Psitta scene

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CAPTIVE BREEDING THE ST VINCENT PARROT

Amazona guildingii

Ramon Noegel, Margaret Wissman, D.V.M, and Greg Moss

This article was written prior to the 1990 breeding season. Ramon Noegel and Greg Moss had reared seven St Vincent Parrots at their renowned breeding centre for endangered Amazon Parrots, iguanas and giant tortoises in Seffner, Florida. Up to mid June 1990 the breeding season had brought outstanding success with five more feathered young, plus more eggs being incubated. This is undoubtedly one of the most difficult of all parrots to breed in captivity: congratulations are extended for their latest successes which represent a landmark in the captive history of this uniquely beautiful parrot.

Sad to tell, as so often happens, success has also brought jealousy and those who were too ready to criticise... Ed.

Many names have been given this parrot, such as the "Rolls Royce" of amazons, the "most beautiful" of the island parrots, etc., but some names come to my mind that cannot be printed. If ever there was a bird to try one's patience in attempting to captive breed it, this is the one. We refer to them as "our chickens". This somehow seems to describe them.

There is also a curse that goes with owning *guildingii* that should rank on an equal with that of the Hope Diamond or King Tut's tomb. We have referred to it as the "St. Vincent Syndrome", a malady resulting in functional departure from mental integrity on the part of a few connected with this parrot. Its symptoms are best described as inordinate desire, rapacious eagerness, and lustful longing, which culminates in a consuming passion that will stop at nothing to gain control of the few existing specimens outside their native island. Those of us immune to its virulence are quite often targeted with invective innuendo by those afflicted. We were first apprised of the negative pain experienced by this derangement from the lips of those who had, in fact, kept this avian treasure but had avoided being infected by inoculating themselves with minimal doses of common sense. We were not made conscious of the magnitude or fury this disorder can unleash until we became custodians of ten of these amazons eight years ago. Until then, we happily captive bred West Indian parrots of equal beauty and, in some cases, far more endangered, without arousing such vehement anger and opposition.

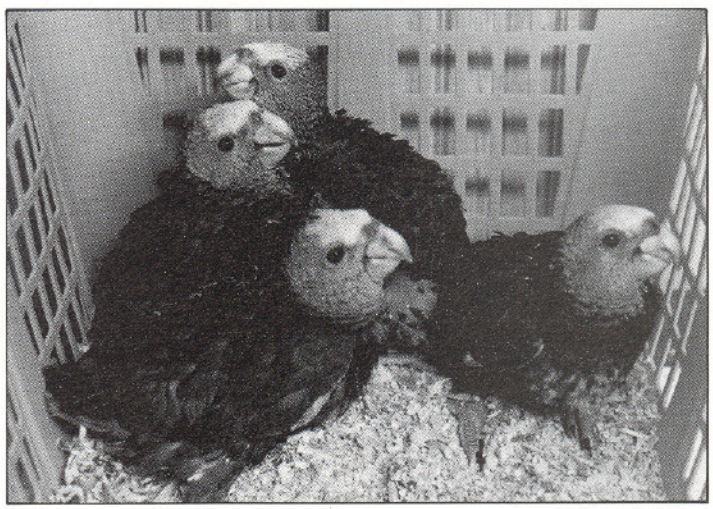
"psittacine
(sit'ă sīn) Belonging or allied to the parrots; parrot-like"

Outside the Island

The 1989 studbook for St. Vincent parrots list only 59 *guildingii* having existed in ten collections scattered throughout the world over the past 20 years. Fourteen of these have died within this time frame. This leaves 45 living and registered outside of St. Vincent. Of this number, five were captive bred at Life Fellowship from 1982-1988. During the 25-year period prior to 1984, the St. Vincent Government acknowledged the issue of permits for only 20 birds to be legally removed from the island. (Low, 1984) Ten of these were our original *guildingii* we received from William T. Miller of Barbados, who acquired them as young birds in 1968-1970.

