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Which large species of seed finch occurred on Trinidad?

by Dale Dyer

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SUMMARY.—A population of large seed finches, probably extirpated, occurred on Trinidad. Studies of specimens by Phelps & Phelps and by Meyer de Schauensee identified this population as the taxon now known as *Sporophila maximiliani parkesi*, but subsequent literature has often referred to these birds as *S. c. crassirostris* without fresh evidence or analysis. My review of specimens reaffirms their identity as *S. m. parkesi*, and refutes the hypothesis that this taxon should be considered a synonym of *S. m. maximiliani*.

Two species of seed finch (*Sporophila*, formerly *Oryzoborus*) have been documented on the island of Trinidad (Trinidad & Tobago, South America). The populations of both species have been depleted or extirpated due to persecution by cagebird enthusiasts (French 2012). The smaller, dark-billed species is Chestnut-bellied Seed Finch *Sporophila angolensis* Linnaeus, 1776. A larger species with a proportionately heavier bill, pale in the male, is documented on Trinidad by three specimens at the American Museum of Natural History, New York (AMNH) and three at the Natural History Museum, Tring (NHMUK), all initially identified as Large-billed Seed Finch *S. crassirostris* J. F. Gmelin, 1789, without trinomial. The species identity of this larger form, however, has been controversial, with some authorities concluding that it is Great-billed Seed Finch *S. maximiliani* Cabanis, 1851, which is globally Endangered (BirdLife International 2019). *S. crassirostris* and *S. maximiliani* are morphologically very similar, with large, extremely deep bills. Adult males are black with a white patch at the base of the primaries. Females are brown, paler below, with a blackish bill.

History

Ubaid *et al.* (2018) presented the rather complex nomenclatural history of *Sporophila maximiliani*, postulating its type locality to be the Jucu River, Espírito Santo, south-east Brazil. The type locality for *S. crassirostris* has been designated as Cayenne (= French Guiana) (Berlepsch & Hartert 1902). P. L. Sclater (1862) was first to report a larger species of seed finch on Trinidad, listing a male and a female '*Oryzoborus crassirostris*' from Trinidad in his collection. These were the only specimens he recorded as *O. crassirostris*, but he also possessed a pair of '*Oryzoborus maximiliani*' from 'Brazil'. Sharpe (1888) listed Sclater's Trinidad specimens, by then in the British Museum, as *O. crassirostris* along with specimens from Venezuela, Colombia and Guyana, and restricted *O. maximiliani* to 'southern Brazil'. Léotaud's *Oiseaux de l'île de la Trinidad* (1866) provided measurements and descriptions of '*Spermophila crassirostris* - Gml'. Subsequently, Chapman (1894) collected a single '*Oryzoborus crassirostris*' on Trinidad, now at AMNH.

For Hellmayr (1938) species identity of the Trinidad larger form was uncontroversial, as he placed all large pale-billed forms of *Oryzoborus* in species *crassirostris*. Hellmayr defined allopatric ranges for all of these subspecies, restricting *O. c. maximiliani* to 'southern and interior Brazil', and attributing all specimens from Trinidad, Venezuela, the Guianas, northern Brazil, eastern Colombia and north-east Peru to *O. c. crassirostris*. He wrote,

however, that 'I have not been able to correlate certain variations in dimensions and in size of bill with geographic areas' and '(males) from Trinidad and the Orinoco Valley are larger, the tail in particular longer, and have much bulkier, heavier bills, some being fully as large billed as *O. c. maximiliani*'.

