

TRAFFIC

R E P O R T

DECEMBER 2018

BIRD'S-EYE VIEW:

Lessons from 50 years of bird trade regulation
& conservation in Amazon countries

Bernardo Ortiz-von Halle



TRAFFIC REPORT

TRAFFIC, the wildlife trade monitoring network, is a leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

The views of the authors expressed in this publication do not necessarily reflect those of TRAFFIC, WWF, or IUCN.

Reproduction of material appearing in this report requires written permission from the publisher.

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organizations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Published by TRAFFIC International.

David Attenborough Building,
Pembroke Street, Cambridge CB2 3QZ, UK

© TRAFFIC 2018. Copyright of material published in this report is vested in TRAFFIC.

ISBN: 978-1-911646-04-4

UK Registered Charity No. 1076722

Suggested citation: Ortiz-von Halle, B. (2018). Bird's-eye view: Lessons from 50 years of bird trade regulation & conservation in Amazon countries. TRAFFIC, Cambridge, UK.

Design: Fuszion

Front cover photograph: wild-caught macaws in a facility near Parmaribo, Suriname, awaiting export © Arturo Hortas / TRAFFIC

About the author and this study:



Bernardo Ortiz-von Halle, a biologist and zoologist from the Universidad del Valle, Cali, Colombia, has more than 30 years of experience in numerous aspects of conservation and its links to development. His decades of work for IUCN - International Union for Conservation of Nature and TRAFFIC in South America have allowed him to acquire a unique outlook on the mechanisms, institutions, stakeholders and challenges facing the conservation and sustainable use of species and ecosystems. Developing a critical perspective

of what works and what doesn't to achieve lasting conservation goals, Bernardo has put this expertise within an historic framework to interpret the outcomes of different wildlife policies and actions in South America, offering guidance towards solutions that require new ways of looking at wildlife trade-related problems. Always framing analysis and interpretation in the midst of the socioeconomic and political frameworks of each South American country and in the region as a whole, this work puts forward conclusions and possible solutions to bird trade-related issues that are linked to global dynamics, especially those related to wildlife trade.

Complementary and valuable experience in conservation policy and practice in protected areas, international conservation and development debates, multilateral conservation bodies (CITES, CBD, Ramsar), species specialist groups, timber, fisheries, non-timber forest products, and wild fauna management and ecosystem services, complete the framework that make this bird-trade analysis so important for future conservation policy decisions.

With the support of



BIRD'S-EYE VIEW:

Lessons from 50 years of bird trade regulation
& conservation in Amazon countries

Bernardo Ortiz-von Halle





TABLE OF CONTENTS

Introduction	1
Birds of South America	5
Brazil: ideological dilemmas and distracting confrontations not helping wild birds	25
Colombia: bird mega-diversity and mega threats	59
Ecuador: conservation efforts focused on enforcement and bird tourism	77
Guyana and Suriname: “if you have a resource, why not use it”	97
Peru: at the heart of illegal trade	117
The US’s role as main market of South American birds (1900–1992)	149
Regional conclusions	158
Bibliography	174



ACRONYMS AND ABBREVIATIONS

ABRASE	Brazilian Association of Commercial Breeder and Traders of Exotic Wild Animals
ACTP	Association for the Conservation of Threatened Parrots
AFA	American Federation of Aviculture
AWWP	Al Wabra Wildlife Preservation
CARDER	Corporación Autonoma Regional de Risaralda
CARICOM	Caribbean Community and Common Market
CBRN	Coordenadoria de Biodiversidades e Recursos Naturais, Estado de São Paulo
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoP	Conference of the Parties
COPISA	Compañía Peruana Internacional S.A.
Corpoamazonia	Corporación Autónoma Regional del Sur de la Amazonía
Cortolima	Corporación Autónoma Regional del Tolima
COTES	Control of Trade in Endangered Species
CORBIDI	Centro de Ornitología y Biodiversidad del Peru
CR	Critically Endangered
CR-PE	Critically Endangered-Possibly Extinct
CRQ	Corporacion Autonoma Regional del Quindio
CRRFFS	Centro de Recepción y Rehabilitacion de Fauna Silvestre
CVC	Corporacion Autonoma Regional del Valle del Cauca
DAS	Departamento Administrativo de Seguridad
DD	Data Deficient
DENP	Dictamen de Extracción No-Perjudicial- para Psittacidos de Importancia Comercial
DGFFS	Dirección General Forestal y de Fauna Silvestre
DS	Decreto Supremo
EC	European Commission
EN	Endangered
EPA	Environment Protection Agency - Guyana
ESA	Endangered Species Act
EU	European Union
EUR	Euros
EX	Extinct
EW	Extinct in the Wild
FEMA	Fiscalía Especializada en Materias Ambientales
FUNBIO	Fundação Grupo Boticário de Proteção à Natureza e Fundo Brasileiro para a Biodiversidade

FWS	Fish and Wildlife Service
GEF	Global Environment Facility
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazil)
IBA	Important Bird Area
IBDF	Instituto Brasileiro de Desenvolvimento Florestal
ICMBio	Instituto Chico Mendes de Conservação da Biodiversidade
INCOMEX	Instituto de Comercio Exterior
INDERENA	Instituto Nacional de Recursos Naturales Renovables y del Ambiente
INRENA	Instituto Nacional de Recursos Naturales
IUCN	International Union for Conservation of Nature
LC	Least Concern
MAE	Ministerio del Ambiente
NGO	non-governmental organization
NPC	Neotropical Primate Conservation
NT	Near Threatened
PEX	Possibly Extinct
PEXW	Possibly Extinct in the Wild
PROMPERU	Peru Export and Tourism Promotion Board
RENCTAS	Rede Nacional Contra o Tráfico de Animais Silvestres
SDA	Secretaria de Ambiente de Bogota
SEMA	Secretaria Especial para o Meio Ambiente
SERFOR	Servicio Nacional Forestal y de Fauna Silvestre del Ministerio de Agricultura y Riego
SisPass	Sistema Informatizado de Gestão da Criação de Passeriformes
SPVS	Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental
EU-TWIX	European Union - Trade in Wildlife Information eXchange
UAE	United Arab Emirates
UK	United Kingdom
UNASUR	Union de Naciones Suramericanas
UNEP-WCMC	United Nations Environment World Conservation Monitoring Centre
UNIDERP	Universidade Anhanguera
UPMA	Unidad de Policia del Medio Ambiente
US	United States
USA	United States of America
USD	United States Dollars
VU	Vulnerable
WBCA	Wild Bird Conservation Act
WCMC	World Conservation Monitoring Centre
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature



FOREWORD

Steven Broad, Executive Director, TRAFFIC

For the four decades after the Second World War, the export of live wild birds from South America to pet keepers and collectors in international markets reached epic proportions in terms of the diversity of species and millions of individual animals involved. Though undoubtedly a continuation of fascination and commerce stretching back far deeper in history, the scale and reach of this business, driven by fast growing economies in the US and Europe, had a profoundly negative impact on the rich avifauna of the South American continent.

Gradually from the mid-1960s onwards to the end of the 1980s, both exporting and importing countries introduced legal restrictions on this trade and ramped up regulatory collaboration from the mid-1970s under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Although the reaction of some in this business was to try evasion through illegal trade, others saw the writing on the wall and shifted rapidly to captive-bred supply. In a rather limited number of cases, management of sustainable wild-sourcing was pursued as a policy objective. However, the legal closure by the mid-1990s to wild bird imports of the US and EU markets, left few options for such wildlife management innovation.

So, now that we are 50 years on from that phase of regulatory intervention, what has happened? What are the conservation impacts for the bird species involved and the natural places from where they were harvested in such vast numbers? And what has become of the people and communities who once derived livelihoods from this trade and what has happened to their place in the machinery of conservation since that time?

These are the questions approached by one of the most experienced and thoughtful collaborators I have known in my work on wildlife trade over the past three decades. When Bernardo explained his vision for this report, my first thought was that it was a mission that had little chance of completion. At the same time, I had no doubt that if it could be done, and done well, it could prove a critical contribution to our knowledge about the difficult mix of economics, business, conservation, regulation and human behavior that lies at the heart of so many environmental challenges, unsustainable wildlife trade being just one.

Reading the report that follows, I believe Bernardo has fulfilled that potential very well. The documentation of this conservation phenomenon and his analysis and commentary provide critical lessons for future thinking in this field. My only regret is that he had to finish this work at a time when TRAFFIC was stepping back from direct engagement in South America. Aside from anything else, this report demonstrates why that should be a temporary state of affairs—wildlife trade challenges in the continent may be different today than they were in the mid-20th Century, but they are no less of a concern.

PREFACE

In 2014, TRAFFIC's South America office discussed with WWF the importance of assessing the status of trade in wild birds in Amazon countries in the lead up to the fiftieth “anniversary” of policy and legal changes that were urgently implemented to regulate the trade that seriously depleted many of the most sought-after species in demand by booming post-war economies. Six Amazon countries were visited by the author, although Venezuela and Bolivia were omitted due to budget constraints, consideration of the role of these two countries in the wider conservation context, and in relation to the trade dynamics of their neighbors is covered here. The author interviewed key stakeholders, including national and subnational governments, police forces, NGOs, zoos and rescue centers, bird experts, traders and breeders. These interviews and some field visits offered different perspectives about bird trade issues, mechanisms in place and the solutions needed to reduce any threats from the poaching of birds on their conservation status.

During the 1970s, trade prohibition spread to most Amazon countries, and by the mid-1980s, every one had developed its own institutions and laws to manage and contain the problems generated by demand for illegal wildlife under the framework of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which entered into force in 1975.

This report is constructed from the institutional experience of TRAFFIC's South America office, which operated from Quito, Ecuador, from 1999 to 2015, and the personal experience of the author, dealing with species and habitat conservation in the region during the last 30 years. This culmination of wildlife conservation experience related to wildlife trade, its dynamics, socioeconomic linkages, institutional and legal elements, CITES included, helped structure the design of this research examining the reality and outlook for bird trade in the Amazon countries. The personal interviews in different countries, bibliography and web searches offer an updated insight into the bird trade status in each country, its linkages to other environmental and socioeconomic dynamics, and the way forward not only to resolve bird trade issues, but more importantly, to guarantee the conservation of birds and their habitats throughout Latin America. The conclusions presented are a compilation of issues the author considers worth highlighting to understand better where things are and in what direction they are going regarding bird trade and conservation beyond protected areas.

This document presents country chapters for Brazil, Colombia, Ecuador and Peru, and combines in a single chapter Guyana and Suriname, as there are enough commonalities between these two countries to consider a joint analysis. One initial chapter compiles an overview of the birds of South America in relation to trade—legal or illegal, and another chapter dedicated to the USA as the former main market of Amazon country birds for more than two decades until it banned the import of CITES-listed species in 1992. The USA then turned into a major commercial breeder of South American bird species after this process was “exported” to the rest of the world—South American countries banned the trade while others legally profited from breeding and trading in the species. Banning the bird trade surely saved millions of birds, but it did not bring any incentives to conserve habitats

or species as a whole. This excludes Guyana and Suriname, whose economic interest in conservation is left for non-consumptive uses like bird tourism, which is also an important economic activity in some rural portions of most Amazon countries.

The reduction of the bird trade to current (2017) levels, which are a fraction of what they were just five or ten years ago, offers hope for a better future for birds and nature, other threats and pressures appear or increase as human populations grow, encroaching into pristine regions of the continent. Local conservation efforts have made enormous differences in many areas, even reversing the destruction of nature and the extinction process of species. Stakeholders still need to design and install the appropriate tools to contain deforestation and the impacts of climate change as we move further into the 21st century. The urgency of the situation requires the revision of currently failing conservation strategies, and above all, giving local stakeholders the economic conditions and motivations to appreciate, value and respect the invaluable avian treasures that enrich each South American country. Birds have been treated over the last 150 years as sources of money for whatever international business demanded them for their feathers, meat as pets or for sport. Attitudes towards their conservation have certainly changed, but there still needs to be a stronger boost to prevent further destruction and irreplaceable loss.



Red-and-green Macaw *Ara chloropterus*

ACKNOWLEDGEMENTS

I wish to thank the TRAFFIC US office and Meg Symington, Amazon Managing Director of WWF US for the financial support to develop this work, Giavanna Grein, and Richard Thomas at TRAFFIC for reviewing and organizing the text, Lyn Brown for the editorial work and Steven Broad for final review. My warm thanks also go to Fundación Ecociencia, its Director Ana Puyol, for the institutional and economic support during the last months of work to review the final draft of the document.

The following is a compilation of persons interviewed or that shared information about bird trade in South America or in each of the countries visited:

PERSONS INTERVIEWED

Eduardo Iñigo-Elias, Cornell Lab of Ornithology, New York.

BRAZIL

Dr. Juliana Machado Ferreira, Director FREELAND-Brazil.

Dr. Vet. Liliane Milanelo, Coordenadora CRAS/PET São Paulo, Centro de Recuperação de Animais Silvestres.

Fabio Leme Cavalheiro, Identidade Audiovisual/SOS Fauna São Paulo.

Dr. Ruy Cavalheiro, Judge São Paulo State Court.

Pedro F. Devey, Conservation Director SAVE/BirdLife-Brazil.

Dra Vania Tuglio, Promotora Juridica Ministerio Público (Fiscalía) Estado de São Paulo, Directora GECAP Grupo Especial de Combate aos Crimes Ambientais e Parcelamento Irregular de Solo Urbano.

Marcelo Pavlenco Rocha, Presidente SOS Fauna São Paulo.

Pierre Alonso, Vicepresidente ABRASE – Asociación Brasileira de Comerciantes de Animales Silvestres y Exóticos.

Paulo, Owner pet store Galpão Animal, São Paulo.

Patricia Zucca, Chefe do Setor de Comunicação Social, Departamento de Policia Federal, Superintendencia del Estado de São Paulo.

Roberto Cabral Borges, Agente Ambiental Federal, IBAMA, Brasilia.

Mayor Marcelo Robis Francisco Nassaro, Chefe de Operações – Policia Militar del Estado de São Paulo, Comando de Policiamento Ambiental.

Fabio José Viana Costa, Perito Criminal Policia Federal do Brasil, Departamento de Policia Federal Instituto Nacional de Criminalística, Brasilia.

Denner Giovanini, Coordinador General, RENCITAS (Rede Contra o Trafico de Animais Silvestres no Brasil), Brasilia.

Raulff Lima, Director RENCITAS, Brazil.

Marcelo Oliveira, Programa Amazonia, WWF Brasil, Brasilia.

COLOMBIA

Dra. Gloria Elsa Arias Rangel Jefe Unidad Nacional, Delitos contra Recursos Naturales y Medio Ambiente, Fiscalía General de la Nación

Dra. Rocio Gonzales, Subdirectora Silvicultura, Flora y Fauna Silvestre, Secretaría de Ambiente, Bogota DC.

Teniente Leidy Pinzón, Unidad Investigativa de Delitos contra el Ambiente y Recursos Naturales – UICAR, Policia Metropolitana de Bogota.

Alonso Quevedo, Director Ejecutivo, Fundación PROAVES

Dra. Claudia Luz Rodriguez, Grupo de Gestiónj de Epecies Silvestres, Direccion de Bosques, Biodiversidad y Servicios Ecosistémicos. Ministerio del Ambiente y Desarrollo Sostenible

ECUADOR

Juan Manuel Carrión, Director Quito Zoo.
Jiovanny Rivadeneira, President Añangu Kichwa community.
Remigio Canelos, Amazonico Rescue Center.
Dr. Andres Ortega, Tueri Animal Rescue Fund, Veterinary San Francisco University, Quito.
Jorge Flores, Director YanaCocha Rescue Center, El Puyo, Pastaza.
Teddy Escarabay, Ministry of Environment.
Luis Cumba, Wildlife Trade Specialist, Ministry of Environment.
Captain Miguel A. Mayorga, Environmental Police Unit, Quito.

