

STOCKARD, C. R., Nesting Habits of the Woodpeckers and the Vultures of Mississippi. *Auk*, XXI, 1904, no. 4, pp. 463-471.

Nesting Habits of Birds in Mississippi.\* *Auk*, XXII, 1905, no. 2, pp. 146-158; no. 3, pp. 273-285. 83 species.

WOOD, C. H., Habits of Southern Cranes. *American Field*, XXVI, 1886, no. 8, Aug. 21, p. 175. On the breeding of Herons at Moss Point, Miss.

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## NOTES ON THE ABUNDANCE AND HABITS OF THE BALD EAGLE IN BRITISH COLUMBIA.

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THE following notes are the result of observations covering a period of about twenty-seven years (between 1887 and 1920), in the Province of British Columbia. The special features they are meant to cover in regard to the Bald Eagle (*Haliaeetus leucocephalus alascanus*) are: (1) Its present and former numerical strength in the Province; (2) The destructiveness of the species to game and waterfowl.

I have found the Bald Eagle to be generally distributed in British Columbia but always in the vicinity of water, and it is far more abundant on the coast west of the Cascade Mountains than in the interior.

All over the region east of the coast and Cascade ranges this Eagle is found in too small numbers to be of much economic importance. The food supply in the interior is uncertain and so regulates their numbers, also the nesting places are more exposed and accessible than on the coast, which tends to keep their numbers down.

On the coast, and up the larger rivers that break through the coast and Cascade ranges, the Bald Eagle finds a generous food supply and open winters which permit of its existence in larger numbers than on any other portion of the continent. My first acquaintance with the species was in the lower Fraser Valley where, although it was a very scarce breeder, large numbers were resident throughout the year, but increasing in the fall when the run of the various salmon was at its height. Here they confined themselves mainly to a fish diet as this was available throughout

the year. Salmon were largely taken before they had spawned and there were always large numbers of eagles watching the wide shallow estuary of the Chilliwack or Veddar river where it empties into Sumas Lake. Here the salmon, except such species as ascended in June and July when the water was deep, had a very hard time, very large fish were eaten alive as they attempted to cross the shallow bars, a strong fish would often flounder clear of the Eagle's claws a dozen times before it succumbed. This is the exact spot where J. K. Lord saw such numbers about the year 1856; the locality is only a few miles north of the International Boundary.

To ascertain the present status of the Bald Eagle in this region (which is now a thickly populated one), I asked Mr. W. Thacker, of Hope, how their numbers stood in 1920. He tells me that he counted over one hundred in one day while traveling around the borders of Sumas Lake.

But it is on the salt water all the way from Puget Sound to Central Alaska that this Eagle reaches the maximum of its abundance and destructiveness. It is impossible for anyone whose only acquaintance with Eagles is in the east to have any idea of their numbers on this portion of the Pacific coast; except the Raven, in many localities it is the commonest bird and I have often seen forty or more together.

As by far the greater portion of this region is totally uninhabited there is absolutely no chance of their numbers being seriously depleted by any system of destruction induced by a small bounty. The long winding inlets and channels which cut up the shore line of the whole of this region, together with the maze of islands more than doubles the total shore line, and affords a tremendous area (most of which is complete solitude) for the home of countless Bald Eagles.

When fish are easy to capture as during the salmon and herring runs these undoubtedly comprise the bulk of the Eagles' food, but at other times fish are scarce and beyond the Eagles' ability to capture them; crabs may form a good portion of their diet in summer but during most of the winter and up to June or even July Ducks and other waterfowl form the bulk of their food. These are taken in the water, usually after a long chase the victim being picked up as he comes to the surface. The only chance a

Duck has is to get on the wing at all costs. I have repeatedly seen such clumsy risers as Goldeneyes and Scoters get away by shooting to the surface right under the Eagle's tail and instantly taking wing before he can swing around. I have never seen one of these Eagles catch a bird on the wing, although they sometimes make a determined effort even after such strong fliers as Geese, Brant and Pintail.

During April, May, June and July of 1920, while living at Masset, Queen Charlotte Islands, I had exceptional opportunities to note the Bald Eagle's destructiveness as my quarters overlooked Delcatla Inlet, a quiet little tidal creek. Two or three Eagles completely terrorized this place. Every bird, even Canada Geese and Herons, instantly took to flight as soon as an Eagle showed on the wing, showing the dread these pirates inspired. Unsophisticated birds such as Holboell's Grebes that sought a sanctuary in this placid piece of water usually lasted about one day only and then their remains could be found under the favorite lookout trees of the Eagles. The following are the species of waterfowl that I have seen taken—Holboell's, Horned, and Western Grebes, Red-throated and Common Loons, Glaucous-winged Gull, Coot, Mergansers, Mallard, Pintail, Wigeon, Scaup, Goldeneye, Bufflehead, and all three species of Scoter. For some reason the various *Alcidae* seem to be able to elude them.

The grouse of these islands—the Sooty Grouse—have a hard time. As soon as the broods are hatched they are led out by the mother bird to sun themselves on the sand dunes among the small spruces along the shoreline. During this season this trip is carefully covered by low-flying Eagles which quarter the ground just as a Marsh-hawk covers a marsh, except that the Eagle flies a little higher and usually on motionless wings. The result was an almost complete extermination of the Grouse, broods of one or two chickens only were seen in a few places, and twice single chicks without any parent.

A considerable number of Eagles were shot, but fresh birds almost immediately took their place. I should estimate that there were about four Eagles per mile of shore line; in localities of abundant food supply, such as the Whaling Station at Virago Sound, forty or fifty Eagles could be seen in a day.

An exceptionally close observer, Mr. James White, who lives

on the east coast of Graham Island where large numbers of Canada Geese breed, vouches for the damage the Eagle do to these birds, taking large numbers of young birds and also the old Geese when they are in their midsummer moult and unable to fly.

On the north end of Vancouver Island several men, both whites and Indians, accused the Bald Eagle of taking young fawns, but I cannot vouch for this.

A curious fact was the immunity of a large flock of pure white domestic Ducks at Delcatla Inlet. The Eagles never attempted to take any of these although the Ducks fed among the other water-fowl and often wandered far out on the tide-flats. I often saw these Ducks drawn up in a row curiously watching the chase of a wild bird without any attempt to seek cover themselves.

It could not have been their color that rendered them immune as I saw an adult Glaucous-winged Gull killed alongside of them.

On Okanagan Lake in the interior of British Columbia the Bald Eagle preys very largely on Coots during the winter when these birds are out in the open water in large flocks. The Coots have an amazing method of defense. As soon as the Eagle swoops down they mass together and standing up in the water all flap their wings below the outstretched feet of the attacker. This seems to completely baffle the Eagle and I have never known it to fail. After two or three attempts the Eagle abandons the quest. But if any Coot leaves the flock and seeks safety by diving his fate is sealed. Sooner or later he is tired out and neatly picked up as he comes to the surface. Several observers have written of the Bald Eagle in Florida and stating that Coots form their principal winter food supply. These notes are being written at Melbourne on Indian River where the average number of Eagles seen in a short day's travel is about four. An examination of the ground below their resting places seems to indicate that here as on the Pacific Coast Ducks form a large proportion of their diet as far more remains of Scaups was noted than of fish bones.

Later at Jupiter where fish were enormously plentiful and easy to secure Scaups were persistently hunted. It was curious to note how readily the Ducks identified the Eagle. Turkey Buzzards wheeled over them unnoticed, but the instant an Eagle showed over the mangroves every Duck was a-wing.

*Okawagan Landing, B. C.*