

MIDSUMMER WANDERING OF CERTAIN ROCKY
MOUNTAIN BIRDS

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THE habit of certain species of birds to leave their natal habitat in midsummer and to appear in numbers at that season in distant regions is well known. It is especially noticeable in the eastern states, where egrets and other southern herons may be found in August and September in the marshes of New England and Ontario, and young gulls and terns far north of their natal range.

This midsummer wandering is obviously distinct from any actual migratory movement, and apparently has never been explained satisfactorily. There is reason to suspect, chiefly on the basis of banding records, that these wanderers are young birds of the year, but whether their movement represents a foraging activity due to overcrowding of the natal area (which seems unlikely), a preliminary 'stretching of the wings' in preparation for the birds' initial migration, or some other factor is uncertain.

Another type of midsummer wandering, which may be allied to this northward movement, is shown by the occurrence of western species, such as the Arkansas Kingbird and the Clay-colored Sparrow, in the eastern states at that season. Banding records suggest that some of these birds, too, are young of the year, although adults apparently are also involved.

The term 'post-natal wandering' may be used to describe the movement of young birds away from the regions in which they were raised and after they have left the nest. When adult birds leave the nesting area after the young have fledged, and spend an appreciable period of time in a region where they do not nest and through which they do not actually migrate, the term 'post-nuptial wandering' might better be employed. A bird that appears casually in summer outside the normal range of its species may properly be included in either of these categories although its activity may be erratic and not usual in the behavior of the species.

True migrations involve the entire population of a given species in a given area, whereas the habit of midsummer wandering appears to affect only a portion of the population. Although some of these wandering individuals may gather into small flocks and perhaps remain together for the fall migration, their departure for their winter range occurs later in the season, and often begins after the birds have returned to the vicinity of the nesting range.

Observation of the birds in Rocky Mountain National Park, Colo-

rado, during 1939 and 1940, revealed that midsummer wandering is a regular pattern in the behavior of some Colorado birds. Instead of representing a considerable horizontal movement, however, it takes place as a wandering to elevations higher than the nesting habitat. The variation in habitat from the great plains to the crest of the continental divide, a distance of about fifty miles, is as great as that resulting from a shift of hundreds of miles over level country.

It is regretted that naval duties during the past few years have made it impossible for me to investigate properly, in preparation for this article, the abundant literature extant about the altitudinal migrations of birds. Such time as could be devoted to this purpose, and conversations with other ornithologists who are more thoroughly familiar with the literature on the subject, led to the belief that this upward wandering of birds in high mountain areas has not been discussed before, certainly not in such a way as to attract the attention of students to the subject.

A check-list of "The Birds of Rocky Mountain National Park, Colorado," published by the writer in the *Auk*, July, 1945, discussed briefly each of the 215 species recorded from that park. In that paper were presented nesting and migrational data, including dates and elevations of occurrence, a comparison with conditions in adjacent regions, the relative abundance of the birds at different seasons, and other information summarizing generally what is known about the birds of the area. From that list have been selected twenty-two species that exhibit evidence of performing the altitudinal wandering with which this paper is concerned.

To gain a clear conception of this phenomenon, some knowledge of the nature of the terrain is necessary. The Front Range of the Rocky Mountains and the adjoining foothills is an unusually favorable region in which to study the movements of birds in relation to altitude. The entire range is included within the national park, where complete protection is afforded wildlife and where interference with normal behavior patterns resulting from human activity is negligible. The single paved road that crosses the range rises to 12,000 feet, so that all of the life zones are easily accessible, while trails lead to many other parts of the park. The foothills, which extend thirty miles eastward of the park boundary to the edge of the plains, are mostly included within the Roosevelt National Forest.

The prairies that cover the eastern half of Colorado sweep gradually westward to an elevation of 5,300 feet before they terminate abruptly against the foothills. There the short grasslands give way to the ponderosa pines and junipers of the Transition Zone, where the trees

grow in open stands over the canyoned hillsides. This rough, rocky country rises westward to 7,500 feet. There the canyons open into a region of long glaciated meadows, locally called "parks," where small ranches and recreational settlements have been established, the major community of which is Estes Park. The national park boundary lies at about 7,800 feet, above Estes Park.

Each mountain park includes one or more meandering streams, bordered by thickets of willow and alder and narrow groves of aspen. Ponderosas cover the moraines and bordering slopes, except where sizable stands of aspen have grown over ancient burns, scars or favorably moist areas. This open forest extends to the western limits of the meadows at 8,500 feet, where suddenly increasing gradients mark the beginning of the true mountains.

Between 8,500 feet and 10,000 feet these slopes are densely forested with small lodgepole pines, growing so thickly as to be almost impenetrable in places. Here, too, groves of aspen cover old seres or border streams as they drop down the towering canyons. Few shrubs grow in this area, and a limited number of herbs. This belt comprises the Canadian Zone.

