

Green Avadavat

Amandava formosa

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Though never commonplace, this was a familiar species in cagebird literature, so it was rather shocking when it was officially listed as Threatened (Collar & Andrew, 1988).

It is not clear if this is actually a vanishing bird. It does have a scattered range in Northern India and parts of Pakistan, and some of these disjunct populations may have been reduced (or eliminated) by commercial trapping. At any rate, India has not allowed their export for some time. It was thus a mystery as to where the ones reaching the U.S. (through Europe), over the last several years, originated from. I was told in all seriousness by one source that they came out of China. However, the shipments arriving in 1997 quite definitely came from Pakistan (Danny Gonzalez, pers. comm.).

All that aside, after an absence of some years, quite a number were commercially imported from 1994, up to the September, 1997 ban on imports due to the Wild Bird Conservation Act.

To my knowledge, there have been few breedings of the Green Avadavat in the U.S.. I am not aware of an official first U.S. breeding record, nor am I aware of any published account from American private aviculturists.

When the American Zoo and Aquarium Association's North American Regional Collection Plan for Passerines was drafted in Seattle in 1995, the only U.S. zoo breeding records were for the Minnesota Zoological Gardens. The International Zoo Yearbook (Zoological Society of London, 1982, 1986-7) reports Green Avadavat breedings at Minnesota for three years. In 1980, six hatched, but all died. The only one hatched in 1984 died. However, in 1985, one of the six hatched survived to independence. All this took place in a

somewhat crowded, not terribly large aviary, right along a public path inside the Tropical House. Cagemates included various Asian and Australian finches, as well as some small softbills. Jimmy Pinchner, former Curator of Birds at Minnesota Zoological Gardens, told me a number of the juvenile mortalities were due to chicks leaving the nest and being trod upon by Roul Roul Partridges.

At the same time, from the Minnesota birds, it appeared this species was susceptible to cool temperatures, and needed to be maintained at temperatures above 60°F. From these experiences the Passerine Taxon Advisory Group (AZA, 1997) suggested that the Green Avadavat "is a delicate species most suitable for small indoor enclosures of 'semi-desert climate.'" However, this report goes on to state: "Further research may dispute this theory as it appears to have been maintained successfully outdoors, year round to near-freezing winter temperatures."

This, in fact was the case, as documented by the South African aviculturist F.C. Barnicoat (1975). He presents a detailed account of the successes of H. Steyn, near Johannesburg. Mr. Steyn was a specialist in Australian Finches and small psittacines. In front of a 65 foot long range of breeding aviaries, he constructed a safety aisle eight feet wide and six feet high. "To prevent this flight from proving an entire waste of aviary space it was attractively planted with shrubs... There is no shelter to this aviary whatever, and apart from the protection of very limited overhead cover provided by some green fibreglass sheeting, the birds are fully exposed to the elements. Of course the aspect of the aviary on a north-facing slope is favourable and the aviaries

behind provide considerable protection. None the less, during our highveld winters, temperatures frequently drop to zero at night..."

F.C. Barnicoat (1975) goes on to relate: "It was into this flight that the original pair of Green Avadavats was liberated eight years ago. This pair bred five young in the first season and in each subsequent years between five and nine have been reared to maturity. From time to time, some of the stock has been sold... Mr. Steyn has tried to keep the number of pairs... down to one or two. This has been a dicey position as losses do occur from time to time, but so far the breeder has been lucky and he considers this procedure better than overcrowding. Detailed records have not been kept, beyond that Green Avadavats have reared young for eight consecutive years; probably to the seventh generation or nearly that. An interesting fact is that no new blood has at any stage been added and the present little flock is descended from the one original pair. There has been no attempt at selective breeding, the birds being allowed to choose their own mates. They have not deteriorated in any way however. [Rand Avicultural] Society members were recently able to compare the latest generation with some newly imported specimens and they

Photo by J. Christopher Davis



A Green Avadavat in the off-exhibit breeding program at the Fort Worth Zoological Park.

appeared to be not only steadier, but slightly larger than the fresh imports and equally well coloured. It is well known that featherplucking among this species is frequently a problem. This has never occurred among the aviary-bred birds, whose smooth plumage has stood them in good stead on the show bench..."

