

# **THE FIVE-YEAR REPORT ON THE REHABILITATION AND RELEASE OF INDONESIAN COCKATOOS AND PARROTS AT THE KEMBALI BEBAS AVIAN CENTER, SERAM ISLAND, THE MIDDLE MOLUCCAS, 2006 - 2010**

## **Notable Success or Futile Pipe-Dream?**

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obtained for \$20 to cover production time, S&H, and cost of mailing. Those  
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### **Abbreviations used:**

KB= Kembali Bebas ( "Return to Freedom" )  
IPP= the Indonesian Parrot Project  
BKSDA= Balai Konservasi Sumber Daya = Offices of Conservation and  
Natural Resources  
PCR= polymerase chain reaction  
AI= avian influenza  
HPAI= Highly pathogenic avian influenza  
HA= hemagglutination test  
HI= hemagglutination inhibition test  
HPLC= high performance liquid chromatography  
Pbfd= Psittacine Beak and Feather Disease  
FDB= feather destructive behavior

NB: "Seram cockatoo" is used interchangeably with "Salmon-crested  
cockatoo."

## Never Stop Her Heart

Like the other birds, they were wounded, prisoners they found  
Hunters kept them beside them on the ground

Others wanted to release them; trappers didn't want them to fly  
They had come to depend on seeing them cry  
They cut their wings, but the birds could still sing  
They didn't see they could never stop their hearts

Just like in a cage they kept them, but inside the birds grew strong  
And in some ways it was nice to have a place to belong  
But freedom called in its own way, soft moonlit nights in their thoughts  
And the war raged on inside that they always fought

Like other birds, they were wounded, prisoners they found  
But time was running out, they couldn't keep them down  
Then one day, others released them, fearing that they wouldn't go  
How the birds were able to fly was something they'd never know

They cut their wings, but the birds could still sing  
They didn't see they could never stop their hearts"

[Slightly modified from "Never Stop Her Heart"; music and lyrics by K.  
Bonoff, © 1989]

## INTRODUCTION



Our interest in the ecology, behavior, and status in the wild of the Salmon-crested cockatoo *Cacatua moluccensis* began in 1997. Somewhat later, the previous trivial name (“Moluccan cockatoo”) was abandoned by most scientists, since this cockatoo essentially exists in the wild essentially only on the island of Seram, and because there are other species of cockatoo in the Moluccas (such as the Goffin’s in the Tanimbar Islands; the “Umbrella” or white cockatoo; and some Palm cockatoos on Aru) . It quickly became the flagship specie of the Indonesian Parrot Project (IPP).

**Figure 1:** Seram (Salmon-crested cockatoos at Kembali Bebas, awaiting release back into the forest. Photo by S. Metz

IPP is an all-volunteer, not-for-profit non-governmental Organization (NGO) whose principal objectives are:

### **Approaches Towards Helping to Conserve Indonesia’s Cockatoos, Parrots, and Lories**

- Work with governmental authorities to improve the welfare and survival of confiscated birds
- Rehabilitate and release confiscated parrots back into the wild (Kembali Bebas Avian Center, Seram Island)
- Teach the principles and lasting value of conservation
- Replace trapping of parrots with sustainable economic alternatives
- Conduct scientific research into the ecology and biology of parrots
- Serve as a source of information and education

On September 23rd, 2004, officers from Manusela National Park on Seram arrested a smuggler following up on a tip about his illegal activities which had been provided by a colleague of IPP/PBW. Officers confiscated 9 Seram cockatoos, 2 Eclactus parrots (*E.roratus roratus*) and 5 Red-cheeked parrots (*Geoffroyus geoffroyi*). These birds had been trapped by members of a small indigenous tribe, the Huaulu. Cages for these birds were hastily assembled on the fringe of the National Park just outside the tiny village of Masihulan. The birds became the first parrots delivered us for care by the Forestry Department on Seram, and later, the Office Conservation and Natural Resources for the Middle Moluccas. This unexpected and sudden event marked the establishment of the Kembali Bebas Rehabilitation Center and Sanctuary for psittacines on North Seram Island o 2.6 Ha of lowland orest. ("Kembali Bebas" is Indonesian for 'Return to Freedom')

**Figure 2:** Staff of Kembali Bebas (many of them ex-trappers) and Bonnie Zimmermann at the forest entrance to KB. Photo by S. Metz.



However, after we had worked there for over six years, the Indonesian Forestry Department decided to take charge of running KB. This was not totally unexpected, since most NGOs establish a program and then leave it in the hands of the local people to run, usually after one or two years. Because of the complexity of this project—all of which had to be

taught to the ex-trappers who take care of the parrots and cockatoos—we elected to continue our input and support quite a bit longer. Herein we present our final observations and conclusions of the outcomes of this Program, most derived before the time when we relinquished control of KB [ca. June, 2008].

The work at Kembali Bebas Project forms the backbone of our overall Program. Since the inception of KB in 2004 and up until 2009 [approx. when we relinquished control to the Forestry Department), approximately 400 cockatoos, parrots, and lorries/lorikeets comprised of some 22 species or subspecies-- had been received for rehabilitation

**TABLE 1: PSITTACINES REPRESENTED AT KEMBALI BEBAS CENTER [2004-2009] with their Relative Frequencies<sup>1</sup>**

**A. COCKATOOS**

- Seram cockatoo, *Cacatua moluccensis* + + + +
- Sulphur-crested cockatoos, *C.galerita.eleonora* , *C. galerita triton* + +
- Palm cockatoo, *Proboscigar aterrimus* [goliath subspecies)
- Citron-crested cockatoo, *C. sulphurea citronocristata* +
- "Umbrella" cockatoo, *Cacatua alba*, + +
- Sulphur-crested cockatoo, *Cacatua galerita* (morphologically suggestive of N. Australian race) +
- *Corella*<sup>2</sup>

**B. LORIES & LORIKEETS**

- Black-capped lory, *Lorius Lory* + + +
- Blue-streaked lory , *Eos reticulata* +
- Chattering lory (nominant), *Lorius garrulus garrulus* + +
- Chattering lory, *Lorius garrulus flavopalliatu*s + +
- Purple-naped lory , *Lorius domicella* +
- Moluccan Red Lory, *Eos Bornea*, + +
- "Rainbow" (Green-naped) Lorikeet *Trichoglossus haematodus*
  - *haematodus* , + + + <sup>3</sup>

**C. PARROTS**

- Eclectus parrot, *Eclectus roratus*<sup>4</sup> + +
- Red-cheeked parrot *Geoffroyus geoffroyi* +

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<sup>1</sup> + Relative frequencies (semi-quantitative) of each species or subspecies admitted to KB. These are expressed in terms of + through + + + +, where (+) refers to 1-5 individuals and (+ + + +) indicates greater than 150 individuals.

