

fueron estimadas en 10 a 15 m y estuvieron en general a mayor altura que las secundarias. La distancia promedio entre las perchas principales de seis machos en Sierra de San Javier fue de 133 m (ámbito: 33.5 - 300 m).

Cotejando los datos de *K. cabanisi* con los reportados por Straneck y Carrizo (1983) para *K. aterrimus* podemos distinguir diferencias interesantes en el despliegue territorial. La duración del vuelo de *K. aterrimus* es notablemente menor al de *K. cabanisi* (0.65 a 0.80 seg. versus 2.26 a 3.90 seg.) y la altura máxima alcanzada es para la primera de 0.6 - 1.5 m y para la segunda de 2 - 7 m. El ámbito de permanencia en la percha es para *K. aterrimus* de 9 a 28 seg y en *K. cabanisi* de 11.04 a 96.11 seg, lo que indicaría entonces una mayor frecuencia de vuelos para la primera especie. Las diferencias en distancia y duración del vuelo estarían relacionadas a los requerimientos del macho de *K. cabanisi* de ser visto a la máxima distancia posible, en un ambiente de relieve muy quebrado, con el caso de los bosques de montaña. Es decir que esta especie tendría que sortear obstáculos a la visibilidad sin contar con la contrastante mancha alar blanca de *K. aterrimus*, la cual constituye un fuerte accesorio visual durante el despliegue. Con respecto a los sonidos emitidos es necesario efectuar grabaciones y elaborar sonogramas de *K. cabanisi*, para comparar adecuadamente el despliegue territorial entre ambas especies. Sin embargo podemos distinguir tres diferencias importantes en sonidos emitidos; en primer lugar no se detectó el corto sonido vocal "ziip" que *K. aterrimus* repite una o tres veces antes de iniciar el vuelo, aunque *K. cabanisi* efectúa un sonido semejante en forma esporádica, al regresar a la percha. En segundo lugar en *K. aterrimus* no se registró la vibración similar a un "prrrr" que produce *K. cabanisi* en la última parte del ascenso (fase 2). Este aleteo de la fase 2 de *K. cabanisi* constituye un elemento común en los despliegues de los miembros de la familia Tyrannidae (Traylor y Fitzpatrick 1982) y en este caso estaría jugando un rol complementario en un

despliegue básicamente visual. Por último existen diferencias entre los sonidos emitidos al final del ascenso por ambas especies: *K. aterrimus* emite un doble sonido "toc-tec", seguido de un corto trino, mientras que *K. cabanisi* produce sólo un "tec", acompañado por una apertura completa de alas y caudales. En base a esta comparación preliminar podemos distinguir dos estrategias de despliegue territorial entre ambas especies, dentro del énfasis puesto en lo visual más que en el auditivo: *K. aterrimus* maximizaría el efecto visual del despliegue mediante la repetición de los vuelos y no en la duración de éstos, utilizando como refuerzo visual la mancha alar blanca y *K. cabanisi* maximizaría el efecto visual del despliegue con vuelos largos y utilizando como complemento el incremento del movimiento de las alas en el último tramo ascendente. La reducción en la frecuencia de los vuelos por parte de *K. cabanisi* podría ser consecuencia del mayor gasto energético que implicaría un vuelo más largo.

AGRADECIMIENTOS

A R. Straneck por la grabación suministrada del despliegue de *K. aterrimus* y por los comentarios realizados sobre un manuscrito preliminar. A R. Fraga y P. Tubaro por la revisión de esta nota.

BIBLIOGRAFIA CITADA

- Fjeldsa, J. y N. Krabbe. 1990. Birds of the High Andes. Zoological Museum, University of Copenhagen y Apollo Books, Svendborg, Denmark.
- Olrog, C.C. 1963. Lista y distribución de las aves argentinas. Opera Lilloana 9 Fundación Miguel Lillo, Tucumán.
- Straneck, R.J. y G.R. Carrizo. 1983. El despliegue de proclamación teritorial de "*Knipolegus aterrimus* Kaup e *Hymenops perspicillata* (Gmelin)". Comunicaciones Mus. Arg. de Ciencias Naturales B. Rivadavia. Serie Ecología, 1(5): 51-60.
- Traylor, M.A. y J.W. Fitzpatrick. 1982. A survey of the tyrant flycatchers. Living Bird. Nineteenth Annual, 1980-81. Cornell Lab. of Ornithology.

