

POPULATIONS AND DISTRIBUTION OF SUMMER BIRDS OF LATAH COUNTY, IDAHO

By DAVID W. JOHNSTON

During the summer of 1947 the writer was employed by the Fish and Wildlife Service to make studies on the effects of DDT on birds in northern Idaho. The present paper is based upon population studies made during those investigations, and the writer's observations and collections of birds made between June 1 and August 16 (exclusive of a three-week period in July when further DDT studies were being carried out in Wyoming). To make the annotated list as complete as possible, records were compiled by examination of three unpublished theses (Arvey, 1940; Engler, 1938; and Olson, 1942) and two published papers (Arvey, 1947; and Hand, 1941) dealing with the birds of Latah County and northern Idaho. The list also includes specimens from Idaho in the Connor Museum at the State College of Washington.

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GENERAL DESCRIPTION OF LATAH COUNTY

The area covered by this paper is restricted to Latah County, Idaho (fig. 20). There are two biomes present within the county, (1) the montane portion of the northern coniferous forest to the north and east of Moscow, and (2) the grassland (now largely cultivated) to the south. In the northern part of the county in the coniferous forests the terrain becomes increasingly mountainous with Moscow Mountain, seven miles northeast of Moscow, reaching an elevation of approximately 4500 feet, the highest elevation studied. The cultivated grassland areas occupy generally rolling lands from Potlatch Creek to Moscow (elev. 2565 feet). In general breeding birds of the two biomes are distinct but members of a few species were observed to frequent both.

There is very little open water in the county, the main streams being the Palouse River some twelve miles north of Moscow, and Potlatch Creek, thirty miles to the southeast. There are a few lakes: a logging pond near Potlatch and a smaller one, Robinson Lake, near Moscow. This general paucity of water undoubtedly accounts for the few water and shore birds observed during the summer. Farther north where more aquatic conditions prevail, Hand found a larger number of water birds. Along the streams and banks of the lakes throughout the county growths of willow, *Salix* sp., are the dominant vegetation.

The dominant tree, generally speaking, in the coniferous forests is Douglas fir, *Pseudotsuga taxifolia*. In varying abundance also occur white fir, *Abies concolor*, white pine, *Pinus monticola*, ponderosa or yellow pine, *Pinus ponderosa*, lodgepole pine, *Pinus contorta*, western larch, *Larix occidentalis*, Engelmann spruce, *Picea engelmannii*, western red cedar, *Thuja plicata*, and western hemlock, *Tsuga heterophylla*. Some of the forests have been cut over very extensively, and logging is constantly being carried on in some portion of the forested area. Most of the timbered areas contain an understory of shrubs, but in the more mature, densely forested areas few plants survive under the forest canopy.

Part of Latah County includes the fertile Palouse River valley. A considerable amount of wheat and, to a lesser extent, other grains are grown on the rolling hills surrounding and to the south of Moscow, and there are some cultivated fields in the forest valleys. A few grassy, rocky hills remain as relics of original grassland biotic communities.

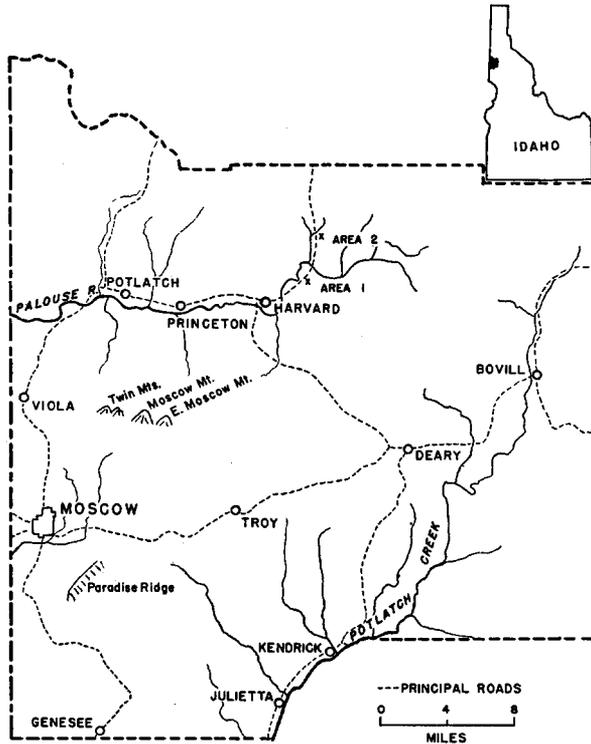


Fig. 20. Map of Latah County, Idaho, showing localities mentioned in text.

