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Endangered Basra Reed-warbler (*Acrocephalus griseldis*) recorded for the first time in Turkey (Aves: Acrocephalidae)

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Abstract: The Basra Reed-warbler (*Acrocephalus griseldis*) is an endangered songbird that breeds in the reed beds of southern Mesopotamia. Hydrological projects, war, and drought have greatly reduced the breeding habitat of this species, making its future uncertain. The first Basra Reed-warbler for Turkey was caught in a mist net on 22 May 2018 at the Aras River Ornithological Research Station, between the provinces of Kars and Iğdır. This represents one of only a few vagrant records in the eastern Mediterranean, and the northernmost record to date. It is likely that this bird was an overshooting spring migrant, but the existence of other small breeding populations elsewhere in the Middle East could lead to more migrants, or even breeding pairs, occurring in eastern Turkey in the future. Riparian oases such as the Aras River Bird Paradise are vital habitats for millions of migrating birds of hundreds of species and if more individuals of Turkey's first endangered songbird are discovered, it would raise the conservation priority of the region's wetlands even further.

Key words: Anatolia, avian ecology, bird banding, migratory bird, Middle East, mist netting, ornithology, wetlands

On 22 May 2018, a Basra Reed-warbler *Acrocephalus griseldis* (Hartlaub, 1891) was caught in a mist net at the Aras River Ornithological Research Station in Yukarı Çıyrıklı village, Tuzluca, Iğdır Province, northeastern Turkey (40.078°N, 43.358°E). The bird (Figure), weighing 18.2 g (see Table for full measurements), was fitted with a unique aluminum ring from Turkey's bird ringing program and was recaptured 2 days later. Not only is this the first Basra Reed-warbler identified in Turkey and the northernmost record for the species, but it is also the first globally Endangered songbird for the country (BirdLife International, 2018).

A. griseldis is a medium-sized insectivorous warbler in the family Acrocephalidae (Dyrcz, 2018). The first noteworthy feature identifying this species in the hand was the size, intermediate between the Eurasian Reed-warbler (*A. scirpaceus*) and Great Reed-warbler (*A. arundinaceus*). The wing length, 83 mm, did not overlap with either species (63–69 and 89–101 mm, respectively; Kennerley and Pearson, 2010). The next feature was the disproportionately large bill, which gave a distinctive appearance to the head (Figure). This bill was similar in length (22.2 mm) to that of *A. arundinaceus* (21.8–25.3 mm) but clearly slimmer, closer in appearance to the Clamorous Reed-warbler (*Acrocephalus stentoreus*). The upper parts also differed from *A. arundinaceus* (and from *A. stentoreus*), being darker and cooler, with a less rufous tone, contrasting with whiter underparts, and lacking the dull coloration in the flanks always present in *A. scirpaceus*, *A. arundinaceus*, and *A. stentoreus*. The tail, at 62 mm, was clearly longer than that of *A. scirpaceus* (48–55 mm) but shorter than that of *A. arundinaceus* (66–80 mm), giving different proportions to this bird, which, in addition to wing formula, could only match with *A. griseldis*.

The Aras River Ornithological Station has operated the Eastern Turkey Bird Monitoring Project for 12 years, under the direction of the University of Utah and KuzeyDoğa Society and in collaboration with the local Iğdır and Kafkas universities. The station operates 500–600 m of mist nets throughout the spring and autumn migrations for ~200 days per year. The Aras River wetlands meet 4 Ramsar criteria (Ramsar, 2018) and provide critical habitat for birds amidst the arid plains of northeastern Turkey. Surrounding the river are extensive beds of *Phragmites* and

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Figure. The left-hand photo shows the Basra Reed-warbler (*Acrocephalus griseldis*) caught at Aras River Ornithological Research Station. The right-hand photo compares *A. griseldis* (left) with a Great Reed-warbler (*A. arundinaceus*, right).

Table. Measurements taken from the Basra Reed-warbler (*Acrocephalus griseldis*) at Aras River Ornithological Research Station. The second column gives the length of each primary feather where PC = longest primary covert.

Measurements			
Ring	FA 17159	P1–PC	6 mm
Weight	18.2 g	P2	61 mm
Wing	83 mm	P3	62 mm
Tail	62 mm	P4	61 mm
Tarsus	24.9 mm	P5	58 mm
Head + bill	41.0 mm	P6	57 mm
Bill (culmen) length	22.2 mm	P7	55 mm
Bill width	4.8 mm	P8	55 mm
Fat score	0	P9	52 mm
Emargination	P3	P10	52 mm
Tip	P3		

Typha interspersed with scrub, farmland, orchards, and poplar groves. To date, nearly 100,000 birds of 191 species have been ringed and 290 bird species have been recorded around the site. Three global migratory flyways converge on eastern Turkey (Birdlife International, 2018) and about 210 bird species migrate along the Aras River, including 90 species that breed in the area (Türkoğlu and Şekercioğlu, 2017; eBird, 2018). In particular, the reed beds support a healthy breeding population of *A. arundinaceus* (Horns et al., 2016), a species that cooccurs with *A. griseldis* in both habitat and range (Dyrcz, 2018a, 2018b). The Aras River Station provides critical data on the occurrence, abundance, phenology, and migration strategies of migratory birds in this understudied region (Horns et al., 2016).

