

maintaining and breeding seedcrackers

by Robert E. Seibels, Curator of Birds
and Tracy Frampton, Birdkeeper II
Riverbanks Zoological Park
Columbia, South Carolina

Prior to the 1980s, seedcrackers were unknown to aviculture in the United States, although the crimson (*Pyrenestes sanguineus*) had apparently been maintained (and possibly bred) by a handful of European aviculturists during the mid-1970s (Goodwin, 1982). We received our first pairs of crimson seedcrackers in June of 1980 from a friend who was also an importer in the midwest. After several weeks of unsuccessful attempts to prevail upon me via telephone, he, being a persistent man, did the next best thing — he called and gave me the flight information on the crates of finches which were already en route to Columbia. "You won't believe your eyes when you see them!" he told me. Just what I need, I thought: some dumpy-looking little brown birds to take up space in my holding area. Was I in for a surprise!

This is no dumpy-looking finch. Until now I had not considered myself to be a "finch person." Our collection contained a few Gouldians, some whydahs and purple grenadiers. My friend was right: I couldn't believe the intensity of the glistening, blood-red plumage. I tried to find out more about them, but was disappointed to discover that precious little was written about their behavior or management in captivity. My friend had suffered substantial losses with the species during the quarantine run and the three pairs that arrived at Riverbanks were among the few survivors. We had only received these birds because he knew that a serious effort would be made to breed them here. Breed them we did, eventually, but not without a struggle.

As it turns out, there are three species within the genus *Pyrenestes*: *sanguineus*, or crimson; *ostrinus*, or black-bellied; and *minor*, or lesser. Some authorities consider them to be congeneric; however, a majority seems to feel they are simply different races of one superspecies. In support of this theory is the fact that the females of all three are indistinguishable. Their collective ranges span

most of central Africa, and in places actually overlap slightly. They are normally found in thick, dense cover in areas which are flooded during the rainy season. This inaccessibility may explain why they have not been imported more often.

Male crimson and black-bellied seedcrackers are very similar in size and appearance, the only difference being that the nutmeg brown of the wings and lower breast in the former are replaced by black (actually a very dark brown) in the latter. Male lesser seedcrackers, which I have never seen, are apparently identical to the crimson but smaller. The significance of their distinctive white eyelids is unknown.

One of the first things we discovered about our birds was that they are extremely temperature sensitive: a cold day to a seedcracker is anything below 80 degrees F.; below 70 degrees is a comparative hard freeze! They puff out their feathers, become lethargic, and generally look miserable. Cold-hardy they are not!

Following quarantine they were placed on exhibit in three semi-naturalistic, glass-fronted enclosures inside our birdhouse. Not knowing what type of nest facility they would prefer, we offered them a standard finch-type nest box approximately five inches square with the top half of the front open. Nearly a year passed before we noted any breeding behavior. It consisted of the ritualized head bobbing of the male with a piece of grass held in the tip of his beak. This display was accompanied by increased vocalizations and much flying about with various pieces of nest material: dry and fresh grass, leaves, and other fibrous materials that we had added to the exhibit. Sometimes the nest was built in one of the boxes, and other times it was a crude, domed affair located in a secluded corner, sometimes near the ground. We went through all the usual failures for nearly another year: eggs that didn't hatch, parents that didn't incubate, and chicks that didn't live.

When we got to this last stage, it was apparent we had a problem common to many who keep finches: a diet which was perfectly adequate for the parents but which was inadequate, at least in their opinion, for the offspring.

Our finch diet is not nearly as elaborate as some that finch specialists feed. It consists of a good quality finch seed mix supplemented with a protein mix containing hard-boiled egg, baby cereal, Petamine, and Vionate. When they are feeding young, it is essential to provide many types of finches some form of live food that they will accept. We found that some wild-caught birds were unwilling to accept standard live foods such as recently-shelled mealworms, or "whities." In these cases, we discovered that a live insect trap set out overnight caught all sorts of entomological wonders which the seedcrackers would hawk and feed with gusto. Once the reluctant parents had raised a clutch or two they would often accept the more available mealworms; F1 parents accepted them readily. An interesting phenomenon we have noted is a white patch that appears on the wings of the otherwise chocolate-brown juveniles we have raised. It usually disappears when they moult into adult plumage, although there are a few adults which still show some vestiges after several moults. We have concluded that it is almost certainly diet-related, but since it does not appear to cause any permanent problems we have not been overly concerned. Incidentally, the moult into adult plumage occurs at the surprisingly late age of four months; seedcrackers obviously mature more slowly than most finches.

