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CAPTIVE MANAGEMENT AND CONSERVATION PROGRAMS FOR PARROTS – CAN PUBLIC AND PRIVATE SECTOR COLLABORATION WORK?ã

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Introduction

The ownership of wildlife by the private sector has become an increasingly important and sometimes controversial issue in the management of captive populations of not only of psittacines, but also of other taxonomic groups. Historically, zoos and private holders of wildlife have worked closely, providing and trading animals for breeding and exhibit purposes. Despite this long record of collaboration, an increasing chasm has developed between the private owners and the zoological community, who are often finding themselves on opposite sides on issues. The keeping of exotic animals by private individuals was recently addressed in the American Zoo and Aquarium Association (AZA) July 2001 issue of the Communiqué. The issues of public safety from dangerous animals, health and disease issues, as well as animal welfare concerns are topics that need (and are) being addressed by the zoological community. Unfortunately, in the feature article "Call of the Wild", author Vicky Duckett, did not differentiate between pet cockatoos, iguanas, tigers, lions, bears and even native deer, placing issues relating to these diverse species under a single label of "exotics" ownership. However, the ownership and trade of these animals are different for each taxonomic group. I am not proposing that we should support the sale of tigers for the pet trade, only that we should be careful not to equate breeders of dangerous carnivores with those that breed cockatoos.

In any discussion of the private sector, we must first clearly define who and what is the private sector. Do we mean individuals that own exotic animals as pets? The large commercial private breeding facilities? In the last few years, the private sector has sometimes been stereotyped as somehow inferior to that of a professionally run organization such as a zoo. The fact is that many individuals who might be considered as "backyard breeders" often hold species of high conservation value and have greater avicultural expertise, as well as more advanced facilities than many accredited AZA institutions. The AZA Parrot Taxon Advisory Group (TAG) in its draft Regional Collection Plan (RCP) recognized private sector involvement will be needed to maintain self-sustaining captive populations in North American collections. Some zoos have off-exhibit parrot breeding facilities, but these are limited. Unless zoos are willing to invest heavily in both animals and facilities, it will not be possible to properly manage psittacine species without collaboration from the private sector holders. The space limitations that often restrict the growth of zoo-based programs are usually not a factor in the private sector. There are private breeding facilities on both a national and international level, breeding for both commercial and conservation purposes whose scale dwarf the captive-breeding endeavors and space availability of zoos. The private, off-exhibit facility of Birds International, Inc. (BII) in the Philippines has over 6,000 birds (mostly parrots) in its collection, with an estimated 2,000 pairs set up for breeding and a "production rate" of approximately 2,500 offspring per year. (Walker 2001). The management, husbandry, and veterinary care of this facility is state of the art resulting in great breeding success.

Breeding programs must also be managed for optimal genetic diversity and demographic stability. This is an area where the private efforts are often lacking and where the zoological community can greatly contribute to public-private sector collaboration through its expertise and experience in small population management. Unfortunately, even studbooks (the cornerstone of population management) are

controversial, as the issue of collection security is of great concern to private holders. Zoo based studbooks often publish the information and even addresses of collections. Private holders consider this a security threat, opening their collections to theft and even sabotage. Many holders are not willing to provide proprietary data (particularly of highly endangered and valuable species) unless it is kept confidential within the management group.

This paper uses two existing captive management conservation program case histories to explore a question – can public and private sector collaboration work? As there appears to be increasing tension between the two sectors, the issues which affect the cooperative management of these species are examined. The Spix's Macaw (*Cyanopsitta spixii*) and the St. Vincent Parrot (*Amazona guildingii*) are two highly recognized endangered species of parrots with captive-breeding programs that include both public and privately owned birds. The St. Vincent Parrot program is both an international consortium and an AZA Species Survival Plan (SSP). Although the Spix's Macaw program not an AZA program (there are no known Spix's Macaws in the U.S.) it is an international Brazilian conservation effort. These programs were chosen because (1) the author is very familiar with them and (2) there is a considerable amount of long-term data on the breeding success, mortalities and transfers to evaluate and compare.