It required nine months of mind boggling paperwork from both the governments of St. Vincent and Barbados for us to establish these birds to be Pre-ACT, Pre-CITES status in order to satisfy both U.S.D.I. Fish and Wildlife Service, U.S.D.I. Law Enforcement and U.S.D.A. Quarantine before these amazons could be imported. This is pointed out because our collection of St. Vincents no doubt has more legal documentation than any other outside the island.

In spite of this proof of ownership, we have continually been pressured by at least one member of the St. Vincent Parrot Consortium to sign over our birds to them in order that all *guildingii* outside the island could be returned. This proposal was presented to us and other members of the consortium in August, 1988. We refused as did the majority of members, who had much invested in their birds. Those who agreed had no personal investment involved. It is hoped that more and more, zoos and private aviculturists will begin to look on their collections as floating habitats for endangered wildlife or as banks where endangered species are held in trust and propagated as a back-up measure against eventual extinction in the wild. The welfare of insular habitats is increasingly proving to be hanging on fragile threads of transitory reforms that could be broken by a political mood swing.



St. Vincent Parrots A. guildingii. Ages: 40 to 49 days as of June 5, 1990. Captive bred at Life Fellowship Bird Sanctuary, Seffner, Florida, USA. A total of eleven of this endangered Caribbean amazon has been reared here. The only viable programme outside the island of St. Vincent.

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It will of course consider articles or letters from any contributor on their merits.

Parrots Kept as Pets on St. Vincent

In 1988, conservationist Paul Butler was sponsored to educate the Vencentian people regarding the beauty and uniqueness of their parrot. The necessity of protecting them was emphasized. In the same year, a Government census was made of all pet *guildingii* on the island; a shocking total of 82 emerged and were banded for future monitoring. An additional 17 were being housed at the Botanical Gardens in a breeding program (Stone, 1989). Thus, a total of 99 of these amazons were in captivity on the island whose total wild population numbers only about 500 (a high estimate). Compare this 99 with the aforementioned 45 known to exist outside the island. How can such a number kept as pets justify the *return* of birds? These figures are interesting due to the fact that most writers mislead readers to believe there is a worldwide traffic in this Amazon, resulting in the decimation of the wild population. No plight of any parrot has been so grossly exaggerated. *Amazona versicolor* of St. Lucia has only about 250 birds, but how many have ever even heard of it? Almost every parrot lover has been in some way acquainted with the St. Vincent. Misleading writers, and a few fact-slanting conservationists, have capitalized on its popularity. The 45 specimens within the Consortium can be traced back to having originated in the wild during 1953-1975, or were captive bred, as were five of our 15 specimens. (1989)

Status in the Wild

If we accept the various estimates of reliable researchers from 1929 until 1988, there are no more or no less birds on the island than have been present for 61 years. The parrot's habitat in the rain forest is said to consist of 11,000 acres or 13% of the total island. It is just possible that 500 (plus or minus) birds is all this area can sustain. The balance of the island (87%) is volcanic rock or is cultivated, and therefore no longer parrot habitat.

In 1929, the noted Caribbean field ornithologist James Bond referenced several hundred. The Nichols' team in 1976 gave a breakdown of numbers recorded at various locations and arrived at a conservative figure of 525 birds. The ICBP/University of East Anglia followed a similar procedure, marking the areas to be inhabited by the parrots and noting the flora, etc. requisite to their survival. Their count yielded a possible 421 birds in 1982 (Low, 1984). The Government survey of 1988 listed about 500 (Stone, 1989). Allowing for periodic hurricanes and eruptions of Mt. Soufriere, St. Vincent's active volcano, both natural phenomena that wreak devastation on the parrots, this species would seem to have a resilience of recovery unlike any other insular amazon.