Barnicoat (1975) continues: "Feeding has also been simple. No live food of any kind was used to supplement their diet, though doubtless... the birds have been able to find a certain amount of aphids and other insects... The only supplement food the Green Avadavats have taken to is the moistened brown bread and 'ProNutro' pushed through the wire of the adjoining aviaries for the parakeets... As companions in their large flight the Green Avadavats have not had many birds. There has always been one pair of doves, the species being changed from time to time. On the ground a pair of quail has bred well through the years. There has usually been a pair of Violet-eared Waxbills with them, and at present there is also

a pair of Red-eared Waxbills..."

Given such interesting reports, and in light of the Fort Worth Zoo's previous success with the closely related Golden-breasted Waxbill *Amandava subflava* (of which 53 were fully reared between 28 October 1994 and 20 August 1995 (Lindholm, 1996)), it was decided to attempt off-exhibit breeding of Green Avadavats.

From some time in the 1980s, there had been no specimens in American Zoos. Four pairs were obtained from Norm Kopecki, in South Dakota, on 11 March, 1996. These birds were wild imports.

On 25 April, 1996, all four pairs were released in a compartment of Fort Worth Zoo's off exhibit Avian Reproduction Center. This aviary measures 14 feet long, 7 feet wide, and 9½ feet high. For most of the year, the ARC is an outdoor facility. From October through March, this complex of four compartments and a service corridor is covered in plastic and heated, so that the temperature never goes below freezing. On sunny winter days, however, air conditioning is essential as temperatures inside the plastic rise quickly. The compartment in question is planted with *Ficus benjamina* and creeping *Ficus*.

The four pairs of Green Avadavats were introduced along with a pair of Red-billed Firefinches and an aged pair of Black-cheeked Waxbills.

Two days after the introduction, the beginnings of a nest were noted in a wicker basket. By 1 May, it was obvious that this was a Black-cheeked Waxbill nest (in which three eggs were laid in May, eventually proving clear). Also on 1 May, the Firefinches began building a nest, switching to another location 3 May, producing the first of two infertile eggs on 8 May.

A pair of Green Avadavats began building a nest in a *Ficus benjamina* on 8 May. They started from scratch, which I found surprising, as Gold-breasted Waxbills *Amandava subflava* almost always use old nests. I had placed a number of wicker baskets, in which Society (Bengalese) Finches had just constructed nests, around the aviary, as these had worked beautifully with Gold-breasts. Another interesting observation was that both the male

and female constructed the nest, and roosted at night in what they had built, from they day they began. The roof of this nest took shape on 10 May, and it was practically finished the nest day. On the 22 May, I returned from a week's absence to discover this nest held five eggs. Both parent birds fled the nest when I checked.

This nest was not checked again until 31 May, when I found two chicks, one obviously newly hatched, as both halves of the shell were still in the nest.

The next day, the other three eggs had not hatched, but the chicks looked vigorous. At the next nest check, on 4 June, one chick was missing. On 6 June, the remaining chick appeared weak and unresponsive, so at 8:20 A.M. it was transferred to a pair of Society Finches with a proven track record with fostering Gold-breasts. They accepted the chick at once, which was still alive that evening, but was discovered dead the next morning. The Societies were still sitting tightly, and there was some seed in the crop. Two of the three unhatched eggs had no detectable development, while the third held an embryo in mid-development.

From 9 June through the twelfth, four eggs were laid by the pair of Firefinches in a wicker basket inches away from the Avadavat nest. On 12 June, I began regularly supplying two-week-old crickets (tiny mealworms having been the only previous live food).

