CUBAN SPARROW *Torreornis inexpectata* **V/R**[10]

Three racially distinct populations of this scrub-dwelling emberizid occur in Cuba, in the Zapata Swamp, on Cayo Coco and on a small stretch of the south-east coast, and the total numbers appear small; each population occupies a somewhat different habitat and faces a different threat.

DISTRIBUTION The Cuban Sparrow (see Remarks 1) is endemic to Cuba and restricted to three isolated and subspecifically distinct populations in Matanzas, Camagüey and Guantánamo provinces, although fossils from caves in Oriente (see Remarks 2) and Habana provinces indicate that these populations are remnants of a once wider distribution (Pregill and Olson 1981, Regalado Ruíz 1981, Morton and González Alonso 1982).

Matanzas Nominate *inexpectata* was known principally for almost 50 years from an area north of Santo Tomás (22°24'N 81°25'W in OG 1963a) in the Zapata Swamp (Ciénaga de Zapata) which was believed to be no larger than 5-10 km^2 (Paynter and Storer 1970, Garrido 1980, Regalado Ruíz 1981). Skins in AMNH, BMNH, CM and MNHN simply give "Santo Tomás", although those in USNM add "2 km north-west". The species is still present in the area albeit in small numbers (see Population). In October 1955 a population was discovered to the south-west at Las Mercedes (22°22'N 81°28'W in OG 1963a) (five skins in YPM; see also Ripley and Watson 1956), and in 1980–1982 a study further expanded the known range of this subspecies c.25 km to the west (González Alonso *et al.* 1986), new localities being: Canal de la Mueca (22°25'N 81°39'W); La Estricnina (22°24'N 81°39'W); Laguna El Palmar (22°23'N 81°43'W); Cayos de Gervedero (22°23'N 81°44'W); Cayo Corral (22°22'N 81°45'W) (all coordinates from González Alonso *et al.* 1986). Additional records are from Hato de Jicarita (22°37'N 81°27'W in OG 1963a), undated (O. H. Garrido *in litt.* 1991).

Camagüey In the Archipiélago de Camagüey the race *varonai* is only known from Cayo Coco (Regalado Ruíz 1981).

Guantánamo The race *sigmani* is restricted to the south coast of the province, the type having been collected 2.3 miles (c.3.7 km) west of Baitiquirí (20°01'N 74°53'W in OG 1963a) (Spence and Smith 1961). The western limit for this subspecies is 5 km east of Tortuguilla (19°58'N 74°59'W in OG 1963a) (González Alonso *et al.* 1986), with the eastern limit at Cajobabo (20°04'N 74°30'W in OG 1963a) (Garrido 1985), but not all habitats in the 27 km between these two points are suitable (González Alonso *et al.* 1986). Three specimens in USNM are labelled "3 km east of Imias", which is within the range mentioned above. There are no reports inland, even though similar habitat extends 50 km inland from the coast (E. S. Morton *in litt.* 1991).

POPULATION The Cuban Sparrow has been considered common but extremely local (Garrido 1985). That it was not discovered until 1927 (Barbour and Peters 1927), and subsequent populations (which proved racially distinct) not until the late 1950s (Spence and Smith 1961) and mid-1970s (Regalado Ruíz 1981), indicates its true patchiness and relatively small numbers.

Matanzas The nominate subspecies was encountered frequently in 1931 (Bond 1973) and from the evidence derived from the specimens collected in April 1927 (at least eight in AMNH, BM, CM and MNHN, with one skin in ANSP taken in February) and October 1955 at Las Mercedes (five in YPM), it seems likely that the bird was common within its very restricted range. García (undated) commented that the species was common in 1962 in the Santo Tomás area, having observed as many as 12 birds on one of his visits. Garrido (1980) also recorded having seen the Cuban Sparrow on "every expedition to the locality" up to 1965, but after that date he could not find it. García (undated) also mentioned a decline in numbers and pointed out that in 1973 none could be found, although in 1977 a flock of 12 birds was observed; and while Regalado Ruíz (1981) located this subspecies with ease, García (undated) still considered it, like *sigmani*, to be "very scarce and in danger of extinction". The first population estimate was of about 250 individuals (Morton and González Alonso 1982); however the new localities found by González Alonso *et al.* (1986) (see Distribution) obviously imply that the actual figure is higher. According to H. González Alonso (*in litt.* 1991), the nominate race has substantially increased within the area of Santo Tomás as a result of the area being protected (see Threats, Measures Taken) and it is still present in the area of Santo Tomás although difficult to find (O. H. Garrido *in litt.* 1991, Sulley and Sulley 1992).

