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NOTES ON THE DISTRIBUTION, BODY MASS, FOODS AND VOCAL MIMICRY OF THE GRAY SEEDEATER (*SPOROPHILA INTERMEDIA*)

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INTRODUCTION

There are over thirty members of the genus *Sporophila* in South America (Ridgely & Tudor 1989). Some of these are also found in Central America, and at least one *Sporophila torqueola* ranges as far north as southern Texas (American Ornithologists' Union 1983). Many sporophilines in South America are widespread in tropical and subtropical areas of grasslands from Colombia south to northern Argentina, while others have quite restricted ranges (Ridgely & Tudor 1989). Often they are found in medium to large mixed species flocks wherever local grasses are seeding. The sexes are dimorphic, the males usually have distinctive plumage, while generally females are drab brown and difficult to identify to species in the field. Except for a few members of the genus that have particularly interested ornithologists such as the problematic Lined Seedeater *Sporophila lineola* and the Lesson's Seedeater *S. bouvronides* (Schwartz 1975, Ridgely & Tudor 1989, da Silva 1995) most have received only cursory attention in the literature. Two authors have described some sporophiline relationships (Meyer de Schauensee 1952, Short 1969) based mainly on museum specimens. Almost no attention has been focused on behaviors of individual species in South America in what may be at times a tightly packed, highly competitive genus at ephemeral food sources. Here I give data on range, body mass, breeding season, vocal and feeding behavior of the Gray Seedeater *Sporophila intermedia*. I hope that field workers in the range of this species will take an interest in it and make a thorough study to elucidate the causes and results of its interesting behaviors.

SITE AND METHODS

My observations of Gray Seedeaters are all from Venezuela, primarily at two study sites. One (Fig. 1, location 6) in the state of Guárico in the central llanos at the cattle ranch Masaguaral (Thomas 1979), and the other (Fig. 1, location 7) in the state of Miranda at Los Anaucos 30 km south of Caracas in the coastal mountains (Thomas 1993). I observed the bird at other places briefly, mostly north of the Orinoco River.

RESULTS

Range and Body Mass. Gray Seedeaters are usually listed as occurring from Guyana west through Venezuela and Colombia, including the island of Trinidad (Meyer de Schauensee 1966). More recently it has been reported also from the northern Brazilian state of Roraima (Silva & Willis 1986, Silva & Oren 1990, Sick 1993). The Gray Seedeater is often found in flocks with other sporophiline finches in Venezuela and Trinidad (Table 1), where it ranges up to 1200 m in the tropical and subtropical zones (ffrench 1973, Meyer de Schauensee & Phelps 1978). Most books define the size of the bird by length, because museum specimens are abundant and easy to measure (Meyer de Schauensee & Phelps 1978, Hilty & Brown 1986, Ridgely & Tudor 1989). However, body mass is generally considered to be one of the best measurements of body size (Amadon 1943). Mass of some sympatric sporophiline finches as given in Junge & Mees (1961), Snow & Snow (1963), Haverschmidt (1968) and Thomas (1982, 1990) are summarized in Table 1. Data from ffrench (1973) cannot be used because his data are combined with those of

TABLE 1. Mass of sympatric sporophilines in Trinidad and Venezuela.

	schistacea	*intermedia*	*plumbea*	*lineola*	*bouvronides*	*nigricollis*	*minuta*
Range of body mass (g)	♂10-12.5 ♀11	♂10.9-13.5 ♀10.5-13	♂9-9.7 ♀-	♂7.5-12 ♀8.5-10	♂8-10.9 ♀7.5-8.5	♂8.8-10 ♀8.5-11.2	♂6.5-9.1 ♀6.5-8.4
Site of *Sporophila* sympatric data							
1. Trinidad, W. I.	X	X		X	X	X	X
2. Monagas/Anzoategui		X		X	X	X	X
3. Rio Orinoco		X	X	X	X	X	X
4. Amazonas		X	X	X	X	X	X
5. Cinaruco/Capanaparo		X	X	X		X	X
6. Guárico		X		X	X		X
7. Los Anaucos		X			X	X	X
8. Henri Pittier		X		X	X	X	X
9. Morrocoy	X	X		X		X	X

Body mass from Junge & Mees 1961; Snow & Snow 1963; Haverschmidt 1968; Thomas 1982, 1990.
Note: see Fig. 1 for site locations and references.

