

# Breeding Amazons In Captivity

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## Introduction

The group of parrots known as Amazons has been very popular for many years. Their pet qualities have been noticed for centuries. One only has to remember the green parrot in *Treasure Island*. Zoos and animal parks have used Amazons in their shows depicting their intelligence and personalities.

Why the popularity of Amazons? Why has the demand become so great that literally hundreds of Amazons of several species have been illegally smuggled across the Mexico/USA border? It is because of the 'Amazon Personality.' This group of parrots has endeared itself to the human intellect because of their beautiful coloration, their outgoing, often clownish characteristics and their great ability to mimic the human voice and many other sounds. Some Amazons can have over a hundred word vocabulary. The operatic singing Amazon is always a favorite in any bird show.

Phillip Samuelson, consulting technical editor of *Bird Talk* magazine has written several excellent articles on the Amazon parrot including 'Amazon Antics' (*Bird Talk*, August 1990) and 'Popular Amazon Parrots' (*Bird Talk*, July 1992). *Bird Talk* readership has responded with hundreds of letters on the popularity of pet Amazons.

Large numbers of Amazons have been imported over the past years, but serious efforts towards reproducing the common Amazons has only just begun. This does not in any way disregard the efforts of many serious Amazon breeders, but the total numbers of captive reared Amazons now being bred falls seriously short of the demand. With the threat of continued smuggling and the serious reduction, for many parrot

species a total ban, of wild-caught imports, the importance of reproducing the Amazon group is even more critical.

The purpose of this paper is to give captive reproductive techniques for the more common (often labeled as commercial) Amazon species. But the guidelines can also be used for the Amazon species that are both rare in captivity and in the wild.

The common Amazon species include the Yellow-crowned, *Amazona o. ochrocephala*; Double Yellow-headed, *A. o. oritrix*; Yellow-naped, *A. o. auropalliata*; Blue-fronted, *A. aestiva*; Red-tailed, *A. autumnalis*; Orange-winged, *A. amazonica*; Mealy (group), *A. farinosa*; Green-cheeked (Mexican Red-head), *A. viridigenalis*; Lilac-crowned, *A. finschi*; and White-fronted, *A. albifrons*.

In my opinion the captive reproductive success of the Amazon group of parrots is one of the poorest among the common parrot groups now bred in captivity (i.e. macaws, greys, cockatoos, eclectus, etc.). By this I mean the numbers of young produced compared to the total number of pairs set up for breeding. The Traffic, USA's (World Wildlife Fund) 1991 Psittacine Captive Breeding Survey by Kirt A. Johnson, seems to bear this out. Though a small representative of the total, it contains the best census numbers ever published. The Amazon group had very low reproductive rates for both the total pairs set up and the total numbers of proven pairs. All Amazon species showed less than one baby hatched for every pair set up for breeding with the exception of the Double Yellow-headed which had 1.049 hatch/set up pairs.

Statements have been made,

both in literature and in personal communication, that Amazons are difficult to breed. This statement is made in general and not for the individual pair. Amazons are being produced but *not* in adequate numbers. For years the Double Yellow-headed Amazon was the most commonly reproduced Amazon. The census of both Traffic USA 1990/1992 and the Amazona Society shows this clearly. But many pairs of Amazons do not produce anything but frustration. Many will not even inspect the nest box while others lay infertile eggs, often breaking them.

Even though I feel a combination of avicultural guidelines will greatly enhance the production of Amazons in the next few years, the main emphasis should be in the area of the Amazons' diet and exercise.

## Acquisition

Because so many Amazons entered the pet trade, it is from this group that most Amazons are now being acquired for breeding. Many breeders feel that pet Amazons are a safer choice medically. They generally have been kept in captivity for several years and thus have been isolated from so many of the avian viruses and other medical problems. Whether newly acquired Amazons have been purchased from other breeders, zoos, import stations of pet owners, they all should be quarantined before they enter your breeding facility.

