

Somehow it just doesn't seem right when stunningly-colourful birds erupt out of a dry and dusty peanut field high in the foothills of Bolivia's Andes. Most of us think of parrots - and perhaps macaws in particular - as birds that belong in lush rainforest canopies draped with bromeliads and juicy tropical fruits. On my second trip to visit these birds last January, the Red-fronts still seemed unexpected and somewhat out of place here, but their bold and agile way with this rugged, windy, and picturesque landscape suggested otherwise. Just how well the macaws are faring in this unique corner of the world, where virtually their entire foraging habitat has been converted to agricultural land, inspires us to look deeper into the Red-front and the threats to its survival.

For decades, the parrot conservation community has attended more closely to better known species which are threatened with extinction - the Spix's (*Cyanopsitta spixii*), Hyacinths (*Anodorhynchus hyacinthinus*), Lear's (*An. leari*), Blue-throats (*Ara glaucogularis*), and Great Greens (*A. ambigua*) - with a sense of hope that the Red-fronts (*A. rubrogenys*) were maintaining reasonable numbers in the thousands. After reviewing what was known and assumed about the species in the wild, we grew concerned that the Red-fronts may in fact be in need of more protection and support than they'd been receiving. With generous contributions from highly-accomplished wildlife photographer (and sometimes cardiologist) Bill King and a group of committed conservationists running a free flying bird show at Pittsburgh's

National Aviary, we launched the first survey of the breeding populations of this bird in the wild. Following his months of trudging through the flooded Beni on the path of the Blue-throated Macaw, Toa Kyle took to these steep dry valleys on the eastern slope of the Andes in search of all known, reported, and rumoured Red-front nesting areas. He reports here on the results of this survey.

As with other threatened birds, we're forever hopeful that more birds will turn up, new breeding areas like the Lear's Serra Branca cliffs, or new strongholds for a species like some of the new populations of Golden Conures (*Guaruba guarouba*) that Toa reported on in the last *PsittaScene*. Until such welcome discoveries are made however, it seems prudent to conclude that the known populations of Red-fronts comprise virtually all of the wild population, and to act accordingly. Building on the published work of other researchers and consulting with many of the people with current knowledge of this species, Toa's findings paint a rather grim picture for this macaw of the mountains. Nearly all the threats which have been mentioned in the past - habitat loss, poaching from nests, trapping of adults, and shooting - are all apparently important and on-going threats to the survival of this species. Over the next few years, our plan is to foster protection for the remaining known populations and to develop a multi-faceted recovery effort to understand and resolve the most damaging threats to these birds.

Jamie Gilardi

# Mountain Macaws

## An expedition to survey the breeding cliffs of Bolivia's Red-fronts

By TOA KYLE

*Pacha Mama* hasn't failed to disappoint today. '*Pacha Mama*' translates as Mother Nature in the hybrid Quechua-Spanish spoken in the dry inter Andean valleys of Central Bolivia, or *los valles* as they're referred to locally. It's been a good day in the field. Not only did I find Red-fronted Macaw nests in the surrounding cliff faces, I also got to see pairs of Red-fronts put on a spectacular flying display. At one point in the afternoon I found myself in the mouth of a small canyon perched between two large, blood red sandstone outcrops. The structure of the canyon effectively created a wind tunnel by channelling strong gales through it. I watched in awe as several macaws faced the oncoming wind headfirst with effortless skill, hanging like kites over the canyon. At times they shot rapidly upwards, caught in a strong gust of wind, only to twist and dive downwards to resume their almost static hovering position above the canyon mouth. The narrow, pointed wings of Red-fronts are ideally suited to the windy conditions found in these desert-like valleys. I get the

impression they are flying not to actually go somewhere but rather for the joy of flight itself.

