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The Birds of The Raft River Mountains, Northwestern Utah

BY

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FIG. 1. North slope Raft River Mountains at mouth of George Canyon. Ecological situations shown are the sage–juniper association in the foreground, cottonwoods along the stream on far right, patches of aspens and spruce–fir forest on canyon sides and the extensive sage-covered slopes

THE BIRDS OF THE RAFT RIVER MOUNTAINS, NORTHWESTERN UTAH

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As another facet in a long-term analysis of the birds of Utah, an avifaunal survey was made in the northwestern corner of the state. Here the principal physiographic feature is the Raft River Mountains. The main axis of this range runs in an east-west direction paralleling the Utah-Idaho border immediately to the north. To the southwest lie the lower and less prominent Grouse Creek Mountains and in the extreme northwest corner of the state there is another, smaller range, the Goose Creek Mountains. The Grouse Creek Mountains run in a north-south direction, while the main portion of the Goose Creek Range runs essentially northeast and southwest and then tails off to the south along the Utah-Nevada border. Just west of the Grouse Creek Mountains is Grouse Creek Valley, which runs north and south in Utah parallel to the Utah-Nevada border. While nearly all parts of the region were visited, the Raft River Mountains received most of the attention, especially the north slope in the vicinity of the towns of Yost, Standrod, and Nafton.

The decision to study the birds of the Raft River Mountains was made early in 1947 when, in the Division of Biological Sciences at the University of Utah, it was decided to make, as a joint undertaking, an ecological and distributional study of the vegetation and higher vertebrates of the region. The interest of several graduate students was aroused in the project. Sherman Preece (1950) undertook a study of the flora and Jack Berryman (1948) the mammals. George Todd started the ornithological phase of the study and worked with Preece and Berryman during the summer of 1947. Clifton Greenhalgh noted several species of birds seen during a trip to Standrod with Preece and Berryman in October, 1947, and collected a golden-crowned Sparrow, the second record for the state (1948).

The writer's first trip on the project was in the spring of 1948 when camp was made from May 16 to 22 with several students on Clear Creek, 6,500 feet elevation, about 5 miles southwest of Nafton. Others in the party were: Richard Allen, Ian Bell, J. Miles Butler, John Downey, Larry Hill, Howard Knight, Ralph Parker, Sherman Preece, George Todd, Donald Thurston, and William Wilson. The following year a similar party consisting of the writer and Anson Call, James Harwood, LaMarr Heyrend, Ross Jensen, Ray Jorgensen, James Lords, Sherman Preece, Clark Speirs, Steve Rasmussen, Robert Selander, and Warren Tye, camped at George Creek, 6,500 feet elevation, about 5 miles southeast of Yost, from May 23 to 27, 1949.

Richard D. Porter (1955), while studying the Hungarian Partridge, spent much of the summer of 1949 at Standrod and vicinity during which time he did some general collecting and made many observations on birds. The writer spent three days from August 23-25, 1949, with Clifton Greenhalgh and Richard Porter working out from Standrod. A week was spent on Clear Creek from June 11-16, 1951, with Howard Behle, Robert Selander and Perry Woolsey. Another short visit to the George Creek area was made on May 20-21, 1954, by the writer, Norman Chamberlain, Jon Ghiselin, and Richard Wrathall. In the spring of 1955, the writer, Richard Porter and George Meyers spent May 27

FIG. 2. Clear Creek collecting site with desert shrub ecologic formation in foreground, riparian canyon floor woodland in center and pinon-juniper woodland on slope beyond.

collecting along the Raft River as far as Lynn, and on May 28 and 29 worked the Clear Creek area. With Raymond Behle and Richard Kinnersley the period from June 8 to 11 was spent at the Clear Creek area working to the tops of the mountains. The next two days were spent along George Creek.

The writer conducted another party to the Clear Creek site on May 10-11, 1956. Members were Jon Ghiselin, Norman Chamberlain, Larry Chatwin, Alton Emerson, Malin Hardy, and Gerald Smith. The final field work on the project was done by Jon Ghiselin who camped 2 miles south of Lynn, from June 14-19, 1956, and collected at both the Lynn and Grouse Creek areas.

Little previous work had been done on the birds of the area. Robert Ridgway (1877) as naturalist of the King Survey camped at the City of Rocks on October 2, 1868. This location is in Cassia County, Idaho, near Almo and about 10 miles northwest of Yost, Box Elder County, Utah. He mentions four species having been seen there, namely, the sage grouse, raven, scrub jay, and pinon jay. On October 5 while en route to Salt Lake City, Ridgway made his last observations for the year at a camp which he designated as Deep Creek which is the town of Snowville today. He lists six species (*op. cit.*: 366) as the principal birds observed here. They were the marsh wren, yellowthroat, sage sparrow, white-crowned sparrow, Lincoln sparrow, and song sparrow. Some of these may have been migrants. Davis (1935) analyzed the bird population in the vicinity of Rupert, Idaho, to the north. A more recent paper on the birds of southern Idaho is that of Levy (1950).

Dean Amadon did field work in the Raft River Mountains from September 9-18, 1941, making a base camp on Clear Creek south of Nafton. Thirty skins, one skull and the wings and tails of two specimens were obtained and presented to the American Museum of Natural History. He has allowed me to utilize the unpublished data of these specimens as well as pertinent data in the nature of sight records that he obtained. In connection with his work on the birds of Utah, Clarence Cottam made two collecting trips into the Raft River-Grouse Creek mountain areas. One was made on August 4-7, 1936, with D. I. Rasmussen. The other with Cecil Williams and Joe Peterson extended from September 17-21, 1941, and included the Pilot Peak area in northeastern Nevada. Reference is made to this trip while reporting some unusual birds from Pilot Peak, Nevada (Cottam, 1941:127). A few additional observations have been made during other years by Cottam while traveling near the base of the mountain en route to Oregon and Idaho. Following his 1941 trip, Cottam compiled all records for the Raft River, Grouse Creek and Pilot Peak ranges, and with Cecil S. Williams and Dean Amadon as co-authors, prepared a manuscript on the birds of the Raft River Mountains and adjacent areas. This was never published, however. Dr. Cottam has been most generous in loaning me this manuscript and allowing me to extract and include in this report the data on specimens taken in the Raft River Mountains as well as his sight records.

A number of birds were found in the collection of the Museum of Zoology at the University of Utah from the study area. A few were taken on a general collecting expedition in September, 1932, by members of the staff of the Biology Department (see Chamberlin, 1950:270), principally by S. D. Durrant. The others are part of a collection of birds from northern Utah made by Archie Hull in the 1930's and presented to the University. All these specimens are included in the present report. In all 639 specimens now in the University of

FIG. 3. View along lower George Creek showing a typical livestock ranch in foreground, riparian woodland of cottonwood, willow and birch at base of slope, sage-covered hills and a dense patch of montane coniferous forest at head of side draw.

FIG. 4. Canyon floor along George Creek near mouth of canyon in mid-May showing the montane riparian and canyon floor woodland. Prominent vegetative types are grass, aspens and a streamside thicket of willow and birch.

Utah collection are reported on together with sight records and ecological data. Observations made on several short non-collecting trips, principally by Porter, have also been included.

The present report is one of a series of three concerned with an avifaunal exploration of the far western portion of the state. The other studies of similar nature were made on the birds of the Deep Creek Mountains of central western Utah (Behle, 1955) and an earlier one on the birds of the Pine Valley Mountain region of southwestern Utah (Behle, 1943). The purpose of such studies has been to ascertain what birds occurred in the particular region being studied, their seasonal status and migratory movements if any; to determine their systematic relationships and the faunal origin of the geographically variable kinds; and to provide information on the ecological relationships of the species. By means of these localized studies the picture of geographic and ecological distribution of the birds in the state is gradually being revealed. A few items of systematic nature based on specimens collected have previously been noted (Behle, 1948).

ACKNOWLEDGMENTS

The success of the project was due in large part to the many students noted in the résumé of the field work and acknowledgment is made of their help. Special thanks are extended to George Todd, Richard Porter, and Jon Ghiselin. Clifton Greenhalgh of the Utah Fish and Game Department was helpful in many ways in the course of the study. Mention has been made of the help of Dean Amadon and Clarence Cottam. Dr. J. S. Stanford also furnished data on a few specimens in the collection of the Utah State Agricultural College taken in the Raft River area. Ed Rosa, former game warden, and his wife extended us the hospitality of their ranch at Standrod. The pictures accompanying the report were furnished by Sherman Preece. I am indebted to John W. Aldrich for some subspecific determinations of the birds collected by Clarence Cottam and deposited in the collection of the U.S. National Museum and for the loan of several specimens. The writer's field work was made possible for the most part by a grant from the University of Utah Research Fund. However, the last trip to the region by Ghiselin was supported by a grant from the National Science Foundation. Part of the funds from this same NSF grant have been used to help defray publication costs.

PHYSIOGRAPHY AND CLIMATE

The Raft River Mountains extend east and west for a distance of about 25 miles. They are about 8 miles wide and lie between 41° 50′ and 42° latitude and between 113° 10′ and 113° 40′ longitude. The highest elevation is 10,300 feet, while that of the surrounding basal plain is about 5,000 feet in elevation on the south and 6,000 on the north. The upper portion of the Raft River Mountains are included in the Minidoka National Forest. The geology and water relations of the area have been discussed by MacFarren (1909), Carpenter (1913), and Butler (1920). The uplift was caused by an upheaval of granite which buckled the top layers of quartzite and limestone. The limestone has been extensively eroded from the top and sides of the mountain and in places the quartzite has likewise been removed exposing the intrusive granite. The uplifted beds of quartzite dip to the north and south. While the general profile of the range is rolling, several canyons have been carved by stream

action, exposing clifflike walls of quartzite and thus giving a localized rugged effect. There has been a slight amount of carving by glaciation at the heads of some canyons. At the top of the range, in contrast to most of Utah's sharply profiled west desert ranges, there is an open, gently sloping plateau. The several canyons originate below this plateau on either side. The principal canyons on the north are Clear Creek, One Mile, George Creek and Johnson canyons. Clear Creek and George Creek canyons originate in adjacent mountain meadows, with Clear Creek flowing northeast and George Creek northwest. The largest canyons on the south-facing slope are Dove Creek, Pine Creek and Indian Creek canyons. The Raft River Mountains form part of the rim of the Great Basin, for on the north the drainage is into the Raft River which is a tributary of the Snake River. This in turn leads to the Columbia River. To the south the water flows into the Great Basin. The Pleistocene Lake Bonneville reached the southeastern base of the Raft River Mountains.

The Grouse Creek Mountains are considerably lower than the Raft River Mountains and lack a spruce-fir forest. Grouse Creek Valley ranges between 4,455 and 5,000 feet and covers about 85 square miles. It is a relatively narrow valley with wild hay pastureland adjacent to the willow-lined stream. Around the ranches are cottonwoods. Back from the valley floor in drier areas is a typical desert shrub formation grading to junipers.

In general the climatic picture of the Raft River Mountains conforms to the pattern of other desert mountain ranges in the Great Basin except for the topographical feature of the east-west axis and its effect on precipitation and temperature. Meager climatic data are available for certain towns of the region (see Martin and Corbin, 1936, and Alter, 1941) located at the base of the mountain. At Standrod, 6,000 feet elevation, on the north slope, a thirteen-year record shows the average temperature to be 45.2° F. while that for July is 67.2° F. Extremes were –18° and 95° F. At Park Valley, 5,200 feet elevation, on the south slope, a nine-year record indicates that the January average is 22.7° and the July average 72.2° F. The growing season, or period between the last frost of spring and first frost of fall is 118 days at Standrod and 130 days at Park Valley.

The annual precipitation at Standrod is 14.42 inches; at Park Valley it is 10.21 inches. Grouse Creek shows 10.79 inches. Prevailing winds bringing storms are from the northwest and upon striking the east-west mountain range more precipitation occurs on the north side. The amount of precipitation increases with elevation but how much is not known. Standrod receives 62 inches of snowfall while Park Valley receives 36.7 inches. Not only is there less snow on the south slope, but because of more direct sunlight there is faster snow melt and more rapid water run off on the south slopes. Correlated with these factors one finds considerable difference in vegetation between the north and south slopes. The vegetative types extend higher on the south-facing slope than on the north-facing slope. For instance on the south side no coniferous forest is found except at high elevations and mountain mahogany occurs nearly to the summit. On the north, the coniferous forest extends down to about 7,000 feet and mountain mahogany is found at intermediate levels. In contrast to the belting of vegetation in many western ranges, more of a pocketing of vegetation characterizes the Raft River Moutains. The situation is expressed by Preece (1950: 37) as follows: "The general dome-shaped structure of the range is the main topographic feature accounting for this fact. The steep.

FIG. 5. Looking down the north slope of the Raft River Mountains from about 8,000 feet and beyond into Idaho. The grassland formation appears in the foreground with One Mile Canyon and the cluster of ranches called Standrod in center of picture.

rugged topography typical of other ranges and causing different microclimatic conditions is found in the Raft River Mountains only in deep canyons. The general contour is rounded and gently sloping except in canyons, small draws, and pockets, and offers little opportunity for the existence of microclimates essential to the more mesophytic vegetative types." The effect of this on avian distribution is such that those forms dependent on certain vegetation types for their ecologic niches are correspondingly discontinuously distributed and individuals of some species are rare.

ECOLOGIC FORMATIONS

The usual ecologic formations of the Great Basin ranges are found in the Raft River Mountains. They have been described in detail for the Deep Creek Mountains (Behle, 1955: 9-14). In both regions the same avian inhabitants are found in each formation. The formations are therefore simply noted here along with any local peculiarities. The *Aquatic* formation is represented by permanent streams in several canyons like Clear Creek and George Creek, but the largest body of running water in the region is the Raft River. Near Lynn or Junction a reservoir exists. A few transient species were observed along these waterways but those seen probably constitute only a small portion of those that pass through the region. Not much *Marsh* exists in this arid country but at Lynn we found an approach to this formation in marginal areas of the reservoir. The *Desert Shrub* is extensive at lower elevations and the *Desert Riparian Woodland* is conspicuous along the lower stretches of the streams. The *Piñon-Juniper Woodland* at intermediate elevations is perhaps the most conspicuous formation and shows the closest approach to a belted arrangement. The *Submontane Shrub* is well represented on many exposed slopes. The *Montane Riparian* and *Canyon Floor Woodland* formation is especially prominent along George and Clear creeks with river birch predominating. The *Montane Coniferous Forest* is limited in extent, and as previously noted is essentially confined to pockets in the north-facing slopes. In addition to subalpine fir and Douglas fir, limited stands of scattered yellow pine (*Pinus ponderosa*) occur in the canyons as at Clear and George creeks.

