

The Hadada Ibis

Bostrychia hagedash

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Ringo, John, Paul, and George are crossing a field full of sleeping Blue Meanies. Suddenly, a giant mechanical clown, head spinning like a top, emits horrible screeching noises and all chaos breaks loose.

That scene from "Yellow Submarine" came to mind after my participation in Hadada Ibis nest inspections in Disney's Animal Kingdom's Pangani Forest Aviary. There is a fairly routine set of consequences resulting from such procedures. The female, sitting on her eggs, protests with an explosive, ringing "YAH!!!" She is answered, identically, and in very short order, by the male, who, wherever he may be in this 6,600 square foot exhibit, comes swooping to her aid. There is a definite air of accusation in their dual yelling - an audial pointing finger, as it were, producing involuntary feelings of embarrassment and guilt.

These unignorable sounds have earned this bird its common name. They yell in their evening roosts, they yell when they leave them to forage for insects and worms each morning, and they yell when they fly from one feeding ground to another (Hancock, et al, 1992). Frederick Jackson, turn of the century Governor of Uganda, and an early leading authority on the birds of East Africa, likened those calls to the "hideous cackling of a witch" (Hancock, et al, 1992). In their roosts, where dozens may gather, "one bird starts calling, followed immediately by the others, and in large roosts several groups may call simultaneously" (Matheu & del Hoyo, 1992). With so conspicuous a voice, coupled with a range encompassing most of sub-Saharan Africa, it is not surprising that the Hadada Ibis was one of the earliest African birds to receive a scientific description, being described by the great British ornithologist Latham in 1790 from a bird collected at the Cape

of Good Hope (Hancock, et al, 1992).

Despite its distribution over the greater part of the African Continent, this bird appears to have little captive history prior to the 1970s, in marked contrast to the other widespread African Ibis, the Sacred, *Threskiornis aethiopicus*. Although vast African territories were held by Germany, Britain, and France before the First World War, I am unaware of any specimens in these countries' zoos in that age of Imperialism. The only pre-World War II record I know of is a single specimen received by the Amsterdam Zoo in 1888 (Brouwer et al 1994).

Zoologischer Garten Berlin did receive at least one in 1965, and it lived there 16 years (Brouwer et al, 1994). The first captive breeding, however, did not occur until 1974, when one was hatched and raised at Vogelpark Walsrode, the incomparably encyclopedic German bird park (Zoological Society of London, 1976).

The second collection to raise Hadadas was the Chicago Zoological Garden (Brookfield Zoo), where two hatched and one was reared in 1978 (Zoological Society of London, 1980). The Brookfield Zoo went on to raise six more, out of 11 hatched, from 1979 through 1981 (Zoological Society of London, 1981 -84). No further U.S. hatchings occurred until 1987, when the San Diego Wild Animal Park hatched three, and raised two. From 1988 through 1991, the Park bred a further 18 of which 12 were fully reared.

The Wild Animal Park hatchings are listed by the International Zoo Yearbook as the *nilotica* subspecies (Zoological Society of London, 1990 -93). According to the same reference, the 17 Hadada Ibises raised, out of 45 hatched from 1988 through 1996, at the Franklin Park Zoo in Boston were *B. hagedash brevirostris*. This subspecies occurs in a vast sweep from Mauritania south to the mouth of the Congo River,

on the Atlantic coast of Africa, to Somalia south to Mozambique, on the Indian Ocean coast. The range of *B. h. nilotica* borders the central portion of this expanse to the north, comprising portions of Ethiopia, the Sudan, and the Democratic Republic of the Congo, all of Uganda, and Western Tanzania. The remaining part of Tanzania is home to *B. h. brevirostris*. Since Tanzania was a major source of zoo birds in the 1980s, it is not surprising, if unfortunate, that both should be represented in U.S. collections.

