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

not a problem with zoos but turned out to be a big problem with private owners. I was told by them that they want to participate only when they can get surplus birds out of the EEP-stock. Furthermore I was told by several people that they are willing to breed but that they want to sell the birds because the prices are very high. This is of course not the aim of the EEP and only in two cases out of 15 was it possible to convince people. Now they participate.

2) It is important that all participants are sure of the sex of their animals. They are asked to make a surgical sex determination and to mark their animals. Until now 1/3 of the EEP-stock is unsexed but that will change quickly. A sex-determination by means of external characteristics or by behaviour is not definite: birds of equal sex may behave like a pair and the external characteristics (size of bill and head, figure) vary too much.

A good marking method is tattooing. In Dortmund zoo we tattoo our birds in the wing. To detect the sex of a bird more easily we tattoo additionally a small black dot in the naked skin around the bill: Males on the left side, females on the right side. If two macaws in a group show interest in each other it is easy to tell if they are really a pair or not.

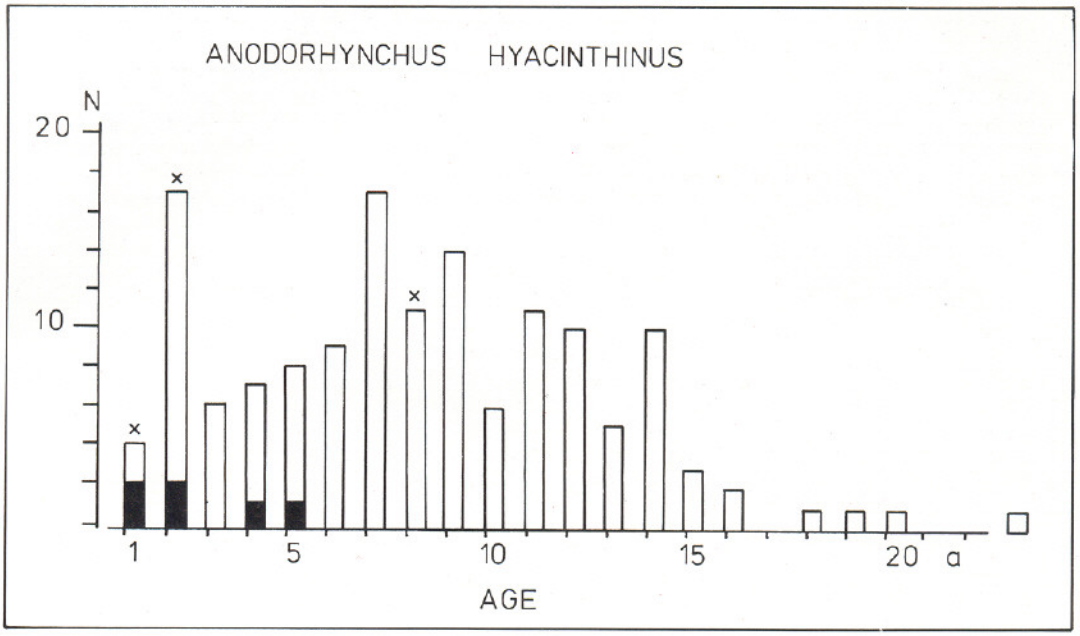

Fig. 1:

Time since arrival at first recorded location in captivity. Since nearly all birds were adults you should add at least 3 years to the staying time.

***Black bars:** Birds in F1.*

***Stars:** confiscated animals involved; x (1): 2 animals; x(2): 11 animals; x(8) 2 animals. The last decision by the jurisdiction is still missing.*

Therefore those animals are only counted. We can't work with them. With the exception of 2 animals it is impossible to tell the age of the birds. Some of them may be rather old already.

