

*Confined to the dwindling and highly fragmented cloud-forests of eastern Mexico, this rare game-bird has become locally extinct and is severely threatened elsewhere, largely as a result of habitat destruction on a major scale, although hunting may have played a part.*

**DISTRIBUTION** The Bearded Wood-partridge is endemic to the mountains of the Sierra Madre Oriental in southern San Luis Potosí (and possibly Querétaro: see Remarks 1) and northern Hidalgo, southwards along the escarpment to central Veracruz and Puebla, Mexico. In the following account coordinates are taken from OG (1956a).



*San Luis Potosí* This species has been recorded from the south-east near the borders with Querétaro, Hidalgo and Veracruz, almost exclusively in the vicinity of Xilitla. It was first collected in the state in 1947 when a female and three downy young were taken on 12 June and a male on 2 September at 1,220-1,310 m on Cerro Miramar (one of several peaks west of Xilitla: A. G. Navarro and A. T. Peterson

*in litt.* 1991). From Cerro San Antonio<sup>1</sup> (just west of Xilitla), specimens were collected in July 1950 (a male) and November 1951 (a male and female; all in LSUMZ: Lowery and Newman 1951). West of Cerro San Antonio, the species was recorded between 1,525-2,135 m at Cerro Conejo, in December 1951 (Davis 1952). Specimens were taken c.10 km west of Ahuacatlán<sup>2</sup> (21°19'N 99°03'W; c.8 km south-west of Xilitla) at 1,830 m, in June 1951 (a half-grown juvenile) and in August 1951 (two males and a female; all in LSUMZ), with further observations also being made "west of Ahuacatlán" during November and December 1951 at 1,525 m (Davis 1952; see Remarks 1).

*Hidalgo* There are apparently just three specimens (all in LSUMZ) from Hidalgo: a male taken 15 November 1958, 35 km south of Tamazunchale<sup>3</sup>; and two hatchlings taken at Apetsco<sup>4</sup> (= Apesco, at 20°49'N 99°18'W) in April 1948. Birds have been recorded at Puerto El Rayo<sup>5</sup>, north-east of Tlanchinol, where live birds were obtained from cloud-forest, and locals reported the species in remnant forest blocks at less than 915 m (Johnsgard 1988, P. A. Johnsgard *in litt.* 1991: see Remarks 2); and nearby at c.8 km north of Tlanchinol, where S. N. G. Howell (*in litt.* 1987, 1991) saw one at c.1,525 m in December 1986. These sites are all in north-central Hidalgo *contra* Johnsgard (1973, 1988) and AOU (1983).

*Puebla* In the north of the state, the Bearded Wood-partridge has been collected at Scapa<sup>6</sup>, 5 km north-east of Huachinango (two males taken at 1,220 m on 14 December 1947, in MLZ), with a pair found near Teziutlán<sup>7</sup> (19°49'N 97°21'W) in February 1977 (D. A. Scott *in litt.* 1985). Further south, Johnsgard (1973) reported the species from Orizaba, Puebla (details given under Veracruz).

*Veracruz* Most records of the Bearded Wood-partridge come from the Cofre de Perote area of the state, nine specimens coming from "Jalapa" (two taken in 1872 and 1881, the remainder with no data but apparently collected at the end of the nineteenth century; in ANSP, BMNH, MCZ). Jalapa has been doubted as an actual collecting locality (Chapman 1898, Loetscher 1941), a better description probably being the "vicinity of" or the "environs of" Jalapa, both terms used by Sclater (1857a, 1859a), although at the time these specimens were collected Jalapa was situated within cloud-forest and was presumably a suitable locality (A. G. Navarro and A. T. Peterson *in litt.* 1991). A female (in LSUMZ) was collected in 1968 near Coatepec<sup>8</sup> (19°27'N 96°58'W), and in June/July 1893 11 specimens (in USNM) were taken at "Jico"<sup>9</sup> (Xico at 19°25'N 97°00'W), both localities just south and west of Jalapa and east of Cofre de Perote. Cofre de Perote<sup>10</sup> (19°29'N 97°08'W) was mentioned as a locality by Leopold (1959) and

Johnsgard (1973), the latter describing the species as occurring sympatrically there with Long-tailed Wood-partridge *Dendrortyx macroura*. Whether “Cofre de Perote” actually refers to the Jalapa, Coatepec and Xico records is unknown, although these records invariably come from the lower slopes of the mountain. Further south in Veracruz, records come from the vicinity of Pico de Orizaba: two specimens were taken at “Orizaba”<sup>11</sup> during the nineteenth century (in MCZ) and a male was collected at Nogales<sup>12</sup> (18°49'N 97°10'W), south-west of Orizaba, in July 1891 (in MNHN). Leopold (1959) mentioned Pico de Orizaba as a locality although again it is unknown if this is a generalization stemming from the Orizaba and Nogales records, Sumichrast (1881) listing the species from the “alpine region of Orizaba”. Johnsgard (1973), as mentioned earlier, recorded it from Orizaba, Puebla: Pico de Orizaba straddles the Veracruz–Puebla border and he may well have been referring to a record from the Puebla side of the mountain. The Bearded Wood-partridge has also been collected at Dos Caminos, km 354 (untraced, but on the road from Teziutlán to Nautla and km 354 from Mexico City: M. A. Traylor *in litt.* 1991), where a male and female were taken at 1,370 m in August 1948 (specimens in FMNH).