The primary threat would also appear to lie in the poverty of the island and in a growing human population, presently recorded at 110,000. When push comes to shove, more land will be cleared for commercial farming. In the April, 1989 edition of *ISLANDS An International Magazine*, Roger Stone sums up his article on *guildingii*, "How Saint Vincent's environment will fare without Butler's energetic leadership is anybody's guess. The island is poor, the bananas fetch a good price. Even though residents understand that heedless deforestation will bring about erosion and watershed problems as well as loss of species, the temptation to clear land for short-term gain is strong."

One of the island's leading citizens and prime movers for protection of the parrot expressed it best to Allen Monti, Greg Moss and I when we visited the island in 1983. "It's easy for you rich Americans and British to come here and tell us what should be done about our people keeping the parrots as pets but then you return home and we are left on a small island with an angry neighbor to face." As a former political figure, this very candid Vencentian put the problem into proper perspective.

Poor people have more to be concerned about than parrots. In the twenty years we have researched amazons in the Caribbean and Central America, *poverty has been the real and lasting threat to both flora and fauna.* This is clearly not understood by Americans and Europeans, who because of affluence can afford to place intrinsic values on wildlife. When will conservation address the major problem facing all insular life forms: that of human population growth.

Captive Breeding

The following recognized collections of *Amazona guildingii* existed in the United States as of the first of 1990: 0.2 at Houston Zoological Gardens (one of these having been captive bred here at Life Fellowship in 1986); 2.3 kept at St. Catherine's Island off Georgia, being under the jurisdiction of New York Zoological Society (one of these was bred at Houston Zoo 1972); 2.1 at Nichol's James Bond Research Foundation, Houston Texas; and 8.7 owned by Life Fellowship (five of which were bred here between 1982-1989).

The first St. Vincent Parrot to be captive bred was at Houston Zoo in 1972. This resulted from four zoos bringing together their individual specimens in 1970. No further breeding resulted.

William T. Miller, hotel owner on St. Vincent, began collecting young *guildingii* in 1968-1970. When he moved to Barbados in 1973, he legally obtained permits to remove his ten birds. Four offspring were realized from a single pair in 1975-1976. Due to heart surgery, he asked Life Fellowship in 1981 to accept his ten original parrots. We received eight in December of 1981 and two more in October of 1982. Following this transfer, Bill Miller acquired a female being kept on Barbados and paired it with one of his captive bred males. Each year, a single bird was bred from this pair for the years of 1983 through 1986, being a total of four offspring (Valier, personal commun.).

The original ten St. Vincent amazons we received proved to be five pairs. It should be remembered that in 1973, when Bill Miller removed these birds to Barbados, he had only his ability to sight-sex them. Today we take for granted feather follicle and laparoscope sexing. Fifteen years ago, we had it more difficult. Considering our results without such modern advantages, we did surprisingly well. Today there is an abundance of sexed stock, much of which is captive bred for the beginner to choose from. This almost guarantees instant success in breeding.

Bill Miller was formerly a U. S. Marine Biologist. His keen interest in this Amazon since 1968, coupled with his success in captive breeding it, places him in the position of one of the most knowledgeable keepers of *guildingii*. We have learned much from Bill that helped our captive program. He was the first to point out the diverse colour morphology that place this amazon in a unique position. He continues to be dedicated to this parrot. Like us, he has been severely attacked by those keeping *guildingii* but unable to captive breed it.

Our *guildingii* and those kept by Bill Miller on Barbados nest in April through June. We endeavor to hold the females back a few weeks so nesting will occur in May, allowing the male more time to come into condition. The clutch of eggs usually consists of only two and rarely three. We encouraged double clutches in most endangered amazons (Noegel, 1979), but this is seldom achieved in Guilding's Amazon. Incubation begins with the first egg and lasts for 25 days. Fertility is usually discernible after the third day into incubation. Smaller island amazons like the Cuban often require six days before fecundity is evident.

