

## EURASIAN WIGEON BREED IN THE ALEUTIAN ISLANDS, ALASKA

JACK J. WITHROW, University of Alaska Museum, 907 Yukon Drive, Fairbanks, Alaska 99775; jjwithrow@alaska.edu

*“Every so often an ornithologist ticks off the evidence about the European Wigeon and reiterates a theory from the 19<sup>th</sup> century—that some birds of this species nest in the New World.... But where?”* (Wetmore 1965:168).

**ABSTRACT:** In June 2022, while collecting in the Aleutian Islands, Alaska, for the University of Alaska Museum, I observed at least three broods of Eurasian Wigeon (*Mareca penelope*) on Amchitka Island (51.39° N, 179.26° E) and two broods on Adak Island (51.92° N, 176.64° W). So far as I have been able to determine the specimens collected from them represent the first actual documentation of nesting by the species in North America.

### OBSERVATIONS

On 7 June 2022 on Amchitka Island, Alaska, I collected two female Eurasian Wigeon (UAM 47580, 47581; Figure 1), accompanied by two males, from a small pond separated from Jones Lake (at the head of Constantine Harbor) by a World War II-era road (Figure 2; see White et al. 1977 for place names). While retrieving the adults, I flushed five wigeon ducklings from emergent mare's tail (*Hippuris*) along the shore and collected two of them (UAM 47582, 47583; Figure 1). Broods of Green-winged Teal (*Anas crecca crecca*) and probably Mallard (*A. platyrhynchos*) were also present on the small pond. At this time at least six adult male Eurasian Wigeon (probably including the aforementioned two) were spread out over Jones Lake, feeding in association with Greater Scaup (*Aythya marila*).

On the 8<sup>th</sup> I collected two pairs (UAM 47584, 47585 and 47586, 47587) from small ponds at the east ends of Baker and Fox runways, Amchitka, respectively. One female (UAM 47586) appeared to be in the process of laying—with developing ova measuring 24, 17, and 13 mm in diameter and multiple smaller (~6 mm) ova; the oviduct was enlarged, and the bird was in heavy belly molt. The other female (UAM 47584) had an edematous incubation patch, an ovary without developing follicles, and a small oviduct, presumably having laid eggs earlier in the season. Also on the 8<sup>th</sup>, on a pond different from that occupied by UAM 47584 and 47585, but also near Fox Runway, a female (UAM 47588) with an incubation patch and an ovary well past laying was accompanied by at least two downy young, one of which was collected (UAM 47589; Figure 1). This small pond also contained two males. On the 9<sup>th</sup> I collected another male/female pair (UAM 47590, 47591) from yet a different pond near Fox Runway. This female had an edematous incubation patch and its ovary suggested that it was past laying (no developing ova). Elsewhere on the same pond was another female wigeon and at least two wigeon ducklings (not collected), making for at least the third brood observed.

Over the course of five days on Amchitka (5–10 June) I saw up to 10 Eurasian Wigeon daily, usually a group of at least six males on Jones Lake,

EURASIAN WIGEON BREED IN THE ALEUTIAN ISLANDS, ALASKA



FIGURE 1. Two adult female Eurasian Wigeon (*Mareca penelope*) collected 7 June 2022 on Amchitka Island, Alaska, with two of five downy young seen on the same small pond (Figure 2) and presumably offspring of these female(s). The bottom most downy wigeon was from a different brood collected 1.25 km away the next day. All three downies were nearly identical and are arranged to show lateral, ventral, and dorsal aspects. Specimens are, from top to bottom, UAM 47580-47583 and 47589.

Photo by J. J. Withrow

plus scattered pairs or lone females elsewhere within 5 km of Constantine Harbor. No American Wigeon (*M. americana*) were observed on Amchitka, but I made no attempt to parse females in the field. The number of Eurasian Wigeon observed during this visit is not directly comparable to numbers recorded on previous surveys of eastern Amchitka (see below)—in 2022 I covered a smaller area on foot, without the aid of a vehicle.

