

ACTP responds to the commentary concerning conservation measures required for the endangered Amazon parrots of the Commonwealth of Dominica

As a scientific, evidence driven, objective, conservation organization, ACTP makes the following objective comments in regards to statements posted by Stephen Durand (Assistant Forestry Officer, Department of Forestry, Dominica), International Fund for Animal Welfare (IFAW), and Dr. Paul Reillo of Rare Species Conservatory Foundation (RSCF), as well as subjective commentary by BirdsCaribbean.

First, however, we wish to praise the volunteers of Dominica who have generously given their time and energies towards the goal of saving their national birds from the brink of extinction. Their actions are truly commendable. Ideally these selfless people really deserved the best evidenced based direction from the above four organizations. It is apparent that this was not necessarily provided in a timely manner, to the detriment of both the released birds and to the endangered wild flocks.

Secondly, ACTP wishes to share that ACTP facilities include a complete veterinary clinic, nursery, full time veterinarian, biologists, large temperature controlled breeding aviaries, flocking aviaries, sanitary food preparation facilities, as well as close proximity to avian pathology laboratories to evaluate for pathogens, and employs university contracted support for artificial insemination procedures. The construction costs of the state of the art ACTP facilities exceeds €3.5 million. ACTP have in addition an isolated, high standard, government approved quarantine facility, where all imported birds are housed following the international quarantine guidelines for the required quarantine period. ACTP has successful and mutually supportive, multi-year agreements with the Governments of St. Lucia and St. Vincent for the ex situ captive breeding of safety net populations for their respective endemic Amazon parrots. Additionally, ACTP has been involved with the planning, breeding, and execution of the evidenced based reintroduction program for the Spix's Macaw with the Government of Brazil since 2007.

Thirdly, ACTP understands the destruction of the existing infrastructure and hardships the volunteers faced in their work to save the parrots. ACTP was able to directly assess the situation on the ground during visits to Dominica earlier this year and can appreciate the tremendous hardship and the difficulties faced to accomplish each task.

Lastly, we at ACTP totally agree with the statement: it would be nice to have a dedicated state of the art in situ breeding aviary/hurricane rooms/rehab centre/dedicated quarantine facility/fully staffed veterinary clinic/flight and release aviaries, etc. However, the reality is that, until such facilities are available and/or funding can be identified for construction prior to each hurricane season, a preexisting ex situ facility is the best available option at this crucial time.

It seems unfortunate that Dr. Paul Reillo and the RSCF's partner organizations have promoted the volunteered efforts of ACTP as a "controversy". ACTP, as a professional and scientific

organization, had no intention of inciting or becoming embroiled in a “turf war” with the above organizations over their perception of historical “turf”. It is indeed unfortunate that parrot conservation often falls into this mindset.

The Dominican Government chose to invite ACTP to participate in the conservation efforts due to their concerns and perceptions. It is with reluctance that we have been forced to bring the valid concerns of the Dominican Government regarding the above organizations into a public viewing. This was not our intention.

The concerns of the Dominican Government included: that illnesses and injuries were untreated, misdiagnosed, or treated incorrectly; that IUCN scientific quarantine and reintroduction guidelines were being ignored, which placed both the aviary parrots and the endangered wild flock in jeopardy; and that the 2018 hurricane season was rapidly approaching with a prediction from the University of Colorado Hurricane Team that the 2018 season will have above average hurricane activity.

Per the BirdsCaribbean statement:

Conservation programs for threatened species should be guided by recovery action planning based on sound science (emphasis added by ACTP)

In September 2017 Maria, a Category 5 hurricane, caused significant damage to the flora, fauna, agricultural industry and infrastructure of Dominica and inflicted unprecedented, critical reduction to the population size of many Caribbean bird species. The ACTP is actively involved in the conservation efforts of various endangered parrot species and has been for many years. Shortly after it became evident, that not only the majority of the native forest in Dominica was destroyed by the brute force of hurricane Maria, but also both endemic Amazon parrots, the Imperial (*A. imperialis*) and Red-necked Parrot (*A. arausiaca*), had undergone an alarming decline following the catastrophic impact of this tragic, natural event, the ACTP offered their immediate support to the Government of Dominica. During the past decade the ACTP has cooperated closely with the Government of St. Vincent and St. Lucia to establish not only an *ex-situ* population of both, *Amazona versicolor* and *A. guildingii*, but also allocate funds for research, equipment and education that is necessary for scientifically based, *in-situ* conservation work. For that reason, both parties, the ACTP and the members of the Government of Dominica decided to work together toward the development of a long-term conservation plan to save the iconic, endemic parrot species of Dominica from the edge of extinction.

