



## **Cooperative Breeding in Parrots and Introduction to the Column Wild Science**

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Life is full of interesting paradoxes. As a graduate student I discovered one that changed the course of my professional life: parrots are among the best known and best loved birds in the world, but they remain almost unknown in the wild and many are threatened with extinction. In 1992 I had the opportunity to travel to Costa Rica where I experienced first hand, the beauty of Scarlet Macaws in flight and the comical antics of parakeets and conures. Starting with this trip and continuing through my doctoral work in Peru I have remained fascinated by parrots.

In my interactions with aviculturists and pet owners I have found that many people are hungry for new knowledge about parrots, especially the species they keep. Given my experience in Central and South America and my familiarity with the scientific literature, parrot owners often ask me to share my knowledge about wild parrots. While there is still very little known about many species, with each passing year scientists learn more about these endearing creatures. Unfortunately, much of the information is published only in professional journals that few parrot owners have access to. If you are among the people with an insatiable appetite for knowledge about parrots, I invite you to check this column each month as I relate information from published works on wild parrots and from my personal experience.

### **Cooperative breeding in parrots?**

Parrots are renowned for their sociality. In the wild many species are known to feed, travel and even roost in flocks. Come breeding season, the pairs become less social, flock sizes drop as pairs split up and go off to nest. These isolated pairs then begin the job of raising a family. For decades it has been assumed that this pattern held for nearly all wild parrots. In fact many of the species studied in the wild show this lifestyle. Green-rumped Parrotlets; Scarlet, Green-winged, Blue and Gold and Hyacinth Macaws; and many Amazons, to name just a few, are known to breed in isolated pairs often fighting bitterly and driving others from the area of the nest.

While the image of one pair of birds isolating themselves from others and raising their young is often thought of as "normal" bird behavior, many species from cuckoos to woodpeckers are known to breed in groups. In these groups there may be as many as 10 or more individuals that cooperate to help protect and raise the young in a single nest. In the most simple form of cooperative breeding, young from the previous year often hang around and help the parents raise their younger siblings. In more complex social systems, multiple males in a group may copulate with multiple females, and the females may all lay eggs in the same nest. The members of the group then all work to raise the young. But such a scandalous lifestyle would not be manifested among our beloved parrots. . . . or would it?



As recently as the late 1980's cooperative breeding among parrots remained almost completely unknown. Forshaw's Parrots of the World spoke of multiple *Eclectus* Parrots attending a single nest cavity. Golden Conures in Brazil were also thought to breed in groups. Yet these two poorly publicized accounts did not even make it into scientific reviews of cooperative breeding. With the few accounts of cooperative breeders written off as oddities, parrots were seen as a bastion of the simple "one pair one nest" style of breeding.

With this background I headed off to the pristine rain forests of southeastern Peru in 1993. A few weeks after my arrival I was crouched down on a trail when I heard the sound of rapidly beating wings. Following the sound I saw a small green shape disappear into a hole in a small termite mound suspended about 20 ft above my head. Then another green shape ducked into the hole, quickly followed by another and another. Stunned I watched and waited. I heard the sounds of begging young being fed. After a few minutes the four birds shot out of hole one after the other in rapid succession. I had located a nest of Cobalt-winged Parakeets (*Brotogeris cyanoptera*), and my subsequent observations confirmed that there were four adult birds entering the nest at feeding time. Since that day I have found over 25 Cobalt-winged Parakeet nests and at about half of them I have found more than two birds attending the nest. And as I soon discovered that was just the tip of the iceberg.

In Peru I have also had the pleasure of observing groups of White-bellied Caiques (*Pionites leucogaster*). These playful little parrots seem to always travel in groups of around 4-8. On multiple occasions I watched as up to 8 visited huge emergent tree where they would take turns entering a hole in a hollow branch over 100 above the ground. At times all 8 would enter but then fly off to roost in another location. I discovered two other such trees with hollow branches each apparently used by a different group of caiques. The great height and weakness of these hollow branches prevented me from confirming the presence of nests, but it seemed to me that these groups if not already breeding in these sites were likely to do so when the time was right.

In Peru I also located a nest of Painted Parakeets (*Pyrrhura picta*) where four birds visited a cavity on multiple occasions. Here I was able to climb the tree and look into the nest. I found two eggs and a recently hatched young. Upon observing the nest I saw that at least one of the "adults" that returned to the nest had less red on the head than the rest, suggesting that it may have been a one year old bird hatched in the previous breeding season.

In Bolivia I have also seen groups of 4 or more Dusky-headed Conures (*Aratinga weddellii*) prospecting for nest sites, suggesting that this species may also engage in some sort of cooperative lifestyle.

In retrospect, I am amazed that in such a short period I have been able to find so much evidence of cooperative breeding among parrots. In my subsequent reading on the topic, I have discovered that others have also been making such observations. In Brazil groups of up to 6 Golden-winged Parakeets (*Brotogeris chrysopterus*) have been seen attending nest cavities. In the Mauritius islands as many as three male Echo Parakeets (*Psittacula eques*) may attend a nest, but this may be a result of an unnaturally skewed sex ratio. Also, researchers in Australia have confirmed that Eclectus Parrot (*Eclectus roratus*) pairs regularly have additional birds helping them feed the young. The study



of cooperative breeding among parrots is in its infancy but already there is circumstantial evidence that as many as 8 species from 6 different genera have more than just two birds attending nests. This finding may surprise some, but with time we may find that a wide variety of parrot species breed in groups in the wild.