While these northern subspecies differ from the nominate Southern African in color, both having brownish (instead of grayish) heads and necks, as well as more pronounced and extensive iridescent green and purple patches on the wing (Hancock et al, 1992) they differ from each other in measurements. *B. h. brevirostris*, as one might gather from its subspecific name, possesses a shorter beak than *B. h. nilotica*. However, its beak is longer than that of *B. h. hagedash*. On an average, *B. h. brevirostris*'s beak is about a centimeter longer than *B. h. hagedash*'s but about two centimeters shorter than *B. h. nilotica*'s (Hancock et al, 1992). *B. h. nilotica* is correspondingly a bigger bird, sometimes significantly so.

Aside from the San Diego Wild Animal Park and Franklin Park, out of the eight U.S. institutions listed by the International Zoo Yearbook as having bred Hadada Ibises through 1996, only SeaWorld of Florida is specified by that source to have bred a particular subspecies. SeaWorld's birds are identified as *Bostrychia hagedash nilotica* (Zoological Society of London, 1993-94). The International Species Information System (1999), however, identifies the subspecies of birds at six of the eleven U.S. collections holding Hadadas 30 June, 1999. The unidentified specimens were five at Atlanta, a pair at The Zoo at Gulf Breeze, Florida, nine at Honolulu, one female at SeaWorld of Florida, and three at the Metro Washington Park Zoo, in Portland, Oregon. The only place listed for *B. h. nilotica* was the San Diego Wild Animal Park, with a single pair. On the other hand, *B. h. brevirostris* was represented by 10 at Franklin

Park, a pair at Disney's Animal Kingdom, three at the Jacksonville Zoo, in Florida, a pair at the Oakland Zoo, in California, and seven at Safari West, in Santa Rosa, California. In all, this comes to a total U.S. zoo population of 46.

The Regional Collection Plan provisionally drafted by the Ciconiiformes in Captivity Advisory Group of the American Zoo and Aquarium Association, recommends the Hadada Ibis for "display," in other words, a species that does not need to be carefully managed for conservation purposes or as a perpetually self-sustaining captive population. The CICAG suggests that no more than 50 specimens be collectively maintained in North American Zoos.

According to ISIS (1999) reproduction occurred at three U.S. collections in the first six months of 1999. Four hatched at Atlanta, one at Franklin Park, and two at Honolulu. Considering 123 Hadada Ibises hatched in seven U.S. institutions from 1987 through 1996, even in light of the fact that only 53 were fully reared, it is obvious that future U.S. breedings will need to be severely curtailed if the zoo population is to be maintained at anything near 50 birds.

That this may require some effort may be gathered from experiences with this species at Disney's Animal Kingdom, yelling and all.

On 7 August, 1997, Disney's Animal Kingdom received three Hadada Ibises,

a purchase from the neighboring Jacksonville Zoo. These birds were initially housed at the Lube Foundation, in Gainesville, Florida, where the nucleus of Disney's Animal Kingdom's collection was being assembled while facilities at Walt Disney World Resort, in Orlando, were nearing completion. Two of the ibises were hatched in Atlanta, a male on 29 May 1992, and its female sibling on 1 June, 1992. The third was a female hatched at the Franklin Park Zoo, on 13 May, 1994. All three arrived identified as the *brevirostris* subspecies. As neither the International Zoo Yearbook or ISIS specify the subspecies of any Atlanta birds, I contacted Mary Noell, Registrar at Zoo Atlanta, who told me Atlanta's breeding pair, purchased from the now defunct California firm Bellbird in 1988, had been captured in West Africa. Exactly which West African country the birds originated from is not recorded, but that entire area falls under the range of *B. b. brevirostris*.

Be this as it may, in the age-old traditions of the Pharaohs and Ali's, the Atlanta siblings' preference in mates appeared to run towards each other. From records that arrived with these birds from Jacksonville, it seems that there had been enmity between the Atlanta and Boston specimens before their transfer, and this War between the States appears to have continued through their sojourn at Lube. (Hancock, et al, (1992) suggest, in contrast to at least Sacred, Scarlet, and American White Ibises which re-pair each year and breed in large colonies, that the noncolonial Hadada mates for life, retaining some sort of pair bond beyond the breeding season). At any rate, the Atlanta ibises made the trip to Disney's Animal Kingdom by themselves, and on 27 January, 1998, they were released into the Pangani Forest Aviary.

