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Photo: Amiel Hopkins

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Cover Page: Hispaniolan Lizard-Cuckoo (*Coccyzus longirostris*) at Punta Cana Ecological Foundation, La Altagracia, Dominican Republic, on 11 January 2024. Photograph by Amiel Hopkins.

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Abstract

Coccyzus longirostris (the Hispaniolan Lizard-Cuckoo) and *C. minor* (the Mangrove Cuckoo) coexist in various habitats on Hispaniola. Little is known about how, or even whether, the two species interact there. This study used acoustical playback experiments and observations to investigate the aggressive behavior of these two cuckoo species in Punta Cana, Dominican Republic to test the hypotheses that (1) both species are territorial and hence respond aggressively to conspecific playback, (2) the species compete and therefore respond to heterospecific playback, and (3) the response to playback is correlated to genetic relatedness by comparing the response of *C. longirostris* and *C. minor* to the playback of allopatric lizard-cuckoos from the other Greater Antillean islands. Both species responded to conspecific playback, in a manner consistent with territoriality, with *C. longirostris* showing a consistently stronger response than *C. minor*. Both species responded similarly to playback of the other sympatric species, showing evidence of some interspecific aggression. We also found support for hypothesis 3 in that *C. minor* barely responded to playback of the allopatric lizard-cuckoos, while *C. longirostris* responded quite strongly to playback of the lizard-cuckoos from other islands supporting the hypothesis that, in this species group also, response to playback is correlated to genetic distance.

Keywords

Coccyzus longirostris, *Coccyzus minor*, Dominican Republic, interspecific aggression, playback experiments, *Saurothera*, song, territoriality

Resumen

Comportamiento agonístico intra e interespecífico de dos cuculiformes simpátricos de La Española • *Coccyzus longirostris* y *C. minor* coexisten en varios hábitats en La Española. Se sabe poco sobre cómo, interactúan las dos especies allí, o incluso si lo hacen. Este estudio utilizó observaciones y experimentos de repetición de sonidos para investigar el comportamiento agresivo de estas dos especies de cuculiformes en Punta Cana, República Dominicana, con el fin de probar las siguientes hipótesis: 1) ambas especies son territoriales y, por lo tanto, responden agresivamente a la reproducción de llamadas de su misma especie; 2) las especies compiten y, por lo tanto, responden a la reproducción de llamadas heteroespecíficas; y 3) la reacción a la repetición de sonidos está correlacionada con la relación genética al comparar las respuestas de *C. longirostris* y *C. minor* a la reproducción de llamadas de cuculiformes de otras islas de las Antillas Mayores. Ambas especies respondieron a la reproducción de llamadas de su misma especie de manera consistente con la territorialidad, siendo *C. longirostris* el que mostró una respuesta consistentemente más fuerte. También ambas especies respondieron de manera similar a la reproducción de llamadas de otras especies simpátricas y, por lo tanto, ambas muestran cierta agresión interespecífica. Además, encontramos apoyo para la hipótesis 3 en la que *C. minor* apenas respondió a la reproducción de llamadas alopatricas de *Coccyzus*, mientras que *C. longirostris* respondió con bastante fuerza a la reproducción de llamadas de especies de *Coccyzus* de otras islas. Esto apoya la hipótesis de que, también en este grupo de especies, la respuesta a llamadas repetidas está correlacionada con la distancia genética.

Palabras clave

agresión interespecífica, canto, *Coccyzus longirostris*, *Coccyzus minor*, experimentos de repetición de llamadas, República Dominicana, *Saurothera*, territorialidad