A formation present in the Raft River Mountains but not represented in the Deep Creek Mountains is a *Montane Savanna* or open grassland found near the headwaters of the creeks and in intervening areas between the groups of conifers at approximately 8,500 feet. There was no distinctive avifauna for this formation. Horned larks occurred there and vesper sparrows. *Mountain Meadow* is sparse. On the flat top of the mountain at elevations above 10,000 feet there is an extensive treeless expanse. As far as the vegetation is concerned there is an *Alpine Tundra* here. In the rocky areas where some shallow soil has collected, one finds caespitose mats of alpine vegetation (Preece, 1950: 30) while in the deeper soil, black sage grows. In terms of avian distribution this is not different from the *Montane Savanna*. It is not even subalpine. We did not find pipits. The species common here were horned larks, mountain blue birds, and vesper sparrows, all three of which species range from the *Desert Shrub* to the mountain top. Overhead sparrow hawks, ravens, and flickers were seen.

FIG. 6. Subalpine mountain top in the Raft River Mountains at about 10,200 feet. The plant type is mainly black sage. The principal types of birds breeding here were horned larks and vesper sparrows.

COLLECTING STATIONS AND LOCALITIES

The great majority of specimens were taken at two areas. The first of these is designated in the listings of specimens simply as Clear Creek and refers to our collecting area located at the U.S. Forest Service camp on Clear Creek at an elevation of about 6,500 feet. This is on the north slope of the Raft River Mountains about 5 miles southwest of Nafton, Utah, or 6 miles southwest of Naf, Idaho. Naf is in turn situated 3 miles west of Strevell, Idaho, on U.S. Highway 30 S. From the base camp we worked in all directions by foot including Bull Flat at the top of the mountain south of camp. The second principal collecting station is referred to as George Creek and is located about 5 miles southeast of Yost. Base camp was made several times just inside the U.S. Forest Service boundary at about 6,700 feet, and in our collecting in the surrounding area we covered several ecologic formations.

Standrod is a small town at the base of the north slope, located at about the mid portion of the Raft River Mountains. Holts and Barnes canyons are two small wooded draws on the north slope of the Raft River Mountains immediately south of Standrod. One Mile Canyon lies 1 to 2 miles southwest of Standrod between the town and the summit, beyond which is George Creek. At the mouth of George Creek Canyon is the town of Yost. Johnson Creek is located on the northwest portion of the mountains about 5 miles southwest of Yost. Lynn refers to a group of ranches about 12 miles airline southwest of Yost. It is also known as Junction. The Junction or Lynn reservoir is here. Little Basin is 4 miles east of Lynn. Dove Creek extends in a southeast direction beyond Lynn and along the canyon runs a road leading to the town of Rosette at the south base of the central portion of the Raft River Mountains. Another locality on the south side of the mountain is a cluster of ranches known as Park Valley, located about 5 miles east of Rosette. Pine Creek Canyon is located about 2 miles north of Park Valley on the south side of the Raft River Mountains. The hamlet of Grouse Creek lies in the center of the valley of the same name which is located west of the Grouse Creek Mountains. Nearby, 5 miles to the southwest, is the village of Etna. Twenty-five miles south of Grouse Creek is Lucin on the Southern Pacific transcontinental railroad. The only collecting done in nearby Idaho was at the City of Rocks located in Cassia County about 4 miles west of Almo, Idaho, and about 10 miles northwest of Yost, Utah.

AVIFAUNISTIC ANALYSIS

Our field work, together with data from other sources, reveals that 172 kinds (species and subspecies) of birds are known from the region. While we probably sampled or obtained sight records of most of the resident forms, many winter visitants and transient species were not encountered. Water and shore birds especially are poorly represented in our collections. The listings in Davis (1935), Arvey (1947), and Levy (1950) for nearby southern Idaho, however, help round out the picture in this regard for the general region.

In comparing the results of this project with those of the similar study of the Deep Creek Mountains of central western Utah, nineteen kinds were found in the Deep Creek area that were not found in the Raft River area, and forty-two kinds were found in the Raft River region that were not noted in the Deep Creek Mountains. With few exceptions, the forms found in only one area should occur in both regions, especially since most of the kinds are either

transients or winter visitants. As to significant differences in the resident species only one, namely the pipit, found in the Deep Creek Mountains was not found in the Raft River Mountains and quite certainly does not occur in the Raft River as a breeding bird. Three species found in the Raft River area may not occur in the Deep Creek Mountains. They are the ruffed grouse, olive-backed and willow thrushes.

Although no precise studies were made on the relative abundance of the species in the Raft River area as compared with the Deep Creek region, certain species were found to be more numerous in the Raft River Mountains. This is probably correlated with more extensive habitat present for the particular species concerned. These more abundant types in the Raft River area are the western flycatcher, black-capped chickadee, fox and song sparrows. Incidentally, two species seemed much commoner in the Raft River Mountains than in the Wasatch Mountains to the east, namely the western flycatcher and the orange-crowned warbler. In contrast, the spotted towhees, which are common in the Wasatch, were rare in both the Deep Creek and Raft River mountains. In the case of the towhee, the environmental feature of lack of scrub oak in the two west desert ranges may afford an explanation, for in the Wasatch and the eastern part of Utah spotted towhees occur most often in an oak habitat.

The geographically variable species were represented essentially by the same races in the Raft River as in the Deep Creek mountains. Thus they both typify the Great Basin avifauna. A few possible differences are suggested as follows. The redwings of northwestern Utah seemingly show less of an approach to *A.p. nevadensis* than do those of the Deep Creek area. Whereas the juncos of the Deep Creek Mountains are pure *J.c. caniceps,* those of the Raft River Mountains show some hybridization with *J. oreganus mearnsi.* The hairy woodpeckers of the Deep Creek Mountains are somewhat intermediate between *leucothorectis* and *monticola* but closest to the former while those of the Raft River Mountains are "good" *monticola.* Whereas the cliff swallows of the Deep Creek are uniform in their characters and typical of *hypopolia,* those from the Raft River Mountains are more variable, and show an approach to *pyrrhonota.*

One last item of a general nature pertains to an observation of Clarence Cottam in his mid-September field work, that a relatively low pass over the western third of the Raft River Mountains is a favored migration lane for hawks of various species. He calls this Raft River Pass.

SPECIES LIST

Podiceps caspicus californicus (Heermann). Eared Grebe. A pair was seen at Junction Reservoir on June 28, 1947, and another pair on September 1, 1949.

Podilymbus podiceps podiceps (Linnaeus). Pied-billed Grebe. One was seen at Junction Reservoir, May 25, 1949.

Ardea herodias treganzai Court. Great Blue Heron. One was observed along the Raft River between Yost and Lynn on August 4, 1949.

Anas platyrhynchos platyrhynchos Linnaeus. Mallard. The species breeds in limited numbers in the region, for two females, each with a brood of young, were seen at Junction Reservoir on June 28, 1948. A pair was also seen there on May 25, 1949. A lone male was observed at a beaver pond on Clear Creek, May 17, 1948, and one was seen flying upstream along George Creek, 4 miles south of Yost on May 21, 1954. A pair was flushed on June 12, 1955, from some beaver ponds on George Creek about a mile south of Yost and the remains of a female were found. At this same time five were seen flying upstream.

Anas strepera Linnaeus. Gadwall. One was seen at Junction Reservoir on September 1, 1949.

Anas acuta Linnaeus. Pintail. Cottam observed one individual in a small, temporary, water-filled gravel pit along U.S. Highway 30 at the east base of the Raft River Mountains on July 14, 1938.

Anas cyanoptera septentrionalium Snyder and Lumsden. Cinnamon Teal. One was observed at Junction Reservoir on June 28, 1947.

Aythya americana (Eyton). Redhead. One was seen at Junction Reservoir on June 28, 1947.

Oxyura jamaicensis rubida (Wilson). Ruddy Duck. Two were seen at Junction Reservoir on September 1, 1949.

Cathartes aura teter (Friedmann). Turkey Vulture. Two mi. S. Lynn Reservoir, June 18, 1956. One specimen. This is a fairly common summer resident, being observed fifteen times from May 20 to August 30 at several locations on both sides of the mountain and during every year from 1947 to 1956. On June 14, 1951, ten were seen perched in a large cottonwood along Clear Creek. When flushed two collided in mid-air but quickly recovered their normal flight. Amadon saw several on two occasions in September as they soared along rocky ridges in the Clear Creek area. The specimen measures: wing 515, tail 260, culmen 26 millimeters.

Accipiter gentilis atricapillus (Wilson). Goshawk. We have but one sight record at George Creek, October 4, 1947. Amadon identified a hawk as being of this kind as it flapped and sailed over open ridges high in the mountains on September 15, 1941. Cottam states that his field associates saw one near the Utah-Idaho line in the northwest corner of the Raft River Mountains on September 17, 1941.

Accipiter striatus velox (Wilson). Sharp-shinned Hawk. This was seen by us only four times as follows: George Creek, June 26, 1947, and May 24, 1949; summit of One Mile Canyon, September 8, 1949; and Standrod, May 18, 1950. They were seen flying over sage, in cottonwoods and in coniferous timber. Amadon found this species to be common in September along creeks, gliding through brush in search of birds. He also saw one in the fir forest and there found the remains of one. The skull was saved. Cottam saw three in migration on September 18, 1941, near the western end of the mountain.

Accipiter cooperii (Bonaparte). Cooper's Hawk. South Fork Raft River, near Yost, September 6, 1932. One specimen. The species was fairly common, being observed nine times at as many locations during our field work. They ranged from the lowland towns up to 9,000 feet and from clearings to dense timbered areas. On July 2, 1949, at Standrod, Porter saw a Cooper hawk attack a red-tailed hawk. This led to a search for the nest which was found in a Douglas fir, 20 feet above ground. It contained two young judged on the basis of size to be a male and female. The remains of a specimen were found at Park Valley on September 4, 1950. Amadon observed one in early September, 1941, in a sage-piñon pine area. Cottam saw a dozen migrating south over Raft River Pass and collected one specimen on September 18, 1941. A specimen in the collection at the Utah State Agricultural College was taken at Park Valley on August 13, 1937, being an altitudinal migrant to the lowlands probably at that time of the year.

Buteo jamaicensis calurus (Cassin). Red-tailed Hawk. South Fork Raft River, near Yost, September 6, 1932. One specimen. This was the second most common hawk of the region. At least one was observed every few days at Standrod, Yost, and at other locations throughout the summer of 1949. Our earliest record of observation was April 19. They are essentially summer residents but a few remain during the winter.

Two adults were seen and their nest found at Standrod on April 19, 1950. It was located 25 feet above ground in a dead poplar tree. Four eggs were being incubated by the female. Another nest in a similar location was found at Standrod on May 18, 1950, but no nesting data were gathered for this. A pair was observed on June 11, 1951, close to a cliff at Clear Creek and behaving as though a nest were somewhere near. Another nest was seen in a cottonwood at an abandoned farm house at Lynn on June 19, 1956. The nest was 40 feet above ground and contained at least one young. The vociferous pair of adults remained near the nest.

Amadon found the species to be common in September, 1941. Cottam saw five in migration at Raft River Pass on September 18, 1941, and another in the piñon-juniper belt on the south slope of the mountain.

Buteo swainsoni Bonaparte. Swainson's Hawk. This was almost as common as the redtail being seen every few days by Porter at Standrod during the summer from May 3 to August 12. It was also frequently seen at Strevell, Nafton, and Lynn. On May 28, 1950, a nest was located at Standrod that contained three eggs. On June 17, it contained three downy young judged to be three or four days old. Cottam saw a single individual at the east base of the mountain on September 14, 1938, another there on September 17, 1941, as well as one at the north base. On September 20 this same year one was seen on the east base of the Grouse Creek Mountains.

Buteo lagopus s.johannis (Gmelin). Rough-legged Hawk. This is a winter visitant for which we have but two records of occurrence. Three of these hawks were seen at Standrod on October 30, 1949, and one at Park Valley on January 8, 1950.

Buteo regalis (Gray). Ferruginous Hawk. This species is a common summer resident having been seen fairly regularly at Standrod, George Creek, and Lynn from April 18 to August 12 over a period of several years from 1947 through 1955. A nest was found at Standrod on May 27, 1950. It was located 10 feet above the ground in a juniper and was constructed of sage and juniper sticks lined with juniper bark. Its diameter was 4 feet. In it were two young, several days old and an infertile egg. A hawk of this species was observed 2 miles east of Yost on May 27, 1955, diving at a pair of soaring golden eagles. Cottam observed two in the Raft River Mountains August 4-7, 1936, and learned that the birds had occupied the site all summer, rearing a brood of young. He observed the species on the east base of the mountains on July 14, 1938, and June 27, 1941, and several in migration September 17-19, 1941.

Aquila chrysaëtos canadensis (Linnaeus). Golden Eagle. They were fairly common in the region being seen at Naf, Standrod, Lynn, Grouse Creek, and Park Valley throughout the summer of 1949 and 1950. A young golden eagle was seen eating a jack rabbit at Standrod, July 3, 1949. An eyrie was located on a ledge near Standrod on May 18, 1950. The nest was constructed of juniper boughs and twigs and contained two downy young. A recently abandoned nest was located July 11, 1950, on the east end of the Raft River Mountains near Clear Creek. Seven right wings of juvenile California gulls were found at this nest. The closest colony of nesting gulls known to the writer is at Gunnison Island, Great Salt Lake, about 60 miles airline to the south. However, the gulls preyed upon might have been those that had learned to fly and were either migrating northwestward from their natal site or were concentrated near the north end of the lake as at Locomotive Springs about 25 miles from Clear Creek. It is significant that all the remnants were those of young gulls. The adults are presumably able to evade the eagles. Another nest with at least one young was seen on May 27, 1955, at some cliffs adjacent to Raft River about 5 miles north of Lynn and a pair of adults was seen in flight in the general vicinity.

Haliaeetus leucocephalus (Linnaeus). Bald Eagle. According to ranchers this species formerly nested in conifers at about 8,000 feet on the west side of the Raft River Mountains.