Phelps & Phelps (1950) focused on this problem in more detail, and concluded that two taxa occurred in close proximity in northern South America. They described a new subspecies *O. c. magnirostris* from the Orinoco Delta (including the type locality, Misión San Francisco de Guayo, Territorio Delta Amacuro), the lower Caura River, Caicara on the Orinoco River, and Trinidad. The type specimen is part of the Phelps Collection, although it is on deposit at the AMNH along with other Phelps types—and it is not 'inaccessible' as claimed by Ubaid *et al.* (2018). Six other specimens at the AMNH for which Phelps & Phelps (1950) gave sex and locality (though not registration numbers), including the three Trinidad specimens, are paratypes. Their labels have a pencil annotation '*magnirostris*', without initials. Phelps & Phelps (1950) diagnosed *O. c. magnirostris* as differing 'from *O. c. crassirostris* in having a much larger bill and longer wing and tail'. They concluded that the three specimens from Trinidad at NHMUK also are *magnirostris* based on wing and culmen measurements provided by J. B. Macdonald, then curator. They remarked that 'the known ranges of the new form and *O. c. crassirostris* approach each other closely', and speculated that non-breeding flocks may 'approach or even temporarily invade the territory occupied by the neighboring form'. The name *magnirostris* has since been replaced by *parkesi* (Olson 1981) because *magnirostris* is preoccupied.

Paynter & Storer (1970) recognised '*O. crassirostris magnirostris*' and included Trinidad within its distribution ('rare'). However, Herklots (1961) did not follow Phelps & Phelps (1950), instead identifying the taxon on Trinidad as *O. c. crassirostris* without discussion. He had no familiarity with the species in life, and given that he wrote that the male's bill colour is black, it is doubtful that he had even seen specimens.

Meyer de Schauensee (1970a) asserted that nominate *crassirostris* and *parkesi* ('*magnirostris*' therein) 'actually occur together in Venezuela (El Llagual...) and in Guyana (Annai)'. His list of specimens examined included three *crassirostris* and three '*magnirostris*' from 'El Llagual', all attributed to AMNH—they are not there, but he was probably referring to a series from El Yagual at the Carnegie Museum, Pittsburgh. He listed four *crassirostris* from Annai at AMNH, and in a postscript ('Since writing this paper...') referred to two male '*magnirostris*' from Annai, and a male '*magnirostris*' from 'French Guiana, the type locality of *O. crassirostris*', the latter three specimens at the Museum National d'Histoire Naturelle, Paris. The 'additional' specimens mentioned in the postscript, seen in Paris and also NHMUK, were not included in his list of material examined. Meyer de Schauensee (1970a) determined that nominate *crassirostris* was smaller, with a smaller bill, and a proportionately shorter tail than all other forms then included in *crassirostris* (e.g., by Paynter & Storer 1970), and therefore treated it as a monotypic species, with the remaining subspecies united under the oldest name *maximiliani*. This split between *S. crassirostris* and *S. maximiliani*, based on sympatry, has been recognised by subsequent authors (e.g., Ridgely & Tudor 1989, Dickinson & Christidis 2014, del Hoyo & Collar 2016). Note that many authors, e.g., Dickinson & Christidis (2014) and del Hoyo & Collar (2016), have followed the suggestion of Ridgely & Tudor 1989 to place the western South American subspecies *occidentalis* within *crassirostris* rather than *maximiliani*.

Meyer de Schauensee (1970a) listed just one Trinidad specimen, a male at AMNH, which he identified as '*magnirostris*'. He did not note whether he confirmed the identity of the Trinidad specimens at NHMUK. Included in his paper is a map of localities for

specimen records of relevant taxa, though '*grandirostris*' is substituted for *magnirostris* in error. It is '*grandirostris*' to which Trinidad records are attributed on this map.

Specimen review by Phelps & Phelps (1950) and Meyer de Schauensee (1970a) would appear to have established that the Trinidad population belonged to *S. maximiliani parkesi*, not *S. crassirostris*. Despite this, taxonomic placement of the former Trinidad population in the literature since 1970 has been checkered, with many authors reverting to *S. crassirostris* without giving reason or expressing dissent (see Table 1).

Meyer de Schauensee (1970b) treated *crassirostris* and *maximiliani* as separate species in his *A guide to birds of South America*, but listed both as occurring on Trinidad. Inexplicably, Meyer de Schauensee & Phelps (1978) included Trinidad in the range for *O. crassirostris* alone, not *O. maximiliani*.

