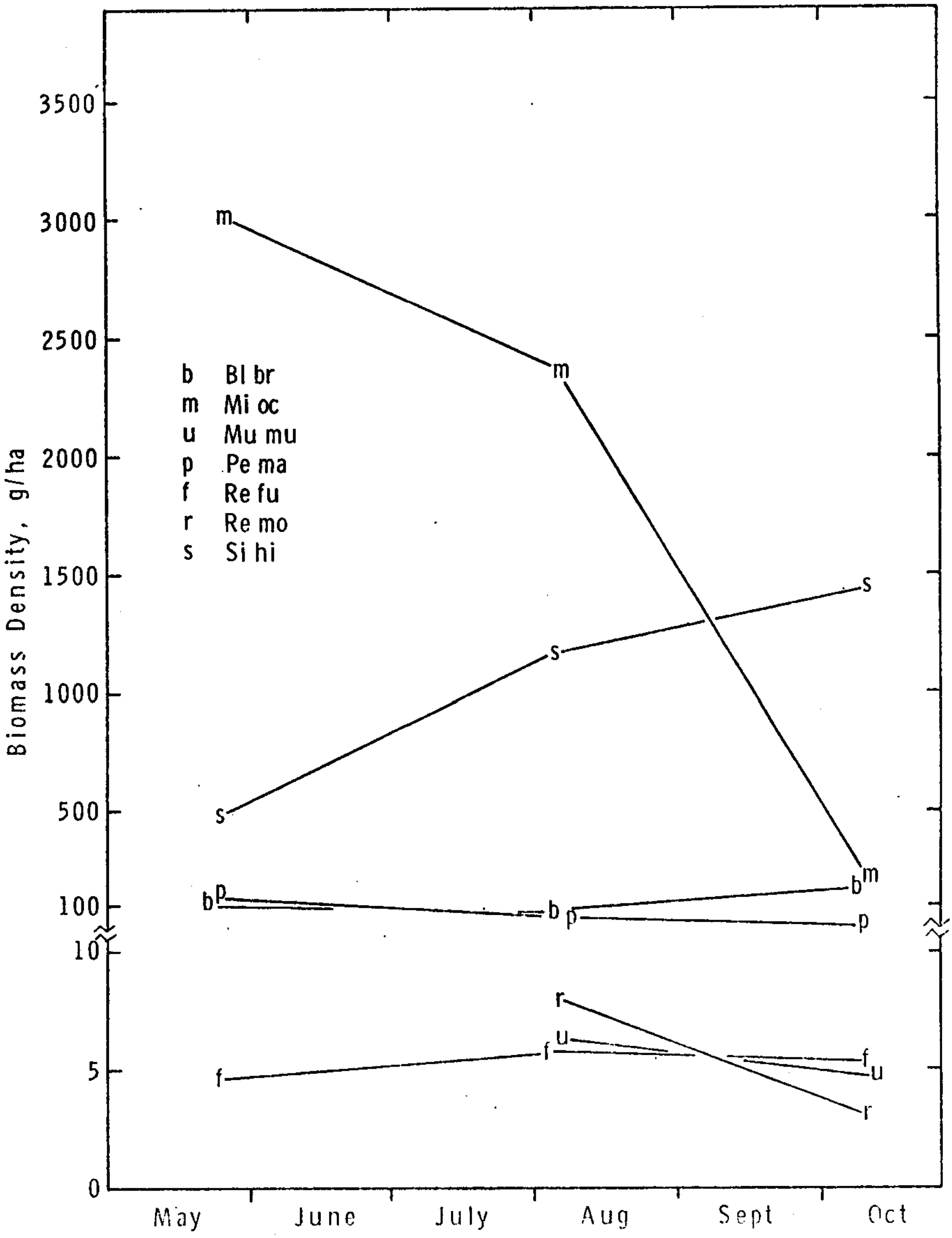

Fig. 4. Graph showing fluctuations in biomass density (g wet weight/ha) for each species of small mammal captured on the ungrazed live-trap grid at Osage, 1972.

to biomass density. The major contributors were Microtus ochrogaster and Sigmodon hispidus. The former appeared to decrease in numbers throughout the summer, especially during the period from August to October. Sigmodon, on the other hand, increased in numbers between each sampling period and became the most important contributor to biomass density by October.

Seasonal changes in biomass density for each species on the grazed grid at Osage are shown in figure 5. Only two species, Perognathus hispidus and Peromyscus maniculatus, were captured during all three samplings on the grazed grid in October. Cryptotis parva, Microtus ochrogaster, Sigmodon hispidus, and Spermophilus tridecemlineatus were represented in samples from the grazed grid in August and again in October, but were not captured there in May (Tables 7, 8, and 9).

Best estimates of total small mammal biomass on the grazed grid are 137.1, 735.6, and 1105.0, respectively, for the three trapping periods at Osage. Peromyscus maniculatus was the major contributor to small mammal biomass in May but was fourth in this category behind Spermophilus tridecemlineatus, Sigmodon hispidus, and Microtus ochrogaster in August. By October, both Microtus and Sigmodon had increased markedly in numbers and thus predominated in total biomass contribution.

Four species of mammals were obtained in off-grid collecting at Osage in 1972. Lasiurus borealis was netted in the airplane hangar in August and October, Neotoma floridana was trapped in the hangar and from rocks along the road leading to the Adams Ranch, Peromyscus leucopus was abundant in trees and around the dam south of the ungrazed grid, and two specimens of Sylvilagus floridanus were preserved.

Ten miles of roadside census of larger mammals at Osage resulted in sightings of one Didelphis marsupialis and four Lepus californicus in May.

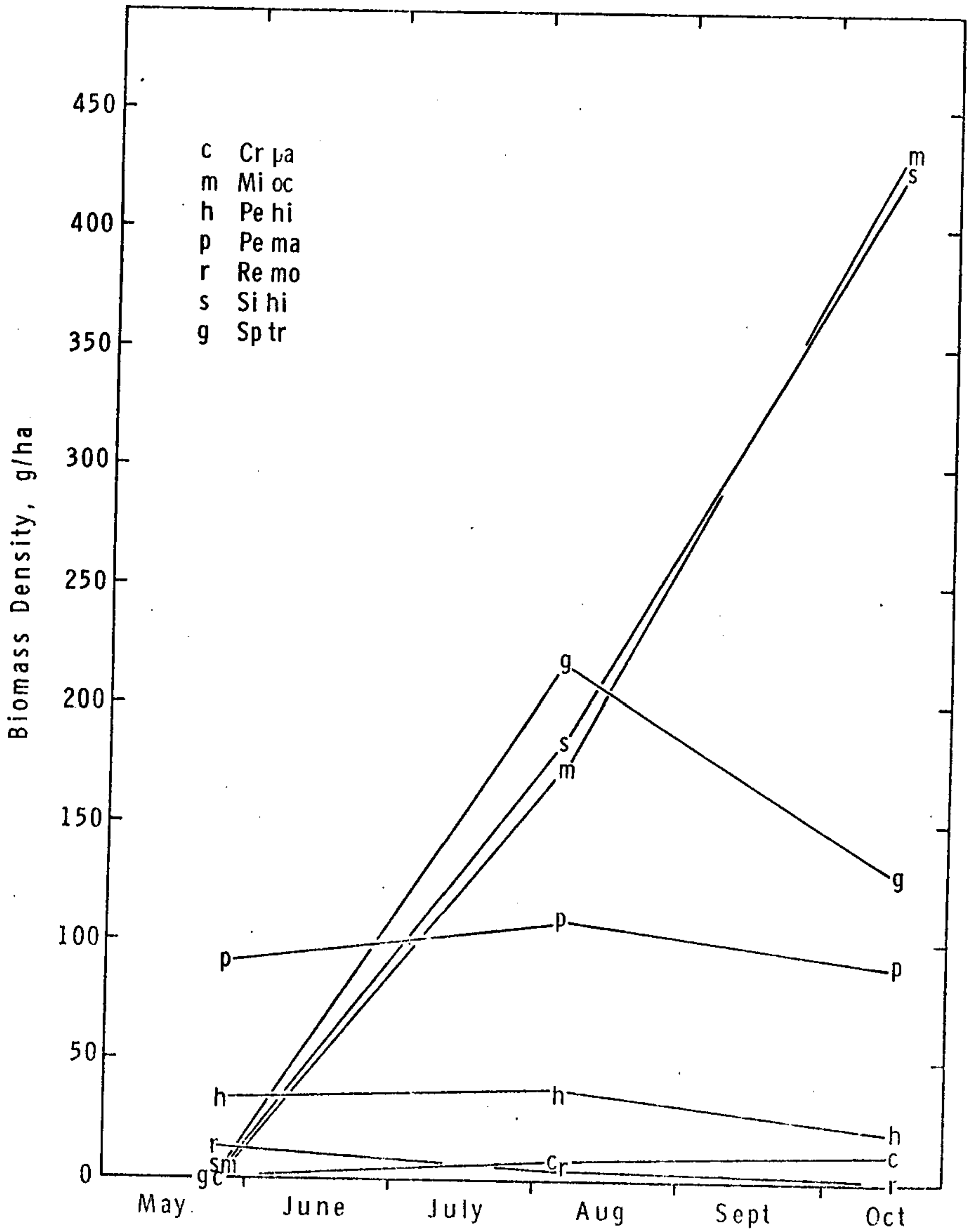

Fig. 5. Graph showing fluctuations in biomass density (g wet weight/ha) for each species of small mammal captured on the grazed live-trap grid at Osage, 1972.

Table 7. Grazed Live-trap grid--Osage (17 May--31 May, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Perognathus hispidus				
♀♀ adult	3.2	28.7	91.8	33.8
Peromyscus maniculatus				
♀♀ adult	3.0	18.6	56.5	20.8
♀♀ subadult	2.4	22.5	53.1	19.5
♀♀ juvenile	.7	11.6	7.9	2.9
♂♂ adult	5.7	17.9	102.6	37.7
♂♂ subadult	1.4	13.5	18.2	6.7
♂♂ juvenile	.7	12.0	8.2	3.0
Total	13.9		246.5	90.6
Reithrodontomys montanus				
♀♀ adult	1.3	8.5	11.3	4.2
♀♀ juvenile	1.3	10.0	13.3	4.9
♂♂ adult	1.3	7.5	10.0	3.7
Total	4.0		34.5	12.7
TOTALS	21.0		372.9	137.1

Table 8. Grazed Live-trap gird--Osage (31 July--10 August, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Cryptotis parva				
♀♀ adult	5.0	4.9	24.5	9.0
Microtus ochrogaster				
♀♀ adult	4.1	42.5	174.3	64.1
♀♀ subadult	3.0	29.3	87.9	32.3
♀♀ juvenile	.5	26.9	14.3	5.3
♂♂ adult	3.2	45.4	144.8	53.2
♂♂ subadult	1.1	27.7	29.6	10.9
♂♂ juvenile	1.1	18.6	19.9	7.3
Total	13.0		470.8	173.1
Perognathus hispidus				
♀♀ adult	1.1	40.0*	44.0	16.2
♂♂ subadult	1.1	23.0*	25.3	9.3
♂♂ juvenile	1.1	29.1**	32.0	11.8
Total	3.3		101.2	37.3
Peromyscus maniculatus				
♀♀ adult	2.4	20.8	50.3	18.5
♀♀ subadult	.6	16.3	9.9	3.7
♀♀ juvenile	1.2	56.7	68.6	25.2
♂♂ adult	7.3	18.3	132.9	48.8
♂♂ subadult	1.8	16.5	29.9	11.0
♂♂ juvenile	.6	8.9	5.4	2.0
Total	13.9		297.0	109.2
Reithrodontomys montanus				
♀♀ adult	.5	12.6	6.3	2.3
♀♀ subadult	.5	9.3	4.6	1.7
Total	1.0		10.9	4.0
Sigmodon hispidus				
♀♀ adult	.7	131.3	89.3	32.8
♀♀ subadult	1.4	88.2	120.8	44.4
♀♀ juvenile	2.5	39.1	98.1	36.1
♂♂ adult	.2	114.0	26.2	9.6
♂♂ subadult	1.2	68.1	77.6	28.5
♂♂ juvenile	2.3	41.0	93.5	34.4
Total	8.2		505.5	185.8

Table 8 Continued.

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
<u>Spermophilus tridecemlineatus</u>				
♀♀ adult	1.2	144*	171.4	63.0
♀♀ juvenile	2.3	58*	135.7	49.9
♂♂ adult	1.2	116*	138.0	50.7
♂♂ juvenile	2.3	62*	145.1	53.3
Total	7.1		590.2	216.9
TOTALS	51.5		2000.4	735.6

*Weight from living animals at same site and time, measured to nearest gram and not corrected for stomach

** Weight from specimens in the University of Kansas collection

Table 9. Grazed Live-trap grid--Osage (12 October--21 October, 1972).

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Cryptotis parva				
♀♀ adult	1.8	4.8	8.4	3.1
♀♀ subadult	2.6	4.6	12.1	4.5
♀♀ juvenile	.9	3.4	3.0	1.1
♂♂ adult	1.8	5.4	9.5	3.5
Total	7.0		33.0	12.2
Microtus ochrogaster				
♀♀ adult	14.4	40.6	584.9	215.0
♀♀ subadult	2.1	36.4	74.6	27.4
♀♀ juvenile	1.0	26.9	27.7	10.2
♂♂ adult	5.1	44.9	230.4	84.7
♂♂ subadult	6.2	30.5	187.8	69.0
♂♂ juvenile	4.1	16.6	68.1	25.0
Total	32.8		1173.5	431.3
Perognathus hispidus				
♂♂ adult	1.0	56.0*	56.0	20.6
Peromyscus maniculatus				
♀♀ adult	1.3	22.8	29.0	10.7
♀♀ subadult	1.3	12.4	15.8	5.8
♀♀ juvenile	2.5	12.6	32.0	11.8
♂♂ adult	6.4	18.4	117.4	43.2
♂♂ subadult	2.5	14.9	27.9	13.9
♂♂ juvenile	1.3	10.5	13.3	4.9
Total	15.3		245.4	90.3
Sigmodon hispidus				
♀♀ adult	2.5	87.1	214.3	78.8
♀♀ subadult	2.8	62.0	174.2	64.0
♀♀ juvenile	3.2	25.7	81.1	29.8
♂♂ adult	1.4	95.7	134.0	49.3
♂♂ subadult	5.3	71.3	375.3	138.0
♂♂ juvenile	4.9	35.1	172.3	63.4
Total	20.0		1151.2	423.3

Table 9 Continued.

Species Sex-Age Class	Best Estimate of Total Numbers	Average Live Weight Grams for Class	Total Biomass Estimates in Grams	Biomass Density g/ha
Spermophilus tridecemlineatus				
♀♀ adult	1.0	182.3**	182.3	67.0
♂♂ adult	1.0	164.0*	164.0	60.3
Total	2.0		346.3	127.3
TOTALS	78.1		3005.4	1105.0

*Weight from living animals at same site and time measured to nearest gram and not corrected by stomach.

**Weight from specimens in the University of Minnesota Bell Museum collection.

In August, two Sylvilagus floridanus and three Lepus californicus were seen in 12 miles of census. No animals were observed in 10 miles of census in October, but one Lepus californicus was observed on the opposite side of the vehicle.

Disturbance of the habitat by small mammals was not studied on the grazed grid because any effect would have been overwhelmed by the trampling and grazing of cattle. On the ungrazed grid, however, nine of the ten one meter square plots examined in May showed disturbance, mostly runways of Microtus ochrogaster. In August, all ten plots showed much disturbance from both Sigmodon and Microtus. Only three plots were studied in October, but runs and clippings of Sigmodon and Microtus were abundant over most of the grid.

DISCUSSION

Small mammal populations on the Cottonwood and Osage sites of the Comprehensive Network Program have been censused for three consecutive years. Relatively distinct and meaningful pictures of small mammal fluctuations are beginning to emerge at both sites (Fig. 6).

At Cottonwood, the live-trap grid is in a moderately grazed pasture. Cover on the grid appears to be inadequate to support large populations of Microtus (see Krebs et al., 1973). Perognathus, Reithrodontomys, and Peromyscus are present in the pasture and frequently are captured on the grid, but populations of these species do not reach peaks that greatly influence quantity of small mammal biomass. Thomomys is present on the grid and in surrounding pastures, but is not adequately censused by Sherman traps. Thus, pocket gophers do not influence estimates of biomass and their population dynamics are not reflected by our data.

When population density of each mammal species at Cottonwood is considered for all three years of the study (Fig. 7), it is seen that no species was trapped at every sampling period. Microtus ochrogaster was trapped during

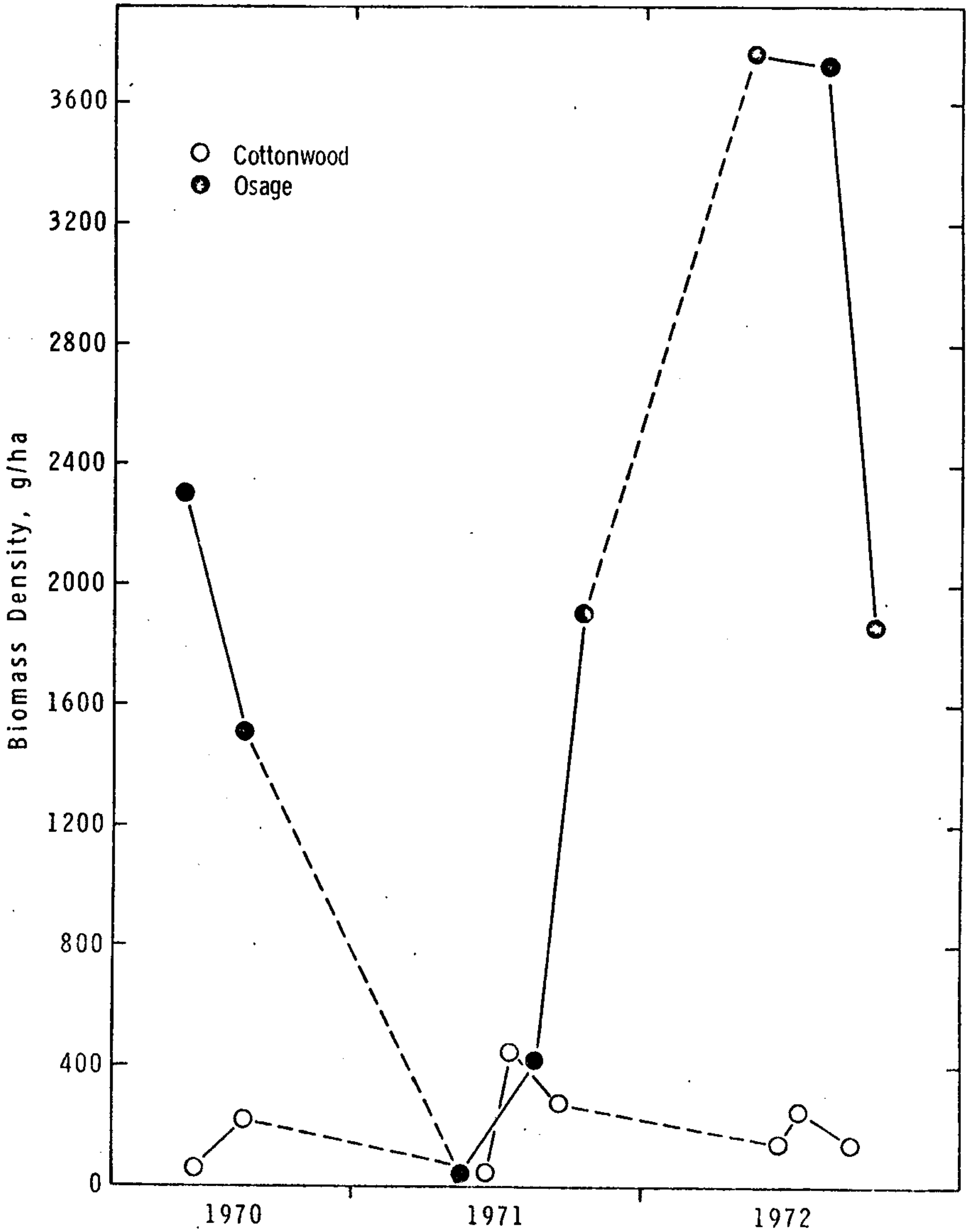

Fig. 6. Graph showing fluctuations in total biomass density (g wet weight/ha) for small mammals at the Cottonwood and Osage sites, 1970 to 1972.

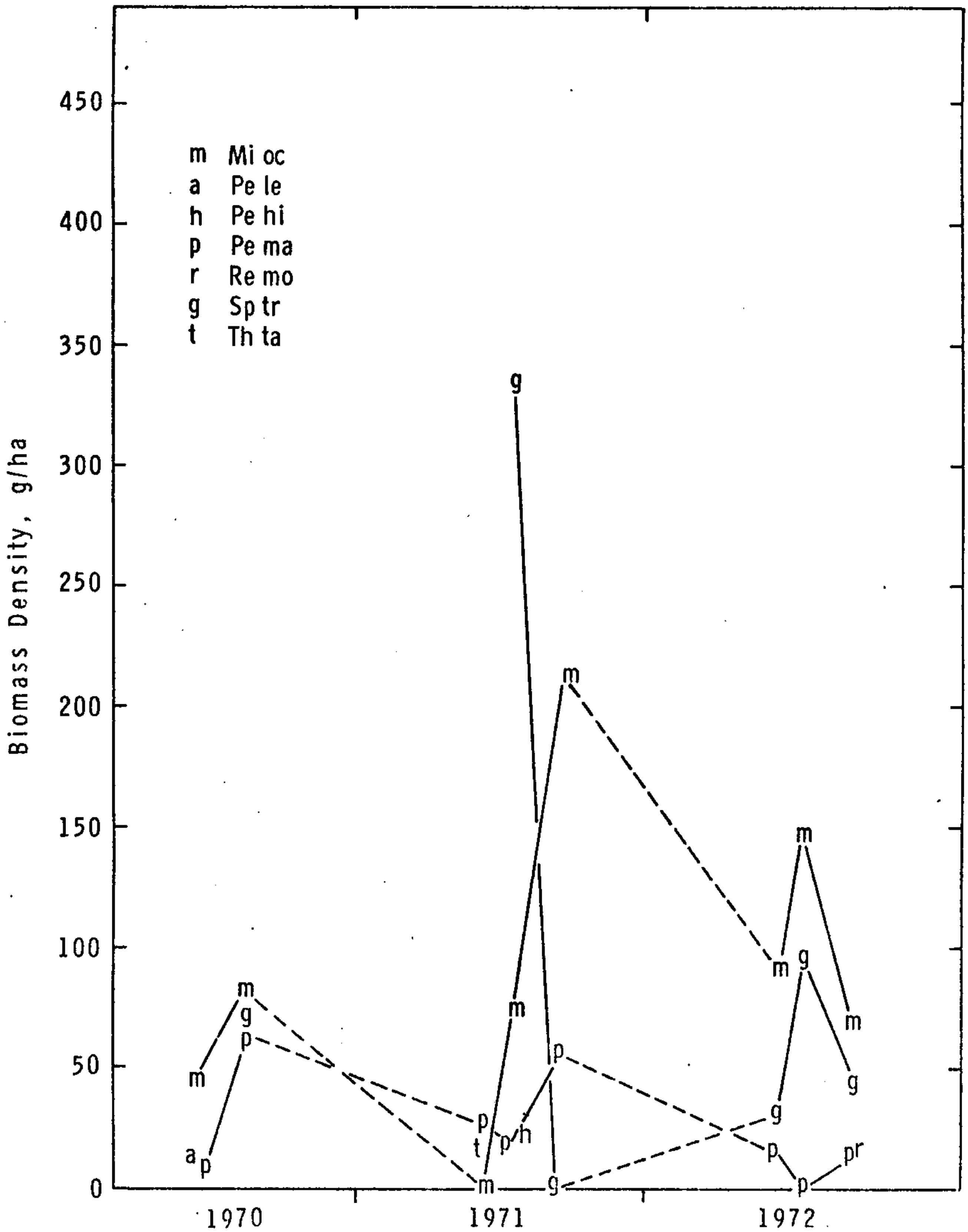

Fig. 7. Graph showing fluctuations in biomass density (g wet weight/ha) for each species of small mammal captured on the live-trap grid at Cottonwood, 1970 to 1972.

seven of the eight periods, with June 1971 being the single exception. Voles never reached high densities compared to those seen at Osage. Their numbers decreased during the winter months both years and generally failed to undergo the kinds of immense fluctuations considered typical of microtines. I attribute this to the absence of adequate cover. It appears that the *Microtus* populations probably are held at a low or early increase stage of the "cycle".

To attribute low populations solely to the paucity of cover, however, is to consider the correlation and not the causation. Causative factors probably include the following associates of low cover. 1) Predation would be greater because above ground movements by small mammals in grazed shortgrass would result in a high incidence of exposure. Runways on the grid at Cottonwood are exposed and easily viewed from above, which undoubtedly results in heavy predation, especially by aerial predators. 2) The absence of cover results in a dryer microhabitat and a resultant increased need for moisture. Soils lacking adequate cover are dryer and harder, making the construction of new burrow systems more difficult. When cover is reduced, green vegetation is subjected to greater desiccation, grows more slowly, and is grazed more heavily as it becomes the primary source of water for the voles and perhaps for other small mammals. 3) Starvation eventually would become a serious limiting factor on mammalian populations if cover should be reduced below some level. This probably is not a problem for voles at Cottonwood because of the controlled grazing program practiced there. 4) Behavioral mechanisms may exist that act in part to maintain low vole populations in habitats characterized by reduced cover. Individual voles may be more likely to leave a low cover habitat than to move into one. Furthermore, individuals may simply encounter each other more often when cover is low, resulting in an an increase in interpopulational strife and a reduction in breeding success. 5) Habitat characterized by reduced cover may be more harsh during periods of inclement winter weather resulting in high winter mortality.