On Adak Island I collected one of two female Eurasian Wigeon (UAM 47592) on 12 June from a small pond along the southwest shore of Lake Andrew. I observed one downy wigeon duckling briefly in shoreline *Hippuris* and sedges while retrieving the adult. At this time there were seven male Eurasian Wigeon on Haven Lake (1.3 km away), one with a female wigeon,

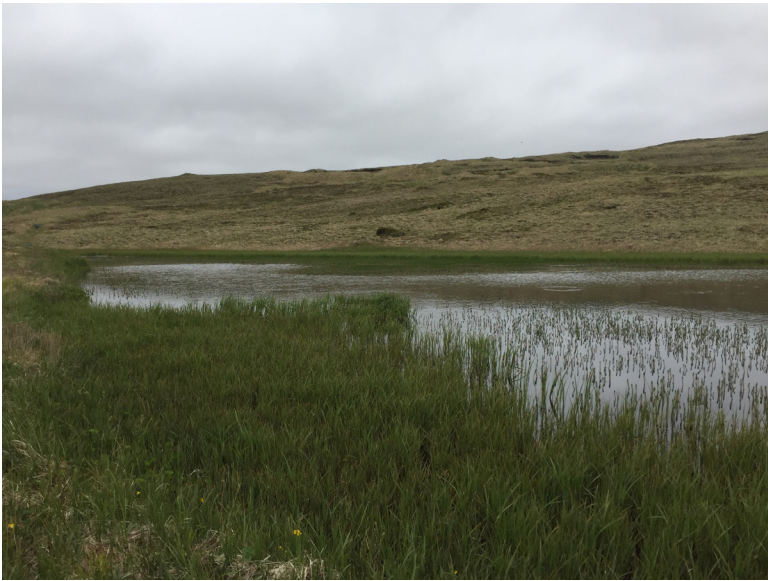


FIGURE 2. Pond near Jones Lake, Amchitka Island, Alaska, where a Eurasian Wigeon (*Mareca penelope*) brood (or broods, see text) was found on 7 June 2022. All of the five or so Eurasian Wigeon broods (see text) observed in June 2022 at Amchitka and Adak islands were found in ponds with extensive borders of mare's tail (*Hippuris*) and sedges (*Carex*)—in which respect they differ from the many ponds in the Aleutians with minimal emergent vegetation.

Photo by J. J. Withrow

and one male American Wigeon. On 14 June a defensive female wigeon and a brood of four wigeon ducklings were seen on a pond 0.7 km to the north of the pond UAM 47592 came from. On the 13<sup>th</sup> I collected the female of a pair (UAM 47593) near Zeto Point. The pair had been present on this pond since the 11<sup>th</sup> and the female had walked out of the lake into surrounding grasses before it was collected—as if going to or prospecting for a nest—but no nest could be found. The condition of the ovary—ova up to ~4 diameter mm but none deep orange and no obvious corpora lutea—suggested that the bird had not yet laid, but it was in heavy belly molt. This individual was the only obvious second-year bird (notched rectrix tips; see Pyle 2008) of the 11 adults collected in June 2022.

Over the course of four days on Adak (11–14 June) I saw up to 15 Eurasian Wigeon daily, usually at least six males on Haven Lake, sometimes a smaller group of males on the Clam Lagoon mudflats, with scattered pairs or single individuals elsewhere along the Adak road system (an area much larger than that covered on Amchitka). On 14 June, I observed two male American Wigeon with one male Eurasian at Shagak Bay.

Although the downy young of the American and Eurasian Wigeons are apparently “morphologically indistinguishable” (Nelson 1993:76 and citations

therein), I assumed the downy wigeons collected on Amchitka and observed on Adak to be associated with nearby female Eurasian Wigeon. All three were of the brown-faced morph (see Nelson 1993). The adult males collected and observed well appeared as typical Eurasian or American Wigeon without any obvious signs of hybridization (see Watson 1970, Hubbard 1971, Votier et al. 2003, Reeber 2015).

This information suggests that in 2022 the Eurasian Wigeon might have been considered an “uncommon” nesting duck in the central Aleutians. From the numbers I observed it was more numerous than all other species of nesting ducks but the Greater Scaup, Green-winged Teal, and Common Eider (*Somateria mollissima*), about as common as the Mallard, and much more so than the Northern Pintail (*Anas acuta*).

