

This parakeet is restricted to the Central Andes of Colombia, from Caldas to Cauca departments, where it occurs at 3,200 to 4,000 m in shrubland of the temperate forest/páramo ecotone. The total population has been put at 1,000-2,000 individuals, although habitat degradation is such that the true figure may be lower.

DISTRIBUTION The Rufous-fronted Parakeet (see Remarks), described from a single “Bogotá” specimen (Lawrence 1880b), has been sighted or collected in only two areas of the Central Andes of Colombia (all coordinates are from Paynter and Traylor 1981), (1) the Nevado del Ruiz–Nevado del Tolima volcanic complex lying at the juncture of Caldas, Risaralda, Quindío and Tolima departments, and (2) the slopes of Volcán Puracé, Cauca department, c.280 km south-south-west of Nevado del Tolima; however, it is probably a low-density resident all the way from Nevado del Ruiz to Volcán Puracé (Graves and Giraldo 1987). Records are:

the Nevado del Ruiz–Nevado del Tolima area the páramo de Ruiz, September 1918 (Carriker 1955a); Nevado del Ruiz, c.4,000 m, in 1975, when a few small parrots were presumed to be this species (Ridgely 1981a); the vicinity of Laguna de Otún (3,950 m), 4°47'N 75°26'W, south-west of Nevado de Santa Isabel, Risaralda, where many were seen and two collected in August 1985 (Graves and Giraldo 1987); Alto Quindío Acaime Natural Reserve, 4°37'N 75°28'W, September 1989 and April 1990, and the nearby Cañon del Quindío Natural Reserve on the southern boundary of Los Nevados National Park (Renjifo 1991, L. M. Renjifo *in litt.* 1992, whence coordinates); Hacienda Indostán (3,280 m), Anzoátegui municipality, Tolima, where one specimen was collected (Graves and Giraldo 1987); the Manizales-Ruiz road on the north slope of Nevado del Ruiz at 3,540 m, when a flock of three was observed in January 1986 (Graves and Giraldo 1987); the río Guali–Libani road on the north-west slope of Nevado del Ruiz, when a pair was seen in January 1986 (Graves and Giraldo 1987); the río Guali canyon, 4,000 m, where eight were seen in April 1992 (J. A. Giraldo *in litt.* 1992); and in the páramo zone of Nevado del Tolima, 1985 (J. I. Hernández Camacho verbally 1991);

Volcán Puracé in Cauca department, where a specimen (in USNM) was collected in February 1955 at Gabriel López (“2,835 m”), 2°29'N 76°18'W, and another (in FMNH) nearby in January 1957 at Malvasá, 3,000 m.

An entirely untraced locality is Alto Valle de Lagunillas, where in 1985 the species was found at 3,800-3,900 m in the lower páramo potato plantations and in small patches of highland forest (J. I. Hernández Camacho verbally 1991).

POPULATION Although the Rufous-fronted Parakeet is reported to be fairly common in the vicinity of Laguna de Otún, Risaralda department, with farmers in the area considering it very common, and despite the scarcity of sightings up to the mid-1980s and the low number of museum specimens being attributable to the remoteness of its restricted geographic and elevational range (Graves and Giraldo 1987), this is still a very low-density species: using a conservative estimate of one individual per square kilometre, and assuming it to occur from Nevado del Ruiz to Volcán Puracé, the total population could easily number up to 1,000-2,000 individuals (Graves and Giraldo 1987), although owing to the degradation of the páramo habitat this computation is considered over-optimistic (Renjifo 1991).

ECOLOGY Although recorded as low as 2,835 m (Ridgely 1981a) and in both forest and páramo (J. I. Hernández Camacho verbally 1991), the habitat preference of the Rufous-fronted Parakeet is probably the shrubland and sparsely wooded slopes on the temperate forest/páramo ecotone at 3,200-4,000 m (Ridgely 1981a, Graves and Giraldo 1987). It usually occurs in noisy flocks of 10-15 individuals that are easily approached (Graves and Giraldo 1987).

The species is primarily a ground-feeder, having been observed taking grass-seeds, in one case possibly *Calamagrostis effusa*, seeds of “frailejones”, and achenes and flowers of *Espeletia hartwegiana* (Renjifo 1991, J. I. Hernández Camacho verbally 1991).

The male collected in January 1957 at Malvasá, Cauca department, had enlarged testes (specimen in FMNH). The nest has not been described in detail, but the prediction that it would prove to be a burrow in an earthen bank or cliff-face, as in other high-elevation Andean members of the genus (Forshaw 1981), appears to have been fulfilled with a report of nesting in rock crevices in Los Nevados National Park (J. I. Hernández Camacho verbally 1991).

THREATS Despite the severe deforestation below 3,300 m in the Central Andes of Colombia, much habitat above this level is more or less intact, and is exploited mainly by firewood-cutters and for grazing (Graves and Giraldo 1987). Nevertheless, the páramo has suffered considerably through burning and over-grazing, even and especially at the southern end of the Los Nevados National Park, and this seems seriously to have affected the species (Renjifo 1991, L. M. Renjifo *in litt.* 1992); moreover, the conversion of páramo elsewhere to potato-fields, which involves much burning, is suspected of jeopardizing the species (J. I. Hernández Camacho verbally 1991). Rufous-fronted Parakeets are occasionally kept as pets by farmers in the Nevado del Tolima region (Graves and Giraldo 1987), and in 1983 two birds were imported into French Guiana (Arndt 1986). Otherwise there are no reports of the species in captivity (Ridgely 1981a), as information on imports into West Germany in the 1970s was erroneous (Arndt 1986).

MEASURES TAKEN The species is known to occur within the boundaries of Los Nevados National Park, Colombia (Graves and Giraldo 1987), but this is of small comfort (see Threats); it also occurs in the Alto Quindío Acaime Natural Reserve, but at very low densities (Renjifo 1991: see equivalent section under Moustached Antpitta *Grallaria rufocinerea*).

MEASURES PROPOSED This bird needs very careful searching for (Orejuela 1985), monitoring and study to determine its status and requirements at certain key localities where it stands best chance of being conserved; among these are the Laguna de Otún and the Alto Quindío Acaime and Cañon del Quindío Natural Reserves (see Distribution, also equivalent section under Moustached Antpitta). In Los Nevados National Park, this species may also occur with Fuertes's Parrot *Hapalopsittaca fuertesi*, Yellow-eared Parrot *Ognorhynchus icterotis* and Brown-banded Antpitta *Grallaria milleri* (see relevant accounts), all of which should be considered in any conservation initiatives aimed at increasing the protection of the park (see Threats). Extension of the park boundaries to embrace more habitat at lower elevations would benefit Moustached Antpitta (which may occur in the lowest parts of the park) and Red-bellied Grackle *Hypopyrrhus pyrohypogaster* (see relevant accounts), but for the Rufous-fronted Parakeet what is urgently needed in the park is a major reduction in livestock and agriculture (L. M. Renjifo *in litt.* 1992). This goes also for Las Hermosas, Nevado del Huila and Puracé National Parks, where the species might be expected (L. M. Renjifo *in litt.* 1992).

REMARKS The Rufous-fronted Parakeet and Andean Parakeet *Bolborhynchus orbynesius* appear to form a superspecies in the narrow sense, by being recently derived sister species that occupy similar habitats and have similar behaviour, in addition to having allopatric distributions (Graves and Giraldo 1987).