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JAMES W. BEE

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Museum natural History, University of Kansas, Lawrence, Kansas
Mar 10, 1956
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MAMMALS of Northern Alaska

James W. Bee
and
E. Raymond Hall

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Color plate of mammals of northern Alaska. Grossenheider used specimens collected in northern Alaska for these reproductions,


R.B. Grossenheider

Museum of Natural History, Univ. Kansas, Lawrence, Kansas

March 10, 1956

The mammals of northern Alaska on the Arctic Slope was published today. Full bibliographic entry:

James W Bee and E. Raymond Hall. Lawrence, Kansas: allen Press, 1956 (Museum of Natural History, University of Kansas, Misc. Publ. no. 8). 9x6 inches; 309 pages, col. frontispiece; 4 plates, 127 numbered figures, 5 tables.

Some responses are:

Frank A. Pitelka, Museum of Vertebrate Zoology, Univ of Berkeley, California: "The gathering and ordering of information has obviously been careful and comprehensive, and I know all current and future students of Alaskan mammals will be greatly assisted by your work. There are implied or declared points about the biology of the individual microtine species which I don't agree, but when with a work of such broad scope, you were not attempting to deal with individual species elaborately. Anyway if disagreements didn't arise, research would be a dull business. I should add also that the book is beautifully layed out, the illustrations are excellent, and altogether the effect of the plan is a pleasing one."

Remington Kellogg, Director, Smithsonian Institution, United States National Museum, Washington 25, D.C. May 4. "you have surely done a thorough job of studying and writing up a fauna that until a few years ago was practically unknown. I wont to congratulate both of you in producing a very fine contribution to North American mammalogy."

Carl L. Hubbs, Scripps Institution of Oceanography, La Jolla, California: ... My interest in mammals, as you of course know, is in the marine forms, and I was enormously pleased with the very fine treatment that you accorded these in the book ... I would very much indeed like to have a copy in my personal library, which I use quite often for reference. The illustrations, for the marine mammals and others, are most attractive and useful. They certainly contrast with the sloppy outline figures that so many people are satisfied to use these days ...

Ira L. Wiggins, Scientific Director, Arctic Research Laboratory, Point Barrow, Alaska (Box 1070, Fairbanks) I am anxious to see the new publication for I have heard glowing reports about it from some of the people at the Museum of Vertebrate Zoology at Berkeley. It is indeed a great satisfaction to me, and I know that it is also to other people connected with the Office of Naval Research and the Arctic Research Laboratory, to have such a fine volume appear as a result of work which has been done at the Laboratory or under its sponsorship and with the office of Naval research support. Since I personally know something of the difficulties encountered in doing field work and working the material into condition for publication, I tremendously appreciate the work you have done.. and your associates have done in organizing the vast amount of material collected north of the Brooks Range and in pushing the publication through press. I believe that this will be one of the outstanding publications resulting from the work done at the Arctic Research Laboratory. May I congratulate all of you upon the successful completion of this project.

Some reviews from journals are:

William H. Stickel (editor) in the Wildlife Reviews of June, 1956, no. 85, United States Department of Interior, Fish and Wildlife Service. "Important research report with much information on ecology and natural history. It includes data from field work by authors and others in 1951 and 1952, data from museum collections, and data contributed by cooperators. Each species account includes Eskimo name, synonymy, description, spot map, records of occurrence, and drawing of skull. Most species accounts, especially those for small mammals, carnivores, and artiodactyles, report extensive observations on life history, population changes, ecology, and seasonal variation. The material on seasonal changes in skulls would constitute a significant paper by itself and so would the material on microtine ecology and cycles. The considerable amounts of information given on wolf, grizzly, and caribou should also be mentioned

Geographic variation and taxonomy are discussed for some forms. In general the taxonomy is conservative; Eurasian specific names are used only where the authors believe the need has been established. Marine mammals are included, but little information on them is given except for description and occurrence. The key is exceptionally thorough and detailed. Some factors that may influence cycles are discussed in the books introduction. An 18-page section describes the area and its biotic communities. The bibliography occupies 12 pages."

Bryan P. Glass, The Quarterly Review of Biology, Vol 32, no. 2, June 1957. "In the entire arctic slope of Alaska only 41 species of mammals are known to occur, and only 29 of these are terrestial. The details of the ecosystem of which each species is a part, and of the adaptations that permit each to survive, constitute a large part of this book. The problem of survival in the Arctic and the phenomenon of periodic fluctuation in numbers of individuals draw a generous share of the author's attention.

Accounts of species occupy the major portion of the text. Three shrews, 1 hare, 8 rodents, and 4 ruminants are the mammalian prey available to 13 species of terrestrial carnivores. In addition, 6 cetaceans and 6 pinnipeds are known to inhabit the ocean bordering the Alaskan arctic shoreline. Each species is described in the classic way. The greatest contributions of the work are to be found, however, in the section entitled Remarks, for here are recorded virtually all of the observations made upon each of the species during the entire course of the study.

The plan of the book is somewhat the reverse of the usual practice; for the acknowledgments and various subjects of general consideration appear at the very end, rather than at the beginning. The section on geography and climate contains several very informative photographs of the arctic terrain.

(Byron P Glass is the present Secretary and Treasurer of the American Society of Mammologist - Journal of mammalogy.

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Herausgegeben von Theodor Haltenorth und Herman Kahmann

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Dr. Th. Haltenorth

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Zool. Staatssammlung

BEE, J. & R. HALL: Mammals of Northern Alaska on the Arctic Slope. University of Kansas, Museum of Natural History, Lawrence, Kansas, Miscellaneous Publication No. 8, 1956, 309 S., 5 Tafeln, 127 Textabb., Preis broschiert 1 Dollar, geb. 4 Dollar.

Die von HALL herausgegebenen „Miscellaneous Publications" seines Museums bringen wertvolle Arbeiten. Als letzte neben „The Raccoon in Kansas" von STAIN und „The Tree Squirrel in Kansas" von PACKARD wiederum eine mammalogische, nämlich die vorliegende über die Säugetiere Nord-Alaskas. Das Buch behandelt alle im Gebiet vorkommenden 42 Arten (wobei auch die Wale und Robben mit einbezogen sind) in systematischer Reihenfolge. Jede Art wird beschrieben, ihre Synonymie, Maße, Fundortskarte, -liste, Schädel-, Gebiß-, Mauser- u. a. Abbildungen, sowie das Wichtigste über die Lebensweise und ein Bestimmungsschlüssel gebracht. Der Schluß betrachtet die Säugetierfauna zusammenfassend und nach Landschaftstypen sowie die Lebensgemeinschaften des Gebietes, und enthält auch ein ausführliches Schriftenverzeichnis. Das Werk ist ein sehr brauchbares Handbuch.

Referent: Th. Haltenorth

AISB Bull, Nov. 1956

Mammals of Northern Alaska. JAMES W. BEE and E. RAYMOND HALL. 309 pgs., illus. University of Kansas Museum of Natural History (Publication No. 8), Lawrence, Kansas. (1956) $1.00 paper bound; $4.00 cloth bound.

The Arctic Slope of Alaska, source of the mammals described in this book, is defined as the region from the crest of the Brooks Range of mountains northward to the Arctic Ocean. In this region 7 orders, 18 families, 32 genera and 42 species of mammals are found. These species are treated in a most comprehensive manner by the two authors. Historical detail and natural history discussions lend interest to an otherwise typical systematic manual. Illustrations include skull diagrams and range maps.

560310-7

Entered March 10, 1966

From: Arctic No. 3, Vol. 9, pp. 208-9

MAMMALS OF NORTHERN ALASKA ON THE ARCTIC SLOPE.

By JAMES W. BEE and E. RAYMOND HALL. *Lawrence, Kansas: Allen Press, 1956. (Museum of Natural History, University of Kansas, Misc. Publ. No. 8). 9 x 6 inches; 309 pages; col. frontispiece; 4 plates, 127 numbered figures, 5 tables. Cloth $4.00, paper bound $1.00.*

This book represents the first attempt to provide a definite account of the mammals occurring on the Arctic Slope of Alaska. It is based on specimens collected and observations made by the authors and their assistants during two summers (July 3-September 6, 1951; June 14-September 12, 1952), and on material in the collections of nine museums in the United States and Canada.

A coloured frontispiece by R. P. Grossenheider depicts the five species of microtine rodents and the three species of shrews considered in the book. Although well executed by the artist, the subtle shades of colour seen in the living animal are not accurately portrayed. The book consists of a short introduction, a check list of the species considered, a discussion of these mammals, a hypothetical list of species for which records are lacking, a key to the mammals of the Arctic Slope, a short discussion (22 pages) of the geography, climate, and biotic communities of the Arctic Slope, an itinerary, and a bibliography of 177 titles.

The introduction contains a discussion of the cyclic fluctuations of certain species of arctic mammals, a phenomenon attributed to the effects of starvation, predation, and disease. There is also a brief comparison of the faunas of arctic, temperate, and tropical regions.

The bulk of the book, 247 pages, is taken up by the discussion of the 42 species of mammals recorded. In addition to the scientific names, the common and Eskimo names are given. A list of pertinent references precedes each species account. A detailed description of each species is given, supplemented by appropriate illustrations, including a line drawing of the skull. Under "remarks" are given field observations and data on trapping results, reproduction, molt, and general ecology. Previously published records of occurrence are summarized at the close of each account, and stations of occurrence are shown on an outline map.

Emphasis is placed on the shrews and microtine rodents, with over half the total section on species being devoted to them. For these mammals detailed observations on reproduction, composition of populations, and molt are given. Many data are presented by means of graphs, the use of which in some cases might be considered excessive. The discussions of mammals do not adequately take into consideration the fluctuations in population density so characteristic of shrews and mouse-like rodents of the region. Consequently, observations on habitat preferences and interspecific relationships are often misleading. Everywhere in the discussions one finds animal behaviour interpreted in a purposeful way, such as (page 81): "The lemmings retreat to these ice chambers . . . to keep cool during the hottest part of the summer." Throughout the book other observations are often given interpretations not supported by available data. The authors use their own data almost exclusively and make no attempt to synthesize the work of others in interpreting their observations. Had this been done, a much more valuable contribution would have resulted.

Not many specimens of the larger mammals were collected, nor were specimens in other collections studied, especially of the larger carnivores (wolf, bear, wolverine, etc.), but this is also true in the case of the common seals, specimens of which are obtainable in the coastal Eskimo villages. It is unfortunate that the authors did not discuss the taxonomic status of the terrestrial carnivores, even where it appears to be important. In some accounts skulls that were not collected in Alaska have been used for illustrative purposes, among others black bear and otter from California, moose from Minnesota, and caribou from Greenland. Although this is of little technical importance, it nevertheless distracts from the value of the work. In all such cases the same subspecies that occur on the Arctic Slope are found also in the forested regions to the south, and suitable material is available. Of the 29 terrestrial species considered at least 24 are widely distributed in the forested regions of Alaska and northern Canada.

In the section on caribou the authors forcefully criticize the "control" of wolves on the Arctic Slope as being biologically unsound and probably detrimental to the welfare of the herds.

The localities where the authors made their collections were largely places where collections had been made by others. However, although mammals have been studied from relatively few localities, the region is so uniform that few differences can be expected.

The authors have made the fullest use of the material at their disposal. The book will serve as an important and valuable guide to those continuing this work in arctic Alaska.

ROBERT L. RAUSCH

MAMMALS OF NORTHERN ALASKA ON THE ARCTIC SLOPE. By JAMES W. BEE and E. RAYMOND HALL. Univ. Kensas Museum of Natural History, Misc. Publ. 8, 1956. Paper, $1.00; cloth, $4.00.

Having spent some time encamped with these two workers on the Arctic slope, the reviewer can understand the painstaking quality of this work. He remembers the immense detail of work in trapping and recording the microtenes, and it is on this section of the mammals of northern Alaska that their contribution is particularly valuable. Bee and Hall would be called systematists, but they carry that title in the newest sense of the profession, of those workers who recognize that similarities or difference in behaviour and ecology have significance in the establishment of specific rank.

The treatment of the microtenes is full and new. We learn of their specific associations with different plant complexes and terrain and even food preferences are given for some species. It is when the authors come to species which they did not study intimately that one realizes the excellence of the work on those they did. It is a little surprising, for example, to find the coyote listed as an old inhabitant of the Arctic slope, or even of Alaska at all. The probability is that the coyote is a camp follower into the far north and that, as elsewhere, it has increased wherever extermination or reduction of the wolf has raised the ceiling of opportunity.

Again, in the interesting passage on migration of caribou, the extensive aerial reconnaissances of the U.S. Fish and Wildlife Service appear to have been ignored. The suggestion that the rut in Dall sheep was " well along " by 19th August is based on observations of fighting. This would mean birth of the lambs in January and February, an unlikely event in the Arctic winter. Lambs seen in June at close quarters by Leopold and myself were certainly much younger than this.

The final section of the book, on characteristics of the mammalian fauna, and on the biotic communities of the Arctic slope, is closely observed and tersely written, a most welcome addition to the literature of Arctic ecology.

F. D.
Darlington

JOHN AND WILLIAM BARTRAM'S AMERICA. Edited by HELEN GERE CRUICKSHANK. The Devin-Adair Company, New York. $5.00.

This is the fourth book in the American Naturalists series.

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Lawrence, Douglas Co., Kansas

March 23, 1956

The following information from a letter from Dad on his investigation of the golden eagle in Utah. "March 23rd was the day to investigate nesting golden eagles - specifically the pair using the Goshen Pass, Utah Co. aerie. This date was chosen as many eggs of this species collected April 1st and later were advanced in incubation - skeletal elements showing. The day was sunny and springlike width midday temperature in the 60's. Grandson Dan B. Jensen accepted an invitation to accompany me and before the day was far spent he was thoroughly enjoying the delving into the marvels of the out-of-way places.

The usual roadside hords were noted - English sparrow, robins, meadowlark, horned lark, crested jay, red-wing and yellow-headed blackbirds and the Calif. gull. Five eared grebes were enjoying the waters of Spring Lake Reservoir. Near Goshen, on a shallow pond fed approx. 25 migrating pintails. They were nervous, when we stopped the car for a count, there were those among them which begun swimming toward the off shore while others made short flights to increase the distance between us. Five canvas-back ducks swam on the waters of Elbert Reservoir. Two Treganza blue heron flushed from the shore of the same. A ferugenous rough leg hawk and three raven were observed along the power pole line southwest of Mosida. A short-eared owl left the edge of a stack of tumbleweeds to make a short flight.

As the car was stopped approx. a quarter of a mile east of the known golden eagle aerie of Goshen Pass, we observed a bird of this species flying slowly over the nesting ledge, reconnoitering the while. The appearance of the eagle was encouraging and we hoped the aerie would furnish a nesting record. Shouldering the cameras and collecting box we made our way toward the talus slope. Beginning the ascent of the slope, the nesting eagle fleushed to join aloft her mate. Approaching humans on the eagles nesting terrain is usually considered ill-omen by these birds. They leave immediately when intruders are seen to enter on their domain and the eagles remain a safe distance until the unwanted leave. As we proceeded the female returned to alight on the nest for a

split second only to leave as quickly as she came and before the movie camera could be brought into action.