## HISTORY AND CONTEXT

The status of the Eurasian Wigeon as a breeding bird in North America has been a subject of speculation for at least 140 years (Baird et al. 1884, Phillips 1923, Hasbrouck 1944, Wetmore 1965, Edgell 1984, Fournier and Hines 1996, etc.). Waterfowl monographs have consistently mentioned the possibility of nesting, but also that there was no certain evidence (e.g., Kortright 1943, Johnsgard 1975, Bellrose 1976, Palmer 1976, Baldassarre 2014, Reeber 2015).

This speculation has included Alaska as a potential location for breeding since the earliest days of ornithological work in the state. Robert Ridgway informed Freke (1882) that the species bred in the Aleutian Islands, but Freke did not elaborate on what had changed since his earlier correspondence, in which Ridgway had described it simply as “a rather common species in the Aleutians” (Freke 1881:374). At that point Ridgway had yet to visit Alaska and was himself relying on information supplied by other naturalists (e.g., L. M. Turner, E. W. Nelson) working on behalf of the Smithsonian Institution. Summarizing work on Alaska birds from 1877 to 1881, Nelson (1887:68) stated that he was “inclined to believe that it breeds in the Aleutian chain,” going further than he had in his 1883 summary (Nelson 1883). He apparently based this later assumption on nothing more than the absence of mainland records to the north of the Aleutians. Thus, in his estimation, the birds seen in the Aleutians must be stopping there to nest. Baird et al. (1884) and the first two editions of the AOU Check-list (1886, 1895) stated unequivocally, but without elaboration, that the species bred in the Aleutians. It seems likely that Ridgway, Baird, and the AOU were all simply relaying versions of Nelson’s information. This treatment was short-lived. Cooke (1906:28) stated that the Eurasian Wigeon “was not known to breed anywhere in the Western Hemisphere” (presumably to include the entire Aleutian Island chain), and by the third AOU Check-list (1910) reference to breeding had been dropped. Neither Phillips (1923) nor Hasbrouck (1944) was able to trace any actual evidence that it had ever bred in the Aleutians, Gabrielson and Lincoln (1959:169) described its status in the Aleutians as “somewhat uncertain,” and Gibson and Byrd (2007:25) wrote that “no behavior suggested nesting.” Similarly, the Eurasian Wigeon is not known to nest on the Commander Islands (Stejneger 1885, Johansen 1961, Palmer 1976, Gibson and Byrd 2007; cf. AOU 1957).

Sporadic mentions of nesting in Greenland (AOU 1931, Peters and Bur-

leigh 1951, Palmer 1976) were never reflected in treatises on Greenland birds (Reinhardt 1861, Winge 1898, Salomonsen 1951, Boertmann 1994) or on those of the western Palearctic (Vaurie 1965, Cramp 1977), and to date there is no evidence that the Eurasian Wigeon has nested there (D. Boertmann in litt. 2022). Speculation that it might nest in northern Canada can be traced back to a 19<sup>th</sup> century error in which Baird et al. (1884:519) stated that John Richardson “was confident that this species occurs in the wooded districts of the Fur Country, and that it breeds northward to lat. 68°N”—a statement repeated by Phillips (1923) and Fournier and Hines (1996). This assertion was perhaps a case of confusion with *Mareca americana*, however, as evidenced by the remarkably similar passage in Swainson and Richardson (1831:436): “*Mareca Americana*, breed in the woody districts up to their most northern limits, in latitude 68°.” Swainson and Richardson (ibid.) did not mention *Mareca penelope*; indeed, their *Fauna Boreali-Americana* was published more than a decade before the first records of that species in North America (Hasbrouck 1944, Watson 1970), and Richardson’s last trip to North America ended in 1849.