Résumé

Comportement agonistique intra et interspécifique de deux espèces du genre *Coccyzus* sympatriques d'Hispaniola • *Coccyzus longirostris* (le Tacco d'Hispaniola) et *C. minor* (le Coulicou manioc) coexistent dans divers habitats sur l'île d'Hispaniola. Peu de choses sont connues sur la façon dont les deux espèces interagissent, voire si elles interagissent. La présente étude a utilisé des expériences de repasse acoustique et des observations pour analyser la répartition écologique et le comportement territorial de ces deux espèces du genre *Coccyzus* à Punta Cana, en République dominicaine, afin de tester les hypothèses suivantes : 1) les deux espèces sont territoriales et réagissent donc de manière agressive à la repasse conspécifique ; 2) les deux espèces sont en compétition et réagissent donc à la repasse hétérospécifique ; et 3) la réaction à la repasse est corrélée à la parenté génétique, ce que montre la comparaison des réactions du *C. longirostris* et du *C. minor* à la repasse d'espèces allopatriques du genre *Coccyzus* vivant sur d'autres îles des Grandes Antilles. Les deux espèces ont réagi à l'écoute de leurs congénères, d'une manière compatible avec la territorialité, *C. longirostris* montrant une réaction systématiquement plus forte que celle du *C. minor*. Les deux espèces ont réagi de la même manière à la repasse de l'autre espèce sympatrique et ont donc montré une certaine agressivité interspécifique. Nous avons également pu vérifier l'hypothèse 3, *C. minor* ayant réagi légèrement et *C. longirostris* assez fortement à la repasse d'espèces du genre *Coccyzus* d'autres îles, ce qui confirme l'hypothèse que, dans ce groupe d'espèces également, la réponse à la repasse est corrélée à la distance génétique.

Mots clés

agressivité interspécifique, chant, *Coccyzus longirostris*, *Coccyzus minor*, expériences de repasse, République dominicaine, *Saurothera*, territorialité

Despite the pressing need for concentrated conservation efforts in the tropics, many species endemic to tropical regions have been scarcely studied. A better understanding of their basic ecology and behavior would facilitate the development of conservation strategies. Among the many bird species of the island of Hispaniola, two cuckoo species coexist in lowland Hispaniola: the endemic *Coccyzus longirostris* (the Hispaniolan Lizard-Cuckoo) and the more widespread *C. minor* (the Mangrove Cuckoo). In Punta Cana, Dominican Republic, they both occupy tropical lowland forests and scrub and can often be observed at the same location. *C. minor* is found throughout the Caribbean, Central America, and in southern Florida and has been more comprehensively studied, whereas *C. longirostris* is limited to Hispaniola and is poorly known. Their diets overlap to a certain degree, both consuming large insects, whereas *C. minor* also frequently eats holometabolous insect larvae including ichneumonid wasps and lepidopterans, and *C. longirostris* consumes lizards (Hughes 2020, Payne 2020).

In order to determine if point counts underestimated the abundance of elusive forest birds in Florida, Frieze *et al.* (2012) studied the response of *C. minor* to conspecific playback in May and June, the putative peak of their breeding season. The cuckoos responded to 20.9% of the playbacks, suggesting that they are territorial during that time when they are probably breeding. Using radio-tagged *C. minor* in Florida, Lloyd (2017) studied their home range size. His work suggested that the birds used large home ranges (median 42 ha) and were very mobile. We are unaware of other studies of territorial behavior in either *C. minor* or *C. longirostris*.

The breeding season of *C. longirostris* is generally from March to June and that of *C. minor* runs from February to June, although a pair of the latter was observed copulating in December 1997, suggesting they might start earlier (Latta *et al.* 2006, Payne 2020). The purpose of our study in January 2023 was to test the hypotheses that (1) both species are territorial and hence respond to conspecific playback, (2) the two species respond to heterospecific playback and therefore compete and (3) the response to playback is correlated with genetic distance as doc-

umented in other groups (De Kort and Ten Cate 2001, Sosa-Lopez *et al.* 2016, Freeman and Montgomery 2017). The testing of this latter hypothesis takes advantage of the fact that, although both of these Hispaniolan cuckoo species are currently placed in the genus *Coccyzus*, *C. longirostris* was previously placed in the genus *Saurothera* along with three other lizard-cuckoos also endemic to the Greater Antilles, and to which they are more closely related than they are to the *C. minor* (Hughes 2006, Payne 2020). We tested hypothesis 3 by comparing the responses of *C. longirostris* and of *C. minor* to playback of the other lizard-cuckoos (formerly *Saurothera*) from the other Greater Antillean islands. The hypothesis would be supported if the more closely related *C. longirostris* responded more strongly than the more distantly related *C. minor* to playback of the allopatric lizard-cuckoos.

