

Ecology and conservation of the Yellow-faced Parrotlet *Forpus xanthops*

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Introduction

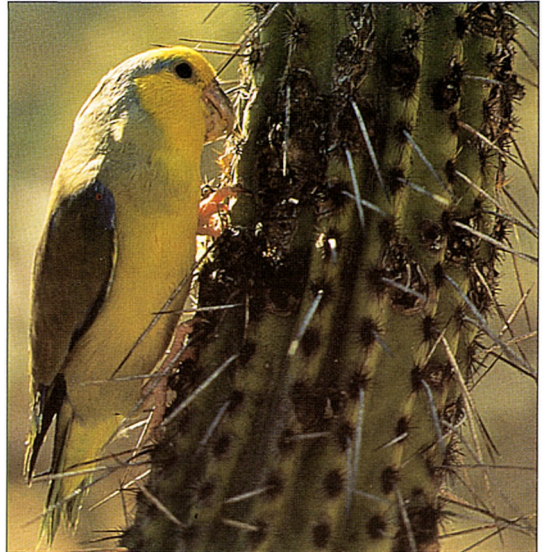
Among Peruvian Psittacines, the Yellow-faced Parrotlet *Forpus xanthops* is probably the species with the most restricted distribution, and one of the most seriously threatened with extinction by the commercial pet trade. The species is endemic to a very small region of the upper Río Marañón valley in northern Peru, from southern Amazonas and Cajamarca (c. 05°37'S 78°39'W) south to extreme La Libertad (c. 07°57'S 77°38'W). Their flocking behaviour, which aids capture, the high rate of mortality after capture and the demand for birds in the international and domestic pet trade have resulted in large numbers being removed from the wild. These factors combined with the species's restricted geographical range, threaten its survival⁵. This article focuses on the effect of the commercial pet trade on the Yellow-faced Parrotlet, describing in particular the capture and initial steps in the commercial process. The present article is backed up with information obtained from a one-year study (1988-89) of the wildlife trade in Lima, and the results of 13 days fieldwork in the company of trappers and others involved in the wild bird trade. Eight days were spent in the upper Río Marañón valley near Los Cocos (07°05'S 78°20'W), close to the town of Balsas; trappers had operated in this area for a combined total of c. 65 years.

General ecology

Throughout its limited distribution along the upper Río Marañón valley, *Forpus xanthops* is found in arid desert scrub and cactus-prosopis desert^{9,10}. In the area surveyed near Los Cocos, the species was found primarily above the riparian vegetation in a plant community dominated by cacti (*Cereus* sp., *Cephalocereus* sp., *Opuntia*, *Melocactus* sp., *Loxanthocereus* sp.) and trees including *Bromingua* sp., *Pitcarnia grandiflora*, *Deuterochoia longipetala*, *Capparis angulata*, *Sapindus saponaria*, *Cassia fistula* and *Cordia rotundifolia*. During this survey, birds were observed perching in trees including *Prosopis* sp. within the riparian vegetation, although all foraging and feeding observations (principally in the morning and late afternoon) were in the cacti-



Male Yellow-faced Parrotlet *Forpus xanthops* feeding on *Cereus* sp. (Alfredo J. Begazo).



Yellow-faced Parrotlet *Forpus xanthops* perched on fruiting cactus (Alfredo J. Begazo).

dominated area, with roosts located in stands of *Ginerium* sp. canebrake by the Río Marañón. This pattern was confirmed by local trappers. Riveros et al.¹² suggest that Yellow-faced Parrotlets also roost in orange orchards. During the fieldwork, a

flock of six birds was observed at 17h14 as it flew into a thick stand of canebrake c. 50 minutes walk upriver of Balsas.

Breeding

Little is known of the reproductive ecology of this species in the wild. In reports of captive birds, females laid clutches of 3-6 eggs¹³, five eggs¹⁵ and six eggs⁷. These same sources also documented the average incubation period at 22 days and the average period to fledging at c. 40.6 days. Up to three broods per year have been recorded¹³. In the wild, the breeding season starts between March and April with family groups of 4-7 seen (and caught) during the May and June (local trappers pers. comm.). This coincides with the end of the rainy season and the abundance of seed-bearing plants. Trappers confirmed that Yellow-faced Parrotlet breeds only during these months. However the number of breeding attempts in a single season is unknown. It might be expected that in long wet seasons (e.g. El Niño years) *F. xanthops* may hatch more than one clutch, as is the case in *Forpus coelestis* in conditions of a superabundance of food over an extended period⁴. Nesting sites have been reported in rock walls along the Río Marañón¹². Trappers claimed that *F. xanthops* nests in natural dirt and rock walls in colonies of up to 70 birds. Some use old Black-throated Woodpecker *Chrysoptilus atricollis* cavities to nest.

