

SYSTEMATIC COMMENT ON SOME GEOGRAPHICALLY VARIABLE BIRDS
OCCURRING IN UTAH

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For the past several years, the writer, accompanied by various students, has carried on periodic field work in selected areas of Utah. As a result, series of study skins for many species have accumulated which, together with specimens already in the Museum of the University of Utah, yield data bearing on problems of distribution and variation of the birds in the State. It seems desirable to record the following findings for reference in preparing check-lists and regional reports now nearing completion and to clear up some of the questions raised in the writer's check-list of the birds of Utah (Condor, 46, 1944:67-87). The specimens here discussed, among others, were compared in August, 1947, with the collections in the Museum of Vertebrate Zoology and I am indebted to Alden H. Miller and his associates for courtesies rendered and for help in the subspecific determination of many forms. A few specimens were compared with those in the California Academy of Sciences through the courtesy of Robert T. Orr. I am indebted also to A. J. van Rossem for comparing some Utah birds with the material in the Donald R. Dickey Collection at the University of California at Los Angeles. Acknowledgment is due the University of Utah Research Committee for a grant covering transportation costs for the trip to Berkeley.

Otus asio.—In the writer's check-list two races, *O. a. inyoensis* and *O. a. cineraceus*, were listed. The former was said to occur in northern Utah and the latter was supposed to range through central and southern Utah. The two specimens from 19 miles south of Moab (see Wilson Bull., 53, 1941:182) as well as the other screech owls in the collection of the University of Utah from Utah have been examined lately by several systematists and the general consensus is that the examples from central and southeastern Utah, at least, are closest to darker colored individuals of *inyoensis* than to anything else. They have the large size of that race. However, there are some indications of a long transition between *inyoensis* and *cineraceus*. The occurrence of true *cineraceus* in southwestern Utah remains to be demonstrated. In any event, the race *cineraceus* does not occur in central Utah as indicated in the writer's check-list.

Chordeiles minor.—Four races of nighthawks of this species have been reported from Utah, three as breeding in various sections of the state, the other as a transient. Yet another race appears to pass through the state in migration. On June 9, 1944, five nighthawks were taken from a group feeding in the evening over a stream near the Midway Fish Hatchery, 5450 feet, Midway, Wasatch County, Utah. Four prove to be of the race *C. m. hesperis*, but the fifth, a male, represents the eastern race *C. m. minor*.

Empidonax traillii.—When Oberholser (Sci. Publ. Cleveland Mus. Nat. Hist., 4, 1932:3) described the race *E. t. adastus* he indicated that birds from northern Utah, among other areas, were intermediate between the new race and *E. t. brewsteri*, but closest to the former. Twomey (Ann. Carnegie Mus., 28, 1942:412) accepted the race *adastus* and following Oberholser referred his Uinta Basin birds from northeastern Utah to that race. In the writer's check-list the Utah birds were considered as of the race *brewsteri*, largely on the basis of Miller's conclusions (Condor, 43, 1941:259) that the race *adastus* is untenable. More evidence is now at hand on which to base a conclusion. The 45 specimens in the collection of the University of Utah include two fair series, one of 12 birds from the St. George-Kanab area in southern Utah, and another of similar number from Midway, Wasatch County, northern Utah. These were compared with the extensive material in the Museum of Vertebrate Zoology, including 11 near topotypes of *adastus*.

When Oberholser described the western population as *brewsteri* (Ohio Jour. Sci., 18, 1918:85-98), he commented on the extreme individual variation displayed and the presence of color phases. The specimens from the Warner Valley region of Oregon vary, as Miller has stated, from bright green to greenish brown to dull gray-green in color of dorsum but with no segregation into phases. The same is true of the Utah series. There are no average differences in measurements between the Utah samples and those of the Great Basin. Thus it seems, we have only one race of this species of flycatcher to include in the check-list of Utah birds.

Empidonax difficilis.—Utah seems to be a meeting ground between two populations of the Western Flycatcher. In the writer's check-list, all Utah specimens were considered to be of the race *E. d. difficilis*. Since then, Woodbury (Bull. Univ. Utah, 35(14), 1945:77), upon the basis of Brodkorb's determination, lists specimens from the Navajo Country as of the race *hellmayri* (Occas. Papers Mus. Zool., Univ. Michigan, No. 306, 1935:1-3). Three breeding specimens from the Wasatch Mountains collected lately by the writer and six taken by George Todd in the Raft River Mountains of northwestern Utah help elucidate the distribution of the two races in the state.