Hiding behind an outcrop, approx. 150 feet below the nest, we waited several minutes, in the hope one of the eagles would again fly near for a picture. The birds awareness forbade their return and we decided to proceed to the nest. The structure was topped with little fresh material (see former description of this nest); no fresh sticks or brush in evidence. The cup, or better stated, depression of the nest had acquired a small amount of fresh juniper bark and a few downy feathers of the eagle. The three eggs were differently marked, one with brick red and purple over the entile surface; the other two were marked similarily in differing intensity, sans the purple. measurements of the three eggs are: 76.6 x 60.7 mm, 73.7 x 58.1 mm; 72.3 x 58.4. Incubation fresh. This beautiful set of eggs furnished the Bee Collection with the third set of 3 eggs of the golden eagle and established added continuity of use to the numerous previous records of this aerie. Before our departure from the area, we investigated the two alternate nests further south in the outcrop to find them unused and weathered.

The return trip via the north end of Utah Lake and Lehi added no new species to our list. Data: mileage 101.5 miles; Temp at Provo at 8:30 AM - 52°F; 16 mm movie shots - Don at nest - 5.6, 16 frames - 4" telep. - kodacolor - subject on the dark side with some shadow. Distant shots of eagles over ledge 8 stop, 16 frames, Kodachrome, 4" tele.

The following information from a letter sent to me from Dad, march 24, 1956 concerning an eagle trip in Utah. This morning bright, in 8's in bright to hazy sun. At 10:05 grandson Don B. Jensen and his friend mark Brinehalt and myself left Provo with the Sevier River Bridge, Juab Co. and the Pavant Crater, Millard Co. eagle aeries as our objectives that we might determine the nesting activities, if any, of the eagles of those areas for this particular season.

Chicken Creek Reservoir, usually a host to numerous waterfowl was rough due to a brisk wind. A small flock of several waterfowl only were seen in the distance. Their species determination was not ascertained. A

marsh hawk flew over the meadow to the north. As we neared the Sevier River bridge (Juab Co) crossing Highway 91 a car was parked at the side of the road in view of the eagle nesting ledges; the car was recognized as that of J. Donald Daynes mrk Daynes sat patiently awaiting the return of the collectors who could be seen in the distance making their way to eagle aerie no. 3 of the area. It was from this nest an unusually large set of golden eagle eggs were collected by Mr. Daynes the previous year. Drove to ~~eagle~~ eagle nest no. 4 of this area. It was determined that this alternate nest was not in use the present season which also applied to nests 1 and 2 and nest no. 3 which had been disturbed. At the pass between Scipio and Fillmore a golden eagle was flying ~~alongside of~~ over the fields in search of food. Time did not permit an inspection of the nearby ledges.

Arriving at the Pavant Crater the extensive desecration of this interesting natural feature was disturbing. New mining notices dotted the face of the volcano. We had hoped this could be preserved as a State Monument. The crater is large enough to encircle an average city block with extensive lava flows to the north and south. Commercial cinder mining had increased their activities. As a result yawning ragged excavations had been formed by the removal of the prized cinders used for the making of concrete blocks, brick, walk surfacing and other. The road to the rim of the crater was severed and it was necessary to circumvent the pits to pick up the trail to the edge of the crater.

Ascending the trail with strong winds throwing one off balance with each step, we arrived at the crater's rim where one could survey the interior surface. It was on this inner slope that an eagle's aerie had been previously located and had furnished us with a nesting record. Bringing the binoculars into play, the incubating eagle could be seen on the nest.

It was decided to circumvent the outer surface of the crater and enter the from the west through a break in the wall formed by the escaping lava. That we had chosen the more difficult route was soon evident. Areas of sharp sliding magma, the strong wind and steepness of the slope made progress slow, and, remaining upright

difficult.

Reaching the interior, the binoculars were focused on the nest. They disclosed the structure had had seasonal repair. Don and Mark, anxious to examine the nest worked their way up the steep jagged face of the crater, approx. 40 feet as I made ready the cameras. Don, the first to reach the nest, shouted "two eggs". The incubating eagle had unnoticed left her nest and at no time during the investigation of the nest or area were the eagles later seen.

The eggs were sparcely marked with brick-red, one area over the larger end, the other on the smaller. The top of the nest measured seven feet along the face of the wall and showed extensive new materials - sage and rabbit brush. A liberal amount of wheatgrass, cedar bark and a few downy feathers of the eagle were in the depression; also, two stones of lava the one in the depression, an angular 2" x 1" thick and the other, a much larger, 6 x 3 x 2 inches was on the rim of the nest (bringing stones to the nest by eagles is not uncommon). Three legs sans flesh of the jackrabbit lay on the rim of the nest with others woven into the structure. Various bones of the same animal was on the ground nearby.

Another nest of the eagle, an alternate, was observed by the boys. It was built in a sheltered recess in a rather cramped situation approx. 150 feet east of the occupied nest. This nest was overlooked during the previous season by Dr. C. Lynn Hayward and myself, at which time both eagles were seen in the air over the volcano and could have been nesting at that time.

Our objective accomplished we made our way back thru the aforementioned opening of the crater and along a base trail much more easily negotiated. As we were leaving, three ravens were seen in the air high and to our right or south. Their aerial gymnastics soon disclosed an attempt at mating. The two males made passes and feints at each other to win the affections of the female. The most daring was obviously winning out as the less aggressive seemed to be showing signs of discouragement.

The measurement of the eagle eggs collected at this crater are: 70.5 x 56.2 mm 70.6 x 58.0 mm. Mileage of trip 256 miles. Altitude at rim of Pavant Crater 5175 ft. 4" telescope lens.

5G0410-13

Lawrence, Douglas Co., Kansas

April 10, 1956

The following information sent to Senor Jorge A. Iburra museo nacional de Historia natural, Guatamala City, Guatemala "La Aura" Campo de la Feria.

"I was happily surprised to receive your kind letter of April 2 and I might say that I am highly envious of your pending expedition into the wilds of Petén. Of all the trips that I made in Guatemala, the one to Petén with you and your kind friends was the most memorable one.

"Two tubes of insect repellent, which will be making their second trip into Petén, were shipped by airmail-special delivery on the morning of the ninth. The postmaster at Lawrence told me that the package will go through customs at Guatemala City so you should keep in touch with your people in customs as I know, from efperience, that they will take several days to process the package before you finally get it which may then be too late for you to take to Peten. In the meantime, I will see if I can find additional tubes of repellent for you.

This morning I was talking to Dr. Tordoff, our ornithalogist at the muskum, about your trip to Petén and he informs me that we do not have wild turkeys from Guatemala and that we would be very happy if arrangements could be made to get one or two specimens from your country. If apportunity arises for you and your assistant to collect a male & female, they could be skinned, dried and shipped collect to customs at Kansas City. Tordoff could pay $20.00 for two such skins.

After I finish a manuscript on the Birds of northern Alaska, I expect to publish a paper on the mammals which I collected in Guatemala. There are some new undescribed forms.

I am sorry that you did not have the opportunity to visit the University of Kansas but I know you would have if at all possible. At the time you were in St. Louis I was in northern Minnesota collecting material for our exhibits, otherwise I would have tried to see you in St. Louis. I have not not made my last trip to Guatemala and I know you will visit again our country, so eventually our families will have a chance to meet each other.

Did you contact people in our country who could help you in your plan to establish primitive areas or sanctuaries in Guatemala. I think it is one of the first and most important things to do, especially now that oil companys are penetrating the last remaining wilderness of Guatemala. These companys cannot but help change the nature of your country with roads and clearing for drilling activity and laying of pipelines.

Give my regards to Senor Vela who I remember as one of your greatest Statesmen and especially to Julio Herrera and his family for their kindness in letting me stay at their finca. The new irrigation project must have really changed their land. I would also like to be reminded to Senor Pedro Sole and I am wondering if you and he might some day write an article about the deer of Guatemala. I think you are both qualified to do this. Do you ever see Senor Fredrico Sarasote who supplied me with the squirrel. I wonder if Jorge Olalla of the finca Villalobos will forgive me for our misunderstanding about joining me to Peten. Did he later request employment at your museum as I think he had sincere interests in collecting animals + birds. Have your assistants at the museum started to collect Mammals, if not, they should get started right away if you want your museum to be one of the great ones for Central America. And above all, give my best regards to W.W Brown who by now, I presume, owns all the oil of northern Guatemala!

I will never forget your good family, especially, your dear children Jorge and Claudia, how will I ever be able to thank your good wife for all her kindess for giving me the opportunity of see one of the kindest and considerate families in Guatemala. Do you still have the same efficient servant. She certainly accepted responsibility for a girl of her age.

Let me hear about your experiences in Petén when you return and I am extremely interested in anything that you do in Guatemala along the naturalistic pursuits. If there is anything that we can help you with please let me know.

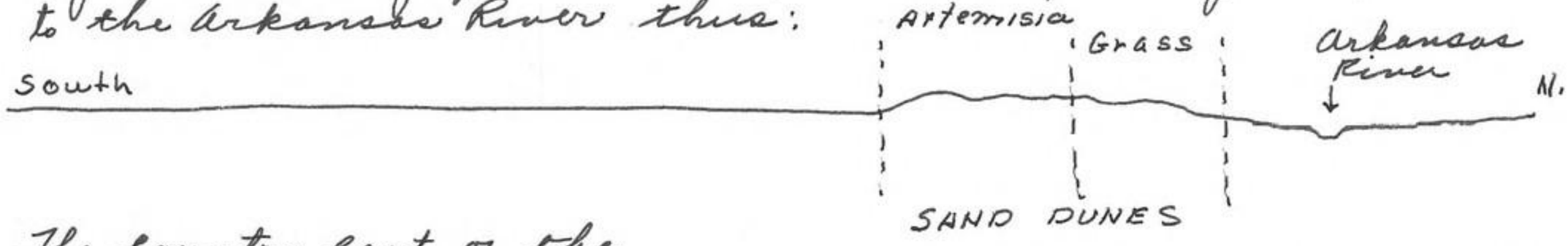
James A Lee

[for april 20, 1956, see addenda, page 561228-59] 560424-15

Lawrence, Douglas Co., Kansas

April 24, 1956

Left today for western Kansas to get information on prairie grasslands for panarama at the Univ. of Kansas natural History Museum. George Young accompanied. Left 7:00 A.M for Sublette in south-western Kansas. Mileage 54561. Visibility at Lawrence to 50 miles SW approx. 1½ blocks, ice on windshield Route via Ottawa, Emporia, Newton, Hutchison, Pratt, Greensburg, Meade, Sublette. Arrived 5:30 P.M. Enroute crow common Hawks rare, meadowlarks uncommon. wheat from 3 to 10 inches high. First yucca at 1½ miles east of Preston, Pratt Co. at Sublette, Senator Hutchman drove us to his farm approx. 1 mi. nw of Satanta some 8-10 miles west of Sublette. As the ~~fo~~ buffalo grass was not suitable on his farm nor on neighboring farms we decided to use grass on the Santa Fe railroad right-of-way, approx 400 feet east of the eastern-most grain elevator at Satanta. Senator Hutchman was to make arrangments with the railroad for permission to get the grass, and for possible use of a flat car for hauling the sod to Lawrense. Hutchman was to water the grass and request freedom from grazing. He claims that is area is not as primitive as can be found. Other native grasses were overgrazed and showed signs of misuse. The soils were beginning to move and cacti enter the fields. Continued north to Garden City. The area between Sublette and Garden City is relatively flat but slopes approximately 200 feet to the Arkansas River thus:



The country east of the Arkansas River gradually gains elevation as at Sublette and about same distance (38 miles) to north. No saudunes north of Arkansas River.

Garden City, Kansas

April 25, 1956

Stayed at Garden City last night. This A.M Continued north to Elkodar, thence W to Chalk Bluffs. Of the bluff area, Chalk Bluffs, is more ettensive and although small is surface area, is more interesting. Visited

monument Rocks to east of Elkader (4 miles east and 2 miles south from school house on north side of river). These rocks ~~roads~~ are being eroded by cattle and especially by man. They should be praticted from randalism. From this area took approx. 10 pictures in color of the bluffs. From here went to Oakley, thence east to Quinter. From 5 miles S and 20 miles S of Quinter we collected jackrabbits. Area of wheat and buffalo grass. Approx. 70 blacktail jackrabbits were observed in this 20 miles of hunting. 17 were collected. Eight cottontails were noted and one collected. The locality for these jackrabbits is designated as 12 miles south of Quinter, Gove Co., Kansas, except one rabbit from Castle Rock, SE of Quinter. Wherever jackrabbits are found, they are in high numbers but they are only found in restricted and isolated areas that have not been put under cultivation or areas that have been overgrazed to the extent of removing ~~all of~~ ground vegetation but not the overhead protection which offers rabbits places for retreat and seclusion during the day. In 95 per cent of the observations of jackrabbits, they were associated with places that offered overhead protections and these places were either weed patches or among native grasses in draws or along fence rows near native grasses or fields that had been allowed to grow uncultivated. Nearly all of the grazing lands in western Kansas have been grazed to the limits and beyond, and all that remains of the buffalo grass, while still essentially undamaged as far as recuperative powers of regrowth is concerned, is a low mat grass only a quarter of an inch or so high and other low growing grasses that are not eaten by cattle. In otherwords the grazing lands look more like a mowed city lawn than a prairie. Many places, however, have been so completely overgrazed that the soils, especially in sandy regions, are starting to shift and cacti are taking over. Some of the fields of buffalograss however, while completely sealing in the ground, are so short that cacti are invading. Overgrazing is not a good conservation procedure. It is obvious that cattlemen are grazing more animals than the grasses can support. Fewer grazing animals would allow the native grasses to return a healthy condition and perhaps produce more beef per acre. The jack rabbits, which normally used the great expanse of grazing

land when grasses were high enough for protection are now being forced in great numbers to the last remaining natural areas of unused areas of higher vegetation. In only one instance was a jackrabbit seen in new wheat fields and then was perhaps only passing thru from one weedy patch to another. I am sure that the jackrabbit, at least today, are not inflicting damage to the newly growing wheat. In later summer, when the wheat is higher, I believe that rabbits might seek protection there and will then perhaps dose some damage. The apparent high population of rabbits results from cutting of the wheat and decreasing the overhead protection and making more conspicuous the rabbits. There were no jackrabbits in the extensive areas of native, overgrazed grasslands, nor in extensive areas of new wheat, only at the edges where weedy fields or misused fields of high grasses were present. A low breed of wheat or continued excessive grazing of native grasses and cleaning up of weed field would eliminate the jackrabbit from the prairie. The cottontail rabbit are in areas of tumbleweed, and eroded areas in gullies or among rocks. Collected a Sylvilagus from a central mass of rocks at about 3/10 mi. SSW of Castle Rock, Gove Co., Kansas. This rabbit was on a benchland of rocks among deeply eroded masses of rocks. Field numbers for the rabbits we collected are:

560425-1 Sylvilagus (from Castle Rock, see above).
560425-2 to 560425-18 Lepus (12 mi. S Quinter)
560425-19 Sylvilagus (12 mi. S Quinter)

One road killed badger was inspected at 4 mi. W of Quinter, Gove Co., Kansas.

