

**RESPONSE TO CONSPECIFIC PLAYBACK CALLS, DISTRIBUTION AND
HABITAT OF *TYTO ALBA* (AVES: TYTONIDAE) ON LA GOMERA,
CANARY ISLANDS**

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RESUMEN

En este trabajo se describe la aplicación del método del playback para la Lechuza Común (*Tyto alba*) en La Gomera, se discute el resultado alcanzado y se dan a conocer varias detecciones adicionales, permitiendo ofrecer una información preliminar sobre la situación de esta especie en la isla. Los escasos contactos de *T. alba* ($n= 3$; al menos dos territorios) mediante las estaciones con playback ($n= 65$) reflejan el carácter aleatorio a la hora de obtener respuestas asociado a la rarefacción de esta rapaz; aún así, la técnica posibilita oír lechuzas que, debido a su localización, pasarían desapercibidas si no son estimuladas. Hay un total de 14 registros (1993-1999) repartidos de forma desigual por todas las vertientes de la isla, en altitudes comprendidas entre 10 y 900 m (mediana, 95). La mayoría proceden de barrancos profundos (piso basal/termófilos), con cauces anchos y parcialmente antropizados, demostrando todavía más la relegación de la especie. Aunque nuestras observaciones sugieren una cierta expansión a raíz de una colonización relativamente reciente, la accidentada geomorfología insular parece constituir una barrera en este proceso.

Palabras clave: Respuesta al playback, distribución, hábitat, *Tyto alba*, La Gomera, islas Canarias.

ABSTRACT

In this paper the application of conspecific playback calls for the detection of the Barn Owl (*Tyto alba*) on La Gomera is described, and the corresponding results are discussed in addition to presenting several supplementary observations, all of which allow a preliminary analysis of the species status on the island to be made. The very low number of contacts of *T. alba* ($n= 3$; at least two territories) obtained from the playback stations ($n= 65$) reflects the random character of the responses as a result of the rarity of this bird of prey; in spite of this fact, the technique facilitates the audio-detection of barn owls which otherwise, owing to their localization, would pass unnoticed if not stimulated. During the period 1993-1999, a total of 14 registers have been accumulated,

distributed unevenly throughout the whole island at altitudes varying from 10 to 900 m (median 95). The majority were recorded in partially humanized deep wide-bedded ravines of the lower xerophytic and transitional vegetation zones. Although the observations tend to indicate a slight expansion in range as a result of a relatively recent colonization, the steep relief of the island appears to represent an impeding barrier.

Key words : Playback response, distribution, habitat, *Tyto alba*, La Gomera, Canary Islands.

1. INTRODUCTION

With the detection of the Barn Owl (*Tyto alba*) on La Gomera in 1993 (v. SIVERIO [15]), the species presumed absence from the island was refuted. Although the playback technique has hardly been used with this species (v. e.g. ZUBEROGOITIA & CAMPOS [20]), it has been stated that the excellent results obtained appear to be associated with the increased territoriality shown in areas of high population density (SORACE [18]; MORIMANDO *et al.* [13]), and thus, its use in regions where the species is apparently very rare would, *a priori*, seem to be insubstantial. In the present note, the application of the mentioned technique is described for *T. alba* on La Gomera, together with a discussion of the corresponding results. Furthermore, details of additional records are also provided.

2. STUDY AREA

The island of La Gomera (28° 06' N, 17° 12' W; 378.75 km²) possesses a very abrupt relief characterized by deep ravines and a highly precipitous coastline. The zonification of the vegetation commences with xerophytic scrub in the coastal belt and finalizes with dense formations of evergreen forest (laurisilva and tree-heath [“fayal-brezal”]) in the central summit region (max. altitude Garajonay, 1487 m). The majority of these ecosystems have been partially modified due to the implantation of terraced cultivations (coastal and mid-altitudinal zones) and human settlements (especially in valley interiors and the mouth of certain ravines/watercourses [“barrancos”]). The nearest island, Tenerife, is 25 km distant.