## Sexing Amazons

With the exception of the White-fronted Amazon, all Amazons should be sexed. Although behavior, with the head size and color intensity are often used to sex Amazons, they are only indicators. Accurate sexing should be done either by:

- **Laparoscopic sexing:** This is a surgical procedure done by an avian veterinarian where a small incision is made on the left side of the bird. A laparoscope is inserted and the sex is visually determined. This method allows for a quick answer for the sex of your bird, but the bird must be several months old to assure accurate sexing.
- **Feather sexing:** A blood feather (sometimes several are needed) is used to determine the chromosomes. The blood feather is placed in a special medium and sent to a lab. Lab: Avian Genetics Sexing Laboratory, Marc Valentine, 6551 Stage Coach Drive, Suite 3A, Bartless, TN 38134.
- **Blood sexing:** Blood taken from a clipped toenail is used to determine the sex. This is also a chromo-some test. A vial of blood is placed in ethanol alcohol as a fixative and sent to a special lab. Lab: Zoogen, Inc., Joy Halverson, DVM, 1105 Kennedy Place, Suite 4, Davis, CA 95616.

The latter two methods do not require any invasive surgical procedure. They are more costly than the laparoscope method and two to three weeks are needed to get a result.

### Compatibility

Amazons can be quite different than most of the other South American parrot species (macaws, Pionus and conures) when it comes to their mate choosing behavior. Many sexed Amazon pairs get along but will not breed as they are not truly bonded. They will sleep side by side, but can often be seen at opposite ends of their cage during the active hours. Other pairs have males that are very pushy and aggressive to their mates, perhaps not to the point of hurting her, but the dynamics of this type of pair is a very submissive female who often shows fear. There are many pairs that have a sluggish male with an

infertile egg-laying mate.

Amazons should have the opportunity to choose their own mates. Because of the aggressive nature of many male Amazons, almost no one puts several Amazons in a large flight for mate choosing. Most breeders will 'force pair' their Amazons by placing any two birds of the opposite sex together.

It is very *unwise* to flock new Amazons together during their breeding season. They should be placed together in a large flight only in the fall and early winter. Flocking Amazons should only be done when the natural or artificial light is decreasing. August to early December for Amazons which are kept outdoors. It is also unwise to flock Amazons when only two males are included with several females. A minimum of three males is best as each male is then out-numbered. When only two males are present, they will often conflict with each other trying to establish dominance.

The pair bonding flight should not contain any nest boxes as then normal hormone levels may be increased. There should be plenty of perch space and several feeding and watering stations placed in different areas of the flight. I have used a bonding flight measuring 12 ft. square x 8 ft. high and one measuring 8 ft. wide x 16 ft. long x 8 ft. high. It is important to give plenty of space when flocking Amazons. I also band all males on the right leg and females on the left. Magic markers are used to mark the birds if needed. Most of the time it is easy to identify Amazons by their size and color differences.

Studies have shown that Amazon pairs in the wild have a very high percentage of fertility. Captive Amazon pairs are known to have a low percentage. A very good Amazon breeder estimates that infertility could be as high as 50% in U.S. aviculture. Wild Amazon pairs get to choose their mates while captive pairs are most often 'forced.'

Correctly bonded captive Amazons show a great deal of togetherness. They defend their territory together with the males being the more aggressive. They preen, wing-stretch and eat to-

gether.

### Housing

As most Amazons have a propensity to gaining weight (especially the larger species), it is important to give them space to exercise. Although Amazons seldom fly, but would rather crawl beak to foot, it is still important to give them activity space. There should be a sound combination of correct diet and sufficient exercise for the successful reproduction of Amazons. I have seen many Amazon pairs kept in three foot cube cages. Although this may be sufficient for the very small species and larger Amazons have been found to breed in this size cage, I feel larger cages are important for overall increased Amazon production.