A number of specimens, collected primarily as a part of the DDT investigations, were preserved as skins and are deposited in the Fish and Wildlife Service Collection at the National Museum in Washington. Since no large series of species were collected, specific names only are used in the present paper. Under each species, however, the subspecies collected by the writer in the area is mentioned for future reference.

POPULATION STUDIES

Areas and methods.—To discover any possible effects of DDT on bird life, two bird census areas of coniferous forest were set up, one a study plot (Area 1) and the other a control (Area 2). Since the DDT results are given in a separate report now in press, this paper will include only the population data. The twenty-acre area 1, elevation 2745 feet, was located three miles east of Harvard, Latah County, Idaho. It had been selectively lumbered five years previously, leaving some brush and fallen timber, but the area as a whole was a representative example of the mature climax forest of the region. The dominant tree was Douglas fir varying in height up to more than a hundred feet. Other less important trees were a few mature ponderosa pine, many lodgepole pine not

exceeding forty feet in height, white fir, and a scattering of Engelmann spruce and western red cedar. In the center of this area through which flowed a small drainage stream, the stand of Douglas fir was best developed. One end of the area contained young lodgepole pine and fir. The chief shrub was snowberry, *Symphoricarpos* sp., which formed a dense ground cover over the entire area. There was some serviceberry, *Amelanchier alnifolia*, and small firs 3 to 5 feet high. A few grasses managed to survive under the dense snowberry growth.

The second area, also twenty acres, was of irregular shape, elevation 2820 feet, and six miles north of area 1. Presumably it was originally Douglas fir similar to area 1, but it had been logged quite heavily in the last two years, leaving much brush and fallen timber. The terrain was hilly compared with the nearly flat area 1. In addition to Douglas fir, western red cedar was very prominent on this area. Other conifers included: white fir, ponderosa pine, western larch, and western hemlock. There was practically no ground cover except small conifers of various ages, a sparse growth of snowberry, dwarf cornel, *Cornus canadensis*, and bracken fern, *Pteridium aquilinum*. A small drainage stream flowed along one border of this area.

Table 1

Density of Birds in Pairs Per Hundred Acres

Species	Area 1	Area 2
Townsend Warbler	95	60
Swainson Thrush	70	45
<i>Empidonax</i> *	40	35
Ruby-crowned Kinglet	40	....
Western Tanager	25	30
Oregon Junco	25	30
Chestnut-backed Chickadee	20	20
Red-breasted Nuthatch	20	45
Solitary Vireo	20	10
Winter Wren	15	20
Macgillivray Warbler	10	2.5
Ruffed Grouse	10	....
Audubon Warbler	10	15
Canada Jay	5	5
Yellow-bellied Sapsucker	5	5
Brown Creeper	5	5
Golden-crowned Kinglet	5	5
Warbling Vireo	5	5
Western Wood Pewee	2.5	1.5
Rufous Hummingbird	2.5	....
Olive-sided Flycatcher	2.5	....
Pileated Woodpecker	1.5	....
Red-shafted Flicker	1.5	2.5
Robin	....	2.5
Red-tailed Hawk	....	5
Hairy Woodpecker	....	5
House Wren	....	15
Arctic Three-toed Woodpecker	....	5
Townsend Solitaire	....	2.5
TOTALS	435.5	376.5

* See annotated list for species collected.

Chipmunks and red squirrels abounded on both areas. A greater variety of mammals was observed on area 1, including white-tailed deer, black bear, and weasels. A small garter snake on area 1 was the only reptile seen.

