TERRITORY SIZE OF THE ROCK THRUSH *MONTICOLA SAXATILIS*

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During a study of the breeding bird community of Monte Borgna, started in 1976, I paid particular attention to the Rock Thrush, especially as regards the size of the territory.

Study area, methods and behaviour

The Monte Borgna is situated in Northern Italy, near Lake Maggiore (map I.G.M. F.16 II SO) and the size of the study area examined is approximately 60 ha, in the south west face of the mountain from 800 to 1150 mts above sea level, with a mean slope of 53%.

The habitat is a moor-like landscape with patches of *Calluna vulgaris*, *Pteridium aquilinum*, *Sarothamnus scoparius*, grasses of various species among rocky outcrops and scattered trees, mainly *Betula alba*, stand either single or in small clumps. I tried to measure the area occupied by Rock Thrush pairs as territory (not home range) in the strict sense of the term (the defended area, Odum 1955). I mapped and divided the study area into a number of plots according to the obvious natural characteristics and in 1978 I observed the nesting pairs, mainly the males, from the second half of April till the first of June when the song and territorial defence are here of particular intensity.

The male Rock Thrush is unmistakable with its bright plumage, the white back and rump clearly evident during the display flight, and with its characteristic upright posture on the top of the rocks, where he spends a lot of time singing. The female has a brownish plumage with a reddish tail and is a shy bird.

I noted the activities of the pairs in their territories on a detailed map, then I simple measured the area in which I found the steady presence of the couples, taking into consideration the exact place where I observed the song of the male, interspecific and intraspecific attacks, display flight and

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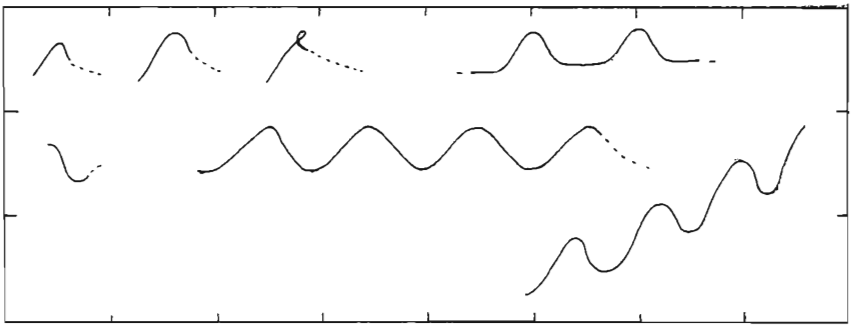
all others activities connected to the nest construction.

In particular the display flight is spectacular and greatly increases the conspicuousness of the bird: it has a basic sinusoid path which may be more or less elaborated according to the lenght of the flight song. I identified two patterns of flight: the first short and simple consisting in the rising and subsequent descent of the bird; the second where the Rock Thrush performed the true sinusoid. In both patterns the ascending flight is flapping and the descending one is generally parachuting.

Figure 1 shows the typical flight paths in relation to the flight lenght.



0 100m FIGURE 1 - Display flight of the Rock Thrush.

Results and discussion

In his fundamental study of the Rock Thrush, Farkas (1955) states the difficulty of estabilishing territory size and gives no measurements. Bianchi *et al.* (1972) give the estimated quantitative status of the Rock Thrush in the various habitats in the province of Varese. Di Carlo (1972) found one male singing every 1000 to 600 m in the National Park of Abruzzo. In France, the presence of one pair every 500-800 or 1000 m was recorded by Yeatman (1976). These data do not measure the real density of the couples per unit area.

The total number of nesting pairs in my study area was probably five, but I was able to measure only three territories, settled in an easily accessible area.

TERRITORY A: 12.7 ha. The largest and the only one partly comprising an area oriented towards N-E, where the nest was situated. I often observed territory defence against a pair of Wheatear (*Oenanthe oenanthe*) nesting nearby. This

territory was spoilt in 1979 by the construction of a shooting range.
TERRITORY B: 10 ha. Naturally delimited by variation of habitat type on the south and west side and only in the remaining side by intraspecific competi - tion. Roughly rectangular in shape, with a N-S orientation, situated in its entirety on the southern slope of the mountain and comprising some buildings at one side.
TERRITORY C: 8 ha. The smallest, comprising a short steep valley oriented in a Ne-SW direction. This pair showed a comparatively high degree of territorial activity by the female (song and intraspecific attacks). Situation on southern face as for territory B.

The resulting mean density is about one pair every 10 ha. This value could surely be increased if we were to take into consideration the other two pairs which occupied a large and irregular rocky area nearby.

Since 1977 to 1979 the population of Rock Thrush was stable, except for the pair occupying territory A in 1979.

Two main factors can affect population stability: the first is the pre - servation of the area by excessive human interference (chiefly recreative); the second, at medium maturity, is the trasformation of the habitat by natural reforestation (plant succession).

Indeed on the upper north slope of the mountain pure stands of Birch (*Betula alba*) are rapidly spreading, with Hazel (*Corylus avellana*) in some places.

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RIASSUNTO

DIMENSIONI DEL TERRITORIO DEL CODIROSSONE *MONTICOLA SAXATILIS*

L'area di studio, sul Monte Borgna presso la sponda Nord-Occidentale del Lago Maggiore, è costituita dal tipico habitat della specie: brughiera con vegetazione bassa, affioramenti rocciosi, alberi sparsi, al di sopra degli 800 metri di quota.

Nell'anno 1978 ho osservato 3 coppie nidificanti di cui ho determinato la ampiezza del territorio (inteso come area difesa secondo la definizione di Odum), trovando valori di 12.7, 10 ed 8 ettari rispettivamente, con una densità media di una coppia ogni 10 ha.

La stabilità della popolazione, osservata negli anni 1977-79, è condizionata da due importanti fattori. Il primo è la difesa dell'ambiente dell'eccessivo disturbo arrecato dalle attività ricreative umane: ad esempio la costru -

zione di un Tiro a Volo nel 1979 ha in parte distrutto l'ambiente del territorio A. Il secondo è rappresentato dalla trasformazione dell'habitat dovuta al rimboschimento naturale per l'espansione della betulla.

RESUME

DIMENSIONS DU TERRITOIRE DU MERLE DE ROCHE *MONTICOLA SAXATILIS*

La zone d'étude (Monte Borgna, Nord Ouest du Lac Maggiore) représente l'habitat typique de l'éspèce: bruyère avec végétation baisse, roches, arbres, au dessus de 800 m.

En 1978 j'ai observé 3 couples nicheurs en mesurant leus territoires (l'aire defensée) qui sont resultés de 12.7,10 et 8 ha. Cette population nicheuse pourra se maintenir si l'habitat sera preservé contre le reboisement de *Betula alba* et contre l'édification.

REFERENCES

BIANCHI, E., MARTIRE, L., BIANCHI, A. 1972. Gli uccelli della provincia di Varese (Lombardia). Riv. ital. Orn. 42: 329-429.

DI CARLO, E. 1972. Gli Uccelli del Parco Nazionale d'Abruzzo. Riv. ital. Orn. 42: 1-160.

FARKAS, T. 1955. Zur Brutbiologie und Ethologie des Steinrotels (*Monticola saxatilis*). Vogelwelt 76: 164-180.

ODUM, E.P., KUENZLER, E.J. 1955. Measurement of territory and home range size in birds. AUK 72: 128-137.

YEATMAN, L.J. 1976. Atlas des Oiseaux nicheurs de France. Société Ornitologique de France, Paris.

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