

## NOTES ON THE DIPPER IN YELLOWSTONE NATIONAL PARK

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THE little, dark, almost black Dipper (*Cinclus mexicanus unicolor*) is resident along almost every stream in the Park from the lowest elevation (5300 feet) well up above the 8000 foot level. I doubt not but that Dippers would be found much higher if there was any place for their beloved streams to descend from. Seen to some extent about ponds and lakes, they much prefer rapids, although not the most tumultuous ones, and waterfalls; and they are common enough along the mineralized waters. Only once have I seen one away from water and then he was flying over the quarter mile stretch between two streams. I have seen them on streams not more than two feet wide in the fir forests; along ditches, if the water be but clear and running; and occasionally, in November, along a ditch watering a barn yard. They live about beaver ponds, and at least one pair has a scenic retreat in the depths of the Yellowstone Canyon at the foot of the Lower Falls.

Usually alighting on a stone along shore or in mid-stream, they are not averse to resting on a stump, on drift caught in the current, or on a snag or root extending out over the water; but the farthest from the water I have ever seen one perched, was on the edge of a concrete retaining wall six feet above the water. In winter they are given to perching on the edge of the ice along shore, or about an opening, where they never seem to slip even when the ice is fresh and "as slippery as glass." Sometimes they fly up along the power pipe line to the reservoir and rest on the edge of the ice by the open water that never quite closes even in the coldest, below-zero weather. In winter, Dippers are on the formation below Jupiter Terrace, and they live all winter long as high as 8000 feet above sea level wherever the hot springs keep the streams open, such as the Gardiner, Gibbon, and Firehole rivers, Alum Creek, and in the Geyser Basins.

The Dipper is given to "dipping", quite like a sandpiper, while standing on any convenient stone, or ridge on the ice. Often running nimbly along the level shore ice, he is very active and always busy except when he stops a few minutes to sing, or to take a sun-bath. On early winter mornings, sun-baths are the regular thing. One cloudy morning I noted a Dipper do the next best thing—warm himself and bask luxuriously in the steam from some cooled geyser water that was still much warmer than the keen, wintry air. While swimming on the water, a Dipper goes along nodding his head quite like a miniature rail, or a coot. In many ways Dippers suggest wrens. They are small and quick; they often perk up their short tails at a steep angle; and they are forever exploring every nook and cranny of their domain.

More or less solitary, never more than a pair together, except for a family party just from the nest, they do not associate with other species. Each bird, or pair of birds, claims a portion of their stream as their own, and promptly drive off intruding Dippers and then as quickly return to their own home section. Once I saw the intruder halt in mid-air and dive like a flash into the rapids two feet below him to escape. True, winter necessities make it rather crowded along the few open streams; but even if sections are smaller then, they are still preserved inviolate.

The flight is direct and the wing beats are very rapid for a hundred feet,

then the Dipper coasts along ten feet with the acquired momentum before taking up his wing strokes again. Except for the quarter mile flight already recorded, I have seldom seen a Dipper over land; indeed, this bird is noted for the fidelity with which he follows the waterways. A bird will come flying down one stream, turn an acute angle at the mouth of a second stream, and then go buzzing merrily up it after flying three times as far rather than cross the neck of land between the two streams. In following an irrigation ditch, one will turn at a right-angle promptly with the ditch. A pair that fly up along the power pen-stock to our reservoir come the nearest to flying regularly over land of any that I know of. Sometimes in chase and pursuit, the rule is forgotten until the excited birds find themselves over the unfamiliar dry surface.

Usually a Dipper flies close to the water, but I have seen one flying along thirty feet above the surface. When ready to alight he chooses either the shore or the water surface, although I believe he prefers to alight on a running stream and swim ashore! In the case of still water, he certainly prefers alighting on the surface. It appears easy for him to take flight again from the water.

The song is a loud, clear, bell-like strain, the very essence of happiness and joy, ringing out high above the rush and roar of all but the heaviest of rapids. Still sweeter by far is it when heard in the depth of winter. Although rapids may sometimes dim the music, often there is a ringing echo from the cliffs to reinforce it. Beginning about November first, the song season reaches its height in February and March. I have heard the Dipper sing on clear, sunshiny days when the temperature was down below zero; I thought it anything but spring-like, yet these musicians sang cheerily in spite of thermometer readings. Usually squatting on a stone out in the stream, where errant drops of water often dash over them, with head and neck slightly outstretched, they are very still and quiet while singing, except for occasionally turning their heads, and "winking". Their stone platforms are from three to ten inches above the water, and the motionless singers are hard to see. They do not dip while actually singing, but often do during the pauses in the song. Sometimes they sing while in flight, and occasionally I have heard a song from a bird running along shore. At times I have seen a Dipper diving one instant and the next he was in full song, only to resume diving and feeding shortly after. While Dippers prefer to sing on warm, spring days they frequently sing also on zero days, and often the clear notes ring out during the severest of snow storms. Once I found one singing a merry lay in a heavy snow driven by a high wind that I did not at all care to face myself!

An angry, hissing note used when chasing off intruders is so distinctive as to point out the bird at once; such a striking sound attracts attention the instant it is heard.

