

level hem in those belts, each belt characterized by a different species of oak. And let us further think how these boundaries have shifted in past time spatially, as borne upon by changes in physical conditions affecting climate—those involved in repeated elevation and depression of the land surface, and in shiftings of prevailing air currents. We can then think of the oak belts, as slowly marching, through time, up hill and down dale, southward and northward, as their species have been driven by the gradually shifting exigencies of physical requirement which determine where new trees can not only sprout, but mature. Again, we must think, not of the individual tree up to 300 years old, but of the aggregate of trees involving long series of generations of their kind. Such time-space aggregation has been *forced* to move from place to place. It has literally *had* to keep up with the procession. It has *had* to provide ways and means of insuring transportation, or else be wiped out through complete failure at any one level, of those favoring factors which have to do with the existence of each kind of oak in its own life-zone. Tree species have had to move their location from one period to the next or die in a struggle against oncoming adverse conditions.

Here, then, is where a certain portion of the associated animal life has come into the service of the oak species. In the present era, with life-zones probably advancing northward, and up-slope, we can think of the successive belts of valley oaks, blue oaks, golden oaks, black oaks, and huckleberry oaks, on our western mountain-sides, as relying, most especially for that part of their dispersal comprised in elevation, entirely upon their bird and mammal associates. And there obtains that vital exchange of benefits to which I alluded. Plant-animal communities, eventually closely knit in their specific interrelationships, have been subject to evolutionary processes quite as definitely as discrete species.

Note.—An adapted version of this account was included in a radio talk published in *The Scientific Monthly* (XLI, December, 1935, pp. 553-556). Permission to reprint the matter duplicated here has been received from the Associate Editor of the journal cited, Mr. Ware Cattell.

Museum of Vertebrate Zoology, University of California, Berkeley, October 22, 1935.

SUMMER NOTES FROM PLUMAS COUNTY, CALIFORNIA

By JOSEPH EWAN

Two papers published, by A. P. Smith (*Condor*, 20, 1918, p. 45) and by Joseph Mailliard (*Proc. Calif. Acad. Sci.*, ser. 4, 13, 1923, p. 29), deal briefly with the notable birds of the region about Quincy, to the north of the area here under consideration. In addition, Margaret W. Wythe has written upon "Some birds of the Gold Lake District" (*Condor*, 29, 1927, pp. 61-66), a region some two thousand feet above the present locality, in the Canadian and Hudsonian zones. Mohawk Valley, with which I deal, is, on the other hand, a locality of Transition Zone complexion, freckled with Great Basin species.

In the course of work as nature counselor at Y.M.C.A. Camp Caldwell, near Blairsden ("Dentens" on Downieville U.S.G.S. Quad.), Plumas County, the author enjoyed intermittent opportunities to note the bird population of the region. My attention was divided among several duties, but observations were made from June 24 to July 18, 1934, chiefly upon early morning trips with small groups of boys.

The area covered by these notes extends from the town of Blairsden east to Portola (approximately "Kerby" on the Sierraville U.S.G.S. Quad.), roughly ten miles

distant. The dominant topographic feature is the Middle Fork of the Feather River. The highest point to the east is Penman Peak (7280 feet), and to the west are the somewhat higher Mills and Haskell peaks, with the Gold Lake district beyond. Above Portola looms the strongly isolated landmark, Beckwith Butte (7248 feet). To the east of Portola lies Sierra Valley, comprising the chief source of the Middle Fork. The floor of Mohawk Valley and of the merging Humbug Valley in which lies the town of Portola is fairly level and has a gentle gradient of from 4500 feet at Blairsdan to 5000 feet at Portola, ten miles upstream.

The slopes of Mohawk Valley are prominently clothed with veteran western yellow pines, though lumbering activities are continually decimating their stands. The two sides of the valley are remarkably unlike vegetationally, however, with the Transition or weak Canadian species often a conspicuous feature of the west slope, and with arid Transition, having a strong Great Basin expression, on the more arid eastern slope of the valley. Thus huckleberry oak occurs on the west side, California black oak, *Garrya* and rabbit-brush (*Chrysothamnus nauseosus*) on the east but not on the west slope; white fir is not uncommon on the west but almost wholly absent on the east side. Great Basin sage-brush (*Artemisia tridentata*) and antelope brush (*Purshia tridentata*) spread down as far as Blairsdan from the Portola area where they are dominants, that region being conspicuously Great Basin in its floristic aspect. The Middle Fork of the Feather River is bordered near the camp by willows, black cottonwood, and mountain alder (*Alnus tenuifolia*), with thickets of herbaceous water-loving plants. This river thicket habitat, or riparian association, is exactly illustrated by the photograph of "Battle Creek at 4800 feet" in the Lassen Peak region, in the Vertebrate Natural History of the Lassen Peak Region (Univ. Calif. Publ. Zool., 35, 1930, p. 25, fig. 15). Just below camp the river broadens to form meadows and what is locally designated "the bog," a treeless, well-flooded area with such plant species as *Eleocharis*, *Deschampsia caespitosa*, *Senecio hydrophilus*, *Carum gairdneri*, *Cicuta vagans*, and *Epilobium glandulosum*.