While at Castle Rock today, photographed a section of rock which I believe was used as the basis for the reconstruction of the panorama of western Kansas at K.U. The area to the south of Castle Rock is ungrazed and should be used for reconstruction of the vegetation for the foreground of the exhibit. A Mr. Stewart of Quinter owns this area of Castle Rock and may know who owns the land of ungrazed grass south of the fence. It is my opinion that all of the bluff area should be made a State Park and the area should be fenced and trails made permanent so that vegetation could again return to normal conditions and the rock structures saved from human <u>erosion</u>! Will plan to return to here at a later date.

Quinter, Gove Co., Kansas

April 26, 1956

Returned to Lawrence this date. Expense for trip including lodging and food, $12.90. mileage on return 56626 miles or 1065 total. There were many ducks in the small ponds and lakes especially in the western part of Kansas. The spoonbill was ~~at~~ from Douglas Co west to the western counties and constituted 95 per cent of the ducks observed. Some lakes had only spoonbills.
[for mby 4, 1956 see addenda page 56,228-59]

Lawrence,
Douglas Co., Kansas

May 6, 1956

many new green leaves of trees and clusters of leaves have been blown to ground by high winds. This pruning action of leaves may be important process in the ecology of forest growth and plant-animal community.

University of Kansas, Law Building, Lawrence, Douglas Co., Kansas

May 6, 1954

The following birds flew into the glass lined corridor joining the new annex to the Law Building just west of the Museum of Natural History

1 olive-backed thrush
1 house wren.

These birds were killed by brain concussion or broken neck vertebrae.

University of Kansas, Law Building, Lawrence, Douglas Co., Kansas

May 7, 1956

The following birds flew into the glass windows of the corridor leading to annex of new law library, same as above.

1 painted bunting
1 yellow warbler

May 11, 1956

A male Tennessee warbler was killed by flying into window of corridor between the law building & Annex. (See Aug 5, 1953 for composite listings of birds killed including this bird & the ones above).

560511-19

MINISTERIO DE
EDUCACION PUBLICA

MUSEO NACIONAL DE HISTORIA NATURAL

CAMPO DE LA FERIA "LA AURORA" - TEL. 9842

GUATEMALA CITY, GUATEMALA, C. A.

May 11,1956.

Mr. James Bee
Museum of Natural History
University of Kansas,
Kansas City, U. S. A.

Dear James:

Just a few days ago I came back to this city and now I take this opportunity to answer your very kind letter of april 10.

The trip I realized to the jungle was very fortunate; in the first place I could say that the insects were not of blood thirsty and the reazon is obvious: the two tubes of repellente were received on time and I want to express my gratitud for your valuable assistance, though you haven't told me the price of these precious tubes of insect repellent.

I stayed in La Libertad trying to capture some ocellated turkys for Dr. Tordoff. I didn't find any, but I hope to obtain some of these birds in my next expedition; any of these and some mammals will be sent to your university in the future as a souvenir of my museum.

I am very happy to know about your activities on birds of Northern Alaska and I hope to have the surprise to read something about the underscribed mammals that you successfully collected in Guatemala.

Certainly I was very sorry not to meet you when I stayed in your great country, but I think that some time in the future will be any opportunity to see you and family. I believe that the world is small and the occasions to find our excellent friend, are not rare.

My desire to establish primitive sactuaries in this country will be realized ; there are some people interested in its realization, especially now with the development of the oil companies which will be actively working in Petén.

I have given your regards to the persons thaty you mentioned in your letter and they have expressed their desire for your success in Natural History.

My wife sends to you and family the most sincere regards. Two days ago my little boy mentioned your name in the niciest manner saying: "yo me llamo Dr. Bee", as you can see, he also wants to be a scientists.

With my best wishes, I remain,

Sincerely Yours,

Jorge A. Ibarra
-Director-

Lawrence, Douglas Co., Kansas
June 6, 1956

The following is a letter from Angus Cameron, Frazzletop Farm, Upper Jay, New York, dated June 6, 1956

my dear Dr. Bee,

The vol. 9, no. 3 issue of Arctic carrying the review of your monograph solves, at least, a problem I have been bothered by for two or three years. In late August of 1952 I spent three days on the little lake at the headwaters of the E. branch of the Sagavanirtok and while there I saw the remains of the camp of "a group of mammalogists from the midwest somewhere who were in there at one time." That's the way it was described by Reed Helmericks with whom I was camped. In fact, we discovered that we could take our Cessna 170 in and out because you were alleged to have got in by means of the same plane.

Anyway, we did get in - and out - and ever since I have been trying to locate our predecessors. I am ordering two copies of the monograph and will read it with interest and in spite of what seemed to me to be a rather ill-tempered review by Rausch.

I shot a nice dall ram in there, or rather I shot him about a mile from the Canning and packed half of him back up that little creek which runs out from that valley the other direction and empties into the Canning. You may remember that Leffingwell states in his big monograph on the Canning that a prospector told him the little creek indicated on his map of the upper Canning rose near the same lake which was the headwater of the E. branch of the Sagavanirktok.

If your work, or vacation, or learned meetings bring you to New York I wish you would give me a ring at my office (Walkins 4-2706). We could cut up some old scores about the Arctic slope. Incidently, for reasons which you can well imagine I named that little lake you and we camped on Nelikpuk Lake. Sincerely.

Lawrence, Douglas Co., Kansas

July 7, 1956

Departed 8:20 A.M for Provo, Utah. Mileage 41325. Camped at Wakeeney at sunset.

Wakeeney, Kansas

July 8, 1956

Departed 6:05 A.M at Mileage 61641. Route 40 all the way. at 10 miles east of Wallace, Kansas noted one fresh killed badger. many more doves and magpies west of Rabbit Ears Pass in Colorado to Mayfield Colo, then elsewhere; mainly in Transition Zone. Camped 2 miles east of Craig, Colorado, arriving 7:30 P.M.

Craig, Colorado

July 9, 1956

Departed 5:50 A.M. Followed highway 40 all the way. Mileage 62171. Arrived Provo in the evening at mileage 62460 miles. Total miles from Lawrence to Provo 1135. 83.3 gals of gas at $23.61 for gas and 1 qt of oil. Average miles per gal = 13.6

Provo, Utah Co., Utah

July 10, 1956

Visited BYU and got address of Dr. S. Elden Beck as W.H.O Malaria + Insect Control team, Chua-chau, Ping-Leng, Taiwan (Formosa)

July 11, 1956

Fished at Strawberry Reservoir with Don Jensen, and Frank. Caught 4 trout.

July 14, 1956

Fished at Deer Creek Reservoir with Mary, Don + our family. 40 to 50 perch.

July 17, 1956

Timp Cave with Donnie, Jay, Annette, Chris and Polly.

July 18, 1956

Picnic in Provo Canyon with Wilmer Tanner and family

July 20, 1956

Bingham Canyon Copper Mining Pit, Black Rock at Great Salt Lake for a swim, Alta, hiked to upper Cirques, beautiful flowers on all slopes.

July 21, 1956

Glenn Canyon Park in Provo Canyon for picnic with Mary, Don and family

560723-22

Provo, Utah Co., Utah

July 23, 1956

Departed early this A.M for southern Utah on our way back to Lawrence. Kept record of gas + oil consumption for the entire trip from Lawrence to Provo and return:

July 7	Lawrence, Kansas	61325	13 gals		$3.20
" "	Salina, "	61479	10.9 gal		3.03
" "	Wakeeney, "	61619	5.9 "		1.60
" "	Cheyenne Wells, Colo	61766	12.1		3.77
" 8	Denver, "	61954	12.4		3.71
" "	Hayden, "	62151	12.4		4.40
" "	Roosevelt, Utah	62329	10.6		3.60
" "	Provo, Utah	62460	(tank 1/2 full)		
		1135 mi	83.3 gals		$23.61

or 13.6 miles per gallon

July 23	Provo, Utah	62646	(full tank)		
" 24	Circleville, "	62822	13.5		4.34
" "	Escalante, "	62931	7.1		2.60
" "	Torrey, "	63003	7.6		2.69
" "	Hanksville, "		4.5		1.35
" 2 & 4	White Canyon, "	63119	5.5		2.09
" 25	Blanding, Utah	63206	8.9		3.25
" "	Mesa Verde, Colo	63304	6.1		1.95
" "	Pagosa Springs, "	63405	6.9		2.12
" "	Wolfe Walsenburg, "	63575	11.6		3.45
" "			1 qt oil		.45
" 26	La Mar, Colorado	63713	6.5		2.13
" "	Gilmore, Kansas	63876	9.4		2.73
" "	Killsboro, "	64045	8.0		2.00
" "	Lawrence, Kansas	64192	7.9		2.25

The road from Hanksville to White Canyon is the one taken by Dad in the early 1900 with Dr. Bracken and Mr Engelsby. The road in N gulch is passible only on fair weather days. Each flood destroys the road (such as it is) and the canyon must dry out and the debris graded from the road. Large, low cars find passage difficult. Noted several Indians at a spring along the lower reaches of the canyon. Old post office and Ka Cabin used for a home in early days) still remains at site where one must ferry across the Colorado River

Lawrence, Douglas Co., Kansas

Aug. 1, 1956

Departed 8:30 A.M at mileage 9134 for Churchill, Canada. Alford Robinson of Topeka, George Young and myself made trip to collect material of arctic section of panorama at the Museum of Natural History, Univ of Kansas. Arrived Rocks Rapid, Iowa at 7:00 P.M at mileage 9492 or 358 miles.

Rock Rapids, Iowa

Aug 2, 1956

Departed 7:15 A.M, route 75 all the way to Grand Rapids, north Dakota, thence west on highway 2 to Rugby, N Dakota. Covered 485 miles today (mileage at Rugby 9977 mi.)

Rugby, North Dakota

Aug 3, 1956

Departed 7:30 A.M, highway no. 3 to Bandon, Canada. Rain all the way. Coots and grebes in lakes but ducks rare. Prairie (mountain form) to Dunseith, thence N to 500 ft hills of aspen lake forests. Noticeable increase in ducks and hawks. Prairie intermediate between aspen and true prairie. Birds at international boundary on north side; mallard, pintail, eared grebe, coot, hawk sp?, mt. bluebird, crow, blackbirds, muskrats, cottontail. Fifteen miles north country drops down to prairie at 2,000 ft, as was the level of the prairie south of the boundary. Only trees are around houses. The hills are terminal moraines with lakes. Conspicuous birds beyond hills to north in order of abundance: red-winged blackbird, mourning dove, crow. Other birds include Eng. Sparrow, black tern, striped skunk (rd. kill), goldfinch, swallows. Lunch at noon north of minedosa at 10118 miles. Minedosa River at 10122.9. Considerable erosion from sede of valley.

Started census of crows from mileage 10126 (north of Minedosa) to north, or properly from ~~Erickson~~ 10126 mileage. Beginning of good aspen a few conifers on all slopes and exposures, not just in canyons as was true to the south.

10128.9	2 crows
10130.5	4 "
10131.4	1 "
10132.4	Erickson

10135.4 2 crows
10141.6 Oranle (spelling ?)
10143.5 Entrance Riding Mt. National Park. Good stand of conifers for first time.
10145.9 back on mileage schedule
10163.7 2 crows.
10165.0 Ducks rare of lakes in Park.
10173.9 Lookout Tower 1850 ft.
10177.2 N Park Entrance
10177.4 1 crow. North of Riding Mt., country flat and treeless except planted trees around homes and cities.
10185.6 Dauphin City
10199.7 1 crow Highway 10
10201.1 3 crows
10204.3 7 crows, 2 crows
10208.7 magpie
10210.8 2 crows, 3 crows
10220.0 Many old log cabins and sheds in this valley. Road follows along N5 ridge about 15 or so feet high.
10221.9 Ethelbert City.
10223.4 4 crows, 1 crow
10225.4 18 crows in one group
10227.3 2 crows
10229.7 4 crows
10231.6 Garland City
10234.0 Beginning to look like the bush with more conifers and fewer farms.
10240.7 Pine River
10243.0 Raven
10245.7 5 crows
10249.6 1 raven
10250.7 1 crow
10250.9 Sclater City
10255.4 3 raven
10259.0 Cowan City
10263.0 1 crow, 1 raven. Country since first raven mainly coniferous
10269.0 Renwer City, 4 crows
10270.9 3 crows

10271.7 11 crows
10274.7 2 crows
10275.6 2 crows
10277.9 6 crows
10278.1 Minitonas City
10280.2 1 crow, gopher mounds becoming noticeable and first time.
10287.9 Swan Lake at 6:00 P.M. and Camp.

The crows were associated with ~~aspen~~ open cultivated fields whereas ravens were along roads which ran through dense stands of spruce or conifer stands. There were no crows in this type of country. Cloudy all day with occasional light rain.

Swan River, Manitoba, Canada

Aug. 4, 1956

Departed 10290.3 mileage at 7:30 A.M. Continued crow census as of yesterday (some other birds are mentioned):

10297.0 magpie
10297.5 4 crows
10298.0 2 "
10298.8 4 "
10298.9 5 "
10299.4 1 crow, 1 crow
10300.4 Bowsman River City
10301.7 2 crows
10303.5 2 "
10304.4 5 "
10305.2 3 "
10308.8 4 "
10310.1 3 "
10314.2 Birch River City
10321.1 2 ravens
10334.6 Mafeking City. Before fire of 1929 country in conifers; now birch and poplar. Last year had 4 feet of snow and many deer died
10342.7 Blarney ran across gravel road at 10:15 A.M. Sun shining and sky clear. Spruce forest.
10344.0 1 raven
10349.5 Red Deer River
10353.0 golden eagle
10359.2 1 raven

10359.4 4 pelicans on Dauven Bay. In bay area noted approx 25 pelicans in small groups, forster tern?, Franklin-like gull, pintail duck

10368.8 2 crow along edge of lake

10371.2 Overflow City 11:05 A.M.

10382.0 2 mallards (ducks rare)

10385.0 muskrats numerous in barrow pits along side of road for a least 10 miles back. Low swamp-spruce area.