Circus cyaneus hudsonius (Linnaeus). Marsh Hawk. South Fork Raft River near Yost, September 7, 1932. One specimen. This species was fairly common being observed every few days at Standrod by Porter during the summer of 1949. It was occasionally seen at Strevell, Yost, and Lynn. Two nests were found at Standrod. One seen on June 25, 1949, was situated on the ground in a hayfield and contained five eggs. The other, on May 19, 1950, was also on the ground but was in a field of dried Russian thistle. It contained six eggs. Amadon saw the species twice in September, 1941, hunting over sagebrush. Cottam saw five migrating over Raft River Pass and over Grouse Creek, September 17-19, 1941.

Falco mexicanus Schlegel. Prairie Falcon. Clear Creek, May 17, 1948. One specimen. Other observations were at Pine Creek, July 9, 1947; Clear Creek, May

16, 20, 21, 1948, and May 27, 1955; George Creek, May 25, 1949; and Yost, August 4, 1949. Cottam observed one in the town of Grouse Creek on September 19, 1941.

Falco sparverius sparverius Linnaeus. Sparrow Hawk. Clear Creek, May 10, 1956. One specimen. This was the commonest hawk of the region, being observed nearly every day by Porter at Standrod during the summer of 1949. Other locations where the species was seen are: Clear Creek, One Mile Canyon, George Creek, Yost, Dove Creek, and Park Valley. Sparrow hawks ranged from the open desert shrub formation up to the coniferous forest. Mostly single birds were seen but occasionally a pair was noted. However, on July 29 a flock of five was seen. On August 25, 1949, a pair was seen chasing a Cooper's hawk, and on May 27, 1950, one attacked a redtail in flight. A specimen was collected at Grouse Creek by Stanford on September 28, 1935, and Cottam found the species common in migration in September, 1941, in both the Raft River and Grouse Creek mountains.

Dendragopus obscurus oreinus Behle and Selander. Blue Grouse. This species was in our experience uncommon, only two sight records being obtained. At Pine Creek on July 10, 1947, one was flushed from a stand of mountain mahogany and on August 25, 1949, one was flushed from a spruce-aspen area near a spring on the north slope of the mountain about 1 mile southeast of Standrod. Amadon found the remains of two specimens in the fir forest and saved the wings and tail. The terminal band on the tail was light and conspicuous. Cottam took two specimens at Clear Creek on August 8, 1936. One was an adult male, the other an immature female. This same day he saw ten others including a brood of nearly full-grown young. He found the species both in a yellow pine association at 8,000 feet and in the montane spruce-fir association at about 9,500. On September 18, 1941, he flushed a lone grouse from a mixed aspen-fir grove at about 9,000 feet. Cottam further reports that the forest ranger states that the species is restricted largely to the Clear Creek area although they occur sparingly in other units of the forest. Six broods of 8, 6, 3, 5, 8, and 5 young, respectively, were reported by the ranger.

The two specimens have been examined by J. W. Aldrich and referred to the race *oreinus*. They have a very pale coloration. There is no approach to the dark tail tips of *pallidus*. The ranges of the races are indicated by Aldrich and Duvall (1955:4).

Bonasa umbellus Linnaeus. Ruffed Grouse. Only a single observation was made of the species when one was flushed from a willow-aspen patch, 1 mile southeast of Standrod on August 25, 1949. Neither Amadon nor Cottam saw the species but the latter contacted the forest ranger who stated that the ruffed grouse occurs sparingly in the Raft River Mountains. Cottam also reports that Olean Palmer, formerly of Park Valley, has in the past found the species in favorable habitats along stream bottoms in the mountains but that it was less common than either the sage hen or blue grouse. Cottam further cites the information of D. I. Rasmussen that he has a photograph of a "bag" of grouse taken during the open hunting season of 1925 near Park Valley that shows one ruffed grouse.

Pedioecetes phasianellus columbianus (Ord). Sharp-tailed Grouse. Probably in pioneer and pre-pioneer times this species occurred abundantly in extreme northwestern Utah. Hart *et al.* (1950:11) indicate in their map of the past and present distribution of the species in the state that a few still survive in the Raft River area. They occupy areas where the vegetation is made up of a mixture of native grasses, forbs, and shrubs. Cottam indicates that D. I. Rasmussen reports in a letter of December 14, 1942, that he had found it west of Snowville.

Centrocercus urophasianus urophasianus (Bonaparte). Sage Grouse. Lynn Canyon, September 5, 1932; Standrod, October 4, 1947, June 24 and July 4, 1949, September 5, 1950; 2 mi. SW Lynn Reservoir, June 16, 1956. Total specimens 9, including 3 juveniles. Individuals or flocks were flushed almost daily from the sage, greasewood, and rabbit brush by Porter at Standrod from June through August, 1949. Other points of observation were: Rosette, May 20, 1948; Holts Canyon, June 23, 1949; and head of Clear Creek, 8,500 feet, August 25, 1949. As to flocking tendencies seventeen were seen in one flock as late as May 27 and in the fall a flock of eight was seen August 25 and another flock of forty on October 4. Four young were seen on June 16, eight on July 5, and four also on July 16,

all in 1949. Cottam took a specimen at 9,200 feet on September 18, 1941, and this same day saw two single birds and a flock of 8, presumably a family group, on the sage tableland near the top of the Raft River Mountains. One was seen the following day at Grouse Creek at 7,000 feet. The forest ranger reported seeing six broods of young numbering 6, 15, 13, 3, 7, and 6 birds per group and stated that the species was widespread throughout the area.

Perdix perdix (Linnaeus). Gray Partridge. Park Valley, December 27, 1949; Standrod, June-August, 1949; 1½mi. E. Naf 5,300 ft., Cassia Co., Idaho, May 11, 1956. Fifteen specimens of all ages. In addition the species was observed at Lynn on May 25, 1949. As previously noted the species was studied intensively by Porter (1955) in the Standrod area. Although introductions into the Raft River region had been made at various times and locations from 1936 through 1946, the present population has apparently spread to the area from adjacent Idaho. The species ranged between 4,300 and 8,000 feet, being most commonly found around 6,000 feet. The highest concentrations occurred in areas where alfalfa, wild hay, and grain grew on both sides of streams. Most of the hatching occurred from June 15 to July 7, the earliest being May 13 and the latest July 27. Most nests found were in permanent cover of the native vegetative types mentioned although some partridges with young were found in sage and rabbit brush situations.

Phasianus colchicus Linnaeus. Ring-necked Pheasant. Standrod, July 13, 26, 27, 1949. Total specimens, 5 (all chicks). Adults were seen by Porter at Standrod every few days from April through August. Other sight records were at Holts Canyon on July 8, 1949, Yost on May 27, 1949, and 4 miles south of Yost along George Creek on May 21, 1954. A female and four young were seen at Standrod on August 23, 1949. The species was heard at Grouse Creek on June 17, 1956.

Grus canadensis (Linnaeus). Sandhill Crane. On June 20, 1956, Ghiselin saw a lone sandhill crane 2 miles south of Lynn Reservoir in a large wet meadow. A rancher had reported seeing a crane here about June 7 and made a second observation a few days later. Ghiselin did not obtain any evidence that the species was nesting although the date suggests that this may have been the case.

Fulica americana americana Gmelin. American Coot. Lone individuals were seen at Lynn Reservoir on June 22, 1947, May 25, 1949, and June 16, 1956, but a pair was observed there on June 17, 1956.

Charadrius vociferus vociferus Linnaeus. Killdeer. One mi. N.W. Standrod, Cassia Co., Idaho, May 21, 1948. One specimen. This common species was seen every day or two at Standrod by Porter during the summer of 1949. The species was also observed the same year at One Mile Canyon, August 4, at Yost, May 23, and Junction Reservoir on September 1. Earlier records in 1947 were for George Creek, June 23-25, Little Basin, June 22, and Rosette, July 8. The last observation was at Lynn Reservoir on June 16, 1956. Cottam found the species along an irrigation ditch at Snowville in July, 1936, and in a small grassy meadow at Yost in September, 1941.

Capella gallinago delicata (Ord). Common Snipe. South Fork Raft River near Yost, September 7, 1932; 2 mi. S. Lynn Reservoir, June 15, 1956. Two specimens. The species was seen at Standrod on July 5, 1949. The example taken near Lynn Reservoir, June 15, was flushed at a distance of 10 yards from a wet meadow near a streamside and was doubtless nesting, because it put on an injury-feigning display. Cottam flushed one from a wet grassy meadow on Johnson Creek, 6,500 feet, on September 19, 1941.

Actitis macularia (Linnaeus). Spotted Sandpiper. Lynn Reservoir, June 16, 1956. One specimen. Also seen at Grouse Creek on June 28, 1947. The specimen was the female of a pair and when picked up extruded an egg 55 millimeters in diameter but lacking a shell.

Recurvirostra americana Gmelin. American Avocet. One was seen at Junction Reservoir, September 1, 1949.

Steganopus tricolor Vieillot. Wilson's Phalarope. Four pairs were seen in a wet sedge area at Lynn Reservoir on June 16, 1956.

Lobipes lobatus (Linnaeus). Northern Phalarope. South Fork Raft River near Yost, September 7, 1932. One specimen.

Larus californicus Lawrence. California Gull. Mention has been made of finding wings of juveniles at a nest of the golden eagle. Cottam noted four individuals on September 16, 1941, at different locations near the east base of the Raft River Mountains. One was slowly zigzagging over the sagebrush like a harrier presumably searching for grasshoppers or small rodents. The other three were along the highway feeding on the carcasses of jack rabbits. These may have been migrants at this date.

Zenaidura macroura marginella (Woodhouse). Mourning Dove. Clear Creek, June 15, 1951. One specimen. The species was common in the region, being seen at all localities visited in spring and summer. Porter saw doves daily at Standrod in 1949. On June 9, 1955 a pair was observed in fast, straightaway flight, after which they perched on a rock and went through courtship maneuvers whereby one would spread its tail and bob its head and the performance would be repeated by the other bird. On June 14, many small flocks, each with five or six birds were seen along the highway near Strevell suggesting an influx of migrants, or possibly stormy weather conditions had caused them to resort to flocking. Cottam found them to be fairly common at the base of the mountains until mid-September, 1941.

Otus asio inyoensis Grinnell. Screech Owl. George Creek, June 12, 1955. One specimen. It was perched in a dense willow thicket along the stream and was being mobbed by several passerine birds. Several ova measured 2 millimeters in diameter. The crop contained the remains of a McGillivray warbler as well as fur from some small rodent.

Alden and Loye Miller (1951:173) in their discussion of variation in desert screech owls comment that the northern and northeastern limits of the range of the race *inyoensis* are not well known. They note that a single bird from central Washoe County, Nevada, and several from Cassia and Gooding counties, southern Idaho, are slightly darker about the head and more brownish on the back than *inyoensis*. They were referred to *macfarlanei* with the notation that they were paler and grayer than many examples of that race. It was suggested that they may actually be nearer *inyoensis* than typical *macfarlanei*. The Millers further suggested that specimens from Utah reported to be *inyoensis* may be of like nature.

This one specimen from George Creek was sent to Alden Miller along with several others from the valley of Great Salt Lake. He states that they fit well within the range of variation of *inyoensis*. The Raft River bird is worn which accentuates the head streaking. He further commented that in the southern Idaho birds referred to in his review there is one from Cassia County which is like the Utah birds but the others are browner and are thus integradational toward *macfarlanei*. Since the George Creek specimen is not even an intergrade and thus is good *inyoensis*, it would seem that the race *macfarlanei* does not extend into northwestern Utah.

Bubo virginianus lagophonus (Oberholser). Great Horned Owl. Dove Creek, September 10, 1932. One specimen. This was a migrant, the identity of which was noted first by Woodbury, *et al.* (1949:17).

Bubo virginianus occidentalis Stone. Great Horned Owl. City of Rocks, 5,500 ft., 4 mi. SW. Almo, Cassia Co., Idaho, May 25, 1949; Clear Creek, June 13, 1951, 2 mi. S. Lynn Reservoir, June 18, 1956. Total specimens, 3. Porter found a nest in a cottonwood at Standrod on May 18, 1950, that contained one young about old enough to leave the nest. An adult was observed at Standrod on August 13, 1949, and again there on June 13, 1955. Amadon considered this owl to be common for he heard hooting all night every night at Clear Creek from September 9-18, 1941, and occasionally saw the species in the daytime. Cottam observed one at the northeast base of the Raft River Mountains on August 14, 1940, and found one dead near Johnson Creek on September 18, 1941. Two were flushed in the Grouse Creek Mountains on September 19, 1941, one from sagebrush and one from a piñon pine.

The Clear Creek specimen is a young bird taken from a grove of cottonwoods. It is considerably darker than specimens of similar age taken near Ibapah in the Deep Creek region to the south.

Speotyto cunicularia hypugaea (Bonaparte). Burrowing Owl. Kelton, September 10, 1932. Two specimens. This location is to the southeast of the Raft River

Mountains. Cottam reports seeing individuals twice at Blue Creek on U.S. Highway 30 S, considerably east of the Raft River Mountains. There are no records as yet for the Raft River Mountains area proper.

Asio otus wilsonianus (Lesson). Long-eared Owl. Seen at Standrod by Porter on August 29, 1949, and May 25-27, 1950. They frequented cottonwoods and willows along streams. Amadon flushed one from a piñon pine grove south of Yost on September 19, 1941, and Cottam found one that had been shot alongside U.S. Highway 30 S just east of the Raft River Mountains on July 14, 1938.

Asio flammeus flammeus (Pontoppidan). Short-eared Owl. Cottam observed two on September 17, 1941, east of Raft River in a sagebrush area and suggested they may have been migrants.

Aegolius acadicus acadicus (Gmelin). Saw-whet Owl. Summit One Mile Canyon, 1 mi. SW. Standrod, September 8, 1949. One specimen.

Phalaenoptilus nuttallii nuttallii (Audubon). Poor-will. Standrod, August 11, 1949; Clear Creek, July 29, 1950, and June 13, 1951. Total specimens, 4. The species was observed ten other times, May 20 through September 9, most frequently along roadsides.

Chordeiles minor hesperis Grinnell. Common Nighthawk. Johnson Creek, 4 mi. S. Yost, June 23, 1947; Standrod, June 24 and August 24, 1949; Junction Reservoir, July 29, 1950; George Creek, June 12-13, 1955. Total specimens, 20. The species was seen at all locations during the summer months ranging over the desert shrub and pygmy forest. The earliest date of our observation was May 20, the latest August 25, although Amadon saw one on September 12, 1941. Specimens taken in June were very fat. The testes of males measured 6 x 4 millimeters, the ova of females 2 millimeters. A great flock of one hundred or more birds seen at George Creek on the evening of June 11, 1955, suggested a migratory flight. This corroborates the statement of Higgins as quoted by Selander (1954:66) that the spring migration continues until "nearly the middle of June." An unusual behavior was observed on August 24 along the highway at Standrod when several were perched in midmorning on fence posts at right angles to the wire strands.