**POPULATION** Little specific information exists. At the end of the nineteenth century, Salvin and Godman (1888-1904) wrote that in the highland forests of Veracruz it is a rarer bird than the Long-tailed Wood-partridge. At around this time, 10 specimens (seven males, two females and a juvenile, in USNM) were taken at Xico, 4-15 July 1893, suggesting that on the lower slopes of Cofre de Perote the species was not uncommon. It was not recorded again until the late 1940s (see Lowery and Newman 1951), Loetscher (1941) concluding that it was locally rare or very rare and suggesting that there was a remote possibility of its extinction.

When the species was “rediscovered” in 1947 around Xilitla, San Luis Potosí (see Distribution), Lowery and Newman (1951), who collected a female and three young on Cerro San Antonio (12 June 1947), considered it a not uncommon resident in the area. Most “recent” specimens come from the Xilitla area (in LSUMZ), and observations include 17 seen in five days during November and December 1951 (Davis 1952); these latter break down as six seen in one day between 1,220-1,525 m, two seen in a day west of Ahuacatlán, and three in a day at Cerro Conejo, all of which suggests that a sizeable population existed in this part of San Luis Potosí, although its present status is very doubtful owing to the almost total removal of forest (see Threats).

In Hidalgo the species is apparently rare near Tlanchinol, where one was seen in December 1986, although locals said that the bird could be heard fairly frequently (S. N. G. Howell *in litt.* 1991). In 1990, no birds were observed near this site and the locals this time claimed that the species no longer occurred in the immediate vicinity, although with fairly extensive areas of forest left in the area it could still be present (S. N. G. Howell *in litt.* 1991).

In Veracruz, the present status of the population is unknown, although a female collected in 1968 near Coatepec (in LSUMZ) suggests an extant population in the Cofre de Perote area; however, recent investigations by ornithologists from MZFC (around Xico, Cofre de Perote and Jalapa) revealed no evidence of the bird, most of the forest in central Veracruz having been destroyed (A. G. Navarro and A. T. Peterson *in litt.* 1991). There have been no specimens taken in the Orizaba area since the late nineteenth century, although Leopold's (1959) comment that the species is sympatric with Long-tailed Wood-partridge on Pico de Orizaba, and Johnsgard's (1973) similar comment, imply that there may be more recent records. A population may survive near Teziutlán, Puebla (see Distribution).

**ECOLOGY** The endemic Bearded Wood-partridge is resident in humid montane forests of the subtropical and possibly the lower temperate zones (Loetscher 1941, AOU 1983). Most records of this bird come from between 1,220 and 2,135 m (see Distribution), although Johnsgard (1988) was told by locals in Hidalgo that the species occurred in primary forest remnants at elevations of less than 915 m (see Remarks 2). The species is mostly associated with montane cloud-forests (Lowery and Newman 1951, Johnsgard 1988), and more specifically in the Xilitla region it has been found in the oak–sweetgum–treefern association at 1,220-1,525 m; west of Ahuacatlán it was seen in an area of mixed pine and oak where the ground was covered with scattered shrubs and grass (epiphytes and vines being relatively scarce), at 1,525 m on the dry side of the mountain; on the wet slope of Cerro Conejo between 1,525-2,135 m in woods of mostly pine, with some oak lower down (Davis 1952); and near Tlanchinol, in humid evergreen montane forest (with oaks and treeferns) (S. N. G. Howell *in litt.* 1991), P. A. Johnsgard (*in litt.* 1991) describing this area as a patchwork of cloud-forest with small plantings of maize and beans.

In Hidalgo, the species reportedly visits planted fields in forest openings when the black beans are ripening (Johnsgard 1988). A male taken at Orizaba in July 1891 (in MNHN) was found to contain fruit and seed. Captive birds were noted to relish soft fruit and fairly large seeds such as soaked black beans and maize kernels (Johnsgard 1988).

In the Xilitla region, downy young have been noted on 28 April, 2 May, 6 June, with three on 12 June (all in LSUMZ; see also Lowery and Newman 1951) and at Xico, Veracruz, one was collected on 9 July 1893 (in USNM). Clutch-size is unknown although Johnsgard (1988) kept five birds apparently all from the same brood, suggesting that the clutch would normally be slightly greater than five. The incubation period in captivity was noted at 28-30 days (Johnsgard 1988). Adult Bearded Wood-partridges are extremely difficult to secure (Lowery and Newman 1951), probably only flushing to nearby trees on the approach of hunting dogs (Leopold 1959). The species is thought to be sympatric with Long-tailed Wood-partridge in a few areas such as Pico de Orizaba and Cofre de Perote (Salvin and Godman 1888-1904, Leopold 1959, Johnsgard 1988), although S. N. G. Howell (*in litt.* 1991) has suggested that a habitat difference exists between the two species, Bearded Wood-partridge preferring humid evergreen montane forest and Long-tailed Wood-partridge usually found at higher elevations in pine evergreen forest.

