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SAMUEL AUGHEY'S LIST OF NEBRASKA BIRDS (1878): A CRITICAL EVALUATION

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The University of Nebraska was founded in Lincoln in 1869, but finances did not allow the addition of a scientist until 1875, when Samuel Aughey was added to the staff to fill the first chair of natural history (Pound and Clements 1900). Although a theologian by training, Aughey wrote prolifically on a number of natural-history subjects pertaining to Nebraska, including its flora, fauna, and geology. A summary of his impressions of the natural history of the state, including its biota, was published in a book, "Sketches of the Physical Geography and Geology of Nebraska" (Aughey 1880), which was printed in Omaha. Shortly after its printing in 1883, Aughey was released from the University for a variety of reasons, including some alleged improprieties. Perhaps these were but an excuse by the administration to terminate Aughey's services; it is possible, albeit conjectural, that administrators and co-workers had begun to question seriously his capability and integrity as a scientist.

Aughey's works, early and potentially important, unfortunately have left subsequent scientists and readers with many questions about their accuracy and authenticity. As early as 1894, Aughey's botanical findings were seriously challenged. Pound and Clements (1900), in referring to Aughey, wrote that,

..the University was not fortunate in the person who first filled the old chair of natural history. Not only was no adequate work done upon the flora of Nebraska during his term, but what was done has required undoing. The pretentious catalogue, enumerating some 2,000 species, put forth by Professor Aughey in 1875, and his lists given in other writings, might lead one to suppose that the flora of the State was well known when he severed his connection with the University. The facts are otherwise. His collections contain not more than 200 species, and are confined to the southeastern portion of the State. His catalogue and his lists, as has been shown elsewhere (Bot. Surv. Neb., 3: 43, 1894), were based almost entirely upon conjecture as to the range of species, taken from data in the manuals, and they have proved entirely unreliable.

After a careful review of Aughey's list of Nebraska birds (1878), it is my opinion that the list suffers from the same shortcomings as his plant list. It contains many potentially spurious accounts, and therefore should be used with discretion as an historic ornithological resource.

Aughey's list, entitled "Notes on the Nature of the Food of the Birds of Nebraska", was published in the 1878 Report of the United States Entomological Commission as Appendix II, pages 13-62. A portion of the main body of the report (pages 338-350) also contains a narrative of Aughey's findings, particularly as they relate to the relationships between "locusts" and their avian predators. From what can be gathered in the main body of the report, major periodic eruptions of locusts, particularly migrating locusts, *Caloptenus spretus* (now *Melanoplus spretus*, Order Orthoptera) occurred in the Great Plains during Aughey's residence in Nebraska. These eruptions resulted in significant crop depredation, and thus stimulated considerable investigation by local scientists and agricultural specialists, particularly those associated with local colleges and universities such as the University of Nebraska, where Aughey was employed. Locust eruptions apparently were of sufficient economic impact so as to draw the attention of the federal government, which published local and regional findings in government documents such as that in which Aughey's report was published.

Aughey's report includes observations made over 13 years during the period 1864-1878, as a resident in Nebraska (page 13, Appendix II), and represents the first comprehensive list of birds by a resident scientist. Thus, Aughey's list has been treated by some authors (Bruner 1896; Bruner et al. 1904) as the first serious work on Nebraska birds, and is often cited in works that attempt to establish historic avian distributions. Other important works (American Ornithologists' Union 1957, 1983; Ridgeway 1901-1918) have apparently used Bruner (1896) and Bruner et al. (1904) as sources for Nebraska locations in establishing geographic distributions for a number of species. Unfortunately, some important early and unique records rest solely on the observations of Aughey.

Earlier lists and notes by explorers and naturalists reflected short-term (less than one year) stays by observers. Noteworthy earlier compilations include those of Thomas Say (Thwaites 1904, Appendix A), who spent the winter and spring of 1819-1820 near present-day Omaha, and J. J. Audubon, who carefully recorded species encountered on his trip up the Missouri River in 1843 (Coues and Audubon 1960). These accounts, though based on short-term experiences, in my opinion reflect a more accurate record of the historic avifauna in Nebraska than that of Aughey. The picture they paint of their contemporary environments suggests that habitats and their associated avifauna have changed little in composition to the present time.