On 16 March, 1998, Chelle Plasse, Aviary Team Manager, noted the male placing small twigs in the fork of an oak tree, spending almost an hour "working to place the same twig." On 21 March, Chelle observed "both birds allo-preening and rattling bills together," the standard courtship display for this species (Hancock, et al, 1992).



Photo by Paul Schuitz

This chick, hatched in at incubator at Disney's Animal Kingdom in July, is about to be hand-fed.

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Aviary Keeper Paul Schutz recorded the pair gathering nest materials, but placing them in two different oak trees on 24 March. Aviary Keeper James Grant observed on 27 March that the pair was "building a nest over the water near the bridge" and that the female is very active and drops more into the water than she manipulates on the branch." This time, the tree was a feathery leafed Tipu (*Tipuana tipu*). An unsuccessful attempt at copulation was noted by Paul that same day.

On 29 March, Aviary Keeper Shannon Mezzell noted that the female was now successful at placing branches, and worked at nest building all afternoon. Over the next several days, nest construction progressed, accompanied by bill clattering and evening vocalizations. On 2 April, Paul noted "precopulatory behavior (allo-preening, bill rattling, mounting) followed by copulation and a postcopulatory upward bill-stretch." That evening he noticed the female sitting in the nest for an extended period. From this point, with one exception, both Ibises spent the night on the nest (previously, they roosted in the deadfall near the aviary waterfall). For most of the month of April, observed copulations were an almost daily entry in the keepers' log.

On 5 April, the male Hadada began stealing sticks from a pair of Hammerkops (*Scopus umbretta*), a species renowned for enormous domed nests. Shannon reported that "confrontation was observed in A.M., when both Hammerkops flew at Hadada to remove him from the nest platform." She recorded that the "Hadada paid little interest [towards] their efforts and left several minutes later." Shannon further noted the ibises lining their nest that evening. On 7 April, Paul witnessed the male lunging at a Superb Starling which had landed on the nest. Both male and female continued adding twigs, and by 14 April they had partially destroyed the Hammerkop nest.

Though 19 April the male Hadada continued to raid the remains for building materials. Late that day, a rain-storm caused the female, who had been sitting all afternoon, to get off for 15 minutes, though she stayed in close

proximity. However, that evening, both birds roosted on the deadfall. They resumed roosting in the nest the following night.

On Earth Day, 22 April 1998, Disney's Animal Kingdom opened its gates. In the week that followed, what amounted to roughly a year's attendance for many municipal zoos passed by the ibises' nest (about three feet above, and five feet away from the public path). The Hadadas responded with aplomb. On 22 April, Paul observed copulation at 6:00 P.M. On 23 April, he observed it at 7:45 A.M. And on 24 April, James observed copulations at 12:25, 1:35, and 6:50 P.M.

The female did not leave the nest at all commencing 26 April. The male joined her on the nest as twilight fell. Shannon noted he was "very aggressive toward keeper when nearby." Paul records "he actually flew at keeper's head two times when approaching the nest," on 28 April.

The first successful nest inspection since 24 April (when no eggs were present) was finally achieved 29 April, and three eggs were found. On that date, the male began relieving the female at brooding during most of the day time. On 30 April, James noted the male spent about half an hour preening the female while she sat on the nest "most of the morning." Paul recorded that while the male was sitting for the remainder of that day, the female "flew at Keeper once and at a Hostess once." (The Pangani Hosts and Hostesses, who interpret the exhibits to our guests, are garbed in the same lime-green shirts and dark green pants as the keepers).

The succeeding days saw a routine of continuous incubation, one bird relieving the other after several hours. Both the male and the female arrived at the nest with dried grass which was presented to the other bird before duties were exchanged. This appears to be a universal behavior among ibises in general, both during nest construction and incubation (Matheu & del Hoyo, 1992). Before either bird departed the nest site, billclattering and preening occurred between it and its newly incubating mate.

