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## MORPHOMETRIC MEASUREMENTS, DIET AND BREEDING OF THE COMMON BABBLER IN SOUTHEASTERN IRAN

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**Abstract.** Field observation on ecology and breeding biology of Common Babbler were made around Zabol region from January to July 2008. In total 26 morphometric characteristics of 10 birds were measured with a 0.05 mm precision caliper and were compared based on univariate and multivariate analyses using SPSS and Past programs. Tail length, lacrymal breadth (LB) and height of ramus mandible (HRM) were significantly different between two sexes ( $p < 0.05$ ). Of 9 gizzards Orthoptera, Coleoptera and Formicidae were present among 88%, 77% and 22% respectively. In Zabol area egg-laying period was between mid-March to late June. Nests were built on tamarisk, pomegranate and date trees. Nests were located at 152.2 cm ( $n = 6$ ) above the ground. Average of outer and inner diameter of nests ( $n = 6$ ) was 14.5 and 8.3 cm respectively, and height and depth of cup of nests ( $n = 2$ ) were 8.5 and 7.6 cm respectively. The eggs were weighed as 2.81 g ( $n = 20$ ) and egg diameter was determined as  $22.53 \times 16.77$  mm ( $n = 20$ ). Clutch size was 5.0 ( $n = 6$ ) and hatching from early May to early June.

**Key words:** Common Babbler, *Turdoides caudatus*, Iran, morphology, breeding, nest, egg, feeding.

**Address:** A. Khaleghizadeh, Ornithology Lab., Agric. Zool. Res. Dep., Iranian Research Institute of Plant Protection, Tehran, Iran; e-mail: akhaleghizadeh@yahoo.com.

**Морфометрические параметры, питание и гнездование длиннохвостой дроздовой тимелии на юго-востоке Ирана.** - Т. Арбаби, М. Барухей-Аввал, А. Шахриари, А. Халеджизаде, М. Сейфзаде. - Беркут. 17 (1-2). 2008. - Полевые исследования проводились в районе г. Забол с января по июль 2008 г. Были измерены 26 морфометрических параметров 10 птиц. Длина хвоста, лакримальная ширина черепа и высота отростка мандибулы достоверно различались у двух полов ( $p < 0.05$ ). В 9 желудках обнаружены Orthoptera, Coleoptera и Formicidae (соответственно 88, 77 и 22%). Яйца откладывались тимелиями с середины марта до конца июня. Гнезда строились на тамариске, гранате, финике. Средняя высота расположения гнезд – 152,2 см ( $n = 6$ ). Средний диаметр гнезда 14,5 см, диаметр лотка – 8,3 см ( $n = 6$ ). Средний вес яйца 2,81 г, размеры –  $22.53 \times 16.77$  мм ( $n = 20$ ). Во всех 6 гнездах было по 5 яиц. Вылупление птенцов наблюдалось с начала мая до начала июня.

### INTRODUCTION

The Common Babbler (*Turdoides caudatus*) has a large range. The global population size has not been quantified, but it is believed to be large as the species is described as 'frequent' in at least parts of its (BirdLife International, 2008).

Common Babbler extended in Iraq, Iran, Afghanistan, Pakistan and India and has four distinctive subspecies: *T. c. salvadorii* (Iraq and southwest Iran); *T. c. huttoni* (southeast Iran, southern Afghanistan and western Pakistan); *T. c. eclipes* (northwest Pakistan (west of Indus river), grading into nominate subspecies in northern Pakistan (east of Indus) and in Himachal Pradesh and Punjab in northwest India); *T. c. caudatus* (plains of India from Punjab east to Calcutta and from foot of Hima-

layas to southern India, Rameswaram island, and Laccadives) (Cramp, Simmons, 1993).

Although Common Babbler is a resident in southern Iran and inhabitant of cultivated and dry regions with scattered bushes and trees (Mansoori, 2008) little is known about its biology and ecology. A few literature studied very few morphometric measurements of this species from Iran (Vaurie, 1953; Diesselhorst, 1962; Desfayes, Praz, 1978; Cramp, Simmons, 1993). This work was conducted to study morphometric measurements, breeding biology and diet of subspecies *T. c. huttoni* in Southeastern Iran.