SURINAME

Laurent Kelle, WWF Guiana.
Ferdinand Baal, Former Wildlife Director, National Expert.
Romeo Lalla, Nature Conservation Division.
Claudine Sakimin, Coordinator Nature Conservation Division, Suriname Forest Service.
Roy Tsoi, Head Game Warden, Nature Conservation Division.
Bruce Hoffman, Field Project Manager, Amazon Conservation Team ACT, Suriname.
Laurens Gomes, Director WWF Regional Office Guianas, Suriname.

GUYANA

Aiesha Williams, Director WWF Guyana Office.
Juliana Persaud, Biodiversity Officer WWF Guyana Office.
Chuck Hutchinson, REDD+ and Protected Areas Officer WWF Guyana Office.
Clayton Hall, President Wildlife Exporters Association.
Adrian Wellington, Wildlife Trapper and Trader.
Violet and Prait Lall, Animal Farm Guyana Zoo/Hyde Park Zoo and Tropical Garden.
Carmen Low, Wildlife Exporter.
Calvin R. Bernard, Guyana Scientific Authority, University of Guyana.
Bal Parsaud, EPA Guyana.
Leslie de Souza Shedd Aquarium, Guyana project.

PERU

Jose Antonio Otero, Zoocriadero El Huaico, Huachipa, Lima.
Fabiola Muñoz Doderó, Directora SERFOR.
Fernando Angulo, CORBIDI, Chiclayo.
Noga Shanee, Neotropical Primate Conservation.
Dr. Vet. Ana Patricia Mendoza.
Antonio Fernández Jeri, Coordinador de Fiscalías Especializadas en Materia Ambiental.
Ing. Luis Mendo, Gobierno Regional San Martín.
Rosa Vento, SERFOR Lima.
Mariana Montoya, Director WCS Peru.
José Álvarez Alonso, Director General Diversidad Biológica, Ministerio del Ambiente.
Eduardo Gil Ortiz Jr., Owner Pet Store, Tienda de Mascotas, Ayacucho, Lima.
Ms. Julith Padilla, Zoo and Zoo, Bird Exporting Company, Lima.



1. INTRODUCTION

South America offers a unique opportunity to assess the results of half a century of efforts to resolve the conservation threat posed by excessive international wildlife trade to many target species. Each country in the region has incorporated different approaches into their own legal framework. These range from total prohibition of trade in wild trapped birds (Bolivia, Brazil, Colombia, Ecuador), to countries that continue their exploitation as an export commodity conditioned by market demand, provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and from particular import countries (USA and the European Union) (Guyana and Suriname). An intermediate option is captive breeding for commercial purposes (Brazil, Peru), or a marginal activity that exports some wild-trapped common species (Peru and Venezuela until recently).

This report aims to evaluate the outcomes of around five decades of regulations on international live bird trade. The regulation of international wildlife trade in South America started with a radical decision by one of the main players at the time. Brazil closed down all legal exports of wild-trapped animals in 1967. As South American countries gradually joined CITES following its ratification in 1975, every one of them has developed its own agenda resulting in different conservation outcomes, although there are also several policy and legal elements shared between most countries in the region. As several bird, mammal and reptile species were wiped out from different landscapes in South America to feed international demand for live animals and parts such as skins, local scientists, influenced by their US peers, activists and recently created NGOs, lobbied their governments to act against the openly predatory activity. In the late 1960s/early 1970s, new institutions were created and laws passed with the specific purpose to protect these natural resources from depletion at a time when wildlife trade turned into the major South American environmental issue, as it was recognized worldwide.

Since then and to this date, a lot has happened for birds, wildlife and nature in South America. This report addresses those events, transformations and outcomes as the wild bird trade scenario in the different Amazon countries unfolded and matured to its current status. Tackling the negative impacts of wildlife trade on species has been an uphill struggle from politically marginal institutions, underfunded and understaffed, about an issue that only until recently has gained some social recognition.

The extant survivors of hundreds of South American mammal, bird and reptile species are descendants of decades if not centuries of commercial overexploitation across South America. A long list of populations of species, everything from penguins to vicuñas, parrots, crocodiles, herons, rheas have been systematically decimated in many places. Species, including the Short-tailed Chinchilla *Chinchilla chinchilla* of the Andean highlands and the Spix's Macaw *Cyanopsitta spixii* in Brazil have been brought to the brink of extinction.

For many species, such as hummingbirds and herons, the hunting for international trade that picked up around the mid-19th century has completely ceased but continues locally for others like river turtles. Many other species face a dire future in a world that has changed dramatically during recent decades. Despite a halt to commercial exploitation, for many species, recovery has been hampered by new scenarios of degraded, polluted or destroyed natural habitat. Environmental degradation—in both terrestrial and marine habitats, is the current major threat for most species, whether previously affected by commercial exploitation or not. For example, human activities increasingly pose threats for many riverine species such as the Amazon River Dolphin *Inia geoffrensis* through chemical and biological pollution, noise from navigation in larger rivers, poaching from increased encounters with an expanding human population and conflict with fisheries leading to deaths as they are considered a threat to harvests.

Rural populations, indigenous or not, have always been reliant on wildlife as food, and in the last century, as a cash source. It is only in a few places that a more conservation-orientated attitude has evolved towards wild animals within the rural population. This has occurred where positive economic incentives have developed through tourism, birdwatching for example, through a few sustainable use projects, or around particular places like private reserves where lasting environmental education efforts have achieved some local wins. Nevertheless, livelihood needs, specifically poverty levels, remain as the main factor determining if wildlife will be protected or not throughout rural South America. Improving food security, education, job creation and sustainable economic opportunities will be critical for the future conservation of habitats and species in the region.

Non-enforcement efforts that promote wild bird conservation are usually focused on a limited number of species, some emblematic such as the Andean Condor *Vultur gryphus* or some psittacine species. These efforts are implemented in particular areas, but do not happen as part of programs that protect and manage ecosystems at wider landscape-scales, which is required to achieve far-reaching conservation outputs. As a result, conservation efforts have generally been insufficient to change the tide radically towards a more favorable future for wildlife in South America. New threats have appeared, including those from

climate change, increased harvesting of species for alleged medicinal properties and encroachment into remote places which until recently were inaccessible.

Conversely, there has been a definite positive shift among the urban populace towards concern for wild animals in South American countries. As currently up to 80% of people in South America live in cities, positive changes in attitudes towards wildlife in urban populations will improve conservation possibilities for those species negatively affected by hunting for trade or food. In fact, wild bird markets have considerably shrunk in most South American cities, in some cases almost completely vanished, drastically altering the supply and demand dynamics in favor of wild species. The large-scale wild bird markets reported in Southeast Asian cities cannot be found in South America. Persistent enforcement efforts have hidden illegal wildlife trade from the public eye so the activity is now mainly driven by collectors, new activities like bird-pest controls with raptors in Peru, or the culturally embedded hobbies of bird races in Suriname, Guyana and parts of Brazil. The size of this demand is quite reduced compared to the customary widespread demand for cagebirds that existed just a generation ago.

As described in this report, wild bird exploitation for commercial purposes started around the mid-19th century. Pressure was put on species used for fashion accessories in Europe, escalating at the end of the century and early 20th century. The two world wars placed a halt on European demand which was diverted to the USA as the major importer. Trade shifted from bird parts to live birds as commercial air travel turned into a regular transport option, thus permanently changing the animal trade environment. The three decades of legal wild bird exports from South America from 1950 to 1980 resulted in the harvest of millions of birds from hundreds of species in the region. This volume has now reduced to just a few thousand specimens per year from the three countries that still legally export wild birds—Guyana, Peru and Suriname. Internal or trans-border trade between neighboring South American countries is now a much larger and more serious problem. However, such trade has been significantly reduced in the latest decade through bans and enforcement in urban markets, thus cutting the link between supply and demand in most of South America's large- and medium-sized cities. This has, to some, represented a major conservation achievement that needs continued effort to prevent an upsurge in urban sale of birds. However, it also poses a significant risk as rural poverty levels are still extreme and income-generation opportunities are scarce. Thus, the option of selling wild animals will remain until socioeconomic conditions and education levels improve, which will require extensive hard work and continued economic investment to guarantee success. Additionally, the absence of a framework for legal and planned sustainable use of wildlife by local communities is a major gap in all South American countries.



2. BIRDS OF SOUTH AMERICA

Bird taxonomy used in this report aligns with that currently (2017) followed by BirdLife and IUCN, available at: <http://datazone.birdlife.org/home>. However, there have been a number of changes over the years, and much of the legislation concerning bird trade in Amazon countries as well as international conventions follow earlier classifications. Where the current and older taxonomies differ, the differences have been highlighted in the text.

There are around 3,560 bird species in South America and its surrounding waters, meaning that around four in ten bird species on the planet can be found on the continent. Some of the species are seasonally present, with around 150 species migrating from North America to spend the Boreal winter in more favorable weather south of the Panama border. Including biologically contiguous Mesoamerica, the Neotropical biogeographical region as a whole hosts several endemic bird groups at the family taxonomic level. Of the total of 105 extant native bird families in the Neotropics, some of them with hundreds of species, there are 32 found only in the region, including 16 small families each comprising no more than four species.¹

Six of the top ten countries worldwide with the largest numbers of bird species are found in South America, including the top three (Table 1). It is worth highlighting that although Ecuador is a relatively small country rated 74th in terms of its landmass, it is placed fifth on the list of bird species diversity. Each of the seven South American countries in the top ten have more species than continental-sized countries including India, China, all of North America and Australia. In fact, there are localities in these Andean-Amazon countries that harbor more species than all of North America.

¹ Rheidae (Rheas 3 species), Anhimidae (Screamers 3), Eurypygidae (Sunbittern 1), Steatornithidae (Oilbird 1), Opisthocomidae (Hoatzin 1), Pluvianellidae (Magellanic Plover 1), Thinocoridae (Seedsnipes 4), Semnornithidae (Prong-billed Barbets 2), Cariamidae (Seriemas 2), Sapayoidae (Broad-billed Sapayoa 1), Melanopareiidae (Crescentchests 4), Donacobiidae (Black-capped Donacobius 1), Rhodinocichlidae (Rosy Thrush-tanager 1), Mitrospingidae (Mitrospingid tanagers 4), Peucedramidae (Olive Warbler 1), Zeledoniidae (Wrenthrush 1).

TABLE 1. TOP TEN COUNTRIES WITH HIGHEST RECOGNIZED NUMBER OF BIRD SPECIES

	Number of species	Threatened species (CR, EN, VU)
1. Colombia	1,877	126
2. Peru	1,857	121
3. Brazil	1,809	170
4. Indonesia	1,712	155
5. Ecuador	1,619	106
6. Bolivia	1,437	54
7. Venezuela	1,392	52
8. China	1,290	94
9. India	1,212	88
10. Democratic Republic of the Congo	1,107	40

The status of South American birds

In South America, 441 bird species are globally threatened (International Union for Conservation of Nature, IUCN 2015). They include 387, some 12%, of the continent's terrestrial species (see Table 2). When the Red List Categories of Extinct (**EX**), Data Deficient (**DD**: conservation assessment is not possible due to lack of information) and Near Threatened (**NT**) are added, the number of species rises to 737 or 21% of South American species. Trade, poaching for bushmeat and general hunting affects some 225 species, mainly parrots, songbirds and toucans but also some raptors, tinamous, ducks, doves, etc. The majority of the threatened species are affected by habitat degradation including a combination of deforestation, pollution, fragmentation and destruction of nesting sites. Within South America, families with some of the highest percentages of globally threatened species include albatrosses (79%), guans (42%), parrots (32%), New World quails (29%) and doves (13%). Threats such as poaching for trade and habitat degradation—combined with restricted distributions and/or natural rarity steeply increases risk of extinction. This has been the case for a number of species including macaws (e.g. Glaucous Macaw *Anodorhynchus glaucus*, Spix's Macaw *Cyanopistta spixii*, Blue-throated Macaw *Ara glaucogularis*) and various parrots (e.g. Vinaceous-breasted Amazon *Amazona vinacea*, Red-browed Amazon *A. rhodocorytha*, Red-spectacled Amazon *A. pretrei*).

TABLE 2. NUMBER OF SOUTH AMERICAN BIRD SPECIES BY IUCN RED LIST THREAT CATEGORY

Extinct (EX)	2
Extinct in the Wild (EW)	1
Critically Endangered (CR)	58
Endangered (EN)	140
Vulnerable (VU)	242
Near Threatened (NT)	283
Data Deficient (DD)	11
TOTAL	737

To date, only two native South American bird species are considered to be Extinct, namely the Colombian Grebe *Podiceps andinus* and the Least Vermilion Flycatcher *Pyrocephalus dubius*, a further species, the Alagoas Curassow *Mitu mitu*, only exists in captivity and is classified as Extinct in the Wild, while four more species are considered to be Critically Endangered (Possibly Extinct): Turquoise-throated Puffleg *Eriocnemis godini*, Eskimo Curlew *Numenius borealis*, Sinu Parakeet *Pyrrhura subandina* and Cryptic Treehunter *Cichlocolaptes mazarbarnetti* (BirdLife International. 2017f; Renjifo *et al.* 2014). It should be noted, however, that hundreds of populations across numerous species exist in remnants of their habitats, affected by decades of deforestation, pollution and other factors, which makes their future uncertain. The escalating trend of species being added to the IUCN Red List represents a dark prospect for bird conservation in the coming decades. There are intensifying threats from climate change, unabated deforestation, and increased human presence in remote areas protected till now owing to their inaccessibility. Most Amazonian species still depend on large tracts of habitat that have allowed their recovery or protection in remote places, for example, where over hunting has not yet depleted their populations, as has happened with several of the large curassow species (Cracidae) in a number of localities.

South American Bird Species – CITES Appendices

Table 3 includes 539 South American bird species currently (2017) listed in CITES Appendix I and II. These are most of the bird species that have been traded for centuries and for which international trade is a present or potential threat. Major gaps in the current CITES coverage include other unlisted toucans, and many other songbirds of the families Icteridae, Mimidae, Thraupidae, Emberizidae and Fringillidae, that would benefit from better controls and data concerning their population status and trade levels. Of the 511 Appendix II-listed South American species, according to 2015 data, some 59 species are currently exported from South American countries, mainly psittacines, toucans and captive bred raptors.

Guyana and Suriname report annual quotas for their CITES exported bird species, Peru does not, nor are Non-Detriment Finding assessments (NDFs)—CITES requirements for Appendix II-listed species—all formulated for every species exported by Guyana, Suriname and Peru as a technical guarantee of the sustainability of their management programs.

