

– Giraffe Eggs –

The Fulvous Whistling Duck

(*Dendrocygna bicolor*)

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In my experience, rhinos in zoos are sedate animals. They stand. When they do move, it is usually with a ponderous stateliness. I have seen a lot of rhinos in a lot of zoos and have thus formed certain expectations. So I was startled when a Black Rhinoceros gave a snort like a rifle-shot and charged wildly across her yard, swinging her head back and forth. What might have been entertaining was, under the circumstances, alarming, as this behavior happened to coincide perfectly with the bland announcement that I would be expected to explore the African rhino yards for duck eggs on a regular basis. It was a bleak late afternoon in December, 1991, and I was being shown my future string of exhibits by Chris Brown, Curator of Birds. I'd arrived in town the night before, aware my primary exhibit was the great glass atrium in the soon-to-be opened World of Primates, an eventual home for finches and softbills. It happened that this brand new building adjoined the Gloria and Harry Tennison Rhinoceros Exhibits and the associated display for Giraffes, and it was only logical that its bird keeper should be responsible for the waterfowl next door. Chris advised I'd do well to establish friendly relations with the rhino staff.

As it happened, my anxieties were groundless. Of the three full-time rhino keepers, one is in charge of the

fairly regularly scheduled literary evenings at a local coffee house. Readers of this magazine should be pleased to know that prior to submission, I read my manuscripts before my fellow zoo-folk and other vigorous critics. As my articles provide an (at times) welcome relief to moody love poems and introspective musings on the meaning of life, I can be confident Dan will be certain the rhinos are *in* while I hunt for eggs in their yards. The same applies for giraffes. That they can decapitate a lion with a single kick is one of those bits of trivia zoo keepers are expected to dispense at parties.

The same time I started at Fort Worth, Lis Glassco, our assistant curator, arrived from the National Zoo, bringing with her numerous innovations. One of the first to be instituted was an egg log, to be filled out by keepers as they discovered the eggs. During 1992 there were 929 eggs logged. From late January to the beginning of March, Crested Wood Partridges (*Rollulus roulroul*) predominated, then the waterfowl took over. Brazilian Teal, Chestnut Teal, Chiloe Wigeon, Wood Ducks, Hooded Mergansers, Ruddy Ducks (and the occasional "mystery duck"), were followed, as May passed into June, by Marbled Teal, Redheads, Shovelers, and Ringed Teal. None of these, however, emanated from the "African Lagoon", across which the public stares at Reticulated Giraffes,

and Black and White Rhinoceroses.

The partial shell of a suspiciously large egg I found one of our female Comb Ducks eating in early March was not logged at all. Three eggs hopefully logged (in a hand other than my own) as Garganey Teal (placed in the exhibit April 20), were placed in the incubator May 27, and removed June 6, when nothing appeared to be growing. I did enter egg 503 as "Duck?" ("Discovered in open depression in Giraffe Exhibit") June 8, incubated June 10, and discarded seven days later. Between three eggs labeled "Duck Pond" (which is next to the Aquarium) and two further Roulrouls, I logged eggs number 555 and

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556 as "Giraffes" on June 15, and noted they were "Rotten — Thrown Away"). Another giraffe's egg appears between a Roadrunner and a Roul Roul, found July 2, incubated July 4 and discarded July 7.

As July progressed, the Roul Roul Partridges again dominated the log (punctuated by such things as my discovery of a nest full of bright-eyed Dybowski's Twinspots (*Euschistospiza dybowskii*) on July 14, the first hatched in a U.S. public zoo). Waterfowl entries trickled to a small minority. Among these few are a fourth giraffe egg, found July 19. It was significantly different. It was big. The previous ones were quite small, and presumed to be Cape Teal, which, as all the ones in "African Lagoon" are siblings, we didn't want to hatch anyway. Quite aside from its bigness, the day it was retrieved, a female Comb Duck (*Sarkidornis m. melanotos*) had been rude to Stacey Dunlop, our summer mammal keeper (home from Tuskegee Institute). Grotesquely magnificent, Comb Ducks are probably my favorite Anatid, and the fact one of our two females was displaying aggression to keepers the day an odd egg was discovered was tantalizing. Unfortunately, this egg, too, failed to show any development. A fifth giraffe egg, again big, was found July 28, but cracked and leaking.