10408.0 1 rosen

10411.7 Westray City

10420.9 Fruechford City sp.?

10426.0 2 crows

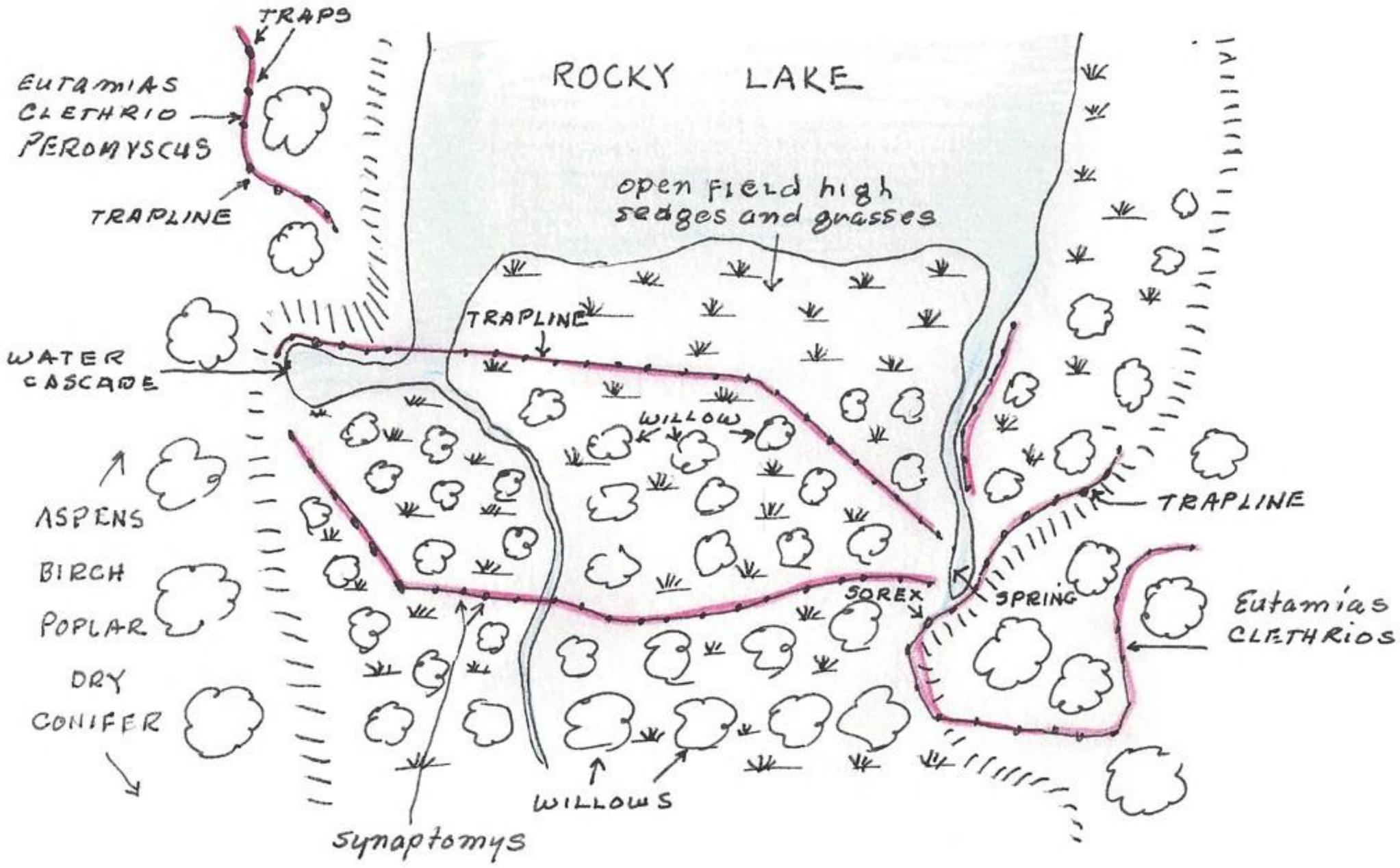
10430.8 La Pas (crows only in area of La Pas) End of census at 1:00 P.M.

Continued to Rocky Lake to north arriving at 2:00 P.M. Will arrange transportation to Churchill on Monday.

Rocky Lake, Manitoba, Canada

Aug. 6, 1956

Last night set 150 traps at east end of lake (Rocky Lake just west of Wanless).



Traps placed 10' apart mainly in damp to wet meadows of grasses and sedges and willow. Some at base of rocks at edge of the meadow and a few on higher ground among aspen on damp soils. The arm of the lake is filling in and the outer region is tall sedges & grasses; inland it is shorter grasses and sedges with willow miped in. From traps collected the following:

21 adult and 64 subadult of Microtus pennsylvanicus
4 Synaptomys (1 of which is a subadult).
1 Sorex palustris
2 Peromyscus
2 Eutamias
16 Zapus
13 Clethrionomys gapperi
4 Lincoln sparrows
1 golden-crowned sparrow
4 song sparrows
1 garter snake.
8 Rana pipiens

microtus pennsylvanicus from marsh sets. Two of the Synaptomys from 10 feet apart.

A few generalizations are:

Microtus pennsylvanicus mainly in dense sedges and grasses, willows and a few on dry slopes but heavily vegetated areas bordering the marsh. Some used runways among the sedges & grasses. Noticed droppings along sedges and mosses lining creek on lower reaches of creek but although good for Microtus now there were only an occasional one taken. Subadults in heavier more matted grasses of open fields.

Synaptomys borealis among sedges and grasses among willows. Sat wet and associated with Microtus pennsylvanicus.

Sorex palustris at edge of spring fed creek near base of boulders.

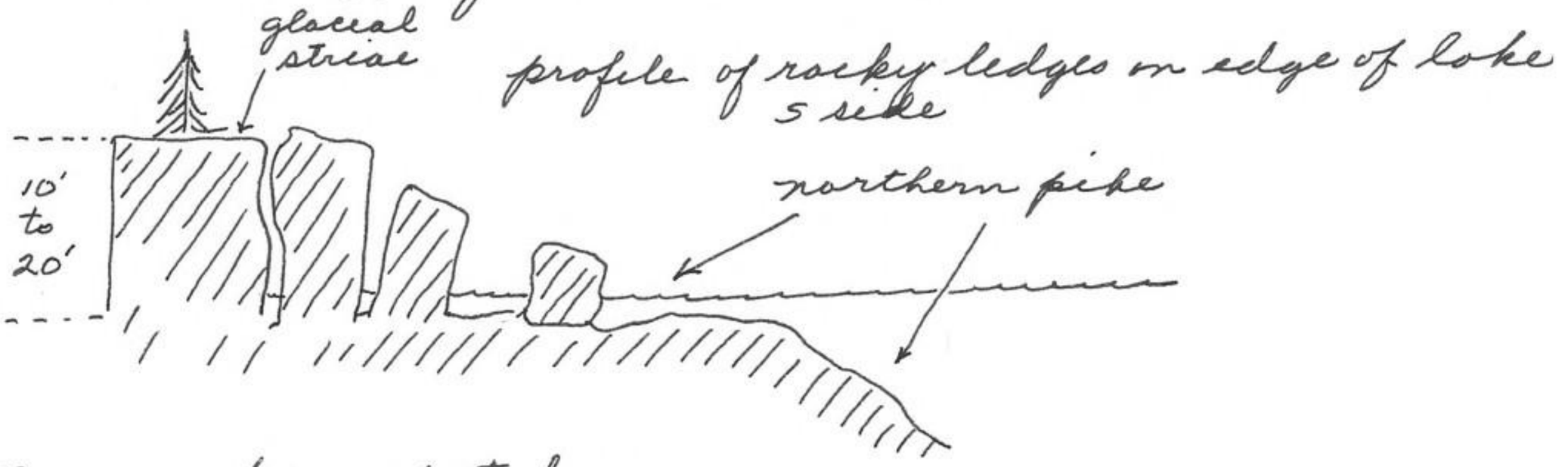
Clethrionomys gapperi. mainly on drier slopes of dense vegetation bordering the marsh area but also occasionally found in marsh.

Black duck in partial molt.

blue-winged teal in flock of 18

One female Common loon caught in a net set for fish. This bird had been seen the previous day fishing in the same area. This bird was prepared as a skeleton. 7 others seen flying over head.

Robins nesting
Phoebes nesting
Stilt sandpiper in area
Spotted sandpiper " "
black tern common
ringed-billed gull ? frequently observed.
Two black bears killed nearby by residents of area.
Moose droppings common in area.



From rocks inspected a
Crinoid stem thus ←12"→ 2½"

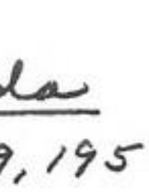
Rocky Lake, Manitoba, Canada
Aug 7, 1956

Pulled all traps and placed mammals in ice. These mammals are listed above. departed for the Pas. Spent remainng day preparing skins. Stayed at the Rupert House (Hotel). This evenng set 60 traps along the railway right-of way ½ mi. S of the Pas.
Placed traps at contact between open meadow and forest. Caught 1 Zapus and three Clethrionomys. Prepared mammals and arranged equipment for the Churchill trip. Tickets $36.70 round-trip; drawing room $16.00; Sleeper $14.00. Train normally leaves at 10:00 A.M and arrives Churchill at 7:00 A.M nedt morning (appox 20 hrs).

Left The Pas at 11:45 Am. The ferst 100 miles of forest is of a uniform constitution, beng 45 feet high (conifers) and aspen and birch three quarters that heeghth. Bogs are numerous and generally filled in with willows and dead Conifers, some are filled with living stands of dense pointed conifers.

Depending on whether the land is on a slope or flat, the soils are dry or wet and support corresponding degrees of dry or wet loving underbrush. many of the larch like conifers have masses covering the line or dead branches. There is a noticeable lack of wildlife of any kind, especially birds. what few birds are seen are associated with lakes. Gopher mounds at 195 miles and more numerous than before our route. These mounds to at least 245 mileage post.

Aug. 8, 1956

Continued enroute to Churchill and at daybreak awakened at inland packet of tundra with fog which cleared shortly. At mile 70 trees (spruces) 30 or so feet high and well formed. At 55 mile post spruce became dwarfted, sparse and wind blown  . Beyond to the north the spruce became larger, closer together and support excellent stands of Cladonia lichen. At 45 miles from Churchill the trees were as large as previously observed along the route. at 5 miles trees still present but can see tundra beyond. Open tundra between last trees and rocky ridge at S end of Hudson Bay. This ridge has a few large conifers, lakes but less lichens. Beyond the S end of Hudson Bay the land is typically tundra. Late in evening set 50 traps in marsh & 50 in forest.

Churchill, Manitoba, Canada

Aug 9, 1956

made arrangements with DRNL and U.S. army for logistic support. Lodging in the officers barracks and food at the officers mess of the Canadian organization. Inspected traps set yesterday evening at 3 4/10 mi E and 8/10 mi S Churchill (P.O.), 75 ft Manitoba. The 50 traps were in a marsh area 70' x 40' around a small lake on the N side of the glaciated ridge of rocks and produced 8 microtus pennsylvanicus. One nest of this species was under a board 100 feet from trapping area and separated by sandy beach. The nest held 6 pup. They were left and died after 36 hours. The adults were probably caught in the traps set in the sedges and grasses surrounding the lake. The 50 traps set in the coniferous forest on the rocky ridge did not produce mammals, although in periods of high population there are Phenacomys and other kinds there.

This evening set 150 traps at 13 8/10 mi. E and 6 7/10 mi. S Churchill (P.O) in tundra community where one would expect to find Lemmus, Dicrostonyx and probably Clethrionomys. Trails and holes in masses and lichens indicated a high population last year. The area by road from camp headquarters is 17.9 miles. From rocket sight by road is 3.6 miles. From Churchill Post office is 13 8/10 mi. E and 6 7/10 mi. S Churchill. There are a few caribou trails and some fox tracks. A marsh hawk hunted over field to east but without success. Frogs active near the lake here. One wonders how they survive the winters. The traps from the meadow grasses at lake N of the ridge were placed in a field created by the railroad grade at 3 2/10 mi. E and 14/10 mi. S Churchill (P.O).

Churchill, Manitoba, Canada

Aug. 12, 1956

This morning collected 19 Microtus pennsylvanicus from an area approx. 3 2/10 mi. E and 14/10 mi. S Churchill (P.O) set last evening. Of the 50 traps in the coniferous forests on the rock ridge at base camp caught 1 Phenacomys.

made trip to Fort Prince of Wales on the W side of the river that flows N into the Hudson Bay. Photo 560812-20 of interior of fort showing quarters with walls crumbled, cannons and outer wall. well to left. Photo 560812-21 of cannon and view to north through window. Photo 560812-22 of general view at point east of fort showing rocks and outgoing tide. Photo 560812-23 of small pool of captured water in rocks and Hudson Bay beyond. Ripples of outgoing tide. Collected a metal washer used in supporting the ~~Canvas~~ cannon. no. 560812-24 and a nail 560812-25.

Churchill, Manitoba, Canada

Aug 13, 1956

Bristal Foster of 136 Dawlish Ave, Toronto 12 (or Royal Ont. museum) presented me with a Tamiasciurus from Twin Lakes Hill, SE Fort Churchill, Manitoba, Canada. I have observed these squirrels at Twin Lakes and at Goose Creek south of Churchill along the railroad.

From the traps at 3 2/10 mi. E and 14/10 mi. S Churchill (P.O), same traps as those that caught 19 yesterday, collected 20 Microtus pennsylvanicus. This evening added 40 more traps to this line

of traps. At 13 8/10 mi. E and 6 7/10 mi. S Churchill, at the triangulation station photographed 560813-21 from top of the frame structure showing Conifers, open savannah to the northwest. Photo 560813-22 of open tundra, Cladonia in foreground. Photo 560813-23 of Cladonia and 560813-24 of raised polygons at point where lichens and mosses were collected for the museum at Lawrence; open tundra beyond in destance.

Churchill, Manitoba, Canada

Aug. 14, 1956

From the 90 traps set yesterday afternoon caught 34 microtus pennsylvanicus (3 7/10 mi. E and 1 4/10 mi. S Churchill (P.O)), 16 of them from the old line (3rd day) (50 traps) and 18 from the new line of 40 traps in the same area.

This A.M photographed several scenes along the coast line. Photo 560814-36 showing high isolated pond and associated sedges & grass where Microtines find refugia during periods of lows. Fort Churchill on promentory to NW. Photo 560814-37 same as above but to north showing waves crossing submerged reef. Waves to the east are being windblown on their crests. Photo 560814-38 on high promontory to NE of Fort Churchill showing glaciated granites and Hudson Bay to the north west. Winds today from 30 to 60 miles per hour. While photographing here, stepped backwards unknowingly off a boulder ledge and landed on the ground 8 feet below shaken but unharmed.

Birds in the area are:

Larus philadelphia. 8 to 10 always along edge or shoreline of Hudson Bay. Mainly juveniles but no adults in black headed pelage.

Larus argentatus. Always a few in area.

Arenaria interpres morinella. most numerous shore bird in area.

Sterna paradisaea. Always on beach and would approach as if they had young in the area. On windy days when the wind blows 40 miles an hour or so, they take refuge beyond rocks on the beach.

Micropalmata himantopus. Few in area

Capella delicata Common in marsh area.

Semipalmated plover like bird. a few

Bairdlike sandpiper. a few (a small form)

Gavia immer. Four in 5 days observation.
Lagopus. One adult and 7 young. Considered to be at a low this year.
Perisoreus canadensis Common
Spizella arborea Common
Zonotrichia albicollis young and adults common in trees S of Churchill.
Zonotrichia leucophrys with above.
Seiurus noveboracensis One trapped in conifers N of camp and reported to nest there.
Agelaius phoeniceus Few in area
Circus cyaneus 2
Falco sparverius 3
godwit sp ?
Passerculus sandwichensis Many in fields of sedges and grasses.
jaeger sp.? 1
Calcarius lapponicus mainly along beach among boulders.
Corvus corax. Six feeding at refuge pile. Many Herring gulls also fed and rested on the rocks near the refuge pile.