While at large, the female could be as aggressive as her mate. On 11 May,

Shannon reported this bird "flew over and grazed my head when flying towards nest." While Disney's Animal Kingdom guests were often alarmed by the Hadadas swooping over their heads as they approached the nest, often trailing nesting materials, I am not aware of any physical contact with non-staff persons.

On 16 May, a broken egg was discovered under the nest. There did not appear to be any development. On 20 May, the shell of an egg which had "obviously hatched" was found in the water beneath the nest. Later that day, James inspected the nest, and despite both birds being "very aggressive and protective of nest," discovered a chick and a pipping egg.

The chick was weighed, at 42.4g, and returned to its parents. Its weight on 23 May was 59.2g. At the same time it was discovered the chick in the pipped egg had died before hatching. The weight of the surviving chick had jumped to 368.5g by 30 May, and it was noted to be very active, attracting much attention from park guests. Both the male and female parent provided food constantly, especially Giant Mealworms from the scheduled "throwings" for the resident flock of Carmine Bee-eaters.

On 3 June, Paul observed that the chick was a third the size of its parents, and sprouting pin feathers on its wings tail and back. He also noted that when one parent arrived to relieve the other at chick brooding, they both performed a one to two second upward bill stretch, "similar to post-copulatory display."

By 20 June, Shannon was noting that the chick was being left alone at three-to-five-minute intervals several times in the late afternoon. The evening of 23 June, the chick was left unattended by its parents all night and fledged the next morning. It was caught and banded on both legs. Aviary keeper Scott McKnight recorded later that day that the juvenile foraged with its father, while the female sat on the nest. Aviary keeper Susan Congdon noted that the juvenile spent the night of 24 June in the nest with one of its parents.

On 27 June, Shannon noted the parent birds "bill clattering together and



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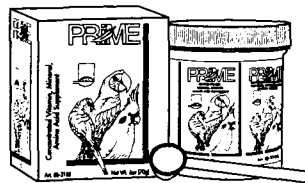
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each had part of the same stick in their bills and turned towards nest in unison. They did not fly to nest." That same day, Paul observed the male parent in the nest, joined shortly by the female who "walked up into" it. They immediately rattled their beaks for about five seconds. About a minute later, they went through precopulatory behavior, followed by a mount, "although actual copulation did not appear to have occurred." That night, they roosted in a tree with their fledged offspring.

While the juvenile was still being parent-fed by 1 July, it was also forag-

ing with both its parents in a grassy section of the aviary. In spite of its having been caught for banding the day it fledged, and again, three days later, when it was transported to the Park hospital for a physical exam (including blood and feather samples, and injections), and fitted with a transponder chip, it shared its parents' lack of concern for close proximity of Disney's Animal Kingdom guests, allowing them to approach very closely while in the company of the adults.

Successful copulations recommenced on 10 July, occurring in the nest. On 13 July, 1998, Shannon record-

ed that the female was in the nest in the morning, rearranging sticks. The adult pair were both in the nest the next morning. On 15 July, Paul observed the juvenile "begging from the male by hitting its beak against his." However the young bird proceeded to eat independently. Four days later, Greg noted it "eating from food dish ravenously." (Dishes prepared expressly for the Hadadas and Hammerkops contained a mixture of commercial horse meat based "carnivore" diet and flamingo pellets, but they had access to plates prepared for all the other twenty-or-so species of African birds, including soaked "parrot" pellets and dead "pinky" mice.) About this time the results from Zoogen analysis of a blood sample taken 27 June came back, establishing the juvenile was a male.

Aggression from a parent against this offspring was witnessed for the first time 23 July, when Paul recorded that as it approached a feeding station, an adult "began lunging at youngster and keeping him from the feeder." After almost three minutes, the parent moved and the juvenile was able to eat. That same day it was discovered there were two eggs in the nest. Parental aggression was also directed against keepers. While it is customary to pull food dishes at the end of the day in the Pangani aviary, and not leave food over night, on 25 July, Shannon recorded that since both parents were eating as night fell, and were "very defensive of food bowl," it was not removed that evening.