<sup>2</sup> + + Tentatively identified as *Corella pastinator transfreta* from the restricted area of the Trans-Fly zone of Southwest New Guinea.

<sup>3</sup> + + + A large number of Blue-naped lorikeets, and lesser numbers of Moluccan red lorries were confiscated or turned over to authorities; however, almost all of these were immediately released without any rehabilitation.

<sup>4</sup> + + + + Subspecies of Eclectus which were represented: *roratus*, *aruensis*, *vosmaeri* and *polychloros*.



## TABLE 2: OVERVIEW OF THE PROTOCOL FOLLOWED FOR THE REHABILITATION OF PARROTS AT KB

### Kembali Bebas Program for Rehabilitation and Release

- Exam and quarantine for >30-60 days; samples collected for PCR/DNA testing; micro-chips inserted
- Then, move to same-specie flock socialization cages [9x4x3 m. for large parrots, 5x5x3 m. for lories and lorikeets; to avoid human interaction **[Figure 3a, b & c]**
- Feed a mixture of market-bought food and natural forest foods
- Provide enrichment: natural materials and flight **[Figure 4]**
- Follow-up medical examination
- Move to pre-release cage (14 x3x3m) for one month
- Birds were marked and banded for visual identification<sup>5</sup>
- “Soft-release”: birds leave at own pace and will; provide supplements for several weeks
- Visual monitoring by KB staff and villagers nearby of the fate of birds in the first few weeks after release.



**Figure 3a:** First cage built for KB, made using available wood and wire. It was constructed literally overnight under emergency conditions, when the first parrots and cockatoos were suddenly turned over to IPP for care and rehabilitation. This was the literally overnight inception of KB. Photo by Hilary Hankey.

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<sup>5</sup> Tails were colored using different shades of indelible ink markers. Preliminary studies had revealed that these marks lasted at least a number of weeks before fading or being washed off. This treatment has no apparent effect on the texture of the tail feathers. In contrast, India ink made the feather barbules stick together and might have well impaired flight.



**Figure 3b:**  
Photo of one of  
several current  
cages for Seram  
cockatoos,  
Kembali Bebas,  
dimensions of  
9x4x3 meters.  
Photo by S.  
Metz

**Figure 3c:** Photo of cages for *Cacatua alba* and *C. sulphurea*, Kembali Bebas.  
Photo by S. Metz







**Figure 4:** A Seram cockatoo plays on a long perch made of natural materials. Photo by S. Metz.

## **THE ISSUE OF LATENT AVIAN DISEASES**

It is of great concern in such programs for the release of confiscated birds back to the wild, that they might harbor clinical or latent disease. These concerns are summarized in Table 3.

### **TABLE 3: POTENTIAL PROBLEMS DUE TO LATENT DISEASE IN AVIAN RELEASE PROGRAMS**

- Quarantine by itself is insufficient to detect many sub-clinical diseases. Some latent infections can remain undetected for over a year and then kill the host or spread to other birds.
- It is possible for birds to develop resistance to clinical disease and become carriers. Upon entering an immunologically “naïve” area where there is no resistance, they might cause an epizootic outbreak.
- Zoonotic diseases, such as avian influenza, aspergillosis, avian tuberculosis, and salmonellosis, are also a threat to animal care workers.

Therefore, parrots were tested for latent avian diseases using specialized testing [mostly PCR-facilitated DNA]. This included screening for circovirus (Psittacine Beak and Feather Disease); polyomavirus; Herpesvirus, aspergillosis (in a limited number of birds); chlamydia (previously “chlamydiosis” or “psittacosis”); Newcastle disease; and variants of avian influenza [including H5N1]. Dr. Shane Raidal of Australia and Ernie Colaizzi, Laboratory Director of Research Associates Laboratory (Dallas, Tx). were kind enough to measure a substantial number of samples via PCR, as well as serologic assays for circovirus. After these first samples, authorities of the Indonesian declined to provide any more permits for the export of samples for assay. Therefore, a collaborative laboratory effort was established



between Dr. Ngurah Mahardika of Udayana University, Bali; Drh. Wita ; and ourselves, using DNA primers generously provided to us by Colaizzi. These data will be presented in more detail [manuscript under preparation]. However, the analysis of the critical data yielded the following overview:

### **PSITTACINE BEAK AND FEATHER DISEASE [Pbfd] and FEATHER DESTRUCTIVE DISEASE**

When we first came to Indonesia, virtually no one, including the veterinarians, had heard of Pbfd and therefore, investigations of its prevalence among captive cockatoos have not been carried. However, occasional photographs have come to light suggesting that severe Pbfd can be found in at least some such cockatoos. [**Figure #5a**]. We have also learned that clinical Pbfd is rampant among Seram cockatoos in some breeding facilities in Indonesia and that efforts to eradicate it have, thus far, not been successful. [Anon. Personal Communication to S. Metz, B. Zimmermann].

In the first cohort of 60 parrots [50 Seram cockatoos] tested in the U.S. and Australia , there was no convincing evidence of any of these diseases . None of these birds had evidence of clinical Pbfd or of the Pbfd viral antigen in the blood. However 36% had evidence of antibodies to circovirus 1, the causative agent of Pbfd. These data differ from those in Australia where some 40-90% of Sulphur-crested cockatoos have serologic evidence of exposure to circovirus and latent disease and as many as 20% may have evidence of clinical Pbfd. In various other studies, clinical Pbfd was reported to have been detected in wild psittacines as follows:



- Italy, 8%
- Germany, 39%
- Thailand, 5%
- Israel, 14-27%

**Figure 5a:** Severe case of (presumptive) Psittacine Beak and Feather Disease in a cockatoo rescued from a 'bird market" in Jakarta by members of the Tegal Alur Wild Animal Rescue Center. Photo courtesy of Pramudya Harzani.