It is important to note, that during the discussions about the initial steps and funding of the proposed conservation actions, the Government of Dominica advised the ACTP to set up an *ex-situ*, captive breeding program for both Amazon species at the facility at ACTP Germany. At the request of the Government of Dominica the ACTP signed a breeding-loan agreement, which included the legal transfer of the remaining captive parrots (10 rescued Red-necked parrots and

2 Imperial parrots) from Dominica to ACTP Germany, to make the first steps toward an *ex-situ* safeguard population, like we have already done for the parrot species of the sister islands, the St. Vincent and St. Lucia Parrot, in case of the impact of a natural disaster.

Various sources claimed that this transfer was illegal, non-transparent and contradicts 30+ years of conservation work and scientifically based, conservation measures (RSCF *in litt.* 2018; with supplementary comments from BirdsCaribbean). To counter these allegations the ACTP gives now a detailed, transparent overview about the project and a statement on various topics concerning the reintroduction, the previous *in-situ* work and published arguments against a captive breeding program at the ACTP facility located in Germany

Primary objectives of the project:

- Establishment of an *ex-situ* captive breeding population for the two endemic Amazon species of Dominica, the Imperial parrot (*Amazona imperialis*) and Red-necked parrot (*A. arausiaca*)
- Conduct a transparent census with collaboration of international organizations and sister islands to estimate the population size of both species, similar to the census conducted previously in St. Lucia under collaboration with the Durrell Wildlife Conservation Trust and the Saint Lucia Forestry Department (Morton *et al.* 2009)
- Multi-stage training of Dominican Forestry staff members (veterinary training, three-month training of staff members to improve knowledge of husbandry guidelines in Dominica, provide funding for staff members to study conservation biology)
- Provide equipment, which will be relevant for further field work and research
- Immediate-term, financial support (now – 1 year) for crop depredation on agriculture and public awareness of local farmers to decrease the risk of possible conflicts between humans and the vulnerable parrot population
- Short-term restoration and modernization (now – 2 years) of the facility at the Dominica Botanic Gardens (Roseau) to establish a quarantine following international guidelines (with external electrical supply, room/aviaries with full isolation from healthy birds, appropriate quarantine protocols)
- Conduct middle-term research (now - 4 years) among the *ex-situ* population to study the vocal repertoire, behavior and nutritional requirements of both species, with modern, non-invasive, scientifically peer-reviewed methods
- Long-term conservation project (> 5 years) with the proposal of a Wildlife and Education Conservation center to ensure protection to endemic wildlife

Review and comments:

1. *In-situ* work since hurricane Maria:
 - a. After the devastating impact of Hurricane Maria to the native biodiversity of Dominica, a census should have been immediately administered by the responsible, operating organization(s) once all remote places were accessible, to obtain crucial information on the status and the severity of direct impact to the population size of

Amazona imperialis and *A. arausiaca*. Sightings by the Dominican Forestry Department staff members produced only 20 records (in addition to some detected individuals by vocalizations; RSCF *in litt.* 2018) for the Imperial parrot so far, indicating a critical decline in the total population size of the species - a population collapse with an equivalent decline after Hurricane David (Butler *in litt.* 1982). Red-necked Parrots were seen more frequently, but many individuals were observed foraging near urban areas, crop farms or destroyed parts of the native habitat (unpublished information Dominican Forestry Department); a trend which is associated with limited abundance of food plants and inappropriate habitat quality. Until this date (6 months after hurricane Maria hit the island), there is still no information on the population size of both species.

Even under optimal conditions; if we consider no further, middle-term impacts of natural events to the avifauna of Dominica and other Lesser Antilles states (which is very unlikely, due climate change and anthropogenic impact on climatic factors and biodiversity loss), both populations would require many years to fully rebound to the pre-hurricane Maria state. After hurricane David the population of the Imperial Parrot increased from approximately 60 individuals in 1981 (Butler *in litt.* 1982) to 150 birds by 2003, and had an “estimated” population size of ca. 350-450 individuals prior hurricane Maria (Reillo *et al.* 2002, Minarcik *in litt.* 2010). The population of the Red-necked parrot, according to team of RSCF *in litt.* 2018, numbered >1200 birds prior to hurricane Maria. After hurricane David decimated the population of both species, only 250 Red-necked parrots were left in the wild (Butler *in litt.* 1982). If we assume, that the estimation of both populations after hurricane David and that prior hurricane Maria is accurate (because no census was performed since 2005 in Dominica; Minarcik *in litt.* 2010), both population trends demonstrate a slow, multi-generation recovery period contrary to the statement of RSCF (Imperial parrot population increased by c. 700-900 % and Red-necked parrots by c. 500 % in the last 30 years).

