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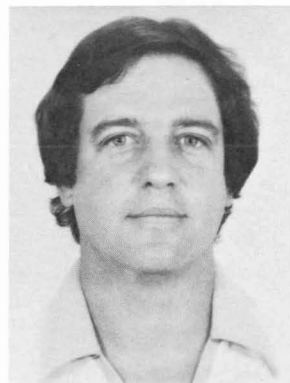
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# Endoscopy

## as a Means of Pairing Birds

by Greg J. Harrison, D.V.M.

Lake Worth, Florida

By now most serious aviculturists are familiar with the variety of sexing techniques available for pairing their birds. Probably the most controversial has been the use of the fiberoptic endoscope to surgically view the gonads. Several authors have published a discussion of this technique in detail.<sup>1-4</sup>

What we are concerned with here are the implications that have been developed through the use of this instrument with birds over the past couple of years.

Of primary importance to the bird owner is the fact that when he buys a bird that is already "sexed", he is paying only for the privilege of knowing whether it is a male or a female. Especially with other methods of sex determination, such as fecal steroid or chromosome analysis, the sex is the only information you are able to get. Of course, a lot of people are pretty happy knowing this much, since up to this point they had to depend on personality and behavior to suggest sex differences in monomorphic birds. Previously, aviculturists felt this was the only factor holding back their breeding success — not having birds paired sexually. But, as we continue to have more experience with aviculture, we are realizing that many factors are involved, and the use of the endoscope can help us discover these as well.

When you make a tiny surgical incision in the side of the bird, and insert the fiberoptic endoscope, you not only can see whether the bird has testes or an ovary, but you can also tell the size, color, condition and position of these organs as well as adjacent organs — air sacs, kidneys,

adrenals, etc. In other words, you are in a much better position to evaluate the age, breeding condition and general state of health of the bird, and all these affect potential reproductive success.

In buying a bird that is already "sexed", the owner does not have to put the bird through the risk of the surgical procedure himself, nor does he face the possibility of surgically sexing several birds before ending up with the sex he is looking for.

However, the main disadvantage in having the bird sexed before you buy it is that you don't get the benefit of the first hand information on the internal condition of the bird while the examination is being done. This alone is the primary reason for having birds surgically sexed after they are in your possession. Without seeing any obvious physical problems, we have endoscoped birds, only to find abnormal conditions on the inside. Serious aviculturists would like to know about these conditions, as well as the sex of their birds.

At the 1978 A.F.A. meeting in Dallas, I met a lady who had had a double yellow-headed amazon for 17 years that she felt sure was a female. She had never seen any evidence of eggs but she was wondering whether to try to breed her. Upon endoscopic examination, I saw that the bird was indeed a female, but her ovary was severely scarred from abnormal ovulation and I felt she probably would never be capable of reproduction. Obviously this condition does not affect her desirability as a pet, but had we not discovered this, she may have taken up valuable space in an

aviary with a healthy male with no results.

Obesity, infections of air sacs or other organs, or abnormal structures of the gonads will all inhibit normal reproduction and can be observed through the use of the endoscope.

Critics of this method of sexing birds argue that since it is a surgical procedure, it is too risky. Granted, there is some risk involved — possible injury to blood vessels or organs near the incision site, etc.; the primary risk is due to the stress incurred in the capture of the bird. This risk seems to increase as the size of the bird gets smaller, but there is little danger in birds the size of a sun conure or larger. The only exception to this is the Rosella family. As a group, I feel they are high risk birds and I would recommend sexing them by some other method. (However, even fecal steroid analysis may require capturing the bird to isolate him for individual fecal collection.)

Even though we have done it, I also hesitate to surgically sex very endangered birds or valuable talking pets. Even with these risks, the over-all loss rate has been extremely low — 1/2 of 1% — and the benefits of immediate results and a high degree of accuracy have more than justified its use in aviculture today.

Critics have also suggested that reproductive activity is retarded because of the penetration of the endoscope. We have had birds from diamond doves to amazons lay fertile eggs within a month of having the procedure performed on them.

This procedure is currently being done by veterinarians experienced with and interested in birds. This offers another advantage over other techniques in that while the birds is being restrained and positioned for the surgery, the veterinarian's trained eye can observe any physical abnormalities that might become evident during the handling — a brief, on-the-spot physical exam.

As soon as the procedure is completed, one has the statement of the sex, the evaluation of the state of health, the approximate maturity, and the potential breeding possibilities of the bird — information that may have taken weeks or months to discover any other way. The bird can be tattooed at the same time for permanent identification of the sex or can be banded or marked in some other way while it is being held captive.