Clutches vary from one to four eggs; an average nesting produces two or three chicks, occasionally four. The incubation period is fourteen days, and fledging occurs at approximately twenty days. Both parents incubate and feed the young, which are generally independent by day thirty.

By 1985 we had produced a couple of dozen offspring, mostly from one pair, but a few half second generation. We even managed to raise a clutch under a pair of society finches. Our operation is not suited to large-scale fostering, however, and we resort to this technique only in dire emergencies.

Meanwhile, our success caught the

attention of Tom Smith at the University of California, Berkeley. He was in the midst of a doctoral study on the black-bellied seedcracker, and wanted to know if we would be interested in assisting him in a joint captive propagation project.

In addition to their obvious beauty, it seems these finches also possess a unique and highly specialized bill structure. Both males and females exhibit a phenomenon called a *tropic polymorphism*: to the layman such as myself, this means two types of bills, one very large and one very small. Curiously enough, it is *not* sex related as in virtually all other species. There is no overlap between the two sizes; they are, in scientific terms, bimodally distributed. The reasons are still not certain, but it is thought to be a device that evolved to allow maximum feeding efficiency on two types of sedges which grow within its range; one a large, hard-seeded variety and the other a smaller, soft-seeded type.

In his field work, Tom had laboriously trapped, banded and monitored the nesting of hundreds of random pairs of black-bellied seedcrackers. Under such uncontrolled conditions, however, he was rarely able to determine the types of bill morphs being produced in the offspring since they were fledged before accurate measurements could be made.

How could we help, then? Tom offered to trap a group of black-bellieds and send them to us from the Cameroon. After completion of their USDA quarantine at the Pet Bird Quarantine Center in Los Angeles in August 1985, they were shipped to Riverbanks. Here we set them up in large-bill/small-bill pairs in a controlled environment. The bill morphs of the resulting offspring might possibly explain the genetic mechanisms which maintain this unique phenomenon. There was only one problem: we couldn't get them to breed.

They resembled the crimson in every aspect of their behavior save one: they seemed to be unable to build a proper nest. The standard nest boxes which had satisfied the crimson were ignored. Instead, they endlessly tried to build their own nests with the deciduous tree leaves used as substrate in our exhibits. Large, dry oak leaves are particularly unsuitable items to use in building an estrildine finch nest. They are brittle, they compact poorly, and, when the nest box is spurned, the result is often a

collapsed nest. We tried adding all types of fresh and dried grasses and other types of leaves when they were available; we even tried shredded strips of paper but the birds ignored them all. Tom Smith suggested we try dried banana leaves and fresh grasses with seed heads attached, since he had noted in the Cameroon that the nests were often constructed with these items.

Although some pairs did seem to be stimulated by them, the banana leaves and green seed heads did not turn out to be the answer to all our problems. Much to our dismay, the fascination with dried oak leaves continued. Eventually some of the pairs sufficiently perfected their technique, however, and nearly a year after they had been imported, we hatched our first black-bellied seedcrackers. As with the crimson seedcrackers, we found that once the initial barriers were eliminated the breeding birds became less demanding in both their nesting and feeding requirements. We have now raised half second generation black-bellied seedcrackers, most of them in nest boxes and a couple in free standing nests. We have even been able to produce offspring in a

cramped, largely sterile off-display breeding area. Fostering black-bellieds under societies has not been successful to date, but I am sure that it could be accomplished if one were determined enough.

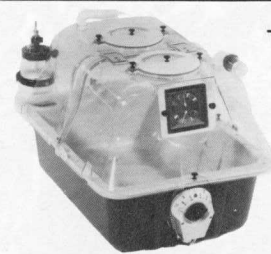
One thing we have not been able to do is mix the seedcrackers in with other finches — particularly those with red markings. The seedcrackers are extremely aggressive, and large enough to terrorize other finches. They can, however, be kept and bred in an enclosure with small softbills and pigeons.