St. Vincent Amazon

The St. Vincent Parrot is a species that is endemic to the island of St. Vincent in the Lesser Antilles of the Caribbean. According to the latest census conducted in 1999 by the Forestry Department of St. Vincent and the Grenadines, it is estimated that approximately 600 birds remain in the wild on this small island. This species has high significance for zoos as one of the first cooperative zoo-based captive-breeding efforts (established in the 60's) and is an early predecessor to the Species Survival Plan (SSP). In a 1976 article in *Animal Kingdom Magazine* (now *Wildlife Conservation*), Robert J. Berry, then Curator of Birds at the Houston Zoo, explained: "The Brookfield Zoo in Chicago, the Bronx Zoo in New York, the National Zoo in Washington DC, and the Houston Zoo had pooled their single specimens to form the breeding group for this cooperative program. At that time, endeavors of this type represented a relatively new concept in zoo philosophy: What's best for the animal's future in terms of species survival becoming a more important consideration than the prestige of having a rare specimen on exhibit."

A few years later, Gerrald Durrell wrote in his Director's Report to the Jersey Wildlife Preservation Trust that "of major importance was the receipt of a male St. Vincent Parrot sent on breeding loan from the Houston Zoological Gardens, Texas. As the four specimens in the Trust's collection have all turned out to be females, we have high hopes that before too long we shall be able to breed this beautiful bird which, after all, is one of the world's rarest parrots. The Trust is at present behind the establishment of an international consortium or this endangered species" (Durrell 1980). The goals at that time were to establish a viable off-island ex-situ population of captive birds (therefore lessening the pressure on birds from the island) and as a potential reservoir of birds in the case of a catastrophic event on the island. At the 1980 meeting of the ICBP Working Group on Parrots conference on St. Lucia, Robert J. Berry stated: "It is regrettable so much time has been lost. The Houston Zoo would like to go on record as opposing any further removal of parrots for breeding purposes from St. Vincent, until those that have been taken under the aegis of conservation can be effectively managed to the common good of all concerned."

The St. Vincent Parrot consortium effort had all the ingredients for the development of a successful captive breeding program and of establishing a solid ex-situ population. It consisted of the Houston Zoo, the Bronx Zoo, Thomas Nichols (a private individual whose facility became the James Bond Research Foundation), Greg Moss and Ramon Noegel of Florida, Paradise Park (U.K.), and Walsrode (Germany). In 1984, Rosemary Low wrote optimistically in her book "Endangered Parrots": "During the three years in which the consortium has been in existence, most of the birds had been sexed and there had been some exchanges or other movements resulting in new pairs being formed. This is an encouraging development which augurs well for the captive future of this species. What is more, it may come to serve as a model for similar consortiums with other endangered species." Unfortunately, this was too optimistic.

In August of 1988, a proposal that all consortium participants sign a Memorandum of Agreement, which would also return the title of ownership of the birds (including those legally imported into the U.S.) back to the government of St. Vincent and the Grenadines was presented to the members. Although the private holders agreed with the stated objectives of the MOA to "promote the breeding potential of the St. Vincent

parrots held in captivity ... establishing a self-sustaining captive population of this endangered species", the issue of ownership, as well as conflicts regarding the management of the program and disposition of the offspring is cited as one of the primary reasons for the withdrawal of the largest private holder from the consortium (Noegel 1990). In retrospect, this event and the high mortality of birds in the consortium, contributed to the decline of the consortium program population.

In 1989, the AZA (then AAZPA) established a Species Survival Program (SSP) for the St. Vincent Parrot with the New York Zoological Society, the Houston Zoo and the James Bond Research Foundation (non AZA participant) as members. The private holders (maintaining most of the US birds) chose not to participate leaving the SSP with a total of 7 birds (3.4). The SSP continued its efforts in cooperation with the consortium, but without any breeding success. (The breeding female "Vincent" had been pulled back from the private sector, but no mate was provided for her until her death in 2001). In 1995, the SSP and the Consortium received three confiscated young, wild-caught females, leaving them with a total of 5 females. The last male in the SSP died at the Bronx Zoo in 1997. After a direct request to the AZA Parrot Taxon Advisory Group, the Houston Zoo received permission to attempt to pair the lone Houston birds with males from the private sector (which had available males). A three-way breeding loan agreement was signed in 1998, establishing two new pairs (one in Houston and another with the private sector). This pairing resulted in a hatching of a chick (the first chick for the SSP since its inception) at the Houston Zoo (Schoen 1999). In 2001, 2 chicks hatched at the private facility (one died from a congenital anomaly).