Although not all birds can be sexed with the endoscope, the degree of accuracy is much higher than with any other sexing method simply because the testes look very obviously different from the ovary. Identification difficulties occur when the bird is very obese or severely diseased or has congenital abnormalities that impair visualizing the gonads.



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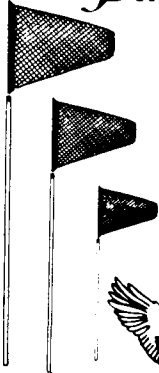
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Fecal steroid analysis is accurate as far as it can go, but its results depend on hormone differences, which at certain ages are not very pronounced. It is also limited to birds for which normal values are known.

Since the endoscope and the surgical sexing technique have been around for a couple of years and appear to be the answer to the aviculturists' dreams, why aren't we being over-run with baby amazons, macaws and cockatoos?

Now we are realizing that just pairing a healthy-looking male bird with a healthy-looking female bird will not automatically send them to the nest to produce young. The biggest inhibitor of normal physiology is stress.

Newly imported birds need a lot of time to acclimate themselves to a new environment. Since many of the birds captured from the wild are immature, it may take years before they reach sexual maturity and are capable of reproducing. Bird owners are not always aware of this and get frustrated after a couple of years of having the birds together.

It is not known exactly when sexual maturity is reached in the various species. A client of mine has a single Scarlet macaw female who, without any external stimuli, started laying annual clutches of eggs at the age of 12. The size of the clutch started at 3 eggs, gradually increased to 8 at age 16 and is back to 3 now that she is 20.

There is evidence to support the theory that captive-raised birds reach sexual maturity at an earlier age than those raised in the wild and imported. Stress may be an important factor here too.

Compatibility of the pair is another problem that should be obvious but unfortunately is overlooked in our zealous attempts at pairing birds for breeding. I should have known that my citron-crested cockatoo male did not like his mate when he continued to keep her head completely bare of feathers and to break any eggs that were laid. One day his aggression went too far and I found a murdered hen in the nest. Obviously, a compatible couple would have been more successful at raising young.

At any rate, evidence is pointing to the fact that even *beginning* to successfully breed and raise birds is a 5-10 year project.

One of the most interesting success stories that I was involved in with the use of this instrument in pairing birds happened on the west coast of Florida in Ruskin. Doug Trabert had been interested in birds since he was 14 years old, and had been seriously trying to breed larger psittacines with random pairings for at least 12-13 years. He and his wife Claudine were having success producing Catalina macaws with a Scarlet female and a Blue

and Gold male, but many of the other macaws and amazons had been together for 4 or 5 years with either no results at all or infertile eggs. At this point he called and asked us to endoscopically examine some of the birds for him. Over the next two years, four trips were made to his aviary to sex birds and recommend pairings based on internal examinations.

Back in 1969, the Traberts had brought back a Blue and Gold macaw from South America. They assumed the bird to be a male because of his aggressiveness to Doug. With the endoscope, the bird was discovered to be a female — a very mature female who was ready to ovulate. It was recommended that she be paired with "Sampson", a healthy known male. They were put together in a new cage away from the other macaws and were seen preening each other later the same day. In a day or two they were investigating the nest — they laid three eggs and hatched 3 babies within 30 days after being sexed! At the present time, they have just hatched their third clutch for this year.

Four double yellow-headed amazons had been paired off for several years with no results. The examination in December, 1978 showed that there actually were 3 males and 1 female. The only female had been paired with a male who had abnormally elongated testicles. One of the other males seemed to be in prime condition, so I recommended that he be placed with the female instead, which he was. They soon went to nest and hatched 2 of the 3 eggs in May of this year.

Similar success stories happened with the Scarlet macaws and blue-fronted amazons. They went to nest and successfully raised young as soon as they were sexually paired.

In this case, the sexual pairing was the only factor holding back the breeding. The birds had already adapted and were comfortable in their environment; their nutritional program obviously was sound; they were satisfied with the routine that had been established for their care; but most of all, they had been held for several years and were now mature enough make reproduction possible!

We are seeing more of the factors involved in successful captive breeding of birds. We have just begun to learn!

<sup>1</sup>Bush, M., D.V.M.; National Zoological Park; Rock Creek Park; Washington, D.C. 20008.

<sup>2</sup>Harrison, G., D.V.M.; All Animal Clinic; 5770 Lake Worth Road; Lake Worth, FL 33463.

<sup>3</sup>Satterfield, W., D.V.M.; Resident Veterinarian, Boston Zoological Society; Franklin Park Zoo; Boston, MA 02121.

<sup>4</sup>Seager, S.W.J., M.R.C.V.S.; Institute of Comparative Medicine; Baylor College of Medicine; Texas A & M University; Houston, Texas 77025.