

# the world's largest canary

## SÃO TOMÉ GROSBEAK



MARTIM MELO

The São Tomé Grosbeak *Neospiza concolor* is a contender for being one of the most enigmatic bird species on the planet. This Critically Endangered species is one of the rarest – or least observed – birds in the world, and its peculiar morphology resulted in it being placed in its own genus of uncertain affinities.

Based on the shape of its head and on its massive bill, the São Tomé Grosbeak was originally placed with the Thick-billed Weaver *Amblyospiza albifrons*. In 1903, other traits were used to place it in the true finches (Fringillidae), related to canaries and seedeaters (*Serinus sensu lato*). This is the current taxonomic view, but debate persisted throughout the 20th century about the true relationships of the species, with Ernest Moreau retaining

the link to *Amblyospiza* in 1962. Genetic material was needed to confidently clarify the origins of *Neospiza*, but that is hard to come by for a bird that was not seen for close to a century. However, during his research on the origins of the endemic avifauna of the Gulf of Guinea, Martim Melo captured and bled four individuals between 2003 and 2011. These four samples provided sufficient material to infer the species' evolutionary history.

In a recent paper published in *Ibis* (<http://dx.doi.org/10.1111/ibi.12466>), mitochondrial and nuclear sequences confidently identified *Neospiza concolor* as an Old World finch (Fringillidae: Carduelinae) within the *Crithagra* seedeater/canary clade. This makes the São Tomé Grosbeak the world's largest canary, 50 per cent heavier than the next largest



ALEXANDRE VAZ

above São Tomé Grosbeak being ringed by Martim Melo.

left A large finch with a massive, parrot-like bill, the São Tomé Grosbeak is classified as Critically Endangered.

species, the Thick-billed Seedeater *Crithagra burtoni*. In this it joins other São Tomé giant endemics like the Giant Sunbird *Dreptes thomensis* and the Giant Weaver *Ploceus grandis* (the largest sunbird and *Ploceus* weaver in the world), and the Black-capped Speirops *Zosterops lugubris* and the São Tomé Thrush *Turdus olivaceofuscus*, which are the largest representatives of their families in Africa.

Of particular interest was the discovery that the grosbeak shares the São Tomé forests with a population of its closest living relative, the Príncipe Seedeater *C. rufobrunnea*. The seedeater also has populations on the neighbouring island of Príncipe and on Boné de Jóquei, an islet two kilometres off the coast of São Tomé. The Príncipe Seedeater is the fourth largest canary in the world, but

the grosbeak weighs twice as much as its closest relative, further emphasising the extent of its gigantism.

The two sister species apparently diverged within the past million years, when São Tomé was experiencing significant volcanic activity. The evolution of the grosbeak's extreme phenotype in such a relatively short time span suggests that strong natural selection drove the morphological divergence of the two species, presumably to allow their co-existence by targeting different food items, and hence reduce interspecific competition. Selection appears to have been most marked on the proto-grosbeak population, as the seedeaters on São Tomé differ little from those found on Príncipe and Boné de Jóquei where there is no grosbeak.

The São Tomé Grosbeak was discovered in 1888, when the Portuguese naturalist Francisco Newton collected a male in the forests of south-eastern São Tomé; in 1890, he collected another two males in the south-western forests. Newton reported the species to be extremely rare, but he probably never

suspected that it would be 101 years before it was rediscovered in August 1991 by a group of birdwatchers that included Dave Sargeant and Ian Sinclair.

### THE GROSBEAK WEIGHS TWICE AS MUCH AS ITS CLOSEST RELATIVE, FURTHER EMPHASISING THE EXTENT OF ITS GIGANTISM

The fact that two of the three specimens collected by Newton were lost in the 1978 fire that destroyed the Natural History Museum in Lisbon served to deepen the aura of mystery surrounding this species, long thought to be extinct and now classified as Critically Endangered. Apart from two unconfirmed records in 1997, several individuals were confidently observed again (and photographed) only in January 2002 by Martin Dallimer and colleagues, close to the area of its rediscovery. In December 2002, Martim Melo discovered a new area, probably close to the first place of capture by Newton, and in January 2003 caught one individual there. In February 2005 and July 2011,

Martim captured another three individuals near where Sinclair and Sargeant rediscovered the species.

During the past decade an increasing number of visits by birdwatchers have led to additional sightings, almost all in the same areas where the captures were made. Concerted survey efforts, led by Ricardo Lima and BirdLife International, have resulted in a better understanding of the species' distribution on the island (<https://doi.org/10.1017/S0959270916000241>).

The grosbeak is without doubt the most difficult-to-observe bird on São Tomé and although it is clear that it depends on primary forest, no clear pattern of habitat preference has emerged. The limited genetic data has shown surprisingly high levels of variation for such a rare species. This information, together with the unpredictable location of sightings, gives hope that it might just be a very difficult species to observe, perhaps a canopy specialist that only occasionally comes down to delight us.

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