Aughey's list of birds includes 252 species, 250 of which he records as having been observed or taken as specimens in Nebraska. Included for most species are accounts that often reflect his personal observations, including relative abundance, geographic distribution in the state, seasonal occurrence, breeding activity, and food habits. Interestingly, nearly all of the species are represented as being predatory on locusts, including Eared Grebe (*Podiceps nigricollis*), Ruby-throated Hummingbird (*Archilochus colubris*), and Snowy Owl (*Nyctea scandiaca*).

The following comparisons illustrate some of the more surprising findings in his list, along with my comments:

<u>Excerpts from Aughey's List</u>	<u>Author's Comments</u>
<p>Hermit Thrush (<i>Turdus Pallasi</i>, Cab.), p. 14, listed as having been taken near Dakota City, NE on June 6, 1865.</p>	<p>Assuming this to be <i>Catharus guttatus</i> (Pallas), it is unlikely that this species would be present at this latitude and in this environment at this late date. This species is migratory in Nebraska and nests in coniferous spruce forests. The latest Nebraska spring record for this species, as published in The Nebraska Bird Review, 1933-1990, is May 26, 1968, Cass Co.</p>
<p>Olive-backed Thrush (<i>Turdus swainsoni</i>, Cab.), p. 14, listed as having been taken near Dakota City, NE on June 15 and 17, 1875.</p>	<p>Likely referring to <i>Catharus ustulatus</i> (Nuttall), Swainson's Thrush. These records would represent late spring extremes, compared to modern records (May 26, 29, June 6). On p.15 Aughey lists a specimen of a Catbird as having been taken in Lancaster Co. on June 15, 1875, but does not indicate in either case whether he was in both locations on that same date (not possible given the available means of transportation in the 1870's), or whether some assistant was</p>

Excerpts from Aughey's ListAuthor's Comments

(Swainson's Thrush cont'd)

securing specimens for him in one location while he was elsewhere (not acknowledged in the paper).

Veery (*Turdus fuscescens*, Steph), p.15, listed as having been taken in Richardson County on June 5, 1875.

Referring to *Catharus fuscescens* (Stephens). A coniferous forest species, which is migratory in Nebraska. Modern, late-spring records include May 27, 28, June 12, while the main, modern migratory movement is the middle of May.

Ruby-crowned Kinglet (*Regulus calendula*, L.), p. 16. A specimen is listed as having been taken in Dakota County on June 5, 1865.

The contemporary migration patterns indicate that this species moves through the state in April. Straggler dates include May 27 and 29. Aughey's specimen would represent an extremely late date.

Golden-crested Kinglet (*Regulus satrapa*, L.), p.16. "Have not seen them south of the Platte. In June, 1865, observed it picking up small locusts, east of Dakota City, in a sparse wood near the river."

The Golden-crowned Kinglet (*Regulus satrapa* Lichtenstein) is a regular spring and fall migrant in Nebraska, and often overwinters. Latest spring dates include May 3, 5, and 28. No modern June records.

Western Bluebird (*Cinclus mexicanus*, Sw.), p. 16. "Rare in Nebraska. Seen..in August on the Niobrara ... in dense timber...Hon. J. Sterling Morton says that they are abundant in Otoe County."

There are no documented records for *Siala mexicana* Swainson for Nebraska.

Pygmy Nuthatch, *Sitta pygmaea*, Vig., p.17. "Met this bird for the first time this season in Nebraska...in the timbered bottom and bluffs of the Niobrara River..."

*Sitta pygmaea* is found in northwest Nebraska, associated with *Pinus ponderosa* woodland. Aughey's accounts suggest that he only explored the mouth of the Niobrara River, which from his time to the present has been dominated by a deciduous tree flora.