Ramon Noegel from Seffner, Florida, who is best known for his work with endangered Amazons including the St. Vincent Amazon, worked with the suspended cage over twenty years ago. The suspended cage is now used everywhere and is ideal for Amazon breeding. A completely wired cage is suspended above the ground either by supports from the ceiling beams or elevated by pipes or wooden supports from the ground. Usually a larger wire grid is used on the bottom, so that old food and fecal matter can drop completely through to the floor.

Recommended sizes are taken from very successful Amazon breeders. The best include John and Pat Stoodley from England, noted for their extensive work with Pionus and Amazons, who have two sizes of Amazon cages. The small to medium sized Amazons are kept in horizontal 3 ft. wide x 6 ft. long x 3 ft. high cages while the medium to large species are kept in 3 ft. wide by 8 ft. long x 3 ft. high cages. The Stoodleys do not have set sizes for certain species. They observe the pairs and know their needs. If one bird of a certain pair tends to become overweight, a larger cage is provided. If a certain pair shows signs of increased mate aggression, they are moved to a cage with more internal space.

I personally have kept all Am-

amazon species in 3 ft. wide x 6-8 ft. long x 4 ft. high cages. The suspended height of these cages is very important. All Amazons should be able to look down on their keeper. When they are on their perches, they should be well above the eye level of any person approaching their cage. Two perches are used for each cage and are kept at different heights. The rear perch (made of eucalyptus) by the nest is elevated two to four inches above the forward perch (made of 2 in. x 4 in. pine). The birds can easily chew the pine perch and it also can easily be replaced being in the front of the cage.

All cages should be designed so no human hand can enter it. Amazons are very territorial and if any hand or fingers become accessible, they will often be attacked or bitten. All food and water bowls should be placed

through small external openings in the front part of the cage. Entering an Amazon's cage space can often produce unseen anxiety which in turn can possibly add to increased male aggression and infertility.

I have found that solid visual partitions placed between Amazon breeding cages helps in decreasing any aggression caused by seeing neighbors in an adjacent cage. If this cannot be done, the rear half or third should be visually blocked so each Amazon pair can feel more secure around their nest box.

If several pairs of Amazons are housed in one building, I recommend separating like species and subspecies. This is especially true if they can observe each other. I feel that the *ochracephala* group of Amazons do better if not kept next to each other. Placing pairs of Blue-fronteds, Red-loreds, Mexican Red-heads and even Pionus between Double Yellow-headed and/or Yellow-nape pairs will help to eliminate any aggressive behavior between the males in adjoining cages. In fact, I would keep all *ochracephala* subspecies separated. I have observed behavioral disturbances between adjoining Double Yellow-headed and Yellow-nape pairs. The yellow head coloration may be enough to pro-

duce defensive attitudes.

### Nest Boxes

I feel Amazons should have nest boxes made of wood. If chewing material in the form of pine wood is not supplied at all times to Amazons, they will destroy their nests. At Aviculture Institute an average of one to three wooden nests had to be replaced in any given year in a collection of over 50 pairs of Amazons. This collection had an average of 35 pair

producing every year.

Amazon nests can be made of thick pine wood or thick (two inches) wood planks. I do not recommend plywood, unless it is very thick as it is easier to peel and strip away. Vertical nest boxes are most often used, although boot, slant and Z boxes are sometimes offered. Sizes range from (ID) 12 in. x 12 in. x 36 in. to 8 in. x 8 in. x 18 in. I was surprised at how small and narrow John Stoodley's Amazon nest boxes

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were. They were made of thick (modified two inches) wood planks and were either 8 in. x 8 in. or 10 in. x 12 in. on the inside widths and were 16 in. to 20 in. deep.

The entrance holes of Amazon nests should be narrow. I have them made to just fit the diameter of the largest bird of the pair. Sometimes the male can be seen to physically squeeze through the opening. The hole should be this small to assist the female in keeping the male from entering the nest chamber after she has laid her eggs. So many Amazon eggs are broken or eaten because the male has disturbed the incubating mate. This advise is not given for the successful pairs, but for the problem pairs. Why work so hard to get fertile eggs only to have them broken. This is also true for some pairs where one or the other will chew a newly hatched baby.

