ISSN 0523 - 7904

BOCAGIANA

Museu Municipal do Funchal (História Natural)

Madeira 29.XI.1994 No. 170

OBSERVATIONS ON THE SIMULTANEOUS BREEDING OF *TYTO ALBA* SCOP. IN NEIGHBOURING NEST-CAVITIES. FIRST DATA FROM THE CANARY ISLANDS

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ABSTRACT: At least three breeding cavities of *Tyto alba* were found to be simultaneously occupied within a radius of 40 m, in old excavations in a cinder cone in the north-western part of Tenerife.

The proximity of the nests (and/or roosting holes) to inhabited houses (range 8-83 m; n= 5), constitutes up to now the most notable example of a connection between the species and Man in Macaronesian archipelagoes. The apparently rich food supply (*Mus* sp. and *Rattus* sp.) perhaps associated with anthropogenic influence, has been considered one of the factors which probably determines the concentration of birds in this zone.

RESUMEN: En las excavaciones presentes en un cono de cinder, en el NO de la isla de Tenerife, al menos tres cavidades nidificatorias de *Tyto alba* fueron ocupadas simultáneamente en un radio inferior a 40 m.

La proximidad de los nidos (y/o dormideros) a las viviendas habitadas (rango 8-83 m; n= 5), constituye hasta la fecha el ejemplo más notable de conexión entre la especie y el hombre en los archipiélagos de la Macaronesia. La aparente riqueza trófica, *Mus* sp. y *Rattus* sp. quizá asociados al influjo antrópico, ha sido considerada como uno de los factores que probablemente determinaron la concentración de aves en la zona.

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The availability of sites for breeding, together with the level of trophic resources, determine the size of territory of *Tyto alba* (MIKKOLA, 1983). In some circumstances, intra-specific competition could have led to a reduced use of the space compared to that usually found (BUNN *et al.*, 1982).

Scattered studies of colonial breeding reveal that different pairs normally defend a radius of only 15-30 ft (5-10 m) around the nest (SMITH *et al.*, 1974). On the other hand, the simultaneous reproduction of apparently different pairs in the same building has suggested the possibility of polygamy (BAUDVIN, 1975), a state which has been confirmed both with birds in an artificial situation (BUNN *et al.*, 1982) and those in a normal environment (SHAWYER, 1987).

The present note attempts to describe an example where it is thought likely that the indirect action of man, the non-availability of other adequate sites for nesting, and the apparent abundance of prey are the factors which favour the establishment of a grouping of *T. alba*.

The area studied was confined to the central part of the Valle del Palmar (Buenavista), in the NW sector of the island of Tenerife (Canarian Archipelago). This valley, relatively broad and deep (the result of erosion), is open to the north coast, and in its centre some volcanic activity has occurred during the last half-million years leading to the formation of cinder cones (ARAÑA y CARRACEDO, 1978).

The original vegetation of this enclave has been virtually eradicated as a consequence of human settlement, the terrain being gradually transformed by housing and by terracing. Furthermore, sizeable excavations have been undertaken in one of the volcanic cones (La Montañeta, 644 m) to obtain pyroclastic material destined mainly for building. Amongst the numerous workings, three are notable for their size and depth.

Between 1988-1991 a total of 17 visits were made to this zone, activities included daytime surveys, to nocturnal observations and listening.

When sampling the excavations at the end of July 1988, three breeding cavities, all occupied at the same time, were verified: two (in the same excavation) only 20 m apart, and the other 75 m from the nearest of these. All three nests-cavities were within a radius of less than 40 m. Different pairings were observed only in the nests which were 75 m apart; between those separated by 20 m a case of polygamy was suspected, this suspicion being supported by the observation of 3 adult birds which homed in on this spot, although no interaction was seen (see also comment in BUNN *et al.*, 1982).

Even though the interiors of the crevices could not be inspected, breeding activity was ascertained by means of the obvious signs in the openings and on the ground below, and furthermore from adult birds carrying prey entering each of the holes.

In 1989 at least two pairs nested in their respective cavities (those 75 m apart), with the reproduction cycle in part coinciding. Below one of the nests, on the

10th February, an embryo - dead for several hours - was collected, with some of the shell still adhering to it. One month later, a minimum of 5 adults hunting from perches were simultaneously observed, concentrated in an area of ca. 500 m^2 in the vicinity of the excavations.

The last visits to the area, made during 1991, resulted in the detection of two more cavities (in another part of the excavations) showing evidence of utilisation, as well as direct proof of the presence of the species in each of the holes already known.

Two other birds of prey, *Asio otus* and *Falco tinnunculus*, also breed in this zone; with regard to the latter, it has been confirmed that a number of pairs nest in crevices close to those of *T. alba*. In other latitudes, where *T. alba* is known to show a certain degree of diurnal activity (BUNN, 1972; DICKSON, 1972; DUNN, 1979, amongst others), *F. tinnunculus* has been regarded as possibly the most pertinacious aggressor towards it (BUNN *et al.*, 1982), with some exceptions (see e. g. FELLOWES, 1967). Nevertheless, on the island of Tenerife, both species frequently co-exist in close proximity, with nest-cavities sometimes only a few centimetres apart, without any direct interaction being detected (SIVERIO y CARRILLO, in press): this fact emphasises even more the marked nocturnal character that is a general feature of the Barn Owl population in this island.

It is considered that the grouping of *T. alba* in excavations of no more than 150 m radius, could be determined by the relative isolation provided by each working, by the non-existence of other suitable breeding sites in the surrounding area, and also by the apparent abundance of prey, *Mus* sp. and *Rattus* sp., the most exploited by the species on Tenerife (MARTÍN *et al.*, 1985). Their apparent proliferation in this zone could be associated with the important anthropogenic influences, since the extremely short distance between the nests (and/or roosting holes) and inhabited houses (range 8-83 m; n= 5), establish the clearest indication to date of a connection between this owl and man in the islands of the Macaronesia. Previously, partial or nearly total independence between them has been directly or indirectly asserted (BANNERMAN, 1963; BANNERMAN & BANNERMAN, 1965, 1968; BUNN *et al.*, 1982; NAUROIS, 1982; MARTÍN, 1987).

ACKNOWLEDGEMENTS

To JOSÉ CARRILLO and GUILLERMO DELGADO for helpful opinions given on a previous version of this note. CLIVE ALLEN kindly translated into English, IB LYNGE assisted with word-processing and MANUEL SIVERIO gave help to me on occasions; acknowledgements go to these also.

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Received 19.01.1993