It is easy, on superficial examination, to confuse Pbfd with Feather Destructive behavior.. A few cockatoos, who had been transferred to us from the Bali Wildlife Rescue Center, had and continue to have Feather Destructive Behavior [FDB] and self-mutilation. Interestingly, FDB may have first been described around 1764 when macaws and cockatoos "shrieked or pulled out their feathers when unwillingly restrained " [Robbins, p10 &134]. FDB and Self-Mutilation Syndrome "blossomed" by the end of the 19<sup>th</sup> C., a time line matching that of shift from aristocrats who kept their birds in large flight aviaries, to the commoners. Butler (1910) includes, without comment, a black and white photograph of a cockatoo-- obviously a Salmon-crested cockatoo-- belonging to the Princess of Wales at the end of the 19<sup>th</sup> C., "which was severely feather-plucked.. **[Figure 5b]**



**Figure 5b:** Possibly the first photograph of a Seram cockatoo with severe FDB and Self-Mutilation Syndrome. See text for details. Photo Butler.

Basic supplies for the care of parrots are nearly unavailable in Indonesia. Therefore, they were fitted at first with makeshift "collars" made out of plastic plates by the Director of Bali Wild Animal Rescue **[Figure 6]** a jerry-rigging which contributed to the pathos of their situation. Later, they were fitted with conical avian "collars" which we provided. Whenever possible, these birds received time outside of their cages [with soft leg constraints to prevent escape) while under observation.

Parenthetically, trappers from three widely separated Indonesian regions (Seram Island; Sumba Island; West Papua) which each has distinctly-



different species of endemic cockatoo were in agreement that they never encountered parrots or cockatoos with apparent FDB in the wild in either living individuals or carcasses [personal communications to S.M.]. However, such behaviors occurred frequently after the birds were trapped, or when they were transferred to markets selling birds illegally.

**Figure 6:** Seram cockatoo with Self-Mutilation [not apparent in this photo] with a protective collar "jerry-rigged" from a plastic plate by a local veterinarian. This pathetic situation exemplifies the near-absence of basic supplies needed for the care of parrots throughout Indonesia. Photo by S. Metz

## AVIAN INFLUENZA

The issue of a possible relationship between parrots and Highly Pathogenic Avian Influenza [HPAI]—in particular, the H5N1 strain—has gained considerable importance, largely because of its ability to infect humans, causing hundreds of deaths. After extensive review of the literature, and talking with experts on virology, I was unable [Metz, 2006b] to document a single, well-documented case of a parrot infected by H5N1 [excluding budgerigars in an experimental setting]. A single case in the UK was allegedly positive for H5N1 influenza occurring in a Suriname Orange-winged Amazon. However, this positive reaction to H5N1 was later shown to have derived from a non-psittacine species (mesia) whose remains had been mixed in with those of the Suriname parrot [Defra, 2005].

Despite this fact, both Indonesia and the Philippines have culled thousands of numbers of parrots, especially cockatoos, even in the absence of any solid medical justification in these particular birds [such as positive tests for avian influenza]. For example, in Taiwan, Palm and Moluccan cockatoos were



slain at CKS Airport merely out of a similar fear that they *might* harbor the virus. However, test results returning only 24 h. later revealed that none of the 24 cockatoos was infected. There are, in fact, very few data concerning the susceptibility of psittacines to the AI virus. Therefore, our findings are unique. In our experience, none of over 100 parrots tested positively for H5N1 [SM, BZ, and Drh. Wahya Widyayandani].

However, a very small number of parrots recorded positively for other, non-pathogenic species of avian influenza. Also, a few positives were recorded for other diseases (four polyoma; one herpesvirus; and one Beak and Feather Disease ; however, these were either unconfirmed upon additional testing or were felt to be false positives.

## **CAUSES OF DEATH**

In our overall experience, approximately 16% the first 228 of parrots which were admitted to Kembali Bebas died [as of May, 2008] while in the confines of the facility. Many of these deaths occurred in the first few days after admission, reflecting especially severe malnutrition/dehydration [**Figures 7a and b**] and/or 'shock' . The Red-cheeked parrots and *loriinae* seemed especially susceptible to the latter. Thus, the overwhelming number of early deaths were due to factors related to their severe conditions at presentation, which were doubtless worsened by the long and arduous trip from Ambon to Kembali Bebas. Relatively few deaths were directly attributable to their care once they arrived there, despite the primitive nature of the veterinary care, which could be provided in the outskirts of a national forest. A few birds succumbed to snake or dog attack. One Seram cockatoo died of proventricular outlet obstruction by foreign objects (wood) which it had eaten in lieu of food, which apparently had not been provided by the smuggler. Intra-species aggression by cagemates was especially frequent among Black-capped lorries.

A presentation of our experience re. avian diseases will be included in more detail in a separate manuscript (Ms. in preparation).



**Figure 7a & b:** Severe malnutrition in a young Seram cockatoo, as evidenced by a protruding keel and “stress feathers” on his tail [7b]. We were able to resuscitate him briefly but could not sustain this. At gross necropsy, his proventriculus was filled with wood chips and his crop was filled with a “cheesy” material, presumably *Candida*. This was probably the lowest point for the Authors in the Seram Program Photos by S. Metz

## RELEASE BACK INTO THE WILD

A minimum figure of the parrots admitted to KB would be 283, if only the total of those released and those remaining in KB are added [see below]. However, a substantial number of lorries and lorikeets was excluded from this figure, since they were immediately released by officials [see below]. AS indicated above, another ~ died while in KB. Thus a minimum figure for the number of parrots housed in KB between 2004 and 2009 would be 343, although the correct figure would be closer to 400.

Those which are indigenous to Seram were candidates for release there, provided they met very stringent requirements. Approximately 175 birds have been released back to their forest homes. These include Seram cockatoos (~ 150); Purple-naped lorries (4); Grand Eclectus *Eclectus roratus roratus* (21); and parenthetically, 7 cassowaries. Thus approx. 175 parrots were released (from October of 2004 up to approx. June of 2009), a figure which not only excludes the cassowaries, but also a substantial number of “Rainbow” lorikeets and Moluccan Red lorries which government officials let go via “hard release without our advance knowledge. Of these releases, many of the first ones were carried out in the field by the Authors. [Figure 8a, b, and c]



**Figure 8a:** Three cockatoos just prior the first release. Note the coloring places on the tail feathers for visual identification , as well as the presence of leg bands for identification. Photo by S.Metz



**Figure 8b:** The first cockatoo released from KB. From the first release (date: March, 2006) Photo by S. Metz





**Figure 8c:** Two Seram cockatoos contemplate their release back into the forest. From the second release in which a total of seven cockatoos and 4 Purple-naped lorries were released.