We have bred seven St. Vincent Parrots in eight breeding seasons. The first was bred in 1982. Two were reared from the old original female from Houston Zoo sent here in 1985 on loan. From this female "Vincent" and one of our males "Gus", one chick was reared in 1985 and another in 1986, the latter being sent to Houston when we returned its mother in 1989. An additional

four more *guildingii* were reared here in 1988 and 1989 from two pairs of our birds. Therefore, five (3.2) of the original ten birds received from Mr. Miller have proved out.

A total of 16 fertile eggs were laid from 1982 through 1989. About 28 infertile ones were candled during the same period. In 1982, there was no practical data available on husbandry or captive breeding *guildingii*. Our 25 years experience in captive breeding *Amazona* was of little use as this parrot is unapproached in behavior and quite unpredictable. The nests usually consist of two eggs. If fertile, the female was allowed to incubate one and the other eggs was fostered to another amazon species nesting at the same time. The incubation period is 25-26 days. In three instances, the St. Vincents killed their first chick when hatched. To test out the last pair producing fertile eggs, an egg from a pair of Yellow-shouldered Amazons was substituted and was hatched and fledged by its giant foster *guildingii* parents. On two occasions the other amazon foster parents either killed or suffocated the young by sitting too tight after hatching. The embryos of this parrot are quite sensitive and would appear to stop developing from incidents not affecting other amazon embryo development.

We feel we wasted considerable valuable time by placing on loan one of our males and accepting on loan three females from other facilities in order to activate their programs. This arrangement deprived our proven egg-laying birds of mates in order to accommodate St. Catherine's Island (Bronx Zoo) and Houston Zoo. We began with an equal sex ratio of 5.5 adult birds and had no need of outside birds.

The seven we reared were two males and five females. If hatched, *guildingii* is the strongest of chicks and will push other chicks aside in its eagerness to be fed. The most crucial period is after it is feathered but still being hand fed. Quite often, a chick stops passing its formula and unless swift measures are taken will die within 48 hours. Authoritative veterinarian analysis disclosed little to assist us in this decisive dilemma. We had similar experiences with hand rearing the first Red-browed amazons (*A. dufresniana rhodocorytha*) but in the latter's case this transpired when only four weeks of age. We finally realized we had to switch to an entirely fruit formula mixed with Nekton Lory diet added. Both of these amazon species appear quite different from the 29 other amazon species and subspecies we have successfully bred here for the past 25 years.

Due to eggs in a clutch being deposited three to four full days apart and the fact that incubation begins immediately, the first chick gets a good head start in growth over the second one. This may account for us being told by Dr. I. A. Earl Kirby of St. Vincent (1983) that seldom are two St. Vincent chicks fledged from each nest in the wild. Apparently the pair leaves with the first offspring fledged thus allowing the second to starve to death within four days of being fledged. Rosemary Low also references this strange infanticidal parent behavior (1984). This may be more common in other wild amazon species than is recognized.

