

# Breeding *Ara Macao* in an indoor facility

by Cheryle L. Jones  
Scarlet Orchard Aviaries, Otis Orchards, Washington

Many years ago when I saw *Ara macao* for the first time, I was awestruck by their beauty and regalness. From that introduction, I had the opportunity to enjoy the spirited and spunky personalities of individual Scarlets. However, it was not until 1985, when the Scarlet Macaw was placed on Appendix I of CITES, that I began to realize the importance of pairing these individuals for breeding.

## Indoor Versus Outdoor Breeding

In the northwestern area of Washington State, temperatures can be below freezing for much of the winter and can reach sub-zero temperatures for days, even weeks, at a time. Consequently, an indoor breeding facility is a must.

There are some positive points to indoor breeding. Small rodents and insects are rarely a problem, and birds escaping from the aviary are easily retrieved. The keeper can manipulate daylight hours if so desired, and security is less of a problem as the birds are generally undetected by the casual observer just passing by.

However, those of us who breed birds indoors face unique challenges as we strive to provide a healthy environment for our birds. Before deciding to breed macaws or any other large psittacine indoors, the following items should be considered: space required, noise level, ease of cleaning, lighting, air circulation, and heating/air conditioning.

## The Facility

My macaws are housed in a 1500 square foot area that is located in the lower level of my house. This lower level is referred to as a "daylight basement," partially above ground and partially below ground. This arrangement seems to be more conducive to efficiency of temperature control than a separate building completely above ground. However, you need to consider the increased noise level. Acoustical tiles can be added to

*Cheryle Jones  
with one of her  
six week old Scarlet  
Macaw chicks.*



Photo courtesy of author

the ceiling of the lower level to considerably decrease the noise on the upper level.

The lower walls and floor are constructed of cement. The floors contain a drainage system; thus, the cages and floors can be easily cleaned by hosing with hot water, and all birds can be misted on a regular basis.

Windows are positioned so that each pair of macaws has access to natural light and a view of the outdoors. All windows are screened and left open when weather permits. This provides not only a physical benefit to the birds but a psychological one as well. (Keep in mind that open windows increase the noise level to neighbors close by.) All birds are also provided with overhead, full-spectrum lighting.

## Housing/Nest Boxes

Each pair of Scarlet Macaws is housed in an 8' long x 4' wide x 6' high cage constructed of 10 gauge, 1" x 3" galvanized wire. Each is a single, free-standing unit, but pairs are in full sight of one another. The entrance door is 60" high by 18" wide, allowing access to the inside of the cage. Two by fours are used for perches and are placed at about four and a half feet above ground level at each end of the cage. They are hung by joist brackets and easily replaced.

Fifty gallon oak barrels serve as nest boxes. Due to the weight of the barrels, I prefer to place them on a raised platform outside of the cage rather than hanging them. They are positioned vertically at the upper rear of the unit's left side. A 6" diameter entrance hole is placed in the upper third of the nest box with an inspection door at the top. The nest box is filled with cedar shavings (thoroughly aired) to about one-third high. The birds will modify the entrance hole and eliminate shavings to meet their needs.

All of my Scarlets, whether wild-caught or domestically-bred, are at least semi-tame. Even though I have access to feed from the outside of the cages, the birds are used to me entering to clean and replace perches. This is a practice I continue throughout the breeding season. I also add daily nest inspections. Although the Scarlets become much more aggressive when breeding, they have come to know my interferences are simply routine.

## Diet/Environment

My Scarlet Macaws are fed a diet of approximately 65% Roudybush maintenance pellets and 35% soft foods (fruits, vegetables, bean mix, etc.) during the non-breeding season. They are also given a few nuts (peanuts, Brazil, pecans, walnuts, filberts,

almonds) on a daily basis. During the breeding season, the amount of soft foods given is increased to at least 50% of the daily diet. Roudybush breeder pellets are also substituted at this time for increased protein. Manu Mineral Blocks are always available.

The temperature of the breeding area remains at a constant 62° to 63° Fahrenheit throughout most of the year with minimal use of artificial heating during the winter months. On hot summer days, even with the windows remaining open for air circulation, the temperature rarely rises above 75° to 79° Fahrenheit due to air conditioning on the upper level.

Humidity remains at 55% to 65% much of the year. This is temporarily increased once to twice weekly when birds are misted and cages hosed for cleaning.

The macaws are provided with natural light which is supplemented with full-spectrum lighting for 13 to 14 hours daily. This is gradually increased to 16 hours daily to induce breeding. It has been my experience that this is the most important single factor in encouraging macaws to breed.

### The Nursery

My avian nursery is located in a separate room on the upper level of my home, away from the breeding area. It is beneficial to have the nursery located between two other rooms rather than on an outside corner of the house as it is easier to maintain a constant temperature during extreme cold or hot weather. The temperature is kept at 69° to 70° Fahrenheit, and the humidity is generally at about 60%.