Area 1 was laid off in grid form 20 chains (1 chain = 66 feet) long and 10 chains wide. String was laid along every other width-wise line, and to the string were attached markers bearing location numbers at one chain intervals. Censusing was accomplished by walking along these string lines. Area 2 was covered with a network of old logging roads. These roads and markers placed at various intervals were mapped by compass and pacing. Censuses were made by walking along the roads with the aid of the maps. Locations of both singing males and individuals actually observed were plotted on outline maps beginning on June 9 and continuing until July 11, and later from these maps territories of the different species were determined. Area 1 was censused six times and area 2 five times, all censuses taking approximately three hours in the early morning.

Results.—In general the composition and populations of birds were similar on both areas as shown in table 1. There was a total of 23 species and 435.5 pairs of birds per hundred acres on area 1 and 24 species and 376.5 pairs on area 2. Townsend Warbler and Swainson Thrush were the two most abundant species, in that order, on both plots, representing together 38 per cent of the total population on area 1 and 28 per cent on area 2. Although the total counts seem high for coniferous forests, they are in accordance with similar censuses reported by Kendeigh (1947) and in Audubon Field Notes of recent years.

Certain differences, however, occurred and are as follows: (1) Oregon Junco, Red-shafted Flicker, and Robin were more plentiful on area 2, and the House Wren was absent on area 1—all correlated with the more open nature of lumbered forest on area 2; (2) more woodpeckers occurred on area 2—correlated with more dead timber on area 2; and (3) Townsend Warbler, Swainson Thrush, and Solitary Vireo were all more abundant on area 1, and the Ruby-crowned Kinglet was the fourth most abundant bird on area 1, but absent from area 2—correlated with the greater amount of dense upper story foliage on area 1.

ANNOTATED LIST OF SUMMER BIRDS OF LATAH COUNTY

Ardea herodias. Great Blue Heron. My only date of its occurrence is a single bird on Potlatch pond on August 11.

Branta canadensis. Canada Goose. On June 1 five of these birds were seen flying north about seven miles east of Moscow.

Anas platyrhynchos. Mallard. Pairs and immature birds were seen frequently on and around the State Game Refuge along the Palouse River near Potlatch, and occasionally Mallards were found on other streams and lakes throughout the county.

Accipiter gentilis. Goshawk. On June 5 Lowell Adams and the writer observed a Goshawk along the Little Sand Creek road about thirty miles northeast of Moscow. It has been reported from the higher mountains north and east of Latah County in summer.

Accipiter cooperii. Cooper Hawk. Frequently this species was observed in the densely forested areas especially on and near Moscow Mountain. An adult male was taken on the mountain July 15.

Buteo jamaicensis. Red-tailed Hawk. This was the only buteo found by the writer in the Moscow area. It occurred most commonly in the forested or nearby areas. Two young were successfully raised in a nest on area 2.

Aquila chrysaetos. Golden Eagle. An immature bird was observed over the forest about twenty miles northeast of Moscow on June 16.

Circus cyaneus. Marsh Hawk. Marsh Hawks were commonly seen feeding over the larger fields around and especially south of the city.

Falco sparverius. Sparrow Hawk. Along practically any roadside one might expect to find one

or more of these hawks perched on a fence post or on a telephone line; it was the most common hawk in the area.

Dendragapus obscurus. Blue Grouse. The only record I have of this species' occurrence is a bird flushed on West Twin Mountain on June 30.

Bonasa umbellus. Ruffed Grouse. Occurred commonly in the forested areas. A specimen taken by the writer 25 miles northeast of the city is referable to the newly described subspecies, *phaia*.

Perdix perdix. European Partridge. Local observers reported this introduced species as fairly common in grain and other cultivated fields. I found it only once; two birds were seen in a large cut-over wheat field thirteen miles south of Moscow on June 28.

Colinus virginianus. Bob-white. Observed only once—the car flushed a single bird beside the highway at Viola on June 3.

