

## ON THE BREEDING-HABITS OF THE DARTFORD WARBLER.

BY

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My first introduction to the Dartford Warbler (*Sylvia undata dartfordiensis*) was in 1906 in one of the home counties. Since then I have had exceptional opportunities of studying this most interesting bird, and some forty pairs in four widely separated localities in the south of England have come under my observation, and in each season a considerable time has been spent among them.

With regard to their general habits it is difficult to dogmatize, as like many other species no two pairs seem to behave in exactly the same manner. The great difficulty in keeping such restless birds under close observation for any length of time will be readily appreciated by all those who know them, but if one is fortunate in locating a pair with young still in the nest, a good view of both old birds is assured, for one may then hide within two or three yards of the nest and after a few moments the birds will almost cease "scolding" and resume their feeding operations. Large and small moths, butterflies, "daddy-long-legs," spiders, and larvæ of many kinds, principally one of a vivid green colour, are brought in large numbers by both birds at frequent intervals, but the female is the more active and will sometimes make two journeys to every one made by the male, who occasionally bursts into song until driven off to his parental duties by the female. The sexes are easily distinguishable, the male being larger and more brightly coloured and having darker legs than the female. Sometimes the mandibles are so loaded with food that the alarm-note becomes almost inaudible and ludicrous.

Another favourable time for watching these birds is while they are building. Materials are brought at

intervals of a minute to a minute and a half, and the birds are silent and apparently quite indifferent to being watched. If, however, a nest containing young birds or highly incubated eggs is approached, both old birds become very noisy and demonstrative. On one occasion I saw a female leave a nest containing young and drop on to a path with outspread wings and tail in an endeavour to draw us away. This habit has already been recorded by Mr. Howard Bentham (Vol. III., p. 186), and is of course common in other birds. Should the clutch of eggs be incomplete or incubation not have commenced, the birds are very silent and often not in evidence at all, the female slipping off the nest without making an alarm-note. The general behaviour at the nest is characteristic of many other species under similar conditions, and the same remark applies to the habit of soaring upwards for a few yards and sometimes hovering for a second or two before dropping, like a stone, on or into the furze or ling.

I consider that Dartford Warblers are stronger on the wing and take longer flights than is generally supposed, and on several occasions I have seen them fly several hundred yards right across a valley.

The breeding-season is very erratic and depends to a great extent on climatic conditions. In 1913 they were earlier than usual, fully-fledged young being found on May 3rd, and fresh eggs as late as June 21st (possibly a second laying). May is apparently the favourite month. The nest is comparatively easy to locate when once the bird has been marked down, indiscriminate searching being practically useless, though I have three times flushed a bird from the nest quite unexpectedly. There is no very serious attempt at concealment in most cases, especially when the nest is in ling, though it is not always possible to see it from directly above, but when placed in furze it is not so easily detected. When in ling, for which the birds show a distinct preference, the nest is from 6 in. to 1½ ft. from the

ground, when in furze  $1\frac{1}{2}$  to 5 ft., the latter height being exceptional. I have never seen a nest in very thick furze, the favourite site being in a small piece of furze through which there is growing ling, goose-grass, and other herbage, and in some cases bracken.

Many so-called "cocks' nests" are built, but whether these are ever used for roosting purposes, or as protection during cold weather, I cannot say; they are easily distinguishable from the nests used for breeding purposes, and as a rule are built entirely of goose-grass and are unlined.

The fifty to sixty nests which I have very carefully examined have been well built, firm, and compact: only two or three could really be termed flimsy; and some were so well built that light was scarcely visible through them. They are very characteristic and not easily confused with those of any other British breeding bird, and I do not agree with those writers who maintain that they resemble nests of the Common Whitethroat. Most of those who have described the nest apparently had very little material for comparison, and some of the descriptions are obviously misleading. In a series of sixteen nests I find no less than twenty-four distinct plants, grasses, and other materials made up as follows, the position in the nest occupied by the materials being denoted thus: A outside, B intermixed, C lining.

*Used abundantly.*—Goose-grass, A, B; grass, two species of *Agrostis*, A, B, C; ling (*Calluna vulgaris*), A, B; moss (*Hypnum cupressiforme*), A, B; feathers, A, B, C; grass, flowering heads (*Aira flexuosa*), A, B, C; grass roots with rootlets adhering, B.

