Turacos

16 Musophagiformes

16.01 Musophagidae: Turacos

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16.01 Musophagidae Turacos

Glen Holland

Introduction: The African continent is the exclusive home of the family Musophagidae, the turacos and plantain-eaters. Formerly aligned with the cuckoos, they are now separated, on the basis of DNA evidence, into their own order, the Musophagiformes. Although the classification of turacos is still the subject of much controversy, under the Sibley-Ahlquist-Monroe system followed here, the family is divided into two subfamilies. The subfamily Musophaginae includes 17 species, 13 in the genus *Tauraco* and four in the genus *Musophaga*; the subfamily Criniferinae includes six species, three in the genus Corythaixoides, known as go-away birds, two in the genus *Crinifer*, the plantain-eaters, and the monotypic great blue touraco Corythaeola cristata. Apart from the great blue, all species are much the same size, weighing 250-350 g (8.8-12.3 oz.) and measuring about 45 cm (18 in.) in total length, of which roughly half is tail. All species except one have erectile crests.

The sexes are alike, except in one species, where they differ only in bill color. The majority of the species occur in forest habitats, with a few inhabiting dry woodlands. Turacos are canopy dwellers, where they run and bound among branches. They are weak flyers but glide well. They feed on a variety of fruits and leaves. Wild figs in particular are an important food source for these birds. Although territorial and usually found in pairs, they also occur as family groups, and out of the breeding season, in small, loose groups. For the purposes of describing the captive management required for this group, I have concentrated on the gray go-away bird Corythaixoides concolor, representing the subfamily Criniferinae and the green-crested turaco Tauraco persa, representing the subfamily Musophaginae, with additional notes on other species supplied by David Bender of Hancock Wildlife Research Center in British Columbia, Canada (HWRC).

16.01a True Turacos

Musophaginae

• Glen Holland and David Bender

Natural Habitats: Green-crested turacos inhabit evergreen climax forest where they are usually spotted in flight, as the crimson of the primaries flash through the forest. They are typical of the essentially canopy

dwellers, bouncing from branch to branch with amazing agility. They will descend to feed on the fruits of subcanopy trees and shrubs. A strictly territorial species, their calls consist of a series of deep growls.

Much of the controversy surrounding the classification of turacos revolves around the question of whether the green-crested forms represent subspecies of a single species, or a number of full species. The S-A-M system, followed here, recognizes the Guinea, or Gold Coast turaco, Tauraco persa, Schalow's turaco T. schalowi, Livingstone's turaco T. livingstonii, and the Knysna turaco T. corythaix as separate species. This view is confirmed by comparative vocal studies of these birds in the wild (Dowsett-Lemaire & Dowsett, 1988), as well as by behavioral observations of captive birds. The staff at HWRC — where three of these four species, along with Buffon's turaco T. p. buffoni, a subspecies of the Gold Coast — have been reared in considerable numbers for several years, strongly supports the recognition of full species.

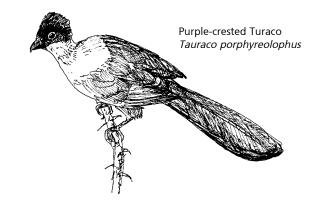
In addition, a study of the comparative chromosome banding analysis of nine forms of turacos, though considered inconclusive by the authors, strongly suggests that these forms should be accorded full specific status (Van Tuinen & Valentine 1986).

There is also a difference in the size and shape of eggs in the green turacos. The Gold Coast and Buffon's lay rather round to broadly oval eggs, while those of Livingstone's are smaller and more elongated, even though the species itself is slightly larger. The eggs from two pairs of Schalow's were more oval than those of the Gold Coast, but not as elongated as those of Livingstone's. These differences were consistent with a number of pairs of birds of several unrelated bloodlines. Turaco eggs are seldom egg-shaped, i.e., having a large end and a small end, and should, therefore, be candled before being placed in an incubator to determine the position of the air sac.