The Eurasian Wigeon is now known in the western and central Aleutians in every month of the year. Numbers there are largest during fall and spring migration when flocks of up to a dozen have been the norm, with occasional high counts to 30–50, exceptionally 100+ (Kessel and Gibson 1978, Gibson and Byrd 2007); numbers vary from year to year (ibid.; see also Stejneger 1885). After the first week in June records are far less numerous (Gibson and Byrd 2007). The level of previous ornithological work in the Aleutian Islands makes it unlikely that nesting Eurasian Wigeon would have been missed in the past had they done so with regularity or in significant numbers (i.e., in the numbers in which they were present in 2022). However, it is also a near certainty that they have nested there before. White et al. (1977) reported courtship behavior and copulation at Amchitka, and the female of a pair collected on 18 May 1973 (UAM 2560, 2561) had developing ovarian follicles (up to 7 mm in diameter) and a “well-developed” incubation patch. In 1973 there were “unusually” large numbers on Amchitka, with as many as 16 pairs observed on the eastern portion of the island (C. M. White in litt. 2022), an area with only four pairs in 1972 (Gibson and Byrd 2007). Breeding by the Eurasian Wigeon in the Aleutians may have been sporadic, involving small numbers in years when enough birds were present to stimulate nesting. This phenomenon presumably managed to go unproven in the past because of the discreet behavior of nesting and brooding birds, because many observers had completed seasonably brief field work by the time young would have become visible on water bodies, because of the relative scarcity of appropriate wetland nesting habitat in much of the Aleutians (see Figure 2), and because the focus of much ornithological work in the Aleutians has been on seabirds (e.g., Alcidae, Laridae) or on single species (e.g., Rock Ptarmigan *Lagopus muta*; Lapland Longspur *Calcarius lapponicus*). Outlining the extent and frequency of nesting by the Eurasian Wigeon will require continued observations.

It is, however, a phenomenon with parallels in the Aleutians. Other Asian species that have nested once or occasionally in the Aleutians include the Whooper Swan (*Cygnus cygnus*; Sykes and Sonneborn 1998), Common Snipe (*Gallinago gallinago*; Gibson and Byrd 2007), Common Sandpiper

(*Actitis hypoleucos*; *ibid.*), Wood Sandpiper (*Tringa glareola*; White et al. 1974, Gibson and Byrd 2007), White-tailed Eagle (*Haliaeetus albicilla*; Tobias and Balch 1987), White Wagtail (*Motacilla alba lugensis*; Wagner 1991, Gibson and Byrd 2007), and Brambling (*Fringilla montifringilla*; Sykes and Sonneborn 1998). The Garganey (*Spatula querquedula*), Lesser Sand-Plover (*Charadrius mongolus*), Eurasian Skylark (*Alauda arvensis*), and Olive-backed Pipit (*Anthus hodgsoni*) may have done so as well (see Gibson and Byrd 2007), and the Hoary Redpoll (*Acanthis hornemanni*) reaches and nests in the western Aleutians from the Old World (it is virtually unknown in the eastern Aleutians; *ibid.*). The Lapland Longspur subspecies from the Commander Islands (*Calcarius lapponicus coloratus*) has nested at Attu Island (Gibson 1986), and the Old World Green-winged Teal (*Anas crecca crecca*) is a widespread breeder in the Aleutians (Gibson and Withrow 2015). Many of these instances of extralimital or peripheral nesting happen after larger than normal numbers of spring migrants reach the islands, often appearing to be driven by weather such as storms.

The number of American Wigeon breeding in Alaska increased tenfold from the mid-1950s to the early 2010s, in an apparent northward shift away from the historically high densities in the prairie pothole region (Mini et al. 2020). That species might now nest at least occasionally in the Russian Far East, in Chukotka (e.g., Brazil 2009 and see below). Extralimital records of the American Wigeon appear to have increased as well in Japan (Brazil 1991)—where it was formerly a “casual winter straggler” (OSJ 1974:51), then widely recorded as an irregular visitor (OSJ 2000, 2012), and by 2012 on Hokkaido simply a “passage visitor” (OSJ 2012:19–20). I did not find detailed information on the Eurasian Wigeon’s population size or distribution trends in east Asia, but, broadly speaking, numbers there appear to have been smaller in the first two decades of the 21<sup>st</sup> century than the last decade of the 20<sup>th</sup> (Wetlands International 2022). The increase in western North American records of the Eurasian Wigeon since the 1960s (e.g., Edgell 1984, Campbell et al. 1990, Wahl et al. 2005) thus may be a reflection more of opportunities for Eurasian Wigeon to associate and migrate with increased numbers of American Wigeon in Alaska and the Bering Strait region than of any particular change in the status and distribution of the Eurasian on the northwest periphery of North America.