Photo by S. Metz

Approximately 106 birds remain in Kembali Bebas, either due to unsuitability for release (related to injuries; having been kept as pets previously; or being endemic to areas in Indonesia other than Seram). The overwhelming number of the remaining birds are Black-capped Lorries from West Papua who hopefully will be released when funding can be found to transport them to Papua.

The releases or 'pelepasan' [the Indonesian term for a setting-free] was carried out solely via the "Soft Release" (or, "passive" ) technique with the exception of the Red lorries and "Rainbow"lorikeets mentioned above. A "Hard Release" ("active release") is basically releasing birds usually after only inadequate rehabilitation. The cage door is opened –the parrots either leave immediately of their own regard. or they are "shooed" out or manually extracted from the cage and are released. The "soft-release"— the preferred approach --involves lengthy rehabilitation and determination of suitability for release, including testing for disease, aversive behavior in the presence of the birds leave the cages of their own free will, no matter how long that takes but, if necessary, they are returned to the Center for further rehabilitation. Supplemental forest food (including the "kenari" nuts from *Canarium* trees, is provided at the release site in the event that the birds are unable to obtain sufficient food via foraging. Almost all releases were in the Seram forest but a few were onto Ambon Island forest after our departure from Seram. Five different release spots were used, to avoid saturating the area with cockatoos and jeopardizing the food supply in any one area.

In our experience, Seram cockatoos usually exited the release cage in less than 20 minutes and flew to nearby copses of trees; their flight seemed strong. They soon dispersed. The Purple-naped lorries 'hung out' for 30-60 mins. due to partaking of a nice meal left on the cage, the purpose of which had been as back-up food in case they could not find forest food *after* release.

## **CURRENT STATUS OF KEMBALI BEBAS**

The villagers (mostly former trappers) are currently running KB under the direction of the Forestry Service. Initially the former trappers, and other villagers working at KB, had been promised some funding from Forestry. This amount was insufficient at the outset, but, as is common in Indonesia, they actually received even less [only 39% of that which was promised] and this frequently was delayed. Sadly, therefore, the number of staff has been reduced, and the time each worker devotes to caring for the birds has declined by about half. We have no continuing funding to alleviate this (our direct funding of this Program ceased as of October, 2008), and providing additional funding would only be appropriate if we could simultaneously continue scientific guidance and oversight. We [IPP] did donate to fill an economic gap, as so often in the past. Some temporary funding was provided by IPP, part of which was distributed as bridging salary to the men who work at Kembali Bebas. Although this is far less than the regular salaries which we had paid them, we hope that it will serve as a stop-gap measure, not only for the care of the parrots, but for the continued support of the local people for both parrot conservation in general and KB in particular.

The trust and support of the local peoples is a key part of the overall Program at KB. Over time, the workers have accepted us as special friends, almost family; we want them to realize that these recent problems are beyond our control. The former trappers do remain dedicated to continuing the work at KB, even it is without salary; however, they obviously must have the time to make a living elsewhere. They are determined to propagate our messages of Pride and Conservation. Some money was given to Drh. Wahya Widyayandani [an excellent wildlife veterinarian and Director of all the Wild Animal Rescue Centers around Indonesia], who traveled from Bali to KB in February, 2010 after our departure. She examined the birds and facility; made suggestions to the Staff, and brought supplies [e.g., nutritional supplements; lory/lorikeet food] which we had provided. Her observations were as follows:

- 108 birds remained at KB as of 2009; this number had fallen to 83 by February of 2010 despite the continuation of the transfer of some new birds to KB for rehabilitation. Thus it is clear that release back

into the wild has continued at an acceptable pace. These all occurred following the principles which we had formulated. The remaining birds looked generally healthy.

- While the cages apparently are generally kept clean, some are in poor repair and environmental enrichment is inadequate.
- Although the birds are fed twice a day,, an additional concern is that the collection of forest foods to provide part of the birds' diet has been reduced due to the amount of time involved in collecting favored foodstuffs appropriate for each species of parrot. Rather, the birds now largely market foods [eg., guava, banana, and papaya;]. However some forest fruit has also been collected and provided. In addition, some fruit trees were planted recently to provide mangosteen, durian, rambutan, and lansat, all of which are native to Indonesia.
- Medical testing continues for at least some birds awaiting release [Purple-naped lorries.] In addition of course to routine screening for salmonellosis, treatment for worm infestation, and other basics of avian care, Psittacine Beak and Feather Disease, Avian Influenza, Newcastle Disease, Polyoma disease, Pacheco Diseases, Psittacosis and Aspergillosis were looked for all --all were negative.
- It is very exciting to note that, recently 18 Black-capped lorries were to be returned to West Papua and released; in addition, 5 Chattering lorries were to be released in North Maluku. This is very exciting to us as it indicates that the release program will finally be extended to two other districts. However, due to financial shortcomings, these releases are currently on hold.

## **REHABILITATION AND RELEASE OF CONFISCATED WILD PARROTS: THE CONTROVERSY ABOUT ITS UTILITY IN CONSERVATION WORK**

### **a. More Specific or Potential Shortcomings of Rehabilitation/Release Programs**

Until very recently, rehabilitation/release of adult, wild, confiscated parrots had only been carried out only by a handful of groups. These include : Thick-billed parrots in the USA; Golden-capped conures in Brazil; Yellow-shouldered Amazons , Margarita Isl, Venezuela; Blue & Gold Macaws ,Trinidad Isl; Citron-crested cockatoos ,Sumba Isl., Indonesia; Carnaby's (Black) cockatoos, Perth, Australia; mixed species, parrots released by Belize Bird Rescue; and mixed species, parrots released by ARCAS Rescue Center in the Peten, Northern Guatemala. At least until recently, our program on Seram had released the largest number of parrots.



Each of these may have had different objectives. Were our objectives for the Kembali Bebas Project met? First let us discuss the potential problems regarding this approach to dealing with rescued parrots.