Rock Wren, *Salpinctes obsoletus*, (Say) Cab., p. 18. "In June, 1875, also found a nest in an old stump on Salt Creek [Lancaster County, author], and observed the parents feed their young with small locusts."

I know of no sources, including Bent (1964), that mention Rock Wrens as nesting in other than clay and sandstone banks, rock crevices and ledges, piles of rocks, and other similar locations. Furthermore, there are no other southeast Nebraska breeding records. His list also includes House Wren (*Troglodytes aedon*), Bewick's wren (*Thryomanes bewickii*), and Carolina Wren (*Thryothorus ludovicianus*), suggesting that he could distinguish among these.

Nashville Warbler, *Helminthophaga ruficapilla* (Wils.), p. 20."..Some seasons at least breeds in and on the borders of the timber belts. On June 10, 1865, I found a young one that had just left the nest and flew with difficulty."

Refers to *Vermivora ruficapilla* (Wilson). The nearest recent and historic breeding for this species is southeastern Minnesota (AOU Checklist 1957). It is found breeding in climax eastern deciduous forest (Bent 1963). No other known Nebraska breeding records.

Excerpts from Aughey's ListAuthor's Comments

Virginia's Warbler, *Helminthophaga virginiae*, Bd., p. 20. "Have only seen one specimen of this bird in Southwestern Nebraska in a narrow belt of timber in the Republican River Bottom, in Hitchcock County."

Refers to *Vermivora virginiae* (Baird). This species prefers low-growing, shrubby vegetation for nesting habitat, and is common as far eastward as the lower elevations of the eastern slopes of the Colorado Rockies (Bent 1963). It has been noted casually in western Kansas as a migrant (AOU 1957). Two Nebraska records have been cited. The record by Bruner et al. (1904) refers to Aughey's sighting. It was reported in *The Nebraska Bird Review* (32: 67, 77. 1964) but the sighting was unsubstantiated. The absence of plant specimens taken by Aughey from this location, or of any other bird observations in this location, leads one to question whether he actually visited the site. On the other hand, there is some limited chance that migratory Virginia's Warblers could occasionally travel through extreme southwest Nebraska, as evidenced by western Kansas records.

Black-throated Green Warbler, *Dendroeca virens*, (GM.) Bd. p. 21. Aughey lists five specimens, one taken June 5, 1865, two on June 6, and two on June 14, 1875.

Twentieth century Nebraska records for this species, *Dendroica virens* (Gmelin), indicate that it is a regular, but uncommon, migrant in eastern Nebraska. The preponderance (almost 50%) of sightings is during the first ten days of May. Latest spring dates are May 19 and May 22.

Caerulean Warbler, *Dendroeca coerulea*, (Wils.) Bd., p. 21. "All the nests (six) that I have found in thirteen years in Nebraska were built in plum-bushes, from two to four feet from the ground. One such I watched near Pilgrim Hill, in Dakota County, Nebraska, in June, 1865. The parents every few minutes brought a locust to their young. I saw them picking them up, with my fieldglasses, and carrying them to their nests."

It is not clear whether Aughey was referring to *Dendroica caerulescens* (Gmelin), the Black-throated Blue Warbler, or *Dendroica cerulea* (Wilson), the Cerulean Warbler, but I suspect the latter. The Black-throated Blue Warbler indeed nests in low shrubbery, but is not known to nest in Nebraska (AOU 1957). The Cerulean Warbler, for which there are a number of Nebraska nesting records, builds its nest very high (more than 40 feet) in deciduous forest trees (Bent 1963). The three nests that I have observed in Nebraska were all in excess of 40 feet above the ground, and positioned near the tips of horizontal branches. My guess is that Aughey knew of the presence of the "Cerulean" Warbler in the state, but "extracted" his breeding information from a source that was referring to *D. caerulescens*, the Black-throated Blue Warbler.

