

JOURNAL 1973

JAMES W. BEE

1973Johnson's Corners, N of Denver, Colorado

Jan. 1, 1973

Left 7:21 A.M. at mileage 63750. Sun up 7:27. Creeks open and steaming. Sky without clouds. 785 redtail on sign at edge of road with back toward sun. 791 first magpie. Will keep list of all magpies along with raptors. 793 Wyoming border at 8:12. 803 Cheyenne at 8:21. 808 except for magpies & hawk observed earlier, have not seen any other kind of bird. Temperature well below freezing. 816 white rabbit road kill. 817 another white rabbit road kill. 828 rabbit road kill. 837 Divide of Medicine Bow ridge. 839 deer trails along side of road. 841 most deer in Mt. Moberg area. 845 rabbit road kill. 847 Laramie at 9:09. Left at 853 at 9:54. Main road (new) closed because of 15 foot drifts across road so were required to take old road to N. 888 Rock Creek River. 891 redtail hawk on telephone post and first birds of any kind since Laramie. 892 first group of horned larks about 150. 898 first snow drifting across road and cuts 2 1/2 feet. 902 magpie. 906 Medicine Bow 11:04. Drifting snows on divides and on windward slopes. 920 Coyote walking on drifting snows about 200 from road. 934 Top of divide and considerable drifting snow. 940 Waleath Junction. 943 ^{golden} eagle, magpie and 200 horned larks in some area just off road at 11:50. From Waleath W have left the drifting snow. 947 North Platte River in ice and covered with snow and drifted in extensively. 952 40 antelope, one with injured leg. Antelope roadkills about 1 every 10 miles. 953 10 antelope. 955 Opposite Sinclair. Collection same as previous years. 960 East entrance Rawlins at 10:09. 963 W entrance to ~~Rock Springs~~ Rawlins. 971 Country all along covered with antelope tracks. 972 3 rabbits. 974 roughleg. 977 am roughleg. 980 approx 150 antelope and moving in one direction. 980 20 antelope. 981 510 in one group & 90 trailing in loose aggregate. Photos 730101-1, 730101-2, 730101-3 of part of this group of antelopes. 981 100 antelope. & am roughleg. Area in drifting snow. 983 300 antelope in one group. All antelope N of road on broad slopes. On previous years they were on S side of road in swales or along main valley drainages in lowlands.

1973-2

984 approx. 50 Antelope. These mammals are seen in favorable viewing place. Other hidden areas may support many others. 987 Boggs spit, 990 Continental Divide. Road in this area is much more free of ice than to the east. 992 21 Antelope. Horn larks increasing in numbers. 997 domestic sheep competing with antelope. 998 roughly 64000 Wamsutter at 1:06. Temp 12°F. Horned lark in groups of 8 to 30 birds and one flock per 5 miles. 008 Red Desert Turnoff. Rabbit roadkills are relatively constant in per cent frequency. 014 roughleg hawk. 032 roughleg hawk. 041 Point of Rocks at 1:47. Road dry and suggests that ~~the~~ dry roads in Walcott area & to E are from storms from the Rocky Mts to the S of Walcott area. 055 Artemisia dominates shrubs and is absent to E. Considerably less snow than to E. ~~079~~⁰⁸⁴ Green River ice and snowed in. Will keep census of rabbit roadkills from here to Fort Bridger. 088 2 magpies. 090 and 092 rabbit road kill. 095 magpie. 100 8 roven. 255 Little America. Left 3:51 no clouds across Wyoming today. 110 marsh hawk. 112 Uinta Co., 4:04. 122 magpie and several nests. Lyman spit. 12 rabbits between Little America and Lyman ~~spit~~ spit and these near Little America. All on uplands and none in lowlands. 134 Ft Bridger spit, and first time one sees juniper trees which increase to W. Snow moves across road in a meander and varies in direction from place to place. 141 first rabbit road kill since Fort Bridger. 144 4 mule deer at 4:35. 148 6 deer. 156 magpie 167 Evanston at 4:57 Sundown and end of census. 167 Utah line. 186 deer. and tracks all up & down canyon. Fog along creek as we approached Wanship as we approached Echo. Arrived Salt Lake City at 200 mileage at 6:30. Provo at ⁶⁴ 279 at 7:30 P.M. There is considerable pollution in Salt Lake Valley which extends S into Utah Valley. Pollution constant in both valleys. Stayed at Mary & Son Jensen's home on Bonneville bench east of Provo at 1480 E 15th north. Travel from Lawrence to Provo was made without snow tires nor were they required. A deep snow on road would probably require snow tires and if caught in a blizzard with drifting snows would have been a must. Distance covered from Lawrence is 1112 miles. The unusual observations enroute were the great numbers of antelope 1291 and the golden eagle.

1973.3
 Provo, Utah Co., Utah

Jan 2, 1973

While in Provo stayed at Mary's and Bow Jensen at 1480 E, 15th N. and while there recorded the following color photographs.
 730102-1 Mt. Timpanogas in early morning when first lights strike the mt. Earlier the color is a grayish white. Cheops is the characteristic surface form. Taken from Mary's home.

730102-2 Mt. Timpanogas later in the morning with white lights and more of the mt in view. The lower lights are out of Provo Canyon. From Mary's home.

730102-3 Same as above but slightly later in morning.

730102-4 Same as no 1 but with strong white lights. The shadowed ridge is just N of Rock Canyon. From Mary's home.

730102-5 Timpanogas. These shots are taken as the morning lights increase in intensity.

730102-6 Timpanogas. All above shots from Mary's home. Temp. at 9:00 A.M. 140 F and more tolerable than for Kansas

730102-7 Hooper Mt and Utah Valley showing new home under construction just S of Mary's across road. This type of house fits into the general scheme of the mt. setting. The pollution cloud was always present at least for the 10 days or so we were there. Mt Nebo to right.

730102-8 Same as above.

730102-9 Same as above but sun finally to house. As these mountain east of house are high, the sun arrives late in morning. These home are built on the Bonneville terrace of old Lake Bonneville. Sun arrives about 10:00 A.M.

730102-10 ~~At~~ S end Timpanogas from Mary's home showing excavation dirt from Dave Stimpson house across the street from Mary's. Dave's home is finished on outside and very finished inside. The photo will be known as the Stimpson ski slope.

730102-11 Mary's home with refinished (antiqued) China cabinet, table and chairs of Mother's Dad's. These were originally stained furniture and date from before 1913 when they lived across the street from 255 E. 15th So in Provo.

730102-12 Some furniture and statuettes in living room

730102-13 Trophies won by James Jensen. Quite a record for a 15 year old.

730102-14 Same as above.

- 1978-4
3
- 730102-15 old lamp that used to be in the hall at 255-E. 1st St
 730102-16 Annette at fireplace downstairs.
 730102-17 Kitchen. Painting above fireplace by Gene Gunn.
 730102-18 Recreation room. Painting by Edith Bee of Mt Nebo.
 730102-19 Close-up of China Closet.
 730102-20 China closet and table.
 730102-21 same as above.
 730102-22 Upper part of dining room cabinet. Antiqued with sections of gold leaf pressed onto natural-stained finish of cabinet. The lower part of cabinet & mirror is in downstairs storage room and may be finished by antiquing as is the China closet and table.
 730102-23 One of the guest bedrooms. Sons Mathew's picture.
 730102-24 Bathroom off above room.
 730102-25 Chandelier in bedroom.
 730102-26 J.W. Bee, tomato juice and London flu.
 730102-27 Sprinkling system regulator.
 730102-28 Living room furniture.
 730102-29 Provo City at night from Mary's home.
 730102-30 A small inch long mouse (bronze?) that has always been in the China closet as long as I can remember.
 730102-31 no record.

During the day noted a flock of approx. 120 Cassin's purple finch feeding and flying at the Bonneville level. They fed occasionally below the level but rarely above. One flock of approx. 80 Bohemian wrenwings in trees on Bonneville level. There has been a complete takeover of the nature community of plants and animals ^{on the Bonneville level} by the new residential area. I suppose a setting aside of some of the original level would be unthinkable by property promoters. This part of the valley is rapidly being obliterated by gravel excavations, roads and housing.

Snowbird, Little Cottonwood Canyon, Utah.

Jan 4, 1973

Annette P., Annette C., Mary & I spent the afternoon on the ski slopes of Snowbird. The actual descent from ridge was from 2:00 to 5:00 P.M. Day clear, temp 0°F. Took 2 rolls of 35mm Kodachrome II. Average light in upper reaches over 1800 with exposures of 1/16 at 250 sec. Clark's Crow, junco and mt. chickadees were the common birds in the area. The junco is probably the bird from which the area gets its name 'Snowbird'.

- 1973-5
- It was the intention to survey God Valley, Alta and White Pine Valley to see what effect the ski development had upon the birds and mammals. There is obviously a great impact on the ecosystems. Rented skis and boots but suggest one bring his own because of the time lost in getting equipment. Will take photos of the area, especially cirque. Day clear, slight wind and 0°F. Photos are; (all from Snowbird)
- 730104-1 Snowbird, Little Cottonwood Canyon, Utah, at parking area. Peruvian Ridge in background.
- 730104-2 Ridge N of Lodge on N side Little Cottonwood Canyon. Mt Superior to right. Unusual exposure.
- 730104-3 Near Snowbird Lodge.
- 730104-4 Same as no 730104-1
- 730104-5 Near lodge with creek in foreground. Already this creek is contaminated from car oils & other pollution.
- 730104-6 From top of Hidden Peak, 11,000 ft at top of tramway. Photo to E with divide beyond at head of Alta cirque?.
- 730104-7 From top of Hidden Peak to W across God Valley to ^{white} Pine Valley.
- 730104-8 From top of Hidden Peak to NW showing ridge N of Little Cottonwood Canyon. Destination of descent middle lower floor of canyon.
- 730104-9 Top Hidden Peak to W across God Valley and ^{white} Pine Valley in distance.
- 730104-10 Top Hidden Peak to NW showing God Valley below.
- 730104-11 Top Hidden Peak to N showing Superior Peak and ridge on N side Little Cottonwood Canyon.
- 730104-12 Top Hidden Peak to SW of ridge at head of God Valley Cirque.
- 730104-13 Top Hidden Peak to SE toward American Fork Canyon & Heber Valley beyond in distance.
- 730104-14 Top Hidden Peak with Mary & Annette ready for the descent.
- 730104-15 Top Hidden Peak with low God Valley and N ridge in background.
- 730104-16 Top Hidden Peak and ^{lower} God in foreground.
- 730104-17 Top Hidden Peak with American Fork Canyon & Temp in background.
- 730104-18 Telophoto from top Hidden Peak of N ridge.
- 730104-19 Same as above
- 730104-20 *ibid.* Could be Twin Peaks.
- 730104-21 Telophoto from top Hidden Peak, to west across God Valley, white Pine and Red Pine Cirques.

- 1973-6
- 730104-22 Telophoto from top Hidden Peak to NW down Little Cottonwood Canyon and Salt Lake Valley beyond. Ogumrah Range in distance. Rocks reacting to granite up left of Granite Range. Blasts N of range dip to N whereas those to S are not so inclined.
- 730104-23 Telo. from top Hidden Peak. East slope Superior mt to left. This is the ridge N of Alta.
- 730104-24 Telo from top Hidden Peak to ridge N of Little Cottonwood Canyon. Good ice climbing slopes and good avalanche slopes.
- 730104-25 Telo of mt. Superior N of top Hidden Peak. Slopes slides across road to Alta.
- 730104-26 Brink of God Valley from top Hidden Peak (telo)
- 730104-27 Same as 730104-24
- 730104-28 From top Hidden Peak of N range. (telo)
- 730104-29 ibid
- 730104-30 ibid
- 730104-31
- 730104-32 From top Hidden Peak to SW showing ridge at head of God Valley Cirque. Good snow cornice.
- 730104-33 Rough Peaks east of top of Hidden Peak (telo)
- 730104-34 From top Hidden Peak, down Little Cottonwood Canyon and range (and pollution) to W.
- 730104-35 Annette on cirque slope in God Valley below Hidden Peak.
- 730104-36 From Cirque slopes of Hidden Peak to NW.
- 730104-37 Mary on slopes in God Valley Cirque below Hidden Peak.
- 730104-38 Mary & Annette on Cirque walls ^{of God Valley} below Hidden Peak
- 730104-39 ibid
- 730104-40 same area as above to NW. ^{skiing into shadow line (50') is new experience and psychodelic}
- 730104-41 ibid but near bottom of Cirque of God Valley.
- 730104-42 Cirque walls of God Valley. Hidden Peak ridge above
- 730104-43 W Cirque walls of God Valley. Pipeline slope to left.
- 730104-44 ibid with Annette in foreground.
- 730104-45 Upper Cirque (God Valley) to S.
- 730104-46 ibid.
- 730104-47 Annette & Mary at brink of Cirque of God Valley with N ridge and warmer afternoon light. Good quality photo.
- 730104-48 Same as above but without trees.
- 730104-49 Slightly lower and as above
- 730104-50 Mary rounding the ridge on lower slopes of God Valley. Many moguls on slope and steep.

Sundance Ski Area, Stewart's Flat, Timpanogas, Utah Co., Utah.

Jan 12, 1973.

Mary took the following photographs from top of chair lift at Sundance. Photos in the form of a panorama all Telopinto

730112-1 mt Timpanogas, Cheops and Stewart's Cirque.

730112-2 Stewart's Cirque

730112-3 Lower part Stewart's Cirque.

730112-4 Divide between Hedden Valley & Stewart's Cirques. Elk Peak to right.

730112-5 Elk Peak

730112-6 Fall below Stewart's Cirque.

730112-7 Indian Springs are above Aspen Grove

730112-8 Head South Fork Canyon with Cirque walls. Provo Peak to right.

730112-9 Ridge above Vivian Park & Wallenberg Ridge in background.

730112-10 To south toward Provo Canyon with lighted ridges.

730112-11 Stewart's Cirque slope.

730112-12 Cliffs & Stewart's Flat on E side north fork on Deer Creek Ridge.

730112-13 Across Heba Valley.

730112-14 To E across Heba Valley. Uintah Mts in background.

730112-15 To E across Heba Valley & Uintah Mts in background

730112-16 Fault slopes N of Aspen Grove. Good snowslide slopes.

730112-17 To S into steep canyon that leads into trailer camp at Vivian Park in Provo Canyon.

Provo, Utah Co., Utah

Jan 13, 1973

From Mary's home at 1650 E, 1500 N watch a golden eagle hunt on the N side of Rock Canyon. It first appeared at "?"



at first appeared at "?" nuptial flight and circled to a large boulder in a gully and alighted where it remained for 1/2 hr.

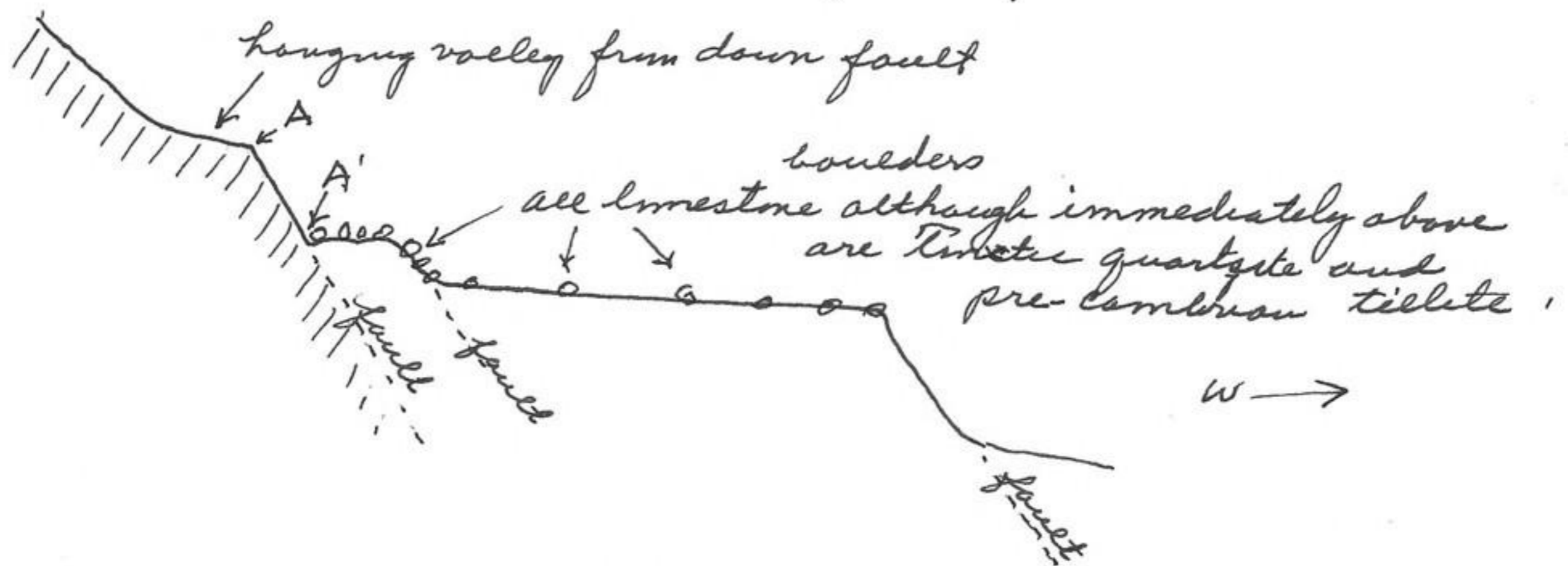
then left and circled upwards to top of Squaw

Peak. On way up would circled first on one side of ridge & then on the other or face of the peak, each time crossing the ridge at near contact. Some places it would concentrate for several passes in a figure 8 flight.

At top of Squaw Peak it made 3 reptil. dives with partially closed wings and in each case toward the former nesting site on the north facing slope of Rock Canyon in cliff at top of Y. Mt. Two eagles were observed at top of Squaw Peak just prior to the reptil flight. While observing these eagles, a jack-rabbit ran up the street (15th N) from Mary's home to base of mountain. As it approached the mountain, it jumps up into the air several times.

Mary hiked up trail to Y on mt, thence to Devil's Gate and up Slide Canyon for a 1/10 mile or so. Snow kept her from proceeding beyond. She noted 3 magpies, 3 Clark Crows, 15-20 western evening grosbeaks, mt chickadees and 5 deer on S side of Slide Canyon.

The first ridge S of Mary's shows faulting thus:



A and A' formerly same level

This afternoon took several photographs (telos) from west side of Provo River valley on benchland showing:

730113-2 Rock Canyon with Provo Peak and eagle cliffs at top of S. slope of Rock Canyon. The eagle cliffs have a cap of snow at every top of ridge.

730113-3 Same as above with more of Tintic Quartzite at base of mt.

730113-4 South end of Mt. Pimpanaga showing recent snow slides.

730113-5 Same as above but farther W. The prominent peak is the nose of the sleeping princess.

Provo, Utah Co., Utah

Jan 14, 1973

This afternoon drove to Heber Valley. Considerable frosting on trees and increasing. At Wildwood fog in canyon which extended to about middle of Heber Valley. This condition has been common

1973-9
 in Provo Canyon and Heber Valley. When this condition prevails it is also reflected in the Uinta Basin as fog. Took the following photographs:

- 730114-1 Sagebrush cover foreground and Cascade Range taken just below road to Pale Canyon near cabins and Café in Provo Canyon
- 730114-2 Pasture Creek + black willow in Heber Valley near where road crosses Provo River W of Heber.
- 730114-3 to 730114-31 are of Mt Timpauogas taken by Mary Bee from a plane rented at Heber Valley airport. Carl Wesson, a friend of Mary Jensen accompanied Mary. The flight was approx. ^{1 1/2 hours} ~~(2:00 - 3:30 PM)~~ and the plane circumnavigated the mountain twice, one at a low level and one at a higher level. Day clear, no wind, temp near freezing. Photos of Timp are;
- 730114-3 East side showing Aspen area to right + Stewart's Flat to left.
- 730114-4 Stewart's Cirque. 730114-5 Stewart's Cirque.
- 730114-6 E. side and to N with Elk Peak.
- 730114-7 and 730114-8 SE end Timp with Stewart's Cirque area.
- 730114-9 SE end Timp. Provo Canyon drainage.
- 730114-10 Plane over Provo Canyon with W face of Timp in background
- 730114-11 to 730114-14 W. side Timp in area of divide above glacier.
- 730114-15 farther to N beyond highest point.
- 730114-16 ridge N of highest point.
- 730114-17 N end of Timp ~~but~~ from W. side and about at middle of mt.
- 730114-18 Approaching N end on west side. Slight to S along crest of mt. Highest point in distance.
- 730114-19 to 730114-21 as above but each progressively farther to the north.
- 730114-22 N end of Timp on left and axis of mt to S.
- 730114-~~23~~^{23a} ibid. West face Timp beyond.
- 730114-23 N end Timp.
- 730114-24 N end Timp with Utah Valley ~~to~~ below (Provo area). Nebo mt in distance.
- 730114-25 N end Timp and east slope.
- 730114-26 ~~Am. Fork~~^{Timpauogas} Cirque. East slope Timp.
- 730114-27 " " " " " Glacier Valley lighted in background.
- 730114-28 Nearing American Fork Cirque. E. exposure
- 730114-29 Am. Fork Cirque.
- 730114-30 W side American Fork Cirque.
- 730114-31 Glacier Valley, Hidden Valley. Exposure Timp.

Provo, Utah Co., Utah

Jan. 15, 1973 at mileage 64947

Left Mary's (1480 E, 1600 N) at 10:30 A.M. Return trip should be fair weather with considerable new snow on country side from last weeks precipitation. Road thru Provo Canyon remains as usual but with four lanes as projected cannot see how the Canyon can maintain its naturalness. At landslide below Vivion Park noted avalanche effect of slide abrasion, especially among invading vegetation at base of slide. Vivion Park is now for sale for \$150,000. and would be a good buy. The flat knoll on N side of canyon above trailer park is a prime piece of property with excellent view down canyon, up canyon and up south fork. at 11:08 just above dam of deer creek reservoir took ^{five} photographs of Timpanogas with frost covered trees in the foreground too:

- 730115-1 Sagebrush foreground, oaks ^{& maples} in middle group & Timpanogas
- 730115-2 Sagebrush, maple & Timpanogas Mt in background
- 730115-3 maple & Timpanogas in background.
- 730115-4 maple, Timpanogas and a great deal of blue sky.
- 730115-5 (not recorded)

Frosting conditions in lower Heber valley has been the rule for the last week and a half according to the personnel at the Heber airport. This fog extends down Provo Canyon about 1/2 way. This condition plus the condensation from the water of the open river has produced a fairyland of frosted trees. Utah valley this some day and time is absolutely clear (minus heavy pollution). They also say that fog is common in the Uintah Basin. Heber junction at 64974. Daniels divide at ~~65050~~⁶⁴⁹⁹¹. 65050 2 redtails. first magpie at Antelope Creek at 12:49 P.M. Redtail at 65054. Sparrow hawk at 65055. At 65068 Roosevelt. 65083 Marsh hawk. 65097 Vernal at 1:42 P.M. It is unusual to see so much snow in this basin, covering all exposures. As is usual I have kept complete census of raptors. In the Uintah Basin noted several large flocks of horned larks, the usual number of magpies, a few crows and starling but otherwise birdlife unusually uncommon. This condition might be associated with the extensive ground fog that was predicted by the airport personnel at Heber. The sun on occasions, could be faintly seen thru fog. Continued across the basin and at 65110 at Green River which at the bridge was partly open but beyond in solid ice and snow.

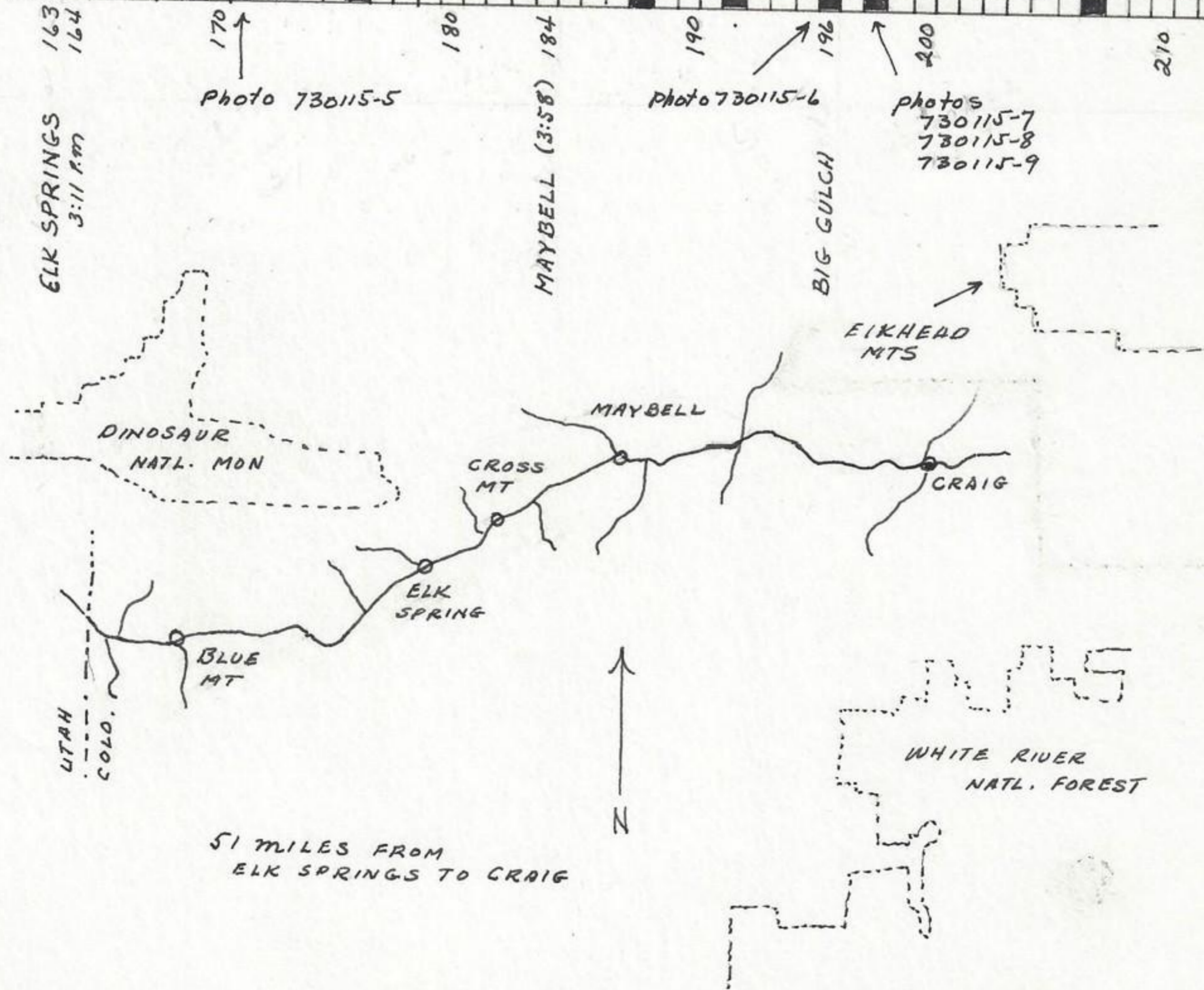
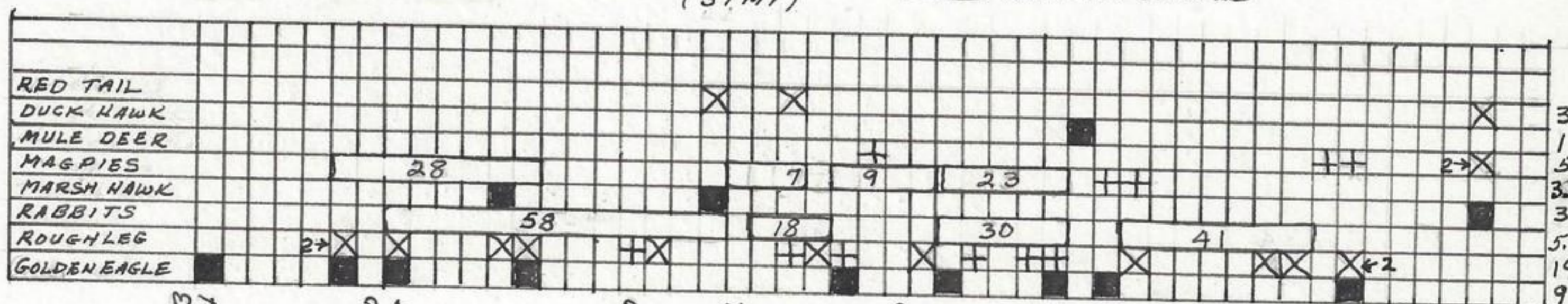
1973-10

1973-11

Arrived Colorado state line at 65126 at 2:34 P.M. The first roveu noted at 65142. ^{Elk Springs 65163 at 3:11 P.M.} At 65164 noted a golden eagle feeding on a road kill jackrabbit. The bird had carried the rabbit from road to slope some 80' from edge of road. A magpie fed on the same rabbit as ^{did} the eagle and within easy striking distance of the feeding eagle. When the ^{car} stopped opposite the eagle, it left and reluctantly flew along the side of the hill. The magpie remained at the rabbit and continued to feed. This eagle appeared to be an adult with very little white at base of tail. From this observation correlated rabbit road kills and raptore populations thus:

CENSUS FROM ELK SPRINGS TO CRAIG
(51 MI)

X = LIVE ANIMAL (OR ■)
+ = ROAD KILL
□ = RANDOM SAMPLE



51 MILES FROM
ELK SPRINGS TO CRAIG

- Observations other than those recorded in gross census are:
1. At mileage 180 noted a large black roughleg in road that had been struck by a car and while paralyzed was still alive. It was an exceptionally large bird and measured 24 inches total length, and 52 inches wing spread. These large black phase hawks resemble eagles.
 2. Between Maybell and crossing of Yampa River noted 7 magpies.
 3. This winter population of eagles is associated with the Dinosaur National Monument to the W, Elkhead mts to the northeast and the White^{River} mountains to the SE and these areas may be the nesting areas of these eagles. I know of a pair nesting at the mouth of Split Canyon in Utah.
 4. These eagles were associated with a rabbit high in this area (5.3 per mile road kills) and thru this area the population of rabbits fluctuated in numbers only slightly.
 5. The eagles were observed as close as 80' to as far as 1/10 mi, the greater number about 125' from road. Those near the road, especially those on telephone poles, remained undisturbed for about 4 minutes before they flew. I would judge the population of eagles as 60% adult and 4% juveniles. In 6 instances the eagles were associated with roughleg hawks and magpies.
 6. Marsh hawks were not associated with road kills or eagles but were noted hunting beyond the road right of way.
 7. The greatest concentration of magpies were at deer road kills. Only one instance of eagles associated with deer road kill and this area because of a rabbit road kill rather than the deer.