William Karesh, a noted veterinarian and wildlife conservationist, has provided an excellent discussion of the pros and cons of wildlife rehabilitation in general (Karesh, 1995). Among the potential problems, he lists the following :

1. Displacement of indigenous animals from their established territories;
2. Injury from predators;
3. Debilitation from starvation; and
4. Spread of disease to which the animals are not exposed prior to capture.
5. Inadequate housing prior to release.
6. Inadequacy of funds to continue the Program into the foreseeable future
7. Possibility of alienating the local villagers by focusing on animal welfare rather than theirs
8. Lack of adequate veterinarian expertise and supplies.
9. Lack of adequate monitoring after release.

We have no reason to believe that # 1-3 occurred in the current program, although we cannot totally exclude them. However, the parrots were restored to their normal habitat [with its normal predators and food sources] after only a relatively short period of time, and they were fed natural foods throughout their stay in KB. We believe that provided excellent housing prior to release. As we have discussed, our relationship with the local peoples was excellent and more a collaboration than anything else. The issue of disease is discussed above.

However, three areas in which our Program were in need of improvement include:

#8. Due to the remoteness of Seram, its relatively primitive state, and the near-absence of veterinarians trained in avian care, we had to work with several different veterinarians, and the Authors needed to transport almost all needed supplies from the U.S. to North Seram.

#9 As discussed above, our monitoring of released parrots relied strictly on visual cues, and thus our follow-up was inadequate. However, we were unable to establish adequate methods to follow-up on the fate of many of the birds after their release. While our follow-up studies after releases were

far less than ideal<sup>6</sup>, we have observed these birds both nesting and fledging young, and no bird has died [as far as we know] at least during the short periods of attempted observation upon release. However, we do not have long-term data on survival.

Another concern not frequently discussed is the possible re-trapping of released birds. However sustained conversion of former trappers to ex-trappers, who were directly involved in the monitoring of these birds, as well as the observation that a large number of released cockatoos remained in the “trapping-free zone”, helps to minimize re-trapping. In fact, in an undercover investigation (Nursahid and Metz, 2004), it was determined that trapping of cockatoos had essentially stopped in the area where we were working, whereas it was common in other areas of Seram.

Another concern is that our work on Seram was extraordinarily costly. In addition to grants and modest means of funding, it still required two Board members [S.M. and B. Bailey] to make large contributions to defray costs. Even if the Government had not taken over the running of the Program, securing adequate funds to continue to fund KB long-term would have been a Herculean task. However, just recently we have heard that a program has been started to collect funds from visitors to KB.

Another largely-negative view of releasing rehabilitated, wild, adult psittacines was stated by Grajal, a prominent conservationist. There is a common view—perhaps the prevalent one amongst conservationists—that such activities are futile, even foolhardy or dangerous. Alejandro Grajal has written:

*"Reintroductions of captive birds have rarely been successful, except in cases where recently captured young birds are returned to their native populations ...in most cases, reintroduction attempts end in terrible and inhumane deaths by starvation, parasites or predation "*

Although this overview focuses on captive breeding programs, it also discusses the re-introduction of adult wild-caught captive birds which had been confiscated from smugglers—for which other available dispositions are largely unsatisfactory. . Grajal refers to *“the often inhumane release for released birds”* and the risks to pre-existent native populations. Although they appropriately condemn the release to the wild solely to “dispose of”

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<sup>6</sup> Plans to attempt to monitor the status of released parrots via satellite monitoring had been under discussion with Dr. Lawrence M. Harvey (formerly of NASA and currently Senior Director of Operations; Center for Applied Space Technology, Kennedy Space Center) were cut short by the termination of IPP from the direct management of KB.

confiscated birds, such treatments are rarely part of a carefully designed programs designed to minimize risks. The authors of the Parrot Action Plan [Parrots: Status Survey and Conservation Action Plan 2000-2004, 2000] conclude (p23) that

*“while this Action Plan cannot propose a universally applicable solution to the problem of disposal of confiscated birds, release to the wild is normally the least favourable conservation option and should generally should be avoided.”*

By using the phrase ‘least favourable’, the authors are placing this option below their other options: donations or sales to zoos or to research institutions; auction; and euthanasia. None of these is applicable in Indonesia for several reasons not discussed herein. However, it should be noted that euthanasia is rarely practiced in Indonesia, and requires the approval of multiple authorities.

Thus, there is a widely-held view—perhaps the prevalent one amongst conservationists—that such activities are futile, even foolhardy or dangerous, and certainly capable of siphoning large amounts of funds from other approaches to conservation.

As was mentioned above, a major issue in the list of caveats is the possibility that the released birds, while appearing normal, might harbor latent disease (especially contagious viral and bacterial diseases). Indeed, such diseases might not become clinically apparent for over a year (as documented with avian herpesvirus in African parrots), far longer than usual quarantine periods. These infectious diseases might not only kill their hosts but (by introducing infectious agents not present in the wild and therefore to which native birds would be immunologically-‘naïve’) but they could in theory start an epornitic—that is, an epidemic of transmissible disease which could, in theory, decimate the native birds. Other concerns include the ecological contamination which would occur if birds of a genus or species not endemic to the site of release, were to be introduced into the eco-system. These concerns were behind the reasoning for the fairly extensive testing which we instituted, although no such program can completely obviate these concerns.

But less us examine this concern a bit more. If birds with latent infections were to be released into the wild, what would the actual risks be that the infectious agent would infect—and cause clinical disease—in other-wise normal, healthy members of their flock—either by vertical transmission in the nest, or horizontally, via perch limb contamination, direct transmission, etc. Certainly, viruses differ in their ability to survive for prolonged periods in the face of environmental factors such as heat, ultraviolet radiation and sunlight, and humidity. Circovirus, in particular, can survive more than a

year in the environment. And such problems have occurred in release programs. When Murres were cleaned and released following a North American oil spill, many succumbed to rapidly progressive pox, perhaps acquired from Blackbirds in the area [Harris, J, *et al*, 2004]. Introduced transmissible disease was a major problem in the release of some tortoises to the wild. However, I am unaware of documentation that an epornitic, or even local losses of birds, has occurred after the *appropriate* rehabilitation and release of psittacines. The "Precautionary Principle" [see above] dictates that we must heed and confront such legitimate concerns, but I would maintain, not be paralyzed by them.