| Males | | | | | | | |
|---|--------|-------|--------------|-------|-------|--------------|-------|
| | Number | Min. | Wing Mean | Max. | Min. | Tail Mean | Max. |
| West coast <i>E. d. difficilis</i> (Brodkorb) | 26 | 63.0 | 66.7 | 68.5 | 51.5 | 56.7 | 60.5 |
| Raft River Mts., Boxelder Co., Utah | 4 | 65.4 | 68.8 | 73.7 | 57.2 | 58.0 | 59.0 |
| Wasatch Mts., Salt Lake Co., Utah | 2 | 70.7 | 70.7 | 70.7 | 61.7 | 62.1 | 62.5 |
| San Juan Co., Utah-Navajo Co., Arizona | 2 | 73.4 | 74.4 | 75.4 | 62.4 | 63.4 | 64.4 |
| <i>E. d. hellmayri</i> (Brodkorb) | 9 | 67.0 | 71.3 | 74.0 | 57.0 | 61.0 | 63.5 |
| Females | | | | | | | |
| West coast <i>E. d. difficilis</i> (Brodkorb) | 19 | 59.0 | 62.4 | 65.5 | 52.0 | 54.2 | 57.5 |
| Raft River Mts., Boxelder Co., Utah | 2 | 63.0 | 63.3 | 63.6 | 55.7 | 56.5 | 57.3 |
| Wasatch Mts., Salt Lake Co., Utah | 1 | ..... | 65.7 | ..... | ..... | 63.0 | ..... |
| San Juan Co., Utah-Navajo Co., Arizona | 4 | 63.0 | 65.1 | 66.7 | 57.4 | 58.3 | 59.0 |
| <i>E. d. hellmayri</i> (Brodkorb) | 5 | 66.0 | 67.0 | 67.5 | 56.5 | 58.6 | 62.0 |

As a group the Utah birds are too large for *difficilis* but a little small for good *hellmayri*. However, there are indications that those from southeastern and central Utah as far north and west as the Wasatch Mountains are closest to *hellmayri* while the flycatchers from the west desert ranges are closest to *difficilis*. The populations thus separated are not typical of either race, however, which is to be expected if they are in a marginal area. Variation is particularly noticeable in the Raft River series where some individuals are grayer than others and one male has the size of *hellmayri*. This is similar to the hermit thrush situation in the same area. The Wasatch Mountain birds have a slightly brighter green color to the dorsum than west coast examples of *difficilis*, which feature together with size rules against their assignment there. The San Juan specimens seem most clearly referable to *hellmayri*. Thus until further material accumulates from this intermediate area, it seems best to recognize the occurrence of these two races in the state.

Eremophila alpestris.—The distribution of the races of Horned Larks in Utah has been set forth previously by the writer (Proc. Utah Acad. Sci., Arts and Letters, 19-20, 1943:153-156). At that time no material was at hand from southwestern or central-southern Utah. Birds from southeastern Utah were assigned to the race *occidentalis* although considered intergradational between that form and *leucolaema*. A small series of five Horned Larks from the vicinity of Kanab, Kane County, are likewise to be placed with *occidentalis* but being on the margin of the range are atypical and tend toward more northern populations. Whether this intergradation extends as far east as the St.

George area is unknown, since breeding specimens are not yet available from that area. However, the writer collected five specimens on January 5, 1937, 15 miles northeast of St. George, Washington County, Utah, which are now in the Museum of Vertebrate Zoology and which have not heretofore been reported upon. Four of these are close to *utahensis*. The other, although in fresher plumage, shows a deeper brown color to the dorsum suggesting the influence of *occidentalis*.

Petrochelidon albifrons.—In the check-list of the birds of Utah, the writer considered all the Cliff Swallows to be of the race *P. a. hypopolia* (Oberholser, Canadian Field Nat., 33, 1919:95), although calling attention to the systematic discussion involving the proposed race *aprophata* (Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., 4(1), 1932:6) and pointing out that the birds of northeastern Utah had been listed under *P. a. albifrons* by Twomey (Ann. Carnegie Mus., 28, 1942:417). Since then, Woodbury (Bull. Univ. Utah, 35(14), 1945:84) has likewise referred his specimens from southeastern Utah to *albifrons*. To help settle the matter of the distribution of the Cliff Swallows in Utah, the writer has collected 38 breeding birds from several localities in the state. These skins together with others in the collection of the University of Utah indicate that two races are indeed represented in Utah's avifauna.