A CASE OF VOCAL MIMICRY IN THE RUFOUS-COLLARED SPARROW¹

PABLO L. TUBARO² AND ENRIQUE T. SEGURA²

Although many bird species learn their songs, vocal mimicry (i.e., the copy of the calls or songs of other species) is a relatively uncommon phenomenon (Dobkin 1979, Baylis 1982). This is particularly true for species with simple songs and small song repertoires where the existence of an "innate audi-

tory template" and/or the social bond between the student and the teacher guarantees the copy of conspecific models (Kroodsma 1982). Nevertheless, some of them can occasionally acquire allospecific songs in the wild or when raised in special laboratory conditions. For example, the White-crowned Sparrow (*Zonotrichia leucophrys*) can learn the songs of the Strawberry finch (*Amandaya amandava*) (Baptista and Petrinovich 1984), the Mexican Junco (*Junco phaeotus*) (Petrinovich 1985), the Dark-eyed Junco (*Junco hyemalis*), and

1. Aceptada para su publicación el 4 mar 1992.

2. Laboratorio de Fisiología del Comportamiento, Instituto de Biología y Medicina Experimental. Obligado 2490, 1428 Buenos Aires.

the Song sparrow (*Melospizamelodia*) (Baptista and Petrinovich 1986) when raised in an aviary together with individuals of these species, or when exposed to a large number of recorded songs.

A close related species, the Rufous-collared Sparrow (*Zonotrichia capensis*), has a simple song composed by two parts: an introduction and a final portion referred to as "theme" and "trill", respectively (Nottebohm 1968). The theme is usually composed of 2 to 5 whistled ascending or descending notes (Handford and Loughheed 1991). According to the number, shape and ordering of the notes, it is possible to distinguish different themes. Within an area, each male sings an individual theme (rarely two), although some themes are shared by several neighboring individuals. On the other hand, trill interval (duration time between consecutive notes in the trill) is relatively constant within an area, but it changes among life zones, thus giving rise to regional dialects (Nottebohm 1969, 1975, Handford and Nottebohm 1976, Handford 1981, 1988).

Preliminary studies in the Rufous-collared Sparrow have shown that its song is acquired (probably early in life) by copying adult song models (Egli 1971, Tubaro et al. in prep.). However, there are still not evidences on the acquisition of allospecific song models by laboratory raised or wild individuals of this species. This is the reason why we consider of interest to describe a putative case of mimicry of the Masked Gnatcatcher (*Poliophtila dumicola*) "tui" call by a wild Rufous-collared Sparrow.

On 26 October 1991, we tape-recorded (using a UHER 4000 Report-L and a directional LEEA Lec-970 microphone) atypical songs of an adult Rufous-collared Sparrow, at Estancia El Destino, Partido of Magdalena, Buenos Aires Province. These songs were atypical in that their theme resembled the tui call of a nearby singing Masked Gnatcatcher. Sonograms of these recordings (using a Kay Electric Sonagraph 7029-A, set for wide band filters and the 80-8000 Hz frequency range) confirmed the similarity of these vocalizations (see Figure 1). In particular, the Rufous-collared Sparrow sang a hybrid song with allospecific notes conforming the first three elements of its four-note theme. The last descending note of the theme and the trilled part of these songs were typical from the dialect sung in that area.