They Are Intelligent as Well as Beautiful

The St. Vincent enjoys human companionship and adapts well in a captive environment (Low, 1984). A resort on Young Island (less than 200 meters from the main island) keeps five *guildingii*. One named "Sarna" has been allowed liberty for a number of years. This bird regularly showers with guests whose baths are partially exposed to nature, each cottage being semi-isolated amid a profusion of tropical foliage. There are tables down on the beach area under coconut palms where drinks are served. "Sarna" delights in a stealthful flight along one of the many paths that lead down the heavy foliated hillside to the beach. She is seldom 20 inches above the path and a quick swoop brings her up over the edge of one of the tables she has selected. She always lights with unerring accuracy on the table's edge furthest from the sitters. If there is food or an object of her interest, such as a camera lens cover, this she quickly absconds with during the brief astonishment experienced by those taken back with her arrival. Every afternoon we ferried to Young Island to watch this lovely sight. She often flew by us so silently that we would be startled by her swift brilliant colours suddenly beside us so close to the ground. We never tired of her antics. By dusk, she had crept down into a cavity located in an ancient West Indian almond tree, which well protected her from any high winds that might arise during the night. We have never witnessed an amazon *roost* in a tree's hollow before. This is one of St. Vincent's treasures that few visitors will ever see, simply because they do not visit Young Island. I think of the difficulty we encountered to see wild specimens through binoculars when here was one amid tropical beauty willing to be photographed while we sat as tourists enjoying her and our cold liquid libation. We dream of an enclosed tropical patio garden for the young we raise here each year. We consider this parrot to be one of the most intelligent of the amazons. Recuperating from a heart attack in June of 1985 allowed the senior writer lots of time to attend to monitoring the five pairs of St. Vincents whose aviaries surround "Tree Top House". At this time, the male "Gus" was doing his best to corner Houston's female "Vincent" with intent to murder. I would go downstairs and outside to spray him with a hose, resulting in him leaving her and retreating. After four days of this routine, we had merely to step out on the second story balcony facing this pair and say "Gus!" at which point he would beat a hasty retreat in order to avoid a supposed bath. They quickly learn every trick to avoid being netted. Once learned, they do not forget, though we seldom remove them from their aviary more than twice annually.

Colour Morphs

Like William Miller, we recognize three colour morphs. If ever an amazon should have been named *autumnalis* it is *guildingii*. The extreme colour phase and the one that captures most artist's imaginations is what we refer to as orange to brown. Orange is very evident on the primaries, the secondary, and the primary coverts, the upper tail coverts and the upper third of all the tail feathers. Diffused orange often appears behind the crown colour (which varies from white to cream) and in some birds extends on the cheeks, throat, ear coverts and occiput. This colour tinges the breast and back brown feathers giving a bronze cast. The splashes of orange cause *this St. Vincent morph* to stand out. The standard brown morph has this colour only on the primaries and the upper portion of the tail feathers, which is concealed by the brown upper tail coverts.

The green morph may appear amazon green to brown or black-green on the wings, breast and back. The orange is greatly reduced and hidden as in the standard brown morph but even more so. This species is so obviously not complete in its evolution to produce a more orange or a more brown bird. In time, possibly two subspecies could emerge if Nature is allowed to finish her art work. No picture does any single colour phase justice but Forshaw's *Parrots of the World* gives an imaginative extreme of the orange to brown morph. Bill Miller refers to this colour phase as a red morph because during *prime* condition the orange may take on a reddish hue. There are numerous variations occurring between these three extremes. The casual beholder without an artist's background will see almost any colour and be somewhat correct in naming it. One we had on loan would often photograph out in purple cast when in the sun. The poor cameras were mistaken, or were they?

Longevity

The St. Vincent Parrot would appear to be very long lived under the proper conditions. One we have was given to Mr. Keith Frost, a Vencentian, as a wedding gift in 1953. Mr. Frost was also the first to call attention to the plight of the Lesser Antilles Parrots in an article printed in the British Avicultural Magazine in 1959 (Berry, 1976). Another Guilding's Amazon brought to the Bronx Zoo, New York, in 1954, expired in 1982 (age unknown). The majority of the aforementioned 14 deaths recorded in the St. Vincent Parrot Consortium would appear to have not been from natural causes. Since most of ours were collected as juveniles in 1968-1970, they would be in their best years for breeding.

Avian Medicine and the St. Vincent

With so many infants being born with Aids and other horrible diseases, it might be asked how can we justify so much concern over parrots. The answer is simple: somehow in this mad world that seems at times destined to fall to pieces, we need a centre of balance to maintain sanity. The therapeutic practice of aviculture grants this stabilization. It gives us a purpose we can do something about through captive breeding endangered and nonendangered species. It affords meaning and security in a world clouded with uncertainty.