3. MATERIAL AND METHODS

During the course of annual visits (one to three from 1985 to 1997), visual and auditive nocturnal explorations were carried out in practically all parts of the island with the aim of detecting *T. alba* or for other purposes. Furthermore, in 1997 (28th June-1st July) and in 1998 (24th-26th April) the playback method was employed (v. GALEOTTI [7]) utilizing a conspecific territorial call, “the screech” (BÜHLER & EPPLE [3]; BUNN *et al.* [2]; etc.), reproduced on a conventional tape-recorder (10W). In both years, playback emissions commenced at dusk (20.30 and 20.00 hr solar time, respectively) in accordance with the initiation of activity on the neighbouring island of Tenerife during June-July (\bar{x} = 20.28 \pm 0.05 SD; n = 16 registers) and April (\bar{x} = 19.57 \pm 0.03; n = 16) (pers. obs.) and finalized at variable times after midnight (max. 03.57-04.12 hr). Sampling periods lasted 15 minutes and were divided into two consecutive intervals consisting of 2.5 minutes of stimulation followed by 5 minutes of silence.

The altitudinal distribution of the sampling stations ranged from 10 to 1050 m (median 175; n = 65). The sites (ravines, cliffs, mountain slopes, etc.) were selected on the basis of the species habitat preferences in the Canary Islands (MARTÍN [10]; DELGADO *et al.* [6]; SIVERIO & CARRILLO [16]), and their precise location (Fig. 1) was determined with the aid of a GPS (“Global Positioning System”) and a UTM projection 1: 25000 scale map. As regards to specific itineraries (e.g. following the course of ravines), the average distance between stations was 922.58 \pm 281.32 m (range 500-1500; n = 31).

The method was complemented by diurnal prospections and interviewing local inhabitants in several areas as well as utilizing information obtained by various naturalists during 1993-1999.

4. RESULTS AND DISCUSSION

From 1985 onwards, all attempts to detect *T. alba* were fruitless until 7th February 1997 when, a bird showing plumage characteristics attributable to *T. a. alba*, was observed near the top of a cliff close to Playa Santiago (Alajeró) in the south of the

island (Fig. 1); however, there are earlier records from the N, W and E (Appendix).

The results of the playback stimulations carried out in 1997 ($n= 50$) and 1998 ($n= 15$), only produced three responses (4.6%) during the first year (Fig. 1): 28-VI, barranco de Santiago (San Sebastián/Alajeró), 30-VI, barranco del Valle (Vallehermoso) and 30-VI, Valle Abajo (Vallehermoso). The last two contacts could well correspond to the same individual (or members of the same pair), judging by the distance (1000 m) and the time elapsed (42 min.) between them. Behavioural responses were not recorded (*v. SORACE [18]*), only territorial calls (once or twice) (*v. BUNN *et al.* [2]*) emitted, at less than 200 m, during the first ($n= 1$) or second ($n= 4$) silence period, though one cannot rule out that they may have passed unnoticed during the stimulation intervals.

Although this data points to at least two breeding territories, the results of both diurnal searches and interviews with local inhabitants turned out to be totally negative at these and other localities.

Territory size in the Barn Owl (*v. MICHELAT & GIRAUDOUX [11]* and cited references) appears to be dependant upon food availability (MIKKOLA [12]; CRAMP [4]) and, although the species is not markedly territorial (SHAWYER [14]; MARTI [9]; TAYLOR [19]; *etc.*), it could occasionally be limited by intraspecific competition (BUNN *et al.* [2]). On the assumption that the pairs are extremely localized on La Gomera, one would expect the birds to hold large territories, a fact which together with their rarity, would account for the very low number of contacts obtained employing conspecific playback calls. Consequently, reply responses will be random and subjected to the presence or absence of the species in the sector where the stimulation is performed, provided that it coincides with a territory. Contrary to what has been confirmed by ZUBEROGOITIA & CAMPOS [20] in the north of the Iberian Peninsula, the results of the present study have not been influenced by the weather conditions. All sampling was carried out under very mild temperatures ($\bar{x}= 19.0 \pm 2.5$ °C; $n= 47$ [April, June & July]) and calm conditions or, at the most, in the presence of a light breeze. Although the way in which the method has been applied does not allow an evaluation of its efficiency to be made (*v. GALEOTTI [7]; ZUBEROGOITIA &*

CAMPOS [20]), it has clearly aided in the detection of barn owls that under normal circumstances (without being stimulated), would otherwise be very difficult to detect due to their reduced vocal activity product of the very low population density (v. BUNN *et al.* [2] for other regions). This assertion does not appear to completely coincide with what has been suggested by SORACE [18].

