

# Cooperative breeding in emerald starlings

## *Lamprotornis iris* at Disney's Animal Kingdom

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The Emerald Starling, *Lamprotornis iris*, with its striking iridescent emerald green and purple feathers, is a fascinating bird to display. Unlike many other starlings, they can be housed with numerous other bird species with little or no inter-specific aggression. There has been little observation of these birds nesting in the wild, and observations in captive birds vary with regard to cooperative breeding. Separate incidences of aggression by Emerald Starlings during breeding season have been described by Pyper (1994) first hand, as well as recounted from a conversation with another aviculturist. Brusch (1983) and Wilkinson (1996) both describe instances where a third adult helped feed chicks, though this extra bird was later killed by the parents in one of these cases. Here I provide an account of cooperative breeding in our Emerald Starling group, also describing some possible aggression that took place during this time.

### Habitat

The walk-through African aviary at Disney's Animal Kingdom is 143 feet long, 62 feet wide and 45 feet high. It is divided into two very distinct sections. The first section is densely planted with various tropical African trees, shrubs and other plants. The trees are tall and effectively help to disguise the view of the wire mesh at the top of the aviary. The second section contains a pond that is fed by a two-story,

two-level waterfall. The first waterfall pool is approximately 20 feet by 30 feet and 5 feet deep. The second is a large pond that measures approximately 50 feet by 20 feet. The guest walkway forms a bridge that divides the pond in two. There are no trees directly over the pond, allowing more light to reach this area. The back of the aviary is formed by a gunnite wall that is approximately 12 feet tall and 7 feet wide. The height and design of the aviary also creates three distinct zones: a canopy, sub-canopy, and the forest floor.

The Emerald Starlings currently share their exhibit with approximately 123 other individuals of 32 species, including amethyst starlings (*Cinnyricinclus leucogaster*), superb starlings, (*Spreo superbus*), golden breasted starlings, (*Lamprotornis regius*), wattled starlings (*Creatophora cinerea*), white collared kingfisher, (*Halcyon chloris*), hammerkop, (*Scopus umbretta*), white-headed buffalo weavers, (*Dinemellia dinemelli*), and magpie shrikes, (*Corvinella melanoleuca*). There are 11 feed stations throughout the aviary that are utilized by the Emerald Starlings, six on the upper level and five on the lower level. One of the bowls has a combination of carnivore diet mixed with Mazuri flamingo pellets. The other ten bowls are mixed species bowls comprised of chopped mixed fruit, soaked Mazuri parrot breeder and small bird breeder pellets, greens, carrots, seeds and Bevo (a commercial insectivore diet). Two of these mixed

species bowls also contain carnivore diet. Small and large mealworms, crickets, and waxworms are also dispersed throughout the day to all the birds. There are several built-in trap cages used to introduce and capture birds. Food bowls are placed daily in these cages to get the birds used to going in and out.

### Breeding

Disney's Animal Kingdom was originally home to 2.2 wild caught Emerald Starlings which was reduced to 0.2 by March of 2000 due to death. At this time 4.2 additional wild caught birds were added to the collection, resulting in a population of 4.4. Although the original group had been observed carrying green leaves, (thought to play a significant role in courtship (Feare and Craig, 1999), and were observed sometimes near various nest-boxes, they never nested. During the end of 2000, after the new group of birds had settled in, the occurrence of leaf carrying and passing increased. Finally, in March 2001, it appeared that the Emerald Starlings were focusing on a knot-hole in one of the aviary support poles, about 35 feet above ground level.

In July of 2000 we lost one bird to snake predation, leaving us with 3.4 birds. At the beginning of April, continuous activity began at the knot-hole and keepers immediately began to notice that several different birds were carrying green leaves to the hole. Initially the pair defended the nest from the other birds but after sev-



Photo courtesy of the author and Disney's Animal Kingdom

The wing is spread to show the varied color of a basically green bird.

eral days all of the females were allowed at the nest. By May 29th, when they were believed to have begun feeding chicks, the two non-breeding males were dead leaving our population at 1.4. One was found dead with signs of trauma and the other one simply disappeared. Little aggression had been observed toward these males by the breeding male.

Several females, in addition to the pair, were observed bringing food to the nest. Up until feeding had apparently begun, the adults had been continuously adding and removing leaves. On June 11th, one day after keepers observed a chick sticking its head out of the nest, one chick fledged and was assumed to be the only chick because the adults were not observed returning to the nest. All of the adults were observed perching near and feeding what was thought to be this fledgling. It wasn't until June 30th that two more fledglings were discovered and later on July 13th that a fourth one was found.

The juveniles were entering the permanent aviary trap cages and eating on their own by mid-July. When

the birds were caught for banding it was noted that the back and wing feathers were an iridescent brown-green and the breast area was dull gray with a few purple feathers present. Sexing indicated 3.1 juveniles, who are still residing in the aviary with the 1.4 adult birds. Recently there has been some renewed activity by the adult birds around the nest site.

While we had never witnessed a great deal of intra-specific aggression, we lost two males during this nesting activity leaving only the breeding male. It is not known for sure whether the breeding male killed the other two males but there is hope that the male will tolerate these other males helping at the nest because they are related.

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