It was in the White Rhino yard that Stacey and Dan Grandquist, our literary Large Mammal Keeper, found seven large eggs, which I'd overlooked, beneath a log, and gleefully brought them to coffee break in a bucket. It was August 1, and they were at once placed in the incubator, as I had no idea when they'd been laid. I optimistically entered them as possible Comb Ducks or Hartlaub's Ducks (*Pteronetta hartlaubi*), our pair of the latter being the gems of our African waterfowl.

It must be confessed, that with the cessation of breeding activities for the season by pretty much all the waterfowl in the rest of the zoo, coupled with a great deal of breeding activity on the part of my African finches (among other things), my poking about in the rhino and giraffe yards had somewhat decreased in frequency. The error of this became apparent on August 4, when I retrieved 27 eggs from these exhibits—especially when it was all too obvi-

ous that the clutch of twelve from the Black Rhino yard was very rotten.

I'm glad to say such was not the case with the other fifteen, found in the giraffe yard. When I came upon this monumental clutch, a Cape Teal (*Mareca capensis*) was sitting very tightly, as best as it was able, on these large eggs, and most reluctant to leave them. (Furthermore, according to its bands, this bird was male.) When I returned some minutes later, with something to carry the eggs in, I found one of the Comb Duck females on top of them — certainly a better fit. As these eggs were placed in the incubator, my anticipation can be imagined.

Needless to say, rhino and giraffe egg-rounds were carried out thereafter in a more scheduled fashion. On August 6, two large eggs were logged from the giraffe's, while four came out of the White Rhino yard. On August 8, I found six more in the White Rhino Yard, and, on August 13, two were found in the giraffe's. Mammal staff found another there the next day. A giraffe yard egg I found August 20 is logged in my own hand as "Hartlaub's?".

The mystery as to what was laying all these large eggs was put to rest August 27, when two of the eggs found by Stacey and Dan, August 1, hatched in our incubator (set at 99.5°F, with a wet-bulb reading of 83 to 86°). The ducklings were gray, a rather uncommon neonatal color. They were at once identifiable by this fact combined with a peculiar head pattern. I have written elsewhere (Lindholm, 1992/93) of the odd impression given by ducklings that lack the expected "eyebrow". These ducklings had "eyebrows", but lacked the perceived "innocent" appearance that such an ornament would usually impart. This is a result of the fact that the dark line going through the eye is boldly connected to the crown of the head, isolating the slanted pale "eyebrow" above it. At the nape of the neck, beneath the dark crown and connected stripe, is a parallel dark band, producing a strange effect like a monk's tonsure. With variations, this is the standard head pattern of newly hatched specimens of the eight members of the Tree or Whistling Duck genus (*Dendrocygna*). These Ducklings were Fulvous Whistling Ducks (*Dendrocygna bicolor*).

Regarding *Dendrocygna bicolor*, Jean Delacour (1954) wrote that it has "...probably the most extraordinary range of all species of birds". The only one of the 150 species of Ducks, Geese and Swans, making up the family Anatidae, to nest in all four hemispheres, the Fulvous Whistling Duck naturally occurs in five distinct ranges; the southern U.S. and Mexico (but not other countries in Central America), northeastern South America, southeastern South America, central and eastern Africa and Madagascar, and the entire Indian subcontinent (Terres, 1980). It is generally agreed no sub-species can be defined. Delacour (1954) stated; "There is no geographical variation throughout this huge and broken range.. Plumage differences are entirely individual..." Quite aside from his phenomenal familiarity with museum specimens, Jean Delacour was especially qualified to assert this, having simultaneously maintained specimens from South America, Madagascar, and India, at his collection at Cleres (Delacour, 1954).

One will occasionally still run across the name *Dendrocygna bicolor helva*, bestowed upon the North American population in 1922, by the American Ornithologists Alexander Wetmore and James Peters (Delacour, 1954), but subsequent research on this species does not justify this.

