

# THICK-BILLED PARROTS

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The Thick-billed Parrot (*Rhynchopsitta pachyrhyncha*) one of only two native species to North America, is now also one of the most endangered and mysterious birds in the world. The other native species of parrot was the Carolina Parakeet (*Conuropsis carolinensis*) which is now extinct. The Thick-billed Parrot, also known as the "snow parrot," lives at elevations up to 10,000 feet in remote parts of the Sierra Madres in western Mexico, and formerly in the Chiricahua Mountains in New Mexico and Arizona, where it is now extinct. They feed primarily on conifer cones and occasionally on juniper berries and acorns. During the winter months the Thick-billed parrots endure temperatures far below freezing.

The last large flock of Thick-billed Parrots seen north of the Mexican border was observed in 1938, in the Chiricahua Mountains. The drastic reduction in numbers of wild Thick-bills is thought to be due to heavy hunting, habitat loss from logging, and from predation by raptors. Due to the depressed living conditions during the early 1900's and advancing civilization, many people were forced to live off the land. The size and noisy social habits of the Thick-billed Parrot made them an easy target for subsistence hunters and miners in the area, while their size made them a worthwhile game bird. Not only man found the Thick-bill an easy target, many raptor species made use of parrots as a food source, particularly the Apache Goshawk and the Red-tailed Hawk. By reducing the numbers of parrots in the flock through hunting, humans helped make these parrots defenseless against aerial raptors. The main defense that Thick-billed Parrots have against predators is to use their complex flocking patterns and their numbers to confuse the attacking raptor. With the number of birds in the flocks reduced significantly, the raptors could capture others more easily.

In 1986, Dr. Noel Snyder, realizing the problem facing the Thick-billed Parrots, began to formulate a program to reintroduce the highly endangered birds back to their once native Chiricahua Mountains. The first release occurred in the fall of 1986. The twenty-nine birds that were released had been obtained from the U.S. Fish and Wildlife Service's confiscations department. Most of the birds were wild caught and thus had a high probability for survival. Over the next nine years, the original group of twenty-nine birds began to drop in numbers, primarily due to predation. The small flock did reproduce in the wild, but their small flock size seemed to be a limiting factor. It was obvious they could not maintain their numbers. In an attempt to maintain a flock of larger numbers, Dr. Snyder released several smaller groups of birds over the next four years. In 1987, a release of captive bred, hand-raised birds was attempted; they spent only one day in the wild. They were unable to flock, and so were unable to defend themselves. They also made no attempt to eat pine cones, their primary food source. They were offered pine cones in captivity, but without adult birds to show them how to eat them, they did not recognize them as a food source. A parent reared bird, however, was also released and it immediately began to demonstrate normal wild behavior. Unfortunately, this bird was killed by a raptor before fully developing its flight muscles. This bird did show that parent raised birds held the only probability for survival of Thick-billed Parrots in the wild. After meeting at an international parrot conference in Brazil, Dr. Snyder enlisted the help of Walter C. L-Crawford, Jr., the Executive Director and Founder of the World Bird Sanctuary (WBS), formerly known as the Raptor Rehabilitation and Propagation Project, Incorporated. WBS obtained twenty-nine Thick-billed Parrots in 1989, as part of a government confiscation. Fifteen of these

confiscated birds were rehabilitated by the sanctuary and were able to be returned to the wild a few years later. Fifteen birds, several pairs, were housed as pairs and did successfully breed at WBS. The chicks that were bred were hand raised, however, due to problems with their parents feeding the babies, these birds are currently on display at the Office of Wildlife Learning's nature center and at the World Bird Sanctuary, or in one of the World Bird Sanctuary's many educational programs across the country. They are in fact the spokes birds for their species.

In June 1999, the seven pairs of birds were transported from an off site location where they were housed separately as pairs, and moved to the WBS' new World Environmental Education Center. At the lower site of WBS' new location, a 15' X 96' enclosed outdoor habitat had already been constructed. The enclosure, which was built by Eagle Scout candidates contained eight nest boxes, four food trays, living and dead conifer trees, and a myriad of hanging grapevines to allow access to the food trays and nest boxes, as well as provide ample perches and play area. After being released into the enclosure, all human contact with the birds was reduced to an absolute minimum. Other than when feeding and maintaining the habitat, the parrots had virtually no contact with humans. WBS research intern, Kelly Vogel, observed the birds for four months. She observed the birds three times a day, and recorded 242 observation periods. Her observation periods were thirty minutes long, during which she recorded information about the behaviors exhibited by the birds. Their reaction and interactions with each other and their surroundings were closely watched. In order to obtain a breeding population of captive thick-bills, it is thought that a natural habitat and flock social interactions will assist in obtaining viable offspring for release into a wild flock.

During the four months of observation, the birds explored and tested their new environment. Initially, several birds showed a strong urge to escape and would attempt to grab at trees above the cage and would fly 360 degrees at the corners of the cage seeking a way out. Mostly, however, the birds became increasingly exploratory. The old enforced pairs were soon nonexistent and new pairs formed and reformed, sometimes even during just the length of time of one observation period. Their initial reaction was to stay in the center of the cage as a large group. Slowly, as they began to explore the outer edges of the enclosure they began to become more comfortable with their new home. Some birds continued to rebel against their confinement by flying at the sides of the cage. Fortunately, these birds had flight limitations due to injuries they obtained when they were captured in the wild, so they could not fly fast enough to injure themselves. As their comfort level rose, so did their exploratory behavior. They began looking inside the nest boxes, and soon single inquisitive parrots began entering them. The individual personalities of the parrots, which were very prevalent during their confinement as pairs, became blended into the "flock" and individual birds became impossible to distinguish by personality. They had reverted to their original behaviors of wild birds. Soon several birds were exhibiting what were once individual personalities specific to one bird as they began their adjustment to social flock living again. Throughout Ms. Vogel's observations the Thick-billed parrots began a long period of adjustment to their new living space and style. They began a social life again with more than one member of their species after approximately eleven years of more or less basically solitary captivity as pairs. One of the fifteen birds was found dead during Ms. Vogel's study, but the post mortem revealed nothing other than old age as an obvious cause of death.