There is also no information about the genetic diversity and pool within the remaining Imperial parrot population. It is likely, that the low genetic diversity of the pre-hurricane Maria population (as all offspring's resulted from the Post-hurricane David population pool) could have negative consequences on the annual survival rate due the limited plasticity and ability to adapt to changes in the natural environment, increased transmission risk of bacterial and viral infections and reduced fertility.

For instance the recovery progress of *Amazona versicolor* and *A. guildingii* shows an equivalent slow, increasing population trend. Global population of the St. Lucia parrot numbered between 100 and 150 birds or 150 +/- 25 birds in 1970s (Jeggo *in litt.* 1976, Jovicich *in litt.* 1976). Surveys in 2009 (> 30 years) resulted in a population density of 0,38 parrots per hectare and an estimated global population size of 1750-2250 individuals (Merton *et al.* 2009). St. Vincent parrot wild populations increased

following conservation efforts from 370-470 individuals in 1982 to ca. 734 birds in 2004 (Birdlife International 2018)

However, for a long-term population recovery the population size of both Dominican species should consist of an appropriate number of mature individuals and a suitable habitat for breeding with minimal risk of future impacts from natural catastrophes. Examples were populations of parrots and other restricted-range species/island endemics were significantly impacted by single natural events are provided in the appendix (Appendix I):

- b. Moreover, shortly after the impact of hurricane Maria supplementary feeding stations should have been immediately provided to the surviving parrots to ensure sufficient nutritional support for the starving parrot population and counteract the increased risk of malnutrition and closely associated mortality due the lack of natural food resources. This was denied by the operating organization with a questionable argument that “supplementary feeding stations could encourage the proliferation of rodents and zoonotic pathogens”(e. g. Leptospirosis; RSCF *in litt.* 2018). Supplementary feeding stations with natural food items were used in the Puerto Rican Parrot recovery program and Vinaceous-breasted Amazon reintroduction program without any significant concerns (White *et al.* 2005, Pinto & Kanaan *in litt.* 2014). Therefore, the pressure resulting from the competition between the two endemic parrots for limited food resources and nesting trees along with other species could mean an additional threat to the already impacted parrot population.

Conclusion: At the current point there is no reliable information on the population size, the quality or range of the remaining habitat, the abundance of suitable nesting trees or the sufficiency of available food sources. If another category 4 to 5 hurricane should hit the island within the next five to ten years, it is evident, that the immediate-term impacts to the remaining, vulnerable population of both species could be irreversible and would lead to an imminent extinction or critical reduction of the population size to a level, where the initiation of a captive breeding program could no longer be considered as a possible conservation measure. For that reason, arguments used in the statement of the above organizations like a “full recovery could be possible” or “we believe that the population will rebound” without fundamental knowledge contradicts adequate, scientifically based conservation measures.

2. Captive breeding

- a. Captive breeding programs or scientific aviculture represent an essential part of many international conservation programs and often go hand in hand with *in-situ* conservation efforts and field work. The above organizations denied the importance of an *ex-situ* safeguard population for the Imperial parrot and Red-necked parrot for

decades by stating that a captive program is not necessary at any point (Reillo *et al.* 2011, RSCF *in litt.* 2018 with supplementary comments of BirdsCaribbean). Even during a period, where both populations showed a steady increase in their population size for many years and a captive breeding program could have been easily realized *in-situ*, without inflicting damage or an ethical questionable removal of adult individuals from wild population being required. Therefore, a direct comparison to the flagship Puerto-Rico Parrot recovery program, which has used modern methods of scientific aviculture for decades, is highly controversial. No plans have ever been presented to Government of Dominica to establish an *in-situ* conservation breeding population during the last 30 years.