From Craig (mileage 214 at 4:49) to Steamboat Springs did not see a raptore. Arrived Steamboat Springs at mileage 65254 at 5:42 P.M.

Steamboat Springs, Colorado
 Jan 16, 1973

Left 7:30 A.M. Raven at Diamond Springs Creek

Between Diamond and Fraser made 4 photos: 730116-1 of prominent peak n of road, 730116-8 of shed, coral and fog filled valley; 730116-3 of the main river valley we have been following, this is typical of frosted trees all across Utah and Colorado. 730116-4 of a foreground of frost covered trees against a background of dark hillside. This is near the Colorado River at bridge D130.

1973-13
 Arrived Fraser at mileage 351. A kingfisher sat on a line and appeared to be suffering from the cold temperatures. Continued to Berthoud Pass. Photo 730116-5 of peak to W just below the divide. Photo 730116-6 of snowslide on W side of pass. Photo 730116-7 a mile or so beyond the pass to the ^S and ^W. Arrived Golden at mileage 409 at 12:24 P.M. Passed thru Denver. At Arriba (mileage 535) noted a redtail. Golden eagle at mileage 550 just 6 miles W of Seibert, Colo. Seibert 556. marsh hawk 561. Vona 564. Picked up Annettes Datsun and towed back to Lawrence. Stopped at Stratton at mileage 65572 because of darkness and no tail light signals on the Datsun. Today has been characterized by lack of raptors except toward end of day as indicated above. 318 miles today.

Stratton, Colorado

Jan 17, 1973.

Left early. marsh hawk at 626. Started census at Colby at 654. at 10:03 A.M. 8 horned larks. 656 marsh hawk, horned lark, 6 horned larks, 5 horned. At highway ^{mile marker} 57 (657.5 mileage of car) will keep list of birds per mile. 18 horned larks, 8 horned l. 58. 2 horned larks, marsh hawk. 59 horned lark, 2 horned larks, 2 horned larks, 60 horned lark, 4 horned larks, 40 horned larks, 6 horned larks, 2 horned larks, 20 horned larks. 62 30 horned larks, 150 horned larks, 1 crow, 2 horned larks, horn lark. 63 10 horned larks, 12 horned larks, marsh hawk (N Fork Salomon River), 5 horned larks, 65 2 meadowlarks, 18 horned larks, 66 2 horned larks. 67 2 horned larks, 4 horned larks, 8 horned larks, 12 horned larks, 5 horned larks, 2 horned larks, 2 horned larks. 69 2 redtails Oakley turnoff, 2 horned larks, horned lark, 6 horned larks. 71 7 horned larks, 2 horned larks, 6 horned larks, 12 horned larks. 73 8 horned larks, S Fork Saline River (1/10 mi W mileage 74). 3 horned larks, horned lark, 2 horned larks, Logan Co (2/10 W 75), horned lark, Grove Co., horned lark. 76 3 horned larks, 8 horned larks, 12 horned larks, 6 horned larks, 3 horned larks, 4 horned larks, 1 horned lark, 79 marsh hawk, 2 horned larks, 5 horned larks, 2 horned larks, 2 horned larks, 10 horned larks, 81 meadowlark, 82, 84, 85, 86, 4 horned larks, marsh hawk, horned lark. 88 2 horned larks, horned lark. 89, 90, 91 definitely fewer horned larks, horned lark. 93 Brenfield turnoff. 94, 8 horned larks, 10 horned larks, 9 horned larks, roughleg (dark phase), redtail, 2

1973-14
 horned larks, 10 horned larks. 96, 97 5 horned larks, 2 horned larks, 98 1 horned lark, 50 horned larks, 2 horned larks 99, 4 horned larks, 5 horned larks, 100 2 horned larks, 4 horned larks. 101 102 roughleg hawk. 103 redtail. 105 3 horned larks. 106 8 horned larks. 107 Quarter turnoff ($\frac{3}{10}$ mi beyond 107). 109 2 horned larks. 110 2 horned larks, 2 horned larks, 3 horned larks, 2 horned larks. 112 Trego Co at 113. horned lark, horned lark. 114 horned lark, horned lark, horned lark. 117 horned lark. 118, 119 horned lark. 121 horned lark. 122, 124, 125 redtail. Wakeeney turnoff at 127. ¹² ~~12~~:20 having changed from mountain time. [At this point recorder malfunctioned and information lost up to mileage 132 when it resumed normality!] 133 crow. Some parts of western Kansas with some snow drifts, field clear otherwise. At this mileage rarely a snow drift, field clear & dry. 134, 135 Ogalla turnoff. 136, 137, 138 2 horned larks. 139, 140, horned lark. 141, 142, 143 4 horned larks. Ellis Co. 144 2 crows. 145 Ellis turnoff. 146, 147 redtail, 148, 149, 151, 152, 153 yucca on road, 2 redtails on post 200' apart. 157 exit to Fort Hayes. ~~at~~ 163 some ponds ^{frozen, some} open, no snow in area. 164, 166, 167, 168 Victoria exit. 169, [at this point recorder malfunctioned and information lost up to mileage 227]. 227 redtail. 228 (Lincoln Co 2 mi west of 228). 230, 231 redtail, 232 redtail. 233, 234. [malfunction to 247]. 247 rabbit roadkills across Kansas rare, no snow in area. [malfunction to 274] 275 Abilene turnoff. 277, 278 279 redtail, 280, 281, 282, 283 Chapman exit. 286, 287, 288, 289 Gary Co., 290 redtail. 291 at 3:30. 295 redtail. 297 Junction City exit to 298. Smoky Hill River open and muddy. 300, 302, 303, 304 [malfunction to mileage exit 335 at 4:36 P.M.] Wanamaker exit road just beyond. Mileage at Wanamaker road is 946 in car. ^{End census.} Arrive Lawrence 5:00 P.M. at mileage 65975 and 10 minutes of sunlight. 349 miles today. Mileage meter in car 10 miles more than road sign mileage in 278 miles.

402 Yorkshire Dr., Lawrence, Douglas Co., Kansas
 Photos 730118-1 to 730118-12 of home in Lawrence.
 Lawrence, Douglas Co., Kansas

Feb. 27, 1973

First snow and blue geese heard this season. Other observers have reported geese 3 days earlier.

Lawrence, Douglas Co., Kansas
 March 3, 1973

Laboratory specimen of *Onychomys* building nest in corner of aquarium and first since ^{Oct 30} ~~September~~ of 1972. It is 80 mm high and cup in top. *Onychomys* drank water for $3\frac{1}{2}$ continuous minutes

Lawrence, Douglas Co., Kansas

March 6, 1973

Angle-worms on pavement of sidewalks 1 per 10 feet.

Merwin Puttles father reports some observations on honey bees.

never take honey from bees in autumn

never take too much honey when young are developing as their demands are great and can reduce honey in one week.

Hives need ventilation at bottom of hive.

Have double glass in front so one can be cleaned at a time

All spaces will be filled except 1/2 inch surrounding combs.

Any entrance except main entrance will be sealed

Do not crowd or bees will leave and swarm.

Greatest problem in museum will be removing honey as bees will move into museum.

Bees that travel long distances for pollen & honey have poor hives.

Jarring hive or cloudy day make bees mad. Never wear wool or feltlike materials as it causes bees to sting. Work slowly around hive.

Lawrence, Douglas Co., Kansas

March 12, 1973

noted a robin with 3 outer primaries (left) white and center of 3 tail feathers white. It was associated with a group of 8 other robins feeding on the grounds of Hope nursery property.

12 1/10 mi. N and 18 1/10 mi. W Lawrence (P.O.), Douglas Co., Kansas

March 19, 1973

Last night

Set 50 traps (museum specials) in field ^{E of above} and along fence line of turnpike. This is the field east of the transmission line. Grown to 2 foot high grass (yellow and in patches) from a field ² years ago was cut for grass. many trails in grass where over head protection was offered. mammals capture are:

SK. ON 730319-1	Microtus ochrogaster	145-31-19-12-52gm ♀	2x2 emb 27mm
730319-2	"	148-35-20-12-38gms ♂	testis 16mm
- 730319-3	"	142-29-20-11-35gms ♀	ut normal
SK. ON 730319-4	"	156-36-21-12-51gms ♂	testis 13mm
730319-5	"	149-34-20-12-40gms ♂	testis 15mm
730319-6	Blarina brevicauda	117-21-16-6-25gms ♂	penis everted.
730319-7	"	121-23-16-6-22gms ♀	1x3 emb 12mm (emb black with red placenta)
730319-8	Reithrodontomys	140-62-16-11-14gms ♀	2x0 emb 8mm.
730319-9	"	128-57-16-11-9gms ♂	testis 7mm
730319-10	Mus musculus	149-75-18-13-13gms ♀	ut normal
730319-11	Mus musculus	145-65-16-13-15gms ♂	testis 6mm

1973-16

730319-12	<i>Peromyscus maniculatus</i>	143-56-20-15-22 gms ♂ testes 8 mm
730319-13	"	143-56-18-14-22 gms ♀ ut. normal
-730319-14	"	142-55-17-14-20 gms ♂ testes 8 mm
730319-15	<i>Sigmodon hispidus</i>	238-101-30-18-86 gms ♀ ut normal
730319-16	"	248-99-32-18-105 gms ♂ testes 16 mm
730319-17	"	[212]-[76]-31-18-80 gms ♀ ut normal
730319-18	"	233-90-31-18-74 gms ♀ testes 15 mm
-730319-19	"	249-106-32-18-102 gms ♂ testes 16 mm

The 2 *Blarina* were taken 20' apart, the male with completely everted penis. On the bases of 22 spring traps would estimate that there is a high percentage of *Sigmodon* in the area. most runway led to concentrated patches of holes 1-3 sq. yards that had been used for several years. Green grasses were associated with the holes. a *Microtus ochrogaster* and a *Peromyscus maniculatus* come from adjoining (3 feet) holes. Trails well developed. These mammals have moved in this area since the grass was cut. Prior to that the field was regularly cut and there were not many mammals present. Field contained.

17/10 mi. n and 18/10 mi w Lawrence (P.O), Douglas Co., Kansas.
March 21, 1973

Last night set 50 traps in riparian community of Deerfield drainage w of above locality. Traps at base of large oak trees and averaged 50 feet apart.

730321-1	<i>Peromyscus leucopus</i>	185-86-22-16-32 gms ♂
730321-2	"	181-81-23-16-30 gms ♂
730321-3	"	191-88-23-16-35 gms ♂ testes 13 mm
730321-4	"	182-80-23-16-31 gms ♀
730321-5	"	177-77-22-16-28 gms ♂
730321-6	"	162-68-22-16-25 gms ♀ ut enlarged
730321-7	"	183-80-23-16-33 gms ♂
730321-8	"	190-88-23-16-36 gms ♀
730321-9	"	177-87-22-16-27 gms ♂
730321-10	"	170-74-23-16-30 gms ♂ testes 10 mm
730321-11	"	158-71-22- 16 ¹⁶ 25 gms ♂ testes 11 mm
730321-12	"	163-72-22-16-24 gms ♂ testes 11 mm
730321-13	"	174-82-21-15-26 gms ♂ testes 12 mm
730321-14	"	159-72-22-15-22 gms ♂ testes 12 mm
730321-15	"	162-71-22-16-23 gms ♀ ut. normal
730321-16	"	175-75-22-16-28 gms ♂ testes 12 mm
730321-17	"	165-67-22-15-23 gms ♀ ut. normal
730321-18	"	176-82-22-16-28 gms ♂ testes 13 mm

730321-19	<i>Peromyscus leucopus</i>	160-74-22-15-23 gms ♂ testes 14 mm
730321-20	" "	171-74-21-16-30 gms ♀ ut normal hydrocoel in abdomen
730321-21	" "	163-70-22-14-24 gms ♀ ut normal

1 2/10 mi. N and 1 8/10 mi. W Lawrence (P.O.), Douglas Co., Kansas
March 22, 1973

From 24 live traps set last night along turnpike right-of-way and the northern end of utility transmission line fence row caught the following mammals. All traps in runways.

SKI 730322-1	<i>Synaptomys cooperi</i>	134-20-19-10-42 gms ♂ testes 7 mm
730322-2	" "	126-19-20-10-34 gms ♂ testes 6 mm
730322-3	<i>Microtus ochrogaster</i>	¹⁴⁷ / 272 -37-19-13-38 gms ♂ testes 14 mm
730322-4	<i>Sigmodon hispidus</i>	261-105-32-17-103 gms ♂ testes 18 mm
730322-5	" "	[235]-[92]-30-17-89 gms ♂ testes 18 mm
730322-6	" "	[220]-[68]-31-17-93 gms ♂ testes 19 mm
730322-7	" "	221-88-29-17-59 gms ♀ ut normal
730322-8	" "	209-81-28-17-61 gms ♀ ut normal
730322-9	" "	[222]-[80]-31-17-88 gms ♂ testes 19 mm
730322-10	" "	[260]-[92]-32-18-130 gms ♂ testes 18 mm
730322-11	" "	272-115-33-18-120 gms. testes 16 mm
730322-12	" "	252-102-32-17-112 gms ♂ testes 18 mm
730322-13	" "	259-102-31-17-113 gms ♂ testes 19 mm
730322-14	" "	[208]-[70]-30- ¹⁷ / 15 -85 gms ♂ testes 15 mm

There is a correlation between damaged tails and ♂♂, one with 7 new scars on tail. Live traps affect community composition by including larger males of *Sigmodon* that would otherwise get out of small traps (mus. specials).

Flock blue and snow geese flew N at about power plant line.

1 2/10 mi. N and 1 8/10 mi. W Lawrence (P.O.), Douglas Co., Kansas
March 23, 1973

Last night set 50 museum specials SW from above in area of pond bordering E side Beerfield drainage. Set along dike bordering a field that had, in previous years, been cleared of topsail.

SKI 730323-1	<i>Synaptomys cooperi</i>	126-20-20- <u>6</u> -42 gms ♂ testes 5 mm
730323-2	<i>Microtus ochrogaster</i>	160-37-21-13-51 gms ♀ 4x1 emb. 7 mm. recent part part.
730323-3	" "	[115]-[10]-18-9-29 gms ♀ 2x2 plac. scars.
730323-4	" "	110-25-18-7-16 gms ♀ ut undeveloped
730323-5	" "	95-20-17-6-11 gms ♀ ut undeveloped.

730323-6	<i>Sigmodon hispidus</i>	[260]-[92]-33-17-120gms ♂ testes 18mm
730323-7	" "	201-76-28-16-61gms ♂ testes 15mm
730323-8	" "	212-78-28-17-70gms ♂ testes 16mm
730323-9	" "	213-78-28-16-72gms ♂ testes 16mm
730323-10	<i>Peromyscus maniculatus</i>	138-52-18-15-20gms ♂ testes 11mm
730323-11	" "	154-58-20-14-25gms. ♀ 3x2 emb. 10mm
730323-12	" "	132-48-18-13-17gms ♂ testes 10mm
730323-13	" "	128-43-17-12-17gms ♂ testes 8mm
730323-14	" "	134-47-19-14-17gms ♂ testes 8mm
730323-15	" "	135-52-18-14-16gms ♂ testes 9mm
730323-16	" "	140-51-18-13-18gms ♂ testes 12mm

Noted an eastern bluebird and redwing in area. All kinds of above mammals taken from same sets of runways. From the last 3 days of trapping would say that *Synaptomys* extends into newly developed areas the least of the kinds of mammals trapped. An old well established refugia that maintains its permanence is a prerequisite for *Synaptomys*. In one area not associated with this area but at turnpike fence line, noted $2\frac{1}{10}$ of a mile of fence line adjacent to corn field and without good grass cover was completely riddled with the excavation of meerkats by dogs or coyotes, a digging averaging 1 per 10 feet. Another $2\frac{1}{10}$ mile section of fence line bordered by grass field and stable cover was rarely excavated. The contrast between these two fence lines was pronounced.

Clinton Lake (proposed area), Douglas Co., Utah.
march 24, 1973

Made census from S end proposed dam to Richland along main route. Day rain, temp 45°F, time 7:20 AM to 8:30 AM. Kept list of all birds observed. Enroute to dam observed. Eng sparrow, starling, grackle, robin, fox squirrel, meadowlark, redwing blackbird, crow, mourning dove, shrike. Starting at mileage 89.8 at S end dam. meadowlark, redwing, meadowlark, Eng sparrow, meadowlark, redwing, 5 grackles, meadowlark, redwing, 3 grackles, some small birds, 9:04 redtail hawk, 2 crows, marsh hawk, 3 grackles, meadowlark, redtail redwing, meadowlark. 91.0 Rock Creek. All creeks have been at near flood stage, now $\frac{1}{2}$ full. Redtail, meadowlark, cardinal, meadowlark, meadowlark, redwing, redwing, mourning dove, redwing, redwing, grackle, cardinal. 93.3 Clinton. No birds in residential area of Clinton. 94.3 Cemetery. 2 cardinals, 4 Harris sparrows, 2 slate-colored juncos.

redtail. 95.5 bridge over Wakarusa sparrow hawk, blue bird.
 redtail. all redtails are perching at tops of trees or poles. 2 grackles.
 3 meadowlarks, robin, meadowlark, 5 grackles, 8 grackles, great blue
 heron, redwing, 9 grackles, grackle, redwing 98.6 road to S.
 meadowlark, horned lark, meadowlark, yellow-shafted flicker, redtail.
 96.6 road to W. 13 bobwhites in one group. 00.5 Shawnee Co line,
 meadowlark, Opasom road kill. meadowlark, 2 grackles,
 02.0 road to S. 02.8 Wakarusa bridge. 03.3 Richland.
 Continued E on County road for 1.7 miles and returned to Richland.
 In that distance saw only 2 juncos. Houses & stores at Richland
 have been raised. Returned same way and noted 40 killdeer in
 one flock and 3 Eastern bluebirds as additional kinds of birds.
 There is definitely more birds in the cleared area of the valley W of
 dam than elsewhere. Some areas ^{to W} showed a surprising few or lack
 of any kinds of birds. Trees cleared to Clinton. ^{5 miles} Roads within dam
 area have been abandoned and are impassable. Of the 6 redtails
 observed, counted same number on return trip, although these many
 not have been the exact same hawks.

Lawrence, Douglas Co., Kansas

March 24, 1973

Cedar waxwings have been feeding on berries at 402 Yorkshire.
 for the last month. 27 were in one group this A.M. Two
 birds nos 730324-1 and 730324-2 flew into windows near the
 berry bushes and apparently died of brain damage or broken necks.
 Each died in less than one minute.

Paradise Park, Jefferson Co., Kansas

April 6, 1973

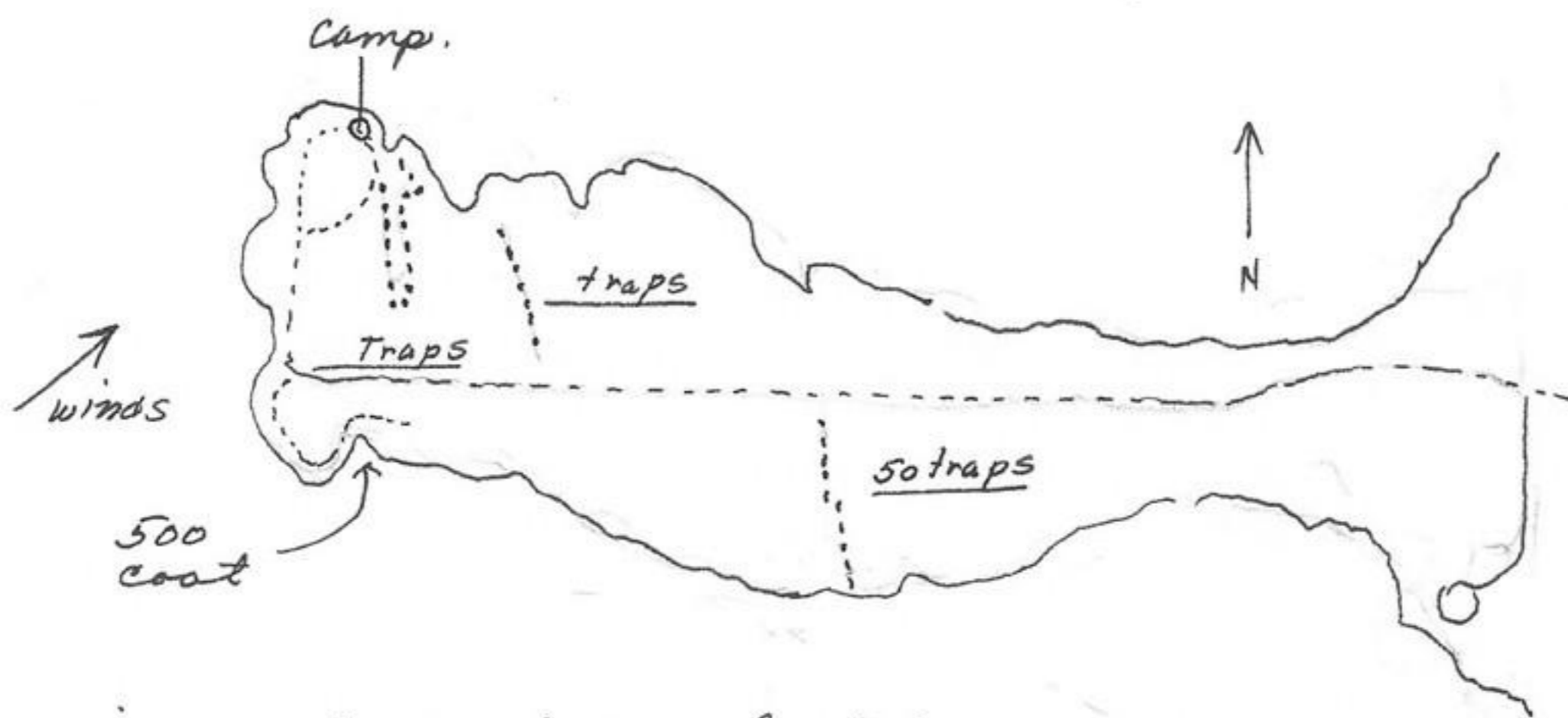
Field trip to Paradise Point on Perry Reservoir with museum Techniques class. Left Lawrence 10:30 A.M. at mile 68215, will keep list of birds to Reservoir. Purple martin, redwing, meadowlark, crow, starling, flock 2000 starling, grackle, horned lark, opossum and striped skunk road kill, 25.5 Delompton bridge. Kaw within 3 feet of flooding (9:50 AM). Killdeer, Eng sparrow, robin, 27.8 Perry shrike. 31.0 SE corner Perry Reservoir. Will keep list of all birds observed. 33.1 Big Slough Creek bridge. 2 ring-billed gulls. water brown and rough. 33.7 redtail. No great blue heron actively at nesting site. Trees appear as in winter but some slight green. 3 meadowlarks. 36.7 meadowlark. 37.6 shrike. 38.9 Little Slough Creek bridge. 3 ring-billed & some ducks. Water 3' from road to right. redwing. 39.6 main road. 40.5 m. lark, red bellied woodpecker, downy, 41.7 turnoff, meadowlark, 42.2 turkey vulture. 43.2 entrance to Paradise Park. Field to left with old runways of winter population. Coats in water. 3 meadowlarks. 2 small birds. 44.7 end of Paradise Park (W end) at approx. 10:45 P.M. Water over picnic tables and with 10'-20' wood debris. Camp at NW end of peninsula. Wind from SW but strong on lee side peninsula. Composites of birds are; (of Paradise Peninsula).

yellow-shafted flicker
turkey vulture
am. coot (500)
ring-billed gull.
meadowlark
field sparrow
red-headed woodpecker
blue jay
Franklin gull
mallard
godwall
cormorant (60)
titmouse
Sylvilagus floridana
Pseudacris
Rana pipiens
cowbird
grackle
cardinal

The high winds from the SW have had a decided influence on the bird life, keeping many low in ground or in protected places. No evidence of geese or ^{massive} migration of ducks. Gulls generally distributed in small groups of half a dozen.

898 ft,
Paradise Point, Perry Reservoir, Jefferson Co., Kansas
April 7, 1973

Last night set 100 museum special traps in three lines, each with remnant of old grasses and each on protected slope or ridge from runoff waters. Most runways appeared to be of a



previous time before last rains, some probably winter runways which were covered with snow. The high population has preceded the present period. Small trees are invading these clear fields so populations are at least 3 years undisturbed. From the trap lines recorded the following:

730407-1	<i>Synaptomys cooperi</i>	131-24-19-10-44 gms ♀	1x3 emb 9 mm
730407-2	<i>Microtus ochrogaster</i>	150-33-19-12-44 gms ♀	1x4 emb 14 mm
730407-3	<i>Microtus ochrogaster</i> (light)	154-38-20-11-40 gms ♂	testis 13 mm
730407-4	"	153-38-20-11-43 gms ♂	testis 14 mm
730407-5	"	153-37-20-11-43 gms ♂	testis 14 mm
730407-6	"	151-38-20-11-42 gms ♂	testis 15 mm
730407-7	"	144-37-19-11-40 gms ♂	testis 12 mm
730407-8	"	142-36-20-11-32 gms ♂	testis 13 mm
730407-9	"	162-39-20-12-48 gms ♂	testis 15 mm
730407-10	"	147-34-19-11-41 gms ♀	2x4 emb 7 mm
730407-11	"	163-44-20-11-46 gms ♀	0x3 emb 6 mm
730407-12	"	142-31-19-10-35 gms ♀	1x1 emb 9 mm
730407-13	"	151-31-19-11-45 gms ♀	post-parturition
730407-14	"	148-34-19-11-37 gms ♀	3x3 emb 12 mm
730407-15	"	151-36-20-11-36 gms ♀	3x4 emb 4 mm
730407-16	"	149-33-18-11-37 gms ♀	4x3 emb 4 mm
730407-17	"	142-33-20-11-35 gms ♀	ut enlarged, one side larger
730407-18	"	129-29-19-11-28 gms ♂	testis 12 mm
730407-19	"	112-23-17-10-30 gms ♂	testis 8 mm
730407-20	"	119-27-17-10-20 gms ♂	testis 9 mm

730407-21	<i>Microtus ochrogaster</i>	112-28-19-10-18gms ♀ ut normal
730407-22	" "	118-28-18-10-19gms ♀ " "
730407-23	" "	100-22-17-10-11gms ♀ " "
730407-24	<i>Peromyscus leucopus</i>	182-84-22-17-26gms ♀ ut normal
730407-25	" <i>maniculatus</i>	143-57-19-12-18gms ♂ testis 9mm
730407-26	" "	[110]-[23]-18-12-18gms ♀ ut normal
730407-27	<i>Microtus ochrogaster</i>	144-33-20-10-38gms ♂ testis 13mm
730407-28	<i>Sigmodon hispidus</i>	205-80-29-16-71gms
730407-29	" "	210-90-28-18-74gms ♂
730407-30	" "	224-87-28-13-101gms ♂
730407-31	<i>Peromyscus leucopus</i>	160-70-22-15-22gms ♂
730407-32a	" <i>maniculatus</i>	160-65-19-14-25gms ♂
730407-32	<i>Reithrodontomys megalotis</i>	129-67-15-11-29gms ♀
730407-33	<i>Microtus ochrogaster</i>	142-35-18-12-34gms ♂
730407-34	" "	castrated ♂
730407-35	" "	castrated
730407-36	<i>Sigmodon hispidus</i>	castrated ♂
730407-37	<i>Microtus ochrogaster</i>	160-40-20-13-48gms ♂
730407-38	<i>Sigmodon hispidus</i>	♂

measured by students

SKU

The greatest number of mammals were in trails with the least overhead protection. These runways are those used in winter and abandoned in summer, at least during the first part of spring when grasses are short.

On return at Slough Creek (Little) noted sparrow hawk, great blue heron, scaup ducks, 8 ring billed gulls, 3 crows, 5000 grasshoppers, redwings.

Lawrence, Douglas Co., Kansas

April 12, 1973

Two mammals were sacrificed for karyotyping. See notes of Oct 30, 1972 for locality. No. [721030-2] *Dipodomys ordii* measured: (this date April 12, 1973). 261-140-42-13-76gms, testis 13mm, held in captivity until April 12, 1973.

No. [721030-3] *Onychomys leucogaster arcticus* measured: 160-46-22.5-16-38gms, testis 14mm. Held in captivity until April 12, 1973.

Injected .4 ml of .05% Calchicine in *Onychomys* at 9:00 A.M. - and .8 ml in *Dipodomys*.

April 13, 1973

Received 3 35mm transparencies of car and trailer action on ferry from Newfoundland to Labrador, taken by Mr. W.P. Merty of 222 Cooper Avenue, Johnstown, Pennsylvania 15906, showing mercury pulling trailer on ferry [720731-2a], wrenching trailer nos [720731-2b] and [720731-2c].