*Used sparingly.*—Dwarf furze (*Ulex nanus*), A, B; ground-lichen (*Cladonia gracilis*), A, B; spiders' egg-cases, two species unidentified, A; ling and grass rootlets, C; thistle-down, unidentified, A; bents of two plants, unidentified, A, B; horsehair, cowhair, C.

*Used once only.*—Duck's down, A; rabbit's fur, B; dodder (*Cuscuta epithymum*), C; willow-down (*Salix repens*), B, C; bracken (*Pteris aquilina*), B.

The dwarf-furze (not the common species) and ground-lichen are distinctive features in these nests, and I know of no other Passerine bird that makes use of them. Feathers are much more used than is generally supposed,\* and with the egg-cases of one species of spider appear to serve the purpose of binding other materials together.

The white and conspicuous egg-cases of another species of spider are, however, apparently used for decorative purposes, and are placed on the outside. These are sometimes adhering to pieces of ling, but I have also seen them brought separately to the nest. Some nests, and usually those in ling, are made entirely of ling and lined with feathers, hair, and rootlets. Wool is quite absent from all the nests examined.

Measurements of nests: Diameter across the top, 3-4 in., ditto, inside, 2 in.; depth outside  $2\frac{1}{4}$ - $2\frac{3}{4}$  in., ditto, inside,  $1\frac{1}{2}$ -2 in.; thickness of wall at top,  $1\frac{1}{2}$  in.

The faces of the young and adults are curious and distinctly rose-pink in colour. These are removed immediately from the nest, which is always beautifully clean, and it is difficult to distinguish between a nest from which young have flown and a new one. The young bird when first hatched is very dark and black-skinned, the inside of the mouth is orange-red, paler towards the edges, and there are two black tongue-spots.

The eggs cannot easily be confused with those of any other British breeding bird. Although they very slightly resemble one of the commoner types of the Common Whitethroat, there is something very distinctive about them to the practised eye, and they are on the average smaller and do not show so much gloss. I have

\* I find them in ten out of sixteen nests and in one nest pulled to pieces for examination there were no less than forty-seven feathers.

divided them into two distinct types—one with white and the other with greenish-white ground-colour.

TYPE A.

Surface of shell white, markings pale olive-brown evenly distributed, but usually denser at the large ends, underlying markings lead-grey in various shades, mostly confined to large end, extreme ends are sometimes devoid of pigment; general appearance distinctly smoky, shape mostly narrow pointed ovals, though broad ovals occur. Texture, distinctly finer grained than those of the Common Whitethroat, and there is an absence of pittings.

TYPE B.

Surface of shell greenish-white, markings dark olive-brown to pale brown, mostly confined to large end, forming dark caps or zones, and distinctly sharper and more spotted in appearance than in type A; underlying markings, shape, and texture same as A. This is the commoner type.

There is very little pronounced variation, the two types being constant and well set, and aberrations rare. I have a clutch which is very boldly marked and clouded, one of the four eggs being pure white with a few underlying marks at the large end only; another egg in a clutch of four has a clouded zone of very thick pigment at the large end, with a band almost unpigmented round the centre. Erythrism is said to occur, but I have never heard of an erythristic clutch having been found in this country, and I have not yet met with a well-known collector who has found one on the Continent. Further confirmation on this point is necessary from reliable sources. Some of the clutches from the Continent I am inclined to think must be attributed to the Sardinian Warbler. The egg figured by Seebohm is not typical, nor I think are two of those figured by Dresser (Nos. 43 and 47). The full clutch generally consists of four eggs, sometimes three only. I have only seen five clutches of five.

As an illustration of how easily these skulking little birds may be overlooked, I may mention that on one occasion I remained for two days on one fairly large common without seeing or hearing a bird, but on the third day, on the same common, I discovered no less than five pairs with young.

Whether there has been any marked increase in the species I am not prepared to affirm or deny, but in any case they are now quite abundant. This may be owing to successive mild winters; but I think it is more probably a question of knowing the birds and where to look for them. For instance, in three of the localities in which I have found them they were supposed to have been exterminated by collectors; but those who know these exceedingly cunning birds will dismiss such a suggestion as mere hearsay. Furze fires are no doubt at times responsible for diminution, and I knew of one case where two nests with eggs, and possibly the birds, were destroyed in this way.

It has, I think, been stated by some writers that the Dartford Warbler preferred a sandy soil, and at one time I also held this opinion, but I have since found the bird on heavy clay soils and even comparatively marshy ones.