

Breeding population of African Pied Wagtail at lake Nasser, Egypt

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Surveys specifically targeting breeding birds of lake Nasser, Egypt, have been lacking so far. Only for the surroundings of Aswan and Abu Simbel breeding data are available for a few species (Goodman & Meininger 1989, Baha el Din & Baha el Din 1990, Baha el Din 1994, Hoek & Ibrahim 2007). In the spring of 2016 and 2017, and in January 2018, we did boat trips to investigate breeding birds from Aswan to Abu Simbel. The survey primarily targeted African Pied Wagtail *Motacilla aguimp* (plate 314), which as a breeder in the Western Palearctic (WP) occurs only here. It concerns the subspecies *M a vidua* with a wide distribution in central and eastern Africa; nominate *M a aguimp* with a slightly different plumage is distributed in western Africa and central South Africa (Keith et al 1992, Alström et al 2003, del Hoyo et al 2004). Main focus was the collection

of data on its breeding distribution and breeding biology.

Study area and methods

Our study area was the Egyptian side of lake Nasser (lake Nubia on the Sudanese side was not covered), which is defined as an Important Bird Area (Baha el Din 2001). More information about the lake can be found in Entz (1976), Goodman & Meininger (1989) and Baha el Din (2001). The study area was investigated with the permission and support of local authorities. Expeditions took place on a c 450 km long route from Aswan to Abu Simbel on the western side of the lake from 24 April to 7 May 2016, from 23 April to 5 May 2017 and from 2 to 6 January 2018. We searched specifically for wagtails showing breeding behaviour and their nests. Data collected included

314 African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*, adult, lake Nasser, Egypt, 26 April 2016 (Mohamed I Habib)



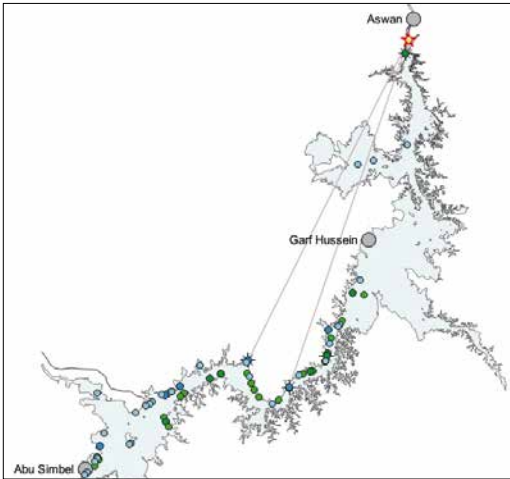


FIGURE 1 Records of African Pied Wagtail *Motacilla aguimp vidua* at lake Nasser, Egypt, during breeding season in April/May 2016 (blue) and April/May 2017 (green). Darker points indicate breeding records. Ringing locations marked with stars in same colours for a year. Recovery site of ringed bird shown by red star connected with grey lines to possible ringing locations.

details on nest location, nest size, nesting material, clutch size and number of young. Nestlings or already fledged juveniles were ringed with rings from Germany's Helgoland ringing scheme.

An Olympus LS-3 digital audio recorder was used to record songs and calls. The recordings were made in uncompressed wav format with 44.1 kHz sampling frequency and 16-bit resolution, and were analysed in the animal voice archive of the Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Research, Humboldt University, Berlin, Germany, using Avisoft SASLab Pro (version 5.0.14). The recordings are available at www.tierstimmenarchiv.de (TSA: *Motacilla_aguimp_Eil_1_1_0*).

Results

Distribution

In 2016, African Pied Wagtail was found at 35 sites (Hering et al 2016). The species was commonest south of Garf Hussein (figure 1). The northernmost occurrences were at Khor Kalabsha. In 2017, a similar distribution pattern was noted with 28 sites; there were no birds found at Khor Kalabsha but there was a breeding site in the port of Aswan, the northern starting point of our investigations (Hering et al 2017). In January 2018, only single adult birds were observed at four sites

between Seboua Temple and Abu Simbel without evidence of breeding.

Nesting sites

A total of 14 nests of African Pied Wagtail were found of which 10 were on extremely sun-exposed small islets, free of any vegetation. Two nests were built on the steel framework of maritime aids, with one each in an abandoned motorboat and in the wreck of a barge (plate 315-318). Out of the 14 nests, eight were occupied and six were old nests from this or the previous breeding season. In three cases, old and new nests were 2, 3 and 4 m apart (perhaps indications of a second brood). On the rocky islets, that project up to c 15 m above the water, small caves served as nest sites (plate 319). The caves were of different heights, up to a maximum of 7 m above the water. One nest was located on a flat island between block-like stones and covered by a stone slab, c 2 m from the water edge and c 0.5 m above it (plate 317). The two nests located on struts on the maritime aids were c 10 m above the water level (plate 318 and 320). For the one in the abandoned boat, a cavity in the floor was used as nest site.

African Pied Wagtails nested several times in the immediate vicinity of colonies of House Sparrow *Passer domesticus* (Hering & Grimm 2017).