There is no evidence to support the idea that Eurasian Wigeon migrating through (or nesting in) the western and central Aleutians (where far more numerous than in the eastern Aleutians) are en route to and from North America (Gibson and Byrd 2007; cf. Edgell 1984). They are simply reaching the eastern edge of normal (if peripheral) north/south movements within the East Asian Flyway (see Gibson and Byrd 2007) and are unlikely to fully explain the numbers encountered on the west coast of North America (American Wigeon are extremely scarce in the western and central Aleutian Islands; *ibid.*). The U. S. Fish and Wildlife Service’s estimates of Eurasian Wigeon harvested in the Pacific Flyway (e.g., Johnsgard 2010, Olson 2021) are almost certainly too high (see Padding and Andrew 2012), but they evidence a prevalence high enough to consistently show up in patterns of harvest. It is doubtful that rare and/or sporadic nesting in the Aleutians, probably mostly still in the eastern hemisphere (west of Amchitka Pass at 180°), produces the numbers

## EURASIAN WIGEON BREED IN THE ALEUTIAN ISLANDS, ALASKA

of Eurasian Wigeon observed on the west coast of North America annually. A more likely scenario is that birds on the west coast include a significant proportion of direct migrants from Asia (Grinnell et al. 1918, Palmer 1976). Some of them clearly do not return to their presumptive place of origin in summer, as evidenced by the considerable number of June and July records, not only in Alaska away from the Aleutian Islands/Bering Sea, but elsewhere in North America (e.g., <https://eBird.org>; see Ashe 2021). Nearly all of these birds are males.

This male bias may arise through identification issues (females are much harder to identify) and/or female-biased philopatry (see Anderson et al. 1992). This “failure to return” on the part of (at least) males is likely part of the explanation for the relatively high number of hybrid wigeon observed in North America (e.g., Reeber 2015). Most of these hybrids appear to have *Mareca penelope* as the male parent (Rohwer et al. 2022). Hybridization between these two wigeons has been in evidence since some of the very first North American specimens were taken on the east coast of the continent (Watson 1970), long before the increase on the west coast (Edgell 1984). Similarly, genetic data point to a long history of gene exchange between these two taxa (Peters et al. 2014, McLaughlin et al. 2020), with estimated gene-flow rates of ~30 individuals going in one direction or the other per generation (ibid.). This number is smaller than the number of observed hybrids in North America because it represents a long-term evolutionary average of *effective* genetic migrants (that is, unreflective of evolutionary dead ends, among other factors related to its estimation in genetic models; see Luikart et al. 2010). Some of this hybridization may occur in the Russian Far East’s Anadyr River valley (Kulikova and Zhuravlev 2010 and citations therein), and hybrids appear to be regular in coastal east Asia as well (photographs at <https://eBird.org>). The species could be hybridizing (at low frequency) nearly anywhere in North America and/or northeast Asia (e.g., see Fournier and Hines 1996). Isolating barriers between the two species, to the extent that they exist at all, appear very weak (Peters et al. 2014, McLaughlin et al. 2020, Rohwer et al. 2022), and some authors would consider them subspecies (Winker 2021). The American Wigeon has not been documented nesting in the Aleutians (Gibson and Byrd 2007), although peripheral nesting there is possible with the concomitant potential for hybridization or intergradation with the Eurasian.

### ACKNOWLEDGMENTS

The Alaska Maritime National Wildlife Refuge granted permits for collecting in the Aleutian Islands and provided transportation and logistical support aboard the R/V *Tiglax*. The Biodiversity Heritage Library (<https://www.biodiversitylibrary.org/>) was an invaluable resource for tracking down and searching older literature. Paul E. Lehman and Matthew R. Halley provided constructive reviews. Daniel D. Gibson provided helpful comments, discussion, and review on a myriad of topics surrounding the manuscript.

### LITERATURE CITED

American Ornithologists’ Union (AOU). 1886. The Code of Nomenclature and Check-list of North American Birds. Am. Ornithol. Union, New York.