In late 2000, at the request of the US private sector, data from the US population (in the private sector studbook) was evaluated for a proposed master plan for this species in the US. The data set included the Houston Zoo birds, while the two females maintained at the Bronx Zoo were not considered due to previous disease exposure. This exercise (conducted independently of the AZA SSP or the international consortium) resulted in a breeding-loan proposal structured to pair all the available birds in the U.S. for optimal genetic and demographic management. The data and breeding proposals was presented by the private holders to the Houston Zoo and subsequently rejected by the consortium members.

In comparing the historical information on the consortium (birds outside of St. Vincent) and the (those in the US) private sector, the gap between the two populations after almost 20 years is apparent. In January of 1982, the number of birds held by current consortium members was 24, while those in the (represented) US private sector was 8. As of September of 2001, the consortium holds 15 birds. This is despite the addition of 4 new confiscated birds to the population – a net loss of 37.5 % in nearly 20 years since the establishment of the consortium. Within the same period, the (represented) US private sector, (listed as the Friends of the St. Vincent Amazon Foundation, holds 38 birds, with the addition of 3 new birds since 1982. This is a population increase of 375 % during the same time period. (Figure 1).

Fig. 1: St. Vincent Amazon: Public Sector (Consortium) and Private Sector (USA) Total 1982-2001

LOCATION	JAN 1982 TOTAL	HATCH	BIRDS IN	DEATH/ LTF	NET INST. In/OUT	SEP 2001 TOTAL	% +/-
Hayle	2	4	0	4	2	4	
Houston	3	1	3	3	1	5	
Jersey	6	0	0	1	-5	0	
Loro Parque	0	0	2	1	0	1	
New York Bronx / St. Catherine's	1	0	0	4	5	2	
T. Nichols/ JBRF / Boracho	2	0	0	2	0	0	
Toronto	0	0	1	0	0	1	
Walsrode	10	4	2	13	-1	2	
CONSORTIUM TOTAL	24	9	7	28	2	15	- 37.5%
PRIVATE USA (FSVA) TOTAL	8	35	3	4	-4	38	+ 375%

Loro Parque and Toronto joined Consortium after 1982. Data does not include ASSA in France, St. Vincent Botanical Gardens on St. Vincent and the Grenadines, and the private, non-consortium birds.

In early 2001, to address situation of the unpaired birds in the consortium, a proposal for pairing these

birds with captive-bred birds (offspring from a brother-sister pair according to information from the St. Vincent Aviary keeper) from St. Vincent was made. This strategy would allow the pairing of birds, without having to address those held in the private sector. (The government of St. Vincent is a consortium member, but the birds in their captive breeding program have been maintained separately from the consortium birds.) Usually, the primary justification for importation from range states is the need for new bloodlines and founders to be added to a population. It must be noted that this is not the situation in North America as a number of unrelated birds have been added to the population within the last few years. In addition to the 3 young confiscated females sent to the Houston Zoo in 1995, an aged female was acquired by the Toronto Zoo in 1996. The private sector added an unrelated female to their collection by purchasing a (stated captive-bred) bird in 1997. This bird was originally offered by a private individual to SSP institutions and then offered on the general market. Prior to acquisition of this bird into the breeding program of the private sector, the USFWS was consulted, documentation requirements were discussed and complied with. Copies of the transaction documentation were supplied to the USFWS.