Another issue is the potential contamination of the homelands for each species and subspecies by allowing the escape (or release) of individual birds who are not endemic to that place. We were not entirely successful in preventing this problem. Of the 350-400 parrots which we admitted to Kembali Bebas, approximately six escaped from their cages, including 2 *C. moluccensis* **[Figure 9]**

- 1 *Lorius lory* (Black- capped lory)
- 1 *C. alba* ("Umbrella" or white cockatoo)
- 1 *Eclectus roratus roratus*
- 1 *Lorius garrulus* (Chattering lory).

Such escapes were often the result of defects or shortcomings in the initial cages which had been constructed literally overnight "from scratch" out of ironwood ("kayu besi" ; *Intsia bijuga* ). Regarding the Salmon-crested cockatoos and the Eclectus which escaped no "genetic pollution" could have occurred from these, since they are endemic to Seram. Of concern was the escape of the two lorries, and the one "Umbrella" cockatoo (*C. alba*). However, it is unlikely that these three birds would breed across species, or even survive on an island lacking their native foodstuffs. Nonetheless, such problems should be prevented.





**Figure 9:** An “escapee” peers down at his caged fellow cockatoos. This escape occurred very early in the history of KB. Photo by S. Metz.

However, it is even critical to note that, prior to the initiation of the *Kembali Bebas*, the Government Authorities took all confiscated parrots and set them free, not only via ‘hard-release’, but all or almost all, on Ambon Island, not Seram [Personal Communication to S. Metz and B. Zimmermann from Officers of the Office of Conservation and Natural Resources, Ambon]. This practice continues, albeit on a smaller scale, even today, after IPP ceased its management of KB. Such releases could cause genetic pollution, since at least some of these parrots of these birds probably never existed naturally

on Ambon.<sup>7</sup> In addition, on a humane basis, this practice is a far worse alternative to risking the rare parrot which escaped from KB, since the birds released by government officers doubtless died in large numbers due to starvation and probably, disease.

The same appalling outcomes can still be seen today if one visits BKSDA offices on Ambon, or the offices of the Forestry Service in Manusela National Park. [B. Zimmermann, S. Metz; personal observations]. In fact, such conditions provided the impetus for the creation of KB. Although the improvement in the welfare of animals is not stated as a primary goal of either IUCN or CITES, Lastly, it is our strongest and most unshakeable believe that it is far more humane to take our approach than to leave these birds in the hands of trappers or attempt the options rather glibly listed above. Our program was predicated upon the ethical treatment of Indonesian cockatoos and other parrots; in the 170 or so Seram cockatoos now flying and foraging in their native habitat, I suspect we have the most important supporters.

We cannot tell whether we will be successful in achieving one of the most difficult aspects of such programs—achieving a permanence to the Program. We approach this through recruiting younger Indonesians to ‘carry the torch.’ our CAP (Conservation-Awareness-Pride) program. On the other hand, we were unable to meet an important goal—that is, to provide *sustainable* income to local trappers to replace the poaching of parrots

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<sup>7</sup> In 1996, Poulson and Jepson [1996] described a small flock of Salmon-crested cockatoos on the Hitu Peninsula of Ambon. It was unclear whether these are native to Ambon, escaped pets, or released cockatoos. Some authorities believe that the latter is the most likely explanation. The letters of Alfred Russel Wallace might support a different conclusion. In 1864, he wrote in Proceedings of the Zoological Society of London that “*this fine species [referring to the Salmon-crested cockatoo] is abundant in Ceram, but much less plentiful in Amboyn [Au: Ambon], and it is not known to extend beyond these islands. The birds are taken from the nest in holes of trees, and are easily domesticated.*” Wallace [1864] does indicate that Seram cockatoos had already been exported to Europe in substantial numbers, and therefore it is possible, alternatively, that some might have escaped on Ambon while in transit. However, it does at least allow for the possibility that Seram cockatoos might have been endemic to Ambon at one time, and excludes the possibility that their presence can be explained by releases of confiscated cockatoos by Conservation officials a century and a half later. Likewise, Wallace [1861] does suggest that other Seram parrots (the Purple-naped lory and the Moluccan Red lory )were also indigenous to Ambon.

## **b. What About the Positive Effects?**

Others, however, are a bit more sanguine, emphasizing the superiority of wild-caught birds to captive-raised birds—and parent-raised to hand-raised birds-- in reintroduction as a conservation tool, while cautioning that the environmental conditions [ie habitat, trapping pressures, predators] must be “permissive for reintroduction”

In contrast to the caveats listed above, there may actually be certain advantages to releasing adult parrots, as opposed to those raised from chicks in a captive breeding program. The birds have been raised by their parents; they have been taught how to find, forage for and obtain appropriate food in the wild; they have learned appropriate language, social interactions and recognition of predators; and lack the possibility of development of inappropriate “pet” behavior from their human providers. The importance of such factors can be readily seen in the experience with the Thick-billed parrot, by comparing survival between wild-caught birds vs. captive-bred birds. For example, Snyder et al. wrote of the release of Thick-billed parrots that *“success rates have generally been much higher for translocations of wild-caught animals”* in contrast to the release of captive-bred parrots. Of course, such wild behaviors change in captivity. There are no data of which I am aware relating time in captivity to time needed to revert to the “wild” state [if there even can be such a total reversion]. Such considerations require that birds be carefully monitored in captivity and that appropriate behaviors are preserved by appropriate surroundings; minimizing human interaction; providing forest food in as natural and unmodified state as possible; caging in flocks in flight aviaries, etc. Even such precautions cannot be expected to preclude failures. But neither can they for the more commonly accepted captive breeding programs.

To answer the question as to the benefits of our particular Program, we first list our goals in releasing confiscated parrots back into the world, as defined by the World Conservation Union [International Union for Conservation of Nature ] and CITES [Convention on International Trade in Endangered Species of Wild Fauna and Flora [**Table 4**]

**TABLE 4: Return to their Natural Habitat of Confiscated, Wild Psittacines : Some General Principles**

1. Where the existing population is severely threatened, re-introduction might improve the long-term conservation potential of the species as a whole, or of a local population of the species. [not relevant to the Kembali Bebas Program <sup>8</sup>.
2. Have the possibility of continuing to fulfill their biological and ecological roles” [not relevant to the Kembali Bebas Program].
3. Should follow the Precautionary Principle which states: *“Given that any release incurs some risk, we must adopt the following ‘precautionary principle’: if there is no conservation value in releasing confiscated that is not already present, however unlikely, will rule out returning confiscated specimens to the wild.”* [This Principle was followed]
4. Makes a strong political/educational statement concerning the fate of animals and may serve to promote local conservation values. <sup>9</sup>
5. Alleviating suffering and providing a humane disposition are not mentioned as primary goals.<sup>10</sup>