On 18 June, I discovered an egg in a newly constructed Avadavat nest (of which there had been no trace 15 June). This, again built entirely from scratch (with various grasses and hay), was situated in a dead ficus tree right next to the door of the aviary. It was built by the same female who had hatched the chicks. She again produced a clutch of five.

On 21 June, another pair of Green Avadavats were noted going in and out of a wicker basket hung at the back of the aviary, and commencing 22 June, they produced six eggs. Meanwhile, the pair of Black-cheeked Waxbills re-used their wicker basket nest, producing three eggs, discovered 20 June.

When these were examined on 27 June, following the death of the male

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Photo by J. Christopher Davis

This Green Avadavat chick hatched under Society Finch fosters at the Fort Worth Zoo on 6 July 1996. This photo was taken shortly after it left its nest basket at the end of July.

Black-cheek (imported in 1991) they again proved clear. On 25 June, two Firefinch chicks were discovered, but on 28 June, they and a third chick were destroyed by Fire Ants, one of the scourges of Texas aviculture. This prompted the removal of both clutches of Avadavat eggs, each being placed under a pair of Society Finches.

Of the six eggs laid in the basket, two were broken the nest day by their fosters, and the rest eventually proved clear.

On 6 July, an egg from the clutch of five from the dead ficus hatched. Three days later I noted the baby to be vigorous, still pink. Its chirping was audible 11 July, and developing wing quills were noted 16 July. It was only on 18 July, that I first observed whole soaked seed in its crop, though, of course, that had been provided to the fosters since they were given the eggs, along with tiny mealworms, a moistened mix of powdered Red Apple Jungle Pellets and low-iron dogfood, hard-boiled egg and alfalfa sprouts.

On 23 of July, the chick's eyes were open, and its wings were feathering. The Societies were noticed to be brooding less by 24 July. On 28 July the chick had to be replaced in its basket after jumping onto the floor of the shelf cage. It was noted that its primaries were white, suggesting that what its fosters had fed it was less than optimal. By 30 July, it was hopping from twig to twig. It was maintained with the fosters until 8 September.

As for the other four eggs, they were discarded 12 July, showing no signs of development.

Meanwhile other things had gone on in the breeding aviary. On 29 June, the day after the removal of the Avadavat eggs for fostering, the construction of a new nest, directly below the first one in the live ficus tree, commenced. Only a single egg, eventually discarded as infertile, was laid in it, on 3 July.

On 6 July, an egg was discovered in the dead Ficus nest, followed by another on 8 July. These proved to be clear and were discarded 17 July. Two more were discovered in their place 27 July, laid by the same female who produced the previous chicks. A third was found later that day. It must have been laid between 8:30 and 11:00 A.M. Two of these were eventually found to be clear but one held an early-dead embryo.

While this was going on, a second nest had been constructed directly on top of the one these eggs were laid in – a duplex! When I checked this on 2 August, I found five eggs, laid by a different pair of Avadavats. These all eventually proved clear. A hiatus followed, then a single Avadavat egg was laid and brooded in the upper dead ficus nest, discovered on 21 August. On 24 August a single egg was laid in the nest beneath it.

Meanwhile, four Firefinch eggs were found in a wicker basket on 22 August. On 29 of August, all of these eggs were transferred to Society Finches, following the planting of an

additional *Ficus benjamina*.

The egg from the upper dead ficus nest was broken in transit. The one from the lower nest was placed under the Societies that had been successful with the previous chick, which still resided in the shelf cage with them. This egg hatched 7 September. Twice that day this chick was found on the newspapered floor of the cage, so was transferred to another pair of Societies who had hatched three of the Firefinch eggs (discovered 22 August) on 3 September. The Avadavat was dead in the nest the next day, though the Firefinches all eventually fledged.

I was surprised to discover, on 31 August, two Avadavat eggs in the upper dead ficus nest, from which I took an egg 29 August. There were four eggs by 4 September.