In conclusion, I would like to say that our success with the genus *Pyrenestes* might be attributed as much to persistence and good fortune as to avicultural skill. Had the original three pairs of crimson seedcrackers not been thrust upon me in 1980, I would not be here today extolling their beauty. We maintain a large (approx. 500 specimens, 150 species), diverse collection, of which finches comprise a relatively small part. There are many finch specialists out there who could surely surpass our accomplishments. Perhaps this article will whet their appetite.

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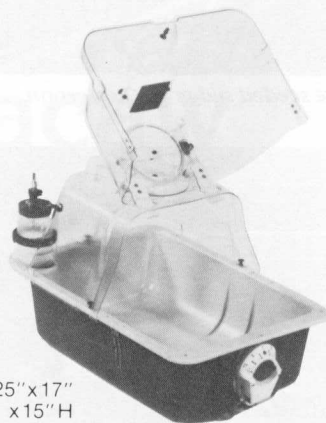


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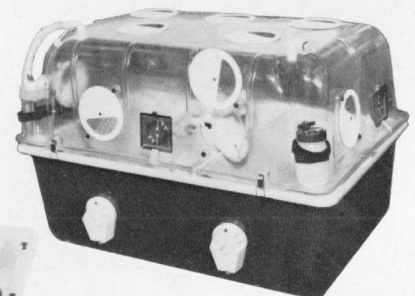
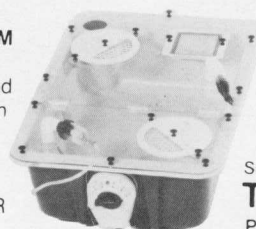


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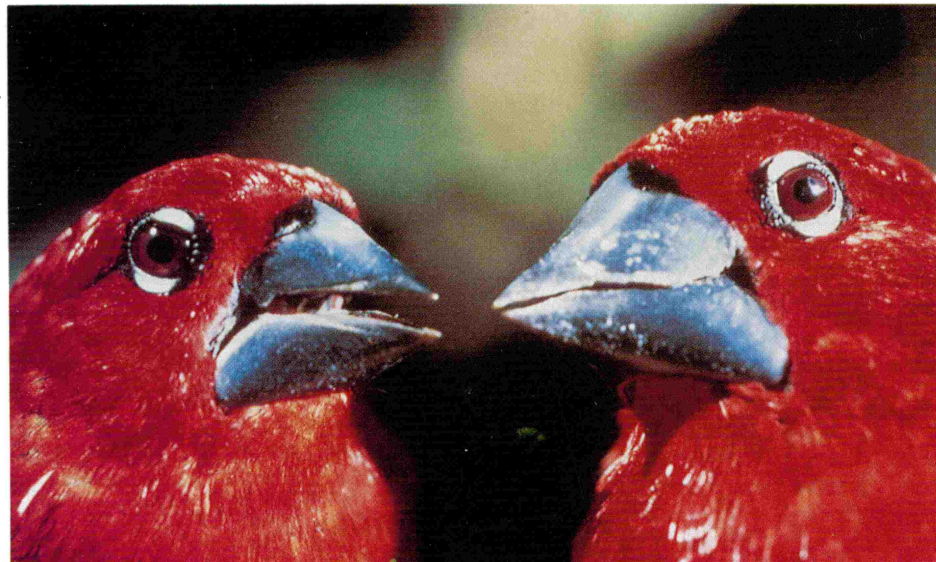
This is one of the exhibits in which we have raised multiple clutches of seedcrackers.

Photo by Tom Smith



Adult male black-bellied seedcracker feeding on large seeded sedge in Cameroon.

Photo by Tom Smith



Two adult male black-bellied seedcrackers showing trophic polymorphism (large and small bills).

Photo courtesy of Riverbanks Zoo



Juvenile crimson seedcrackers at three months of age.

Photo by Robert E. Seibels



Typical untidy seedcracker nest construction, mostly of dried oak leaves.

Photo courtesy of Riverbanks Zoo



Adult female black-bellied seedcracker