Peromyscus maniculatus was trapped on the Cottonwood grid during seven of the eight sampling periods. Only in August 1972 was the species not captured on the grid. Deer mice are present in all grassland habitats associated with the Cottonwood site. They are abundant in rocky areas, which are common on hillsides and outcrops throughout the area. In mesic grassy areas they are trapped with Microtus pennsylvanicus and in dry clay soils they are trapped frequently with Perognathus hispidus. The population on the grid was lower at each spring sampling than in the previous autumn.

Spermophilus tridecemlineatus is a common inhabitant of the shortgrass prairie at the Cottonwood area. Our trapping results for the three years do not provide an adequate reflection of the population trends of this important small mammal. Ground squirrels are diurnal and our traps were closed during the day to prevent animals from being heat stressed. Consequently, only a few ground squirrels were trapped relative to the actual number living in association with the grid. The number trapped probably is a better reflection of the average time we ran traps each morning than of the number of ground squirrels on the grid. This species might be the greatest small mammal contributor to total biomass at the Cottonwood site.

Each of the remaining three species trapped on the grid was detected only at one sampling period during the three years. Two Perognathus hispidus were trapped on the grid in July 1971, a Peromyscus leucopus was taken there in June 1970, and four Reithrodontomys montanus were live-trapped in September 1972.

Three specimens of Cryptotis parva were snap-trapped in the summer of 1972 in habitat similar to that on the live-trap grid. Findley (1956) reported a least shrew from the Cottonwood Experiment Station, which Hall and Kelson (1959) listed as a marginal distribution record for the species. A single *Onychomys leucogaster* was trapped along a fencerow bordering a shortgrass pasture at the site in September 1971, but no other specimen of this apparently uncommon resident of the area was trapped during the three years. *Sorex cinereus* was taken at the site in 1970, but not during the subsequent two years despite the fact that traps were set especially for shrews wherever mesic habitats were found.

Estimates of populations of larger mammals (those not censused by Sherman traps) are unreliable. Those reported herein, by Hoffmann et al. (1971), and Hoffmann and Birney (1972) comprise a fairly complete list of larger mammals known from the area. These records include only reliable sightings, many of which are documented by specimens, but our data do not reflect the dynamics or status of any of these species at the Cottonwood site.

Future studies of small mammals at Cottonwood probably would be worthwhile only if the research design was altered drastically. The trend of generally stable low numbers of *Microtus ochrogaster* and *Peromyscus maniculatus* probably obtains in grazed pastures throughout the area. The occasional trapping of less common species seems predictable and not surprising as most are widespread but seldom abundant in shortgrass prairie.

Comparative studies of winter-grazed, ungrazed, and grazed pastures probably would show marked differences, at least in the densities of the more common species. Perhaps such studies coupled with careful measurements of microhabitat would provide a means of beginning to understand better the functional relationship between cover and the dynamics of small mammal populations.

Long term trends in dynamics of small mammal populations at the Osage site are discernable only for ungrazed habitats because the grazed grid existed only in 1972. Multiyear changes in small mammal biomass on the ungrazed grid are shown in figure 6, where they are compared to those seen at Cottonwood during the same period.

When trapping began at Osage in May 1970, biomass density was high. Sampling in August of that year revealed a decrease in population size and biomass density (Hoffmann et al., 1971). Populations continued to decrease throughout the following winter reaching their apparent nadir in May 1971, but they had increased slightly by August and appreciably by October (Hoffmann and Birney, 1972). Numbers continued to increase rapidly during the winter of 1971-72 reaching their high for the study in May 1972. At this time, *Microtus ochrogaster* was the primary contributor to biomass; this vole apparently had bred successfully throughout the preceding winter and early spring. Biomass density remained high until August then decreased markedly before the October sampling period.

Fluctuations in biomass density of individual species trapped on the ungrazed Osage grid are shown in figure 8. It is immediately obvious that only *Sigmodon hispidus* and *Microtus ochrogaster* contributed heavily to total biomass. No other species reached densities equivalent to 200 grams wet weight per hectare, whereas both of these species approached or exceeded 2000 g/ha when their populations were high.

It is of interest to compare simultaneously estimates of number of individuals of these two species (Fig. 9) and estimates of biomass density for the two (Fig. 8). Body weight of trappable *Sigmodon* ranges from about 30 g up to 300 g, with a mean weight of approximately 100 g. *Microtus*, on the other hand, enter the trappable population at just under 15 g and seldom exceed 50 g. Therefore, the density of voles at a biomass density equal to that of cotton rats is three to four times greater than the corresponding density of cotton rats.

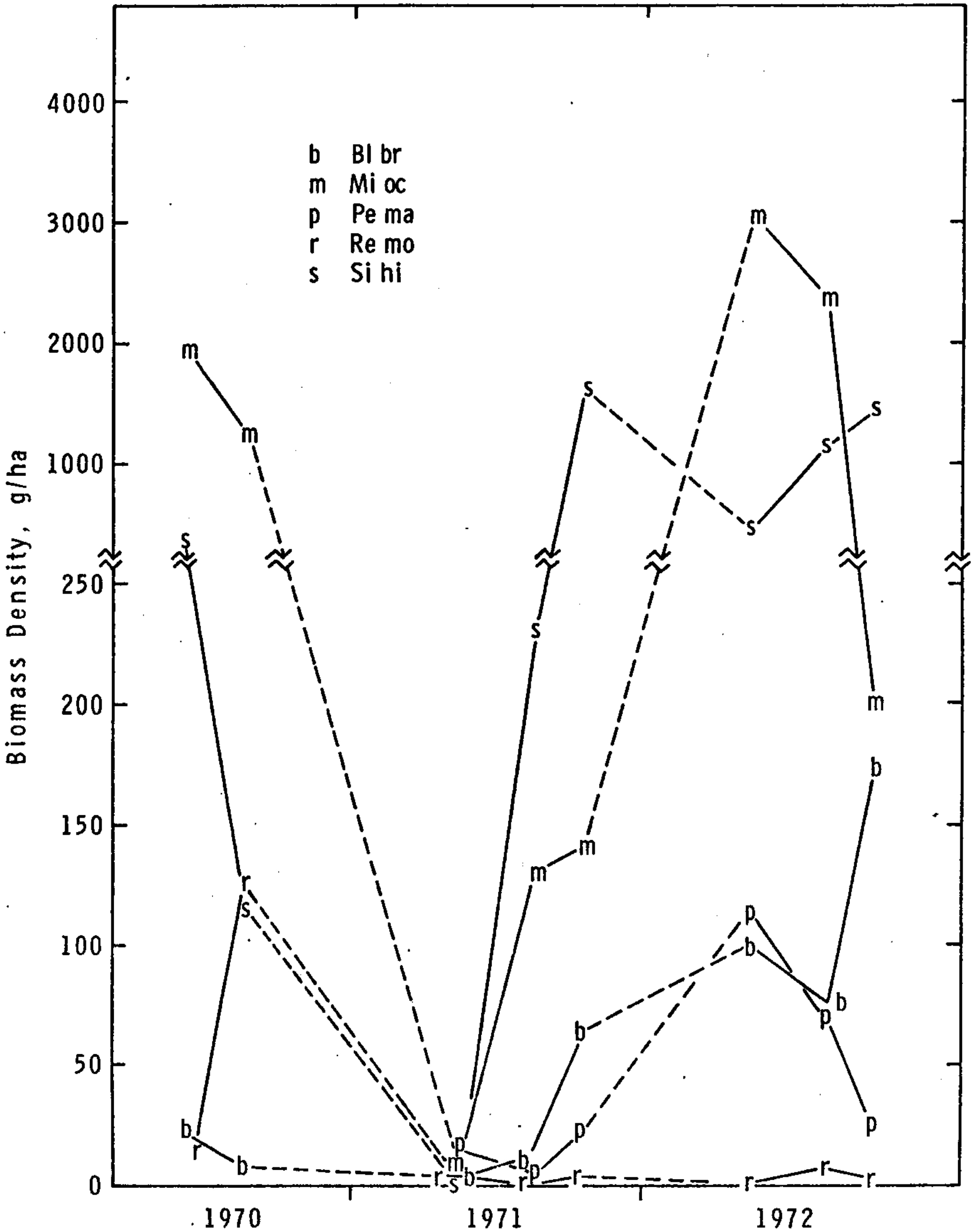

Fig. 8. Graph showing fluctuations in biomass density (g wet weight/ha) for the five major species of small mammals captured on the ungrazed live-trap grid at Osage, 1970 to 1972. *Cryptotis parva*, *Perognathus hispidus*, *Reithrodontomys fulvescens*, *Peromyscus leucopus*, and *Mus musculus* are not shown.

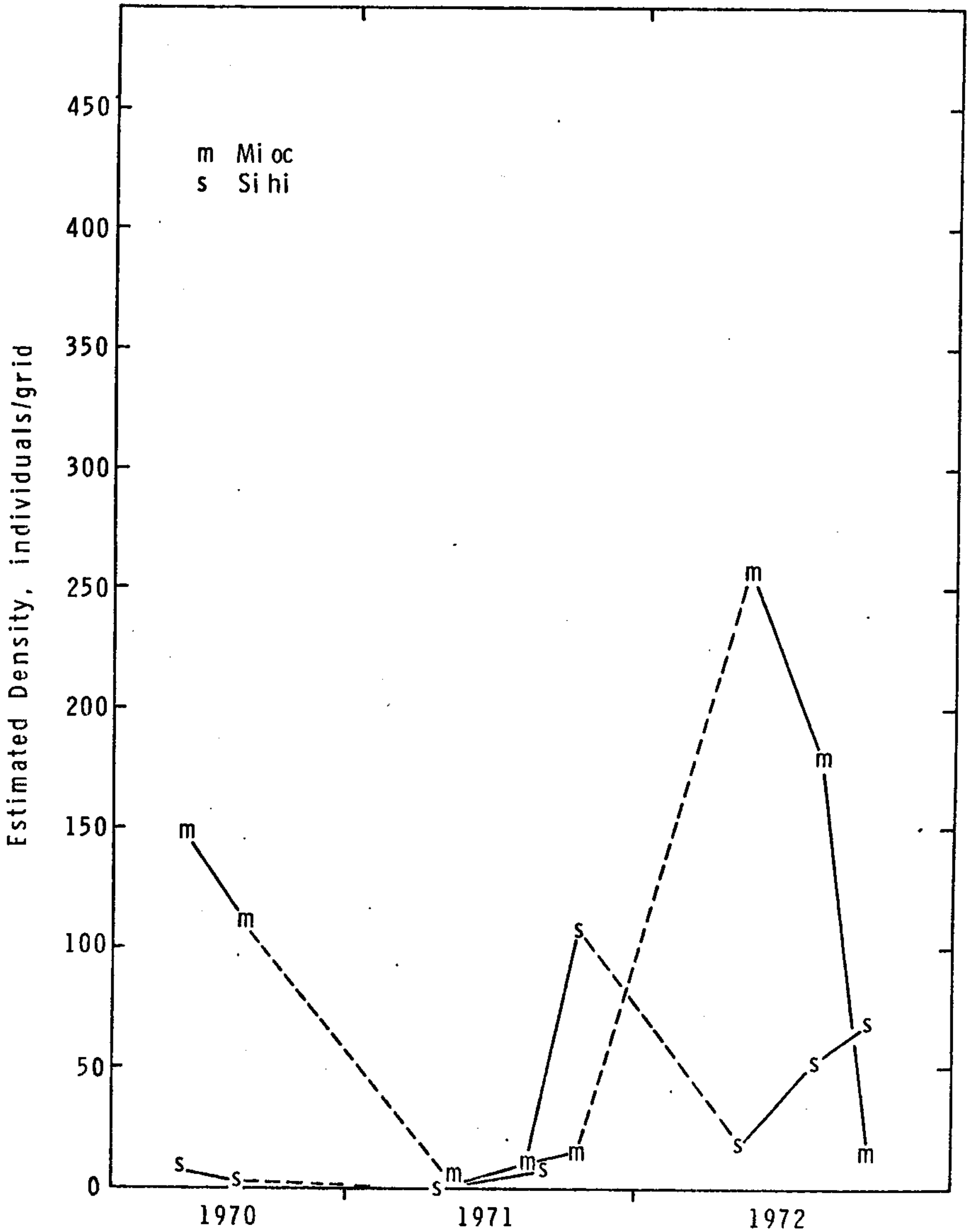

Fig. 9. Graph showing fluctuations in density (individuals/2.72 ha grid) of Microtus ochrogaster and Sigmodon hispidus on the ungrazed grid at Osage, 1970 to 1972.

Population density of voles was relatively high in May 1970 whereas that of cotton rats was low. Numbers of both decreased slightly during that summer and were almost zero by May 1971. Despite these low numbers, the habitat on the grid at that time appeared to be suitable for either species. By August, populations of both had increased slightly (Hoffmann and Birney, 1972, estimated 10 voles and 7 cotton rats on the grid), with the larger cotton rats contributing substantually more to biomass. The number of cotton rats reached its peak for the study in October 1971 (estimated 107 individuals, predominantly juveniles), a time when the estimated number of voles was only 15 individuals.

During the winter of 1971-72, the cotton rat population again decreased as it had done the previous year, although not as drastically. The population of voles was simultaneously undergoing a dramatic increase in numbers, presumably resulting from successful winter breeding. During the summer of 1972, the number of voles decreased steadily whereas the number of cotton rats increased. By October, cotton rats exceeded voles on the grid both in total numbers and in biomass density.

Kilgore (1970) recently discussed some effects of northward movement of cotton rats on the biology of the species. Fleharty and Olson (1969) have considered competition between *Microtus* and *Sigmodon* in western Kansas. Marked decrease in numbers of cotton rats along the northern limits of the range of the species during winter months has been noted by several authors (Cockrum, 1952; Dunaway and Kaye, 1961; Petryszyn and Fleharty, 1972). Our data from Osage indicate (1) that the two species may compete for some resources, and (2) that both are nonrandomly distributed on the grid. Nevertheless, the inability of *Sigmodon* to breed successfully and at times even to survive during winter while *Microtus* can be successful at both is probably the single most important factor that influences relative abundance of the two species.

Blarina brevicauda maintains a permanent population on the grid, as evidenced by the capture of one or more short-tailed shrews at every sampling period during the three year study. The number of shrews was relatively low in 1970 and early 1971. Up substantually by October of 1971, it continued to increase through the following winter and apparently was continuing upward at the last sampling period in October 1972.

Peromyscus maniculatus first was trapped on the grid in May 1971 and was trapped there at each subsequent trapping period. The species reached its greatest density in May 1972, apparently as a result of either successful winter and spring breeding or, perhaps, by immigrating to the grid. The number of deer mice decreased on the grid during the remainder of the summer and autumn. A small population of Reithrodontomys montanus apparently was resident in the ungrazed pasture in which the grid was located. Although one or more representatives of the species were trapped at most sampling periods, this harvest mouse did not reach a high population density at any time during the study.

Five species trapped only one or a few times during the study have been omitted from figure 8. A few Cryptotis parva were trapped in August and September 1971 (Hoffmann and Birney, 1972) on this grid but not during other trapping periods. Least shrews were trapped elsewhere on the site at other times and probably were present on the grid, albeit perhaps in low numbers, throughout the study. Two subadult Perognathus hispidus were trapped in August 1971, a time when populations of other species were low. Ungrazed tall grass prairie is not typical habitat for this pocket mouse, which probably was transient on the grid at time of capture.

One Reithrodontomys fulvescens was trapped on the grid during each of the three sampling periods in 1972, but the species was not otherwise trapped at the site. Although the Usage site is near the northern edge of the distributional range of the species (Hall and Kelson, 1959; Cockrum, 1952), it remains enigmatic why this harvest mouse was not detected by the intensive trapping programs of 1970 and 1971. The ungrazed grid appears to be ideal habitat for the species, but such islands of relatively undisturbed tallgrass are uncommon in this area characterized by extensive livestock grazing.

The occasional trapping of Peromyscus leucopus on the grid was not surprising despite the fact that habitat on the grid generally is unsuitable for this species. Off-grid trapping revealed a large, permanent population of white-footed mice in and around the hedgerow and wooded habitats associated with the lake just south of the grid. Those individuals trapped on the grid probably were dispersers or wide-ranging foragers from the nearby resident population. At no time did mice of this species contribute significantly to total biomass density.

A total of four house mice was trapped on the grid during 1971 and 1972. Populations of house mice in the barns and other out-buildings at the ranch probably serve as a local reservoir for the species. I doubt that populations of house mice reach high numbers in either the grazed or ungrazed native pastures of this area.

Results of trapping the grazed grid are of interest largely because not all of that grid was grazed during the summer of 1972. The truly grazed portion harbored relatively low numbers of Cryptotis parva, Microtus ochrogaster, Perognathus hispidus, Reithrodontomys montanus, and Spermophilus tridecemlineatus. These did not change appreciably during the summer and at no time did the numbers of any species appear to increase markedly. These results are similar to those seen on the grazed site at Cottonwood and probably would be fairly typical of a moderately grazed, low cover habitat at most localities throughout the grasslands of the Great Plains.

The ungrazed one-third of the "grazed" grid was not unlike the grazed two-thirds in May, either in terms of grazing treatment or mammalian species composition. By August, however, this portion of the grid had appreciable cover as a result of the cessation of grazing and trampling. This habitat change was reflected by a marked change in composition and number of mammals in that portion of the grid. In both August and October, the mammalian populations on the fenced third of the grid were more like those on the ungrazed grid than on the rest of grazed grid. The single salient difference was absence of *Blarina* on the "grazed" grid.

Unfortunately, IBP support for a fourth field season at Osage was not available. The continuation of monitoring the two live-trap grids there should have been most interesting for at least one more year to determine if the observed trends in species composition and relative densities are real and predictable. Some undoubtedly are, but others probably are artifacts of too few data, random fluctuations, or, perhaps, responses to environmental factors not presently being considered.

LITERATURE CITED

Cockrum, E. L. 1952. Mammals of Kansas. Univ. Kansas Publ., Mus. Nat. Hist., 7:1-303.

Dunaway, P. B., and S. V. Kaye. 1961. Cotton rat mortality during severe winter. Jour. Mammal., 42:265-268.

Findley, J. S. 1956. Distribution of some South Dakotan mammals. Chicago Acad. Sci., Nat. Hist. Miscl., 155:1-2.

Fleharty, E. D., and L. E. Olson. 1969. Summer food habits of Microtus ochrogaster and Sigmodon hispidus. Jour. Mammal., 50:475-486.

Golley, F. B. 1960. Energy dynamics of a food chain in an old-field community. Ecol. Monogr., 30:187-206.

Hall, E. R., and K. R. Kelson. 1959. The mammals of North America. The Ronald Press Co., New York, 2 vols.

Hoffmann, R. S., and E. C. Birney. 1972. Ecological studies of small mammal populations at the Cottonwood and Osage sites, 1971. U.S. IBP Grassland Biome Tech. Rep., 187:iii + 1-45.

Hoffmann, R. S., J. K. Jones, Jr., and H. H. Genoways. 1971. Small mammal survey on the Bison, Bridger, Cottonwood, Dickinson, and Osage sites. U.S. IBP Grassland Biome Tech. Rep., 109:v + 1-69.

Jones, J. K., Jr., D. C. Carter, and H. H. Genoways. 1973. Checklist of North American mammals north of Mexico. Occas. Papers Mus., Texas Tech Univ., 12:1-14.

Kilgore, D. L., Jr. 1970. The effects of northward dispersal on growth rate of young, size of young at birth, and litter size in Sigmodon hispidus. Amer. Midland Nat., 84:510-520.

Krebs, C. J., M. S. Gaines, B. L. Keller, J. H. Myers, and R. H. Tamarin. 1973. Population cycles in small rodents. Science, 179:35-41.

Lewis, J. K. 1970. Comprehensive network site description, Cottonwood. U.S. IBP Grassland Biome Tech. Rep., 39:1-26.

Petryszyn, Y., and E. D. Fleharty. 1972. Mass and energy of detritus clipped from grassland vegetation by the cotton rat (Sigmodon hispidus). Jour. Mammal., 53:168-175.

Risser, P. G. 1970. Comprehensive network site description, Osage. U.S. IBP Grassland Biome Tech. Rep., 44:1-5.

Smith, M. H., R. Blessing, J. G. Chelton, J. B. Gentry, F. B. Golley, and J. T. McGinnis. 1971. Determining density for small mammal populations using a grid and assessment lines. Acta Theriol., 16:105-125.

Swift, D. M., and N. R. French. 1972. Basic field data collection procedures for the grassland biome 1972 season. U.S. IBP Grassland Biome Tech. Rep., 145:iv + 1-86.

Zippin, C. 1956. An evaluation of the removal method of estimating animal populations. Biometrika, 12:163-189.

APPENDIX I

FIELD DATA

1972 Small Mammals Live Trapping Data Collected on Grids

Small mammal live trapping data collected on the grids at the Cottonwood and Osage Sites were recorded on form NREL-10. Cottonwood data are stored as a part of Grassland Biome data set A2U10B4. Osage data are stored as a part of Grassland Biome data set A2U10B9. A sample data form and an example of the data are attached.

IBP

GRASSLAND BIOME

US INTERNATIONAL BIOLOGICAL PROGRAM

FIELD DATA SHEET - VERTEBRATE - LIVE TRAPPING

DATA TYPE	SITE	INITIALS	DATE			TREATMENT	REPLICATE	PLOT SIZE	GENUS	SPECIES	SUBSPECIES	CONDITION	MARK	NUMBER	MALE	FEMALE	WEIGHT	MOLT	LOCATION		PREVIOUS NO.
			Day	Mo	Yr														Row	Col	
1-2	3-4	5-7	8-9	10-11	12-13	14	15	16-19	21-22	23-24	25	27	29	31-34	36	38	40-44	46	48-49	51-52	54-57

DATA TYPE
- 01 Aboveground Biomass
- 02 Litter
- 03 Belowground Biomass
- 10 Vertebrate - Live Trapping
- 11 Vertebrate - Snap Trapping
- 12 Vertebrate - Collection
- 20 Avian Flush Census
- 21 Avian Road Count
- 22 Avian Road Count Summary
- 23 Avian Collection - Internal
- 24 Avian Collection - External
- 25 Avian Collection - Plumage
- 30 Invertebrate
- 40 Microbiology - Decomposition
- 41 Microbiology - Nitrogen
- 42 Microbiology - Biomass
- 43 Microbiology - Root Decomposition
- 44 Microbiology - Respiration

SITE
- 1 Ale
- 02 Bison
- 03 Bridger
- 04 Cottonwood
- 05 Dickinson
- 06 Hays
- 07 Hopland
- 08 Jornada
- 09 Osage
- 10 Pantex
- 11 Pawnee

FEMALE
- 0 Adult, vulva inactive
- 1 Subadult, vuvla inactive
- 2 Juvenile, vulva inactive
- 3 Adult, vulva turgid
- 4 Subadult, vulva turgid
- 5 Juvenile, vulva turgid
- 6 Adult, vulva cornified
- 7 Subadult, vulva cornified
- 8 Juvenile, vulva cornified
- 9 Pregnant

TREATMENT
- 1 Ungrazed
- 2 Lightly grazed
- 3 Moderately grazed
- 4 Heavily grazed
- 5 Grazed 1969, ungrazed 1970
- 6
- 7
- 8
- 9

CONDITION
- 0 Normal
- 1 Escaped
- 2 Torpid
- 3 Dead

MOLT
- 0 No evidence
- 1 Post-juvenile
- 2 Post-subadult
- 3 Adult (vernal)
- 4 Adult (autumnal)
- 5 Molt of unknown stage
- 6 Undetermined

MALE
- 0 Adult, non-breeding
- 1 Subadult, non-breeding
- 2 Juvenile, non-breeding
- 3 Adult breeding ?
- 4 Subadult breeding ?
- 5 Juvenile breeding ?
- 6 Adult breeding
- 7 Subadult breeding
- 8 Juvenile breeding
- 9 Undetermined

MARK
- 0 Normal
- 1 Unmarked
- 2 Ear tag
- 3 Toe Clip
- 4 Ear tag and toe clip
- 5 Natural amputation