| Place | Males | | | | | | | |
|--|--------|-------|--------------|-------|-------|--------------|-------|--|
| | Number | Min. | Wing Mean | Max. | Min. | Tail Mean | Max. | |
| <i>P. a. hypopolia</i> (from Oberholser) | 5 | 110.0 | 112.1 | 115.0 | 49.0 | 50.7 | 52.0 | |
| 5 mi. N. Ibapah, Tooele Co. | 2 | 110.4 | 111.5 | 112.6 | 52.0 | 52.2 | 52.5 | |
| Peoa, Summit Co. | 6 | 109.2 | 111.5 | 115.0 | 47.4 | 49.5 | 51.5 | |
| Midway, Wasatch Co. | 13 | 106.0 | 108.3 | 112.6 | 45.6 | 49.1 | 51.6 | |
| Currant Creek, Wasatch Co. | 3 | 106.4 | 109.6 | 111.7 | 47.5 | 49.3 | 51.3 | |
| Salina, Sevier Co. | 1 | ..... | 109.0 | ..... | ..... | 50.4 | ..... |  |
| Kanab, Kane Co. | 6 | 104.2 | 108.4 | 111.2 | 46.7 | 48.1 | 53.8 | |
| Moab, Grand Co. | 1 | ..... | 109.2 | ..... | ..... | 47.4 | ..... |  |
| Near Monticello, San Juan Co. | 1 | ..... | 107.0 | ..... | ..... | 49.7 | ..... |  |
| <i>P. a. albifrons</i> (from Oberholser) | 7 | 105.0 | 107.6 | 112.0 | 47.0 | 49.9 | 51.0 | |
| Females | | | | | | | | |
| <i>P. a. hypopolia</i> (from Oberholser) | 5 | 108.0 | 110.2 | 111.5 | 49.5 | 50.7 | 51.5 | |
| 5 mi. N. Ibapah, Tooele Co. | 2 | 111.5 | 111.9 | 112.4 | 51.2 | 52.0 | 52.8 | |
| Bear River Refuge, Boxelder Co. | 1 | ..... | 111.5 | ..... | ..... | 47.4 | ..... |  |
| Peoa, Summit Co. | 1 | ..... | 106.4 | ..... | ..... | 47.5 | ..... |  |
| Midway, Wasatch Co. | 6 | 107.3 | 109.2 | 112.0 | 49.0 | 50.2 | 51.5 | |
| Kanab, Kane Co. | 8 | 105.2 | 107.8 | 113.5 | 46.2 | 48.7 | 53.3 | |
| <i>P. a. albifrons</i> (from Oberholser) | 11 | 102.0 | 107.2 | 109.0 | 47.0 | 48.9 | 51.0 | |

From these figures it would appear that in Utah the southern limits of the large-sized northern population called *hypopolia* are reached and a transition to *albifrons* occurs. The four specimens from near Ibapah, Tooele County, Utah, are large-sized and seemingly referable to *hypopolia* as is the single specimen from the Bear River Refuge. In making this assignment, the writer is in agreement with van Rossem (Pac. Coast Avif. No. 24, 1936:33) and Miller (Condor, 43, 1941:261) that it is not desirable to recognize the proposed race *aprophata*. It is noteworthy that these two localities are in the Great Basin portion of the state. The specimens from Peoa, Summit County, in the Wasatch Mountains, east of Salt Lake City, are, save for the single female, large sized, most individuals falling in the size-range of *hypopolia*. However, the sample from the nearby Midway colony has an average size that is smaller and is more nearly in accord with that of *albifrons*. While some individuals approach *hypopolia* in size, most fall in the size-range of the smaller southern race. The rest of the Utah representatives listed, mostly from the Colorado River drainage, are close to the size limits of *P. a. albifrons*.

The racial affinities of the Cliff Swallows from the Uinta Basin in northeastern Utah

are still in doubt. Twomey (*loc. cit.*) indicated that seven specimens had been collected two miles south of Jensen. The specimens were not available for study, being non-existent in the collection or the catalog of the Carnegie Museum, according to W. E. Clyde Todd (*in litt.*).

As further evidence that the Great Basin population is different from that of the rest of the state is the circumstance that the forehead patch of the Ibapah specimens is whiter and more extensive than in other populations. However, this is a variable character and individual variants of the Kanab and Midway series match the Ibapah specimens. Cliff Swallows from the Navajo Country have the brownest foreheads of all, suggesting an approach in this character to *P. a. tachina*.