Despite its endangered status, until recently a systematic breeding survey for the species was lacking. Previous studies conducted during the 1980's and 1990's estimated the wild Red-fronted (*Ara rubrogenys*) population to be between 2,000-5,000 individuals. Hard work was done, but there remained large gaps in our knowledge of Red-fronts' ecology. It was still unknown what proportion of the population was breeding during a given year, an important criteria to understand when working for the species' recovery. With this in mind, I set out from Santa Cruz by motorcycle in early January 2004 with the intention of covering as much ground as possible in the region encompassing the three main river valleys where Red-fronts are found; the Rio Mizque, Rio Grande and Rio Pilcomayo. The goal of the study was simple. Locate and document as many Red-fronted Macaw



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*For whatever reason, some Red-fronts are incredibly tame allowing observers to watch them from close range.*

nests as possible over a three-month period. I was also interested in better understanding where the current population stood as well as determining to what extent nest poaching was occurring. Along the way I also became aware of the living conditions of the people who shared their environs with Red-fronts and more importantly their attitudes towards the macaws and parrots in general.

An average day in the field involved rolling into a village along the river and striking up



Although poaching of macaws from the cliffs is a primary concern for this project, these aren't the only targets. Even smaller parrots are also collected from tree cavities in a manner which destroys the tree for future use.

a conversation with locals by showing them a picture of Red-fronts. If macaws were in the area, I'd hire a guide in the afternoon to show me some potential nesting cliffs. I'd wait at these cliffs until dusk noting, whenever possible, which cavities were entered and the number of macaws in the area. Early the next morning I'd return to the same cliff site to confirm which cavities were likely active nests. In some cases pairs of Red-fronts would enter holes in the afternoon but not return to these holes the next morning. These birds were likely non-breeding pairs that were simply "playing house" or possibly maintaining traditional nesting sites for future breeding seasons.

Watching Red-fronted Macaw nesting cliffs provided opportunities to see other parrots nesting on the same rock faces, such as Mitred Conures (*Aratinga mitredi*), Blue-fronted Amazons (*Amazona aestiva*) and Cliff Parakeets (*Myiopsitta monachus luchi*). The latter species, like Red-fronts, are endemic to these dry valleys. They're closely related to Monk Parakeets and are unique among parrots for the large, twig nests they construct on cliff faces. On one memorable occasion I hiked up to a remote location at 2,700m (8,300 ft) and set up an observation point across from a large, sheer cliff that looked promising in terms of Red-front nests. Things began to get cold and windy as the afternoon progressed. I climbed into a sleeping bag and gazed up at the sky. It felt as if I was lying on the roof of the world. An hour before dusk I opened a can of tuna to throw down with

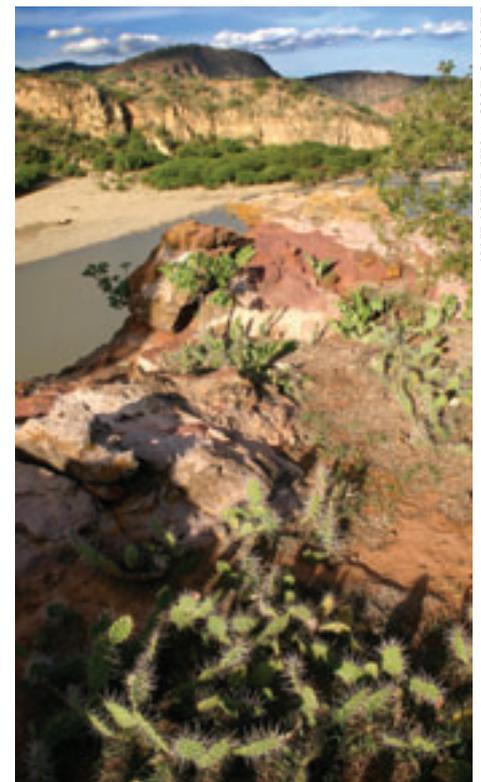


Highly social Cliff Parakeets - close relatives of the Monk Parakeet - are often found nesting in the same cliff with the Red-fronted Macaws.

some crackers, one of my staples when camping out. To my amazement, three Andean Condors (*Vultur gryphus*) descended from at least 500m above, slowly spiralling downwards to my level. The scent of the tuna had no doubt attracted them. One by one they swooped past me several times, so close I could hear the wind rush over their gigantic 3m wing span. I'd never seen anything so large, so majestic in flight, like I'd imagined pterodactyls in my childhood. There were numerous other occasions when I had the pleasure of watching condors at Red-fronted Macaw nesting cliffs. The sheer, 50-200m tall cliff faces favoured by Red-fronts for their nests also provided ideal perches for the condors. Their arrival would often cause the macaws to flush from the cliff wall, the parrots mistaking the scavengers for Black-chested Buzzard-Eagles (*Geranoaëtos melanoleucus*), a reported predator of both adult and nestling Red-fronts.