Some examples of the important role of captive breeding programs in modern, scientifically evident conservation work are presented in Appendix II:

3. Scientific work:

- a. During the last 30+ years of dedicated conservation work in Dominica only a very small amount of data and information about the Red-necked and Imperial parrot has been published in peer-reviewed journals, which are now publicly accessible to the scientific audience (Evans *in litt.* 1988, Butler *in litt.* 1989, Evans *et al.* 1991, Collar *et al.* 1992, Reillo *et al.* 1999, *et al.* 2000; Wiley *et al.* 2004, Reillo *et al.* 2011). Hence, life history traits, demography, annual population trends and ecological requirements of both species are not well understood.
- b. Only a few nests of the Red-necked parrot and the Imperial parrot have been described and studied in detail (Snyder *et al.* 1987, Evans *in litt.* 1988, Reillo *et al.* 1999, *et al.* 2000; Wiley *et al.* 2004, Minarcik *in litt.* 2010). Most information about the breeding ecology, such as the pre-laying behavior, nest site selection, nest characteristics, incubation patterns, parental role during incubation and nestling period, nesting success, post-natal development of wild chicks, post-juvenile dispersal and survival rate is not well documented in the literature. Improved knowledge of the breeding ecology could enable the Forestry Department staff to deploy artificial nest cavities to boost the reproductive performance of both parrot species and provide alternative nesting opportunities in the destroyed habitat. A method, that helped to boost the population of many other endangered parrot species, like the Fuertes Parrot, Yellow-eared Parrot, the Blue-throated Macaw, the Red-tailed Amazon and the Puerto-Rico Amazon (White *et al.* 2006, Tovar *in litt.* 2006, Salman *et al.* 2007, Abbud *in litt.* 2013, Berkunsky *et al.* 2014)
- c. Also, most aspects of the foraging ecology are unclear - there is no detailed information (according to the below listed, peer-reviewed publications, not including possible unpublished reports or information) about seasonal variability in the nutritional requirements during non-breeding and breeding season, foraging techniques, foraging habitat, preferred food items and the relevance of single food

items for reproductive performance (Evans *in litt.* 1988, Wiley *et al.* 2004, Minarcik *in litt.* 2010).

Conclusion: Without transparent results of dedicated research and scientifically relevant knowledge, which is the main reason for the exceptional success of many flagship recovery projects, like the Kakapo, Yellow-eared Parrot or Puerto Rico Parrot Recovery program, it will be difficult not only to archive a full recovery of the wild populations, but also to start and maintain a captivity population on the island. In contrast, during the past decades the Kakapo and Puerto-Rico Parrot conservation teams have published a combined total of > 60 peer-reviewed publications, reports, book chapters and provide many opportunities for M. Sc. and PhD. studies right up until this date, which are now publicly available to the scientific community (Snyder *et al.* 1987, Higgins *et al.* 1999, Collar *et al.* 2018)

4. Special comment on the questionable comparisons made with the Puerto Rican Parrot Recovery Project.

The four above-mentioned organizations have presented their purposeful, subjective, actions on Dominica following hurricane Maria as comparable to the flagship Puerto Rican Parrot Recovery Project. There are several objective differences regarding the two:

Note: Information from IFAW statements cited below is extracted from an unpublished report (Flores *et al.* 2018) unless otherwise stated.

1. The Puerto Rican Parrot Recovery Project, PRPRP, is based on peer-reviewed scientific methods. Each manipulation of the species is thoroughly vetted on evidence-based research by highly trained biologists and PhD staff. Ideally, proper direction and training of the volunteers by Department of Forestry, IFAW, RSCF and Birds of Caribbean should have included this basic premise.
2. Scientific aviculture practices are crucial to the PRPRP. As are the dedicated field personnel. The annual budget of just the US Fish and Wildlife half of the project is over US \$1.2 million. The Rio Abajo Aviary is funded separately by the Puerto Rican Government. The construction cost of the just the USFWS Iguaca Aviary and support facilities was US \$1.5 million in 2007.
3. The Iguaca Aviary has a full veterinary clinic, as does ACTP, including a full time avian veterinarian specialist. This is necessary because parrots are considered exotic and complicated species and most veterinarians receive paltry professional training in their programs regarding avian exotics. The IFAW statement mentions the occurrence of misdiagnosis of health problems, which resulted in the deaths parrots.

One of the rehab parrots, Simone, presented with a horribly infected and necrotic injury that was misdiagnosed and incorrectly treated by Dr. Rick.

..... This deployment raised our concerns higher after determining that illnesses/injuries were untreated, misdiagnosed, or treated incorrectly.

..... *The two rescued parrots that died since our last deployment were not necropsied so medical findings to include cause of death are not documented. No one saw the deaths occur and the parrots were found deceased on the ground in the flight cage on separate occasions with no remarkable injuries.*

4. The Iguaca Aviary has a Category 5+ hurricane room. The 2018 June-November hurricane season begins in two months.
5. The PRPRP follows IUCN guidelines for parrot reintroductions
 - a. PRPRP completely health checks every parrot prior to release. Obviously, this includes a complete panel for pathogens.