Management: These active birds require a large planted aviary. A large flight of 6 x 2 x 2.5 m (20 x 6.5 x 8 ft.) high is the minimum requirement. They are aggressive toward many other species and will dominate the feeding area, often out of jealousy if not hunger. They can be mixed with other softbills and even finches, but never attempt to introduce a second pair or another species of turaco as this will result in casualties. Aggression has also been noted toward doves and green fruit pigeons. They have even been recorded attacking ground birds placed in the same aviary. Visual barriers between aviaries are recommended to stop adjacent pairs of turacos from fighting.

In common with the other turacos, the most common cause of death is due to persecution from a mate, usually the male. A well-planted aviary will allow the persecuted bird some place to hide and hopefully this is noticed by the keeper before death results. Birds that turn aggressive emit a growling call, which is the first sign of a problem. When introducing new partners to each other, always introduce the male to the female's aviary, and if necessary one wing of the more aggressive bird can be partially clipped.

At the Hancock Wildlife Research Center, where multiple pairs of four species of green-crested turacos were kept, this tendency was experienced on several occasions. When the turaco breeding program at HWRC was inaugurated in 1992, owner David Hancock and aviculturist David Bender were advised by established turaco breeders that captive turacos are noted for suddenly turning upon, and even killing, mates with whom they have lived in harmony for years. Some species were said to be more aggressive than others, the general rule being the greener the meaner. Indeed, the "green" turacos did prove more aggressive and murderous than other species. However, it was noted that the nominate race of the Gold Coast turaco was more likely to attack its mate than was its subspecies, the Buffon's turaco. The Livingstone's turacos proved to be even more aggressive. The male of the original pair killed his mate during the first breeding season, and a clutch of fertile eggs was lost in the process by becoming chilled before the death of the hen was discovered. They were duly transferred to an incubator, but the embryos were already dead in the shell. The following year a replacement hen was also killed, again during the incubation period, and it was speculated that the male was "driving" the hen whenever she left the nest to eat, exercise, or defecate, in an attempt to force her back onto the eggs, rather than taking a turn on the nest himself. Fortunately, the eggs were salvaged this time, and placed in an incubator, where a single chick hatched and was hand reared, proving eventually, through DNA-sexing, to be a male. Meanwhile, a third hen had been obtained, along with a second pair, arriving just in time for the next breeding season. It was decided to remove the aggressive male as soon as his



new mate had laid a clutch of eggs, allowing her to incubate them unmolested. This was done, but the eggs, though fertile, apparently became chilled sometime during incubation, and failed to hatch, perhaps because the male was not around to tend the nest while the female was off eating. The male was then returned to the aviary in the hope of producing a second clutch of fertile eggs, which would be pulled immediately for artificial incubation. However, several weeks later, about the time eggs were expected, the hen killed the male. This hen was later paired with the young male reared the previous year, and they bred successfully for a number of years with no signs of aggression from either bird (except toward the keeper during nest inspections). Others pairs, however, have exhibited various degrees of aggression, usually by the male toward the hen. A period of separation, or a change of mates, has usually solved the problem. Interestingly, none of the closely-related Schalow's turacos kept by HWRC over the years showed even the slightest sign of aggression or mate-battering. This included two long-established, wild-caught pairs and a number of their offspring.

The other species maintained in the Hancock collection exhibited this tendency relatively infrequently, although occasional problems arose with breeding pairs of white-cheeked turacos *T. leucotis* and red-crested turacos *T. erythrolophus*. No deaths could be definitely attributed to this cause among the Hartlaub's *T. hartlaubi* or white-crested *T. leucolophus* turacos, but the loss of a Fischer's turaco *T. fischeri* hen may have been caused by mate aggression. It should be noted, however, that these species were held in smaller numbers in the collection, in the case of the white-crested, only a single pair.