The largest concentration of Red-fronted Macaw nests I encountered during the study was ironically found closest to human settlements. The communities of Perereta and San Carlos face one another on opposite sides of the Rio Mizque in the department of Cochabamba. Less than 400m from the nearest mud-thatched house is the first of the two 'mother cliffs'. I coined this term for the cliffs because of the 21 potential nests shared between them. This number represents almost one-third of the total nests I found for the 2004 survey. The presence of so many macaws this close to humans was at first perplexing. During my visit a landslide had closed off one of the main highways connecting Santa Cruz

to Cochabamba. Traffic was thus rerouted along a road that ran parallel a mere 30m from the nesting cliffs. An endless procession of freight trucks hurtled by, raising large dust clouds that wafted over Red-fronts guarding their nest entrances. The birds seemed unperturbed by all the human activity around them. In fact the only time I saw them alarmed was due to a



Although the home of the Red-fronts is a dry landscape heavily grazed by goats, the plant and animal diversity remains remarkable: cacti are especially varied and abundant.

Peregrine Falcon (*Falco peregrinus*) that suddenly appeared, taking a few unsuccessful dives at some fleeing nesting pairs. Given the presence of Peregrines, the fastest flying birds in the world, it should come as no surprise that Red-fronts are such strong fliers. In the past only those macaws skilled at flying would successfully avoid predation by falcons and thus subsequently pass on this gift for flight (via their genes) to future generations.

In many ways the situation at Perereta and San Carlos is a microcosm for the plight of Red-fronts throughout most of their range. Faced with a shrinking natural habitat (lost to agriculture, firewood collection and overgrazing by goats and cattle), parrots in these valleys have turned to raiding corn and peanut crops. All of the people I spoke with in these communities regarded the macaws as pests and referred to them as *chocleiros* (corn-eaters) instead of *Qaqa loros* (rock parrots, one of their common names in *los valles*). It's understandable why locals feel this way. The majority are subsistence farmers, thus what the parrots eat, their families will not. Stories of crop-raiding macaws being shot are not uncommon.

Talk of endemism and extinction are new concepts to convey to these people, as are outsiders preaching parrot conservation. At practically every community I visited, locals asked if I was looking for Red-fronts to trap. They all shared similar stories of strangers arriving in trucks within the past 10 years to 'harvest' parrots. Their description of the trapping method was identical as well. Large nets are placed on the ground using either peanuts or corn as

bait. Poachers wait concealed until the greatest number of birds are on the ground before they close the nets. I didn't come across any trappers in the breeding season as they're apparently active in the dry season when chicks have fledged and Red-fronts form large nomadic flocks that roam over the valleys in search of scarce natural food items or crops to raid. Flocking behaviour is common among birds confronted with limited, sparsely distributed resources. Unfortunately for Red-fronted Macaws it's a behaviour that enables poachers to take large numbers of birds (50-100 were commonly quoted figures) out of the wild in a single day. The trapper's strategy is logical. Why bother with the danger of raiding cliff nests when you can catch greater numbers of birds post-fledged?

I did come across a few remote communities where trapping was unknown, all of which were found along rugged stretches of the Rio Grande and Rio Pilcomayo. One of these locales provided some unforgettable experiences, the first of which was actually getting there! I needed to weave my motorcycle through 10kms of large boulders scattered along a dry river bed to reach the village, but the destination was worth it. The landscape had a surreal feel to it. Large jagged peaks rose up suddenly from the swiftly moving, muddy-brown Rio Grande. There were groves of enormous date palms at the settlement, so out of place at this high elevation. Apparently the first Spanish colonists introduced the palms centuries ago. My host, Gido, had lived all of his 64 years here and wasn't short on stories. My favourite account involved Che Guevara

riding by on a mule during his doomed uprising against the Bolivian government in 1966-1967. Gido was terrified to speak to "El Che" because of radio reports that had labelled him as being extremely dangerous. Instead he retreated into his house and watched the famous revolutionary saunter downstream. I later read in Guevara's "Bolivian Diaries" that on several occasions his band of guerrillas were so famished they resorted to eating "parrots which were descending to the river to drink in great numbers". Recognizing this as Red-fronted Macaw behaviour I shuddered at the thought of one of socialism's favourite sons barbecuing my study subjects.

