

Waxbills and their Allies

Part 1

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[Editor's Note: Ian Hinze has presented a very long and complete treatise on the various waxbills and their allies, just as the title suggests. The work will be presented in a series of several parts. Ed.]

Introduction

“Waxbills” is a term used for small finch-like birds belonging to the family Estrildidae, which is made up of around 128 different species in 27 genera (groups). These species range in size from being a little smaller than a House Sparrow *Passer domesticus* to being more diminutive than the Goldcrest *Regulus regulus* and they occur naturally only in Africa and eastwards through Arabia and India to southern China, south-eastern Asia, Australasia and many of the Pacific islands. To a scientist all species in the Estrildidae are classed as waxbills – but they are classed as estrildid finches, too. To confuse matters, in aviculture, where it is agreed that all waxbills are estrildid finches, it is not agreed that all estrildid finches are waxbills! This begs the question “What, then, is a waxbill?”

The name “Waxbill” was originally given to those birds of the genus *Estrilda* that were early imported into Europe (or at least one of them, most likely the Common Waxbill *E. astrild*) and which possessed red bills resembling the sealing wax used on letters and documents of the time. Thereafter the name began to be applied to all other species, with or without red bills, that were thought to be fairly closely related to them, such as cordon-bleus, firefinches and avadavats. In Australia, largely because of their red bills, what is now known as the Red-browed Finch *Aegintha temporalis* and, sometimes, the Zebra Finch *Poephila guttata* were typically thus labeled. Gradually, however, “waxbill” came to

be applied only to a small number of African and one Arabian species and the two Asian avadavats, with “grass-finch” being used to distinguish their Australian cousins. Also, other English names came into usage to further differentiate species in the various genera, such as “parrot-finch” for the *Erythrura* and “mannikin” or “munia” for the *Lonchura*, etc.

In deciding on the title of this series I was mindful of the fact that there are a number of species the aviculturist would consider to be “good” waxbills, in other words those of which there is no doubt. These are all the typical *Estrilda* waxbills, which actually have “Waxbill” as their substantive name, as well as the firefinches, cordon-bleus, the Goldbreast and avadavats, twinspots, blue-bills, seed-crackers, crimson-wings and pytilias.

But what of the quail-finches, negro-finches, olive-backs, and ant-peckers? And what, too, of the Cuthroat and the Red-headed Finch whose closest relatives are believed to be the pytilias, so-called “good” waxbills? And there may even be an argument for including the Australian Red-browed Finch, or Sydney Waxbill as it is otherwise known.

Clearly, it is impossible to define exactly what does constitute being a waxbill and, therefore, it would be unwise to exclude any of the species just mentioned. Rather, it would be prudent to lump them all together, accept that there are some “good” waxbills among them and, for the rest, to include them as allies. That is what I have done here.

Behavior

Grass Dependency

Although waxbills are primarily seed-eaters not every species relies on grass seed for its subsistence diet, eating other plant seeds instead. Nevertheless,

almost all will partake of it some of the time and the majority will eat it most of the time. Only the aberrant allies, the ant-peckers, negro-finches and olive-backs, with one exception, are truly independent of any plant seeds (though the seeds found in fruit are consumed by some species), as these have developed specialized feeding habits more akin to insectivores and frugivores. The exception is the White-collared Olive-back *Nesocharis ansorgei*, which is believed to feed entirely on the seeds of the composite *Melanthera scandens*.

Those waxbills that are heavily dependent on grass for food also lead lives inextricably linked to it in other ways. Besides the provision of seeds, the grass yields up succulent young shoots and abounds with tiny insects. The grass also affords the waxbills protection, as foraging for seeds that have fallen to the ground means they are often at liberty to eat while, at the same time, being camouflaged from many potential predators. Finally, its long leaves and inflorescences are gratefully accepted for use in nest construction.

