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Description of nests, nestlings and breeding behaviour of a Yemen Serin *Serinus menachensis* population in Tawi Attair sinkhole, Sultanate of Oman

Opis gnezd, mladičev in gnezditvenega vedenja populacije jemenskega grilčka *Serinus menachensis* v udornici Tawi Attair, Sultanat Oman

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The Yemen Serin *Serinus menachensis* is a resident endemic bird with a range restricted to the highlands of South-west Arabia. I investigated a recently discovered and isolated breeding colony at Tawi Attair sinkhole in Dhofar, Sultanate of Oman. Compared to the known breeding sites in western Saudi Arabia and Yemen, the Dhofar population occurs at a noticeably lower altitude of 680 metres. In this paper, 10 nests found in October 2000 are described. The nests were colonially grouped in a great rock shelter, mainly situated beneath an overhang in a rock crevice and in two cases in empty African Rock Martin *Ptyonoprogne fuligula* nests. The nests were cups of sticks and grasses. The inner layer was lined with feathers and animal hairs. Characteristically dry grasses hung from the coarse nests. A downy nestling and fully fledged young are described. The nestlings were tended by both parents. Adults usually perch on rocks near the nests and mainly fly and feed in flocks at some distance. My findings suggest that Yemen Serins, at the site investigated, start breeding soon after the end of the monsoon period in late August and September. Adults show strong colonial behaviour, but the hatching does not appear to be synchronised.

Key words: *Serinus menachensis,* Yemen Serin, nest, nestlings, breeding behaviour, Tawi Attair sinkhole, Sultanate of Oman
Ključne besede: *Serinus menachensis,* jemenski grilček, gnezdo, mladiči, gnezditveno vedenje, udornica Tawi Attair, Sultanat Oman

1. Introduction

The Yemen Serin *Serinus menachensis* is a resident endemic bird with a range restricted to the Endemic Bird Area (EBA 118) of the south-western Arabian mountains (Stattersfield *et al.* 1998). Until 1997 its known distribution was limited to the highlands of the south-western part of Saudi Arabia north to 21°30′ N and the western part of the Republic of Yemen east to 47° E. In this area it inhabits dry stony places with variable amount of vegetation, hillsides and cliffs with patches of cultivation, but also towns and villages (Everett 1987, Clement *et al.* 1993, Jennings 1995, Porter *et al.* 1996).

In October 1997, an isolated population of Yemen Serin was discovered in the Dhofar region, Sultanate of Oman, at the Tawi Attair sinkhole 17°06′N / 54°33′E (Polak in print). The record was accepted as a new breeding species for Oman by the Oman Bird Group Rarities Committee on 28th February 1998. Thereupon other ornithologists have also observed adults of Yemen Serin feeding their young in March and April at the same site.

Little is known about the breeding of the Yemen Serin and only a few nests have been found so far. Deetjen (1971) found a nest with eggs inside an uninhabited building in Sana'a in March 1970; Philips (1982) found nest(s) in cliff clefts in late September 1982 in Yemen and Cornwallis & Porter (1982) recorded nests in holes of rock faces and walls in

March and April 1982 in Yemen. The OSME Expedition (Rands *et al.* 1987) recorded two breeding Yemen Serins in October and December 1986, both using old nests of African Rock Martin *Ptyonoprogne fuligula* on a rock face beneath an overhang. Records on the ABBA database indicate nest building in April (Saudi Arabia), breeding in March (Yemen highlands) and food begging juveniles in June (Saudi Arabia).

2. Methods

This paper is based on personal observations at the breeding colony of Yemen Serins in Tawi Attair sinkhole, Dhofar, Sultanate of Oman. Field data were collected between 30 October and 10 November 1997 and 2 to 5 October 2000. Observations were made in the vicinity of the nests, using a 10 × 25 binoculars and a 32 × 80 telescope from the edge of the sinkhole. The description of the nests refers to the nests found in October 2000. The breeding nest sites were briefly described, the main features of the nests were estimated without measuring. Among the 10 nests found, only 2 were directly accessible and could be measured. Breeding birds and nests were photographed with 400 mm lenses and flash.