3) Birds which are sexed and have a partner but do not show courtship display shall be exchanged with a bird or birds from other participants to achieve as many sexually active pairs as possible. One very good method is to bring at least 8-10 birds together into a big aviary and let them choose their partners. This was done already with remarkable success: one pair raised a chick last year and two more are active this spring. All three pairs are the result of one trial with 12 birds. This type of pair formation will be repeated. One problem arises: a newly formed pair may become very aggressive towards conspecifics. Therefore it is important to watch a group closely and to separate a newly formed pair as soon as possible.

4) Birds which are bred in the EEP-stock shall remain in the EEP and not be sold to non-participants.

5) In the far future a reintroduction project like that for thickbilled parrots (*Rhynchopsitta pachyrhyncha*) or the Puerto Rico Amazon (*Amazona vittata*) may be achieved but that is only a dream. At the moment the poachers in Brazil are too active and the destruction of the natural habitat seems to be too severe (Roth 1988, 1989).

One of the hyacinth macaws in the U.K. studbook

Summary :

An EEP for the endangered hyacinthine macaw (*Anodorhynchus hyacinthinus*) was founded in 1989. In February 144 birds in 40 zoos, birdparks, and private owners were counted. The average age of the EEP-population may be rather high. Breeding occurs already with three participants, egg-laying with 6 more The aims of the EEP are: First of all we must establish a breeding population, than we must enlarge the population in Europe and interact with the JMSG-population in Great Britain and Ireland, managed by Paignton Zoo, and the population in North American zoos. The aim is to build up at least 20-30 breeding pairs in continental Europe. The first results are promising. Second: The EEP-population shall be able to make its own way and not be dependent on imports (legal or confiscated) from the wild.

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HYACINTH FUND

This new World Parrot Trust fund will be launched at the International Parrot Convention on Tenerife in September.

The aim is to create a substantial fund to be used for the protection and preservation of the Hyacinth Macaw (*Anodorhynchus hyacinthinus*), arguably the most remarkable and spectacular of parrots and now highly endangered.

Latest estimates by field researchers suggest that only about 2000 of these birds remain in their natural habitat, compared with perhaps 100000 twenty years ago.

The main cause of this decline is massive trapping for the pet trade; it has been estimated that around 5000 birds are now held in the USA. The majority of these are kept simply as pets, although some are used for breeding purposes. Other threats to the birds in the wild include loss of nest sites, and killing for food and feathers.

The initial target is to raise £100000 to be used to assist the protection of the remaining Hyacinth Macaws in the wild, and for their preservation as a species through captive breeding. Thus the World Parrot Trust's two main objectives – habitat protection and successful captive breeding of endangered species – will be pursued on behalf of one of the world's most noteworthy parrots.

Support for this 'flagship species' – the avian equivalent of the Giant Panda or the Elephant – will undoubtedly bring conservation benefits for other species which share its habitat. If circumstances allow, the fund may also be used to assist other endangered macaws such as Scarlet, Buffon's, Lear's and Spix's Macaw.

Contributions are sought from interested individuals, groups, associations, corporations, and other charities. Please note that *no administrative or fund-raising expenses whatsoever will be charged to this fund.* All donations will go direct to help the Hyacinth and other endangered macaws.

THE TAMBO YARAPO MACAW PROPAGATION, REHABILITATION AND RELEASE PROGRAMME

by Leigh Anne Cooley Stennett (Florida)

LEIGH ANNE COOLEY STENNETT is the former curator of birds at Sunken Gardens, St Petersburg, Florida. There she achieved outstanding success, with her late husband, Edward Cooley, with the macaw breeding project which they set up. Within seven months of its inception, they had produced 12 Scarlet Macaw chicks. Passionately interested in the conservation of macaws, Leigh Anne determined to use her practical experience to benefit macaws in the wild. She is now director of a programme to rehabilitate and release macaws in Peru.