Although SSP guidelines mandate that a master plan is developed for effective population management, neither the international consortium nor the SSP have published such a plan. The availability of birds in the private sector, both in Europe and in the US needs to be examined. A genetically viable regional (North American) population would be the expectation of a properly managed collaborative effort between the public and private sector.) It is also possible that the single birds of the consortium in Europe could be paired if issues of ownership with the European private holders could be resolved. There are at least 10 legally held non-consortium birds held in Europe by private holders at this time. An evaluation of how such transfers would affect the captive island population and the ramifications of such a policy should be closely evaluated. The removal of birds from the North American population should also be reviewed, particularly as to the impact that such moves would have on the long-term viability of the population. At the very least, a master plan of the populations (preferably with an AZA Small Population Management Advisory Group representative) should be conducted before any transfers are approved. What is the future of the program? Certainly there are enough birds maintained *ex-situ* to develop a comprehensive managed captive-breeding program, but, only if issues of concern of the private holders are addressed. These efforts should be closely tied with *in-situ* conservation efforts of St. Vincent.

The Spix's Macaw

The Spix's Macaw, now extinct in the wild, occurred in one small region of savanna scrubland in Northeastern Brazil. This species is now only maintained in captivity, and its survival depends on the success or failure of the captive-breeding program. Although habitat destruction likely was the primary cause for its decline, collection for the national (Brazilian) and international avicultural markets caused its final demise. By 1989, it was believed extinct in the wild. At that time the few remaining birds in captivity were considered by ornithologists to be mere relics, of no particular conservation value and species extinct. However, in 1990, the wildlife authorities of the Brazilian Institute for the Environment and Natural Renewable Resources (IBAMA) chose a unique, ground-breaking approach through the formation of the Permanent Committee for the Recovery of the Spix's Macaw. This diverse group included government officials, ornithologists, conservationists, as well as national and international holders of birds in captivity. Although these individuals brought many different philosophical approaches to the program, all had a single, unifying goal – to save the Spix's Macaw.

Also in 1990, a single specimen was re-discovered in the wild adding a field component to the program. Research on this single bird (funded primarily by the Loro Parque Foundation, Spain) collected data on the species' range, diet, habitat utilization and seasonal patterns. Another component of the program in this economically distressed region is the community-based outreach program, which included building of a rural schoolhouse, courses in range and livestock management, and even the restoration of a theater. These projects have translated into community support for the program and a safety net for this species. After a IUCN Conservation Breeding Specialist Group (CBSG) Population and Habitat Viability Assessment (PHVA) in 1992, a decision was made to try to reintroduce a potential mate for the last wild bird. (Determined to be a male through DNA sexing techniques developed for the Spix's program.) A female captured as an adult was later chosen as a potential mate for this last wild bird.

In 1994, a master plan workshop was held for the Spix's macaw captive population which consisted of 29 birds (18.11). Of particular importance was the need to pair two birds held at Loro Parque in Spain, as

they had lost both a 10-month chick and the breeding female in 1993. These losses left them with the breeding male and a young female offspring. The best mates for these birds were held at the Sao Paulo Zoo in Brazil. These were two potential founders – a female of the approximate age of the male at Loro Parque and a young male taken from the nest as a chick, nearing reproductive age.

To transfer such important birds from Brazil was a difficult and politically sensitive proposition. Loro Parque was considered the best facility to locate these birds, because of their experience and infrastructure. If these birds were sent out as recommended in the master plan, the São Paulo Zoo, considered the premier zoo in Brazil, would be left without Spix's macaws for the first time in nearly 30 years. Politically, this would be a very unpopular move for the Committee to make, as it meant sending out birds from the country of origin. With such low numbers in the population, the only other possibility would be to send the birds from Spain to Brazil. This was not an option as the Spix's Macaw was a flagship species for Loro Parque which based its public relations on this species and was now the primary funding source for the field program. In order to facilitate this transfer for breeding purposes, Birds International, Inc. (BII) donated two young captive-bred males from the Philippines to the São Paulo Zoo. This transfer allowed the São Paulo Zoo to maintain Spix's macaws in its collection, while the its own birds were moved to Spain. São Paulo Zoo was to build exhibit facilities and develop an in-country educational program for this species, allowing the birds to be exhibited in its range state (Brazil). Unfortunately, the facility was never built. At that time, there was an excess of males in the population, but as breeding continued, it was hoped that more females would become available for eventual pairings.