### Reproduction

Amazons are very seasonal with their outdoor season generally running from March to July. There is an occasional pair that will hatch young earlier or later. This is more true for pairs located in high humidity areas. Many in California and other non-tropical states will get only one and possibly two clutches from their Amazons each year, while Florida breeders may get two and possibly three clutches.

Most large Amazons (and many of the medium to small species) become increasingly defensive when their breeding season approaches and this continues through the nesting period. Males will often visit the nest box first thus encouraging their mates. There is then a period of time when both birds can be seen visiting the box followed by the laying and incubation period when only the female is in the box. This courtship varies between species and even between pairs of the same species.

After an incubation period ranging between 21 and 28 days the young begin hatching at intervals. This is because the female does not begin the incubation process with the first egg laid. The Amazon male does not participate in the

incubation process as most cockatoos do. In the normal Amazon nesting process the male defends the nest vigorously and can usually be found just outside the nest opening. During the first week or two the male generally feeds the female who in turn feeds the young. The female will then spend progressively more time outside the nest and both parents participate in feeding the young. Most Amazon breeders will either remove eggs for artificial incubation or remove the young between seven and 14 days of age.

Incubation can either be done by artificial incubation, parental incubation or by foster incubation. Fertile Amazon eggs can be fostered to infertile egg laying Amazon pairs or given to non-related species such as Pionus. Amazons also can be good foster parents of non-related species such as macaws. It was a delight to see a four week Great Green (Buffon's) Macaw being raised by a Yellow-crowned Amazon pair, owned by John Stoodley.

Amazons, as with any psittacines, often have to learn parenting techniques when they are new at it. I have made a policy to allow my parrots time to become good parents. If they feed poorly the first time, I will pull the babies early and you'd be surprised to see how the parents become better the next time.

### Diet

Although many factors are needed for successful Amazon reproduction, the dietary requirements are probably the decisive factor.

Amazons are heavy bodied parrots with 'rounded' wings. In the wild they can be seen flying with rapid wing beats and generally in a straight line. They are not soaring birds and when turns are done they do them quickly and sharply.

In the wild, Amazons often fly long distances to forage for food. Depending upon the ripening of the different fruits, berries, palm nuts, etc., Amazons will frequent many different areas. They also now depend on cultivated crops, often raiding maize fields. Amazons, in their native habitats, are very trim and solid in muscle tone.

When placed in captivity, Amazons become very sedentary. Unlike macaws and conures, captive Amazons do not maintain an even weight naturally by burning excess weight through exercise and nervous energy. Although the medium and large Amazon species seem to have more problems with being overweight in captivity, this also occurs in small species.

Pet Amazons are especially prone to being overweight as they are often clipped and given a rich, high carbohydrate diet. As many pet Amazons are used as breeders (after they become unmanageable) their weight problems are even more noticeable.

Obesity can be a detriment to the overall health of a parrot. Murray E. Fowler, DVM in his article 'Nutrition in Injured and Diseased Birds' (Proceedings of the Avian Pediatric Seminar—January 28, 1990) wrote, "This can compromise these birds during an illness episode because obesity can depress the body's resistance to insulin and impair the output of growth hormone. Obesity must also be considered as a stressor because there is an increased production of adrenocorticosteroids. Fatty infiltration of the liver may inhibit the production of B vitamins and the metabolism of other nutrients." No wonder many of our Amazons do not breed! This is an excellent article to re-read and hopefully trigger one's motivation to trim down obesity-prone parrots. Then supply a nutritionally balanced diet!

The term obesity well describes many of our Amazons. Many do not become slightly overweight, but become supremely overweight.

All newly acquired Amazons should be weighed upon receiving them. This is the basis of knowing how much is lost on a monitored weight-loss program. Appearances can often be deceiving.