EURASIAN WIGEON BREED IN THE ALEUTIAN ISLANDS, ALASKA

- AOU. 1895. Check-list of North American Birds, 2nd ed. Am. Ornithol. Union, New York.
- AOU. 1910. Check-list of North American Birds, 3<sup>rd</sup> ed. Am. Ornithol. Union, New York.
- AOU. 1931. Check-list of North American Birds, 4<sup>th</sup> ed. Am. Ornithol. Union, Lancaster, PA.
- AOU. 1957. Check-list of North American Birds, 5<sup>th</sup> ed. Am. Ornithol. Union, Baltimore.
- Anderson, M. G., Rhymer, J. M., and Rohwer, F. C. 1992. Philopatry, dispersal, and the genetic structure of waterfowl populations, *in* Ecology and Management of Breeding Waterfowl (B. D. J. Batt, A. D. Afton, M. G. Anderson, C. D. Ankney, D. H. Johnson, J. A. Kadlec, and G. L. Krapu, eds.), pp. 365–395. Univ. Minn. Press, Minneapolis.
- Ashe, J. B. 2021. Fall-winter habitat utilization of Eurasian Wigeon and American Wigeon with notes on migration and highly pathogenic avian influenza H5N1 virus. M. S. thesis, Calif. State Univ., Chico.
- Baird, S. F., Brewster, T. M., and Ridgway, R. 1884. The Water Birds of North America, vol. 1. Little, Brown, Boston; doi.org/10.5962/bhl.title.38233.
- Baldassarre, G. 2014. Ducks, Geese, and Swans of North America, vol. 1. John Hopkins Univ. Press, Baltimore.
- Bellrose, F. C. 1976. Duck, Geese, and Swans of North America, 2<sup>nd</sup> ed. Stackpole, Harrisburg, PA.
- Boertmann, D. 1994. A[n] annotated checklist to the birds of Greenland. Meddelelser om Grønland, Bioscience 38:1–63.
- Brazil, M. A. 1991. Birds of Japan. Smithsonian Inst. Press, Washington, DC.
- Brazil, M. [A.] 2009. Birds of East Asia. Princeton Univ. Press, Princeton, NJ.
- Campbell, R. W., Dawe, N. K., McTaggart-Cowan, I., Cooper, J. M., Kaiser, G. W., and McNall, M. C. E. 1990. The Birds of British Columbia, vol. 1. Royal Br. Columbia Mus., Victoria.
- Cooke, W. W. 1906. Distribution and migration of North American ducks, geese and swans. U.S. Dept. Agr., Biol. Surv. Bull 26; doi.org/10.5962/bhl.title.56463.
- Cramp, S. (ed.) 1977. Birds of the Western Palearctic, vol. I. Oxford Univ. Press, Oxford, England.
- Edgell, M. C. R. 1984. Trans-hemispheric movements of Holarctic Anatidae: The Eurasian Wigeon (*Anas penelope* L.) in North America. J. Biogeogr. 11:27–39; doi.org/10.2307/2844773.
- Fournier, M. A., and Hines, J. E. 1996. Second record and possible breeding of the Eurasian Wigeon, *Anas penelope*, in the District of Mackenzie, Northwest Territories. Can. Field-Nat. 110:336–337.
- Freke, P. E. 1881. European birds observed in North America. Zoologist 5:365–378.
- Freke, P. E. 1882. European birds observed in North America. Zoologist 6:21.
- Gabrielson, I. N., and Lincoln, F. C. 1959. The Birds of Alaska. Stackpole, Harrisburg, PA.
- Gibson, D. D. 1986. *Calcarius lapponicus coloratus* in the Aleutian Islands, Alaska. Auk 103:635–636.
- Gibson, D. D., and Byrd, G. V. 2007. Birds of the Aleutian Islands, Alaska. Ser. Ornithol. 1. Nuttall Ornithol. Club and Am. Ornithol. Union.
- Gibson, D. D. and Withrow, J. J. 2015. Inventory of the species and subspecies of Alaska birds, second edition. W. Birds 46:94–185.
- Grinnell, J., Bryant, H. C., and Storer, T. I. 1918. The Game Birds of California. Univ. Calif. Press, Berkeley; doi.org/10.5962/bhl.title.8650.
- Hasbrouck, E. M. 1944. Apparent status of the European Widgeon in North America. Auk 61:93–104; doi.org/10.2307/4079599.

