BLACK-BREASTED PUFFLEG *Eriocnemis nigrivestis* **E**[1]

The Black-breasted Puffleg is restricted to two adjacent volcanoes in north-west Ecuador, where it seems to be confined to temperate zone ridge-top elfin forest. Some of these ridges have been subject to cultivation, and unless action is taken the species may soon become extinct.

DISTRIBUTION The Black-breasted Puffleg is confined to Volcán Pichincha and Volcán Atacazo, Pichincha province, north-west Ecuador, where it has been recorded at 2,745-3,050 m (2,440 m) from April to June, and at 3,100-4,570 m (4,725 m) from November to February (Bleiweiss and Olalla 1983; label data on specimens in AMNH, BMNH, NRM and USNM; but see Remarks 1, 2). Some of the localities on Volcán Pichincha given on specimen labels were not traced by Paynter and Traylor (1977), e.g. "Cochabamba" and "Ilambo" (specimens in BMNH), but all sites that have been located are situated on ridge crests on the north side of the volcano: Cerro Pugsi (c.0°06'S 78°36'W), between río Mindo and río Verdecocha; Frutillas (0°05'S 78°34'W); Yanococha (c.0°06'S 78°33'W); and Cerro Alaspungo (c.0°01'N 78°34'W) (Bleiweiss and Ollalla 1983; coordinates read from map in Bleiweiss and Olalla 1983). Evidence of the species's occurrence on Volcán Atacazo seems to rest entirely on three males (specimens in USNM) taken in December 1898 (also Oberholser 1902), although a female hummingbird sighted at the treeline (at 3,500 m) in October 1983 appeared to be of this species (NK).

POPULATION The large number of museum specimens (see Remarks 2) suggests that the species was fairly common to common in the past (NK). However, the rapid disappearance of its specialized habitat (Bleiweiss and Olalla 1983), and the paucity of recent sightings despite intensive searches by many observers (P. Greenfield verbally 1984, NK), seem to indicate that it is now rare and vanishing.

ECOLOGY The habitat description in this paragraph is taken from Bleiweiss and Olalla (1983). The Black-breasted Puffleg inhabits humid temperate forest and edge, and appears to be specialized to the vegetation found on ridge crests (i.e. elfin forest): in September 1980, the vegetation on one of these crests (Cerro Pugsi) at 3,020 m was found to be shorter in height than that on surrounding slopes or in valleys, most trees not exceeding 8-10 m and being heavily laden with epiphytes, with the ground covered in a dense growth of ericaceans. Several areas were grazed by cattle, resulting in local grassy openings and, where grazing was not as intensive, in lush second growth primarily of brambles *Rubus* sp. The most conspicuous plant in bloom in the understorey was the small rubiacean tree *Palicourea huigrensis*, with bright blue flowers borne on large panicles. Among the ericaceans were several species of *Disterigma* that formed large tangles up to canopy height as well as less conspicuous species of scrambling form including *Thibaudia floribunda* and *Macleania macrantha*. The undergrowth was rich in flowering herbaceous plants, creepers and vines. During September, several of the commoner plants were nearing the end of flowering, e.g. *Palicourea huigrensis* and the ericaceans.

The fact that specimens taken or seen from November to February are reported as having been at 3,100-4,725 m and those from April to September at 2,400-3,050 m may suggest seasonal migration; the highest elevation recorded (4,725 m) was of a male, and the lowest (2,440 m) of a female, but both sexes have been recorded at 2,745-4,562 m (Bleiweiss and Olalla 1983; specimens in AMNH, ANSP, BMNH, NRM and USNM; see also Remarks 3), and more evidence is needed to prove a difference in elevational preference between the sexes, although this is known to be the case in a number of species of hummingbird, e.g. Viridian Metaltail *Metallura williami* and Rufous-capped Thornbill *Chalcostigma ruficeps* (NK). During a study on Cerro Pugsi during September, two males and a female were observed and the following flower visits noted for the males, the figure in brackets being the number of visits observed: shrubs and scramblers, *Thibaudia floribunda* (22), *Disterigma* cf. *acuminatum* (12), *D. acuminatum* (4), *Rubus* sp. (12), *Macleania macrantha* (4 through holes in the corolla either made by them or, more likely, Glossy Flowerpiercers *Diglossa lafresnayii*), *Miconia hymenanthera* (2), and *Fuchsia* cf. *silvatica* (1); vines or climbers, *Tropaeolum pubescens* (7), *Heppiella ampla* (6), *Burmeistera* sp. (5), and *Manettia recurva* (1); herbs, *Psychotria uliginosa* (7); and small trees, *Miconia corymbiformis* (1) and *Palicourea huigrensis* (92) (Bleiweiss and Olalla 1983). The female was recorded feeding from *Rubus* sp.