### STUDY AREA

Study areas consisted of outskirts of Doust-Mohammad city, Kul village (date and grape

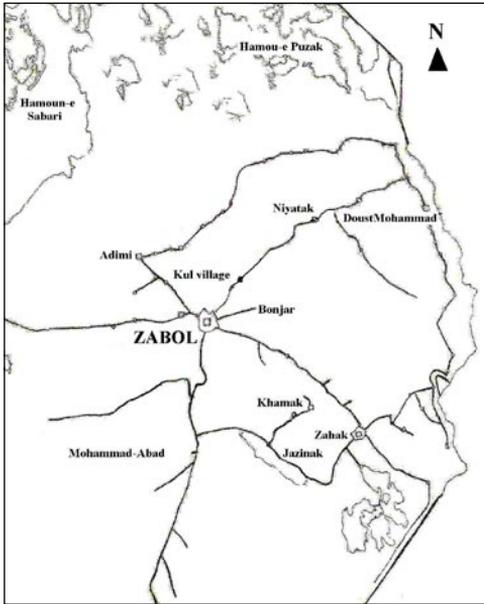


Fig. 1. Study area.

Рис. 1. Район исследований.

trees), outskirts of Zahak city and Emam-Ali Forest Park (Jazinak), 51 ha, 15 km south-east of Zabol (Zahak to Jazinak road) and Niyatak forest (Zabol to Doust-Mohammad road) (Fig. 1). Tamarisk trees and scattered date and grape trees located in eastern part of



Photo 1. Common Babbler taken in Zabol area. Фото 1. Длиннохвостая дроздовая тимелия, пойманная в районе исследований.

Doust-Mohammad city in addition to a river makes this area suitable for living Common Babblers. Emam-Ali Forest Park is densely covered with *Tamarix* sp., *Atriplex* sp. and *Eucaliptus* sp. is an important habitat for nesting the species too.

## MATERIAL AND METHODS

Field observation on ecology and breeding biology of Common Babbler were made from January to July 2008. During January – March 2008, 10 specimens of Common Babbler (three males and seven females) were collected around Zabol (Kul village and Niatak forest, 20 km East of Zabol). The specimens

(Photo 1) were taken by mist net or air gun. Gizzards were removed and their contents separated in different insects. First specimens weighted with a 0.01 g precision weighing-digitizer scale.

In total 26 morphometric characteristics were measured with a 0.05 mm precision caliper and were compared based on univariate and multivariate analyses using SPSS and Past programs. These factors were body length, tail length, wingspan, wing length, wing breadth, bill length (BL), bill depth, shield width, nares to tip, mandible length (MdL) and height of ramus mandible (HRM), profil length (PL), brain-case height (BcH),

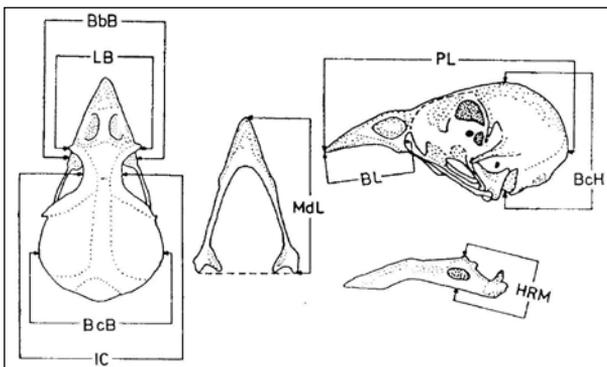


Fig. 2. A scheme for skull measurements: profil length (PL), brain-case breadth (BcB), bill length (BL), lacrymal breadth (LB), interorbital constriction (IC), brain-case height (BcH), mandible length (MdL) and height of ramus mandible (HRM) (Ruprecht, 1984).

Рис. 2. Схема измерений черепа.



brain-case breadth (BcB), interorbital constriction (IC), lacrymal breadth (LB), humerus, radius, ulna, carpo-metacarpus, coracoid, femur, tarso-metatarsus length, tarso-metatarsus (from bone), tibiotarsus, and mid-toe length (Fig. 2).

## RESULTS AND DISCUSSION

### Measurements

Table 1 shows results of 26 morphometric characteristics of Common Babbler. Of these, the measurements of six major characteristics consisted of wingspan, total length, wing length, bill length, tail length and profil length for the specimens in Zabol areas on average were as 263.2, 246.8, 88.6, 17.8, 122.9 and 42.5 mm respectively (Table 1). Table 2 shows differences in measurements of wing, tail and Bill to skull lengths in four subspecies of Common Babbler. In subspecies *T. c. huttoni* in southwest Afghanistan wing length were measured as 88.0 mm (87–89, n = 3) and 85.8 (85–88, n = 5) and tail length were as 116 (112–125, n = 3) and 118 (113–122, n = 3) (Paludan, 1959, Table 2).