EURASIAN WIGEON BREED IN THE ALEUTIAN ISLANDS, ALASKA

- Hubbard, J. P. 1971. Comparison of two presumed European × American Widgeon hybrids. *Auk* 88:666–668.
- Johnsgard, P. A. 1975. *Waterfowl of North America*. Indiana Univ. Press, Bloomington.
- Johnsgard, P. A. 2010. *Ducks, Geese, and Swans of the World*, rev. ed. Univ. Neb. Press, Lincoln.
- Johansen, H. 1961. Revised list of the birds of the Commander Islands. *Auk* 78:44–56; doi.org/10.2307/4082233.
- Kessel, B., and Gibson, D. D. 1978. Status and distribution of Alaska birds. *Studies Avian Biol.* 1.
- Kortright, F. H. 1943. *The Ducks, Geese, and Swans of North America*. Am. Wildlife Inst., Washington, DC.
- Kulikova, I. V., and Zhuravlev, Y. N. 2010. Genetic structure of populations of the Far East population of Eurasian Widgeon *Anas penelope* inferred from sequencing of mitochondrial DNA control region. *Genetics* 46:1095–1101; doi.org/10.1134/S1022795410080090.
- Luikart, G., Ryman, N., Tallmon, D. A., Schwartz, M. K., and Allendorf, F. W. 2010. Estimation of census and effective population sizes: The increasing usefulness of DNA-based approaches. *Conserv. Genet.* 11:355–373; doi.org/10.1007/s10592-010-0050-7.
- McLaughlin, J. F., Faircloth, B. C., Glenn, T. C., and Winker, K. 2020. Divergence, gene flow, and speciation in eight lineages of trans-Beringian birds. *Mol. Ecol.* 29:3526–3542; doi.org/10.1111/mec.15574.
- Mini, A. E., Harrington, E. R., Rucker, E., Dugger, B. D., and Mowbray, T. B. 2020. American Widgeon (*Mareca americana*), version 1.0, in *Birds of the World* (A. F. Poole, ed.). Cornell Lab Ornithol., Ithaca, NY; doi.org/10.2173/bow.amewig.01.
- Nelson, C. H. 1993. *The Downy Waterfowl of North America*. Delta Station Press, Deerfield, IL, and Portage La Prairie, MB.
- Nelson, E. W. 1883. Birds of the Bering Sea and the Arctic Ocean, in *Cruise of the Revenue-Steamer Corwin in Alaska and the N. W. Arctic Ocean in 1881*, pp. 56–118. Govt. Printing Office, Washington, DC.
- Nelson, E. W. 1887. Birds of Alaska, in *Report upon natural history collections made in Alaska between the years 1877 and 1881* (H. W. Henshaw, ed.), no. 3, pp. 35–322. Govt. Printing Office, Washington, DC; doi.org/10.5962/bhl.title.7334.
- Olson, S. M. 2021. *Pacific Flyway Data Book, 2021*. U.S. Dept. Interior, Fish and Wildlife Service, Div. Migratory Bird Mgmt., Vancouver, WA.
- Ornithological Society of Japan (OSJ). 1974. *Check-list of Japanese Birds*, 5<sup>th</sup> ed. Gakken, Tokyo.
- OSJ. 2000. *A Check-list of Birds of Japan*, 6<sup>th</sup> ed. Ornithol. Soc. Japan, Obihiro, Japan.
- OSJ. 2012. *Check-list of Japanese Birds*, 7<sup>th</sup> ref. ed. Ornithol. Soc. Japan, Sanda, Japan.
- Palmer, R. S. 1976. *Handbook of North American Birds*, vol. 2. Yale Univ. Press, New Haven.
- Passing, P. I., and Andrew, R. J. 2012. Assessment of bias in US waterfowl harvest estimates. *Wildlife Research* 39:336–342; doi.org/10.1071/WR11105.
- Peters, H. S., and Burleigh, T. D. 1951. *Birds of Newfoundland*. Houghton Mifflin, Boston.
- Peters, J. L., Winker, K., Millam, K. C., Lavretsky, P., Kulikova, I., Wilson, R. E., Zhuravlev, Y. N., and McCracken, K. G. 2014. Mito-nuclear discord in six congeneric lineages of Holarctic ducks (genus *Anas*). *Mol. Ecol.* 23:2961–2974; doi.org/10.1111/mec.12799
- Phillips, J. C. 1923. *A Natural History of the Ducks*, vol. 2. Houghton Mifflin, Boston.
- Pyle, P. 2008. *Identification Guide to North American birds*. Slate Creek Press, Point Reyes Station, CA.