402 Yorkshire, Lawrence, Douglas Co., Kansas
 April 29, 1973

For the last 5 days have had a plastic sack over martin house to discourage nesting of English sparrows. At the time sack was secured there were 2 of the nests with fresh eggs. At 8:50 A.M. (day clear, sunny, temp 51°F, windy) removed the plastic sack. At 8:51 a ♂ English sparrow alighted at entrance of low right hole and remained nearly motionless for 30 sec. At 8:56 it inspected inside hole. At 8:57 a second ♂ arrived and was chased away by the first male. At 8:59 the second male entered lower left hole (N) and first male allowed trespass. 9:05 3rd male and a female arrived. The female was repelled by first male. Males called continuously. The three males now embroiled the N.W. & S sides of martin house, both lower and upper levels. 9:07 4th male challenged N male and was repelled several times. The 4th male had a way of alighting and rapidly entering hole before the 3rd male could attack. The males would fight inside of nest and then for 10-15 seconds on way to ground or adjoining tree. Females were ~~was~~ being repelled by males except one each for each male which was presumably the mated pairs. In 18 minutes after removing the plastic sack, all available holes were occupied by 4 pairs. At 9:20 counted 13 birds at house and all in continuous motion. These surges occurred about every 5 minutes. Males called continuously. No birds in this period were carrying nesting material or were populating. This activity followed approx. 1 1/2 later after initial territories were set up and were being vigorously defended. At 12:00 the following holes were occupied (N) upper left, N lower left, W lower right, S upper right. In this preliminary period the males seem to initiate and carry responsibility of carrying nesting material. This behaviorism would indicate that protection of martin house from English sparrows in favor of martin competition, when uncovered, is not advisable as it takes only minutes after the sack is removed before the sparrows have complete control.

Perry Lake, Jefferson Co., Kansas
 April 29, 1973

Enroute to Perry Lake via Decempton noted the following birds: chimney swift, martin, Eng sparrow, robin, grosbeak, redwing, killdeer, crow, red tail, meadowlark, red-headed woodpecker, east, willet, eastern kingbird, mourning dove, barn swallow, goldfinch, brown thrasher, cardinal, bobwhite, titmouse, bluebird. Last week water at 901.5 ft. at Perry.

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

May 4, 1973

Observed a swarm of kissing bugs (the nearest resemblance is to a masked hunter, Reduvius personatus but with larger foot pad on third set of legs) from the 7th floor of the NE corner of the museum. The swarm was between the museum and the tops of trees about 40' out from the museum. They seemed to be concentrated among the trees and area toward the museum and moving in the direction of the museum. I would judge that there were approx 10,000 individuals. Noted first appearance of these insects at 12:15 P.M. The swarm built up in number to 12:28 and at 12:32 they disappeared completely from the area. They did not alight on building or windows. This morning there was absolutely no wind and temperatures at time of swarm (slight wind) was approx. 72° F.

Clinton Reservoir, Douglas Co., Kansas.

May 6, 1973

Annette and I made trip to Clinton area to check on birds. Left Lawrence at 68805 at 12:00. Day cloudy, rain last night and 70% rain forecasted for this afternoon. Enroute to dam will keep list of different kinds of birds. Purple martin, Eng sparrow, house wren, chimney swift, robin, grackle, starling, barn swallow, redwing, meadowlark. At Wakarusa bridge water 1/2 way up bank, cowbird, Baltimore Oriole, brown thrasher, mourning dove, mockingbird, dickcissel. Mileage at 5 end proposed dam (on main Clinton Road) 68819.3. Will keep complete record of birds thru Clinton area to Lone Star Lake. Dam base S of river graded but no building up of dirt. Redwing. At 19.5 at what would be the W edge of proposed dam, a white-tail deer ran across road and continued S to valley side. 19.5 redwing, grackle, dickcissel, redwing, cowbird, 2 grackles, redwing, grackle. 19.7 2 redwings, dickcissel, grackle, 19.8 meadowlark, 2 hudsonian godwits, 2 redwings, meadowlark, redwing, dickcissel, dickcissel, cowbird, grackle redwing, meadowlark, crow. 20.3 Rock Creek bridge, water 1/2 full and muddy. Sparrow hawk here. On better drained areas there are fewer birds, meadowlark. 21.0 meadowlark. 21.4 crow, robin, meadowlark, meadowlark. 22.5 4 barn swallows, bluejay, Eng. sp. 22.7 center (store) of Clinton. Continued west. Eng sparrow, meadowlark, 4 barn swallows

1973-25
 County road 1029. a marsh hawk hovered at about 150' high and a redwing attacked the hawk 9 times without the hawk reacting. 2 meadowlark, 18 grackles, redbellied woodpecker on lawn. 23.5 now on gravelled road and continuing to S. shrike, 3 grackles, shrike, dickcissel, 24.5 Rock Creek bridge, redheaded woodpecker, dickcissel, red-headed woodpecker, mourning dove, crested flycatcher, redtail, turkey vulture, cardinal, titmouse. 25.0 titmouse 25.4 top of hill. Goldfish ^{junction} 460 at 26.0 Continuing south. meadowlark, dickcissel, eastern kingbird, 2 dickcissels, redwing blackbird, 4 grackles, 2 cowbird, 2 grackles, meadowlark. 2 cowbirds have been flying 23 miles per hour along side of car. 462 Turnoff now to E to Lone Star Lake. meadowlark, 2 mourning doves, 2 cowbirds, 6 vultures. 285. junction 1031 just N of the dam at Lone Star. End of complete census. In the Lone Star area saw. Lesser yellowlegs, beaver actively, little blue heron, catbird, killdeer, sparrow hawk, redwing. At the bay at S end of dam noted 2 mud turtles, one of which was at least 12 inches long.

12¹/₁₀ mi. ⁿ and 18³/₁₀ mi. w Lawrence (P.O), Douglas Co., Kansas
 May 11, 1973

In field NW of 402 yorkshire, observed the following birds:

Harris sparrow. 2 males feeding in field and flew into tree nearby.
 meadowlark, 12 in field.
 field sparrow
 blue jay
 great-crested flycatcher, trees bordering field
 robin
 black-capped chickadee
 grackle
 dickcissel
 bobwhite
 cardinal
 mourning dove
 Baltimore oriole
 pilot black snake.

Observation from 10 minutes before sundown to twilight. Clear sky.

Clinton Lake, south end proposed dam, Douglas Co., Kansas

May 12, 1973

Made list of birds on east slope of ridge S of dam from county road to approx. 1/2 mi to S and from ridge to marsh below: numbers are approx. Census in A.M. 3 hours.

meadowlark	12	in marsh and fields below
grackle	25	" " " " " "
redwing	30	" " " " " "
bobwhite	5	calling both in forest & meadows
barn swallow		in meadows.
crow		flew over area
duckesset	6	in meadows
field sparrow	4	ecotone between open field & forest
titmouse	8	in forest
brown thrasher	1	in hedgerow, 2 in ecotone
yellow-throat warbler	2	bordering meadows
red-bellied woodpecker	2	in forest
great-crested flycatcher	2	in forest
Baltimore Oriole	5	in forest
redtail hawk	1	" "
house wren	1	" "
blue jay	3	" "
Swainson Thrush	7	" "
warbling vireo	1	" "
indigo bunting	6	" "
Turkey vulture	8	over forest and ridge
mourning dove	4	in ecotone
chimney swift	3	over forest
black tern	12	above ridge & flying N.
cardinal	5	in forest
black-capped chickadee	3	" "
red-eyed vireo	2	" "
cowbird	5	" "
black and white warbler	1	" "
eastern pewee	2	" "
Blackburnian warbler	1	" "
black poll warbler	1	" "
eastern phoebe	2	" "
Wilson warbler	3	" "
scarlet tanager	1	" "
mockingbird	1	top of ridge at edge of forest
red-headed woodpecker	2	flew over forest toward E.

Birds observed enroute from home are:

robin, western kingbird, meadowlark, bluejay, purple martin, chimney swift, Eng. sparrow, starling, grackle, redwing, dickcissel, crow.

Examined 3 woodrat nest in area: 2 on top of ridge and the most eastern extension and one at fence line SE of above.

Delaware River, Valley Falls, Jefferson Co., Kansas
May 13, 1973

Annette Christine directed a group of 13 girl scouts (4 parents) on a canoe trip from Valley Falls (put in at railway bridge N of town) to the first bridge some 6 miles down lake, taking 2 1/2 hours. Annette and I accompanied Chris. Beaver activity generally distributed along entire route, identified by tracks on soft muds of the bank. The water was receded from the highest level the reservoir had ever held. Water had inundated fields of the original flood plains of the area. One muskrat observed approx 1/2 way. Motor boats use this river-lake channel and disturb fishermen, wildlife and erode banks. They should not be allowed unless speed is below wake producing. 3 great blues and 3 spotted sandpipers observed along with usual riparian life.

1 1/10 mi. N, 1 3/10 mi. W Lawrence (P.O.), Douglas Co., Kansas
May 18, 1973

In field and Deerfield drainage forest NW of home (N of Peterson road) observed the following birds: (2:00 - 4:00 PM).
In fields: redwing, grackle, killdeer, meadowlark, eastern kingbird, bobwhite, barn swallow, dickcissel, robin, field sparrow.
In forest: great-crested flycatcher, bluejay, redbellied woodpecker, robin, red-eyed vireo, little green heron, black-capped chickadee, Baltimore Oriole, indigo bunting, redbird. A brown thrasher had a nest of 4 eggs in a rose bush along a fence row some 1/10 mi from forest. Nighthawk flew overhead.

I would estimate that there are 15 meadowlarks in the main field E of the utility lines that follows the ridge. In the late afternoon several grackles flew N across this field. There seems to be fewer dickcissels this year than previous years.

S end proposed Clinton Lake dam, Douglas Co., Kansas
May 19, 1973

[next page]

made census of birds and mammals of marsh and forest on east side of ridge S of dam, starting at the raised home of Banner (first place to right of road leading S to Lone Star Lake from Clinton road). Enroute from Lawrence

to Banner's home observed the following kinds of birds: robin, Eng sparrow, grackles, meadowlark, purple martin, chimney swift, cardinal, starling, barn swallow, bluejay, sparrow hawk, redwing blackbird.

At Banner home, now of 8 large trees and 5 dead poplars, at 9:25 A.M. noted: 3 barn swallows, 1 warbling vireo, 16 grackles (nest with young and some with eggs), 2 Baltimore Orioles, 4 Eng. sparrows, 2 robins, 2 pairs of mourning doves and eggs, dickcissel.

In marsh area which by the way should be made into a permanent marsh by interrupting the drainage at Banner's corners and supplying with water from the lake. Corp of Engineers lakes lack marsh areas for nesting birds. In this marsh area (to 6/10 mi to S) noted the following nesting redwings.

nest of 3 eggs 2 feet high in locust bush

" " 4 " 2 " " " elm bush

" " 4 " 2 " " " locust bush

" " 4 " 2 1/2 " " " " "

" " 3 " 3 " " " " "

" " 4 " 2 " " " " "

" " 3 " 1 " " " " "

Young trees are invading area and largest 6' high, most redwing in lower or northern part of marsh. Other birds here were barn swallows, ^{little green heron} grackles, deer tracks, ^{goldfinch, eastern kingbird,} and bed. At peripheral areas or slopes were meadowlarks, dickcissels, cowbirds, bobwhite.

Brown thrasher nest of 4 eggs in short hedgerow adjoining marsh. In a fence line of trees at S end of marsh, noted 2 titmice, redhead, indigo bunting and yellow throated warbler.

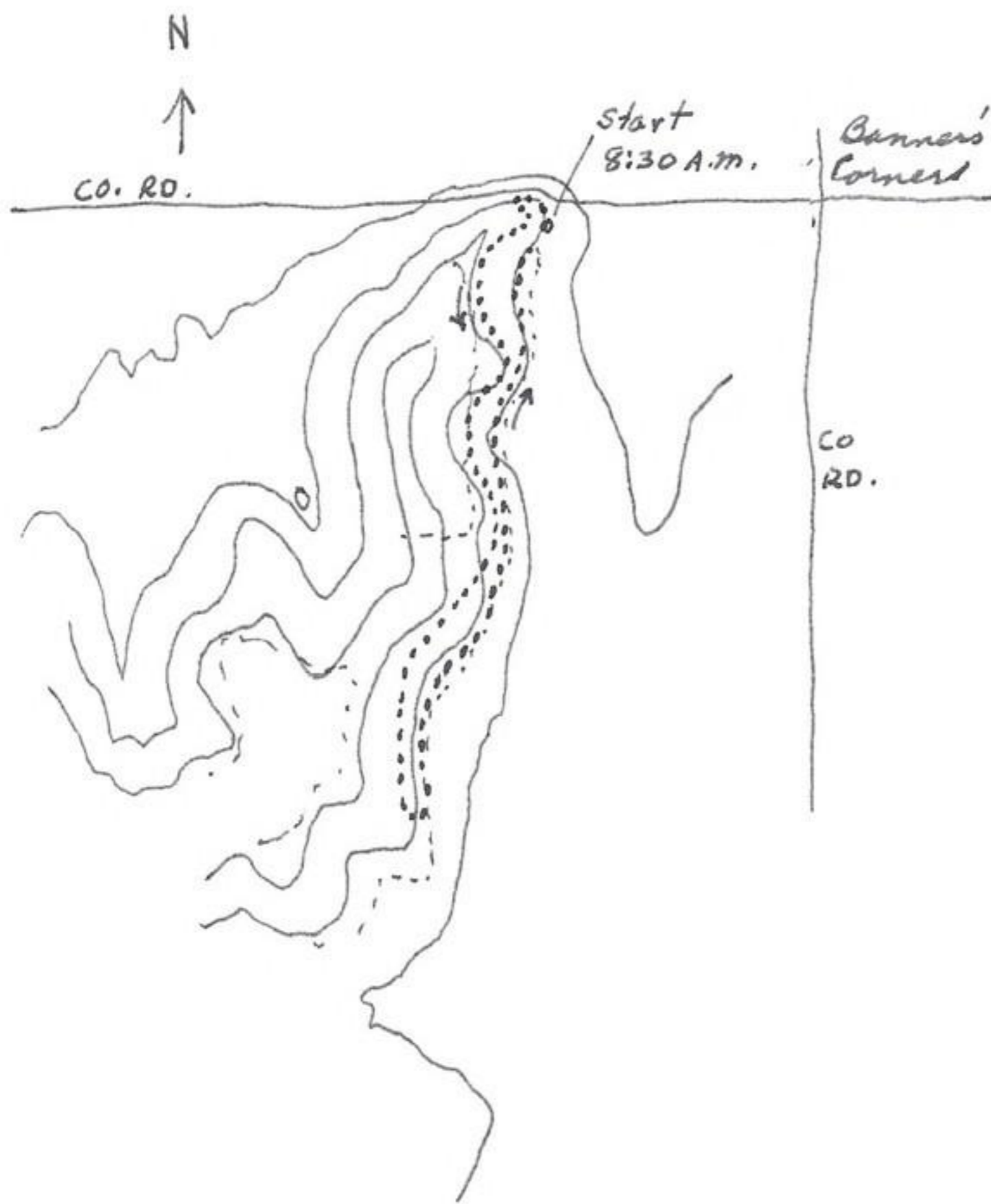
At 6/10 mi S in field of young trees and stable grass, noted a brown thrasher nest of 5 eggs placed 32 inches high in an osage orange bush. Three field sparrow in this area. At 12:10 gained top of ridge where old road goes top from E side of ridge. It is evident that census of neotoma nests should be made in winter when forest floor shrubs have lost their leaves and visibility is proper for locating nests. A family of young bluebirds in lower branches of a small tree and unsuspecting by lack of movement. It was only when young were forced to fall that the parents approached young and then almost instantaneously.

Clinton Reservoir area, Douglas Co., Kansas

May 20, 1973

Investigated ridge south of the south end of the proposed Clinton Reservoir dam. Left home at 402 Yorkshire at 8:00 A.M. Enroute recorded kinds of birds (highway 59 - blacktop Clinton Rd.), Eng. sparrow, robin, purple martin, Baltimore oriole, barn swallow, grackle, dickcissel, red-bellied woodpecker, mourning dove, house wren, starling, chimney swift, lark sparrow, crow, western kingbird, redheaded woodpecker, cardinal, sparrow hawk, loggerhead shrike,

Started at base of N end of ridge at 8:30 A.M. will continue to top of N terminal and then to S at about upper $\frac{3}{4}$ of E exposure of ridge to a point to S and then return at the base of the east exposure of the ridge among the trees. On N exposure observed Baltimore oriole, 2 grackles flying S overhead, 3 crows in field to N., red-eyed



vireo, bobwhite, cardinal, gnatcatcher, redtail sunning on top tree, 2 bluejays calling, mourning dove calling. Juniper knoll 8:45. brown thrasher, 2 crows, cardinal, 2 titmice here. Downslope to E to lower point before traverse of main ridge. Redhead woodpecker calling. no wind and sky clear. Birds uncommon.

From this vantage point saw hear Baltimore oriole, cardinal, bobwhite, redwing, titmouse, redhead woodpecker, brown thrasher (feeding on ground among trees), black-capped chickadee, oven-bird, red-bellied woodpecker.

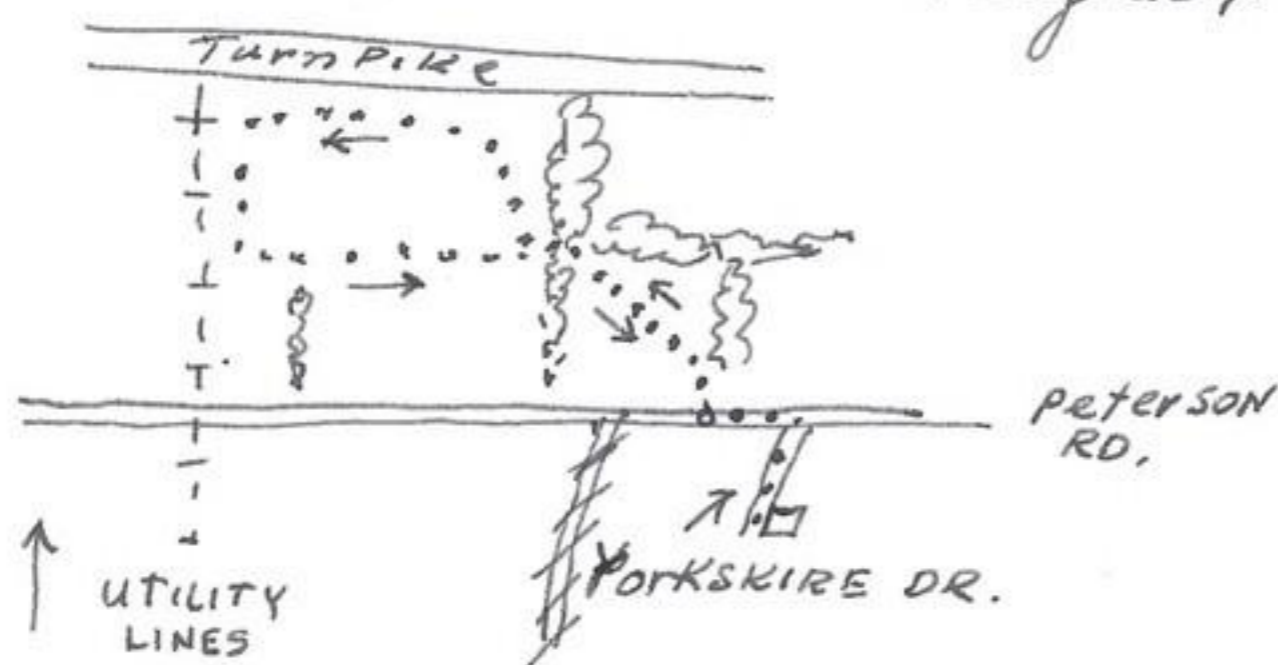
9:5-7 crossing drainage near top. yellow-billed cuckoo, great crested

2 titmice, red-eyed-vireo, 1 chickadee, flycatcher, 3 crows among trees below, 9:00 second drainage, 9:02 3rd drainage, 9:03 4th drainage. 9:05 5th drainage. Crows calling vigorously below as if harassing a great horned owl. 9:15 fence line. 25' beyond this fence to S is a large

neotoma house 4' high. Mosquitos numerous and annoying
 O sage forest beyond. Eastern pewee, cardinal, bobwhite
 9:18 6th drainage, yellow-billed cuckoo, titmouse. 9:23 7th
 drainage (above red barn). 9:24 8th drainage (leads to drainage of red
 barn). mockingbird, titmouse. 9th drainage. bobwhite,
 indigo bunting (singing from top tree). Considerable soil dampness
 and numerous mosquitos. yellow-throated warbler, great crested
 flycatcher, b.c. chickadee. Many large and small deer tracks.
 yellow-throated warbler, 2 mourning doves (one left nest 1 egg), 2
 bluejays. 9:35 gate of road that leads up grade to top. white-tail
 deer and raccoon tracks crossing mud at this point. Field
 sparrow calling, yellow-billed cuckoo, Titmouse. 9:40 drainage,
 some flowing water, 2 gold finches, Baltimore oriole. 9:43 old
 open field now grown to locust. Can hear field sparrow, cowbird,
 mockingbird, chickadee beyond. Bluebird, cowbird, yellow-
 billed cuckoo, titmouse below. Returned along ridge at lower
 level. At 9:52 first drainage (S of gate) yellow warbler, Baltimore
 oriole, titmouse, indigo bunting, b.c. chickadee, pewee, red-eyed
 vireo, chickadee, ♂+♀ red-bellied woodpecker among good grove of
 trees, several good woodpecker holes. A hedgerow continues E from
 this area. 2 cardinals, bluejay, yellow-billed cuckoo. An
 indigo bunting called as it worked thru the forest. A cardinal
 flew thru the area. 10:05 fence line below hillside gate.
 mourning dove on nest. 2 bluejays in area. 2 cardinals, 2
 goldfinches. 2 ♂+♀ bluebirds in same area as a previous trip.
 pewee, cowbird, rose breasted grosbeak singing from treetop.
 bobwhite, mourning dove, 2 bobwhites, titmouse, grey-checked
 thrush, pewee feeding on ground, red-headed woodpecker, downy
 young of phoebe 100' from nest in barn and adults entering
 intruder in area of young rather than nest area. Attended
 young in trees. 10:20 red barn. Wilson warbler concerned.
 titmouse, b.c. chickadee, mourning dove. 4 grackles flew W
 across ridge. Cardinal. 18 black terns circled 200' above
 ridge and finally left and circled upward into sky until, ^{almost} out of
 sight. They circled in clockwise and counterclockwise directions.
 At highest point they all moved N in glide pattern and in formation.
 3 chimney swifts, 2 bluejays, red-bellied woodpecker. Cowbird.
 robin, cardinal singing, chickadee, thrush. 9:50 fence. titmouse,
 red-bellied woodpecker, dead box turtle. Red-headed woodpecker,
 indigo bunting, titmouse, catbird, 2 turkey vultures, summer
 tanager. 11:05 major drainage N of shed no water. Raccoon tracks

yellow-billed cuckoo, bobwhite, great crested flycatcher, Wilson warbler. Shed n of damage with old phoebe nest. 2 bobwhites. 2 goldfinches, indigo bunting. Carolina wren, warbling vireo, yellow-billed cuckoo, pewee, red-bellied woodpecker. thrush feeding in trees. Titmouse. Indigo bunting. Cowbird, barn swallow, cardinal, redbellied woodpecker, redheaded woodpecker flew E across marsh to Banners home site. summer tanager, fox ~~squirrel~~, Baltimore oriole. 11:20 return to place of start. From here can see or hear the following birds in the marsh to the S.E. grockles, redwing blackbirds, meadowlark, dickcissel, eastern kingbird, bobwhite calling, the little green heron, barn swallow.

Fields NW of 402 Yorkshire Dr., Lawrence, Douglas Co., Kansas
May 30, 1973



Checked field n of Peterson Road now grown to grasses. 4:30-600 P.M. Temp. 72°F noted a young meadowlark capable of flight. It flew like a spatted sandpiper with rapid wing beats. A

blue grasshopper tugged at a fiber of a branch in a brush pile for 3 minutes. After it secured a fraction of the amount it was concerned with it flew n across the turnpike and over the Kresge distribution plant. This would mean that it had searched for this nesting material approx. 1 mile from its nesting territory. Birds observed were:

E. kingbird
grockles
redwing
starling
robin
meadowlarks
killdeer
dickcissel
pewee
great crested flycatcher
thrush
young brown thrasher

chimney swift
purple martin
crow
field sparrow
bluejay
barn swallow
mourning dove
yellow throat warbler

The young were $3\frac{1}{2}$ inches long and capable of flight. When disturbed (bluebirds) a cardinal arrived to investigate. A Wilson warbler also investigated the disturbance. The adults (bluebirds) came to within one foot from me when I held one of the young bluebirds in my hand for measurement. In some area noted a redbellied woodpecker, a crow and turkey vulture. Measured a cottonwood $10' 9''$ in circumference. This tree is SE of barn. Whitetail deer track $3\frac{1}{2}$ inch long. Examined nest of 4 young eastern phoebe from rafters of barn. These birds were $3\frac{1}{2}$ inches in total length. They flew to limbs of trees approx 25 feet from nest and remained. The adults at one time came to 6 inches of my hand when measuring the young. The nest was 8 inches high and 6 other old used nests were in various stages of deterioration. Other birds curious about phoebes were: black-capped chickadee, cardinal, Wilson's warbler, titmouse and gray checked thrush. The rose-breasted grosbeak calls at first with ~~the~~ soft notes as if trying to organize and then develops the call into a good robin-like song. Chestnut-sided warbler and morning warbler in area. Catbird called. The redstart call is a ~~the~~ note every 3 seconds and then ending with a slightly slurred note (up scale). Surprised a fox squirrel in a small asage orange tree and it remained motionless although 5 small rocks were thrown to dislodge it. The 6th rock scored its mark and the squirrel dropped 18' to the ground and escaped 40' to another tree. Other kinds of birds in forest were Tennessee warbler, Carolina wren, yellow-shafted flicker, robin, red-eyed vireo. Left forest saddle and moved E to Banner's old home & car. A great blue heron left the marsh. 2 yellow-throat warblers in small trees bordering marsh. Noted 2 places where deer had bedded in marsh. Arrived car 2:15 P.M.

Vinland, Douglas Co., Kansas

June 1, 1973

Mr. Beatrice Lins reported having seen an albino dickcissel on several occasions along road just S of Vinland.

Lawrence, Douglas Co., Kansas

June 2, 1973

Checked area E of waterworks along Kaw River in area of

new proposed City River Park. Birds in area are: indigo bunting, cardinal, chimney swift, warbling vireo, Bell's vireo, red-eyed vireo, dickcissel, barn swallow, grackle, yellow throat, grey-checked thrush, Eng. sparrow, starling, robin, bluejay, yellow-billed cuckoo, Baltimore Oriole, great crested flycatcher, eastern phoebe, pewee, catbird, green heron, red-bellied woodpecker, red-headed woodpecker, lowbird, mourning dove, redwing, brown thrasher, mockingbird. On tracks a biseated opossum. noted a great-crested flycatcher to chase a flicker. Considerable green moss in main creek.

(5 cones) Kaw River, Douglas, Leavenworth Co., Kansas
Took Honors Biology Class on coneae trip to Eudora, June 8, 1973. Left 12:00 and arrived Eudora 3:00 P.M.
Three great horned owls. 1 1/2 hours for shuttle.
402 Yorkshire Dr., Lawrence, Douglas Co., Kansas

June 9, 1973

Cat brought in a Microtus pinetorum from nearby creek edge.
730609-1 Microtus pinetorum. 148-28-19-10-40gms. ♀

Museum Natural History, University of Kansas, Lawrence, Kansas
June 14, 1973

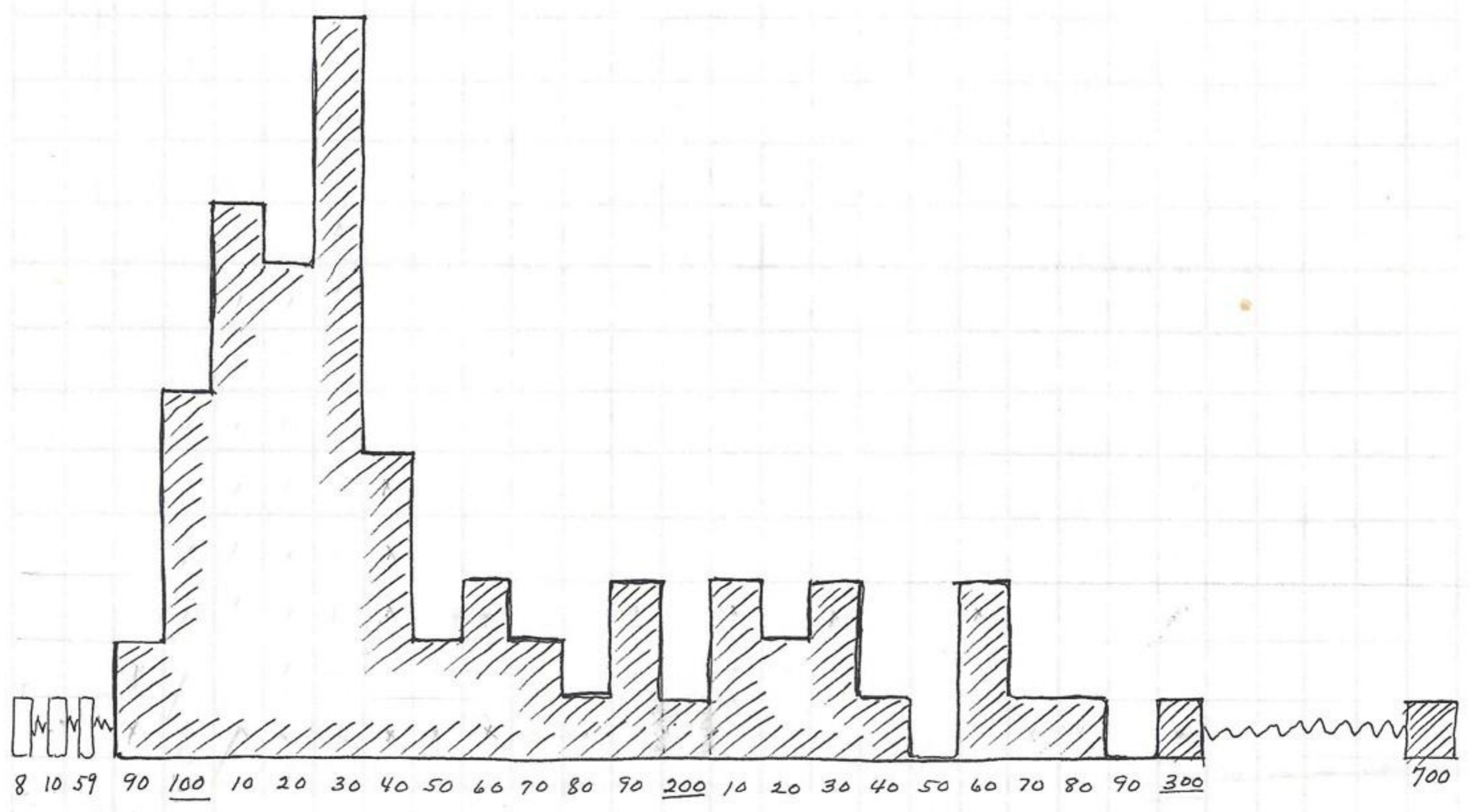
Prepared for field trip to Hill City, Kansas to investigate a fossil fish, Gillicus in the Smoky Hill formation of the Cretaceous chalk. The Honors Biology Class and staff of the paleo. dept. of the Mus. Nat. History made the trip. Personal equip. included pack, camera, film, ex. meter, bird book, Kansas Geological references, knife, binoculars, sleep bag, wind jacket, hat, mosquito netting & repellent, safari lamp, razor, glasses. Purchased food for 16 people for 6 meals. Will leave museum at 7:00 A.M. for Fort Hayes (museum) thence N to Webster Lake for camp base.