The grass family is one of the largest in the plant kingdom and contains about 10,000 different species. Fundamental to the grass's growth is good light, it cannot survive in the deep shade of a forest. Some species of waxbill live and breed on the forest edge and so are able to quickly dart into the bushes and trees at the first sign of danger. For sustenance, however, like their cousins who prefer or have to feed in the open, they, too, rely on the grass seeds and its harbored community of tiny inhabitants – aphids, bugs and beetles.

To survive, the grass and its insect community need water, and this comes with the rains. During and after rainfall the grass immediately undergoes a remarkable transition. Green leaves are produced in only a day or so, followed by fresh ripe and half-ripe seeds. The insects, with succulent vegetation to munch and sap to suck, are fast stirred into action. So, too, are the waxbills. With food of the right kind now available in abundance, they are stimulated to breed.

Hard seeds, which are unlikely ever to be as hard as the commercial kiln-

dried type, are overlooked in favor of the ripe and half-ripe ones, while the numerous insects make easy pickings for a growing family of hungry nestlings. Protein is essential for the rapid healthy growth of the young and that found in seeds is augmented in the quick and easily assimilated form that only a soft-bodied insect can provide, and which the parents are able to regurgitate to their offspring quickly for optimum results. Of additional benefit to the chicks is that they are, in fact, getting two meals for the price of one, because the insect's gut will inevitably contain some nutritious undigested plant matter.

Feeding Postures

Skead (1975) describes the feeding postures of four different species of waxbill he studied in the wild and which can be applied to the group as a whole. While not every individual species performs every posture they all undertake some of them, and the *Estrilda* species, in particular, are able to perform most. The feeding methods are classified as:

a) Grass-seeds

- Standing on ground
- Feeding from substrate.
- Digging into substrate with bill-sweeping movement.
- Taking grass culm (stem) in beak then placing under foot.
- Taking seeds directly from inflorescence.
- Flying up and landing on culm, then bearing it down to ground under weight and shuffling up to inflorescence.
- Flying up, taking inflorescence tip in bill and bearing it down to ground then perching on it.
- Jumping up and taking seeds off one by one from inflorescence.
- Perched on grass inflorescences
- Perching on mass of inflorescence which remain upright.
- Grasses bending but not reaching ground so bird remains in upright position.
- Grasses bending double so bird hangs with head pointing downwards.
- Perched on bush or wire fence
- Leaning forwards and pecking at

seeds

- Taking culm in beak and placing under foot.

b) Invertebrate Food

- Picking off substrate
- Breaking open earthen termite galleries on substrate
- Moving sticks or bits of cattle dung, etc., under which termites are working.
- Perching on stem and breaking open earthen termite galleries on tree trunks or branches.
- Perching on termite chimneys and taking termites working inside.
- Perching on termitaria and taking termites working on outside.
- Hawking termites from ground.
- Hawking insects from perch.
- Feeding on insects high in trees.

Newton (1973), in his classic work on the true finches, the Fringillidae, illustrates six different feeding positions undertaken by species in this family. These are: a) standing; b) in a normal perching position on a plant-stem; c) leaning forwards; d) perching on a bent plant-stem, so that the bird's centre of gravity lies over one of its feet; e) clinging to a vertical stem; f) hanging upside down.

In addition, he states that the Chaffinch, *Fringilla coelebs*, and Brambling, *F. montifringilla*, sometimes chase and catch flying insects, and the Bullfinch, *Pyrrhula pyrrhula*, sometimes hovers to obtain seeds and insects from the ends of branches.

I have personally witnessed Blue-headed Cordon-bleus and Black-rumped Waxbills also perform these actions so, overall, waxbills are very similar to the true finches in their feeding postures. Where there is a wide overlap in food items, the manner in which it is collected probably serves to separate the different species ecologically.

Drinking and Bathing

In the wild, waxbills ordinarily drink several times a day. The Violet-eared Waxbill, however, has been recorded (Immelmann & Immelmann, in Goodwin 1982) living for six months or more in areas bereft of surface water, moisture being obtained

partly or largely through its feeding on termites. It is possible other arid country species do likewise.