Over the next two years, four more of the original birds died. Since these birds were wild caught, there was no way to determine their age, so this flock was probably a mixture of immature, middle aged and old birds. Ten birds currently remain in the enclosure which was the focus of this author's study. The goal of the second portion of the original Thick-billed Parrot study was to determine whether successful breeding of captive caught Thick-billed Parrots in a flock situation at the WBS' facilities was possible. We also wanted to learn more about the intricate social behaviors of this interesting and very rare bird. The parrots were allowed two

years after Ms. Vogel's initial work to interact and adjust to flock living and being comfortable with their enclosure. The ten remaining birds have become a solid flock during the past two years. All their behaviors are now flock oriented. Observations were conducted twice a day; once in the morning between seven and seven thirty, and again between six and seven in the evening depending on the birds' activity levels. Observation periods lasted thirty minutes, during which the observer used two different methods to record observed behaviors. During the first half of the observations the observer continued to use Ms. Vogel's tagging style by writing the number of birds of pairs exhibiting the behavior, followed by the time the act was witnessed. Through half of the observations this method was rejected due to the amount of time needed to avert the eyes from the birds in order to write down the necessary information. Also, the time of a specific behavior by one or more of the birds was deemed unnecessary as there were no time correlations linked to a specific behavior. Instead, the observation sheet was divided into three ten minute intervals, and the number of occurrences of specific behaviors was recorded by a mark in the row of the specific behavior and the column of the corresponding time interval. Observation slits were cut in the blind composed of a wooden frame covered with burlap. Two observation slits were cut in the burlap at the front of the blind so a camera lens and binoculars could be easily slid out of the burlap covering. Prior to the observation periods, the birds were fed their daily portion of seed mix which included various seeds and nuts. Pine nuts, which are the Thick-billed Parrot's main food source in the wild, are added to their diet during the breeding season, and highly prized by the ten birds under observation. Prior to the evening observation period an additional supplemental amount of pine nuts were added to their food bowls in hopes of adding a stimulus for behaviors.

Behaviors witnessed by the author indicate that the birds have become very comfortable in the enclosure. No panic behaviors were witnessed, even when alarmed occasionally; they were seen flying in a flock to the other end of the enclosure to move to a safer distance, but most of the time they would only give an alarm call, soon joined by others in unison. They have become very comfortable with living in the enclosure, often seen sitting in pairs and singles, preening or eating. The birds have organized themselves into four viable pairs and two single birds that appear to remain the same from day to day. Some aggression was witnessed, but it was mild and was regarding either perch position or use of a nest box. The bouts of aggression typically lasted less than half a minute and involved screaming an occasionally an attempt to bite at the opposing, invading parrot. Birds were never seen making any attempts to escape or testing the solidity of the cage walls. The majority of the behaviors witnessed were ones that involved feeding and maintenance behavior. Once food had been placed in their food trays and the observer was out of sight, feeding behaviors usually began first. Occasionally birds were seen feeding on the ground, looking for dropped bits of food items, or pulling pieces of bark from logs. After feeding, most of the birds would become involved in a period of preening, both their feathers and the feathers of their mate. Affection between members of a pair was witnessed with great frequency. Occurrences of males feeding their mate, by regurgitating seed into the mouth of the female were often observed both during and after feeding. Nest box inspection, and use, was also very common, both by individuals and by pairs. Parts of their mating dance were also observed. The Thick-bill wishing to gain the attention of the potential mate bobs its head back and forth and turns in circles. There was no mention of this behavior in any previous literature about this species, so this observation was important for future behavioral studies

The dance hopefully leads to copulation, which was witnessed once. An unsuccessful attempt to copulate was also witnessed; the female proposed to the male, but he pushed her away and flew to another perch. Another interesting behavior witnessed was one bird that hangs from the center of the roof by his beak and swings. While other birds climb across the top of the enclosure, there was only one bird that seemed to gain pleasure from hanging by his beak. These periods of hanging lasted anywhere from less than a minute to more than ten minutes, and would occur at

least once during an observation period. They appeared to be a play or self gratification behavior, but showed how comfortable the bird was with its behavior.

Based on the observations by Ms. Vogel and this author, it is very likely that this year will see the first group of captive-hatched Thick-billed Parrots that the WBS has had since the birds were placed in a flock situation. Although it may take many years to raise enough Thick-billed Parrots to even think about attempting another reintroduction program, even now it is not a very feasible plan. If nothing else, we have learned much about the social structures and flocking behavior of this interesting parrot. With the vast reduction of habitat, and the great loss of Thick-bills due to predators such as the Apache Goshawk, the Thick-billed Parrot does not stand much of a chance for survival less than seventy years after its last wild sighting in its native Chiricahua Mountains. The important aspect of this study is that this has been the only study ever conducted on a flock of wild Thick-billed Parrots. While this species may be gone from the wild, we will at least know something about its behavior. Losing a species, any species, in the wild is unforgivable, but in this instance we will at least know more about the Thick-billed Parrot's behavior and life. Only through long-term studies like this will we be able to better understand vanishing species. There is more to be learned and we will continue research until all questions are answered.

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