BirdLife International (1992) Threatened Birds of the Americas.
Cambridge, UK: BirdLife International.

(1) and *Palicourea huigrensis* (24), but as it was only recorded in a *Palicourea* grove with few alternative nectar sources the difference in male–female diet-breadth may be an artefact (Bleiweiss and Olalla 1983).

The pufflegs often extracted nectar while perched (Bleiweiss and Olalla 1983): a male studied closely spent most time in its feeding area perched atop a small (4 m) tree or on nearby secondary perches, from which it would never vocalize, but did catch insects and chased other hummingbird species and Glossy Flowerpiercers; continuous time on the perch ranged from a few seconds to over nine minutes, but was usually 2-4 minutes; from 07h00 to 15h00 it spent 131 minutes perching and had 60 feeding bouts, while the female for the same period had 17 minutes of perching and 18 feeding bouts and thus spent less time in her feeding area; the female adopted inconspicuous perches and never chased after hummingbirds (Bleiweiss and Olalla 1983). The unpronounced territoriality of the male and complete absence of such in the female may have been a seasonal effect (Bleiweiss and Olalla 1983). Nothing is known on breeding, but most hummingbirds on Volcán Pichincha breed between October and March (J. C. Mathéus verbally 1987). The variety of foodplants used and wide distribution of the favoured *Palicourea* suggest that factors other than nectar sources are responsible for the limited distribution of the Black-breasted Puffleg (Bleiweiss and Olalla 1983).

THREATS The vegetation on the ridge crests is disappearing more rapidly than surrounding vegetation because the crests provide flat ground for cultivation in an otherwise steep terrain; the deforestation of these crests was already noted by Chapman (1926). The crests of both Alaspungo and Frutillas have been almost completely cleared of their natural vegetation and, even if the Black-breasted Puffleg still occurs on these ridges, it is doubtful that they do so in any numbers; searches for it there in recent years have proved negative, and on the only site with recent records, Cerro Pugsi, clearing is now progressing (Bleiweiss 1982, Bleiweiss and Olalla 1983).

MEASURES TAKEN None is known.

MEASURES PROPOSED It is essential that remaining areas of ridge-crest forest and other suitable habitat in these areas is secured for the conservation of this species. A more precise assessment of its ecological requirements, especially with reference to its breeding sites and altitudinal movements, is urgently required.

REMARKS (1) Specimens (in BMNH and FMNH) marked “Napo” and “Sarayacu” have undoubtedly been mislabelled, and some marked “Intag”, which is in Imbabura, possibly so (NK). (2) The 100 and more specimens in various museums are believed to have been taken on Volcán Pichincha, although most are insufficiently labelled, e.g. “Ecuador”, “N. Ecuador”, “Quito”, “Tumbaco”, “Pichincha”, “Gualea” (Bleiweiss and Olalla 1983; specimens in AMNH, ANSP, BMNH, FMNH, NRM, ROM, USMN and ZMUC). (3) Records from above 4,000 m seem somewhat dubious as this is well above the treeline. The only records of the species above 3,000 m are the series collected by W. Goodfellow and C. Hamilton between November 1898 and February 1899, and these specimens are labelled as having been taken at “3,660-4,570 m”, “3,960 m”, “3,960-4,270 m”, “4,170 m” and “near summit” (females), and “4,270 m” and “4,725 m” (males) (specimens in BMNH and USNM).