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Prairie Warbler, *Dendroeca discolor*, (Vieill.) Bd., p. 22. "Abundant in Eastern Nebraska, where it breeds. I have seen the young in Dakota County, and found one nest in Richardson County..." Specimen dates of June 1, 2, 4, and 14.

Since 1928, there are seven recorded spring sightings of the Prairie Warbler, *Dendroica discolor* (Vieillot), in Nebraska, ranging in date from April 21 to May 20. It is considered accidental in South Dakota with two records (Whitney 1978). Just 26 years after Aughey's list, Bruner et al. (1904) carefully note that "recent observers do not find it so [abundant, in referring to Aughey's comments] by any means. Since then [1878, Aughey's list], Bruner has noted it at West Point and Omaha, and L. Skow at the latter locality also. It should be found breeding in small numbers along the Missouri river, especially southward." These authors give no argument for this last statement, except the citation of Aughey's findings, nor do they give any additional breeding records. It should also be noted that the most recent editions of the American Ornithologists' Union Checklist of North American Birds (1957, 1983) state that the Prairie Warbler breeds "from southeastern South Dakota, eastern Nebraska (Dakota County, Omaha), eastern Kansas, central Missouri..." It appears that breeding distribution remarks for this species in the AOU Checklists are based on Aughey's findings, and perhaps on a misinterpretation of the remarks of Bruner et al. (1904). The Prairie Warbler is clearly a species that is attracted to old fields, which have undergone succession to brush (Bent 1963). It is not likely that in Aughey's time, any fields were allowed to go fallow, given that eastern Nebraska was then undergoing intensive agricultural development (Hayden 1867). I suspect that Aughey, living in a prairie state, was misguided by the common name of the species, Prairie Warbler, which Bent (1963) notes "is a decided misnomer, as it is not to be found on the real prairies of the Middle West," and included this species in his list on the basis of its name, adding details to make it appear legitimate.

Mourning Warbler, *Geothlypis philadelphia* (Wils.) Bd., p. 23. "Found in eastern Nebraska, and breeds in at least the southeastern part of the State, where I once saw the old birds feed the young..."

Refers to *Oporornis philadelphia* (Wilson). This is the only Nebraska breeding record for a species whose nearest breeding population is northcentral Minnesota (Green and Janssen 1975). This species prefers, as nesting habitat, moist forest edge with a groundcover of moss and fern (Bent 1963).

Brotherly-love Vireo, *Vireo philadelphicus*, Cass., p. 27. "It also breeds here, .." He lists specimen dates of May 27, June 5, 16, and 17.

The Philadelphia Vireo is a spring and fall migrant in Nebraska. Nearly 50% of the records are for the middle ten days of May. Latest spring dates of occurrence for a 60-year period are May

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(Philadelphia Vireo cont'd)

21, June 1, and June 26. There are no documented Nebraska breeding records for this species, which occupies, as breeding habitat, early successional stages (willow and alder), and edges of climax-type eastern deciduous forest.

Harris's Sparrow, *Zonotrichia querula* (Nutt.) Gamb., p. 31. "Have noticed it in winter, but have frequently seen the young in the northeastern part of the State."

It is extremely unlikely that this tundra-nesting species (Harris' Sparrow) would have nested in Nebraska during Aughey's time. It is conceivable that Aughey mistook migrating and overwintering individuals, which lacked much of the dark "bib" as juveniles.

Chimney Swift, *Chaetura pelagica* (Linn.) Bd., p. 39. "Those that I examined in May and June...invariably had more or less locusts in their stomachs."

It is not likely that this aerial insectivore, which is equipped to capture very small, flighted insects, would be feeding on early-instar, flightless grasshoppers.

Yellow-bellied Woodpecker, *Sphyrapicus varius* (Linn.) Bd. p. 41. Aughey lists specimens for June from Dakota, Dixon, and Lancaster Counties.

All Nebraska records since his list suggest that the Yellow-bellied Sapsucker is a migrant and winter visitor.