Aphelocoma coerulescens.—Until the time of Pitelka's description of the Nevada Scrub Jay, *A. c. nevadae* (Condor, 47, 1945:24), the Utah jays were considered to be of the race *A. c. woodhouseii*. On the basis of Pitelka's work, which included study of specimens in the collection of the University of Utah, the jays of the western part of the state in the Great Basin portion are good *nevadae* whereas those of eastern Utah and extreme southeastern Utah are to be relegated to *woodhouseii*. However, the specimens from eastern Utah are not typical of the Colorado-New Mexico form. Indeed a gradual transition occurs across Utah where *nevadae* blends into *woodhouseii*. Details of this intergradation between the two races insofar as the available material reveals, are soon to be presented by Pitelka. It will suffice to point out here that a series of 15 specimens collected mostly this last year from the vicinity of Kanab, Kane County, Utah, are intermediate between the two races, standing closest, perhaps, to *nevadae*.

Parus atricapillus.—When Linsdale (Condor, 40, 1938:37) described the race *P. a. nevadensis*, specimens were known only from the type locality in Nevada and two locations in adjacent southern Idaho. Twomey (Ann. Carnegie Mus., 28, 1942:421) designated his specimens of this species from northeastern Utah as *P. a. septentrionalis*. The writer thought the race *nevadensis* ranged throughout Utah and so indicated in his check-list. Duvall, in his review of the Black-capped Chickadees (Auk, 62, 1945:49-69) gave the range of *nevadensis* as north to southern and central-eastern Idaho, west to northeastern Nevada, south to north-central Utah and east to extreme southwestern Wyoming. His Utah material was from the Raft River Mountains, Salt Lake City, Provo, and Laketown. The race *septentrionalis* he reports ranges west to eastern Idaho, western Wyoming except the extreme southwestern portion, southwestern Colorado, and northwestern New Mexico.

Specimens at the University of Utah further clarify the distribution of the two races in the state indicating that the Great Basin chickadees represent *nevadensis* while those from the eastern part of the state are closest to *septentrionalis*. A long east-west intergradational area occurs between the two races. Recently acquired breeding specimens from George Creek, 6500-6700 feet, 7 miles southeast of Yost, Raft River Mountains, Boxelder County, Utah, and an autumn skin from Clear Creek in the same mountains are indeed *nevadensis*. Two additional autumn specimens identical with topotypes of *nevadensis* are from 41 miles east of Ogden.

Four breeding birds from Midway, 5450 feet, Wasatch County, Utah, one from Snake Creek Canyon, 6000 feet, 3 miles northwest of Midway, and one from Cummings Flat, 7200 feet, 11 miles northeast of Heber, Wasatch County, seem to be best designated *P. a. septentrionalis*, although intergradational between the two races. Being in worn plumage, little can be told of dorsal coloring. However, the white margins of the greater wing-coverts, secondaries and lateral rectrices are narrower than in *nevadensis*, a circumstance not apparently due to wear. A specimen taken on October 17, 1931, at Stockmore, Duchesne County, Utah, is clearly an intergrade, this time having the white

features of *nevadensis* but a darker back than that race. That this intergradational area is even more extensive is indicated by Duvall (*op. cit.*:61) in his comment on two old specimens from Green River, in eastern Utah.

Evidently some of these intergrades from east of the Wasatch front move into Salt Lake and Utah valleys for the winter, for seven examples taken at four localities have the narrower feather edgings of *septentrionalis*. Adventitious coloring in the form of soot has altered the dorsal coloring considerably. Of this lot, three are from the mouth of North Canyon, 4600 feet, 2 miles south of Bountiful, Davis County; two are from the mouth of Little Cottonwood Canyon, 4500 feet, 5 miles southeast of Union, Salt Lake County; one is from the Jeremy Ranch, 4210 feet, 2 miles west Cudahy Packing Plant, Salt Lake County; and one is from Jordan River near Camp Williams, 3 miles north of Lehi, 4300 feet, Utah County.

Parus gambeli.—In the check-list, the race *P. g. inyoensis* was indicated as the breeding bird in southwestern Utah (Pine Valley Mountains) and it was thought to be the form of the mountains of the west desert portion of the state. A series from the Deep Creek Mountains of central-western Utah and a few examples from the Raft River Mountains of northwestern Utah recently acquired corroborate this. They seem closest to the race *inyoensis* which was shown by Linsdale (Pac. Coast Avif. No. 23, 1936:87) to range through northern Nevada.