Oreortyx picta. Mountain Quail. Near the county line just below Julietta an adult and approximately fifteen young were observed by Adams and the writer in a road cut on July 4. The adult and an undetermined number of young had double head plumes.

Phasianus colchicus. Ring-necked Pheasant. The Ruffed Grouse was the predominant game bird in the forest interior, whereas the pheasant was the most common in the open country. Practically every large field with any kind of cover supported one or more of these birds.

Charadrius vociferus. Killdeer. Found commonly throughout the Moscow area, especially in wet fields, open land with sparse growth, and along the large streams.

Capella gallinago. Wilson Snipe. Recorded only once when a male in breeding condition was collected on the Palouse River near Harvard on June 23.

Actitis macularia. Spotted Sandpiper. Several birds were observed on the Palouse River near Harvard on June 11. In August small groups were to be found all along this river and on the logging pond at Potlatch.

Tringa solitaria. Solitary Sandpiper. On August 11 a single bird was observed on the pond at Potlatch feeding with other shore birds.

Steganopus tricolor. Wilson Phalarope. Two of these birds were feeding with the Solitary Sandpiper above on August 11.

Zenaidura macroura. Mourning Dove. Bred in a forest-edge habitat and occurred commonly in the open country.

Otus asio. Screech Owl. Though other observers had found these owls to be fairly common around Moscow especially in winter, the writer's only record of occurrence was the finding of an immature bird dead in a street in Moscow on July 9. This specimen has been identified as *O. a. macfarlanei*.

Bubo virginianus. Horned Owl. Three birds, one an immature, were observed 25 miles northeast of Moscow in an heavily wooded area on June 4. A week later an immature was collected in the same vicinity. This specimen belongs to the race *lagophonus*.

Glauclidium gnoma. Pygmy Owl. Adams and I often imitated the Pygmy Owl's call in order to attract other birds. On several occasions the owl itself appeared, and immediately it became the subject of attack of the birds in the vicinity, especially nuthatches and Robins. The stomach of a female collected contained the remains of an *Empidonax* flycatcher. The owl specimen has been referred to the race *pinicola*.

Asio otus. Long-eared Owl. A family group of some six birds was observed in a fir-pine forest near Harvard on July 2.

Asio flammeus. Short-eared Owl. Recorded only once—a bird chasing a large buteo over a large field thirteen miles south of Moscow on June 28.

Chordeiles minor. Nighthawk. Observed fairly commonly all summer over Moscow. A male was collected on top of Paradise Ridge some three miles south of Moscow on June 19; it has been identified as *C. m. hesperis*.

Chaetura vauxi. Vaux Swift. Pairs were seen occasionally on Moscow Mountain in early June. A group of adults and birds of the year was observed feeding over Potlatch pond on August 11.

Archilochus alexandri. Black-chinned Hummingbird. An adult male was collected in a Douglas fir forest near Harvard on July 14.

Selasphorus platycercus. Broad-tailed Hummingbird. Two birds were observed in a cut-over cedar-fir forest north of Harvard on July 9.

Selasphorus rufus. Rufous Hummingbird. This was the most common hummingbird in the Mos-

cow area, being found frequently in Moscow, in some forested areas, and on a scrubby hillside of East Moscow Mountain.

Stellula calliope. Calliope Hummingbird. This hummingbird was fairly common on deciduous slopes and along dry, brushy gullies.

Megaceryle alcyon. Belted Kingfisher. Uncommon, seen only on the Palouse River.

Colaptes cafer. Red-shafted Flicker. This was the most common woodpecker in the vicinity of Moscow, though other species abounded in the forests. Many family groups were observed in mid-summer. A male was collected June 1.

Hylatomus pileatus. Pileated Woodpecker. This woodpecker was found uncommonly in the dense coniferous forests especially in fir-pine and fir-larch associations. Young birds in family groups were seen in early July.

Asyndesmus lewis. Lewis Woodpecker. Locally common. The preferred habitat usually contained some dead trees. In one location on East Moscow Mountain it preferred a scrubby hillside dotted with dead trees, but it also occurred in the open timber along Potlatch Creek.