While at Churchill met Walter Gillespie, Dept. Zoology, Univ of Illinois, Vivarium Bldg, Wright and Healey St., Champaign, Illinois and George C West of the same address. Theodore A Cheney and D. K Brown Bechel of Cornell Univ, Ithaca, New York, A L Loughrey of the Canadian Wildlife Service, Crum of the Toronto museum, Anderson of Duke Museum, Peterson, Lorenz, Brunsfeldt, Blee Adams and others.

Some general observations are:
Dicrostonyx, Phenacomys and Clethrionomys were at high numbers last year. Dicrostonyx invaded marsh area of microtus pennsylvanicus and drove the latter onto the grassy-sandy beaches where they were common last year. Microtus pennsylvanicus now in most favorable areas of damp meadows of sedges and grasses and near permanent non fluctuating bodies of water and some are using old abandoned runways of Dicrostonyx in peripheral areas. Clethrionomys and Phenacomys last year were beyond timber onto open fields. During high, all forms were beyond optimum plant-animal community. Raised palygons, bases of

Conifers, edges of marshes are all riddled with holes and broken down runways, now sealed with spider webs. Hawk owls, short eared owls and jaegers common last year but rare this year. Areas of hummocks and edges of timber still offer good overhead protection but there are no mammals there now. Lack of food may be more of a factor than lack of protection. Microtus pennsylvanicus least affected and plant community in good condition. It is uncommon in areas away from naturally retained waters such as water backed by roads, railroads or artificially flowing water from make camp areas.

The tundra at Churchill has been modified by Hudson Bay and the Churchill River. Some profiles show effects:

Grasses growing on some sands & gravel redges result of road building.

Churchill, Manitoba, Canada

Aug. 16, 1956

Departed Churchill 7:30 P.M. via train.

The Pas, Manitoba, Canada

Aug 17, 1956

Arrived The Pas from Churchill at 4:30 P.M. Left The Pas at 10522.0 mileage at 5:00 P.M. Arrived at Overflowing River. Set 10 traps in wooded area.

Overflowing River, Manitoba, Canada

Aug. 18, 1956

Left 9:10 A.M at 10582.5 miles. Canada geese at Dawson Bay. Barley or two seeded grain at 10613 mi. Arrived Minnedosa.

Minnedosa, Manitoba, Canada.

Aug. 19, 1956

Departed at 10843 mileage on Highway 10 and continued S to Lawrence, Kansas.

CATALOGUE JUNE 16- TO AUG 18, 1956 560818-35

7 mi. E and 1 mi. S Churchill, 50 ft., Manitoba, Canada

June 16, 1956

560616-1 ♀ Clethrionomys — Coll. J.B. Foster — 138-36-18-14-20 gms, ut. normal

June 22, 1956

560622-1 ♂ Clethrionomys — Coll. J.B. Foster — 135-33-18-14-24 gms, testes 6 mm.

Goose Creek, 11 mi. S Churchill, 30 ft., Manitoba, Canada

Aug 2, 1956

560802-1 ♂ Clethrionomys — Coll. J.B. Foster — 138-34-19-14-20 gms

1/4 mi. N Swan River, 1220 ft., Manitoba, Canada

Aug. 4, 1956

560804-1 ♂ Blarina brevicauda — 118-26-15-8-20 gms, testes 7 "

SK. 560804-2 ♂ " " — 116-25-15-8-20 " " 7 "

560804-3 ♂ Mus musculus — 161-81-19-13-16 " " 7 "

E end Rocky Lake, 1,100 ft., Manitoba, Canada.

Aug. 5, 1956

560805-1 ♂ Peromyscus — 169-78-20-17-28 gms, testes 5 mm

560805-2 ♂ Sorex palustris — 148-67-20-8-13 ",

560805-3 ♂ Microtus pennsylvanicus — 163-46-18-14-40 gms, test 12 mm

560805-4 ♂ Zapus — 198-125-28-12-13 " " 5 "

560805-5 ♀ Clethrionomys gapperi — 145-41-18-15-38 ", 4x3 emb 20 mm

560805-6 ♂ Microtus pennsylvanicus — 168-48-19-15-52 ", test. 11 mm

560805-7 ♀ Clethrionomys gapperi — 148-41-18-15-32 ", 4x3 emb. 8 mm

560805-8 ♀ Microtus pennsylvanicus — 178-52-20-14-50 ", plac. scars

560805-9 ♀ " — 177-50-20-14-51 ", suckling

560805-10 ♀ Zapus — 200-128-28-12-12 gms.

560805-11 ♂ Microtus pennsylvanicus — 158-48-19-15-41 ", testes 5 mm

560805-12 ♀ Clethrionomys gapperi — 141-38-18-15-34 ", 3x2 emb 11 mm

560805-13 ♀ Microtus pennsylvanicus — 152-42-19-12-43 ", plac. scars

560805-14 ♀ " " — 142-49-18-15-34 ",

560805-15 ♀ " " — 160-48-19-15-39 ", plac. scars

SK 560805-16 ♂ Zapus — 195-123-29-12-12 ",

↓ 560805-17 ♂ " — 210-135-30-12-15 ".

560805-18 ♀ " — 205-132-29-12-12 ".

560805-19 ♂ " — 182-110-28-11-10 "

560805-20 ♀ " — 208-133-29-12-14 "

560805-21 ♂ Clethrionomys gapperi — [128]-[30]-19-14-19 "

↑ 560805-22 ♂ " " — [142]-[38]-19-14-27 "

SK. 560805-23 ♀ " " — 145-40-18-16-34 "

SK. 560805-24 ♀ Clethrionomys gapperi — 142-39-19-15-26 ".

560805-29	♂	Synaptomys borealis	140-26-19-13-33 gms, test. 7 mm
560805-30	♂	" "	131-24-18-14-31 " , " 6 "

Aug. 6, 1956

560806-1	♀	Eutamias	205-98-31-15-40 gms, ut. normal
560806-2	♀	"	218-100-31-16-44 " , " "
560806-3	♀	Synaptomys borealis	111-21-18-12-17 " , " "
560806-4	♂	" "	130-24-19-14-28 " , test. 6 mm
560806-5	♂	microtus pennsylvanicus	168-46-19-13-41 gms, test 16 mm
560806-6	♀	" "	160-45-19-13-50 " , 6x0 emb 12 mm
560806-7	♂	" "	170-47-19-13-48 " , test 17 mm
560806-8	♀	Zapus	208-123-29-11-18 " , ut. normal
560806-9	♂	"	195-128-29-10-12 gms, test 4.5 mm
560806-10	♂	"	208-122-19-11-13 "
560806-11	♂	"	200-125-30-12-12 " , test 5 mm
560806-12	♀	"	192-128-29-10-12 " , ut. normal
560806-13	♀	"	202-130-30-12-12 "
560806-14	♂	Perognathus	148-64-19-16-14 "
560806-15	♀	microtus pennsylvanicus	176-50-19-13-37 gms, plac. scars
560806-16	♀	" "	165-50-19-13-46 " .

1/2 mi. S The Pas, ft., Manitoba, Canada

Aug. 7, 1956

560807-1	♂	Zapus	195-121-29-14-9 gms
560807-2	♀	Clethrionomys	134-35-18-13-20 "
560807-3	♀	"	135-34-18-13-20 "
560807-4	♂	"	136-35-18-13-21 "

3 4/10 mi. E and 8/10 mi. S Churchill, 75 ft., Manitoba, Canada

Aug. 9, 1956

560809-1	♀	microtus pennsylvanicus	160-48-20-12-40 gms, 6 juveniles at rest
560809-2	♂	" "	61-62-8-2 - appox 4 gms. one of the above 6
560809-3	♀	" "	168-46-20-13-44 gms. 4x4 emb 5 mm
560809-4	♀	" "	148-43-20-13-30 " , 3x4 emb 4 mm
560809-5	♂	" "	142-40-19-13-30 " , test 13 mm
560809-6	♂	" "	146-39-20-13-28 " , " 12 "
560809-7	♀	" "	148-40-19-13-28 " , 6x1 emb 6 mm
560809-8	♀	" "	143-39-19-13-26 " , 2x0 emb 7 mm

13 8/10 mi. E and 6 7/10 mi. S Churchill, 50 ft., Manitoba, Canada

Aug 11, 1956

560811-1	♀	microtus pennsylvanicus	150-42-20-12-33 gms, 4x3 plac scars uterus enlarged.

3 mi. E and 8/10 mi. S Churchill, 75', Manitoba, Canada

Aug. 11, 1956

560811-2 Sicrostonyx

3 2/10 mi. E and 1 4/10 mi. S Churchhill, 50 ft., Manitoba, Canada

Aug. 12, 1956

560812-1 ♂	microtus pennsylvanicus		172-46-20-13-44 gms, test 15 mm
560812-2 ♀	"	"	148-42-20-12-40 " suckling
560812-3 ♀	"	"	156-46-20-13-37 " "
560812-4 ♀	"	"	156-41-20-12-37 " "
560812-5 ♀	"	"	155-42-20-13-40 " 2x4 emb. 7mm
560812-6 ♀	"	"	158-40-20-13-37,. 4x4 emb 5mm
560812-7 ♂	"	"	148-42-20-12-29 " , testis 12 mm
560812-8 ♂	"	"	125-33-19-12-18 " , " 5 "
560812-9 ♀	"	"	142-42-20-13-26 " , 3x3 emb 5mm
560812-10 ♀	"	"	125-36-19-12-18 " , ut. normal
560812-11 ♂	"	"	130-35-19-12-18 " , test. 5 mm
560812-12 ♂	"	"	132-36-19-12-20 " , " 5 "
560812-13 ♂	"	"	110-30-18-10-12 " , " 4 "
560812-14 ♂	"	"	130-35-18-11-17 " , " 5 "
560812-15 ♂	"	"	124-34-19-11-16 " , " 5 "
560812-16 ♂	"	"	138-34-18-12-20 " , " 5 "
560812-17 ♀	"	"	142-42-20-13-22 " , 1x3 emb 7mm
560812-18 ♂	"	"	123-35-18-11-17 " , test. 5 mm
560812-19 ♀	"	"	134-35-19-11-22 " .

3 3/10 mi. E and 8/10 mi. S Churchill, 75', Manitoba, Canada

Aug. 12, 1956

560812-20 ♂ Phenacomys 140-30-18-15-28 gms

Twin Lakes Hill, S E Fort Churchill, Manitoba, Canada.

Aug. 13, 1956

5608 13-1a ♀ Tamiasciurus 299-121-48-24-190 gms. 3x3 placental scars.

3 2/10 mi. E and 1 4/10 mi. S Churchill, 50 ft., Manitoba, Canada

Aug 13, 1956

560813-1 ♂	microtus pennsylvanicus		161-45-20-13-46 gms. test 14 mm
560813-2 ♂	"	"	177-48-20-13-42 " , " 14 "
560813-3 ♂	"	"	[162]-[35]-19-13-46 " , " 16 "
560813-4 ♀	"	"	168-47-19-13-40 " , 5x2 emb 8 mm
560813-5 ♂	"	"	175-44-20-13-36 gms. test. 12 mm

3 2/10 mi. E and 1 4/10 mi. S Churchill, 50 ft., Manitoba, Canada

Aug. 13, 1956

on previous page	560813-1 ♂	microtus pennsylvanicus	"	161-45-20-13-46 gms, test 14 mm
	560813-2 ♂	"	"	177-48-20-13-42 " , " 14 "
	560813-3 ♂	"	"	[162]-[35]-19-13-46 gms, testis 16 mm
	560813-4 ♀	"	"	168-47-19-13-40 " , 5x2 emb 8 mm
SK.	560813-5 ♂	"	"	175-44-20-13-36 " , test 12 mm
	560813-6 ♀	"	"	162-45-20-13-41 " , 3x3 emb. 7 mm
	560813-7 ♂	"	"	137-35-19-12-20" , test 10 mm
	560813-8 ♀	"	"	167-48-19-13-34" , suckling
SKEL.	560813-9 ♀	"	"	178-45-21-13-50" , 5x3 emb 4 mm
	560813-10 ♀	"	"	165-44-20-13-38" , ~~test 12 mm~~ plac. scars
	560813-11 ♂	"	"	147-39-20-13-29" , testis 12 mm
	560813-12 ♂	"	"	133-38-19-12-18" , testis 5 mm
SK.	560813-13 ♀	"	"	121-33-17-12-15" ,
↓	560813-14 ♀	"	"	122-34-17-12-14" ,
	560813-15 ♀	"	"	142-37-18-13-25" ,
	560813-16 ♀	"	"	124-33-17-12-14" ,
	560813-17 ♀	"	"	133-37-19-13-22" ,
	560813-18 ♀	"	"	110-30-17-10-11" ,
	560813-19 ♂	"	"	110-31-17-11-10" ,
↑ SK.	560813-20 ♂	"	"	120-31-18-11-13" ,

Aug. 14, 1956

	560814-1 ♂	microtus pennsylvanicus	"	[158]-[41]-19-12-43 gms. test 14 mm
	560814 2 ♀	"	"	171-51-20-13-47 " , 4x3 emb 6 mm
	560814-3 ♂	"	"	162-49-20-13-42 " , test. 16 mm
	560814-4 ♂	"	"	161-40-20-13-42" , " 15 "
	560814-5 ♂	"	"	148-37-20-12-27" , test 13 mm
	560814-6 ♂	"	"	138-36-19-12-24" , " 14 "
	560814-7 ♀	"	"	151-46-20-13-40" , 5x3 emb 6 mm
	560814-8 ♀	"	"	157-47-20-13-38" , 3x1 emb 11 mm
	560814-9 ♀	"	"	138-36-19-12-22" , 3x2 " 5 "
	560814-10 ♂	"	"	140-41-19-12-22" , test. 4 mm
SKEL.	560814-11 ♀	"	"	150-46-20-13-38 gms, 3x3 emb 3 mm
	560814-12 ♂	"	"	132-36-19-12-21 " , test 4 mm
	560814-13 ♂	"	"	148-45-20-13-22" , test 6 "
	560814-14 ♂	"	"	142-37-19-12-22" , " 4 "
	560814-15 ♂	"	"	136-35-19-12-20" , " 5 "
	560814-16 ♂	"	"	142-40-19-12-20" , " 6 "
	560814-17 ♂	"	"	132-36-19-12-19" , " 4 "
	560814-18 ♂	"	"	137-38-19-12-20" , " 5 "

	560814-19 ♂	microtus pennsylvanicus		140-40-19-12-20gms, test 5mm
	560814-20 ♂	"	"	160-36-20-13-42 " , " 15 "
	560814-21 ♀	"	"	151-46-20-13-40gms, 3x2 emb 18mm
	560814-22 ♀	"	"	155-40-20-13-42 " , plac. scars
	560814-23 ♀	"	"	154-39-20-13-36 " , suckling
	560814-24 ♂	"	"	141-38-19-12-23 " , test. 4mm
	560814-25 ♂	"	"	140-37-19-12-22 " , test 6mm
	560814-26 ♂	"	"	138-37-19-12-20 " , " 5 "
SK. ↓	560814-27 ♂	"	"	137-37-19-12-21 " , " 4 "
	560814-28 ♂	"	"	122-33-18-12-14 " ,
	560814-29 ♂	"	"	131-36-19-12-20 gms,
	560814-30 ♂	"	"	125-34-18-12-15 "
	560814-31 ♂	"	"	135-36-19-12-20 "
	560814-32 ♂	"	"	140-38-19-12-18 "
	560814-33 ♂	"	"	133-36-19-12-21 "
↑ SK	560814-34 ♂	"	"	110-31-17-11-11 "
SKel.	560814-35 ♂	Northern Water Shrush		

1/2 mi. W mouth Overflowing River, ___ ft., Manitoba, Canada
Aug. 18, 1954

560818-1 ♀ Clethrionomys gapperi 131-33-18-14-19 gms

561002-40

Lawrence, Douglas Co., Kansas

October 2, 1956

The Chaetura pelagica are in area and their numbers have been constant the last few weeks. I will attempt to find out when these birds leave on their migration to the south.