Methods

Study Site

We studied the cuckoos in January 2023 in an area of roughly 3.2 km² in Punta Cana, La Altagracia Province, Dominican Republic (18°32'N, 68°24'W). The study area, on the grounds of Punta Cana Resort and Club, was located south of Punta Cana Village, and between Avenida Ted Kheel and the beach. It was predominantly covered with dry scrub forest or degraded dry scrub forest with some ornamental plants (Lee *et al.* 2021) and was affected by various levels of human disturbance, including some areas that were recently developed or actively being developed. Nevertheless, it also contained sufficient large areas of forest or regrowing vegetation that were accessible by trails and rugged roads and were suitable for the study.

Playback Procedure

During 12–21 January 2023, we conducted playback experiments throughout the day testing for the response of the two resident cuckoo species. We broadcast playback from various handheld speakers and cellphones (JBL Clip 3 [Harman International Industries, Los Angeles, CA, USA], iPhone 12, iPhone 11, iPhone SE, iPhone XR [Apple, Cupertino, CA, USA]). We played the recordings at approximately equal volumes to each other.

We estimated this as full volume when playing from a cell phone and 75% volume when playing from a speaker. To the human ear, these volumes sounded similar to natural vocalizations.

We used the following unchanged high-quality audio recordings of the five different cuckoo species provided by Jay McGowan from the Macaulay Library, Cornell Lab of Ornithology and also available in the online database. The spectrograms of these recordings are shown in Fig. 1. Note that although *C. minor* calls used were not recorded on Hispaniola, their vocalizations are similar throughout their range (Hughes 2020).

Before conducting our playback experiments, we searched suitable habitats within our study site for either cuckoo species. Once we located an individual cuckoo, we silently observed the bird for 3 min to study its behavior. We recorded whether it was foraging, preening, calling, or tending to young to evaluate if and how playback influenced its behavior. During the first few days, all authors studied the cuckoos together as a group to define how to describe their behavior and to determine the appropriate study protocol. After that, individual team members performed 10-min playback trials by themselves. Twice a day, we discussed our observations and, if needed, adjusted descriptions of the behaviors. The playback experiment consisted of a 3-min silent observation period, the playing of a sound recording of the target species for 30 ± 5 s, observing the bird for 1 min, playing another recording of the target species for 30 ± 5 s, and a final 5 min of silent observation.

We played recordings of a different focal species during every day of the study, except for *C. longirostris* playback which we played two days in a row. We began with playback of the native cuckoo songs followed by three days during which we played recordings of the allopatric lizard-cuckoos, one species per day. On the final day of the study, we used playback of the species for which we had the smallest sample sizes.

During the entire experiment, we took careful notes of a bird's behavior to assess their response to playback. We recorded the start time, coordinates, weather conditions, subject species, broadcasted species, cuckoo response time, type of response (as described below), and closest approach distance.

Description of response to playback and scoring

Following Payne (2020), we grouped the vocalizations of both species into three onomatopoeic categories: "tchk", "tick cwuh-h-h" (further called "tik-purr"), and "rattling grating call or song" (further called "rattles"). For each bird to which we broadcast playback, we categorized their responses on a scale of 0–2. Based on the associated behaviors we interpreted tchks to be a non-aggressive vocalization because the behavior of the bird did not change nor did they approach the playback, tik-purrs to be aggressive alarm-type vocalizations because the birds approached the playback, and long rattles in response to playback as aggressive because the birds were agitated, rapidly approached the playback and often performed low and rapid flyovers. A nonresponse (score 0) represented no detectable change in behavior following playback as compared to the pre-playback observation period. A mild or weak response (score 1) was a mild change in behavior. For example, if a bird was preening, and stopped to look around and gave a tchk vocalization within 3 min of the playback, this was considered a

mild response. Finally, we considered a strong response (score 2) to be any significant change in behavior to the playback. We considered the following behaviors to qualify as a strong response: one or more long rattles within 3 min of the playback or any approach to within 10 m of the speaker. If there was a change in behavior, but it did not match the criteria for a strong response listed above, the response was determined to be mild (score 1).