The only specimens examined from La Gomera originate from barranco de la Villa (June 14th 1997) (P. Romero & V. Quilis, pers. comm.) and La Lomada (June 1999) (J. J. Hervás & J. Abad, pers. comm.), both localities situated in San Sebastián, and are deposited in the Natural History Museum of Tenerife (TFMC VA: 444 [max. age, 2nd calendar year] and 445 [min. age, 4th calendar year]). They correspond to the typical subspecies (Fig. 2) which also inhabits Gran Canaria, Tenerife, El Hierro (MARTÍN [10]; DELGADO *et al.* [6]) and probably La Palma (D. Concepción, pers. comm.). JAUME *et al.* [8] assign the fossil remains found on Gran Canaria (v. ALCOVER & FLORIT [1]) and in the south of La Gomera to *T. (a.) gracilirostris* (actually endemic to Fuerteventura, Lanzarote and adjacent islets). Furthermore, the mentioned authors suggest that after having analysed the fossil and present day distributions of both subspecies, the nominal form has replaced the endemic one on various islands. If our data from La Gomera are indicative of a relatively recent colonization by the present population, this fact naturally presupposes that its establishment and the extinction of *T. (a.) gracilirostris* (JAUME *et al.* [8]) occurred asynchronously.

The altitudinal distribution of all the contacts considered varied from 10 (San Sebastián) to 900 m (La Cerpa) (median 95; $n=14$), the majority having been made in ravines within the lower xerophytic and transitional vegetation zones. In contrast to what has been observed on Tenerife (SIVERIO & CARRILLO [16]; SIVERIO [15]), the bed of these ravines is relatively wide -with cultivations, small human dwellings, palm groves of *Phoenix canariensis*, etc.- and bordered by high rocky margins (e.g. > 300 m in barranco de Santiago). The occupation of this type of ravines could well be limited to the lower parts of the margins where numerous potential breeding cavities are

to be found close to the dry river-bed (pers. obs.), which constitutes the only ideal hunting habitat (Fig. 3), judging by its requirements in other latitudes (SMITH & MARTI [17]; BUNN *et al.* [2]; TAYLOR [19]; etc.). The species presence at 900 m a.s.l. corresponded to a humid area (ravine with tree-heath and cultivations) and may constitute the upper limit to its distribution range, bearing in mind that at higher elevations the laurel forest appears (Garajonay National Park). Here the species is totally absent (pers. obs.), a fact which once again, serves to corroborate the species indifference towards this (SIVERIO [15]) and other types of forest biotopes (CRAMP [4]; MARTI [9]; TAYLOR [19]; etc.).

The scarcity of *T. alba* on La Gomera (perhaps less than 15 pairs) could well be related to the restrictive role exercised by the abrupt orography in the establishment and, perhaps, in the dispersion of individuals, being probable that earlier colonizations (v. JAUME *et al.* [8]) never prospered. On Tenerife, SIVERIO [15] has shown that despite the fact that the species can be considered to be common (min. 161 pairs), it is locally rare in the Teno and Anaga massifs, two areas with geomorphological characteristics that bear a close resemblance to those of La Gomera.

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6. BIBLIOGRAPHY

- [1] ALCOVER, J. A. & X. FLORIT (1989): Els ocells del jaciment arqueològic de La Aldea, Gran Canaria. *Butll. Inst. Cat. Hist. Nat.* 56 (Sec. Geol., 5): 47-55.
- [2] BUNN, D. S., A. S. WARBURTON & R. D. S. WILSON (1982): *The Barn Owl*. T & AD Poyser. Calton.
- [3] BÜHLER, P. & W. EPPLE (1980): Die Lautauferungen der Schleiereule (*Tyto alba*). *J. Orn.* 121: 36-70.
- [4] CRAMP, S. (ed.) (1985): *The Birds of the Western Palearctic*. Vol. IV. Oxford University Press. Oxford.