3. Results

3.1. Breeding site description

The Tawi Attair sinkhole is situated near Tawi Attair village, east of Salalah on the high karst Samhan plateau. The area lies within the monsoon belt and is therefore relatively well vegetated. During and after the monsoon rains and mists between July and August, the flat plateau and gentler slopes become covered by dense tall grasses usually heavily grazed by cattle (Sale 1980). The steep slopes and wadi sides in the surrounding area are thickly wooded with trees and shrubs. The sinkhole (Figure 1) is one of the largest sinkholes in the world – an imposing 211 m deep collapse doline with a diameter of 130 m. The steep sides of the upper part of the sinkhole are densely wooded. The sinkhole and its cave beneath are

Figure 1: The Tawi Attair sinkhole with marked positions of 10 Yemen Serin *Serinus menachensis* nest sites found in October 2000

Slika 1: Udornica Tawi Attair z vrisanimi mesti 10 gnezd jemenskega grilčka *Serinus menachensis*, najdenimi oktobra 2000

described in detail by Hanna & Al-Belushi (1996). The walls and cliffs of the sinkhole are inhabited by various other breeding birds, notably Tristram's Grackle *Onychognathus tristramii,* Rock Dove *Columba livia,* Pallid Swift *Apus pallidus* and African Rock Martin *Ptyonoprogne fuligula.* The known breeding sites in western Saudi Arabia and Yemen are at a much greater altitude than the Dhofar population. The lowest record in those areas is 1950 m, while the Tawi Attair sinkhole is at an altitude of 680 m. The Tawi Attair sinkhole is at least 800 km to the east from known breeding sites of this species in Yemen.

3.2. Nest sites and nest description

In November 1997, we found two nests and in October 2000 ten nests. They were situated in the northern and in the eastern faces of the cliffs, approximately 90 to 100 metres below the tip of the sinkhole (Figure 1). The nests were situated mainly beneath an overhang in a large rock shelter accessible by man. Although all the rocks are perforated to a great extent, the breeding birds were nesting grouped only in that part of the rock shelter. Nests were approximately 5 to 15 metres apart. The position of all the nests found in October 2000 are marked in Figure 1. In Figure 2, the position and shape of the nests are shown.

Nest 1: Situated in a rock hole in the middle of the rock overhang, approximately 5 metres above the floor of the shelter. The nest was inside the rock hole and the entrance was 15 × 20 cm in diameter. The only visible nest material was dry grass hanging from the hole. Above the hole a deposit of fresh bird droppings was found. Adult birds frequently visited the nest hole.

Nest 2: Four metres distant from the first one. It was situated in a rock cavity 20 × 30 cm wide and therefore clearly visible. It was placed higher above the ground and more exposed to the sunlight. Parents were observed to feed the young (Colour appendix – Figure 4), and nestlings' calls were heard.

Nest 3: Also situated in the middle of the overhang and approximately 7 m above the shelter floor. Placed in a rock cavity with two entrances. The smaller entrance was filled with plant material and birds used the bigger 15 × 30 cm wide hole as the entrance. Two young were begging for food and tended by both parents. Only 1.5 m from the nest, there was a nest occupied by an African Rock Martin with fully grown nestlings.

Nest 4: The only nest directly accessible to me. It was on the rock wall near to the inner edge of the rock shelter, 2 m high. The nest was in a rock hole 6 × 8 cm wide and 20 cm deep. Although relatively deeply situated in the hole, some plant material was still visible from the outside. I caught a Yemen Serin female with clearly visible brood patch. After taking biometric measurements I released it. In the nest there was a single 4–5 days old downy nestling described below (see 3.3). The female returned to the nest a few minutes after I left the site. The nest was a densely lined cup, with inner diameter of approximately 5–6 cm. There were no droppings below the nest hole.

