CORVIDS

Crows, jays and magpies

Husbandry and Management

A Brief Review, originally presented at the AZA 2003 Eastern Regional

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Introduction

Corvids are desirable as exhibit species due to their size, coloration, vocal ability and activity level. Among their many attributes is a high level of intelligence, which can be both a blessing and a curse. As a result of their ability to adapt to a wide variety of habitats they are found on every continent except Antarctica. Their ability to adapt also makes their captive maintenance relatively easy. They do however present many challenges regarding general husbandry and reproduction.

PACTTAG RCP Recommendations

The Corvid interest group is concerned with captive holdings of the family *Corvidae* currently comprised of 10 genus and 24 species. The PACTTAG RCP has designated which species will be SSP, PMP, DERP or phased out.

- SSP- none currently identified
- PMP- **Green magpie** (*Cissa spp.*) at this time only *Cissa chinensis* is held in numbers sufficient to be managed.
- DERP-The remaining species have been designated as DERP although several of them are being monitored for more intensive management: **Plush-crested jay** (*Cyanocorax chrysops*), studbook is in progress by Kenneth Mangine, Azure-winged magpie (*Cyanopica cyana*) monitored by Paul Schutz, Green jay (*Cyanocorax yncas glaucescens*) monitored by Chris Brown, Red-billed blue magpie (*Urocissa erythrorhyncha*) monitored by Bill McDowell, **Collie's magpie jay** (*Calocitta formosa colliei*) monitored by Ted Fox.
- There are several species of corvids held as research, rehab or education animals-Magpie Jay (*Calocitta formosa*), Pied crow (Corvus *albus*), Guam crow (*Corvus kubaryi*),

Common crow (*Corvus brachyrhynchos*), Raven (*Corvus corax*), Chihuahuan raven (*Corvus cryptoleucus*), Fish crow (*Corvus ossifragus*), Scrub jay (*Aphelocoma coerulescens*) Blue jay (*Cyanocitta cristata*) Black-billed magpie (*Pica pica* and *Pica pica hudsonica*).

- Two species are under consideration for possible DERP designation- Nutcracker (*Nucifraga caryocatactes caryocatactes*), and Chough (*Pyrrhocorax pyrrhocorax*).
- The remaining captive held corvids are recommended to be phased out: Purplish-backed jay (*Cissolopha beecheii*), San Blas jay (*Cissolopha sanblasiana*), white-necked raven (*Corvus albicollis*), carrion crow (*Corvus corone*), racket-tailed treepie (*Crypsirina temia*), white-tailed jay (*Cyanocorax mysticalis*), rufous treepie (*Dendrocitta vagabunda*), Eurasian jay (*Garrulus glandarius*), crested jay (*Platylophus galericulatus*).

Housing

Housing and managing corvids is both challenging and rewarding. Even housing corvids in single species exhibits has its difficulty. Corvids are renowned for their intelligence and territoriality, making the job of keeping them occupied a formidable task. It is imperative that their exhibit has an abundance of space and complexity. Obviously the larger the enclosure the easier it is to incorporate complexity. It is possible however, to house them in smaller spaces if enrichment and training are made a priority. Perching should be available in a variety of sizes and textures, utilizing as many strata as possible. Most corvids will become comfortable going to the ground, especially if rocks and logs are provided. Mid range strata should be used for enrichment and feeding, upper level for roosting and nesting. Shelter should be provided based on climate and species, ranging from a simple windbreak to a heated indoor enclosure. Natural substrate is preferred as it provides enrichment in additional to being esthetically pleasing. Care should be taken to monitor substrate for cached food to avoid disease vectors. Coarse sand makes an ideal substrate as it allows birds to dig, provides drainage and facilitates cleaning.

Social Management

Most species of corvids are gregarious during some part of the annual cycle, although it is not necessary to replicate this in order for these species to breed. Many species are known to be cooperative breeders in the wild. A few cases have been documented mimicking this breeding strategy in captivity successfully, however, more often than not attempting this results in failure, possibly due to our inability to precisely duplicate all the factors that exist in wild situations.
Typically housing a male and female together results in a functional pair bond. When there is a lack of stimulation in the exhibit it is possible for the bond to degrade resulting in displaced aggression and loss of production.
If hand-rearing corvids is a necessity, early exposure to conspecifics will aid in maintaining natural behavior. Long periods of imprintation make it possible to integrate other birds for socialization. Hand reared birds frequently present difficulty in forming pair bonds due to their

connection with their caretakers. This can be overcome with sufficient effort at disengaging the bird's interest towards humans in favor of their natural companion as early as possible.
When very large enclosures are available, groups of single species gregarious birds can be successfully displayed.
To facilitate successful management, regardless of the size of the enclosure, a trap/howdy unit is beneficial for many reasons. This cage can be used for separating birds that are aggressive to each other and for introductions. In large enclosures trap units will expedite capture when necessary.

