

Analysis of some calls of a Galapagos mockingbird (*Nesomimus parvulus*)

R.

L. FUSANI¹, L. BEANI¹, L. CURRY² and F. DESSI-FULGHERI^{1,3}

¹ Dipartimento di Biologia Animale e Genetica, Università di Firenze, Via Romana 17, 50125 Firenze, Italy

² Department of Biology, Villanova University, 800 Lancaster Avenue, Villanova, Pennsylvania 19085-1699, USA

³ Centro di Studio per la Faunistica ed Ecologia Tropicali del CNR, Via Romana 17, 50125 Firenze, Italy

The four species of *Nesomimus*, an endemic genus of the Galapagos Islands, closely allied to Mimidae of mainland America and the Caribbean, differ in plumage and morphology, in some foraging techniques and other behavioural displays, including — according to some preliminary reports — songs and calls. A common trait is a high degree of gregariousness. They spend all year in groups of different size (2-24 individuals in *Nesomimus parvulus* of Genovesa Isle, one of the better known populations). These perennial groups occupy collective multi-purpose territories, actively defended by flock members against conspecific intruders. The social organization of the Galapagos mockingbirds is unusual in that a gregarious group may include 1-3 breeding pairs inside its territory, and some helpers at the nests (plural and cooperative breeding).

The richness of the vocal repertoire of Galapagos mockingbirds reflects the complexity of their social organization. This preliminary spectrographic analysis was focused on calls, which are rather stereotyped, structurally simple, and perhaps characterized by a higher phylogenetic inertia than male songs. Recordings, mainly from the Genovesa population of *Nesomimus parvulus*, were collected by means of a Sony TCS-300 tape recorder and a Realistic (Radio Shack) microphone. Analysis was carried out on a digital sonograph developed in the Apple Macintosh environment.

We classified calls in relation to some non-ambiguous contexts (social interactions, territorial defence, vigilance against predators and so on). The commonest vocalizations belonged to four main categories.

(1) *Begging calls*: a strident harmonically-structured note, used by juveniles approaching an adult to obtain food, and by low-ranking adults, adopting a subordinate posture, in cooperative-breeding social groups.

(2) *Scold calls*: a series of harsh elements (a wide spread of frequencies combined with harmonic streaks), uttered to drive competitors out of a resource.

(3) *Territorial calls*: sequences of brief coupled notes (onomatopoeic transcriptions: "chirr-up", "chup-chup"), emitted at the boundary of the collective territory or, during the breeding season, close to the nesting site.

(4) *Alarm calls for aerial predators*: "scream jay" call towards a perched owl (*Asio flammeus*), and "choilp" call, when the owl is flying.

From our limited sample of recordings, begging and scold calls of *N. parvulus* were qualitatively compared with calls uttered, in the same context, by *N. macdonaldi* (Española Isle), *N. melanotis* (S. Cristobal Isle) and *N. trifasciatus* (Champion Isle). The repertoire of the last species was the most dissimilar mainly for the begging call, a whistled and downward-inflected note (CURRY 1988) according to an observation of CHARLES DARWIN about the morphologically distinctive characters of *N. trifasciatus* in "A naturalist's voyage round the World" (1860). If and to which extent the vocal repertoire may reflect speciation is the question we are trying to address.