



Breeding Biology of the Common Whitethroat *Sylvia communis* in Taleghan Area, Southern Slope of the Alborz Mountains

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Abstract

The breeding biology of the Common Whitethroat *Sylvia communis* was studied in Taleghan area in 1989. The average nest weight was 10.5 g ($N=12$) and average external and internal diameters were 8 cm ($N=12$) and 6 cm ($N=12$) respectively. The cup depth was 5.3 cm ($N=12$) and the height 8.2 cm ($N=12$). Female birds laid 3–6 eggs. Clutches varied in egg colour but eggs of a clutch were in similar colour. The egg colours were in greenish grey, olive and whitish blue. Eggs averaged 19 mm in length ($N=8$ nests) and 15 mm in width ($N=8$ nests); the average weight was 1.8 g ($N=8$ nests). One-day-old juveniles averaged 1.8 g in weight.

1. Introduction

The Common Whitethroat *Sylvia communis* is a summer breeding bird along the Alborz and Zagros Mountains (Scott *et al.* 1975, Mansoori 2008). The birds arrive in their breeding areas in the first half of April when plants are growing and trees are fruiting. After the breeding season, they gradually leave the area at the end of October. The species' local name is *Parchinkhizak*, which means 'moving in the *Parchin* (*Hippophae rhamnoides* and *Elaeagnus angustifolia*) branches.

Although the Common Whitethroat is fairly common breeding warbler species in the Middle East and Iran (Porter & Aspinall 2010), studies on its breeding biology in this region are scanty. The aim of this study was preliminary study on the breeding biology of the Common Whitethroat in Taleghan area on the southern slopes of the Alborz Mountains, northern Iran.

2. Study Areas and Methods

The study area is situated at 36°10'15"N, 50°50'30"E around Sefijkhani village (1743 to 1843 m a.s.l.) near to Taleghan city (36°–36°15'N, 50°30'–51°E) of Alborz Province. The

climate of the area is mountainous with cold and freezing in winter and mild climate in summer with warm days and cold at night due to the high altitude located in the Alborz Mountains. The area size of the study is 38 ha in the gardens of Sefijkhani village and farmlands along River Shahrood which is one of the branches of Sefid-Rud River (Fig. 1). In this study only 25 nests were found in an area of one farm and eight gardens.

The nesting period was from mid-April to mid-October 1989. Preliminary nest-finding surveys had been carried out with the assistance of local farmers. The nest locations were identified through the birds' regular approach to them. The breeding biology of the bird was observed. Because there was a real risk of nests being predated or destroyed by reptiles, rodents, other birds and even by local people harvesting grass, a total of 25 nests was found. Throughout the nesting activity, nest measurements was carried out for 12 nests. Identification was verified by capturing the bird. Of the 12 nests, 8 were at the egg-laying stage and the others were being constructed. Calipers and a ruler were used for measuring factors such as nest depth and overall dimension, nest internal and external diameters and the sizes of the eggs.

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The height of the nest from the ground was noted; a scale with maximum 100 g reading was used to weigh the eggs and the nestlings at different stages of growth. The nests were weighed at the end of nesting period.



Fig. 1. A view of the study area of Sefijkhani village in Taleghan area.

3. Results

3.1. Nesting

Nest-building occurred from the first half of April to the end of June. The nest characteristics are given in Table 1. The mean distance between nests is dependent on the presence of suitable conditions at and near the nest locations. The open area around a nest is a determining factor for making nests, because it permits maximum manoeuvrability to exercise a range of escape options when being threatened. In rare cases the nest was built between the trunk of small trees and their guardian. Apple trees were the dominant trees in such cases.

Generally, the structure of the nest comprises three sections. The first, up to 5 cm thick, often contains old dried leaves and stems of Gramineae and other loose material, but lacks any mixture of materials from the other sections. The second section, averaging 1.5 cm in width, contains similar but softer materials to the first part, sometimes including woollen items. The third part, the nest cup, contains softer materials, such as animal hair tightly

woven, and also delicate plants. The bottom part of the nests that are close to the ground is thicker than those sited in higher locations. Nest weight differs according to the diameter and density of branching twigs and also to the nest height above the ground. Most nests were comprised Gramineae plants and were placed at a height of 5 to 60 cm above the ground on the branch and twig assemblies in trees such as cultivated apple. The characteristic nest is well-hidden, and has been made of herb or other plant fragments to form the basis of the nest. The presence at the base of the tree of branches that reach a dense understory approximates prime nesting habitat. Many nests were found in such a position.

Table 1. Characteristics of Common Whitethroat *Sylvia communis* nests and eggs in Taleghan area in 1999.