Breeding biology

Nesting material consisted almost exclusively of spiked watermilfoil *Myriophyllum spicatum*, an aquatic plant, and also partially of dried algae, mud covered branches, feathers, sheep wool and fishing line. On the rocky islets, the plant stems mostly hung from the nest cave, making the nests easy to find (plate 319). The average outer diameter of the nests was 15.5 cm (range 13.5-19.5; n=6), and the average nest height 6.3 cm (range 4.5-8.5; n=6). The hollows of the nests were hard to measure. In one case, the internal dimensions of the hollow were 70x80 mm. In the two occupied nests which could be checked, we found one and two eggs, respectively (plate 321). Fledglings and older young were observed several times (plate 323-324).

Out of the 14 nests found, a total of five contained nestlings (plate 322). The number and estimated age of the nestlings is given in table 1. A total of six nestlings from four nests was ringed: three nestlings from one nest and one young bird each from three other nests. One other young bird was already fully fledged when ringing was carried out on 23 April 2017. We were unable to

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315 Rocky islet with breeding site of African Pied Wagtail *Motacilla aguimp*, lake Nasser, Egypt, 26 April 2016 (*Jens Hering*) **316** Rocky islet with breeding site of African Pied Wagtail *Motacilla aguimp* and House Sparrow *Passer domesticus* colony, lake Nasser, Egypt, 2 May 2016 (*Jens Hering*) **317** Flat rocky islet with breeding site of African Pied Wagtail *Motacilla aguimp* at edge of colony of Gull-billed Tern *Gelochelidon nilotica*, lake Nasser, Egypt, 29 April 2017 (*Jens Hering*) **318** Maritime aid with nest of African Pied Wagtail *Motacilla aguimp* from previous season and occupied breeding site of Yellow-billed Kite *Milvus aegyptius*, lake Nasser, Egypt, 6 January 2018 (*Jens Hering*) **319** Rock caves with one occupied and one empty nest of African Pied Wagtail *Motacilla aguimp*, lake Nasser, Egypt, 1 May 2016 (*Jens Hering*) **320** Nest of African Pied Wagtail *Motacilla aguimp* from previous breeding season on steel girder belonging to maritime aid, lake Nasser, Egypt, 6 January 2018 (*Jens Hering*)



321 Nest of African Pied Wagtail *Motacilla aguimp vidua* containing two eggs, lake Nasser, Egypt, 1 May 2016 (*Jens Hering*) **322** African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*, nestling of c 10 days old, lake Nasser, Egypt, 2 May 2016 (*Jens Hering*) **323** African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*, juvenile, lake Nasser, Egypt, 6 May 2016 (*Mohamed I Habib*) **324** African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*, juvenile, lake Nasser, Egypt, 1 May 2016 (*Mohamed I Habib*)

catch any adult African Pied Wagtail with either mist-nets or traps.

Analysis of the pellets (n=49) of the nestlings showed that most of the food consisted of larvae

of caddisflies (Trichoptera) and water beetles (Coleoptera). These prey items were preferably searched for on large carpets of aquatic plants, mainly spiked watermilfoil and hornwort *Ceratophyllum demersum*. These observations fit the data presented in Keith et al (1992) and del Hoyo et al (2004).

TABLE 1 Nests found of African Pied Wagtail *Motacilla aguimp vidua* at lake Nasser, Egypt, in 2016-17, with location co-ordinates and number and estimated age of nestlings

Date	Co-ordinates	n	Age (pulli) (days)
1 May 2016	22°41'02"N, 32°24'43"E	3	6
2 May 2016	22°47'20"N, 32°15'15"E	1	10
23 April 2017	23°58'21"N, 32°51'45"E	2	14
30 April 2017	22°48'55"N, 32°33'40"E	1	16
30 April 2017	22°48'18"N, 32°33'26"E	4	2

Ringling recovery

On 14 March 2018, Massimilano Dettori photographed a ringed adult male African Pied Wagtail in breeding plumage on a boat in the harbour of Aswan c 200 m south of the old dam (24°2'4"N, 32°53'0"E) (plate 325). Parts of the ring number could be read from the photograph. This made it possible to assign it to one of four nestlings of two nests c 20 km apart ringed on 1 or 2 May 2016.

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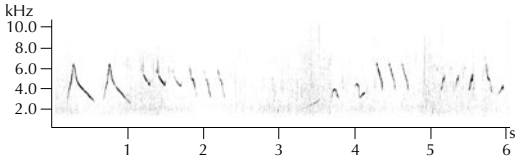


FIGURE 2 African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*, lake Nasser, Egypt, 6 May 2016 (TSA: *Motacilla_aguimp_Eil_1_1_0*; recording Hans-Jürgen Eilts, sonagram Karl-Heinz Frommolt). Song.