+++ EXAMPLE OF DATA +++

```
         1         2         3         4         5         6
123456789012345678901234567890123456789012345678901234567890

1009LRH0108721 2.72 MIOC  0 1 3000   6    30 2  2  2
1009LRH0108721 2.72 MIOC  0 3 0001   6    44 4  2  2
1009LRH0108721 2.72 MIOC  0 3 0144 3      41 5  3  2
1009LRH0108721 2.72 BLBR  0 3 0004 3      16 0  4  1
1009LRH0108721 2.72 MIOC  0 3 0043   6    42 0  4  2
1009LRH0108721 2.72 MIOC  0 3 0211 6      37 5  4  2
1009LRH0108721 2.72 MIOC  0 3 0434   3    43 4  7  2
1009LRH0108721 2.72 SIHI  0 1 3001 2      31 1 12  1
1009LRH0108721 2.72 SIHI  0 1 3002 6     128 5 12  1
1009LRH0108721 2.72 SIHI  0 1 3003 4      82 2 12  3
1009LRH0108721 2.72 SIHI  0 3 1431   6   172 0 12  4
1009LRH0108721 2.72 SIHI  0 1 3004   7   104 2 12  4
1009LRH0108721 2.72 SIHI  0 1 3005   8    38 1  3  3
1009LRH0108721 2.72 MIOC  0 3 1002 6      42 5  2  4
1009LRH0108721 2.72 BLBR  0 1 3010   4    11 0  1  3
1009LRH0108721 2.72 BLBR  0 1 3011   3    11 0  1  4
1009LRH0108721 2.72 MIOC  0 3 0120 3      47 5  1  6
1009LRH0108721 2.72 MIOC  0 3 0213   6    38 5  1  6
1009LRH0108721 2.72 MIOC  0 3 1005   3    47 4  6  5
1009LRH0108721 2.72 MIOC  0 3 0052 6      40 0 10  7
1009LRH0108721 2.72 MIOC  0 3 1232 3      42 5 10  7
1009LRH0108721 2.72 MIOC  0 3 0110   6    45 0  8  8
1009LRH0108721 2.72 MIOC  0 3 0053 6      41 0  7  7
1009LRH0108721 2.72 MIOC  0 1 3012   7    35 0  6  8
1009LRH0108721 2.72 MIOC  0 1 3013   6    35 0  5  7
1009LRH0108721 2.72 MIOC  0 3 0023 6      39 0  5  7
1009LRH0108721 2.72 PEMA  0 3 0004   6    18 0  5  8
1009LRH0108721 2.72 MIOC  0 3 4333   3    42 0  4  8
1009LRH0108721 2.72 MIOC  0 3 0055   6    47 0  2  7
1009LRH0108721 2.72 MIOC  0 3 0345 6      47 0  1  8
1009LRH0108721 2.72 MIOC  0 3 0122   6    52 0  1  9
1009LRH0108721 2.72 MIOC  0 1 3014   6    42 0  1 10
1009LRH0108721 2.72 PEMA  0 1 3015 4      16 0  2 10
1009LRH0108721 2.72 MIOC  0 3 0353   3    49 0  2 10
1009LRH0108721 2.72 MIOC  0 3 1122   6    55 5  3 10
1009LRH0108721 2.72 MIOC  0 3 1200   6    45 0  4  9
1009LRH0108721 2.72 MIOC  0 3 0024   3    40 5  4 10
1009LRH0108721 2.72 MIOC  0 3 0453 6      42 5  5 10
1009LRH0108721 2.72 MIOC  0 3 0343   3    45 0  5 10
1009LRH0108721 2.72 MIOC  0 1 3020   3    38 0  7 10
1009LRH0108721 2.72 MIOC  0 1 3021 1      30 0  9  9
1009LRH0108721 2.72 MIOC  0 3 1235 6      44 0  9 10
1009LRH0108721 2.72 BLBR  0 1 3022   3    12 0  9 10
1009LRH0108721 2.72 SIHI  0 1 3023   8    38 1 12 11
1009LRH0108721 2.72 MIOC  0 1 3024   6    41 0 10 11
1009LRH0108721 2.72 BLBR  0 1 3025 3      14 0  9 12
1009LRH0108721 2.72 MIOC  0 1 3430 6      38 5  8 12
1009LRH0108721 2.72 MIOC  0 3 0342   6    43 0  7 11
1009LRH0108721 2.72 MIOC  0 3 0131 6      40 0  7 11
```

1009LRH0108721	2.72	MIOC	0	1	3031		6	36	0	7	12
1009LRH0108721	2.72	PEMA	0	3	1234		6	17	4	7	12
1009LRH0108721	2.72	MIOC	0	3	0412		6	42	0	6	11
1009LRH0108721	2.72	MIOC	0	3	1124		3	50	0	6	12
1009LRH0108721	2.72	MIOC	0	1	3032	4		30	0	5	11
1009LRH0108721	2.72	PEMA	0	3	1350	6		18	0	5	12
1009LRH0108721	2.72	MIOC	0	1	3033		6	44	0	5	12
1009LRH0108721	2.72	MIOC	0	3	0135	3		47	5	4	11
1009LRH0108721	2.72	MIOC	0	3	1312		9	55	0	4	12
1009LRH0108721	2.72	MIOC	0	3	0355		6	44	0	3	11
1009LRH0108721	2.72	MIOC	0	1	3034		7	29	1	3	11
1009LRH0108721	2.72	MIOC	0	3	0414		6	51	4	3	12
1009LRH0108721	2.72	MIOC	0	3	0140		6	45	0	2	11
1009LRH0108721	2.72	MIOC	0	3	0354	6		40	5	2	11
1009LRH0108721	2.72	MIOC	0	1	3035		8	14	0	1	11
1009LRH0108721	2.72	MIOC	0	1	3040	2		24	1	1	11
1009ECB0208721	2.72	MIOC	0	3	0145		6	36	0	1	1
1009ECB0208721	2.72	MIOC	0	1	3052	6		37	5	1	1
1009ECB0208721	2.72	MIOC	0	1	3053		7	22	1	2	2
1009FCB0208721	2.72	MIOC	0	3	0001		6	42	4	2	2
1009ECB0208721	2.72	BLBR	0	3	0004	6		16	0	3	1
1009ECB0208721	2.72	MIOC	0	3	0144	6		36	0	3	2
1009ECB0208721	2.72	MIOC	0	1	3054		3	45	0	3	2
1009ECB0208721	2.72	MIOC	0	1	3055		6	49	0	4	1
1009ECB0208721	2.72	MIOC	0	3	0043		6	40	0	4	2
1009ECB0208721	2.72	MIOC	0	1	3100	2		20	1	6	2
1009ECB0208721	2.72	MIOC	0	1	3101		6	33	2	6	2
1009ECB0208721	2.72	MIOC	0	1	3102	1		24	0	7	1
1009ECB0208721	2.72	MIOC	0	3	0442		6	40	4	7	1
1009ECB0208721	2.72	MIOC	0	3	0434		6	42	0	7	2
1009ECB0208721	2.72	BLBR	0	1	3103	1		13	0	9	1
1009ECB0208721	2.72	SIHI	0	1	3104		4	99	0	11	1
1009ECB0208721	2.72	SIHI	1	3		6			6	12	1
1009ECB0208721	2.72	SIHI	0	3	3001	2		32	1	12	2
1009ECB0208721	2.72	SIHI	0	3	1431		6	164	0	12	3
1009ECB0208721	2.72	SIHI	0	1	3105		7	80	0	11	3
1009ECB0208721	2.72	MIOC	0	3	0230		6	40	5	9	4
1009ECB0208721	2.72	SIHI	0	1	3110	2		43	1	6	3
1009ECB0208721	2.72	MIOC	0	3	1005		3	46	0	6	3
1009ECB0208721	2.72	MIOC	0	3	0211	6		36	5	5	4
1009ECB0208721	2.72	MIOC	0	1	3111		7	27	0	5	3
1009ECB0208721	2.72	MIOC	0	3	1002	6		40	0	2	4
1009ECB0208721	2.72	MIOC	0	3	0213	6		36	5	1	6
1009ECB0208721	2.72	MIOC	0	1	3112	7		36	2	1	6
1009ECB0208721	2.72	MIOC	0	1	3113		7	28	0	5	5
1009ECB0208721	2.72	MIOC	0	3	0023	6		34	0	5	6
1009ECB0208721	2.72	MIOC	0	1	3114	2		16	0	5	6
1009ECB0208721	2.72	SIHI	0	1	3115	2		43	1	7	5
1009ECB0208721	2.72	MIOC	0	3	0053	6		41	0	8	6
1009ECB0208721	2.72	MIOC	0	3	0253		6	42	0	10	6
1009JGP0208721	2.72	MIOC	0	3	1051	6		46	5	11	5
1009JGP0208721	2.72	SIHI	0	1	3120	4		81	2	12	5
1009JGP0208721	2.72	SIHI	0	3	3004		6	102	2	12	5
1009JGP0208721	2.72	SIHI	0	1	3121		8	22	0	12	6
1009JGP0208721	2.72	SIHI	0	1	3122		6	122	2	12	6
1009JGP0208721	2.72	MIOC	0	3	1212		6	34	0	7	7
1009JGP0208721	2.72	MIOC	0	1	3123	2		23	1	7	7
1009JGP0208721	2.72	MIOC	0	3	3012		6	32	0	6	7

1009JGP0208721	2.72	MIOC	0	3	4333		3	39	0	5	7
1009JGP0208721	2.72	MIOC	0	3	0101	6		37	0	5	7
1009JGP0208721	2.72	MIOC	0	3	0055		6	44	0	2	7
1009JGP0208721	2.72	MIOC	0	3	0124	6		48	0	2	7
1009JGP0208721	2.72	MIOC	0	3	0345	3		46	0	1	8
1009JGP0208721	2.72	MIOC	0	3	0122		3	49	0	1	9
1009JGP0208721	2.72	PEMA	0	3	3015	7		14	2	1	9
1009JGP0208721	2.72	MIOC	0	1	3124		7	31	0	2	8
1009JGP0208721	2.72	SIHI	0	1	3125		3	124	4	3	8
1009JGP0208721	2.72	MIOC	0	3	1200		3	42	0	5	8
1009JGP0208721	2.72	MIOC	0	3	0120	6		45	0	5	9
1009JGP0208721	2.72	MIOC	0	3	0131	6		37	0	7	9
1009JGP0208721	2.72	MIOC	0	1	3130	2		23	1	7	9
1009JGP0208721	2.72	MIOC	0	3	1232	6		39	0	7	8
1009JGP0208721	2.72	MIOC	0	3	0110		3	45	0	7	8
1009JGP0208721	2.72	MIOC	0	3	3430	6		34	0	9	9
1009JGP0208721	2.72	MIOC	0	3	3021	1		29	0	9	9
1009JGP0208721	2.72	MIOC	0	3	0113		6			10	8
1009JGP0208721	2.72	MIOC	0	3	0032	6		38	0	12	8
1009JGP0208721	2.72	MIOC	0	1	3131	2		27	1	11	10
1009JGP0208721	2.72	MIOC	0	1	3132		7	27	0	11	10
1009JGP0208721	2.72	SIHI	0	3	3023		8	36	1	12	11
1009JGP0208721	2.72	MIOC	0	1	3133	1		27	0	10	12
1009JGP0208721	2.72	MIOC	0	1	3134		6	41	5	10	12
1009JGP0208721	2.72	MIOC	0	3	3024		6	33	0	9	11
1009JGP0208721	2.72	MIOC	0	1	3135		7	31	0	9	11
1009LRH0208721	2.72	PEMA	0	3	1234		6	16	4	9	12
1009LRH0208721	2.72	MIOC	0	1	3140	2		21	1	9	12
1009LRH0208721	2.72	MIOC	0	3	1235	6		40	5	9	10
1009LRH0208721	2.72	MIOC	0	1	3141		8	16	0	9	10
1009LRH0208721	2.72	MIOC	0	3	3020		3	37	0	8	10
1009LRH0208721	2.72	SIHI	0	1	3142	4		75	2	8	10
1009LRH0208721	2.72	MIOC	0	3	0410	3		42	0	8	11
1009LRH0208721	2.72	MIOC	0	3	0021		6	33	0	8	12
1009LRH0208721	2.72	MIOC	0	1	3143		7	29	0	7	12
1009LRH0208721	2.72	MIOC	0	3	3031		6	34	0	7	12
1009LRH0208721	2.72	MIOC	0	1	3144	2		22	1	7	10
1009LRH0208721	2.72	MIOC	0	1	3145	2		23	1	7	10
1009LRH0208721	2.72	MIOC	0	3	0342		6	41	0	6	10
1009LRH0208721	2.72	MIOC	0	1	3150	2		22	1	6	10
1009LRH0208721	2.72	MIOC	0	3	0412	6		41	0	6	11
1009LRH0208721	2.72	SIHI	0	1	3200		8	32	1	6	11
1009LRH0208721	2.72	MIOC	0	1	3151		8	22	1	6	12
1009LRH0208721	2.72	MIOC	0	3	1124		6	42	0	6	12
1009LRH0208721	2.72	MIOC	0	1	3152		6	39	4	5	12
1009LRH0208721	2.72	MIOC	0	3	3032	5		26	0	5	11
1009LRH0208721	2.72	PEMA	0	3	1350	6		18	0	5	11
1009LRH0208721	2.72	MIOC	0	1	3153	2		22	1	5	10
1009LRH0208721	2.72	MIOC	0	3	0343		6	42	0	5	10
1009LRH0208721	2.72	MIOC	0	1	3154	2		24	1	4	10
1009LRH0208721	2.72	MIOC	0	3	0135	6		41	0	4	10
1009LRH0208721	2.72	MIOC	0	3	0024		3	38	5	4	11
1009LRH0208721	2.72	MIOC	0	3	0453	6		38	5	4	11
1009LRH0208721	2.72	MIOC	0	3	1312		3	62	0	4	12
1009LRH0208721	2.72	MIOC	0	3	3033		6	35	0	4	12
1009LRH0208721	2.72	MIOC	0	3	0414		6	47	4	3	12
1009LRH0208721	2.72	MIOC	0	3	0030	6		40	5	3	12
1009LRH0208721	2.72	MIOC	0	3	0355		6	42	0	3	11

1009LRH0208721	2.72	MIOC	0	3	0354	6		37	5	3	11
1009LRH0208721	2.72	MIOC	0	3	0353		3	43	0	3	10
1009LRH0208721	2.72	MIOC	0	1	3155		8	20	0	3	10
1009LRH0208721	2.72	MIOC	0	1	3201	4		33	0	2	10
1009LRH0208721	2.72	MIOC	0	3	0140		3	41	0	2	11
1009LRH0208721	2.72	MIOC	0	3	1122		3	46	0	2	11
1009LRH0208721	2.72	MIOC	0	3	0352	6		44	0	2	12
1009LRH0208721	2.72	MIOC	0	1	3202	2		14	0	2	12
1009LRH0208721	2.72	MIOC	0	1	3203	6		49	0	1	12
1009LRH0208721	2.72	SIHI	0	1	3204	2		36	1	1	12
1009LRH0208721	2.72	MIOC	0	3	0332	6		40	0	1	11
1009LRH0208721	2.72	SIHI	0	1	3205	2		36	1	1	11
1009LRH0208721	2.72	MIOC	0	1	3210		8	22	1	1	10
1009LRH0208721	2.72	MIOC	0	3	3014		6	40	0	1	10
1009JGP0308721	2.72	BLBR	0	3	3010		3	10	0	1	2
1009JGP0308721	2.72	MIOC	0	3	0144	6		36	0	1	2
1009JGP0308721	2.72	MIOC	0	3	3052	6		36	5	2	1
1009JGP0308721	2.72	MIOC	0	3	0145		6	35	0	2	1
1009JGP0308721	2.72	MIOC	0	3	3055		6	46	0	3	1
1009JGP0308721	2.72	MIOC	0	3	0333	6		44	5	5	1
1009JGP0308721	2.72	BLBR	0	3	0004	6		17	0	5	1
1009JGP0308721	2.72	MIOC	0	3	0434		6	39	0	6	1
1009JGP0308721	2.72	MIOC	0	3	3100	2		20	1	6	1
1009JGP0308721	2.72	MIOC	0	3	3102	4		23	0	7	1
1009JGP0308721	2.72	MIOC	0	3	0442		6	39	5	7	1
1009JGP0308721	2.72	BLBR	0	1	3222		3	11	0	8	1
1009JGP0308721	2.72	MIOC	0	1	3223		3	30	2	9	1
1009JGP0308721	2.72	SIHI	0	3	0400	6		124	0	11	1
1009JGP0308721	2.72	SIHI	0	1	3224		8	40	1	12	1
1009JGP0308721	2.72	SIHI	0	3	3105		7	79	0	12	2
1009JGP0308721	2.72	MIOC	0	1	3225	1		30	0	11	2
1009JGP0308721	2.72	REFL	0	1	3230	6		16	0	11	2
1009JGP0308721	2.72	MIOC	0	1	3231		7	32	0	10	2
1009JGP0308721	2.72	MIOC	0	3	0211	6		34	5	5	2
1009JGP0308721	2.72	MIOC	0	1	3232		6	32	0	4	2
1009JGP0308721	2.72	MIOC	0	3	3054		6	42	0	3	2
1009JGP0308721	2.72	SIHI	0	3	3125		6	123	4	2	2
1009JGP0308721	2.72	MIOC	0	3	0001		6	39	5	2	2
1009JGP0308721	2.72	MIOC	0	3	1002	3		39	0	2	3
1009JGP0308721	2.72	SIHI	0	3	3005		8	34	1	3	3
1009JGP0308721	2.72	MIOC	0	3	0043		6	39	0	4	3
1009JGP0308721	2.72	MIOC	0	3	3111		7	26	0	5	3
1009JGP0308721	2.72	SIHI	0	1	3233		8	33	1	5	3
1009JGP0308721	2.72	MIOC	0	3	1411		6	47	0	6	3
1009JGP0308721	2.72	MIOC	0	1	3234	2		22	1	8	3
1009JGP0308721	2.72	SIHI	0	1	3235		7	80	0	11	3
1009JGP0308721	2.72	SIHI	0	3	4400	6		170	0	12	3
1009JGP0308721	2.72	SIHI	0	1	3240	4		68	1	12	3
1009JGP0308721	2.72	SIHI	0	3	1431		6	158	0	12	4
1009JGP0308721	2.72	MIOC	0	3	1041	6		34	0	6	4
1009JGP0308721	2.72	SIHI	0	3	3004		6	101	2	6	4
1009JGP0308721	2.72	SIHI	0	1	3241		8	34	1	4	4
1009JGP0308721	2.72	MIOC	0	1	3242		4	28	0	3	4
1009JGP0308721	2.72	SIHI	0	1	3243		8	36	1	2	4
1009JGP0308721	2.72	MIOC	3	1			3	29	0	1	4
1009JGP0308721	2.72	MIOC	0	3	3112	6		37	2	1	5
1009JGP0308721	2.72	MIOC	0	1	3244	4			0	3	5

1009JGP0308721	2.72	MIOC	0	3	4333		3	39	0	5	5
1009JGP0308721	2.72	SIHI	0	3	3115	2		42	1	7	5
1009JGP0308721	2.72	MIOC	0	1	3245		4	32	2	11	5
1009JGP0308721	2.72	MIOC	0	3	1051	6		45	5	11	5
1009JGP0308721	2.72	SIHI	0	3	3120	7		82	2	12	5
1009JGP0308721	2.72	SIHI	0	1	3250	4		74	2	12	6
1009JGP0308721	2.72	SIHI	0	1	3251	4		100	2	12	6
1009JGP0308721	2.72	MIOC	3	1			4	28	0	11	6
1009JGP0308721	2.72	MIOC	0	3	0053	6		40	0	11	6
1009JGP0308721	2.72	MIOC	0	3	0253		3	39	0	10	6
1009JGP0308721	2.72	MIOC	0	1	3252	2		15	0	5	6
1009JGP0308721	2.72	MIOC	0	1	3253		8	23	1	3	6
1009JGP0308721	2.72	MIOC	0	3	0213		6	34	0	1	6
1009JGP0308721	2.72	MIOC	0	3	0120	3		46	5	1	7
1009JGP0308721	2.72	MIOC	0	3	0023	6			0	4	7
1009JGP0308721	2.72	MIOC	0	3	0013		6	36	0	7	7
1009JGP0308721	2.72	MIOC	0	1	3254	2		21	0	10	7
1009JGP0308721	2.72	MIOC	0	3	0032	6		39	0	11	7
1009JGP0308721	2.72	BLBR	0	3	1435		3	16	0	11	7
1009JGP0308721	2.72	SIHI	0	1	3255	4		72	2	12	7
1009JGP0308721	2.72	MIOC	0	1	3300		4	29	0	11	8
1009JGP0308721	2.72	MIOC	0	3	1232	6		40	0	8	8
1009JGP0308721	2.72	MIOC	0	1	3301		8	20	1	7	8
1009JGP0308721	2.72	MIOC	0	3	0110		3	44	0	7	8
1009JGP0308721	2.72	MIOC	0	3	3114	2		18	0	4	8
1009JGP0308721	2.72	MIOC	0	3	1200		6		0	4	8
1009JGP0308721	2.72	SIHI	0	1	3302		8	40	1	3	8
1009JGP0308721	2.72	MIOC	0	3	3210		7	26	2	2	8
1009JGP0308721	2.72	MIOC	0	3	0345	6		41	0	1	8
1009JGP0308721	2.72	MIOC	0	3	0122		3	48	0	1	8
~~1009JGP0308721~~	~~2.72~~	~~MIOC~~	0	3	3014		6	39	0	1	9
1009JGP0308721	2.72	MIOC	0	3	0124	6		47	0	2	9
1009JGP0308721	2.72	MIOC	0	3	3113		4	29	0	3	9
1009JGP0308721	2.72	MIOC	0	3	0101	6		34	5	5	9
1009JGP0308721	2.72	MIOC	0	3	0453	3		37	5	5	9
1009JGP0308721	2.72	MIOC	0	3	0131	6		37	0	6	9
1009JGP0308721	2.72	MIOC	0	3	3012		7	34	0	6	9
1009JGP0308721	2.72	MIOC	0	3	3020		3	37	0	7	9
1009JGP0308721	2.72	PEMA	0	3	4004		6	21	0	8	9
1009JGP0308721	2.72	MIOC	0	3	3430	6		32	5	9	9
1009JGP0308721	2.72	MIOC	0	3	3021	4		30	0	10	9
1009JGP0308721	2.72	MIOC	0	3	0113		3	52	0	10	9
1009JGP0308721	2.72	BLBR	0	1	3303		4	12	0	12	9
1009JGP0308721	2.72	SIHI	0	1	3304		6	106	0	12	10
1009JGP0308721	2.72	MIOC	0	3	3132		7	26	0	11	10
1009JGP0308721	2.72	MIOC	0	3	3131	1		23	1	11	10
1009JGP0308721	2.72	MIOC	0	3	3140	2		22	1	9	10
1009JGP0308721	2.72	MIOC	0	3	3024		7	32	0	9	10
1009JGP0308721	2.72	MIOC	0	3	3145	2		22	1	8	10
1009JGP0308721	2.72	MIOC	0	1	3305		8	24	1	6	10
1009JGP0308721	2.72	MIOC	0	3	3130		2	23	1	6	10
1009JGP0308721	2.72	MIOC	0	3	0343		3	38	5	5	10
1009JGP0308721	2.72	MIOC	0	3	3154	2		23	1	4	10
1009JGP0308721	2.72	MIOC	0	3	3201	4		28	0	3	10
1009JGP0308721	2.72	MIOC	0	3	0355		6	37	0	3	10
1009JGP0308721	2.72	MIOC	0	1	3310	2		11	0	3	10
1009JGP0308721	2.72	MIOC	0	3	0353		3	42	0	2	10
1009JGP0308721	2.72	MIOC	0	3	0332	6		45	0	1	10
1009JGP0308721	2.72	MIOC	0	1	3311		8	24	1	1	11

1009JGP0308721	2.72	MIOC	0	3	0354	6		36	0	2	11
1009JGP0308721	2.72	MIOC	0	3	1122		3	46	0	3	11
1009JGP0308721	2.72	MIOC	0	3	3034		7	28	1	3	11
1009JGP0308721	2.72	MIOC	0	3	0024		3	37	5	4	11
1009JGP0308721	2.72	MIOC	0	3	0135	6		39	5	5	11
1009JGP0308721	2.72	MIOC	0	3	1124		3	46	0	6	11
1009JGP0308721	2.72	MIOC	0	3	3144	2		20	1	7	11
1009JGP0308721	2.72	MIOC	0	3	0342		6	40	0	7	11
1009JGP0308721	2.72	MIOC	0	1	3312		8	15	0	8	11
1009JGP0308721	2.72	MIOC	0	3	0410	6		40	0	8	11
1009JGP0308721	2.72	MIOC	0	3	0021		6	32	0	9	11
1009JGP0308721	2.72	MIOC	0	3	3135		7	29	0	9	11
1009JGP0308721	2.72	PEMA	0	1	3313	6		16	0	11	11
1009JGP0308721	2.72	SIHI	0	3	3023		8	35	1	11	11
1009JGP0308721	2.72	MIOC	0	3	3133	1		29	0	12	12
1009JGP0308721	2.72	PEMA	0	3	1223	6		18	0	12	12
1009JGP0308721	2.72	MIOC	0	1	3314	1		27	1	11	12
1009JGP0308721	2.72	MIOC	0	3	1235	6		39	5	10	12
1009JGP0308721	2.72	PEMA	0	3	1234		6	18	4	9	12
1009JGP0308721	2.72	MIOC	0	1	3315	2		20	0	8	12
1009JGP0308721	2.72	MIOC	0	3	3030		6	31	0	7	12
1009JGP0308721	2.72	MIOC	0	3	3152		3	32	0	5	12
1009JGP0308721	2.72	MIOC	0	3	3033		6	33	0	5	12
1009JGP0308721	2.72	MIOC	0	1	3320		7	27	0	4	12
1009JGP0308721	2.72	MIOC	0	1	3321	1		27	0	4	12
1009JGP0308721	2.72	MIOC	0	3	0030	6		38	0	3	12
1009JGP0308721	2.72	MIOC	0	3	0414		6	40	4	3	12
1009JGP0308721	2.72	MIOC	0	3	0352	6		43	0	2	12
1009JGP0308721	2.72	MIOC	0	1	3322		8	18	0	2	12
1009JGP0408721	2.72	MIOC	0	3	0145		6			1	1
1009JGP0408721	2.72	MIOC	0	3	3052	6				2	1
1009JGP0408721	2.72	MIOC	0	3	0333	6				3	1
1009JGP0408721	2.72	MIOC	0	3	3054		6			3	1
1009JGP0408721	2.72	SIHI	0	3	3005		8			4	1
1009JGP0408721	2.72	MIOC	0	3	3232		6			5	1
1009JGP0408721	2.72	MIOC	0	3	3100	1				6	1
1009JGP0408721	2.72	MIOC	0	3	0442		3			9	1
1009JGP0408721	2.72	SIHI	0	1	3335	5				11	1
1009JGP0408721	2.72	SIHI	0	3	0400	6				12	1
1009JGP0408721	2.72	SIHI	0	1	3340	6				12	1
1009JGP0408721	2.72	SIHI	0	3	3002	6				12	2
1009JGP0408721	2.72	SIHI	0	3	3001	2				12	2
1009JGP0408721	2.72	SIHI	0	1	3341	4				11	2
1009JGP0408721	2.72	MIOC	0	1	3342	6				10	2
1009JGP0408721	2.72	MIOC	0	1	3343		5			7	2
1009JGP0408721	2.72	MIOC	0	3	3234	5				7	2
1009JGP0408721	2.72	SIHI	0	3	3110	2				6	2
1009JGP0408721	2.72	MIOC	0	3	0211	6				5	2
1009JGP0408721	2.72	MIOC	0	3	3055		3			4	2
1009JGP0408721	2.72	SIHI	0	3	3243		8			2	2
1009JGP0408721	2.72	MIOC	0	3	0144	6				2	2
1009JGP0408721	2.72	MIOC	0	3	0001		6			1	2
1009JGP0408721	2.72	MIOC	0	3	3053		7			1	2
1009JGP0408721	2.72	MIOC	0	3	0043		6			4	3
1009JGP0408721	2.72	MIOC	0	3	0434		3			8	3
1009JGP0408721	2.72	MIOC	0	3	3225	1				9	3
1009JGP0408721	2.72	SIHI	0	3	1431		6			12	4
1009JGP0408721	2.72	BLBR	0	3	1424		3			10	4