Psaltriparus minimus.—The race *P. m. providentialis* was described by Arvey (Condor, 43, 1941:74) with a range embracing the Providence Mountains of southeastern California and the Charleston Mountains of southern Nevada. In less extreme form it also occurs in the White and Inyo mountains of California, intergrading there with *plumbeus*. The writer, in reporting on the Bush-tits of the Pine Valley Mountain area (Bull. Univ. Utah, 34(2), 1943:53) referred them to *P. m. plumbeus* but stated that they too showed intergradation with *providentialis*. Four December birds and two breeding specimens acquired more recently from the Kanab area of Kane County, show the principal character of *providentialis*, namely the pileum concolor with the dorsum. It seems best then to extend the range of the Providence Mountain race eastward to include southwestern Utah and central-southern Utah. A series of Bush-tits in the Museum of Vertebrate Zoology from the San Francisco Mountains in northern Arizona just south of the Grand Canyon are referable to *P. m. plumbeus* so the break or transition between the two races seemingly occurs rather abruptly in northern Arizona.

Certhia familiaris.—Three specimens from Kane County differ from examples of *C. f. montana* in being paler and grayer, especially on the wing coverts and under tail coverts. Thus they are referable to *C. f. leucosticta* described by van Rossem (Trans. San Diego Soc. Nat. Hist., 6, 1931:329) from the Sheep and Charleston mountains, Clark County, Nevada. These specimens were taken at the following places: head of Swain's Creek, 8000 feet, 9 miles northwest of Alton, June 26, 1947; edge of Long Valley, 10,000 feet, near south boundary of Cedar Breaks National Monument, 13 miles southeast of Cedar City, June 25, 1947; Tinny Canyon, 5600 feet, 3½ miles northwest of Kanab, December 30, 1946.

On geographic grounds, the creepers of the Pine Valley Mountains to the west should also be of the race *leucosticta*. The one specimen obtained by the writer in his field work there in mid-September (Bull. Univ. Utah, 34, 1943:54) is, however, referable to *montana* and is now presumed to be a transient rather than an example of the local population. Creepers from elsewhere in the state seem referable to *montana*.

Telmatodytes palustris.—The race *T. p. aestuarinus* has a peculiar distribution. As shown by Grinnell and Miller (Pac. Coast Avif. No. 27, 1944:340) it ranges throughout the Great Valley of California and, after a hiatus, along the Lower Colorado River val-

ley. Linsdale (Pac. Coast Avif. No. 23, 1936:93) extended the range up the Colorado River into southern Clark County, Nevada. It now appears that this race continues up into Utah along the Virgin River tributary of the Colorado. In the writer's field work in Washington County, Utah, no breeding Marsh Wrens were taken, but three autumn and early winter specimens were secured. These three specimens, all males, taken December 17 to 18, 1939, and September 11, 1941, about 3 miles south of St. George, 2800 feet, prove to be *T. p. aestuarinus*, although the one taken in September shows an approach to *plesius*. Presumably these specimens represent the resident population.

There is evidence that the race *aestuarinus* extends still farther eastward. A pair taken on March 3, 1946, at a cattail swamp in Cave Lakes Canyon, 5500 feet, 5 miles northwest of Kanab, Kane County, are intergrades toward *plesius*, but closest to *aestuarinus*. A male taken on December 28, 1946, along Kanab Creek, 4850 feet, 1 mile south of Kanab is *aestuarinus*. These three specimens suggest a sedentary population in the Kanab area as may also be the case along the Virgin River. A fourth specimen taken at Kanab on April 15, 1947, is an example of the race *plesius*. It could have been a migrant on that date and so not represent the breeding population.

Hylocichla guttata.—When the McCabes (Condor, 34, 1932:26-40) made their study of the western races of Hermit Thrushes, there was little material available to them to indicate the relationship, especially in Utah, between the races *polionota* and *auduboni*. Twenty-nine specimens have been collected since then in the state, of which nineteen are breeding birds. Apparently these two races do not differ in coloration, hence the wing and tail measurements of these Utah specimens are recorded here following the arrangement of the table in the McCabes' report (*op. cit.*:38-39).

| | Males | | | Females | | | |
|---------------------------------|--------|-------|-----------|---------|-------|-----------|-------|
| | Number | Min. | Wing Mean | Max. | Min. | Tail Mean | Max. |
| Wasatch Mts., E. Salt Lake City | 2 | 102.2 | 102.2 | 102.2 | 76.0 | 76.3 | 76.6 |
| Raft River Mts., NW Utah | 2 | 98.6 | 100.3 | 102.0 | 73.8 | 75.7 | 77.6 |
| Duck Creek, Cedar Mt., Kane Co. | 4 | 99.0 | 99.2 | 99.5 | 71.4 | 73.5 | 75.4 |
| Pine Valley Mts., SW Utah | 5 | 98.4 | 100.2 | 104.7 | 72.4 | 76.1 | 80.8 |
| | | | | | | | |
| Raft River Mts., NW Utah | 1 | ..... | 94.3 | ..... | ..... | 68.4 | ..... |
| Duck Creek, Cedar Mt., Kane Co. | 2 | 94.0 | 95.9 | 97.9 | 69.6 | 72.2 | 74.8 |
| Pine Valley Mts., SW Utah | 3 | 92.8 | 96.5 | 99.4 | 71.8 | 72.1 | 72.4 |