Paul Johnsgard (1978) writes "...in general [this species] does not appear to have suffered measurable inroads from Man's activities." Dr. Johnsgard does mention a retraction of range in Trinidad and California, and notes that pesticide poisoning has been a problem in Louisiana. Ehrlich et al (1992) state that the Fulvous Whistling Duck is extinct in its former northern and central California ranges, and is declining in southern California, Arizona and Florida, but appears to be stable in Texas and Louisiana, where pesticide poisoning appears no longer to be a menace. Wetland destruction is considered the major reason for decline. It is to be hoped that recent programs by which central California rice farmers are creating waterfowl habitat may reverse the situation in that state. There is evidence this species may actually be expanding its U.S. range to the north and east (Terres, 1980).

The two ducklings hatched at Fort

Worth Zoo August 27, 1992, from the August 1 clutch, were joined in their brooder by two hatched August 29, from the August 4 clutch I'd found successively sat on by a Cape Teal drake and a Comb Duck hen. Over the next two days, three more of these fifteen bizarrely brooded eggs hatched in our Bird Building.

It would happen that, now that we'd figured what was laying these eggs, the last clutch was unmistakably the product of Fulvous Whistling Ducks. In our files is a note I made August 3 (the day before I found 27 eggs), reporting a "bonded pair" of Fulvous threatening their relatives, the White-faced Whistling Ducks, and the much larger Comb Ducks. That this pair might be responsible for any eggs found next day was not so obvious due to the odd behavior of the Cape Teal and Comb Duck noted above. On September 3, however, I came upon the male (identified by his bands, as all whistling ducks have very similar or identical plumages between the sexes). He was wedged under a corner of a large rock on the shore of the giraffe yard, firmly ensconced on eight eggs. He only left them after prodding, and kept returning to bite at me as I gathered them. His mate was in close attendance all the while.

In the mean time, Fulvous eggs from earlier clutches continued to hatch in the incubator. From the 4th to the 5th of September two hatched from the clutch of four found in the White Rhino's compound August 6 (and set August 8). Three eggs from the August 8 clutch of six hatched September 7 to 9 (though these had also been set August 8). Finally, the well-defended September 3 clutch of eight produced four ducklings, two September 27, and two more the next day.

At this point, it is appropriate to mention that all 10 of the Fulvous Whistling Ducks living at that time in the "African Lagoon" had only been there since May 15, 1992. When they arrived at Fort Worth on April 20, 1992 from Sea World of California, San Diego, where they had hatched, the transfer forms indicated that these were "juvenile birds, artificially incubated and hand-reared" and "not of breeding age yet". Thus the low hatch rate of any given clutch that season has at least one obvious explanation.

On a diet of gamebird starter, shred-

ded lettuce, chopped hard-boiled egg, supplemented with Vionate powder, the Fulvous ducklings did well under the care of Lis Glassco and Headkeeper Rick Tucker, and in less than a month, were moved from their brooders to concrete pools. Full adult plumage is attained in two months (Johnsgard, 1978). One's first impression of a Fulvous Whistling Duck may be of a basically brown bird, albeit a particularly pleasing shade of brown. Closer examination reveals all sorts of interesting details; black and rufous scalloping on the back, elongated white plumes along the flanks, a pale vermiculated area along the neck and throat, and what I find most interesting, a broad black band running up the back of the neck, disappearing into the very short, dense crest at the back of the head. In marked contrast to the Black-bellied and White-faced Whistling Ducks (*Dendrocygna autumnalis* and *D. viduata*), with facial patterns that are usually perceived as gentle, dove-like "expressions", Fulvous Whistling Ducks present a demeanor not unlike that of a bird of prey. This is not entirely unfair, as Fulvous do have a reputation for aggression in captivity. Jean Delacour

(1954) found this was chiefly confined to intraspecific fights during the breeding season and the "persecution" of the smaller, closely related Wandering and Javan Whistling Ducks (*Dendrocygna arcuata* and *D. javanica*) which had to be removed on "several occasions". Frank Todd (1979), who like Delacour at his Normandy estate years before, built a monumental anatid collection at the various Sea World parks, found "some individuals" have the potential to be "fairly aggressive". On the other hand, the German aviculturist Hartmut Kolbe (1979) thought Fulvous to be "peace-loving".