1009JGP0408721	2.72	SIHI	0	1	3344	2		10	4
1009JGP0408721	2.72	SIHI	0	3	3004		6	9	4
1009JGP0408721	2.72	MIOC	0	3	3101		7	6	4
1009JGP0408721	2.72	MIOC	0	3	3242		7	3	4
1009JGP0408721	2.72	MIOC	0	3	1002	6		2	4
1009JGP0408721	2.72	MIOC	0	3	3112	4		1	5
1009JGP0408721	2.72	MIOC	0	3	3111		7	1	5
1009JGP0408721	2.72	MIOC	0	1	3345		7	3	5
1009JGP0408721	2.72	SIHI	0	3	3302		8	5	5
1009JGP0408721	2.72	MIOC	0	3	1415		3	6	5
1009JGP0408721	2.72	MIOC	0	3	1041	6		7	5
1009JGP0408721	2.72	BLBR	0	1	3350		3	9	5
1009JGP0408721	2.72	MIOC	0	3	1051		6	11	5
1009JGP0408721	2.72	SIHI	0	3	3120	7		12	5
1009JGP0408721	2.72	SIHI	0	3	3250	7		12	6
1009JGP0408721	2.72	MIOC	0	3	0253		3	10	6
1009JGP0408721	2.72	SIHI	0	3	3115	2		7	6
1009JGP0408721	2.72	MIOC	0	1	3351	2		6	6
1009JGP0408721	2.72	MIOC	0	3	3253		7	2	6
1009JGP0408721	2.72	MIOC	0	3	0120	6		1	7
1009JGP0408721	2.72	MIOC	0	1	3352	2		3	7
1009JGP0408721	2.72	MIOC	0	3	0124	6		3	7
1009JGP0408721	2.72	MIOC	0	3	1212		6	7	7
1009JGP0408721	2.72	MIOC	0	3	0013		6	7	7
1009JGP0408721	2.72	PEMA	0	3	1223	6		9	7
1009JGP0408721	2.72	MIOC	0	3	0053	6		10	7
1009JGP0408721	2.72	MIOC	0	3	0032	6		11	7
1009JGP0408721	2.72	SIHI	0	1	3353	7		12	7
1009JGP0408721	2.72	SIHI	0	3	3304		6	12	8
1009JGP0408721	2.72	MIOC	0	3	1232	6		8	8
1009JGP0408721	2.72	MIOC	0	3	3254	2		7	8
1009JGP0408721	2.72	MIOC	0	3	0110		3	7	8
1009JGP0408721	2.72	MIOC	0	3	1200		3	5	8
1009JGP0408721	2.72	MIOC	0	3	3210		7	2	8
1009JGP0408721	2.72	MIOC	0	3	4333		6	3	9
1009JGP0408721	2.72	MIOC	3	3	0101	6		5	9
1009JGP0408721	2.72	MIOC	0	3	3130	1		6	9
1009JGP0408721	2.72	MIOC	0	3	3012		6	6	9
1009JGP0408721	2.72	BLBR	0	3	5000	6		8	9
1009JGP0408721	2.72	MIOC	0	3	3430	6		8	9
1009JGP0408721	2.72	MIOC	0	3	0113		3	9	9
1009JGP0408721	2.72	MIOC	0	3	3021	4		10	9
1009JGP0408721	2.72	MIOC	0	3	3300		4	11	9
1009JGP0408721	2.72	SIHI	0	3	3023		8	12	10
1009JGP0408721	2.72	MIOC	0	3	3135		7	12	10
1009JGP0408721	2.72	MIOC	0	3	3132		4	11	10
1009JGP0408721	2.72	MIOC	0	1	3354	2		10	10
1009JGP0408721	2.72	MIOC	0	3	3131	1		10	10
1009JGP0408721	2.72	MIOC	0	3	1235	6		9	10
1009JGP0408721	2.72	MIOC	0	3	3020		6	8	10
1009JGP0408721	2.72	MIOC	2	1	3355	2		8	10
1009JGP0408721	2.72	MIOC	0	3	0131	6		7	10
1009JGP0408721	2.72	MIOC	0	3	3145	1		7	10
1009JGP0408721	2.72	MIOC	0	3	0342		3	6	10
1009JGP0408721	2.72	MIOC	0	1	3400		8	6	10
1009JGP0408721	2.72	MIOC	0	3	3150	2		6	10
1009JGP0408721	2.72	MIOC	0	3	3153	1		5	10
1009JGP0408721	2.72	MIOC	0	3	0024		6	4	10

1009JGP0408721	2.72	MIOC	0	3	3154	1				4	10
1009JGP0408721	2.72	MIOC	0	3	1122		3			3	10
1009JGP0408721	2.72	MIOC	0	3	0355		6			3	10
1009JGP0408721	2.72	MIOC	0	3	3201	4				2	10
1009JGP0408721	2.72	MIOC	0	3	0353		6			2	10
1009JGP0408721	2.72	MIOC	0	3	3014		6			1	10
1009JGP0408721	2.72	MIOC	0	3	0122		3			1	10
1009JGP0408721	2.72	MIOC	0	3	0332	6				1	11
1009JGP0408721	2.72	MIOC	0	3	3202	2				2	11
1009JGP0408721	2.72	MIOC	0	3	0354	6				3	11
1009JGP0408721	2.72	MIOC	0	1	3401	1				3	11
1009JGP0408721	2.72	MIOC	0	3	3032	4				4	11
1009JGP0408721	2.72	MIOC	0	3	0023	6				4	11
1009JGP0408721	2.72	MIOC	0	3	0343		6			5	11
1009JGP0408721	2.72	MIOC	0	3	0135	6				5	11
1009JGP0408721	2.72	MIOC	0	1	3402		8			6	11
1009JGP0408721	2.72	PEMA	0	3	1350	6				7	11
1009JGP0408721	2.72	MIOC	0	3	3144	2				7	11
1009JGP0408721	2.72	MIOC	0	3	0021		6			8	11
1009JGP0408721	2.72	MIOC	0	2	3302	4		6		11	11
1009JGP0408721	2.72	MIOC	0	3	0411		3			12	11
1009JGP0408721	2.72	MIOC	0	3	3133	1				11	12
1009JGP0408721	2.72	MIOC	0	3	3314	4				11	12
1009JGP0408721	2.72	MIOC	0	3	3140	2				9	12
1009JGP0408721	2.72	MIOC	0	3	0410	6				8	12
1009JGP0408721	2.72	MIOC	2	3	3031		6			7	12
1009JGP0408721	2.72	MIOC	0	3	1124		3			6	12
1009JGP0408721	2.72	MIOC	0	1	3403	6				5	12
1009JGP0408721	2.72	MIOC	0	3	0453	6				5	12
1009JGP0408721	2.72	MIOC	0	1	3404		3			4	12
1009JGP0408721	2.72	MIOC	0	3	3033		6			4	12
1009JGP0408721	2.72	MIOC	0	3	0414		6			3	12
1009JGP0408721	2.72	MIOC	0	3	0030	6				3	12
1009JGP0408721	2.72	MIOC	0	3	0352	6				2	12
1009JGP0408721	2.72	SIHI	0	3	3204	2				1	12
1009JGP0408721	2.72	MIOC	0	1	3405	6				1	12
1009JGP0508721	2.72	MIOC	0	3	3052	7		33	2	1	1
1009JGP0508721	2.72	SIHI	0	3	3243		8	32	1	2	1
1009JGP0508721	2.72	SIHI	0	3	3005		8	36	1	3	1
1009JGP0508721	2.72	MIOC	0	3	3232		7	29	0	3	1
1009JGP0508721	2.72	MIOC	2	3	3055		6	38	0	4	1
1009JGP0508721	2.72	MIOC	0	3	0434		6	41	0	6	1
1009JGP0508721	2.72	MIOC	0	3	3223		4	29	2	7	1
1009JGP0508721	2.72	MIOC	0	3	0442		6	37	4	9	1
1009JGP0508721	2.72	SIHI	0	1	3421		6	121	4	11	1
1009JGP0508721	2.72	SIHI	0	3	3340	6		138	4	12	2
1009JGP0508721	2.72	MIOC	0	3	3343		8	20	1	7	2
1009JGP0508721	2.72	MIOC	0	3	3100	2		19	0	6	2
1009JGP0508721	2.72	MIOC	0	3	0211	6		37	0	5	2
1009JGP0508721	2.72	MIOC	0	1	3430		8	13	0	5	2
1009JGP0508721	2.72	MIOC	0	3	3054		3	39	0	4	2
1009JGP0508721	2.72	MIOC	0	3	0333	6		38	5	4	2
1009JGP0508721	2.72	MIOC	0	3	0001		6	39	0	3	2
~~1009JGP0508721~~	~~2.72~~	~~MIOC~~	0	3	0145		6	34	0	2	2
1009JGP0508721	2.72	MIOC	0	3	3053		7	23	0	1	2
1009JGP0508721	2.72	MIOC	0	3	0144	6		35	0	2	3
1009JGP0508721	2.72	BLBR	0	3	0004	6		16	0	3	3
1009JGP0508721	2.72	MIOC	0	3	0043		3	39	0	5	3

1009JGP0508721	2.72	MIOC	0	3	3234	2		21	1	8	3
1009JGP0508721	2.72	MIOC	0	3	3225	1		32	0	9	3
1009JGP0508721	2.72	SIHI	0	3	3344	1		50	1	10	3
1009JGP0508721	2.72	SIHI	0	3	3105		7	75	0	12	3
1009JGP0508721	2.72	MIOC	0	1	3422		4	31	0	11	4
1009JGP0508721	2.72	BLBR	0	1	3423		4	11	0	11	4
1009JGP0508721	2.72	MUMU	0	1	3424	6		17	0	8	4
1009JGP0508721	2.72	BLBR	0	1	3425		3	12	0	5	4
1009JGP0508721	2.72	MIOC	0	3	3111		7	25	0	5	4
1009JGP0508721	2.72	MIOC	0	3	3242		7	26	0	3	4
1009JGP0508721	2.72	MIOC	0	3	1002	3		40	0	1	4
1009JGP0508721	2.72	SIHI	0	3	3241		8	35	1	1	4
1009JGP0508721	2.72	MIOC	0	3	1415		3	48	0	6	5
1009JGP0508721	2.72	MIOC	0	3	3101		7	31	2	7	5
1009JGP0508721	2.72	SIHI	0	3	3115	2		44	1	10	5
1009JGP0508721	2.72	MIOC	0	3	1251	6		41	5	11	5
1009JGP0508721	2.72	SIHI	0	3	3004		7	98	2	12	5
1009JGP0508721	2.72	SIHI	0	3	3250	1		72	2	12	6
1009JGP0508721	2.72	SIHI	0	3	3120	7		72	2	12	6
1009JGP0508721	2.72	MIOC	2	3	0253		6	32	0	10	6
1009JGP0508721	2.72	MIOC	0	3	1212		6	31	0	7	6
1009JGP0508721	2.72	MIOC	0	3	0053	6		39	5	7	6
1009JGP0508721	2.72	MIOC	0	3	3345		7		0	4	6
1009JGP0508721	2.72	MIOC	0	3	3244	1		32	0	4	6
1009JGP0508721	2.72	REMO	0	1	3431		7	11	0	2	6
1009JGP0508721	2.72	MIOC	0	3	3112	6		36	2	1	6
1009JGP0508721	2.72	SIHI	0	3	3125		9	129	2	1	6
1009JGP0508721	2.72	MIOC	0	3	0120	6		45	0	1	7
1009JGP0508721	2.72	MIOC	0	3	3013		7	31	0	3	7
1009JGP0508721	2.72	MIOC	0	3	0013		6	33	0	7	7
1009JGP0508721	2.72	MIOC	0	3	0110		3	42	5	9	7
1009JGP0508721	2.72	SIHI	0	3	3122		3	124	4	12	8
1009JGP0508721	2.72	MIOC	0	3	3300		4	28	0	11	8
1009JGP0508721	2.72	MIOC	0	3	3021	4		31	0	9	8
1009JGP0508721	2.72	MIOC	0	3	3254	2		20	1	8	8
1009JGP0508721	2.72	MIOC	0	3	3301		8	23	1	7	8
1009JGP0508721	2.72	MIOC	0	3	3012		6	32	0	6	8
1009JGP0508721	2.72	MIOC	0	3	0023	6		36	0	4	8
1009JGP0508721	2.72	MIOC	0	3	3124		7	26	2	2	8
1009JGP0508721	2.72	MIOC	0	3	3210		7	24	0	2	8
1009JGP0508721	2.72	MIOC	0	3	3014		6	38	0	1	8
1009JGP0508721	2.72	MIOC	0	3	0122		3	42	0	1	8
1009JGP0508721	2.72	MIOC	0	3	0353		6	44	0	2	9
1009JGP0508721	2.72	MIOC	3	3	4333		6			3	9
1009JGP0508721	2.72	MIOC	0	3	3351	2		22	0	4	9
1009JGP0508721	2.72	MIOC	0	3	1200		3		0	5	9
1009JGP0508721	2.72	MIOC	0	3	3130	2		23	0	7	9
1009JGP0508721	2.72	MIOC	0	3	1232	6		38	0	8	9
1009JGP0508721	2.72	MIOC	0	3	0113		3	52	0	9	9
1009JGP0508721	2.72	MIOC	0	3	3141	2		18	0	10	9
1009JGP0508721	2.72	SIHI	0	3	3304		7	102	0	12	9
1009JGP0508721	2.72	MIOC	0	3	3135		7	29	0	12	10
1009JGP0508721	2.72	MIOC	0	3	3131	2		27	1	7	10
1009JGP0508721	2.72	MIOC	0	3	9430	7		31	2	9	10
1009JGP0508721	2.72	MIOC	0	3	3132		7	25	0	9	10
1009JGP0508721	2.72	MIOC	0	3	3145	1		23	1	8	10
1009JGP0508721	2.72	MIOC	0	3	0131	6		35	0	7	10
1009JGP0508721	2.72	MIOC	0	3	3020		6	36	0	7	10

1009JGP0508721	2.72	MIOC	0	3	0342		6	41	0	6	10
1009JGP0508721	2.72	MIOC	0	3	0343		6	33	0	5	10
1009JGP0508721	2.72	MIOC	0	3	0024		3	35	2	4	10
1009JGP0508721	2.72	MIOC	0	1	3432	2		29	1	3	10
1009JGP0508721	2.72	MIOC	0	3	0124	3		46	0	2	10
1009JGP0508721	2.72	MIOC	0	3	3201	4		28	0	2	10
1009JGP0508721	2.72	MIOC	0	1	3433	0		6	0	1	10
1009JGP0508721	2.72	MIOC	0	3	0345	6		40	0	1	10
1009JGP0508721	2.72	MIOC	0	3	0332	6		38	5	1	11
1009JGP0508721	2.72	MIOC	2	3	0355		6	36	0	2	11
1009JGP0508721	2.72	MIOC	0	3	1122		3	47	5	2	11
1009JGP0508721	2.72	MIOC	0	3	3034		7	25	1	3	11
1009JGP0508721	2.72	MIOC	2	3	0354	6		30	5	3	11
1009JGP0508721	2.72	PEMA	0	3	0411		6	17	0	4	11
1009JGP0508721	2.72	MIOC	0	3	3321	1		26	0	4	11
1009JGP0508721	2.72	MIOC	0	3	3032	4		25	0	5	11
1009JGP0508721	2.72	MIOC	0	3	0135	6		35	5	5	11
1009JGP0508721	2.72	MIOC	0	3	3150	2		19	1	6	11
1009JGP0508721	2.72	MIOC	0	3	1124		3	42	5	6	11
1009JGP0508721	2.72	MIOC	0	3	3144	2		20	1	7	11
1009JGP0508721	2.72	MIOC	0	3	0100	6		41	0	8	11
1009JGP0508721	2.72	PEMA	0	3	1350	6		22	0	8	11
1009JGP0508721	2.72	MIOC	3	3	3024		6			9	11
1009JGP0508721	2.72	MIOC	0	3	3315	2		19	0	9	11
1009JGP0508721	2.72	PEMA	0	3	3313	6		16	0	11	11
1009JGP0508721	2.72	MIOC	0	3	1235	6		36	5	12	11
1009JGP0508721	2.72	SIHI	0	3	3023		8	37	1	12	11
1009JGP0508721	2.72	MIOC	2	3	3314	1		22	1	12	12
1009JGP0508721	2.72	MIOC	0	3	3133	1		29	0	12	12
1009JGP0508721	2.72	PEMA	0	3	1223	6		19	4	11	12
1009JGP0508721	2.72	PEMA	0	3	1234		6	19	2	10	12
1009JGP0508721	2.72	MIOC	0	3	3140	2		21	1	9	12
1009JGP0508721	2.72	MIOC	0	3	0410	6		36	0	7	12
1009JGP0508721	2.72	MIOC	2	3	0020		3	29	0	7	12
1009JGP0508721	2.72	MIOC	0	3	0453	6		37	2	6	12
1009JGP0508721	2.72	MIOC	0	3	3031		6	28	0	6	12
1009JGP0508721	2.72	MIOC	0	3	3320		7	26	0	5	12
1009JGP0508721	2.72	MIOC	0	3	3152		4	32	2	5	12
1009JGP0508721	2.72	MIOC	0	3	3033		6	32	0	4	12
1009JGP0508721	2.72	MIOC	0	3	0414		6	39	4	3	12
1009JGP0508721	2.72	MIOC	0	3	0030	3		38	0	3	12
1009JGP0508721	2.72	MIOC	2	3	0140	3		38	0	2	12
1009JGP0508721	2.72	MIOC	0	3	0352	6		42	6	2	12
1009JGP0508721	2.72	MIOC	0	1	3434		3	40	0	1	12
1009JGP0608721	2.72	MIOC	0	1	3442	2		20	1	1	1
1009JGP0608721	2.72	SIHI	0	3	3243		8	32	1	1	1
1009JGP0608721	2.72	MIOC	0	3	3052	3		31	5	2	1
1009JGP0608721	2.72	MIOC	0	3	3054		3	38	0	2	1
1009JGP0608721	2.72	MIOC	0	3	3055		6	37	0	4	1
1009JGP0608721	2.72	MIOC	0	3	0333	6		36	4	5	1
1009JGP0608721	2.72	MIOC	0	3	3343		2	19	1	6	1
1009JGP0608721	2.72	MIOC	0	3	0442		3	35	4	7	1
1009JGP0608721	2.72	MIOC	0	3	3223		4	30	2	8	1
1009JGP0608721	2.72	SIHI	0	1	3443	6		108	2	12	1
1009JGP0608721	2.72	SIHI	0	3	0400	6		115	0	12	2
1009JGP0608721	2.72	SIHI	0	3	3105		7	77	0	12	2
1009JGP0608721	2.72	SIHI	0	3	3341	4		65	2	11	2
1009JGP0608721	2.72	MIOC	0	3	3100	1		20	0	6	2
1009JGP0608721	2.72	MIOC	0	1	3444		7	30	0	5	2

1009JGP0608721	2.72	MIOC	0	3	0145		6	32	0	4	2
1009JGP0608721	2.72	MIOC	0	3	3232		7	30	0	4	2
1009JGP0608721	2.72	MIOC	0	3	3053		7	22	0	3	2
1009JGP0608721	2.72	MIOC	0	3	0144	6		33	4	1	2
1009JGP0608721	2.72	MIOC	0	3	1002	6		40	0	1	3
1009JGP0608721	2.72	MIOC	0	3	0211	6		35	4	3	3
1009JGP0608721	2.72	MIOC	0	3	0043		6	38	0	5	3
1009JGP0608721	2.72	MIOC	0	3	3234	2		22	1	7	3
1009JGP0608721	2.72	MIOC	0	3	0434		3	40	0	7	3
1009JGP0608721	2.72	SIHI	0	1	3445		6	125	0	11	3
1009JGP0608721	2.72	MIOC	0	3	3422		4	30	0	11	4
1009JGP0608721	2.72	MIOC	0	3	1051	6		38	5	11	4
1009JGP0608721	2.72	SIHI	0	1	3450	2		46	1	6	4
1009JGP0608721	2.72	SIHI	0	1	3451		7	49	1	6	4
1009JGP0608721	2.72	SIHI	0	3	3233		8	34	1	4	4
1009JGP0608721	2.72	MIOC	0	3	3242		7	26	0	3	4
1009JGP0608721	2.72	SIHI	0	3	3241		8	35	1	2	4
1009JGP0608721	2.72	SIHI	0	3	3005		8	36	1	2	4
1009JGP0608721	2.72	MIOC	0	3	3111		7	27	0	1	5
1009JGP0608721	2.72	MIOC	0	3	0001		6	38	5	3	5
1009JGP0608721	2.72	PEMA	0	3	4004		6	19	0	5	5
1009JGP0608721	2.72	MIOC	0	3	3101		6	31	2	7	5
1009JGP0608721	2.72	PEMA	0	3	1223	6		18	0	8	5
1009JGP0608721	2.72	MIOC	0	3	3245		6	36	2	11	5
1009JGP0608721	2.72	SIHI	0	1	3452	2		46	1	12	5
1009JGP0608721	2.72	SIHI	0	3	3250	7		74	0	12	6
1009JGP0608721	2.72	SIHI	0	3	3115	2		44	1	7	6
1009JGP0608721	2.72	MIOC	0	3	1212		6	29	0	7	6
1009JGP0608721	2.72	MIOC	0	3	3114	2		20	1	5	6
1009JGP0608721	2.72	MIOC	0	3	3244	4		30	0	4	6
1009JGP0608721	2.72	MIOC	0	3	3345		7	28	0	4	6
1009JGP0608721	2.72	REMO	0	1	3453		9	11	0	3	6
1009JGP0608721	2.72	MIOC	0	3	3014		6	37	0	1	7
1009JGP0608721	2.72	MIOC	0	3	0120	3		44	0	1	7
1009JGP0608721	2.72	MIOC	0	3	0124	6		47	0	3	7
1009JGP0608721	2.72	SIHI	0	1	3454		4	57	0	4	7
1009JGP0608721	2.72	MIOC	0	3	3351	2		21	0	5	7
1009JGP0608721	2.72	MIOC	0	3	3012		7	35	0	6	7
1009JGP0608721	2.72	MIOC	0	3	0131	6		36	0	6	7
1009JGP0608721	2.72	MIOC	0	3	0053	6		38	0	7	7
1009JGP0608721	2.72	MIOC	0	3	0013		6	32	0	7	7
1009JGP0608721	2.72	MIOC	0	1	3455		4	31	0	8	7
1009JGP0608721	2.72	MIOC	0	3	3254	2		21	1	8	7
1009JGP0608721	2.72	MIOC	0	1	4000		8	26	1	9	7
1009JGP0608721	2.72	MIOC	0	3	0110		6	43	4	9	7
1009JGP0608721	2.72	MIOC	2	3	0253		6	32	0	10	7
1009JGP0608721	2.72	SIHI	0	3	3120	4		68	2	12	7
1009JGP0608721	2.72	MIOC	0	3	3300		4	28	2	10	8
1009JGP0608721	2.72	MIOC	0	3	9430	6		32	0	9	8
1009JGP0608721	2.72	MIOC	0	3	1232	6		37	0	8	8
1009JGP0608721	2.72	MIOC	0	3	3301		8	23	1	7	8
1009JGP0608721	2.72	MIOC	0	3	3013		7	30	0	3	8
1009JGP0608721	2.72	MIOC	0	3	3210		7	23	0	2	8
1009JGP0608721	2.72	MIOC	0	3	3014		6	39	0	1	8
1009JGP0608721	2.72	MIOC	0	3	0122		3	41	0	1	8
1009JGP0608721	2.72	MIOC	0	3	3352	2		25	1	2	9
1009JGP0608721	2.72	MIOC	0	3	3433	2		7	0	1	9
1009JGP0608721	2.72	MIOC	0	3	0345	6		42	4	1	9