As is found with most other birds, waxbills usually drink by dipping the bill into the water then lifting the head and tilting it back to swallow, but some are also able to suck up water pigeon-fashion. In such a case the bill is kept in contact with the water for a longer period and without the need for the head to be repeatedly lifted. Generally, the sucking method is used when there is a small and/or shallow area of water, such as a droplet remaining on the leaf of a plant not long after it has rained or been sprayed. *Estrilda* and cordon-bleu species are particularly adept at applying the sucking method.

All waxbills love to bathe in water, though it is not known how frequently this action is performed in the wild. Captive birds tend to bathe daily and, providing there is enough surface water, the likelihood is the wild bird does also. For example, 10 minutes after a summer thunderstorm had passed Skead (1975) observed a Green-winged Pytilia or Melba Finch, *Pytilia melba*, bathing in a roadside pool where previously there had been no water.

Bathing usually starts off with some hesitation and apparent nervousness, possibly a reaction to a fear of lurking predators or the uncertainty as to the depth of the water. Once a bird starts to bathe, however, it seems to be highly infectious as it is soon joined, especially in captivity, by conspecifics and other species. After bathing, the bird flies to a relatively safe perch and dries itself by shaking and ruffling its plumage and by vibrating its wings and tail. Preening and oiling follows.

Sunbathing, Dustbathing, and Anting

All waxbills seem to enjoy sunbathing, the benefits believed to be, among others, removal of ectoparasites and the absorption of vitamin D, and so captive birds should be given every opportunity to perform this act. All the same, plenty of shade should also be made available as, in really hot weather, many waxbills prefer to spend the

hot hours of the day undercover.

Goodwin (1982) reports that so far as is known no estrildine species, even of the arid country species, dustbathes and I have to admit to never having seen any of my own birds perform this action. Kingston (1994), however, recommends providing an earth floor for captive Cut-throats as, he says, "they enjoy a good dust bath."

"Anting," the term coined to refer to the act of a bird rubbing ants into its skin or feathers, but which act is now known to also be performed using, for example, a centipede or millipede, or even a camphor ball or pungent fruit (Skutch, 1996), is known to have been performed by some waxbills but does not appear to be widespread in the group as a whole. After assuming the characteristic anting posture the bird sweeps the insect or object over the inner surface of its half-spread wings or the underside of its tail and anoints these feathers with formic acid, or some other secretion, and then drops or swallows the insect. It is unclear as to the real function of this behavior but is commonly believed to help control ectoparasites, keep the feathers in good condition and/or to cause some form of stimulation.

Nesting

Unlike the true finches, which construct open, cup-shaped nests, waxbills build completely enclosed globular or rounded bottle-shaped structures with a side entrance. These are often built without any firm attachment and can usually be quite easily removed in their entirety from within the vegetation in which they have been placed. Dry grass and other fibers are used for the outer shell, and softer finer grasses, inflorescences and feathers, usually white, form the lining. Some species (although not always) construct a long, downward-sloping tube-like extension to the nest entrance, which can vary in length between species and even between conspecifics. At times a small porch or canopy is built over the entrance hole. Some of the typical *Estrilda* waxbills take nest-building one step further and build an elaborate second storey nest on top of the real nest and

"decorate" this and the outer layer of their nests with various, usually small, and also odoriferous, objects. The reasons for this are discussed below.

Nesting Ploys of the Typical Waxbills

For most of the typical waxbills of the genus *Estrilda* (perhaps all apart from the Lavender Waxbills) nesting on the ground is the norm, their constructions usually being concealed in tall grass or at the base of a bush. Attention to the outside of the nest often takes precedence over that of the inside and it is not unusual for the male, in particular, to go to some rather extraordinary lengths in constructing another nest, usually referred to as a "cock-nest," on top of the main structure and to make far more fuss over this creation than he does the real nesting chamber below.

For many years the cock-nest, which can be an open or a roofed structure, proved to be something of an enigma for ornithologists. Some believed it was constructed for the male to roost in, others that it is just a functionless outcome of the strong nest-building drive and still others considered it to be a dormitory for nearly fully-fledged young to roost in.