In their list of specimens examined, Ubaid *et al.* (2018) listed only one of the *parkesi* paratypes at AMNH as *S. m. parkesi*, and the others, including the three AMNH Trinidad specimens, under *S. crassirostris*. They did not map either species on Trinidad. The mensural data and morphological analysis by Ubaid *et al.* (2018) is restricted to comparison of *S. m. parkesi* with *S. m. maximiliani*, although it is unclear how specimens were assigned to *S. m. parkesi* prior to the analysis. Their conclusions therefore appear unsupported. Ubaid *et al.* (2018) discussed the distribution of nominate *maximiliani* in detail, but the other forms not at all.

Methods and Materials

Fifty specimens at AMNH of likely *Sporophila c. crassirostris*, *S. m. maximiliani* and *S. m. parkesi*, including the Phelps holotype, and the six El Yagual specimens from the Carnegie Museum (CM; see appendix), were measured and compared with the goal of discerning diagnostic characters for *S. c. crassirostris* and *S. m. parkesi*, and determining to which species Trinidad specimens belong. Measurements were taken with dial callipers, except tail length, which was taken with a ruler. Culmen was measured from the base, at the skull, to the tip. Wing, tail and tarsus were rounded to the nearest 1 mm, and bill measurements are accurate to 0.1 mm. Incomplete tails were not measured, and depths were not taken of open bills. Of these 56 specimens, 33 are black (adult) males. The remaining 23 specimens are brown. Nine of the brown individuals were labelled female, 12 as male (some denoted 'juv' or 'imm'). Due to uncertainty of methods of ageing and sexing, the brown birds were compared as groups.

Results and Discussion

Measurements.—My mensural data (Tables 2–3) are closely similar to those of Phelps & Phelps (1950), an expected result since the sets of specimens are broadly overlapping. They are also similar to Meyer de Schauensee (1970a), although his tail measurements are smaller (and therefore his tail / wing indices different). The tail / wing proportions found here in *parkesi* are not as different from *crassirostris* as reported by Meyer de Schauensee (1970a). Culmen measurements in Ubaid *et al.* (2018) are much smaller, and perhaps represent exposed culmen rather than culmen from skull, but other measurements are closely similar.

The measurements of black males (Table 2) support Phelps & Phelps' (1950) assertion that there is a population in northern South America that is larger and larger billed than *S. c. crassirostris*, and these are from within the range of *crassirostris*, in some localities co-occurring with it (e.g., El Yagual, Venezuela). These birds, *S. m. parkesi*, are similar mensurally to *S. m. maximiliani* except in being shorter tailed. Two *S. c. crassirostris* ('Bogota' and 'near Granada') are much larger than the rest, and are responsible for the close



Figures 1–2. Lateral and dorsal views of (top to bottom) males of *Sporophila c. crassirostris*, Guyana (AMNH 514238); *S. maximiliani parkesi*, Trinidad (AMNH 59130); *S. maximiliani parkesi*, Misión San Francisco de Guayo, Territorio Delta Amacuro, Venezuela (Phelps Collection 48301, holotype); *S. m. maximiliani* Goiás, Brazil (AMNH 514255) (Dale Dyer)



TABLE 1

Identification of the large species of seed finch on Trinidad by authors since Meyer de Schauensee (1970a).

Publication	Identification of large seed finch occurring on Trinidad	Comments
Meyer de Schauensee (1970b)	<i>Oryzoborus crassirostris</i> <i>Oryzoborus maximiliani</i>	
Meyer de Schauensee & Phelps (1978)	<i>Oryzoborus crassirostris</i>	
ffrench (1985)	<i>Oryzoborus maximiliani</i>	
ffrench (1976, 1991, 2012)	<i>Oryzoborus c. crassirostris</i>	
Ridgely & Tudor (1989)	<i>Oryzoborus crassirostris</i>	Text, but not on map.
Rodner <i>et al.</i> (2000)	<i>Oryzoborus maximiliani magnirostris</i>	Trinidad column shaded for both species, but text places only subspecies <i>Oryzoborus maximiliani magnirostris</i> , not <i>Oryzoborus c. crassirostris</i> , on Trinidad.
Dickinson (2003)	<i>Oryzoborus maximiliani magnirostris</i>	
Restall <i>et al.</i> (2007)	<i>Oryzoborus maximiliani</i>	Map
Kenefick <i>et al.</i> (2007)	<i>Oryzoborus crassirostris</i>	
Ridgely & Tudor (2009)	<i>Oryzoborus crassirostris</i>	Map, but not text.
Jaramillo (2011)	<i>Sporophila c. crassirostris</i>	
Dickinson & Christidis (2014)	<i>Sporophila c. crassirostris</i>	
del Hoyo & Collar (2016)	<i>Sporophila c. crassirostris</i>	
Ubaid <i>et al.</i> (2018)	<i>Sporophila crassirostris</i>	List of specimens, but not mapped.
BirdLife International (2019)	<i>Sporophila crassirostris</i>	
Gill <i>et al.</i> (2020)	<i>Sporophila maximiliani</i>	<i>S. m. parkesi</i> not recognised as a valid subspecies, following Ubaid <i>et al.</i> (2018).