EURASIAN WIGEON BREED IN THE ALEUTIAN ISLANDS, ALASKA

- Reeber, S. 2015. Waterfowl of North America, Europe, and Asia. Princeton Univ. Press, Princeton, NJ.
- Reinhardt, J. 1861. List of the birds hitherto observed in Greenland. *Ibis* 3:1–19; doi.org/10.1111/j.1474-919x.1861.tb07434.x.
- Rohwer, S., Wood, C. S., Peters, J. L., Miller, E. T., Cagley, D., Butcher, B. G., Epperly, K. L., and Campagna, L. 2022. Interspecific forced copulations generate most hybrids in broadly sympatric ducks. *PLoS One*, e0274059; doi.org/10.1371/journal.pone.0274059.
- Salomonsen, F. 1951. Grønlands Fugle: The Birds of Greenland, part III. Ejnar Munksgaard, Copenhagen.
- Stejneger, L. 1885. Results of ornithological explorations in the Commander Islands and Kamtschatka. *U.S. Natl. Mus. Bull.* 29; doi.org/10.5479/si.03629236.29.1.
- Swainson, W., and Richardson, J. 1831. *Fauna Boreali-Americana*, part II. John Murray, London.
- Sykes, P. W. Jr., and Sonneborn, D. W. 1998. First breeding records of Whooper Swan and Brambling in North America at Attu Island, Alaska. *Condor* 100:162–164; doi.org/10.2307/1369909.
- Tobish, T. G. Jr., and Balch, L. G. 1987. First North American nesting and occurrence of *Haliaeetus albicilla* on Attu Island, Alaska. *Condor* 89:433–434; doi.org/10.2307/1368501.
- Vaurie, C. 1965. The Birds of the Palearctic Fauna. Non-Passeriformes. H. F. and G. Witherby, London.
- Votier, S. C., Harrop, A. H., and Denny, M. 2003. A review of the status and identification of American Wigeon in Britain and Ireland. *Br. Birds* 96:2–22.
- Wagner, G. F. 1991. Black-backed Wagtail nests on Attu Island, Alaska. *Am. Birds* 45:53–55.
- Wahl, T. R., Tweit, B., and Mlodinow, S. G. (eds.). 2005. *Birds of Washington: Status and Distribution*. Ore. State Univ Press, Corvallis.
- Watson, G. E. 1970. A presumed wild hybrid Baldpate × Eurasian Wigeon. *Auk* 87:353–357; doi.org/10.2307/4083926.
- Wetlands International. 2022. Waterbird Populations Portal: Eurasian Wigeon; <https://wpp.wetlands.org>, accessed 29 Aug 2022.
- Wetmore, A. 1965. *Water, Prey, and Game Birds of North America*. Natl. Geogr. Soc., Washington, DC.
- White, C. M., Williamson, F. S. L., and Emison, W. B. 1974. *Tringa glareola*: A new breeding species for North America. *Auk* 91:175–177; doi.org/10.2307/4084686.
- White, C. M., Williamson, F. S. L., and Emison, W. B. 1977. Avifaunal investigations, in *The Environment of Amchitka Island, Alaska*, pp. 227–260. Natl. Tech. Info. Service, U. S. Dept. Commerce, Springfield, VA.
- Winge, H. 1898. Grønlands Fugle [Greenland's Birds]. Særtryk af Meddelelser om Grønland [Special Edition of Announcements about Greenland], Copenhagen [in Danish].
- Winker, K. 2021. An overview of speciation and species limits in birds. *Ornithology* 138:1–27; doi.org/10.1093/ornithology/ukab006.

Accepted 7 November 2022  
Associate editor: Daniel D. Gibson