The Red Siskin *Carduelis cucullata* or “cardenalito” (EN), is a CITES Appendix I-listed species with a restricted distribution primarily in Venezuela, but also marginally present in Guyana and Colombia. The species was plundered for the songbird trade with many thousands trapped since the early decades of the 20th century. One single male fetched USD1,000 in the international market (Coats and Phelps Jr., 1985). This might be the only species in South America reaching threatened status from trade as the main driver for its population’s collapse, compared to many other traded species where the combination of hunting for food and/or trade combined with habitat loss resulted in severe population declines. There are ongoing efforts for the Red Siskin recovery based on *ex situ* reproduction for repopulation purposes, habitat protection, environmental education and curbing of illegal trade.²

² www.cardenalito.org.ve



TABLE 3. SOUTH AMERICAN BIRDS IN CITES APPENDIX I AND II

Appendix	Species Common Name	Species Scientific Name
I	Darwin's Rhea	<i>Pterocnemia pennata</i>
I	Solitary Tinamou	<i>Tinamus solitarius</i>
I	Red-billed Curassow	<i>Crax blumenbachii</i>
I	White-winged Guan	<i>Penelope albipennis</i>
I	Alagoas Curassow	<i>Mitu (Pauxi) mitu</i>
I	Black-fronted Piping Guan	<i>Pipile jacutinga</i>
I	Humboldt Penguin	<i>Spheniscus humboldti</i>
I	Jabiru	<i>Jabiru mycteria</i>
I	Harpy Eagle	<i>Harpia harpyja</i>
I	Andean Condor	<i>Vultur gryphus</i>
I	Eskimo Curlew	<i>Numenius borealis</i>
I	Hook-billed Hermit	<i>Glaucis dohrnii</i>
I	Peregrine Falcon	<i>Falco peregrinus</i>
I	Yellow-shouldered Amazon	<i>Amazona barbadensis</i>
I	Red-tailed Amazon	<i>Amazona brasiliensis</i>
I	Red-spectacled Amazon	<i>Amazona pretrei</i>
I	Red-browed Amazon	<i>Amazona rhodocorytha</i>
I	Tucumán Amazon	<i>Amazona tucumana</i>
I	Vinaceous-breasted Amazon	<i>Amazona vinacea</i>
I	Glaucous Macaw	<i>Anodorhynchus glaucus</i>
I	Hyacinth Macaw	<i>Anodorhynchus hyacinthinus</i>
I	Lear's Macaw	<i>Anodorhynchus leari</i>
I	Blue-headed Macaw	<i>Primolius couloni</i>
I	Blue-winged Macaw	<i>Primolius maracana</i>
I	Spix's Macaw	<i>Cyanopsitta spixii</i>
I	Great green Macaw	<i>Ara ambiguus</i>
I	Blue-throated Macaw	<i>Ara glaucogularis</i>
I	Scarlet Macaw	<i>Ara macao</i>
I	Military Macaw	<i>Ara militaris</i>
I	Red-fronted Macaw	<i>Ara rubrogenys</i>
I	Yellow-eared Parrot	<i>Ognorhynchus icterotis</i>
I	Golden Parakeet	<i>Guarouba guarouba</i>
I	Ochre-marked Parakeet	<i>Pyrrhura cruentata</i>
I	Pileated Parrot	<i>Pionopsitta pileata</i>
I	Banded Cotinga	<i>Cotinga maculate</i>
I	White-winged Cotinga	<i>Xipholena atropurpurea</i>
I	Saffron-cowled Blackbird	<i>Xanthopsar flavus</i>
I	Red Siskin	<i>Carduelis cucullata</i>
Total 38 Species (21 parrots)		

Appendix	Common Name	Scientific Name
II	Greater Rhea	<i>Rhea americana</i>
II	Lesser Rhea	<i>Pterocnemia pennata</i>
II	Andean Flamingo	<i>Phoenicoparrus andinus</i>
II	James's Flamingo	<i>Phoenicoparrus jamesi</i>
II	Chilean Flamingo	<i>Phoenicopterus chilensis</i>
II	American Flamingo	<i>Phoenicopterus ruber</i>
II	Coscoroba Swan	<i>Coscoroba coscoroba</i>
II	Black-necked Swan	<i>Cygnus melancoryphus</i>
II	Knob-billed Duck	<i>Sarkidiornis melanotos</i>
II	Scarlet Ibis	<i>Eudocimus ruber</i>
II	Eurasian Spoonbill	<i>Platalea leucorodia</i>
II	Black-necked Aracari	<i>Pteroglossus aracari</i>
II	Green Aracari	<i>Pteroglossus viridis</i>
II	Keel-billed Toucan	<i>Ramphastos sulfuratus</i>
II	Toco Toucan	<i>Ramphastos toco</i>
II	White-throated Toucan	<i>Ramphastos tucanus</i>
II	Channel-billed Toucan	<i>Ramphastos vitellinus</i>
II	Andean Cock-of-the-rock	<i>Rupicola peruvianus</i>
II	Guianan Cock-of-the-rock	<i>Rupicola rupicola</i>
II	Seven-colored Tanager	<i>Tangara fastuosa</i>
II	Yellow Cardinal	<i>Gubernatrix cristata</i>
II	Java Sparrow	<i>Lonchura oryzivora</i>
II	Yellow-billed Cardinal	<i>Paroaria capitata</i>
II	Red-crested Cardinal	<i>Paroaria coronata</i>
II	Yellow-faced Siskin	<i>Carduelis yarrellii</i>
II	Falcons (except those in App I, 86)	Falconidae
II	Parrots (except those in App I, 106)	Psittacidae
II	Owls (44)	Strigiformes
II	Hummingbirds (250)	Trochilidae
Total 511 species		

Source: CITES (<https://www.speciesplus.net/>)

In Focus: South American Parrots in CITES Appendix I

Regarding Appendix I-listed parrot species, there are a total of 9,032 birds reported as commercially exported from 18 of the 21 listed species between 2000 and 2013 (Annex 1). The three species for which there is no recorded trade are Lear's Macaw *Anodorhynchus leari*, Glaucous Macaw *Anodorhynchus glaucus* and Spix's Macaw *Cyanopsitta spixii*. Brazil is the range State for 15 of the 18 Appendix-I traded species, eight of which are country endemics, and the remaining seven are shared with neighbors of the Mata Atlántica forests—Argentina and Paraguay—and Pantanal ecosystems—Bolivia. Bolivia is the other country with an important presence of Appendix I-listed species in international trade with 8 species. Two of them, the Blue-throated Macaw *Ara glaucogularis* and Red-fronted Macaw *Ara rubrogenys*, are country endemics. The other three species, the Great Green Macaw *Ara ambiguous*, Scarlet Macaw *Ara macao* and Military Macaw *Ara militaris*, are present in South, Central America and Mexico, while the Yellow-shouldered Amazon *Amazona barbadensis* is present in Venezuela's dry Caribbean coast, Margarita Island and Bonaire.

Forty-six countries have reported commercial exports of one or more of the 18 exported Appendix I-listed parrot species (Annex 1). South Africa, the Philippines, Singapore, Switzerland, Argentina, USA and Netherlands exported more than 200 specimens of some of the 18 species between 2000 and 2013. South Africa has been the most prolific exporter during this time, trading 17 of the 18 exported species amounting to 3,364 specimens. Brazil reported exports of only 90 specimens, 69 of which (76.7%) were Red-spectacled Amazon *Amazona pretrei*. Peru has reported 20 specimens exported of its "near endemic" Blue-headed Macaw *Primolius couloni*, and Suriname 590 specimens of the Scarlet Macaw *Ara macao*. Argentina exported nine of the 18 species, having exported specimens including 268 Golden-collared Macaws *Primolius auricollis*, while the other exports range between 12 and 50 individuals exported per species. No other South American country records commercial exports of Appendix I-listed parrot species.

The most exported Appendix I-listed species is the Golden-collared Macaw *Primolius auricollis* with 4,744 birds; accounting for more than half (52.5%) of all exports for the 18 species. South Africa exported the largest number: 3,364 or 70.9% of the total exports for the species, and Argentina exported 268 or 5.65%. Exports of the remaining 3,259 Appendix I-listed birds of 17 species ranged between 18 for the Pileated Parrot *Pionopistta pileata* and 1,388 for the Scarlet Macaw *Ara macao*. The country that exported the highest number of Appendix I-listed species was Switzerland with 10 of the 18 species. All Appendix I-listed exports moved small numbers of birds, ranging from 1 to 50 specimens. There have been 283 specimens exported of the flagship Hyacinth Macaw *Anodorhynchus hyacinthinus*, with the Philippines accounting

for most of the exports with 166 birds (58.7% of the total 2000–2013), while there were no registered exports from the species range countries: Brazil, Bolivia and Paraguay.

With all this global trade in Appendix I species going on, curiously, there are only three CITES registered captive breeding operations for two of the 18 commercially traded South American Appendix I-listed parrot species. One of these is in the USA producing Blue-headed Macaws *Primolius couloni* whose stock came from Mexico and Panama (the species's range is mainly Peru with Brazil and Bolivia being marginal) before the species was listed in Appendix I (CITES registry code A-US-520). Two operations are registered for breeding Golden Parakeets *Guarouba guarouba*, one in the Philippines (A-PH-501) and the other in the UK (A-GB-501).³

TABLE 4. COMMERCIAL EXPORTS OF PARROTS FROM AMAZONIAN COUNTRIES 2000–2013

Country	No. of Parrots Exported	Origin
Guyana	139,485	20 species, all of wild origin
Suriname	74,300	16 species, all of wild origin
Peru	36,592	5 species, all of wild origin
Venezuela	3,052	Wild origin (exports stopped in 2008)
Brazil	319	Captive bred
Bolivia	181	Uncertain
Colombia	4	Captive bred
Ecuador	1	Captive bred
TOTAL	253,934	

From Annex 1; Source CITES Trade Database

³ <https://cites.org/eng/common/reg/cb/summary.html> rev October 2017

2.1 PARROTS⁴ AS THE MOST TRADED BIRD GROUP IN SOUTH AMERICA

Over more than 500 years, many millions of South America's 145 parrot species have been hunted, captured or poached to be traded across the planet to supply the demand for pets, skins and feathers. Locally, their meat has also been in demand. Scores have been killed by farmers defending their fruit and grain crops from the raiding attacks of parrots. Adding to the conservation impact of these practices are the deaths of many millions of parrots in the process of capture, storage and transport to markets. Nest poaching also results in eggs and chicks dying, which also perish when parents fail to return to their nests after they were trapped or hunted. The outcome for many parrot species has been the decimation of populations, some to the brink of extinction due to the synergistic impact of trade and habitat destruction.

Table 5 is a compilation of information on parrot species' status in South America, efforts to stop the decline of certain species and statistics on the global trade in species from countries that breed and export them. The table lists the 39 species currently included in the four IUCN Red List Categories of Threat (CR, EN, VU and NT), as well as a species now considered extinct.

⁴ "Parrot" is used here as a generic denomination that encompasses all the Psittacine Family species including parakeets, macaws, parrots, etc.



CR (7)	EN (16)	VU (25)	NT (20)
<i>Anodorynchus glaucus</i>	<i>Amazona diadema</i>	<i>Amazona barbadensis</i> *	<i>Alipiopsitta xanthops</i>
<i>Hapalopsittaca fuertesi</i> *	<i>Amazona lilacina</i>	<i>Amazona brasiliensis</i>	<i>Amazona bodini</i>
<i>Pyrrhura griseipectus</i>	<i>Amazona rhodocorytha</i>	<i>Amazona pretrei</i>	<i>Amazona dufresniana</i>
<i>Pyrrhura subandina</i>	<i>Amazona vinacea</i> *	<i>Amazona tucumana</i>	<i>Amazona farinosa</i>
<i>Anodorhynchus glaucus</i>	<i>Anodorhynchus leari</i> *	<i>Anodorhynchus hyacinthinus</i> *	<i>Amazona festiva</i>
<i>Cyanopsitta spixii</i> *	<i>Ara ambiguous</i> *	<i>Ara militaris</i>	<i>Amazona kawalli</i>
<i>Ara glaucogularis</i>	<i>Ara rubrogenys</i> *	<i>Bolborhynchus ferrugineifrons</i> *	<i>Aratinga auricapillus</i>
	<i>Aratinga solstitialis</i>	<i>Forpus xanthops</i>	<i>Nannopsittaca dachilleae</i>
	<i>Brotogeris pyrrhoptera</i>	<i>Guaruba guarouba</i>	<i>Primolius maracana</i>
	<i>Ognorhynchus icterotis</i> *	<i>Hapalopsittaca amazonina</i> *	<i>Psittacara erythrogenys</i>
	<i>Pionites leucogaster</i>	<i>Hapalopsittaca pyrrhops</i>	<i>Psittacara frontatus</i>
	<i>Pyrrhura amazonum</i>	<i>Leptosittaca branickii</i> *	<i>Psittacara wagleri</i>
	<i>Pyrrhura caeruleiceps</i>	<i>Pionites xanthurus</i>	<i>Pyrilia aurantiocephala</i>
	<i>Pyrrhura orcesi</i> *	<i>Primolius couloni</i>	<i>Pyrilia barrabandi</i>
	<i>Pyrrhura pfrimeri</i>	<i>Pyrilia vulturina</i>	<i>Pyrilia caica</i>
	<i>Pyrrhura viridicata</i> *	<i>Pyrrhura albipectus</i> *	<i>Pyrilia pyrrhura</i>
		<i>Pyrrhura calliptera</i> *	<i>Pyrrhura devillei</i>
		<i>Pyrrhura cruentata</i> *	<i>Pyrrhura leucotis</i>
		<i>Pyrrhura lepida</i>	<i>Pyrrhura rupicola</i>
		<i>Pyrrhura perlata</i>	<i>Triclaria malachitacea</i>
		<i>Pyrrhura snethlageae</i>	
		<i>Touit huetii</i>	
		<i>Touit melanonotus</i>	
		<i>Touit stictopectus</i>	
		<i>Touit surdus</i>	

Source: IUCN Red List. * Species with ongoing projects for their recovery and conservation, funded by external sources through local NGOs in Brazil, Bolivia, Colombia, Ecuador, and Peru

The information presented points to a third of all South American parrot species being threatened with extinction, particularly the endemics of the Atlantic Forest, high Andes and Pacific dry forests. All members of the Psittacidae family found in South America are included in CITES in Appendix I (21 species) or Appendix II (all other species).

Trade in South American Parrots 2000–2013 (data compiled in Annex 1)

Information discussed below is from analysis of the CITES Trade Database data contained in Annex 1, which compiles the numbers of parrots—both Appendix I and II listed species—exported by CITES Parties between 2000 and 2013. The criteria used for all South American parrot species to query the database were: 1) export of live specimens; 2) exported for commercial purposes; and 3) produced as captured in the wild or in *ex situ* facilities. For space considerations, only the (43) countries that exported more than 200 birds during the time period are included in Annex 1 (i.e. 60 countries are excluded as their exports 2000–2013 were less than 200 birds); 18 species without any registered exports 2000–2013 are also excluded.

One hundred and three countries from all corners of the world exported 653,778 birds of 78 South American parrot species between 2000 and 2013. Five South American countries exported wild-caught parrots in that period, namely Argentina, Guyana, Suriname, Peru, and Venezuela.⁵ They accounted for some 319,336 parrots or 49% of the total world exports. The remainder (334,442 parrots comprising 51% of exports) were all reported as captive-bred outside South American borders. Fourteen of the exported species are listed in CITES Appendix I and 64 appear in Appendix II. South Africa was the world's leading exporter of South American parrots: 144,088 birds, comprising 22% of all exports of 64 species (Table 6).

⁵ Venezuela stopped its exports in 2008, Argentina's exports plummeted after the 2007 EU ban.

Exports of South American Parrot Species in the 21st Century

The Psittacidae family has been a core element of CITES implementation since the ratification of the Convention in 1975. Of the current 183 CITES Parties,⁶ 103 have reported export of South American parrot species since 2000.