Even though vocal mimicry is usually inferred on the basis of song similarity between sympatric species, this criterion is not conclusive because in species with large repertoires, chance alone could account for the resemblances (Baylis 1982). In addition, when we find song similarities between species which both learn their songs, a question that remains unanswered is which one is the mimic and which is the model. These points are of special relevance for the example of mimicry presented in this study, because the Masked Gnatcatcher has a large song repertoire and song mimetic abilities (Tubaro pers. obs.). However, we think that it is possible to exclude chance resemblance and conclude that the Rufous-collared Sparrow is the mimic, because the tui call is

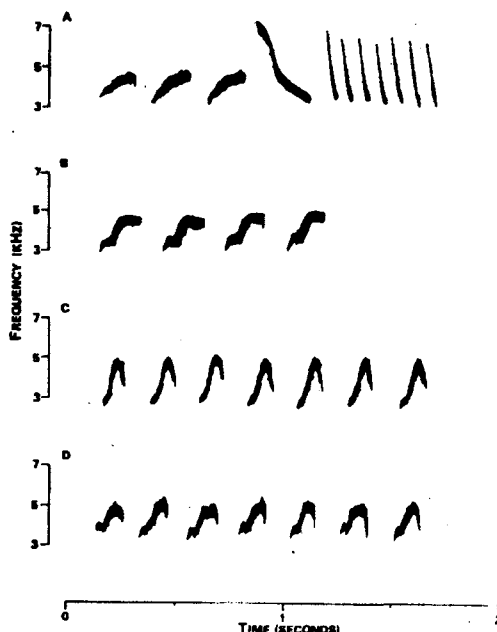


Figure 1.

rarely included in the song of this species, but it is a very common element of the Masked Gnatcatcher's vocal repertoire. In fact, all Masked Gnatcatcher males recorded in Buenos Aires Province have similar versions of this call, included those living more than a hundred kilometers from where we recorded the atypical Rufous-collared theme (see Figure 1). On the other hand, only one out of 198 adult Rufous-collared Sparrows recorded at Magdalena during 1991 had this "Gnatcatcher" theme, and only nine other cases were heard in this area from 1984 to 1990 (where we recorded about 646 individuals).

The possible existence of mimetic songs in the Rufous-collared Sparrow is interesting because it could be a mechanism whereby new song traditions are introduced into the population. According to this view, several authors have suggested that the learning of allospecific sounds could contribute to dialect formation, and pointed out the similarity between some Rufous-collared Sparrow dialects and the song of several sympatric species (Handford and Nottebohm 1976, Handford 1981, 1988, Nottebohm 1985, Handford and Loughheed 1991).

In summary, we present evidence of a putative case of vocal mimicry by a Rufous-collared Sparrow who incorporated into its song theme the tui call of a neighboring masked Gnatcatcher.

This work was supported by the Consejo Nacional de Investigaciones Científicas y Técnicas, and the University of Buenos Aires, Argentina. We wish to express our acknowledge to F. Gabelli and A. Lemoine, for their comments. The E.S. de Pearson Foundation allowed access to areas where most of the field work was conducted.