The Tambo Yarapo Reserve, formerly known as "La Reserva Cumaceba-Paraporoto" is located in lowland rainforest between the tributaries Cumaceba (confluent of the Yarapo) and Paraporto (tributary of the lower Ucayali). The Reserve encompasses 40,000 hectares (100,000 acres). Access is by boat only via the Amazon to the Yarapo tributary, via the Ucayali to the Paraporto. Our boat trip took 16 hours, covering approximately 80 to 100 miles, starting from the port of Iquitos, Peru, to our compound facility. On a map of South America our compound location would be 4.5° S. and 73.3° W.

The purpose of this field trip was a feasibility study of the area for setting up a permanent macaw propagation, rehabilitation and release facility. Five species of macaw are known to be endemic to the Tambo Yarapo Reserve; Blue and Yellow (*Ara ararauna*), Scarlet (*Ara macao*), Greenwing (*Ara chloroptera*), Chestnut-fronted or Severe (*Ara severa*) and Red-Bellied (*Ara manilata*). These species were either seen by myself or by ornithologist David Michael. Total species of birds sighted and catalogued between October 7 1989 and October 29 1989 was 350 species.

Tambo Yarapo Macaw Propagation, Rehabilitation and Release Project participants accompanying me on this field trip were Harold Albers, D.V.M., project veterinarian, Sylvia Taylor, D.V.M., U.S.D.A. liaison and Paul Beaver PhD, project sponsor. Other members of the Tambo Yarapo project are: Bran Ritchie, D.V.M., avian research, Bob Siebels, release protocol consultant, Mike Wallace, Macaw release telemetry consultant, Greg Harrison, D.V.M., avian medical nutritional consultant/A.A.V. (Association of Avian Veterinarians) liaison and Tony Silva, international protocol consultant.

The project is concerned with the five species listed above. The only macaws used in this programme will be birds that have been confiscated by the Peruvian government police force as they were being smuggled out of Peru, handicapped macaws viable for breeding but not release, macaws with long term history as pets and voluntarily donated to the Tambo Yarapo project by Peruvians and in the future macaws donated from zoos and institutions in the United States and other countries wishing to participate. We feel that this will eliminate any misunderstandings that the project will involve macaws removed from their natural habitat only for participation in the programme.

The ultimate goal of the Tambo Yarapo project is the eventual release into the reserve of any offspring propagated by the breeding stock. This would necessitate parent-raised chicks and an additional pre-release compound to acclimate weaned young macaws prior to release.

The area is lowland rainforest with zero human population; approximate base population surrounding the reserve is 300 to 600 people. Access to the compound site is by boat only. Due to the rise and fall of the Amazon, accessibility is even more limited during the dry season, from June through November. The rainy season is December through May; highest water occurs in March and April and nadir September and October.

The sights and sounds of the Amazon rainforest are truly awe-inspiring. I undertook this "expedition" with all the expectations of a child entering Disneyland, albeit with a purpose; still I was not disappointed.

My first sight of a free flying macaw was actually a joke on me. There flying right through our camp site was a glorious Scarlet macaw. I caught my breath and then laughed out loud. This macaw was speaking Spanish and said "hola! hola!" (hello, hello) to me. I later found out that Alfreda had been part of a previously rehabilitated group of four Scarlets two years ago. After release, Alfreda had returned to the camp and had become the best friend to a young Peruvian child whose mother cooked for the camp. It was interesting to me that this Macaw would fly into the camp kitchen, eat fish, rice and beans and whatever else she could find and then also fly off and forage in the jungle surrounding the camp. I saw her day after day eating all the budding fruit off a small mango tree.

Alfreda's three other Scarlet companions would fly over the camp in the morning calling to Alfreda to join them and then back again into the jungle behind the camp at dusk. In trying to follow these Scarlets by ground I would lose sight of them in the upper canopy of the trees and have to listen for their sounds. It's amazing how these colourful Scarlets blend right into the leaves and flowers and become almost invisible. I can see now why aerial telemetry devices on the released macaws for a range study would be the only way as the terrain is impassable in areas due to the dense vegetation; visibility high in the canopy is nil.

On one particular morning we took a motorboat down the Cumaceba and quite a way into the