With regard to achieving humane dispositions for released birds:

An example of the effect of rescue can have upon the quality of life of parrots is illustrated in **Figure 10**. This Yellow-crested cockatoo was discovered in a dank room at the Ambon animal market; the hole in its crop is very apparent [**Figure 10a**] The cockatoo was ransom-rescued and, since KB was not yet build, was delivered to one of the Indonesian Wild Animal Centers, where was nursed back to health. The hole in his crop totally healed [**Figure 10b**]. Similar dramatic improvement was seen in a pair of Red-sided Eclactus [**Figure 10 c & d** ]

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<sup>8</sup> Although it is widely believed that a goal of such returns to the wild is to increase the numbers of parrots in a given local. However, this is clearly not the goal in the Seram program, since less than 200 cockatoos were released on an island already ~ 40,000 or more cockatoos [Kinnaird et al, 2000, 200].

<sup>9</sup> This is a major goal of the Kembali Bebas Program. We emphasize that our particular approaches were specifically chosen with Seram in mind. Other locations and flagship species will likely dictate some different goals and approaches.

<sup>10</sup> We consider this to be primary, not a secondary role for such humane goals. We consider this to be a major function of this program.





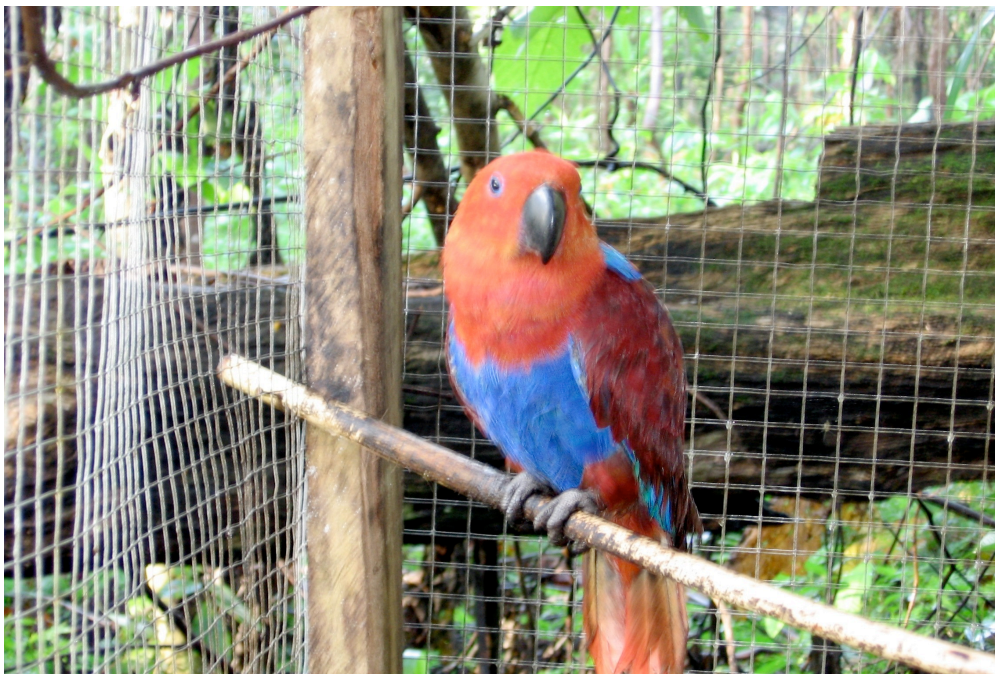
**Figure 10a** Cockatoo with hole in his crop. Photo S. Metz



**Figure 10b** Same cockatoo following rehabilitation. Photo by staff of Wild Animal Rescue Center



**Figure 10c** This pair of Eclectus was found in 2006 at the Government Conservation Office in Ambon. Their poor health is evidence, as is the rusted, inadequate cage, [which was left on the ground near dogs] of the appallingly bad treatment. Photo B. Zimmermann



**Figure 10d** One of the same pair of Eclectus after a short time of rehabilitation in KB Photo by B. Zimmermann.



Another parameter of the success of return to the wild is evidence that the released birds integrate into flocks of wild birds, mate and fledge chicks; and forage successfully. Unfortunately our limited means of assessing these parameters obviated accumulating such data on many parrots, especially after a large number had been released. However, after our first release of three birds , the following encouraging findings were accrued:

- One of the first three cockatoos was lost to follow-up after 2-3 weeks. At least two of the cockatoos survived together for at least several months, as assessed by observations made by staff in KB and villagers more remote from the release site
- One of these birds then mated with an apparently-uncaught cockatoo, and built a nest 8-9 months after release. This breeding attempt was unsuccessful due to heavy monsoons, but in April of 2007, a chick was observed to fledge. [**Figure# 11 a & b**]
- In August of 2008, a pair of cockatoos, one of which could be observed to bear the leg band of released cockatoos, could be seen inspecting potential nest sites [**Figure 11c**]



**Figure 11a:** Photo taken by KB staff.

Fledgling peers from nesthole [*lower arrow*] as parent [*upper arrow*] gazes towards it. Photo is both grainy and blurred since it was taken through both the camera lens and a telescope from a long distance, so as not to disturb the new fledgling.



**Figure 11b:** Same site as #11a except that fledgling is not in the nesthole. A parent is seen guarding the nesthole. Both Photos (11a and b) by staff at KB



**Figure 11c:** Mated cockatoos search for suitable nesthole. At least one of the pair had previously been rehabilitated and released from KB. Photo by Kevin Sharpe



## **THE KEMBALI BEBAS EXPERIMENT: NOTABLE SUCCESS OR FUTILE PIPE-DREAM?**

Although this is one of the largest number of adult, wild psittacines ever released back into the wild, the number of birds released was not our major goal, since even somewhat ~ 170 birds comprises merely a drop in the proverbial bucket. In our opinion, the major goal for our Program on Seram is to increase the pride of the villagers in their birds, to teach them the principles of conservation, and even to increase the esteem of the former trappers – since the men working at KB are considered to hold honored positions at KB. Schoolchildren came to witness the big event of each “pelepasan”, and began to develop pride in *their* birds which they now want to protect. The Director of the Forestry Department on Seram was present for the first release, and was given the honor of opening the cage door to allow the first cockatoos to exit. The Governor of Ambon came to witness a separate release in front of hundreds of witnesses. These ‘pelepasan’ were covered in local newspapers. Thus, we achieved one of our major goal: to initiate a paradigm shift in the ways that the local villagers ‘perceive’ birds and animal life in general, and from this, learn and follow the principles of carefully-effected conservation efforts. Karesh (1995) supports this formulation: “*Wildlife rehabilitation programs in developing countries can provide a vehicle for expanding public awareness about conservation issues.*” We cannot tell whether we will be successful in achieving one of the most difficult aspects of such programs—achieving a permanence to the Program. However, we approach this through recruiting younger Indonesians to ‘carry the torch.’ through our CAP (Conservation-Awareness-Pride) program [see below].