Tom Ireland points to the fact that we have been willing to make changes and to *dare* new approaches whereas other keepers of *guildingii* seem to be gripped with a paralysis of fear where this bird is concerned. It certainly has proved to be one of the most challenging parrots we have ever kept at Life Fellowship. Since there is virtually nothing in print regarding the medical problems of this species, we have asked our veterinarian, Margaret A. Wissman, to present some of her findings.

"Examination and treatment of St. Vincent's Amazon parrots presents a challenge to the avian veterinarian. These unique birds are somewhat of an enigma. There is not a good accessible medical data base for the St. Vincent's, as of yet. These beautiful, strong birds have a tendency towards obesity, a dusty feather coat, and a high incidence of skin lesions.

Four of the birds in Life Fellowship's collection (2 males and 2 females) had skin lesions. The affected skin showed feather loss, ulceration, and scabbing. Most often, the lesions appeared lateral to the vent, over the abdominal skin, or on the dorsum over the pygostyle. These birds picked at these areas and further traumatized the skin and underlying tissue. Lesions similar in appearance had been observed in captive birds on

St. Vincent, according to Ramon Noegel.

A full work-up was done on the St. Vincent's with the worst lesion. The Gram's stain of the lesion around the vent showed Gram positive cocci, Candida (yeast), and Gram negative rods. The lesion was cultured. Radiographs were normal. Blood chemistries and a complete blood count were all within normal limits, extrapolating data from other Amazon species, since no normal blood values have, as yet, been published for the St. Vincent's. Thyroid levels were also considered normal.

Based on culture and sensitivity results, these birds were treated with injectable amikacin and oral 5-fluorocytosine at established avian doses for ten days. In addition, topical neomycin was applied to the lesions. It is exciting to report that six weeks post-treatment, the lesions on three of the birds have totally resolved, and the fourth bird's lesion is almost totally healed. If any lesions recur, they will be biopsied and cultured at that time.

My observation of these birds led me to suspect a possible nutritional condition, affecting thyroid function, since reproduction, metabolism, feather, and skin condition are controlled, either directly, or indirectly, by the thyroid hormones. Perhaps the sea salt, seaweed, and iodine (necessary for thyroid function) ingested by these island Amazons plays a role in maintaining their normal metabolism. We plan to investigate thyroid levels and blood chemistries of the St. Vincent's in the near future.

All of the St. Vincent's in Life Fellowship's collection were cultured in December of 1989. The choana and cloaca of each bird were swabbed and cultured for bacteria, fungi, and viruses. The parrots kept at Life Fellowship, in the Noegel cages, typically have "clean" cultures, meaning that no pathogenic organisms are usually found, and the St. Vincent's are no exception.

Seventy percent of the birds cultured out with Enterobacter sp. bacteria, 23% had hemolytic E. coli, 30% had non-hemolytic E. coli, and 1 bird cultured positive for Staphylococcus (coagulase negative), Streptococcus sp., and Salmonella sp. group C.

It is interesting to note that the birds with hemolytic E. coli and Salmonella were not the ones with skin lesions. It is suspected that the Salmonella came from contamination from wild birds on the property.

Fungal and viral isolations on all birds were negative.

Based on bacterial cultures and sensitivities, it was decided to treat all the birds with enrofloxacin in the drinking water for two weeks to eliminate potential pathogens prior to the breeding season. Only one bird in each pair carried hemolytic E. coli, and just one bird (who had a mate sharing a cage) had Salmonella. Cultures taken two weeks after treatment showed no hemolytic E. coli, no Staphylococcus, and no Salmonella.

I would like to add that any time I am working on rare, or endangered species, there is an element of the unknown that makes me very cautious. I have heard about and read of idiosyncratic drug reactions in certain species, so we always proceed with caution. I feel it is important to report what drugs and therapies have worked in different species, so that we may contribute to conservation, and work together to ensure the survival of these beautiful, enigmatic parrots."