All surfaces (linoleum, walls, countertops) are smooth and can be easily wiped down and disinfected. The room has extra electrical outlets for maximum usage of brooders and

incubators. It also has a number of cupboards for storage space and a sink so all items used in the nursery can be washed and disinfected there.

### Incubation/Hatching

Scarlet Macaw eggs are white and somewhat smaller in size than a Grade AA large chicken egg. The following are examples of egg sizes: 51 mm x 35 mm, 50 mm x 37 mm, 50 mm x 35 mm, and 47 mm x 36 mm. See Figure 1 for egg weights at various incubation periods.

Eggs are laid at intervals of two to three days, although first time hens may have as long as eight days between eggs. Two to four eggs are laid. The female begins incubation of the eggs when the first is laid, with the male standing guard right outside the nest box. Occasionally the male will sit inside the nest box with the hen. If eggs are pulled for artificial incubation, the hen will generally begin laying a second clutch in three weeks. The average incubation period is 25 days, with the range being 24 to 28 days.

If artificially incubated, the eggs are kept at 99.5° Fahrenheit dry bulb and 86° Fahrenheit wet bulb for a relative humidity of 58%. The eggs are turned once per hour. When drawdown occurs, the eggs are no longer turned and are placed in a hatcher unit that is kept at 98.5° Fahrenheit dry bulb and 90° Fahrenheit wet bulb for a relative humidity of 72%. I have had a lot of success using the small TX7 incubator from Lyon Electric.

After hatching, the chicks are kept in the hatching unit for 24 hours and then moved to a brooder. I use the Animal Intensive Care Unit.

The skin of the chicks should be pink and soft, and the extremities should be plump. The chicks are covered with an apricot-colored down.



*A mature, bonded pair at nest box.*

Photos by Cheryle L. Jones

### Chick-rearing

If hand-reared from day one, I begin feeding chicks at eight to ten hours after hatching, the first feeding being very diluted. I prefer to use various sizes of syringes to hand-feed macaws.

The formula I use consists of the following:

38 monkey chow biscuits

3 cups water

1/4 cup natural creamy peanut butter

1 jar (4-1/2 oz.) Gerber oatmeal with applesauce & bananas

1 jar (4-1/2 oz.) Gerber creamed corn

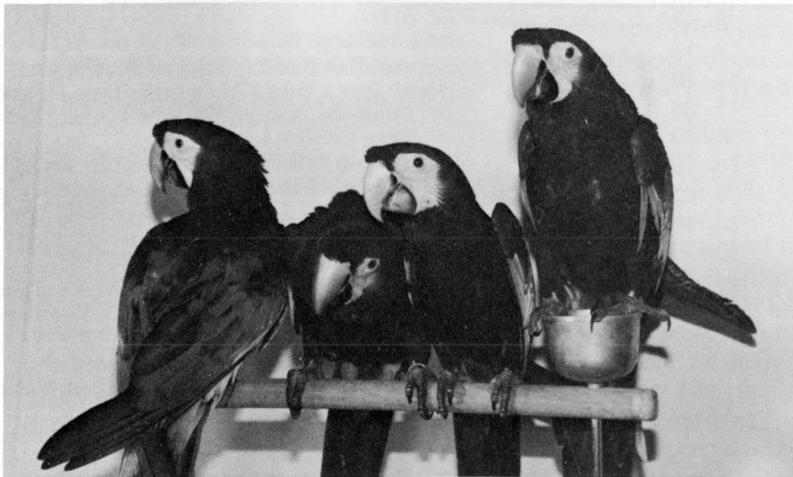
1 tsp. Lactobacillus

Soak monkey chow in water for 30 minutes. Simmer for 10 minutes. Stir in other ingredients until smooth. Water may be added if too thick. Feed at 105° to 108° Fahrenheit.

Chicks should be weighed daily when crops are almost empty. I do not allow crops to completely empty between feedings except once daily.

I have not attempted to discuss details of artificial incubation or hand-rearing in this article as there are excellent books and articles available on these subjects. However, Figure 2 charts pertinent information for *Ara macao* to assist the hand-feeder.

*(continued on next page)*



*A beautiful group of four and five month old Scarlet youngsters.*

**Figure 1**

The following are egg weights (in grams) at various incubation periods. All four eggs hatched successfully. Egg four was an extremely tiny egg that hatched an average-sized chick.