We were only partially to meet an important goal—that is, to provide *sustainable* income to local trappers to replace the poaching of parrots. For the last 5 years, we were able to provide complete salaries to workers in KB. However, with the current control of KB by the government and the limited funding available, their salaries have been reduced. While they continue to work at KB, they have had to find second jobs for adequate income. Thus, at this time it is not clear how long their work will continue at KB; however at the time of this writing, both rehabilitation and releases were continuing (Drh. Wahyu Widayandani; Personal Communication). It also remains to be seen whether the cessation of poaching on North Seram Island will persist, as documented previously in an undercover investigation of cockatoo trapping on Seram [Metz and Nursahid; 2004]. It is important to note that, almost two years after we relinquished control of KB, releases of parrots following their rehabilitation at KB, are still taking place, following the exacting principles which we establish. In 2010, four additional Purple-naped lorries have been freed and there are plans to release three more Seram cockatoos in November [personal communication from Ceisar Riupassa, Manager of KB].

It is our ongoing goal to bring this increase in pride and awareness of the principles of conservation, to other areas in Indonesia. We call this the “Conservation-Awareness-Pride” Program, a concept pioneered by Paul Butler, and similar programs are now being carried out successfully by a number of avian conservation programs—of which the Philippine Cockatoo Conservation Program is one of the most impressive. We developed a series of teaching tools through which these principles can be taught via the use of enjoyable “fun” approaches. These include, for example: the production of T-shirts for children and adults T-shirts, the production of posters, stickers for school notebooks and staging a play, “Parrot Village”, in which the main characters are played by village students. We also introduced a smaller number of students in the field to similar principles, both through taking them on bird-watching trips and to Kembali Bebas, to watch a “pelepasan.” Based on the results of before- and after questionnaires filled out by students of many ages, we believe that this approach is a powerful one to begin to induce such a “paradigm shift” in viewpoints in the next, and hopefully in future generations.

One way to achieve a likely, albeit partial, reminder of the change in attitudes, is to not rely on cash incentives to a limited number of villagers, but to achieve concrete, lasting improvements to the infrastructure of entire villages.

Consequently, villages recognize that, not only do we not derive any personal benefit from this work, but —therefore— we must truly believe in the importance of saving *their avifauna and helping them*. Since most parrot-containing areas in Indonesia are economically deprived, they often lack the basic amenities. Therefore IPP built two medical clinics [**Figure 12 a & b**] for them, along with provision of solar-powered water purification systems (both funded by Seacology).



**Figure 12a:** One of two medical clinics built for the villagers by IPP. Photo S. Metz



**12b:** One of the first patients is seen in the clinic by the mantri [‘nurse practitioner’]. Photo S. Metz

In return, heads of neighboring villages set aside a 350-acre Heritage Site in the Seram forest, to be protected from human intervention. We have also aided schools in Seram and West Papua with much-needed school desks, chairs, uniforms and books. A pamphlet teaching basic principles of cleanliness and good health was developed and distributed. These are just a few of the “in-kind” donations which can be given to improve the quality of life, and perhaps as importantly, to help built their trust in a foreign NGO —the *sina qua non* of such Programs.

The trust which, in return, was given to IPP was demonstrated in many ways, including some special occasions, including participation in the most private aspects of the funeral for an honored ex-trapper [see Metz, “Knowing

Sopi" , 2008], and in a marriage ceremony. To this day, we still feel more like friends, almost family, to the workers at KB, and regularly receive word about their concern for us. They continue to look after the remaining birds at KB on an almost voluntary basis while retaining other jobs.

**We therefore must conclude that the Kembali Bebas "Experiment" must be considered, at the least, to be a qualified success.**

It may be appropriate to close with a quotation from Michael Tobias [1999]:

*"Numerous studies of the parrots have shown that they are among the most intelligent, linguistically and emotionally refined creatures on earth—the most loving, beautiful and endearing of all beings. Their bonds among each other are intense and sustained. Their diverse personalities, wit, poetic natures and love of freedom well established...exemplars of every admirable quality I could hope for in a human. Seeing them caged miserably in a back street in Bamako—as in so many other villages and cities in the world—I was heartsick and desperate to reverse their dire circumstances...[ Au: These birds had been ransom-rescued and then released back into the forest]...*

*The birds had survived the journey—all of them. They began perking up to the scents and sights of freedom all around them....Some of the birds were fearful, but all were timid and astonished. They walked out, some hobbling, but in each one—a few in pairs—headed immediately for the stream where they doused themselves and began to groan, cry, squawk and play. Some started looking for hollowed-out places in the trees, the mating instinct long suppressed. Others simply spread their wings and flew, flew high circles above the forest. Still others just sat on the bushes above the river, preening themselves...*

*To this day I dream of those gorgeous birds in their newfound freedom and know that that is the essence of what my life aspires to be..."*

To this day, so too do we dream.



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Lastly, this work is dedicated to the beleaguered parrots of Seram, and to our lasting friends—the villagers of Masihulan and Sawai villages. We were especially inspired by the villagers who once trapped and sold parrots and cockatoos. They abandoned that practice in favor of providing excellent care for the bird they once trapped, thereby demonstrating a ‘paradigm shift’ in the way that they “saw” parrots and other animals. There are, however, no words adequate to describe the way they took us into their homes and hearts [cf. Metz, 2008], leaving us with many warm memories. We are, indeed, very privileged, to know them and to work beside them, mutually trying to protect and preserve *their* fauna—which are, in turn, magnificent icons representing the legendary Spice Islands and the wonderful people of Maluku.

The preferred format for citations from this work is:

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