American Long-eared Owl, *Otus vulgaris wilsonianus*, (Less.) Allen, p. 42. "This one, captured in July, 1865, in Dakota County, had a few insects and part of a rabbit in its stomach."

Refers to *Asio otus* (L.). The Long-eared Owl is not known to feed on insects, and only rarely takes juvenile rabbits (Bent 1961).

Short-eared Owl, *Brachyotus palustris*, (Bechst.) Gould., p. 42. "I found one nest in a burrow on the side of a bluff in Dixon County."

Refers to *Asio flammeus* (Pontoppidan). This species nests on the ground in grasslands, and is not known to nest in burrows. It is conceivable that Aughey mistook this sighting for a Barn Owl, *Tyto alba*, however, he apparently was familiar with this species, given his account of it in his list.

Snowy Owl, *Nyctaea scandiaca* (Forst.) Boie., p. 43. "I regret to be compelled to say that three out of the four that I dissected... had only the remains of quail and grouse in their stomachs. The fourth...had 10 insects and a rabbit..."

The Snowy Owl is widely known as a predator on small rodents. Nowhere in the literature is there a suggestion that it feeds on insects, nor does it feed on birds. It is likely not capable of capturing quail.

Red-tailed Buzzard, *Buteo borealis*, (Gm.) Vieill., p.45. "The single one (specimen)...had 37 insects and a quail in its stomach."

Refers to *B. jamaicensis* (Gmelin). It is highly unlikely that the Red-tailed Hawk could capture a quail.

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Arctic Tern, *Sterna macrura*, Naum., p. 61. "Only saw a few of these terns in Dixon County in May, 1866."

If Aughey was referring to *Sterna paradisaea*, he likely was confusing this species with *S. hirundo* (Common Tern) or *S. forsteri* (Forster's Tern).

Black Tern, *Hydrochelidon lariformis* (Linn.) Coues. p. 62. Among the stomach contents of six specimens, Aughey listed the following: Locusts, other insects, crawfish (twice), snails, frog, lizard.

Refers to *Chlidonias niger* (L.). The Black Tern is widely known as an insectivore that feeds on the water's surface.

The foregoing are the most glaring deviations that appear in Aughey's list. Many additional records and comments raise questions in the reader's mind. The bird list that was published in his 1880 book suffers from similar problems.

One can understand occasional errors in identification, a problem common to early naturalists. They were limited by inadequate field identification equipment, including poor-quality field glasses and the lack of field guides. In those days, "a bird in the hand was worth two in the bush", and a freshly killed specimen was identified using a key such as that of Coues (1874), which was one of the few identification sources available to Aughey. However, one cannot easily explain why Aughey apparently borrowed from other sources to develop his description of the Nebraska avifauna. Perhaps the university administration held unreasonable expectations about his scholarly production, and he was forced to fabricate in order to retain his natural-history chair. Perhaps federal funds for research were dependent on his level of productivity. Perhaps he was limited in his ability to travel, which was largely by horseback and buggy in those days in Nebraska. Or, perhaps he was overzealous in his eagerness to establish his name as a leading natural historian in the Great Plains.

It is also unknown why the early zoologists at the University such as Lawrence Bruner, Robert Wolcott, and Myron Swenk, did not heed the warnings of their contemporary botanists such as Pound and Clements, and question the integrity of Aughey's list. However, Bruner was an entomologist, as was his student, Myron Swenk, and they looked upon birds as important enemies of insect pests (Bruner et al. 1904). They also used Aughey's information about food habits to support their arguments for bird protection. Wolcott was a parasitologist and used dead birds as sources of parasites. It is also possible that the botanists and zoologists were highly competitive and not on good terms, and the zoologists defended Aughey's work.

Aughey's list clearly has difficulties. What his motives were to generate such a list, and why it was perpetuated by later workers, may never be explained. It is my hope, however, to have raised sufficient questions that future workers who use his list to establish historic, geographic, avian distributions, carefully consider the record.

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