Nest 5: Also on the bigger (20 × 30 cm) rock hole, built on the outer edge of the shelter about 5 metres high. It was situated on a small rock ledge and therefore clearly visible. It was made of dry grass. At this nest I did not record visits of adult birds, but droppings found below clearly showed that the nest had been used recently. From the fresh droppings I inferred that the nestlings had recently left the nest.

Nest 6: Built in an old African Rock Martin's nest hanging on the rock wall in the middle of the rock shelter. I observed adults sitting on the nest many times. Long grasses were clearly visible hanging from the nest. When I approached the site, the adults were disturbed and flew away, but returned soon after. The lack of droppings below the nest suggested that there were eggs or young nestlings in it.

Nest 7: This nest lies also in an old African Rock Martin's nest (Colour appendix – Figure 1). Grass was not so visible as in nest No. 6. The adults were visiting the nest frequently and begging by fully grown nestlings was heard. Whenever the nest was approached, the adults became nervous. They did not fly away but remained close nearby. On 4 October this nest was examined with an aid of a metal ladder. It contained 3 fully grown nestlings, described later (see 3.3.). The nest was a cup of grasses, sticks and roots. The outer coarse cup was irregular and adapted to the shape of the Martin's nest and the surrounded rock. The inner cup was dense, 5–6 cm in a diameter and made of fine dry grasses and lined with plant down, hairs and feathers. The hairs were of different mammal species, probably of cattle, goats and a carnivore. The feathers were mainly down and coverts of Rock Doves and Tristram's Grackles. Under the nest, a deposit of fresh bird droppings was accumulating.