**THREATS** The Bearded Wood-partridge is reliant upon a limited area of humid montane forest, and as a result is vulnerable to deforestation: rampant destruction of the primary forest within its range (S. N. G. Howell *in litt.* 1987) has resulted in little hope for the species's long-term survival (Johnsgard 1988). Most of the cloud-forest in central Veracruz has been destroyed (A. G. Navarro and A. T. Peterson *in litt.* 1991), and the forests near Xilitla (San Luis Potosí) and around Teziutlán (Puebla), which in the past supported sizeable populations of this species (see Population), have also been extensively cut and cleared (S. N. G. Howell *in litt.* 1991). Cloud-forest in Querétaro (in which the bird presumably occurred: see Remarks 1) is located in a very narrow area on the border with San Luis Potosí and Hidalgo (very close to or once continuous with forest near Xilitla), and (as of July 1991) is almost completely destroyed (A. G. Navarro and A. T. Peterson *in litt.* 1991).

Local residents in Hidalgo report the species from primary forest remnants lower than 915 m (c.300 m below its usual altitudinal range: see Ecology), which (if correct: see Remarks 2) suggests that it can tolerate a certain degree of deforestation and habitat fragmentation (although probably not in combination with hunting), but it is unknown whether these reports refer to the same birds that visit fields of ripening black beans (see Ecology) and which in fact still rely upon pristine forest higher up once this seasonal food source has gone. The Tlanchinol area of Hidalgo has been cleared rapidly during the last two years, although it still contains some large patches of good habitat (A. G. Navarro and A. T. Peterson *in litt.* 1991).

Adult birds are very difficult to secure (Lowery and Newman 1951), *Dendrortyx* species in general being hunted little in Mexico; only when dogs are used, flushing the birds into nearby trees, can they be shot (Leopold 1959). Nevertheless, S. N. G. Howell (*in litt.* 1987) has suggested that subsistence hunting is a threat and, speaking to locals in an area of forest where the species still occurs, found that dogs and traps were used to secure the birds. Also, three downy young were purchased from locals in the Xilitla region (specimens in LSUMZ) and Johnsgard (1988) obtained live specimens (presumably the five from one brood mentioned in Ecology) that had been captured in cloud-forest in Hidalgo, all of which suggests that young are caught and raised (for food) at least on an opportunistic level.

**MEASURES TAKEN** There are three national parks within the immediate range of the species, all in Veracruz. The Cofre de Perote National Park covers areas where the species has been recorded (see Distribution), although agricultural practices are carried out in at least part of the park and may well still threaten the bird there (Vargas Márquez 1984). Further south in Veracruz are the Cañon del Río Blanco National Park (55,690 ha), situated along route 150 from Orizaba to the Puebla border, and Pico de Orizaba National Park (19,750 ha, straddling the Puebla–Veracruz border: Anon. 1989), both of which include areas where the species is known to have occurred, although its current status there is unknown (see Population).

**MEASURES PROPOSED** The priority for the Bearded Wood-partridge is obviously to locate any existing viable populations and to protect the habitat in these areas. Such protection should be augmented with a total hunting ban, and more realistically an education programme to persuade locals not to hunt this

species. An aerial survey would perhaps speed up the process of identifying suitable patches of remaining habitat which could then be targeted for fieldwork and protection.

The Tlanchinol area of Hidalgo appears to be the immediate priority for protection, with possibly more surviving habitat and birds than most other areas (but see Threats), although the area around Tenango de Daria still holds good forest (A. G. Navarro and A. T. Peterson *in litt.* 1991) and also warrants investigation. Any suitable remaining forest in the Xilitla (San Luis Potosí) and Teziutlán (Puebla) (see Population) regions needs protection, with surveys to determine the viability of each area for this species.

The status of any populations and suitable habitat (if in fact any still exists) within the present Veracruz national parks needs to be assessed (the Dwarf Jay *Cyanolyca nana* – see relevant account – was originally known from the same parks, although it has not been recorded there in recent years). The precise ecological requirements of the partridge are still unknown, and a detailed study is needed to help with the identification of other suitable (potential) areas.

**REMARKS** (1) The San Luis Potosí–Querétaro border lies just c.5-8 km west of Ahuacatlán, obviously further by road, but suggesting that records from up to 10 km west of Ahuacatlán may possibly be from Querétaro state and not San Luis Potosí. (2) The altitude of 915 m seems particularly low and its origin is unknown. The village of Puerto El Rayo is apparently at c.1,675 m, and nearby Tlanchinol at c.1,525 m; however, it is possible that suitable habitat exists (or existed) as low as 915 m close to these villages.