Snow & Snow (1963). Here I omit the Dull Seedeater *Sporophila obscura* now placed in the genus *Tiaris* (Collins & Kemp 1976, Ridgely & Tudor 1989), although Peters (1970) still included it under *Sporophila*, but with a note that Paul Schwartz believed it was a *Tiaris*. The Gray Seedeater is larger by about 10 % than its sympatric congeners, but see Dunning (1992) for other sporophiline mass data outside of the Gray Seedeater range. However, the sparse mass data for the uncommon *S. schistacea* suggests an approach to the mass of *S. intermedia*.

Breeding Months. In the llanos of Venezuela I found an active nest in July, and in the northern mountains I observed a copulation on 2 September 1977 (Thomas 1979, 1993). Cherrie (1916) reported two nests in June, Friedmann & Smith (1955) gave September—October as breeding months, while Schäfer & Phelps (1954) listed May—October for Henri Pittier Park in the Venezuelan coastal mountains. In Trinidad ffrench (1973) found that it bred from June—September (locations in Fig. 1). Hilty & Brown (1986) reported nests or breeding condition birds from Colombia in January, April, May, June, and November. A summary of these data show that it appears to breed nearly throughout the year except during the months of February, March and December which are at the height of the dry season in this northern part of the continent.

Vocal Mimicry. On 12 December 1982, at Los Anaucos in a secondary-scrub habitat, where I was very familiar with the typical *gee-gee-gee-gee* vocalization of the Grey Seedeater, I was stunned to find a male who gave a masterful c. 15 min series of mimicked calls while perched in a small tree at 6—7 m. It imitated five other species of birds, all of which were common or abundant in the area (Thomas 1993). Each series, or bouts of calls, began with a deep warbled *gee-gee-gee-gee* that I had previously associated with the species, then followed a rapid-fire series of imitations of the most common vocalizations of the Rufous-tailed Jacamar *Galbula ruficauda*, Barred Antshrike *Thamnophilus doliatus*, White-fringed Antwren *Formicivora grisea*, Bananaquit *Coereba flaveola*, and Blue-gray Tanager *Thraupis episcopus*, all with great fidelity. The following year, in the same area on 5 September 1983, I found a male who made two multi-mimicry songs each ending with the plaintive call of the Pale-breasted Spinetail *Synallaxis albescens*. On 6 November 1983 again a male mimicked the vocalizations of the Silver-beaked Tanager *Ramphocelus carbo*, White-lined Tanager *Tachyphonus rufus*, and Ultramarine Grosbeak *Cyanocompsa brissonii*. The preceding model birds are listed in taxonomic order as I did not record the order in which each finch gave its vocalizations. None of these Gray Seedeater males was banded so I cannot tell if they were the same or different individuals. In Trinidad ffrench (1973) found that Gray Seed-

eater make "some imitations of other species", but no species are listed. Junge & Mees (1961) reported that there is much imitation in its song including the familiar cry of the Yellow-bellied Elaenia (*Elaenia flavogaster*). Sick (1993) reported that the Plumbeous Seedeater *Sporophila plumbea* is also a vocal mimic in Brazil.