- [5] DELGADO, G., J. CARRILLO & D. TRUJILLO (1992): Sobre la presencia y distribución de la Lechuza Común (*Tyto alba*) (Scopoli, 1769) en las islas orientales de Archipiélago Canario. *Vieraea* 21: 145-148.
- [6] DELGADO, G., J. CARRILLO, E. HERNÁNDEZ, N. TRUJILLO, F. SANTANA, V. QUILIS, M. NOGALES, O. TRUJILLO & K. EMMERSON (1988): Censo de las Aves Rapaces del Archipiélago Canario. Museo Insular de Ciencias Naturales de Santa Cruz de Tenerife. Informe no publicado.
- [7] GALEOTTI, P. (1991): Tavola rotonda: metodi di censimento per gli strigiformi. *Suppl. Ric. Biol. Selv.* 16: 437-445.
- [8] JAUME, D., M. McMINN & J. A. ALCOVER (1993): Fossil birds from the Bujero del Silo, La Gomera (Canary Islands), with a description of a new species of Quail (Galliformes: Phasianidae). *Bol. Mus. Mun. Funchal*, Sup. No. 2: 147-165.
- [9] MARTI, C. D. (1992): Barn Owl. In *The Birds of North America*, No. 1 (A. Poole, P. Stettenheim & F. Gill, Eds.). The Academy of Natural Sciences, Philadelphia; The American Ornithologists' Union.
- [10] MARTÍN, A. (1987): *Atlas de las aves nidificantes en la isla de Tenerife*. Instituto de Estudios Canarios, Monografía XXXII. Tenerife.
- [11] MICHELAT, D. & P. GIRAUDOUX (1991): Dimension du domaine vital de la Chouette effraie *Tyto alba* pendant la nidification. *Alauda* 59 (3): 137-142.
- [12] MIKKOLA, H. (1983): *Owls of Europe*. T & A D Poyser. Calton.
- [13] MORIMANDO, F., F. PEZZO & A. DRAGHI (1995): Il censimento degli Strigiformi nella città di Siena: dati preliminari. *Avocetta* 19: 117.
- [14] SHAWYER, C. R. (1987): *The Barn Owl In The British Isles: Its Past, Present and Future*. The Hawk Trust. London.
- [15] SIVERIO, F. (1998): Distribución y estatus de *Tyto alba* (Scopoli, 1769) en Tenerife, islas Canarias (Aves, Tytonidae). *Vieraea* 26 (1997): 121-131.
- [16] SIVERIO, F. & J. CARRILLO (1993): Hábitat y reproducción de la Lechuza Común (*Tyto alba*) en Tenerife (Islas Canarias). Contribución a su estudio. *Alytes* 6: 231-240.
- [17] SMITH, D. G. & C. D. MARTI (1976): Distributional status and ecology of Barn Owls in Utah. *Raptor Research* 10 (2): 33-44.
- [18] SORACE, A. (1987): Note sul canto territoriale del Barbagianni, *Tyto alba*. *Riv. ital. Orn.* 57 (1-2): 144-145.

- [19] TAYLOR, I. (1994): *Barn Owls: predator-prey relationships and conservation*. Cambridge University Press. Cambridge.
- [20] ZUBEROGOITIA, I. & L. F. CAMPOS (1998): Censusing owls in large areas: a comparison between methods. *Ardeola* 45 (1): 47-53.

Appendix

Localities, UTM coordinates (1 x 1 km) and dates of supplementary detections of the Barn Owl (*Tyto alba*) on the island of La Gomera. All records refer to individual birds observed or heard fortuitously.