Over a ten-year period several female violaceous turacos Musophaga violacea fell victim to mate aggression. A pair of this species, or at least one member of the pair, was also responsible for killing, in a single afternoon, three of four young Edwards's pheasants Lophura edwardsi sharing the same aviary. They had been housed together for a number of weeks with no observed interactions before the sudden and vicious attacks occurred. Of all species of turacos bred at HWRC, the violaceous were also the most aggressive in defending the nest. While most species were extremely tolerant of nest inspection, generally remaining on the nest during inspections and offering only a few token pecks at the intruding hand in protest, the violaceous hen would literally attack the keeper during nest inspection, often coming off the nest with flailing wings and claws in an assault directed at the exposed skin of the keeper's hands and face. When chicks were in the nest, the male would join in the attack, making nest inspection difficult with-

Livingstone Turaco Tauraco livingstonii



Lady Ross Turaco *Musophaga rossae*



Knysna Turaco Tauraco corythaix



Hartlaub's Turaco
Tauraco hartlaubi



Violaceous Turaco *Musophaga violacea*



out some kind of protection. This aggressive nest protection seems characteristic of the species, having been encountered in every breeding pair kept at this institution. Occasionally, individuals of other species, particularly Livingstone's, and to a lesser degree, white-cheeked and red-crested, would be more than normally aggressive in nest defense, sometimes with the male joining in, but never as consistently, nor to the same extent, as the violaceous. The congeneric Lady Ross turaco M. rossae was only represented in the collection by a single breeding pair, of which neither the female nor the male has displayed such aggression. However, several two-year-old offspring of this pair, kept in a huge flight with a younger sibling and group of other young turacos, suddenly became aggressive, killing a redcrested and harassing several others. When the four Rosses were removed to a separate aviary, they eventually turned upon, and killed, one of their own.

Threat displays involving calls, ruffled plumage, raised crests, and outspread wings are typical of rival birds in visual contact. The aviary should be planted with some dense shrubs and trees as described for Habitat A in the chapter on LANDSCAPE. Turacos are fond of bathing and enjoy a mist spray hung over a shrub in

which they will dash about until thoroughly soaked. This will help maintain the feathers in good condition when they are housed in a dry climate. A pair I possess fly to a favorite low perch immediately when they see me approaching with a hose in my hand.

Juveniles can be housed together until they become sexually active, at around one and a half years of age in most species, although some pairs have been known to breed at a younger age. At the HWRC, a mixed species group of up to 30 young turacos ranging in age from 1–3 years has been kept in a covered safety corridor between aviaries. This corridor is about 3.6 m wide, 3.6 m high (12 x 12 ft.), and approximately 60 m (200 ft.) in length, with three side alleys, each measuring roughly 2 m x 7.5 m (6.5 x 25 ft.). In this large flight, little aggression has been noted, with the exception of the Lady Ross touracos mentioned earlier. On several occasions, birds in this group have paired up and nested, although the successful hatching and rearing of young under these circumstances has been rare.

Diet: These turacos will feed on most fruits, the large gape enabling them to swallow large fruits whole. Figs, diced apple, paw-paw, grapes, guavas, par-boiled grated

Growth Chart for Red-crested Turaco Tauraco erythrolophus					
Date	Age (days)	Hand-reared Weight (g)	Parent-reared Weight (g)	Notes	
April 2nd, 2006	0	N/A			
April 9th	8	45.3	pulled for hand rearing		
April 10th	9	39.6	_		
April 11th	10	45			
April 12th	11	51	56.6		
April 13th	12	53.9			
April 14th	13	59.5			
April 15th	14	68	76.5		
April 16th	15	73.7			
April 17th	16	82.2			
April 18th	17	87.8			
April 19th	18	90.7			
April 21st	20	99.2	110.5	parent reared fledged	
April 22nd	21	103.5			
April 24th	23	107.7			
April 29th	28	119			
May 2nd	31	136			
May 6th	35	167.2			
May 8th	37	175.7			
May 11th	40	187.1			
May 15th	44	198.4		moved hand reared into larger pen	
May 17th	46	200.3			
May 21st	50	204.1			
May 27th	56	200.4			
May 28th	57	202.3			
June 19th	79	209		moved outside	
June 27th	85	210			

carrots and soaked raisins are among the favored foods. Squares of moistened brown bread, and commercial softbill mixtures are also taken. Twice a week I also add a grated boiled egg to the soft food. If indigestible articles such as large seeds are swallowed, they are later regurgitated. At the HWRC, the diet includes not only such staples as apples, bananas, grapes, pears, tomatoes, papayas, and cooked carrots, but also generous amounts of broccoli, cauliflower, lettuce, and/or other greens, and lesser amounts of zucchini, eggplant, canteloupe, honeydew and, occasionally, radishes, onions, and other garden vegetables.