We often recorded responses from two birds within the same playback trial. In some cases, the two birds arrived together from the same direction and did not interact with one another. We considered these birds to be a pair and treated them as a single response. If, for example, one bird in a pair called in response to playback, while the other approached the playback source, we considered the pair to exhibit a strong response to the playback. In other cases, two separate individuals responded to the playback arriving from different sides of a path. We recorded such instances as two separate responses and as a result, we report more responses to playback than playback trials.

We compared response frequency and intensity data using Pearson χ^2 test or two-tailed Fisher's exact tests depending on sample size using Statistix 10.0 (Analytical Software, Tallahassee, Florida, USA).

Results

C. longirostris were exposed to 34 playback experiments of their own species, 41 playback experiments of lizard-cuckoos of other islands, and 8 playback experiments of *C. minor*. *C. minor* were exposed to 11 *C. minor* playback experiments, 6 playback experiments of *C. longirostris*, and to 16 playback experiments of lizard-cuckoos of other islands.

Responses to conspecific playback

Both species responded frequently to conspecific playback (Fig. 2). The frequency of strong responses (score 2) to conspecific playback was significantly greater for *C. longirostris* than for *C. minor* (73.5% vs 27.3%; Fisher's exact test: $p = 0.01$; Table 1). However, the frequency of any response (score 1 or 2) to conspecific playback did not differ significantly between *C. longirostris* and *C. minor* (83.5% vs 72.7%; Fisher's exact test: $p = 0.38$; Table 1). Mild responses to conspecific playback were therefore more frequent from *C. minor* than from *C. longirostris* (Table 1, Fig. 2).

Responses to heterospecific playback of the sympatric species

Both species responded to heterospecific playback of the sympatric species (Table 1, Fig. 2). The frequency of strong responses (score 2) to playback of the other species from the same island did not differ significantly between *C. longirostris* and *C. minor* (25.0% vs 16.7%; Fisher's exact test: $p = 1.00$; Table 1). Likewise, the frequency of any responses (score 1 or 2) did not differ between *C. longirostris* or *C. minor* (50% vs 50%; Fisher's exact test: $p = 1.00$; Table 1). The two species responded to one another at approximately the same rate and intensity.

C. longirostris gave strong responses to their own calls more frequently than to *C. minor* calls (73.5% vs 25.0%; Fisher's exact test: $p = 0.025$; Table 1). We did not detect a statistically significant