approach or slight overlap of measurement ranges between *S. c. crassirostris* and *S. m. parkesi* (as noted by Phelps & Phelps 1950).

Measurements of AMNH males from Trinidad are very similar to *S. m. parkesi* from Venezuela (Table 4) and larger than *S. c. crassirostris*. This is true also for measurements given in Phelps & Phelps (1950) of the NHMUK Trinidad males. Those for the NHMUK female are smaller, but see below. Leotaud's (1866) wing measurement also fits *S. m. parkesi*.

Mean measurements of brown birds (Table 3) are smaller than for black males, but show the same pattern of size difference between *S. m. maximiliani* and *S. c. crassirostris*. I am unable to determine if sex, maturity, or both are responsible for smaller size in brown birds. Mention should be made here of CM 33264, an 'imm male' *crassirostris* from El Yagual, which has the longest wing measured herein. Its tail / wing index and bill measurements are consistent with identification as *S. crassirostris*. Its tag annotation states 'Wing too long for crassirostris but [illegible]'.

Colour.—Adult male *S. c. crassirostris* are black with a noticeable blue-green sheen. The three male *S. m. maximiliani* are browner black with much slighter blue-green reflections. Most *S. m. parkesi* are similar to nominate *maximiliani*, but the type has a blue-green sheen as strong as some *S. c. crassirostris* males. Blackness and sheen may be related to condition of the plumage. The amount of white at the base of the primaries, as well as on the underwing-coverts and axillaries, varies individually.

The bills of male specimens of *S. c. crassirostris* have most of the maxilla and the sides of the mandible grey, with the tomia and underside of the mandible cream or buff. On photos of live birds the bill appears silver-white (e.g., Angehr 2011). Bills of specimens of *S. m. maximiliani* and *parkesi* are cream with a small but variable dark area at the base. Photos of live *S. m. maximiliani* show a very pale pink bill (e.g., Ubaid *et al.* 2018). I do not see the

TABLE 2

Measurements (in mm) of black males, given in the format: range (mean, number (*n*) of specimens) for each variable. Trinidad specimens are included in *S. m. parkesi*.

	<i>S. m. maximiliani</i>	<i>S. m. parkesi</i>	<i>S. c. crassirostris</i>
Wing chord	75 (75, <i>n</i> = 3)	72–76 (73.9, <i>n</i> = 7)	66–74 (69.0, <i>n</i> = 23)
Tail	71–74 (72.3, <i>n</i> = 3)	65–70 (66.7, <i>n</i> = 7)	55–65 (60.7, <i>n</i> = 23)
Tail/wing	0.96	0.90	0.88
Tarsus	17–19 (18.0, <i>n</i> = 3)	18–19 (18.3, <i>n</i> = 7)	15–18 (16.6, <i>n</i> = 21)
Culmen from skull	16.7–17.5 (17.07, <i>n</i> = 3)	16.9–19.3 (18.13, <i>n</i> = 7)	13.9–16.7 (15.4, <i>n</i> = 23)
Nostril to tip	12.0–12.5 (12.17, <i>n</i> = 3)	11.8–14.0 (12.87, <i>n</i> = 7)	9.9–11.3 (10.63, <i>n</i> = 23)
Bill height (depth)	15.2–15.7 (15.47, <i>n</i> = 3)	14.7–15.6 (15.18, <i>n</i> = 4)	12.0–15.0 (13.11, <i>n</i> = 17)
Maxilla width	10.6–10.9 (10.77, <i>n</i> = 3)	10.0–11.5 (10.86, <i>n</i> = 7)	7.7–9.9 (8.92, <i>n</i> = 23)
Mandible width	13.0–13.9 (13.53, <i>n</i> = 3)	13.7–15.9 (14.44, <i>n</i> = 7)	11.5–14.4 (12.24, <i>n</i> = 21)