Kolbe (1979) goes on to observe that "when Fulvous Whistling Ducks do have a quarrel with another species they do not solve it by snapping, but instead they utter loud high-pitched screams with wide-open bill." I can add that I have seen three Fulvous at one time, in a phalynx, advancing on a single White-faced Whistling Duck, aggressively vocalizing. On the whole, scattered in various exhibits, as part of Fort Worth's collection of more than forty waterfowl species, Fulvous have not stood

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out as troublemakers. In the African Lagoon, two of the six White-faced kept there regularly left the enclosure, until relocated elsewhere, possibly as a result of being annoyed by their Fulvous relatives though the Comb Ducks and Hartlaub's are more consistently obnoxious.

Of the 15 Fulvous Whistling Ducks hatched at Fort Worth Zoo in 1992, six were sent, in December, to the Texas Zoo, in Victoria, which exhibits only native animals, and the rest distributed among various locations on our grounds. This year, Fulvous join Wood Ducks, Chestnut Teal, Ringed Teal, Chiloe Wigeon, and Redheads (all produced abundantly last year), in a list of birds whose eggs will be collected (and replaced with dummies), but *not* incubated. If this seems rather severe, one need only examine one instance where Fulvous Whistling Ducks were allowed to multiply unchecked.

The San Diego Wild Animal Park opened to the public in May, 1972. Among the steady stream of animals acquired in the early months of that year were 13 Fulvous Whistling Ducks. Marvin Jones, Registrar of the Zoological Society of San Diego, informs me that they arrived from the famed animal dealer Dan Southwick April 18. They were installed, with many other waterfowl, in the lake surrounded by the "Nairobi Village" entrance complex. The shores of this lake are well planted with Natal Plum (*Carissa grandiflora*) and other plants.

I gleaned the following information from the ever-reliable pages of the *International Zoo Yearbook* (Zoological Society of London, 1975-1979). No Fulvous Whistling ducks hatched at the San Diego Wild Animal Park in 1972. In 1973, 73 hatched, of which 49 survived. In 1975, only nine of the 145 hatched failed to reach adulthood. Of the 268 hatched in 1975, 43 died. The figures for 1976 are remarkably similar to those two years before; nine died out of 143 hatched. In 1977, 190 hatched, and 55 died. And that's it. Nothing more is listed in the *IZY* until 1982, when the Park hatched seven (ASL, 1984). For the first several years, these ducklings were raised in pools in "Nairobi Village", next to the stalls for bottle-fed hoofstock and Cheetahs, an appropriately situated "Duck Nursery". It may be that the lack of listings

in the *IZY* after 1977 represents not the end of reproduction, but only the abandonment of hand-rearing. At any rate, I well remember a beautiful November evening at the Wild Animal Park, in 1979, watching flocks of Fulvous Whistling Ducks (and Black-bellied Whistling Ducks, Rosey-billed Pochards, Ruddy Shelducks and Red-crested Pochards) dropping out of the sky, glowing in the sunset — a wonderful sight, but one calculated to attract the unfavorable attention of Wildlife Authorities. Waterfowl still live in the WAP lake, but they are a different and select assemblage, closely managed. One Fulvous was present December 31, 1992 (ISIS, 1993).

In the first duck article I wrote for *Watchbird* (Lindholm, 1991), on the still problematic Javan Whistling Duck (*Dendrocygna javanica*), I mentioned its contrastingly fecund relative, the Fulvous; "...prolific, sometimes to the point of embarrassment, when unexpected ducklings attain full flight and threaten to establish feral populations." Of course, at that time, I did not anticipate I would be prowling Fort Worth's rhino and giraffe yards, overlooking eggs myself!