The Hudsonian Zone is a narrow band of Engelmann spruces and alpine firs, growing from 10,000 feet to timberline at 11,000 feet. These trees form open, sunny glades, with many flowers and shrubs, which are especially abundant near the springs and the small streams that descend from them.

A fringe of limber pines and dwarfed spruces marks the upper limit of trees. Above 11,000 feet, vast rolling tundra and frequent talus piles form the Alpine Zone, a wilderness of crags and granite peaks. This is the crest of the Front Range, part of the continental divide, a ridgepole bisecting the park.

Westward of the divide, the slopes descend rapidly to form the eastern wall of the Colorado River valley. The river, itself, is here a small stream meandering over the valley floor, a morass of beaver ponds, with abundant willow and aspen. Below 9,000 feet the ponderosas again appear as a close hillside cover. The stands of pine become less dense below Grand Lake village, and at about 8,500 feet the dry sagebrush basins of the Upper Sonoran Zone become the dominant feature of the landscape.

The habit of wandering to these altitudes in summer after the nesting season appears to vary among the species of birds concerned, grading from a mere hint of its occurrence in the erratic appearance of a bird above its normal range to a conspicuous invasion of higher elevations at that season by other species. There is, however, some uniformity

to be noted among species of the same family. In a few cases it has been demonstrated that these wanderers are birds of the year; more often, however, field observations alone were not sufficient to determine the age of the birds involved. The species discussed below are arranged in the order followed in the A. O. U. Check-list of North American Birds, Fourth Edition, 1931.

Although Treganza's Herons (*Ardea herodias treganzai*) migrate through the park in spring and fall at elevations below 9,000 feet, and are common on the plains near the foothills, there are no summer records from the park. The Black-crowned Night Heron (*Nycticorax nycticorax hoaculi*) has been recorded but once in the national park, on July 28, 1940, when a young bird was seen at Mary's Lake, 7,800 feet. This heron was probably raised in one of the colonies on the prairies a few miles east of the foothills.

Marsh Hawks (*Circus cyaneus hudsonius*) do not nest in the park but appear in numbers above timberline from August 1 to September 15. These birds are in the brown plumage of the females and young. The true fall migration occurs between October 1 and 18, and most of the migrants fly at lower elevations.

Prairie Falcons (*Falco mexicanus*) nest in the park up to 9,500 feet, possibly higher. In August they forage over the alpine meadows before departing in September and early October.

Sparrow Hawks (*Falco sparverius sparverius*) nest abundantly in the lower foothills, a few pairs as high as 8,200 feet. After the nesting season they become more common throughout the upper Transition Zone, and a few range up to timberline. In September and October they descend below 8,500 feet to migrate from the region.

Avocets (*Recurvirostra americana*) nest abundantly on the plains near the foothills, and the occurrence of one in the park at 8,200 feet on July 31 (year uncertain) probably represents a post-natal wanderer.

Western Mourning Doves (*Zenaidura macroura marginella*) are much less common in the mountains than they are in the Denver region, but a number of pairs nest in the aspens and ponderosa pines of the Transition Zone up to 8,500 feet. In late summer their numbers increase throughout the open parks, and occasionally doves may be seen then at timberline. They leave the national park in September.

Of the eight species of woodpeckers that occur in the national park, six nest within its boundaries. The Western Red-headed Woodpecker (*Melanerpes erythrocephalus caurimus*) nests on the plains and probably in the lower foothills up to about 6,000 feet. During the nesting season a few males, probably non-breeding birds, may be found as high as 9,000 feet. An occasional Red-headed Woodpecker visits the park in

July and August; it is possible that these individuals are post-natal or post-nuptial wanderers, but if so, the habit is not strongly established in the species.

The summer wandering habit appears to be more regular in the Lewis's Woodpecker (*Asyndesmus lewis*). This species breeds abundantly in the lower foothills to the east, at least as high as 6,800 feet, and also in the Upper Sonoran region south of Grand Lake. A very few visit the park boundaries in May, but in August they occur frequently throughout the Canadian and Hudsonian Zones, singly or in flocks, and have been found as high as 12,100 feet. In September, these birds leave the park, some descending eastward to the foothills and plains, while the rest migrate down the Colorado Valley to the west.

The kingbirds exhibit the summer wandering pattern more conspicuously than any other group of birds. Eastern Kingbirds (*Tyrannus tyrannus*) migrate along the foothills in numbers in spring, and a few pass through the mountain meadows of the upper Transition Zone at that season. When the nesting is over in the foothills, Eastern Kingbirds again appear in the mountains, becoming fairly common along the streams up to 8,500 feet in late August and early September. They leave the park by about September 8, presumably joining others of their species at lower elevations for the southward migration.