Unfortunately, good evidence from observations of *Estrilda* species in the wild is non-existent and the only data available is that procured from aviculturists and ornithologists who have observed captive specimens.

Nevertheless, as the nest-building drive is instinctive and, therefore, inherent this in no way should prejudice one's conclusions. After years of observing the Black-rumped Waxbill *Estrilda troglodytes* I am in no doubt that the cock-nest functions to deceive predators.

Being ground nesters Black-rumped, and other waxbills employing similar behavior, must be at considerable risk from, in particular, ground-dwelling predators, such as snakes, lizards, and large spiders, and so it is imperative that some form of defense is undertaken to thwart such life-threatening hazards. Physically there isn't much these birds can do other than fly speedily away from danger, so they have to rely on the

best form of defense they can muster – the element of surprise!

This "surprise" is invested mainly in the cock-nest. The real nest is the dome underneath which often, but not always, has a tunnel-like appendage containing a narrow opening that leads directly into the nesting chamber. This opening can only be entered by the bird developing a crouched, almost mouse-like, posture and once in or out, the tunnel, made of pliant material, closes behind it.

Before entering the nest, the returning bird, for there is usually only ever one bird sitting on the eggs/young at any one time, tends to take a good look around before relieving its mate and may make a particular fuss over the cock-nest, such as decorating, tidying, or even sitting in it, before entering the real nest below. This bizarre behavior is actually designed to fool any predators into thinking that the cock-nest is the real nest and lure them away from the entrance to the nesting chamber containing the sitting bird and/or young. Animals that seek out their prey by smell, however, would certainly not be fooled by such activity – unless their olfactory sense could be duped. Incredibly, that is exactly what happens!

The reason so much attention is lavished on the outside of the main nest and then the cock-nest itself becomes apparent when one considers that much of the decoration consists of bird droppings, dead insects and, of especial interest to the nest-builder, the dead nestling of some other unfortunate pair or species. When this happens, the corpse is wiped over the outside of the nest before being impregnated into it or into the cock-nest. All the while the real nesting chamber is kept completely clean and devoid of any pungent smells. The defense of the nest is now complete.

Attracted by the all the fussing over the cock-nest, or by the aroma given off by waste-matter or corpses, the predator is distracted long enough for the "sentry" bird to alarm-call its mate from out of the nesting chamber. While any eggs, or offspring too young to fly, may be left at the mercy of the nest raider, the parent bird, perhaps with only sec-

onds to spare, escapes with its life and is able to breed another day.

The fact that fledglings of some *Estrilda* species are sometimes found in the cock-nest is obviously the cause of some ornithologists believing that it is a dormitory to which the young migrate on leaving the real nest. However, my own observations revealed that for the first few days after fledging the parent Black-rumped Waxbills usually lead the young back to roost in the real nesting chamber, whereupon it is not unusual to find a fledgling inadvertently (or intentionally?) lands on the cock-nest and may (or may not) be joined by its siblings. Often, when there is no sign of danger, the parent birds, while still keeping a careful look-out for predators, may even join their offspring in the cock-nest and one could mistakenly assume, especially if one had little or no experience of the species, that such a structure was indeed a dormitory. But it must be realized that the young always stay close together and return to the nest only in the early days after fledging. Also, they are never found in the cock-nest at night.

What must always be taken into consideration when observing captive birds is that their behavior is likely to be affected by the confines in which they find themselves, such as, in the case of my birds at the time, having no grass cover or foliage to retreat into. In all other respects the breeding and nest-building drive remains the same, as can be deduced by the fact that if only wicker nesting baskets are available the adults frequently try to construct a cock-nest on top, but are prevented because of the baskets' shape and texture. This doesn't allow for the impregnation of certain "decorative" items either, as any that are positioned on the roof, such as small stones, tend to roll, or are eventually knocked, off. Also, should there be a vacant wicker basket in close proximity to the one being used to nest in, it may be taken over and used as a substitute cock-nest, whereupon it is fussed over just as much as if it had been on top.