LITERATURE CITED

- Baylis, J.R. 1982. Avian vocal mimicry: Its function and evolution. p. 51-83. In D.E. Kroodsma, E.H. Miller and H. Ouellet (eds.), *Acoustic communication in birds*. Vol. 2. Academic Press, New York.
- Baptista, L.F., and L. Petrinovich. 1984. Social interaction, sensitive phases and the song template hypothesis in the White-crowned Sparrow. *Anim. Behav.* 32:172-181.
- 1986. Song development in the White-crowned Sparrow: Social factors and sex differences. *Anim. Behav.* 34:1359-1371.
- Dobkin, D.S. 1979. Functional and evolutionary relationships of vocal copying phenomena in birds. *Z. Tierpsychol.* 50:348-363.
- Egli, W. 1971. Investigaciones sobre el canto de *Zonotrichia capensis chilensis* (Meyen) (Aves, Passeriformes). *Bol. Mus. Nac. Hist. Nat. Chile* 32:173-190.
- Handford, P. 1981. Vegetational correlates of variation in the song of *Zonotrichia capensis*, in northwestern Argentina. *Behav. Ecol. Sociobiol.* 8:203-206.
- 1988. Trill rate dialects in the Rufous-collared Sparrow, *Zonotrichia capensis*, in northwestern Argentina. *Can. J. Zool.* 66:2658-2670.
- and S.C. Loughheed. 1991. Variation in duration and frequency characters in the song of the Rufous-collared Sparrow, *Zonotrichia capensis*, with respect to habitat, trill dialects and body size. *Condor* 93:644-658.
- and F. Nottebohm. 1976. Allozymic and morphological variation in population samples of Rufous-collared Sparrow, *Zonotrichia capensis*, in relation to vocal dialects. *Evolution* 30:802-817.
- Kroodsma, D.E. 1982. Learning and the ontogeny of sound signals in birds, p. 1-23. In: D.E. Kroodsma, E.H. Miller and H. Ouellet (eds.), *Acoustic communication in birds*. Vol. 2. Academic Press, New York.
- Nottebohm, F. 1969. The song of the chingolo, *Zonotrichia capensis*, in Argentina: Description and evaluation of a system of dialects. *Condor* 71:299-315.
- 1975. Continental patterns of song variability in *Zonotrichia capensis*: Some possible ecological correlates. *Am. Nat.* 109:605-624.
- Petrinovich, L. 1985. Factors influencing song development in the White-crowned Sparrow (*Zonotrichia leucophrys*). *J. Comp. Psychol.* 99:15-29.

INTRASPECIFIC KLEPTOPARASITISM IN THE GREAT KISKADEE (*PITANGUS SULPHURATUS*)¹

FLOYD E. HAYES²

RESUMEN. Cleptoparasitismo intraespecífico en el Benteveo Común (*Pitangus sulphuratus*). Se presentan datos sobre observaciones de Benteveos Comunes robándose alimentos. Este es el primer registro de este comportamiento para aves de la familia Tyrannidae.

Kleptoparasitic behavior, defined as the interspecific and intraspecific stealing of already procured food, is exhibited by many families and species of birds (see review by Brockmann and Barnard 1979), but apparently has not been reported for birds of the family Tyrannidae. This note describes an observation of intraspecific kleptoparasitism in the Great Kiskadee (*Pitangus sulphuratus*), a large, ubiquitous Neotropical flycatcher.

At 13:40 on 9 January 1988, I observed (from 15-20 m) a group of six Great Kiskadees chasing each other about several bushes beside the shore of a small pond at Guarambaré, Departamento Central, Paraguay. On several occasions I clearly saw (through

7x35 binoculars) a large (ca. 2x4 cm), green orthopteran insect conspicuously gripped in the bill of a bird. The bird usually bashed the insect several times against the limb it was perched on, and then would fly off when one or more kiskadees mobbed it. The bird being pursued (host) would usually fly directly into the brush, disappear from view, and eventually it or another bird would emerge at the edge of a bush with the insect in its bill. On two occasions I saw the insect drop from the bill of one bird and be immediately picked up from the ground by another bird. This chasing behavior ensued for about 7 min, during which time the insect was exchanged several times between birds, until none of the birds possessed the insect; it was apparently consumed. During this period I never saw actual contact between the birds. Rather, it appeared that the mobbing birds pursued their intended victim until they were outmaneuvered in the brush or until the host relinquished the insect. A single Tropical Kingbird (*Tyrannus melancholicus*) was in the same bushes during part of this episode, but I never saw it chase any of the kiskadees.

Great Kiskadees are most common in open country, where they usually occur in pairs; they appear to be most common near water, where they often capture invertebrates and small vertebrates at or near the surface. Although I have watched the foraging activities of kiskadees and other open country flycatchers on many occasions, I have never observed another incidence of food piracy. Other species of

1. Aceptada para su publicación el 1^o de mayo 1991.

2. Museo Nacional de Historia Natural del Paraguay, Sucursal 19, Ciudad Universitaria, San Lorenzo, Paraguay. Present address: Department of Natural Sciences, Section of Biology, Loma Linda University, Loma Linda, California 92350, USA.