Species Management Guidelines

compiled by Nadja Ziegler in 2000

English Name/s St. Lucia Parrot,
St. Lucia Amazon

Scientific Name *Amazona versicolor* (P.L.S.Müller, 1776)

Local Name/s Jacquot

General Description

Amazona versicolor is one of the largest of the genus *Amazona*, adults measuring approx. 43 cm. Like all Amazons, it is primarily green with a distinctive blue head, a red or maroon breast, and red and blue markings on the wings. The tail is short and usually has black and green markings (Forshaw, 1978). Every feather has a blackish edging. Adults weigh 700-800 g.

In the early morning (before sunrise) and evening the parrots flock in the treetops in search for food, which includes a variety of fruits and seeds. By day they are rather sluggish, resting high up in the canopy (Arndt, 1996).

Fig. 1: *Amazona versicolor* at Jersey Zoo. (N. Ziegler)

The birds have a range of soft liquid calls until, when disturbed, their raucous shrieks spread alarm in the forest. St. Lucia parrots also perform what is called "dueting" which means that one starts a pre-established vocalization and the other completes it (Biase, 1997). St. Lucia parrots tend to be silent and inactive during heavy rainfall but are quite loud when the sun comes out again. At the beginning of the breeding season the groups split into pairs. (Arndt, 1996)

Conservation Status

IUCN-Category: Vulnerable (IUCN, 1996)
CITES: App. I

Over the past 80 years the numbers of St. Lucia parrots have been declining due to the need for land to settle a burgeoning human population, and to satisfy the market in wild-caught birds for the pet trade and aviculture (Butler, 1980, 1995). In 1969, an estimated number of more than 40 parrots per year were still being shot simply for food (Wingate, 1969). In the 1950s the population was estimated to be around 1,000 birds. Within 25 years it crashed to 100 birds (Butler, 1980; Jeggo 1975; Jovicich, 1976).

By the beginning of the last century, the Martinique Amazon, *A. martinica*, and the Guadeloupe Amazon, *A. violacea*, had been exterminated from their respective islands, probably due to habitat destruction and hunting. It was feared that *A. versicolor* might be the next Amazon parrot to become extinct. After the Puerto Rico parrot *A. vittata* which at that time numbered just fourteen individuals in the wild, it was the most endangered Amazon parrot in the Caribbean. (Jeggo, 1986)

As the result of the ban on hunting, the establishment of protected areas and an innovative public awareness and education programme, initiated in the late 1970s, the number of wild *A. versicolor* has begun to increase again (Butler, 1995). In 1980, however, Hurrican Allen devastated the island

and ruined much of the habitat of *A.versicolor* (Jeggo, 1986). It was estimated that only 20% of the forest remained untouched (Butler, 1980). Despite that setback, the species recovered: a survey conducted in 1992 estimated the population to be between 250 – 350 individuals (Jeggo *et al*., 1992). The most recent census, done by D. Jeggo in 1996, estimated a number of 350-500 individuals.

The land, however, especially the remaining primary forest, is still at risk of clearance for charcoal production and cultivation, mainly of bananas but also for exotic tree plantations and timber production.

Conservation Measures Taken

Laws protecting the parrot were established in the early nineteen hundreds, but with lack of enforcement and an increase of rain forest giving way to plantations, the parrot population dropped rapidly.

Since 1975, the Jersey Wildlife Preservation Trust has worked closely with the Government of St. Lucia in an effort to preserve the St. Lucia parrot. This collaboration has involved several field studies, conducted in 1977 (Butler *et al*., 1977), 1980 (Jeggo and Taynton, 1980), 1982 (Jeggo *et al*., 1982), 1986 (Jeggo, 1986), 1988 (Jeggo *et al*., 1988) and 1993, the establishment of a captive breeding programme in Jersey, and the training of St. Lucia forestry officials in captive management techniques. (Jeggo *et al.*, 1982; Jeggo & Anthony, 1991)

In St. Lucia, a conservation education programme has been set up by the forestry Division, aimed at making the public aware of the value of conservation of the island's rain forest. Much attention has been focused on the parrot as a symbol of conservation, and there is great interest and pride in this rare and beautiful bird. (Jeggo *et al.*, 1982)

In 1979, year of the country's independence, the St. Lucia parrot was named the National Bird, all hunting was banned and large areas of mountain rainforest became officially protected. The creation of rainforest walks has also proved very successful. These involve the guiding of small groups of tourists or locals along a track through the forest, giving them the chance to observe the St. Lucia parrot. The key to the successful recovery of this species has perhaps been the high degree of acceptance from both the Government and people of St. Lucia (Jeggo, 1986).

Studbook Holders

none.

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Distribution and Habitat

As it name suggests, the St. Lucia parrot is found only on the island of St. Lucia, one of the Caribbean islands in the Lesser Antilles (Butler, 1980), where it lives in the central mountain rainforest. The island is measuring only 235 square miles, it is 14 miles wide and 27 miles long (Low, 1994). The species' range is now limited to the 40 square miles of forest in the centre of the island, that is managed as a national park. Formerly, *A. versicolor* occurred on every forested slope of the island. The rugged terrain with heavy rainfall makes observations difficult. Access to the area is only by foot. To study the bird, camps have been set up at Quilesse and in Edmund Forest.