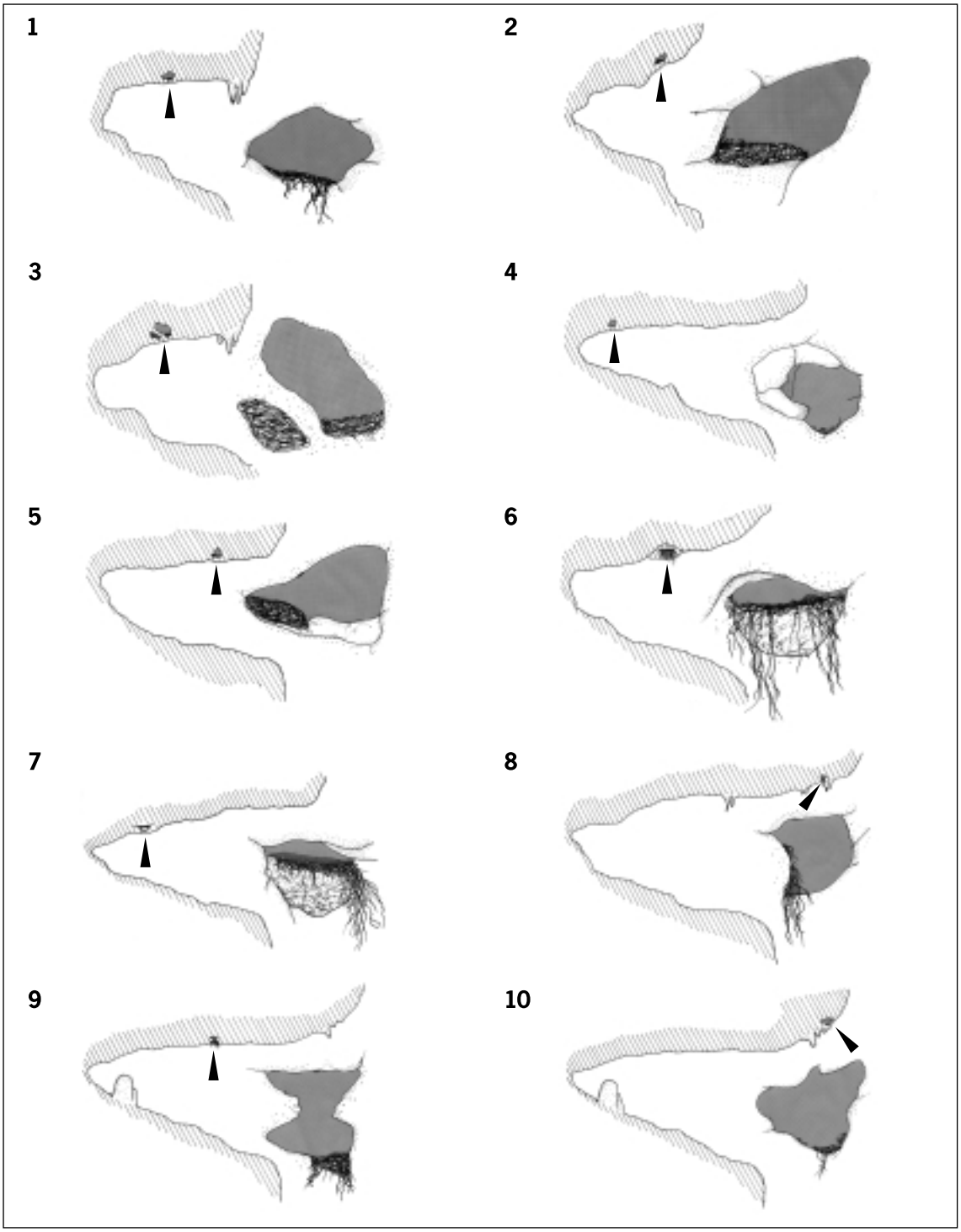

Figure 2: The position and shape of the 10 Yemen Serin *Serinus menachensis* nests in the Tawi Attair sinkhole rock shelter found in October 2000

Slika 2: Pozicije in oblike 10 gnezd jemenskega grilčka *Serinus menachensis*, najdenih oktobra 2000 pod skalnim previsom v udornici Tawi Attair

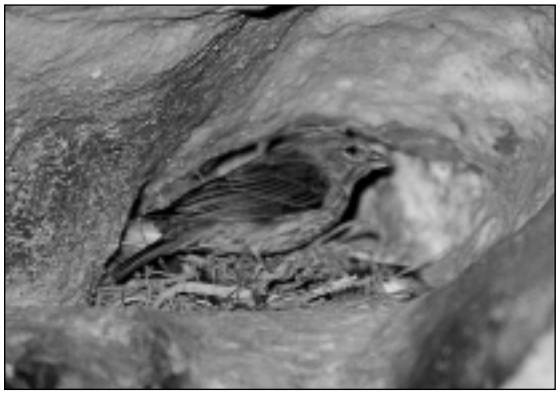

Figure 3: Fully fledged nestling of Yemen Serin *Serinus menachensis*, Tawi Attair sinkhole, 4 October 2000

Slika 3: Operjeni mladič – poletenec jemenskega grilčka *Serinus menachensis*, udornica Tawi Attair, 4. oktober 2000

Nest 8: This inaccessible nest was situated on the outer edge of the shelter roof. We only saw the grasses hanging down from the rock hole measuring 30–40 cm in diameter.

Nests 9 and 10: Situated in part of the rock shelter where the roof of overhang was 7 to 10 metres high, but could not be closely investigated due to the danger of slipping into the sinkhole. Under the roof of the rock shelter there were plenty of rock holes and crevices. In two places I observed adults visiting holes, one with 15 × 15 cm (nest No. 9) and one with 30 × 40 cm (nest No. 10) in diameter, from where grasses as nesting material were seen.