Breeding

Corvid breeding has been sporadic at best. Breeding can occur either off or on exhibit if the right conditions are provided. At the onset of the breeding season, it is imperative that enrichment frequency and variety is increased. Offering live food at this point can help insure a favorable season. Generally, a well-bonded pair will need to be provided with a space that incorporates height and distance from care-taking staff and visitors. Female temperament should be a consideration in nest placement. Nervous females may be induced to breed with a well-placed nesting area. Some females may prefer areas that enable them to scan their surroundings while others may prefer to be concealed. Providing choices when preference has not been determined will increase the chances of breeding success. Species- specific nesting material should be provided frequently and in large amounts. Again a variety of materials should be provided to allow birds to have choice. Platforms and/or nest baskets can be given to provide a basic structure for building. It is possible for birds to construct a completely natural nest without a supporting structure if the exhibit is very large with natural plantings and vegetation. Females do all the incubation; males assist with nest building and feeding the female throughout incubation and early chick rearing. As the chicks mature the male will help feed them. A commonly encountered problem with captive rearing is predation of eggs and newly hatched young, particularly by the male. If this occurs it is recommended that the male be removed from the nesting area, ideally to an immediately adjacent area where visual and vocal contact can be maintained but physical danger can be averted. The female is capable of incubating and feeding chicks without assistance if necessary. Reintroducing the male when chicks have reached 10-20 days of age may increase the chance of chicks surviving to maturity. This reintroduction must be carefully monitored. Parents must have access to appropriate food items to feed chicks. Crickets are a preferred food item for many species. Mealworms, wax moth larvae, and pinky mice are other items that should be offered.

Average clutch size is 2-4 eggs, color is light bluish-green with darker speckles for most species. Incubation length is from 16-22 days, depending on species.

Diet

Corvids are omnivores, making them fairly easy to feed adequately outside the breeding season. During breeding, as previously noted, a more complex diet is necessary. The basic diet should consist of a protein source, fruit, vegetable and fiber. There are several extruded pellets on the market that can serve as the foundation of a balanced, readily accepted diet. Some examples are Marion Zoological Jungle and Paradise pellets, Purina Nutrablend pigeon pellets, and Kaytee Exact pellets. These pellets can be supplemented with the addition of fresh fruits and vegetables, mice, quail, day old chicks, fish, nuts and live food.

Exhibition

The safest manner of display is in single species enclosures. It is possible to house corvids in mixed species habitats if careful consideration is given to species selection and enclosure parameters. There are current exhibits in which corvids are successfully exhibited with mammals, reptiles and various other bird species. Some factors necessary for this success are enclosure size and complexity; species selection based on personality and complementary behavior patterns. Breeding in these enclosures will add a degree of difficulty.

Health

Corvids tend to be fairly hardy although recently West Nile Virus has become a major concern in birds that are housed outdoors. They are as susceptible as other species to the usual avian diseases (such as aspergillosis, atoxoplasmosis, avian tuberculosis and malaria). In the case of hand fed birds, foot problems directly related to improper nest substrate from hatch to fledge, are also prevalent. Access to open fresh water for bathing is important for maintenance of plumage. Hyperkarotosis in corvids as well as other passerine species can be a problem that is most commonly be linked to inadequate diet.

Acquisition

Limited numbers of birds are still being brought into captivity from the wild. This will continue to be necessary to maintain genetic diversity. In the past we have relied heavily on wholesalers and importers to provide us with desired specimens. It is imperative that captive breeding is accomplished to fill spaces. Restrictions on importation will only become more stringent in the future. Zoos will need to be more active in pursuing importation. Riverbank's acquisition of a large number of hoopoes for multiple facilities is an example of one institution acting for the good of many. For some species in need *in situ* programs will be more practical than importation (i.e. Guam crow). Cooperation with private individuals is one way to insure ample genetic material for population management. Acquisition policies can be developed to facilitate this cooperation. American Federation of Aviculture's Model Aviculture Program certification (or similar process) could be used as a basis upon which a private individual or facility could be qualified to participate with a cooperative program.

Education

Corvids are very trainable. They work well in public programs allowing the visitor a close up look at a bird. Corvids are also extremely adaptable to human and environmental pressure. Education programs can be devised to explain the benefits of adaptability using corvids as a model. The cosmopolitan nature of corvids makes them familiar to people in all parts of the world, making it possible to draw a correlation between an exotic Jay species and a native Blue Jay.

Enrichment

Developing a usable training and enrichment program for corvids is beneficial to the individual birds and can ultimately be the difference between a successful breeding program and one that results in failure. Training does not have to mean flying through hoops but having birds that will shift to an adjacent holding or a trap-unit is important if individuals need to be separated while minimizing stress. Training birds to station for close visual inspections can be extremely beneficial when trying to ascertain the health of individual specimens.

Enrichment is extremely important to the well being and successful husbandry of corvids. Possibilities for enrichment are almost endless and a little imagination will go a long way. As corvids are intelligent and naturally curious, providing them with a problem to solve can keep them mentally and physically occupied for long periods of time. For example, food items can be hidden in various areas of their enclosure or concealed in layers of cardboard boxes or paper. Items that make noise like baby rattles or bells are often favorites. They also enjoy things that can be torn apart: cloth, paper and boxes offer a great deal of amusement (to both bird and keeper). Natural food items are also very enriching as the birds are allowed to shred a favored food prior to consuming it. Quail, chickens, fish, rabbits, rats and similar items keep a corvid active, sometimes for hours. There are several commercially available enrichment devices that are actually marketed for psittacines but are ideal for corvids. In a naturalistic exhibit where artificial devices are undesirable, it is relatively simple to create enrichment devices using natural items such as logs, piles of leaves, gravel, rocks and pools of water.