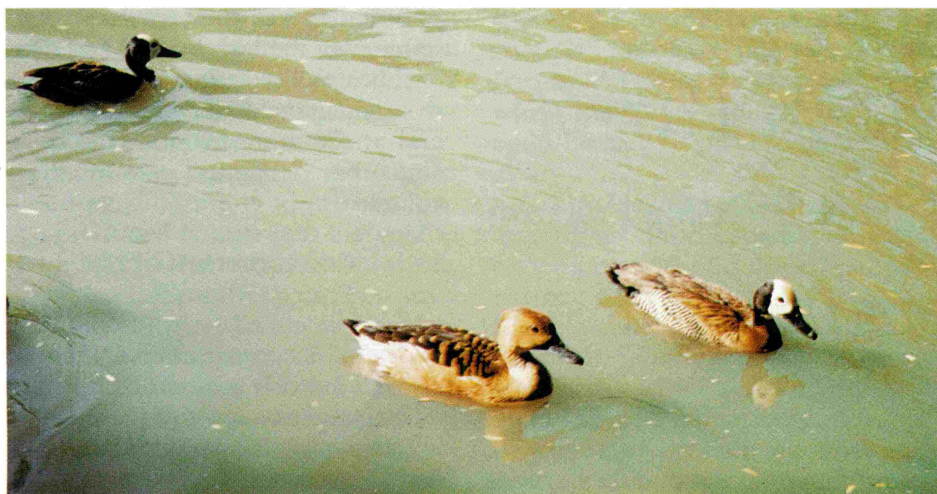
Inherent features in the breeding biology of Fulvous Whistling Ducks contribute to the tendency of this species' eggs to be overlooked. I have discussed "Dump Nesting" in previous articles (Lindholm, 1992 & 1992/93). Paul Johnsgard (1978) states that this species' clutch size ranges from eight to 16, but averages 10. However, he continues "multiple clutches or dump nesting (is) not infrequent, resulting in clutches of more than 20 eggs." Long-time field biologist and former *Audubon* Editor John K. Terres (1980) states; "...sometimes 30 to 100 [eggs are] laid by several females in [the] same nest, which is usually abandoned" — thus explaining, perhaps, both my experience with large clutches that seem to appear overnight, and the rotten one as well. A trait that distinguishes the entire genus *Dendrocygna* is mentioned by Delacour (1942); the nest "is not lined with down as those of other ducks." As "drawing down" is usually considered the sign that eggs are actually being incubated by the parent, the uninitiated may be badly misled as to the state of development of a discovered clutch.

Another potential for confusion is that incubation in this species is "mostly carried out by the male" (Brown, et al, 1982). This has been my experience, when I have encountered brooding birds, but until I was aware of this I spent a great deal of time wondering if band-colors, as noted in the inventory, had been correctly assigned. Fulvous are basically monomorphic, though some people make educated guesses on the premise that females may be "slightly smaller and duller than males" (Todd, 1979). All the eggs I've found were in simple depressions in grass or soil. Though the shores of the "African Lagoon" have a thick growth of heavy grass and some reeds, I have never found "a rather elaborate nest, somewhat like a moorhen's Gallinule" which Delacour (1942) describes as a typical whistling duck nest, bound together from the surrounding plants. On the other hand, I can, from last season's experience, agree with J. C. Phillips's (1922) observation that "the nesting period of this species is distinctly later than that of most ducks", a fact Dr. Phillips believes holds true throughout the entire breeding range. I am, in April of 1993, finding nests of Fulvous eggs guarded by both parents, but other anatid species have been laying for the previous month.

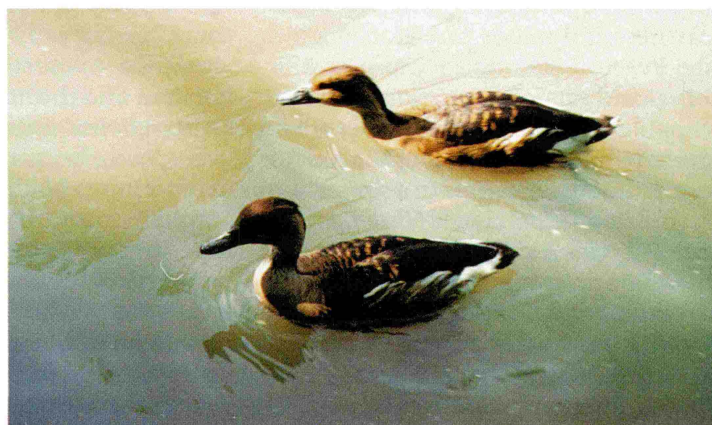
As one might anticipate, the Fulvous Whistling Duck is well represented in both private and public aviculture. It is one of the least expensive species on breeder's price lists, a pair usually offered at half the breeder's price for a pair of Gouldian Finches. Of all the wild waterfowl, generally only Wood Ducks, Gadwalls, Redheads, and American Black Ducks are offered at lower prices.