Another issue addressed at the 1994 master plan workshop was the status of the female chosen for reintroduction to the wild. This was a wild-caught female (possibly taken from the nest as an adult) held at the Criadouro Chaparral facility in Recife, Brazil. Releasing her would leave the male unpaired and was quite of concern to the captive-breeding program, as this female was a potential founder. As many on the Committee felt that maintaining the Spix's in the wild was the most critical aspect of the program, it was decided to release her. In 1995, after acclimatization in a reintroduction facility, she was released, making an excellent re-adaptation to the wild and eventually joining the male. Her disappearance two months later was not solved until recently, when the field team received credible evidence that she died in a collision with a high-tension power line that crosses the area. In order to ensure that the male which had been paired with her (a potential founder) would have a mate, the Birds International, Inc. (BII) facility in the Philippines donated a captive-bred female to Brazil to be paired with this male.

Despite the successful collaboration between the Brazilian government and the holders, exemplified in the multi institutional collaboration for the transfer of birds to Loro Parque from the São Paulo Zoo, the issue of ownership was again raised. In 1996, Loro Parque made a unilateral decision to give up ownership of their two remaining birds to Brazil (while keeping them at their facility) and proposed that all other holders should do so as well. This action had not been requested by Brazil and was not part of the agreement developed when the Committee was first established. The private holders declined, choosing to maintain the current agreement which allows a certain amount of autonomy in the individual programs. In early 1997, the major Swiss holder (J. Hammerli) chose to leave the Committee over what he perceived was the undue the influence of one organization (Loro Parque) had on the program. He continued to communicate with the studbook keeper and expressed continued interest and support for the program. However, in August of 1999, after receiving personal threats due to press reports regarding the Spix's macaws in Europe (published by a conservation group), he transferred most of his birds to another breeder (R. Messer) in Switzerland. A condition of the sale was that they be maintained as part of the managed program and that the new holder petition for Committee membership.

In the fall of 1999, a population master plan workshop was held in Houston, a neutral location to bring together all the participants for the first time since 1995. The captive population had grown to 60 birds (including the Swiss birds). Although the facilities in Switzerland and the Philippines continued their very successful production, the pairs that had been set up with so much promise at Loro Parque and Brazil had not yet reproduced . This was of great concern as these were the most genetically important birds. A thorough evaluation was made of the status of this species in captivity at the Houston meeting with help from AZA's Small Population Management Advisory Group (SPMAG) member, Laurie Bingaman-Lackey. One of the most important decisions at this meeting was the recommendation to break up BII collection (at that time maintaining 57% of the population) in the Philippines into separate breeding nuclei. The

threat of a potential disastrous event was too great to leave such valuable birds at a single location.

Another important issue to be addressed in this meeting was reintroduction. As many Committee members felt that a reintroduction program had to be initiated as soon as possible, while the last wild bird was alive, there was great pressure to make a decision for a reintroduction strategy. As this had been a very productive year, five of the most represented chicks in the population hatched at BII earlier that year were identified as possible candidates for reintroduction to the wild. There was some concern regarding the effect the removal of these birds would have on the population, there was a belief that with a few more good breeding seasons, enough birds would be produced to offset the removal of these birds. The owner of BII, Antonio de Dios offered to donate these birds to the reintroduction effort, but only with the establishment of rigorous protocols and involvement of his staff in the reintroduction program.

The official Committee meeting was held after the master plan workshop. The new Swiss holder, Roland Messer was approved for membership, maintaining the two largest collections in the managed program. A proposal that a pair of birds from BII be transferred for public exhibition at Loro Parque for fund-raising and educational purposes was turned down by the Committee. (This would have established it as the only institution with Spix's on public display in the world). Despite this decision, an offer was made by Loro Parque to BII for a pair of Spix's Macaws in exchange for a donation. BII refused on the grounds that public exhibition in Spain would be used commercially (as a gate attraction) by Loro Parque.

