

Nesting records of *Pionus* species in southern Ecuador

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The Blue-headed Parrot *Pionus menstruus* and Red-billed Parrot *Pionus sordidus* are both wide-ranging neotropical parrots (Forshaw 1989). In Ecuador *P. menstruus* is a common inhabitant of tropical forests up to 1100 m and is known throughout the entire east slope of the Andes, but on the west slope only as far south as Manabí, northern Guayas (R. Ridgely pers. comm.), with some records for El Oro province (C. Rahbek pers. comm.). In Ecuador *P. sordidus* is also found on both slopes of the Andes but occurs at higher altitudes than *P. menstruus* (Ridgely 1981). It is known from 1200 to 2300 m (R. Ridgely pers. comm.), but in Podocarpus National Park its range is between 950 and 2450 m (pers. obs., C. Rahbek pers. comm.). Within their respective ranges in the park both species can be described as fairly common.

Despite their wide ranges, there is limited information on their breeding biology. In this paper we summarise previous records and present information on the nesting of these species on the east slope of the Andes in Zamora-Chinchipec province in southern Ecuador. For a description of the study area see Toyne *et al.* (1992), and for an account of the area's avifauna see Bloch *et al.* (1991).

Blue-headed Parrot nest records

The Blue-headed Parrot breeds between January and April in Panama (Wetmore 1968, Willis & Eisenmann 1979), western Colombia (Hilty & Brown 1986) Venezuela (Cherrie 1916) and French Guiana (Dick *et al.* 1984); in October in Surinam (Haverschmidt 1968); and in both March and October in Trinidad (ffrench 1992). Paul Roth (in Forshaw 1989) documents its nesting in northern Brazil during late April through to September, with late nesting or re-nesting occurring in December. On one occasion the previous nest of a White-eyed Parakeet *Aratinga leucophthalmus* was used in the same year. In captivity clutches are of two or three eggs (Ingels 1978).

Our nest was found by José Fernando Villa at Serranía (c. 04°02'S, 79°00'W) at 1400 m on 28 March 1992, when it contained two newly hatched nestlings (no feather development, closed eyes). This location is between El Limón and Sabanilla (IGM 1981) on the edge of the Loja-Zamora road, 4 km north of the Podocarpus National Park boundary. The record extends the known elevational range of this species by 300 m, from around 1100 m to 1400 m. On 2 May, when EPT visited the nest-site, one adult *P. menstruus* was observed circling the site, constantly calling and occasionally settling on adjacent tree tops. On inspection, the nest was empty; it was subsequently discovered that it had been robbed by the local farmer the day before. The farmer had cut the trunk to form steps up to the nest in the

previous year when he also robbed the nest, which was an old woodpecker's hole in the trunk of a dead *Cordia alliodora* tree (Boraginaceae). The limbless tree was 12 m tall, and the nest hole was 4 m from the ground and faced west. The tree's diameter at nest height was 11 cm and at breast height 18 cm. The diameter of the circular nest entrance was 18 cm and the nest depth approximately 45 cm. The nest was lined with wood shavings and some pale blue egg-shell remains were visible. The nest tree was situated on a north-facing slope in the middle of a grassy, cattle-grazed clearing. The nearest neighbouring tree was 5 m away and tree density in the field was low, approximately 75 per hectare; all these were mature trees. The stumps of felled trees covered the field. Tall mature trees grew on the banks of a river 40 m away, and the forest-edge was approximately 400 m upslope of the nest site.

The two nestlings (one male and one female; Rodrigo Tapia pers. comm.) were found, on the same day, at the nearest farm. In captivity they had been fed on maize so their weights (♀260, ♂315 g) and other biometrics (body length ♀200, ♂215; tarsus ♀25.4, ♂25.3; wing ♂110; tail ♂50 mm (♀ wing and tail cut) were not totally natural. When questioned the farmer said that a pair of Blue-headed Parrots had used the same nest last year and produced one nestling, which he took and sold in Loja. This year's nestlings would each be sold for approximately \$8 at the local town of either Loja or Zamora.

Breeding dates can be estimated from the approximate age of the nestlings. Using Ingels' (1978) data on incubation (24–29 days) and fledging periods (55–60 days), we estimate the laying date to be within the range 27 February to 3 March, with the young (if undisturbed) leaving the nest around 22–27 May.

Red-billed Parrot nest records

The Red-billed Parrot nests in April, at the end of the dry season, in north-central Venezuela (Schäfer & Phelps, 1954, Forshaw 1989). In Colombia a male was taken from a nesting hollow in April and birds in breeding condition have been collected from February to April (Hilty & Brown 1986). Near La Paz in northern Bolivia an occupied nest was found in October in the hollow trunk of a tree, approximately 6 m from the ground (Niethammer 1953, Forshaw 1989). Breeding has been recorded in captivity when a clutch of three was laid and the young fledged when twelve weeks old (Stoodley 1978).

Our nest was found by MTJ on 3 May 1992 on the east slopes of the Cordillera de Curintza (c. 04°08'S, 78°57'W) at an altitude of 1600 m. This location is within the boundary of Podocarpus National Park. The nest was in a hollow in a 4 m tall, unidentifiable dead and rotten tree stump (Toyne 1993). The entrance to the nest was on the top of the stump and was 10 cm wide. The hole gradually widened down to the nest, and was approximately 1.5 m deep. This depth made removal of the three nestlings virtually impossible, and it was not attempted. The tree diameter at breast height was 20 cm.

The nest tree was located in a forest clearing of approximately 7 ha that was used for cattle-grazing. It was quite exposed, with only a few

other trees or dead stumps in the clearing and was 40 m from the nearest cover, which was mature forest growing along the *quebrada* below the nest-site. There was also forest 200 m upslope of the nest tree. Despite the site's open aspect the presence of the nest was far from obvious, as although the adults were conspicuous around the nest-site, they visited the nest secretly, without calling.

The nestlings were not examined in the hand and only viewed from the nest entrance with a torch. They appeared to be well developed and slightly smaller than the adult birds. Using both Ingels' (1978) and Stoodley's (1978) records of successful captive breeding of *Pionus* species, the breeding dates at Curintza can be estimated. At nest inspection the primary feathers were well developed and the nestlings were an estimated 10 days from fledging, suggesting they were between 10 and 11 weeks old. Assuming an incubation period of 27 days and a 6–7 day laying period, laying would have started around 16 January. Hatching was probably in the range 15–22 February, with the young fledging 11–17 May.

Discussion

The fact that both nests were found in heavily degraded habitat with very exposed aspects suggests that both species are adaptable in their nesting habitat requirements, being able to utilise exposed nest holes through either preference or necessity. Alternatively, it might be that these were both traditional nest sites used before the forest was felled and our nest records indicate the birds' loyalty to them.

The Blue-headed Parrot is thought to be unusually adaptable in its habitat requirements (Ridgely 1981), and our observations support this. The species' ability to exist in degraded habitat may be one reason for its being one of the most numerous neotropical parrots (Ridgely 1981). The Red-Billed Parrot has also been reported to exist in areas of disturbed habitat, as in our case, but in Venezuela deforestation has brought local declines (Forshaw 1989). It is not known whether it has declined in Ecuador.

Although the breeding dates for the two nests are estimates, the Red-billed Parrot certainly bred earlier than the Blue-headed Parrot; but clearly one cannot draw general conclusions from these single cases.

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