Food

Previous reports on the diet of *F. xanthops* suggest that the species feeds on cacti³. This was confirmed by all trappers interviewed (eight). Field observations and stomach contents analyzed (n=3) suggest that the Yellow-faced Parrotlet temporarily specializes on pulp and seeds of cacti fruits. During the survey, 82% of foraging observations (nine birds) were made on cacti of three different species. The remaining 18% were made on a fruiting legume tree, known locally as Canaquil (*Cercidium praecox*). Stomach contents of the three individuals captured in the area revealed: 80% of the stomach content was composed of pulp and ground seeds of cacti fruits, the remaining 20% were unripe Canaquil fruits. The diet of the Yellow-faced Parrotlet during and after the wet season may vary substantially from that observed during the field work. For example, Riveros *et al.*¹² report that *F. xanthops* feeds on Pate flowers (*Bombax discolor*). During the field work this tree was bearing neither flowers nor leaves, suggesting that individuals switch diets outside the

dry season.

In contrast to the closely related Pacific Parrotlet *Forpus coelestis* (which is considered a pest in much of its range⁴), Yellow-faced Parrotlet was reported to raid crops in only two localities throughout its range. The Yellow-faced Parrotlet raids wheat fields in the central and northern part of its range, in the localities of Huamachuco and Huasmin, where flocks of up to 100 have been recorded (local trappers pers. comm.). Wheat fields are located at the upper end of the species's known altitudinal range, at c. 2,100 m. This behaviour coincides with the decline of seed availability and the onset of the dry season, in June and July.

Census

The study area is located in the northern part of the species's range, near Los Cocos, a single house, c. 45 minutes walk south of Balsas. I relied on the expertise of a trapper who had operated there for 17 years. We walked along the upper edge of the riparian vegetation searching for parrotlets. Using two tame individuals as a lure, we covered c. 6 km, stopping in flat areas which allowed a wide view of the surrounding land.

A total of 11 birds was located during the census. Most were in pairs with a group of four, presumably comprising of two pairs judging from their behaviour. Birds were usually located as they approached the calling birds in the cage. The 11 individuals observed represent extremely low numbers considering that I visited the same areas where in the past it was possible to catch 100 birds in an exceptional day. A more comprehensive census in 1988 also revealed extremely low numbers; a total of 168 birds was counted in 250 kilometers surveyed between the village of Chagual and Balsas¹².

Causes of the decline

Habitat loss appears to be the single underlying factor common to species classified as threatened and endangered^{5,6}. O'Neill⁸ suggested that habitat destruction by goat overgrazing is perhaps a contributory factor in the decline of *F. xanthops*, but during a comprehensive census of the species, Riveros *et al.*¹² found that habitat destruction by agriculture or goat overgrazing does not affect *F. xanthops*. Similarly, cases of extreme goat overgrazing within the range of *F. coelestis* have not had a visible negative effect on the species in areas of high density. The topography and climate (long dry and short wet seasons) of the Marañón valley, permit agriculture only on the floodplain of

the Río Marañón or its small tributaries. Animal husbandry (e.g. goats and donkeys) in the upper Marañón valley is not extensive; therefore the prime habitat of *F. xanthops* is not being degraded in this area.

Overhunting for the pet trade appears to be the sole cause of the drastic decline of this species. The upper Marañón valley has been the source of birds for the domestic and international pet trade in Peru since 1963⁴, suggesting that populations of those species used in the commercial pet trade which occur there have been under long-term hunting pressure for approximately 33 years.