After the meeting, BII initiated steps to split up its Spix's Macaw holdings as per Committee recommendation. In their guidelines, any facility which wanted to maintain Spix's Macaws would have to maintain the species off-exhibit and have the appropriate staff, veterinary care and infrastructure. Any transfer proposal was to be first approved by the Committee, but because of the rift with Loro Parque, BII believed that they would in fact veto any proposal to send birds out. Unfortunately, this was exacerbated by a very public campaign conducted outside of the Committee structure against BII after being refused for their own request for birds. In February of 2001, two pairs (F2) of Spix's Macaws were transferred to the Al-Wabra breeding facility in Qatar (with all appropriate CITES permits) for captive-breeding purposes in an agreement between the two parties, not the Committee. This was a unilateral decision by BII, and the studbook keeper was informed of the transfers after they occurred. Like the Swiss transfer the previous year, the new facility requested membership to the Committee as a new holder. However, this was met with considerable opposition and Loro Parque threatened to withdraw its funding of the field conservation program in Brazil. It must be remembered that BII is the primary breeder of Spix's Macaws in the program, donating birds to the managed program (three to Brazil), and exchanges with Switzerland, while Loro Parque has been the primary contributor to the field program (Nearly \$ 600,000 in 10 years). Both of these efforts constitute a considerable and positive contribution to the program.

At the Committee meeting in Brazil in February of 2001, the transfer of the birds to Qatar and the issue of ownership became the primary focus of the meeting. Although the establishment of new breeding facilities was recommended by the Committee at the Houston meeting, this transfer had not been submitted to the Committee. This was a legal transfer according to national (Philippines and Qatar) as well as international laws (CITES). (As the Committee is advisory in nature, without regulatory powers, it can only make recommendations as to moves, transfers and policy.) The request by Al-Wabra to participate in the Committee was postponed as Loro Parque and some Committee members felt that ownership should be returned to Brazil as a prerequisite to membership in the Committee. The proposal by the studbook keeper to return one of the females to Brazil (a Brazilian bird sent to Spain in 1995) to pair with the now single male at the Criadouro Chaparral is on hold as there is considerable concern from Loro Parque as it would remove a bird from their program. The need to review the status of the remaining pair at Loro Parque (it had been nearly six years since the pair was set up) was postponed due to the controversial tone of the meeting. Loro Parque has publicly stated that it will withdraw from the Committee, therefore all proposed transfers and evaluations are currently on hold. Proposals for the transfer of ownership of the birds from the private sector to the government of Brazil were withdrawn as it would mean the resignation of the two major holders from the Committee, breaking up and fragmenting the captive population. It must be noted that the decisions as to the final management of the population are made by the Committee and the studbook keeper can only make the management recommendations.

To complicate this already difficult situation, the last wild bird disappeared in late October of 2000. This event, although not unexpected, sent a shock wave through the environmental community in Brazil, as it

means that the species is now extinct in the wild. There was much press to this fact, placing great pressure on the Brazilian wildlife authorities to initiate a reintroduction of Spix's Macaws to the wild. Some Committee members, including Loro Parque, also feel that a reintroduction effort needs to be initiated as soon as possible. However, before any birds are withdrawn from the captive population for reintroduction, it will be important to ensure that there are enough producing pairs to provide a sustainable number of chicks to maintain both a stable captive population and the reintroduction program. The AZA Population Management Center will review the studbook data and to provide an independent assessment of the reintroduction potential.

Due to these problems, the Brazilian wildlife authorities, have decided to reconsider the structure of the Committee after ten years of the program. As in the case of the St. Vincent Parrot, the issues of ownership and control of the program, as well as concerns over fund-raising, publicity and long-term conservation strategies such as reintroduction, threatens to break apart the very successful cooperative effort. This is particularly unfortunate as Spix's Macaw program has been considered the premier example of successful partnership between the public and private sector. The potential re-structuring of the Committee has been a welcomed by the holders as there is a need to incorporate new strategies into the program. The success of the captive-breeding program has created new issues that have to be addressed. However, despite rumors to the contrary, the Brazilian authorities have maintained the Committee as it currently stands until a new process can be implemented.