Captive Management

Introduction

The Durrell Wildlife Conservation Trust (formerly known as Jersey Wildlife Preservation Trust) set up a captive breeding programme for this species in 1975. The founder population comprised nine individuals (5 males, 4 females), seven of which were taken as wild fledglings and two from captivity elsewhere (Jeggo, 1976). The first captive-bred St. Lucia parrot was reared in 1982 and since then a total of 19 young have fledged to 1995. Recently, Paradise Park in Hayle (UK) joined the captive breeding programme for the species, too. All specimens remain the property of the Government of St. Lucia.

I.D System Employed

At Jersey Zoo, the birds are individually identified on the basis of plumage colouration, body size and head shape, but they are also ringed.

Housing

In Jersey all aviaries consist of an indoor area (1.8 x 3.6 x 2.2-3.0 m) with two nestboxes, perches and a feeding platform, and an outdoor planted flight area (7.2-9.0 x 3.6 x 3.6 m). The housing floor is made of cement and is

covered in a layer of wood shavings (Copsey, 1995). Food and water bowls are placed on raised platforms and are cleaned and replenished daily (Jeggo, 1982).

Fig.2: Breeding aviaries at Jersey Zoo (N.Ziegler)

Environmental Enrichment
A variety of branches for perching, climbing and chewing is necessary to keep these intelligent birds busy. The outdoor aviaries are further planted with willow, buddlea and honeysuckle. Calendula, marigold, nasturtium and pansy are provided as browse (H. French, pers. comm.). Providing foods that are visually attractive and palatable is also a means of providing effective motivators for behavioural enrichment (Fa & Cavalheiro, 1997). During the summer months, Jersey operates a sprinkler system at least twice daily.

Environmental Concerns

Temperature and Lighting
In temperate climate *A. versicolor* needs heated indoor areas (c. 15^{o}C in winter). In addition, Jersey provides the birds with timer-controlled lighting, which is on by day (time depending on season).

Substrates and Bedding Materials
see Housing.

Health

Maximum Life Span
unknown, but at least 30 years (pers.comm. H. French).

Main Problems
Captive St. Lucia parrots in Jersey suffered poor reproductive output and premature deaths of captive-born birds for a period of several years. This might have been linked to an inadequate diet. (Fa and Cavalheiro, 1997)

Treatment regimes for *Psittacines* at Jersey are as follows (most of them have not been used yet):
Anticoccidial Agents: Toltrazuril (Baycox, Bayer) or Sulphamezathine (Coopers Animal Health): unlicensed, 0,2% solution in drinking water for 5 days (dosage only for the latter).
Antitrichomonal Agents: Microquinox or Baycox (C-Vet Lifestock Prod.)
Endoparasiticides: (given pre-exportation): Ivermectin (Ivomec 1%Injection, MSD Agvet): unlicensed, 200mcg/kg i/m or p/o once.
Antibiotics: Doxycycline (Vibravenos, Pfizer): 15 mg per kg; enrofloxacin (Baytril, Bayer): 15 mg per kg or amoxycillin trihydrate .
Aspergillosis: Itrconazole (Sporanox) 5.00 mg per kg orally once per day for 12 days at least.

Routine Veterinary Procedures
none.

Anaesthesia
Parrots are usually anaesthetised using the gas isoflurane.

Contraindications
none known.

Nutrition

Emphasis in the diet is away from items of high fat content and towards fruit, vegetable and quality supplements.

Fa and Cavalheiro (1997) found an individual variation in food consumption and food preferences in captive *A. versicolor*. Comparisons between sexes indicated that food intake was higher in captive-born females than in captive-born males. Wild-born birds did not differ in food intake. Also the ingestion rates were higher in females than in males. According to the bird's origin, wild-born parrots may have consumed less, but ate a wider variety of foods than captive-born ones.

Natural Diet

A. versicolor feeds on a variety of fruits, berries and seeds; they also take buds and nuts (Arndt, 1996).

Nutritional Requirements in Captivity

Parrots may select food items on the basis of colour and texture rather than on taste or nutrient content. Therefore it is important to provide nutritionally valuable and, at the same time, interesting food items. The diet offered must give the birds the possibility to choose from a variety of items. Pellets provide an ideal diet only in combination with other favourable and nutritionally suitable feeds. (Fa and Cavalheiro, 1997) At Jersey, the St. Lucian parrots are fed twice daily.

Main Diet: SDS Parrot pellets, bean mix-haricot, pinto and butter beans soup mix pearl barley, red split lentils, yellow and green split peas, marrow-fat peas and pudding rice, soy beans, mung beans, black-eye beans, fruits, vegetables, hard-boiled eggs, hard cheese. The fruit and vegetables constituents vary according to seasonal availability.

Delivery: All pulses are soaked overnight and then rinsed. Fruit and vegetables are chopped.