The following bird species were noted on the floor of Mohawk Valley or on the west slope of Penman Peak, which is well covered with sage-brush on its south and west sides and upper slopes. Single dates indicate the only occasions when these were seen. To make possible correlations with Wythe's paper on the Gold Lake district the species are arranged by association. Since no forest association as such exists in the area, even the oldest and most nearly virgin stands of pine being rather open and freely interspersed with such chaparral elements as mountain elderberry, squawmat (*Ceanothus prostratus*) and manzanitas, only three associations are considered: mixed forest-chaparral association; riparian association; meadow association.

MIXED FOREST-CHAPARRAL ASSOCIATION

- Cooper Hawk (*Accipiter cooperii*). Penman Peak road, July 6.
 Mourning Dove (*Zenaidura macroura marginella*). Singularly scarce; July 6.
 Great Horned Owl (*Bubo virginianus* ssp. ?). At camp, July 8. Presumably on margins of range of *pacificus* and *occidentalis* at this point.
 Calliope Hummingbird (*Stellula calliope*). Frequented *Gilia aggregata*.
 Red-breasted Sapsucker (*Sphyrapicus varius daggetti*). Grove of young yellow pines near camp, June 29.
 Hairy Woodpecker (*Dryobates villosus orius*). On yellow pines at camp.
 White-headed Woodpecker (*Dryobates albolarvatus*). Frequent about camp; commonly feeding on upper half of pine boles, whereas the Hairy Woodpecker often works down to within ten feet of the ground.
 Violet-green Swallow (*Tachycineta thalassina lepida*). Nest located along Frazier Creek in dead black cottonwood. Creek borders camp.

Blue-fronted Jay (*Cyanocitta stelleri frontalis*). Permanent food supply doubtless concentrated the population about camp.

Mountain Chickadee (*Parus gambeli abbreviatus*). Frequent about camp.

Pigmy Nuthatch (*Sitta pygmaea*). On pines about camp; no other species seen in the valley.

Sierra Creeper (*Certhia familiaris zelotes*). At camp, June 29.

Western Robin (*Turdus migratorius propinquus*). Common about camp; one nest located in a yellow pine sapling 5½ feet from ground in plain sight on an open gravel bar in the river.

Western Bluebird (*Sialia mexicana occidentalis*). Favored the openings among the yellow pines and the railroad "cuts."

California Purple Finch (*Carpodacus purpureus californicus*). A pair seen frequently along Frazier Creek near camp. Linnets absent!

Pine Siskin (*Spinus pinus*). A pair loitered about the camp spring, June 24.

Green-backed Goldfinch (*Spinus psaltria hesperophilus*). At Guidici Ranch, Penman Peak road, July 6, foraging about the barns.

Green-tailed Towhee (*Oberholseria chlorura*). Familiar and confiding about camp, feeding with robins and juncos about the camp tables.

Sierra Junco (*Junco oreganus thurberi*). Common throughout the area. One nest discovered on rafters of an old hay-filled barn.

RIPARIAN ASSOCIATION

Farallon Cormorant (*Phalacrocorax auritus albociliatus*). Single transient fishing along the river near camp, permitted an approach to within twenty-five yards, July 15.

Sharp-shinned Hawk (*Accipiter velox*). Occasionally seen.

Killdeer (*Oxyechus vociferus*). River flats near Portola, July 18.

Wilson Snipe (*Capella delicata*). Along river margins in heavy growth of *Carex* and grasses, July 6.

Spotted Sandpiper (*Actitis macularia*). River "beaches," July 6.

Pacific Nighthawk (*Chordeiles minor hesperis*). Observed nightly foraging over a broad section of the river, the "swimming-hole," which offered a considerable expanse of water.

Western House Wren (*Troglodytes aëdon parkmanii*). River flotsam habitat, where a nest was located.

Ruby-crowned Kinglet (*Corthylio calendula cineraceus*). Frazier Creek, July 5, secretive in stream thicket.

Lutescent Warbler (*Vermivora celata lutescens*). Seen almost daily about the willows and *Cornus californica* at the camp spring.

Tolmie Warbler (*Oporornis tolmiei*). Frazier Creek, July 5. [Oddly enough not a single Audubon Warbler was seen in the area.]

Golden Pileolated Warbler (*Wilsonia pusilla chryseola*). Perhaps the most abundant warbler about camp. One nest located on ground in pine-needle duff eight inches from the path used twice daily by eighty-six campers going to and from a swim! Incubation terminated by destruction of the eggs, not, I believe, by the boys who were wholly unaware of its presence, but by some other agent.

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*). With red-wings along the river flats just below Portola, July 18. Adult males.

