

## YELLOWSTONE'S WINTER BIRDS

WITH ONE ILLUSTRATION

By M. P. SKINNER

- American Merganser (*Mergus americanus*). Resident.  
 Mallard (*Anas platyrhynchos*). Resident.  
 Green-winged Teal (*Nettion carolinense*). Resident.  
 American Golden-eye (*Glaucionetta clangula americana*). Winter visitor.  
 Barrow Golden-eye (*Clangula islandica*). Resident.  
 Canada Goose (*Branta canadensis canadensis*). Resident.  
 Whistling Swan (*Olor columbianus*). Winter visitor.  
 Wilson Snipe (*Capella delicata*). Resident.  
 Richardson Grouse (*Dendragapus obscurus richardsonii*). Resident.  
 Gray Ruffed Grouse (*Bonasa umbellus umbelloides*). Resident.  
 Western Goshawk (*Astur atricapillus striatulus*). Visitor.  
 American Rough-legged Hawk (*Buteo lagopus sancti-johannis*). Winter visitor.  
 Golden Eagle (*Aquila chrysaetos*). Resident.  
 Bald Eagle (*Haliaeetus leucocephalus*). Resident.  
 Hawk Owl (*Surnia ulula caparoch*). Resident?  
 Rocky Mountain Pigmy Owl (*Glaucidium gnoma pinicola*). Resident?  
 Belted Kingfisher (*Streptoceryle alcyon*). Resident.  
 Rocky Mountain Hairy Woodpecker (*Dryobates villosus monticola*). Resident.  
 Red-shafted Flicker (*Colaptes cafer collaris*). Resident.  
 Black-billed Magpie (*Pica pica hudsonia*). Winter visitor.  
 Black-headed Jay (*Cyanocitta stelleri annectens*). Resident.  
 Rocky Mountain Jay (*Perisoreus canadensis capitalis*). Resident.  
 Western Raven (*Corvus corax sinuatus*). Resident.  
 Clark Nutcracker (*Nucifraga columbiana*). Resident.  
 Thick-billed Red-winged Blackbird (*Agelaius phoeniceus fortis*). Resident?  
 Brewer Blackbird (*Euphagus cyanocephalus*). Resident?  
 Gray-crowned Rosy Finch (*Leucosticte tephrocotis tephrocotis*). Winter visitor.  
 Hepburn Rosy Finch (*Leucosticte tephrocotis littoralis*). Winter visitor.  
 Black Rosy Finch (*Leucosticte atrata*). Winter visitor.  
 Common Redpoll (*Acanthis linaria linaria*). Winter visitor.  
 English Sparrow (*Passer domesticus*). Resident.  
 Snow Bunting (*Plectrophenax nivalis nivalis*). Winter visitor.  
 Alaska Longspur (*Calcarius lapponicus alascensis*). Winter visitor.  
 Western Tree Sparrow (*Spizella monticola ochracea*). Winter visitor.  
 Mountain Song Sparrow (*Melospiza melodia montana*). Resident.  
 Bohemian Waxwing (*Bombycilla garrula*). Winter visitor.  
 Dipper (*Cinclus mexicanus unicolor*). Resident.  
 Rocky Mountain Creeper (*Certhia familiaris montana*). Resident.  
 Rocky Mountain Nuthatch (*Sitta carolinensis nelsoni*). Resident.  
 Long-tailed Chickadee (*Penthestes atricapillus septentrionalis*). Resident.  
 Mountain Chickadee (*Penthestes gambeli gambeli*). Resident.  
 Townsend Solitaire (*Myadestes townsendi*). Resident.

The Yellowstone is our largest National Park, having an area of 3348 square miles. By far the larger part of it occupies the extreme northwestern corner of Wyoming, but it also includes narrow strips in Idaho and Montana. Its altitude above sea-level varies from its lowest point (5300 feet), at the junction of the Yellowstone and Gardiner rivers on its northern boundary, to the summit of Electric Peak at 11,125 feet. Curiously, the lowest and the highest points are only six miles apart, and each is in sight from the other. The larger part of the area below 6500 feet

altitude is treeless, but from that point up to timber-line at about 9500 feet the area is chiefly forested, although there are occasional upland prairies and open parks in this forest, even on the highest elevations.