Foods and Feeding Behavior. The other unusual observations I have are foods eaten by Gray Seedeaters. Sporophiline finch foods are usually given, unqualified, as seeds (Ridgely & Tudor 1989). With others of the genus, Gray Seedeaters often took small dry seeds such as those of the common grass gamelote *Panicum* spp. and dry seeds of forbs, in the manner of stem-foragers. However, on 21 May 1977 at 17:45 in Los Anaucos I observed three Gray Seedeaters, along with a Saffron Finch *Sicalis flaveola*, making expert 2—4 m sallies to catch insects at a fresh hatch of flying alates. Junge & Mees (1961) found that Trinidadian Gray Seedeaters also sometimes foraged in the air like flycatchers.

In the Venezuelan llanos I have records of both male and female Gray Seedeaters nectar foraging. On 17 and 18 April 1982, and again on 19 May 1984 they took nectar from the common sweet smelling, small white flowers of the Rubiaceae shrub *Randia venezuelensis*. I watched a male for 4 min while it hopped from one flower cluster to another pinching the small blossoms at the base to extract the abundant, very sweet nectar. At one of the same flowering bushes both male and female Ruby-topaz Hummingbirds *Chrysolampis mosquitus* were feeding by taking nectar through the calyx opening.

A number of the stem-gleaning guild of sporophilines are migratory, following seasonal seed ripening (Schwartz 1975, Remsen & Hunn 1979). I found at least a few Gray Seedeaters in all months of the year at both the llanos and the northern Venezuelan study sites (Thomas 1979, 1993), this suggests permanent residence and agrees with other Venezuelan reports (Schäfer & Phelps 1954, Friedmann & Smith 1955). It may be the only member of the genus that is sedentary or resident in central Venezuela. Thus, it is not surprising that in order to survive the end of the dry season at those sites (March—June), when most grasses and forbes are not in seed, that the Gray Seedeater would need to exploit alternate sources of food by taking both insects and nectar.

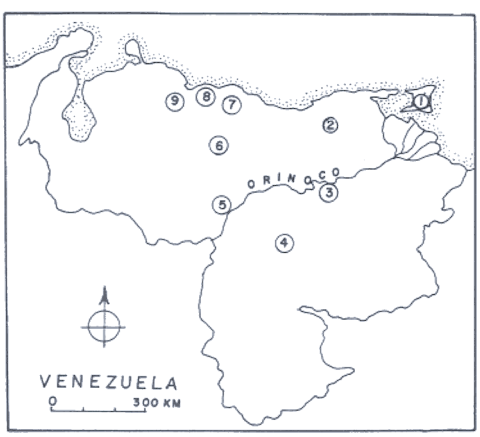

FIG. 1. Sites in central Venezuela and Trinidad with lists of sympatric *Sporophila* species. 1. ffrench 1973, 2. Friedmann & Smith 1955, 3. Cherrie 1916, 4. Schwartz 1979, 5. Goodwin & Lentino 1990, 6. Thomas 1979, 7. Thomas 1993, 8. Schäfer & Phelps 1954, 9. Lentino & Goodwin 1991.

DISCUSSION

Mayr (1964) says that an increase in size has a definite selective advantage. As a stem-forager, the about 10 % heavier weight of the Gray Seedeater would allow it to bend down the seeding grass to a hard substrate for more efficient seed gleaning, probably giving it an advantage over other seed-eating species. Residency would have great advantages for rapid breeding in an environment where rainfall, with its quick attendant grass seed production, is somewhat irregular (Thomas 1985). This could account for Gray Seedeater breeding reports covering nine months of the year. Furthermore, its apparently sedentary habit should also be advantageous, because of familiarity with the habitat, food sources and predators, as compared with the other Venezuelan sporophiline finches that are all reported to be wanderers, migrants, or seasonal vagrants (Schäfer & Phelps 1954, ffrench 1973, Hilty & Brown 1986, Ridgely & Tudor 1989).

It can be argued that residency, and the advantages that this confers, forces Gray Seedeaters into a more catholic choice of foods during the season when grass and forb seeds are not

abundant. Alternatively, their wider diet may allow them to be resident while other more obligate seedeaters must make seasonal movements to areas with sufficient food resources.