Camagüey Regalado Ruíz (1981) reported the race *varonai* to be numerous and very common and its population by far the least at risk of the three subspecies, although no estimate of numbers exists.

Guantánamo The race *sigmani* is thought to consist of 55 to 100 pairs (Morton and González Alonso 1982) and no evidence of decline has been detected (King 1978-1979), although it is the most imperilled of the three populations (E. S. Morton *in litt*. 1991, also Garrido 1985; see Threats).

ECOLOGY The Cuban Sparrow occurs in three remarkably different habitats. Nominate *inexpectata* is restricted to shrubbery in the Zapata Swamp near the higher ground of Santo Tomás (Bond 1979), where sawgrass *Cladium jamaicense* swamp filled with "arraigán" *Myrica cerifera* hummocks and "yana" *Conocarpus erecta* are present (Garrido and García Montaña 1975, Regalado Ruíz 1981, Morton and González Alonso 1982). The Santo Tomás area is the least swampy part of the region (Garrido and García Montaña 1975), and practically dries up at certain times of the year, making the habitat of the nominate population more like that of scrub grassland (Pregill and Olson 1981). The *sigmani* subspecies is restricted to an extremely hot, dry area of Cuba, on the southern Guantánamo coast, where old marine terrace is covered with xerophytic plants like acacia and cacti, backed by a cliff at whose base is a dense tangle of vines, shrubs and a few large trees (Spence and Smith 1961, Schwartz and Klinikowski 1963); suitable habitat is indicated by coastal incense *Tournefortia gnaphalodes*, as it offers a major part of the food (see below); many of the same plant species occur in the non-*Torreornis* areas but the phytophysiognomy is different, and apparently unacceptable to the bird (Morton and González Alonso 1982). The *varonai* subspecies inhabits semi-deciduous forest, and also coastal xerophytic thorn-scrub known as "manigua" and mangroves (only where "yana" is present) (Regalado Ruíz 1981). The manigua and mangroves are believed to be occupied by the species only during winter months (Regalado Ruíz 1981). It thus seems that the original habitat of the Cuban Sparrow was arid scrub, and that this habitat must have been continuous across much of Cuba in the late Pleistocene (Pregill and Olson 1981).

Observations and stomach analysis conducted by González Alonso *et al.* (1986) on the nominate subspecies in the early 1980s revealed that during the dry season (November to the beginning of May) birds were feeding on seeds and flowers of small plants of the family Polygonaceae (*Polygonum densiflorum*) and Cyperaceae (*Rhynchospora ciperoides*, *Eleocharis elegans* and *Dichromena colorata*) as well as "arraigán" and "yanilla blanca" *Ilex cassini* fruits; during the rainy season (May–October) the nominate subspecies widens its diet to include snail eggs *Pomacea paludosa* (previously observed by E. S. Morton *in litt.* 1991), and indeed spends almost 54% of its time in foraging for them; six stomachs from this season contained an average of 40 embryonic snails, plus "yanilla blanca" fruits and sawgrass seeds. The eastern race *sigmani* is closely associated with the coastal incense shrub, whose small seed pods were its staple (Morton and González Alonso 1982), while González Alonso *et al.* (1986) found remains of mollusc shells and seeds in stomachs analysed during the rainy season. The *varonai* subspecies has been observed foraging on the ground for insects and seeds (Regalado Ruíz 1981), and stomachs of birds collected during the rainy season contained remains of Coleoptera (Tenebrionidae) and seeds and fruits of *Paspalum* sp. (González Alonso *et al.* 1986).