Selander (*op. cit.*:71) has referred these Raft River specimens to *C.m. hesperis,* not recognizing *twomeyi.* The 1955 specimens are also *hesperis.*

Aëronautes saxatalis (Woodhouse). White-throated Swift. Clear Creek, June 13, 1951. One specimen. Swifts were nesting in small numbers at cliffs immediately north of the Clear Creek camp, being seen there on all our visits. They were not common, however, and were much less abundant than the violet-green swallows with which they were associated. Levy (1950:5) found the species to be uncommon in southern Idaho. He found a colony at the City of Rocks, Cassia County. Porter reported a nesting colony in the summer of 1949 at some cliffs along the Raft River between Junction and Yost. Cottam found the species fairly abundant in 1936.

In their check list of the birds of Utah, Woodbury *et al,* (1949:18) considered the swifts of northwestern Utah to be of the race *A. s. saxatalis* by implication, since they referred only those from northeastern Utah to *A. s. sclateri.* However, Rogers (1939:467) had earlier commented on two specimens from the Humboldt Mountains, Nevada, as indicating that *sclateri* probably ranges that far west, although the evidence was inconclusive. The single specimen from the Raft River Mountains is a male. Its testes were 13 millimeters long. The measurements are as follows: flattened wing 145; tail 60 millimeters. It is therefore larger than the average for *saxatalis* and closest to *sclateri* according to Rogers' figures. It would appear then, that the range of *sclateri* includes all of northern Utah if this is a valid race.

Archilochus alexandri (Bourcier and Mulsant). Black-chinned Hummingbird. Cottam saw individuals at Yost on August 5 and in Spring Valley, Raft River Mountains, August 6, 1936.

Selasphorus platycercus platycercus (Swainson). Broad-tailed Hummingbird. George Creek, June 26, 1947; Clear Creek, May 17 and 19, 1948. Total specimens, 3. The species was fairly common at both localities throughout the summer seemingly nesting in chokecherry and mountain mahogany brushland. Cottam saw them in 1936 at Clear Creek and Nafton.

Selasphorus rufus (Gmelin). Rufous Hummingbird. A specimen in the collection at the Utah State Agricultural College was taken at Park Valley on August 12, 1937. The species is an early migrant through the region.

Megaceryle alcyon caurina (Grinnell). Belted Kingfisher. Raft River at Lynn Pass, 5 mi. NE. Lynn, May 27, 1955. One specimen. Two were observed at the same locality on August 4, 1949. The species was also seen at some beaver ponds near the Clear Creek Forest Camp on June 13-14, 1951, and June 9, 1955, and Amadon saw one there on September 12, 1941.

Colaptes cafer collaris Vigors. Red-shafted Flicker. Clear Creek, May 18-21, 1948; George Creek, May 26, 1949; 5 mi. SE. Yost, May 21, 1954. Total specimens, 5. Flickers were frequently seen at Standrod, One Mile Canyon, Johnson Creek, Pine Creek, and upon the mountain to the top at Bull Flat. As many as three or four were seen together in late May and again in late August. Amadon found them fairly common in the Clear Creek area, September 9-18, 1941, ranging from the mountain top to the valley. One specimen shows signs of hybridization with *Colaptes auratus,* having some black in the malar stripes and a barely discernible red nuchal crest.

Asyndesmus lewis (Gray). Lewis' Woodpecker. Dove Creek, September 10, 1932. One specimen. This is a first-year bird, possibly a migrant. Cottam (1942: 128) reports a flock of fifteen at Pilot Peak to the south and west, September 19-20, 1941, one of which was collected.

Sphyrapicus varius nuchalis Baird. Yellow-bellied Sapsucker. George Creek, May 10, 1947, May 24-26, 1949, June 12, 1955; Clear Creek, May 28, 1955, and May 11, 1956. Total specimens, 10. Also seen at One Mile Canyon, June 29, 1949, Grouse Creek, September 1, 1949, and Clear Creek, June 14, 1951. The species frequented birch, willow, and cottonwood in streamside situations as well as mountain mahogany, aspens, Douglas fir, and white fir. A pair was observed in courting behavior at George Creek on June 27, 1947. They were apparently nesting or about to nest in a dead aspen. The nest site was located 30 feet above the ground. Two recently excavated nests were found at George Creek on June 12, 1955. They were both in aspens, facing south and located at 8 and 10 feet above the ground. Amadon found the species to be fairly common in aspens and along streams in September. He took one specimen on September 15, 1941.

Dendrocopos villosus monticola (Anthony). Hairy Woodpecker. Clear Creek, May 17, 1948, June 14, 1951, May 10, 1956; George Creek, May 26, 1949; Standrod, June 22 and September 8, 1949. Total specimens, 7. Other sight records are: Holts Canyon, June 22, 1949; One Mile Canyon, August 4 and September 8, 1949; Clear Creek, May 17, 1948, June 14, 1951, May 29 and June 9, 1955; and George Creek, May 21, 1954. Although its principal habitat during the breeding season is thought to be the coniferous forest the species was more common in early June in cottonwoods and birches in the canyon bottoms. Amadon found the species fairly common in cottonwoods along Clear Creek in September, 1941.

In the Deep Creek report the writer (Behle, 1955:22) inadvertently stated that Linsdale (1936:72) referred specimens from the Jarbidge Mountains of northeastern Nevada to *leucothorectis,* whereas he actually placed them with *monticola.* The examples from the Raft River Mountains are likewise referable to *monticola* although they are still somewhat small as compared to the population of the northern Rocky Mountains (see Oberholser, 1911). The wing lengths of four males average 131.3 (133.3-129.7). Those of two adult females are 132.6 and 125.7 millimeters. That of an immature female is 122.2 millimeters.

Dendrocopos pubescens leucurus (Hartlaub). Downy Woodpecker. Clear Creek, May 17, 1948. Total specimens, 2. They were found in aspens. Amadon found this woodpecker fairly common along creeks in September.

Tyrannus tyrannus (Linnaeus). Eastern Kingbird. Cottam saw eastern Kingbirds at Yost. No date is given. They occurred in irrigated fields.

Tyrannus verticalis Say. Western Kingbird. Grouse Creek, June 17, 1956. One speciman. Sight records were obtained at Standrod, August 8, 1949, Naf, August 30, 1949, and Lynn, June 19, 1956.

Myiarchus cinerascens cinerascens (Lawrence). Ash-throated Flycatcher. 6 mi. S. Grouse Creek, June 17, 1956. One specimen.

Sayornis saya saya (Bonaparte). Say's Phoebe. 6 mi. S. Grouse Creek, June 17, 1956. One specimen. Also seen at Standrod on August 4, 1949. Cottam saw two at Kelton and one at Yost on August 5, 1936. Levy (1950:6) observed one nesting at nearby Almo, Cassia County, Idaho on June 21, 1949.

Sayornis saya yukonensis Bishop. Say Phoebe. A specimen taken by Cottam on September 18, 1941, at Johnson Creek Ranch is darker than local breeding birds and represents this race.

Empidonax traillii adastus Oberholser. Traill's Flyctacher. Clear Creek, June 15, 1951; North slope Raft River Mts., 8,000 ft., 1 mi. S. Standrod, August 25, 1949; Yost, May 27, 1949; 2 mi. S. Lynn Reservoir, June 18-19, 1956. Total specimens, 5. The only other flycatchers of this species seen were at the mouth of Barnes Canyon on August 24, 1949, and 2 miles south of Lynn Reservoir on June 15, 1956. The specimen taken at 8,000 feet was in aspens and was evidently a migrant. Breeding birds were taken in willows.

Phillips (1948:513) has referred specimens from southwestern Utah to the race *extimus,* those from the Great Salt Lake region in northern Utah to *brewsteri* (p. 511) and some from Clear Creek in the Raft River Mountains taken August 9 to *adastus.* Aldrich (1951: 195) has a slightly different concept of the distribution of the races, conceiving of *extimus* occupying the southern Great Basin, *adastus* the northern Great Basin and *brewsteri* the area west of the Sierra Nevada and north to the Pacific Northwest. However, he too refers the population of the northern Great Basin to the race *adastus.* These more recently collected examples from the Raft River Mountains were submitted to Aldrich and served to corroborate his earlier view. Snyder (1953:7) called specimens from northeastern Utah *extimus.* They were previously referred to *adastus* by Twomey (1952:412). Miller (1941:259) questions the validity of the race *adastus.* Three of the examples from the Raft River area seemed to be breeding birds. A female taken June 15 had ova 2 millimeters in diameter and two males taken June 18 and 19 had testes 9 and 10 millimeters long. The Raft River specimens show a slightly darker, more grayish-green dorsum than examples of *extimus* from southwestern Utah and seemingly are at one end of a cline that occurs through Utah running north and south. Specimens from central western Utah are intermediate along this cline but the Raft River examples appear on the whole to be closer to *adastus* although some incline toward *extimus.*

Empidonax hammondii (Xantus). Hammond's Flycatcher. Clear Creek, May 20-21, 1948, and June 8, 1955; summit One Mile Canyon, August 24, 1949. Total specimens, 3. The May example was taken in birches along the stream and was a non-breeding bird. The June specimen had testes measuring 5 millimeters. It frequented a cottonwood grove in the canyon bottom at 6,500 feet. The one taken in August in the post-breeding season was in a mixed spruce-mountain mahogany association at 8,000 feet. Amadon collected two specimens in the Clear Creek area on September 17, 1941. Cottam took a migrant from mountain mahogany on September 18, 1941.

Empidonax oberholseri Phillips. Dusky Flycatcher. Clear Creek May 20-21, 1948; George Creek, May 26, 1949, and June 13, 1955; 2½ mi. S. Standrod, August 24, 1949. Total specimens, 7. In May and early June this species of flycatcher occurred as a migrant in the juniper forest. As a breeding bird it mostly frequented dense, tall, streamside thickets of birch, willow, and cottonwood as well as the aspen forest. Two specimens taken June 13 in the juniper-piñon forest at 6,500 feet were probably a breeding pair. The male had 5-millimeter testes, the female 2-millimeter ova, but because of the mixed ecotone environment it was not certain whether they were nesting in the pygmy forest or had wandered into this association while foraging.

Empidonax wrightii Baird. Gray Flycatcher. Junction Reservoir, July 29, 1950. One specimen. This species in contrast to the previous two seemed to be restricted to the pygmy forest of juniper and piñon pine. It was rare, judging by only one specimen being taken. We could not be sure of our sight records because of the presence of Wright flycatchers in the same association.

Empidonax difficilis hellmayri Brodkorb. Western Flycatcher. George Creek, June 27-July 14, 1947, June 13, 1955; Pine Creek, July 9-10, 1947; Clear Creek, July 29, 1950, June 11-15, 1951. Total specimens, 28. This species was common in the Raft River Mountains. Up to early June they occurred as nonbreeding birds in several ecological situations such as junipers, birches, cottonwoods, aspens, Douglas fir, white fir, and blue spruce. Breeding birds were found in birches along streamsides, in aspen groves and in the aspen-spruce-fir association. Thus they occupied habitats also frequented by Wright and Hammond flycatchers. They were evidently breeding by mid-June, for the males taken at Clear Creek June 11-15 had testes that measured from 4 to 6 millimeters, while the ova of females varied from 1 to 11 millimeters in diameter. Amadon took one specimen on September 10, 1941, in the Clear Creek area.

In an earlier publication (Behle, 1948:72) the writer referred a small sample of six specimens from the Raft River Mountains to the race *difficilis*, although much variation was noted in the lot and it was pointed out that the one male had the size of *hellmayri* as given by Brodkorb (1935). A much larger sample is now at hand. The more recently taken specimens are not as variable either in size or coloration. They are still intermediate between the two races but the aggregate of characters now places the population closest to *hellmayri*.

Eighteen males have the following measurements: wing, 65.7-73 (70.4); tail, 57.7-64 (61.1); culmen from base, 13.5-15.5 (14.6); width of bill through posterior end of nostrils, 5.7-6.8 (6.3); tarsus, 16.5-18.6 (17.5); Middle toe without claw, 8.4-9.3 (8.9). Ten females measured: wing, 63-66.7 (65); tail, 55.9-60.9 (57.7); culmen from base, 13.7-14.9 (14.2); width of bill through posterior end of nostril, 5.7-6.4 (6.1); tarsus, 16.3-17.2 (16.8); middle toe without claw, 8.5-9.0 (8.7). Based on comparison with the measurements in Brodkorb's review (1949) the males of the Raft River series are in wing length closer to his sample of *hellmayri* from the northern Rocky Mountains than to his sample from Texas. They lie almost exactly intermediate between *difficilis* and *hellmayri*. The tail in contrast is much closer to *hellmayri* than to *difficilis*. As regards the other mensurable characters the culmen and middle toe are closest to *difficilis* while the bill width and tarsus are closest to *hellmayri*. The females are much closer to *hellmayri* than to Pacific Coast *difficilis* in virtually all the characters measured.

As to coloration the series seems to be unusually variable. Some individuals have the underparts brightly yellow with only a narrow dark breast band, while others have the yellow restricted to the posterior underparts by virtue of a heavy breast patch and dark coloration extending posteriorly along the sides. This darker breast approaches the condition in *hellmayri*. The dorsal coloration is likewise variable, some examples being a bright olive green while others have a brown or gray wash.

The writer (Behle, 1955:23) referred four somewhat similar intermediate specimens from the Deep Creek Mountains to *difficilis*. A larger sample from there would probably likewise show closer affinities to *hellmayri*. It now seems that western flycatchers from all parts of Utah are referable to *hellmayri* even though those from the mountain ranges of the west desert section of the state show an approach to *difficilis*.

Contopus sordidulus veliei Coues. Western Wood Peewee. South Fork Raft River near Yost, September 7, 1932; N. Slope Raft River Mts., 8,000 ft., 1 mi. S. Standrod, August 25, 1949. Two specimens. The last-taken specimen was secured among birches near a spring. Other sight records were made at Standrod, August 23, 1949, and at Clear Creek, June 14, 1951. The species was rather rare in our experience, yet Levy (1950:6) found it to be one of the commonest birds of the flycatcher group in southern Idaho. He found it in stream bottoms where large poplars, aspens and willows grow. Amadon saw three along the stream at Clear Creek in September, 1941, and collected one specimen.