F. xanthops has been particularly affected for two reasons: the species's gregarious behaviour and the extreme mortality rate in captured birds. Trappers use tame calling birds to attract entire flocks of the species. Once some are caught in the strategically placed mist-nets, their calls attract more birds, creating a snowball effect. In 1988 I witnessed flocks of up to 85 *F. coelestis* being caught within minutes once a large group had been located and the mist-nets erected. In the present study in the upper Marañón valley, a group of eight *F. xanthops* was caught in 13 minutes after the cage containing the tame birds had been placed in the centre of a square formed by mist-nets. This capture was made for experimental purposes and the birds were subsequently released. In my experience, *F. xanthops* is even more responsive to its own calls and consequently easier to capture than *F. coelestis*.

The mortality rate between capture and the birds' sale on the domestic or international market is extremely high. In a study of mortality rates of the ten most popular bird species on Lima's wild animal market, *F. coelestis* exhibited the highest mortality rate⁴. *Forpus* sp. become extremely aggressive in conditions of overcrowding; birds fiercely bite each other's napes and the large round wounds which result may expose the victim's skull. Many individuals die as a result. In addition, stomach problems apparently caused by a sudden change in diet following capture also lead to a large numbers of deaths. During the same study the mortality rate of *F. coelestis* increased from 25% in birds fed with the same food after capture, to over 65% in birds fed with a different type of food following capture. Birds captured in sorghum fields and subsequently fed on sorghum exhibited a lower mortality rate than those dependent on a diet of wild seeds, and then fed with sorghum and other bird foods. However, in the case of *F. xanthops* this situation is exacerbated by the fact that the majority of birds are caught in areas where they feed on wild seeds. Long informal interviews with trap-



Habitat of Yellow-faced Parrotlet *Forpus xanthops* in the dry season, dominated by cacti (Alfredo J. Begazo).

pers suggest that the mortality rate of *F. xanthops* is higher than that in *F. coelestis*. Using the trappers' experience and by calculating the difference between numbers of birds caught and those shipped to Lima, I consider the mortality rate to lie between 40-100%. Mortality decreases when birds are caught in wheat fields and fed on the same food.

The earliest record of *F. xanthops* on the international market was in 1978 in the U.K.⁷. The following shows the number of individuals (in parentheses) legally exported from Peru each year since 1981: 1981 (806), 1982 (560), 1983 (115), 1984 (0)¹⁴. The species is currently prohibited from commercial trade or capture, but illegal trade may be continuing with birds being exported as *F. coelestis*. Whilst the above totals are relatively low compared to other export species, they represent a much larger proportion of the total population. Trappers claim that between 1981-1984 approximately 600 individuals were caught per week to satisfy the orders placed by exporters and they also estimate that at least 17,000 individuals had been caught by August 1994. All *F. xanthops* sold on either the domestic or international market were originally handled by two prominent bird dealers in Bellavista. I developed good relationships with both the trappers and dealers, allowing me to double check these claims.

Conservation status

Since the hunting ban, the number of Yellow-faced Parrotlets captured has markedly decreased. Trappers in the Marañón valley only take this species if an order is placed. Hunting for the domestic market is otherwise unprofitable, given the high mortality rate and the lack of a good price for this species, which people do not clearly distinguish from the common *F. coelestis*. During a one-year study of Lima's animal and bird market, a total of 56 *F. xanthops* was counted on fortnightly visits.

The population appears to have been recovering since the mid-1980s. Trappers and local people in the Marañón valley confirm that "Pachaloro Parakeet", as it is locally known, is now seen more frequently in areas where it was considered extirpated. Nonetheless, the ban on hunting should remain in place, despite claims by exporters and wild bird traders that the species is common again and the ban should be lifted.

Effective conservation requires information on the species's density and the impact of human activities on its activity patterns, which remain poorly understood. Monitoring of populations and habitat changes are crucial to the species's long-term survival. My experience suggests that local people should be used to monitor the species. In theory, this solution would provide personnel with extensive knowledge and background in local ecology at a fraction of the cost required to employ university-trained specialists. This methodology also generates interest in conservation and income derived from conservation-compatible activities. While native people are not traditional conservationists^{12,11}, they may learn to conserve biodiversity if given the opportunity. Initiatives directed to the long-term conservation of *F. xanthops* and other species in the Marañón valley should involve properly trained local people. Studies of the species's biology and ecology throughout an annual cycle, and constant population monitoring are urgently required if the species is to be adequately conserved.

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