The above organizations have not provided evidence that proper pathogen tests were performed per IUCN guidelines on the four amazons they deemed safe to release into the endangered wild populations. Nor have the above organizations provided any evidence that proper pathogen panels were performed on any of the remaining parrots that they claim they were imminently “ready for release” before they were “smuggled.” Per the statement by BirdsCaribbean:

The parrots in question were wild-hatched and most were rescued after Hurricane Maria. They were being rehabilitated in an aviary operated by the Forestry, Wildlife and Parks Division of the Ministry of Agriculture in Dominica, with the support of Rare Species Conservatory Foundation (RSCF) and International Fund for Animal Welfare (IFAW). BirdsCaribbean understands that the birds were in very good condition—four had recently been released back into the wild. It was expected that the remaining Jaco parrots would also soon be ready for release, where they would have made an important contribution to the survival of the remaining populations.

The IFAW statement clearly states that blood samples were taken with the intent to test for pathogens. However, there is zero data providing proof that the pathogen tests, per IUCN guidelines were ever performed prior to the release of the parrots into the endangered wild flock:

*During exams Dr. Flores collected a blood sample from all current resident and rehab parrots at the request of Dr. St. Aimee, Chief Veterinarian. The blood **was***

to be tested for transmissible diseases and held for potential DNA registration. According to Dr. Reginald Thomas no pathogen tests were performed because necessary laboratory equipment was destroyed by Hurricane Maria. In addition, also no blood samples were exported to perform the tests abroad (for which CITES approval would be required).

- b. PRPRP does not integrate any parrot into the aviary flock without an evidence-based quarantine within the scientifically accepted period of sufficient individual isolation. The IFAW statement describes:

Unfortunately, there is no documentation that the rescued Imperial was held for the full thirty (30) day quarantine period. At the end of January two (2) juvenile Red-necked parrots were rescued and held in quarantine for only two (2) days before being released into the flight cage with the general population. Unfortunately, one of the rescued juveniles has a sinus infection and presented with a very swollen left eye upon arrival at the Centre.

- c. PRPRP does not release any parrot into the existing endangered wild flock without an evidence-based quarantine within the scientifically accepted period of sufficient individual isolation (30 days). The IFAW statement clearly states:

IFAW recommends re-setting everyone's quarantine clock back to thirty days once a quarantine breach has occurred. This would have applied to the nine (9) other parrots in the flight cage but based on decisions made by Dr. Paul Reillo and Stephen the quarantine clock was not re-set

Conclusion: all points above represent an inexcusable subjective, non-scientific, decision on the part of Dr. Reillo, which is in direct conflict with IUCN guidelines. This inexcusable decision resulted in endangering both the aviary flock and the wild flock into which the aviary birds were released. Dr. Reginald Thomas, the PS of the Government of Dominica, advocated his concerns about the inappropriate husbandry manuals and the inadequate medical health check used prior to the releasing of the four amazons. A written letter with a recommendation to immediately stop any reintroduction purposes was ignored and further birds were prepared for reintroduction (pers. comm., R. Thomas).

The above-mentioned organizations have provided no evidence that each parrot passed an IUCN approved period of quarantine isolation before release into the endangered wild population. The IFAW statement regarding the current "quarantine" facilities states:

This space is an improvised, stop-gap measure and a more appropriate, long-term solution needs to be identified and supported.

IFAW correctly states:

Failure to follow good quarantine procedures places all parrots at the Centre at risk and places already compromised wild populations at risk if infected parrots are released.

In fact, the pathogen panels performed on the subject amazons, immediately upon arrival at ACTP quarantine facilities, show infectious and communicable pathogens in an unacceptable number of the parrots....the same parrot flock that IFAW and Dr. Paul Reillo have publically stated they deemed imminently ready for release into the wild endangered flocks. And, the same parrot flock from which four amazons have already been released into the endangered wild parrot flocks.

NOTE: See the 57 page release of the health and laboratory pathogen reports ([Download Link](#)) provided for transparency by ACTP.

NOTE: IT IS THUS APPARENT THAT AVIARY HELD AMAZONS WERE RELEASED INTO THE WILD ENDANGERED FLOCK WITHOUT IUCN PATHOGEN TESTING AND WITHOUT THE IUCN REQUIRED QUARANTINE PERIOD.