The treeless areas are partly covered with sage-brush and partly with a luxuriant growth of grasses. Wherever rivers and smaller streams flow through the lower lands, they are bordered by brush and deciduous trees, and frequently there are strips of coniferous trees as well. Even away from the streams there are groves of aspens and Douglas firs on the lower slopes below the edge of the denser forests. But the greater part of the Park (a trifle over 70 percent of the whole) is an elevated, rolling plateau varying from 7000 to 8500 feet above sea-level. From this plateau occasional peaks and mountain ranges rise to over 10,000 feet altitude, and there are additional mountain ranges along the northwest, north, east and southeast borders of the Park. This plateau is largely covered by forests of lodgepole pine, Engelmann spruce, alpine fir and white-barked pine. In places there are a few limber pines. The lodgepole pines are the predominant trees, comprising more than two-thirds of all the forests, and actually covering one-half of the Park's total area.

The forests are open under the trees, except for the fallen trees that are rather heavy in places. The forests are so free from underbrush that brush-haunting birds would be absent if it were not for the thickets of alder, birch and other shrubs that line the lower streams, and the many varieties of willow that grow along the streams at higher elevations. The lower treeless areas are in the Transition life zone, and the forested plateau is in the Canadian and Hudsonian zones. But in reality the distribution of the life zones has little or nothing to do with the range of the winter birds within the Park. Throughout all elevations the soil and general topography is quite diversified and suited to all types of land birds. And there are numerous small ponds, large lakes and occasional marshes for the water-loving birds.

It is generally assumed that winter conditions in the Yellowstone National Park are truly Arctic in severity. Perhaps this is true of the mountain tops and the area above timber-line (about  $2\frac{1}{2}$  per cent of the total area), but the remainder of the Park has a much milder climate. The cold weather of the winter is due not so much to extremely low temperatures, although temperatures as low as fifty-nine degrees below zero, Fahrenheit, have been recorded on the Park plateau, as it is to long periods of steady cold assisted by much cloudy, stormy weather. And yet winter snowstorms are seldom heavy ones. Although the yearly snowfall varies from a hundred inches to more than double that depth, the great bulk of it falls as light, daily storms. The long continued periods of weather of temperature below freezing, combined with these daily snows, result in a long, steady accumulation of snow until there is often as much as two feet at Mammoth near the northern boundary, and as much as six feet at the southern boundary where the snowfall is heaviest. The difference between the figures for yearly snowfall and those for accumulated depth, is due to the settling and compacting of the snow on the ground, and to a quite considerable evaporation of the snow even without melting.

The accumulated depths of the snow here given are "on the level." As a matter of fact, winds are active and more or less steady in winter, resulting in an important amount of drifting. In spite of the frequent light snows, there are many hours of comparatively warm sunlight, especially in protected nooks. I have been thus explicit because all these factors have a direct influence on winter bird-life. The snows themselves are actually helpful because they store up moisture needed for the summer growing of grasses, herbs, shrubs and trees. And many of the winter birds could not visit the Park if there were not a ready supply of seeds and buds and cones.

Furthermore, when the weather is cold at night, the birds need the protection of the trees that the moisture produces, especially against the winds. But the winds, themselves, help the moisture storage by piling the snow into heavy drifts that require a longer time to melt in summer.

Since the hot springs and the geysers are the most conspicuous features connected with the Park, we naturally wonder what effect they have on winter bird-life. While the hot-spring and geyser areas are small compared with the total area, they really influence the bird-life to a considerable extent. Two general kinds of influences are felt, direct and indirect. I have seen many birds, such as Wilson Snipe, raven, Townsend Solitaire and mallard, actually warming themselves in the warm air from the hot springs. On the other hand, a few birds are killed by falling into the hot water, and a few ducks are scalded by trying to alight on hot lakes. But this danger is really very small, because the hot springs and geysers are more or less hidden in winter by heavy masses of steam, particularly so in the coldest weather, and seldom do these steam masses fail to warn birds of danger. A suffocating, and sometimes poisonous, gas is given off by many steam vents and old spring openings. Sometimes these gases overcome birds, but usually the winter birds escape, because of the warning steam from warmer openings, and the snow and ice that fill the colder openings.

But the indirect effects of the hot springs and geysers are far more important. All the rivers that receive hot water, such as the Snake (below the hot springs), Fire-hole, Gibbon, Madison, Yellowstone (below the Grand Canyon) and Gardiner (below the mouth of Boiling River) rivers, remain open all winter, no matter how stormy the weather gets, or how low the temperature sinks. Although the temperatures of these rivers are raised enough to prevent freezing, they are still cold enough for trout to live in them. This ready and abundant, obtainable food induces kingfishers to remain far north of their usual range, and also provides sustenance for the mergansers and other fish-eating species. The open rivers are winter homes for the mallards, teal, golden-eyes, Canada Geese and Whistling Swans, that otherwise could not remain. Many of these birds consume minnows and small animal life living in the warmed water. In addition, they secure much small vegetable food that is induced to grow by the warm water. While the dippers are birds that remain in winter wherever rapids and waterfalls keep the streams open, the main dipper population of the Park is largely concentrated in winter along the streams that receive hot water. Many insects such as diptera and may-flies breed in the water flowing away from hot springs, and these insects and their larvae are important foods for all kinds of winter birds. Even many birds that ordinarily depend on young grass and herbage are furnished with acceptable food. There are many meadows in the Yellowstone that are underlaid by series of warm springs sufficiently active to warm the ground above them enough to melt off all the snow, and keep the grass and short herbage growing fresh and green all winter.