TABLE 3

Measurements (in mm) of brown birds, given in the format: range (mean, number (*n*) of specimens) for each variable.

	<i>S. m. maximiliani</i>	<i>S. m. parkesi</i>	<i>S. c. crassirostris</i>
Wing chord	68–74 (72.0, <i>n</i> = 4)	67–72 (69.0, <i>n</i> = 4)	65–78 (68.0, <i>n</i> = 15)
Tail	60–72 (65.8, <i>n</i> = 4)	63–67 (65.7, <i>n</i> = 3)	54–70 (59.9, <i>n</i> = 15)
Tail/wing	0.91	0.95	0.88
Tarsus	18–19 (18.7, <i>n</i> = 3)	18 (18.0, <i>n</i> = 4)	16–18 (16.9, <i>n</i> = 15)
Culmen from skull	16.6–17.4 (16.95, <i>n</i> = 4)	17.2–19.5 (18.22, <i>n</i> = 4)	14.3–16.7 (15.33, <i>n</i> = 15)
Nostril to tip	11.4–13.6 (12.35, <i>n</i> = 4)	11.9–13.5 (12.70, <i>n</i> = 4)	9.2–11.6 (10.38, <i>n</i> = 15)
Bill height	15.3–15.6 (15.45, <i>n</i> = 2)	14.7–15.3 (15.08, <i>n</i> = 4)	11.8–14.2 (12.47, <i>n</i> = 9)
Maxilla width	10.0–11.4 (10.86, <i>n</i> = 4)	10.1–11.1 (10.48, <i>n</i> = 4)	8.2–10.0 (8.83, <i>n</i> = 15)
Mandible width	13.7–15.8 (14.58, <i>n</i> = 4)	13.6–15.0 (14.15, <i>n</i> = 4)	11.1–13.2 (12.09, <i>n</i> = 15)

TABLE 4

Comparison of Trinidad specimens with Venezuela *S. m. parkesi* (black males).

	<i>S. m. parkesi</i> (Venezuela)	<i>S. m. parkesi</i> (Trinidad)
Wing chord	73–75 (73.5, <i>n</i> = 4)	72–76 (74.3, <i>n</i> = 3)
Tail	65–70 (67.0, <i>n</i> = 4)	65–68 (66.3, <i>n</i> = 3)
Tail/wing	0.91	0.89
Tarsus	18–19 (18.3, <i>n</i> = 4)	18–19 (18.3, <i>n</i> = 3)
Culmen from skull	17.2–19.3 (18.33, <i>n</i> = 4)	16.9–19.0 (17.87, <i>n</i> = 3)
Nostril to tip	12.4–13.6 (13.08, <i>n</i> = 4)	11.8–14.0 (12.60, <i>n</i> = 3)
Bill height	14.7–15.6 (15.33, <i>n</i> = 3)	14.7 (<i>n</i> = 1)
Maxilla width	10.6–11.5 (11.0, <i>n</i> = 4)	10.0–11.0 (10.67, <i>n</i> = 3)
Mandible width	14.1–15.9 (14.95, <i>n</i> = 4)	13.7–14.8 (14.13, <i>n</i> = 3)

difference in bill texture that Meyer de Schauensee (1970a) reported ('shiny' in *crassirostris* vs. 'bonelike' in *maximiliani*).

The colour of brown birds is very variable, dull brown above, but ranging from deep tawny-rufous to pale greyish buff below. Individuals of *S. m. maximiliani* are darker, redder and more saturated than *S. c. crassirostris*, but immatures may be darker than adults, and worn birds are palest. Some *S. crassirostris* marked 'male imm' show a few black feathers, and some white on the primaries. Bills of all are dark.