June 15, 1973

Left museum at 7:00 A.M., temp 73°F., low foglike clouds, mileage 3490. Arrived Fort Hayes 11:30 A.M. for lunch in city park. Visited Fort Hayes paleo museum and then drove N to Webster Lake arriving at S end of dam at 3:00 P.M. at mileage 3782. Good exposures of Fort Hayes Chalk along route and at shoreline of lake. Along edge of lake just SW of camp measured the diameter of exposed shells of Inoceramus as follows: 280, 110, 101, 120, 130, 168, 700, 110, 98, 130, 8, 10, 122, 105, 118, 120, 131, 127, 193, 141, 135, 142, 121, 101, 135, 136, 236, 138, 135, 128, 123, 162, 59, 165, 155, 190, 134, 300, 140, 100, 118, 131, 110, 122, 180, 245, 214, 154, 130, 95, 191, 176, 139, 102, 260, 204, 118, 118, 141, 128, 138, 135, 145, 123, 190, 117, 110, 214, 265, 101, 167, 275, 204.

1973-34

Richard Lewis IV	3323 Iowa #232	Lawrence Ks
F. Fletcher Miller	1200 Ohio	Lawrence, Ks. 666
Randy Altman	Santee Apts 1107 #8	
James Joyce	1815 Naismith Dr. #945	Lawrence Ks.
Nancy Park	1815 Naismith Dr. #517	Lawrence Ks.
Catherine Brungardt	1815 Naismith Dr. 515	Lawrence Ks.
Diane Warner	345 Michigan	Lawrence, Kansas
Kathy Hill	1216 Louisiana	City.
Doug Marples	1815 Naismith Dr. #927	Lawrence, Ks.
Bob Williams	1815 Naismith Dr. #925	Lawrence, Ks.
Charla Conley	818 Avalon Rd.	Lawrence, Ks.



SIZE DISTRIBUTION OF INOCERAMUS
(diameter in m.m)

730615-34.1
Professor Bee, Natural
History Museum

CALENDAR OF EVENTS:

SUMMER 1973

SUMMER HONORS INSTITUTE

THE UNIVERSITY OF KANSAS

Institute Faculty: Professor James Bee, Museum of Natural History
Professor Warner Morse, Department of Philosophy
Professor Gerhard Zuther, Department of English
Professor Peter Casagrande, Department of English
& Director

- M 4 June: Classes begin (Opening Meeting of SHI, 1pm, 110 Strong)
- M 11 June: Tour of University Theater preparatory to Julius Caesar
1 pm, Lobby, Murphy Hall (Professor Tom Rea, Assistant Director Theater). **All should purchase tickets for Julius Caesar, which begins on 16 June.
- M 18 June: Institute Picnic, 1 pm (Location to be announced)
- M 25 June: Institute Meeting, 110 Strong (Speaker to be announced)
- M 2 July: Tour of Museum of Art (Professor Charles Eldredge, Director),
7:30 pm
- M 9 July: Institute Meeting, 110 Strong (Speaker to be announced)
- M 16 July: Tour of Spencer Library (Barbara Backus, Associate Special Collections Librarian), 1 pm
- M 23 July: Institute Meeting, 110 Strong (Speaker to be announced)
- W 25 July: Institute Banquet (Place and Hour to be announced)
- M 30 July: Final Grades due

STUDENTS OF THE INSTITUTE ***

Jesse BARLOW, 911 Hilltop, Lawrence
 Cathy BRUNGARDT, 515 Oliver
 Robert BURK, 1704 W 24th, Apt 109
 John CULVAHOUSE, 2651 Arkansas
 Cynthia GOCKLEY, 516 Oliver
 Timothy LYNOTT, 2422 National
 Eric MANTEL, 926 Oliver
 Douglas MARPLES, 927 oliver
 F. Fletcher MILLER, 1200 Ohio
 David MILLS, 824 Oliver
 Lana MOUNTFORD, 1528 Powers
 Ernest MUENCHAU, 928 Oliver

Linda WARNER, 345 Michigan
 Margaret WILLIAMS, 1538 Harper
 Robert WILLIAMS, 925 Oliver

 Add: Tom NICHOLS, 604 S Grant,
 Olathe

***If any names have been omitted, please inform me immediately.

Made several 35mm Kodochromes of camp and of the Fort Hayes Chalk cliffs bordering the lake at the Webster camp. These cliffs have been partly eroded by wave action from the lake.

730615-1 Camp at south end of Webster Dam. From this camp the group commuted to the Hell City site. Tents accommodated 5 each. Trees young cottonwoods. The warbling vireo sang constantly.

730615-2 Fort Hayes Chalk cliffs along the SE shore of Webster Lake. These exposures have been partially eroded by the lake water. The dam can accommodate water that would cover these cliffs. Dominant form in chalk is mussel (Inoceramus?) covered with Ostrea. The dominance of these forms at the exclusion of other forms is difficult to explain. Substrate must have been sands and the only available attachment for Ostrea was on other Inoceramus.

730615-3 Excavating a trench from the Fort Hayes Chalk. From left to right are Catherine Brungart, Fletcher Miller, Charla Conley, Robert Choquette, Katherine Hill, members of the Honors Biology class. Webster Lake SE.

730615-4 Miller examining a concordal fracture system of the Fort Hayes Chalk at Webster Lake SE.

730615-5 Inoceramus? unusual appearance in weathering out of this form.

730615-6 Ostrea on Inoceramus shell and completely covering its surface.

730615-7 Undetermined form. Fragment of Inoceramus 1 inch ⁱⁿ width.

730615-8 Miller, Conley and Brungart along edge of Webster Lake below outcrops.

730615-9 Conley and Miller in cone at camp.

Enroute to and from lake shore followed a dusty road which imprinted lizard tracks, Citellus tracks, snake marks, Dipodomys and Peromyscus tracks, as well as several kinds of beetles. Citellus had burrows in vegetation on flats above the lake but they make themselves inconspicuous. The points overlooking the lake are used as vantage points and cars are driven over the grasses. The buffalo grass is still in matted condition and is surviving the weight and friction of car tires, in fact the "trampling effect" contributes to the survival of the grass. Ordinarily such points would be developed to bare soils & dust in any other area. Bird life scarce on the lake, several great blue herons, however were observed later in the evening. This dam apparently has never realized its potential as there is demand for irrigation below the dam and the rainfall is too scant. Today temp. 103°F at 5:00 P.M. at Hell City.

Webster Lake, Graham Co., Kansas

June 16, 1973

(at 1.8 mi. W from P.O. at Heel City to turnoff
and then N up drainage approx. 1/2 mi).

Left camp and drove to Heel City site, at approx. 2 mi. E of Heel City examined ⁷³⁰⁶¹⁶⁻¹ a Pleistocene profile of sandy soil which in most parts of the area overlies the Cretaceous. This soil is deep and grades to gravel. Because these soils are coarse the century plants finds suitable conditions for growth. It is believed that these plants are indicators of Pleistocene stream channels. Aerial maps would probably lend support to this idea. The plants generally occur on slopes associated with present drainage systems. The group includes (from left to right) Jones, Marples, Brungardt, Williams, Miller, Martin, Lewis, Chrouelli, Sams, Heel Conley, Altman. Mammoth or mastodon flange from pit 1/10 mi W of above. no. 730616-1a

730616-2 Closer profile of Pleistocene deposits. Williams and Conley are finding small gastropods in the soils. The extent of the root system of the century plant is indicated. Note also the small plants originating? from the parent root system. The upper layer on left is darker than at right and has not been disturbed or eroded.

730616-3 Heel City site of Smoky Hill Chalk ^{member}. This site is approx. 2 mi. W and 3/10 mi. N Heel City post office. The *Gillicus* fish is in upper layers of exposed cliffs. Students at site. Lewis' Fiat and Paleo carryall at base of cliff.

730616-4 Martin and Bonner at *Gillicus* site. Bonner, on previous trips had ^{partially} exposed this fish and with additional work this A.M. had prepared the fish for final casting. The tarp was later to be placed over the fish so that the rock could be removed on the W side of the specimen.

730616-5 *ibid*

730616-6 *Gillicus*. The rock beyond fish is to be removed back to approx 2 feet from the fish in order to give clearance for undercutting. The darker part of skeleton is a hardener used to harden both the bones, scales and rock matrix. The darker layer is bentonite, a volcanic marker and white lines of selenite. After the bank of rocks have been removed the fish will be further exposed for final casting.

730616-7 Close-up of tail. The plaster will contact bone & matrix.

730616-8 Close-up of head. This fish is a filter feeder and has small teeth less than a mm long & a fraction of that in width (almost hairlines).

730616-9 Bonner excavating chalk from skeleton. Took a hook with 2 sharp edges.

730616-10 Some of the tools used in excavating. Brush, curved tool, syringe for harder application, flat end shovel and to the extreme left a lightweight pick. All matrix is removed by ^{thin} layer techniques

- 1973-37
- 730616-11 Profile on W side of excavation of Cretaceous chalk, a layer of bentonite and small layers of white selenite. This is the material that would be directly above the fish. The selenite is intimately associated with the fish bones and produces a contrast to the regular chalk surrounding the fish.
- 730616-12 Cliff profile below fish. The light tan area caps the darker material below.
- 730616-13 Contact between the light chalk and dark chalk. It appears that the light chalk is produced by ^{surface} weathering although there is some differences in lithology. Tan areas invading darker areas are produced by solution stains. This weathering effect was probably produced during the late Pleistocene.
- 730616-14 extending excavation to W. Fish covered with tarp to protect from elevators and displaced chalk. Altman, Jones, Brungardt and Williams. Jones is standing on top of ^{covered} fish.
- 730616-15 Bonner removing final chalk. Marples, Martin & Lewis observing.
- 730616-16 Chalk being removed ^{by Bonner} from dorsal area of fish (W side). Lewis and Martin conferring with Bonner. The fish is oriented approx. 50° E of NS axis. Gillicus and is relatively flat otherwise.
- 730616-17 Martin and Bonner pondering over the whereabouts of the dorsal fin. The chalk is gradually being removed from the west side of the fish.
- 730616-18 noon break for lunch. Sams at the check wagon.
- 730616-19 Lunch. Miller, Williams, Jones, Martin, Brungardt, Altman, Chevrette, Conley.
- 730616-20 Student excavations. Brungardt & Marples. These excavations were parts of Gillicus approx. 40' from the Gillicus at site.
- 730616-21 Excavation of a tail of Gillicus. There are many examples of the tail of Gillicus and presumably were bitten off at the time they were being consumed by the larger carnivorous fish (Porthos). One example in Fort Hayes museum shows entire Gillicus in stomach of a large fish. Williams, Martin, ^{Sams} Altman, Marples, Altman, Hill.
- 730616-22 Hill and Sams excavating a skull of Gillicus.
- 730616-23 Close up view of above.
- 730616-24. Examples of Ostrea on selenite layers. These are common approx 1/10 mile S of Gillicus site. The fauna seems to vary along a particular outcrop. In this case the Ostrea selected selenite to support their shell and would indicate that the selenite was formed on the floor of the ocean at the time the Ostrea lived.
- 730616-25 Other examples but on shell? of Duoceramus.
- 730616-26 ^{yellow} flower commonly associated with Chalk outcrops
- 730616-27 pink flower " " " " " "
- 730616-28 flowers among grasses beyond base of chalk cliffs

- 1973-38
- 730616-29 yucca below chalk ^{outcrops} but on sandy soils.
- 730616-30 Close-up of yucca in full blossom.
- 730616-31 Ant hill at base of Chalk and may be a factor in control of crossonal profile. yellow flower associated with Chalk
- 730616-32 Gillicus finally prepared to receive plaster. ~~the~~ a gutter is excavated around the fish to receive the 2x4 form. This gutter is approx 1 1/2 inches deep. The plaster will adhere to bone and matrix. A hardener has been placed over the bones & some chalk.
- 730616-33 Ibid
- 730616-34 Ibid
- 730616-35 Ibid
- 730616-36 the 2x4 form has been placed ^{around} ~~over~~ the fish and soils have been tamped outside to stabilize the form.
- 730616-37 ibid. The low spot is brought to level with chalk soil.
- 730616-38 a slight groove is made around the inside of form. by Bonner
- 730616-39 Bonner organizes & directs the mixing of the plaster of paris which is not hydrostone but a good grade of plaster. Equip. includes water, mixing buckets, plaster. Personnel are: Brungardt, Conley, Miller, Cheovetti, Altman, Bonner, Williams, Jones, Marple
- 730616-42 mixing plaster. Cheovetti (leg), Miller, Conley, Altman, Bonner, Williams, Lewis.
- 730616-43 Conley, Bonner and Williams mixing plaster to final consistency.
- 730616-44 Arm of Conley, Bonner & Williams
- 730616-45 Adjusting final consistency of plaster.
- 730616-46 First flow of plaster
- 730616-47 final layer pouring of first layer by Bonner.
- 730616-48 first layer covered with burlap. Plaster extra thin so that excess water is taken out by Chalk and ^{dry} burlap. Burlap cut to size.
- 730616-49 second section of burlap applied by Bonner
- 730616-49a mixing plaster for second layer. ^{Brungardt} Martin, Sams, Conley, Bonner, Altman, Hill, Jones, Cheovetti, Williams, Miller, Marple, Lewis.
- 730616-50 adjusting consistency of plaster which is thicker than first batch because of less water absorption. Brungardt, Bonner, Conley, Williams, Cheovetti (hand).
- 730616-50a final mixing. Brungardt, Jones, Marple, Martin, Lewis, Bonner, Miller, Williams, Sams, Hill, Altman, Cheovetti.
- 730616-51 final layer poured. Approx 250 lbs plaster. Form 2' x 7'
- 730616-52 Bonner scraping excess plaster. Leg of Lewis & Marple.
- 730616-53 Brungardt.

The temperature today has been ideal being 74°F at 3:00 P.M.

6:15 A.M. June 17, 1973

Returned to Hill City site, and turned east of fish over. The following photos were ^{recorded}.

730617-1 group examining fish	730617-5 Transporting down slope.
730617-2 <u>ibid</u>	730617-6 <u>ibid</u> (Temp 74°F at 11:00 A.M.)
730617-3 close-up of <u>Gillicus</u>	730617-7 car and excavating area beyond
730617-4 examining rock below fish	730617-8 back to camp at Webster Lake.

Arrived Lawrence. 6:00 P.M. at mileage 4186.

Ozark Underground Laboratory, Taney Co., Missouri

July 7, 1973

Biology Honors visited area this afternoon and evening. Those in party are: Randy Altman, Catherine Brungardt, Richard Lewis, Fletcher Miller, Margaret Williams, Robert Williams, Charla Conley, Mr & Mrs Robert Chionetti, Mr & Mrs Gary Sams, Merlin Tuttle and

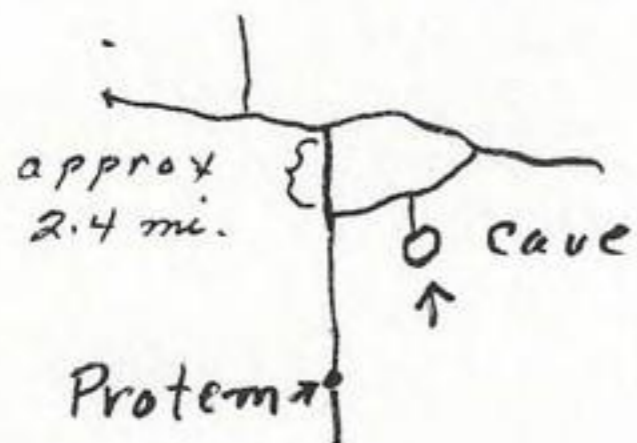
Left Lawrence 7:35 A.M. at mileage 70337.

Route 150 to 13 south to Springfield, thence to Forsyth, thence to Underground Laboratories. The nearest town is Protem to the south.

Arrived Forsyth 2:25 at mileage 70581 and at

Laboratory at ~~70584~~⁶¹⁷ at 3:30 P.M. Mileage included side trip before arriving at destination. Usual birds enroute. Dickcissel stop about east border of Kansas. First Crow at laboratory. No red-headed woodpecker.

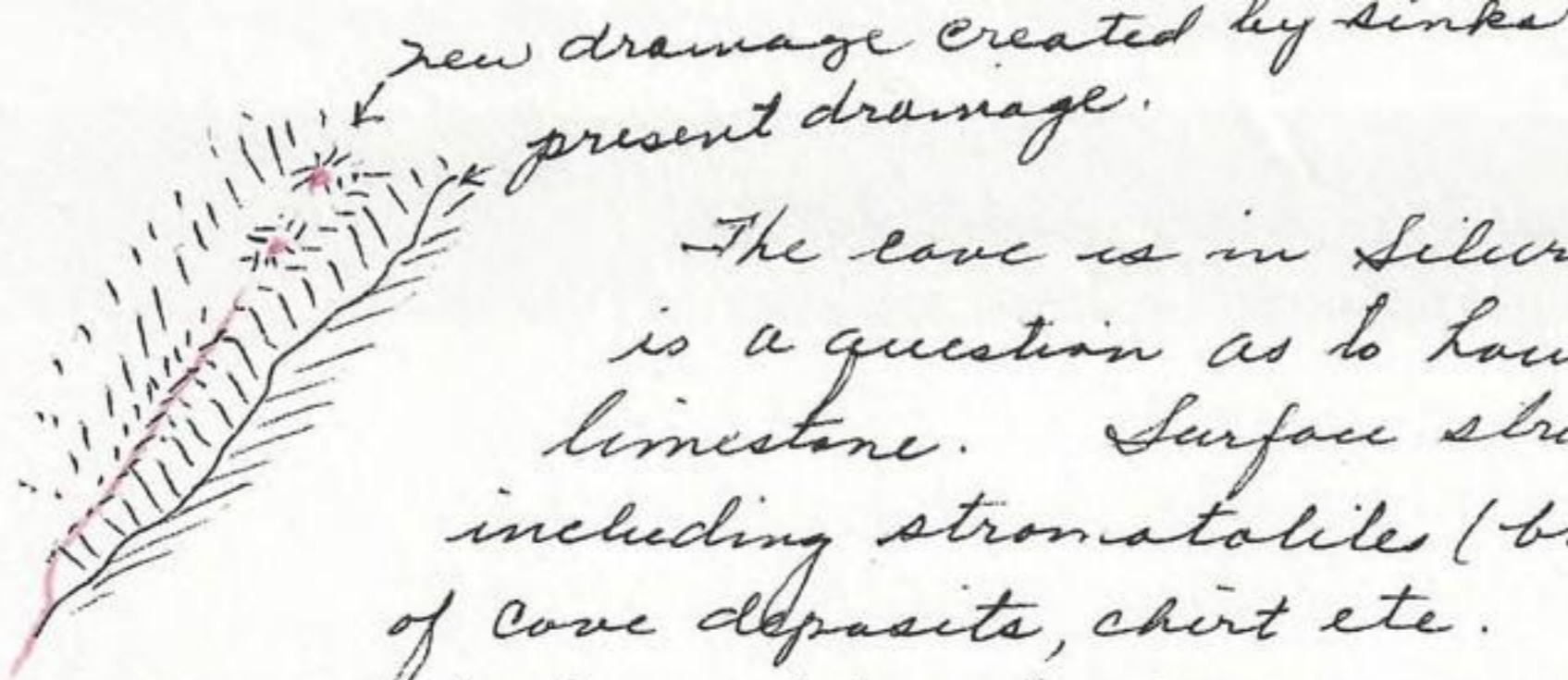
The terrain becomes deeply eroded south of



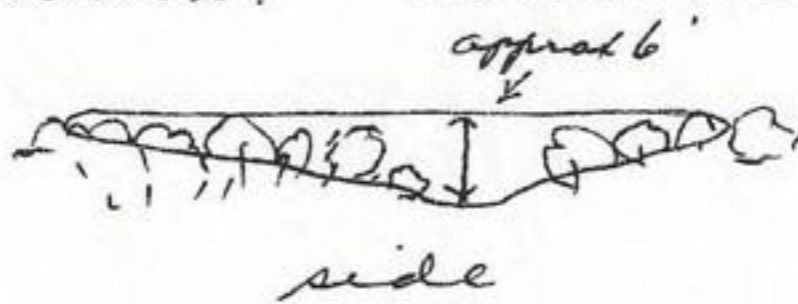
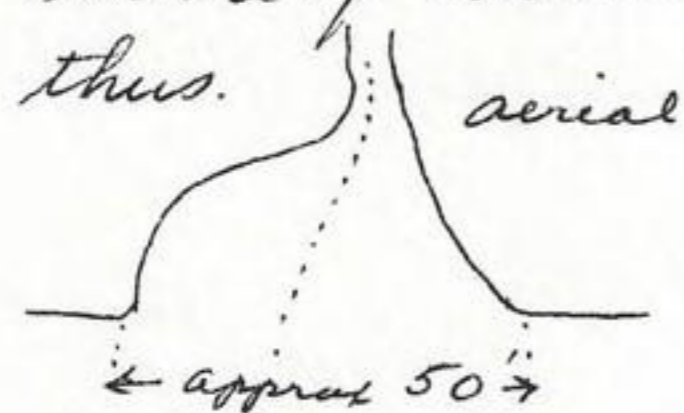
Springfield with roads traversing ridges and valley bottoms undisturbed. Forests cover most of the slopes. Heard pilliliated woodpecker at the cave area and was told that the nest still had young. Met Tom Aley at the cave. His present address is 1958 Cherry Street Court, Springfield, Missouri. 65802 tel - 417-862-6326, and he commuted to cave whenever conducted tours are required (\$5.00 per individual).

The road to cave property is a county road and is passable under normal wet conditions. The entrance to Aley property (125 acres) is thru a red gate bordered by stone supports and an unobtrusive sign OUL. The road to field house and cave is passable but very low slung cars may have problem. Road bed solid except some water holes during rain. Parking area for approx. 10 cars only.

Spent afternoon on surface of cave area discussing influence on cave proper. Discussed effect of ^{surface} water, slope, exposure, soil types, vegetational cover, erosional areas, sink holes, straining effect of soils, mineralogy etc, as they relate to the cave below. Creek loses water to underground caverns at a rate of 5 gals or more per second and these waters are not being filtered to eliminate small particles. Sink holes are used in Missouri for refuse, oil wastes, chemicals, sewage etc which do irreparable damage to cave ecology. Aley pointed out one area bordering the present drainage which had been created by sinking of roof of cave below thus:



The cave is in Silurian dolomite and there is a question as to how it differs from regular limestone. Surface structures are abundant including stromatolites (blue-green algae), fragments of cave deposits, chert etc. The stromatolites were apparently formed in shallow seas not too deep to exclude light but deeper than the present barrier reef structures. At about 9:00 P.M. at late twilight we visited the entrance of the cave where the gray bat *Myotis grisescens* was already in process of emerging from the cave. Tuttle took several flash photos of these bats as well as one of the group sitting inside of cave at mouth.



thus. The cave expands at the entrance thus. The cave expands at the entrance main flight of bats in area equivalent to drainage where the lack of vegetation maintained and opening of approx 8 x 6 feet and where most of the bats were leaving the cave. They flew outside, circled in area then highlined to S. When a flash from camera was made, the bats stopped immediately and either retracted in to cave or circled ^{inside} at cave entrance. Flight noise stopped immediately. In approx 20 seconds the main flow of bats was reestablished. I would judge that the opening used by bats for exit was approx 2 x 8 feet or 16 square feet. On the basis of one bat occupying 1 square foot of space as it left the cave and a line of 2 bats could pass by one particular point in one second there would be 32 bats leave the cave per second. In one minute there would be 1920 bats and in one hour 115200 bats. Realizing that there is ^{50 or} 60 feet of cave entrance and although covered with vegetation, some bats leave from other than the vegetation free area. The flight ended at 9:50 P.M. but undoubtedly started at least 10 minutes before our arrival so 1 hr is about right time for emergence. Our presence, especially flash shots, interrupted the flow of bats. The main corridor beyond funnel of cave entrance may be the best position for analysis of bat numbers and as I recall is on the order of 4 x 5 feet and is circular. Tuttle caught 5 bats at entrance, and 4 were ♂♂ & one a ♀. One was banded. Fireflies and whip-poor-will were near mouth of cave. There were no insects ~~at~~ in cave at entrance.

Ozark Underground Laboratories, Taney Co., Missouri

July 8, 1973

Spent this A.M. in Cave. One of the unusual observations was the tracks and imprints of claw marks of a large bear (?) on a ledge slope beneath favorable bat perches. There were 7 or 8 imprints of feet and several examples of claw marks recorded as the bear slid and walked across the slope. These imprints appeared fresh but were covered with a thin but solid layer of dripstone. These marks were removed some distance from the cave entrance. It would appear that the bear was attempting to capture bats on the ceiling ledge which would be within reach of the bear.



The Ozark ~~Cave~~ ^{blind} salamander (*Typhlotriton spelaeus*) when found near water is well developed and agile, falling over itself when touched whereas when associated with bat guano is thin and lethargic, not responding to touch. Its crawl is slow and deliberate. It is believed that these differences are ones of age. There is a possibility; however, that they are different species. The diptera of the web formation type, was associated with the bat guano areas. Millipedes were common on old limbs or man introduced stems. Collembola most common on boards, especially those covering experimental water barrels. Crickets were most commonly observed near entrances. The snail *Antrobia culveri* is common under rocks of stream but were confined to 20 or so feet of stream bed. According to Byron Leonard, it is questionable whether this is a new genus. Some isopods were present.

The following are suggestions for better management of the cave.

1. The four gas lamps raise the temperature of the cave in some restricted areas and fumes collect to the point where head lamps cut the atmosphere like corpuscular rays. The odor is noticeable and has a quality of kerosene. In some recesses not affected by air currents, this pollution is a decided unhealthy condition for cavernicoles. Electric lamps should be used and the illumination should be reduced to a minimum, especially when viewing the animals.

2. The areas developed with trails has been severely modified and although trails ~~are~~ people are supposed to be confined to trails, there is a general tromping of the entire area, the worst offenders being researchers who take the liberty to traverse all surfaces.

3. In some areas trails occupy the entire cave floor and in most other areas a substantial part of the floor. In such conditions the trampling of cavernicoles and the physical aspect of the floor are eliminated from that part of the cave floor. There is no attempt to clean shoes at entrance of cave to reduce contamination of cave with outside materials. One part of the cave soil is carried by shoes to another part of cave. Soils removed from for trail construction or redeposited elsewhere or piled up on floor nearby. All soils should be removed from cave where produced by trail construction.

3. T.V. cobbles should be removed from cave as they are a source of static material and ^{added} surface areas. It is evident that in placing the cobbles, considerable trampling was created. This sort of activity plus the trampling of conducted tours will virtually eliminate some animals (salamanders) from the cave.

4. As a compromise, trails should be into a narrow ^{neutral} cement walk and visitors should be required to keep on walk. Shoes should be washed before entering cave.

5. Infrared light should be used to reduce the effect of light on the eyes of dark adapted organisms.

[See Dec 23, 1955 for July 18, 1973 entry on Sam Dickenson]

Lawrence, Douglas Co., Kansas

July 21, 1973

An albino martin has been observed at home (402 Yorkshire Dr.) the last 3 days. It is pure white and is associated with a colony 1/10 mi. E of home. It flies with other birds (martins) and is not discriminated or does it differ in behaviorism from the other members of the colony. Its appearance reminds one of a white tern. On the following I did not observe this bird but it could have been in area and not active at the particular time the observation was made. This is a bird of a colony of some 30 birds that successfully breed every year and raise young.

Kivawood Girl Scout Camp, Franklin Co., Kansas

July 24, 1973

Collected the following mammals from camp area:

730724-1 *Microtus ochrogaster*

730724-2 *Peromyscus leucopus*.

Peromyscus leucopus are common in forest and out of 50 traps caught 13 specimens. *Microtus ochrogaster* are common around ponds. Grasses are cut to short to support good overhead protection. Luz & Jim mated camped with us.