A. griseldis breeds in fresh or brackish wetlands, in reed beds composed of *Phragmites* or *Typha* as well as other emergent vegetation (Birdlife International, 2018). They feed both within the reed beds and in adjacent thickets on aquatic and terrestrial invertebrates taken low down in the vegetation. *A. griseldis* breeds in the marshlands of Mesopotamia in eastern Iraq (on the lower Euphrates and Tigris rivers) and southwestern Iran (Shadegan marshes; Ayé, 2006). More recently, they have been recorded breeding in Kuwait (Jahra wetlands; Jennings, 2010) and Israel (Hula Valley; Perlman and Shanni, 2008). *A. griseldis* overwinters in eastern Africa from southern Somalia through Kenya and Tanzania to Malawi and Mozambique. On their passage, they use stopover sites in Sudan, South Sudan, Ethiopia, and Uganda.

The *A. griseldis* caught at the Aras River Station is most likely a vagrant. Vagrancy is a common phenomenon among long-distance migrants (Lees and Gilroy, 2009) and vagrant *A. griseldis* have been reported in Cyprus (Cyprus Ornithological Society (1957), 1995) and Syria (Richardson, 2006; Yésou et al., 2007). Another possible individual was reported in Gaziantep Province, Anatolia, in 1987, but the report lacked sufficient description to admit the species to the Turkish list (Kirwan et al., 1999). The nearest known breeding *A. griseldis* to Aras River Station are located just over 600 km away on the Tigris and Euphrates rivers, a small fraction of the distance over which this species can migrate. Moreover, the breeding *A. griseldis* discovered in Israel were over 800 km from the center of their distribution (Perlman and Shanni, 2008). Given the vagrant and recent breeding records, the possibility of *A. griseldis* reaching

Turkey is predictable, most likely as a spring overshoot (Kirwan et al., 2008).

With a population of 1500–7000 adults and a restricted range of 438,000 km^2, *A. griseldis* is listed as Endangered (Birdlife International, 2018). It is believed that the species has undergone a considerable decline since the 1950s, as breeding habitat in Mesopotamia was drained during large hydrological projects (Maltby, 1994); this has been corroborated by decreases in capture rates at ringing sites (Birdlife International, 2018). Additionally, the Iran–Iraq War in the 1980s contributed substantial damage to Mesopotamian wetlands. By the early 1990s, perhaps a third of the original suitable habitat remained (Evans, 1993; Pearce, 1993); by 2003, less than 800 km^2 of Mesopotamian marshes were left (UNEP, 2003). Fortunately, a major restoration project following the Iraq War, in conjunction with substantial snow melts in Iran and Turkey, led to the reinundation of 58% of the original marshland by 2006 (Richardson and Hussain, 2006). Currently, the population is believed to be relatively stable. However, water management practices in Iran, Syria, and Turkey continue to shrink the *A. griseldis* breeding habitat, exacerbated by recent droughts, reducing the available marshland to 30% of its original area (Birdlife International, 2018). Moreover, overwintering populations in the Tana River Delta, Kenya, are threatened by large-scale conversion to agriculture. The continued reduction of habitat makes the future of the *A. griseldis* population uncertain (Birdlife International, 2018). Given the threat to this species, it is critical to conserve any breeding populations that might exist, and more populations may yet be discovered in the Middle East.

The Aras River Station is the only such bird monitoring station in eastern Turkey, so it is possible that *A. griseldis* has gone unnoticed elsewhere in the region. While the bird in question is likely a lone vagrant, the possibility of breeding *A. griseldis* in eastern Turkey at present or in the future should not be ruled out, especially given the cooccurrence of *A. arundinaceus*. Furthermore, climate change could facilitate a northward expansion of *A. griseldis* in the future (Parmesan, 2006; Chen et al., 2011). More exploration of suitable habitat should be conducted to establish whether more migrants reach the region or indeed if breeding pairs of *A. griseldis* exist. Riparian oases such as the Aras River Bird Paradise are vital habitats for millions of migrating birds of hundreds of species, but rivers and wetlands in Turkey are increasingly threatened (Şekercioğlu et al., 2011a, 2011b). Further incidence of the species would increase the conservation significance and urgency of wetlands in eastern Turkey.

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