Field Actions to Conserve the Wild Blue-throated Macaw

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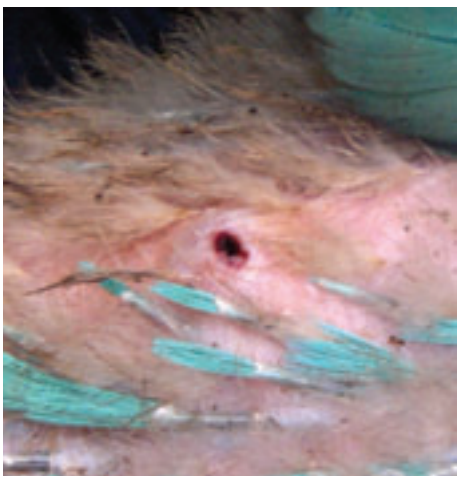
Christmas Day, 2004. Although this isn't the first time I've passed this special day away from family and friends, it's the first time I've spent it working without having any second thoughts about doing so. Our team, myself and two Bolivian vet students, has arrived at our destination this morning, not to open presents, but rather to open (and more importantly, remove) a botfly wound found on a two month-old Blue-throated Macaw (*Ara glaucogularis*) chick. The larvae of a botfly hatches on a suitable host, then burrows under the skin where it remains for 4 weeks before emerging. The larvae maintains an air hole at the surface of its host's skin thus by covering this hole, one can force the parasite closer to the opening, facilitating its subsequent extraction. While the chick couldn't be described as enjoying the procedure, removing the larvae now was preferable to later, as the insect becomes more painful to their host as their size increases. Hence our presence here on Christmas Day.

On our walk back to camp I thought of what a long process it's been getting to this point, namely working with two Blue-throat nests in late December. We began our field season in late June, searching a vast 25,000 km≈ area for a highly fragmented population of Blue-throat breeding pairs. Given the extreme rarity of the birds, this is no small task. On average each known pair is three hours by vehicle from one another. The trick is to cover as much ground as possible in August and September, (when the Llanos de Moxos is at its driest) before the rains start in earnest in October.



A botfly wound on Blue-throated Macaw chick. The presence of these parasites may hamper chick growth or even kill their host, especially as the number of infestations increases. Previous studies have shown that botfly activity is tied to increased rainfall, roughly the same time Blue-throat chicks are in the nest.

Nest searching is fairly straightforward. Typically we arrive at a forest island and walk its environs in the hopes of locating Blue-throats. The species is by far the most wary of all the macaws I've worked with. Typically when they've detected us, the birds let out a loud call and quickly vacate the island. This response is in strong contrast to sympatric Blue and Gold Macaws (*Ara ararauna*) who are much bolder, often flying directly *towards* us and circling overhead several times whilst emitting their raucous calls. At times I wonder if Blue-throat behaviour towards humans has been shaped by the selective trapping they've suffered at our hands. Blue-throats have always fetched a higher price than other parrots in the Beni. Thus as the remaining wild birds have watched family members captured and taken away by trappers over the past four decades, they may have learned the best defense against humans is to stay away from them as far as possible. However, it's this usual wariness that alerts us to the presence of potential nests. If a nest is active, the Blue-throat pair will not vacate the island, preferring to remain concealed at a distance to keep an eye on the situation. It appears that their instinct to reproduce is stronger than their aversion to people.

Once we've located a nest, we employ several techniques aimed at increasing nestling survival. Flashing is placed around the base of the tree to prevent terrestrial predators (such as the raccoon-like coatimundi and weasel-like tayra) from climbing to the nest entrance. Branches of neighbouring trees that contact the nest tree are pruned back to prevent arboreal mammals such as brown capuchin monkeys from accessing the nest. The last group of

Photo: TK

At roughly four days of age, "Rockne's" egg-tooth is still visible on the top of the bill. Chick inspections like this one here allow the field team to ensure that the parents are providing adequate food (note the crop on this bird), to check for appropriate increase in weight and feather development, and to check for extoparasites and other evident threats to survival.

potential nest predators is the most challenging; the flying variety. To deter avian predators we build blinds within 30 meters of the nest tree and arm ourselves with a slingshot and small balls of dried clay. The trick is being there at the right time.

On several occasions in late September, one of our team, Andres Szabo, observed two Toco Toucans (*Ramphastos toco*) harassing a pair of Blue-throats at their nest. The behaviour of this pair indicated that they likely had a small nestling in the nest, as the incubating female had recently began to spend longer periods of time away from the nest. The toucans would arrive in the area with frenzied activity; lots of bill snapping and croaking sounds (their call is frog-like). Both Blue-throats retreated to the entrance hole, where they remained, occasionally lunging their heads out while snapping their beaks closed, as if to deter the toucans from entering. By this time Andres had seen enough. He emerged from the blind and shot off a couple of mud balls in the direction of the toucans, not with the intention of making contact, rather to frighten them off. Curiously the Blue-throat pair remained within the nest entrance when Andres emerged into the open. Possibly because they felt sufficiently hidden or perhaps they realised he posed no threat to them or their nestling. A day after the last toucan 'attack' there was heavy rain one morning, delaying Andres' morning arrival to the blind by two hours. When he arrived, neither of the Blue-throat pair were to be seen. A quick inspection of the cavity showed it to be empty. Although we have no direct observation it is very likely this nest was predated that morning, probably by toucans given their previous attempts at robbing the nest. We continued to monitor this nest throughout the season in the hopes that the pair would nest again. Indeed the pair would visit the nest periodically, even entering the cavity briefly. Unfortunately by early December, the last time the nest was observed, the pair showed no signs of re-nesting. Not the sort of data I wanted to collect this season but nonetheless useful information.