1973-42

Lawrence, Douglas Co. Kansas

July 26, 1973

Left for vacation at 1:30 P.M. at mileage 72043.1 Temp 82°F Slight wind, 99% clear sky. Full tank of gas. Will keep record of birds according to first observed:

English sparrow, purple martin, chimney swift and house wren at 407 Yorkshire. Robin, meadowlark, dickcissel, mourning dove, crow, eastern kingbird, barn swallow, Topeka. 72105 redtail. Country unusually green with no evidence of yellow of dry season. Ponds full. Indigo bunting, 72111 entering Riley Co. 72114 turkey vulture. 72116 redtail at Gery Co line. 72133 Smoky Hill River high and muddy. 72115 Abilene at 4:50. Standing water in field and creeks moderately full. 72163 first redwing or blackbird of any kind. 72197 2 redtail hawks sitting on dam of small pond. 72205 Elk Horn Creek. Wet fields and high rivers. 72205 horned lark 72327 night hawk. Fort Hayes 72269 at 7:30 P.M. It is unusual in not having seen grackles, cowbirds or redwing (except one noted above). 72276 badger road kill (now on 183 N to Plainville), shrike. Between Fort Hayes and Saline River counted 29 mourning doves and 9 meadowlarks. This river is on extreme south side of valley. Between Saline River and Plainville counted 21 mourning doves and 4 meadowlarks. Western kingbird at Plainville. 72294 redtail. 72305 South fork Salamon River and 7 meadowlarks and 24 mourning doves since Plainville. 72306 Stackston at 7:20 P.M. Webster Lake at 8:30 at 72317. Checked large mussels (*Anodonta*) and smaller *Ostrea* in Smoky Hill Chalk along cliffs on S side of dam at camp. Black Crown night heron called and 3 nighthawks at camp on promontory above cliffs. Buffalo grass completely covering promontory in spite of cars traversing area for the last 10 or so years. No fish working waters. Water calm. Temp 90° this afternoon.

Trailer

Birds on Interstate 70 rare.

Webster Lake, Graham Co., Kansas

July 27, 1973

Temp last night 67°F. Wind at sunset at 12 M.P.H. Wind from S.W. Sun up approx. 6:45 A.M. no birds on lake or adjacent fields. Photos 730727-1 to 730727-3 of trailer on promontory. Approx 8:00 A.M. Left 8:20 A.M. Rocks (Fort Hayes chalk hand specimens) no 720727-5 and 720727-6 from ledges directly below point

Three great blue heron flew 5 towards lake from river area below dam. 2 mourning doves flying along side of car at 35 miles per hour. Field in wheat or plowed, other areas grazing. most common bird is eastern kingbird. Different kinds of birds are mourning dove, meadowlark, night hawk, barn swallows, ^{English sparrow, magpie} western kingbird. It is my impression that meadowlarks are fewer in numbers than on previous trips across Kansas. at 72329 redtail hawk on top of telephone post. 72333 at Bogue noted grackles and cowbirds. These birds have been rare since Lawrence. 72337 redtail. Eastern and western kingbirds in equal numbers. 342 Hill City at 9:00 A.M. Will keep census of flycatcher toward N. Shrike, meadowlarks singing. 353 Bow Creek. Grackles increasing in numbers. 354 first sparrow hawk since Lawrence. 355 sparrow hawk. mourning doves most common bird. 358 redtail. 359 N fork Solomon River. Only 1 eastern kingbird observed between Hill City & here. 362 redtail. 375 Norton 9:40. Informant said irrigation is taking water intended for reservoirs. 72388 Nebraska-Wyoming line at 10:40. mourning dove most common bird. 403 Coyote rd hill. 407 Medicine Creek, red-headed woodpecker. temp 76°F. 407 Arapahoe at 11:00. 417 male pheasant road kill. 419 Elk Creek and 2 red-headed woodpeckers. 423 13 lined ground squirrel. They hang close to road when feeding on mesquite but tail is constantly jerking. 427 Elwood. Deep erosional gullies in eroded material (sands from river, N. Platte to N). 432 Plum Creek. 339 Johnson Lake. Occasional dickcissel 441 Platte River. This river fluctuates within narrow limits and is a braided system. It has been high the last few days & many tree roots and trees are lodged on sand bars. Interstate 80 at 11:00⁴⁵. 501 North Platte (City) at 1:00. Left N. Platte at 2:30 517 redtail. 525 8 Franklin gulls. 595 marsh hawk. 560 magpie. 581 Lark bunting. Left Sidney at ~~6:24~~^{6:24} at 5:08. Changed time 1 hr earlier here. 679 Pine Bluffs at 6:10. There are trees farther east on N side of road. First starling. 718 Cheyenne at 7:00. 732 first Antelope at 8:30 P.M. 745 great horned owl. Arrived Medicine Bow Camp at 72755 at 9:15 P.M. This camp is the lowest one in the national forest and is among granite outcrops

Vedauwo Camp ~~medicine Bow National Forest, Albany Co., Wyoming.~~
 July 28, 1973

Clark Crow and Chickadee in camp before sunrise. Also *Eutamias minimus*. Min temp last night 54°F no wind today and sky clear. Temp at 7:00 56°F. From our camp walked up Robbers Roost Canyon to the NW and climbed the center and N peaks. At the end of the road counted 13 Clark's Crow, 21 Steller's Jay, 28 *Eutamias minimus*, 18 *Colaptes auratus* in an area of approx. 150' x 150'. Violet green swallow flying above. In area noted a green tail towhee, gray headed junco, rock wren, tree squirrel, turkey vulture flying overhead, robin, me. Yellowthroat warbler, yellow and red shafted flickers. From top took several photos. From center peak on W side:

- 730728-1 general scenic with pine in foreground
 730728-2 Erosional gullies in granite and about 12 wide and 8 deep. may be caused by runoff or by mosses & lichens dissolving a channel kept wet by rain and spring creek water. These could also be caused by abrasion from granite rocks.
 730728-2a Annette on W side mt.
 730728-3 Single rock and associated vegetation.
 730728-4 From top of center peak to N at N ridge
 730728-5 ibid
 730728-6 From top to south ridge.
 730728-7 From top to N with Annette at base of slope.
 730728-8 Annette from N side
 730728-9 From top of N. ridge with tree silhouette
 730728-10 From top N ridge to S ridge, red tree
 730728-11 From top N ridge to E ridge
 730728-12 From top N ridge to S ridge

Returned to camp. From ridge E of camp made photo of bald ridge to E 730728-13



730728-13a ibid

730728-14 group common flowers. The Canyon trending N is choked with aspen, Engelmann spruce, Douglas fir. Considerable down aspen. This would be an excellent area for *Clethrionomys*. Navigation difficult in bottom but passable on W side.

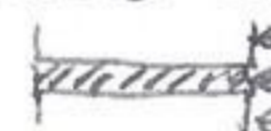
Nearly every camp site has 2 or 3 *Eutamias* and 1 or 2 *Citellus lateralis*. Rained for about 10 minutes at 3:00 P.M.


From camp collected the following mammal:
 SKU 730728-20 *Eutamias minimus* 192-89-31-14₁₀^{39mm} testes 3mm

Other birds in area are sparrow hawk, crow, ruby kinglet, audubon warbler. There is considerable gopher activity, mainly

summer and fresh activity although some winter cores.
 cacti  generally distributed but mainly around edges of flat rock or soil basins. They average 2 1/2 inches in diameter. a gull flew west at twilight, generally in a straight line but occasionally deviating. This area has canyons that are almost impenetrable from spruce, douglas fir, aspen, large house size boulders and ground ^{cover}, is of the kind associated with *Clethrionomys* communities. These areas should be tested for alpine mammals such as *Peromyscus* in particular. noted that overhang of ledges on top of mountains is to the east  → E. Fence enclosure produces more and higher grasses as well as more flowers. Open ^(frequent) rock patches are still open and will require small mammal digging to produce soil to cover these bare areas. A noticeable feature of granite erosion is concavity of sides of boulders. Some ^{former} show soil level about 2 feet higher than at present and is indicated by lack of lichen encrustation.



Some masses of granite are disintegrating as if crystals were separating spontaneously. Specimen 720728-40 a hard specimen of ordinary granite white 720728-41 of a layer within granite mass.  ← granite 2" layer and continuous.

Some phenocrysts are 1 foot in diameter and others occur in loose layers  ←

Conifers in area are:

Pinus flexilis
Pinus ponderosa
Pinus contorta
 Siberian juniper

Pseudotsuga menziesii
Picea engelmannii
Pinus pungens
 Also aspen is a dominant tree

Vadawoo Camp, Medicine Bow Nat'l Forest, ^{Albany} ~~Carbon~~ Co, Wyoming

July 29, 1943

Min. temp last night 45°F. morning clear and no wind. Inspected rock formations to E bordering valley. Best in area so far.

730729-1 Tels of bikes and cycles of modern camping.

730729-2 Annette at off-balanced rock.

730729-3 Massive rocks and *Citellus lateralis* summing.

730729-4 Wall and Tree silhouette.

730729-5 Balanced rock toward E.

730729-5a

730729-6 Massive cliffs and lichens

730729-7 Narrow canyon to N. Canyon should be trapped

730729-8 Up at sheer cliffs and fractures.

- 730729-8⁹ ibid and 730729-9a
- 730729-10 Annette in above setting. staged
- 730729-11 same as above but unusual irregular perched rock
- 730729-12 ~~Rock~~ ^{Prairie falcon} ~~nesting~~ nesting site. with siberian juniper
- 730729-13 ibid with aspen from
- 730729-14 ~~Rock~~ ^{Prairie falcon} ~~nesting~~ leaving perching site. These perching areas are approx 8 times height of bud and conically depressed. Another on E side fissure 1/3 larger. This latter one cannot be seen. The bird was first observed flying below cliffs and after 2 hunting circles above trees returned to perch. Could not be dislodged until at base of fissure and then by throwing rocks and calling. Forceful waving of entire arm seem to attract its attention. Northern violet green swallow using fissure nearby and 2 cottontails observed in aspen below nesting site. Sent film this date.

Continued to Laramie. Left at 72755 at 10:45 A.M. at divide (Lincoln Memorial) noted 4 bluebirds. Laramie at 72773. Left at 12:45 P.M. 779 reetail. 780 at our port on highway 130. Will keep record of birds observed to Centennial. 781 lark bunting and 4 horned larks. 782 horned lark. 783 horned lark. 786 2 horned larks. 787 8 horned larks and 1 single. No rabbit rood kella. 788 lark bunting. Range on south grazed to roots, on N side 6-8 grass. 797 Jachs Place. No birds on lake except 5 barn swallows, 800 four cowbirds. 801 meadowlark. 805 Centennial. at 1:30. 816 Libby Flats in rain and hail. Pine siskin at flats. Silver Lake Camp at 822. at approx 3:00 P.M. Camped in regular camp grounds.

Annette and I walked around the lake counterclockwise and recorded the following birds. Rocky mt jay, 3 spotted sand-pipers, 2 gray headed juncos, 5 robins, 1 heaver, 1 muskrat, 1 white crowned sparrow, 2 rocky mountain grosbeaks. Took 2 photos nos. 730729-15 of Annette watching the beaver and 730729-16 of lake from N side, just after surface was peppered with hail and rain. Photo 730729-17 ^{and 170} of sun lit rocks on W side of lake. The trail is little used and marsh crossings need boots or detour up slope.

This evening set 100 traps in forests of Engelmanns spruce where there was considerable down timber. Traps associated with base of large trees or along logs. Did not see any birds on trap line nor chipmunks which is in contrast to Pole Mountain

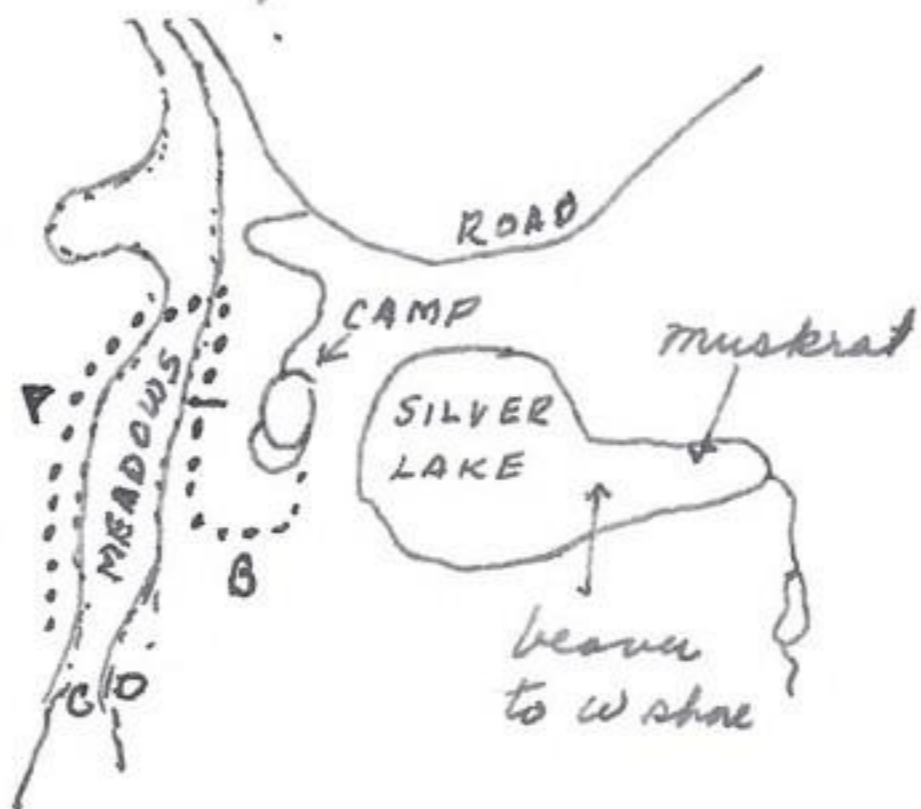
area where chipmunks were everywhere. Heard thrush this p.m. There is considerable snow in range and among forests on proper exposure. Great season for bluebells (*Mertensia*).

Silver Lake, 10430 ft., Carbon County, Wyoming

July 30, 1973

min temp 38° F. last night.

From trapline set last evening collected the following:



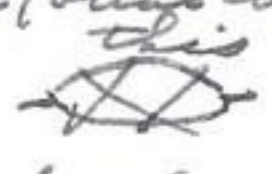
The dominant tree is Engelmann spruce and there are in climax stage with considerable timber on the ground. There has been a recent wind that has blown many trees over, some live and in these areas navigation is slow. From trapline A of 50 traps set in

spruce bordering meadows caught 2 *Clethrionomys*

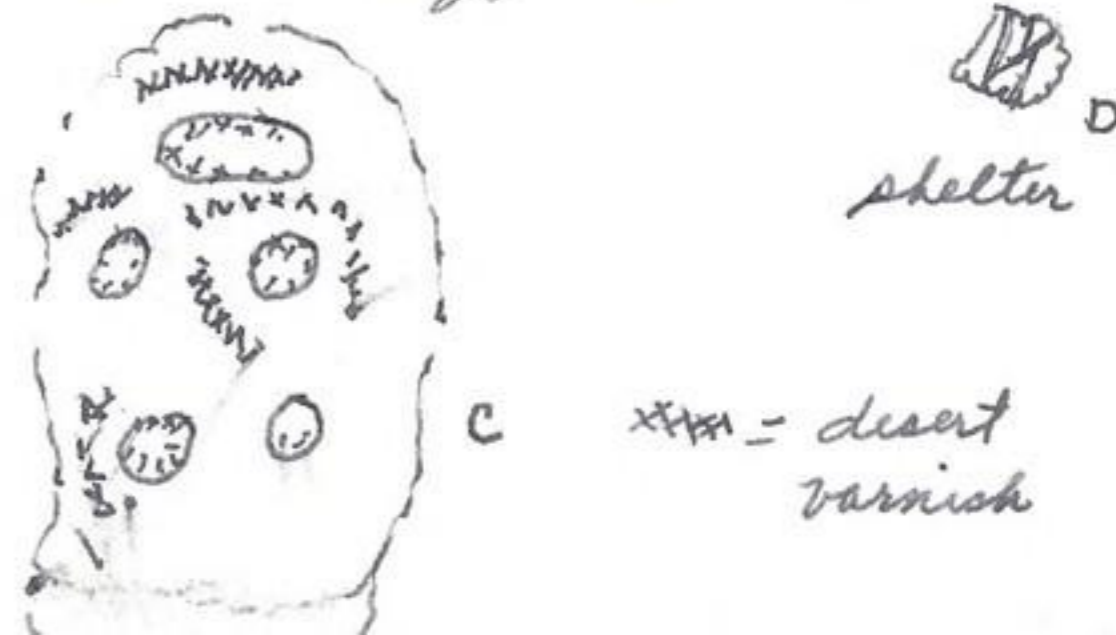
<u>730730-1</u>	<i>Clethrionomys</i>	142-39-18-16-23gms	♂	testis 11mm
<u>730730-2</u>	"	140-40-18-15-23gms	♂	testis 9mm

From trap line of 50 traps half way up slope bordering lake and on greater slope caught:

<u>730730-3</u>	<i>Clethrionomys</i>	129-31-18-14-23gms	♀	3x4 emb 8mm.
<u>730730-4</u>	"	146-44-18-14-24gms	♂	testis 12mm
<u>730730-5</u>	<i>Phenacomys</i>	108-21-16-12-13gms	♂	testis 5mm.

This area ^{730730-5a} differs from Lewis Lake area in less dense type ground with bare soil. This area has a plant with coarse stems and covers surface to 3-6 inches. Large trees & down timber makes this area a favorable one for *Clethrionomys* and *Phenacomys* but the population is low. No chipmunks in camp or outside area (None observed only 3). Birds rare. Rocky mt jay (at least a pair) in camp. Thrush (blue backed observed). Evidence of large woodpecker (pecked) with ~~the~~ ^{this}  shape. Bear tracks near camp. Pair of rocky mt grosbeaks around lake. This camp is excellent for walking thru spruce.

This afternoon morning made several photographs near Silver Lake. At point marked C photos of Indian hunting pits in rock pile in center of open swale. These pits have been developed and black varnish alludes to their authenticity. Deer trails cross from east to west (lake area to W) and some from N to S up open swale or savanna.



The shelter D is of 2-3 high boulders and roofed with small limbs and covered with smaller branches. Originally it was approx ^{m.3} 2 1/2 feet high and faced to NNW looking down swale. All wood used was without axe₁ mark^{or saw}. Stumps approx 4 inch on floor. Photos are:

- 730730-7 Indian hunting pit. me in pit
 730730-8 ibid
 730730-9 ibid. ~~me in position~~ close-up of pit and 730730-9a
 730730-10 general view with distant views to N along one of the deer passage ways, and 730730-10a
 730730-11 Indian (?) hut near hunting pits
 730730-12 Close up of hut.

Left camp and drove to Mirror Lake and made the following photographs:

- 730730-13 Lake and range to W. Water higher than usual
 730730-14 " " " " "
 730730-15 top of peak of snow fields and chimney.
 730730-16 " " "
 730730-16 Cascades below Lake Marie
 730730-17 Annette at Marie Lake
 730730-18 General views of Lake Marie
 730730-19 Range to top above Lake Marie
 730730-20 Lake Marie and clouds to N. a ring-bill gull flew north over this lake.

Left Lake Marie and left car at road at last curve before divide and climbed ^{12:00} valley to base of peak. Good area for hiking because of even grade and scenic features. Photos:

- 730730-21 Indian Point.
 730730-22 Deer set but camera failed. buck from ridge
 730730-23. From a divide with range & basin to N.
 730730-24 to 730730-28 from above area.
 730730-29 Annette at this divide.

So far have seen 1 chipmunk, 1 ruby knaglet, 1 robin and 2 bluebirds. Young spruce invading area, mostly 1-3 feet high

Arrived base of peak 2:00 P.M. On return took:

- 730730-29a W side slope of meadow & old trees
 730730-30 of spruce and snow field. A Cassin's purple finch and a white crowned sparrow here.

- 730730-31 ibid Heard first marmot call! Observed 3 others and 730730-31a
 and heard 1 pika. Arrived back at car at 2:45 P.M.

Photo 730730-32 of Silver Lake from road and 730730-32a

- 730730-33 & 730730-34 of quiet lakes just west of Silver Lake divide

1/2 mi. W Sucker Lake, Carbon Co., Wyoming.

July 30, 1973

From a trap line of 50 traps set in meadows did not catch any microtines or shrews although likely community and some old runways. These meadows are east of road near major bend.

From 50 traps set in climax spruce with good old log forest floor caught 2 Eutamias minimus: (3 other traps sprung)

730731-1 Eutamias minimus 204-⁹⁰71-15-46gms ♀ wt. normal.

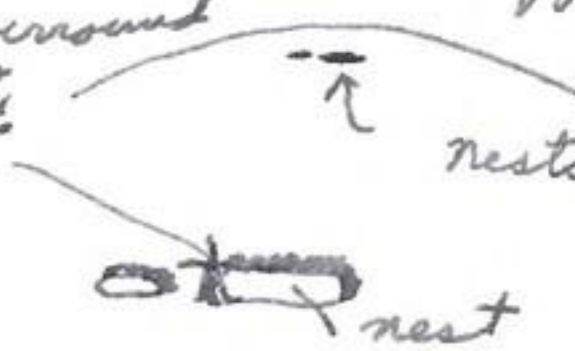
730731-2 Eutamias minimus 187-80-30-14-40gms ♂ Testis 2mm

Of the two half days spent in this area, observed only 4 Eutamias. This A.M. made trip by foot to Sucker Lake via canyon n of road canyon. On way up noted 2 pipit (on open area at mouth of canyon), 1 rocky mt. grasshopper, 1 gray-headed junco, ♀ and fawn mule deer. On way back noted 8 raven flying high along crest of range, 1 robin, 1 pine siskin, 2 bluebirds, 1 junco. All in all this has been a rather ~~depopulated~~ ^{depauperate} area of both mammals and birds.

Photo 730731-3 of stream erosion near camp, showing effect of man's interference with drainage by creating artificially impounded lakes (Sucker Lake)

Left camp at Sucker Lake turnoff at 72830 at 12:30 P.M. for Flaming Gorge. In the Snowy Range there is more saturated soils and greener grass than in previous years. Flower profuse with damper place occupied by Elephantella. This condition of increased moisture has apparently decreased the fauna at higher elevation because of superabundance of water and has increased or favored the fauna of lower elevation that can profit and handle the increase moisture. This was demonstrated in the abundance of Eutamias between the high Snowy Range which support a minimum number of chipmunks this year and the Pole Mountain area where the chipmunks were at an extremely high population.

From camp to mileage 72837 near bottom of grade to W Ryan Road. 72838 only 2 robins were observed and no other kinds. 72838 Ryan Road. 72843 first magpie associated with river filled valley of beaver dams. 844 from mouth of canyon will keep list of birds to North Platte River in order of occurrence. magpie, 5 crow, 3 cowbirds, 4 bluebirds, magpie, 4 barn swallow, 15 barn swallow, magpie, 3 barn swallow, ground squirrel road kill, 2 barn swallow, 2 barn swallow, sparrow hawk, mourning dove, 850 Elk Hollow, 15 mallards, 28 barn swallows, magpie, robin,

live ground squirrel ran across road with a hopping gait, 7
 barn swallows, 851 North Platte River, water clear but river high.
 End of census. Between here and the junction to the west
 nearer the junction and on S side of road, counted 7 colonies of
 prairie dogs with an aggregate of 140 holes. These colonies,
 except one, have been pushed off lowlands onto slopes of
 river valley. No prairie dogs observed. Redtail sitting on
 ground in one of the colonies in open field. Another colony
 of approx 2 miles from junction to N (loose aggregate) and
 center about 852. On west side of road. No prairie dogs observed.
 854 2 redtails circling over slopes of river valley. Barn
 swallows common along road to Saratoga but no mourning
 doves, magpies or meadowlarks. 860 Saratoga. Informants
 say that ranger that killed eagles was fined \$200.00 and
 that there were not as many eagles as was reported in the newspapers.
 at lake N of Saratoga 462 noted 5 Canadian geese, 5 or 6
 families of mallards and pintails, 12 pied billed grebes, 15 coot.
 at another lake just beyond noted 8 Wilson phalarope, and
 Brewers blackbird, lesser yellowlegs and killdeer. 874
 first road kill rabbit. No birds except one horned lark
 since lake N of Saratoga. 847 first antelope (3). 875
 2 large male antelope and large rattlesnake roadkill,
 877 5 antelope, 2 antelope 878 one antelope. 880
 Walcott junction. There was only one rabbit roadkill
 between Saratoga and Walcott junction whereas in
 previous years the numbers have been high. 886
 N Platte River now muddy + high. Lake at east entrance
 to Rawlins with relatively few water birds in comparison to
 many on previous trip. Lake full. 903 leaving Rawlins.
 Will count Brewers blackbirds between here and ^{Rock Springs.} ~~Green River.~~
 2, 1, (916 Sweetwater Co.), (922 Bodger rd. hill), 2, 6, (940 Wan-
 sutter) (942 ephemeral lake now with water), 3, (949 Coyote
 road kill), (996 ephemeral lake lakes 150' of berry field).
 (997 prairie dog road kill), 1, 73007 Rock Springs.
 Green River at ⁷³⁰²² ~~822~~. At twilight after talking to Chris by
 telephone, continued S toward Flaming Gorge. Shortly after
 gaining top noted 3 groups of antelope feeding on side of
 road 6-2-4. Continued S to Blackfork River, which is
 now inundated by lake. Camped here. Eagle? nest on cliffs
 on N side of river 150 yds down to abutment ^{surround} ~~surround~~
 Black Fork River, Sweetwater Co., Wyoming ^{nest} ~~nest~~ 
 Aug 1, 1973
 Temp 58°F at 8:00 A.M. ~~oto~~ nest

2 Brewers blackbirds at Camp. This camp is on the reservoir at the bridge over the former Black Fork river. Lines on the bridge supports show the lake have been at least 6-8 feet higher.

Left 9:30 A.M. 6200 ft elev. Cliff swallows in area. 12 ring-billed gulls on sandbar 1/10 mi up Black Fork River from bridge. This is upper limit of reservoir as of this time. Area of good shallow water flats. Sage thrasher occasional. Sand dunes on mt to west evenly developed on slope. 043 three ^{sage} thrashers so far from Black Fork bridge camp. 043 redtail hunting approx. 30' above sage brush. Sparrow hawk approached it. 044. x

2 sage thrashers on top of road grading material at top of hill. Lucerne - manila junction at 045. marker says state line 25 miles on main road. 047 mockingbird. 048 4 prairie dogs in a community of 40 holes. also Eutamias minimus and horned lark which was displaced by a prairie dog. 050 Turnoff to Buckboard. They report young sage hens of about 3 weeks ago and are common here. One road kill. Photo 730801-1 of sage brush community showing different colors of essentially one species of plant. This is a very colorful community and extends to for many miles. Photo 730801-2 of general area and trailer to S. 730801-3 cotton producing plants. These plants seem to be devoid of leaves during this stage. mileage at ^{Quincy} highway 73053.4. water up to bridges just S of Buckboard on highway and during last year high went under bridges. 054 prairie dog mounds. 055 20 antelope 300 feet from road, 8 standing in clearing on slope and the rest resting in sagebrush. 056 8 antelope ran across road irregardless of car and continued at full speed with determined direction for at least a mile. 060 Squaw Hollow road. Sage thrasher most common bird. 061 photo 730801-5 of 3 antelope walking thru sagebrush. all males

064 favorable areas for prairie dogs, some mounds. 065 extensive prairie dog communities. 066 Anvil Draw. 066 area of active prairie dogs. 730801-6 of 2 Antelope. at mileage 067. This is the area of prairie dogs. 068 live prairie dogs. No road kills so far. This is highway 530 we have been following. 068 photo 730801-6 of prairie dog. Prairie dogs are almost continuous thru this area. 069 photo 730801-7 of prairie dog. 070 road leaves plateau and goes down grade to Lucerne Valley. Although some prairie dog holes on upper slopes, they do not inhabit

the canyon proper. 070.6 first juniper which increase in numbers as we approach the valley. 071.5 cliff area. 071.9 mouth of canyon and convergence with road from Lucerne Boat landing area. 072.5 Henry Fork River in Lucerne Valley. Considerable alkaline soils here and not much utilization for farming. water murky, night hawk. 073.2 Saggett Co in Utah. Manila at 075.6 at 11:45. at 078 south of Manila photo 730801-8 of ~~erect~~ valley to W showing Cretaceous reacting to dinita uplift. Photo 730801-9 ibid. Photo 730801-10 to W showing Cretaceous and typical game they subjects. Photos 730801-11 and 730801-12 of Cretaceous valley showing structure to west. These fields are irrigated. This at mileage 079.7 081. beginning of sheep creek. *Pitellus lateralis* ran across road. 082. Engelmann spruce trees many dead from flooding. This canyon has floods that have completely changed the valley, especially the road. 084.1 David's Grove. magpie, sparrow hawk in area. 087 overturn above Palisade Park photo 730801-13 and 730801-14. 090.9 Hope Creek. 091.5 Spirit Lake turnoff. 092.1 marmot ran across road. 094.6 main highway. 73106. at Green's Lakes Reservoir. Camped here on S side of Lake. Photo 730801-15 at Red Canyon overlook (Duster Center) Left camp to visit Red Canyon below dam and entered at 73119. On river saw muskrat, marmot coming down to water, swallows, ^{loose} group of 15 robins and ^{spotted sandpipers} no other birds. On way back to camp noted a turkey vulture. no fish caught.