There is but one spring record of the Arkansas Kingbird (*Tyrannus verticalis*) in the park files, dated May 25, 1938, but otherwise this species follows a behavior pattern similar to that of the Eastern Kingbird. The Arkansas Kingbird is perhaps slightly more common in the upper Transition Zone during late August than is the Eastern Kingbird, but both leave the park at about the same time.

Cassin's Kingbird (*Tyrannus vociferans vociferans*) has not been reported from the park since 1890, and nothing is known of its habits there at that time. Say's Phoebe (*Sayornis saya saya*) occurs in the park only in fall. Occasional individuals have been found up to 8,200 feet between September 9 and October 6 which are probably true migrants. None of the seven other species of flycatcher on the park list, all of which are common breeders there, exhibit the habit of ranging to higher elevations in midsummer.

Long-crested Jays (*Cyanocitta stelleri diademata*) nest commonly in the ponderosas of the upper Transition Zone and in some numbers in the dense stands of lodgepole pines and aspens that cover the moraines and slopes of the lower Canadian Zone. Their regular appearance in the Hudsonian Zone in late summer may be due to altitudinal wandering. They winter from 9,000 feet to the plains.

American Magpies (*Pica pica hudsonia*) nest in varying numbers to the lower edge of the Canadian Zone. In September and October, small flocks appear on the alpine meadows, but descend with the first snows to winter below 9,000 feet.

Cañon Wrens (*Catherpes mexicanus conspersus*) are known to breed in the park only on Needles Ridge near the eastern boundary, where nests have been found up to 8,500 feet. They are rather sedentary birds and some of them appear to remain near their nesting sites in the park during winter. Cañon Wrens have been discovered as high as 10,500 feet in summer and autumn on mountain slopes above their nesting habitat.

Western Robins (*Turdus migratorius propinquus*) nest abundantly throughout the forests of the park to timberline. They may be observed flying across the alpine meadows at any time between May and November, but they are more numerous at the higher elevations in late summer than at other seasons. It is suspected that at least some of these birds are individuals that nested farther north and are migrating south earlier than the local population, for many of them are adults.

Mountain Bluebirds (*Sialia mexicana bairdi*) are the most prominent breeding species of the mountain parks, and although the Canadian Zone provides little habitat suitable for their nests, they nest also in fire-burned stubs near timberline. After the young are fledged, many visit the alpine tundra until late September and October, when they descend to lower elevations to undertake the southward migration.

The discovery of a Western Yellowthroat (*Geothlypis trichas occidentalis*), a species that nests below the park boundaries, at 12,000 feet on the continental divide on September 13, 1939, was probably an observation of an erratic variant from the normal behavior of the species.

Western Meadowlarks (*Sturnella neglecta*) nest in small numbers in the open meadows of the upper Transition Zone, and more abundantly in the lower foothills and on the plains. In late summer, they increase in numbers through the mountain parks and may even be found then above timberline. They leave the mountains in September and early October.

Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) nest commonly from the plains to about 5,500 feet in the foothills, rarely as high as 6,000 feet. Small flocks range slightly higher in August, occasionally to 7,500 feet.

The Rocky Mountain Grosbeak (*Hedymeles melanocephalus melanocephalus*) nests in moderate numbers below 8,500 feet, and rarely may

be seen as high as timberline in summer. The species departs by the end of August.

On August 19, 1940 a young Green-tailed Towhee (*Oberholseria chlorura*) was seen at 11,500 feet on Tanima Peak. The species nests abundantly throughout the Transition Zone, but is occasionally found higher in summer.

Lark Buntings (*Calamospiza melanocorys*) have been found in the park only in August, during which month a few flocks have been observed as high as 12,300 feet. They nest abundantly on the prairies and in the lower foothills up to 6,000 feet.

Western Lark Sparrows (*Chondestes grammacus strigatus*) nest in numbers on the plains and lower foothills, and also near the western boundary of the national park near Grand Lake. A considerable number of them, mostly young birds, wander into the Estes Park region from the eastern nesting range, and a few visit the alpine meadows of the continental divide at that season. The park elevations are above their usual migration routes.

These notes are necessarily inconclusive, but they demonstrate that altitudinal wandering is a more or less regular habit of mountain birds and suggest the desirability of further investigation of the phenomenon. It would be interesting to know whether this activity takes place in other mountainous areas, and if so, to determine what species are concerned and to what degree. The fact that so many different land birds appear to engage in midsummer wandering in the Rocky Mountains raises speculation whether the northward wandering of the birds in the eastern states is actually common among birds other than herons, gulls and terns, as careful analysis of banding records might demonstrate. The collection of specimens of these wandering birds would be useful in order to determine the ages of the birds involved.

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Passaic,
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NEWLY HATCHED EASTERN NIGHTHAWK WITH EGGHELLS AND UNHATCHED EGG.