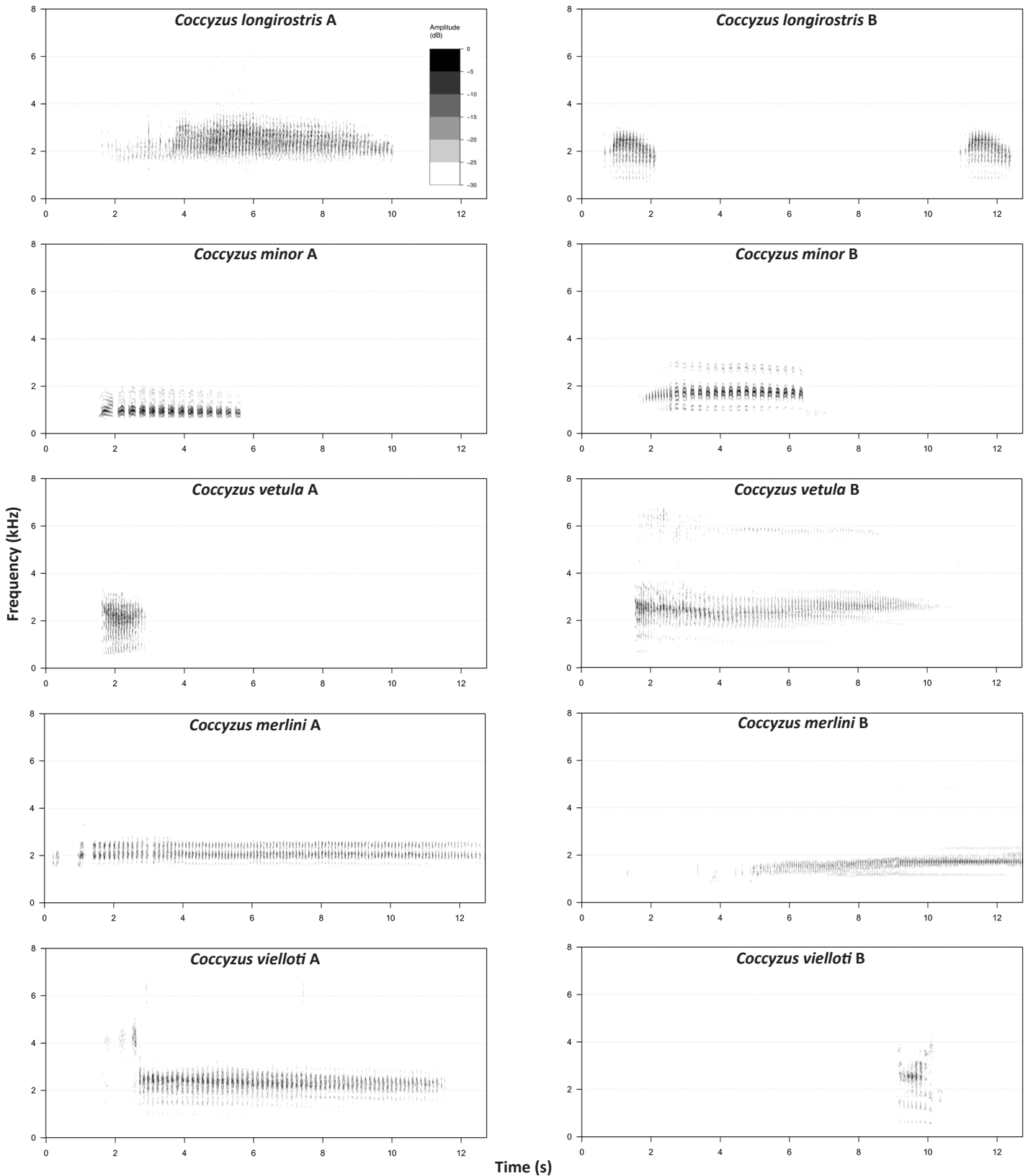


Fig. 1. Spectrograms visualizing each of the cuckoo vocalizations used in playback trials ($n = 10$). Macaulay Library accession numbers were as follows: *Coccyzus longirostris* A = ML181775701, *Coccyzus longirostris* B = ML55804, *Coccyzus minor* A = ML105343, *Coccyzus minor* B = ML129709, *Coccyzus vetula* A = ML164719, *Coccyzus vetula* B = ML164722, *Coccyzus merlini* A = ML8300, *Coccyzus merlini* B = ML314782691, *Coccyzus vielloti* A = ML218190, *Coccyzus vielloti* B = ML77958901. All recordings are of rattle vocalizations. See Appendix A for recording location details.

Table 1. Summary of the percentage responses to playback. *n*: sample size; ‘Strong (2)’: percentage of experiments that elicited a score 2 response; ‘All (1+2)’: percentage of experiments that elicited any response, i.e. strong or mild. The playback experiment of all lizard-cuckoos from other islands in the Greater Antilles were combined under “Allopatric lizard-cuckoos”.

Response of	To	<i>n</i>	Strong (2)	All (1+2)
<i>Coccyzus longirostris</i>	<i>C. longirostris</i>	34	73.5%	85.3%
	<i>C. minor</i>	8	25.0%	50.0%
	Allopatric lizard-cuckoos	41	31.7%	53.7%
<i>Coccyzus minor</i>	<i>C. minor</i>	11	27.3%	72.7%
	<i>C. longirostris</i>	6	16.7%	50.0%
	Allopatric lizard-cuckoos	16	0.0%	6.3%

difference in the rate of strong responses by *C. minor* to other *C. longirostris* calls than to *C. longirostris* calls (27.3% vs 16.7%; Fisher’s exact test: $p = 0.68$; Table 1).