ADDITIONALLY, TWO PARROTS DIED WITHIN THE AVIARY WITH NO NECROPSY AND WITHOUT RESET OF A QUARANTINE PERIOD. BY IUCN GUIDELINES A DEATH OR ILLNESS WITHIN THE AVIARY REQUIRES A RESET OF THE QUARANTINE PERIOD FOR ALL PARROTS WITHIN THAT COMMON AVIARY. THESE ARE THE SAME PARROTS RELEASED INTO THE ENDANGERED WILD FLOCK BY DR. REILLO'S DIRECTION.

- d. PRPRP identifies every individual with banding and microchips. Every individual has a complete written history and can be uniquely identified.

The above organizations have provided no evidence that each released parrot was uniquely identified per IUCN guidelines. In fact, the IFAW statement says that no identification bands were placed on either aviary parrots or the released parrots:

We brought bird bands and the application tool but after testing, the bands were determined to be too small.

Obviously, to scientifically vet an individual parrot for pathogens, quarantine, and insure longitudinal health assessment, each individual must be uniquely identifiable. Likewise, each released parrot should have been banded (and/or microchipped) prior to release. The above organizations have provided no evidence that these scientific IUCN guidelines were followed.

Note: The 10 Red-necked parrots that were brought to ACTP Germany did in fact have open leg rings on, that had been placed on them in Dominica. Upon arrival at ACTP Germany, during the vet exams it was evident that these rings were in fact too small and as a result they were actually cutting into the flesh on each birds leg, so it was necessary to remove them immediately to prevent serious and permanent

injury from occurring.

- e. PRPRP releases parrots only into a healthy habitat and ecosystem with suitable food and shelter. There are no releases into a habitat recently destroyed by a Category 5 hurricane.

Against IUCN guidelines, the above organizations took it upon themselves to release four endangered parrots into a destroyed habitat, with stated plans of further releases of the remaining aviary parrots into destroyed habitat. The IFAW report states that Dr. Reillo directed the release of the four non-vetted Jaco parrots despite the published assessment by IFAW that there was not adequate intact habitat or food sources for the parrots:

There appears to be inadequate forage available for wild parrots across all of the areas surveyed to date in Dominica. As evidence of this, wild parrots are still consistently being spotted foraging at low elevations and exploiting unusual food sources (i.e. Zing Zing). Additionally, starving parrots continue to be brought to the Centre. These parrots appear uninjured, but are underweight and or ill, likely as a result of the lack of forage and the flight distances required to find food during the day and return to their normal roosting sites at night. All of this together supports the position that there is inadequate food to sustain wild populations. Releasing rehabilitated birds into such a compromised environment places them or their wild counterparts at risk, as the rehabilitated birds will likely starve either as a direct result of food scarcity, or as an indirect result if their pre-release flight conditioning proves inadequate to support unaccustomed long flights in search of food and roost sites. Either situation presents a compromise to the values that should be inherent in any rehabilitation and release program.

IFAW states - despite knowing that it contradicted all scientific principles and IUCN guidelines- that their organization supported the release by its partners (Dr. Paul Reillo and RSCF):

IFAW does not condone the release of parrots who should have been quarantined for additional time due to the quarantine breach at the Centre. We discussed this important point with key stakeholders and when the decision to release the parrots anyway was made IFAW agreed to support our partners by helping with the release as requested.

- f. Every parrot released into the wild by the PRPRP is fitted with a radio transmitter for scientific evaluation of the release success and the protocol. Every parrot is tracked for up to one year. The PRPRP telemetry provides a scientific means to assess the two week, one month, six month, and one year survival rates of the released parrots. The telemetry allows scientific assessment of where and how the parrots are using the habitat, as well as data used to assess how future releases and success

rates can be improved for the benefit of both the released birds and the wild population.

The above-mentioned organizations have provided no evidence of telemetry. Without telemetry, how can RARE and BirdsCaribbean assess the success (survival rate) of the released birds. Without post release data – actually with zero data - how can they scientifically justify additional releases?

- g. The PRPRP spends months adapting birds chosen for release to a diet of the natural foods that the parrots will find in their release habitat.

The above-mentioned organizations have specifically stated that the main food of the aviary birds, up until the day of release, was sunflower seeds. This is in direct contradiction to evidence based parrot releases, as well as in direct contradiction to IUCN guidelines.