Despite the parental animosity displayed three days before, Shannon discovered all three Hadadas on the nest, the morning of 26 July. She noted the female appeared to be turning eggs.

Because this breeding pair was brother and sister, it was decided, for the time being, to produce no further offspring. Accordingly, the eggs were pulled 29 July, when it was discovered there were three. They were replaced with two "dummies." The female at once assumed her incubation duties, apparently not noticing the alteration in number and nature of her eggs.

For the next two months, these artificial eggs were tended with loving care. The female turned them regularly.

TABLE I.

Hadada ibis (*Bostrychia hagedash*) hatchings in zoos and bird parks through 1996.
(Compiled from Records of Birds Bred in Captivity in the *International Zoo Yearbook*, Vol.'s 1-36 (Zoological Society of London, 1960-1998).)

	<u>Years hatched</u>	<u>Hatchings (Juvenile mortalities)</u>
Europe		
Vogelpark Walsrode, Germany	1974, 1978-79, 1982, 1987, 1990-92, 1995	26(1)
Zoologischer Garten Berlin, Germany	1988	8(8)
Tierpark Berlin, Germany	1990-91, 1994-96	10(9)
Zoo Duisburg, Germany	1992-93, 1996	9(6)
Stagsden Bird Gardens, UK	1992	4(3)
U.S.		
Chicago Zoological Park (Brookfield Zoo)	1978-81	19(11)
San Diego Wild Animal Park	1987-91	21(7)
Franklin Park Zoo, Boston	1988-91, 1993-94, 1996	45(28)
Zoo Atlanta	1989-92, 1994	20(6)
SeaWorld of Florida, Orlando	1991-92	17(5)
Cleveland Metroparks Zoo	1993	3(3)
Honolulu Zoo	1993-96	16(10)
Oregon Zoo, Portland	1996	1
Asia		
Tama Zoological Park, Tokyo, Japan	1987, 1989-92, 1994-96	29(20)
Osaka Municipal Tennoji Zoological Garden, Japan	1996	2
Africa		
Johannesburg Zoological Gardens, South Africa	1992-93, 1996	6(3)

TABLE II.

A summary of eggs laid by the pair of Hadada Ibises exhibited in the Pangani Aviary at Disney's Animal Kingdom over the period 27 January, 1998 - 11 October, 1999. Clutches are discussed in further detail in the text of this article.

<u>Estimated date first egg laid</u>	<u>Clutch size</u>	<u>Disposition of eggs</u>
27 April, 1998	3	One broken 16 May. One hatched 20 May, One died during pipping 20 May.
24 July, 1998	3	All pulled 25 July. Replaced with "dummies" until 10 October.
23 October, 1998	3	All pulled 25 October. Replaced with "dummies" until 22 January.
25 February, 1999	3	All pulled 27 February. Replaced with "dummies" until 14 April.
27 April, 1999	2	Both pulled and nest destroyed 28 April.
10 May, 1999	3	One pulled and nest destroyed 10 May. One laid off perch and broken 11 May. One laid off perch and broken 16 May.
23 May, 1999	3	All pulled and nest destroyed 3 June.
16 June, 1999	3	All pulled (to incubator where hatched 9, 10 & 12 July). Replaced with "dummies" until 20 September.

The adult pair continuously added soft nesting materials, primarily grasses, but availing themselves of "wood wool" whenever Ladybugs were released in the aviary as pest control. The male regularly relieved his mate at incubating. And the young male continued to join his parents on the nest in the morning.

By 1 October, 1998, it was decided that the breeding pair should have something else to do, so the "dummies" were removed and the nest's top layer of sticks disposed of. They responded with "a lot of billing and precopulatory behavior" in a tree the next day, and unsuccessful mounting in the nest, the day after.

On 9 October, Paul wrote he observed them "adding [a] stick to the once and future nest." The next morning, Paul recorded that all three Hadadas were extremely vocal, and "at one point both adults were in their nest calling with their bills touching and pointing."