The behavior of vocal mimicry is more puzzling. The nine other species that male Gray Seedeaters imitated at Los Anaucos are all common residents of that habitat. None, however, responded to the mimic perhaps because September, November and December are at end of, or during, their non-breeding months (Thomas 1993). My limited data on the Gray Seedeater breeding season in Los Anaucos (Thomas 1993) suggests the mimicked vocalizations may have been given as territorial advertisement, or individual identification. Other reports of vocal mimicry have also noted that the mimic made the vocalizations during its own breeding season (Marshall 1950), and at a time when the models were not breeding. However, it is not clear what advantage this might give the mimic.

There is also a possible conservation problem with the Gray Seedeater in Trinidad. In his 1985 paper ffrench reported that there is such heavy, unregulated trapping of Gray Seedeaters in Trinidad for the cage-bird trade, that it has gone from abundant to rare in recent years. Other sporophiline finches that are trapped in Trinidad, the Slate-colored Seedeater *Sporophila schistacea*, Plumbeous Seedeater, and Yellow-bellied Seedeater *Sporophila nigricollis* are migratory. Thus, continental South American populations are potential sources of immigration. The origin of Gray Seedeaters on Trinidad may have been during the Pleistocene when Trinidad was joined to mainland South America (Faaborg 1985, Snow 1985). Since the Gray Seedeater appears to be not migratory, recolonization of Trinidad from nearby Venezuela where it is still abundant, may not readily occur. Much interesting work remains to be done in studying the life history of the Gray Seedeater and its relationship with its congeners.

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REFERENCES

Amadon, D. 1943. Bird weights as an aid in taxonomy. Wilson Bull. 55: 164—177.

American Ornithologists' Union. 1983. Check-list of North American birds, 6th ed. American Ornithologists' Union, Washington, D.C.

Cherrie, G. K. 1916. A contribution to the ornithology of the Orinoco region. Bull. Brooklyn Inst. Arts and Science, Vol. 2, No. 6: 133—374.

Collins, C. T., & M. H. Kemp. 1976. Natal pterylosis of *Sporophila* finches. Wilson Bull. 88: 154—157.

Dunning, J. B. 1992. Avian body masses. Boca Raton, Florida.

Faaborg, J. 1985. Ecological constraints on West Indian bird distributions. Pp. 621—653 *in* Buckley, P. A., Foster, M. S., Morton, E. S., Ridgely, R. S., & F. S. Buckley (eds.). Ornithological Monographs No. 36. Washington, D.C.

ffrench, R. 1973. A guide to the birds of Trinidad and Tobago. Wynnewood, Pa.

ffrench, R. 1985. Changes in the avifauna of Trinidad. Pp. 986—991 *in* Buckley, P. A., Foster, M. S., Morton, E. S., Ridgely, R. S., & F. S. Buckley (eds.). Ornithological Monographs No. 36. Washington, D.C.

Friedmann, H., & F. D. Smith, Jr. 1955. A further contribution to the ornithology of northeastern Venezuela. Proc. U. S. Nat. Mus. 104 (3345): 463—524.

Goodwin, M. L., & M. Lentino. 1990. Bird list of Cinaruco-Capanaparo National Park, Apure State, Venezuela. Soc. Conserv. Audubon de Venezuela. Caracas.

Haverschmidt, F. 1968. Birds of Surinam. Edinburgh.

Hilty, S. L., & W. L. Brown. 1986. A guide to the birds of Colombia. Princeton.

Junge, G. C. A., & G. F. Mees. 1961. The avifauna of Trinidad and Tobago. Zoologische Verhandelingen. No. 37. Leiden.

Lentino, M., & M. L. Goodwin. 1991. Bird list of Morrocoy National Park, Cuare Wildlife Refuge and adjacent areas, Falcon State, Venezuela. Soc. Conserv. Audubon de Venezuela. Caracas.