3.3. Description of nestlings and fledglings

At nest No. 4, I found one altricial and downy nestling (Colour appendix – Figure 2). According to the figures of stages in growth of an altricial nestling (in the case of sparrows) (Harrison 1988) I estimated that the nestling was approximately 4–6 days old. It was still blind and naked, but the plentiful, dense and rather long silver-grey down was confined to the head, from the shoulders it extended along the back, as well as to the bases of wings and legs. The feathers of the wings and the tail had not yet appeared (Colour appendix – Figure 2). On the underside there was no down. The rounded pale and black seeds of approximately 1 to 2 mm in diameter were clearly seen through the transparent skin of the gut. No insect remains were detected in the gut. The mouth of the chick was yellowish white with pink tongue and pink-red palate. The pale yellow gape flanges were noticeable.

In nest No. 7, 3 fully grown nestlings were ready to leave the nest. During the examination of the nest, one nestling left the nest. It was not able to fly properly but was agile enough to prevent me from catching it once more. There were few other flying young observed around the site. Fully fledged young are similar in colour to the adults, but noticeably duller (Figure 3). The brown streaks on the underparts and breast are more visible than those of adults. Tail feathers are much shorter. The young can be also distinguished from the adults by the noticeably yellow coloured bill and the pale white gape flanges.

3.4. Breeding behaviour

My observations of the breeding colony of Yemen Serins indicate strong colonial behaviour. The adult birds usually gathered in flocks of 5 to 10 birds. They normally gathered for some time at the breeding site and then left the site as a flock. When the flock returned the pairs tended the young separately. They perched near nests mainly on the rock on a higher position and occasionally on a small bush at the edge of the shelter. The ground dwelling behaviour was also observed especially in the case when the adults fed the recently fledged birds. At dusk one of the parents sat on the nest, whereas the other perched on the nearby rock hole. The adults used to communicate continuously by repeated characteristic calls. Adults were not observed feeding in the vicinity of the breeding site, but drinking water from the cave stalactites was seen during my visit in 1997 and 2000.

Aggressive behaviour towards other species was not noticed. African Rock Martins occasionally demonstrated flight attacks against Serins. Competition for the empty African Rock Martins' nests is the most likely reason.

My findings suggest that this colony of Yemen Serins begins to breed soon after the end of the monsoon period in late August and September. Despite the colonial behaviour of the species, the start of breeding does not seem to be synchronised. As for example some nests have nestlings and probably eggs whilst fully fledged young have already left the nest.

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4. Povzetek

Jemenski grilček *Serinus menachensis* je endemična vrsta ptice z arealom, omejenim na visokogorje J-Z dela Arabskega polotoka. Pred kratkim je bila odkrita nova kolonija te vrste v udornici Tawi Attair v provinci Dhofar v Sultanatu Oman. Avtor v članku opisuje območje novega gnezdišča Tawi Attair in podrobneje 10 gnezd, najdenih oktobra 2000. Namen članka je osvetliti poznavanje gnezditvene biologije te endemične vrste ptice, o kateri je doslej le malo znanega. Obravanavano gnezdišče je 800 km vzhodneje od doslej znanih v Republiki Jemen in v Savdski Arabiji, kjer so gnezdišča na znatno višjih nadmorskih višinah. Kolonijsko grupirana gnezda v velikem skalnem spodmolu so bila nameščena večinoma v skalnih luknjah in špranjah pod stropom previsa. Dve gnezdi sta bili narejeni v praznem gnezdu afriške skalne lastovke *Ptyonoprogne fuligula.* Gnezda so skledaste oblike, izdelana iz paličic in predvsem suhe trave, ki značilno visi iz gnezdilnih lukenj. Notranji del gnezda je postlan s perjem in dlako. V članku so prvič opisani 4–6 dni star puhasti mladič in mladiči, ki so že poleteli iz gnezd. Mladiče hranita oba starša. Avtor sklepa, da populacija jemenskih grilčkov v Omanu prične gnezditi po monsunskem obdobju konec avgusta in septembra. Kljub izraženemu kolonijskemu vedenju pri tej vrsti pa je videti, da izvalitev mladičev ni sinhronizirana.

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