TABLE 6. TOP 15 COUNTRIES/TERRITORIES EXPORTING SOUTH AMERICAN PARROT SPECIES 2000–2013.⁷ (SOUTH AMERICAN COUNTRIES HIGHLIGHTED IN BOLD FONT)

Countries/territories	Number Exported	No. of Species Exported	Most Traded Species and Number
1) South Africa	144,088	64	<i>Amazona aestiva</i> ; 21,708
2) Guyana	139,485	21	<i>Ara chloroptera</i> ; 13,837
3) Argentina	65,878	34	<i>Amazona aestiva</i> ; 26,754
4) Netherlands	63,056	57	<i>Forpus coelestis</i> ; 21,824
5) Suriname	74,890	18	<i>Pionites melanocephala</i> ; 8,866
6) Peru	36,620	14	<i>Aratinga wagleri</i> ; 14,872
7) Singapore	29,803	42	<i>Forpus coelestis</i> ; 3,770
8) Belgium	19,475	53	<i>Bolborhynchus lineola</i> ; 8,637
9) Paraguay	10,988	5	<i>Nandayus nenday</i> ; 4,753
10) Philippines	9,980	42	<i>Ara ararauna</i> ; 1,571
11) Malaysia	9,505	33	<i>Bolborhynchus lineola</i> ; 2,468
12) Taiwan	8,997	27	<i>Bolborhynchus lineola</i> ; 4,301
13) USA	8,637	46	<i>Amazona ochrocephala</i> ; 1,331
14) Nicaragua	2,866	2	<i>Amazona farinosa</i> ; 1,807
15) UAE	2,658	21	<i>Amazona aestiva</i> ; 630

From Annex 1; Source CITES Trade Database

⁶ As of mid-2017

⁷ These countries/territories are from those that reported commercial exports to CITES between 2000–2013 (UNEP-WCMC CITES Trade Database) of 139 CITES Appendix I and II species. (See Annex 1 for more details). Note that this analysis stops at 2013 as it was conducted early in the researching process for this report, and the landscape since is unlikely to have changed significantly.

TABLE 7. TOP TEN COUNTRIES EXPORTING THE HIGHEST NUMBER OF SOUTH AMERICAN PARROT SPECIES 2000–2013

Country	No. of Species Exported
South Africa	64
Netherlands	57
Switzerland	54
Belgium	53
Denmark	47
USA	46
Singapore	42
UK	42
Germany	39
Spain	36

From Annex 1; Source: CITES Trade Database
None of the South American countries appear in the “top-ten” exporting South American parrot species (see Table 7).



TABLE 8. SOUTH AMERICAN PARROT SPECIES WITH MORE THAN 5,000 SPECIMENS EXPORTED 2000–2013 (OUT OF A TOTAL OF 106 SOUTH AMERICAN PSITTACIDAE APP II SPECIES)

Species Common Name	Species Scientific Name	No. Exported
Turquoise-fronted Amazon	<i>Amazona aestiva</i>	60,780
Blue-and-yellow Macaw	<i>Ara ararauna</i>	48,844
Pacific Parrotlet	<i>Forpus coelestis</i>	39,702
Barred Parakeet	<i>Bolborhynchus lineola</i>	38,473
Yellow-crowned Amazon	<i>Amazona ochrocephala</i>	33,495
Jandaya Parakeet	<i>Aratinga jandaya</i>	32,603
Red-and-green Macaw	<i>Ara chloroptera</i>	29,068
Black-headed Parrot	<i>Pionites melanocephala</i>	25,749
Nanday Parakeet	<i>Nandayus nenday</i>	20,327
Mitred Parakeet	<i>Aratinga mitrata</i>	20,141
Blue-crowned Parakeet	<i>Aratinga acuticaudata</i>	18,094
Scarlet-fronted Parakeet	<i>Aratinga wagleri</i>	17,365
Blue-headed Parrot	<i>Pionus menstruus</i>	17,337
Mealy Amazon	<i>Amazona farinosa</i>	17,266
Red-lored Amazon	<i>Amazona autumnalis</i>	14,990
Brown-throated Parakeet	<i>Aratinga pertinax</i>	9,108
Red-bellied Macaw	<i>Orthopsittaca manilata</i>	7,930
Red-fan Parrot	<i>Deroptyus accipitrinus</i>	6,359
Green-rumped Parrotlet	<i>Forpus passerines</i>	5,861
Dusky-headed Parakeet	<i>Aratinga weddellii</i>	5,690
Crimson-bellied Parakeet	<i>Pyrrhura perlata</i>	5,160
Red-fronted Macaw	<i>Ara rubrogenys</i>	5,139
Painted Parakeet	<i>Pyrrhura picta</i>	5,076

From Annexx 1; Source: UNEP-WCMC CITES Trade Database

There are no registered exports for 18 South American parrot species for the period 2000–2013. As indicated in Table 8, all species exported during that period in large numbers are Appendix II-listed species. During the same period, for 14 species, from 1 to 100 specimens were exported, while for 12 other species, exports ranged between 101 to 1,000 individuals. Thirteen species had registered exports between 1,001 and 5,000 birds.

Of the species exported (see Table 8), the most traded South American parrot has been Turquoise-fronted Amazon *Amazona aestiva* reported by 56 countries with Argentina and South Africa accounting for 79.7% of the total exports. Blue-and-yellow Macaw *Ara ararauna* is the species exported by the most countries/territories (67), while Red-and-green Macaw *Ara chloroptera* is exported from 55 countries/territories and Yellow-crowned Amazon *Amazona ochrocephala* from 53 countries/territories.

2.2 NATIONAL AND INTERNATIONAL WILD BIRD TRADE BANS: ECONOMIC AND CONSERVATION IMPLICATIONS

The multi-million dollar business of reproducing and trading South American birds has been exported to other continents and placed in the hands of entrepreneurs around the world. This is an unexpected commercial outcome after years of national and international legislation whose purpose, to prevent the exhaustion of wild bird species from international trade, was indeed achieved. After decades of exporting dozens of species of South American birds for the pet trade, their reproductive capacity was appropriated by bird breeders in other continents, an economic opportunity that created a huge business that has sidelined the countries of origin of the *ex situ* reproduced species. European, North American, African and Asian breeders and traders have consolidated their businesses within the framework of CITES and their national regulations, while South American range States have been left with the very difficult task of stopping domestic and international illegal trade, as well as the conservation of species' habitats. Amazon countries have received little in return from those that now commercially own those dozens of species. This problem also affects many exported species of amphibians, reptiles and ornamental freshwater fish (Tlustý 2002). For this last group, *ex situ* breeding threatens the livelihoods of local fisherfolk in species' range countries and the associated powerful conservation incentives the activity has developed. Neither CITES nor the Convention on Biological Diversity (CBD), international frameworks designed to protect the rights of range countries vis a vis their wild resources assuring the, “*Fair and equitable sharing of the benefits arising out of the utilization of genetic resources* (CBD, 2017),” offers solutions towards resolving this issue.

To understand how the above situation developed, it is useful to describe the different elements that led to the current *ex situ* production-dominated situation. First, the unilateral decision by most Latin American countries to close down their legal commercial export of wild-trapped bird species (1967–1999), a conservation-oriented response to years of massive exports, narrowing the possible wild-source countries to very few by the end of the last century. These national prohibitions were added to CITES regulations increasing the constrictions to trade flows between source and consumer markets. Later, with increasing pressure from NGO and local bird producers concerned by the conservation, animal welfare, human health and economic consequences of wild bird imports, the largest international markets—USA in 1992 and EU in 2007—closed the imports of wild-captured birds from those countries that still allowed this trade.⁸ Additionally, the import of captive-bred birds from range countries into the USA is burdensome and expensive due to quarantine times

⁸ Wild-captured non-CITES species can still be imported into the USA, a small and very regulated market mainly for songbirds and others mainly for zoo exhibitions.

and associated costs, a disincentive for South American producers. For these reasons, the options for the legal supply of birds for the pet trade worldwide further diminished, so the business was displaced into the hands of captive breeders, most of them outside of South America, as 1) production costs are lower in Asia and Africa compared to Brazil;⁹ 2) national regulations and CITES supervision are significantly lower for *ex situ* species production because there is theoretically less chance of laundering wild birds through operations far away from range States; 3) consequently, authorities in countries where South American birds are bred are more interested in controlling the production and trade dynamics in their native species, and so *ex situ* elements of captive-breeding businesses are of reduced interest for authorities, compared to the situation for captive breeding operations in range States.

As much as national and international trade bans halted the mass capture and export of dozens of bird species, simultaneously South American countries lost the opportunity of creating strong *in situ* conservation incentives based on incomes generated through sustainable and humane bird management programs. If well designed and managed, sustainable use programs could help to improve local livelihoods in the remote places where birds are captured and conserve habitats and wider biodiversity in areas where sustainable economic options are few. A system was developed in Argentina to harvest and trade sustainably the Turquoise-fronted Amazon *Amazona aestiva* from Chaco forests, with income reinvested in habitat protection and a portion of the fees paid by bird exporters. This Argentinian project, which complied with all CITES Appendix-II provisions, has been the most relevant South American experience in sustainable use of wild birds, demonstrating that it is feasible to manage wild bird populations for international trade with positive conservation and socioeconomic wins. Unfortunately, the EU blanket import ban led to the collapse of this program, leaving only the illegal channels to keep feeding the demand for these animals inside and outside the country.

⁹ The South American country with the highest number of commercial captive breeding operations.

Ongoing legal exports of wild birds from South America

Out of the eight Amazon countries, legal exports in wild birds is limited to three: Guyana, Suriname and Peru. The sustainability aspects of their respective wild bird harvest programs are based on allowing trade of non-threatened species (CITES listed or otherwise), and setting annual quotas¹⁰ that limit maximum export amounts as a precautionary measure to prevent excessive trade as occurred in the 1980s. In these three countries, the sustainability of the bird harvest is likely also related to the extension and conservation quality of the forests where the birds are trapped, and hence are in good health to support sustainable harvest of bird populations.

Illegal domestic and trans-border markets

Currently, the most important direct pressure on many bird species comes from their capture for illegal domestic markets. Apart from Guyana and Suriname that maintain a lenient acceptance of local bird markets, the wildlife authorities, national or provincial, and police forces of other Amazon countries extend significant efforts and resources towards controlling the local pet trade, primarily in end-market cities. The bulk of this local trade affects common psittacids and songbirds trapped in secondary forests or farmlands. As the population that usually buys these birds is in the low-income sector, these species make for cheap presents and continue the customary practice of keeping of birds in homes and backyards. In Colombia for example, between 2005 and 2009, of the ten most traded species in the country (Moreno, 2017)¹¹—as measured by the numbers confiscated—three were birds: the Orange-chinned Parakeet *Brotogeris jugularis*, with 5,521 confiscated, the Yellow-crowned Amazon *Amazona ochrocephala* with 3,099, and the Blue-headed Parrot *Pionus menstruus* with 959. These three species are in demand by rural and suburban low-income populations who just want a “cheap parrot” as a pet.

Continued efforts from enforcement authorities have eliminated a good proportion of the open offering of birds and other animals in fairs, markets and shops in most capital cities and towns of Amazon countries. Nevertheless, demand persists from collectors, animal lovers and those seeking replacement pets. Affluent collectors maintain the demand for rarer, expensive species (toucans, raptors, macaws, flamingoes, etc.), and this demand is met through organized networks with contacts around the world where these species are found, some with connections to the illegal international wildlife trade.

¹⁰ Peru doesn't submit its annual quotas to CITES for the three Appendix II-listed parakeet species for which exports are allowed.

¹¹ These three birds occupied places 4, 5 and 6 respectively in the “top-ten” list. The most traded (#1, 2 and 3) were reptiles (a turtle, tortoise and iguana), and the last four (#7, 8, 9 and 10) were three primates and poison dart frogs in that order.

The success of authorities in confiscating live birds creates the responsibility of how to deal with them afterwards. For wildlife rescue centers to maintain such animals requires significant amounts of funding from national, provincial and/or municipal budgets (i.e. in Colombia and Brazil), or private zoos and other organizations assume the responsibility without government support (i.e. in Ecuador, Peru). Some of the birds are returned to the wild usually without major technical assessment of their chances of survival or health risks for local bird populations. Reintroduction is used to reduce rescue center's operational costs, to create space for newly confiscated animals arriving, and in some cases to gain media attention during animal liberation events. The conservation or scientific relevance of these reintroductions is usually very marginal.

A newly created mechanism for governments to deal with border issues and relationships between neighboring countries, is through the creation of binational cabinet meetings that take place near common borders between Colombia, Ecuador, Peru, Chile and Bolivia. Chaired by the presidents of the countries involved in two-by-two bordering neighbor countries, these meetings identify common issues, problems and opportunities to be explored through agreed agendas monitored by the respective ministries (education, health, security, environment, etc.). Illegal wildlife trade has been identified as one of those transborder issues worth tackling collaboratively between neighbors. Ecuador's Ministry of Environment has already set agendas and action plans with the authorities of its two neighbors, Colombia and Peru, setting targets and responsibilities to eliminate the trans-border illegal trade in wildlife in collaboration with enforcement agencies including INTERPOL. The extension of the successful work each country has developed within its borders towards co-operation between neighbors is an important step towards further reducing illegal wildlife trade in South America.

2.3 POSITIVE CONSERVATION OUTCOMES IN SOUTH AMERICA

Beyond the protection granted for bird habitats in government administered protected areas and private reserves, to reverse the population declines that affect birds, conservation efforts have focused on a few emblematic endangered species. This has allowed gradual recovery and protection from further decline in populations of endemic Andean parrots,¹² achieved through strategies including private reserve creation in critical habitats. The recovery in Brazil of the Hyacinth Macaw *Anodorhynchus hyacinthinus* in certain parts of its range is a success story highlighted as an example of collaboration between landowners, local communities, private industry and conservationists that has prevented the extinction of this flagship species. Environmental education and awareness-raising supported by birdwatching incomes benefiting local populations has helped conserve critical habitats in highly threatened bird diversity hotspots¹³ where some highly-threatened species find a refuge, giving most of them the chance to survive into the 21st century and beyond.

¹² e.g. Yellow-eared Parrot *Ognorhynchus icterotis* and Golden-plumed Parakeet *Leptosittaca branickii*

¹³ e.g. Mata Atlantica, Brazil, Sierra Nevada de Santa Marta, Colombia, Chocó cloud forests, Ecuador



3. BRAZIL

IDEOLOGICAL DILEMMAS AND DISTRACTING CONFRONTATIONS NOT HELPING WILD BIRDS

Where the Brazilians cared for birds at all, it was their ambition to possess a Canary for which they would pay extravagant prices. It is no exaggeration to say, that apart from Amazon parrots, more Brazilian birds are to be found in a dealer's shop at home than we met with in captivity in the whole of the Amazon valley, and the city of Pará included. I thought when we got down to this last port we could not fail to find some large bird dealers; but after enquiring everywhere, I at last unearthed one, known among Ship's Captains by the name of "Monkey Joe", and monkeys were almost the only live stock he had, and very few of those too. Of birds he had an exceedingly fine King Vulture...and three Sun Bitterns"

W. Goodfellow (1900)

*"Brazil's fascinating fauna is reduced to simple merchandise, and will inevitably die out. No fauna in the world could survive the waste involved in an illegal bird trade such as that in Brazil. We must remember the case of the Little Blue Macaw *Cyanopsitta spixii*, whose last two wild individuals were captured and sold for a fortune in 1988."*

Helmut Sick (1993)

"The loss of the functioning of species [from poaching for illegal trade] in the ecosystem is really a crime against humanity. These are not low level crimes [as considered by the law], actually they should be judged in the [International Court of Justice] Hague."

Marcelo Rocha, President "SOS Fauna", São Paulo

"Never has an enforcement operation been done [by IBAMA] against illegal traffickers as has been done with the captive breeders, treated like criminals, with a show of force against decent citizens with families, assaulting their houses whose address we have given them."