Sphyrapicus varius. Yellow-bellied Sapsucker. Found breeding sparingly in the coniferous forests, but individuals and pairs were seen frequently.

Dendrocopos villosus. Hairy Woodpecker. The forest edge or a heavily logged area was the preferred breeding ground of this woodpecker.

Dendrocopos pubescens. Downy Woodpecker. On June 20 Michael Throckmorton and the writer watched a male of this species gathering food on the State Game Refuge. This is my only record of its occurrence in the county.

Picoides arcticus. Arctic Three-toed Woodpecker. A pair of these birds nested successfully on area 2. It was recorded on only one other occasion in the county.

Tyrannus tyrannus. Eastern Kingbird. Occurred commonly in open country, especially on scrubby deciduous hillsides.

Tyrannus verticalis. Western Kingbird. Recorded only twice, both times being seen on fence wires near farms south of Moscow. An adult male was collected on June 28 six miles south, and several birds of the year were noted on a grassy hillside above Julietta on August 12.

Sayornis saya. Say Phoebe. My only record of this species is a male collected from a fence in a wheat field thirteen miles south of Moscow on June 28. Arvey (1940) states that "one bird was collected from a breeding pair near Troy, Latah County, in the transitional zone."

Empidonax hammondi. Hammond Flycatcher. Empidonaces bred quite commonly in forested areas near Moscow, but no attempt was made to identify this perplexing group in the field even on the breeding grounds. Of five specimens taken, three were of the species *hammondi*. Two of these were collected in a cut-over coniferous forest area, and the other in a wet meadow.

Empidonax wrightii. Wright Flycatcher. A bird of this species was taken in a cedar-fir forest atop West Twin Mountain on June 30, and a male was collected June 27 on a small stream one mile east of Moscow.

Contopus richardsonii. Western Wood Pewee. The wood pewee bred in Moscow and occurred uncommonly in forest edge habitat nearby.

Nuttallornis borealis. Olive-sided Flycatcher. Common in coniferous forest areas.

Eremophila alpestris. Horned Lark. Horned Larks could be found in almost any extensive field in the county, especially where rocky, grassy conditions prevailed. A female taken on Paradise Ridge belongs to the race *merrilli*.

Tachycineta thalassina. Violet-green Swallow. Several pairs of these birds nested under eaves of buildings in and around Moscow, especially on the University of Idaho campus. Later in the summer small flocks were seen commonly throughout the county.

Riparia riparia. Bank Swallow. Recorded only once—a single bird seen July 4 in a deep road cut on Potlatch Creek below Julietta.

Stelgidopteryx ruficollis. Rough-winged Swallow. Bred uncommonly in road cuts just north of Moscow and in banks of the Palouse River near Harvard.

Hirundo rustica. Barn Swallow. The Barn Swallow was a common breeder in the county, being observed most frequently about large farm buildings.

Petrochelidon pyrrhonota. Cliff Swallow. Common throughout the county. It was observed breeding in Moscow on human dwellings, on farm buildings, and on natural cliffs.

Perisoreus canadensis. Canada Jay. Occurred fairly commonly in the forested areas. An immature male has been identified as the Idaho race, *P. c. bicolor*.

Pica pica. American Magpie. Occurred in small groups commonly in the open country, but it was recorded only rarely north of Moscow near the forested areas.

Corvus corax. Raven. Four birds of this species were seen chasing a Red-tailed Hawk on area 1 on June 14.

Parus atricapillus. Black-capped Chickadee. In the dense forest this bird could be found infrequently. Young birds were seen in July and August. An immature male collected June 25 near Harvard is referable to the race *fortuitus*.

Parus gambeli. Mountain Chickadee. Somewhat less common than the preceding species, but becoming more common at higher elevations. One male belongs to the race *abbreviatus*.

Parus rufescens. Chestnut-backed Chickadee. By far the most common chickadee, being found in small groups throughout the forested areas especially in fir-pine associations. Six specimens belong to the subspecies *rufescens*.