Nuttallornis borealis (Swainson). Olive-sided Flycatcher. Mouth One Mile Canyon at Standrod, August 29, 1949. One specimen. This example was probably an altitudinal migrant. It was taken in a willow streamside thicket. Another sight record was on the north slope of the Raft River Mountains at 8,000 feet, 1 mile north of Standrod on August 25, 1949. Amadon saw one on September 12, 1941,

on lower Clear Creek near the ranches. Cottam saw the species near the summit of the Raft River Mountains on his trip of August 6-9, 1936.

Eremophila alpestris utahensis (Behle). Horned Lark. Nafton, May 18-20, 1948; Blue Creek, January 29, 1951; ridge at 8,000 ft., ½ mi. N. Clear Creek F.S. Camp, June 8, 1955; Bull Flat, 10,200 ft., top of Raft River Mts., May 28 and June 8-10, 1955. Total specimens, 14. Horned larks were also seen at Park Valley on August 23, 1949, and at Standrod almost daily throughout the summer of 1949. They were common in the region from the lowland sagebrush flats up to exposed ridges and even the flat top of the mountain. Here they were found in the more open areas where scattered patches of *Artemesia nova* occurred but when pursued they flew to and hid in the larger bushes of *Artemesia tridentata*. The female from Bull Flat taken May 28 had a brood patch. Three males from there taken June 10 had testes measuring 10 x 6 millimeters.

Levy (1950:6) found a single bird on top of Mt. Harrison, just to the north in Cassia County, Idaho, on June 21, 1949, and suggested that it might possibly represent a different race than those breeding at lower altitudes in the sagebrush areas. Our results indicate that this is not the case.

Tachycineta thalassina lepida Mearns. Violet-green Swallow. Clear Creek, May 17-21, 1948; George Creek, May 26, 1949. Total specimens, 6. Other areas of occurrence were Pine Canyon on July 9, 1947; Standrod, July 5, 1949; Dove Creek and Park Valley, August 23, 1949. The species was very common at both the Clear and George creek campsites where they foraged around high cliffs and presumably nested. They also were seen flying over the beaver ponds on Clear Creek and were occasionally seen perched on dead cottonwood limbs above the water.

Iridoprocne bicolor (Vieillot). Tree Swallow. Raft River, 5 mi. NE. Lynn, May 27, 1955. Total specimens, 2. The testes measured 8 x 6 millimeters in these two males. They occurred with the other four kinds of swallows foraging along the river. Cottam states that tree swallows were fairly common in the aspen belt during the summer being most noticeable in the late afternoon. Levy (1950:6) found a pair nesting in an old woodpecker hole at the City of Rocks in nearby Cassia County, Idaho, on June 21, 1949.

Riparia riparia (Linnaeus). Bank Swallow. Cottam noted this species near Yost on August 7, 1941.

Stelgidopteryx ruficollis serripennis (Audubon). Rough-winged Swallow. Raft River, 5 mi. NE. Lynn, May 27, 1955. Total specimens, 6. The species was also observed along Clear Creek on May 16, 1948, and George Creek, July 13, 1947.

Hirundo rustica erythrogaster Boddaert. Barn Swallow. One mi. S. Lynn Reservoir, June 19, 1956. One specimen. This species was uncommon. Other observations were at Standrod on May 19, 1948, and along the Raft River 1 mile north of Lynn on May 27, 1955, and at Lynn, June 14, 1956. Cottam observed this swallow at Yost. No specific date was given.

Petrochelidon pyrrhonota hypopolia Oberholser. Cliff Swallow. City of Rocks, 4 mi. SW. Almo, Cassia Co., Idaho, May 25, 1949; Junction Reservoir, July 29, 1950; Raft River, 5 mi. NE. Lynn, May 27, 1955; Lynn, June 16, 1956. Total specimens, 13. The species was also seen at Clear Creek on May 16, 1948, along the Raft River, 3 miles north of Lynn on June 22, 1947, and at Junction Reservoir, June 28, 1947. Nests were being built at the City of Rocks on May 25, 1949, and numbered at the time about seventy-five. Males collected at this time had testes measuring 8 millimeters while the ova of the females measured from 1 to 2 millimeters in diameter. A colony also containing about seventy-five nests was found on June 16, 1956, on the walls of a gravel pit near Lynn. The pit was dug in 1953 and swallows nested there in 1955 according to residents of the area. Swallows were also nesting inside a nearby shed. Those nests in the gravel pit were complete but those in the shed were still under construction. Females taken at this time had brood patches and the males had testes about 8-10 millimeters in length.

No specimens were available from the Raft River Mountains at the time the writer made his preliminary study of the variation of the species in Utah (Behle, 1948:73) although four were present from the Deep Creek Mountains to the south which were uniform in their characters and typical of the Great Basin race. The

Raft River series is exceedingly variable and somewhat intergradational at least by virtue of individual variation. One from the City of Rocks, Cassia County, Idaho, is like the Deep Creek series. Three others from there as well as several from Junction Reservoir are intermediate. In coloration they show an approach to *pyrrhonota*, having the breast less white, more of a brownish gray. Furthermore this color extends posteriorly along the sides and flanks. There is less cinnamon on the breast. While the forehead patches are deep as in *hypopolia*, these areas in some specimens, instead of being white, are tinged with buff. One specimen from Junction Reservoir, a male with 3 millimeter testes taken July 29, is very close to *pyrrhonota* in both coloration and size (wing 108.9 and tail 50.0 millimeters). It may indeed be a vagrant of *pyrrhonota* rather than an extreme variant of *hypopolia*.

Five males have the following measurements: wing, 108.9-113.6 (111.2); tail, 50-52.2 (50.6); exposed culmen, 7.6-8.0 (7.7); tarsus, 11.6-12.6 (12.3); middle toe without claw, 9.6-12.0 (10.8). Five females measured: wing, 106.4-112.6 (109.6); tail, 45.8-52.2 (49.5); exposed culmen, 6.0-8.3 (7.4); tarsus, 11.4-12.6 (12.2); middle toe without claw, 9.4-11.7 (10.4).

Cyanocitta stelleri (Gmelin). Steller's Jay. Cottam states that these jays are not uncommon in summer in the timbered portions of the Raft River Mountains but we failed to see or hear them in our field work.

Aphelocoma coerulescens nevadae Pitelka. Scrub Jay. Cottam saw a few and collected one on August 5, 1936, at the east base of the Raft River Mountains. In all our field work we failed to see the species.

Pica pica hudsonia (Sabine). Black-billed Magpie. George Creek, July 14, 1947. One specimen. Observed almost daily at Standrod during the summer of 1949 and upon all visits to other locations in the area. They were common around ranches. In addition they commonly frequented the cottonwoods and willows along streams from which they made sorties over open country and into the pygmy forest. They also were observed in mountain mahogany, white and Douglas firs. Several were seen roosting in willows near Standrod on October 3, 1947. A concentration of about fifty was seen at Yost on June 11, 1955. Many old nests were seen in birch and willow thickets along lower George Creek near Yost. Amadon found them common in September, 1941, at Clear Creek. They occurred everywhere except the fir forest. He collected one specimen.

Corvus corax sinuatus Wagler. Common Raven. Kelton, September 10, 1932. One specimen. Commonly observed at Strevell, Standrod, Yost, Lynn, and Park Valley at all times of the year. Flocks of as many as six were seen as late as June 25. Young were seen in flight with adults on July 9, 1947. Flocks of three or four were seen again starting in late August, possibly being family groups at this time. The highest elevation at which they were observed was 9,000 feet on August 25, 1949, 2 miles south of Standrod. Amadon saw two or three every day during September, 1941, at Clear Creek. Cottam found a nesting site located on a high cliff in the Raft River Mountains.

Corvus brachyrhynchos hesperis Ridgway. Common Crow. A lone individual was seen at Yost on June 14, 1955, and another 2 miles southwest of Lynn Reservoir June 16, 1956. A flock of seven was seen on June 17, 1956, 6 miles south of Grouse Creek.

Gymnorhinus cyanocephalus Wied. Piñon Jay. Four were seen at Rosette on May 20, 1948, and one at George Creek on May 25, 1949. Flocks were seen flying overhead at Standrod on August 29-30, 1949. Amadon saw a flock almost every day at Clear Creek, September 9-18, 1941. Cottam reported them as especially abundant near Yost in September, 1941.

Nucifraga columbiana (Wilson). Clark's Nutcracker. Clear Creek, May 17, 1948; George Creek, May 23, 1949. Total specimens, 2. This species doubtless breeds in the high coniferous belt of the mountains, probably in March and wanders widely at other times. Several were seen near the top of the mountain at the edge of Bull Flat on May 28, 1955, yet nutcrackers were seen in the juniper forest on June 14, at Clear Creek and on June 19 near Lynn. On October 4, 1947, several were seen at George Creek. In 1949, one was seen at Standrod on August 4, two near Yost on August 31, two in the spruce-fir forest at the summit of One Mile

Canyon on September 8. Amadon found nutcrackers abundant in the piñon-juniper forest near Yost on September 9, 1941. Cottam took two on Johnson Creek on September 18, 1941. There was a loose flock organization observed during non-breeding times. The greatest number of birds seen at any one time was eight.

Parus atricapillus nevadensis (Linsdale). Black-Capped Chickadee. Clear Creek, September 14, 1932, May 17-21, 1948, June 14, 1951; George Creek, June 20-24, 1947, May 24-26, 1949; Standrod, November, 1949; One Mile Creek, 5,200 ft., August 24, 1949; Yost, May 21, 1954. Total specimens, 23. The species was common in canyon bottoms where it frequented willows, birches, cottonwoods, and aspens. In addition to being seen repeatedly at Clear and George creeks, this type of chickadee was seen in Barnes Canyon, August 24, 1949, and at Pine Creek July 9, 1947. Amadon found these chickadees common in September, 1941, along Clear Creek and extending up to scattered firs where *P. gambeli* occurred. He collected two specimens. Cottam likewise found them numerous in willow and timbered stream beds in canyons in September, 1941, and took two specimens.

The population is typical of the race *nevadensis*, the type locality of which lies not far to the west in Nevada.

Parus gambeli inyoensis (Grinnell). Mountain Chickadee. Clear Creek, 8,750-9,000 ft., May 17, 1948, June 14, 1951, May 28, 1955; Standrod, May 7, 1933; George Creek, October 4, 1947, May 23-26, 1949; Yost, May 21, 1954; summit One Mile Canyon, September 4, 1947, August 24, 1949, September 9, 1949. Total specimens, 24. The species was also seen at Holts Canyon, July 8, 1949, and at the mouth of Barnes Canyon, August 24, 1949. For the most part, this species of chickadee occurred in the conifers at higher elevations except in the fall when it showed downward altitudinal migration. However, on May 21, 1954, they were seen in the pygmy forest and again there on June 13, 1951, and June 12, 1955, suggesting that a few may nest in this habitat. The species was flocking by mid-July, for about twenty-five were seen together in conifers along George Creek on July 17, 1947. Amadon found them common in September both in the fir forest and the piñon-juniper belt. Three specimens were taken by him. Cottam took three specimens from willow thickets in Raft River Canyon, 6,000 feet and in the same scattered flock found representatives of *P. a. nevadensis*.

As noted in the recent review of the species (Behle, 1956:68) the series from the Raft River Mountains is intermediate, but closer to *inyoensis* than to *wasatchensis*.

Parus inornatus ridgwayi Richmond. Plain Titmouse. Standrod, May 7, 1933; Clear Creek, May 20, 1948; 1 mi. N. Rosette, May 20, 1948; Yost, May 21, 1954. Total specimens, 6. Wherever found the species occurred in the pygmy forest. Amadon saw them often in pairs or singles in September, 1941, at Clear Creek.

Psaltriparus minimus plumbeus (Baird). Common Bushtit. Clear Creek, July 31, 1932, May 17-19, 1948, May 29, 1955. Total specimens, 8. All our specimens were taken in the pygmy forest but Amadon secured a specimen from a flock frequenting willows in September, 1941. He took two other examples from the piñon-juniper forest. Cottam states that five were taken on Johnson Creek at 6,000 feet, which figure probably includes those of Amadon.

Sitta carolinensis Latham. White-breasted Nuthatch. This species was not encountered in our field work. Cottam states that the species was found sparingly in the Raft River Mountains especially at lower elevations but no specimens were collected. Aldrich in his revision includes northern Utah in the range of *tenuissima* and indicates a record of occurrence on his distribution map (1944:602), for the Raft River Mountains, this possibly being based on Cottam's observation.

Sitta canadensis Linnaeus. Red-breasted Nuthatch. Clear Creek, May 18-21, 1948, May 28, 1955, May 11, 1956. Total specimens, 7. Also observed at George Creek on October 4, 1947. In the spring before moving into the breeding habitat of the coniferous forest, these nuthatches were found in the sage, pygmy forest, and cottonwoods. Amadon found them common in the fir forest in September, 1941.

Certhia familiaris montana Ridgway. Brown Creeper. North slope Raft River Mts., 2 mi. S. Clear Creek Forest Service Camp, 8,750 ft., May 28, 1955. Total specimens, 3. The species was rare in our experience, only one other being seen at George Creek on October 4, 1947. They were all in the spruce-fir forest.

Cinclus mexicanus unicolor Bonaparte. Dipper. George Creek, October 4, 1947; Clear Creek, May 29, 1955. Two specimens. Sight records were obtained at Pine Creek, July 9, 1947, at Clear Creek, June 14, 1951, and George Creek, June 12, 1955. Cottam states that several individuals were found in the higher mountain canyons of the Raft River range.

Troglodytes aedon parkmanii Audubon. House Wren. George Creek, June 27, 1947, and May 26, 1949; Clear Creek, May 17, 1948, and June 13, 1951; Pine Creek, July 9, 1947; One Mile Canyon, June 29, 1949. Total specimens, 11. One was seen in the pygmy forest near George Creek on May 27, 1955. During the nesting season the species was common in the mountains wherever there was a tangle of vegetation. Thus they occurred in dense streamside thickets of willows, birch and rose in canyon bottoms, in patches of service berry or current on hillsides, in mountain mahogany groves, in aspen-birch stands, in Douglas and white firs up to about 9,000 feet. Two adults with young were seen at Holts Canyon, July 8, 1949. In the fall they flocked with other species, two being seen on August 24 in a group of juncos, kinglets, and warblers. Amadon flushed one from a large sagebush near Clear Creek on September 10 and again on the 13th 1941.

Troglodytes troglodytes (Linnaeus). Winter Wren. Cottam observed a single individual at close range in a brush pile in Clear Creek Canyon on August 5, 1936, and although the bird was not collected he states there was no question regarding its identity.