On average the weight of specimens of Zabol was as 44.7 g (Table 1). Birds of subspecies *T. c. hut-*

*toni* taken in Afghanistan and Iran in February – March were weighed as 47–48 g (n = 2) in males, and 43.0 g in females (41–44, n = 3) and in June a female 46 (Paludan, 1959; Desfayes, Praz, 1978). The nominate *T. c. caudatus* in Delhi (India) is much smaller as 35.2 g ( $\pm 2.6$ , n = 31) for males and 32.1 ( $\pm 2.3$ , n = 37) for females (Cramp, Simmons, 1993). The subspecies *T. c. eclipse* in Pakistan is also small as 38 for females (Ali, Ripley, 1971).

Comparison of biometric data revealed that

Table 1

Measurements of 26 characteristics of 3 male and 7 female specimens of Common Babbler collected from Zabol area (mm)  
Промеры 26 характеристик 3 самцов и 7 самок длиннохвостой дроздовой тимелии, добытых в районе исследований (мм)

Parameter	Male	Female	Total
Body length	240.7	249.8	246.8
Tail length	117.0	125.4	122.9
Wing-span	259.3	265.2	263.2
Wing length	88.3	88.7	88.6
Wing breadth	80.0	82.4	81.7
Profil length (PL)	44.0	41.9	42.6
Brain-case breadth (BcB)	18.9	18.3	18.5
Brain-case height (BcH)	15.0	14.8	14.9
Bill length (with cover)	21.5	22.2	22.0
Bill depth (figure of skull )	6.3	6.5	6.4
Shield width	4.7	4.7	4.7
Nares to tip	16.1	16.6	16.5
Lacrymal breadth (LB)	8.4	7.8	8.0
Interorbital constriction (IC)	4.9	4.3	4.6
Mandible length (MdL)	31.7	32.0	31.9
Height of ramus mandible (HRM)	3.0	3.3	3.2
Carpometacarpus	12.3	13.1	12.9
Ulna	20.1	19.8	19.9
Radius	22.6	22.8	22.7
Humerus	22.2	22.8	22.6
Coracoid	20.6	20.5	20.5
Tibiotarsus	40.7	41.3	41.1
Femur	24.0	24.2	24.2
Tarsometatarsus length (bone)	29.5	30.1	30.0
Tarsometatarsus length (with skin)	31.7	32.6	32.3
Mid-toe length	17.2	16.3	16.6
Weight (g)	43.18	45.28	44.65



Table 2

Measurements of wing, tail and bill to skull of all races, sexes combined (mm)

Промеры крыла, хвоста и клюва до черепа нескольких форм для обоих полов (мм)

Subspecies and source	Sampling areas	N	Wing		Tail		Bill to skull (S)	
<i>T. c. salvadorii</i> (Vaurie, 1953)	Iraq and SW Iran	21	89.6	84–93	123	113–132	24.5	22–26
<i>T. c. salvadorii</i> (Diesselhorst, 1962)	Iraq and SW Iran	19	89.7	87–93	120.1	115–130	23.8	21.9–25.8
<i>T. c. huttoni</i> (Vaurie, 1953)	SE Iran and S Afghanistan	20	87.8	82–92	121	115–128	24.0	21–25.5
<i>T. c. huttoni</i> (this study)	SE Iran	10	88.6	85–90	122.9	114–130	22.0	20.5–23.0
Intermediates between <i>T. c. eclipes</i> and nominate <i>T. c. caudatus</i> (Vaurie, 1953)	NE Pakistan and N India	9	81.1	78–84.5	117	107–128	20.5	20–21.5
Nominate <i>T. c. caudatus</i> (Vaurie, 1953)	SE Pakistan and India, S Punjab	44	78.3	74–80	107	98–116	20.9	20–23

tail length, Lacrymal breadth (LB) and Height of ramus mandible (HRM) were significantly different between two sexes ( $p < 0.05$ ). In subspecies *T. c. salvadorii* in southwest Iran sex differences was significant for wing and bill lengths. Wing length in southeast Iran was 86 (86–88,  $n = 3$ ) while in Baluchistan (Pakistan) it was 81.0 (78–85.5,  $n = 5$ ). The same subspecies birds taken in Iraq and southwest Iran in September – May exposed culmen on average 3.4 mm less than bill to skull (Diesselhorst, 1962).



Photo 2. A Common Babbler nest with clutch of 5 eggs.

Фото 2. Гнездо длиннохвостой дроздовой тимелии с кладкой из 5 яиц.

### Diet

Of 9 gizzards (1 empty gizzard was not accounted) Orthoptera, Coleoptera and Formicidae were present among 88%, 77% and 22% respectively. Parents were feeding their nestlings with insects in particular Orthopteran ones and some insect larvae.