<i>Locality</i>	<i>UTM</i>	<i>Month/year</i>	<i>Source</i>
Barranco de Monteforte (Hermigua)	BS8517	3/1993	Sivcrio, 1998; E. Hernández & G. Delgado, <i>in litt.</i>
Vueltas (Valle Gran Rey)	BS7008	8/1993	P. Romero, pers. comm.
Public square of San Sebastián	BS9208	1995	A. Valido, pers. comm.
Barranco de las Rosas (Agulo)	BS8219	1/1996	J.G. Hernández, pers. comm.
San Sebastián	BS9208	4/1996	A. García, pers. comm.
Barranco de la Villa (S. Sebastián)	BS9109	5/1996	A. Valido, pers. comm.
La Cerpa (Agulo)	BS8117	5/1998	J.G. Hernández, pers. comm.
La Playa Calera (Valle Gran Rey)	BS6910	10/1999	J.C. Illera, pers. comm.

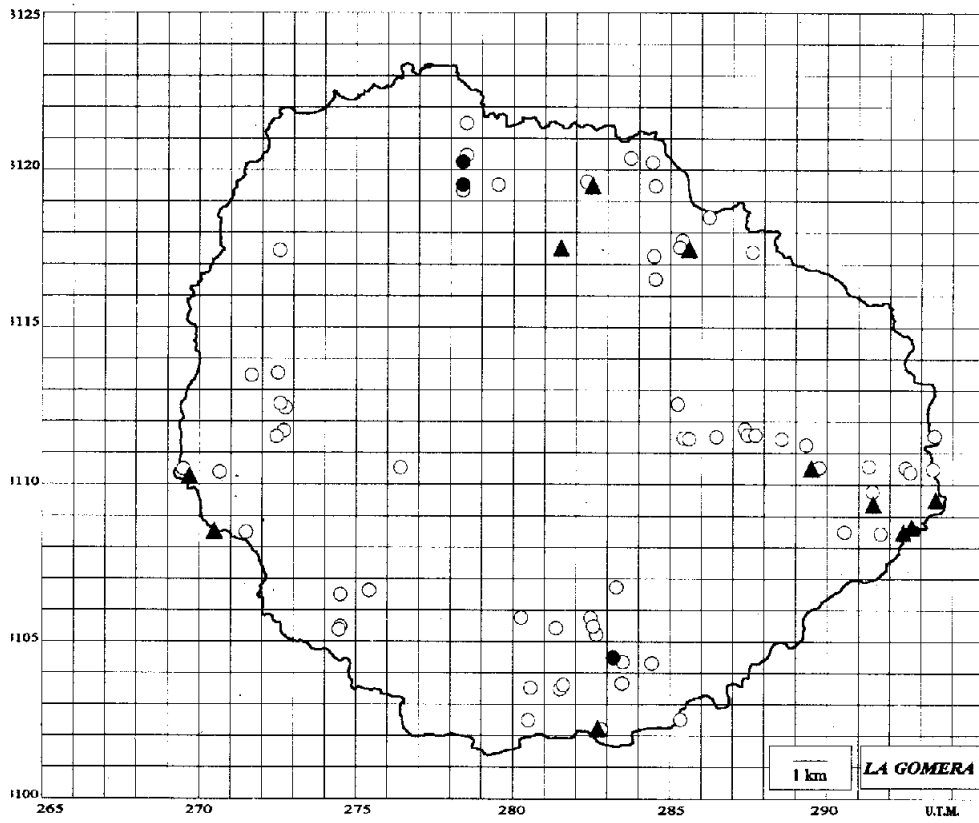


Figure 1. Geographical distribution of the playback stations used for the detection of the Barn Owl (*Tyto alba*) during 1997-1998 (O= no response; ●= positive response) and supplementary registers of the species made between 1993-1999 (▲) on the island of La Gomera.



Figure 2. Variation in the degree of underbody coloration and flecking in the specimens of the Barn Owl (*Tyto alba*) from La Gomera (marked with G), El Hierro and Tenerife deposited in TFMC (Photo: S. Socorro).



Figure 3. View of barranco de Santiago (San Sebastián/Alajeró). In the deep ravines where the Barn Owl (*Tyto alba*) has been detected on La Gomera, the lower parts of the margins and the broad bed of the dry watercourses constitute the species most suitable breeding and hunting habitats (Photo: M. Siverio).