Telmatodytes palustris (Wilson). Long-billed Marsh Wren. Ridgway (1877:-366) saw the species at Deep Creek[–Snowville] on October 5, 1868.

Catherpes mexicanus (Swainson). Cañon Wren. Cottam observed two individuals on the south exposure of a cliff at 7,500 feet and heard others in the Raft River Mountains. No dates were given.

Salpinctes obsoletus obsoletus (Say). Rock Wren. Clear Creek, May 11, 1956. One specimen. Sight records for the species are as follows: Pine Creek, July 10, 1947; George Creek, July 13, 1947; Standrod, May 1, 1950; Clear Creek, May 29 and June 8, 1955. Cottam saw several and collected one on August 6, 1936, on the talus slope of a high mountain cirque.

Dumetella carolinensis (Linnaeus). Catbird. A sight record was obtained at George Creek, about 2 miles south of Yost on June 12, 1955. It was in a dense tangle of dead willows and wild rose.

Oreoscoptes montanus (Townsend). Sage Thrasher. Kelton, September 10, 1932; Nafton, May 19, 1948; 1 mi. W. Standrod, Cassia Co., Idaho, May 21, 1948. Total specimens, 3. Thrashers were seen almost daily at Standrod during the summer of 1949 and also upon our visits to Yost, Park Valley, and the City of Rocks. The species occurred primarily in sage but also in greasewood. Cottam saw several in August in the Raft River Mountains.

Turdus migratorius propinquus Ridgway. Robin. Clear Creek, May 16, 1948, and June 11, 1951. Total specimens, 3. This was one of the commonest birds of the region being seen almost daily at Standrod during the summer of 1949 and at all collecting stations on all visits. Robins were found in fields near streams and in willows, cottonwoods, junipers, birch, mountain mahogany, Douglas and white firs, and aspens. Flocks were observed in April and again in late August. On June 14, 1951, two families were found, each with young that had recently left the nest. In the Clear Creek area where the pygmy forest existed adjacent to the canyon bottom ecologic formation of birch, willow, and cottonwood, they nested in the latter but foraged extensively in the pygmy forest, making regular sorties to and from the two formations. Amadon found robins common in flocks, in September, frequenting chokecherry bushes. Two specimens were taken.

Hylocichla guttata guttata (Pallas). Hermit Thrush. Clear Creek, May 27, 1955. One specimen. This migrant was obtained in a juniper. It was very fat and the ovary was not greatly enlarged. It measures: wing, 83.8, tail 64.2, exposed culmen 13.0, tarsus 27.0, middle toe without claw, 15.5 millimeters.

Hylocichla guttata vaccinia Cumming. Hermit Thrush. Clear Creek, May 9, 1933. One specimen. This (U. of U. No. 6723) was identified by H. C. Oberholser in 1938 as of this race which has a breeding range ascribed to it of Vancouver

Island and the mountains of extreme northern Washington and adjoining British Columbia (see Jewett, *et al.*, 1953:518).

Hylocichla guttata oromela Oberholser. Hermit Thrush. Clear Creek, May 9, 1933. One specimen. This (U. of U. No. 6722) was also identified by H. C. Oberholser in 1938. It seemingly represents the population of the Cascades which have been referred to *slevini* by Miller (1941:262) and to *oromela* by Aldrich (in Jewett, Taylor, Shaw, Aldrich, 1953:516, 518). Reference to this specimen has previously been made by Behle and Selander (1952:29).

Hylocichla guttata polionota Grinnell. Hermit Thrush. Clear Creek, May 9, 1933, May 17, 1948, June 12, 1951; May 27-28, 1955, June 9, 1955, May 11, 1956; George Creek, June 21, 28 and July 17, 1947, May 24-26, 1949, May 20, 1954, May 27, 1955, June 9, 1955; Pine Creek, July 9, 1947. Total specimens, 22. Hermit Thrushes were common breeding birds being seen on all visits to the mountain localities. In May they occurred in the canyon bottoms in birch and cottonwood as well as aspen, but in June during the breeding season they were more localized in the coniferous forest. A juvenile was taken on July 9. Cottam observed several at Clear Creek, August 4-6, 1936, and saw two broods of young at 8,500 feet. On several occasions he noted hermit thrushes feeding on mushrooms.

In an earlier discussion of the variation of the breeding hermit thrushes in Utah (Behle, 1948:76), it was pointed out that those from southwestern and central southern Utah belong to the race *polionota*. Only three specimens were then available from the Raft River Mountains and while two were closest in their measurements to *polionota*, one approached *auduboni* in larger size. The much larger sample now present offers corroboration that the population from northwestern Utah represents *polionota*. Fifteen males have measurements as follows: wing, 98.6-104.5 (100.4); tail, 72-78.6 (75.4); bill from nostril, 9.2-10.6 (9.8); tarsus, 28.2-31.0 (29.7); middle toe less claw, 13.2-17.7 (16.2). Six females averaged: wing, 92.5-97.1 (94.7); tail, 68.4-71.4 (70); bill from nostril, 9.1-11 (10); tarsus, 27.9-30 (29.3); middle toe less claw, 15.6-17.4 (16.4).

Hylocichla ustulata swainsoni (Tschudi). Swainson Thrush. Clear Creek, June 11-14, 1951; George Creek, June 12, 1955. Total specimens, 9. All but one were males with testes ranging from 9 to 12 millimeters in length. The female had ova 3 millimeters in diameter and an enlarged oviduct. They were found in willow-birch thickets in canyon bottoms. Amadon saw one in September, 1941.

These represent the grayer race of the Great Basin area formerly known as *almae*, but now considered to be a synonym of *swainsoni* (see Jewett, *et al.*, 1953:521).

Hylocichla fuscescens salicicola Ridgway. Veery. Clear Creek, June 14, 1951. One specimen. This has been reported by Behle and Selander (1952:29). It was taken from a birch, willow, aspen association, and was probably breeding judging by the date and the testes being 10-millimeter long. Amadon saw a thrush of this type at Clear Creek in September, 1941.

Sialia mexicana Swainson. Western Bluebird. A lone individual was seen by Porter at Standrod, August 12, 1949. It is rare throughout northern Utah.

Sialia currucoides (Bechstein). Mountain Bluebird. Clear Creek, May 20, 1948; George Creek, July 15, 1947, and May 24, 1949; Junction Reservoir, July 29, 1950. Total specimens, 6. The species was observed at Standrod and other localities on the north side of the mountain daily throughout the spring and summer. They occurred in the open desert shrub formation and in the pygmy forest. Five were seen at Bull Flat on top of the mountain on May 28, 1955. Cottam found these bluebirds common during the middle of September, 1941, at the base of the Raft River and Grouse Creek mountains. They were especially abundant in the town of Grouse Creek on September 19 and appeared to be in migration. Specimens were taken by Cottam near the summit of the Raft River Mountains on August 6, 1936, at Yost during June, 1941, and at Grouse Creek on September 19, 1941.

Myadestes townsendi townsendi (Audubon). Townsend's Solitaire. Standrod, May 7, 1933; George Creek, June 20, 1947; Park Valley, January 29, 1951. Total specimens, 3. One was also seen at Park Valley, January 1, 1951. During his September visit Amadon twice saw the species along the creek, once with robins.

He also found the species at the mountain top perching in tops of scattered firs like kingbirds. Two specimens were secured. Cottam took a specimen in May.

Regulus satrapa olivaceous Baird. Golden-crowned Kinglet. Clear Creek, June 14, 1951, and June 10, 1955. Total specimens, 2. These occurred in dense conifers at 8,750 feet as breeding birds. Another was seen at 9,000 feet in the coniferous forest on June 10, 1955. Amadon found the species to be common in the fir forest in September, 1941, in the Clear Creek area.

Regulus calendula cineraceus Grinnell. Ruby-crowned Kinglet. Standrod, May 5-7, 1933; Clear Creek, May 18, 1948, and June 14, 1951; George Creek, May 24-26, 1949. Total specimens, 10. This kinglet was also observed at Standrod on October 4, 1947, April 18 and May 1, 1950. Nonbreeding fall and spring specimens occurred in canyon bottoms and along stream courses in willows and birches. As breeding specimens, they frequented the coniferous forest. Amadon found them common at Clear Creek in migration in September, 1941. They occurred everywhere except in the treeless areas and the fir forest. Two specimens were secured. Cottam indicates that two immature specimens were collected in Raft River Canyon in September, 1941.

Bombycilla garrula pallidiceps Reichenow. Bohemian Greater Waxwing. A flock of about twelve of these winter visitants was seen at Park Valley on December 29, 1951.

Bombycilla cedrorum Vieillot. Cedar Waxwing. Yost, May 21, 1954. Total specimens, 2. These were taken in the juniper-piñon forest. The ova of the female measured only 1 millimeter in diameter. The sex of the other specimen was not determined.

Lanius excubitor invictus Grinnell. Northern Shrike. Park Valley, January 29, 1951. One specimen. Apparently the species is not uncommon as a winter visitant to the region, at least some years, as indicated by three sight records all in 1949: Raft River near Yost on August 24, and Standrod, August 29 and 30.

Lanius ludovicianus nevadensis Miller. Loggerhead Shrike. Standrod, June 14, 1955; 2 mi. SW. Grouse Creek, June 17, 1956. Two specimens. This species of shrike was fairly common as a breeding bird as indicated by twelve records in 1948-49 from Naf, Standrod, and Yost on the north side of the mountain and Rosette and Park Valley to the south. All were in the desert shrub formation.

Sturnus vulgaris vulgaris Linnaeus. Starling. Two were seen at Park Valley on December 29, 1951, and one at Naf on May 27, 1955. A nest containing young was found in a woodpecker hole in a shed at Lynn on June 16, 1956. The rancher stated that this was the first year the species had nested there.

Vireo solitarius cassinii Xantus. Solitary Vireo. Clear Creek, September 3, 1932, and May 17, 1948. Total specimens, 2. They were migrants taken in an aspen-birch association. Amadon also took a specimen at Clear Creek on September 13, 1941. The previous day he had heard one singing feebly.

Vireo gilvus swainsonii Baird. Warbling Vireo. Clear Creek, May 18, 1948; N. slope Raft River Mts., 8,000 ft., 1 mi. S. Standrod, August 25, 1949. Total specimens, 4. In each case these migrants were taken in aspens.

Vireo gilvus leucopolius (Oberholser). Warbling Vireo. Clear Creek, July 31, 1931, May 17-20, 1948, June 12-14, 1951, May 28, 1955; George Creek, July 15, 1947, May 23-27, 1949; Pine Creek, July 9, 1947. Total specimens, 34. This was the commonest bird of the canyon bottoms occurring with greatest frequency in willows, birches, cottonwoods, and aspens, but occasionally ranging out to stands of mountain mahogany. The highest at which they occurred was 9,000 feet. The species was also seen at Holts Canyon, July 8, 1949, and at Barnes and One Mile canyons on August 24, 1949. Young were seen along George Creek on July 9, 1947. Cottam noticed several broods of young in August, 1936, distributed from the base of the Raft River Mountains up to 9,000 feet. None were found on two September visits suggesting that the species migrates early.

Vermivora celata celata (Say). Orange-crowned Warbler. A specimen taken by Cottam in the Raft River Canyon about 8,000 feet on September 18, 1941, although molting and with sex undetermined has been identified by H. C. Oberholser as of this race. It is a darker brown than our fall examples of *orestera*.

Vermivora celata orestera Oberholser. Orange-crowned Warbler. Clear Creek, May 17-21, 1948, August 24-25, 1949, June 14, 1951, May 28 and June 9, 1955, May 10-11, 1956; Standrod, August 30, 1949; George Creek, June 27, 1947, and May 24-26, 1949. Total specimens, 16. The species was also seen in 1949 at Clear Creek on June 14, at Standrod on August 23, at Yost on August 24, and on the north slope of the mountain 1 mile south of Standrod on August 24. A specimen taken on May 28 had a 15-millimeter ovum in the oviduct and a brood patch. During the nesting season the species occurred in willows, birches, chokecherry, sage, and aspens but the preferred habitat was the edge of deciduous growth or in clearings interspersed in heavily vegetated areas where there were low shrubs like chokecherries, young aspens, wild rose, and current bushes. The males were in full song in late May and early June but the birds were difficult to locate partly because of a ventriloquist quality to the song and furtive nature of the birds. By August 23, as post-breeding birds, individuals were seen in fields at the base of the mountain at Standrod. Amadon saw this warbler a few times in September, 1941, and collected one specimen at Clear Creek. Cottam also took a specimen and saw the species as late as September 18, 1941.

Thirteen males had measurements as follows: wing, 60-65.6 (62.4); tail, 46.7-51.8 (49.2); exposed culmen, 8.7-10.5 (9.6); tarsus, 18.2-19.6 (18.5); middle toe without claw, 9.5-10.6 (10). Two females measured: wing, 58.8-60 (59.4); tail, 47-48.5 (47.7); exposed culmen, 10.1-10.3 (10.2); tarsus, 17.4-18.7 (18); middle toe without claw, 8.3-10.4 (9.3).

Vermivora ruficapilla ridgwayi van Rossem. Nashville Warbler. Summit One Mile Canyon, 8,000 ft., August 24, 1949; mouth One Mile Canyon near Standrod, August 29, 1949; N. slope Raft River Mts., 8,000 ft., 1 mi. S. Standrod, August 25, 1949. Total specimens, 4. One of these migrant warblers was found in a birch thicket along a stream; the other three in mountain mahogany. Cottam saw four in the Raft River Mountains during August 6-9, 1936, in timbered areas from 7,500 to 8,000 feet.

Vermivora virginiae (Baird). Virginia's Warbler. The only record we have is one seen in a hillside thicket at George Creek on June 27, 1947. In contrast Levy (1950:7) found this species to be fairly common as a breeding species in southern Idaho, reporting four pairs at the City of Rocks on June 21 with three specimens having been collected. He states they are closely restricted to mountain mahogany on hillsides.

Dendroica petechia morcomi Coale. Yellow Warbler. South Fork Raft River (near Yost), September 7, 1932; Clear Creek, May 20, 1948, June 15, 1951; George Creek, May 26, 1949; Yost, May 27, 1949; mouth One Mile Canyon near Standrod, July 5, 1949. Total specimens, 13. We found this warbler to be common in willows and cottonwoods of canyon bottoms and towns. They were observed by Porter every few days at Standrod and vicinity during the summer of 1949. Cottam found them sparingly in the region in August, 1936.