About 2:30 that afternoon Susan witnessed a very noisy two minute long copulation in the nest, after which the male flew off, "vocalizing loudly." Shannon observed a copulation, again in the nest, around 8:00 A.M. on 11 October. She noted both were "very

vocal." There was more noise the following morning, as they industriously rebuilt their nest. The male startled guests by grazing their heads as he flew over them, weighted down with sticks. Nest-building and bill-clattering appear repeatedly in the aviary records over the next two weeks.

On 25 October, the nest was inspected and found to contain three eggs, which were removed to be educational materials, and replaced with "dummies." Aviary Keeper Ron Fry reports that in less than half an hour, the female was back to incubating, and the male to bill clattering. Nest materials continued to be added well into

December, including sticks purloined from the Hammerkops.

The morning of 22 January 1999, a team of keepers removed the entire nest, still containing the wooden eggs. It was found to weigh three and one-third pounds (1.376kg), and "saved for future reference." Susan recorded the breeding pair became "very aggressive and hostile" during this procedure. Subsequently, Aviary Keeper Jeff Ignaut noted that all three ibises were "very vocal" and spent the rest of the day in "many different trees within the aviary."

On 25 January, Shannon recorded that at the site of their confiscated nest, the pair "were bill clattering and attempting to nest build", but "the sticks kept falling from the fork in the tree". At 8:00 the next morning, Susan observed the breeder male in a twenty minute, ultimately successful attempt to position a "large stick". By 29 January, the pair was defending their nest. Shannon observed copulation on the ground, the next day. On 3 February, the ibises systematically destroyed an abandoned Hammerkop nest. The by now standard routine of copulations and perpetual addition of nest materials followed.

I became initiated in Hadada nest inspections 18 February, shortly after my arrival at Disney's Animal Kingdom. Things had already gotten off to a testy start at 7:30 that morning, when I attempted to place the dish full of flamingo food and bird of prey diet in its stand in a tree, while balancing somewhat precariously on a wooden fence. This maneuver was rendered more difficult than usual by the male snapping at my hands. Fifteen minutes

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later, while he was still engaged in eating, an attempt was made to inspect the nest with a mirror on a pole. In seconds, he was standing next to his still tightly sitting mate, vigorously seizing the pole in his beak. Eventually, the female did rise to her feet, but no eggs were seen.

Early in the morning of 27 February, before guests began to arrive, Susan, Bill, and myself converged on the nest with a ladder and nets. As soon as the ladder was placed in front of the Tipu Tree, the female sounded her alarm and the male responded and flew over. Because I was waving a net, he did not actually land on the nest this time, but instead menaced Bill (who discovered three eggs), from the branches above. The female did not get off the nest until all three eggs were taken. Both birds yelled during the removal. Promptly after three wooden "dummies" were placed in the nest, the female returned and yelled some more, this time holding her wings out from her body. Her mate yelled with her.

On 3 March, I observed the male crouched low beside the incubating female. For about three minutes both birds rapidly opened and shut their beaks, sometimes together, sometimes in opposite directions. There were no vocalizations. During this time, the male maintained "an attitude." One day, while removing old diets for disposal, I respectfully waited several minutes for him to finish eating from the aforementioned dish above the fence. Even though he was perched several feet away when I reached for the dish, he silently leaned forward with his beak open, presenting quite a gargoyle-like aspect.

On 14 March, I witnessed an interesting confrontation between father and son. Both were on a large fallen branch. The young bird had the feathers of its forehead extended, and repeatedly directed sudden upward beak thrusts towards the old male, who never raised its head feathers at all. The younger bird eventually flew off.

Our guests were treated to a couple of interesting performances. On 16 March, the adult male Hadada chased a Hammerkop from the vicinity of the

nest. Susan records that the pair of Ibises were "very vocal and caused a huge commotion, attracting guest attention." That same day, Susan also reported that the adult male flew down to where the aviary pool is very shallow and planted with rice grass, and "began jabbing" at his offspring. Susan notes: "The juvenile flew away very low and flew into a guest on the bridge. All seemed unharmed."