I saw over 40 Red-fronts flying upstream from Gido's house at dusk my first day there, so I set off early the next morning in search of nests. The terrain along the Rio Grande was so steep it took me six hours to walk a mere 4kms. At times I needed to inch along cliff faces waist-deep in the river until higher footing became available. For my efforts I found only one macaw nest. Whether the other birds were nesting further upstream or simply non-breeding individuals was unknown. What was clear was that I simply could not continue upstream, the landscape was too hostile. On my way back to Gido's I made the foolish decision to explore another route. After 2 hours of climbing I arrived at a high point that sharply dropped off 200m below, a dead end. Rather than do the smart thing and return to where I'd started, I decided to descend down to the river and head back from there. I devised a method in which I first lowered my backpack below with a rope then climbed down

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*The Red-fronted Macaws and other parrots in these valleys are especially fond of corn, and some fields can be heavily impacted by repeated visits by hungry parrots. Understandably, this habit makes them especially unpopular with the local farmers and their families which depend on these crops throughout the year.*

unencumbered by my gear. Things went well until I got to about 15m above the river. With my pack already below at river level I briefly lost my footing, causing some rocks to dislodge, one of which landed squarely on my pack, knocking it into the river. Luckily my thermarest was full of holes, leaving it always semi-inflated, thus my pack floated. It also had the 'fortune' of falling into a slower moving sidearm of the main river. So there I was, spread-eagled on this cliff watching my life as I knew it drift downstream below. Everything was in there; money, binoculars, precious field notes. Faced with losing all this to *Pacha Mama*, I did the only thing possible to catch my gear before it entered the Rio Grande proper. I let go. In a flash I bounced off some gravel once and fell into the water below. Leaping to my feet I rushed to land and outran my pack, diving back into the river to retrieve it. Miraculously I came out of the fall with only a couple of scrapes and a bruised ego. Note to self, "Go back the way you came".

The results from the 2004 breeding survey carry numerous implications for future conservation efforts. Of the approximately 400 Red-fronts I saw, only 20% appeared to be breeding, which on the surface is a rather low number. This figure is also of interest because it is similar to an estimate made by WPT researchers for endangered Lear's Macaw (*Anodorhynchus leari*) in Bahia, Brazil. Like Red-fronts, Lear's Macaw is a large neotropical parrot with a restricted range in a dry, scrubby habitat. It too has suffered greatly from the mass trappings and shooting of adults. The estimate for the Red-front breeding population needs to be complimented with information on nestling mortality and the number of chicks entering the population each year. Future research efforts by WPT hope to address these important parameters.

The majority of nesting attempts (two-thirds) were found in the Rio Mizque region. I found substantial numbers of macaws in the Rio Grande and Rio Pilcomayo drainages but did not find corresponding numbers of nests. It is possible these were non-breeding birds, or it reflects a bias against access. Large stretches of these latter river drainages are difficult to visit due to their rugged nature and a lack of roads. These areas are of particular interest not only because of the unknown numbers of Red-fronts found there but also for their potential as future reserves. Sadly, at present there are no decent protected areas in these unique Andean valleys. Toro Toro National Park in the department of Potosi technically contains some areas in *los valles* but these are best described as being "goat ravaged". There is an interest in the Bolivian government's environmental protection



Photo: © 2005 World Parrot Trust

*Our visit in January of 2005 coincided with the very beginning of the year's breeding season for the Red-fronts, and many family groups included young birds like the one on the lowest perch here. Although we frequently saw them begging from their parents, they were generally ignored.*