Dendroica auduboni memorabilis Oberholser. Audubon's Warbler. Clear Creek, May 17-21, 1948, August 25, 1949, June 12-15, 1951, May 28, 1955, May 11, 1956; George Creek, May 10 and July 17, 1947, May 23-25, 1949, 6 mi. W. Yost, August 24, 1948. Total specimens, 24. This warbler is a common summer resident in the aspen-coniferous forest but it occurs in migration in May and late August in the pygmy forest, cottonwoods, and riparian associations. Cottam collected three specimens in the region, an immature female at Clear Creek on August 7, 1936, and two males at Grouse Creek on September 19, 1941. One of the latter he assigned to the race *auduboni*.

Dendroica nigrescens (Townsend). Black-throated Gray Warbler. One mi. N. Rosette, May 20, 1948; George Creek, May 25, 1949; Yost, May 21, 1954. Total specimens, 4. We saw this fairly common summer resident of the pinon-juniper forest on all occasions during the breeding season. Cottam took a specimen on August 6, 1936, at Clear Creek.

Dendroica townsendi (Townsend). Townsend's Warbler. Summit One Mile Canyon, 8,000 ft., August 24, 1949; Standrod, September 8, 1949. Total specimens, 4. One was also seen in the mountains at 9,000 feet, 2 miles south of Standrod on August 25, 1949. The species is a transient. One specimen was collected by Cottam

in a willow-aspen-alder community, 8,000 feet, on September 18, 1941, on Raft River Creek and he saw another in white fir on the same date.

Oporornis tolmiei monticola Phillips. MacGillivray's Warbler. Clear Creek, June 12, 1951; George Creek, June 24-28, 1947, May 26, 1949, and June 12-13, 1955; Yost, May 27, 1949. Total specimens, 10. This warbler was a fairly common summer resident frequenting thickets of birch, willow, wild rose, currant, mountain spray, and chokecherry along dry hillsides and canyon bottoms. It was observed every few days through the summer of 1949 by Porter near Standrod and Yost. Two specimens were taken by Cottam 3½ miles south of Standrod on September 17, 1941, and at Johnson Creek on September 19.

All the University of Utah specimens are males and seem to have been breeding, judging by their behavior and testes size. They are uniformly colored with one exception where the yellow of the underparts has considerably more orange. This specimen (U. of U. No. 9610) taken on May 26 had testes 8-millimeters long and behaved as though it was a breeding bird. The difference between wing and tail length averages for the series 3.9 millimeters with extremes of 2.6 and 5.5. The measurements are as follows: wing (chord), 58-62.5 (60.8); tail, 53.8-60 (57.1); culmen, 9.4-11.5 (10.3); tarsus, 20.5-22.1 (21.4); middle toe less claw, 10.4-12.5 (11.5).

Oporornis tolmiei austinsmithi Phillips. MacGillivray's Warbler. South Fork Raft River near Yost, September 7, 1932. One specimen. This migrant male has a different shade of yellow on the underparts and a more olive back than examples of *monticola*. It was identified by Allan R. Phillips. It measures as follows: wing 62.4; tail, 55.7; culmen, 10; tarsus, 20.4; middle toe less claw, 11.5. The difference between wing and tail is 6.7 millimeters.

Geothlypis trichas occidentalis Brewster. Yellowthroat. Cottam saw migrants at Johnson Creek and near Raft River Pass on September 18-19, 1941. Ridgway (1877:366) saw the species at Deep Creek [=Snowville] on October 5, 1868.

Icteria virens auricollis (Deppe). Yellow-breasted Chat. Only one was seen on September 1, 1949, at Grouse Creek.

Wilsonia pusilla pileolata (Pallas). Wilson's Warbler. Clear Creek, May 17, 1948, May 28, 1955; Raft River Mts., 9,000 ft., 2 mi. S. Standrod, August 24, 1949. Total specimens, 4. This warbler was also seen at Standrod, August 29, 1949. It was fairly common as a spring and fall migrant occurring in canyon bottom vegetation like willows and birches and also in the pygmy forest. Amadon saw it on two or three occasions at Clear Creek in September, 1941, and Cottam took a specimen at Clear Creek on August 6, 1936.

Members of the race *W.p. pusilla* may also pass through the region for Cottam (1942:127) reports a specimen taken at Pilot Peak, a short distance to the southwest, on September 20, 1941.

Passer domesticus domesticus (Linnaeus). House Sparrow. These sparrows were common around all the ranches of the region as permanent residents.

Dolichonyx oryzivorus (Linnaeus). Bobolink. This is a sparse summer resident of the region. Several were seen by Richard Hansen on June 29, 1952, in wet meadows at Goose Creek, and Cottam (1942:128) found one at the west base of Pilot Peak, Nevada, immediately to the southwest on September 19, 1941.

Sturnella neglecta neglecta Audubon. Western Meadowlark. Common summer resident in fields and meadows at the base of the mountain, being seen on virtually all visits to Nafton, Yost, and Park Valley and throughout the summer at Standrod.

Agelaius phoeniceus utahensis Bishop. Redwinged Blackbird. One mi. NW. Standrod, May 21, 1948; Yost, May 27, 1949; Lynn, and 2 mi. S. Lynn, June 15-19, 1956. Total specimens, 8. The redwing was relatively uncommon being seen only occasionally in wet meadows, in willows along streams and at small marsh areas or farm ponds. There are ten records for Standrod, extending from April 18 to August 4, over a three year period. The species was also seen at Yost on May 27 and at Lynn, May 25, 1949. A small flock was seen at Park Valley, August 23, 1949. Cottam reports a few seen near Yost.

Levy (1950:7) states that birds taken in the south-central areas of southern Idaho have been identified as of the race *nevadensis*. The specimens from the Raft River Mountains seem to be closest to *utahensis*.

Icterus bullockii bullockii (Swainson). Bullock's Oriole. Grouse Creek, June 17, 1956. One specimen. Sight records were obtained at Nafton, May 18, 1948, and at Lynn on May 25, 1949, and June 19, 1956.

Euphagus cyanocephalus (Wagler). Brewer's Blackbird. One mi. NW. Standrod, May 21, 1948; George Creek, July 15, 1947, May 26, 1949, and June 12, 1955; Yost, May 25, 1949, and 3 mi. SE. Yost, May 21, 1954; Lynn, May 25, 1949. Total specimens, 10. This blackbird was common in barnyards, pastures and fields at nearly every ranch in the region, being observed on all our trips and daily at Standrod during the summer of 1949. There Porter located five nests in wet pastureland on May 18, 1950. Of these, two had five eggs, two had four eggs and one had one egg, so egg-laying was then in progress. On June 14, 1955, about a dozen individuals were seen taking refuge from a strong wind at the base of an embankment at a cut along the highway. Cottam took one specimen at Yost on September 28, 1935.

Levy (1950:7) referred a bird from Hollister, Idaho, taken on June 17 to the race *aliastus*, described by Oberholser (1932:9). This race was not recognized by Miller (1941:259) but more recently Aldrich (in Jewett, *et al.*, 1953:592) has stated that recognition of the race seems thoroughly justified. The Raft River birds do not seem to show the characters attributed to the western race, so if *aliastus* is a recognizable race the Raft River examples represent the Rocky Mountain race.

Molothrus ater artemisiae Grinnell. Brown-headed Cowbird. Lynn, May 25, 1949, and June 19, 1956. Total specimens, 5. Cowbirds were also seen along George Creek, 2 miles south of Yost on June 19, 1956.

Piranga ludoviciana (Wilson). Western Tanager. Clear Creek, May 19, 1948, and June 12, 1951; George Creek, May 23, 1949. Total specimens, 4. In addition the species was seen at Clear Creek on May 17, 1948, at Standrod on May 19, 1948, and May 20, 27, 1950, at the summit of One Mile on September 8, 1949, and at George Creek, June 13, 1955. In late May and early June, tanagers were found in sage, the pygmy forest and birches in canyon bottoms. Cottam saw several from August 4-6, 1936, ranging from 7,500 feet to near the summit of the Raft River Mountains but didn't see any in September which suggests they migrate early.

Pheucticus melanocephalus melanocephalus (Swainson). Black-headed Grosbeak. Clear Creek, May 21, 1948, and June 15, 1951; 2 mi. S. Lynn Reservoir, June 18, 1956. Total specimens, 3. One specimen was taken in an aspen, another in mountain mahogany, and the third in willows. All were singing males. Evidently the species is a rare summer resident occurring from the valleys up to the aspen belt.

Passerina amoena (Say). Lazuli Bunting. This species was observed five times in May, 1949, at Standrod where it occurred in streamside thickets. Amadon obtained a specimen from an aspen clump along Clear Creek on September 12, 1941.

Hesperiphona vespertina brooksi Grinnell. Evening Grosbeak. Snowville, January 27, 1951. Total specimens, 2. These were from a flock of ten. A similar sized flock was seen at Park Valley, December 29, 1951. The species has a status of winter visitant.

Carpodacus cassinii Baird. Cassin's Finch. Clear Creek, May 17-21, 1948, and June 13-15, 1951, May 28, 1955; N. slope Raft River Mountains near Standrod, May 6, 1933, April 18, 1950; Holts Canyon, June 22, 1949; George Creek, June 20-28, 1947, May 26, 1949; Yost, May 21, 1954; Raft River, 5 mi. W. Yost, August 24, 1949; Park Valley, December 29, 1951. Total specimens, 23. This finch is a common resident of the region. In April and May it was found several times in flocks in the juniper-sage association. During the breeding season in June it occurred mainly in Douglas and white firs and occasionally in mountain mahogany, although one female with a brood patch was taken in the junipers. In late August the species was again in the lowlands, an immature being taken along the Raft River. A flock of twenty-five was seen at Park Valley on December 29, 1951. Cottam took one specimen on September 18, 1941, at 8,000 feet on the north slope of the Raft River Mountains.

When Duvall (1945:203) described the race *vinifer* he indicated that its range included southwestern and central Idaho. This suggested that the birds from the Raft River Mountains might be of this race, the validity of which has recently been recognized by Aldrich (in Jewett, *et al.*, 1953:603). However the series shows no differences from a comparable series from the Wasatch and Uinta mountains of central northern and northeastern Utah which represent the race *C. c. cassinii*.

Carpodacus mexicanus frontalis (Say). House Finch. Lynn, June 19, 1956. Total specimens, 4. This finch was relatively uncommon being seen in addition only at ranches at Yost on July 13, 1947, at Standrod, August 23-24, 1949, in the pygmy forest at Clear Creek on May 29, 1955. They were nesting at Lynn in mid-June. Cottam saw several in September, 1941, near Yost, at Johnson Creek, Standrod, Grouse Creek, and Pilot Peak. A specimen apparently saved only for its stomach contents was taken 10 miles north of Goose Creek on September 19.

Leucosticte tephrocotis littoralis Baird. Gray-crowned Rosy Finch. Junction, January 28, 1951. Total specimens, 3. They were taken from a mixed flock of about fifty birds.

Leucosticte tephrocotis tephrocotis (Swainson). Gray-crowned Rosy Finch. Junction, January 28, 1951. One specimen. This was from the same flock as the above noted specimens.

Leucosticte atrata Ridgway. Black Rosy Finch. On May 28, 1955 Porter was descending from the mountain top near Bull Flat and while at the base of an extensive vertical cliff saw a finch fly overhead with a blackish belly which he thought may have been of this species. There is limited habitat for the species in this mountain range but a few may breed at this particular place about a mile south of the Clear Creek Forest Service Camp.

Spinus pinus vagans Aldrich. Pine Siskin. Clear Creek, May 17, 1948, and June 14, 1951; George Creek, June 22 and July 15-17, 1947. Total specimens, 6. This is a rather sparse, wide-ranging summer resident occurring as a breeding bird in aspens, spruces, the pygmy forest and rarely the streamside vegetation. Several additional sight records in June and July for One Mile, and George Creek were recorded. A large flock of about fifty individuals was seen at 8,000 feet, one mile south of Standrod on August 25, 1949. Cottam found the bird fairly common on August 5, 1936, in the higher mountains and noted one adult with a brood of five young about two-thirds grown. On September 18, 1941, a flock of twenty together with pale goldfinches was seen near Standrod. The birds were feeding on Amaranthus seeds.

Spinus tristis pallidus Mearns. American Goldfinch. Yost, May 27, 1949. Total specimens, 2. Observed every few days throughout the summer of 1949 at Standrod. A flock of fifteen was seen there May 25, 1949. The species was also seen at Johnson Creek, June 22, 1947; at Yost, July 13, 1947; at Lynn on May 25, 1949, and June 17, 1956, and at Naf on August 25, 1949. Cottam saw several near Standrod feeding with Siskins and another pure flock on Johnson Creek in September, 1941.

Loxia curvirostra Linnaeus. Red Crossbill. Amadon heard a flock of noisy finches which were probably crossbills in the fir forest near the mountain top in September, 1941.

Chlorura chlorura (Audubon). Green-tailed Towhee. Dove Creek, September 10, 1932; Clear Creek, May 17-21, 1948 and June 12, 1951; Standrod, July 20, 1949; George Creek, June 24-26, 1947, May 23-26, 1949, and May 20, 1954. Total specimens, 14. The species was common, being seen on all visits to the several collecting stations. It was seen or taken primarily in sagebrush, usually where there were bushes of snowberry, service berry, currant, or elderberry. A few frequented mountain mahogany or junipers that were interspersed with sage. Young were observed on July 12, 1947. Amadon found this towhee to be common either singly or in pairs in September, 1941, in large sagebrush along the creek or in small scattered pinon pines. One specimen was taken by him. In early August, 1936, Cottam saw one brood learning to fly. A specimen was also taken by Cottam in September, 1941.

Pipilo erythrophthalmus montanus Swarth. Rufous-sided Towhee. George Creek, May 26, 1949. One specimen. This towhee was equally sparse in the Deep Creek Mountains to the south yet is fairly common in the Wasatch Mountains to the

east and southeast. In the latter range it is most frequently found in stands of scrub oak (*Quercus gambeli*). The absence of oak in the Deep Creek and Raft River mountains may account for the scarcity of towhees in these Great Basin ranges. It is not certain whether the species breeds in the Raft River Mountains. The single specimen was taken in a willow thicket and the largest ovum was 1 millimeter in diameter. Cottam saw one at Johnson Creek in September, 1941.

