

CHAPTER SIX

Management Recommendations for Release of Captive-raised Parrots

The following are suggestions for raising captive-bred birds prior to release in the wild. These suggestions are based on the results of releases of other captive-reared, endangered, non-psittacine, avian species, in addition to a release of captive-raised parrots conducted in 1982 and my own observations of how parrots acquire their vocal behavior in the wild.

In many captive-breeding programs of endangered species where the priority of the program is to breed birds which will eventually be released into the wild to increase numbers in an already existing population, or to start a new population in an area where the species is absent, an effort is made to prevent young birds from imprinting on their human keepers if they are hand-raised. An example of this is the use of puppets resembling adult California Condors (*Gymnogyps californianus*) for the purpose of feeding young hand-raised condors with the least amount of contact with their keepers (Gill 1990).

Research has shown that a chick's imprinting on adults of its own species will help to insure that it will eventually choose a mate of its own species. Cross-fostering studies have shown that young of a number of species, such as finches, doves, cranes and gulls, will imprint on the foster species and, in addition, show a preference for members of the opposite sex of their foster species (Gill 1990). Based on my own experience with the Puerto Rican Parrot and a variety of accounts of other parrot species by numerous individuals (e.g., African Grey Parrots (*Psittacus erithacus*), Pepperburg 1981), I propose that parrots imprint very easily and rapidly on their human keepers and will often show no interest when presented with a member of the opposite sex of their own species as a result of being firmly "bonded" to their human keeper. Thus I believe that it is extremely important that the parrots bred for release be kept free from human contact as much as possible.

Other factors that may be important in raising parrots for release were made evident by a conditioning experiment conducted in 1982 (Snyder et al. 1987). This experiment was carried out for the purpose of determining whether conditioning of captive reared birds may increase their chance for survival in the wild (Snyder et al. 1987). In this experiment 36 Hispaniolan Parrots (*Amazona ventralis*) were placed in

one of two groups. Each group had comparable age-class representation ranging from fledglings to birds of age five years. All birds were raised under the same conditions in the Dominican Republic until shortly before release. Six days prior to release, the unconditioned group was transferred to a field aviary far from the area where the birds were to be released. They were maintained on a diet similar to that on which they had been raised (non-native fruits). The birds were then force-released as a group, 6 days after being transported to the field aviary. The second group of birds, the conditioned group, was moved to a field aviary 9-12 days prior to release. This aviary was centrally located in the area in which they were to be released. The birds were maintained on a diet similar to that on which they had been raised and in addition were provided with a variety of fruits and seeds native to the release area. Birds in this group were allowed to leave and return to the field aviary and food and shelter was provided as needed. Food provisioning was gradually reduced in order to encourage the birds to become reliant on food found naturally in the release area.

None of the birds in the unconditioned group were thought to have survived for more than a month based on radio-telemetry data (Snyder et al. 1987). The group showed poor flock cohesion, little interest in joining wild flocks and poor foraging ability. The birds in the unconditioned group tended to show preference for natural fruits of a small size as compared with the larger fruits preferred by wild bred parrots (Snyder et al. 1987). As a result the birds in the unconditioned group showed substantial weight loss, possibly because the cost of procuring and processing the smaller sized fruit outweighed the caloric gain (Snyder et al. 1987). Another atypical foraging behavior adopted by the unconditioned birds was that of ground foraging in an open field. At least one of these birds was lost to a Red-tailed Hawk while using this foraging technique (Snyder et al. 1987). Five of the nine radio-tagged birds in the conditioned group were known to have survived for at least two months after being released and judging by the distances that these individuals had moved it was conceivable that other released birds may have survived but moved too far away to be detected (Snyder et al. 1987). Three of the birds that were tracked were fledglings, one was a yearling and one was two years old. These individuals joined a wild flock of 37 birds and appeared to be producing normal vocalizations and foraging on the same food as their wild conspecifics (Snyder et al. 1987).

Though the investigators were only able to track the Hispaniolan Parrots for about two months due to financial and manpower constraints the results of this experiment show quite clearly what is required for a successful release of parrots: minimum human contact, early exposure to conspecifics and fruits native

to the release area, a relatively large group of flock-mates to be released simultaneously, and a release site with a low population of hawks (Snyder et al. 1987).

Vocal repertoires can apparently be learned after the captive bred individuals join a flock of wild conspecifics (Snyder et al. 1987). Thus individuals that are between fledgling and pre-reproductive age are possibly most likely to acquire a repertoire similar to wild conspecifics and be accepted into a flock, as compared with an older bird that has already acquired an atypical repertoire. Playing recordings of wild parrots to captive individuals without information about the context in which the particular vocalization is used may result in calls being used in an inappropriate context. Puerto Rican Parrots fostered by Hispaniolan Parrots or even kept in close proximity to Hispaniolan Parrots may adopt inappropriate vocal behavior. The case of the Whooping Crane (*Grus americana*) illustrates what can occur. Whooping Cranes raised in close proximity to Sandhill Cranes (*Grus canadensis*) produced guard calls, calls used in territorial defense, which resembled guard calls of Sandhill Cranes (Carlson 1991). The guard calls of Sandhill cranes resemble the alarm calls of Whooping Cranes, thus, if the Whooping Cranes raised in captivity were released among a flock of wild-bred cranes their territorial defense calls may be communicating alarm to the wild-bred individuals, possibly resulting in a break-down in communication between the two groups (Carlson 1991).

Raising captive bred parrots to be released in a site unoccupied by parrots, such as the Rio Abajo Forest, may require a different management strategy and this type of release needs to be addressed separately. In this instance a flock of captive-bred birds that is released will not have a wild flock to join and learn from. Unless the birds are exposed to the recordings of wild parrots which, as I mentioned above, may be risky, a new dialect is likely to evolve over time. This may give some insight into how the vocal behavior and dialects of parrots developed as they spread to different habitat types on the island following their initial colonization on Puerto Rico. If this site has a smaller population of Red-tailed Hawks than the Luquillo Forest it may be a preferable release site provided it is relatively free of human activities. I believe, however, that once it is known that Puerto Rican Parrots are being released in areas outside of the Luquillo Forest, parrot hunters will again be searching for active nests as they do for active nests of exotic Amazon parrots found elsewhere on the island.

With regard to whether parrots should or should not be vocally conditioned, i.e., exposed to recordings of wild conspecifics in captivity, I believe that further investigation is needed with reference to how birds learn contexts of vocalizations, how they selectively acquire sex-specific repertoires and whether these

repertoires can be modified once acquired. Without knowing how young birds require their repertoires in the wild, exposing captive birds to random recordings out of context may cause these individuals to acquire atypical repertoires and in the instance where the release is to be in an area already occupied by parrots an atypical repertoire may reduce the chances of these individuals being accepted into a wild flock and/or being accepted as mates by wild conspecifics.