Characteristics	N	Min.	Max.	Mean	Std. Deviation
External diameter (cm)	12	7.5	9.5	8.1	0.6
Internal diameter (cm)	12	5.5	7.0	6.1	0.4
Nest height (cm)	12	7.0	9.0	8.2	0.7
Nest cup (cm)	12	4.5	6.0	5.3	0.5
Nest weight (g)	8	8.5	12.5	10.5	1.8
Egg length (mm)	8	18	20	19	-
Egg breadth (mm)	8	14	16	15	-
Egg weight (g)	8	1.6	2	1.8	-

3.2. Eggs

Egg-laying begins in the mid-April in the area, but the majority of the nests containing eggs were found in early June, thus coinciding with the main growth surge of plants in farms and gardens, allowing for a high degree of nest concealment. In general, egg-laying occurred in most nests in early June.

Each female laid one egg daily for 3–6 days. Eggs were elongated at one side. The egg is coloured from greenish grey to olive and whitish blue and had round or polygonal spots in blackish grey or marbling. The clutch size in the surveyed nests varied from 3 to 6 eggs.

Nests with olive-coloured eggs were commoner and appeared sooner than the others in the area. Nests with blue-coloured eggs mostly held 4 eggs, only one having 5. There were some differences in the shape of eggs; the blue to white eggs were less elongated than olive ones. In the olive-coloured eggs, some of the eggs were grey colour to greenish. The spot concentration is more extensive at the wider

part of the egg (Fig. 2). All eggs in any single nest were of the same colour, the colour difference being between nests. The eggs darkened by the time hatching.



Fig. 2. A view of an egg of the Common Whitethroat.

Incubation was by both female and male birds during daylight hours once the clutch had been completed. Hatching took 12 days. All the eggs in any single nest hatched within 24 hours. Only one nest had an unhatched egg. One-day juveniles had an average weight of 1.8 g and were altricial, having eyes completely closed with two yellow soft projections on the sides of mouth. Feathers appeared 4 to 5 days after hatching.

4. Discussion

During the study, nesting was variable among pairs and took place from the beginning of April to the end of June. It seems that egg-laying takes place sooner than in northern Europe and coincides with northern Africa where it recorded from mid-April to July (Cramp 1992). The outer and inner nest diameters in this study (8.1 and 6.1 cm respectively) were less than mentioned by Cramp (1992; 10.5 and 6.5 cm respectively) while nest height and cup (8.2 and 5.3 cm respectively) were greater than that in Cramp (1992; 7.3 and 4.8 respectively). The clutch size was the same as mentioned by Cramp (1992). The two kinds of egg colours in the present study have also been reported by others (Toman & Felix 1974), but the greater clutch size of 4–5 was seen in olive eggs than that of blue eggs (clutch size mostly 4). This anomaly requires further investigation. Egg length and width (19 and 15 mm respectively) was greater than

mentioned by Cramp (1992; 18.2 and 13.8 mm respectively). In the Taleghan area, egg-laying starts at the time when the plant growth has been fast enough to obscure the nest, giving it maximum protection from predators.

In this study, 68% of the nests were never used for egg-laying, even if they had been completed. Then materials of these nests sometimes were used by other pairs. There are several threat factors for local populations of this bird, such as grass-harvesting by mechanical mower, change of vegetation covering consequent to pesticide application, and development of residential area in the region. Some nests (14%) were damaged after egg-laying and before hatching, mainly because of predators and human disturbance (10%).

In the past, the plant cover of the area was pastoral in character, mostly comprising Gramineae species but the extension of orchards including apple, pear, apricot, cherry, sour cherry, modified the original habitat composition. Orchards cannot support nesting warblers well. In the present study, most of the nests were in bushes in open areas and therefore sometimes quite close to one another.

In the recent past, cutting grass was done with traditional instruments (e.g. sickle), a widespread practice, and about 90% of this work was done at the end of the breeding season (in July) in a gradual manner. Therefore the Common Whitethroat had sufficient time to complete breeding activity. Nowadays, grass-cutting is mechanized and happens sooner, when breeding activity is at its peak (in June). Therefore, many nests will be deserted as a consequence.

Population growth and development in villages requires additional housing, which causes much more disturbance in natural environments, inevitably increasing that threat factor. It is noticeable that recently the number of mulberry trees as food sources of the species has also decreased. However, human presence could also reduce the number of natural predators such as Golden Jackal *Canis aureus* and foxes, allowing potential increased breeding success. However, although Common Whitethroat may have declined, it is still breeding in the region. The bird remained in the region and continues its breeding every year. The reduction in the plant species communities on which Common Whitethroat depends for its

nesting success is due to changing land-use, especially agricultural practices such as horticulture. Increasing tourism may also affect bird populations adversely in the region. The need for education of local residents and tourism about the role of birds in the environment could be effective in guaranteeing the presence of the species in the area. In this case, further research by individual researchers and the Department of the Environment and is recommended.

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