Sitta carolinensis. White-breasted Nuthatch. Recorded only once—a male was collected June 16 in a cut-over forest some twenty miles northeast of Moscow. This specimen has been identified as *S. c. tenuissima*.

Sitta canadensis. Red-breasted Nuthatch. Very common breeder in all coniferous forest areas.

Sitta pygmaea. Pygmy Nuthatch. Rare. A bird of this species was collected in a pine forest three miles south of Princeton on June 18 by Lowell Adams and Michael Throckmorton. Two birds, one of which was collected, were observed by the writer on August 12 near Kendrick in mixed woods. This bird has been referred to the race *melanotis*.

Certhia familiaris. Brown Creeper. Creepers bred fairly commonly in the densely forested areas.

Troglodytes aëdon. House Wren. In practically every cut-over area this wren bred fairly commonly. One female collected represents *T. a. parkmanii*.

Troglodytes troglodytes. Winter Wren. Whereas the House Wren was the common wren of the cut-over areas, the Winter Wren was most common in the densely forested regions.

Salpinctes obsoletus. Rock Wren. Individuals or pairs were observed on East Moscow Mountain and on Paradise Ridge where several rocky slopes provided suitable habitat. Adults were seen carrying food upon several occasions.

Dumetella carolinensis. Catbird. Occurred rather sparingly where there was considerable deciduous growth along streams.

Turdus migratorius. Robin. The Robin frequented both forested and cleared areas. It was found from the lowest elevation along Potlatch Creek to the top of Moscow Mountain. Four specimens belong to the subspecies *propinquus*.

Ixoreus naevius. Varied Thrush. The Varied Thrush was most common in the densest, highest evergreen forest, but it also occurred at elevations as low as 2500 feet.

Hylocichla ustulata. Swainson Thrush. Very plentiful in all coniferous forest types. One specimen has been referred to the race *almae*.

Hylocichla fuscescens. Willow Thrush. In willow thickets along streams and in gullies this thrush could be heard singing, usually very softly. It was only locally common.

Sialia mexicana. Western Bluebird. Rare. A pair of these birds successfully raised three young in a telephone pole hole along the highway one mile east of Harvard. The young were just out of the nest on June 25, but none could be found a week later.

Sialia currucoides. Mountain Bluebird. The Mountain Bluebird was abundant along roads and highways where it could be seen on telephone wires and fence lines.

Myadestes townsendi. Townsend Solitaire. The solitaire occurred in the forested areas from about 2500 feet up. Adults were seen feeding a well-fledged young June 20 in a cedar-fir forest on the Little Sand Creek road.

Regulus satrapa. Golden-crowned Kinglet. Scattered groups of these kinglets could be found uncommonly in the evergreen forests. One specimen is *R. s. olivaceus*.

Regulus calendula. Ruby-crowned Kinglet. Rather plentiful in the densely forested areas, but was not found where the timber had been logged extensively.

Bombycilla cedrorum. Cedar Waxwing. Usually seen in pairs flying overhead, being observed only at Harvard, Deary, and Moscow.

Vireo solitarius. Solitary Vireo. In practically any extensive stretch of coniferous forest this bird could be heard singing. Several nests containing young were found near Harvard in late June. One specimen has been identified as *V. s. cassinii*.

Vireo olivaceus. Red-eyed Vireo. In the Washington State College Museum there are two specimens of this vireo both taken in Latah County: the one, a male, on Cedar (Moscow) Mountain, July 5, 1923 by M. Holloway, and the other, a female, "Latah County," July 7, 1898 by S. E. Piper. A thorough search for this species in the county was unsuccessful until August 12 when a single bird was observed in song in the aspen and willow groves along Potlatch Creek just above Julietta.

Vireo gilvus. Warbling Vireo. The Warbling Vireo's distinctive song could be heard in most of the forested areas in the county where it bred fairly commonly. It was also noted in deciduous trees within Moscow. One specimen belongs to the race *leucopolius*.

Vermivora celata. Orange-crowned Warbler. This secretive warbler was more often heard than seen. Although it usually had a preference for the scrubby, deciduous thickets, it occasionally occurred in the coniferous forests. A breeding male taken on Paradise Ridge on June 26 has been identified as *V. c. orestera*.