In the Western Palaearctic, there is no details for food when account is mainly based on data from India. Omnivorous, taking insects, fruit and seeds (Ali, Ripley, 1971). Diet in India includes the following: Grasshoppers (Orthoptera: Acrididae), larval Lepidoptera (including Sphingidae), large ants *Monomorium*, beetles (Carabidae), and spiders (Araneae). Plant material includes berries (especially Lantana), cereal grain and seeds (Gramineae, Leguminosae), seeds and leaves of grass (Poaceae), seedlings, and Capparis nectar. Young are fed entirely on invertebrates, mainly Orthoptera (Cramp, Simmons, 1993).

As Sistan is a windy area, the bird found some compatible ways to overcome this problem. They are flying in windy days or are seeing on lower branches of trees. In windy and cold days they can not fly at long distances thus they should feed on some food around their perching sites. According to local farmers they were feeding on larvae in farms. In a



few times they were occasionally feeding on animal corpses (Khamari, 2005).

**Nest and eggs**

In Zabol areas egg-laying period was between mid-March to late June. In India egg-laying varies locally to cover almost whole year, but mostly March – July, extending into October (Ali, Ripley, 1971); in Delhi area, peaks March – May and June – September (Cramp, Simmons, 1993).

Nests were built on tamarisk trees on Zahak road, Jazinak, and on date and pomegranate trees around Kul village near Zabol Airport. Nests were in cup shape constructed (Photo 2) with tamarisk twigs and its egg compartment with soft tissues including feathers. In Al-Jadriya (Iraq) avoids poplar and prefers low tamarisks and dense thorny bushes, none built in reeds (Al-Dabbagh, Bunni, 1981). Nest is founded of thorny twigs, roots, and grass, with compact inner cup of finer grass stems and rootlets, often lined with hair, mosses, and leaves (Hüe, Etchécopar, 1970).

Nests were located at 134–170 (average 152.2, n = 6) cm above the ground (Table 3) but nests on date trees were higher than on tamarisk trees so they could not be measured indicating the height of nest considerably higher than in Iraq where all nests were slightly lower down averaging 135 cm (Al-Dabbagh, Bunni, 1981).

In Zabol area average of outer and inner diameter of nests (n = 6) was 14.5 and 8.3 cm respectively, and height and depth of cup of nests (n = 2) were 8.5 and 7.6 cm respectively (Table 3). In Iraq average outer diameter was 15.8 cm, inner diameter 10.0 cm, height 13.0 cm, depth of cup 6.8 cm (n = 3) (Al-Dabbagh, Bunni, 1981).

Eggs were sub-elliptical, smooth and glossy and more bluish than green (Photo 2) as mentioned by Cramp, Simmons (1993).

In Zabol area eggs of *T. c. huttoni* weighed 2.81 g (2.3–3.4, n = 20) and egg diameter was determined as 22.5×16.8 (21.21×16.15–23.65×17.69, n=20) (Table

Mean (± SD) of some characteristics of six Common Babbler nests in Zabol area  
Средние значения (± SD) некоторых параметров 6 гнезд длиннохвостой дроздавой тимелии в районе исследований

Table 3

	Site		Pomegranate	Kul village		Total
	Niyatak	Tamarisk		Pomegranate	Pomegranate	
Nests	Height from the ground (cm)	170	168	142	134	152.2
	Height (cm)	8.6	8.5	–	–	8.5
	Depth of cup (cm)	6.8	7.1	–	–	7.6
	Inner diameter (cm)	8.5	8.1	8.4	8.5	8.3
	Outer diameter (cm)	13.8	14.1	14.7	14.9	14.5
	Egg numbers	5	5	5	5	20
Eggs	Egg length (mm)	–	–	22.79 ± 0.49	22.85 ± 0.73	22.53 ± 0.68
	Egg diameter (mm)	–	–	16.98 ± 0.39	17.05 ± 0.19	16.77 ± 0.44
	Egg weight (g)	–	–	2.84 ± 0.28	3.02 ± 0.30	2.81 ± 0.28



3). In Iraq egg diameters of *T. c. salvadorii* were as 24.3×17.3 (18.2–25.1×16.2–21.9, n = 13 eggs from 3 clutches) (Al-Dabbagh, Bunni, 1981) while egg diameter of nominate *caudatus* in India is smaller (21.2×16.2, n = 180) (Ali, Ripley, 1971).

Clutch size in Zabol area was 5.0 (n = 6) but in Iraq, average of three nests was 4.3 (Al-Dabbagh, Bunni, 1981). In Delhi average of 39 clutches was 3.4, 24 nests with 3 eggs and 15 nests with 4 eggs (Cramp, Simmons, 1993). Hatching was occurred from early May to early June.

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However less knowledge is available on threats to this species. Human activities such as touching nests and eggs are one of threatening factor. Snakes are the most natural enemies of Common Babblers in Sistan area.

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