Other fruits and berries are incorporated when available, such as peaches, plums, apricots, mangoes, blueberries, raspberries, blackberries and strawberries. The fruit and vegetables for this large collection are run through a commercial food processor and mixed together to prevent the birds from picking out favorite items at the expense of others. Steamed bone meal, and sometimes vitamin supplements, are mixed in. Soaked Kaytee softbill pellets are placed on top of the fruit mix. These birds also like watermelon, which is fed separately when available. Avocado and citrus fruits are avoided, the former being too high in lipids and the latter being too high in sucrose. The few studies available on the composition of the wild diet of turacos indicates that they strongly prefer foods that are high in the simple sugars, fructose and glucose, and relatively low in the compound sugar sucrose, as well as in lipid content.

Breeding: In courtship, the male feeds the female while she flutters her wings as would a chick. Allopreening and carrying of nest material also occur. Gaping, with the pair facing each other and shaking their heads from side to side, is another part of their courtship display. The clutch is 1–3 eggs, but usually two, as with most species of *Tauraco* and *Musophaga*. The eggs are

creamy white in color. Incubation is by both sexes. The nest is a flimsy platform of interlaced twigs, often built on a wire platform or on top of a dense dry thicket. A dense shrub growing in the aviary also makes a good nest site. Fortunately in an aviary they will use open boxes, baskets, and wire platforms. This stability adds to the chances of successful incubation and rearing. Nest construction takes 4–5 days and twigs are collected from surrounding branches. When building the nest, one bird fetches the material and passes it to the mate, which remains on the nest and positions the material. A bird arriving to relieve a bird on the nest often brings a twig in its beak and calls softly to the sitting bird.

The eggs are usually laid on consecutive days, particularly in the smaller species such as Gold Coast, redcrested, and Hartlaub's. This is sometimes true with the larger species, but often, particularly in the whitecheeked, violaceous, and Ross's, the eggs appear at a two-day interval. Some turacos begin incubation with the first egg, with the chicks hatching asynchronously; others begin with the second egg, with the chicks hatching simultaneously. This is usually the case with the Gold Coast and Buffon's, while Livingstone's and Schalow's are more likely to hatch on consecutive days. Three-egg clutches are more frequent in the Livingstone's than in other members of the genus, and when this occurs, the first two eggs usually hatch on the same day, the third a day later. Whether incubation begins with the first or second egg does not seem to be species related so much as an individual choice, and is not always consistently practiced by the same pairs.

The incubation period is variable in most turacos, probably due to weather conditions and other external circumstances, such as the nest attentiveness of a given pair. The incubation period also varies between species. The data below have been compiled from the literature and from records kept at HWRC over a decade. The

	raco <i>Tauraco leucotis</i>			
Date	Age (days)	Hand-reared Weight (g)	Parent-reared Weight (g)	Notes
June 29th	6	88.85	92.05	Pulled 88.85g chick
June 30th	7	80.7		Ate 8.65g for first feeding
July 1st	8	91.15		Ate 14.95g for first feeding
July 3rd	10	115.1		
July 5th	12	129.7		
July 7th	14	139		climbing out of dish
July 8th	15	133.2	141.45	parent reared fledged
July 10th	17	130.1		
July 11th	18	148.05		hand reared chick close banded
July 17th	24	173.3		moved to larger pen
July 23rd	30	202.6		•
August 25th	63	247	290	vocalizing like adults, moved both into their own pen
October 30th	99	323	281.4	moved in with sibling

incubation period repeated in many African bird books for Hartlaub's turaco, 16–18 days, was based on V.G.L. Van Someren's account of this species in *Days with birds: studies of habits of some East African species*.