1009JGP0608721	2.72	MIOC	0	3	3201	4		28	0	2	10
1009JGP0608721	2.72	MIOC	0	3	0353		6	42	0	2	10
1009JGP0608721	2.72	MIOC	0	3	3401	4		32	0	3	10
1009JGP0608721	2.72	MIOC	0	3	3154	4		24	1	4	10
1009JGP0608721	2.72	MIOC	0	3	0023	6		33	0	5	10
1009JGP0608721	2.72	MIOC	0	3	1200		3	40	0	5	9
1009JGP0608721	2.72	MIOC	0	3	3305		7	24	0	6	9
1009JGP0608721	2.72	MIOC	0	3	3130	1		22	0	7	9
1009JGP0608721	2.72	MIOC	0	3	0343		6	34	0	7	10
1009JGP0608721	2.72	MIOC	0	3	3020		3	33	0	7	10
1009JGP0608721	2.72	MIOC	0	3	3145	1		25	1	8	10
1009JGP0608721	2.72	MIOC	0	3	3021	1		30	0	9	9
1009JGP0608721	2.72	MIOC	0	3	0113		3	48	0	10	9
1009JGP0608721	2.72	MIOC	0	3	3141	2		18	0	10	9
1009JGP0608721	2.72	MIOC	0	3	3132		7	25	0	10	10
1009JGP0608721	2.72	SIHI	0	1	4001		4	64	2	10	11
1009JGP0608721	2.72	MIOC	0	3	3135		7	30	0	12	10
1009JGP0608721	2.72	MIOC	0	3	3133	1		26	0	12	12
~~1009JGP0608721~~	~~2.72~~	~~MIOC~~	~~0~~	1	~~4002~~	~~2~~		13	0	10	11
1009JGP0608721	2.72	MIOC	0	3	3131	1		26	2	10	11
1009JGP0608721	2.72	MIOC	0	3	3140	2		24	1	9	11
1009JGP0608721	2.72	MIOC	0	3	1235	6		35	4	8	12
1009JGP0608721	2.72	MIOC	0	3	0021		6	29	0	8	11
1009JGP0608721	2.72	MIOC	0	3	3415	2		17	0	8	11
1009JGP0608721	2.72	MIOC	0	3	0342		6	39	0	7	11
1009JGP0608721	2.72	MIOC	1							7	12
1009JGP0608721	2.72	MIOC	0	3	3031		6		0	6	12
1009JGP0608721	2.72	MIOC	0	3	1124		3	43	5	6	11
1009JGP0608721	2.72	MIOC	0	3	3151		8	25	1	6	11
1009JGP0608721	2.72	MIOC	0	3	0453	6		35	5	5	11
1009JGP0608721	2.72	MIOC	0	3	3321	1		26	0	5	11
1009JGP0608721	2.72	MIOC	0	3	3152		7	29	2	5	12
1009JGP0608721	2.72	MIOC	0	3	3404		3	37	0	4	12
1009JGP0608721	2.72	MIOC	0	3	3320		7	24	0	4	12
1009JGP0608721	2.72	MIOC	0	3	0135	6		38	5	4	11
1009JGP0608721	2.72	MIOC	0	3	0024		3	33	5	4	11
1009JGP0608721	2.72	MIOC	0	3	1122		3	47	5	3	11
1009JGP0608721	2.72	MIOC	0	3	0355		6	38	0	3	11
1009JGP0608721	2.72	MIOC	0	3	0414		3	38	5	3	12
1009JGP0608721	2.72	MIOC	0	1	4003	2		10	0	3	12
1009JGP0608721	2.72	MIOC	0	3	0030	6		36	0	3	12
1009JGP0608721	2.72	MIOC	0	3	0352	6		40	0	2	12
1009JGP0608721	2.72	MIOC	0	1	4005	1		20	0	1	12
1009JGP0608721	2.72	MIOC	0	3	0332	6		37	0	1	11
1009JGP0708721	2.72	MIOC	0	3	3434		6	37	0	1	12
1009JGP0708721	2.72	MIOC	0	3	0352	6		42	0	2	12
1009JGP0708721	2.72	MIOC	0	3	0030	6		38	0	3	12
1009JGP0708721	2.72	MIOC	0	3	0414		6	38	5	3	12
1009JGP0708721	2.72	MIOC	0	3	3033		3	32	0	4	12
1009JGP0708721	2.72	MIOC	2	3	0135	6		33	0	4	12
1009JGP0708721	2.72	MIOC	0	3	3152		4	29	2	5	12
1009JGP0708721	2.72	MIOC	0	3	3320		7	23	0	5	12
1009JGP0708721	2.72	MIOC	0	3	0410	6		35	0	7	12
1009JGP0708721	2.72	MIOC	2	3	3031		3	28	0	7	12
1009JGP0708721	2.72	MIOC	0	3	3310	2		21	1	8	12
1009JGP0708721	2.72	MIOC	0	3	3140	2		21	1	9	12
1009JGP0708721	2.72	MIOC	0	3	3133	1		31	0	11	11
1009JGP0708721	2.72	SIOC	0	3	4001		4	58	0	8	11

1009JGP0708721	2.72	MIOC	0	3	0031		6	30	0	7	11
1009JGP0708721	2.72	MIOC	0	3	1124		3	41	5	6	11
1009JGP0708721	2.72	MIOC	0	3	3151		7	27	1	6	11
1009JGP0708721	2.72	MIOC	0	3	3032	4		25	0	5	11
1009JGP0708721	2.72	MIOC	0	3	3321	1		26	0	5	11
1009JGP0708721	2.72	MIOC	0	3	0024		3	33		4	11
1009JGP0708721	2.72	MIOC	0	3	0355		6	34	0	3	11
1009JGP0708721	2.72	MIOC	0	3	1122		6	49	0	2	11
1009JGP0708721	2.72	MIOC	0	3	3311		7	26	0	1	11
1009JGP0708721	2.72	MIOC	0	3	3202	2		18	0	1	11
1009JGP0708721	2.72	MIOC	0	3	0353		6	42	0	2	10
1009JGP0708721	2.72	MIOC	0	3	0332	6		36	5	2	10
1009JGP0708721	2.72	MIOC	0	1	4015	2		19	0	3	10
1009JGP0708721	2.72	MIOC	0	3	3201	4		29	0	3	10
1009JGP0708721	2.72	MIOC	0	3	3154	1		22	1	4	10
1009JGP0708721	2.72	MIOC	0	3	3153	2		21	1	5	10
1009JGP0708721	2.72	MIOC	2	3	3150	2		20	1	6	10
1009JGP0708721	2.72	MIOC	0	1	4020		8	12	0	6	10
1009JGP0708721	2.72	MIOC	0	3	3144	1		21	1	6	10
1009JGP0708721	2.72	MIOC	0	3	0113		3	46	0	9	10
1009JGP0708721	2.72	MIOC	0	3	3135		7	28	0	12	10
1009JGP0708721	2.72	BLBR	0	3	0114		9	17	0	12	9
1009JGP0708721	2.72	MIOC	0	3	1235	6		36	5	12	9
1009JGP0708721	2.72	MIOC	0	3	3132		7	25	0	11	9
1009JGP0708721	2.72	MIOC	2	3	1232	3		35	0	10	8
1009JGP0708721	2.72	MIOC	0	3	4000		7	25	1	8	8
~~1009JGP0708721~~	2.72	MIOC	0	3	3141		2	20	0	8	9
1009JGP0708721	2.72	MIOC	0	3	9430	6		36	5	8	9
1009JGP0708721	2.72	MIOC	2	3	3020		3	32	0	7	9
1009JGP0708721	2.72	MIOC	0	3	0131	6		36	0	7	9
1009JGP0708721	2.72	MIOC	0	3	3301		5	21	1	7	8
1009JGP0708721	2.72	MIOC	0	3	3305		7	23	0	6	9
1009JGP0708721	2.72	MIOC	0	3	0342		3	38	0	6	9
1009JGP0708721	2.72	MIOC	0	3	0453	6		35	5	5	9
1009JGP0708721	2.72	PEMA	0	3	4004		6	21	5	4	8
1009JGP0708721	2.72	MIOC	0	3	0120	6		48	0	4	9
1009JGP0708721	2.72	MIOC	0	3	3351	2		21	0	3	9
1009JGP0708721	2.72	MIOC	0	3	3210		7	23	0	2	8
1009JGP0708721	2.72	MIOC	0	3	0124	6		45	4	2	9
1009JGP0708721	2.72	MIOC	0	3	0122		3	40	0	1	9
1009JGP0708721	2.72	MIOC	0	3	0345	6		39	0	1	8
1009JGP0708721	2.72	MIOC	0	3	3014		6	36	0	1	6
1009JGP0708721	2.72	MIOC	0	3	3244	1		30	0	4	6
1009JGP0708721	2.72	MIOC	2	3	0343		3	33	0	5	7
1009JGP0708721	2.72	MIOC	0	3	3012		7	34	0	5	7
1009JGP0708721	2.72	MIOC	0	3	1212		7	28	0	7	6
1009JGP0708721	2.72	MIOC	0	3	0013		3	33	0	8	6
1009JGP0708721	2.72	MIOC	0	3	0053	6		36	0	8	7
1009JGP0708721	2.72	MIOC	0	3	0110		3	41	5	8	7
1009JGP0708721	2.72	MIOC	0	3	3254	2		22	1	9	7
1009JGP0708721	2.72	MIOC	0	3	0253		6	33	0	9	6
1009JGP0708721	2.72	BLBR	0	3	1435		3	15	5	12	7
1009JGP0708721	2.72	SIHI	0	3	3120	7		67	2	12	7
1009JGP0708721	2.72	SIHI	0	3	3250	7		70	2	12	5
1009JGP0708721	2.72	SIHI	0	3	3255	4		71	2	12	5
1009JGP0708721	2.72	MIOC	0	3	3245		7	30	0	11	5
1009JGP0708721	2.72	SIHI	0	3	3302		7	42	1	11	4
1009JGP0708721	2.72	PEMA	0	1	4021	2		14	1	10	4

1009JGP0708721	2.72	PEMA	0	3	1223	6		17	5	6	4
1009JGP0708721	2.72	SIHI	0	3	3115	2		46	1	7	5
1009JGP0708721	2.72	MIOC	0	3	3101		7	29	2	7	5
1009JGP0708721	2.72	MIOC	0	3	3111		7	27	0	5	5
1009JGP0708721	2.72	MIOC	0	3	0023	6		34	0	5	5
1009JGP0708721	2.72	MIOC	0	3	3345		7	23	0	3	5
1009JGP0708721	2.72	BLBR	0	3	3425		7	11	0	3	4
1009JGP0708721	2.72	MIOC	0	3	3242		7	25	2	3	4
1009JGP0708721	2.72	MIOC	0	3	0001		6	39	0	2	4
1009JGP0708721	2.72	MIOC	0	3	0144	4		33	0	1	3
1009JGP0708721	2.72	MIOC	0	3	3052	4		30	2	1	2
1009JGP0708721	2.72	SIHI	0	3	3005		8	35	1	2	2
1009JGP0708721	2.72	SIHI	0	3	3243		8	35	1	2	3
1009JGP0708721	2.72	MIOC	0	3	1002	3		38	0	2	3
1009JGP0708721	2.72	MIOC	2	3	3053		7	20	0	3	3
1009JGP0708721	2.72	SIHI	0	3	3241		8	36	1	4	3
1009JGP0708721	2.72	MIOC	0	3	0217	6		38	0	4	3
1009JGP0708721	2.72	BLBR	0	1	4022	1		11		4	2
1009JGP0708721	2.72	MIOC	0	3	3232		7	28	0	5	2
1009JGP0708721	2.72	MIOC	0	3	0043		6	37	0	5	3
1009JGP0708721	2.72	SIHI	0	3	3233		8	35	1	6	3
1009JGP0708721	2.72	MIOC	0	3	1415		3	41	0	6	3
1009JGP0708721	2.72	SIHI	0	3	3235		3	81	0	6	2
1009JGP0708721	2.72	MIOC	0	3	3343		2	21	1	7	2
1009JGP0708721	2.72	MIOC	0	3	0434		6	38	0	7	3
1009JGP0708721	2.72	MIOC	0	3	3234	2		20	1	8	2
1009JGP0708721	2.72	MIOC	0	3	3455		7	29	0	10	2
1009JGP0708721	2.72	SIHI	0	3	3450	2		42	1	11	3
1009JGP0708721	2.72	SIHI	0	3	3344	2		49	0	11	3
1009JGP0708721	2.72	SIHI	0	3	3445		9	130	5	12	3
1009JGP0708721	2.72	SIHI	0	3	3105		4	70	0	12	2
1009JGP0708721	2.72	SIHI	0	3	3001	2		32	1	12	1
1009JGP0708721	2.72	SIHI	0	3	0400	6		110	0	12	1
1009JGP0708721	2.72	SIHI	0	1	4023	7		73	2	11	1
~~1009JGP0708721~~	~~2.72~~	~~SIHI~~	~~0~~	~~1~~	~~4024~~	~~2~~		~~47~~	~~1~~	~~11~~	~~1~~
1009JGP0708721	2.72	BLBR	0	3	5000	6		17	0	10	1
1009JGP0708721	2.72	BLBR	0	1	4025		3	13	0	10	1
1009JGP0708721	2.72	MIOC	0	3	3223		7	27	2	9	1
1009JGP0708721	2.72	MIOC	2	3	0442		3	33	5	7	1
1009JGP0708721	2.72	BLBR	0	3	0004	6		16	0	5	1
1009JGP0708721	2.72	MIOC	0	3	3430		8	16	0	5	1
1009JGP0708721	2.72	MIOC	2	3	0333	6		33	0	4	1
1009JGP0708721	2.72	MIOC	0	3	3054		6	37	0	3	1
1009JGP0708721	2.72	MIOC	2	3	3051		6	36	0	3	1
1009JGP0708721	2.72	MIOC	0	3	0145		6	32	0	2	1
1009JGP0708721	2.72	MIOC	0	3	3442	2		19	2	2	1

1009ECB0108723	2.72	MIOC	0	1	3041		6	35	0	1	1
1009ECB0108723	2.72	SIHI	1				7	104	2	6	10
1009ECB0108723	2.72	SIHI	0	1	3042	6		109	0	6	10
1009ECB0108723	2.72	SIHI	0	1	3043	4		87	2	4	11
1009ECB0108723	2.72	PEMA	3	3	0321	6		17	0	7	9
1009ECB0108723	2.72	PEMA	0	3	0010	6		20	0	8	1
1009ECB0108723	2.72	PEHI	0	1	3044		6	40	0	9	1
1009ECB0108723	2.72	PEMA	0	1	3045	0		17	0	10	2
1009ECB0108723	2.72	PEMA	0	3	1302		6	19	0	11	2
1009ECB0108723	2.72	SPTR	0	1	3050	2		53	0	10	3
1009ECB0108723	2.72	SIHI	0	1	3051		4	57	1	11	11

1009LRH0208723	2.72	SIHI	0	3	3043	4		80	2	2	10
1009LRH0208723	2.72	SIHI	0	1	3211		3	140	0	2	10
1009LRH0208723	2.72	MIOC	0	1	3212	6		30	0	1	1
1009LRH0208723	2.72	MIOC	0	3	3041		6	33	0	1	1
1009LRH0208723	2.72	PEMA	0	1	3213	6		17	0	6	2
1009LRH0208723	2.72	SPTR	0	1	3214	0		114	0	5	7
1009LRH0208723	2.72	SIHI	0	1	3215		7	99	2	5	9
1009LRH0208723	2.72	SIHI	0	3	3042	6		102	0	4	11
1009LRH0208723	2.72	MIOC	0	3	0142		3	40	0	8	10
1009LRH0208723	2.72	SIHI	0	3	3051		4	57	2	8	9
1009LRH0208723	2.72	PEMA	0	1	3220		6	17	0	8	1
1009LRH0208723	2.72	PEMA	0	3	1302		6	17	0	10	1
1009LRH0208723	2.72	PEMA	0	3	3045	3		18	0	10	1
1009LRH0208723	2.72	PEMA	0	3	1300		6	15	5	10	2
1009LRH0208723	2.72	PEMA	0	3	1331	3		15	4	11	5
1009LRH0208723	2.72	SPTR	0	1	3221		0	144	0	12	8
1009LRH0308723	2.72	SIHI	0	3	3043	7		77	2	2	12
1009LRH0308723	2.72	MIOC	0	1	3323	2		22	1	1	1
1009LRH0308723	2.72	PEMA	0	1	3324	6		22	0	5	1
1009LRH0308723	2.72	PEHI	0	1	3325	1		23	0	6	2
1009LRH0308723	2.72	MIOC	0	1	3330	1		29	0	5	10
1009LRH0308723	2.72	SIHI	0	3	3042	6		99	0	5	11
1009LRH0308723	2.72	MIOC	0	3	0142		6	40		8	9
1009LRH0308723	2.72	PEMA	0	3	1302		6	18	0	10	1
1009LRH0308723	2.72	PEMA	0	3	3045	6		17	0	10	2
1009LRH0308723	2.72	PEMA	0	1	3331	3		16	2	12	1
1009LRH0308723	2.72	PEMA	0	1	3332	6		16	0	11	2
1009LRH0308723	2.72	PEMA	0	3	1300		6	16	5	11	3
1009LRH0308723	2.72	SPTR	0	1	3333	2		52	0	12	5
1009LRH0308723	2.72	PEMA	0	1	3334		7	14	2	12	9
1009JGP0408723	2.72	PEMA	0	3	1300		6			12	3
1009JGP0408723	2.72	PEMA	0	3	1331	6				11	3
1009JGP0408723	2.72	PEMA	0	3	3331	6				12	1
1009JGP0408723	2.72	PEMA	0	3	3332	6				10	1
1009JGP0408723	2.72	PEMA	0	3	3045	3				10	1
1009JGP0408723	2.72	PEHI	2	1	3410	2				9	1
1009JGP0408723	2.72	PEMA	0	3	1302		6			10	2
1009JGP0408723	2.72	MIOC	0	1	3411	6				10	9
1009JGP0408723	2.72	CRPA	0	1	3412	6				10	10
1009JGP0408723	2.72	PEMA	0	3	3334		6			10	11
1009JGP0408723	2.72	MIOC	0	1	3413		6			7	11
1009JGP0408723	2.72	MIOC	0	3	0142		6			8	11
1009JGP0408723	2.72	CRPA	2	1	3414		9			7	9
1009JGP0408723	2.72	PEMA	0	3	0010	6				7	1
1009JGP0408723	2.72	PEMA	0	3	3324	6				5	1
1009JGP0408723	2.72	SIHI	0	1	3415	4				4	8
1009JGP0408723	2.72	SIHI	0	3	3051		7			5	9
1009JGP0408723	2.72	SIHI	0	3	3215		7			5	10
1009JGP0408723	2.72	SIHI	0	3	3211		9			4	10
1009JGP0408723	2.72	SIHI	0	3	3043	7				2	11
1009JGP0408723	2.72	MIOC	0	3	3330	4				2	6
1009JGP0408723	2.72	MIOC	0	3	3212	6				1	1
1009JGP0408723	2.72	CRPA	0	1	3420		9			1	9
1009JGP0508723	2.72	SIHI	0	1	3435	4		78	0	12	11
1009JGP0508723	2.72	MIOC	0	1	3440	4			0	10	9
1009JGP0508723	2.72	MIOC	0	1	3441		3	44	2	10	9
1009JGP0508723	2.72	PEMA	0	3	3331	6		17	5	12	1
1009JGP0508723	2.72	PEMA	0	3	1302		6	20	0	10	1

1009JGP0508723	2.72	PEMA	0	3	3220	6	18	0	8	1
1009JGP0508723	2.72	SIHI	0	3	3215	7	99	2	8	10
1009JGP0508723	2.72	PEMA	0	3	3334	6	17	2	9	10
1009JGP0508723	2.72	MIOC	0	3	3413	7	35	0	7	11
1009JGP0508723	2.72	MIOC	0	3	0142	6		0	7	10
1009JGP0508723	2.72	SIHI	0	3	3042	7	100	2	5	11
1009JGP0508723	2.72	SIHI	0	3	3211	9	150	0	5	11
1009JGP0508723	2.72	SIHI	0	3	3051	7	58	2	5	9
1009JGP0508723	2.72	PEMA	0	3	3324	6	21	0	5	1
1009JGP0508723	2.72	MIOC	0	3	3212	7	32	0	1	1
1009JGP0508723	2.72	MIOC	0	3	3041	7	33	0	1	1
1009JGP0508723	2.72	SIHI	0	3	3043	7	81	2	2	10
1009ECB0608723	2.72	CRPA	0	1	4010	9	5	0	12	11
1009ECB0608723	2.72	MIOC	0	3	3411	6	40	5	10	11
1009ECB0608723	2.72	PEMA	0	3	3334	6	16	2	11	10
1009ECB0608723	2.72	MIOC	0	1	4011	3	50	0	12	9
1009ECB0608723	2.72	SPTR	0	1	4012	8	58	0	12	7
1009ECB0608723	2.72	SPTR	0	3	3050	2	70	0	12	5
1009ECB0608723	2.72	PEMA	0	3	1331	6	17	2	11	4
1009ECB0608723	2.72	PEMA	0	3	3045	3	16	0	10	2
1009ECB0608723	2.72	PEMA	0	3	1302	6	18	0	11	2
1009ECB0608723	2.72	PEHI	0	3	3325	2	25	0	12	1
1009ECB0608723	2.72	PEHI	0	3	3410	2	25	0	9	1
1009ECB0608723	2.72	MIOC	0	3	0142	6	39	0	8	9
1009ECB0608723	2.72	MIOC	0	3	3441	3	46	0	9	10
1009ECB0608723	2.72	SIHI	0	3	3042	7	99	2	5	11
1009ECB0608723	2.72	MIOC	0	3	3413	3	34	0	6	11
1009ECB0608723	2.72	SIHI	0	3	3043	7	80	2	4	11
1009ECB0608723	2.72	SIHI	0	1	3451	7	54	2	4	10
1009ECB0608723	2.72	SIHI	1						4	10
1009ECB0608723	2.72	SIHI	0	3	3215	7	100	2	6	9
1009ECB0608723	2.72	SPTR	0	3	3214	0	120	0	5	8
1009ECB0608723	2.72	SPTR	0	1	4013		58	0	6	6
1009ECB0608723	2.72	PEMA	0	3	3213	6	20	0	6	2
1009ECB0608723	2.72	PEMA	0	3	2000	6	20	0	5	1
1009ECB0608723	2.72	PEMA	0	3	3324	6	21	0	5	1
1009ECB0608723	2.72	MIOC	0	3	3212	6	35	0	3	1
1009ECB0608723	2.72	MIOC	0	3	3041	3	34	0	1	1
1009ECB0608723	2.72	MIOC	0	3	3323	5	24	1	1	1
1009ECB0608723	2.72	CRPA	3	3	3420	9		0	3	10
1009ECB0608723	2.72	MIOC	0	1	4014	3	42	0	3	11
1009ECB0708723	2.72	REMO	0	1	4030	6	10	0	12	12
1009ECB0708723	2.72	MIOC	0	1	4031	6	41	0	12	10
1009ECB0708723	2.72	MIOC	0	3	3411	6	41	5	11	10
1009ECB0708723	2.72	SPTR	0	1	4032	2	58	0	12	5
1009ECB0708723	2.72	MIOC	0	1	4033	4	32	0	12	3
1009ECB0708723	2.72	PEMA	0	3	1331	6	17	5	12	2
1009ECB0708723	2.72	PEMA	0	3	3045	3	16	0	10	2
1009ECB0708723	2.72	PEMA	0	3	1302	6	18	4	10	1
1009ECB0708723	2.72	PEMA	0	3	3332	6	17	0	10	4
~~1009ECB0708723~~	~~2.72~~	~~SPTR~~	~~0~~	~~3~~	~~3050~~	~~2~~	73	0	9	4
1009ECB0708723	2.72	MIOC	0	3	3441	3	44	0	10	9
1009ECB0708723	2.72	MIOC	0	3	3413	3	32	0	6	11
1009ECB0708723	2.72	MIOC	0	3	0142	6	38	0	8	9
1009ECB0708723	2.72	CRPA	3	1		3	6		4	4
1009ECB0708723	2.72	SIHI	0	3	3215	7	104	2	5	9
1009ECB0708723	2.72	SIHI	0	3	3451	7	50	0	4	10
1009ECB0708723	2.72	MIOC	0	3	4014	6	40	0	5	10
1009ECB0708723	2.72	SIHI	0	3	3042	7	98	2	3	12
1009ECB0708723	2.72	SIHI	0	3	3043	7	82	2	3	11
1009ECB0708723	2.72	MIOC	0	3	3041	6	29	0	1	1

Small Mammal Live Trapping
Data Collected on Assessment Lines

Small mammal live trapping data collected on assessment lines at the Cottonwood and Osage Sites were recorded on form NREL-17. Cottonwood data are stored as a part of Grassland Biome data set A2U10B4. Osage data are stored as a part of Grassland Biome data set A2U10B9. A sample data form and an example of the data are attached.