These size data suggest that the thrushes from central-southern and southwestern Utah belong to the race *polionota*. The three specimens from the Raft River Mountains in the northwestern part of the state seem to be an instance of what the McCabes call the interlocking of *auduboni* and *polionota* size ranges, one male and the female falling closest to *polionota* while the other is an extreme of *polionota* approaching *auduboni*. The five breeding males from the Uinta Mountains in the northeastern corner of the state whose measurements are listed by Twomey (Ann. Carnegie Mus., 28, 1942:429) average about the same as the two Wasatch Mountain examples and so the Hermit Thrushes from these latter two areas represent *auduboni*. They are not, however, as large as the McCabes' representatives from Arizona.

Hylocichla ustulata.—Thrushes of this species are doubtless more common than specimens in collections indicate. Utah specimens were assigned by the writer to the race *H. u. almae* in his check-list largely on geographical grounds whereas Twomey (Ann. Carnegie Mus., 28, 1942:431) used the name *H. u. swainsonii* for his single specimen from the Uinta Basin. Seven birds recently acquired from the Wasatch Mountains east of Ogden and Salt Lake City (some from the western fringe of the Uinta Basin) are typical examples of the race *H. u. almae*.

Vireo gilvus.—When Oberholser (Sci. Publ. Cleveland Mus. Nat. Hist., 4, 1932:9) described the race *V. g. leucopolius*, he ascribed to it a range embracing the Warner Valley region of central-southern Oregon, north to central Oregon, and south to central-western Nevada. The race has been approved by Sibley (Condor, 42, 1940:255-258) and Miller (Condor, 43, 1941:263-264) who state that the range includes all the Great Basin and eastward to the east slope of the Rocky Mountains. The writer referred his Pine Valley Mountain specimens to this race (Bull. Univ. Utah, 34, 1943:62) and in his check-list of the birds of the state used the name *V. g. leucopolius* for the western Utah birds, intimating that those from the eastern part of the state may represent another race. Twomey (Ann. Carnegie Mus., 28, 1942:437) listed his birds under *V. g. swainsonii*.

A study of the 45 specimens of Warbling Vireos in the collection of the University of Utah indicates that the breeding birds represent only one race, namely *leucopolius*. They compare closely with topotypes of the race from the Warner Valley of Oregon. While I have not examined Twomey's series, University of Utah specimens from the northeastern portion of Utah (10 miles southeast of Kamas, 12 miles southeast of Heber, and 3 miles northwest of Strawberry Reservoir, all in Wasatch County, and Smith and Morehouse Creek, Summit County) are the gray-backed type known as *leucopolius*.

While *leucopolius* is the breeding form, apparently examples of *V. g. swainsonii* occur in Utah during migration. A specimen from the King Ranch, Henry Mountains, Garfield County, taken on September 10, 1929, and one from the Deep Creek Mountains, Juab County, taken on September 16, 1947, have olive-green backs rather than gray and the sides of the belly and flanks have much olive-yellow. Thus they appear to represent *swainsonii*.

Dendroica petechia.—The race *D. p. morcomi* was described by Coale (Bull. Ridgway Ornith. Club. No. 2, April, 1887:82) with type locality at Fort Bridger, Wyoming. The race was later discarded as Grinnell pointed out (Condor, 5, 1903:71) in his review of the subsequent history of the race when he named the form *brewsteri*. In describing the Californian population west of the Sierra Nevada, Grinnell considered *morcomi* a synonym of *aestiva* which was thus supposed to include in its range the Rocky Mountains and the Great Basin. Of more recent date, van Rossem (Trans. San Diego Soc. Nat. Hist., 6, 1931:283) has stated his belief that a Rocky Mountain race of yellow warbler was worthy of recognition, an opinion apparently shaded by other western systematists until Twomey (Ann. Carnegie Mus., 28, 1942:440) pointed out the similarity of Rocky Mountain and Pacific coast birds.

In the writer's field work there has accumulated almost 90 breeding specimens, mostly males, from several localities in Utah. This material shows the coloration of the Utah birds to be duller, less yellowish green than in *aestiva*, a circumstance that van Rossem pointed out and to which Twomey agrees. The breast streaks are narrower and more indistinct than in *aestiva* as Twomey noted for his birds. As compared with Pacific coast examples, van Rossem thought the Rocky Mountain birds had heavier breast streaking. I find the Utah and California birds identical both in dorsal coloration and ventral streaking.