Pierre Alonso, ABRASE, São Paulo

Brazil, Latin America's "mega country", has the fifth largest land area in the world, accompanied by a huge growing economy and population to match. Brazil struggles to keep pace with the protection of its environment from resulting development. There are more than three centuries of accumulated degradation of Brazilian coastal forests, and 50 years in the Amazon. The Amazon is the largest rainforest biome in the world and has already lost one third of its forest cover to pastures, soy plantations, mining, cities and infrastructure. Brazil is number one in the world in terms of terrestrial biodiversity contained within its six major terrestrial biomes (IBAMA, 2001), three of which have been seriously affected by deforestation, degradation and species loss. These include the Atlantic coastal forests, or Mata Atlântica, the Caatinga dry scrub vegetation and the Cerrado dry forests. Its avifauna comprises 1,809 species, the third highest in the world, of which 169 are globally threatened—the highest national total globally (BirdLife 2017).

At the dawn of the 16th century, Brazilian territory experienced colonization by the Portuguese. Ships took parrots back home as one of the most appreciated and astonishing commodities from the New World. Raucous and colorful macaws became an iconic symbol of all that is extraordinary and mysterious in these lands, a representation that lasted in European minds for centuries. Flemish and Dutch artists immortalized these birds, depicting them in their works commissioned by rich and powerful estate owners. Live parrot collecting was considered to be *de riguer* at the time. Until the Panama Canal opened in 1914, all ships returning to the US east coast or Europe from the Pacific side of North and South America (for example during the Californian Gold Rush of 1848–1855 and Alaska's gold rush from 1896–1899), stopped in Brazilian ports on their way north. This facilitated the shipment of many commodities, including live birds, feathers and their dried skins, and took thousands of parrots, toucans and primates of many species to New York and European markets.

3.1 AN OVERVIEW OF RECENT COMMERCIAL USE OF BIRDS IN BRAZIL

In Brazil, the harvest of birds for food has reached high levels, with previously abundant tinamous sold in urban markets such as Rio de Janeiro. In Rio Grande do Sul, the Red-winged Tinamou *Rhynchotus rufescens* was commercially canned until 1935 (Sick, 1993). In 1894, Emilio Goeldi stated that the Scarlet Ibis *Eudocimus ruber* was, “*The most common among aquatic bird species of the Amazon region.*” It has since become quite scarce and completely eliminated from the south-eastern part of the country (Sick, 1993). To hunt ducks, traps were used in the Sao Francisco region of Bahia. These were wire-fenced areas more than 1 km in extent and which, in a single capture, could net up to 5,000 birds that were then dried, smoked and trucked to cities. On Marajó Island (State of Pará), more “modern” hunting methods were employed by using a cannon loaded with lead shot that killed ducks in vast numbers. The hunting of ducks during their flightless period of wing moult coincided with the annual burning of fields and resulted in mass destruction of these birds. In 1964, 60,000 ducks, primarily Black-bellied Whistling-ducks *Dendrocygna autumnalis*, were killed on just one ranch in Amapá. In 1973, approximately 8,000 ha of marshes were reported to be under the control of waterfowl hunters, with 10,000 hunters registered in 1974.

The Black-fronted Piping-guan *Pipile jacutinga* (EN), a Mata Atlantica endemic species, was close to becoming extinct in northern Paraná as the forests were transformed into coffee plantations by European migrants in the 19th century. Photographs taken between 1930 and 1940 show hunters alongside piles of Black-fronted Piping-guan carcasses in the Londrina region where the species no longer occurs. At that time, this species was sold in street markets in Porto Alegre, the capital of Rio Grande do Sul State. This hunting had been going on since the mid-1800s as German naturalist Fritz Muller described to Charles Darwin in 1869; “I saw how a half a dozen ... were killed, one after another, on the same tree. A neighbour told me that two years ago, he shot about 100 jacutingas on one guarajuba tree. In the cold winter of 1866 there were so many...in the lowlands of the Itajaí river that in a few weeks approximately 50,000 birds were killed (Kindel and Kohler, 2017).”

In 2001, Brazilian NGO RENCTAS compiled data on large-scale killing and exports of Brazilian birds for the feather and skins market in the 19th and early 20th centuries. This included large quantities of heron feathers collected in 1896 from Pará (as cited by Rocha, 1995; Polido and Oliveira, 1997). Around 1914 in the Rio Negro region, a merchant employed 80 men to hunt egrets. A single kilogram of plumes required the hunting of 300 Great White Egrets *Ardea alba*, 250 Cooi Herons *Ardea cooi* or 100 Snowy Egrets *Egretta thula* (Sick, 1993). H. Salomon (1928) refers to a London merchant who in a brief period before

World War I imported 400,000 hummingbirds and 360,000 other birds from Brazil. In another case, 25,000 hummingbirds were hunted in 1932 in Pará and sent to Italy to adorn chocolate boxes. In the 1950s and 1960s, wild-animal export companies advertised in magazines, such as *International Zoo News*, for Brazilian species to be shipped all over the world.

Brazil received a massive immigration of Italians in the late 19th century and the custom of hunting small birds, particularly thrushes, for food was introduced into the southeast Brazilian States where most of the Brazil-bound Italians settled. This continued until the late 20th century as observed by Sick (1993) who said, “The pursuit of thrushes as game birds, practiced by descendants of Italians, is a scandal.” The custom of eating hummingbirds or other small passerine birds as a delicacy still exists among residents of the Caxias do Sul region.¹⁴ The dish is known as *passarinhos com polenta*, or, “Little birds with cornmeal.”¹⁵

3.2 FROM PLUNDER TO CONTROL: WILDLIFE AS A MANAGED RESOURCE: 1967 TO PRESENT

After decades of intensive exploitation, Brazil was the first country in South America legally to stop massive exports of wild-caught birds after professional hunting and the commercial sale of wild animals was banned. The *Law for the Protection of Fauna* was passed on 3 January 1967,¹⁶ changing the legal status of wildlife. Since the “discovery” of Brazil at the start of the 16th century, the *status quo* had been that objects without an owner could be appropriated by anyone—or were “*Res Nulius*.”¹⁷

The *Hunting and Fishing Code of 1934* went some way to protecting wildlife. The 1967 law then put in place the fundamental principle of State ownership of wildlife resources, i.e. they became a “public good” (Pereira-Wiedmann, 2008), and placed limits on their use for the greater good of the nation. The Ministry of Agriculture’s motivational arguments to the President of Brazil urging for the new law and approach to wildlife protection in the country is a fascinating description of the situation generated by professional hunting. The context was that wildlife is a finite resource which by then had already been extensively destroyed, causing local extinctions. Concepts and concerns raised and dealt with in this legislation are still valid 50 years later (Diário do Congresso Nacional, 1966, included in Pereira Wiedeman, 2008):

¹⁴ Rio Grande do Sul

¹⁵ Personally confirmed to TRAFFIC (Jan. 2016) by Maria Ines Balsan, a Brazilian of Italian descent from Rio Grande do Sul State who mentioned that most of these birds are now farmed. However, there are no known farms for this purpose in Brazil and it appears this may be an argument used to reduce resistance to this practice.

¹⁶ Federal Law # 5197 (1967), the so called “Law for the Protection of Fauna”, starts by declaring State ownership over wildlife and rules out professional hunting, the trade in animals and their parts when captured in the wild, and defines controlled sport hunting and wild animal breeding as alternatives to access and economically benefit from wild animal species.

¹⁷ the Latin term for “anyone’s thing”

*“...it cannot be considered a citizen right, or overlooked indulgently, the destruction of the vital elements of biological equilibrium. Hunting can be allowed as a sport but never as a cheap source for an extractive industry. Wildlife is more than the State’s patrimony: it’s an element for the well-being of men and the biosphere.”*¹⁸

As with other South American countries, the closing down of professional commercial hunting was simultaneously accompanied by a law enabling wildlife use through captive breeding and organized sport hunting clubs. Implementation of the 1967 wildlife law was made the responsibility of the Brazilian Institute for Forestry Development (IBDF – *Instituto Brasileiro de Desenvolvimento Florestal*) through its Department of National Parks and Equivalent Reserves (*Departamento de Parques Nacionais e Reservas Equivalentes*). In the first two months of that inception year, Brazil commenced on a new conceptual, legal and administrative approach to sustainable wildlife use. Many legal changes have occurred since then in the international and national frameworks (CITES in 1975, a new Constitution in 1988, CBD in 1992, Environmental Crimes Law in 1999, etc.), but the 1967 changes nevertheless were a ground-breaking departure.

After more than a century of destruction of wildlife through hunting for profit or sport, the novel captive breeding solution was considered a conservation-sensitive alternative for commercial utilization of native fauna; one that didn’t require further killing of wild animals. The captive breeding solution constituted in Brazil was only for birds despite the administrative and technical rulings of 1969¹⁹ facilitating captive breeding for other animal groups like mammals (from peccaries to giant otters, small and medium felines, capybaras),²⁰ amphibians (*Leptodactylus ocellatus* and the introduced Bull-frog *Rana catesbiana*) and worms. Currently, commercial captive breeding is only permitted for some animal species, and subsistence hunting is legal only for communities that have no other protein alternatives—a policy and law with little chance of being implemented. Sport hunting as a legal activity has disappeared. The last legal duck hunting program in the State of Rio Grande do Sul was declared unconstitutional by the State Court and was closed in 2008. Ranching of crocodilian species is still allowed from wild-collected eggs and hatchlings. Regarding birds, most institutional efforts are currently focused on controlling illegal bird trade wherever it happens or is detected, and administering and controlling the commercial production of birds in captivity as well as the thousands of registered and unregistered private cagebird owners who keep them as a hobby. The task of distinguishing the bird hobbyists (known as *amadoristas*), from illegal traders represents an enormous and expensive challenge to authorities.

¹⁸ Translation from Portuguese by the author.

¹⁹ Portaria 1136 IBDF, published in the official diary of October 22, 1969.

²⁰ A huge environmental mistake supported by government programs in the cases of Colombia and Ecuador that has caused serious environmental problems in several countries as it is one of the most aggressive invasive species that has spread throughout Amazon countries.

3.3 SPECIES LISTS AS NEW DECISION-MAKING TOOLS

The new Wildlife Law (5197/67) implemented by the IBDF to protect and manage wildlife legally adopted a list of Brazilian endangered animals.²¹ This became the *Official List of Plant and Animal Species Threatened with Extinction*,²² and included 22 birds, half of which were parrots, from a total of 45 animal species on the list. The “...collection, hunting, capture, buying or selling, trading, transport or export” of these species was declared “strictly prohibited.”

The list was updated in 1973,²³ increasing the numbers of listed birds to 53 species, 15 of which were parrots. Subsequent revisions in 1989 and 2003 dramatically raised the number of listed species as data were improved and more experts were involved. Formulation of species Red Lists and Red Books are now a central decision-making instrument at Federal, State and municipal levels in Brazil using the IUCN’s methodology, which beyond providing the means to describe species’ risks of extinction, are also useful to monitor the effectiveness of conservation measures (MMA and Biodiversitas, 2008). Mandatory Instruccion (*Instrução Normativa*) No. 3 of the Ministry of Environment (May 2003), legally recognizes threatened species as those included in the official list periodically revised with the support of NGOs and thematic experts.

The latest official list, published in the “*Diario Oficial da União*” (Portaria No. 444, December 17, 2014²⁴) raises the number of listed bird species to 234 (90 additions to the 2003 list) of which:

- 1 species is EW (Extinct in the Wild; Alagoas Curassow *Mitu mitu*)
- 42 species are CR, of which 4 are Possibly Extinct (PEX) and 1 Possibly Extinct in the Wild (PEW; the Spix’s Macaw *Cyanopsitta spixii*).
- 71 species are EN
- 120 species are VU

There are 17 Psittacid species listed as threatened (7.3% of Brazilian bird species listed; 19.5% of all registered Psittacids in Brazil), five more than in 2003, of which 4 species are EN and 12 are VU (plus the PEW cited above).

²¹ Portaria 303, May 29, 1968 http://www.mma.gov.br/estruturas/179/_arquivos/179_05122008033542.pdf (Accessed July 2015)

²² Portaria 303, May 29, 1968

²³ Portaria 3481, May 1973.

²⁴ Portaria 444, December 17, 2014. *Diario Oficial da União* –Seção 1 No. 245, published Dec. 18, 2014. http://www.icmbio.gov.br/portal/images/stories/biodiversidade/fauna-brasileira/avaliacao-do-risco/PORTARIA_N%C2%BA_444_DE_17_DE_DEZEMBRO_DE_2014.pdf consulted April 2016.



Red-necked Tanager *Tangara cyanocephala*, Brazil
© WWF / Brazil - Adriano Gambarini

TABLE 12: BIRD SPECIES IN BRAZIL'S RED BOOK OF WILDLIFE THREATENED WITH EXTINCTION FOR WHICH TRADE IS ONE OF THE IDENTIFIED CAUSES OF THREAT²⁵

Species	Brazil Red List Threat Category	CITES Appendix I/II
Psittacidae (13 spp.)		
<i>Amazona brasiliensis</i>	VU C1	I
<i>Amazona pretrei</i>	VU C1	I
<i>Amazona rhodocorytha</i>	EN C2 a (i)	I
<i>Amazona vinacea</i> ²⁶	EN C2 a (i)	I
<i>Anodorhynchus glaucus</i>	CR D	I
<i>Anodorhynchus hyacinthinus</i>	VU A2cd	I
<i>Anodorhynchus leari</i>	EN B1ab(iii)	I
<i>Cyanopsitta spixii</i>	CR D	I
<i>Guaruba guarouba</i>	VU A 2cd	I
<i>Pyrrhura griseipectus</i> (<i>P. anaca</i>)	CR B1 ab (i)	II
<i>Pyrrhura cruentata</i>	VU C2 a (i)	I
<i>Pyrrhura lepida</i>	EN A4c	II
<i>Pyrrhura leucotis</i> (includes <i>P. pfrimeri</i>)	NT A2cd+3cd+4cd	II
Cotingidae (2 spp.)		
<i>Cotinga maculata</i>	EN B1 ab (i,ii,iii)	I
<i>Procnias averano</i>	VU B2 ab(ii)	
Fringillidae (1 sp.)		
<i>Carduelis yarrelli</i>	VU A2d +3d; B1 ab (i), c (i)	II
Pipridae (1 sp.)		
<i>Antilophia bokermanni</i>	CR B1 ab (ii)	
Thraupidae (2 spp.)		
<i>Tangara cyanocephala</i>	LC	
<i>Tangara fastuosa</i>	VU B2 ab (ii)	II
Emberizidae (8 spp.)		
<i>Sporophila palustris</i>	EN B2 ab (i)	
<i>S. nigrorufa</i>	VU C2 a (ii)	
<i>S. melanogaster</i>	NT A2c+3c+4c	
<i>S. frontalis</i>	VU B2 ab (ii)	
<i>S. falcirostris</i>	VU C2 a (i) b	
<i>S. cinnamomea</i>	VU A2cde+3cde+4cde; C2 a(i)	
<i>Oryzoborus maximiliani</i>	VU A2cd+3cd+4cd	
<i>Gubernatrix cristata</i>	EN A2cd+3cd+4cd	II

²⁵ Doesn't include NT or DD categories; modified from Livro Vermelho da Fauna Brasileira Ameaçada de Extinção - Vol. II; Monteiro Machado, Moreira Drummond & Perira Paglia, 2008.