Responses to playback of other lizard-cuckoo species

To test the hypothesis that birds respond more strongly to more closely related species to which they are not normally exposed, we compared the response of *C. longirostris* and that of *C. minor* to lizard-cuckoos of the other islands of the Greater Antilles: *C. vieilloti* (the Puerto Rican Lizard-Cuckoo), *C. vetula* (the Jamaican Lizard-Cuckoo), and *C. merlini* (the Great Lizard-Cuckoo from Cuba and the Bahamas). We observed no strong responses and only one very weak *C. minor* response to any allopatric lizard-cuckoo playback out of 16 trials: the subject began vocalizing only at 65 s and gave a single brief tik-purr call. On the other hand, *C. longirostris* responded frequently and strongly to playback of all other lizard-cuckoo species. The proportion of *C. longirostris* responses did not differ between trials using *C. merlini*, *C. vieilloti*, or *C. vetula* (Fisher’s exact test: $p = 0.66$) and we therefore combined all these trials. Out of 41 experiments performed, we observed 13 (31.7%) strong responses and 22 (53.7%) total responses. Whichever response type we use, *C. longirostris* responded more strongly than *C. minor*: strong response: 0% vs 31.7% (Fisher’s exact test: $p = 0.012$), and all responses 6.3% vs 53.7% (Fisher’s exact test: $p = 0.0009$; Table 1). *C. longirostris* responded far more frequently and strongly to other lizard-cuckoos than *C. minor* did, which gave almost no responses.

Note that *C. longirostris* appeared to distinguish conspecific vocalizations from those of other lizard-cuckoos as we recorded significantly stronger responses to conspecific calls than to calls of other lizard-cuckoo species (75.3% vs 31.7%; $\chi^2 = 13.34$, $df = 2$, $p = 0.0013$), and a significantly higher degree of any responses to conspecific calls than to other lizard-cuckoo calls (85.3% vs 55.7%; $\chi^2 = 8.55$, $df = 1$, $p = 0.0034$; Table 1, Fig. 2).

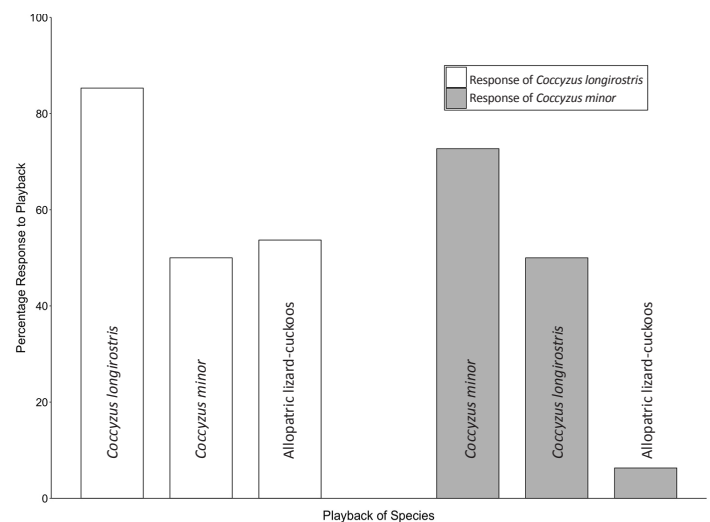


Fig. 2. Percentage of “any response” to playback experiments in Punta Cana, Dominican Republic. White bars: response of *Coccyzus longirostris*; grey bars: response of *Coccyzus minor*. The species on the bars denote the species whose call was used in the playback experiment. Note how the responses of *C. longirostris* and *C. minor* to themselves or to the other species on Hispaniola are very similar, but that the response of *C. longirostris* to the playback of calls from lizard-cuckoos from the other Greater Antilles was much stronger than that of *C. minor*. Sample sizes see Table 1.