Unlike other species of waxbill, such as cordon-bleus or goldbreasts, which usually fly straight in and out of their

nests, the Black-rumped still tends to put great store in its tunnel entrance. I can tell at glance which nest belongs to the latter because invariably there is a tunnel protruding out and downwards from the basket's entrance hole. This tunnel means that the Black-rumped is unable to fly straight into the nest but must approach it from below.

Here the bird shows remarkable flying ability and incredible dexterity. It either hovers hummingbird-like, followed by flying straight up the tunnel, or it will alight on the roof of the wicker basket or uppermost part of the tunnel and, clinging to the fibers, quickly work its way downwards. On reaching the bottom of the tunnel, it generally has to twist its body under and then round before reaching the desired position to enter the nesting chamber vertically.

It is only the *Estrilda* waxbills that habitually construct cock-nests and it does not appear to be a characteristic of any other estrildine species. Restall (1996), however, gives instances in which three different species of munia, Timor Sparrows *Lonchura fuscata*, Java Sparrows *L. oryzivora* and Javan Munias *L. leucogastroides*, all appeared to have constructed them. This is worthy of further study as it could indicate an even closer relationship among certain genera than was previously thought.

Eggs, Incubation, and the Care of the Young

All waxbills, as indeed all estrildid finches, lay white oval eggs that are usually wider at one end, with four being the average clutch size. Incubation averages 12 days with both males and females sitting alternately

during the day and with the females, at least in captivity, doing the bulk of the incubating. At night it is commonly assumed that only the female incubates, but as the male usually roosts alongside her he, too, may have a share. Brooding of the young is performed in the same way.

The nestlings are born naked or with a few tufts of very fine down and their eyes are closed. They have strikingly patterned mouth markings, conspicuously swollen and pale colored gape flanges and, in many forms, bright or contrasting gape tubercles (see individual species accounts for distinctions). They call to be fed and begging is usually performed in a prone posture, twisting and turning the head up and pointing it at the parent. The Cut-throat, *Amadina fasciata*, and Dusky Twinspot, *Euchistospiza cinereovinacea*, however, beg directly toward the parent like the young of Cardueline finches. Both parents feed the young by regurgitation whereby, unlike the Cardueline finches which bring up a small piece of food at a time and push each piece in turn down the throat of the young, the bill is completely inserted into the youngster's open mouth and is immediately grasped hold of. Regurgitation is then performed by way of a pumping action and with both bills appearing to be locked together.

The nestlings usually fledge together or with only a day separating them all. The parents make a great fuss over them and their concern is very obvious. For the first few nights afterwards, and even during parts of the day, the young of some species may be

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encouraged by their parents to return to the nest to sleep.

Display and Social Behavior

Waxbills exhibit behavior that contrasts remarkably from that of the true finches. Their courtship behavior is typically estrildine and may have a combination of two or more of the following: their heads may take on a triangular appearance by the way the feathers are erected, they may bob up and down, make stiff-legged jumps, curtsy, direct the tail towards their mate, swing from side to side or flick out a wing. In most species the male holds a grass stem or some other nesting symbol in his bill by one end and incorporates this in the display. He will usually sing at the same time.

What will be immediately evident in a group or in pairs of captive birds, and which behavior is likewise performed in the wild, is the way they like to sit extremely close to each other. This is called "clumping." Some species will only clump with their mates or (less frequently) still dependent young. Others will clump freely with each other and with other species. This obviously keeps relationships strong among bonded pairs, maintains or strengthens social bonds among a flock and also serves to keep the birds warm during cold periods.

Another factor that strengthens the pair or social bond is when one bird deliberately preens the feathers of another. This behavior is called "allo-preening" and may be restricted to a bonded pair and (less often) dependent young or it may be performed freely among flock members. Some species will even preen the feathers of an unrelated species. Where this occurs it is termed "inter-specific allo-preening."