Egg 1	
Day 7	34.0
Day 19	31.5
Day 21	31.0
Day 23	30.8
Day 24	30.5
Day 25	hatched 23.5
Egg 2	
Day 2	37.0
Day 14	35.5
Day 16	35.5
Day 18	35.5
Day 19	35.0
Day 21	34.7
Day 24	hatched 26.3
Egg 3	
Day 10	35.0
Day 12	34.5
Day 14	34.5
Day 15	34.5
Day 17	33.9
Day 19	33.8
Day 20	33.8
Day 21	33.5
Day 22	33.5
Day 24	32.3
Day 25	hatched 24.8
Egg 4	
Day 11	30.7
Day 14	30.3
Day 19	29.5
Day 24	28.0
Day 25	hatched 22.7

**Development**

Upon hatching, a Scarlet Macaw's beak is pink and soft and silk-like to the touch. At about 14 days, the lower mandible and base of the upper mandible begin to turn gray, later to black. The feet also turn from pink to black. The Scarlet exhibits black feather "spots" underneath the skin at about nine days, but does not become fully pin-feathered until about five weeks. Most Scarlets are completely feathered by nine or ten weeks.

All birds are closed-banded at about 21 days or 300 grams. I generally use a size 20 (5/8") band, although I have also used a smaller size 18 (9/16") on Scarlets. I have never had any problems with foot/leg irritations or injuries to the macaws due to these bands.

Scarlet Macaws go through a "dreaming stage" when they are about three weeks old. They appear to be dreaming of flying, their featherless wings wildly flapping, while they are fully asleep. I have not observed this behavior in chicks beyond the age of four weeks.

The egg tooth is somewhat visible until the chick is about four weeks of age. At eight weeks, the macaws are moved to a small cage with a perch one to two inches above the cage bottom. At this time they are also

given soft foods which they only play with at first but soon learn to eat. At nine weeks, all macaws are chromosome sexed so sex ratios are known. Currently the ratio is running four females per six males.

At about ten weeks, the Scarlets clumsily make their first attempted flight, but become more controlled by the twelfth week. All young macaws are allowed to learn to fly before their wings are clipped for "open perch training." At 12 to 15-1/2 weeks, the Scarlets are weaned and become independent. I allow them to show me when they are ready to wean. I feel the weaning period is a somewhat stressful time when the birds need extra nurturing and attention. Therefore, they are not sold until weaned. A newly weaned bird bonds easily to a new owner.

Young Scarlets exhibit black, hair-like feathers on their facial patch until they are about one year old. These are not to be confused with the facial feather patterns of *Ara ararauna*, *Ara chloroptera*, or various hybrids.

Scarlet Macaws continue "filling out" and do not really lose their baby appearance until they are one and a half years old.

**Conclusion**

The challenge of breeding macaws indoors can be met without sacrificing the care of the birds. With a little ingenuity, this can be accomplished at an affordable price. Hopefully, the information in this article will contribute some ideas to making your breeding program a pleasurable experience.

**Products Mentioned**

Animal Intensive Care Unit: Animal Care Products, 3179 Hamner Ave., Suite 5, Norco, CA 91760.

Manu Mineral Blocks: Avian Research Associates, P.O. Box 4667, Maineville, OH 45039.

Marsh Farms Turn X7 Incubator: Lyon Electric Company, Inc., 2765 Main Street, Chula Vista, CA 92011.

Roudybush Pellets: Roudybush, P.O. Box 331, Davis, CA 95617-0331.

**Recommended Reading**

Abramson, Joanne, *Macaw Handfeeding and Pediatrics*, the AFA Watchbird, February/march 1989, p. 46-49.

Jordan, Rick, *Parrot Incubation Procedures*. Low, Rosemary, *Hand-rearing Parrots and Other Birds*.

Schmitz, Carol, *Incubation and Troubleshooting the Problem Egg*, the AFA Watchbird, October/November 1989, p. 26-32. ●

**FIGURE 2**

Age	Average Weight (grams)	Weight Range (grams)	No. of Feedings	Amount (cc's)	Brooder Temperature (°F.)
Hatch	24.1	20.5- 26.3	8-9	1	98
Day 1	27.2	22.7- 29.8	8-9	1- 2	97
Day 2	30.0	25.5- 35.1	7	2- 3	
Day 3	33.3	27.0- 37.5	7	3- 5	
Day 4	38.9	32.9- 45.3	6-7	5- 6	95
Day 5	43.0	33.4- 52.5	6	6- 10	
Day 6	49.3	35.9- 58.0	6	9- 15	
Week 1	54.9	41.1- 71.3	5-6	10- 20	
Week 2	129.9	74.8- 213.5	5	15- 25	90
Week 3	273.3	137.5- 432.0	4	25- 50	85-90
Week 4	473.7	245.0- 705.0	4	55- 75	
Week 5	688.3	457.0- 929.5	4	75- 90	80-85
Week 6	845.4	643.0-1038.0	3-4	80-100	75-80
Week 7	943.6	751.0-1097.3	3	90-120	75
Week 8	1007.2	819.0-1123.0	3	120	70
Week 14	868.9	782.0- 941.0	0-2	60-120	
6 months	947.2	878.0-1005.0			
1 year	1024.0	918.0-1098.0			

Average age at weaning = 13-1/2 weeks

Weaning range = 12 to 15-1/2 weeks