Oct. 6, 1956

Chaetura pelagica still in area. most of the time they are flying low over trees but yesterday were flying high but remaining in area. weather last week dry hot cool.

Oct 7, 1956

Chaetura pelagica active at 9:00 A.M at museum of Natural History.

Oct. 7, 1956

Chaetura pelagica active at 7:00 A.M at museum of natural History at Univ. Kansas. Weather getting slightly cooler. Swifts observed all day and late into the evening to nearly twilight. numbers as usual.

Oct 9, 1956

This is the first morning in last 2 weeks, 6:20 A.M, that I have not seen swifts in the air. I believe that the local population of swifts at the museum of natural History and at 1233 Ohio Street in Lawrence (our home address) have pulled out of the country. This departure is correlated with the drop in temperature of last night and the decrease of flying insects. This evening at 5:00 P.M I observed 6 swifts together flying about 100 feet above the buildings on the campus. They did not appear to be migrating but remained in the same general area. no other swifts were observed in the air.

Lawrence, Douglas Co., Kansas

Oct. 10, 1956

no swifts in area today. It is evident that they have left the Lawrence area, at least the great numbers of local population normally seen in the regular summer and autumn months. It is expected that a few will be seen but the mass exodus was the night between twilight of the 8th and 6:20 A.M on the 9th of December.

This evening between 5:05 P.M and 5:30 P.M made the following observations from the top of the tower at the museum of Natural History on the University of Kansas Campus. From here one can see in all directions. Skies slightly cloudy and slight wind from the east. During this time 8 groups of swifts (total of 80 birds) passed by within 2/10 of a miles east of the tower and in every case they were flying to the south. The flocks ranged from 3 to 12 in number and each flock was widely ~~dispersed~~ dispersed but maintaining a loose formation, some swifts as far as 1 block apart and seldom closer than 200ft from each other. They were all feeding and although their flight was deviated the general trend was to the south, never to the north, except when a circle was scribed in their hunting activity. The speed, of the overall southern movement was judged to be appros. 5 miles per hour. The birds called frequently. I did not know if these birds had been migrating south earlier in the day or not or whether they continued after late twilight.

museum of natural History, Univ. of Kansas, Lawrence, Douglas Co., Kansas

Oct. 11, 1956

The Chaetura pelagica were checked again between 5:05 P.M and 5:30 P.M. from the tower of the museum of Natural History. The same relative number of birds were in the air and, as was the case of yesterday, were all flying south. These birds were feeding in circular or irregular pattern but in every case were flying to the south. This appears to have been the last day that the birds were in the Lawrence area.

museum of natural History, Univ of Kansas, Lawrence, Douglas Co., Kansas.

Oct 12, 1956

Checked for Chaetura pelagica in afternoon (5:00 - 530 PM) but did not see birds in the air even though using a 20 power binocular. When the swifts start to migrate, the local population leave all at once, except a few stragglers. Birds from further north pass by in small numbers after the local population leaves.

Lawrence, Douglas Co., Kansas

Nov 5, 1965

Received today a letter from Bristol Foster, 136 Dawlish Ave., Toronto, 12, Ont., Nov. 1, 1956 in which he states that he had collected 15 Phenacomys in the Churchill, Canada area (see notes of June 16 this year for locality). It was a small colony and brings to date 100 specimens of this mouse from that locality. He presented the following proposition " next year, beginning in July, I am considering driving around the world in a Volkswagon truck with R. M. Bateman, a mammalogist who worked with me at Churchill in 1955. We hope to finance this trip in part by collecting small mammals for museums, the mammals going to the highest bidder. If interested, could you write and tell me the minimum you would pay for well prepared, native, small mammals from whatever countries you wished that appear to be on our route... Europe, north and central Africa, Afganistan (?) - India - Australia ? Please add as many clauses as you wish. Sincerely.

561123-42

1 mi. S and 2 1/2 mi W Lawrence (P.O), Douglas Co., Kansas

nov 23, 1956

Bud Tordoff reported having seen a mule deer at this locality. The animal had bifurcated antlers, dark crown, light chin patch and white tail with a black tip. Bob Verta told me that a mule deer was killed last year in Missouri. The skin and skeleton is available for reproduction.

Leaves of nearly all trees have dropped in the last 3 days.

Lawrence, Douglas Co., Kansas

nov. 25, 1956

Skies clear this A.M at 7:00 A.M followed by fracto-cumulus clouds moving rapidly to the south. By 8:00 A.M sky was supporting a strato-cumulus cloud of close compaction. Temperatures dropping.

nov 25, 1956

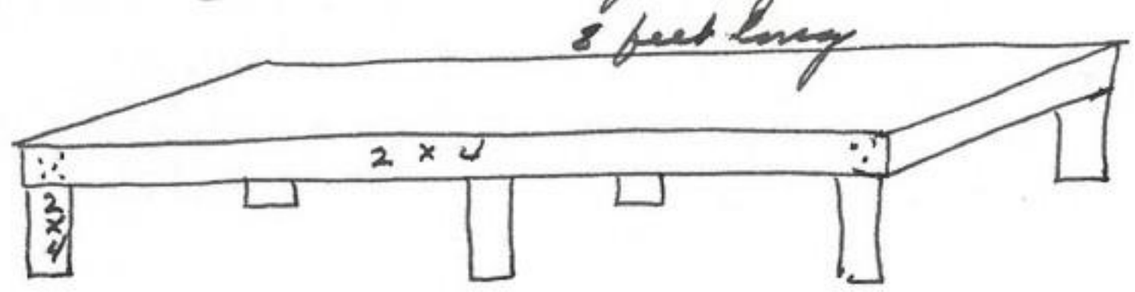
Mr. Samuel Dickenson, age 73, background artist for the museum of natural History, Univ. Kansas and formerly a close friend of Bunker, former curator at museum, reports: L. L. Dyche invited Bunker to his home for an evening meal in which the arctic explorer Peary was to be in attendance. Peary did not show. That evening Peary gave a lecture at the auditorium at K.U. and Dyche introduced Peary in a dignified and proper manner. Peary did not recognize the introduction nor did he look or comment upon the presence of Dyche while on the plateform. According to Dickenson, Bunker and Dyke were antagonistic in their business relations.

museum of natural history, Univ of Kansas, Lawrence, Douglas Co., Kansas.

nov. 29, 1956

made final preparations for trip to western Kansas to collect grasses (Buchloe dactyloides and Bouteloua gracilis) for the panorama. This grass is to represent the vegetation for the western Kansas prairie, although it is my belief that this combination of grass is a disclimax and does not represent the original plant community of the mixed prairie. Today spent 8 hours cutting and constructing plateforms to be installed in a moving van that we are

taking west to transport the grasses. When completed these platforms will hance 7 layers of grass approximately 7 1/2 x 35 feet. Individual plaeforms (25) are made thus



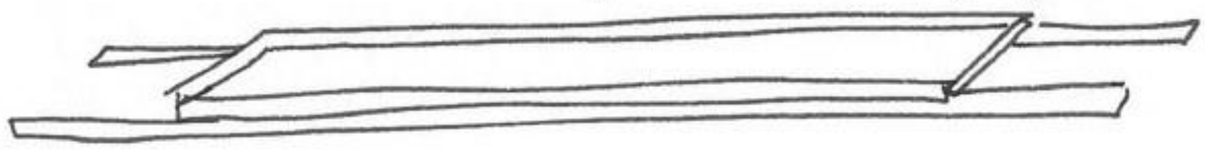
One plateform will ride upon the other for 7 layers. The total area for grass will be 1621 sq. feet.

Nov 30, 1956

Completed construction of units for transporting grass and loaded the van for trip west. 313 boards 8 feet long by 3/4 by 8 inches were requred for the plateforms and 80 2 x 4 7 1/2 feet long were requred for the cross braces, 240 legs (2 x 4) were cut to support the plateforms. A hundred shingles cut as wedges completed the materials used.

Dec 1, 1956

Made 2 wooden carriers for loading grass sod.



one side open for easy transfer of sod onto floor of panorama. Van moved to parking lot. Sod cutter, shovel, ladders, sod carrier loaded this A.M. Will depart tomarrow morning from home at 6:30 A.M. Al Robinson, George Young and myself will go by Chev station wagon; one carpenter and the van driver will follow Tuesday morning. Destination Satanta some 10 miles west-south-west of Sublette, Kansas. Will contact Oto Moody & Ed. Hall for assistance.

Lawrence, Douglas Co., Kansas

Dec. 2, 1956

Departed 6:45 A.M for Sublette, Kansas. Will pick Robinson up in Topeka. Mileage at Lawrence 21021. Near Eskridge a red-tailed hawk fed on carrion in road and did not leave until car almost hit the bird. In fact we could have hit it if we had followed it into the other lane. Red-tails are generally more wary. Badger road kill 9 mi NE Peabody on

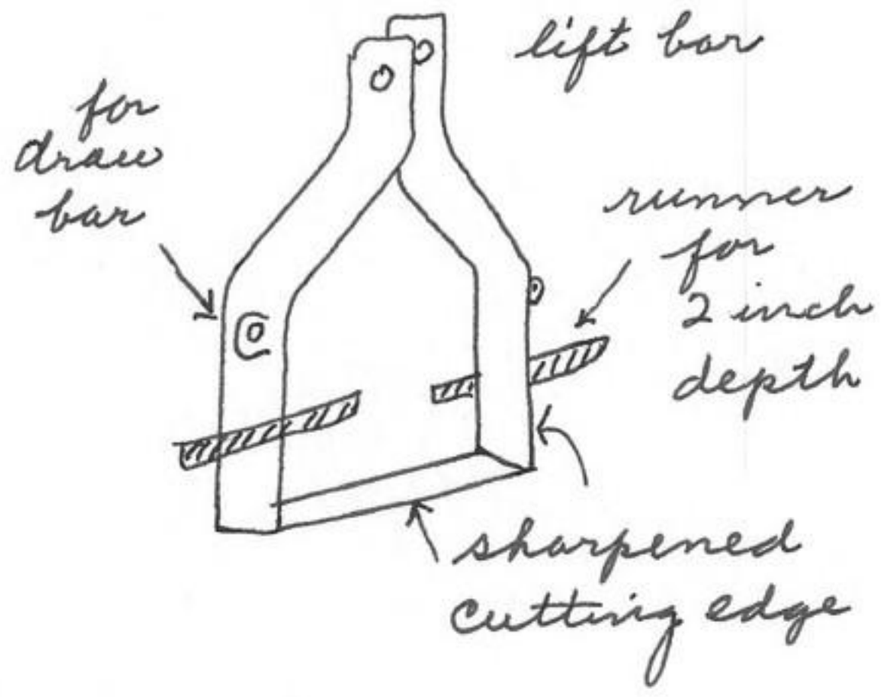
highway 50 S. Arrived Sublette 4:00 P.M. Mileage 21408 at Satanta. Contacted Ed. Hall and then Otto Moody about 1 mi. NW of Satanta. Inspected a field of Buchloe dactyloides with a sprinkling of Bouteloua gloeules. The field was grazed to within 1 inch of the roots and soils between plants. Blue gramma seed stocks were lacking. At one side of the field an irrigation ditch had spilled over onto the field of buffalo grass to the eftent of about 1 acre. As a result, wherever water had soaked the soils supporting both the ~~accentuated~~ accentuated buffalo grass and blue grama there was an ~~accentuated~~ growth. The buffalo grass formed a mat approx. 3 1/2 inches thick and intervening soil spaces were completely filled in. The blue grama had seed stocks, some 8 to 10 inches high. The grama grass grew better nearer the source of water from the irrigation ditch. Thistle grew more profusely on the outer edge of the grass near the limits of water. The grass was extremely dry and covered with dust that had settled from blowing sands & dirt. The buffalo grass was velvet in sheen and in consistency. For the purpose of exhibiting purposes, it will be difficult to match sections and it does not have the appearance of having been used, but anomals which would normally be expected if found in natural conditions. This field is to be plowed this year. Returned to Satanta and arranged for a tractor. Ed Hall will sprinkle the grass tomorrow morning (4 strips 300 feet long and perhaps again in the evening so that we can cut the sod the following morning. The sprinkling will also wash dust from the grass. Farmers say that they are getting coyotes in this area but mainly in adjoining counties.