IBP

GRASSLAND BIOME

U.S. INTERNATIONAL BIOLOGICAL PROGRAM

FIELD DATA SHEET--VERTEBRATE - ASSESSMENT LINES

Data Type	Site	Initials	Date			Treatment	Replicate	Genus	Species	Subspecies	Condition	Mark	Number	Male	Female	Weight	Molt	Line Number	Trap Number	Previous Number
			Day	Month	Year															
1-2	3-4	5-7	8-9	10-11	12-13	14	15	21-22	23-24	25	27	29	31-34	36	38	40-44	46	49	51-52	54-57
17																				

Data Type
17 Vertebrate - assessment lines

Site
01 ALE
02 Bison
03 Bridger
04 Cottonwood
05 Dickinson
06 Hays
07 Annual
08 Jornada
09 Osage
10 Pantex
11 Pawnee
12

Treatment
1 Ungrazed
2 Lightly grazed
3 Moderately grazed
4 Heavily grazed
5 Ungrazed current year only
A Diet light
B Diet moderate
C Diet heavy
D ESA - 0
E ESA - W
F ESA - N
G ESA - WN

Male
0 Adult, non-breeding
1 Subadult, non-breeding
2 Juvenile, non-breeding
3 Adult breeding?
4 Subadult breeding?
5 Juvenile breeding?
6 Adult breeding
7 Subadult breeding
8 Juvenile breeding
9 Undetermined

Female
0 Adult, vulva inactive
1 Subadult, vulva inactive
2 Juvenile, vulva inactive
3 Adult, vulva turgid
4 Subadult, vulva turgid
5 Juvenile, vulva turgid
6 Adult, vulva cornified
7 Subadult, vulva cornified
8 Juvenile, vulva cornified
9 Pregnant

Condition
0 Normal
1 Escaped
2 Torpid
3 Dead

Molt
0 No evidence
1 Post-juvenile
2 Post-subadult
3 Adult (vernal)
4 Adult (autumnal)
5 Molt of unknown stage
6 Undetermined

Mark
0 Normal
1 Unmarked
2 Ear tag
3 Toe clip
4 Ear tag and toe clip
5 Natural amputation

+++ EXAMPLE OF DATA +++

```
         1         2         3         4         5         6
1234567890123456789012345678901234567890123456789012345678901

1709JGP0808721      MIOC  0 1        6  38     1  4
1709JGP0808721      BLBR  0 1      1    12     1  4
1709JGP0808721      BLBR  0 3 0004 6    15 0   1  6
1709JGP0808721      MIOC  0 1      6    52     1  8
1709JGP0808721      MIOC  0 1      6    44     1 11
1709JGP0808721      MIOC  0 3 0434   6  37     1 13
1709JGP0808721      MIOC  0 3 0211 6    38 0   1 15
1709JGP0808721      SIHI  0 3 3452 2    47 1   1 16
1709JGP0808721      MIOC  0 3 0013   6  35 0   1 17
1709JGP0808721      MIOC  0 3 1212   6  34 0   3 17
1709JGP0808721      MIOC  0 3 0253   6  38 0   3 14
1709JGP0808721      SIHI  0 1      1    56 0   3 13
1709JGP0808721      SIHI  0 3 3250 4    70 2   3 13
1709JGP0808721      SIHI  0 3 3120 4    70 2   3 12
1709JGP0808721      SIHI  0 1      6   103 0   3 10
1709JGP0808721      SIHI  0 1        8  43 1   2 10
1709JGP0808721      SIHI  0 1        9 245     2 11
1709JGP0808721      SIHI  0 3 3445   3 130 0   2 15
1709JGP0808721      MIOC  0 3 0131 6    37 0   5 15
1709JGP0808721      MIOC  0 3 0342   3  41 0   5 15
1709JGP0808721      MIOC  0 3 0410 6    41 0   5 13
1709JGP0808721      MIOC  0 3 3132   7  28 0   4 14
1709JGP0808721      MIOC  0 3 0235 6    37 5   4 13
1709JGP0808721      MIOC  0 3 3314 4    28 1   4 13
1709JGP0808721      SIHI  0 1      4    67 0   4  8
1709JGP0808721      SIHI  0 1      4    78 2   4  7
1709JGP0808721      PEMA  0 3 0411   6  18 0   5  7
1709JGP0808721      MIOC  0 1      2    22 1   5  6
1709JGP0808721      MIOC  0 1      6    45 6   5  3
1709JGP0908721      MIOC  0 1        3  36 0   1  4
1709JGP0908721      MIOC  0 1      6    40 0   1  4
1709JGP0908721      MIOC  0 1      6    54 5   1  6
1709JGP0908721      BLBR  0 1      1    12 0   1 10
1709JGP0908721      BLBR  0 3 3222   3  12 0   1 11
1709JGP0908721      MIOC  0 3 3100 1    22 0   1 12
1709JGP0908721      MIOC  0 3 0434   3  36 0   1 14
1709JGP0908721      MIOC  0 3 1415   3  40 0   1 15
1709JGP0908721      MIOC  0 3 3244 4    33 0   1 16
1709JGP0908721      MIOC  0 3 0023 6    35 0   1 17
1709JGP0908721      MIOC  0 3 0013   3  36 0   1 17
1709JGP0908721      MIOC  0 3 1212   6  32 0   3 17
1709JGP0908721      MIOC  0 3 4033 4    34 0   3 15
1709JGP0908721      MIOC  0 3 0253   6  38 0   3 15
1709JGP0908721      MIOC  2 3 1232 3    34 5   3 14
1709JGP0908721      MIOC  0 3 0110   3  43 4   3 14
1709JGP0908721      SIHI  0 3 4001   7  61 0   3 13
1709JGP0908721      MIOC  2 3 3245   7  28 0   3 12
1709JGP0908721      SIHI  0 3 3120 4    74 2   3 11
1709JGP0908721      SIHI  0 1        5  44 1   3 10
1709JGP0908721      SIHI  0 1        9 251 0   2 10
1709JGP0908721      SIHI  0 1        8  37 1   2 12
```

1709JGP0908721	SIHI	2	3	3435	2		40	1	2	13
1709JGP0908721	PEMA	0	3	4021	2		14	1	2	14
1709JGP0908721	SIHI	0	3	3341	4		66	2	2	14
1709JGP0908721	SIHI	0	1		4		61	2	2	15
1709JGP0908721	MIOC	0	3	0131	6			0	5	17
1709JGP0908721	MIOC	0	3	3012		7	34	0	5	17
1709JGP0908721	MIOC	0	3	0342		3	39	0	5	15
1709JGP0908721	MIOC	0	3	3144	1		21	1	5	15
1709JGP0908721	MIOC	0	3	3305		7	23	0	5	15
1709JGP0908721	MIOC	0	3	1124		3	39	4	5	13
1709JGP0908721	MIOC	0	3	0410	6		34	0	5	13
1709JGP0908721	MIOC	0	3	3132		7	26	0	4	15
1709JGP0908721	SIHI	0	1		4		70	2	4	14
1709JGP0908721	MIOC	0	3	3135		7	28	0	4	14
1709JGP0908721	MIOC	0	3	1235	6		35	4	4	13
1709JGP0908721	SIHI	0	1		7		100	2	4	11
1709JGP0908721	MIOC	0	1		6		40	0	4	10
1709JGP0908721	SIHI	0	1		2		39	1	4	10
1709JGP0908721	SIHI	0	1		3		63	0	4	9
1709JGP0908721	PEMA	0	1			7	18	2	4	8
1709JGP0908721	MIOC	0	2	1	2		18	1	5	6
1709JGP0908721	SIHI	0	1			8	46	1	5	6
1709JGP0908721	MIOC	0	1		6		45	5	5	3
1709JGP1008721	BLBR	3	1		1				5	2
1709JGP1008721	MIOC	0	1		6				5	4
1709JGP1008721	BLBR	0	1		1				5	2
1709JGP1008721	MIOC	0	1			3			5	5
1709JGP1008721	MIOC	0	1		2				5	6
1709JGP1008721	PEMA	0	3	0411		6			5	8
1709JGP1008721	PEMA	0	3	1350	4				5	8
1709JGP1008721	MIOC	0	3	0020		3			5	13
1709JGP1008721	MIOC	0	3	0100	6				5	13
1709JGP1008721	MIOC	0	3	3144	1				5	14
1709JGP1008721	MIOC	0	3	3130	1				5	15
1709JGP1008721	MIOC	0	3	0342		3			5	15
1709JGP1008721	MIOC	0	3	0131	6				5	16
1709JGP1008721	MIOC	0	3	3305		7			5	16
1709JGP1008721	MIOC	0	3	3012		3			5	17
1709JGP1008721	MIOC	0	3	0013		3			3	17
1709JGP1008721	MIOC	0	3	4033	1				3	16
1709JGP1008721	MIOC	2	3	0253		3			3	16
1709JGP1008721	PEMA	0	3	1223	6				3	15
1709JGP1008721	MIOC	0	3	0110		3			3	14
1709JGP1008721	BLBR	0	3	1435		3			3	14
1709JGP1008721	BLBR	0	3	5000	6				3	12
1709JGP1008721	SIHI	0	3	3250	4				3	12
1709JGP1008721	SIHI	0	3	3120	4				3	11
1709JGP1008721	SIHI	0	1		6				3	10
1709JGP1008721	SIHI	0	1		2				4	7
1709JGP1008721	PEMA	0	3	3313	4				4	8
1709JGP1008721	SIHI	0	1		4				4	8
1709JGP1008721	MIOC	0	1		6				4	10
1709JGP1008721	SIHI	0	1			4			4	10
1709JGP1008721	MIOC	0	1			2			4	13
1709JGP1008721	MIOC	2	3	3314	1				4	13
1709JGP1008721	MIOC	0	3	1235	6				4	14
1709JGP1008721	MIOC	0	3	3140	1			1	4	15
1709JGP1008721	SIHI	0	3	3341	4				2	14

1709JGP1008721	SIHI	0	1		1			1	2	13
1709JGP1008721	BLBR	0	1			4			2	12
1709JGP1008721	SIHI	0	1			7		1	2	12
1709JGP1008721	SIHI	0	1			8			2	11
1709JGP1008721	SIHI	0	1		2				2	11
1709JGP1008721	SIHI	0	1			9			2	10
1709JGP1008721	MIOC	0	1			3			1	4
1709JGP1008721	MIOC	0	1		2				1	6
1709JGP1008721	MIOC	0	1			3			1	6
1709JGP1008721	MIOC	0	1		6				1	9
1709JGP1008721	MIOC	0	1			3			1	9
1709JGP1008721	MIOC	0	1		6				1	10
1709JGP1008721	MIOC	0	1		6				1	11
1709JGP1008721	MIOC	0	1		2				1	12
1709JGP1008721	MIOC	0	3	3100	2				1	13
1709JGP1008721	MIOC	0	3	0434		6			1	13
1709JGP1008721	MIOC	0	3	3101		7			1	14
1709JGP1008721	MIOC	0	3	0042		6			1	15
1709JGP1008721	MIOC	0	3	0211	6				1	15
1709JGP1008721	MIOC	2	3	1415		6			1	16
1709JGP1008721	MIOC	0	3	1212		6			1	17
1709JGP1008721	MIOC	0	3	0023	6				1	17
1709JGP0808723	PEMA	0	3	4000	6		20	0	8	5
1709JGP0808723	PEMA	0	3	3324	6		23	0	8	9
1709JGP0808723	MIOC	0	3	3323	5		27	1	8	12
1709JGP0808723	MIOC	0	1			3	34	0	2	13
1709JGP0808723	MIOC	0	1			3	48		3	15
1709JGP0808723	MIOC	0	1			7	27	0	4	13
1709JGP0808723	MIOC	0	3	3411	6		39	2	4	13
1709JGP0808723	PEMA	0	1		4		17		6	5
1709JGP0808723	PEMA	0	3	1300		6	17	5	6	13
1709JGP0808723	PEMA	0	3	3045	6		17	0	6	14
1709JGP0808723	SPTR	0	1			2	65		6	15
1709JGP0808723	PEMA	0	3	0010	6		20	4	7	12
1709JGP0808723	PEMA	0	3	3220		7	17	2	7	9
1709JGP0808723	PEMA	0	1		4		15	0	7	9
1709JGP0808723	SIHI	0	1			6	155	0	7	6
1709JGP0808723	SIHI	0	1		6		128	0	7	6
1709JGP0808723	PELE	0	1		6		20	0	7	5
1709JGP0808723	PELE	0	1			7	23	2	7	5
1709JGP0908723	PEMA	0	3	4000	6		19	0	8	5
1709JGP0908723	MIOC	0	3	3212	6		34	0	8	9
1709JGP0908723	MIOC	0	3	3041		6		4	8	12
1709JGP0908723	SIHI	0	3	3043	7		88	0	2	14
1709JGP0908723	MIOC	0	0	1		4	32	0	2	13
1709JGP0908723	MIOC	0	3	3413		4	35	0	3	13
1709JGP0908723	MIOC	0	1		6		42	2	3	14
1709JGP0908723	SIHI	0	3	3215		9	114	4	3	15
1709JGP0908723	PEMA	0	1		7		19	2	5	1
1709JGP0908723	SIHI	0	1		7		96	2	6	9
1709JGP0908723	PEMA	0	3	3331	6		17	5	6	9
1709JGP0908723	SPTR	0	1		0		118	0	6	13
1709JGP0908723	PEMA	0	3	1302		6	20	0	6	15
1709JGP0908723	MIOC	0	1		4		30	0	7	13
1709JGP0908723	PEMA	0	3	0010	6		19	0	7	9
1709JGP0908723	SIHI	0	1			3	148	4	7	6
1709JGP0908723	PELE	0	1		6		21	0	7	5

1709JGP1008723	MIOC	0	1			8	3	16
1709JGP1008723	MIOC	0	1			8	3	15
1709JGP1008723	MIOC	0	3	0142		6	3	14
1709JGP1008723	SIHI	0	3	3042	7		3	14
1709JGP1008723	MIOC	0	3	4014		3	3	13
1709JGP1008723	MIOC	0	3	3413		6	3	13
1709JGP1008723	SIHI	0	3	3041	7		2	15
1709JGP1008723	MIOC	0	1		4		2	13
1709JGP1008723	MIOC	0	1			7	2	13
1709JGP1008723	MIOC	0	1		4		4	14
1709JGP1008723	MIOC	0	3	3411	4		4	14
1709JGP1008723	MIOC	0	1		6		4	15
1709JGP1008723	PEMA	0	1		4		6	6
1709JGP1008723	PEMA	0	3	3331	6		6	9
1709JGP1008723	PEMA	0	1		4		6	10
1709JGP1008723	PEMA	0	3	1302		6	6	14
1709JGP1008723	PEMA	0	3	3332	6		6	15
1709JGP1008723	PEMA	0	3	3220		7	7	10
1709JGP1008723	PEMA	0	3	0010	6		7	10
1709JGP1008723	PEMA	0	1		6		7	7
1709JGP1008723	PELE	0	1			6	7	5
1709JGP1008723	PELE	0	1		6		7	5
1709JGP1008723	PEMA	0	3	3324	6		8	9

Jackrabbit Census Data

Jackrabbit census data was taken on 6/18/72 and 6/20/72 at the Cottonwood Site and the Osage Site on 8/1/72, 8/4/72, 10/17/72, 9/11/72 and 9/12/72. The data were recorded on NREL-15 forms and sent to the Natural Resource Ecology Laboratory where a density analysis was performed ont eh Osage data. An example of the data follows. These data are Grassland Biome data set numbers A2U10C4 for Cottonwood Site and A2U10C9 for Osage Site.

IBP

GRASSLAND BIOME

U.S. INTERNATIONAL BIOLOGICAL PROGRAM

FIELD DATA SHEET -- JACKRABBIT CENSUS

Data Type	Site	Initials	Date			Route	Strip Width	Hour	Genus	Species	Subspecies	Odometer	Measured
			Day	Month	Year								
1-2	3-4	5-7	8-9	10-11	12-13	14-15	17-19	21-24	26-27	28-29	30	32-35	36-40
15													

Route

Investigator's identifier

Hour

24 hour clock

Strip Width

Width in feet of census strip

Measured

Distance in feet to estimated point

EXAMPLE OF THE DATA

```
         1         2         3         4         5
12345678901234567890123456789012345678901234567890l2
1504MES12097202 025 2050         40.2   23
1504MES12097202 025 2054 SYFL    40.3
1504MES12097202 025 2104         41.2   22
1504MES12097202 025 2114         42.2   22
1504MES12097202 025 2125         43.2   24
1504MES12097202 025 2138         44.2   22
1504MES12097202 025 2140 LETO    44.4
1504MES12097202 025 2200         45.3   24
1504MES12097202 025 2214         46.3   25
1504MES12097202 025 2215 LETO    46.4
1504MES12097202 025 2226         47.2   24
1504MES12097202 025 2234         48.2   23
```

EXAMPLE OF THE DATA

```
         1         2         3         4         5         6
1234567890123456789012345678901234567890123456789012345678901234567890
1509JGP04087202 050 2115        64.2     53
1509JGP04087202 050 2125        65.2     52
1509JGP04087202 050 2135        66.2     55
1509JGP04087202 050 2142        67.2     54
1509JGP04087202 050 2146 CALA   67.8
1509JGP04087202 050 2153        68.2     48
1509JGP04087202 050 2202        69.2     45
1509ECB01087201 050 2155        40.1     38
1509ECB01087201 050 2156 CALA   40.2
1509ECB01087201 050 2208        41.1     46
1509ECB01087201 050 2216        42.1     49
1509ECB01087201 050 2228        43.1     54
1509ECB01087201 050 2237        44.1     60
1509ECB01087201 050 2245 SYFL   44.8
1509ECB01087201 050 2251 LECA   45.0
1509ECB01087201 050 2258        45.1     46
1509ECB01087201 050 2300 SYFL   45.5
1509ECB01087201 050 2305        46.1     46
1509ECB01087201 050 2319        47.1     56
```

Small Mammal Autopsy Data, Cottonwood

Small mammal autopsy data collected in 1972 at the Cottonwood Site is Grassland Biome data set A2U1024. Data were collected on data forms NREL-12A and NREL-14. Copies of the data forms and an example of the data follow.

IBP

GRASSLAND BIOME

U.S. INTERNATIONAL BIOLOGICAL PROGRAM

FIELD DATA SHEET - MAMMAL COLLECTION

DATA TYPE	SITE	INITIALS	DATE Day	DATE Mo.	DATE Yr.	TREATMENT	REPLICATE	PLOT SIZE	TRAP DAY	HOUR	GRID TRAP Row	GRID TRAP Col	GENUS	SPECIES	SUBSPECIES	SPECIMEN NUMBER	MARK	LENGTH	TAIL	FOOT	EAR	WEIGHT	MOLT	PARASITES	STOMACH WEIGHT	FOOD	EYE LENS	SPECIMEN	MAP REFERENCE TWN	MAP REFERENCE RNG	MAP REFERENCE S
-2	3-4	5-7	8-9	10-11	12-13	14	15	16-19	21-22	23-26	27-28	29-30	31-32	33-34	35	36-42	43	44-47	48-50	51-53	54-56	57-61	62	63	64-66	67	68	69	70-72	73-75	76-77

MARK
- 0 None
- 1 Snap-trap grid, unmarked
- 2 Snap-trap grid, marked
- 3 Live-trap grid, unmarked
- 4 Live-trap grid, marked
- 5 Other trapping

MOLT
- 0 No evidence
- 1 Post-juvenile
- 2 Post-subadult
- 3 Adult (vernal)
- 4 Adult (autumnal)
- 5 Molt of unknown stage
- 6 Undetermined

PARASITES - EYE LENS
- 0 Not saved
- 1 Preserved

SPECIMEN
- 0 Not saved
- 1 Skin
- 2 Skull
- 3 Skin and skull
- 4 Skeleton
- 5 Liquid preservative

FOOD
- 0 None
- 1 Stomach only
- 2 Cheek pouch only
- 3 Both

DATA TYPE
- 01 Aboveground Biomass
- 02 Litter
- 03 Belowground Biomass
- 10 Vertebrate - Live Trapping
- 11 Vertebrate - Snap Trapping
- 12 Mammal - Collection
- 13 Snap Trap Effort
- 14 Mammal Reproductive
- 20 Avian Flush Census
- 21 Avian Road Count
- 22 Avian Road Count Summary
- 23 Avian Collection - Internal
- 24 Avian Collection - External
- 25 Avian Collection - Plumage
- 30 Invertebrate
- 40 Microbiology-Decomposition
- 41 Microbiology-Nitrogen
- 42 Microbiology-Biomass
- 43 Microbiology-Root Decomposition
- 44 Microbiology-Respiration

SITE
- 01 Ale
- 02 Bison
- 03 Bridger
- 04 Cottonwood
- 05 Dickinson
- 06 Hays
- 07 Hopland
- 08 Jornada
- 09 Osage
- 10 Pantex
- 11 Pawnee

TREATMENT
- 1 Ungrazed
- 2 Lightly grazed
- 3 Moderately grazed
- 4 Heavily grazed
- 5 Grazed 1969, ungrazed 1970
- 6
- 7
- 8
- 9

IBP

GRASSLAND BIOME

U.S. INTERNATIONAL B. .OGICAL PROGRAM

FIELD DATA SHEET - MAMMAL REPRODUCTIVE

DATA TYPE	SITE	INITIALS	DATE Day	DATE Mo.	DATE Yr.	TREATMENT	REPLICATE	PLOT SIZE	TRAP DAY	HOUR	GRID TRAP Row	GRID TRAP Col	GENUS	SPECIES	SUBSPECIES	SPECIMEN NUMBER	MALE EXTERNAL	MALE TESTES LN	MALE TESTES WD	MALE EPIDID	MALE SEM VES	FEMALE EXTERNAL	MAMMARY	PUBIC SEM	NORMAL EMBRYOS L	NORMAL EMBRYOS R	EMBRYO LENGTH	RESORB L	RESORB R	SCARS NEW L	SCARS NEW R	SCARS OLD L	SCARS OLD R	CORPORA LUTEA L	CORPORA LUTEA R	TRACT WEIGHT	CORP ALB	SPEC SOURCE
1-2	3-4	5-7	8-9	10-11	12-13	14	15	16-19	21-22	23-26	27-28	29-30	31-32	33-34	35	36-42	44	45-47	48-49	50	51	52	53	54	55	56	57-59	60	61	62	63	64	65	66	67	68-72	71	72

MALE
- 0 Adult, non-breeding
- 1 Subadult, non-breeding
- 2 Juvenile, non-breeding
- 3 Adult breeding ?
- 4 Subadult breeding ?
- 5 Juvenile breeding ?
- 6 Adult breeding
- 7 Subadult breeding
- 8 Juvenile breeding
- 9 Undetermined

FEMALE
- 0 Adult, vulva inactive
- 1 Subadult, vulva inactive
- 2 Juvenile, vulva inactive
- 3 Adult, vulva turgid
- 4 Subadult, vulva turgid
- 5 Juvenile, vulva turgid
- 6 Adult, vulva cornified
- 7 Subadult, vulva cornified
- 8 Juvenile, vulva cornified
- 9 Undetermined

SEMINAL VESICLES
- 0 No observation
- 1 Minute
- 2 Small
- 3 Well developed

EPIDIDYMUS
- 0 No observation
- 1 Not convoluted
- 2 Slightly convoluted
- 3 Convoluted

MAMMARY
- 0 No observation
- 1 Small
- 2 Large
- 3 Lactating

SOURCE
- 1 Snap trap grid
- 2 Live trap grid
- 3 Other trap line
- 4 Misc. collection

PUBLIC SYMPHASIS
- 0 No observation
- 1 Closed
- 2 Slightly open
- 3 Open

DATA TYPE
- 01 Aboveground Biomass
- 02 Litter
- 03 Belowground Biomass
- 10 Vertebrate - Live Trapping
- 11 Vertebrate - Snap Trapping
- 12 Mammal - Collection
- 13 Snap Trap Effort
- 14 Mammal Reproductive
- 20 Avian Flush Census
- 21 Avian Road Count
- 22 Avian Road Count Summary
- 23 Avian Collection - Internal
- 24 Avian Collection - External
- 25 Avian Collection - Plumage
- 30 Invertebrate
- 40 Microbiology-Decomposition
- 41 Microbiology-Nitrogen
- 42 Microbiology-Biomass
- 43 Microbiology-Root Decomposition
- 44 Microbiology-Respiration

SITE
- 01 Ale
- 02 Bison
- 03 Bridger
- 04 Cottonwood
- 05 Dickinson
- 06 Hays
- 07 Hopland
- 08 Jornada
- 09 Osage
- 10 Pantex
- 11 Pawnee

TREATMENT
- 1 Ungrazed
- 2 Lightly grazed
- 3 Moderately grazed
- 4 Heavily grazed
- 5 Grazed 1969, ungrazed 1970
- 6
- 7
- 8
- 9

+++ EXAMPLE OF DATA +++

```
         1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789012

1204MDT1306723                PEMA MT104550 161 68 21 18 27.9011.7103
1204MDT1306723                PEMA MT104560 156 67 20 16 24.4013.1103
1204MDT1306723                PEMA MT104570 152 60 20 17 22.1010.6103
1204MDT1306723                PEMA MT104580 150 64 20 15 18.7010.7103
1204MDT1306723                PEMA MT104590 158 64 20 17 23.0313.0103
1204MDT1306723                PEMA MT104600 131 49 17 16 14.8112.4102
1204MDT1306723                PEMA MT104610 134 49 19 17 22.3011.9103
1204MDT1306723                PEMA MT104620 134 52 20 17 14.5011.0102
1204MDT1406723 2.72 01    0702SPTR MT104631        30  6129.1019.5103
1204MDT1406723 2.72 01    0901PEMA MT104641 142 56 20 16 20.1011.4103
1204MDT1406723                PEMA MT104650 168 67 21 17 29.3311.5103
1204MDT1406723                PEMA MT104660 134 51 19 15 14.7011.3103
1204MDT1406723                PEMA MT104670 142 60 20 15 24.2011.0103
1204MDT1406723                PEMA MT104680        20 16 22.1012.5102
1204MDT1406723                PEHI MT104690 223110 27 12 42.301   202
1204MDT1506723                PEMA MT104700 152 63 18 17 21.6310.9203
1204MDT1506723                PEMA MT104710 148 59 20 16 22.1311.6203
1204MDT1606723                MUMU MT104720 142 70 19 13 13.3000.5203
1204MDT1606723                PEMA MT104730 145 55 21 17 24.1300.9003
1204MDT1606723                MIOC MT104740 147 35 17 15 51.0013.7103
1204MDT1606723 2.72 03    0205MIOC MT104750 129 31 20 12 24.3211.2103
1204MDT1606723 2.72 03    0901PEMA MT104760 119 51 16  9 16.6001.3003
1204MDT1606723 2.72 03    0308MIOC MT104770 139 33 21 12 33.9011.2103
1204MDT1606723 2.72 03    0103SPTR MT104790 150 53 28  5 30.4 10.5002
1204MDT1606723 2.72 03    0906SPTR MT104800 158 58 30  7 35.6 14.1102
1204MDT1606723 2.72 03    1207SPTR MT104810 151 55 30  6 35.8 13.2103
1204MDT1606723 2.72 03    0806SPTR MT104820 150 53 28  7 32.4 10.7002
1204MDT1606723 2.72 03    0105SPTR MT104830 155 56 29  7 38.8 15.3102
1204MDT1606723 2.72 03    0905SPTR MT104840 139 51 29  5 35.8 15.0103
1204MDT1606723 2.72 03    0707SPTR MT104850 153 50 28  7 32.0 11.0103
1204MDT1606723 2.72 03    0707SPTR MT104860 144 52 30  5 33.5 13.5103
1204MDT1606723 2.72 03    0104SPTR MT104870 161 50 29  5 30.6 11.9102
1204MDT1606723 2.72 03    0101SPTR MT104880 152 48 27  5 30.4 12.5102
1204MDT1606723 2.72 03    0206SPTR MT104890 156 56 28  7 37.2 14.1102
1204MDT1606723 2.72 03    1007SPTR MT104900 160 57 29  5 35.8 14.2102
1204MDT1606723 2.72 03    0909SPTR MT104910 152 48 28  5 35.3 13.8103
1204MDT1706723 2.72 04    0704CRPA MT104920  69 15 10  3  4.9310.1103
1204MDT1706723 2.72 04    0303MIOC MT104930 114 25 20 12 26.0211.2103
1204MDT1706723 2.72 04    1010MUMU MT104940 147 78 18 13 13.6011.3102
1204MDT1706723 2.72 04    0709THTA MT104950 145 41 24  5 48.8011.7103
1204MDT1706723 2.72 04    1003PEMA MT104960 127 52 18 17 16.6001.5002
1204MDT1706723 2.72 04    0801PEMA MT104970 137 54 22 16 17.9000.5000
1204MDT1706723 2.72 04    1005PEMA MT104980 125 51 19 13 24.7201.4002
1204MDT1706723 2.72 04    0205PEMA MT104990 131 57 20 13 15.9201.8000
1204MDT1706723                PEMA MT105000 155 65 20 18 27.7301.8003
1204MDT1706723                PEMA MT105010 134 52 18 15 15.6000.4002
1204MDT1706723                PEMA MT105020 136 54 21 15 16.4000.9002
1204MDT1706721                MIOC MT105030 141 34 20 14 43.2011.8103
1204MDT1706721                MIPE MT105040 123 34 19 12 23.4110.6103
1204MDT1806723 2.72 05    0206MIOC MT105050 132 40 21 11 31.2010.7103
1204MDT1806723 2.72 05    0505MIOC MT105060 135 33 21 13 39.9012.2103
```