Although there have been reports of shorter incubation periods in the wild than in captivity, these may be due to difficulty of determining the actual laying and hatching dates of eggs in nests high in trees and largely hidden from sight by foliage. Even given the variation of the incubation periods in captive birds, an incubation period of only 16–18 days seems implausible for any turaco, and indeed, what most subsequent authors have failed to note is that Van Someren qualified his statement by adding "so far as I have been able to estimate" (Van Someren 1956); perhaps his estimate was even influenced by some of the inaccurate earlier reports of incubation periods for other species of turacos.

The young are only brooded closely for the first week. They are fed by regurgitation and, after feeding, the chick presents the anus to the adult, which then swallows the loose feces. If chicks on the nest are threatened, they hiss and raise their wings. The chicks fledge at about 25 days but only fly after five weeks. It is therefore advisable to provide plenty of loose branches in the area surrounding the nest. The chicks should be removed at about 10 weeks of age. By three months, the chicks resemble the adults but for the beak and bare skin around the eye, which is dark. If left together too long, the parents will become aggressive toward the chicks. Also, chicks left in the aviary are likely to interfere with the flimsy nest of the second clutch. The adults will often lay almost immediately the first brood fledges, and sometimes even earlier. Red-crested turacos at HWRC, for instance, have produced a second clutch of eggs while

chicks were still in the nest, and if the first brood of chicks is removed at 10 days of age for hand-feeding, this species will almost invariably lay again about 10 days later. Three broods in a season are not uncommon.

Chicks of most, if not all, *Tauraco* and *Musophaga* species resemble each other closely enough that cross fostering may be used to increase the production of a rare species such as Ross's. Cross fostering between species, or fostering within a species, can also be practiced when eggs or chicks are for one reason or another abandoned, which sometimes occurs.

I have seen a lone green-crested adopt and raise an orphaned gray go-away chick. An incubating pair will usually adopt a hatching egg, the parents eating the shell of the newly hatched egg being an indication of their acceptance. Pairs that break their own eggs can be given a clutch of dummy eggs, and their chicks given back to them on hatching.

The transfer of eggs or chicks from one nest to another is facilitated in turacos by the fact that, when several breeding pairs of a species are kept, they will often nest synchronously, particularly at the beginning of the breeding season. In the Hancock aviaries, up to four pairs of red-crested turacos have laid within a day of each other on several occasions, and in 2002 two pairs laid on the same day, with a third pair in another breeder's aviary several miles away also laying that same day. This phenomenon has been noted in other species as well, particularly Gold Coast, Buffon's, and white-cheeked, and to a lesser degree, in Livingstone's, while other species seem more individualistic in this respect. This cannot be attributed to photoperiod, at least not to photoperiod alone, because some of the pairs were housed indoors under 12hour lighting at the time, while other pairs had spent some

Incubation Periods for Turacos				
Species	Incubation period			
Gold Coast <i>T. persa persa</i>	20–21 days (Roles 1971)			
Buffon's <i>T. p. buffoni</i>	21–22 days			
Livingstone's <i>T. livingstonii</i>	23 days			
Schalow's <i>T. schalowi</i>	20–22 days (Roles 1973)			
Knysna <i>T. corythaix</i>	23–24 days (Jarvis & Currie 1978; Rowan 1983)			
Red-crested <i>T. erythrolophus</i>	22–24, usually 23			
White-crested T. leucolophus	·			
Fischer's <i>T. fischeri</i>	3 days (Milne 1991)			
Hartlaub's <i>T. hartlaubi</i>	20–22 days			
White-cheeked T. leucotis	21–23 days (Foxall & Burton 1975; Evans 1984)			
Lady Ross <i>M. rossae</i>	24–28 days (Steel 1973; Candy 1984; Milne 1990)			
Violaceous <i>M. violacea</i>	23–24 days (Bent & Corbett 1993)			
Purple-crested <i>M. porphyreolopha</i>	22–23 days (Jarvis & Currie 1979; Raison 1992)			
Gray go-away <i>C. concolor</i>	26–28 days (Roles 1970; Rowan 1983)			
White-bellied go-away <i>C. leucogaster</i>	25 days (Todd et al. 1985)			
Western gray <i>C. piscator</i>				
Great blue <i>C. cristata</i>	29–31 days (Candy 1984)			