Vermivora ruficapilla. Calaveras Warbler. Found only once. A singing male was observed in a deciduous thicket on East Moscow Mountain on June 3.

Dendroica petechia. Yellow Warbler. Found in deciduous growths along streams throughout the county. A male taken August 12 has been referred to the race *morcomi*.

Dendroica auduboni. Audubon Warbler. Observed throughout the county in the coniferous forests.

Dendroica townsendi. Townsend Warbler. This was the most abundant bird in the coniferous forest, showing a preference for the older, denser stands of Douglas fir.

Oporornis tolmiei. Macgillivray Warbler. A deciduous hillside or undergrowth along streams was almost certain to contain one or more pairs of these birds.

Geothlypis trichas. Yellow-throat. This uncommon species was to be found only in the dense thickets along streams. A breeding male was collected July 3 on the Palouse River near Princeton, and has been identified as *G. t. campicola*.

Icteria virens. Chat. This bird was fairly common on brushy slopes of Moscow Mountain and Paradise Ridge. Well-fledged young were seen in a brushy gully near Moscow on June 27.

Setophaga ruticilla. American Redstart. The redstart was uncommon, being observed only four times during the summer. An adult male was collected June 7 twenty miles northeast of Moscow. A nest containing four eggs was found four feet from the ground in a deciduous shrub June 25 near Harvard. The male collected is referable to the subspecies *tricolora*.

Passer domesticus. English Sparrow. Common around all inhabited areas.

Sturnella neglecta. Western Meadowlark. This species occurred fairly commonly in open country throughout the county.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. Found only once. A single male was seen with Red-wings near Potlatch pond on August 11.

Agelaius phoeniceus. Red-wing. Along the larger streams and valleys the Red-wing bred and occurred in deciduous thickets and marshes. A young male collected is referable to the subspecies *nevadensis*.

Icterus bullockii. Bullock Oriole. An adult male oriole was seen on Paradise Ridge on June 15. On August 12 a family group of these birds was observed in the willow groves along Potlatch Creek above Julietta.

Euphagus cyanocephalus. Brewer Blackbird. Abundant, occurring near farm dwellings and along roads throughout the county.

Molothrus ater. Cowbird. Uncommon. Occasionally seen about farm buildings near Moscow. Two specimens, a male and a female, both belonging to the race *artemisiae*, were taken near Moscow on June 20 and June 30, respectively.

Piranga ludoviciana. Western Tanager. Bred and occurred commonly in the coniferous forest areas.

Pheucticus melanocephalus. Black-headed Grosbeak. Seen occasionally in forested areas, especially on Moscow Mountain. A male collected on the mountain has been identified as *P. m. melanocephalus*.

Passerina amoena. Lazuli Bunting. Common in open country, preferring thickets and underbrush along gullies and hillsides.

Hesperiphona vespertina. Evening Grosbeak. Observed commonly flying overhead and feeding in the tall conifers north of Moscow. Two specimens belong to the race *brooksi*.

Carpodacus cassinii. Cassin Finch. This species bred in the city of Moscow. It was also observed in small flocks containing young birds in the weeds, underbrush, and thickets along roads south and east of this city.

Spinus pinus. Pine Siskin. The siskin was found in the same abundance and with the same habits as the Evening Grosbeak; flocks of five or more were seen flying overhead in the forested areas.

Spinus tristis. American Goldfinch. Goldfinches were fairly common, being observed in thickets, underbrush, and tall weeds in and around Moscow. A breeding male belongs to the subspecies *pallidus*.

Loxia curvirostra. Red Crossbill. Another species that was seen commonly in flocks in the coniferous forests. Occasionally adults and young were seen in Moscow.

Pipilo maculatus. Spotted Towhee. The towhee was fairly common in thickets and on deciduous hillsides, especially on East Moscow Mountain. A male taken in June on the mountain represents the race *P. m. montanus*.