Response of adult cuckoos in the presence of dependent juveniles or a nest

Contrary to the observations of Payne (2020) and Latta *et al.* (2006), we made several breeding-related observations of both species during January 2023. We made three different observations of an adult *C. longirostris* that was followed by a juvenile begging for food: two around Punta Cana (15 and 17 January) and one in Bayahibe (14 January). We observed and documented an active *C. longirostris* nest with two young nestlings to which both parents brought lizards. For *C. minor*, we observed a mating solicitation followed by a copulation on 12 January, and two different juveniles being fed by a parent in Punta Cana on 16 and 18 January.

We took advantage of these encounters to test the responses of some of the parents to conspecific playback. Neither of the adult *C. longirostris* attending the nest, nor the two *C. minor* followed by juveniles responded to playback. We did not test the response of *C. longirostris* with juveniles.

Discussion

Both *C. longirostris* and *C. minor* frequently responded with vocalizations and aggressive-looking flyovers to playback of conspecific calls, suggesting strong territoriality and/or mate guarding. The higher frequency of strong responses from *C. longirostris* compared to *C. minor* suggests that the former were more territorial in January. If we group all responses, *C. longirostris* responded to 85% of the conspecific playback experiments, and *C. minor* responded to 73% of conspecific playback,

a non-statistically significant difference. Regarding the response of *C. minor*, this percentage is much higher than the 20% of *C. minor* responses to conspecific playback in Florida found by Frieze *et al.* (2012). Although their playback methods were similar to ours, they performed playback at random points, while we only broadcast playback when we knew a bird was present, which would explain our higher response rate (Frieze *et al.* 2012). Furthermore, during a study over several years, Lloyd (2017) reported that radio-tagged *C. minor* moved across large areas which would be counter to the idea that *C. minor* are highly territorial. Our observations suggest that on Hispaniola, *C. minor* density is higher than in Florida or that the birds are more aggressive. Detailed observations of color-banded *C. minor* would be required to determine if, when, and to what extent they actually defend a territory.

Both species responded to each other's calls at similar rates and intensities, suggesting that they are mutually aggressive and implying the possible existence of some interspecific territoriality. *C. longirostris* gave strong responses to calls from their own species more frequently than to *C. minor* calls, suggesting that they are more aggressive when defending against conspecifics than against *C. minor*. This observation supports our conclusion above that *C. longirostris* are generally more territorial than *C. minor*. Note that neither *C. longirostris* nor *C. minor* responded to any playback when dependent juveniles were present or when near the nest.

Response to playback and relatedness

The comparison of playback of lizard-cuckoo species from other islands was intended to test if genetic distance correlates with responsiveness to acoustic playback as suggested by different studies (De Kort and Ten Cate 2001, Sosa-Lopez *et al.* 2016, Freeman and Montgomery 2017). To our knowledge, this is the first time that cuckoos have been used to test this hypothesis. The four lizard-cuckoo species are more closely related to each another than to *C. minor* (Banks *et al.* 2006, Hughes 2006, Payne 2020). The lizard-cuckoo clade, formerly placed in a separate genus *Saurothera*, comprises *C. merlini*, *C. vieiotti*, *C. vetula*, and *C. longirostris* (Payne 2020).

Our finding that *C. longirostris* responded more strongly to calls of conspecifics than to the calls of the three allopatric lizard-cuckoos supports hypothesis 3, that the response to playback is correlated to genetic relatedness. This makes sense, as according to Reed (1982), "an individual of another species, even if ecologically similar, would not constitute as serious a competitor as a conspecific individual". The response of *C. longirostris* to the allopatric species calls was not significantly different from the response to sympatric *C. minor* calls. This suggests that although the other lizard-cuckoo species do not overlap in geographic range with *C. longirostris*, their calls might retain some degree of similarity to their own, enough to elicit agonistic responses. Additionally, since *C. minor* did not respond to allopatric lizard-cuckoo calls supports our hypothesis that their responses are correlated to their phylogeny.