However, there is still great commitment from the holders of this species who are contributing their time and funds to work with the Brazilian government to rescue this species from extinction. The development of the Committee in 1990 was a ground-breaking approach by the Brazilian government that resulted in a successful program. Now, the program is evolving and experiencing "growing pains" in part due to the success of the captive-breeding efforts. There is every hope that as this innovative program continues to evolve that it will continue to pioneer new and original collaborative public-private sector strategies.

Fig. 2: Spix's Macaw: Public and Private Sector Totals 1989-2001

LOCATION	JAN 1989 TOTAL	HATCH	BIRDS IN	DEATH/LTF	NET INST. In/OUT	SEP 2001 TOTAL	% +/-
S. Paulo Zoo, Brazil	4	0	0	1	-1	2	
Criadouro Chaparral, Brazil	1	2	0	1	1	3	
Loro Parque, Spain	2	2	0	3	2	3	
Arco Iris, Brazil	1	0	0	1	0	0	
PUBLIC (BRAZILIAN GOV.) TOTAL	8	4	0	6	2	8	NC
Birds International, Inc.	3	40	0	8	-6	29	
Walsrode, Germany	1	0	0	0	-1	0	
H. Aviaries, Switzerland*	2	16	0	3	-15	0	
M. Aviaries, Switzerland	0	3	0	0	15	18	
Al-Wabra, Qatar**	0	0	0	0	4	4	
PRIVATE (INTERNATIONAL) TOTAL	6	59	0	11	-3	51	750%

* H. Aviaries joined the Committee in December 1982. ** Al-Wabra is not a Committee member.

Conclusion

In this paper, an attempt was made to raise the issues relevant to public-private sector collaboration and used the available information on two parrot conservation programs. What can we learn from these two examples? The data is quite conclusive – the private sector breeding programs have clearly produced more birds. Although breeding success alone is not the only factor of a successful program, it is a particularly good indicator of husbandry and management practices over the long-term. Population management is an important component of a captive-breeding program.

Increasingly, the trend in managing populations, especially those of highly endangered species has been

the premise that in order to take the "value" of the animals the ownership and management should be given up in order to be successful. This approach needs to be evaluated to determine if it in fact has demonstrate its success. The case of the Golden Lion Tamarin (*Leothepithecus rosalia*) in which the holding institutions gave up formal ownership of the animals to the Brazilian government is often cited as the most successful example. However, the ownership of most of the population was in the hands of zoological institutions, not of private holders. The AZA has addressed the need to have private sector involvement in its Species Survival Plan (SSP) Memorandum of Agreement for Non-AZA Member Institutions, stating that "The Memorandum does not constitute transfer of ownership or relinquishment of control of animals to the SSP, SSP Coordinator, or Management Group." Unfortunately, there is still great mistrust of managed programs such as SSP's (and consortium programs) by the private sector resulting in diminished participation in the management programs. The success of the pairings achieved between the Houston Zoo and the private holders in the St. Vincent program, the Consortium and the private sector both have 1 chick each, is an excellent example of the benefits of collaboration. The hatching of two Spix's Macaw chicks in Brazil (the first in over 30 years) last year due to the transfer of a female bird from the Philippines would not have occurred without private sector support.

The issues of control and private ownership are basic philosophical divides in approach that need to be evaluated fully and understood. Concerns over ownership, transfer of offspring, population management planning, studbooks, collection security and husbandry issues will have to be addressed when programs are initiated. This paper does not attempt to provide answers for this very complex problem. It is clear that both the public sector entities (zoos, governmental organizations) and the private sector will have to find new avenues and solutions for collaboration in the conservation of many species maintained in captivity. Ideally, the future will entail a results oriented, cooperative conservation programs utilizing the expertise of the private sector in the husbandry and management of species, while integrating the expertise of zoos in population management into programs where the species, not politics, are the priority.

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