Passerculus sandwichensis. Savannah Sparrow. In the large grain fields south of Moscow this sparrow occurred rather sparingly. A family group was seen in early July feeding in weeds beside a road twelve miles south of the city.

Ammodramus savannarum. Grasshopper Sparrow. On June 19 a bird of this species was observed singing in a small wheat field on the south side of Paradise Ridge. On June 27 a male belonging to the western race *perpallidus* was collected in a large field one mile east of Moscow. So far as is known this is the first record for this species in Idaho.

Poocetes gramineus. Vesper Sparrow. Fairly common on and around Paradise Ridge. One specimen collected represents *P. g. confinis*.

Chondestes grammacus. Lark Sparrow. Only in the more open country in the southern part of the county was this sparrow found. Several birds were observed in grassland associations near Julietta on August 12.

Junco oregonus. Oregon Junco. Common in the forested areas. Two specimens have been identified as *J. o. montanus*.

Spizella passerina. Chipping Sparrow. From the lowest forested area to the highest on Moscow Mountain, this sparrow was found, sometimes commonly. One female collected represents *S. p. arizonae*.

Spizella breweri. Brewer Sparrow. Uncommon. The Brewer Sparrow was first seen on Paradise Ridge where it was found in dry brushy gullies. It was later noted in a similar habitat about one mile east of Moscow. A male collected belongs to the race *breweri*.

Passerella iliaca. Fox Sparrow. Found fairly commonly on brushy hillsides and in thickets along streams. One female taken belongs to the race *schistacea*.

Melospiza melodia. Song Sparrow. More plentiful than the preceding species, occurring commonly in thickets along streams and on hillsides. Scattered pairs bred on the outskirts of Moscow. Two specimens collected belong to the race *montana*.

The following species have been found in summer by other observers in the county, but were not seen by the writer.

Accipiter striatus. Sharp-shinned Hawk. Olson (1942) states that "one was collected August 16, 1938, by Engler on Moscow Mountain, Latah County." According to Hand (1941) they are resident and breed in the mountains.

Buteo swainsoni. Swainson Hawk. Engler (1938) states "a nest with young was discovered in a pine on Paradise Ridge, May 31, 1937." This hawk was also seen by Hand in the Palouse country.

Canachites franklinii. Franklin Grouse. There is a specimen in the Washington State College Museum labelled: "*Canachites franklinii*—Idaho: Latah County, #678, female. 18 July 1899, Ray Brooks."

Empidonax traillii. Traill Flycatcher. Olson (1942) states that "Engler collected two of these rather uncommon summer residents near Moscow, Latah County." According to Hand they are summer residents to be found along "willow-bordered mountain streams or brushy deciduous growth in the larger valleys."

Empidonax difficilis. Western Flycatcher. Hand states that this is a rather uncommon summer resident usually occurring along the larger streams in the mountains.

Iridoprocne bicolor. Tree Swallow. Quite common in the open Palouse country, according to Hand.

Cyanocitta stelleri. Steller Jay. In the Washington State College Museum there is a female of this species taken by S. E. Piper, July 30, 1898, on Cedar (Moscow) Mountain.

Catherpes mexicanus. Canyon Wren. A bird of this species was heard in song on July 7 within the city limits of Moscow by Mr. and Mrs. Lowell Adams.

Wilsonia pusilla. Pileolated Warbler. An unsexed specimen in the Washington State College Museum was collected by S. E. Piper, July 30, 1898, and is labelled "Ida.: Potlatch R."

Carpodacus mexicanus. House Finch. Both Olson (1942) and Arvey (1940) state that this species is a common resident in the area.

Zonotrichia leucophrys. White-crowned Sparrow. Engler (1938) states that this as "a common resident of roadside and fence-row vegetation."

Melospiza lincolni. Lincoln Sparrow. There is a specimen in the Washington State College Museum labelled as follows: "*Melospiza l. lincolni*. Idaho: Potlatch R., female, 12 July 1898. S. E. Piper"; also a male bearing the same date, locality, and collector. Subspecific determination was made by Dr. H. C. Oberholser.

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