1204MDT1806721	PEMA	MT105070	153	60	19	17	24.6002.0003
1204MDT1806721	MIPE	LRH07680	101	23	17	7	11.6010.9102
1204MDT1806721	MIPE	LRH07690	150	41	21	14	52.3011.9102
1204MDT1806721	MIOC	LRH07700	154	35	21	12	50.1013.2103
1204MDT1806721	MIPE	LRH07710	115	28	20	10	20.7110.9103
1204MDT1806721	MIOC	LRH07720	148	34	21	12	40.5012.2103
1204MDT1806721	MIOC	LRH07730	121	31	22	11	30.9211.9103
1204MDT1806721	MIOC	LRH07740	138	28	21	11	32.4011.4103
1204MDT1806721	MIOC	LRH07750	124	32	21	12	29.9211.8103
1204MDT1806721	MIPE	LRH07760	104	28	20	9	16.6011.9103
1204MDT1806721	MIPE	LRH07770	149	42	20	13	43.9311.5103
1204MDT1806721	MIPE	LRH07780	155	40	20	13	50.1611.7103
1204MDT1806721	PEMA	LRH07790	141	58	20	19	20.1001.5002
1204MDT1806721	PEMA	LRH07800	136	55	20	16	16.7000.7002
1204MDT1906721	REME	LRH07810	130	61	17	14	12.2010.6103
1204MDT1906721	PELE	LRH07820	175	79	22	16	35.2011.6103
1204MDT1906721	MIOC	LRH07830	127	29	20	13	24.9211.8103
1204MDT1906721	MIOC	LRH07840	121	30	19	12	23.2011.5103
1204MDT1906721	MIPE	LRH07850	162	45	21	15	62.2012.3103
1204MDT1906721	MIPE	LRH07860	165	44	19	14	67.9013.8103
1204MDT1906721	MIOC	LRH07870	170	40	21	13	54.7312.1103
1204MDT1906721	MIPE	LRH07880	151	40	18	13	37.9310.6103
1204MDT1906721	MIPE	LRH07890	156	43	20	14	37.2011.4103
1204MDT1906721	MIPE	LRH07900	151	41	20	13	35.8011.0103
1204MDT1906721	MIPE	LRH07910	144	36	19	13	32.4012.3103
1204MDT1906721	MIPE	LRH07920	111	29	18	10	17.0011.9102
1204MDT1906721	MIPE	LRH07930		39	19		. 01.7102
1204MDT1906721	PEMA	LRH07940	156	65	21	18	27.6002.3002
1204MDT1906721	PEMA	LRH07950	148	60	19	17	21.5001.1002
1204MDT1906721	MIPE	LRH07960	172	43	22	12	57.0012.3103
1204MDT1906721	MIPE	LRH07970	175	45	21	14	55.1013.7103
1204MDT1906721	MIOC	LRH07980	131	31	21	12	27.9211.0003
1204MDT1906721	THTA	LRH07990	176	54	24	6	55.4011.9103
1204MDT1906721	THTA	LRH08000	193	53	27	7	65.5013.6103
1204MDT1906721	THTA	LRH08010	184	56	26	[illegible]	77.4012.4102
1204MDT1906721	THTA	LRH08020	220	61	27	7	129.5 15.1103
1204MDT1906721	REME	LRH08030	131	69	18	13	13.4310.2003
1204MDT1906721	MIPE	LRH08040	121	29	20	9	23.1101.0002
1204MDT1906721	MIPE	LRH08050	173	49	22	14	56.4301.2003
1204MDT1906721	MIPE	LRH08060	158	44	20	14	43.7004.0003
1204MDT1906721	MIPE	LRH08070			21	13	42.3301.5002
1204MDT1906721	MIOC	LRH08080	161	40	22	14	53.5301.8003
1204MDT1906721	MIPE	LRH08090	124	34	20	13	24.0101.0002
1204MDT1906721	MIPE	LRH08100	148	43	20	12	30.2201.5002
1204MDT1906721	MIOC	LRH08110	136	32	21	14	31.8201.3003
1204MDT1906721	MIPE	LRH08120	125	36	20	12	18.4100.6002
1204MDT2006721	MIPE	MT105080	175	43	21	14	55.4001.7002
1204MDT2006721	MIPE	MT105090	148	41	19	13	36.3001.6000
1204MDT2006721	MIPE	MT105100	135	38	21	13	23.1101.2002
1204MDT2006721	MIPE	MT105110	162	43	20	13	40.6001.4002
1204MDT2006721	MIPE	MT105120			22	14	55.6301.0002
1204MDT2006721	MIPE	MT105130	132	37	20	12	24.5002.6002
1204MDT2006721	MIPE	MT105140	160	48	19	14	43.0001.1002
1204MDT2006721	MIOC	MT105150	127	37	20	13	25.6200.9002
1204MDT2006721	MIOC	MT105160	122	30	19	12	23.5201.4002
1204MDT2006721	MIOC	MT105170	163	41	22	16	50.9304.0002
1204MDT2006721	MIOC	MT105180	154	38	20	14	45.8001.6002
1204MDT2006721	MIOC	MT105190	160	38	23	15	46.9302.1002

```
1204MDT2006721                 PEME MT105200            19 16 20.2001.7002
1404MDT1306723                 PEMA MT10455 6 11 733
1404MDT1306723                 PEMA MT10456 6 10 633
1404MDT1306723                 PEMA MT10457 6 10 633
1404MDT1306723                 PEMA MT10458 6  9 533
1404MDT1306723                 PEMA MT10459             32131  5000032310.313
1404MDT1306723                 PEMA MT10460             41100   00000000   0
1404MDT1306723                 PEMA MT10461             32222 1700000224.603
1404MDT1306723                 PEMA MT10462 1  6 411
1404MDT1406723 2.72 01     0702SPTR MT10463 0 10 512                          1
1404MDT1406723 2.72 01     0901PEMA MT10464 6 11 733                          1
1404MDT1406723                 PEMA MT10465             32332 1600000555.403
1404MDT1406723                 PEMA MT10466 0  6 411
1404MDT1406723                 PEMA MT10467             32232 1600000325.203
1404MDT1406723                 PEMA MT10468             31140  6000000400.40
1404MDT1406723                 PEHI MT10469 6  9 612                          3
1404MDT1506723                 PEMA MT10470 6 10 633                          3
1404MDT1506723                 PEMA MT10471 6 10 633                          3
1404MDT1606723                 MUMU MT10472             31100   00000000    03
1404MDT1606723                 PEMA MT10473 6  9 633                          3
1404MDT1606723                 MIOC MT10474             32222  6000000220.403
1404MDT1606723 2.72 03     0205MIOC MT10475             41100   00000021    01
1404MDT1606723 2.72 03     0901PEMA MT10476 4  9 533                          1
1404MDT1606723 2.72 03     0308MIOC MT10477 6 11 833                          1
1404MDT1606723 2.72 03     0103SPTR MT10479             21100   00000000    01
1404MDT1606723 2.72 03     0906SPTR MT10480             21100   00000000    01
1404MDT1606723 2.72 03     1207SPTR MT10481             21100   00000000    01
1404MDT1606723 2.72 03     0806SPTR MT10482             21100   00000000    01
1404MDT1606723 2.72 03     0105SPTR MT10483             21100   00000000    01
1404MDT1606723 2.72 03     0905SPTR MT10484             21100   00000000    01
1404MDT1606723 2.72 03     0707SPTR MT10485 2  4 211                          1
1404MDT1606723 2.72 03     0707SPTR MT10486 2  3 211                          1
1404MDT1606723 2.72 03     0104SPTR MT10487             21100   00000000    01
1404MDT1606723 2.72 03     0101SPTR MT10488             21100   00000000    01
1404MDT1606723 2.72 03     0206SPTR MT10489 2  4 211                          1
1404MDT1606723 2.72 03     1007SPTR MT10490             21100   00000000    01
1404MDT1606723 2.72 03     0909SPTR MT10491             21100   00000000    01
1404MDT1706723 2.72 04     0704CRPA MT10492 6  5 333                          1
1404MDT1706723 2.72 04     0303MIOC MT10493 6  8 412                          1
1404MDT1706723 2.72 04     1010MUMU MT10494 6  8 522                          1
1404MDT1706723 2.72 04     0709THTA MT10495             11100   00000000    01
1404MDT1706723 2.72 04     1003PEMA MT10496 7  7 522                          1
1404MDT1706723 2.72 04     0801PEMA MT10497 6 10 633                          1
1404MDT1706723 2.72 04     1005PEMA MT10498 4  7 412                          1
1404MDT1706723 2.72 04     0205PEMA MT10499             11100   00000000    01
1404MDT1706723                 PEMA MT10500 6 10 633                          3
1404MDT1706723                 PEMA MT10501 6  9 533                          3
1404MDT1706723                 PEMA MT10502 6  9 633                          3
1404MDT1706721                 MIOC MT10503             62202  6000041420.213
1404MDT1706721                 MIPE MT10504 4  8 522                          3
1404MDT1806723 2.72 05     0206MIOC MT10505 6 13 833                          2
1404MDT1806723 2.72 05     0505MIOC MT10506 6 13 833                          1
1404MDT1806721                 PEMA MT10507             32200   00004430    13
1404MDT1806721                 MIPE LRH0768 2  4 311                          3
1404MDT1806721                 MIPE LRH0769             32243 1500000435.403
1404MDT1806721                 MIOC LRH0770             32303 1300000031.703
1404MDT1806721                 MIPE LRH0771             21100   00000000     3
1404MDT1806721                 MIOC LRH0772             62321 1000000210.703
```

1404MDT1806721	MIOC	LRH0773	4 7 512			3
1404MDT1806721	MIOC	LRH0774		62200	00310031	03
1404MDT1806721	MIOC	LRH0775		31100	00000001	03
1404MDT1806721	MIPE	LRH0776	2 6 411			3
1404MDT1806721	MIPE	LRH0777	6 151033			3
1404MDT1806721	MIPE	LRH0778	6 151033			3
1404MDT1806721	PEMA	LRH0779		32200	00000022	03
1404MDT1806721	PEMA	LRH0780	3 9 533			3
1404MDT1906721	REME	LRH0781	6 8 53			3
1404MDT1906721	PELE	LRH0782		32141	13000001413.903	
1404MDT1906721	MIOC	LRH0783		41100	00000000	03
1404MDT1906721	MIOC	LRH0784		71100	00000000	03
1404MDT1906721	MIPE	LRH0785	6 181133			3
1404MDT1906721	MIPE	LRH0786		32333	250000005414803	
1404MDT1906721	MIOC	LRH0787	6 161133			3
1404MDT1906721	MIPE	LRH0788	6 15 933			3
1404MDT1906721	MIPE	LRH0789	6 161033			3
1404MDT1906721	MIPE	LRH0790	6 14 933			3
1404MDT1906721	MIPE	LRH0791		31100	00000022	03
1404MDT1906721	MIPE	LRH0792	2 5 311			3
1404MDT1906721	MIPE	LRH0793	2 8 412			3
1404MDT1906721	PEMA	LRH0794	6 11 633			3
1404MDT1906721	PEMA	LRH0795		32114	2000000140.103	
1404MDT1906721	MIPE	LRH0796		62320	6000002200.313	
1404MDT1906721	MIPE	LRH0797		63331	5000023310.213	
1404MDT1906721	MIOC	LRH0798	4 8 521			3
1404MDT1906721	THTA	LRH0799	0 4 311			3
1404MDT1906721	THTA	LRH0800		01300	00000000	03
1404MDT1906721	THTA	LRH0801		02300	00003300	13
1404MDT1906721	THTA	LRH0802	3 151033			3
1404MDT1906721	REME	LRH0803	6 9 533			3
1404MDT1906721	MIPE	LRH0804	4 9 612			3
1404MDT1906721	MIPE	LRH0805	6 161033			3
1404MDT1906721	MIPE	LRH0806		62200	00620044	13
1404MDT1906721	MIPE	LRH0807	6 151133			3
1404MDT1906721	MIOC	LRH0808	6 141033			3
1404MDT1906721	MIPE	LRH0809	1 10 612			3
1404MDT1906721	MIPE	LRH0810		61122	7000000220.503	
1404MDT1906721	MIOC	LRH0811	3 10 622			3
1404MDT1906721	MIPE	LRH0812		21100	00000000	03
1404MDT2006721	MIPE	MT10508	6 161033			3
1404MDT2006721	MIPE	MT10509		31260	1300000604.203	
1404MDT2006721	MIPE	MT10510		21100	00000000	03
1404MDT2006721	MIPE	MT10511		32332	4003300320.213	
1404MDT2006721	MIPE	MT10512	6 181233			3
1404MDT2006721	MIPE	MT10513		41100	00000000	03
1404MDT2006721	MIPE	MT10514	6 161033			3
1404MDT2006721	MIOC	MT10515		01100	00000000	03
1404MDT2006721	MIOC	MT10516		11100	00000000	03
1404MDT2006721	MIOC	MT10517		32304	11000040041.703	
1404MDT2006721	MIOC	MT10518		32330	310000003012.03	
1404MDT2006721	MIOC	MT10519		62200	00002321	13
1404MDT2006721	PEME	MT10520	6 10 733			3

Small Mammal Autopsy Data, Osage

Small mammal autopsy data collected in 1972 at the Osage Site is Grassland Biome data set A2U1029. Data were collected on data forms NREL-12A and NREL-14. Copies of the data forms and an example of the data follows.

IBP

GRASSLAND BIOME

U.S. INTERNATIONAL BIOLOGICAL PROGRAM

FIELD DATA SHEET - MAMMAL COLLECTION

DATA TYPE	SITE	INITIALS	DATE Day	DATE Mo.	DATE Yr.	TREATMENT	REPLICATE	PLOT SIZE	TRAP DAY	HOUR	GRID TRAP Row	GRID TRAP Col	GENUS	SPECIES	SUBSPECIES	SPECIMEN NUMBER	MARK	LENGTH	TAIL	FOOT	EAR	WEIGHT	MOLT	PARASITES	STOMACH WEIGHT	FOOD	EYE LENS	SPECIMEN	MAP REFERENCE TWN	MAP REFERENCE RNG	MAP REFERENCE S
1-2	3-4	5-7	8-9	10-11	12-13	14	15	16-19	21-22	23-26	27-28	29-30	31-32	33-34	35	36-42	43	44-47	48-50	51-53	54-56	57-61	62	63	64-66	67	68	69	70-72	73-75	76-77

MARK
- 0 None
- 1 Snap-trap grid, unmarked
- 2 Snap-trap grid, marked
- 3 Live-trap grid, unmarked
- 4 Live-trap grid, marked
- 5 Other trapping

MOLT
- 0 No evidence
- 1 Post-juvenile
- 2 Post-subadult
- 3 Adult (vernal)
- 4 Adult (autumnal)
- 5 Molt of unknown stage
- 6 Undetermined

PARASITES - EYE LENS
- 0 Not saved
- 1 Preserved

SPECIMEN
- 0 Not saved
- 1 Skin
- 2 Skull
- 3 Skin and skull
- 4 Skeleton
- 5 Liquid preservative

FOOD
- 0 None
- 1 Stomach only
- 2 Cheek pouch only
- 3 Both

DATA TYPE
- 01 Aboveground Biomass
- 02 Litter
- 03 Belowground Biomass
- 10 Vertebrate - Live Trapping
- 11 Vertebrate - Snap Trapping
- 12 Mammal - Collection
- 13 Snap Trap Effort
- 14 Mammal Reproductive
- 20 Avian Flush Census
- 21 Avian Road Count
- 22 Avian Road Count Summary
- 23 Avian Collection - Internal
- 24 Avian Collection - External
- 25 Avian Collection - Plumage
- 30 Invertebrate
- 40 Microbiology-Decomposition
- 41 Microbiology-Nitrogen
- 42 Microbiology-Biomass
- 43 Microbiology-Root Decomposition
- 44 Microbiology-Respiration

SITE
- 01 Ale
- 02 Bison
- 03 Bridger
- 04 Cottonwood
- 05 Dickinson
- 06 Hays
- 07 Hopland
- 08 Jornada
- 09 Osage
- 10 Pantex
- 11 Pawnee

TREATMENT
- 1 Ungrazed
- 2 Lightly grazed
- 3 Moderately grazed
- 4 Heavily grazed
- 5 Grazed 1969, ungrazed 1970
- 6
- 7
- 8
- 9

U.S. INTERNATIONAL B .OGICAL PROGRAM

FIELD DATA SHEET - MAMMAL REPRODUCTIVE

DATA TYPE	SITE	INITIALS	DATE			TREATMENT	REPLICATE	PLOT SIZE	TRAP DAY	HOUR	GRID TRAP		GENUS	SPECIES	SUBSPECIES	SPECIMEN NUMBER	MALE					FEMALE																
			Day	Mo.	Yr.						Row	Col					EXTERNAL	TESTES LN	TESTES WD	EPIDID	SEM VES	EXTERNAL	MAMMARY	PUBIC SEM	NORMAL EMBRYOS L	NORMAL EMBRYOS R	EMBRYO LENGTH	RESORB L	RESORB R	SCARS NEW L	SCARS NEW R	SCARS OLD L	SCARS OLD R	CORPORA LUTEA L	CORPORA LUTEA R	TRACT WEIGHT	CORP ALB	SPEC SOURCE
1-2	3-4	5-7	8-9	10-11	12-13	14	15	16-19	21-22	23-26	27-28	29-30	31-32	33-34	35	36-42	44	45-47	48-49	50	51	52	53	54	55	56	57-59	60	61	62	63	64	65	66	67	68-72	71	72

MALE
0 Adult, non-breeding
1 Subadult, non-breeding
2 Juvenile, non-breeding
3 Adult breeding ?
4 Subadult breeding ?
5 Juvenile breeding ?
6 Adult breeding
7 Subadult breeding
8 Juvenile breeding
9 Undetermined

FEMALE
0 Adult, vulva inactive
1 Subadult, vulva inactive
2 Juvenile, vulva inactive
3 Adult, vulva turgid
4 Subadult, vulva turgid
5 Juvenile, vulva turgid
6 Adult, vulva cornified
7 Subadult, vulva cornified
8 Juvenile, vulva cornified
9 Undetermined

SEMINAL VESICLES
0 No observation
1 Minute
2 Small
3 Well developed

EPIDIDYMUS
0 No observation
1 Not convoluted
2 Slightly convoluted
3 Convoluted

MAMMARY
0 No observation
1 Small
2 Large
3 Lactating

SOURCE
1 Snap trap grid
2 Live trap grid
3 Other trap line
4 Misc. collection

PUBLIC SYMPHASIS
0 No observation
1 Closed
2 Slightly open
3 Open

DATA TYPE
01 Aboveground Biomass
02 Litter
03 Belowground Biomass
10 Vertebrate - Live Trapping
11 Vertebrate - Snap Trapping
12 Mammal - Collection
13 Snap Trap Effort
14 Mammal Reproductive
20 Avian Flush Census
21 Avian Road Count
22 Avian Road Count Summary
23 Avian Collection - Internal
24 Avian Collection - External
25 Avian Collection - Plumage
30 Invertebrate
40 Microbiology-Decomposition
41 Microbiology-Nitrogen
42 Microbiology-Biomass
43 Microbiology-Root Decomposition
44 Microbiology-Respirption

SITE
01 Ale
02 Bison
03 Bridger
04 Cottonwood
05 Dickinson
06 Hays
07 Hopland
08 Jornada
09 Osage
10 Pantex
11 Pawnee

TREATMENT
1 Ungrazed
2 Lightly grazed
3 Moderately grazed
4 Heavily grazed
5 Grazed 1969, ungrazed 1970
6
7
8
9