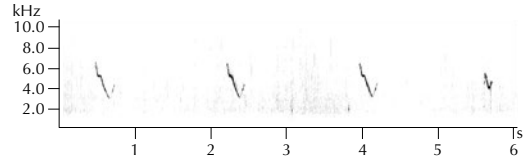


FIGURE 3 African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp*, lake Nasser, Egypt, 6 May 2016 (TSA: *Motacilla_aguimp_Eil_1_1_0*; recording Hans-Jürgen Eilts, sonagram Karl-Heinz Frommolt). Calls.

So, the ringed individual was seen 682 or 683 days later at a distance of c 155 km north-east of its nesting site, possibly at another breeding site.

Vocalizations

Songs and alarm calls by adult birds were heard frequently (figure 2-3) and it proved to be easy to make sound-recordings. So far, only one sonagram of an African Pied Wagtail singing in the WP had been published (www.xeno-canto.org/341759, Alström et al 2003).

Discussion

Distribution and population numbers

Our observations showed the presence of a relatively large breeding population of African Pied Wagtail at lake Nasser, located at various sites, especially south of Garf Hussein. Goodman & Meininger (1989) stated that the species was a rare breeding bird in this area. So, the species may have become more common in the past three decades (eg, Baha el Din 1994), or it had been overlooked before due to a lack of breeding season surveys at that time.

König (1924) first encountered African Pied Wagtail at the cataract of Aswan on his journey up the Nile in April 1897. South of Aswan, it was not until the next cataract near Wadi Halfa that he saw the species again. It was not present at the Nile at that time in the area of today's lake Nasser between Aswan and Abu Simbel.

Whether African Pied Wagtail breeds more frequently along the dam and lake shores of southern Egypt today than along the shores of the Nile river in the past is hard to say because historical data are sparse and inconclusive (eg, Adams 1864, Shelley 1872, Gurney 1876, Russel 1905). It can be assumed, however, that the 'new' islets, which are mostly free of predators and sometimes very small, are excellent breeding locations (see also Baha el Din 1994). Here, the only competi-

tion for nest sites comes from House Sparrow. Our sightings of African Pied in 2016 and 2017 do not support Tyler's (2018) assumption that the species 'appears to have declined as a breeding bird during the 20th century in the Nile Valley in Egypt'.

Breeding biology

According to Keith et al (1992) and del Hoyo et al (2004), the incubation period of African Pied Wagtail is 13-14 days. The young leave the nest after another 15-16 days. This implies that our broods hatched between 9 and 28 April. As a consequence, the beginning of egg laying in these broods took place between 24 March and 10 April. The main period of egg laying at lake Nasser may thus be defined as ranging from March to May. This fits the reports by Shelley (1872), who observed breeding birds near Aswan in April, and Baha el Din (1994), who found a brood near Abu Simbel in early May 1994. Unfortunately, there are no comparative data on the breeding in the

325 African Pied Wagtail / Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*, adult, with 'Helgoland' ring, Port of Aswan, lake Nasser, Egypt, 14 March 2018 (Massimiliano Dettori)



Nile valley further south in Sudan and South Sudan (Nikolaus 1987, Keith et al 1992, del Hoyo et al 2004). For Ethiopia, four findings of clutches were in March and April (Ash & Atkins 2009).

The data on nesting and eggs correspond with relevant literature (Keith et al 1992, del Hoyo et al 2004). For instance, measurements of two eggs were within the range known for African Pied Wagtail as were colour and shape (Keith et al 1992). Also, nests have been found on small boats before (Donnelly 1977), and Shelley (1872) often found African Pied close to anchoring boats near Aswan, while spike watermilfoil has been mentioned as nesting material before as well.

Dispersal

The recovery of a ringed African Pied Wagtail c 155 km north-east of its hatching site during the breeding season gives an indication of possible dispersal distance and constitutes the first distant ringing recovery for the species in the WP. It shows the species' potential to colonise new areas relatively quickly.

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Samenvatting

BROEDPOPULATIE VAN AFRIKAANSE BONTE KWIKSTAART IN NASSERMEER, EGYPTE In het voorjaar van 2016 en 2017 en in januari 2018 voerden de auteurs in het Nassermeer, Egypte, veldonderzoek uit aan de relatief onbekende noordelijke ondersoort van Afrikaanse Bonte Kwikstaart *Motacilla aguimp vidua*. In beide voorjaren werden de kwikstaarten aangetroffen op respectievelijk 35 en 28 plaatsen, voornamelijk op zeer kleine eilanden tussen Abu Simbel en Aswan. Er werden gegevens verzameld over het broedgedrag en broedgewoonten. Er werden ook nestjongen geringd en dat leverde de eerste langeafstandsterugmelding op van Afrikaanse Bonte Kwikstaart in de WP: een exemplaar werd 682 of 683 dagen na het ringen teruggevonden op 155 km ten

noordoosten van de nestplek, mogelijk als broedvogel. Dit is een aanwijzing dat de soort nieuwe gebieden relatief snel kan koloniseren. Verdere gedetailleerde en grootschalige studies kunnen wellicht meer informatie opleveren over de broedbiologie en verspreidingsvermogen.

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