One of the most interesting features of winter life in the Park is the presence of several Wilson Snipe. These birds live along the streams and in the meadows kept open by the hot springs. Since these birds are always to be found and are always in good condition, they evidently find plenty to eat. Other snipe remain in the Park near springs warm enough to keep the ground unfrozen, but which are not usually classed as hot springs. This presence of Wilson Snipe is especially interesting because Yellowstone's winter weather has the effect of keeping other shore and water-birds away in the spring. The ice freezes so thick and stays so long in the large lakes that

these birds going north in spring can find no suitable open water or unfrozen mud bars and shores.

Although the temperature there is low, the Yellowstone River just below Yellowstone Lake stays open all winter because the current is comparatively swift. Here, there are usually from twenty to a hundred Whistling Swans. These beautiful birds make their appearance with the first cold weather in October, or early November, and remain throughout the winter. With them, on the same waters, there are large numbers of ducks and geese.

There is an interesting movement of the golden-eyes in Yellowstone Park. The common bird in winter, and breeding in summer, is the Barrow Golden-eye. The American Golden-eye has not yet been found breeding here, but makes its appearance in October and stays throughout the winter. When it first comes, it remains on Yellowstone Lake and Yellowstone River. But with the freezing of Yellowstone Lake about Christmas time, the flocks of *americana* scatter to the larger open streams, although seldom seen there at other times. Throughout the winter, they are common with the Barrow Golden-eyes on the Gardiner River.

The Richardson Grouse and the Gray Ruffed Grouse are resident throughout the year. In summer they spend most of their time on, or near, the ground but in winter they are in the branches of the coniferous trees, often remaining there for days at a time in the foliage of the same tree, or same grove of trees. At such times they feed on buds, needles, seeds from the cones and on the mistletoe (*Arceuthobium americanum*) that is often common on the lodgepole pines. Most of the grouse spend the winters fully as high in the mountains as their summer habitat. And there are some indications that a few of the Richardson Grouse are higher in winter than in summer. In this, they differ from most other resident birds, for the usual rule is to move up the mountains in the spring and down again in the autumn.

This rule is well exemplified by the dippers that live along the streams on the Park plateau in summer and move down to the open Gardiner River in winter. Still, there are other individual dippers that remain as high as there is any open water at all. A remarkable thing connected with dipper life is that the birds sing all winter long. They have a particularly pleasing and varied song usually delivered by a bird perching quietly on a stone projecting from three to ten inches above the water. Although the roar of the rapids may drown out some of the music, at other times there may be a ringing echo to augment it. The song season begins about November first, reaches its height in February, and lasts at least until April. These songs are heard in all kinds of wintry weather, even the very coldest, and often during the heights of raging snowstorms.

The great exception to the rule of a winter habitat lower than the breeding habitat is shown by the Black-billed Magpies. These birds are common in the Park during the winter, being found then even as high as 8000 feet; but in May they leave the Park and go down on the plains to breed below 5000 feet. (A few pairs, possibly four or five, remain in the Park and nest at the lowest levels.)

The nutcrackers are very early breeders in the Park, mating in February and nesting later in the month. Sometimes the eggs are laid before the end of February, and the young birds hatched well before the end of March. I have seen the mother birds on their nests in below-zero weather, during snow squalls and throughout bitterly cold winds. At such times they merely crouched down into their nests until only their bills appeared above the rim. And these nests were exposed, too, except for the limited protection given by nearby foliage. They were not placed in more protected hollows

and cavities, but were built of cedar twigs, straws and shredded cedar bark, and placed in crotches of cedars and limber pines. After the young were out of the nest, the nutcrackers scattered, some going lower than the breeding area and some higher than they had been living.