Concerning size, van Rossem thought Rocky Mountain Yellow Warblers to be slightly larger than *aestiva* and decidedly larger than *brewsteri*. Twomey found his Uinta Basin birds to be slightly less in wing measurement and the tails slightly longer than *aestiva* but similar to *brewsteri*. Ridgway (Birds North and Middle America, 2, 1902:509) commented many years ago in a footnote that western examples have shorter wings and longer tails than eastern representatives. The size of the wing and tail of males from Utah are given in the accompanying table.

| Place or race | Number | Min. | Wing Mean | Max. | Min. | Tail Mean | Max. |
|---|--------|------|--------------|------|------|--------------|------|
| <i>Dendroica p. aestiva</i> (from Twomey) | 9 | 61.0 | 63.0 | 67.5 | 40.6 | 43.5 | 46.0 |
| Uinta Basin, Uintah Co., Utah (from Twomey) | 12 | 58.0 | 61.9 | 63.0 | 43.0 | 45.5 | 47.6 |
| 5 mi. N. Ibapah, Tooele Co., Utah | 10 | 60.0 | 61.9 | 63.7 | 44.2 | 46.6 | 51.8 |
| Antelope Island and adjacent area, Salt Lake Co., Utah | 7 | 58.1 | 60.7 | 62.7 | 44.1 | 45.8 | 47.5 |
| Midway, Wasatch Co., Utah | 18 | 58.0 | 60.8 | 63.0 | 43.3 | 45.6 | 49.0 |
| St. George and adjacent area, Washington Co., Utah | 20 | 58.5 | 61.2 | 64.0 | 44.0 | 46.1 | 48.3 |
| Kanab, Kane Co., Utah | 15 | 56.5 | 60.0 | 63.3 | 43.3 | 45.1 | 47.6 |
| <i>Dendroica p. brewsteri</i> | 40 | 58.0 | 61.0 | 63.6 | 43.7 | 45.9 | 48.1 |

All the Utah birds from various localities measure essentially the same and are exceedingly close to 40 males that the writer measured in the Museum of Vertebrate Zoology from the area ascribed to *brewsteri*. On the basis of Twomey's sample for *aestiva*, the Rocky Mountain-Great Basin-Californian Yellow Warblers have slightly shorter wings but longer tails.

The evidence indicates then that the Utah birds are not of the eastern race *aestiva*, but are identical with California birds called *brewsteri*. Thus I am brought to the same conclusion as Twomey that *brewsteri* appears to be a synonym of *morcomi*. While I have not seen the type of *morcomi* nor compared it with examples of *aestiva*, the statement of Brewster (see Grinnell, *op. cit.*) that he and Ridgway agree in considering the type of *morcomi* "merely an exceptionally faintly streaked specimen of *aestiva*" indicates that it typifies the western population, as indeed it should from its locality. Topotypes of both the races *brewsteri* and *morcomi* have been seen by the writer and are the same in their characters.

I should like at this time to reiterate my belief that the race *sonorana* does not occur in Utah, even though Woodbury (Bull. Univ. Utah, 35(14), 1945:122) considers this to be a common breeder along the San Juan and Colorado rivers. His specimens assigned to this race are few in number and badly worn adults or immatures. The lack of streaking on some specimens may indicate an approach to *sonorana* but the dorsal coloring insofar as can be determined is considerably darker and so indicative of *morcomi* affinities. I can not agree to assigning the migrants to *morcomi* and *brewsteri* and the breeders to *sonorana*.

Geothlypis trichas.—In connection with the recent description of *G. t. campicola* of the northern Rocky Mountains-Great Plains region (Behle and Aldrich, Proc. Biol. Soc. Wash., 60, 1947:69-72) the statement was made that the winter range was undetermined but that representatives of the race occur southward in migration in Utah, Colorado, and Arizona. The basis for the reference to Utah in this connection is two specimens. One was taken on March 15, 1940, at the Wendover Bombing Range, 4200 feet, Wendover, Tooele County, Utah. It was one of a migrating flock. The second specimen was taken 3 miles south of St. George, 2800 feet, Washington County, Utah, on May 14, 1940. Thus the race *campicola* is to be added to the state list along with *occidentalis* and *scirpicola*.