Dippers run along the shore ice, swim in, as well as on, the water, and dive in "all over" as they please even when the thermometer is far below zero. With feathers oiled against wetting, a bird under water is easily seen because of the silver air bubbles adhering to the plumage. They sing, play, and dive during cold, north winds that drive even the hardy Nutcrackers to cover. Dippers are unaffected by cold, remaining along the upper Yellowstone during November and even later, the very quintessence of hardihood!

Properly speaking, they do not migrate, but the freezing of some of the

Park streams forces them to congregate along those still open. In this way, they begin increasing along the lower six miles of the Gardiner River that is open, about November first, and by Christmas this section supports a population of seventy-five Dippers as against the summer quota of perhaps ten. In the spring, usually towards the middle of March, they begin moving up as rapidly as the streams open again.

Food is secured under water by diving, even through "anchor ice" on the surface and "slush ice" in the water; sometimes a Dipper stands in shallow water and gleans from the bottom without diving; and once or twice I have found one apparently skimming his food from the surface of the pool over which he was swimming. Diving from the shore ice quite like human divers, from the surface of still water, they leap forward and down, only to reappear after a minute or two with the sudden uprush of a cork. Water only slightly roily does not seem to bother them in the least and our clear mountain streams are not often worse than that. Occasionally the birds combine singing and eating, as already related in the paragraph under song.

After a hearty breakfast, a Dipper usually comes out to bask and preen in the early morning sunlight. In fact, these little birds are given to sunbaths; they are often seen perched silently on a stone, so quietly as to simulate sleep except that their heads are not "under their wings" and the winking white eye-lid is easily seen.

A bird almost continually in the water and the rest of the time in the spray of rushing rapids and waterfalls, one would not think in need of a bath. But the Dipper thinks otherwise, and when he bathes, he does it thoroughly. The first bather I found was standing on a stone in mid-stream, alert, and with tail perked up straight. Then he flew, hit the water three feet away, and shot along the surface with head under so that the water rushed up over his back; then he flew away, and came back again immediately for another plunge. After that, he stood in shallow water covering legs and half his body, and fluttered in approved bird-bath fashion; then to a stone to shake himself, to dress his feathers, and to preen.

I am doubtful whether Dippers mate anew each year, and I am inclined to believe in "mating for life" for this bird. They seem to have all paired early. On a few occasions, I have seen male Dippers singing very sweetly and very earnestly with tail perked up at an extravagant angle and wings slightly drooped, again very much like a wren. Probably these were birds not supplied with a mate from the previous year.

When there is a suitable rafter low and moist enough, Dippers sometimes nest under bridges, but a niche in a boulder in mid-stream is much more likely to be selected. Once, on March first, a couple was seen building a nest in a boulder niche along the Gardiner River. The nest was a ball of moss about nine inches in diameter with a little mud inside, and mud was also used to cement the whole to the rock. Four feet above the rushing water, the nest faced north or downstream; as a rule the Dipper nests I have found have faced downstream. In the front of the nest ball was a round opening about one and a half inches in diameter, leading to the inner nest of coarse, wiry grass that did not wet down into a sodden mass. While this nest seemed to be completed, I found it still unoccupied two weeks later, although the birds were frequently in its immediate neighborhood. About March 24 this nest was torn

out by the birds and later rebuilt. A ball of green in July, this second nest even had new grass growing from it to a height of more than a foot. I am under the impression that three birds were brought to maturity from the four white eggs this nest contained. At any rate a full-fledged youngster was seen in the vicinity on July 3.

Another nest was on the bank of the Lamar River facing west over rippling water just below Rose Creek, and built into a hollow between two harder layers in the gravel. It was like the first, but had a unique location in that there were no falls nor rapids near, and consequently no spray to keep the moss green. A third nest was found April 20, on another boulder in the Gardiner, three feet above the water. It was similar in every way to the nest described except that the opening had a portion of the nest material projecting out, like a porch, over the entrance, the birds going in from below.

In the far western part of the Park, I located a nest, like the one described, placed two feet above the swiftly running water on a rock in the middle of Campanula Creek. It faced south, but as usual was on the downstream side. It was like the third nest in being entered from below, but the entrance was gourd-neck shape and made of mud. Four white eggs were being incubated on May 20, and the mother stuck so closely that she would not leave until I struck the outside of the nest ball. At the foot of an artificial waterfall near the Power Plant at Mammoth, was a nest similar to the first described, in the crotch of a dead log. However, this nest was on top of its support and not on the side.

One summer there was a Dipper's nest beside Rustic Falls near the heavily travelled Golden Gate road. It was about eight feet below the edge of the Falls and three feet to one side of the falling water. It was so totally inaccessible that I could not reach it, and so I learned little about it except that nestlings were being fed on July 4. It was located 7300 feet above sea level, whereas the lowest of the nests here described (one of those along the Gardiner River) was at 5400 feet elevation.

Apparently, as with other species, Dippers' nests are very characteristic in size, shape, material, and location, and can be identified at a glance. Still there are many modifications in minor particulars.

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