²⁶ Latest population analysis concludes the species should be in EN Category as its situation is worse than initially assessed (Boticario 2015)

Of the 160 bird species included in the Brazilian Red Book (MMA and Biodiversitas, 2008), capture for trade is mentioned for 27 species²⁷ as one of the causes of population decline. This includes Glaucous Macaw *Anodorhynchus glaucus* (**CR**) and Spix's Macaw *Cyanopsitta spixii* (**PEW**). The greatest threat for the majority of bird species is habitat destruction, mainly in the eastern portions of the country (Mata Atlantica, Caatinga and Cerrado biomes) where extensive deforestation has taken place in the last 200 years. Half of the Threatened (**CR**, **EN** and **VU**) bird species are in the parrot family. Seed eaters (Emberizidae and Fringillidae) are the other important group impacted by trade with nine species being affected. Other families with species impacted by trade include tanagers (two species) cotingas and manakins (single species each). Of the 28 Threatened bird species affected by trade, 17 are included in CITES Appendices, eight of them in Appendix I and the remaining nine in Appendix II (Table 12).

Beyond those species listed as Threatened in the 2008 Brazilian Red Book, CITES Appendix I adds 17 Brazilian species. The Brazilian Merganser *Mergus octosetaceus* is listed in the annexes of the EU's Wildlife Trade Regulation, although it is a non-CITES listed species. This bird is a near-endemic and is listed as **CR** in the BirdLife/IUCN Red List.

Two successful conservation recovery stories can be confirmed in terms of the Red Book methodology. Lear's Macaw *Anodorhynchus leari* has been downlisted from **CR** to **EN**, while the Red-tailed Amazon's *Amazona brasiliensis* conservation status has improved from **EN** to **VU**. In contrast, the status of the endemic Vinaceous Amazon *A. vinacea* worsened from **VU** to **EN** after the last population assessment was made in 2015 based on the finding that there were 25% fewer animals than initially estimated (Fundação Grupo Boticário de Proteção à Natureza, 2015).

BirdLife's analysis (Bencke & Mauricio, 2006) stated that out of 25 identified threats for the 163 Important Bird Areas (IBAs) in the Mata Atlántica region, 25% were affected by capture of birds for trade. Other threats to these IBAs included hunting (53%), agricultural expansion (48%), burning of vegetation (42%) and urbanization (38%).

²⁷ 17.5% of the total bird species in the Brazil Red Book

3.4 TACKLING A NEW PHENOMENON: ILLEGAL WILDLIFE TRADE

The promulgation of the 1967 Wildlife Law marked the commencement of illegal wildlife trafficking in Brazil (RENCTAS, 2001). Wildlife institutional structures at Federal, State and Municipal levels have since focused their work on control of illegal wildlife trade by enforcement actions such as confiscations against illegal possession and trade in wild animals and their products. As commercial and amateur captive breeding of certain wild bird species have remained as legal options, authorities have painstakingly examined possible legal and technical loopholes. Captive breeding may allow for the laundering of illegal birds of wild origin, and could therefore be hampering national efforts to control the massive harvest of birds from their habitats and subsequent trade.

The number of confiscated birds in Brazil has remained relatively constant in the last quarter of the 20th Century (Murad, 2000)—between 30,000 and 45,000 per annum—of which about 80% were songbirds, depleting the populations of several seedeaters and seedfinches (*Sporophila* spp.) across the country. Between 1992 and 1998,²⁸ confiscated wildlife numbers reached 219,253—the largest portion being birds at 119,596 (54% of the total), followed by reptiles (34,141, 15.6%) and mammals (2,753, 1.26%) (Murad 2000). Authorities and experts interviewed for this study attributed ongoing high numbers in annual bird confiscations to two main reasons: (1) the absence of harsher penalties for repeat offenders such as jail sentences and confiscation of trafficking capital equipment including vehicles and (2) the lack of education about the illegality, cruelty and conservation implications generated by capturing, keeping, selling and buying wild birds.

Another approach to resolve species-specific problems involves engagement and co-operation between conservation experts, communities and landowners, allowing participants to increase their understanding of their contribution to the problem and solutions are sought to prevent further depletion of the target species. An example of such an approach is the *Arara-Azul Project*, led by Dr. Neiva Guedes since 1990, which aids the recovery of the Hyacinth Macaw *Anodorhynchus hyacinthinus* in the Pantanal region. The project involves working with cattle ranch owners, their workers, and local communities. These efforts have resulted in a significant increase from 1,500 to 5,000 birds in Mato Grosso do Sul State since the project has been in operation. Conservationists consider these types of projects an ideal mechanism for protecting species from poachers—a combination of effective enforcement, awareness raising and local incentives based on the incomes that birdwatchers and tourism can bring to areas, which can change local people's attitude towards a species valued in the black market.

²⁸ No data for 1994

3.5 SMUGGLING CASE STUDIES: BRAZILIAN BIRDS ABROAD²⁹

During the decades following the 1967 prohibition on exports of wild birds from Brazil, hundreds of thousands of birds were captured to supply international trade. Many were laundered through the then legal channels of neighboring Argentina, Bolivia and Paraguay. These countries also share the geographic distribution of several of the target species, thus facilitating their smuggling and export. The following are representative examples of illegal smuggling of birds from Brazil:

In the 1980s it is estimated that up to 10,000 Hyacinth Macaws *Anodorhynchus hyacinthinus* were extracted from the wild for trade (Sick 1993). The 1988 annual report of the ICBP³⁰ stated that, “...as many as 500 Hyacinth Macaws (possibly down to 2,500 birds in the wild) are still smuggled out of Brazil each year.” In 1982 alone, 1,000 of these birds reportedly left Brazil illegally. In 1979 just one dealer in West Germany had a stock of 200 Hyacinth Macaws, undoubtedly all from Brazil, and the following year West Germany illegally imported 7,438 Turquoise-fronted Amazons *Amazona aestiva* (Sick, 1993).

1) Operation Renegade: A respected aviculturist and author leads a bird smuggling ring

Antonio “Tony” Silva established an international reputation as a scientist and parrot breeder, authoring books and articles on aviculture and avian conservation. From April 1989 until early 1993, he was curator of birds at Loro Parque in the Canary Islands, the largest parrot park in the world. He was involved in the early efforts to save the Spix’s Macaw.

In 1994, Federal Agents of the US Fish and Wildlife Service’s (USFWS) Office of Law Enforcement raided Silva’s Chicago home in the final bust that concluded Operation Renegade carried out from 1989–1992. They seized a collection of rare and endangered birds held in Silva’s basement aviary. Silva, together with his mother and two others including a Paraguayan national, were indicted³¹ for conspiracy to violate USA wildlife and Customs laws, as well as for tax evasion. He was charged with conspiring to import illegally more than USD1.3 million worth of protected parrots and macaws into the US from South America between 1985 and 1992. Imports included at least 186 specimens of the CITES Appendix I-listed Hyacinth Macaw *Anodorhynchus hyacinthinus* then valued at between USD5,000 and USD12,000 each, as well as the threatened Crimson-bellied Parakeet *Pyrrhura perlata* (VU) and Vinaceous-breasted Amazon *Amazona vinacea* (EN).

²⁹ Modified from Lowther, Cook & Roberts. (2002).

³⁰ International Council for Bird Preservation, today’s BirdLife

³¹ Indictment No. 94-CR-760

Silva pleaded guilty and was convicted and sentenced to 82 months (nearly seven years) in jail and 200 hours community service to be performed during a three-year supervised release program to follow the prison term. He was also fined USD100,000. Silva's mother was sentenced to 27 months imprisonment, plus a one-year supervised release and 200 hours community service. Today, Silva collaborates with ParrotsDailyNews.com, offering advice to parrot breeders on technical issues in a column called "Tony Silva News."

2) Smuggling threatened parrots from Brazil to the UK via Eastern Europe

Harold Sissen was a well-known figure in the avicultural field, admired as a contributor to conservation through captive breeding, although allegedly regarded as having a cavalier attitude towards collecting and keeping birds. In 1998, Customs officers raided his premises in the UK, seizing three Lear's Macaws *Anodorhynchus leari* and six Blue-headed Macaws *Primolius couloni* that had been smuggled into the UK in the previous 18 months. The Lear's Macaw is a CITES Appendix I-listed species, with an estimated 150 birds remaining in the wild at the time of the offense. A breeding pair of Lear's Macaws was estimated to be worth the equivalent of over USD80,000 on the black market. More than 140 other parrots were also seized during the raid, with the assistance of TRAFFIC and the RSPB. Additionally, he was involved in sending couriers to Australia to smuggle back to the UK the live eggs of endemic Australian parrots that he would incubate and breed from and use for exchanges for other illegally sourced rare parrots, including South American species. The trial took place in Newcastle Crown Court in April 2000 where he was sentenced to 30 months imprisonment and fined the equivalent of USD8,000. It was clear from the evidence that Sissen had travelled to Eastern Europe with the intention of obtaining the birds and smuggling them into the UK in the full knowledge that this was illegal. An appeal based on technical arguments regarding the validity and applicability of the European Community (EC) wildlife trade regulation was rejected, although the sentence was reduced because of his advanced age (he was 61 at the time). An asset confiscation hearing in September 2001 made an order to the value of the equivalent of USD240,000, reflecting the amount Sissen is estimated to have made from his illegal trafficking activities.

3.6 CURRENT ILLEGAL INTERNATIONAL TRADE IN BIRDS: SMUGGLING EGGS INSTEAD OF LIVE BIRDS

With more than 60 direct flights every week between ten Brazilian cities and Portugal, it is a major challenge for authorities in both countries to stop the smuggling of bird eggs. The eggs are transported strapped to passengers' bodies to maintain the optimum incubation temperature during the 10 to 14-hour flight.

The smuggling of bird eggs is thought to have started in Brazil in 2002 (Loureiro, 2009), prompted by the high mortality rate of sedated large live parrots and toucans during transport. Brazilian and Portuguese authorities have confiscated eggs from both men and women passengers of both nationalities. Eggs are generally carefully wrapped side-by-side in tissue paper inside women's pantyhose, then wrapped around the person's waist and/or groin area. Confiscated species are mostly psittacines; macaws, endemic and rare Amazon parrots, and rarer species like the Short-tailed Parrot *Graydidascalus brachyurus*, as well as toucans and owls.³² Portuguese authorities and the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) (CITES, 2010) have co-operated in tackling this trafficking. The Judiciary Police of Portugal deduced that the trade peaked at up to 3,000 eggs per month in December 2003 (Loureiro, 2009). The largest single confiscation in Portugal included 61 eggs carried by a woman who was sentenced to 14 months in prison. Four smuggling networks have been dismantled with seven people detained and sentenced to 1.5 to 4.5 years in jail. Between 2004 and 2009 there were no confiscations in Brazil, while in 2010 there were two confiscations and in 2011 six confiscations took place (Table 13).

Genetic barcoding was used to identify the species in the 2003 case (Table 13). Most of the confiscated eggs (50 of 58) were Yellow-faced Amazon *Alipiopsitta xanthops*, indicating that there were specialized nest poachers responding to specific orders from consumers in Europe. This information was not used in the prosecutor's investigation of the case and the smuggler was released after a few days in jail and paying a minimum fine per egg (Gonçalves *et al.*, 2015). In other cases, the identification of species or groups of psittacines (macaws or parrots) has been possible, either because the eggs survive and hatch, or through post-mortem analysis of the morphology of the fetuses. For example, 61 eggs were identified as Short-tailed Parrot *Graydidascalus brachyurus* in a 2013 confiscation thanks to the presence of some diagnostic yellow feathers on the fetuses (Loureiro, 2009).

³² The identification of Tropical Screech-owl *Megascops choliba* eggs in two different egg confiscations is due, according to experts, to the fact that this species sometimes lays its clutch inside parrots' nesting cavities that are then raided by locals and sold to smugglers as valuable psittacines.

TABLE 13: COMPILATION OF 11 REPORTED CASES OF CONFISCATIONS OF SMUGGLED EGGS FROM BRAZIL

Confiscation Date	Airport Confiscation	Origin	Destination	Number of Eggs	Species	Smuggler's Nationality
Jan 2015	Lisbon	Brazil	Portugal	11	<i>Amazona brasiliensis</i>	Portugal
Oct 2011	Lisbon	Brazil	Portugal	12	Toucans	Portugal
Sept 2011	Lisbon	Brazil	Portugal	58	Psittacines and toucans	Portugal (3 captured)
Sept 2011	Lisbon	Brazil	Portugal	11	Macaws	
Aug 2011	Lisbon	Brazil (Belo Horizonte)	Portugal	29	Psittacine	Portugal
May 2011	Lisbon	Brazil (Tocantins)	Portugal	30	<i>Graydidascalus brachyurus</i>	Brazil
Oct 2010 ³³	Zurich	Brazil (São Paulo)	Switzerland	25		Swiss
May 2013	Lisboa	Brazil	Portugal	61	<i>G. brachyurus</i> and other psittacidae	Portuguese, convicted 14 months jail
Sept 2008	Salvador, BR	Brazil	Portugal	27	<i>Amazona rhodocorytha</i> (10), <i>Anodorhynchus hyacinthinus</i> (7), <i>Ara chloroptera</i> (2), 1 <i>Megascops choliba</i>	Brazilian
Sept 2005	Salvador, BR	Brazil	Portugal	36	<i>Amazona rhodocorytha</i>	Portuguese
2003	Recife BR	Brazil	Portugal	58	3 <i>Ara ararauna</i> , 4 <i>Amazona aestiva</i> , 50 <i>Alipiopsitta xanthops</i> , 1 <i>Megascops choliba</i>	Portuguese ³⁴

SOURCE: Data compiled mostly from media reports in Portuguese and Brazilian journals

³³ Case not disclosed by Swiss authorities until 2013, pending further police investigations about this smuggler who travelled to Indonesia, Mexico and Thailand to sell more than 150 eggs to collectors.

³⁴ The suspect was being followed by Brazilian Police and had travelled to several Brazilian cities where he could have picked up the eggs. When stopped, he claimed they were quail eggs (Gonçalves *et al.*, 2015)

3.7 COMMERCIAL CAPTIVE BREEDING OF WILD BIRDS: FRIEND OR FOE?

A great deal of institutional control efforts target commercial bird breeders. Anti-bird use advocates severely criticize captive breeding, as they consider it to have failed its main conservation purpose, which was to generate a legal supply of the most traded birds and replace illegally harvested birds currently dominating the market. According to some authorities within IBAMA, the judiciary and Parliament, this is sufficient argument to close down commercial breeding as an economic activity that doesn't fulfill the purpose for which it was created. In contrast, breeders argue that their costs of operation are so expensive, owing to the burdensome bureaucracy³⁵ and excessive controls imposed by IBAMA, that their businesses cannot survive producing species that have minimal profit margins for middle-class urban pet hobbyists who are generally unable to buy expensive birds. The prices paid on the streets of Brazil for illegally sourced birds are 15 to 20% of the price of captive bred birds of the same species (Pierre Alonso-ABRASE-pers. comm., to TRAFFIC May 2015).

The expectation that captive-breeding programs would be created aiming to displace illegal markets could not have been envisioned by those who drafted the 1967 law that banned trade in wild animals. At the time there were no illegally-sourced birds in the country; nothing was regulated, all trade was legal. It is more feasible to conclude that the purpose of lawmakers was to propose captive breeding as an economic alternative to the capture of animals from the wild, supposedly preventing additional damage to bird populations from hunting without relinquishing Brazil's option of using these resources economically. The new law changed the wildlife production system from decades of harvesting wild populations to producing animals in farms, but without stating the purpose of replacing birds illegally captured with those produced in captivity. This means that the frequently cited argument to discredit the validity of captive breeding is unfounded.

Equivalent production cost issues affect the demand for birds produced by Brazilian breeders in other countries; Brazilian species are cheaper to produce in Africa and Asia. Market competitiveness of Brazilian-produced birds is low, so they are not the preferred option for buyers. As a result, for a species like the Hyacinth Macaw *Anodorhynchus hyacinthinus*, the Philippines has become the world's main exporter. As the Amazon countries have abandoned the possibility of legally and competitively producing and exporting their wildlife, the economic monopoly over those species has been unintentionally granted to other countries.