Satanta, Haskell Co., Kansas

Dec. 3, 1956

Stayed at Hotel in Satanta but eating in Sublette. Drove out to Moody's place and waited for Ed. Hall to arrive with watering equipment. At Hotel in Satanta, the dust had entered the room from windows and was about 1/32 inches thick. Also the dust was on bed cover and furniture. Attempts had been made to seal windows but without too much success. I was impressed with the importance of wind in removing or depositing soils. The thick dust on

buffalo grass is probably a result of wind blown seeds. Put 3,000 gallons of water on six 16 inches wide strips 300 feet long or 1800 feet in total length. In the afternoon cut grass sod with our special grass cutter which was constructed thus:



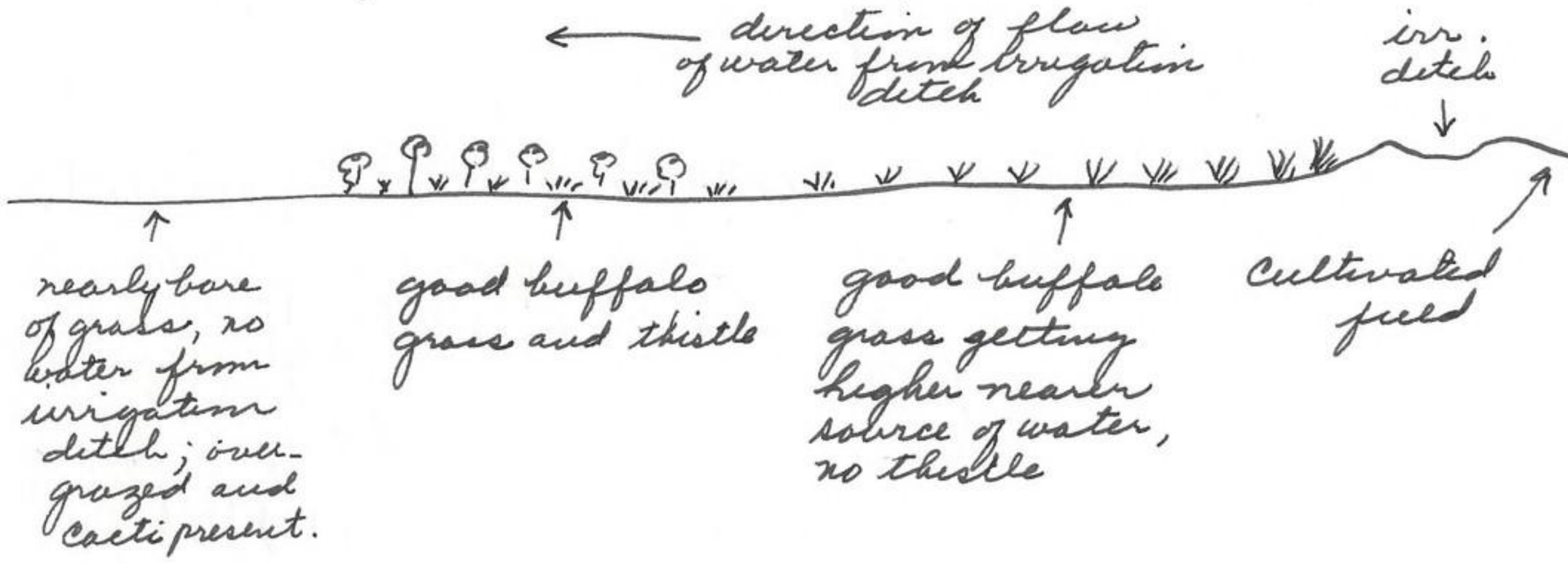
The cutter was held perpendicular by tractor. After the sod was cut in linear strips by the cutter, the strips were then cut into 1 foot lengths for handling and loading into the van. These sections were left in position until the 5th of Dec when the van was to arrive from Lawrence. Other observations in this field were: Jackrabbits form trails but not down to the soil. Cattle trails are developed to bare soils and are so maintained. Car tracks leave impressions but when grasses are alive the tracks disappear. Jackrabbits leave fecal pellets throughout the grass. Some areas of limited extent (1 sq yard or so) have been grazed by cattle or horses and the upper 2½-3 inches of grass has been removed leaving a 1 inch layer of basal grass which appears as a mowed lawn. It is apparent that the feeding is concentrated on this limited area until the hunger is satisfied and then the animal leaves the area. The beavertail cacti, which invaded by grasses when field was overgrazed is now completely sealed in and the cacti are dying. Buffalo grass is more luxuriant around edges of old badger diggings and around the edges of old temporary water holes. False buffalo grass sparsely distributed. Burrowing owl in area and using holes in areas of buffalo grass. In areas of maximum water from overflow of irrigation ditch the buffalo grass is 8-10 inches high (blades). Ed. Hall says that in this area there is approx. 1 acre of buffalo grass to 1000 acres of cultivation. It takes 10 acres of buffalo to maintain 1 cow which is not justification for retaining the native grass. If rains had arrived this fall, farmers would have not taken the benefits of the federal soil bank. One man reported today that a drive last Sunday netted

350 jackrabbits.

After cutting strips into four sections returned to Satanta, thence to Sublette for dinner, thence to Satanta to hotel. Weather holding up and I hope will continue. A freeze and snow might stop our operation for the season will all previous efforts of no avail.

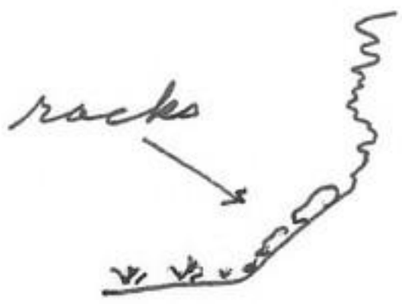
Satanta, Haskell Co., Kansas
Dec 4, 1956

An additional observation concerning the area of buffalo grass. The cow dung completely destroys the buffalo grass underneath it and adds slightly to the fertility of grass immediately adjacent to it. Horse dung does not kill the grass but rests as dry material on the grass.



Departed for Castle Rock at 8:30 A.M to check on native grasses associated with chalk cliffs. Van will not arrive until tomorrow morning. To Castle Rock via highway 83 N and 4 east, thence at proper road to N to chalk cliffs. Our area of inspection is approx. 3/10 miles S of Castle Rock. In general area noted: 1 golden eagle, 1 prairie falcon, 3 marsh hawks. The marsh hawk is the most common bird between Sublette and Castle Rock. At the chalk cliffs (to right as road drops down from plateau to base of cliffs) collected 30 or so stalks or clumps of little bluestem and several other grasses. Also collected squaw bush and several old snarled bases of a sagebrushlike bush. Selected representative rocks from base or talus.

Saplings occur in numbers of approx 1 to 1/10 square acre of the native grass community. Trails



of the cottontail conspicuous. areas under leafless squaw-bush completely utilized by rabbits. These animals used burrows for escape and are probably Sylvilagus audubonii. At one spot below a nesting sight of a dozen or so cliff swallows nests was a nest of a neotoma and extensive diggings of a badger. This close community of birds and mammals was unusual in comparison of other areas of the chalk cliffs. ~~Richardsonii~~ microtus ochrogaster runways present in grasses. Took photo 561204-1 of area showing effects of grazed and un-grazed areas. a fence separates the two areas. The un-grazed area should be defined as less grazed than the other area. It is not know which condition would have been present during the pre-whiteman period when great numbers of buffalo roamed the plains. On the basis of degree of erosion of chalk cliff area would estimated that the grasses were heavily grazed and trampled by bison, at least to the extent that rain was not retained in grass sod & soils but allowed to run down gullies to form the chalk cliff topography. Photo 561104-2 of cliffs and general topography of area. Photo 561104-3 of cattle trails on buffalo grass and cliffs beyond. This area was not as heavily grazed as elsewhere. The trails are narrow and sharply lined. More of the land in this area is in buffalo grass (Buchloe dactyloides) than in the Sublette area. The topography and sloping surface toward the Smoky River probably is more conducive to grazing than cultivation. There were many badger holes along roads leading to this area. It would be worthwhile to set this area aside for a State Park because, although it is duplicated a million times in Colorado and Utah, is unique for Kansas. The native prairie should be allowed to return to its natural condition, particularly above the chalk cliffs in the headwater drainage systems and also below the cliffs. Buffalo and antelope should be introduced to maintain normal balance between the plant and animal community. Other mammals should be allowed to contribute their reaction and reaction to the general ecology of the prairie. Established trails could lead into parts of the cliffs to show man representative formations; other trails to ~~ad~~ vantage points for views of the cliff areas and included fauna in their undisturbed community. Parts of the area could be used for research of this endemic relict of the plains.

48

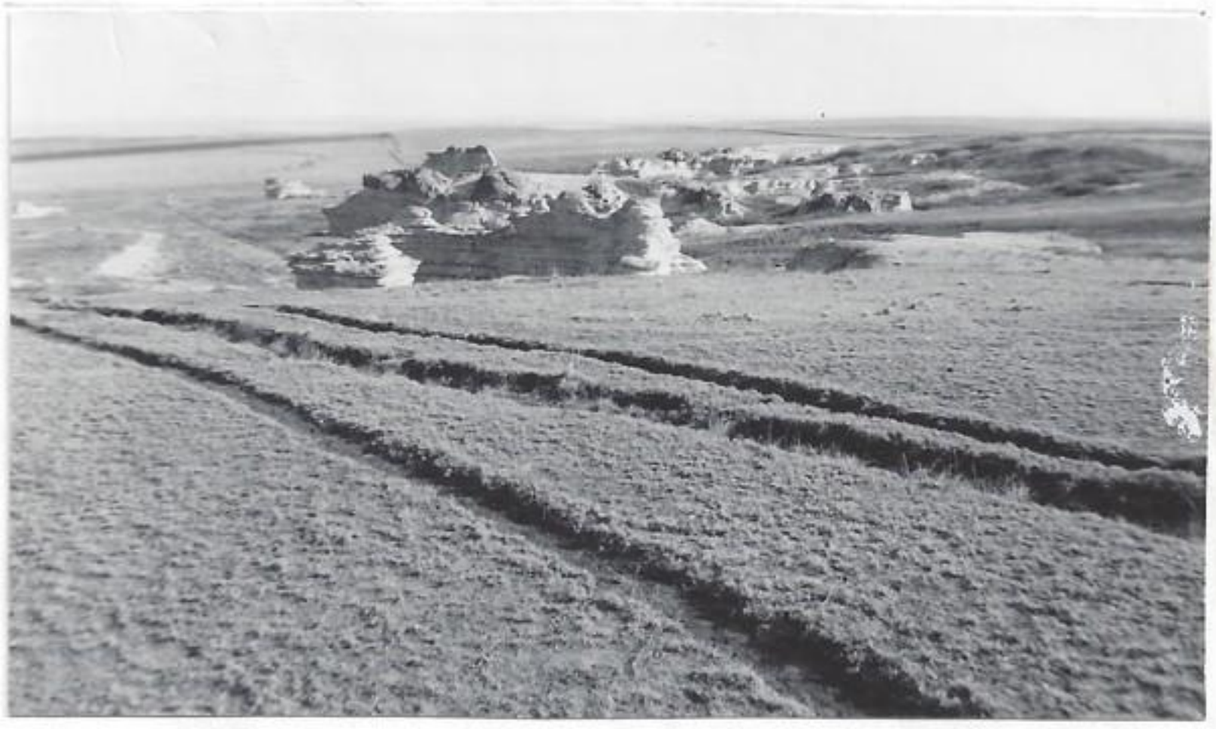
561204-48

561204-1

Castle Rocks, Kansas showing native buffalo grass and minimum trail development not grazed and ungrazed area.

561204-2

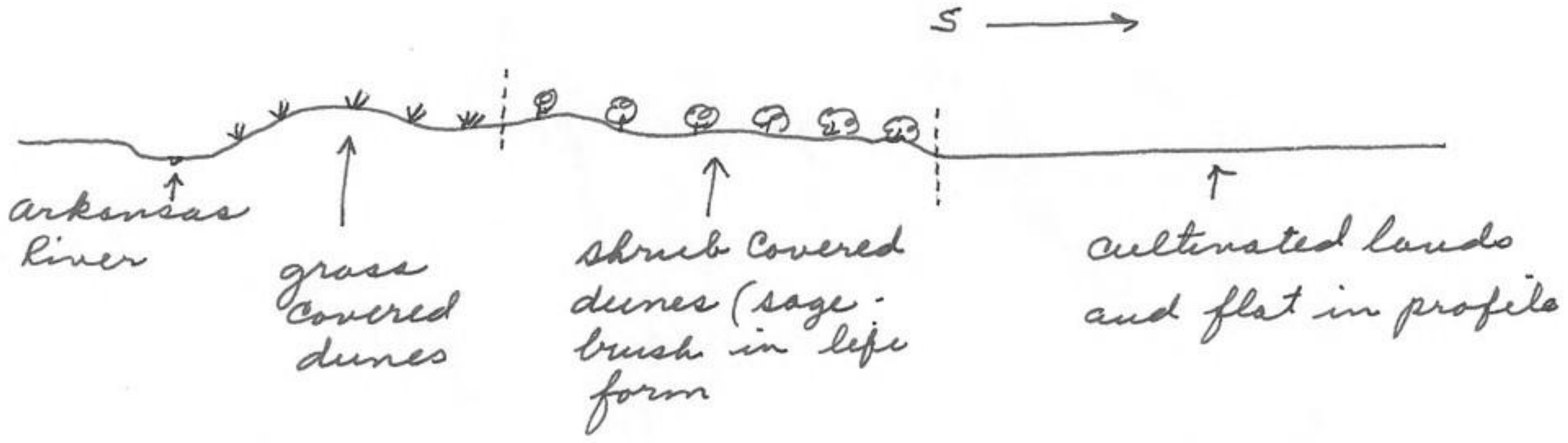
Castle Rocks showing arrangement of vegetation at base of Cretaceous chalk cliffs.



561204-3

Castle Rocks, Kansas, showing heavily developed cattle trail across heavily grazed buffalo grass. Trail pattern to be copied for buffalo exhibit in museum panorama

On return to Satanta and in sandunes just south of the Arkansas River at Garden City (south end of dunes) noted approx. 5 jackrabbits per acre and extremely good Dipodomys activity. These kangaroo rats are active this time of year. From the Arkansas River to south thus:



Collected the shrub for elk exhibit and the stalks of the yucca. Continued S to Satanta and organized plants collected today. Will start loading buffalo grass tomorrow morning when van arrives.

Satanta, Haskell Co., Kansas
Dec 5, 1956

Van arrived this A.M and we drove out to Otto Moodys place and started to load grasses at 9:00 A.M. Finished at 6:35 P.M having loaded approx. 1800 sq feet of buffalo sod. Photograph 561205-1 of van and carryall in field ready for operation. Photo 561205-2 showing cut lumber to be placed on stands. Photo 561205-3 showing the linear cuts after the sod had been removed. The cuts were separated to eliminate damage of tractor wheels while cutting. Photo 561205-4 of van at rear of the museum of Natural History at Univ. Kansas (taken following day).

made the following general observations: Under some more recent but dried droppings of cattle and horses, the grass was cured as a greenish color, as was also the bases of some stems. Some of the grass was sprouting green stems. As the truck passed over buffalo grass, the grasses fragmented. This same effect may also have been created by the trampling of buffalo. From general observations would say that for buffalo grass to maintain its optimum usefulness as food for animals, it must be grazed moderately and not receive too much moisture unless continuously grazed. If these conditions do not ~~exist~~ comply, the grass grows "crazy", that is,

561205-50

561205-1
NW Santana, Kansas, Preparing to cut and load sod.

561205-2
Organizing shelfing in van to receive sod.