Although interesting, our results should be interpreted with caution for several reasons. We used only two vocalizations of each of the species that we studied, leading to stimulus pseu-

do-replication (Kroodsma *et al.* 2001). Also, our birds were unbanded so that the same individual could have been involved in multiple playback experiments without our knowledge, potentially leading to subject pseudo-replication. Also, the playback devices were diverse and not standardized, thereby increasing variation between playback experiments, although we did attempt to ensure that the volumes broadcast were comparable. Finally, our investigation was time-restricted, resulting in a limited sample size. We nevertheless believe that while these shortcomings reduce the statistical power of our results, the basic conclusions are valid: both *C. minor* and *C. longirostris* were responsive to vocalizations in January 2023; both species did respond to playback of each other's long rattling grating call; and there was a large difference in the response of *C. minor* and *C. longirostris* to playback of allopatric lizard-cuckoo species. Replication of these experiments is needed, however, to confirm these conclusions. Using color-banded individuals to map the territories, and using a variety of calls for playback to avoid pseudo-replication would improve the experimental design.

Nonetheless, our study provides novel information on two understudied Neotropical bird species. Identifying aggressive relationships between sympatric species is important to predict their response to unprecedented future conditions. For example, as the Caribbean climate becomes warmer and drier, the more aggressive *C. longirostris* may outcompete the less aggressive *C. minor* for increasingly limited food resources (Toms 2013). Furthermore, by gaining deeper insights into the territorial behavior of these species, we enhance our ability to monitor and understand community dynamics, evaluate habitat quality, and discern their reactions to environmental disturbances. This knowledge would not only refine monitoring strategies but also strengthen conservation initiatives by providing a more comprehensive understanding of the intricate relationships between these species and their ecosystems. Ultimately, informed by behavioral studies, it may be possible to implement targeted and effective conservation measures to safeguard these avian populations and their habitat.

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Author Contributions

LHF, DD, GEH, JOH, and BG planned the study. All authors participated in field data collection and refining the methods. LHF, AAD, KNV, and GEH conducted data analyses and created figures; GEH, DD, KNV, and LHF worked on manuscript drafts. LHF and KNV reviewed and edited the final manuscript. AAD secured funding and collaborations to make the study possible.

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Appendix A. Supporting details for spectrograms in Fig. 1.

Coccyzus longirostris (Hispaniolan Lizard-Cuckoo, [ML181775701](#)), recorded 16 January 2019 in Punta Cana, Dominican Republic; *Coccyzus longirostris* (Hispaniolan Lizard-Cuckoo, [ML55804](#)), recorded 9 November 1991 in Barahona, Dominican Republic; *Coccyzus minor* (Mangrove Cuckoo, [ML105343](#)), recorded 6 May 1994 in Lower Sugarloaf Key, Florida, USA; *Coccyzus minor* (Mangrove Cuckoo, [ML129709](#)), recorded 25 February 2006 in Bosque Estatal de Guanica, Guánica, Puerto Rico; *Coccyzus vieilloti* (Puerto Rican Lizard-Cuckoo, [ML218190](#)), recorded 4 April 2010 in Laguna Tortugero, Puerto Rico; *Coccyzus vieilloti* (Puerto Rican Lizard-Cuckoo, [ML77958901](#)), recorded 8 February 2016 in Bosque Estatal de Río Abajo, Arecibo, Puerto Rico; *Coccyzus merlini* (Great Lizard-Cuckoo, Cuban, [ML314782691](#)), recorded 6 March 2021 in Mataguá, Villa Clara, Cuba; *Coccyzus merlini* (Great Lizard-Cuckoo, Bahamas, [ML8300](#)), recorded 23 May 1971 in New Providence Island, New Providence, Bahamas; *Coccyzus vetula* (Jamaican Lizard-Cuckoo, [ML164722](#)), recorded 24 June 1990 in Marshall's Pen, Manchester, Jamaica; *Coccyzus vetula* (Jamaican Lizard-Cuckoo, [ML164719](#)), recorded 26 June 1976 in Rocklands, Saint James, Jamaica.