time outdoors under natural lighting. When eggs are fostered under the same species, they should be marked, and the chicks removed at hatching for hand rearing, or somehow marked, in order to keep accurate pedigree records. For this reason, cross fostering between species is actually preferred, whenever possible.

During the past 20 years, 400 turacos have been bred by Houston Zoo, a truly remarkable feat for which they have received a significant achievement award from the American Association of Zoological Parks and Aquaria. The oldest breeding turaco at Houston Zoo is a Ross's, which was wild-caught 24 years ago. Gold Coast, Buffon's, and Schalow's turacos exceeding 20 years of age have bred in the Hancock collection, where several hundred turacos have been reared since 1992. The International Turaco Society, based in England, was formed to promote captive breeding and long-term continuity of this fascinating group of birds. Members receive an informative newsletter covering current turaco research, diet, breeding, and rearing techniques. Every aviculturist with an interest in turacos should join this organization.

Incubation and Hand Rearing: Artificial incubation and hand rearing are considered for two reasons. Firstly, it is not unusual for a pair to lay a clutch during the cold months, and fail to incubate. Secondly, the removal of a clutch is likely to induce the pair to produce a second clutch. The eggs are almost uniformly round in most species and they should be incubated at 37.2°C (99°F) with a relative humidity of 62%, for 4–5 days to determine the location of the air space. This can be marked with a spot on the shell, and the egg then set for turning accordingly. Newly hatched chicks are initially maintained in the incubator at 36°C (96.8°F) for a few days. The temperature must be dropped gradually. They are best kept in a small bowl lined with absorbent paper towel with a few twigs to provide a grip and reduce the risk of the young developing leg problems.

Mossie Weber describes his hand-rearing protocol as follows:

"The first feed is given after 6–12 hours and consists solely of ripe paw-paw, mashed by a fork with a little water to give a liquid consistency, and warmed to body temperature in a microwave oven. All feeding is done with a syringe. It is important to start the chicks on paw-paw because it contains special enzymes. Approximately 2 ml of liquidised paw-paw is fed every two hours. The amount is gradually increased as indicated by the chicks, which refuse to take any more food when they have had enough. On the third day a proprietary parrot hand-rearing food is added to the liquidised paw-

paw in a proportion of one-third to two-thirds paw-paw, and considerable experimentation with different brands took place before I hit upon a successful formula. I started with Nutribird 19, which is a hand-rearing formula used mainly on macaws and African grays, initially in the proportion of one-third to two-thirds of liquidised paw-paw. I am now using Aviplus Premium, which is a formula for newly hatched parrots, instead of the Nutribird 19. Additional water also has to be added to maintain a fluid consistency. On the fifth day the brooder temperature is lowered to 34°C (93.2°F). The proportion of hand-rearing powder is increased to half of the diet. I raised 34 turacos in the 2002 season and aimed for 50 in 2003."

They have an extremely large gape and as food is offered, they strike at it like a snake, with the mouth open and the throat expanded as well. Newly hatched chicks are induced to defecate by gently massaging the cloaca with a cotton swab dipped in luke warm water. Initially they require two-hourly feeds from 6:00 a.m. to 8:00 p.m. They will continue to beg, even when they have had enough, and care must be taken not to overfeed them. As they begin to feather, feedings can be reduced to five per day from 6:00 a.m. to 6:00 p.m. By day 21 they are fed on parrot hand-rearing formula alone. The chicks have by now developed their flight feathers. The chicks should be in an indoor cage with a source of warmth at night. The cage should measure $750 \times 450 \times 700 \text{ mm}$ (2.5 x 1.5 x 2.3 in.) with a plastic base covered by a double sheet of newspaper. The chick sits comfortably on one or other of the two perches fixed about 75 mm (3 in.) above the base of the cage and from which feeding dishes are within easy reach. The chicks enjoy jumping from one perch to the other. In this cage the babies are introduced to fresh fruit, mainly paw-paw and banana diced into 0.5 cm cubes and placed in the feeding dishes, while they continue to be fed with the parrot formula three times per day. Even when turacos have been weaned onto the