Allo-preening usually starts with one bird soliciting its partner or a flock member (or it may merely submit to being preened) by erecting its head feathers and turning its head upwards, downwards or to the side. The active bird preens the feathers of the other's head and upper neck, i.e., the parts it cannot reach itself. Other parts of the plumage are generally preened only rarely or briefly, though I have seen

the partner of a bonded pair of Black-rumped Waxbills preen the breast feathers of its mate for just as long as it took to preen the head and neck.

Song

Generally, the songs of waxbills are mostly rather quiet, usually short, and not very musical. There are, however, a few that have loud and musical song phrases, such as the Dybowski's Twinspot, *Euchistospiza dybouskii*, of which Goodwin (1982) states that in its song "it commonly produces phrases suggestive of the rolling trill of a Canary, the deep notes of the Nightingale, *Luscinia megarhynchos*, and the fluting phrases of the Blackbird's, *Turdus merula*, song." Nevertheless, musical or not, the songs of waxbills are primarily sexual in character and do not appear to have any aggressive or territorial significance.

Pair Formation

I have deliberately left the subject of pair formation to the last as it deserves special consideration for those intent on perpetuating captive strains of waxbills. Too often aviculturists go out and buy a pair or pairs of waxbills with all good intention and release them into some absolutely first-class accommodation and provide them with only the very best of foods.

Unfortunately, even after all of this and the keeper having elicited incredible patience over many months, selected pairs may still refuse to breed. The males of some species may even attack their intended spouse, or vice-versa, occasionally with fatal consequences. Little wonder, then, that so few waxbills are bred annually.

It is important to realize that birds, too, are selective in whom they wish to have as a mate. A cage in a dealer's establishment might contain over a dozen of a particular species and within that group may be one or more bonded pairs – bonding which took place while the birds were still in juvenile plumage. Along comes the aviculturist and purchases one or more pairs that are now in full color but, without realizing it, he breaks up those that are bonded. He may swap the partners around a number of times

and still be unsuccessful, the reason being that the partner he really needs is still back at the dealer's – or worse, has long been sold.

The bond is so strong in some species, perhaps more than is realized, that the birds pair for life. Only after one of the partners dies is it likely for an individual of such a species to pair up with a new partner, but this could take literally months to accomplish, if at all, and very few aviculturists are prepared to wait that long.

Therefore, to increase the chances of success right from the outset it is important to purchase a group of birds, if possible, in juvenile plumage. Thereafter, ring each bird with a different colored plastic split ring and over the next few days, perhaps even weeks, take careful note of those that spend a lot of time together. Bonded pairs roost together, preen each other and frequently eat together. When it is certain that one has a definite bonded pair they should be isolated immediately, unless the species is a colony nester and one intends housing a small flock in the same spacious flight.

Pairs that select their own partners are obviously more likely to yield the best breeding results. This is the method I try to employ with all my birds and, without doubt, it has proven time and again to be the most successful.

References

- Attenborough, D. 1984. The living planet. Guild Pub., London.
- Goodwin, D. 1982. Estrildid finches of the world. Brit. Mus. (Nat. Hist.), London.
- Hinze, I. 1998. The incredible nest-building antics of the typical waxbills. Australian Aviculture, Vol. 52, No. 8, pp. 176-178. Avic. Soc. of Australia Inc.
- Hinze, I. 1999. The dietary requirements of captive waxbills. Aust. Avic., Vol. 53, No. 4, pp. 90-91. Avic. Soc. of Aust. Inc.
- Kingston, R. 1994. A complete manual for the keeping and breeding of finches. Indruss Prod., Qld. Aust.
- Skutch, A. F. 1996. The minds of birds. Texas A&M Uni. Press.
- Newton, I. 1973. Finches. Taplinger Pub. Co., New York.
- Restall, R. 1996. Munias and mannikins. Pica Press, Sussex.
- Skead, D. M. 1975. Ecological Studies of Four Estrildines in the Central Transvaal, The Ostrich, suppl. No. 11, South Africa.



Look for Part 2 in the next issue.