³⁵ Bird Breeder's Association representative referring to the current administrative and control procedures of IBAMA as "*unnecessary burrocracia*"; by adding an "r" to burocracia (bureaucracy), he creates a sarcastic description of IBAMA's approach of trying to choke breeders with the tightest possible noose to prevent any possible infraction against wild birds by commercial and amateur bird keepers. It can be loosely translated as "donkey-crazy"

Commercial breeding and the control of illegal trade in birds

IBAMA periodically updates its official position about captive breeding and the keeping of wild passerine bird species. Currently, *Regulatory Instruction (Instrução Normativa)* No. 10 of 19 September 2011 establishes in 70 different articles procedures, requirements, rules, limitations, fines and penalties that can affect wild bird owners. The distinction between a hobbyist (possession of a maximum of 100 birds producing a maximum of 35 chicks per year) and a commercial breeder has always been blurred by the fact that some hobbyists sell the offspring of their birds, which *de facto* turns them into “commercial breeders” with all the legal implications this category implies. Hobbyists are organized in clubs to enjoy their activity, where the barter, exchange and selling of birds occurs. IBAMA is always trying to shut legal loopholes or opportunities that facilitate the laundering of wild birds, a very challenging task as hobbyist numbers are up to one million, plus the roughly 100 commercial bird producers that exist today.

Brazil, Guyana and Suriname are the South American countries where wild bird song contests take place as a popular hobby. Brazil is the only one of these countries that regulates how birds can be trained to be better singers (*Artículo IX Do Transito e Trenamento*). The following description by Helmut Sick (Sick 1993) of Chestnut-bellied Seed-Finch *Sporophila angolensis* (local name “curió”) song tournaments in the 1980s indicates how well-organized and specialized the long-standing Brazilian bird singing contest hobby is, and how passionately people are involved in its practice:

“In this species, diverse dialects have evolved in nature. Songs are classified by bird fanciers, usually with onomatopoeic designations (such as viví-tetéó, vovô-vúu, fili-fute in Rio de Janeiro), or linked to the origin of the bird: paracambí, a city in Rio de Janeiro State, praia-grande in central-south. A professional trainer of this species (N.P. Martins, Rio de Janeiro) produced a cassette with a good paracambí song and sold 50,000 during 1986. Fanciers let the tape run day and night near a young bird (singing starts at 6 months) for it to learn song. Most valued birds are those that do not “split” their song (i.e. do not interrupt melodious and fluent sequences with twitters) and those that repeat “whistle”. There may be sequences of 6, 10, 13 or more repetitions in just one song. In fanciers terminology, bird está matando, “is killing”, if it sings more than any other, and is grego “greek”, if it does not do well. There are many enthusiasts who dedicate themselves to this pastime, many curió [birdsinging] clubs, and a National Federation of Breeders of Bicudos and Curiós (FENABIO), with a publication, O Bicurió, founded in 1969.

Competitions are organized with as many as 200 curiós. Rating is based on number of points awarded, with the winner being the bird that sings the most songs in a predetermined period of

time, e.g. 5 or 30 minutes. A curio from Alagoas sang 223 songs in 30 minutes in 1972. The grand champion “Patinho” (from Jundiaí and participant in 23 contests in 23 consecutive years with 12 first places), achieved a notable score of 295 “songs” in half an hour. Three hundred to 350 songs in 25 minutes, and 35 to 40 songs in 10 minutes have been claimed. Local bird “Filipe” sang 80 songs in 5 minutes, winning the National Curio Tournament in 1980. Nothing like this happens in natural conditions.

The value of a champion curio may be as high as the cost of a new car. The death of one is announced in the newspaper like the passing of an important public personage. Clearly the sensational spectacle of competitions between selected cagebirds becomes a sport and a business, far from purely study of birds and their conservation. In fact, these competitions are illegal, for some participants are wild specimens captured without authorization. It is worth noting that certain types previously in great demand, e.g., the curio-tanoeiro of Jacarepaguá, Rio de Janeiro, have disappeared.”

Many populations of Chestnut-bellied Seed-Finch have been wiped out. Illegal imports from Peru (pers. comm., IBAMA to TRAFFIC, May 2015) bring new “fierce blood” for the breeding of another favorite of cagebird lovers—the Saffron Finch *Sicalis flaveola* or “canario da terra.” Locally bred male birds sing well but lose their aggressiveness in singing tournaments, so new wild individuals are needed to maintain the quality of the contests (Murad, 2000).

The *Regulatory Instruccion No. 10* lists 58 authorized passerine species, which are all IUCN Red-Listed as LC, that can be commercially bred and kept in Brazil, belonging to the following families:

Emberizidae	28 species
Icteridae	6 species
Cardinalidae	6 species
Fringillidae	3 species
Turdidae	6 species
Thraupidae	10 species
Mimidae	1 species

The regulation includes for each species the diameter of the identification ring each bird has to be labelled with, the maximum number of egg clutches a species is supposed to have (from 1 to 4 in a year depending on the species), the maximum number of eggs each clutch can have (two or three depending on the species) and the maximum number of rings IBAMA will supply upon request (from 3 to 12 depending on the species); although

breeders can request more dependent on on-site verification. The *Regulatory Instruccion* provides details on how to prevent fraud based on years of institutional learning about the different mechanisms used by breeders to launder birds illegally.³⁶ All movements or transactions of birds must be registered in IBAMA's *Sistema Informatizado de Gestão da Criação de Passeriformes* (SisPass). This is an online system for the management of the husbandry of passeriformes which can be accessed by registered users and is monitored by IBAMA to keep track of reported numbers and geographic locations of birds.

Many consider that the current list contains too many species and there is pressure on IBAMA to reduce the numbers further. In fact, the previous 2010 list had 138 species, which means currently there are 80 fewer species that can be kept in captivity and traded. The 2011 version eliminated some onerous requirements such as the need to declare information on SisPass within 48 hours of the laying of the first egg of a clutch (*Article 23, Instrução Normativa No. 15, 2010*). Nevertheless, the Brazilian Breeders Association (ABRASE) considers that the rules have been drafted by technical staff that have never bred birds (pers. comm., ABRASE to TRAFFIC, May 2015), which explains why some measures are impractical for hobbyists or commercial breeders.

Enforcement in Brazil is a complex task as there are several police forces with different competencies depending on the type and location of the crime. Enforcement agencies include Highway Police (*Polícia Rodoviária*) for crimes committed on federal highways, Military State Police (*Policías Militares Estaduais*) dealing with infringements within the borders of each of the 26 States of the country with specialized environmental units, Metropolitan Police (*Polícia Metropolitana*) who keep order and capture *in fraganti* criminals caught committing an offense such as when spotted selling birds in a street in a major city, and Federal Police (*Polícia Federal*), who are involved when the criminal activity happens across State or international borders. IBAMA also has an armed unit—the Grupo Especializado de Fiscalização (GEF) or Specialized Intervention Group—with powers to intervene and capture offenders within protected areas, indigenous territories and national forests. Insufficient co-ordination between all of these law enforcement agencies results in duplication of effort which hampers activities, including the development of identification guides, capacity building and efficient sharing of information.

The judicial system is also complex due to the federal arrangement of the country, and co-ordination between legal institutions at different hierarchical levels is a major challenge for capacity building, development of interest and political will towards more effective and timely actions against illegal bird trade.

³⁶ i.e. Article 19. All sales by a commercial breeder must be registered in SisPass with the number and date of the legal receipt of the transaction, also including the name and identification number of the buyer and his/her address. The buyer must register on SisPass in the category of buyer of Passeriformes. The seller must keep in his establishment a copy of the identification document of the buyer for at least five years counting from the date of the transaction.

IBAMA³⁷ and police authorities have clearly identified some 200 major wildlife smugglers in the country. They have been apprehended in the past, some on several occasions caught in different parts of the country, with the only penalty being confiscation of the birds they were storing, selling or moving from one place to another. IBAMA considers that if these 200 repeat offenders were jailed for a significant amount of time, the chain of criminality would stop abruptly. The difficulty is that *Article 29 of the Law Against Environmental Crimes of 1998* (Lei, 9605) reduced jail time for wild animal infractions to a maximum of one year from the previous five-year maximum (Law 7653, 1967). At present, alternative punishments include paying fines or community service which could, in theory, prove corrective but usually involve some unconnected activity such as painting a wall. When fines escalate with increasing numbers of trafficked birds, these can reach hundreds of thousands of Brazilian reals. Such fines do not get paid by those convicted who claim that the amounts are unaffordable. Also of importance, crimes that do not result in prison sentences of longer than one year are not subject to intelligence investigations, which is an urgently needed element to tackle the criminal roots of illegal wildlife trade.³⁸

Emails sent between IBAMA staff in 2006 and 2007 were shared by ABRASE for this study as tangible proof of enmity from within the national environmental authority against their activity. ABRASE contends that the government's mandate is to promote and protect legal breeding, but instead the breeders have been persecuted by the institutions. They also argue that the authorities should instead be tracking the actual illegal traffickers. Breeders interpret the enduring pressure on their activity as an institutionalized agenda within IBAMA technical staff who dislike captive breeding and gradually turn the screw with additional rulings, requirements, requests, visits, paperwork, fines and confiscations until individual breeders give up and close down, one by one, until the commercial activity vanishes from Brazil.

The struggle has turned into an ideological turf battle between two camps—those that consider wild animals are mistreated as a commodity, trapped in cages for the selfish satisfaction of individuals, versus others that consider this activity a valid economic option that should be working together with authorities and scientists to help recover endangered species and habitats. Dener Giovannini,³⁹ Brazilian expert and opinion leader on wildlife trade issues and the founder of RENCTAS, considers that commercial bird breeding was never promoted as a competitive alternative to illegal trade. On the contrary, as described above, the purpose of authorities and pressure groups has been to render commercial breeding an activity with numerous obstacles and frequent changes in the rules. Given this scenario, it is not surprising that commercial breeding has not provided an economic alternative to the illegal trade that has boomed since the 1970s.

³⁷ Pers. comm interview Roberto Cabral IBAMA to TRAFFIC May 2015

³⁸ Pers comm interview with attorney Dr. Vania Tuglio and Roberto Cabral IBAMA to TRAFFIC, May 2015

³⁹ Interview to TRAFFIC May 2015.

3.8 THE ECONOMICS OF THE BIRD BUSINESS

The industry that produces cages, food and other requirements for bird keeping in Brazil is a multi-million dollar business that creates an estimated 300,000 direct and indirect jobs.⁴⁰ These companies have a large number of bird food products with specific brand lines for different species or groups of species including toucans, macaws, native parrots, and songbirds. In pet shops located throughout the States of São Paulo and Rio de Janeiro, there are up to 10 brands of food products for a variety of different Brazilian bird species. This wide range of products for “wild bird” species indicates that there is an important segment of the population that buys sophisticated bird-feed brands and other associated products. It is likely that those paying for these high-quality more expensive products own birds bred by authorized facilities (see footnote 38). The cheaper, more popular cagebirds are generally illegally sourced from the wild, and are usually fed with cheaper grains bought in local markets by these buyers from middle-lower income families throughout Brazil.

Nevertheless, one pet shop chain stopped selling “wild bird” species owing to the pressure from authorities and animal-rights groups. They now only sell exotic canaries, budgerigars and the like, although food, cages, supplements and other goods for the keeping of wild species in captivity occupies a significant portion of their business.

The intensity of pressure from IBAMA on the remaining shops selling wild bird species seems to be an important factor in several of them closing down or shifting to only selling introduced species. The author saw only one shop (Galpão Animal) in the São Paulo area selling wild bird species including toucans, macaws, parrots, and songbirds. The owner (Mr. Paulo) refused an interview—even if kept anonymous—and would not allow filming inside the shop even though he claimed all his animals were of legal origin as IBAMA had some pending legal processes against him. His case was symptomatic of the “shut down commercial breeding” agenda, which seems to be gaining ground in the country. Breeders are wanting to fight back and make a case about their important role for the future of Brazilian species. ABRASE, which has been in existence since 1999, has called for support for a campaign entitled “*To Breed is to Preserve: legal wild animals guarantee the continuity of species*” (Criar é Preservar: animais silvestres legalizados garantem a continuidade das espécies).⁴¹

⁴⁰ Pers. comm Pierre Alonso, ABRASE to TRAFFIC May 2015.



FIGURE 1. Bird feed products in an aisle of one shop in São Paulo for three species of passerines (Buff-throated Saltator *Saltator maximus*, or locally “trinca-ferro”; Rufous-bellied Thrush *Turdus rufiventris*, locally called “sabiá-laranjeira”; and Chestnut-bellied Seed-Finch *Sporophila angolensis*, or “curio” locally), one native parrot (Turquoise-fronted Amazon *Amazona aestiva*, or “papagaio” locally) and Rainbow Lorikeet *Trichoglossus moluccanus*, an exotic parakeet species. Prices can be seen as ranging from R\$16 to 12 (around USD4.8 to 5.3 per 300 g box at the time of study) for wild species

The growing resistance against captive animals that threatens the existence of zoos and breeding centers is increasingly vocal and politically strong with little space for middle-ground options that could potentially help resolve the loss of wild species in the country to poaching, habitat destruction and illegal trade.

3.9 ENVIRONMENTAL EDUCATION: A CRITICAL PROPOSED SOLUTION

Most of the advocates for harsher law enforcement for wildlife crime see environmental awareness and education as an essential strategy that should run parallel to, and in support of, enforcement actions. With more than 205 million people (the fifth most populous nation in the world), reaching the Brazilian population with behavior change messaging to reduce the demand for wild animals is a daunting task. Teaching respect for the law to stop the culturally embedded practice of keeping wild birds in cages at home is a further challenge and the author of this report is not aware of any ongoing nationwide campaigns or education programs addressing the conservation concerns raised by the bird trade.

However, there are several local campaigns and environmental education programs associated with important conservation projects (i.e. Projeto Arara Azul–Hyacinth Macaw Project, Projeto Mico Leao–Lion Tamarin Project) targeting communities that live in their area of interest. These programs assist communities with stopping poaching, selling and buying of animals, convinced by the jobs and income that tourism can bring. There are also several examples of former poachers now working as birdwatching guides or in other jobs based on valuing live birds.⁴¹ These instances illustrate the value of positive change in people’s perceptions and understanding given the right conditions. As important as these conservation and ecotourism projects are, only small localized populations are reached by these programs, campaigns and economic alternatives in conservation areas. Currently there are some 30,000 birdwatchers in Brazil, and although their numbers have grown steadily in major cities, their collective voice is still insufficient to lend political weight to influence government agendas for bird conservation. Nevertheless, the fact that around one million households have birds in their homes indicates that many Brazilians like birds. This group could potentially turn many illegal owners into supporters of conservation programs if they are made a part of urgently needed solutions.

3.10 XERIMBABO⁴² —THE CULTURALLY EMBEDDED CUSTOM OF KEEPING SONGBIRDS IN BRAZIL AND THE CONFLICTIVE RELATIONSHIP WITH NEW VALUES ABOUT WILDLIFE

Keeping wild birds in cages is still a very popular tradition throughout the country, and in regions where poverty is high and economic alternatives are scarce, it is unrealistic to expect local inhabitants not to resort to wild bird trapping and selling as a way to supplement their meagre family income. The author is unaware of any efforts to date working with bird trappers, who are based mainly in Northeast Brazil, to find alternative income-generating activities that will allow them to abandon catching and selling birds. Further, socioeconomic profiles of these communities have not yet been developed, and their needs and opinions about this issue are unknown by the anti-bird trade advocates. All conservation management is currently left to authorities carrying out law enforcement on bird shipments en route to markets throughout Brazil.