Supplements: A mixture of Nutrobal and ACE High is given in a ratio of 2:1, each specimen receiving a pinch (0.1 g) twice per day. Grated cuttlebone (0.1 g) is also added twice per day. Collo-cal D is given in water on alternate days in the breeding season at the rate of c. 5 ml / litre.

Water: always available in the aviaries.

Contraindications: no kidney beans! – toxic when raw!

Nutritional requirements for breeding pairs: Three feeds per day instead of two (0730-0800hr, 1200hr and 1700hr); mixed canary seed and Nectarblend, a high protein rearing food, added to the usual diet.

Reproduction

In the wild, these parrots nest in hollow cavities in certain large trees (Ashton, 1997). Especially the gommier *Dacryodes*. The continued presence of trees old and large enough to have formed cavities may be an essential factor in the species' survival (Snyder, 1973).

One type of nestbox used in Jersey is a "grandfather clock-type" box, made of 2 cm thick plywood, measuring 28 x 28 x 120 cm high. In 1982, in the bottom of the box was a substrate of peat and wood shavings, on top of which was formed a matrix of wood chips, chewed from the inside of the box, wooden battens having been fixed internally for this purpose. (Jeggo, 1982)

Sexing Techniques

Like most Amazona spp., *A. versicolor* cannot be sexed reliably by morphological features; in Jersey the birds used to be surgically sexed, so that breeding pairs could be established. Now DNA feather testing is used.

Breeding Seasonality

St. Lucia parrots show a breeding seasonality between February and June (Copsey, 1995). During the breeding season the pairs search for a nest hole high up in an old tree; the cavity height is between 15 and 28 m, with a depth of about 150 cm (Arndt, 1996).

Reproductive Manipulations

Until 1997, hand-rearing was a common method used at Jersey. However, during the first days also a parent-reared chick had to be hand fed, because the female refused to feed the chick. This was done by syringe 4-5 times daily between 07.00-23.00hr, with the chick removed from the nest box and fed with both adults present in the aviary. The empty crop was filled with lectade and a hand-rearing

formula (Fidgett, 1993), and then the chick was returned to the nestbox. The parents were hardly disturbed and by day 7, the female started to feed the chick by herself. (French, 1996)

One chick that was not fed properly died at 3 days of age despite some supplementary feeding. Given the experience of another chick that survived for three days in the nest box with no *in situ* feeding, it was not expected that the one would die so quickly.

Social Management and Copulation

The immature birds were first managed as a group. These parrots become mature at the age of four or more. Being a monogamous species they will then form pairs for life. In Jersey the pairs have been formed on the basis of compatibility and genealogy. (Jeggo, 1982)

Gestation and Parturition

Having found a nest hole in the wild, nothing is added to the nest, and the female lays 1-3 white eggs (42 x 33 mm), with a laying interval of 2-3 days, on the rotten wood base (Young, 1988). The incubation period lasts 26 - 29 days (Young, 1988, French, 1996). Both male and female incubate the eggs.

Neonatal Development

At birth, captive-born hatchlings weigh between 13.3 – 16.9 g (n=14) (French, 1996). Despite the small sample size, it should be mentioned that growth rates attained by the parent-reared chick at Jersey were much closer to the wild situation than those hand-reared. By comparison nearly all hand-reared chicks grew very slowly and achieved maximum nestling weights from 79-223 days. Weights recorded were also all lower at 254-420 g and the nestling period was extended (120-147 days with one exception of 80 days). (French, 1996)

The average weight of eight un-aged, well-feathered nestlings recorded in St. Lucia in 1975 and 1976 was 540 g with a range of 468-620 g. Most of these had bulging crops when removed from the nesting cavities and weighed. (Jeggo, 1982)

When the chicks are very small, the female won't come off the nest much at all, later, usually both the male and the female will come to feed. Often one bird enters the nest while the other keeps watch from a nearby branch or neighbouring tree. Although the adults often call when they arrive in the nest tree area, it will be only soft calls and feeding itself is a silent process. During the middle of the day the adults stay away from the nest and it is assumed that they search for food. In the late afternoon they return to feed the nestlings three to four times, as in the morning. The young stay in the nest for around eight weeks. Like many birds, the adults starve their offspring out of the nest when it is time for them to fledge. The nestlings fledge one at a time, with the oldest one leaving first. (Ashton, 1997)

Incubation details

In captivity, all except one St. Lucia parrots were hatched in incubators and hand-reared until 1997. Jersey used Werner-Schumacher incubators (Model Vomo 1), at a temperature of 37°C and a relative humidity of 50-60%, and are turned five times daily (Jeggo, 1982). However, eggs are not incubated artificially at Jersey any longer.

Further Comments

To monitor the breeding process, Jersey has been using video cameras (Panasonic F2 CCD) in the nestbox. However, whilst the camera can record much valuable data, in terms of assessing the health of individual chicks, their application is limited, and cannot be a substitute for having the "chick in the hand"; e.g. despite positioned in a favourable location, it is not possible to ascertain if the female is feeding the chick successfully (French, 1996).

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