- h. The PRPRP has identified and published all identifiable negative pressures of the natural habitat on the wild population of Puerto Rican Parrots. Aggressive steps have been taken over decades to ameliorate the extinction pressures. IUCN guidelines state that the factors responsible for the demise of the wild population must be sufficiently addressed and ameliorated prior to ever considering a release of birds.

The above-mentioned organizations have provided no evidence that the food sources present in the devastated natural habitat have recovered sufficiently to provide an acceptable expectation of survival of the released birds. To the contrary, the organizations have promoted the necessity of feeding stations for the wild population to prevent further mortality, as well as compensating farmers to allow the parrots to feed on agricultural crops due to the presently insufficient availability of natural food for the wild parrot flocks. These same extreme negative survival factors have resulted in less than viable Dominican parrots being found compromised, and then placed in aviaries for rehabilitation.

In conclusion, whereas the PRPRP is a scientific, evidence-based, peer-reviewed, project with solid data collection, including a battery of proper health/pathogen tests, unique identification of each parrot, telemetry, hurricane rooms, state of the art aviary and release facilities, and scientifically trained staff following evidenced based IUCN guidelines for parrot releases:

The above-mentioned organizations have provided no evidence that justifies their subjective release (against IUCN guidelines) of un-vetted; individually unidentifiable; telemetry free; pathogen untested; non-quarantined parrots - into a destroyed habitat without sufficient food sources or shelter. In short, the actions of the above organizations constitute an abject failure to follow established, peer-reviewed, evidence-based, published, IUCN guidelines established to ensure the humane and successful release of parrots into viable habitat with the expressed intent of also protecting the established wild population from introduced disease pathogens.

The only identifiable similarity between the PRPRP and the above-mentioned organizations is that they both purport to have performed scientific work following IUCN

guidelines with endemic island parrots. But the facts and actions of the above-mentioned organizations fail to support much more - to the detriment and inhumane treatment of the released parrots, and to the possible pathogenic detriment of the endangered wild populations.

For reference, we include the IUCN link to “Guidelines For Reintroductions and Other Conservation Translocations”:

<https://portals.iucn.org/library/efiles/documents/2013-009.pdf>

Unfortunately, the “controversy” from the above-mentioned organizations appears, from our perspective, to be less about preventing the extinction of the species and more about self-promotion and protecting “turf”. It appears that the decision to ignore IUCN published, peer-accepted, Reintroduction Guidelines would suggest that self-promotion and internal fundraising campaigns of the above-mentioned organizations supersede the best interest of the parrots of Dominica.



A case in point further illustrating the hypocrisy of the “controversy” is that Dr. Reillo, pictured above left, director of RSCF:

1. Keeps a pet Sisserou aka Imperial Amazon (*Amazona imperialis*), *ex-situ* in isolation at his facility in Florida, and has done for a decade, which has been presented often to visitors or used for entertainment purposes/unnecessary interactions with humans, without a conspecific, social partner
2. Has demonstrated no apparent intention to integrate this critically endangered Dominican amazon into conservation efforts for the species or return it to Dominica.
3. And, Dr. Reillo removed this Sisserou by application to the Government of Dominica under an “emergency”, a term he contends does not apply to the parrots designated by the Dominican Government for emergency protection with ACTP.

Again, ACTP commends the hard work and dedication of all volunteers and parties involved in effectively working along IUCN guidelines to prevent the extinction of Dominica’s iconic Amazon species. We are proud to have been selected by the Dominican Government to provide the volunteer assistance for which we are uniquely qualified. We wish to continue our

ex-situ support and work to create funding for in situ conservation work to provide whatever financial assistance we can. The more organizations working toward the common goal of rescuing and protecting the Dominican Amazons from the brink of extinction, the greater our chances for success, and the better for the welfare and future of the Dominican Amazons.

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Appendix I

Examples were populations of parrots and other restricted-range species/island endemics were significantly impacted by single natural events:

- Montserrat Oriole (*Icterus oberi*): Following volcanic activity and eruptions between 1997-2003 the population decreased by 8-52 % annually (from estimated 4000 individuals in 1998 to 307-690 in 2012)! After an intensive *in-situ* conservation effort, the population now shows a stable to increasing trend. In 2013 the overall population was 50 % of what it was before the volcanic activity (1998). In 1999, eight wild birds were captured and taken to the Jersey Zoo by the Durrell Wildlife Conservation Trust. So far, the captive program has produced promising results and expanded to other zoological

collections (Owen *in litt.* 2000, Hilton *et al.* 2003, Oppel *et al.* 2012; *et al.* 2014; Bambini *et al.* 2016)