As it happens, the juvenile should already have been on its way to California. Arrangements to send him to the Oakland Zoo had been finalized early in 1999, and a pre-shipment fecal sample was collected 22 February. It was not anticipated there would be any difficulty extricating this bird from the 6,600 square foot aviary. He had become quite the brat.

On 30 December 1998, Susan discovered him "sitting on one of the bridge posts striking at guests at 9:00 A.M." and "had to move him out of the way." On 17 January, 1999, Shannon observed him "stabbing at guests while resting on a pole along the guest bridge." She had to "physically move" him.

Somewhat more endearingly, while Shannon was throwing out giant mealworms on 24 January, she felt him tugging at the back of her jacket. When she turned around, he did not move until she started to walk away.

Be that as it may, it was entirely another matter when it came time to actually transfer this bird. On 4 March, he was escorted towards the open doors of the Pangani "Research Station," a visitor's center, featuring a colony of naked mole rats (*Heterocephalus glaber*), which also serves as the front safety entrance for the aviary. When he was six feet from the doorway, a Hammerkop swooped down and startled him into a tree. Thereafter, he was cautious towards any attempts to corral him into a confined space. Several subsequent near-successes only compounded his suspicions. He now maintained a distance of several yards between himself and any aviary keepers.

Meantime, through the remainder of March and into April, parental attacks continued and grew increasingly

severe. On 26 April, 1999, Shannon reported the breeding pair "relentlessly pursuing" their offspring through the southern portion of the aviary. The female stabbed at him with her beak wherever he perched. This pursuit was of about eight minutes duration.

That same day, Greg Bockheim caught the young bird and transferred him to the zoo hospital, in preparation for his journey to Oakland. The following day, he was placed next door to his companion for the trip – the female, hatched in Boston in 1994, whom it had proved impossible to ever maintain with the Atlanta siblings. With one thing and another, they were not sent out until 17 June, 1999. No animosity was observed between this prospective pair while they were housed side-by-side awaiting shipment. Nina Goodwin, Lead Keeper/Registrar, and Christy Martin, Keeper at the Oakland Zoo, inform me they have been "very compatible from the day they got here" and have created no problems with the African Pied Crow, the Lilac-breasted Rollers, the Red-billed Hornbills, or the Cattle Egret with whom they share an aviary at the zoo's new African expansion. As of Mid-October, 1999, the female was starting a nest.

[Numerous attempts at nesting occurred during the following months with the pair just occasionally losing interest]

And that about sums it up. The Hadada Ibis is an imposing bird, often the first to be noticed by zoo visitors amidst smaller and less bold, if more colorful cagemates. Aside from raids on other birds' nests for materials to build their own, they are fairly satisfactory community birds. They have never actually injured members of another species at Disney Animal Kingdom, and it pleases me to mention that successful breedings of Hammerkops, Black Crakes (more than a dozen), African Jacanas, African Gray Parrots, White-headed and Blue-naped Mousebirds, Bearded Barbets, Magpie Shrikes, Brimstone Canaries, and Taveta Weavers (more than fifty) have occurred in the in the presence of the ibises in the Pangani Forest Aviary.

Since 1993, it has been illegal to



Photo by Greg Bookheim

A Disney's Animal Kingdom Hadada Ibis in the nest constructed high in a Tipu Tree.

commercially import Hadadas to the U.S., following the implementation of the Wild Bird Conservation Act, which affects all species on any CITES Appendix. This bird appears secure across its vast range, and its CITES listing is due only to the government of Ghana, in 1976, placing practically all of its native birds on Appendix III (which only regulates specimens departing the country that requested this listing). None the less, it is likely that any Hadada Ibises American zoo

visitors experience in the future will be descended from ones already in this country. So, while management of the U.S. zoo population will largely entail curtailing the attempts of these perpetually fecund creatures of the Equator to propagate, at the same time careful attention will have to be given to exactly which pair will be allowed to reproduce, and when. The rewards will be one more degree of representation of the rich diversity displayed by the world's birds.