Green's Lakes Reservoir, Saggett Co., Utah

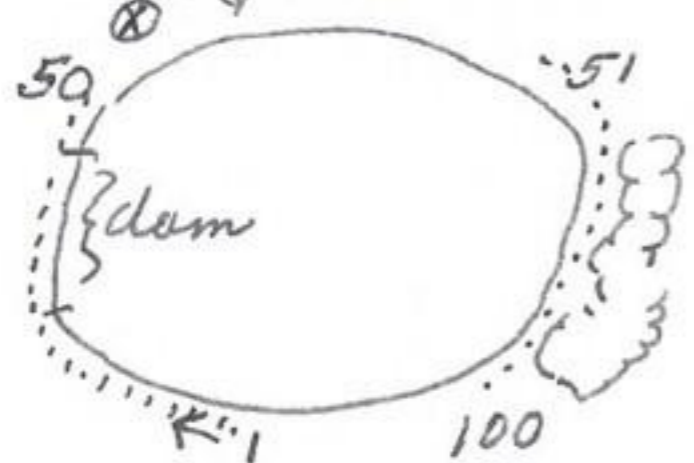
Aug 2, 1973

This early morning a group of birds passed thru camp including: gray headed junco, Audubon warbler, Williams sapsucker adult + young, red-shafted flicker, chipping sparrows (dominant in number), western bluebird, pine siskin, yellow warbler (1), black throated gray, ^{warbler} Clark's crow. *Eutamias minimus* + night hawk in areas as well as 24 mallard on lake. *Rana pipiens* of all sizes around lake at about 4 per square yard. The water is in motion from frage. Some active microtine runways. Pied billed grebe. Mountain chickadee Left camp at 73132 for Little Hole on the Green River, at 10:00 A.M. . 3 *Eutamias minimus* between camp and the main highway at 133. 140 marmot road kill, mourning dove. 146 Dutch John (5 miles to Little Hole). Water from

pattern of dam is $38^{\circ}F$ and accounts for poor fishing below the dam in the red canyon. Continued to Little Hole and fished down stream. First major beard is blocked by cliffs and when circumventing up over ridge the passage way is still blocked by high vertical cliffs. The edge of these cliffs, however, make a very outstanding vantage point to see the river directly below. Returned to first ^{cliff} barrier along river and by scaling cliffs was able to get to best hole below Little Hole camp. While fishing here a group of $\sigma, \text{?}, \text{imm.}$ black throated gray warblers fed in junipers and other trees at base of cliffs. At one time noted an adult female warbler feed a young bird (brownish and about size of cowbird). The cowbird vibrated its wings when approaching warbler. Also noted a small snake approx 2 feet long of dull greenish blue without marking.

It was in grass along river. Magpies on west side of river. Return to Little Hole and returned to Greens Lakes Reservoir Camp. The river is higher than normal and many trails along edge of river are 2 feet or more under water. Except for a dozen bites of small fish did not catch a trout. I believe this river is overfished. At camp noted, in addition to birds and mammals recorded this A.M., hairy woodpecker ^{and} kingfisher. In the evening noted 3 muskrat in lake and evidence of trees cut by beaver in the forest. One skull and lower mandibles (also skeleton associated)

of a muskrat was collected and numbered 730802-2. Another skull measured ^{mm} total length and ^{mm} greatest width. Set 100 traps in grasses and sedges at edge of lake. (ponderosa tree ^{marks} in circumference).



Trops in areas of grasses used formerly and presently by muskrats. (see *Rana pipiens* estimate in earlier notes.) There is a band of favorable community from foot to 20 feet for muskrats.

This lake is an enlarged lake and present drainage is to the west. Several springs are on the east side and one narrow channel enters from the east beyond the road. violet green swallows are common at lake and night hawks arrive before late twilight. If this lake could be maintained at a constant level it would make good muskrat communities around its shoreline. There is an invertebrate that swims around the lake at evening times and appears like a snake in its movements.

Greens Lakes Reservoir, 7460 ft., Daggett Co., Utah,
 Aug. 3, 1973

Collected the following mammals from traps set last night.
 (min. temp last night 44 °F):

730803-1	Sorex navigator	154-76-21-6-11 gms ♀ normal
730803-2	Microtus montanus	168-45-19-13-38 gms ♀ 6x0 emb 7 mm
730803-3	" "	160-40-20-14-48 gms ♂ testis 11 mm
730803-4	" "	155-40-19-13-35 gms ♂ testis 10 mm
730803-5	" "	141-40-19-13-28 gms ♂ testis 5 mm
730803-6	" "	140-39-19-12-26 gms ♀ ut normal
730803-7	" "	133-35-19-12-23 gms ♀ normal
730803-8	" "	128-34-18-12-21 gms ♂ testis 6 mm
730803-9	" "	136-35-18-12-24 gms ♀ normal
730803-10	" "	130-35-18-12-21 gms ♀ normal
730803-11	Ondatra zibethicus	greatest total length skull 65.8; greatest width 38.3
730803-12	" "	" " " " 68.1; " 41.9

From among rocks and ponderosa pine caught:

730803-13 Citellus lateralis 260-90-43-23-147 gms. ♀ undevelop ut.

About noon photo 730803-14 of aspen and Greens Lakes Reservoir in background. The large ponderosa pine in distance measured 126 1/2 inches in circumference. Photo 730803-15 of same area but trailer in background.

Around lake shore in mud were tracks of an animal about the size of marmots but in places not likely to be traversed by marmots. One trap was carried 100' from lake, over dam, to edge of outlet stream.

Left camp for Vernal at 73176 at 1:00 P.M. at Greens Lakes Lodge informant said that they receive 3 feet of snow but roads are kept open. Temp. to 0°F. Lodge not open in winter.

181 rocky mt jay glided across road at turn off to dam. 8428 ft elevation. Utah Co. line; 192 area of full stands of aspen and understory of siberian juniper.

At main creek on route photo 730803-16 of Shinarump of Triassic to left and Chinle and Navajo to right. This area may have been inhabited by Indians. Photo 730803-17 of Moenkopi-Shinarump contact which is a unconformable contact. Arrived Vernal 73216 approx. 3:00 P.M. Continued to mouth of Split Canyon and camped in no. 1 position.

cliff swallows along river at mouth and approx. 40 nests (old) in cliffs across the canyon. Two beavers on edge of water on east side at point where sands of shore contact cliffs. A bank nest was also located at this point. According to the National Park employee, the two loaves on west side of mouth of canyon do not support Indian remains. Has been windy and cloudy all day in valley.

Mouth Split Canyon, Snosow National Monument, Uintah Co., Utah.

Aug. 4, 1973

min temp 62°F, day clear. Towhee + *Citellus lateralis* in camp. Drove to Harper Point and Echo Park today. Left at mileage 73253 at 9:15 AM. 259 2 turkey vultures. 260 sparrow hawk. 263.3 Green River bridge on highway 40. Some sandbars going half way across river. 270 occasional mourning dove and 1 meadowlark. 282 Snosow. 284.7 Entrance Snosow National Monument, at 10:40. 291.3 golden eagle circling about 300' above ground. 292.6 Escalante overlook 7710 elevation. Photo 730804-1 ^{1776 A.D.} to W showing Blue mountain to right & Escalante Comp, at right: mesa & ridge hogback in distant. Blue mountain would be a good mt to traverse on top. Ranger reports fewer eagles now than in the past because of shooting. The first *Eutamias* observed since Snosow Center at 284.7. 296. 2 turkey vultures. Grasshoppers buzzing frequently along way. 299.8 major divide. 300 first aspen along road. For last mile or two excellent stands of cliff rose. 2 small birds, and the only ones seen so far. 2 turkey vultures 303 4 turkey vultures. 304 Turn-off to overlook, 11 turkey vultures. 304.8 photo 730804-2 of the confluence of Green River and Yampa rivers with Lodge Canyon and Echo Park. 730804-3 ibid and to the west. 305.6 back to main road from turnoff. Small bird. 307.5 Utah line. 311.1 730804-4 photo looking down to Echo Park showing Weber formation on left with Mitten fault separating Moenkopi and Shinarump, and another fault separating Weber on the right, Yampa river in the distant white rock formations. 311.5 Echo Park turnoff with sign showing 13 miles and 6 miles to Harper Point. 312.2 Island Park overlook. Photo 730804-5 to west showing some formations as occur on S side of Split Mountain. Returned to road at 312.4. 313.6 Iron Springs bench overlook.

1973-57

314.0 main road again. Photo 730804-6 of benchland with
 juniper tree in foreground. 316.0 entering Colorado, again.
 317. Echo Park overlook. Photo 730804-7 from this point.
 small bird. Harpers Pt. 318.2. Left parking area and
 walked one mile of trail to Harpers observation point. Left for
 this area at 1:00. Grasshoppers calling at beginning of this
 trail. Photo 730804-8 of Echo Park with Green & Yampa rivers
 taken just N of Pool Canyon where Pat Lynch was living in
 a cave, ^{and elsewhere} between 1872 and 1914. Photo 730804-9 ibid. at
 a point near end of trail recorded 730804-10 and 730804-11 of
 Whirlpool Canyon to W. [last shot of film]. Upon arriving
 at Harper Point realized that I had left extra film at the
 car so returned and picked up a roll. On return to
 Harpers Point recorded the sequence of pinyon-juniper trees
 on right side of trail and bordering within 0-20'. The listing
 is as follows: j-p-j-j-j-j-j-j-j-p-j-j-p-j-j-j-p-p-p-
 j-p-p-j-p-p-j-j-j-p-p-j-p-j-j-p-j-p-p-p-j-
 p-p-j-j-p-p-j-j-p-p-p-p-p-j-p-p-p-j-p-j-j-p-
 j-j-p-j-j-p-j-j-p-j-p-p-p-j-p-p-p-j-p-p-p-j-
 p-j-p-p-p-j-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-
 j-j-j-p-p-j-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-
 p-
 j-
 p-
 j-
 j-p-p-j-j-p-p-j-j-p-p-j-p-p-p-p-p-p-p-p-p-p-p-
 p-j-j-j-p-j-j-p-j-p-p-p-p-p-p-p-p-p-p-p-p-p-
 j-j-p-j-j-p-j-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-
 j-j-p-
 j-j-p-
 j-j-p-
 j-p-p-j-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-p-
 trail now to W side of ridge and end of
 count. This is the last down grade to Point, Artemisia dominant
 understory. 180 junipers and 170 pinyon. From point
 returned to car. Observed 1 Citellus lateralis only. No chipmunks.
 Several swifths along this ridge trail, especially at the end
 of the point. With glasses can see that pinyon trees are
 larger among juniper-pinyon flats on canyon slopes and
 considerably fewer in number than are the junipers. From
 the point took several photos:

730804-12 general to E showing Echo Park and Yampa Canyon to distant east, also Yampa river.

730804-13 general to NE showing Green River and Ladore Canyon.

730804-14 Overturned beds to NE.

730804-15 tets of Yampa river just before, Echo Park. *and after passing*

730804-16 tets of Echo Park with perpendicular walls, flat top and river below.

730804-16a tets of Yampa river before Echo Park
730804-16b to W of West Whirlpool Canyon & juniper tree

The Pool Canyon drainage system is unusual and should be investigated the full length. Above the bottom canyon the clear stream runs thru meadow of green grass and sedges with good stands of Artemisia bordering

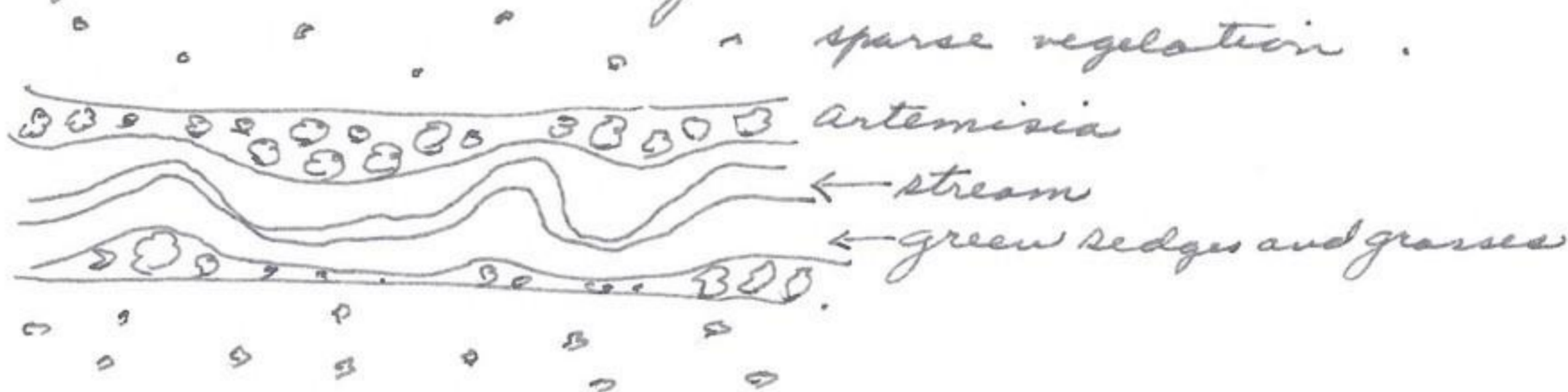
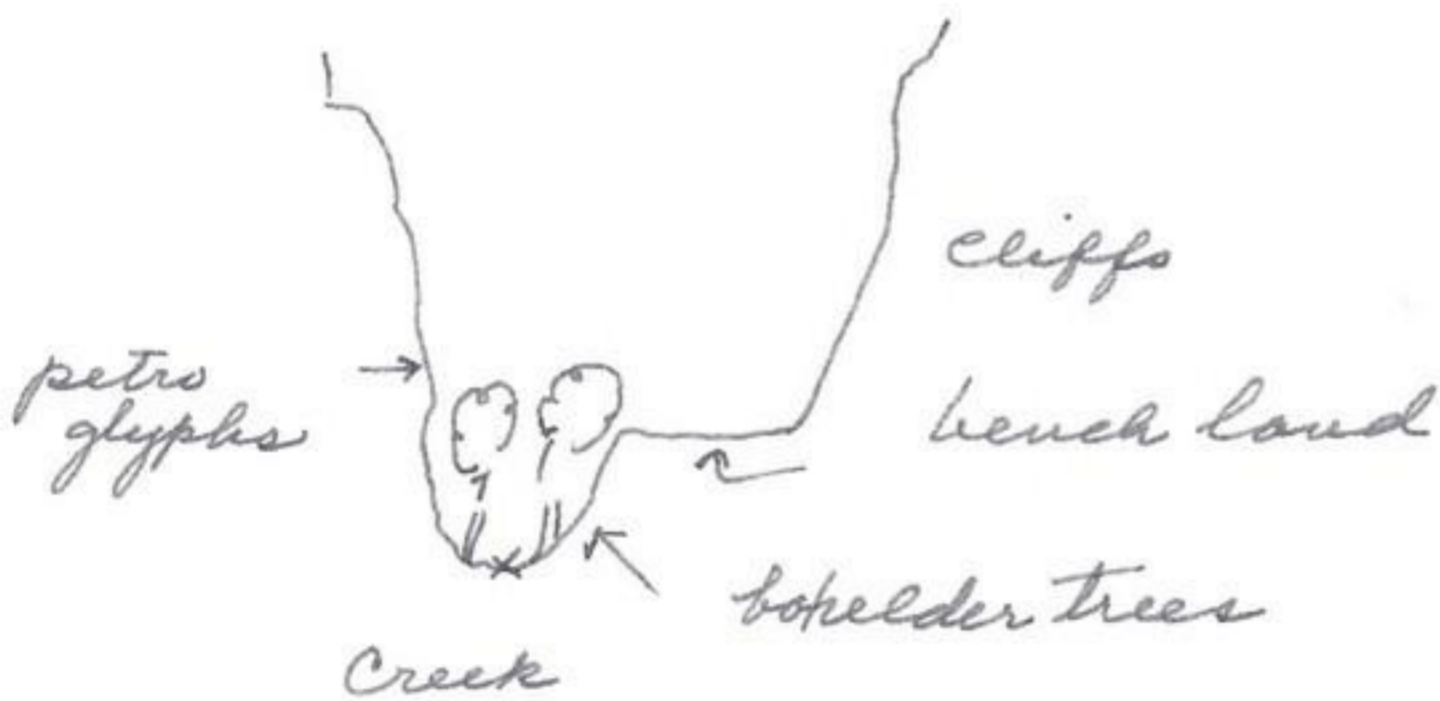


Photo 730804-17 of old dead piñon. One near this tree was 99 inches in circumference.

Left 318.2 at 4:00 P.M. for Echo Park. 324 Echo Park turnoff. 331.1 turn off to Castle Rock. 334 mourning dove and western kingbird. Many ~~are~~ ^{boulders} filling canyon.

334. of photo 730804-17 and 730804-18 of perpendicular cliffs and benchlands. These benches appear to be made by Indians for cultivation but are actually erosional



deposition benches. The petroglyphs are high on W & S side of canyon walls and were made before the present canyon was formed. The petroglyphs are pecked holes or drill holes and are of

several different kinds. Large trees of modern times have also have permitted accesses to high walls for making these petroglyphs.



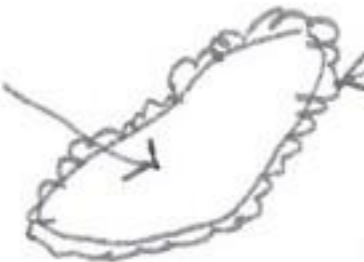
1973-58

335. Whispering loaves at 5:00 P.M. just around corner at entrance to Park photo 730804-19 of Echo Rock. End of road at 335.9 just east of the Confluence of Green & Yampa rivers. Photo 730804-20 of Annette at this point. Photo 730804-21 down canyon with broad open flat and cottonwoods and high walls of east side of park. The flat areas probably correspond to flat bench of Pool Canyon. Photo 730804-22 ibid but more cliffs. Photo 730804-23 of water separation between the two rivers. This condition carries thru Echo Park to next left meander. 730804-24 up canyon. Photo 730804-25 of Echo Rock from S side. Mule & deer along river at 5:45. Photo 730804-26 of field shot and Pool Canyon entrance to Echo Park. This area has about 12 campers and other tents and reduces the value of this remote area. Shade of rock in afternoon. Field in chetgrass. Fisherman report Catfish but no trout here. Photos of this area are from distant and higher vantage points and are more attractive than actual canyon floor. Left at mileage 336.5 from directly S of Echo Park for return.

At 336.6 photo 730804-27 of road killsnake. It measured 52 inches long. 337.5 petroglyphs (already alluded to). 338 photos of shed covered shed 730804-28 and 730804-29 and 730804-30 of Annette at entrance of cellar. Some 15 quarts of old fruit on bench. Lark sparrow. 342 2 Cistellus

lateralis so far, no chipmunk
344 tent Caterpillars completely but locally investing cotton-woods. Phoebe near here.

347. Green-tailed towhee. Rock slides surrounded by bushes and sagebrush beyond.

rock slides  brush
sage



347.8 top of hill and at main road at 7:00

This road to Echo Park can be navigated by car but because of the steepness of grade and the

abrupt degree of angle of crossing washes would not recommend for pulling trailers. Brakes must be good. Return upgrade is not difficult except if heavy trailer might be involved. Would recommend this side trip for scenic value.

Continued on main road. 350 mourning dove and only bird so far since top of Echo Park road. 361 5 magpies at state line. 356. 3 sage hens, one called frequently. 357 3rd golden mantled ground squirrel since bottom of Echo Park Canyon. The first *Eutamias* associated. 357 divide. 358 *Eutamias minimus*. 360 red-shafted flicker miles from large trees. 367 night hawk just at point where road leaves plateau and goes down hill thru cliffs. 368 sparrow hawk. 372 highway 40 at 7:45. On this ~~the~~ trip have observed very few birds and have recorded all sciurids. Takes approx 1/2 tank gas to make this trip. 393 Green River. Arrived at Split Mountain camp at mileage 73403.

Split Mountain Camp, Utah

Aug 5, 1973

min temp 63°F last night. Slight rain on occasions. Left Split Mountain and investigated area to S and E. At Split Mountain Camp at mouth of canyon in previous years (see notes) have estimated one *Citellus lateralis* and two *Eutamias* per camp site. This year I saw 3 *Citellus* and 2 *Eutamias* for the entire camp showing the nature of the fluctuation of population numbers. Noted the towhee and spotted sandpiper in area. This area is still the classical area of the Dinosaur Monument. Took the following photographs in area:

- 730805-1 at end of ~~the~~ paved road to east on east side of river and of the main Split Mountain area in background. and 730805-1a
- 730805-2 ibid with flowers & bottle in foreground
- 730805-3 just S of Chew Ranch and of variegated lithology in foreground and Split Mt in background.
- 730805-4 across road from above and to the N. At this point a deer trail followed down grade to fence over which they jumped and continued down ridge to green field in river valley.
- 730805-5 From ridge W of Green Run bridge and showing river & Split Mt in distance. This sandy area support badger diggings, *Dipodomys*, *Cnemidophorus*, trail etc. Some Indian evidence of habitation here.
- 730805-6 Ibid.
- 730805-6a "

730805-7 From above lower Splet mt. Camp site showing Green River and valley to the S.E.

730805-8 Ibid but to ^{7E} of telephoto showing Park City formation at base of Weber Sandstones.

730805-9 Shinarump above and Splet mt from above upper camp at mouth of Splet mt showing upturned Shinarump with brown uppermost layer on the W side of Canyon and the Weber, Moenkopi, Shinarump, Chinle and Navajo on east side of river, and 730805-9a

730805-9b overlooking lower camp along green river below Splet mt. 730805-9c to W

730805-10 From Dinosaur Nat. Monument Quarry showing Cretaceous from Morrison to left thru Dakota, Mowry, Frontier, Mancos to right.

730805-11 From Navajo thru Carmel, Entrada, Curtis to Morrison.

730805-12 As above but mainly Navajo. The sequence in this area of Dinosaur Nat Mon. is Ladore, Madison, Morgan, Weber, Park City, Moenkopi, Shinarump, Chinle, Navajo, Carmel, Entrada, Curtis, Morrison, Dakota, Mowry, Frontier, Mancos, Tertiary. The last three photos a panorama.

730805-13 Dinosaur bones inside quarry.

730805-14 ibid.

730805-15 Good exposure of Morrison just above parking lot to W of Quarry. Bones in ridge to right.

Between Dinosaur Nat. Monument and Jensen noted 1 turkey vulture and one sparrow hawk, Between Jensen and Vernal 1 redtail. East (6 mi.) of Duchesne noted first yellow-headed blackbird. W of Duchesne noted 2 turkey vultures and 1 Coopers hawk. Good beaver dam in canyon above Current Creek. In Strawberry Reservoir valley the grasses are making a poor start since sage brush and willows have been removed. What they need is irrigation and management of this area and not dependence upon nature. If let alone will come back to sagebrush & willows. Continued to Camp at mouth of Provo River as it enters Deer Creek Reservoir. Fished until Nine o'clock. 5 perch but no trout. Birds on lake were: California gulls, cinnamon teal, mallards, prairie, one Canada goose (unable to fly), cliff swallows, ^{Brewer's blackbird}, night heron, great blue heron. Fishing has been poor for three days during rain & bad weather. Noted 2 trout jump out of water. Water warm at 10' deep.

1973-61

Deer Creek Reservoir, Wasatch Co., Utah,

Aug 6, 1973

min temp. 48°F

Camp at point where Provo River enters Deer Cr. Res.
Spent day at Park City. Road tramway to top and there
made the following photographs;

- 730806-1 From Condalla on way to top.
- 730806-2 Annette at lodge (Summit House)
- 730806-3 Aspen from top
- 730806-4 Sage benchland to E from top.
- 730806-5 General view to East.

From this elevation one could hike west in sky meadows
to Brighton and alts. Returned to Park City and met
Mr. Kendall V. Webb a photographer, phone 5, P.O. Box 732
Park City, Utah. He reports the following about Charles
Adams the former Park City commercial photographer
and painter; (a nephew of Adams)

Judge Ritter, of Salt Lake City has acquired ^{nearly} all
of Adams painting, photographs and other personal
effects. Ritter will not allow these painting or photo-
graphs to be copied or even allow one to see the art.

Ritter attended school in Park City and knew of Adams
at that time.

The studio camera used by Adams was purchased
by Webb but Ritter considers it legally Ritters. The
original lens is in Ritters possession but the camera
and stand is in Webbs possession. The back has been
adapted for Webbs use and the front panel and lens has
been added by Webb. Two wooden wedges secure
the sliding part of the camera support into the 3 legged
basal support. It is stated in the will of Webb that
the building and contents of his business are to be made
into a museum of Park City historical items but if the
museum is not realized the property is to become the
possessions of his nearest relatives. This would include
the camera of Adams.

The wife of Adams destroyed an undeterminable amount
of paintings, photographs and personal effects of Adams
because she did not want to create dissention among
his survivors upon the death of Mrs. Adams.

Adams was associated with or knew of a Mr. Savage,
a painter from Provo.

The store owned by Adams was next 5 or up street from the present Carbide Inn. Three of the buildings including Adams has since ~~been~~ removed and the space is vacant. Photo 730806-6 of the former location.

Adams is considered one of the outstanding photographers and painters in the State of Utah.

Mr Webb believes Ritter should contribute the entire art collection of Adams to a historical museum to be created in Park City. Webb believes Ritter to be an alcoholic.

Adams works are generally stamped on the rear of photograph by the Commercial sign of Adams.

Several important citizen who have lived in Park City did not know of Adams.

Adams died about 1920. or later. [One of Adams paintings is 1922]

Left Park City and drove highway 224 up Canyon and 5000 high pass to Heber Valley. From top of pass at point where new Brighton road diverges to Wasatch Campgrounds counted 1 *Eutamias merriami*, 21 *Citellus armatus*, 1 *Citellus variegatus*, and 3 *Citellus lateralis*. 2 turkey vultures and one redtail hawk also observed. From pass took photo 730806-7 of mt. Timpanogos.

Continued to camp on Deer Creek.

Deer Creek Reservoir, Wasatch Co., Utah.

Aug. 7, 1973

min. temp 50°F Continued to fish at point in lake where Provo River enters reservoir. In early morning the fishermen fish out in lake and as morning advances move near point where River enters lake. Best fishing is in channel which is 5' or 6' deeper than regular lake bottom. The secret is one, knowing the holes and secondly the proper bait. Cheese and sucker bait was the best this morning. Perch are being seen now by people from Minnesota & Michigan where there is a limit of perch.

California gulls common at lake. The Canada goose breed in area but one adult & young leave and the other remains at lake. This has been the situation for the last 2 years. ^{See over}
Arrived Mary & Sons at 4:30 P.M. Attended outdoor theater at Stewart's Flats and had dinner at Redford's restaurant.

Provo, Utah Co., Utah

Aug 8, 1973

Checked for aerial photographs at City, County and Planning Board Commission. There is one composite aerial of Utah Co at \$85.00

Left camp at 12:00 for trip to Cascade Springs and thence by
new road to Tumpunago. Will keep list of all birds and
mammals. At Bridge over Provo River observed 3 American
mergansers. Beginning of road at 636.1 to Cascade
Springs 636.8 now on road leading W to Cascade Springs. 20
Brewers blackbird. 637.0 5 magpies. 637.1 magpie. 638.4
2 goldfinches. 638.7 2 mourning doves. 638.9 Cit. lateralis.
639.9 2 Cit. variegatus. 640.0 small bud. 640.9 Eutamias min.
641.6 divide. 642.3 Cascade Springs. Many grasshoppers calling
644.7 Cit. variegatus. 645.7 small bud. 648.8 snowshoe
rabbit road kill. 649.0 divide. Forest Service has information
trailer at this point and expects to maintain in winter for
snowmobile traffic. 649.1 Cit. armatus. Sheep eat everything
but bracken fern. 651.6 Cit. armatus. 651.9 Cit. lateralis.
653.4 Cit. armatus (3). 653.6 Cit. armatus. 654.2 2
Cit. armatus. 655. Sundance. At Wildwood end of census.
Returned to camp on Provo River - Deer Creek reservoir.
Two photos 130808-1 and 130808-2 of trailer at camp
on Deer Creek. (one without car & trailer).

At the planning Commission found the three photos that include the Compromise monument area showing primary and secondary reefs and western extension of same. These three photos of a ^{concentric} series taken of the valley were taken Nov 5, 1960 by Aherm Aerial Surveys of 602 Newhouse Bldg, Salt Lake City, Utah. EM 49101 phone:



These photos are listed as: 1-25; 2-46; 3-52,

Other places to check are: (Salt Lake City)

Aerial Survey Ltd.

4004 Highland Drive, Holladay, 278-2541

Intermountain Aerial Survey

320 E 3900 S

Olympus Aerial Survey Inc.

50 W 2950 S

The planning board Commission is in agreement that Provo Bay should be for wildlife and not a recreational area.

Provo, Utah Co., Utah

Aug 9, 1973

Photos 730808-3 of mariposa and 730808-4 is of new home to 5 of mariposa.

Left Provo for Bryce Canyon at mileage 73710 at 12:00. 712 Cormorant. 714 100 white faced glossy ibis. ^{Paul} visited art exhibit at Springville. They only have 1 Salisbury and one poor oil by Campbell. The Central Bank in Springville has approx. 30 of Paul Salisbury oils, all excellent. The one with natural bridge was his last and is unfinished. This collection constitutes the bulk of Salisbury oils.

at 743 photos 730809-1 of Nebo Cragues with tlls. 730809-2 of Nebo with fault lines and 730809-3 of cagues of Nebo. 791. first magpie since Provo. Birds rare and occasionally mourning doves & meadowlarks. 794 Dunnison 855. Prairie Falcon. 861 golden eagle (half tail white) on edge of raised dam. It left and hunted about 10³⁰ feet above ground. Considerable white patches underwings. (Insert at appropriate place). photo 730809-4 of Rock Candy Mt and Sevier River. Flash flood in area caused considerable damage and most severe since 10 years ago. Arrived Piute Reservoir (N. end) at mileage . Camp on beach just west of regular camp ground. California gull, killdeer and nighthawk in area. Great horned owl called. Set 50 traps at uppermost edge of reservoir among greasewood.

Wend Piute Reservoir, Piute Co., Utah.