- Bahama Nuthatch (*Sitta insularis*): This was recently split (previously considered conspecific with *S. pusilla*) and is considered a distinct, endemic species from the Grand Bahama Island; its population was significantly impacted by Hurricane Matthew (also a category 5 hurricane) in 2016. Surveys during the post-hurricane period failed to find any individuals or remaining populations, indicating that the existing population must be extremely small or possibly extinct. The pre-hurricane population was estimated at 1200 mature individuals, which is equivalent to a total population size of 1800 individuals – more than the population of the Red-necked parrot prior to Hurricane Maria (Haynes *et al.* 2004, Wheatley *in litt.* 2018).
- Barbuda Warbler (*Setophaga subita*): The native habitat of Barbuda was nearly completely destroyed by Hurricane Irma last year. A first survey failed to find any individuals of this near-threatened endemic (population prior to hurricane estimated at 1000-2500 birds; Birdlife International 2018). A second survey produced just eight sightings (BirdsCaribbean *in litt.* 2017). Judging from the damage to habitat, the remaining population could be in critical danger of extinction and now warrant uplisting to a higher threat category.
- Hispaniolan Parrot (*Amazona ventralis*): The native habitat was nearly completely destroyed by Hurricane George in September 1998 with Category 4 winds at landfall. This event overlapped the research introduction of 49 aviary bred Hispaniolan Parrots (White *et al.* 2005), each of which had been collared with telemetry transmitters. Data from these researchers demonstrated good initial post-hurricane survival. Most mortality occurred weeks into the post-hurricane period due to lack of food sources and had a peak 10 weeks after the initial release (Collazo *et al.* 2003). The researchers documented a greater than 300% increase in home range of the telemetry parrots after the hurricane event, demonstrating the distance the parrots foraged in the denuded habitat. The authors state that the survival rate of parrots was greater in areas of limestone sinkholes where habitat was protected. Dominica geology is lacking natural limestone sinkholes or foraging areas naturally protected from hurricanes (White *et al.* 2005). The Kaplan-Meier survival rate estimated at 16 weeks post-release was 77% on 29 June 1998 (before Hurricane George) and dropped to 23% after the direct impact of Hurricane Georges. Using the first-year Mayfield survival rate method, a rate of 29% from 29 June 1998 to 1999 was calculated (Collazo *et al.* 2003).

Appendix II

Examples of flagship conservation programs which are using/used methods from scientific aviculture

- Madagascar Pochard (*Aythya innotata*): After the remarkable rediscovery of the species in 2006, the Durrell Wildlife Conservation Trust starting to collect pre-incubated eggs from three clutches in 2009 to establish an *ex-situ* conservation population in Madagascar. Since the hatching of the first chicks in the captive breeding centre in Antsohihy, thanks to efforts of the WWT (also involved in the conservation breeding program of the critically endangered Spoon-billed Sandpiper) and Durrell Wildlife Conservation Trust the captive population has increased to 90 individuals, with first individuals now earmarked for reintroduction (Safford & Hawkins *in litt.* 2013, Birdlife International 2018)
- Californian Condor (*Gymnogyps californianus*): Due the low reproductive performance (one chick reared every two years, long incubation and nestling periods, high risk of imprinting) a captive breeding program was contraindicated and questioned, until only 22 individuals were left in the wild by 1980. A captive breeding program was initiated in 1981 by collecting eggs from wild nests. By 1987 the last wild individuals were captured for the captive program. The captive breeding program for the Californian Condor is one the most magnificent, conservation stories. Thanks to successful breeding and reintroduction today at least 276 individuals exist in wild (Finkelstein *et al.* 2015, Terwilliger *in litt.* 2017)
- Pink Pigeon (*Nesoenas mayeri*): Only 10 birds survived in the wild by 1990. Thanks to intensive conservation work, including protection of nest sites from invasive predators and continuous nest monitoring, captive breeding and reintroduction now 370-380 individuals are found again in the natural habitat of Mauritius, along with other endangered species, like the Mauritius Kestrel and Echo Parakeet (Safford & Hawkins *in litt.* 2013).
- EEP/EAZA *ex-situ* programs for various endangered parrot species, which are operated by different zoological institutions and collections around the world. Historical attempts in scientific aviculture were made for many endangered parrot species, including the Echo Parakeet, Thick-billed Parrot, St. Lucia Parrot (Jeggo *in litt.* 1974; *in litt.* 1980, Hawkins *et al.* 2013).