THE SITUATION OF THE HYACINTHINE MACAW (*Anodorhynchus hyacinthinus*) in Continental Europe

Dr. Hubert Lücker
Curator, Tierpark Dortmund

Hyacinthine macaws are becoming increasingly endangered in the wild. A preliminary survey done in 1987 concluded that probably there are not more than 2,000 birds left in South America, most of them split into small, not viable populations (Patzwahl 1989, Roth 1988). Now a project to study the biology and ecology of hyacinthine macaws together with another survey is planned (Pitter & Christiansen 1990). The results will be both interesting and important.

A first quick survey in some zoos in continental Europe in 1988/89 showed that there were not many hyacinthine macaws in the collections and only two zoos were breeding them with success. This means that in those zoos one pair raised 1-2 chicks within the last 3 years. Breeding and rearing of chicks occurred in the last years but constant breeding success was rare (Bonifer 1985). In the ISIS-system of the zoos, which deals with the animal stocks of approximately 280 zoos in the world, 121 birds were mentioned in 44 zoos. 32 of them were captive born. Most of them were bred in 3 zoos and with one private breeder in the United States (IZY 1984-1987; ISIS Census 31.12.1989 Minnesota, USA). In Great Britain and Ireland 22 birds are kept in the JMSG and only one bird is F1, the rest are wildcaught (C. Bath, Paignton Zoo).

Very soon I had the impression that most of the birds in the EEP might be rather old. The species is on the CITES-lists and legal import from the wild into the European community is nearly impossible since the early eighties (Nilsson 1989). The last large and legal import of this species to Germany was in 1978! After that only single birds were legally imported, and of course quite a lot of them illegally. That led to the effect that most birds in the zoos must be at least older than 8-10 years. Therefore the Zoo of Dortmund made the proposal to form an EEP (Europäisches Erhaltungszuchtprogramm = European Programme for the Breeding of endangered species) for the hyacinthine macaw. This was agreed to in 1989 and the EEP of the hyacinthine macaw started in May 1989. I asked 75 zoos and private owners to participate. 40 (38 zoos/Birdparks and 2 private owners) joined the EEP, 22 did not keep the species and 13 (all private owners) refused to participate.

There are 144 birds in the EEP, 55.44.45 (February 1990). The number is greater than I had expected. However, only 6 birds are captive-bred, the rest are wildcaught (Fig. 1). All captive-bred birds are in F1-generation, none in F2! Some zoos gave the information that their birds are of unknown origin but in those cases one can be sure that the birds are wildcaught.

44 birds have been for more than 10 years in a zoo or with a private holder which means that they probably are older than 13-14 years. Most of the birds were adult at the time of their capture in Brazil so that they would be older than 3-4 years. 71 birds have been longer than 7 years in captivity = they must be at least 10 years old.

Three participants have breeding pairs which rear chicks. In 1989 only two of them survived. In 5 more zoos and with one pair of a private owner egg-laying occurred in 1989, a hopeful indication for future breeding seasons.

Confiscated birds are another problem. There are 15 birds which were confiscated by the government or the customs. Here the question of availability with regard to transfers during pair-formation (see below) is important. As long as a final decision by the jurisdiction is still missing those birds can't be integrated into projects. It can also happen that those birds are given back to their previous owners as was done in 1990 (2 birds). If these birds pair with a not-confiscated partner problems will arise. At the moment the EEP can only count these birds but cannot work with them.

Despite those problems a good co-operation between departments, customs, and the EEP is essential. It still happens that people try to smuggle these macaws and are caught at the same time. As in many other endangered species the customs and departments are always looking where to place the birds in case of a confiscation. The government departments in Germany and Switzerland made a good co-operation with the EEP and the birds confiscated in 1989 were given to EEP-participants.

What are the aims of the EEP?

1) The first aim was to convince private owners and zoos in continental Europe to participate and send the data of their birds to the studbook-keeper. This was