On December 31, 1992, 218 were inventoried in 32 U.S. zoos (ISIS, 1993), making this species one of the better represented in American public zoos. Seven of these collections bred Fulvous Whistling Ducks in 1992; one hatched at Cleveland, two at Dallas, 11 at Columbia, South Carolina, 16 at Fort Worth, 17 at Houston, 23 at Marine World in Vallejo, California, and 59 at the Lowry Park Zoo in Tampa (Ibid, 1993).

It is interesting to note that the Harvard ornithologist J. C. Phillips (1922), an enthusiastic aviculturist as well, wrote in reference to the White-faced Tree (or Whistling) Duck; "none of the



Contrasts in Whistling Ducks. A Fulvous and a White-faced in Fort Worth Zoo's African Lagoon.



Fulvous Whistling Ducks.

Tree Ducks breeds readily in captivity." Regarding the Fulvous Tree Duck, he admitted that "they do breed at times...", unlike the Cuban and Black-bellied Whistling Ducks (Phillips, 1922, Delacour, 1954) there appear to be no eighteenth century records of imported captive birds. The earliest record I have encountered is of one female that died at the 13th Earl of Derby's Knowsley Menagerie, near Liverpool, on July 27, 1835 (Woolfall, 1990). No other information regarding this bird appears to survive. Delacour (1954) states that Fulvous first arrived at the London Zoo in 1867, and bred there in 1872. This was probably the first breeding outside the natural range. I believe many of the problems previously experienced with species of waterfowl that are now considered hardy and prolific (such as the Common Shelduck (Lindholm, 1991/92) may have been due to deficient diets. At any rate, between 1934 and 1940 (when the Germans occupied the estate), Fulvous Whistling Ducks bred frequently at Cleres where Jean Delacour had built the then largest collection of ducks, geese and swans in the world, and "proved easy to rear" (Delacour, 1954). As previously men-

tioned, these birds were descended from South American, Indian and Malagassy stock.

This species was not commonly bred in public collections 30 years ago. Only three collections hatching it are listed in the first five volumes of the *International Zoo Yearbook* (Zoological Society of London, 1961-65), documenting the years 1959 to 1963. The Miami Zoo, in its former Crandon Park location, was successful each year except in 1961. Philadelphia Zoo, the site of the first known North American captive breeding in 1914 (Greenwell & Sturgeon, 1988), and in the 60's, America's largest waterfowl collection, bred Fulvous from 1961 through 1963. The Wildfowl Trust at Slimbridge is only listed for 1963, but as the Trust did not begin submitting data to the *IZY* until that year, it is likely breeding was occurring at what was already the world's largest assemblage of anatid species. The 1970 *IZY* (ZSL, 1972) lists eight collections breeding this bird; Calgary (hatching 22), Cleres (hatching 18), Dallas (hatching four), Houston (hatching 45), Milwaukee (hatching 12), "Jungle Larry's African Safari" at Naples, Florida (hatching 20), Sao Paulo, Brazil

(hatching 10), and Slimbridge (hatching 24). The most recent year documented by the *IZY* is 1989 (ZSL, 1991). Twenty-six collections bred Fulvous that year; eight in continental Europe, four in Britain, the A1-Areen Wildlife Park and Reserve in Bahrain, the Asahiyama Zoo in Asahikawa (Japan), the World of Birds in Cape Town (South Africa), Sorocaba (Brazil), Port-of-Spain (Trinidad), Winnipeg (Manitoba) and seven U.S. institutions.

If not spectacular, the Fulvous Whistling Duck is definitely distinctive. It does quite well on commercial waterfowl diets, and stands Texas winters without problems. With their increasing emphasis on zoogeographical exhibits, this easily procurable bird, representing four continents, is especially useful to public zoos. The ones in Fort Worth Zoo's "African Lagoon" certainly compliment our Reticulated Giraffes and (generally) sedate Black and White Rhinos.

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