By the time the chick is a few weeks old, the parents are again inseparable, foraging, feeding the chick(s), and roosting together.

Photo: TK

At several weeks of age, "Nelson" is showing signs of healthy growth with well-developed feet and soon-to-emerge flight and contour feathers.

By the time our project finally received government permits to work more intensively with Blue-throat nests in early November, of the 13 potential nests we'd located, only two remained active. Some were lost to predation, some to larger Blue- and Gold Macaws, while the fate of others was unknown. Three people was simply not sufficient to guard and monitor 13 highly dispersed nests.

Following these last two nests to fledging was harder than expected. One of the nests was located in a 4 ha island full of Curupau trees (*Anadenanthera colubrina*). This legume species grows to 25-30 m and for some reason frequently contains decent sized holes in its trunk and limbs, holes ideally suited for parrot nests. Due to the

Toa weighing a "bluebeard" chick for the last time prior to fledging. Repeated measures of body weight are essential for monitoring healthy development. (Inset): As we have found in many parrot cavities, the upstairs is often occupied by bats. In addition to deterring them from the macaw nests, this chick also required extensive and repeated removal of bat faeces from the head and beak.

abundance of these trees (incidentally the seeds of which are a powerful hallucinogen taken by native shamans and new age hippies alike), this island was a veritable parrot breeding colony. We found 16 potential nests in this island, the majority of which were Chestnut-fronted Macaws (*Ara severa*), followed by Blue and Golds and lastly Greenwings (*Ara chloroptera*). It was precisely the presence of these other parrots that initially occupied our time with this nest. On numerous occasions other macaw pairs would fly to the nest entrance and begin poking their heads inside. Whether the presence of these other birds was due to a mere curiosity or the desire to toss out the chick didn't interest us at this stage. Any parrots observed near the Blue-throats' nest would receive the slingshot and mud ball treatment. Given their high intelligence, these other parrots quickly learned that this particular nest was off limits.

Although not called for in this season, augmenting the diets of growing chicks may prove vital to their survival, particularly in clutches of more than one youngster.

The first time we climbed a Blue-throat nest to check on its contents was by far the most exciting and terrifying event of the entire field season. Exciting because no researchers had ever done it before, likewise terrifying. Would the pair abandon their nest once they'd seen us handling their chick? Based on work with other macaw species, we didn't think so but this was still unchartered territory. I can remember the thrill I got when Andres peered into the nest and yelled down to me that there was one small chick inside. Not the two or three chicks I'd hoped for but

In the wet season, travelling across the Ilanos often requires a horse as the water is often waist-deep. Here Toa is visiting a palm island to check on a nest just prior to the chick fledging.

after all the past nest failures this season, one Blue-throated chick was golden. A quick inspection of the four-day old chick showed that it was in good health, despite suffering from some form of body mite. The mites were no doubt introduced to the nestling from its parents, as we'd observed both adults repeatedly scratching themselves during this period, their scratching being directed at the skin as opposed to the usual feather preening. After taking the chicks' weight and removing the mites, the chick was quickly returned to the nest (this probably represented the first time in the history of the species a chick was taken from the nest and then put back!). Following a tense two hour wait in the blind, we finally observed the nest pair entering the nest. No abandonment, great news for future nest work. We found with subsequent nest work the nest pair would enter the nest earlier, sometimes only 20 minutes after we'd finished checking on the chick, again demonstrating the ability of these birds to tolerate our presence around their nests.

Eventually, we had our nest work routine down to under 25 minutes, making it possible to visit the nest in the early morning whilst the parents were off foraging and vacate the area prior to their return, thus minimizing any potential stress created towards the adults. When the chicks were small, less than 400 grams, we performed nest checks twice a week. However, as the nestlings grew, so did their claws and vocal chords causing us to limit our nest work to weekly visits. The detection of the botfly infection in one of the chicks late in the nesting season demonstrates the importance of maintaining these checks throughout the nesting period.

I'm proud to report that both chicks from each nest fledged in late January, a 12-13 week period in the nest, similar to other large macaw species. In some ways it's strange to reminisce about all the flat tires, legions of mosquitos, mud and bad food we've endured the past seven months to watch those two chicks flying with their parents. All that work for a mere two birds? Then I remind myself that we're dealing with the most endangered wild macaw and for our first season of nest work, two chicks is something special. How many offspring might these two birds raise during the course of their adult lives? Many, we might hope but after what we've learned this past field season, hope is simply not enough for this species. Leaving the birds to 'the forces of nature' does not guarantee them any form of security in the near future. Pressures from predators, parasites, nest competition from other parrots, even physical factors such as nest flooding due to heavy rains represent serious obstacles to Blue-throat recovery. We aim to build on these experiences and apply them to the upcoming breeding season. By enlisting the aid of students from UTB (the local university in Trinidad) and other volunteers, we can put more people into the field to better care for every nesting attempt by Blue-throats. Each of which is so important to the survival of Blue-throated Macaw in the wild.

At 8 weeks of age, downy breast feathers begin to be replaced.

One of two pairs of Blue-throats known to have fledged a chick in the 2004 breeding season. These birds had the delightful habit of spending hours outside the entrance of the nest - just visible to the left - where they would preen themselves and one another, chat with neighbouring macaws and keep an eye on their nearly fledged chick. And the chick would likewise keep an eye on them from one of the three entrances to the cavity.

The future of wild Blue-throated Macaws may lie in the hands of dedicated, young Bolivian conservationists, such as Jairo Moreno, shown here holding a 10 week old chick. This chick fledged successfully two weeks later under his watchful eye.