+++ EXAMPLE OF DATA +++

```
         1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789012345

1209ECB131072       0108000201BLBR MT107520  99 22 13  4 10.0000.1003
1209ECB131072       0108001009BLBR MT107530  97 19 13  5 12.6000.1003
1209ECB131072       0108000412BLBR MT107540  97 19 12  4 10.3000.1003
1209ECB131072       0108000504BLBR MT107550 102 21 13  4 10.3000.1003
1209ECB141072102.72 0208000212BLBR MT107560 103 19 12  5 14.2000.1003
1209ECB141072102.72 0208000810BLBR MT107570 110 21 13  5 11.9000.1003
1209ECB141072102.72 0208000212BLBR MT107580 108 21 13  5 13.2000.3100
1209ECB141072102.72 0208000104BLBR MT107590 108 22 14  5 13.9000.5103
1209ECB141072102.72 0208001004BLBR MT107600 111 21 13  5 15.1000.2103
1209ECB141072102.72 0208001107BLBR MT107610 107 21 13  5 12.5000.2103
1209ECB141072102.72 0208000905MIOC MT107620 130 30 19 12 29.6002.9103
1209ECB141072102.72 0208000612MIOC MT107630 145 31 18 12 50.1402.1103
1209ECB141072102.72 0208000502PEMA MT107640 134 59 18 14 14.2000.8100
1209ECB141072102.72 0208000501PEMA MT107650 128 49 19 15 12.8100.4103
1209ECB141072102.72 0208000808SIHI MT107660 261116 31 19100.0203.3103
1209ECB141072102.72 0208001201SIHI MT107670 209 82 29 20 63.1202.6100
1209ECB141072102.72 0208000611SIHI MT107680 207 85 29 18 58.4203.5100
1209ECB141072102.72 0208001006SIHI MT107690 203 80 30 19 58.2203.1100
1209ECB141072102.72 0208000902SIHI MT107700 171 69 27 16 30.210    00
1209ECB141072102.72 0208001109SIHI MT107710 234 89 30 19 77.7202.3100
1209ECB141072102.72 0208001101SIHI MT107720 211 88 30 19 57.2202.5100
1209ECB141072102.72 0208001212SIHI MT107730 176 72 27 19 34.8102.0100
1209ECB141072102.72 0208000906SIHI MT107740 208 85 29 19 54.0101.9100
1209ECB1510721 2.72 0308001112SIHI ECB20060 182 69 25 18 40.2101.1100
1209ECB1510721 2.72 0308000710SIHI ECB20070 144 58 23 15 20.0001.3100
1209ECB1510721 2.72 0308000912SIHI ECB20080 216 86 30 21 72.4202.1100
1209ECB1510721 2.72 0308000712SIHI ECB20090 205 85 29 17 56.7203.3100
1209ECB1510721 2.72 0308000612SIHI ECB20100 148 59 24 16 19.9001.3100
1209ECB1510721 2.72 0308000908SIHI ECB20110 230 92 32 21 87.5204.7100
1209ECB1510721 2.72 0308001208SIHI ECB20120 236 95 31 20 79.9201.5100
1209ECB1510721 2.72 0308000406SIHI ECB20130 236 95 30 20 79.4203.2100
1209ECB1510721 2.72 0308000104SIHI ECB20140 188 75 27 17 41.4102.1100
1209ECB1510721 2.72 0308001112SIHI ECB20150 207 81 30 18 65.5202.1100
1209ECB1510721 2.72 0308000612SIHI ECB20160 146 59 23 15 20.5001.3100
1209ECB1510721 2.72 0308000611SIHI ECB20170 142 59 22 15 17.100   100
1209ECB1510721 2.72 0308001102SIHI ECB20180 172 69 26 16 31.2102.0100
1209ECB151072102.72 0308000302CRPA ECB19821  79 17 11  5  4.5000.1103
1209ECB151072102.72 0308000207CRPA ECB19831  76 16 11  4  4.5500.1103
1209ECB151072102.72 0308000602CRPA ECB19841  80 17 11  4  5.0000.2103
1209ECB151072102.72 0308000106REMO ECB19851 135 59 17 14 14.1000.4103
1209ECB151072102.72 0308000301REMO ECB19861 117 50 16 13  8.7200.1103
1209ECB151072102.72 0308000703REMO ECB19871 121 57 16       20    002
1209ECB151072102.72 0308000707MIOC ECB19881 139 32 19 12 31.5211.9103
1209ECB151072102.72 0308000305MIOC ECB19891 144 29 21 14 38.7212.5103
1209ECB151072102.72 0308000206MIOC ECB19901 136 29 21 19 39.6210.8103
1209ECB151072102.72 0308000411BLBR ECB19911 108 21 14  6 13.5510.3103
1209ECB151072102.72 0308000404BLBR ECB19921  96 19 13  6 11.2510.3103
1209ECB151072102.72 0308000810BLBR ECB19931 103 21 13  5 11.601      0
1209ECB151072102.72 0308001001BLBR ECB19941 100 19 14  5 15.3410.4103
1209ECB151072102.72 0308001012BLBR ECB19951 114 24 15  6 15.9200.6100
1209ECB151072102.72 0308000111BLBR ECB19961 108 24 15  5 11.6000.3100
```

```
1209ECB151072102.72 0308001208BLBR ECB19971 105 21 15  6 14.6000.3100
1209ECB151072102.72 0308001102BLBR ECB19981 106 21 15 06 15.2500.2000
1209ECB151072102.72 0308000901BLBR ECB19991 107 21 14  5 14.3000.6100
1209ECB151072102.72 0308000604BLBR ECB20001 105 22 14  6 12.7010.2103
1209ECB151072102.72 0308000805BLBR ECB20011 104 20 14  5 13.3010.3100
1209ECB151072102.72 0308001207MUMU ECB20021 139 73 16 14  9.2100.1100
1209ECB151072102.72 0308001204PEMA ECB20031 127 50 20 16 14.7000.6100
1209ECB151072102.72 0308001210PEMA ECB20041 146 60 21 18 16.8610.5103
1209ECB151072102.72 0308000703CRPA ECB20051  77 18 11  4  4.9000.1003
1209MDT161072102.72 0408001203CRPA MT107753  68 16 10  4  3.6000.2103
1209MDT161072102.72 0408000102CRPA MT107763  80 17 10  4  4.9400.1003
1209MDT161072102.72 0408000303CRPA MT107773  84 19 11  5  5.4400.1003
1209MDT161072102.72 0408000301REMO MT107783 112 46 16 13 10.6200.5103
1209MDT161072102.72 0408000401REMO MT107793 117 48 15 13 10.4201.3103
1209MDT161072102.72 0408000211REMO MT107803 128 61 17 13 10.2210.3103
1209MDT161072102.72 0408000907REMO MT107813 106 49 16 12  7.6110.4103
1209MDT161072102.72 0408000306REMO MT107823 120 54 16 13  9.1210.4103
1209MDT161072102.72 0408001005REMO MT107833 100 46 15 11  4.9010.1003
1209MDT161072102.72 0408001202BLBR MT107843 108 23 14 05 13.400      00
1209MDT161072102.72 0408000710BLBR MT107853 110 21 14 05 13.5200.4100
1209MDT161072102.72 0408001211PEMA MT107863 129 55 18 16 10.7100.2000
1209MDT161072102.72 0408001002PEMA MT107873 156 61 18 16 17.1401.4100
1209MDT161072102.72 0408001212PEMA MT107883 157 60 20 16 24.4601.6100
1209MDT161072102.72 0408000611MUMU MT107893 147 70 18 13 10.7000.2100
1209MDT161072102.72 0408000408SIHI MT107903 259105 33 19105.3401.6000
1209MDT161072102.72 0408000810SIHI MT107913 230 96 31 20 70.0201.9000
1209MDT161072102.72 0408000411SIHI MT107923 234 96 30 18 76.8201.1000
1209MDT161072102.72 0408001111SIHI MT107933 213 89 28 19 60.5201.3000
1209MDT161072102.72 0408001010SIHI MT107943 176 77 27 18 31.4101.3000
1209MDT161072102.72 0408000204SIHI MT107953 190 81 28 16 39.0102.1000
1209MDT161072102.72 0408001103SIHI MT107963 180 79 26 17 33.3101.4000
1209MDT161072102.72 0408000812SIHI MT107973 152 61 23 15 23.0101.5000
1209MDT161072102.72 0408000512SIHI MT107983 136 55 22 14 15.5000.4000
1209ECB2110723      09         PEMA ECB2063  163 66 19 15 19.600     000
1209ECB171072102.72 05     0102CRPA ECB20190  80 19 12  4  3.7000.1003
1209ECB171072102.72 05     1107BLBR ECB20200 101 20 14  5  9.9010.1003
1209ECB171072102.72 05     0312SIHI ECB20210 250109 32 18107.0413.1003
1209ECB171072102.72 05         PELE ECB20220 168 73 21 15 26.8011.6103
1209ECB171072102.72 05         PELE ECB20230 174 78 22 17 23.7011.0103
1209ECB171072102.72 05         MIOC ECB20240 155 32 21 12 42.6412.0103
1209ECB171072102.72 0508001102SIHI ECB20330 167 67 24 16 25.5101.1000
1209ECB171072102.72 050800     PELE ECB20340 187 81 22 16 23.1500.9000
1209ECB171072102.72 050800     PELE ECB20350 155 69 21 14 14.9100.5100
1209ECB171072102.72 0508000812SIHI ECB20360 254104 33 22102.5403.2000
1209ECB171072102.72 0508000807SIHI ECB20370 211 81 30 19 57.8201.5000
1209ECB171072102.72 0508001212SIHI ECB20380 188 75 27 18 42.0102.6000
1209ECB171072102.72 0508001012SIHI ECB20390 194 74 27 17 42.9101.8000
1209ECB171072102.72 05         SYFL ECB20400 435 50 97 53        040.102
1209ECB171072102.72 05     1210MIOC ECB20414 160 34 20 14 36.4201.1000
1209ECB181072102.72 06     0112MIOC MT108103 168 36 20 14 43.9010.9103
1209ECB181072102.72 06     1112MIOC MT108114 148 36 20 13 27.2400.4003
1209ECB181072102.72 06     1209MIOC MT108124 160 35 18 13 32.1010.9103
1209ECB181072102.72 06     0211MIOC MT108074 155 37 20 12 27.5000.6000
1209ECB181072102.72 06     0801PEMA MT108194 155 62 19 15 18.8000.4003
1209ECB181072102.72 06     1003MUMU MT108204 178 86 18 14 19.7000.3100
1209ECB181072102.72 06     0106PEMA MT108210 131 51 17 14 11.5000.5000
1209ECB181072102.72 06     0512SIHI MT108220 150 60 22 15 18.7000.8000
```

1209FCB181072102.72	06	1001SIHI	MT108230	183	72	28	18	41.8101.2000	
1209FCB181072102.72	06	0502SIHI	MT108240	234	95	30	19	72.8006.6000	
1209FCB181072102.72	06	0808SIHI	MT108250	236	97	31	19	65.1202.3000	
1209FCB181072102.72	06	0212SIHI	MT108260	260104		33	20	98.6207.7000	
1209FCB181072102.72	06	0312SIHI	MT108270	227	93	30	19	77.6203.3000	
1209FCB181072102.72	06	0911SIHI	MT108280	204	84	28	18	58.2102.5000	
1209FCB181072102.72	06	1102SIHI	MT108290	181	72	27	18	40.6102.6000	
1209FCB181072102.72	06	1001SIHI	MT108300	160	65	25	17	27.5001.2000	
1209FCB181072102.72	06	1202SIHI	MT108310	181	73	26	17	28.9100.4000	
1209FCB181072102.72	06	0603CRPA	MT107990	80	17	11	5	4.741 003	
1209FCB181072102.72	06	0209CRPA	MT108000	75	16	11	4	4.2010.1003	
1209FCB181072102.72	06	0601CRPA	MT108010	081	16	12	4	5.6410.1103	
1209FCB181072102.72	06	0310REMO	MT108020	113	53	16	12	7.8010.2103	
1209FCB181072102.72	06	0405REMO	MT108030	103	49	16	11	5.5000.4003	
1209FCB181072102.72	06	MIOC	MT108040	152	31	20	13	48.2412.9103	
1209FCB181072102.72	06	MIOC	MT108050	137	30	20	13	36.2412.1003	
1209FCB181072102.72	06	MIOC	MT108064	146	30	20	13	43.5412.0003	
1209FCB181072102.72	06	MIOC	MT108084	163	34	20	13	57.301 003	
1209FCB181072102.72	06	MIOC	MT108094	110	28	19	12	16.1010.9000	
1209FCB181072102.72	0608000710BLBR		MT108130	106	22	12	5	12.3000.7000	
1209FCB181072102.72	0608000206BLBR		MT108140	109	23	13	4	11.2000.5100	
1209FCB181072102.72	0608000812BLBR		MT108150	110	22	13	5	11.8000.3000	
1209FCB181072102.72	0608000610BLBR		MT108160	113	22	12	5	11.6000.6000	
1209FCB181072102.72	0608000208BLBR		MT108170	111	22	13	5	10.5000.3000	
1209FCB181072102.72	060800	BLBR	MT108180	0				10.3000.1000	
1209FCB181072102.72	06	SIHI	MT108320	219	88	29	19	62.0202.7000	
1209FCB181072102.72	06	SIHI	MT108330	261101		30	19	90.6403.2000	
1209FCB181072102.72	06	SIHI	MT108340	227	94	32	18	75.8201.7000	
1209FCB19107210	070800	CRPA	ECB2030	76	17	10	4	5.0400.4103	
1209FCB19107210	0715001201PEMA		ECB2031	164	63	20	16	19.2000.2000	
1209FCB19107210	0715001202SIHI		ECB2032	281115		33	21	98.4001.7000	
1209FCB19107210		MIOC	ECB2025	156	30	23	14	47.5402.2002	
1209FCB19107210		MIOC	ECB2026	169	43	23	15	49.8001.5002	
1209FCB19107210		MIOC	ECB2027	140	34	20	13	29.0201.3000	
1209FCB19107210		MIOC	ECB2028	170	40	21	12	50.5002.2002	
1209FCB19107210		MIOC	ECB2029	155	36	20	12	37.4001.2002	
1209FCB19107210	07	MIOC	ECB20420	121	30	19	12	19.2001.5100	
1209FCB19107210	07	MIOC	ECB20430	175	37	21	14	54.1002.5100	
1209FCB19107210	07	MIOC	ECB20440	172	35	22	15	56.6401.5102	
1209FCB19107210	07	MIOC	ECB20450	159	32	20	14	49.0004.9002	
1209FCB19107210	07	MIOC	ECB20460	165	35	21	15	50.6401.5102	
1209FCB19107210	07	MIOC	ECB20470	136	27	19	12	28.4100.7000	
1209FCB19107210	07	MIOC	ECB20480	128	27	18	14	24.6101.6100	
1209FCB19107210	07	PEMA	ECB20490	150	55	19	16	21.6001.1000	
1209FCB19107210	07	SIHI	ECB20500	294119		33	20129.3003.0000		
1209FCB2010721	08	MIOC	ECB20510	167	32	21	13	39.9000.8002	
1209FCB2010721	08	MIOC	ECB20520	96	21	18	10	10.9000.2000	
1209FCB2010721	08	SIHI	ECB20530	247102		29	20	76.6001.6000	
1209FCB2010721	08	SIHI	ECB20540	240	96	30	18	72.2001.1000	
1209FCB2010721	08	SIHI	ECB20550	247100		32	19	78.0002.0000	
1209FCB2010721	08	SIHI	ECB20560	247103		31	19	80.8202.7000	
1209FCB2010721	08	SIHI	ECB20570	285114		35	18	001.6000	
1209FCB2110721	09	MIOC	ECB20580	129	30	20	12	27.6600.7000	
1209FCB2110721	09	BLBR	ECB20590	116	24	14	5	16.0600.3000	
1209FCB2110721	09	BLBR	ECB20600	104	19	13	5	11.7600.1000	
1209FCB2110721	09	BLBR	ECB20610	112	24	14	6	13.8600.1000	
1209FCB2110721	09	MIOC	ECB20620	142	30	20	14	34.5600.5000	
1409FCB131072	0108000201BLBR		MT10752			+1100		00000000	02

1409FCB131072		0108001009BLBR	MT10753				33300	001100		2
1409FCB131072		0108000412BLBR	MT10754	1	2	100				2
1409FCB131072		0108000504BLBR	MT10755	1	1	100				2
1409FCB1410721	2.72	0208000212BLBR	MT10756				33300	001200		2
1409FCB1410721	2.72	0208000810BLBR	MT10757				41100	00000000		01
1409FCB1410721	2.72	0208000212BLBR	MT10758				31300	00000000		01
1409FCB1410721	2.72	0208000104BLBR	MT10759				41300	00000000		1
1409FCB1410721	2.72	0208001004BLBR	MT10760	1	02	111				1
1409FCB1410721	2.72	0208001107BLBR	MT10761				32300	00000000		01
1409FCB1410721	2.72	0208000905MIOC	MT10762	4	7	411			108	1
1409FCB1410721	2.72	0208000612MIOC	MT10763				32312	350000012		01
1409FCB1410721	2.72	0208000502PEMA	MT10764	1	4	211				1
1409FCB1410721	2.72	0208000501PEMA	MT10765				71100	00000000		01
1409FCB1410721	2.72	0208000808SIHI	MT10766	4	9	412				1
1409FCB1410721	2.72	0208001201SIHI	MT10767				71100	00000000		01
1409FCB1410721	2.72	0208000611SIHI	MT10768	2	6	211				1
1409FCB1410721	2.72	0208001006SIHI	MT10769				71100	00000000		01
1409FCB1410721	2.72	0208000902SIHI	MT10770				61100	00000000		01
1409FCB1410721	2.72	0208001109SIHI	MT10771				71100	00000000		01
1409FCB1410721	2.72	0208001101SIHI	MT10772	1	5	211				1
1409FCB1410721	2.72	0208001212SIHI	MT10773				61100	00000000		01
1409FCB1410721	2.72	0208000906SIHI	MT10774	1	5	211				1
1409FCB1510721	2.72	0308001112SIHI	ECH2006				61100	00000000		01
1409FCB1510721	2.72	0308000710SIHI	ECH2007	2	6	311				1
1409FCB1510721	2.72	0308000912SIHI	ECH2008				71100	00000000		01
1409FCB1510721	2.72	0308000712SIHI	ECH2009	1	5	311				1
1409FCB1510721	2.72	0308000612SIHI	ECH2010				61100	00000000		01
1409FCB1510721	2.72	0308000908SIHI	ECH2011	1	6	311				1
1409FCB1510721	2.72	0308001208SIHI	ECH2012	1	5	311				1
1409FCB1510721	2.72	0308000406SIHI	ECH2013	4	10	611				1
1409FCB1510721	2.72	0308000104SIHI	ECH2014	2	5	211				1
1409FCB1510721	2.72	0308001112SIHI	ECH2015				71100	000000000		01
1409FCB1510721	2.72	0308000612SIHI	ECH2016				61100	00000000		01
1409FCB1510721	2.72	0308000611SIHI	ECH2017				61100	00000000		1
1409FCB1510721	2.72	0308001102SIHI	ECH2018	2	5	211				1
1409FCB151072102.72		0308000302CRPA	ECB1982		2	211				2
1409FCB151072102.72		0308000207CRPA	ECB1983				411			2
1409FCB151072102.72		0308000602CRPA	ECB1984				41100			2
1409FCB151072102.72		0308000106REMO	ECB1985				33341	70000 2	1.1	2
1409FCB151072102.72		0308000301REMO	ECB1986	4	6	323				2
1409FCB151072102.72		0308000703REMO	ECB1987	7	5	312				2
1409FCB151072102.72		0308000707MIOC	ECB1988	4	7	412				2
1409FCB151072102.72		0308000305MIOC	ECB1989	4	9	632				
1409FCB151072102.72		0308000206MIOC	ECB1990				71100	00000000		02
1409FCB151072102.72		0308000411BLBR	ECB1991	4	2	111				2
1409FCB151072102.72		0308000404BLBR	ECB1992				31200			2
1409FCB151072102.72		0308000810BLBR	ECB1993	4	3	211				2
1409FCB151072102.72		0308001001BLBR	ECB1994				312			2
1409FCB151072102.72		0308001012BLBR	ECB1995	4	3	211				2
1409FCB151072102.72		0308000111BLBR	ECB1996	1						2
1409FCB151072102.72		0308001208BLBR	ECB1997	1	2	111				2
1409FCB151072102.72		0308001102BLBR	ECB1998	4	2	111				2
1409FCB151072102.72		0308000901BLBR	ECB1999	4	2	111				2
1409FCB151072102.72		0308000604BLBR	ECH2000				32300			2
1409FCB151072102.72		0308000805BLBR	ECH2001				31200			2
1409FCB151072102.72		0308001207MUMU	ECH2002				41200			2
1409FCB151072102.72		0308001204PEMA	ECH2003				61100			2
1409FCB151072102.72		0308001210PEMA	ECH2004	1	5	311				2

```
1409FCB151072102.72 0308000703CRPA ECH2005             323                 2
1409FCB161072102.72 0408001203CRPA MT10775             51100     00        1
1409FCB161072102.72 0408000102CRPA MT10776             31100     00        1
1409FCB161072102.72 0408000303CRPA MT10777 3  2 111                        1
1409FCB161072102.72 0408000301REMO MT10778             423                 1
1409FCB161072102.72 0408000401REMO MT10779             43300     00220031 01
1409FCB161072102.72 0408000211REMO MT10780 7  7 423                        1
1409FCB161072102.72 0408000907REMO MT10781 2  4 211                        1
1409FCB161072102.72 0408000306REMO MT10782 4  6 422                        1
1409FCB161072102.72 0408001005REMO MT10783 2  3 211                        1
1409FCB161072102.72 0408001202BLBR MT10784             31300               1
1409FCB161072102.72 0408000710BLBR MT10785 4  2 111                        1
1409FCB161072102.72 0408001211PEMA MT10786 2  4 211                        1
1409FCB161072102.72 0408001002PEMA MT10787 6 11 6                          2
1409FCB161072102.72 0408001212PEMA MT10788             333       233323    1
1409FCB161072102.72 0408000611MUMU MT10789 4  6 422                        1
1409FCB161072102.72 0408000408SIHI MT10790 6 14 822                        1
1409FCB161072102.72 0408000810SIHI MT10791 2  6 311                        1
1409FCB161072102.72 0408000411SIHI MT10792 4 10 712                        1
1409FCB161072102.72 0408001111SIHI MT10793             71100     00000000 01
1409FCB161072102.72 0408001010SIHI MT10794 2  5 311                        1
1409FCB161072102.72 0408000204SIHI MT10795 2  5 311                        1
1409FCB161072102.72 0408001103SIHI MT10796 2  6 311                        1
1409FCB161072102.72 0408000812SIHI MT10797 2  7 411                        1
1409FCB161072102.72 0408000512SIHI MT10798             21100               1
1409FCB2110723         9       PEMA ECH2063 6 110733                       2
1409FCB171072102.72 05     0102CRPA ECH2019                                1
1409FCB171072102.72 05     1107BLBR ECH2020            41300               1
1409FCB171072102.72 05     0312SIHI ECH2021 3 11 621                       1
1409FCB171072102.72 05         PELE FCH2022            63200     006623   13
1409FCB171072102.72 05         PELE ECH2023            63200     00004532 13
1409FCB171072102.72 05         MIOC ECH2024            611                 3
1409FCB171072102.72 0508001102SIHI ECH2033 2  6 311                        1
1409FCB171072102.72 050800     PELE ECH2034            62100     00004614 13
1409FCB171072102.72 050800     PELE ECH2035            71100     00000000 03
1409FCB171072102.72 0508000812SIHI ECH2036 0  6 311                        1
1409FCB171072102.72 0508000807SIHI ECH2037             71100     00000000 01
1409FCB171072102.72 0508001212SIHI ECH2038 2  6 411                        1
1409FCB171072102.72 0508001012SIHI ECH2039 2  6 311
1409FCB171072102.72 050800     SYFL ECH2040 1                              4
1409FCB171072102.72 0508001210MIOC FCH2041 4 13 833                        2
1409FCB181072102.72 06     0112MIOC MT10810            62304   400007404O.412
1409FCB181072102.72 06     1112MIOC MT10811 6 15 833                       2
1409FCB181072102.72 06     1209MIOC MT10812            63200     21004421 12
1409FCB181072102.72 06     0211MIOC MT10807            62200     00004400 12
1409FCB181072102.72 06     0801PEMA MT10819 6 11 733                       2
1409FCB181072102.72 06     1003MUMU MT10820            63100     00006600 11
1409FCB181072102.72 06     0106PEMA MT10821            61100     00000000 01
1409FCB181072102.72 06     0512SIHI MT10822 2  5 311                       1
1409FCB181072102.72 06     1001SIHI MT10823 1  7 411                       1
1409FCB181072102.72 06     0502SIHI MT10824            63300     00050005 01
1409FCB181072102.72 06     0808SIHI MT10825 1 06 311                       1
1409FCB181072102.72 06     0212SIHI MT10826 1 10 411                       1
1409FCB181072102.72 06     0312SIHI MT10827 1  5 311                       1
1409FCB181072102.72 06     0911SIHI MT10828            71100     00000000 01
1409FCB181072102.72 06     1102SIHI MT10829 2  6 311                       1
1409FCB181072102.72 06     1001SIHI MT10830            61100     00000000 01
1409FCB181072102.72 06     1202SIHI MT10831            61100     00000000 01
```

```
1409FCB181072102.72 06      0603CRPA MT10799                 00                1
1409ECB181072102.72 06      0209CRPA MT10800      2 111                        1
1409FCB181072102.72 06      0601CRPA MT10801 4    2 111                        1
1409FCB181072102.72 06      0310REMG MT10802 4    5 322                        1
1409ECB181072102.72 06      0405REMO MT10803 2    2 111                        1
1409ECB181072102.72 06          MIOC MT10804            63231 1020001151l.613
1409FCB181072102.72 06          MIOC MT10805            31220 1401000021l.603
1409FCB181072102.72 06          MIOC MT10806            33200   00212221     13
1409FCB181072102.72 06          MIOC MT10808            63313 1100002314 3.403
1409FCB181072102.72 06          MIOC MT10809 2    1 111                        3
1409FCB181072102.72 060800071 0BLBR MT10813 1    2 111                        1
1409FCB181072102.72 0608000206BLBR MT10814 1    2 111                        1
1409FCB181072102.72 0608000812BLBR MT10815            41200   00               1
1409FCB181072102.72 0608000610BLBR MT10816 3    3 211                        1
1409FCB181072102.72 0608000208BLBR MT10817            33300   00               1
1409FCB181072102.72 060800      BLBR MT10818 1    1 111                        2
1409ECB181072102.72 06          SIHI MT10832 1    6 211                        3
1409FCB181072102.72 06          SIHI MT10833            63300   00002343     13
1409ECB181072102.72 06          SIHI MT10834 1    6 311                        3
1409FCB19107210     070800      CRPA ECB2030            41100   00             3
1409ECB19107210     0715001201PEMA ECB2031 6 11 733                          2
1409FCB19107210     0715001202SIHI ECB2032            31100   00446644     12
1409FCB19107210     07          MIOC ECB2025 6 13 933                          3
1409FCB19107210     07          MIOC ECB2026            33322 2000000022 6.203
1409ECB19107210     07          MIOC ECB2027 4    9 612                        3
1409ECB19107210     07          MIOC ECB2028 6 13 933                          3
1409FCB19107210     07          MIOC ECB2029            32300   00002400     13
1409ECB19107210     07          MIOC ECB2042 2    5 311                        3
1409ECB19107210     07          MIOC ECB2043            32300   003224 4     13
1409FCB19107210     07          MIOC ECB2044 6 14 833                          3
1409FCB19107210     07          MIOC ECB2045            62303 10000013031.113
1409FCB19107210     07          MIOC ECB2046 6 12 833                          3
1409FCB19107210     07          MIOC ECB2047 4    9 612                        3
1409FCB19107210     07          MIOC ECB2048 5    8 511                        3
1409FCB19107210     07          PEMA ECB2049 6 10 733                          3
1409ECB19107210     07          SIHI ECB2050            63300   00544654     13
1409ECB2010721      08          MIOC ECB2051            623 4   3000024040.213
1409FCB2010721      08          MIOC ECB2052 2    2 111                        3
1409ECB2010721      08          SIHI ECB2053            63300   00353436     13
1409FCB2010721      08          SIHI ECB2054            63300   00354437     03
1409FCB2010721      08          SIHI ECB2055 0    7 411                        3
1409FCB2010721      08          SIHI ECB2056 4    9 511                        3
1409FCB2010721      08          SIHI ECB2057            33300   00364569     13
1409ECB2110721      09          MIOC ECB2058            81100   00000000     03
1409ECB2110721      09          BLBR ECB2059            31200   00             2
1409FCB2110721      09          BLBR ECB2060 6    4 211                        2
1409ECB2110721      09          BLBR ECB2061            41300   00             2
1409FCB2110721      09          MIOC ECB2062            41200   00000000     02
```

Small Mammal Excavation Summary

This data was collected on data form NREL-16. However, there is no data set for these data. A copy of the data form follows.

IBP

GRASSLAND BIOME

U.S. INTERNATIONAL BIOLOGICAL PROGRAM

FIELD DATA SHEET - SMALL MAMMAL EXCAVATION SUMMARY

Data Type	Site	Initials	Date			Treatment	Plot Size	Plot Number	Structure	Genus	Species	Subspecies	Area
			Day	Month	Year								
1-2	3-4	5-7	8-9	10-11	12-13	14	15-20	21-25	27	29-30	31-32	33	35-45
16													

Structure

1 Mound

2 Runway

3 Burrows

4

5

6