Red-winged Blackbird (*Agelaius phoeniceus nevadensis*). Among willows all along the river at scattered points, and about Blairsdén ranches.

Song Sparrow (*Passerella melodia fisherella*). Prominent member of this association; one nest located in a stool of *Carex* at river's margin.

MEADOW ASSOCIATION

Western Red-tailed Hawk (*Buteo borealis calurus*). Flying over "bog," July 6.

Sparrow Hawk (*Falco sparverius*). Seen almost daily flying over the bog, commonly a pair seen, one pursuing a red-tail, July 6.

Red-shafted Flicker (*Colaptes cafer collaris*). Small parties feeding in early morning on ground of wet meadows. Common.

Olive-sided Flycatcher (*Nuttallornis mesoleucus majorinus*). Fond of dead tops of yellow pines along the margins of wet meadows where found with reliable frequency.

Western Robin (*Turdus migratorius propinquus*). Conspicuous about meadows where were apparently located feeding grounds for birds nesting in pines.

Mountain Bluebird (*Sialia currucoides*). At Guidici Ranch, July 6.

Western Meadowlark (*Sturnella neglecta*). Three nests located, July 6.

Brewer Blackbird (*Euphagus cyanocephalus minusculus*). About Blairsden and Portola meadows, in territory apart from red-wings.

Savannah Sparrow (*Passerculus sandwichensis nevadensis*). At meadow about old barn on Blairsden road from camp, on several occasions.

White-crowned Sparrow (*Zonotrichia leucophrys*). Same locality as last, but only on June 30.

Lincoln Sparrow (*Passerella lincolni*). In full song.

The subspecific approximations are based largely on Grinnell, Dixon and Linsdale's "Vertebrate Natural History of Lassen Peak Region" (*op. cit.*). It is hoped that the area, a provocatively interesting one from the distributional standpoint, may receive a closer examination from a collecting ornithologist, for then the precise subspecific relationships can be established.

Berkeley, California, July 27, 1935.

FROM FIELD AND STUDY

Speed and Eyesight of a Pigeon Hawk.—In an experiment with a female Eastern Pigeon Hawk (*Falco columbarius columbarius*) trained for falconry the bird came at once to the lure from measured distances up to 900 yards. The lure was a flat, padded bag, approximately 3 by 4 by 1.5 inches in size, with a pair of small-bird wings fastened to each flat surface. It was swung in a circle at the end of a 3 foot thong to call the bird; to human eyes at such distances it was perfectly invisible. The hawk was timed in both directions on a nearly windless day over a course of 1542 feet, and it averaged 29.9 miles per hour. It is well known that a trained bird makes no such effort or speed in coming to the lure as it shows in pursuit of live quarry. This hawk seemed, purely by guess, to go about 50 per cent faster in pursuing a live bird.

In comparing it with birds it was attempting to capture, it was observed that the Pigeon Hawk flew faster than quail (*Lophortyx californica*) or Meadowlarks (*Sturnella neglecta*), and more slowly, at least in a rising flight, than Horned Larks (*Otocoris alpestris*). It could catch a shrike (*Lanius ludovicianus gambeli*) in a long course free from cover; it was keener after shrikes than after any other bird. It could catch, bring down and kill a dove (*Streptopelia risoria*), or even a strong adult common pigeon if released within about 50 feet, but was easily outdistanced by these birds after they had attained top speed.

The hawk was often harassed by hummingbirds, sometimes six or seven at once. They flew circles around her. Sparrow Hawks (*Falco sparverius*) usually outmaneuvered the Pigeon Hawk, but few of them seemed to outspeed her. A wild, male Western Pigeon Hawk (*Falco columbarius bendirei*) attacked her one day, kicked several feathers loose from her, and finally drove her to the ground. His speed was greatly superior to hers.—RICHARD M. BOND, *Oakland, California, December 3, 1935.*

The Brown Thrasher in Utah.—On December 6, 1935, while banding birds in Zion Canyon, at an elevation of 3,900 feet, I twice observed a bird that was thought to be a Sage Thrasher. The next day, December 7, this bird was trapped and banded (number 34-354902). After repeating three times the day following, making possible further study of its markings, the original identification was doubted.

On December 9, the bird again repeated and this time was collected for a specimen. It proved to be a female Brown Thrasher (*Toxostoma rufum*) in rather worn plumage. So far as ascertainable, this is a new record for the state of Utah as well as an addition to the few records west of the Rockies. The specimen (number 114, in the Zion National Park Museum) was made up and identified by W. S. Long, Wild Life Technician, Zion National Park.—HENRY GRANTHAM, *Zion National Park, Utah, December 12, 1935.*

New Nesting Records for Yosemite Valley.—The chart of daily bird records over a period of thirteen years in Yosemite Valley discloses the fact that the Mountain Bluebirds (*Sialia currucoides*) are not to be expected during the summer months. However, birds of this species may be found in the Yosemite any time between the middle of October and the middle of