Agelaius phoeniceus.—The distribution and characters of the Redwings in Utah have been discussed by the writer (Wilson Bull., 52, 1940:234-240). Subsequently, in the check-list of Utah birds, *A. p. nevadensis* was listed with reservations on the basis of extreme individuals cropping up in populations of *utahensis* or *fortis* and the suggestion was made that *nevadensis* would probably be found to be the race occurring in central-western and northwestern Utah near the Nevada border. In May, 1942, a series of 10 breeding birds was taken 5 miles north of Ibapah, Tooele County, which is close

to the Nevada border, and on June 23, 1946, a single male was collected at Fish Springs, Juab County, Utah. All these Redwings seem referable to the race *nevadensis*, chiefly on the basis of the orange-red epaulets and longer, slenderer bills. They are not typical of *nevadensis* but are suggestive of intergradation with *utahensis*. For instance, the specimen from Fish Springs has a *nevadensis*-type bill but its darker red bend-of-wing is like that which characterizes *utahensis*. Despite one's feelings as to whether or not the extreme *nevadensis*-like specimens occurring in *utahensis* populations should be referred to the former race, here is evidence that the race *nevadensis* does occur in Utah as an atypical breeding population on the western margin of the state.

Carpodacus mexicanus.—Until the time of Moore's revision of the house finches of the subgenus *Burrica* (Condor, 41, 1939:177-205) and his description of two races, *Carpodacus mexicanus solitudinis* from the Great Basin and *C. m. grinnelli* from the Pacific Coast strip (Proc. Biol. Soc. Wash., 52, 1939:105-112), the house finches of Utah and all of the western states were considered as belonging to one form, *C. m. frontalis*. Moore restricted this race to the general region of southern Colorado and New Mexico.

As pertains to Utah, Moore had 17 males and 10 females from several localities scattered over the state. He did not place them within the range of any race but indicated that they were intergrades between *solitudinis* and *frontalis*. The writer has accumulated several series totaling about forty breeding males from various localities in the state in recent years. Study of this material indicates that the finches of the west desert region differ slightly from those of eastern and southeastern Utah.

A series of nine males taken in the third week in May at a point 5 miles north of Ibapah, Tooele County, in the western desert section, when compared with twelve males collected in late May in the vicinity of Kanab, Kane County, have the posterior underparts a little whiter and the red of the anterior underparts less extensive. Thus the Ibapah specimens conform at least in part to Moore's characterization of *solitudinis* and the Kanab series to *frontalis*. In addition, the red coloring especially of the forehead, is brighter in most individuals of the Ibapah series whereas the Kanab representatives tend to have a darker red. Similar to the Kanab birds are a few specimens from Bluff, Moab, and other localities in southeastern Utah. A series of nine May-taken finches from the St. George-Beaverdam Wash area are variable individually and fit in as a group as well one way as another. Wing and tail lengths average essentially the same in all the Utah samples.

It appears that a situation exists in Utah between "*solitudinis*" and *frontalis* that is similar to the situation in California between "*solitudinis*" and "*grinnelli*." As Grinnell and Miller (Pac. Coast Avif. No. 27, 1944:454) put it, there seems to be a type of incipient or imperfect geographic differentiation shown. Extreme variants from the potentially different populations are recognizable but when only about fifty per cent of the specimens can be segregated into one or the other category, the taxonomic practicability of recognizing two geographic races in Utah is open to question.

Melospiza melodia.—In a recent note, Twomey (Condor, 49, 1947:128) on the basis of a single specimen taken in early August from Hill Creek, 40 miles south of Ouray, on the East Tavaputs Plateau, Uintah County, Utah, advocates the extension of the range of *M. m. fallax* to the southern edge of the Uinta Basin. Militating against this is the circumstance that a series of seven Song Sparrows from Moab and vicinity taken in April (see Behle, Wilson Bull., 53, 1941:184) are dark and presumably represent the Mountain Song Sparrow now known as *M. m. montana*. They may not have been breeding birds but when collected behaved as though they were on their breeding grounds. More pertinent evidence is found in twelve breeding Song Sparrows (May-June) re-

cently acquired from the Kanab area which is out of the Virgin River drainage and about fifty-five miles east of the type locality of *M. m. virginis* (now synonymized under *fallax*). These birds are intergrades between *fallax* and *montana* but closest to the latter. Twomey's specimen may be an individual variant of *montana* resembling *fallax* or there is possibly another explanation. There are in the collection of the University of Utah several specimens from northern Utah taken in the fall that have light brown backs. These at first appear similar to *fallax*. This character, however, seems to reflect the influence of the more northern race *merrilli* which has brown centers in the feathers of the dorsum. The brown is less reddish than in *fallax* and of course there are other characters that distinguish *merrilli*. Twomey's specimen may be another one of this "*montana* toward *merrilli*" type of Song Sparrow.

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