Aug 10, 1973.

min temp 51°F. From trapline:

<u>730810-1</u> Perognathus	181-93-24-9-20gms ♂ testis 3mm
<u>730810-2</u> Peromyscus	166-78-21-18-19gms ♂ testis 7mm
<u>730810-3</u> "	144-55-19-17-22gms ♀ 4x0 emb 18mm
<u>730810-4</u> "	142-76-21-18-20gms ♂ testis 10mm
<u>730810-5</u> Peromyscus	147-76-21-18-15gms ♂ " 8mm
<u>730810-6</u> Reithrodontomys	146-71-17-14-10gms ♂ testis 8mm

Raven, Calif gull, sage thrasher, a sparrow, great horned owl, deer, yellow-headed blackbirds in area.

Left at 73865 at 9:00 A.M. mourning dove in area. Sequence of vegetation is pygmy forest, sagebrush, greasewood, lake, Hummingbird. 874 few Brewers blackbirds in valley, striped skunk road-kill. 875 Sevier River. magpies in area. 878 Circleville. 881. Butch Cassidy home, rock squirrel. 905 Panquich. 912 Turnoff to Bryce Canyon. 915 Photo 730810-7 of car and trailer in Red Canyon. Rivers in this area are wide, flat and filled with gravels. 919 Top of Red Canyon & porcupine road kill. 3 Cit. lateralis and 1 Eutamias minimus in Red Canyon. 923 East Fork Sevier River. 933 Bryce Canyon. Photos 730810-8 to 730810-¹³ of Bryce Canyon from rim at main lodge. 939 highway 12 to Tropic. 951 Cannonville. 954 Henrieville. 946 Table Mountain photo 730810-17. 946 Photo 730810-18 and 730810-19 of Table mt and 730810-20 of pygmy forest at some place. 969 8 bluebirds 978 small mammal & birds activity nil. 984 Escalante. 993 Photo 730810-21 to east of barren rocks of Tertiary age. 996 sparrow hawk. 997 3 photos 730810-22 to 730810-24 of Convergence of Calf Creek and main ^(Escalante) Creek from vantage point on south side of canyon. 997 photo 730810-25 to east up river. 998.4 Escalante River (4:30). 998 Citellus variegatus. Water clear in Calf Creek but muddy in Escalante. 74000. First photo of new reel shooting up canyon. 001 730810-26 ^{and 730810-27} down into Calf Creek. Antelope chipmunk here. 009 photo 730810-28 into Boulder Valley. 010 Boulder Creek. 011 Boulder. Left 5:50 P.M. on highway 54. Citellus lateralis. 017 ¹⁵ gray-headed junco. at beginning of ponderosa pine. 018 Eutamias minimus. 022 photo 730810-28 toward Table mt. Camp at 74023.6 at experimental area of hillside recovery. Deer observed in evening. Set 50 traps in experimental enclosure. photo 730810-29 of aspen in indirect lighting.

9100 ft,
 Boulder Mountain, Aquarius Plateau, Garfield Co., Utah.

Aug 11, 1973

min temp 45°F Largest aspen 7'6", several over 7 feet.
 Robin, house wren, Lincoln sparrow, wood pewee, sapsucker
 Eutamias, Cit. lateralis, marmot, former beaver activity, in area
 From trap line caught:

730811-1	Microtus	175-59-21-14-38gms ♂ testis 11mm
730811-2	"	180-61-21-14-38gms ♂ testis 13mm
730811-3	" (imm same as above)	142-45-20-13-23gms ♀ ut normal.

730811-4 a photo of aspen near camp, also 730811-5, + 730811-5a

Left 74023.6 at 10:30 A.M. 024 small group of aspen approx
 8 feet high and 1 to 1 1/2 inches in diameter associated with
 larger trees. There are large aspen, medium size aspens and
 aspens in thick stands plus occasional young group. Some
 areas aspen are not able to withstand the soil, climate etc.
 This east end of the Aquarius Plateau is excellent for aspen
 growth. On the west exposure there is a broad zone of ponderosa
 pine, oak, aspen and sycamores. 025 Round-up Flat.
 025.4 Cooper hawk. 025.8 Spruce spring. 027 Telophoto of
 thick aspens 730811-6, plus 730811-7 to 730811-7a of other
 aspects of aspen. 070 at Pleasant Creek. 035 Chokecherry Creek.
 035. Eutamias minimus and first so far. 038 Tels of Fish
 Lake mt no. 730811-8. 048 highway 24. Would recommend
 the road just covered for car + trailer. 051 Telophoto 730811-9
 of reef to W. 054 shrike. 055 Photo 730811-10 of Moenkopi.
 056 730811-11 and 730811-12 of reef. 058 photo 730811-13
 and 730811-14 ^{and 730811-14a} of reef near Conoco station. 061 Visitor Center.
 Dringlesky home raised but old shed and rocks in back of lodge.
 063 photo 730811-15 of Fremont Canyon. 073 photo of beginning
 of Cretaceous at E end Capital Reef no 730811-16. 076
 Fremont River bridge. 079 Carnevill Wash. 080 photo
 of ranch just E of Carnevill showing Cretaceous background no
 730811-17. Lark sparrow flew across road. 083 3 deer in
 cultivated field in middle of day. 084 Photo 730811-18 of
 rock cap on Cretaceous and sharp erosional features at base.
 097 Hanksville. Will keep complete list of birds to Colorado River
 bridge near Hite. Left at 4:30. 110. Oregans Tea prominent.
 113 black like eye dominant and mixed with regular soze.
 114.1 Garfield Co. line. 121 first water in river valley.
 rabbit rdkill. 95 and 276 junction of sandunes - photo
 730811-18a at mileage 123. 130 at picnic area photo 730811-19a
 of cottonwood highlighted at mouth of canyon. and photo

730811-19a on east side of Canyon with car, trailer and Annette in foreground. (This is just before Hog Spring), 137^{near} backup water of Powell Lake. ^{730811-9b} Water green. 138 view of Powell Lake no 730811-20 from vantage Pt. of eroded benchlands at edge of lake and 730811-21 of bridge to E. ^{first of a vantage} 143.7 Dirty Devil River bridge. 144 rock wren second bud since Hanksville. 145.9 Colorado River Bridge. Photos 730811-22 of rafts, also 730811-23 directly below. 730811-24 of bats and bright lights to W. 730811-25 general series. Time 7:00 P.M. Temp in trailer closed 118 outside. Camped on S side of bridge east of road.

Set 50 trap on N side in Garfield Co along edge of canyon walls among rocks and ledges. Most settings associated with Neotoma areas. 50 trap on S side of bridge in San Juan Co. as above but 5 in ponds along a drainage system. Small bats (12) flying at late twilight. 9:00 P.M. temp outside 92°F . Few mosquitoes. Temp 84°F 10:00 P.M. Trailer 90°F

South side ^{River} Colorado Bridge NE Hite, San Juan Co., Utah.
4310 ft.

Aug 12, 1973

min temp last night. 82°F

~~Photo Photo trapping area~~

730812-1	Peromyscus	184-92-22-20-17 gms ♂ testes 4 mm
730812-2	"	188-93-22-20-17 gms ♂ testes 4 mm
730812-3	"	167-88-21-19-13 gms ♂ testes 4 mm
730812-4	"	178-96-22-20-15 gms ♂ testes 4 mm
730812-5	"	176-91-22-20-16 gms ♂ testes 4 mm
730812-6	"	173-92-22-20-14 gms ♂ testes 4 mm
skull only 730812-7	"	180-95-22-20-17 gms ♀ no emb.
skull only 730812-8	"	186-90-21-20-15 gms ♂ testes 3 mm
skull only 730812-9	"	162-87-21-20-12 gms ♂ testes 3 mm
skull only 730812-10	"	170-87-21-20-14 gms ♀ ut normal
skull only 730812-11	"	164-87-21-20-14 gms ♀ " "
skull only 730812-12	"	171-86-21-20-14 gms ♀ " "
730812-13	Dipodomys	235-136-43-14-39 gms ♀ " "

North Side Colorado Bridge NE Hite, 4310 ft. Garfield Co., Utah

Aug 12, 1973

Photo 730812-14 of N Side trapping area on edge of Canyon; river below.

730812-15	Peromyscus	182-90-21-20-22 gms ♀ ut normal
730812-16	"	181-92-21-20-16 gms ♂ testes 4 mm
SKU 730812-17	"	186-97-22-20-16 gms ♀ ut normal
730812-18	"	183-98-22-20-16 gms ♀ ut normal
730812-19	"	181-93-21-20-15 gms ♂ testes 4 mm
skull only 730812-20	"	194-99-22-20-17 gms ♂ testes 4 mm
SKI 730812-21	"	188-98-22-20-15 gms ♀ ut normal
SKI 730812-22	"	174-88-21-20-13 gms ♀ ut normal

skull only		(imm)	
730812-23	Peromyscus	172-91-21-20-14gms	♂ testes 2mm
sk on			
730812-24	"	162-88-21-20-13gms	♂ " 2mm
sk on			
730812-25	"	160-87-21-20-11gms	♂ " 2 "
sk on			
730812-26	"	166-87-21-20-13gms	♂ " 2 "
sk on			
730812-27	"	160-88-21-20-11gms	♂
sk on			
730812-28	"	166-85-21-20-13gms	♀ ut normal
sk on			
730812-29	"	167-86-21-20-13gms	♀ " "
sk on			
730812-30	"	160-84-21-20-12gms	♀ " "
sk only			
730812-31	Neotoma	290-132-29-30-108gms	♀ suckling
sk only			
730812-32	"	296-121-30-30-134gms	♂ testes 12
sk only			
730812-33	"	280-125-29-30-109gms	♂ testes 6mm

The Peromyscus have a very fine silky fur and are a fragile mammal for such a harsh environment. The size of testis and lack of reproduction is unusual for this species. The mammary condition indicates a former heavy reproductive use. The adults (♂) spoiled first followed by females adults. Gangrene is rapid. The juveniles less so and markedly ^{delayed} different in onset of gangrene. These bridges across the Colorado should be tested for barrier or available ^{dispersal} migration routes. Left at 74146.1 at 8:45. Post mileage at camp 48 miles (from Hanksville). 152 White Canyon. 161 few morning doves (10 since camp) and first western flycatcher. otherwise birds scarce. 162 Jacobs Chair sign. 164 Antelope Chipmunk. 164 Solder Grove. Between 167 and 168 there were 82 bear cans on side of road. There were probably many more not visible. 169 Indian Ruins sign. More pinyon-jumper. 170 Fry Canyon. 174 Wedding Cake sign. 181 beginning of good pinyon forests. 203-95 road junction. 187 Artemisia good quality and color from rain and cloud shadow from LaSals. 189 Natural Bridges turn-off. 195 photo 730812-34 and 730812-34a of Sipapu bridge. 198 Katchina ^{730812-36 canyon just above Kachina, travelled last trip, tanks in river.} view and photo 730812-35 of bridge. At ⁷³⁰⁸¹²⁻³⁷ Edwin bridge (Owachoma) on Armstrong Canyon. From here returned to Fry Canyon for gas. 242 returned at Natural Bridges ⁷³⁰⁸¹²⁻³⁸ 250 group of about 30 pinyon jays. 252 Fish Creek 262 tel. of old road in Comb Wash showing Navajo-Kayenta-Wingate. Kayenta well differentiated. 266 main (new) road in Comb Gulch. 274 Cottonwood wash. 280 main highway to Monticello. 284 Blanding 4:30 P.M. 292 sparrow hawk Camped just south of the Abajo mountain among ponderosa pine, 2 leafed pinyon, juniper & oaks approx 8 miles N. beyond Blanding

8 mi. N Blanding, San Juan Co., Utah
Aug 13, 1973

Left at 74294 at 10:40. This camp is called Devils Canyon Camp ground. 302 sparrow hawk, 307 Monticello, 321 photo 730813-1 of lone formation with La Sal in the background, this just south of turnoff to Canyonlands. 330 Hatch River Wash. 333 photo 730813-2 of Jurassic rocks with La Sal just showing. No. 730813-3 same area with Indian rice grass in foreground, 335 Wilson Arch area. ^{Before next photo 730813-3a} 338 Coyote Wash, 345 Kone Spring road park. Photo 730813-4 of cottonwood and Jurassic rocks in background. 353 Grand Co. line, 360 Moab, at 1:20 P.M. 371 beginning of Dead Horse road, 375 photo ⁷³⁰⁸¹³⁻⁵ to Naacras valley with red wall in distance capped with Kayenta & Torozo. 2 mourning doves and only birds observed so far. 379 photo of red wall to W with pinyon in foreground (730813-6). 385 junction Canyonlands and Dead Horse Point. 391 visitors area ^{and 100} From here photos 730813-7, 730813-8, 730813-9 and 730813-10 to E. Passed thru whirlwind that remained in one part of the road. 393 Dead Horse Point. Photos 730813-14 to 730813-¹⁷~~20~~ here from E to W areas. Cloud mass remained overhead. This area compares with Grand Canyon. Roads & ^{year} trails below should be removed. Ranger claims one cannot remove roads as they will always be in evidence. I believe a hundred years will cover scars if properly remodeled. This landscape should not show trails of any kind, even human. The potash processing plant is a sore eye of the first magnitude. In river canyon the only trails or imprints were deer tracks on the sandbars. No other tracks. 425 Left Moab at 7:00 P.M. ^{at} 441 photo of Colorado River near the first ranch. ⁷³⁰⁸¹³⁻¹⁸ 442 crossing bridge on lateral drainage. 443 rock squirrel. 447 sparrow hawk. 448 photos 730813-21 to 730813-23 of evening lights on cliffs. Indian rice grass is beginning to take over on many slopes, even high on canyon walls and give a light yellow color to the landscape. 451 first magpie at least since Moab, ^{and 3 deer.} 453 rock squirrel 454 sandbars of white sand against red countryside. Camp at 457.5 at large cottonwood. Set 50 traps (25 in cliffs & 25 on valley floor). Bats out at twilight.

Colorado River, 32 miles above Moab, Grand Co., Utah

Aug 14, 1973

no mammals in traps. min. temp 71° F last night. Great Blue heron tracks on river. Photo 730814-1 and 730814-2 of car-trailer and a general shot of Colorado River at camp. Left 457.5 at 8:00 A.M. 2 magpies at camp. Great blue heron tracks in mud along river. As the river recedes it leaves a muddy surface.

458 Colorado bridge and just wide enough for car and trailer. Approx. 50 starting at ranch on N side of river. There is a log cabin and ancillary buildings among cottonwoods at point river turns to N. and should be photographed. 462 3 magpies along river. 463 Antelope ground squirrel. Since camp at 457. there have been 8 pairs of mourning doves, and some other small birds. 464 2 sparrow hawks and now on uplands. 466 sparrow hawk with reddish tail that appeared twice the size of the usual sparrow hawk. Its behaviorism suggest a different kind of hawk in that its movements ~~some~~ of hunting were more directive and continuous. Three pairs of mourning doves since last recording. 469 28 mourning doves in one compact group. 469 led highway (70) going east. Another group of approx. 10 mourning doves. Will keep list of all ~~bird~~ mourning doves to Fresno, ^{and I 70 highway} 4, 3, 470 sparrow hawk. 471. 4 m dove, 472 3 mourning doves. 472 Fresno and 4 mourning doves. 473 m. dove, m. dove. 474 m dove & shrike, 2 m doves. 475 m dove and lark sparrow 477 now at (I 70) highway and end of m. dove ^[34 in 8 miles] census. 482.1 bobcat road kill and fresh, probably hit this morning. It measured 33 inches total length, 6 inches tail, 7 1/4 inches hind foot. Animal in good ^{edge} condition. The nearest juniper-junipers and rock ² canyons were some ~~4~~ miles to the south. Photos 730814-3 of this mammal. Photo 730814-4 Close-up of head. 485 overpass to Westwater and Brook Cliffs. 495 Colorado State live ^{mock} sparrow hawk. 507 ~~Fainta~~, red tail. 501 8 roven in group on ground. 514 turkey vulture. 518 sparrow hawk. 522 3 snowy egrets and striped skunk road kill. 523 road-kill st. skunk. 568 sparrow hawk. 574 photo 730814-5 of Cretaceous exposure to N, some red at base. 580 porcupine road kill. 582 photo 730814-6 of Cretaceous to N. 597 striped skunk road kill. 606 Canyon Creek. 610 rock squirrel road kill. 614 Glenwood Spring. Visited Tom Evans home. Mil & Si and just left for Cross. 620 striped skunk road kill. 647 golden eagle soaring. 649 Eagle City. 2 cowbirds. 664 striped skunk road kill. 666 badger road kill. 669 montane on south side of canyon and shrub on N side of canyon. 672 2 striped skunk road kill together. 673 Leadville turnoff. 678 shut 35 to Vail. 692 divide. at 10603. ~~999~~ Watkins the new road up glaciated canyon

and tunnel thru cirque is one of the greatest mistakes in road construction of the century. The entire N slope of the canyon has been modified and serious erosion problems will surely result. This tunnel should have been started at much lower elevation. I approve of tunnels but not this one. The impact is 100% on the natural environment. Continued down canyon, thru Denver. The Morrison exposure SW of Denver is extremely interesting and should be photographed. 799 Walkers at 7:50 P.M. 866 Limon at about 9:00 P.M. Camped at end turn of county road leading N just before main roads turn to S. out of Limon.

Limon, Colorado

Aug. 15, 1973

Left Limon ^{8:15 A.M.} at 866. Min temp. 52°F. Lark bunting and chp. sparrow in area also western kingbird, mourning dove. 953 Kansas State line. Will keep complete census of all birds to Lawrence starting at 11:10 (great plains time). Kansas State line to Caruso 965. no birds. Caruso to Goodland 970. 3 barn swallows since Caruso. (966 rd hell sparrow hawk. Water in low places. Goodland to Edson 979 only 2 grackles (971 striped skunk rd kill, corn blighted and stocks without leaves. 972 striped skunk rd kill). Edson to Brewster 988. 4 barn swallows only. Brewster to Lavant Road 998 2 swallows. Lavant Road to Colby turnoff 75006. 3 swallows, 1 lark bunting, 2 Eng sparrows. Colby to Mingo road 014. no birds. Mingo road to Oakeley turnoff 022. 2 meadowlark + 1 small bird. Oakeley turnoff to E split Oakeley 027 no birds. E split Oakeley to Campus road. ⁰³¹ no birds. (032 first 13-lined g sparrow) Campus road to Grinnel 037. 1 Eng. sp., 2 swallows. Grinnel to ^(just road) Grainfield 045 1 mourning, 1 meadowlark, 1 Eng sp. Grainfield to Hokie 047 no birds. (day without clouds, wind slight from N and temp. cool.) Hokie to Park 051 no birds. Park to Quinter 058 no birds. Quinter to Voda 071 no birds. Voda to Wakeeney 078 no birds. Wakeeney to Ogalla 086 no birds. Ogalla to Ellis 096 2 mourning doves. (time 2:00 P.M., 101 redtail.)

109 Ellis to Ft Hayes 109.	3 crows, 4 swallows, redtail previously mentioned.
Ft Hayes to Ft Hayes exit east 110.	1 western kingbird.
Ft Hayes to Walker road 123	no birds.
Walker Road to Gorham 126	no birds.
Gorham to Russell 131	2 mourning doves. (131 badger rd. hill).
Russell to Russell (second exit 133)	no birds.
Russell to Bunker Road 143	4 barn swallows (redtail hawk 143).
Bunker Road to Dorrance 149	no birds. (3:00 P.M.)
Dorrance to Wilson 155	no birds.
Wilson to Sylvan Grove 159	2 starling, 3 swallows.
Sylvan Rd to Vesper 162	no birds.
Vesper to Ellsworth 168	2 barn swallows.
Ellsworth to Lincoln 171	no birds. (lost 10 miles beginning of first clouds in sky. Temp. ^{83°F} still cool.)
Lincoln to 156 to S 174	2 mourning doves. (ponds are full and country side is green.)
156 S to Glendale 187	2 mourning doves, 5 swallows.
Glendale to Colver 192	1 eastern kingbird.
Colver to Trenton Rd. 198	4 barn swallows.
Trenton Rd to Solomon 215	7 barn swallow, 2 Eng sparrows. (young trees, mostly junipers moving into prairie.)
Solomon to Talmage 221	1 quail, 2 mourning doves, 4 barn swallows.
Talmage to Abilene ^{2:15 turnoff} 224	1 Eng sparrows.
Abilene to Enterprise 230	1 mourning dove. Temp 85°F
Enterprise to Wakefield 234	1 mourning doves, 3 swallows (5:00 P.M.)
Wakefield Milford Res 239	3 Eng sp, 1 m. dove, 4 swallows.
Milford Res to Marysville 244	no birds
Marysville to Smoky Hill River 247	no birds.
Smoky Hill to Clark's Creek 252	5 Eng sparrows.
Clark's Creek to Mc. Dowell 256	no birds.
Mc. Dowell to Manhattan turnoff 262	None 1 mourning dove, one meadowlark, 1 night hawk.
Manhattan to Wabounee Rd. 272	5 swallows, 2 m. doves, 2 m. larks,
Wabounee to Warnego 275	5 Eng sparrow.
Warnego to Papico 280	no birds
Papico to Eskridge Rd 289	3 barn swallows + 2 Eng sparrows.
Eskridge Rd to Valencia Rd 298	2 m. doves, 4 Eng. sparrow, 4 swallows and 1 green heron).
Valencia Rd to highway 4 to Eskridge 301	no birds
Highway 4 to Eskridge to 470 to S 303	50 Eng. sparrows no one group.

4705 to Topeka Avenue 310 3 Eng Sparrows, 35 Starling, 1 grackle.
 Topeka Avenue to Douglas Co. line 320. 3 swallows, 8 swallows,
 2 Eng Sparrows, 5 Eng. Sparrows, 2 swallows, swallow,
 2 Eng Sparrows, 2 swallows, swallow,
 Douglas Co. line to Still 323. 2 swallows, 4 swallows,
 swallow, 3 swallows, 2 Eng. Sparrows, 3 swallows,
 Still to Lawrence City limits 333 5 swallows, swallow, 3
 bluebirds (eastern), 2 swallow, swallows, 2 starling,
 swallow, swallow, swallow, chimney swift. 2 swallow,
 2 m. doves, meadowlark, meadowlark. End of census.

Arrived home (402 Yorkshire Drive) at 7:45 P.M. at 75335.

All observations were from Interstate 70 and on South side of road. In summation: birds from Kansas line to Topeka are: (From Topeka to Lawrence census, ^(and not included in summary) not an equivalent interstate conditions but show influence of county road on community.)

barn swallows	62
redtails	2
lark hunting	1
Eng. Sparrows	80 (of which one group of 50)
grackles	4
Western Kingbirds	1
eastern Kingbirds	1
mourning doves	19
meadowlarks	6
night hawk	1
sparrow hawk (rd hill)	1
Crows #	2
starling	37 (of which one flock of 35)
	<u>216</u> total
	217
badger rd hill	1
striped skunk rd hill	2

The fact that there are more birds on the county road (not included in the above summation) would indicate an impact of birds by interstate highways by perhaps killing of birds and by excluding birds by noise and excessive motion or even a change of community adjacent to interstates. Wet year and cyclic low are important factors. miles covered this trip is 3,292.

402 Yorkshire Dr., Lawrence, Douglas Co., Kansas

Aug. 27, 1973

noted a mississippi kite NE of home (2/10 mi.) circling above what would be the Hallmark pond. After circling about 6 times it flew and sailed in a straight course to the SE out of site. It was an adult with black tail (long and fanlike in certain positions). The grayish white of throat and part of chest was noticeable. Time 5:30 P.M. (in Colorado).

Merlin Tuttle reported that he saw a navigator shrew leave the edge of a rocky road bed bordering a lake (#2500 ft elev) and attach a trout (15") which was swimming with its back out of water. The shrew ran across the water instead of swimming. He also reported (12500 ft.) 2 days of heavy mosquito populations followed by their disappearance when Myotis valans came into the area for 2 days.

Lake View, Douglas Co., Kansas

Sept. 1, 1973

made trip on railroad tracks from city waterworks to Lake View leaving at 9:05 A.M. Slight rain at beginning. 32 chimney swifts above trees (large cottonwoods in River Park area, proposed). When rain strikes swifts, they fan their tails. Another flock of 30 circled up river. Mourning dove and blue jay Turnpike bridge at 10:00. Between here & Calgary turnoff noted cardinal, house wren, brown thrasher, green heron, eastern kingbird (3), grackle. 10:20 Calgary ^{spelling?} turnoff. Birds beyond to Power Plant are 4 mourning doves, redheaded woodpecker, Carolina wren, 85 starling, Baltimore oriole, 6 mourning doves. A kingfisher at bridge W of plant. On N side of tracks in marsh beyond Lake View lake were approx. 200 cliff swallows, hunting in close formation above the vegetation. This trip has been up a selective census of birds except mourning dove which represent total number observed. These numbers are in agreement with the general condition of few birds this year.

Perry Reservoir, Jefferson Co., Kansas

Sept. 2, 1973

Fished the first 1/2 way stretch of dam from curve on W to the east and caught the following small fish (flies).

9:00 - 9:30 1 bluegill (102 mm). 9:30 to 10:00 2 bluegills (115 and 122 mm) 10:00 to 11:00 1 green sunfish (105 mm). 11:00 - 11:30 yellow spotted

sunfish (130 mm). Day cool, low overcast with rainlike ^{clouds,}

Lawrence, Douglas Co., Kansas

Sept 14, 1973

First sign of autumn color. Photo 730914-1 of pond in front yard.

Sept 21, 1973

Evident change of color in leaves.

Lake View, Douglas Co., Kansas

Sept. 23, 1973

Collected a natrix from N end of west arm of lake. It measured body 805 mm, tail 190 mm, weight 462 gms. Its number is 730923-1. It was feeding on 3 crappie fish that I had on a stringer in water at edge of lake. It had pulled the fish out of the water.

Lawrence, Douglas Co., Kansas

Sept 23, 1973

Dr. Beatrice Lins. of Watkins Student Hospital at the University of Kansas reports: A bald eagle had a large nest of a single young on Gold Island in Lake Vermillion, Canada, on July 1, 1973. There were no young in this same nest last year. The bald eagle has replaced 3 osprey nests with their own.

Sept 24, 1973

Had enlarged 23 Kodachrome^{5x7} (35 mm) of pictures taken June 15-16 and 17 of this year of the Cretaceous excavation of Tielins. Also one 11x14 of Mary at Snowbird in Little Cottonwood Canyon below Alta, Utah. (made by Eastman). Also tried a few 8x10 of scenic shots as trial runs.

Oklahoma, Kansas trip

Sept. 29, 1973

Made trip from Lawrence, Kansas to Norman, Oklahoma via turnpike. Will keep ^{complete} list of birds ^{and mammal} enroute. Left at Lawrence S turnpike gate at 76675 mileage. Sky overcast but some blue showing thru. 676 coyote road kill. 677 striped skunk road kill. Estimate 80% of trees in natural forests are turning ^{yellow} color with a few showing red. 2 crows, bluejay, redtail, bluejay, bluejay, 700 Towhee

turnoff and now to south. 8 starling, bluejay. 711 striped skunk road kill. 716 racoon road kill. 719 Coopers hawk. 733 opossum road kill. 735 mourning dove. 743 turkey vulture. 746 racoon road kill. 747 Neosho River, sparrow hawk. 749 Emporia, 12:30. In field of Cottonwood Creek bottoms noted a large flock of 500 barn swallows and a group of approx. 100 starlings. 751 Cottonwood River. The fields are flooded. Approx. 3,000 grackles, ⁸⁰⁰ redwings and ²⁰⁰ cowbirds. Also a chimney swift. 2 swallows, 8 swallows, 4 swallows, mourning dove, 3 swallows, 2 mourning doves, 2 mourning doves. 765 Cattle Pens, sparrow hawk. 775 racoon road kill, sparrow hawk. 777 redtail. 786 turkey vulture. 800 chimney swift. 801 sparrow hawk. 804 Eldorado 806 12 crows chasing a redtail. ⁰⁷ 807 4 blackbirds (redwing) ⁰⁸ 808 12 redwings, 8 starling. 809 8 crows, meadowlark, mourning dove, crow 811 Whitewater River. not in flood stage but has been high, chimney swift. 819 Coopers hawk. Arrived Wichita and left 827 at 3:15 P.M. Arkansas River flooding, yellow-shafted flicker, shrike, swallow, 847 scissortail flycatcher. Ninnesah River in flood. 8 grackles + a flock of 20 starling, ^{8 Eng. sp.} 859 scissortail flycatcher. 30 starling. 860 redtail. 860 3 scissortail flycatchers, bluejay, meadowlark, 2 mourning doves. 866 striped skunk road kill. 867 2 scissortail flycatchers. 869 meadowlark. 877 Oklahoma state line at 4:10 P.M. 877 redtail, mourning dove, cottontail road kill. 883 Chicasqui (sp). River flooding, mourning dove, mourning dove, 898 Salt Fork Arkansas River. flood stage. 4:35 P.M. 912 Redrock River out of banks, 2 mourning dove, 917 meadowlark, mourning dove 920 redtail 921 redtail at Black Bear Creek, 5 grackles, 60 starling, 60 grackles + redwings, meadowlark. 937 opossum 945 Cameron River. 959 3 crows, 968 cottontail road kill at Edmund turnoff 971 Oklahoma City limits, 5 starling. 980 sparrow hawk. 984 N. Canadian River + end of census at 6:05. Norman at mile 002. at 6:30 P.M. Stayed ^{for evening} ~~in~~ ^{warmer} at residence of Gaylord Gilles and Grace, later drove to Warner, Okla and stayed in motel. 77147 at 10:00 P.M.