On 8 September, a different pair of Avadavats began a clutch in a wicker basket hanging from the wire at the back of the cage, finishing with a fourth egg on 12 September. One of the dead ficus nest eggs hatched 16 September. I found two chicks in that nest four days later.

On 24 September I discovered two Firefinch babies in a basket at the front of the aviary.

On 27 September, the female whom I presumed laid the eggs in the rear basket was discovered egg-bound and moved indoors, under heat, where she passed an egg, and was fully recovered the next day. I thought I would need to foster the rear basket eggs, but was surprised when two Avadavats flew out of the nest on inspection. At least one adult brooded these eggs continuously, until they were found to be clear, on 2 October.

I found a third clutch of Avadavat eggs on 28 September, two, in the lower live ficus nest. A third egg was noted on 15 October.

The two Avadavat chicks in the dead ficus nest fledged 8 October. That same day one Firefinch left its basket, followed by two more on 9 October – I'd overlooked one until then. The day the first one fledged I observed an Avadavat peck at a Firefinch chick once, but no further unpleasantness was observed, the chicks of both species being raised to independence by their parents without problems.

As for the chick hatched by the Societies on 6 July, now kept in a community shelf cage, it started developing the typical bars on its flanks 16 October.

On 15 October, I noticed Avadavats going in and out of the upper dead ficus nest, and found an egg 17 October. On 18 October, with some trepidation, the bird staff winterized the ARC complex, nailing plastic sheeting to the frame of the aviaries. A second egg was found on 19 October, and by 22 October, there were five eggs. A male sat tightly.

Right above the dead ficus the pair of Firefinches laid three eggs, which I discovered 23 October. At this time, despite a heater, night temperatures were dropping into the 40s. On 26 October I discovered two eggs in a new Avadavat nest built directly on top of the live ficus nest, and three in the lower one. These two were now compartments in a single structure.

On 27 October there were three eggs in each nest, plus the five in the dead ficus, each being attended by a different pair of birds (There were only three adult females, the fourth had died following a mysteriously broken leg 9 October. Aside from a male that died 22 July 1997, from advanced age, as indicated by atrophied gonads, this has been the only loss among the original eight birds).

On 28 October, one of the upper dead ficus eggs was found broken on the ground, apparently clear, and another was missing. On 2 November, a third was missing and the other two were broken, both apparently clear. It was also noted that the Firefinch eggs in the basket above were unattended. All were found to be clear. On 5 November, three Firefinch eggs were found in another wicker basket, while both live ficus clutches continued to be well-brooded.

The following day it was noted only two eggs remained in the upper nest, but a new Avadavat nest was being constructed in the wicker basket hung on the back wire. One of the upper live ficus eggs hatched 9 November. (This nest was open at the top, an odd situation. On 12 November, this chick was present at 8:15, but had disappeared before 11:30. The remaining



A nest made by Green Avadavats at the Fort Worth Zoological Park.

egg was dried out and undeveloped).

That same day, three Green Avadavat eggs were found in the new rear wall basket nest. On 15 November the Firefinch nest was found to contain six abandoned, clear eggs. The female Firefinch was found eggbound 18 November, but passed the egg and recovered the next day, indoors. On 21 November, a single clear egg was removed from the lower live ficus nest.

On 21 December, two new eggs were found in the upper live ficus nest. Five were eventually laid. Only one hatched, on 7 January, 1997. By 15 January this chick's skin had darkened and primary and tail feathers were beginning to break out of their quills. There were still two unhatched eggs, both clear, of which one was removed for sanitary reasons. The nest day I removed the other egg. This proved too much of a disturbance to the hen, as I found the chick unattended and dead the next morning. Yellow feather tracts had started to appear along its flanks.

That chick proved to be the last Avadavat chick hatched here so far. From 9 January 1997 through 14 June, 25 eggs, in 11 separate clutches were laid. There were no five-egg clutches and only two of four eggs. Out of all of these, only two were definitely fertile. One from a two-egg clutch, laid 11

February, was found broken on the ground 5 March, containing an embryo only partially developed. Another egg in a clutch of two, laid on 3 June, was discovered broken in the nest 17 June, containing an almost fully developed chick, still with a yolk sack.