Marshall, A. J. 1950. The function of vocal mimicry in birds. Emu 50: 5—16.

Mayr, E. 1965. Systematics and the origin of species. New York.

Meyer de Schauensee, R. 1952. A review of the genus *Sporophila*. Proc. Acad. Nat. Sci. Phila. 104. 153—196.

Meyer de Schauensee, R. 1966. The species of birds of South America with their distribution. Narbeth, Pa.

Meyer de Schauensee, R., & W. H. Phelps, Jr. 1978. A guide to the birds of Venezuela. Princeton.

Peters, J. L. 1970. Check-list of the birds of the world, Vol. 13. Cambridge, Ma.

Ridgely, R. S., & G. Tudor. 1989. The birds of South America Vol. 1. The oscine passerines. Oxford.

Remsen, J. V., & E. S. Hunn. 1979. First records of *Sporophila caerulescens* from Colombia; a probable long distance migrant from southern South America. Bull. Brit. Orn. Cl. 99: 24—26.

Schäfer, E., & W. H. Phelps. 1954. Las aves del Parque Nacional "Henri Pittier" (Rancho Grande) y sus funciones ecologicas. Bol. Soc. Venezolana de Ciencias Naturales Tomo XVI No. 83. Caracas.

Schwartz, P. 1975. Solved and unsolved problems in the *Sporophila lineola/bouvronides* complex (Aves: Emberizidae). Annals of Carnegie Mus. Vol. 45. Article 14. Pittsburgh, Pa.

Schwartz, P. 1979. Atlas de la region sur. Codesur. Ministerio del Ambiente, Caracas, Venezuela.

Short, L. L. 1969. Relationships among some South American seedeaters (*Sporophila*), with a record of *S. hypochroma* for Argentina. Wilson Bull. 81: 216—219.

Sick, H. 1993. Birds in Brazil. Princeton.

Silva, da, J. M. C., & E. O. Willis. 1986. Notas sobre distribuição de quatro espécies de aves Amazônica Brasileira. Bol. Mus. Para. Emilio Goeldi. Ser. Zoologia 2: 151—158.

Silva, da, J. M. C., & D. Oren. 1990. Resultos de uma excurção orniológica à Ilha de Maracá, Roraima, Brasil. Goeldiana Zoologia 5: 1—8.

Silva, da, J. M. C. 1995. Seasonal distribution of the Lined Seedeater *Sporophila lineola*. Bull. Brit. Orn. Cl. 115: 14—21.

Snow, D. W., & B. K. Snow. 1963. Weights and wing-lengths of some Trinidad birds. Zoologica 48: 1—12.

Snow, D. 1985. Affinities and recent history of the avifauna of Trinidad and Tobago. Pp. 238—246 *in* Buckley, P. A., Foster, M. S., Morton, E. S., Ridgely, R. S., & F. S. Buckley (eds.). Ornithological Monographs No. 36. Washington, D. C.

Thomas, B. T. 1979. The birds of a ranch in the Venezuelan llanos. Pp. 213—232 *in* Eisenberg, J. F. (ed.). Vertebrate ecology of the northern Neotropics. Washington, D. C.

Thomas, B. T. 1982. Weights of some Venezuelan birds. Bull. Brit. Orn. Cl. 102: 48—52.

Thomas, B. T. 1985. Coexistence and behavior differences among the three western hemisphere storks. Pp. 921—931 *in* Buckley, P. A., Foster, M. S., Morton, E. S., Ridgely, R. S., & F. S. Buckley (eds.). Ornithological Monographs No. 36. Washington, D. C.

Thomas, B. T. 1990. Additional weights of Venezuelan birds. Bull. Brit. Orn. Cl. 110: 48—51.

Thomas, B. T. 1993. Birds of a northern Venezuelan secondary-scrub habitat. Bull. Brit. Orn. Cl. 113: 9—17.

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