Any weight-loss program for Amazons should be started in the non-breeding season. This way, any weigh-ins will not disturb any chances for reproduction. A weight loss program should not be drastic; it often will take several months. Overall weight losses of 8 to 10% are very common for

the larger pet Amazons and some males may need more. I have found males tend to become more obese than females. This may be why so many female Amazons will visit the nest box alone and lay infertile eggs, while outside the lethargic male is disinterested.

Dry seeds are easy to feed to parrots, but they can be disadvantageous to Amazons. Oil producing seeds (sunflower and safflower) should be eliminated from the Amazon diet. I have found that Amazons can gain weight on dry parakeet mix (canary, millet and oat groats) even when it is fed with a soft food diet. Amazons metabolize foods differently when compared to other large parrots. For instance, a very successful African Grey Parrot breeding facility feeds a 100% pelletized diet and hundreds of baby Greys are produced. The same diet in the same amounts are also fed to many types of Amazon pairs and their production rate is under 5%. What is surprising is that very few even laid infertile eggs; most did not lay eggs at all.

There are many types of parrot diets, but Amazons should be given foods that are low in fat-producing ingredients. Even a nutritionally balanced parrot diet may put weight on an Amazon if it is fed in too much quantity. If there is any food left in the bowl of an Amazon pair in my collection, I reduce the total amount.

The following is a parrot diet that I feed to all of my parrots:

Soak and Cook—45%

(mixed by a seed mill)

Rolled Corn—20%

(flushed under a water faucet)

Pigeon Mix—10% (cooked)

Canary Seed—5% (soaked or cooked)

Extruded Diet—15% (Pretty Bird Breeder Select)

Birdy Banquet—5% (Pretty Bird)

Ingredients of Soak and Cook:

Soy Beans—45%

Peas—15%

Popcorn—5%

Winter Red Wheat—15%

Paddy Rice—20%

Soak and Cook is soaked overnight

and brought to boil in the morning for 20 minutes.

The ingredients for my Amazon diet does include some high carbohydrate ingredients but it is fed in limited quantities. A maintenance diet for a breeding pair of Double Yellow-headed is 1/2 cup of the soft food diet, 1/2 teaspoon of parakeet mix and a fresh fruit or vegetable (apple, carrot, citrus fruit only once a week, etc.). This sounds like a small amount, but it does maintain their weight. Vitamins, calcium and minerals (all in a dry powder form) are mixed into the soft food every day.

This food is increased in volume when babies are due to hatch. Other foods are added during the baby-feeding process and these include many oil and high fat content foods such as corn-on-the-cob. This is not the time to skimp on any food items or the total amount.

As I do encounter cold winters in the high desert area of Southern California (20 to 60 days with night temperatures dropping below freezing) I increase the total

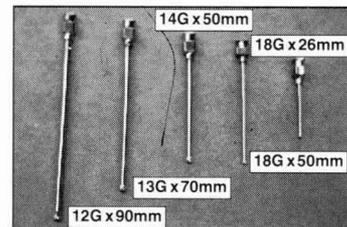
amounts of food to my Amazon pairs by 50%. Each pair is treated differently. Some need continued weight monitoring while others may not even have a weight problem. Dominating males or even the occasional female who consume most of the food while pushing away a mate, should be fed with separate bowls in two far corners. When I observe this behavior, I seriously consider re-bonding the pair. Good producing pairs feed together.

### Conclusion

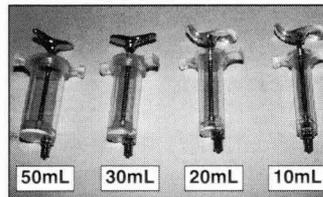
The importance in Amazon breeding management can not be stressed enough. With such a low production rate of many Amazons now in captivity, we must all begin to make corrective changes. With the importation ban of most Amazons, the smuggling of these delightful birds is bound to increase. A true deterrent for this would be to supply the pet demand of Amazons with captive bred birds. But to do this, we must increase our production through better management. ➔

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