561205-3
Sod loaded van and preparing to return to Lawrence.
Tracks are sod removed for exhibit

561205-4
moving van at rear of mrs. N. Nist. Unloading sod. The grass will be stored in viewing area by panorama.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15
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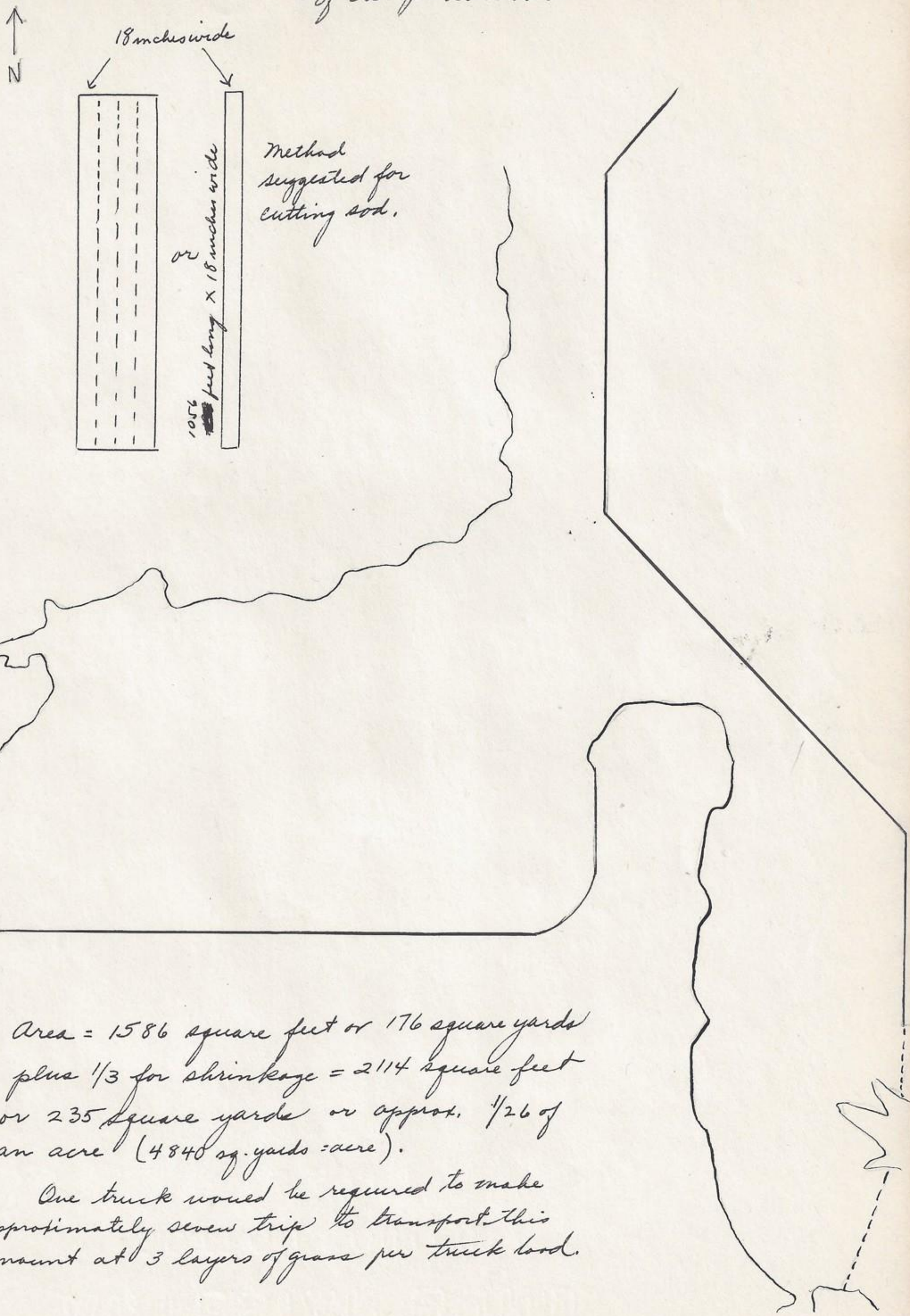
5G1205-51

Amount of buffalo grass required for the prairie section of the panorama.



Area = 1586 square feet or 176 square yards plus 1/3 for shrinkage = 2114 square feet or 235 square yards or approx. 1/26 of an acre (4840 sq. yards = acre).

One truck would be required to make approximately seven trips to transport this amount at 3 layers of grass per truck load.

it grows too long and is unable to withstand trampling, close grazing or wind.

Satanta, Haskell Co., Kansas

Dec. 6, 1956

Departed Lawrence 9:10 A.M on U.S. Highway 50-S. Snow in air, and having completed our work just in time. Entered turnpike at Emporia, thence to Lawrence. Our trip spent $19.88 for food, $6.17 of which was for hotel room. Stayed at Modoc Hotel at Satanta. There was an unusual concentration of crows between Sylvia and Hutchinson and for a mile or two east of Hutchinson. Approx. 15 flocks of crows averaging 400 or less each were in the sandunes west of Hutchinson. Most of these crows were in flocks. West and east of this area of concentration, crow were in limited numbers and generally as singles or in small groups of 4 or 5. The marsh hawk was the most common hawk across the entire state, especially in western Kansas. Mileage at Lawrence on return 22167 having covered 1146 miles or equivalent to the distance between Lawrence and Provo, Utah.

Dec. 7, 1956

according to Prof. Charles Michener of the Entomology Department at the University of Kansas, the plant Solanum rostratum (buffalo berror Kansas thistle) is the plant that grows only on the edges of buffalo trails and wallows on the hard packed soils. This plant was used by the Colorado potato beetle before the introduction of the potato into the United States.

The buffalo grass collected Dec 5, was placed on the floor of the closed floor of the main panarama in order that the grasses could be matched for placement in the panorama. There is a homogeneity in the appearance of this grass in the field but when cut into sections and placed at random on the floor, there is a decided difference in height, texture, color, compactness etc. Each square foot of grass sod had to be matched with equal kind. There is a clone formation in this species of grass and each isolated group varies with from place to place in the field. Grass sod is now dry enough so that there will not be separation of the sod after in place in the panarama.

Lawrence, Douglas Co., Kansas

Dec 8, 1956

The following letter received from Richard M. Hansen, assistant biologist, Experiment Station, Colorado agricultural and mechanical College, Fort Collins, Colorado.

My reason for writing is in regards to your remarks on the pelages and molts of varying lemmings in Mammals of northern Alaska, on the Arctic Slope. In reference to the brown pelage on the back and head of animals in winter pelage you stated that this pelage was "in fact is part of the winter pelage". A number of authors have commented upon this characteristic both for animals in the wild and in laboratary colonies. However, they all agree that this brown hair is always summer pelage. I maintained a colony of varying lemmings, breeding stock from Umiat, for a year here in Fort Collins. I must have raised several hundred lemmings and had as many as fifty in the colony at one time. However, I never found the brown hair to ever be winter pelage, when the animal was in a mixed color molt. I did observe the occasionally an animal in white winter pelage occasionally possessed numerous yellowish tipped guard hairs. Winter pelage and summer pelage are easily distinguished by texture and length of guard hairs as well as by other means. In my laboratary animals that were in part-summer - part winterpelage or during molt, the brown pelage was always of the summer texture. The brown head or brown back in specimens of mixed pelage always resulted from an arrested molt into summer pelage or an incomplete molt into winter pelage. Of course, in the broad sense, one could say that an animal trapped during the winter was in winter pelage regardless of color or texture. However, I did not gain this interpretation from your text. Would you mind letting me know if you meant that the brown hair on the heads and backs of animals in mostly winter pelage was of winter texture or summer texture in the specimens examined by you.

I am also interested in knowing how you arrived at the conclusion that (winter texture) brown hair resulted from a genetic factor which resulted in dark winter pelage in an earlier period of the Pleistocene.

I kept some genetic records on the breeding colony here at Fort Collins and was almost to state the same thing about another interpretation of color. In the young from one strain of varying lemmings the juvenales and post-juvenals were all in summer textured and colored pelage. In another strain the juvenalo and post-juvenals were sometimes in winter textured and colored pelage, sometimes in summer textured and colored pelage, and some were intermediate in both color and texture. Since all three types occurred in the same litter I was of the opinion that the ability to grow winter pelage was an inherited characteristic. However, as stated earlier, in adult animals the brown hair was summer textured and the white hair was of winter texture. I was going to pursue this problem even farther but my breeding stock of varying lemmings recently died. My data are not sufficient to publish these results but I may present a paper next spring at the Mammal meetings on this subject. What do you think

Lawrence, Douglas Co., Kansas

Dec. 28, 1956

The following information was sent to Richard M. Hansen in answer to inquiries concerning the change of pelage of Dicrostonyx in northern Alaska.

The brown pelage on the head and back of animals in winter pelage is indeed a part of the winter pelage (hair of winter texture). This brown winter pelage, at the time I was formulating material on the lemming for publication in the mammals of Northern Alaska, was demonstrated to several colleagues at the Museum and they were unanimously convinced of my interpretation. Analyzing and deciphering pelage change in many mammals is at times perplexing, and I believe that this is a case where it would be relevant that others examine the same material for evaluation of the problem. The mammals of Northern Alaska is a work of broad scope and attempt was not made to deal with individual species elaborately, however, the statement on winter pelage of Dicrostonyx was more than implied. The specimens in winter pelage examined by me are listed

under the species account (MVZ, Univ. Calif). The individuals with brown hair in winter pelage are two or three individuals, as I recall, of the nine specimens examined from that institution.

The answer to your question on the genetic bases for the occasional appearance of dark hair in winter pelage in Dicrostonyx can only be answered by an empirical formula. As I recall, my statement was prefaced with the word "perhaps". The percentage of individuals with brown pelage (winter texture) in winter animals appears to be greater in some parts of Alaska which today support a milder climate than elsewhere. Material from Point Barrow tends toward a normal white winter pelage although even here animals have been reported or observed in winter with black pelage, brown pelage and variations between the extremes (type of hair responsible for these non-white pelages is indeterminate).

It is my belief that the last interglacial period was of long duration when temperatures and precipitation were high and most of the country was without a covering of snow. During this period the hereditary pelage of Dicrostonyx was brown. With the advent of the last glacial period, when temperatures decreased and snow accumulated to maximum depth ~~the~~ and coverage, natural selection produced a white winter pelage. With further general decrease of temperature and especially precipitation (excluding the present trend of a warming climate in northern Alaska which is merely a minor fluctuation in the greater cyclic phase of decreasing temperatures and decreasing snow accumulations that I speak of above) one can expect natural selection to again come into operation in favor of a brown pelage. Whether the incomplete brown pelage of winter animals is the result of a white pelage which has not become too completely fixed as to eliminate completely the brown pelage of the last Pleistocene interglacial, or that the occurrence of brown hair of winter pelage may actually be a product of natural selection tending toward a brown pelage of today, is a controversial question. This interpretation is in my manuscript for the mammals of Northern Alaska, but was omitted, except as a simple

statement of belief, because of the lack of adequate proof.

It was indeed unfortunate that your ~~to~~ breeding colony died and that you were unable to bring to a conclusion your work on the various hereditary strains of animals with which you were working. It is such research with which you are engaged that will finally answer those questions as you have asked. I am interested in your problem of an arctic mammal and I want to be helpful, in fact, I have approximately 25 pages of unpublished notes and diagrams of the progressive pelage changes of two Microtonys from northern Alaska which I kept in captivity for seven months at the University of Kansas. If you would be interested in this material I would be glad to lend it to you. The pelage changes of these two animals were so irregular (four complete changes in less than eight months although under constant temperature and food) that I decided not to incorporate any of the details in the Mammals of Northern Alaska. I trust that you will have a pleasant & restful New Year's Holiday. Sincerely James W Bee.

Lawrence, Douglas Co., Kansas
Dec. 28, 1956

On Dec. 5, 1956 received a letter from Dr. Ross. T. Christensen of the Department of Archeology, Brigham Young University requesting the identification of bone material from a mound on the G. H. Hinkley property west of Provo, Utah. This mound was excavated this fall. The following information was included in a letter dated Dec 28 and sent to Christensen.

" I would be very pleased to identify the bone material which you referred to in your letter of Dec 5, 1956 (Hinkley mounds, Provo, Utah excavated fall of 1956).

At the moment, there are one or two thoughts that come to mind as a result of previous experiences in identifying bone material and in keeping in mind the problems that you will be encountering in analyzing and evaluating the collection. 1) The exact identification (to species) of small fragments of bones is at best difficult, time consuming, and the results which are usually assumptions are generally unsatisfactory and misleading. Under exceptional circumstances where only a few pieces of bone

are present in an excavation, it is for the utmost importance that every possible means be employed to identify the material. Where bone material is well represented, however, it is likely that a more substantial and more easily identified part of the animal is also represented. As I will be doing this work on my own, time, naturally, is a practical consideration. Fragments of bone, nevertheless, are highly useful when employed to differentiate larger groupings as, for example, between birds and mammals. Most fragments can be broken down into these two categories. An example of the usefulness in a knowledge of the per cent frequency of bird bones of any two mounds that you might excavate may well mean the difference between whether the mound was inhabited during the winter ~~of~~ or summer - that is there would be relatively more ~~birds~~ bones in mounds used in winter summer than in winter. My suggestion, then, is for you to retain the small fragments of bone, unless you wish me only to relegate them to either birds or mammals. Immaturely and maturity might also have bearing on the seasonal habitation of the Kinckley mounds. 2) The skulls of birds or mammals or any parts thereof, teeth, vertebrae, scapulae, pelvic girdles, carpals and tarsal bones (larger ungulates) and bones with condylar processes are satisfactory for classification. There are, however, certain groups of animals and birds that are almost indistinguishable. As an example, I find it even today, difficult to distinguish between ribs of the buffalo and the elk. 3) It is important to know whether the buffalo or other large herbivores inhabited the valley in the vicinity of the mouth of Provo River. The presence of skulls of larger mammals might indicate the presence of the larger herbivores in the immediate area of the mound while conversely the presence of only long bones (femora and humeri) would suggest that these large animals were killed and quartered at some distant point from the area of Indian habitation.

I have indicated one or two thoughts which you might consider as possibly influencing your choice of material to be shipped to me for identification. Regardless of your objectives I would again say that I would be very happy to undertake the identification of your material

and to add any significant relationship that I may chance to observe from the evidence at hand.

In regard to your inquiry concerning a cooperative project between one of your graduate students and myself. I can say at this time that the decision rests upon ~~Okay~~ my father who has been responsible for the investigation and collection of our archeological material. Our original plan was to publish our findings on the completion of my Ph.D. If circumstances do not permit getting the material into publishable form after completion of my doctorate, then I feel that Father would commend a joint authorship between himself and one of your students. I feel as you do that too little is known of our local Indian cultures to keep available evidence buried in field notes and un-published manuscripts.

It may be of interest to you that Dr. Carylle Smith, our archeologist at K.U. has recently returned from a nine month cruise in the eastern Pacific Ocean, including Easter Island. This expedition was financed by Thor Heyerdahl who is author of "Kon Tiki" According to Smith, there is no convincing evidence that man's dispersal into the Pacific Islands was from South America, but according to Heyerdahl there is conclusive evidence that they did. Sincerely James A Bee

561228-59

ADDENDA 1956

1233 Ohio Street, Lawrence, Kansas

April 20, 1956

Photos of family at home:

560420-1 mary Pauline Bee

560420-2 " " " and Jay Johonson, a neighbor.

560420-3 ibid

560420-4 Annette Christine Bee.

560420-5 James Robert Bee.

560420-6 Family with Annette P. Bee.

560420-7 ibid.

560420-8 ibed.

1233 Ohio Street, Lawrence, Kansas

May 4, 1956

Photo 560504-1 of James Robert Bee dressed for class party at Cordley Elementary School in Lawrence, Kansas.