During this interval, all the Firefinches and the Black-cheeked Waxbill were removed 6 February. The fostered Green Avadavat, determined to be a male, was integrated into the group 2 April, after a couple of previous attempts. There had been hostility from one female bird each time, and following the third introduction, the young male remained towards the front of the aviary for some days, but by 24 May, he was seen carrying grass stems. I have not been able to get a close enough look at the two parent-raised birds to determine their sex.

After the last egg in a four-egg clutch was laid 14 June, there were no more eggs in 1997 until 4 November. In the meantime I had removed all the old nests. On 4 November I found one egg in a wicker basket. No more were laid, and though this one was well brooded, it proved clear. Another nest was being built up at the top of a Ficus tree, the first time any Avadavat nest was built higher than my eye level. One egg was laid there 11 November.

I did not check the nest until Christmas Day, when I found it empty.

Commencing 17 December, three eggs were laid in the basket nest. They all proved clear when examined 14 January, 1998. Finally, as I was completing this account, one egg was discovered 3 February 1998, in the nest high up in the ficus.

I have undertaken this lengthy account to persuade people working with finches that this bird is a worthy candidate for aviary breeding. For people working with Australian Finches out of doors, I think the only real adjustment would be the provision of two-week old crickets and tiny mealworms. I believe the low fertility and decreasing clutch sizes of the Fort Worth birds may be due to their age. The birds retained by Norm Kopecky, from which Fort Worth received its group have produced only clear eggs. I believe none were imported after 1995.

Therefore it is encouraging that a number of Green Avadavats arrived at the establishments of at least two U.S. dealers in 1997. Despite the listing of this species as one of only a handful of Estrildid Finches recommended for serious programs in U.S. zoos by the AZA Passerine Taxon Advisory Group, only one American zoo aside from Fort Worth has so far acquired any. The The Cleveland Metroparks Zoo purchased seven from Penguin International on 20 March, 1997. One died in quarantine and the remainder were introduced into a public exhibit in the zoo's extensive bird house, along with four Pin-tailed Parrot Finches *Erythrura prasina* and six Black Faced Munias *Lonchura molucca*. Chris Kmiecik, Lead Bird Keeper at Cleveland, informed me that this display, remodeled from a rather incongruous bat cave, has no natural lighting and only artificial plants. It is roughly 6 feet wide, by 12 feet deep, and 8 feet high. Its current inhabitants are two Parrot Finches, five Munias and five Avadavats. The mesh front of this exhibit faces a busy public walkway.


At the end of January, 1998, a newly hatched chick was found dead on the floor. Shortly thereafter a nest was built, somewhat precariously perched in a tree. At the time of my conversation with Ms. Kmiecik the nest contained four eggs. Future plans call for

isolation of the Avadavats.

One would think, that with the addition of this species to CITES Appendix II in June, 1997, and the resulting impending ban on any further commercial shipments, per the Wild Bird Conservation Act, that the last birds in dealer's hands would be avidly purchased.

In fact, the ban went into effect 18 September, 1997, and numbers remained unsold. I am pleased to report that the last 22 Green Avadavats imported by Danny Gonzalez, of Penguin International, were purchased by Ted Fox, Lead Aviculturist at the Burnet Park Zoo in Syracuse, New York, for his private collection. As he expected, I was surprised to hear of his new acquisitions, as Ted specializes in large softbills, especially Corvids, of which he maintains several unrelated pairs of each species. His breeding record has been startling, including the first U.S. successes for African White-necked Ravens and Cinnamon-headed Green Pigeons.

Perhaps a softbill aviculturist will be responsible for establishing this threat-

ened finch in North America. But it is certainly up to veteran finch breeders to do all they can, as well. 

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