Passerculus sandwichensis nevadensis Grinnell. Savannah Sparrow. This fairly common summer resident doubtless occurs in the region although we didn't happen to encounter it. However, Cottam (1942:128) collected an atypical specimen on September 20, 1941, at the west base of Pilot Peak in Nevada, a location just to the southwest of the Raft River Mountains and Levy (1950:8) found it to be common in southern Idaho in moist-grassy meadows.

Pooecetes gramineus confinis Baird. Vesper Sparow. Clear Creek, May 17-20, 1948, and May 28, 1955; Bull Flat, 10,200 ft., June 10, 1955; Nafton, May 11, 1956; 2 mi. S. Lynn Reservoir, June 15, 1956. Total specimens, 7. The species was found in sagebrush from the lower valleys and slopes up to the flat mountain top. Thus the species was seen at virtually every town and collecting station. At Standrod this sparrow was found daily during the summer of 1949. Flocks numbering as many as thirty individuals were seen on May 1. A nest with three eggs was found on May 19 and another with four eggs on May 27. The June 10 specimen from the mountain top had an ovum measuring 5 millimeters in diameter. Amadon found the species common singly or in pairs in the stands of sagebrush in September, 1941, at Clear Creek and one specimen was taken. Cottam saw a few in sagebrush early in August, 1936, up to the mountain top mesa and in mid-September, 1941, he found them abundant near Yost, Johnson Creek, and Grouse Creek. They occurred generally in sage or greasewood but occasionally in the piñon-juniper association. The one specimen taken was a migrant listed under the next race.

Pooecetes gramineus affinis Miller. Vesper Sparrow. The specimen taken by Cottom at Yost, September 18, 1941, represents this population of the Pacific Northwest coastal region.

Chondestes grammacus strigatus Swainson. Lark Sparrow. It was observed only at Nafton, May 16, 1948, and at Standrod, August 23-24, 1949. Cottam saw the species at the base of the Raft River Mountains in July and August, no years given.

Amphispiza bilineata deserticola Ridgway. Black-throated Sparrow. This sparrow was seen only once at Standrod on May 19, 1948.

Amphispiza belli (Cassin). Sage Sparrow. Six mi. S. Grouse Creek, June 17, 1956. One specimen. It was seen only once in addition at Standrod on May 21, 1948. Cottam found them from June through mid-September in the Raft River Mountains occurring from the base up to 8,000 feet. Ridgway (1877:366) reported this sparrow at Deep Creek [=Snowville] on October 5, 1868.

The one specimen available is badly worn but seems slightly darker than representatives of *nevadensis* from farther south in the Great Basin. Thus it seems to show an approach to the race *campicola*. Levy (1950:8) refers three specimens from Jerome, Idaho, to *campicola*.

Junco oreganus (Townsend). Oregon Junco. A flock of five was seen at Standrod on October 3, 1947, and another small flock of about eight at Park Valley on January 8, 1950. Probably the species is a common winter visitant in the region as it is elsewhere in Utah. Two individuals that had not yet migrated north were seen along George Creek, 3 miles south of Yost on May 27, 1955. These sight records refer to members of the race *montanus* or *shufeldti* rather than to *J.o. mearnsi*. Cottam collected a specimen in the Raft River Mountains on September 18, 1941, which although marked a male, seems to be a female. The wing measures 75.5 millimeters. If a female this would place it with the race *montanus*. It is identified on the tag as *shufeldti*. He saw several pink-sided juncos (*J.o. mearnsi*) on the north slope of the Raft River Mountains in mid-September, 1941.

Junco caniceps caniceps (Woodhouse). Gray-headed Junco. Standrod, May 6-7, 1933; Clear Creek, June 14, 1951, May 28 and June 10, 1955, May 11, 1956; George Creek, June 21-July 17, 1947, May 25-26, 1949; May 20, 1954. Total specimens, 19. As migrants these juncos were found in canyon bottoms and the juniper forest in late

April and May. A flock of fifteen was seen on May 1. As breeding birds they occurred in aspens and conifers, particularly on the edges of these forested areas. However, they may wander to other nearby ecologic formations for Levy (1950:8) saw one on June 21, 1949, at the City of Rocks in nearby Idaho on a ridge covered with juniper and mountain mahogany. We observed one at Clear Creek gathering nesting material on June 9, 1955, and young were seen on July 12, 1947, at George Creek. Cottam saw the species in September, 1941, at Johnson Creek and along the Raft River together with pink-sided juncos and hybrids of the two.

According to Woodbury *et al.* (1949:34) the pink-sided junco (*Junco oreganus mearnsi*) is supposed to be a sparse breeder in the Raft River Mountains in nontypical form there hybridizing freely with *Junco caniceps*. The specimens collected do not substantiate this. Of the nineteen juncos, fourteen are pure *Junco caniceps*. The other five show varying degrees of hybridization. Only two of these hybrids were certainly breeding birds. Of these a male taken on June 14 is *caniceps* in all characters save the sides which show a slight wash of pink. A female taken June 24 has the dorsum brown like *mearnsi*; otherwise is it like *caniceps*. Another female taken May 28 had a similar character combination but the back is less brownish. It may have been breeding since several ova measured 2 millimeters in diameter and there was no fat associated with the feather tracts beneath the skin. A specimen of undetermined sex was also taken on May 28 and has a red back as in *caniceps* and moderately pink sides. The head is gray as in both *caniceps* and *mearnsi* with the added feature of considerable red on the forehead. One other nonhybrid example of *caniceps* shows this red in the crown. The fifth hybrid, a female taken May 11, had ova 1 millimeter in diameter. Its back is intermediate in coloration between the two forms and shows considerable pink on the sides. Amadon collected two juncos in September, 1941. One is predominantly *caniceps* but the back is duller than normal and there is more buff on the flanks. The other was almost typical *mearnsi* but the head is very blackish. He found juncos common in the fir forest but they appeared along creeks at lower elevations on September 17.

Thus it would appear that the junco population of the Raft River Mountains in Utah is essentially *caniceps* but that the area is on the southern margin of the region of hybridization with *J.o. mearnsi*. The population in the Deep Creek Mountains to the south shows no hybridization of these two forms. Levy (1950:8) states that the pink-sided junco is common at higher elevations in the coniferous zone in southern Idaho and notes that several specimens were taken at the City of Rocks and at Mt. Harrison on June 21, 1948. He also states that *J.o. mearnsi* and *J. caniceps* appear to interbreed in the general area of Cassia County, Idaho, although typical specimens of both species have been taken in this region. Miller (1941:185-186) did not have any juncos from the Raft River Mountains in Utah but comments (*op. cit.*: 204) on nine breeding birds from the Goose Creek and Raft River Mountains of Idaho, six of which were typically *caniceps* while three were hybrids. The main area of hybridization in Utah between *Junco caniceps* and *Junco oreganus mearnsi* is farther east in the Wasatch Mountains as noted by Miller.

In this Raft River Mountain series from Utah there is a complete gradation in the color of the crown-forehead area from light to dark gray color with no segregation into the neutral gray and light neutral gray categories mentioned by Miller as a feature of *Junco caniceps caniceps* populations. The same type of gradation occurs in the Deep Creek series. However, there are a few more of the dark gray types in the Raft River series. This may indicate the influence of the darker headed *mearnsi* type but again this variation may be independent of the hybridization between the two forms in northern Utah and southern Idaho.

With respect to the coloration of the rectrices, eleven out of fourteen pure *caniceps* have the inner web of the fifth rectrix all white. The other two show a mixture of black and white areas. Ten have the inner web of the fourth rectrix showing a combination of approximately equal amounts of black and white, while four are mostly black with just a little white.

Spizella passerina arizonae Coues. Chipping Sparrow. Clear Creek, May 18-21, 1948, June 12-15, 1951; George Creek, June 26, 1947, May 26, 1949, June 13, 1955; 3 mi. SE. Yost, May 21, 1954. Total specimens, 19. The species was also observed at Pine Creek, July 10, 1947. The chipping sparrows occurred as breeding birds in mountain mahogany and the sage-juniper-piñon pine association. In late August

they were found up to 9,000 feet at the edge of the aspen-conifer forest. In September Amadon collected one from a flock at the edge of junipers near Yost. Cottam saw many in August, 1936, but smaller numbers in September, 1941. Three specimens were collected by him, two of which are referable to this race. One is an unsexed specimen taken in September, 1941, no day specified and with locality simply Raft River Mountains. The other is an immature male taken in Grouse Creek Canyon, September 19, 1941.

The University of Utah series is fairly uniform and differs from Pacific Coast examples in the ways indicated by Grinnell (1927:81) when he described the coastal race *stridula*. The validity of a Pacific Coast subspecies was questioned by Miller (Grinnell and Miller, 1944:514) but the race has recently been pronounced as distinct by Aldrich (in Jewett *et al.*, 1953:645).

Spizella passerina stridula Grinnell. Chipping Sparrow. The specimen referred to this race was taken by Dr. Cottam on September 17, 1941, 3½ miles south of Standrod. Dr. Aldrich calls it *stridula* toward *arizonae*. It has the size of *stridula* but the color is closer to *arizonae*. He further notes that it is too pale and too small for *boreophila*. Reference to this specimen has been made by Woodbury, Cottam, and Sugden (1949:34) although the date is given erroneously as September 15.

Spizella breweri breweri Cassin. Brewer's Sparrow. South Fork Raft River near Yost, September 7, 1932; George Creek, June 24, 1947; Holts Canyon, June 22, 1949, Standrod, May 19-21, 1948; 2 mi. S. Standrod, 9,000 ft., August 25, 1949. Total specimens, 10. The species was common as a summer resident throughout the region in the sagebrush association and thus was seen at all collecting stations almost daily. A nest containing four eggs was found on June 22, 1949, in the top of a rabbit brush (*Chrysothamnus*) surrounded by sage and greasewood. Cottam found the species abundant in the sagebrush at all elevations from the base of the mountains to the high mesas. Three specimens were taken in July, August, and September in the Raft River and Grouse Creek ranges.

Zonotrichia leucophrys oriantha Oberholser. White-crowned Sparrow. Dove Creek, September 9, 1932; Little Basin, June 23, 1947; head of Clear Creek, 9,000 ft., August 25, 1949. Total specimens, 3. This sparrow is not uncommon as a migrant in the region and may breed in small numbers in the Raft River Mountains. However, we did not find it in the Bull Flat area on June 10. The specimen, taken at Little Basin on June 23, occurred in sagebrush and since the sex was not determined there is no gonad data. The specimen from the head of Clear Creek was an immature. Porter reports seeing a white-crowned sparrow at the Rosa Ranch at Standrod on June 19, 1950, acting as though a nest were nearby. A flock of seven had been seen there on May 1. A few were seen at the City of Rocks on May 25, 1949. Levy (1950: 8) reports a female taken there on June 19. Amadon shot an immature specimen on September 17, 1941, from a flock in the streamside thicket at Clear Creek. Cottam observed many in September in the area and collected a specimen at Johnson Creek on September 19, 1941. Ridgway (1877:366) reported the species at Deep Creek [=Snowville] on October 5, 1868.

Zonotrichia leucophrys gambelii (Nuttall). White-crowned Sparrow. Dove Creek, September 10, 1932; Clear Creek, August 25, 1949. Total specimens, 2. These are immatures. Several adults were seen October 3-4, 1947, at Standrod and George Creek. Cottam took a specimen on Johnson Creek on September 19, 1941.

Zonotrichia atricapilla (Gmelin). Golden-crowned Sparrow. Standrod, October 4, 1947. One specimen. Two were seen associated with song sparrows in tall grass and willows bordering a stream. The record has been previously reported by Greenhalgh (1948:46). Another sight record was obtained along One Mile Creek on August 24, 1949, by Porter.

Passerella iliaca swarthi Behle and Selander. Fox Sparrow. Clear Creek, June 12-15, 1951; One Mile Canyon, June 28, 1949; George Creek, May 26-27, 1949. Total specimens, 10. The species was found in the densest streamside thickets consisting of willows, birch, dogwood, and rose. Cottam saw one on September 17, 1941, near Standrod in a clump of willows. Levy (1950:8) states that they also nest on brushy hillsides. He reports a young bird taken at the City of Rocks on June 21, 1949. For systematic discussion of these specimens see Behle and Selander (1951).

Melospiza lincolnii alticola (Miller and McCabe). Lincoln's Sparrow. Head of Clear Creek, 9,000 ft., 2 mi. S. Standrod, August 25, 1949. One specimen. This was an adult male taken in sagebrush at the edge of a small dry meadow that had doubtless been moist earlier in the year. The bird had nearly completed the annual molt. Our only other record for the Raft River Mountains is of a single bird seen at Standrod on October 4, 1947. If this form breeds in the area the numbers are doubtless scarce for there is little suitable habitat. Levy (1950:8) states that the species is a fairly common breeding bird along brushy streams of the higher montane areas in southern Idaho. Ridgway (1877:366) saw the species at Deep Creek [=Snowville] on October 5, 1948. Cottam took a specimen on Johnson Creek on September 19, 1941, and saw the species near Standrod and Yost.

The race *M.l. lincolnii* doubtless migrates regularly through the region. Cottam (1942:128) took a representative of this race at the west base of Pilot Peak on September 20, 1941. Of the two specimens taken October 5, 1947, at Locomotive Springs, a short distance to the southeast at the north end of Great Salt Lake, the male is referable to *lincolnii* while the female is of the race *alticola*.

Melospiza melodia montana Henshaw. Song Sparrow. Clear Creek, May 18-21, 1948, June 14, 1951; George Creek, July 15, 1947, May 26, 1949, May 26-27, 1949, June 12, 1955; One Mile Canyon, August 24, 1949; 1 mi. NE. Standrod, Cassia Co., Idaho, May 19, 1948; Standrod, September 4, 1947; 2 mi. S. Lynn Reservoir, June 15, 1956. Total specimens, 15. As breeding birds they were common in streamside thickets consisting of willows and rose. Females taken May 26 had eggs 5 millimeters in diameter in the oviducts while at the same time a nestling was taken. Probably the breeding population is replaced by winter visitants from farther north for two were seen at Park Valley on January 8, 1950. Migrants in mid-May were found in the sage-juniper association. Ridgway (1877:366) reported the species from Deep Creek [=Snowville] on October 5, 1868. Amadon obtained one specimen on September 18, 1941, at Clear Creek.

Melospiza melodia fisherella Oberholser. Song Sparrow. Five migrants taken by Cottam have been identified as of this race by J. W. Aldrich. Two were taken at Yost, one at the Raft River and two at Grouse Creek on September 18-19, 1941.

Plectrophenax nivalis nivalis (Linnaeus). Snow Bunting. One was seen by Porter at Standrod on December 30, 1951.

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