adult diet, they do not forget the syringe and will move over to be fed when they see a syringe. Mr. Weber has a three-year-old female of three years old that was easily medicated by mixing the medication into some parrot formula. Chicks should never be left in direct sunlight for long periods as, due to their black plumage, they absorb the heat and soon start panting. When fledged, their diet should be kept varied and the fruit chopped finely and mixed together. The soft food is added to the mix. Mixing the food prevents the chick from eating only the favored items. A calcium-phosphorous supplement and a multivitamin should be added to the hand-rearing diet. Large nestlings and fledglings imitate the calls of the adults.

Hand Raised Lady Ross Turaco Musophaga rossae

Day	Weight	Day	Weight	Day	Weight	Day	Weight
	(g)		(g)		(g)		(g)
1	35	11	87	21	165	31	219
2	33.5	12	93	22	170	32	225
3	39.5	13	99	23	183	33	234
4	35	14	115	24	187	34	240
5	34	15	117.75	25	190	35	255
6	36	16	132	26	197	36	261
7	42.5	17	141.5	27	203	37	268
8	49.5	18	149	28	209	38	275
9	58.5	19	157	29	211	39	279
10	71.5	20	163.5	30	215	40	284.5

16.01b Gray Go Away Bird Criniferinae

Glen Holland

Introduction: The Afrikaans name "Kwevoel" aptly describes the bird's *kweee* type call. This alarm call causes a response in most wildlife, both birds and mammals. When greeting a mate that comes down to perch, or when chicks beg for food, a *wuk*, *wuk* type call is made. Hand-raised birds also greet their keeper with this call. Go-away birds favor drier, open woodland and thornveld thickets. In recent years, largely due to droughts, these birds have moved into many suburbs and are common on garden bird-feeding tables. Most of their feeding is done while perched in a tree, but they are quite comfortable on the ground.

Management: The rather drab appearance of this species has resulted in relatively little interest from aviculturists. However, what these birds lack in coloration, they make up for in character. They tame quickly and will learn to take food from the hand. Habitat B will suit go-away birds. In a large planted aviary they can be mixed with a turaco species, but in a single-flight situation they are best kept as sexed pairs. Naturally, and in large aviaries, they often occur in loose groups of 3–5 birds which share the nesting and raising of the chicks. When confined in a flight aviary, the dominant bird inevitably tends to turn on a submissive bird. They can be mixed with doves, pigeons, softbills, and large finches.

Diet: The feeding of gray go-away birds is as described for the green-crested turaco, but they are also fond of leaves and will take diced spinach, the leaves of aviary plants, and occasional insects such as winged termites. Flowers, particularly those containing some nectar, are also eaten. These birds are big eaters and this has made them unpopular in gardens where they descend and finish everything put out on bird tables. I have found them to be fond of small squares of whole-wheat bread that have been slightly moistened.

Breeding: They are willing to nest in captivity and will produce 2–3 broods each season. Courtship consists of one bird soliciting with the wings held open and quivering. After copulation, the members of the pair sit quietly together for some time. Nests are built in a wire basket or on a thick, dry, preferably thorny bush hung high inside the shelter. The nest is lined with twigs, which one bird, presumably the male, brings to the nest for the mate to put in place.

The 2–4 rounded, glossy eggs are grayish-white or faint bluish-white. The eggs are laid on alternate days and incubation is by both sexes for 27 days. Chicks fledge at 21 days and fly well by 40 days. When either bird replaces its mate on the nest, they both greet with vigorous shaking of the head. The chicks are fed by regurgitation and often, as already noted, there are three