~~Warner~~
Warner, Oklahoma

Sept. 30, 1973

on 69 to 59 in

Left this A.M. ^{from} eastern Oklahoma thence N. ~~to~~ Kouses, leaving at 8:10 A.M. At Warner 5 scissortail flycatchers on roof and wires at motel, 2 more on outskirts of intersection. mockingbird and 3 starling. 3 starling, scissortail, starling,

swallow, 2 starling, 2 starling, 2 starling, 152 first over
 n of Warner, crow 153 martin, seven starling, 12 redwing
 50 swallows, crow, 5 starlings, crow, scissortail flycatcher.
 meadowlark, 8 swallows, 2 swallows, cowbird, meadowlark,
 5 starling, 2 redwings, 2 crows, 2 starling, 20 starling, 4 starling
 2 grackles. Highway 64 at 164. 4 starling, 4 starling, 4
 starling, meadowlark, 8 starling (Eng. sparrows not being
 counted but few at farmhouses), 168 muscota and
 noted few grackles, starling in city area. Scissortail
 flycatcher. Eng sparrow group up to 100. shrike, 8 starling
 161 Arkansas River going down from flood stage. Cowbird,
 grackle, scissortail flycatcher, 3 crows, crow. 171 Turnpike
 2 groups grackles one 20 + one 40. Scissortail flycatcher.
 4 grackles, 4 starling, cottontail road kill, Crow, 4 starling
 182 Gibson. 5 starling. Starling mainly at farm houses
 or cities. 5 starling, 16 starling, 8 swallows. Swallows
 mainly in flat river valleys. 2 starling, 2 starling, 14
 starling, 5 starling, 1 meadowlark, 8 swallows, scissortail
 flycatcher. Opossum road kill. 3 starling, 10 starling.
 Opossum road kill. 2 crow, 4 starling, 2 starling. 197
 Choto. 5 starling, 9 grackles, 3 starling, 206 Prior.
 striped skunk rpt. kill, scissortail flycatcher, 40
 starling, 10 redwing, scissortail flycatcher, 2 starling,
 3 mourning dove, meadowlark, 2 starling, 2 scissortail
 flycatchers, 4 starling, 2 starling, mourning dove, 3 morn-
 ing doves, scissortail flycatcher, starling. 214 Hiber (sp)
 2 meadowlarks, meadowlark, 4 grackles, scissortail
 flycatcher, flycatcher, 2 swallows, meadowlark, 2
 starling 223 Big Cabin, 2 starling, swallow, 3
 starling, 4 starling, 2 bluejay, shrike, meadowlark,
 8 barn swallows still flying under road culvert. Red-
 wing. There is an increase in monarch butterflies.
 and all flying south. 234 Veneta (sp). on highway 2
 235 sparrow hawk, 5 starling, raccoon road kill
 mockingbird 244 Pyramid Corners, 18 starling, 5
 starling 250 W. Loughby (sp) 20 starling, mourning dove,
 starling, redwing, 18 starling, mourning dove, 2 grackles,
 starling 256 redtail hawk. 258 Elm Creek.
 259.3 Kansas state line at 11:00 A.M. Closely packed
 cumulus clouds and blue sky between. Cool outside
 and wind. Shrike. 262 Chetopa. grackle, 8 starling.

monarch butterflies solitary, 2 case where 2 were
 traveling together, starling, bluejay, 2 starling, 271
 Oswego. 274 local abundance of monarch butterflies
 Redtail hawk road kill, bluejay, 20 redwings, 8 swallows
 2 crows. 276 Libette Creek (sp). high but now low.
 Crow, will keep census of monarch butterfly in '110 of
 miles for a few miles starting at 79.0. 79.2, 79.6, 79.7,
 79.9, 80.1, 80.1, 80.3, 80.4, 80.7, 80.8 (junction 96-59), 80.9,
 80.9, 91.4 (bluejay, meadowlark, starling) (yellow-shafted flicker),
 93.1, 93.1, 93.3, 94.6, 94.7, 95.4, 95.9, 96.1, 96.5, 96.6, 97.0,
 97.2, 97.5, 97.5, 97.7, 97.9, 98.0, 98.0, 98.5, 98.9 (roosevelt road kill)
 99.4 (Parsons City limits) and end of butterfly census or 30 individuals
 or approx 1 1/2 per mile. Starling. ~~291~~ ²⁹¹ Parsons. ^{11:35} Some
 trees turning red, some yellow. 5 starling bluejay, 6 starling, 2
 bluejay. 296 redtail 300 box turtle (live), 5 swallows (swallows
 mainly barn swallows 305 Neosho River still in flood
 stage. 20 barn swallows. Fields flooded. 306 Geary.
 Approx 80 swallows over water, 25 starling. Monarch
 butterflies about same as last census, 80 redwings,
 meadowlark, shrike, 2 redtails 300' apart, 5 meadowlarks,
 3 starling and seven swallows, 3 swallows 312 scissortail
 swallow. 313 sparrow hawk, 5 swallows, sumac red,
 mourning dove, Opasum road kill, 7 mourning dove. 317
 Cainville River, shrike. 320 sparrow hawk, meadowlark,
 mourning dove, shrike, starling, 8 cowbirds, 30 swallows,
 mourning doves, 327 sparrow hawk, starling, 20 starling,
 20 swallow, 2 swallows. 330 Moran 12:30 scissortail flycatcher
 3 starling 342 ~~meadowlark~~ meadowlark, 3 grackles, shrike, 346 Kincaid
 46 monarch in one mile just 2 miles west of Kincaid and
 greatest aggregate so far. This continued to Love Elm. at mileage
 350. 2 scissortail flycatchers, 5 starling. Birds are becoming
 fewer as we travel north. 355 turkey vulture. 358 junction
 149-69. 360 turkey vulture. 363 Garnett. Started to rain.
 15 starling 368 redtail, 60 starling, 2 grackles. 375 mourning
 dove and rain starting to stop. Coyote road kill and 2
 mourning doves. 379 ~~Pingston~~ ^{Pingston} ^{snout & blue} ~~Pinston~~ ^{Pinston} (sp) 2 mourning
 doves. 384 200 ~~canadian~~ ^{canadian} geese flying E. 385 I 35
 underpass. 389. Ottawa, mourning dove, mourning dove,
 5 mourning doves and 1 starling, starling, 4 grackles. monarch
 still flying across road. 395 now rain. 2 mourning doves
 bluejay. 400 end of rain, meadowlark. 404 sparrow hawk

crow. 408 Wakarusa River on 59 highway, end end
 of census, ^{at 2:10 P.M.} Arrived home at 77415 at 2:15 P.M.

Summary.

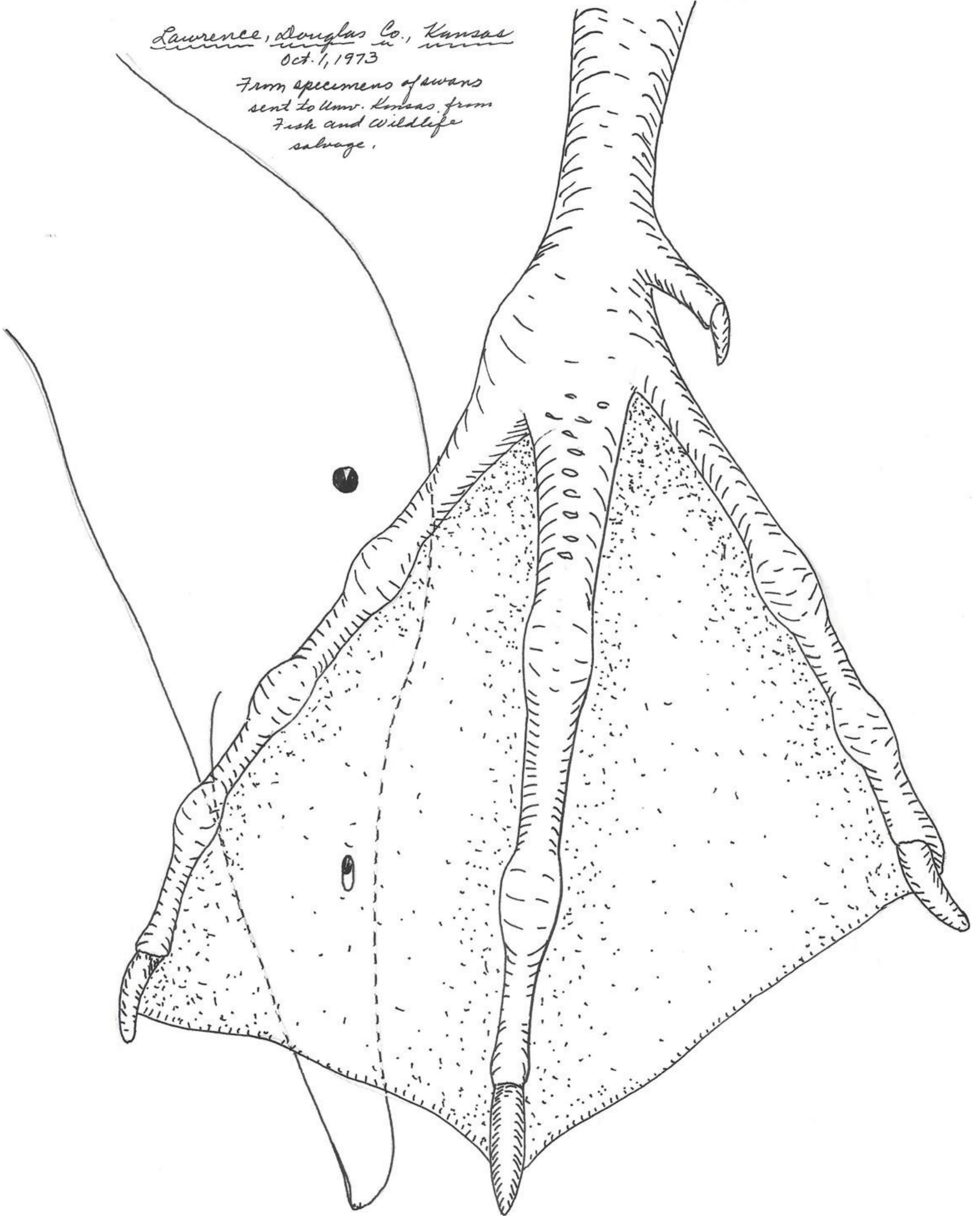
	and mammals	Birds from Lawrence to Norman, Oklahoma via Turnpike	Birds + mammals from Warner Okla to Lawrence
Coyote road kill 1			1
striped skunk rd kill 1-1-1			1-1-1
crow 2-12-8-1-3-			1-1-1-2-3-1-1-2-2-1-
blue jay 1-1-1-1-1			2-1-1-1-1-2-1-
redtail 1-1-1-1-1-1-			1-1-1-2-1-
starling 8-100-8-20-30-60-5			3-3-1-2-2-2-7-5-5-2-20-4-4-4-4-8-20-8-4-4-5-5-6-2-2-14-5-3-10-4-2-5-3-40-2-1-2-4-2-1-2-
raccoon rd. kill 1-1-1-			1 2-3-4-5-18-5-20-1-18-1-8-1-2-1-1-5-6-25-3-1-1-20-3-5-15-60-1-1-
Cooper hawk 1-1			
oposum rd kill 1-1-			1-1-1-
mourning dove 1-1-2-2-1-2-1-1-1-2-1-		3-1-3-1-1-1-1-1-2-2-1-1-5-2-	
turkey vulture 1-1-			1-1-
sparrow hawk 1-1-1-1-1-			1-1-1-1-1-
barn swallows 500-			8-20-
grackles 3,000-8-5			2-15-1-20-40-4-9-4-2-1-3-2-4-
redwings 800-4-12-20-			12-2-10-1-1-20-80-
cowbirds 200			1-1-8-
swallows -2-8-4-3-1			1-50-8-2-8-8-2-1-8-5-80-7-3-5-30-20-2-
chimney swift seen 1-1			
meadowlark 1-1-1-1-1			1-1-1-1-1-2-1-1-1-1-1-5-1-1-
yellow shafted flicker 1			1-
loggerhead shrike 1			1-1-1-1-1-1-1-
scissortail flycatcher 1-1-3-2			5-2-1-1-1-1-1-1-1-2-1-1-1-1-1-2-
Cottontail rd kill 1-1-			1-
mockingbird			1-1-
purple marten?	1-		
box turtle	1-		
snow geese (+ blues)	200		

↑
 major turnpike route

↑
 Regular highway route

Lawrence, Douglas Co., Kansas
Oct. 1, 1973

From specimens of swans
sent to Univ. Kansas from
Fish and Wildlife
salvage.



98-6161

Lawrence, Douglas Co., Kansas
~~Lawrence, Douglas Co., Kansas~~
 Oct. 1, 1973

Chimney swifts in good numbers especially in the center of town along Massachusetts Street between 6th and 9th street.

Oct 2, 1973

Grackles flocking near home in last four days. Noted a great blue heron flying E above Peterson road at about Iowa Street.

Perry Reservoir, ^{Jefferson} Lawrence Co., Kansas
~~Perry Reservoir, Lawrence Co., Kansas~~
 Oct. 7, 1973

Checked high water. at marina at headquarters the water was at top of rock jetty w of marina and 1/2 way up building on ramp approach. Both roads inundated to marina.

At Ozarkie noted 12 ring-billed gulls. Chimney swift near bridge. also turkey vulture and barn swallows. An opossum road kill measured 18". Some fall colors in native forests

Lawrence, Douglas Co., Kansas
~~Lawrence, Douglas Co., Kansas~~
 Oct 13, 1973

Photo 731013-1 of Kaw River below Massachusetts bridge on S side. The water had been 5 feet higher the previous day.
 Photo 731013-2 tels of water below bridge.

Perry Reservoir, ^{Jefferson} Lawrence Co., Kansas
~~Perry Reservoir, Lawrence Co., Kansas~~
 Oct. 13, 1973

Photos of reservoir at high water.

Photo 731013-3 Outlet showing water at 916 feet.

Photo 731013-4 from top of round knoll east of marina showing high water. A spotted towhee + yellow bellied sapsucker on top of this knoll.

Photo 731013-~~4~~⁵ ibid

Photo 731013-6 marina with stationery building submerged and lamp post reflectors just showing.

Photo 731013-7 guest house with water to base, west side.

Photo 731013-8 ibid, east side

Photo 731013-9 " " "

Ozarks, Missouri
~~Ozarks, Missouri~~

Oct. 20, 1973

Spent ³ days in the Ozarks of Missouri and Arkansas. Left Lawrence at mileage 77826 at 11:15 A.M. Annette P + I made trip.

Objective was to check on fall colors in the 731020-82
Will keep selected observation (all raptors ^{marks} recorded). First
redtail at Harrisonville, Missouri. Day clear. There are
more crows in this part of Missouri than in eastern Kansas
along our route of travel. (Buddwin, Olathe, thence across E to
highway leading thru Harrisonville. 929 first redheaded
woodpecker. 935 2 redtails. 47948 Clinton, 3:15 P.M.
963 redtail. Continued S + E and after visiting Bennett Springs, ^(marmoset feeding in park lawn)
continued to Lebanon where we stayed in a motel. 78073.

Lebanon, Missouri

Oct 21, 1973

Left at 9:00 A.M. and travelled scenic route 5 into Arkansas,
113 first turkey vulture observed so far. 139 turkey vulture.
(at Ava and now to W. 141 turkey vulture at 76 + KK. 142
turkey vulture. 143 at Loods Limited (a creek). 146 Roy
and a black tern. 150 2 turkey vultures. Crows in groups of
1-8 every 4 or 5 miles. 153 Beaver River. Birds most frequently
of observed are bluejay, bluebird, shrike. 162 Fox squirrel and
first pileolated woodpecker. 180 ~~Protem~~ ^{Protem} (sp?), bluejay most
common bird and observed flying across road. 182 turkey vulture.
266 Silver Dollar. Approach from the S via scenic route. Visited
underground cave. The cave shows evidence of river erosion
rather than solution formation. ~~Left Cape Fair (SE) 78284~~
~~at 9:10 P.M. 78311 Flat Creek Cassville (sp.?) at 9:35 P.M. 372~~
~~Stayed at motel overnight.~~ Continued W to Cape Fair where we remained
Flat Creek, Cassville, Missouri, overnight along lakeshore in
a motel. Operator informed

Oct 22, 1973

~~Left in considerable fog~~ us that the color season was usually at this
~~continued W to Cape Fair where we stayed in motel~~ time but this year is 2 1/2 weeks late.

Cape Fair, Stone Co., Missouri

Oct 22, 1973

Left 9:10 P.M. at 78284. Considerable fog in hill country. 78311 Flat
Creek at Cassville at 9:35 P.M. 372 N of Carthage, red tail hawk.
399 redtail. crossing 126 highway and redtail 1/2 mile beyond.
400.5 Kansas state line on 126 highway, thence N 69. 430 redtail.
458 Bronson, redtail. 463 Moray + now N on 59, redtail. 12:40
474 redtail. 483 redtail. 78584 Lawrence at 3:00 P.M.

Lawrence, Douglas Co., Kansas

Oct 28, 1973

Grackles in large flocks and common in area.

Wakarusa River, Shawnee Co., Kansas

Nov. 1, 1973

Collected a Lasmogonia complanata just east of the city of Wakarusa

Lawrence, Douglas Co., Kansas

Nov. 8, 1973

I would consider this date as the maximum overall brilliance of autumn color in trees (within city).

Lawrence, Douglas Co., Kansas

Nov. 12, 1973

Along street between Summerfield Hall and Robinson gymnasium for approx 2/10 miles, all leaves were off trees (elms) on north side of road and leaves of the sycamores on south side were still on trees, although greenish brown in color.

Lawrence, Douglas Co., Kansas

Nov. 15, 1973

Consider this date as being the maximum color (red) of the firebush (between Murphy Hall and the field house).

Nov 19, 1973

The bright ^{red} leaves of the firebush are off the bushes and the few remaining leaves are a dull yellowish red. There are ^(in city) still maple trees with yellow leaves. The red leaves left approx 2 weeks ago. On the same individual tree the leaves are first red and then followed by yellows. Oak trees of deep red leaves stand out among the leafless trees and at this date a just beyond maximum intensity of color. As one looks over the city residential area from, say, Mt Oread, approx. 80% of the trees are leafless with just a few with greenish-yellow leaves and these are becoming dry. This year of copious rains has delayed the color of leaves by approx. 2 1/2 weeks. The period of color has been lengthy and well synchronized, starting out gradually but then producing the best season of overall color. Oaks have been especially bright. This year has produced more color at one period than last year but color were not as brilliant as last year. Leaves left trees more gradually, without drying and over a longer period of time than in previous years.

Perry Lake, Jefferson
Lawrence, Douglas Co., Kansas

Dec. 9, 1973

made several photographs of the lake area. (over)

On trip from Lawrence to Perry Lake noted:

1 redtail
6 sparrow hawks
5 marsh hawks

at Perry Lake noted:

1 pied bill grebe
10,000 mallard ducks
30 ring-billed gulls

A large bull frog (approx 3 1/2" body length) was on soil along splash zone of waves. It was alive but barely moving. Many small (3") fish were dead and thrown on the beach in some area



Photographs are:

731209-1 outlet gates on dam showing water level.

731209-2 marina at east end of dam taken from head of stairs showing normal level. Lights in flood period were just above the water level.

731209-3 W side of lodge for comparison with picture taken during flood stage.

731209-4 E side lodge at marina

731209-5 Waves at boat ramp (at area where frog ^{above} was observed)

Lawrence, Douglas Co., Kansas

Dec. 9, 1973

at 402 Yorkshire Dr. photo 731209-6 of snow in backyard from picture window.

Lawrence to Lake View, Douglas Co., Kansas
Dec 22, 1973

Christmas census from W end Kentucky Street to Lake View
via Santa Fe railroad tracks with lateral deviations.

Left 9:15 A.M., day clear, temp 35°-46° F, wind from S. Will keep
complete record: 11 ring-billed gulls, 45 Eng Sparrows, 2 slate-
colored juncos, 2 starlings, 3 starlings, robin, muskrat, Wilson
snipe, 8 crows, red bellied woodpecker, 2 blue jays, robin, Hawk
River. Open with ice on edge. Floating ice rare. Song sparrow,

In the proposed park area the city is cutting and bulldozing trees,
developing better roads and clearing in general. This should be
stopped and any change should be governed by a board of qualified
citizens interested in natural park settings. I would recommend.

1) no roads in area (including service rds to wells), no tree to be cut.
no clearing.

In one group of small birds at west end of park at
tracks noted. 13 Harris sparrows, 50 juncos, 12 tree sparrows,

1 downy, 2 titmice, 2 black-capped chickadees, 9♂ + 3♀ card-
inals. Left park at 10:10 4 tree sparrows, 6 tree sparrows,

2 slate colored juncos, 2 slate-colored juncos, 5 slate-colored juncos.

10:30 at turnpike underpass. Redtail, 35 tree sparrows, 2 song
sparrows, 1 hairy. 10:40 first road from S. 10 starling, 3 starling

field to ^E with 20 or so sets of gopher mounds, loggerhead shrike.

In corn field near wood ^{led} river ^{To W.} hillside, noted a large aggregation of
80 starling, 5 redwings, 1 redtail, spotted towhee, 2 flickers, 32

♂ + ♀ grackles, 22 tree sparrows, 18 Eng. sparrows, 13 meadowlarks,

20 slate-colored juncos, 15 cardinals, 1 downy, 12 Harris sparrows,
3 song sparrows, 2 blue jays, 8 quail. 11:10 Callery Plant

1 redwing, 2 slate-colored juncos, 16 starling, 30 tree sparrows,
1 meadowlark, sparrow hawk, redtail, Left tracks and to E to river

in riparian growth. Birds rare and noted 1 hairy, 2 chickadees,
great horned owl, 3 mallards 1?, winter wren, flicker, 12 bobwhites,

3 crows, 12 juncos. Returned to tracks at convergence of riparian
growth and hillside at 12:15. In one flock on sunny side of

tracks noted a group of 90 tree sparrows, 12 cardinals, 18 cowbirds,
6 chickadees, 2 downy, 1 starling, 3 white-throated sparrows,

18 Eng sp. 15 Harris sp, 22 juncos, 1 brown creeper, 3 titmice, downy,
2 song sparrows, 2 fox sp., at man draw near KPL brown

creeper, winter wren, 2 goldfinch, 2 ring-billed gulls. at drainage
from KPL 1 swamp sparrow near cattails. In ponds W of plant 42

greater scaup. 33 mourning doves at edge of ponds ^{river}
2 crows. These ponds could be important winter water for ducks.

at Kaw River beyond County road noted 29 ring-billed gulls

1 sparrow hawk. In fields 8 horned larks, 25 Lapland longspur.
 2 crows. Along tracks at lake crossing (R.R.) 8 crows, 2 song
 sparrows, redtail (light) 2 starling, 18 Eng sparrows, 2 redtails,
 2 bluebirds, 2 shrikes, 1 mockingbird. Arrived car 1:45 at
 old dehydration plant N of Lakeview. Mammals were 5 fox
 squirrels, numerous cottontail tracks in woods, fox + coyote along
 river. 2 muskrats

Summary:

ring-billed gull 11, 2, 29 = (42)

Eng sparrow 45, 18, 18, 18 = (109)

slate-colored junco 2, 50, 2, 2, 5, 20, 2, 12, 22, = (117)

starling 2, 3, 10, 3, 80, 10, 6, 2, = (117)

robun 1, 1, 2, = (3)

wilson's snipe (1)

crows 8, 3, 2, 8, = (21)

redbellied woodpecker (1)

blue jay 2, 2 = (4)

song sparrow 1, 2, 2, ~~2~~ 2, 3 = (10)

Harris sparrows 13, 12, 15, = (40)

tree sparrows 12, 4, 6, 35, 22, 30, 90, = (199)

downy 1, 1, 2, 1, = (5)

titmouse 2, 3, = (5)

black-capped chickadee 2, 2, 6, = (10)

cardinal 12, 15, 12, = (39)

redtail 1, 1, 1, 1, 2, = (6)

song sparrows 2, 3, = (5)

hairy woodpecker 1, 1, = (2)

loggerhead shrike 1, 2 = (3)

redwings 5, 1, = (6)

spotted towhee (1)

a yellow-shafted flicker 2, 1, = (3)

grackles (32)

meadowlark 13, 1 = (14)

bobwhite 8, 12, = (20)

sparrow hawk 1, 1, = (2)

great horned owl (1)

mallard (4)

winter wren 1, 1, = (2)

cowbirds (18)

white-throated sparrow (3)

brown creeper 1, 1, = (2)

fox sparrow (2)

swamp sparrow (1)

goldfinch (2)

greater scaup (45)

mourning dove (33)

horned lark (8)

Lapland longspur (25)

eastern bluebird (2)

mockingbird (1)

41
 47 species 954 total

Perry Reservoir, Jefferson Co., Kansas

Dec. 29, 1973

Annette M Bee and I checked Perry Reservoir this A.M. & P.M. Left Lawrence at mileage 011.9 at 10:30 A.M. Will keep record of different kinds of birds to Perry via Lakeview - Leecompton road. Day clear, cold. Black-capped chickadee, 20.1 redtail, 21.2 redtail, starling, 21.5 redtail, 21.8 redtail, 8 crows at river and 2 ring-billed gulls flying up river, 22.3 sparrow hawk, 22.6 sparrow hawk, 23.0 Lakeview causeway. Lake frozen except under bridge. Canal leading from lake open. Eng sparrow, meadowlark, cardinal. Beginning of road along hillside & river. Kaw River open. Snow on road and a fraction of one per cent elsewhere. Red-bellied woodpecker, titmouse, bluejay, yellow-shafted flicker, 30.4 Leecompton bridge, redtail here. 33.6 redtail, 35.4 sparrow hawk. Continued to Thompsonville to top of ridge. 37.9 west end of dam and beginning of lake side road. Will keep complete record of birds. In SW corner of lake noted 30 mallards, single ♀ American merganser, 3 ring-billed gulls. Several thousand ^{generally dispersed} mallards, to E and will check this number when in that area. Lake open and all the appearance of spring in March. Lake calm & blue. 2 Bluejays, yellow-shafted flicker, 39.1 promontory turnoff. Will check this area. 26 American mergansers (mainly ♀♀) left bay to N and 30 remained until closer examination. Mergansers left before mallards of which there were 35 in small groups. ^{Returned to main road and} continued N. 3 mergansers and 7 mallards along open lake. In bay at 41.2 8 mergansers and 5 mallards. 41.6 crossing head of bay. 42.4 base of hill (opposite trailer camp site) 42.7 redtail. 44.0 redtail, 44.4 leaving main road now excursion to E. 44.6 redtail. 46.4 causeway bridge. Bay to N frozen in thin ice. 8 goldeneye, 20 mallards, 7 gulls (ring-billed), 4 ♀ Am. mergansers. 49.0 back to main road after excursion to E. (Wind & Waves). 50.0 redtail, 8 tree sparrow, 2 bluejay, 8 Eng sparrow. Small birds extremely rare along way. 55.0 main road E to Ozawie, sparrow hawk, striped skunk road hill. 56.4 redtail. 56.6 Ozawie, Ice N of bridge ice south of bridge but several open areas. Approx 60 mallards in open areas. 57.7 redtail. 59.0 now to S. 59.5 redtail. 60.0 redtail. 61.1 redtail at turnoff to W (toward Apple Valley Farm area). 65.1 marsh hawk. 62.4 sparrow hawk. 63.4 to W at Apple Valley Farm for Lake Circuit. redtail. From lake can see (boat marina to NW) approx 900 ♂+♀ American mergansers (most ♂♂ ~~are~~ in Perry lake area are in this group, in other words the ♀♀ are the ones to leave the main winter group and disperse to other parts of

the lake as small aggregates. 100 mallards and 30 ring-billed gulls in same area, the gulls following the mergansers in close reaction with the mergansers. There could be other kinds of birds in this group that the 60x scope could not detect. Returned to Apple Valley turnoff and continued S. At bay noted 28 ring-billed gulls and 3 Herring gulls on edge of ice in bay. 66.2 point. 3 golden-eye and 8 mallards here. Now returning to Apple Valley. 69.0 back to main road and now to S. 71.4 redtail. 73.0 redtail. 74.6 Kingfish on Big Slough Creek Camp area along lake - 75.6 S end of above. Can see approx 20,000 mallards between here and the dam to the S. 8 tree Sparrow, 4 juncos, 2 Cardinals, redtail. 76.3 800 mallards in small bay S of boat ramp area. 76.6 boat ramp and 300 mallards in bay to E. The ducks, especially mallards are characterized by their general distribution in the lake. This is as it should be rather than localized groups formed by harassment. 77.0 redtail, ² red-bellied woodpecker. 79.1 main road. 79.2 redtail. 80.1 redtail. 80.4 redtail. 80.5. Big Slough Creek bridge. 30 ring-billed gulls, 3 Herring gulls, 12 golden eyed ducks, 40 mallards. 3 crows on ice. One redtail on ice as if feeding on carion. It flew to tree bordering the lake. 81.3 redtail. 83.4 Marma, redtail. 8.44 E end dam. One ♂ baldpate among mallards. 85.0 Perry dam outlet (N side). Water 892.5 feet. mallards generally distributed and exclusive of areas already by census would say there are 40,000 in area directly N of this segment of the dam. These are the usual winter population of ducks, ^{almost entirely mallards} but today they are generally distributed rather than in one of two large aggregates around isolated open pockets of water as has been true of previous years for this time of year. The ducks are more confiding than in previous years. Time 2:10 P.M. In this same area are approx 40 ring-billed gulls. 86.5 Sparrow hawk 86.7 SE end of Lake area now S to Perry. End of census - 87.6. redtail. 95.3 redtail. 95.8 redtail. 95.9 4 sparrow hawks on lines between two pole distances (LeCompton road paralleling turnpike). 96.2 meadowlark. 97.7 redtail. 99.5 redtail. 007 redtail. ~~01.0~~ 2 redtail 01.3 redtail 02.1 Peterson road & Kasal and end of census at about 2:30 P.M. The bird population today was characterized by lack of small bird groups (tree sparrows, juncos etc). Rivers and large bodies of water are open but small ponds in ice. One of the outstanding occurrences was the great number of redtails, mostly immatures with pure white underparts.