Ravens appear to remain at about the same levels throughout the year unless compelled to seek out new feeding grounds. Crows seldom winter in the Park, and are never found living higher than the lowest levels, even in summer. The other members of the jay-crow group, such as the Black-headed Jays and the Rocky Mountain Jays, follow the usual avian custom of living at comparatively high elevations in summer, and moving down to lower levels in winter. But both remain above the treeless areas. In the autumn, the Rocky Mountain Jays acquire the habit of following every person they see, and often become very tame. When I have been riding in October and November, I have had them follow me a half-mile or more by a series of short flights. While on snowshoe trips later in the year, I have had these jays follow me four or five times as far. This was without feeding them, whereas if I



Fig. 77. CLARK NUTCRACKERS IN YELLOWSTONE NATIONAL PARK  
IN WINTER.

From The Yellowstone Nature Book.

had cared to throw them something to eat, at times they would have followed all day long. Unlike the eastern blue jays and the nutcrackers, Rocky Mountain Jays are comparatively silent in the winter forests.

Both the Golden and the Bald Eagles remain in the Park all winter. During that period the Bald Eagles eat carrion, while the Golden Eagles eat rabbits when they can, and carrion when they must. Neither species is very common. And it is almost as rare to see a hawk. Once in a long period a Western Goshawk appears. The Rough-legged Hawk is more common, coming down from the north with the first cold weather in late September or early October, and a few remaining throughout the winter.

The curious Hawk Owl is sometimes seen in the winter in forests, hunting habitually throughout the daylight hours. Although the Rocky Mountain Pigmy Owl is undoubtedly present during the summer months, I have detected it only in winter. While not very common, it is occasionally seen in winter perched on a low,

dead limb of a small tree, and apparently enjoying the genial warmth of the sun. These two owls are the only ones I have seen during the Yellowstone winter. Although the Western Horned Owl certainly comes very early in spring and stays late in the autumn, I have never seen it during the winter months.

The Rocky Mountain Hairy Woodpecker is the only woodpecker I have identified each winter. But occasionally, during very mild winters, a Red-shafted Flicker or two will remain within the Park at the lowest elevations, below 6000 feet. On the other hand, the Rocky Mountain Creeper, the Rocky Mountain Nuthatch, the Long-tailed Chickadee and the Mountain Chickadee do their best to cheer up the somber white forests of winter. I do not know whether the Red-breasted Nuthatch stays all winter, or not. I have seen individuals as late as November 18 and as early as February 5, but not between those dates.

The Northern Shrike is another bird that I am not sure belongs on the winter list. It does not summer in the Park, but appears in both autumn and spring, the latest of my records being December 15, and the earliest February 15.

The Snow Bunting is not a common bird at any time and is more apt to be seen in the colder parts of the autumn than during the wintertime. The Alaska Longspur has only been detected two or three times in the Park, and all of those occurrences were in late January and early February. Flocks of Common Redpolls and Western Tree Sparrows are occasionally seen feeding on the seeds from old alder and birch catkins, but they are unusual and never really common. In the same way, flocks of Bohemian Waxwings sometimes come and feed on the juniper berries. Sometimes they stay about for a week or two at a time, but are usually even more restless than that.

The only really typical winter visitors to the Park are large mixed flocks of Gray-crowned, Hepburn, and Black rosy finches. These birds often make their appearance in large, dense flocks flying with a low, humming, whistling sound of their wings. Of 20,000 rosy finches counted during eight winters, 31 percent were Gray-crowned, 57 percent were Hepburn, and 12 percent were Black rosy finches. These birds act more or less as storm barometers. Normally, they remain as high as they can find food, but whenever they come down to lower levels, a severe snow-storm is sure to follow. Then, when the storm is over, the rosy finches retire again to their usual haunts.

Mountain Song Sparrows often elect to spend the winter in the sheltering brush along the Gardiner River. This may be due to the innate hardiness of the birds, or to the nearness of this comparatively warm water; perhaps to both. Still, this is notable, because the upper limit of these sparrows in summer is about 6500 feet in the Yellowstone, and here they are wintering above 5500 feet above sea-level! There are a few birds like the blackbirds, normally migrants, but occasionally trying to spend the winter near the barns and stables still maintained at a few places. Sometimes they survive the winter, more often they do not.

Another surprising winter bird is the Townsend Solitaire. This bird looks very much like a mockingbird except that there is not so much white and black marking its gray uniform, and there is more gray on the solitaire's underparts. Like the mockingbird, the solitaire is a wonderful singer, voicing a fine and varied melody. It is sweet, strong and clear, and has a quality all its own, suggesting the freedom and vigor of the mountains. This song is all the more appreciated because it is often given in late November and again in early February, when most other birds are silent. Perhaps the solitaire sings also occasionally between these dates and thereby earns rank as a full-voiced winter songster!

*Jamestown, New York, November 15, 1927.*