Conclusion

Adult males of *S. m. parkesi* are diagnosable from *S. c. crassirostris* by larger measurements in all characters, especially bill and tail. Specimens of large seed finches from Trinidad are *S. m. parkesi*, not *S. c. crassirostris*. Criteria in Ubaid *et al.* (2018) for distinguishing *S. maximiliani* from *S. crassirostris* were not stated, nor was rationale given for their placement of several *S. m. parkesi* paratypes (including those from Trinidad) in *S. crassirostris* (p. 569), and without of examination of the *S. m. parkesi* holotype. Thus their morphometric comparison of *S. m. maximiliani* and *S. m. parkesi* is flawed, and the conclusion that they ‘consider *S. m. parkesi* (Olson, 1981) (= *Oryzoborus maximiliani magnirostris* Phelps & Phelps, 1950) as a synonym of the nominate taxon’ unsupported.

S. maximiliani is Endangered (BirdLife International 2019). Any effort to restore its population on Trinidad would probably require reintroduction. Although such a project is unlikely, as the threat is not habitat loss but continued trapping (ffrench 1985, White *et al.* 2015), restoration of the historical Trinidad population would depend on introduction of the correct species.

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Appendix

List of specimens examined (sex as recorded on label): AMNH = American Museum of Natural History; CM = Carnegie Museum.

S. m. maximiliani

Chapada, Mato Grosso, Brazil: AMNH 32614 (black male), AMNH 32615 (black male), AMNH 32616 (brown male); Goiás, Brazil: AMNH 514254 (brown unsexed), AMNH 514255 (black male); Brazil: AMNH 514257 (brown female), AMNH 514258 (brown female).

S. m. parkesi

Misión San Francisco de Guayo, Territorio Delta Amacuro, Venezuela: Phelps Collection 48301 (holotype, black male, on loan at AMNH); Caicara, Venezuela: AMNH 514247 (paratype, black male), 514246 (paratype, black male), 514248 (brown male); Maripa, Venezuela: AMNH 72640 (paratype, black male); El Yagual, Venezuela: CM 33265 (brown female), CM 33266 (brown male); La Bomba, Cuyuni, Venezuela: CM 33964 (brown female); Leelet, Trinidad: AMNH 514249 (paratype, black male), 514250 (paratype, black male); Princetown, Trinidad: AMNH 59130 (paratype, black male).

S. c. crassirostris

Nauta, Peru: AMNH 514252 (brown male); Jeberos, Peru: AMNH 514253 (brown male); Curaray, Ecuador: AMNH 232568 (black male); Villavicencio, Colombia: AMNH 122692 (black male), AMNH 122693 (brown female); Medellín, Colombia: AMNH 387890 (black male); 'Nouvelle Granada', Colombia: AMNH 4593 (black unsexed); 'Bogota': AMNH 514251 (black unsexed); Las Guacas, Río San Felix, Venezuela: AMNH 177791 (black male), AMNH 177792 (black male), AMNH 177793 (black male), AMNH 177794 (black male), AMNH 177795 (black male), AMNH 177796 (black male), AMNH 177797 (black male), AMNH 441389 (black male); Esuque, Venezuela: AMNH 41246 (black male); El Yagual, Venezuela: CM 33264 (brown male), CM 33267 (black male), CM 33268 (brown male); Solano, Río Casiquiare, Venezuela: AMNH 433622 (brown female), AMNH 433623 (brown female); Annai, Guyana: AMNH 41245 (black male), AMNH 514234 (brown male), AMNH 514235 (black male), AMNH 514236 (black male), AMNH 514237 (black male), AMNH 514238 (black male), AMNH 514239 (brown male), AMNH 514240 (black male), AMNH 514241 (brown female); Essequibo River, Guyana: AMNH 41253 (brown female); Paramaribo, Suriname: AMNH 313627 (black male), AMNH 514243 (black male), AMNH 514244 (brown male); Suriname: AMNH 514245 (brown unsexed), AMNH 514242 (brown male); Cucari, Pará, Brazil: AMNH 128859 (black male).