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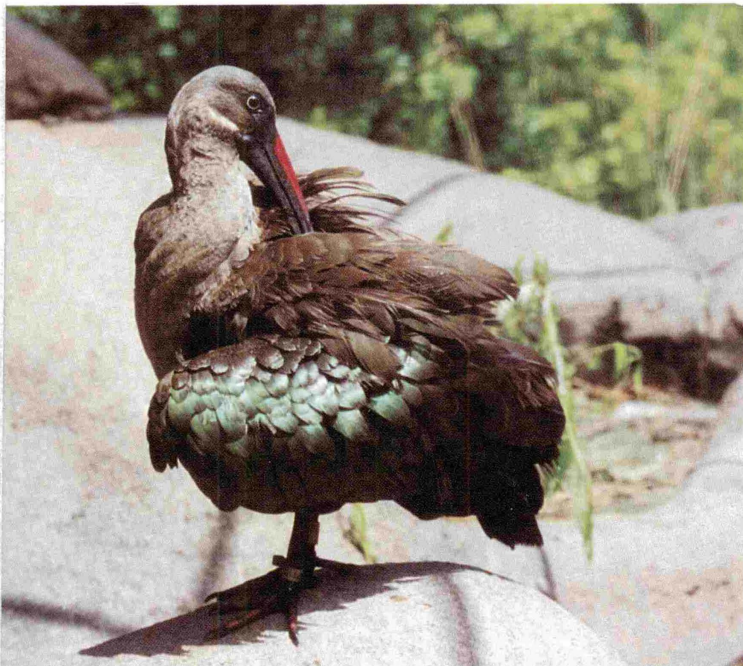
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Photo by Natalie Mashburn Lindholm.



Hancock, et al., (1992) suggest that the white crescent below the eye of the Hadada Ibis serves as a recognition feature between individuals

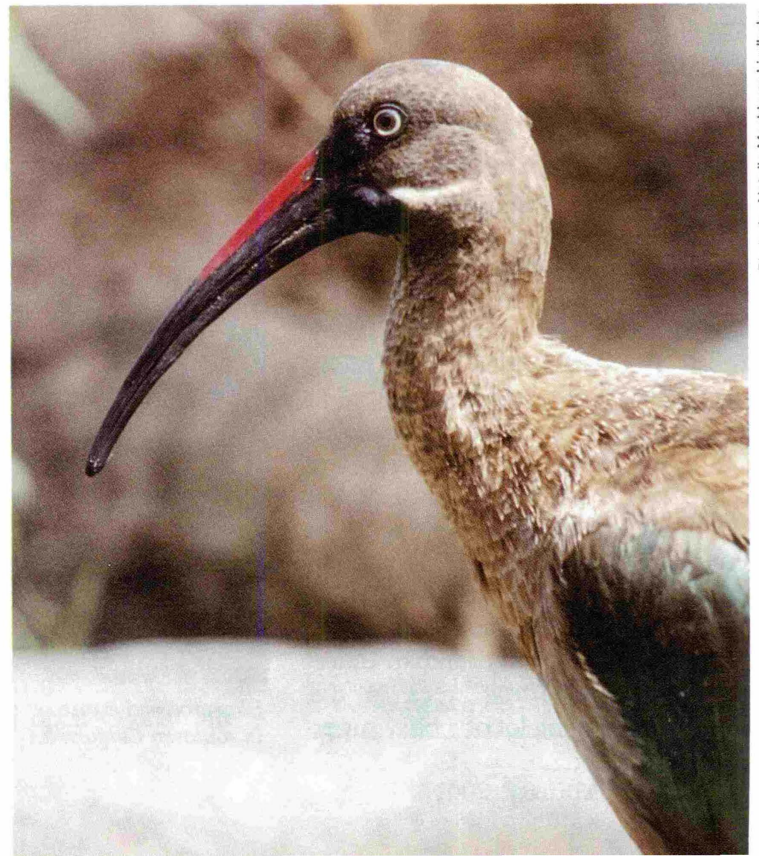


Photo by Natalie Mashburn Lindholm.