Breeding was reported in April 1935 by Bond (1973), who found a nest with one egg (presumably an incomplete clutch) in a tussock of sawgrass. At the end of August 1960 Schwartz and Klinikowski (1963) commented that the species had already nested but was continuing to do so. González Alonso *et al.* (1982) gave the breeding season for the nominate subspecies from March to June, reporting a nest on 5 May 1980 that held two chicks; a second nest was started on 25 April and a third on 11 May, these being finished on 27 and 13 May 1981 respectively, although neither was used; a fourth nest found in May 1981 contained eggshells. The nest is constructed in tussocks formed of sawgrass, "arraigán", "yanilla blanca" and "icaco" *Chrysobalanus icaco* (González Alonso *et al.* 1982, which see for further details).

The Cuban Sparrow lives in pairs that appear to defend territories throughout the year and, although the birds were not breeding during a vocalization study in late October and early November, duetting songs occurred and were believed to signify strong selection for mate cooperation in territorial defence throughout the year (González Alonso *et al.* 1982, Morton and González Alonso 1982). These authors never observed more than two birds together in the *sigmani* subspecies, but they found groups up to three or four as well as pairs of the nominate subspecies at the end of October and beginning of November 1979, and consequently they suggested that perhaps the breeding season is later in the Zapata Swamp. Morton and González Alonso (1982) never observed more than two birds together in the *sigmani* subspecies whereas *varonai*, although observed mainly in pairs, from time to time forms flocks of up to 10-12 birds (Regalado Ruíz 1981). Observations of the nominate subspecies in 1981 showed that from September to February groups were usually composed of three individuals and that in March they

separated in to pairs to start reproduction (González Alonso *et al.* 1982); in the Zapata Swamp, four pairs were found on c.12 ha, which would correspond to c.3 ha per pair (González Alonso *et al.* 1982).

THREATS The future of the nominate subspecies is dependent on the preservation of the part of the Zapata Swamp in which the bird is found, proposals to drain large portions having not yet been implemented (King 1978-1979). Burning of habitat there continues to occur year after year by local people in search of turtles and rodents *Capromys* (Regalado Ruíz 1981, O. H. Garrido *in litt.* 1991). The *sigmani* race is apparently the most endangered of the three populations owing to the vulnerability of its dry habitat to burning, which results in grasses taking over; also, part of this habitat was being fenced in 1980 for sheep, with unforeseeable consequences (E. S. Morton *in litt*. 1991). Regalado Ruíz (1981) noted that in Cayo Coco extensive areas formed mainly of the mangrove *Conocarpus erecta* were being cut for charcoal, but with no clear idea of the possible effect of such habitat loss (Regalado Ruíz 1981), but this practice has now been stopped (P. Regalado Ruíz *in litt.* 1992). According to O. H. Garrido (*in litt*. 1991) and P. Regalado Ruíz *(in litt.* 1992) Cayo Coco is being developed as a tourist centre, but see Measures Taken.

MEASURES TAKEN The three subspecies benefit to some degree from protected areas, the nominate population from the Corral de Santo Tomás Faunal Refuge, which consists of 10,000 ha of protected land (but see Threats); race *varonai* from the 34,000 ha Cayo Coco Faunal Refuge and *sigmani* from the 11,000 ha Baitiquirí-Cajobabo National Park (Wright 1988; see also ICGC 1978).

MEASURES PROPOSED A survey of the species is urgently needed, with a special effort to delimit accurately its range and potential threats (see Remarks under Zapata Rail *Cyanolimnas cerverai*). Dry-season burning of the Zapata Swamp must be investigated and controlled. The Baitiquirí-Cajobabo National Park and Cayo Coco and Corral de Santo Tomás Faunal Refuges in which the species is now found should be carefully managed and activities within them controlled in order to ensure the species's survival. Furthermore, the number of visitors to the interior of Cayo Coco needs regulating and they should always be accompanied by the guards (P. Regalado Ruíz *in litt.* 1992). Periodic censuses should be carried out to determine population trends.

REMARKS (1) This bird was previously referred to as the Zapata Sparrow, since for many years it was only known to occur in the Zapata Swamp. However, as suggested by P. Regalado Ruíz (*in litt.* 1992), "Cuban Sparrow" is perhaps more appropriate considering its current known range. (2) Oriente is the old name for a province that at present has been split in the following provinces: Las Tunas, Granma, Holguín, Santiago de Cuba and Guantánamo.