Some IBAMA staff, along with other enforcement authorities, consider that at the root of the problem with rural populations is that they have become used to cash income from

⁴¹ Pers comm Pedro Develley, SAVE/BirdLife Brazil, interview to TRAFFIC May 2015.

⁴² “Xerimbabo” is a word of indigenous Tupi origin that describes the affection and appreciation for pets kept at home for company and enjoyment of the household.

birds instead of planting and harvesting food crops which requires more work. Even though many individuals are specialized in bird capture and trade, these generalizations about local stakeholders is an oversimplification of the economic strategies used by the local population to deal with poverty in the harsh environments where they try to make a living.

Brazil is completely reliant on enforcement and education to curb illegal bird trade. Even though some bird populations keep eroding under harvesting pressure, there is insufficient discussion to identify alternative solutions to reduce the bird trade pressure, ones that could have better chances of success beyond the insufficient results achieved by enforcement and education.

Brazil is also the Amazon country where the tension between pro- and anti-use groups is most intense, an ideological dispute that brings head-to-head those who oppose and those who support commercial breeding and keeping of birds in cages. This kind of situation is common in developed countries, and in Brazil is a dispute within urban populations that impacts the livelihoods of the rural population. One side suspects that most maladies that weaken the effectiveness of efforts to crush wildlife trade are due to commercial bird breeders' laundering trickery, while the other side denies these accusations considering there is little negative impact on wild populations from breeding operations, and on the contrary, they could be major allies for conserving and restoring endangered species.

Amongst elected congressmen, top judiciary officials, attorneys, federal and State environmental authorities, experts, NGO leaders and the wider public, there is growing rejection of the commercial breeding of wild species. Some of this opposition is based primarily on animal rights concerns, others from a combination of conservation and animal rights arguments (i.e. having a legal pet at home can promote in others the wish to own a bird, fueling illegal trade from wild populations). Another argument to oppose commercial breeding highlights the difficulty of confirming the legality of birds within a commercial producer's facilities, arguing that it is in the best interest of conservation to shut them down.

Through the practice of their hobby and business, many commercial breeders have accumulated a large amount of knowledge about Brazilian bird species, including their reproductive cycles, diets, illnesses and behavior. Their interest in birds and accumulated knowledge about them should make them important allies in the recovery through reintroduction programs of dwindling endangered species. In the mammal world, the initial repopulation stock of the Golden Lion Tamarin *Leontopithecus rosalia* came from private collectors and zoos (Giovannini 2014, L. P. Ferraz pers. comm., 2015), thus saving this emblematic primate from extinction. Producers insist that if a more collaborative strategy had been

followed based on the capacities and willingness to help by honest and dedicated breeders, the dramatic stories of two flagship Brazilian parrots would have had completely different outcomes. Both Lear's and Spix's Macaws would not have almost disappeared from the wild if authorities had acted decades ago to work collaboratively with private breeders to achieve largescale reproduction in Brazil, allowing reintroduction and recovery of the depleted wild populations. Of course, there are unscrupulous commercial breeders, just as there are unscrupulous individuals in any other institution or organization, but that should not cloud the argument. (P. Alonso pers. comm.).

Commercial breeding has the potential to be a genetic reservoir for some Brazilian species, although detractors say the reservoir is "contaminated" by the fact that breeders have for years selected the desired commercial characteristics, losing the important traits of the original wild stocks.

Some experts, including producers, agree that IBAMA is spending too many institutional resources spotting legal producers' mistakes to close possible loopholes that can allow illegal birds to filter through the system. Detractors argue that authorities should focus on dismantling organized illegal trade networks that operate and move specimens via Brazil's roads, across terrestrial borders, and through airports and seaports. In Brazil, a consensus on what is most beneficial for conservation of species and habitats has yet to be reached. There is general agreement, however, that the outcome of the efforts to control illegal bird trade in the last five decades has been far from adequate. Differences between opposing views come when identifying explanations for this shortcoming.

Animal rights arguments permeate into the wild bird trade debate. The suffering of animals kept in inhumane conditions and undergoing mistreatment and mutilation are argued against the caging of wild species. Politicians such as Roberto Tripoli, a São Paulo Congress member elected in March 2015, and his brother Ricardo Tripoli, a member of the National Parliament, both gained their seats with the support of animal rights advocates campaigning for the elimination of zoos, circuses with animals and commercial programs to sell pets. For this growing group of citizens, protecting pets from abuse is part of the same struggle "to close down caged wildlife facilities." Roberto Tripoli's influence goes beyond animal rights and general environmental quality issues for São Paulo as he chaired the House's Commission on the Environment and Sustainable Development (2015–2016), and Ricardo, in Parliament since 2007 and reelected for a third period recently, is permanently proposing legislation that protects wild and domestic animals. He is currently the Chair of the Commission on Science and Technology. These two brothers exemplify the political leverage that animal rights issues have gained in Brazil, both getting around 250,000 votes to gain

seats in both State and National Parliaments. This is a political movement that will keep pushing to close options for legal wildlife trade in Brazil. On the other side, an estimated one million wild bird breeders and keepers, if organized, could create political opposition defending their commercial interests and desire to keep wild birds as their hobby and business.

Transferring economic benefits of biodiversity to other countries

As the exports of wild bird species bred in Brazil is small (just 90 birds in 14 years according to CITES trade data, a mere 1.1% of world exports of South American parrots), other countries have stepped in to supply the demand and, as mentioned above, are more economically competitive as their production costs are lower. Currently countries like South Africa, Philippines and Singapore are the main exporters of Brazilian species, filling a market niche that Brazilian laws and administrative procedures closed for national producers. Current buyers worldwide can access almost any Brazilian parrot or toucan species from several farms that produce them commercially in Argentina, other continents, or wild-caught in Guyana and Suriname. Brazil has produced the opposite situation of a market monopoly: it has unintentionally placed the right to benefit commercially from the trade in its autochthonous species in the hands of any other country that chooses to profit from them. ABRASE considers this a loss of sovereignty, questioning the real motivations of those in Brazil that facilitated putting in others' hands the reproductive capacity and trade benefits of its biodiversity.

3.11 BRAZILIAN CITES SPECIES: THEIR CAPTIVE BREEDING AT HOME AND ABROAD

Appendix I listed species

There are 21 CITES Appendix I-listed parrot species in South America, the majority (14) of them found in Brazil, mostly in the country's coastal region ranging from the southern Araucaria forests bordering Paraguay, Argentina and Uruguay, up to the northern Mata Atlântica and Cerrado's fragmented forests.

Interestingly, all the Appendix I-listed Brazilian species are bred outside Brazil; 8,000 were exported from 44 European, North American, African and Asian countries, as well as Suriname between 2000 and 2013 according to UNEP-WCMC CITES trade data.⁴³ Of the South American range States, only Brazil makes it into the list of the top ten exporters (10th place) of these Appendix I-listed species, with a total of 90 individuals, 65 of them Red-spectacled Amazons *Amazona pretrei*. Between 2000–2013, South Africa exported 53% of all birds of South American Appendix I-listed parrot species (4,231 birds), making it the country that has economically benefited the most from the trade in these species. Also, of note is that of the 283 Hyacinth Macaws exported worldwide, none came from Brazil. The Philippines was the main exporter for commercial purposes (171 birds), followed by Switzerland (27) and South Africa (21). An online search delivers dozens of sites where these species are sold for wide-ranging prices. Some examples from websites accessed during 2016 show prices up to USD2,500 for a 6–9 months old male; birds a few months older can reach USD2,700; a 6–9 months old breeding pair can fetch USD3,500 and up to USD4,000 when they are between 1 and 3 years old. On another website, this species was offered from USD500 to USD10,000 for one individual with dozens of advertisements from various States in the USA, Canada and the UK. On a third platform, birds were offered for as much as USD13,995 for one individual. This open and active market scenario contrasts with the *status quo* in range States where trade is extremely restricted and illegal.

Appendix II

Brazil has more than 70 parrot species listed in CITES Appendix II, which is made up of all those not included in Appendix I. Five of these species are included in the Brazil Red Book (Monteiro-Machado *et al.*, 2008).

⁴³ Suriname exports Scarlet Macaws captured from the wild for non-commercial purposes.

The price of species outside range countries usually depends on their availability in the market. Ease of breeding is the main factor for determining whether a species is abundant in trade or not, which in turn determines its market cost. This is illustrated by a primarily Brazilian species, namely the Crimson-bellied Conure *Pyrrura perlata*. The price for a breeding pair reached EUR (Euros)10,000 in 1992; currently a pair can be found for as little as a few hundred EUR as reproductive success made the species widely available for collectors (Cyanopsitta, 2002).

3.12 CONSERVATION PROJECTS TO RECOVER THREATENED SPECIES' POPULATIONS

(INFORMATION SUPPLIED BY DR. JULIANA MACHADO FERREIRA FOR THIS REPORT)

1) Red-tailed Amazon *Amazona brasiliensis*

The Red-tailed Amazon is a parrot endemic to the highly endangered Atlantic Forest, with its distribution ranging from the south coast of the State of São Paulo to the north coast of Santa Catarina State. This species is considered **VU** by the IUCN due to habitat loss and degradation as well as collection for the illegal wild pet trade. Breeding of this species in captivity is still considered difficult. The project Papagaio da Cara-Roxa⁴⁴ has been implemented since 1998 by the Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental (SPVS)⁴⁵ with funding from Loro Parque Foundation, Fundação Grupo Boticário de Proteção à Natureza⁴⁶ and Fundo Brasileiro para a Biodiversidade (FUNBIO).⁴⁷ The project carries out species research, with ten population censuses conducted between 2003 and 2012. Artificial nests have been installed and educational outreach has been conducted. The project also supports initiatives to generate income for local communities, such as honey production and ecotourism. In the 15-year existence of the project, it has registered 872 chicks of which 520 matured in the nest and were able to fly. The latest census indicates a population of approximately 5,000 individuals, probably stable or increasing, thanks to these conservation efforts.

⁴⁴ Rose-faced Parrot Project

⁴⁵ Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental – Society for the Research in Wildlife and Environmental Education.

⁴⁶ Boticario Group Foundation for the Protection of Nature.

⁴⁷ Fundo Brasileiro para a Biodiversidade –Brazilian Fund for Bio diversity.

2) Vinaceous-breasted Amazon *Amazona vinacea*

The Vinaceous-breasted Amazon, also known as the Vinaceous Amazon, is listed by IUCN as EN. It has been extinguished in several locations that used to be part of its original distribution range, which encompassed many areas in Paraguay, the north-eastern region of Argentina and the Brazilian States of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Minas Gerais, Rio de Janeiro, Espírito Santo and Bahia. Currently the distribution is made up of disconnected populations dotted through its original range wherever there are suitable forests left. It is currently estimated that there are from 1,500 to 2,000 individuals in Brazil, 220 to 400 in Paraguay and 253 in Argentina (BirdLife International (2017) Species factsheet: *Amazona vinacea*. Downloaded from <http://www.birdlife.org> on 28/06/2017). The main threats to the species are habitat loss and degradation combined with poaching to supply the illegal bird trade. Since 2010 the Wild Spaces Institute (Instituto Espaço Silvestre) has been developing a Vinaceous-breasted Amazon reintroduction project in the Araucárias National Park where 83 birds have been reintroduced. The parrots have gone through a full rehabilitation process prior to release and are monitored monthly after being released. The reintroduction project also encompasses an educational component and handicraft manufacturing by local women using parrots and Araucárias (a South American coniferous tree) as themes aiming to create economic value for the released animals. Until now there have been three releases totaling 76 parrots in the Araucarias National Park, with many breeding pairs established and nine chicks observed. The project has been in partnership with SAVE Brasil (BirdLife International's country representative), with other partners like the municipal governments of Ponte Serrada and Passos Maia, Celulose Irani S.A., Rádio 100.7FM, Military Police of Santa Catarina State, Araucarias National Park, Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio) and IBAMA. The project is also supported by Fundação Grupo Boticário, Panasonic, Refúgio das Aves, Tarooi Investment Group, Zoological Society for the Conservation of Species and Populations, as well as Fonds für bedrohte Papageien und Strunden-Papageien-Stiftung.

3) Lear's Macaw *Anodorhynchus leari*

Lear's Macaw is endemic to the "Caatinga" biome and is listed by IUCN as EN. Its distribution is restricted to a small area in the north-eastern region of Bahia State. Its populations are concentrated within two protected areas where they nest and roost communally in sandstone cliffs. The birds perform daily migrations to forage in unprotected neighboring areas. The main threats to the species are poaching to supply the illegal wild pet trade and habitat degradation. A decrease in food sources, mainly the Licuri Palm *Syagrus coronate*, has brought the macaws into conflict with local farmers as they now feed on corn crops. The Fundação Biodiversitas started the Lear's Macaw conservation project in 1989, working on a comprehensive set of actions such as population censuses, awareness raising in local

communities, acquisition of one of the species's breeding sites and a pilot project of management of the Licuri Palm, with funding from the National Environmental Fund and the Ministry of Environment. In 2000, IBAMA started the Lear's Macaw Management and Conservation Project, developing both captive and field research. Since 2006 Loro Parque, in collaboration with Instituto Arara-Azul, has been developing actions with local communities, mainly to raise awareness and to contribute to the creation of alternative income sources. CEMAVE/ICMBio and Biodiversitas Foundation have measured a population increase from 570 birds in 2004 to 1,125 individuals in 2010. Although the long-term population increase is partially explained by higher monitoring intensity, there is consensus that the species has been recovering in numbers over the past few decades. IUCN/BirdLife International downgraded the threat category of the species from **CR** to **EN** in 2009 based on the estimate of more than 250 mature individuals capable of reproduction. However, the species still suffers poaching for the illegal wild pet trade (Pacífico, pers. comm., 2015).

4) Hyacinth Macaw *Anodorhynchus hyacinthinus*

The Hyacinth Macaw, once common throughout Brazil, can now only be found in the Brazilian, Paraguayan and Bolivian Pantanal and in the Brazilian States of Mato Grosso do Sul, Mato Grosso, Amazonas, Pará, and in the region known as "Gerais" (Maranhão, Bahia, Piauí, Tocantins and Goiás). These appear to be three distinct populations. The *Arara-Azul Project*⁴⁸ is perhaps the best-known species conservation initiative in Brazil. It develops extensive research about this, and several other species (Turquoise-fronted Amazon *Amazona aestiva*, Lear's Macaw *Anodorhynchus leari*), using the Hyacinth Macaw as an umbrella species for the conservation of the entire Pantanal ecosystem. Started in 1990 by biologist Neiva Guedes, the project monitors nests and develops extensive awareness and community outreach. Its unfailing determination has led to the creation of the Arara-Azul Institute, bringing international attention and support to the project in its two field operation bases. In the last 16 years, researchers covered 57 farms in the region where they have inventoried 604 nests (386 natural and 218 artificial nests installed by the project), with intensive monitoring taking place at 320 nests. A census tallied 5,000 individuals just in the Brazilian Pantanal. Researchers have not only verified a population increase, but also the recolonization of sites. Evidence suggests that at least in the Brazilian Pantanal, poaching has been severely reduced. The project has had the support of numerous organizations among them the Anhanguera University (UNIDERP), WWF, Fundação O Boticário, Toyota, Ecotrópica Alemã, Vanzin, Brasil Telecom, Roberto Klabin, Burger Zôo, BR Tintas, and Criadouro Asas do Brasil.

⁴⁸ Arara azul is the local name of the Hyacinth macaw in Portuguese.

5) Spix's Macaw *Cyanopsitta spixii*

This species, listed by IUCN as **PEW**, has possibly been extinct in the wild since 2000 primarily due to habitat loss and degradation, as well as poaching to supply the illegal wildlife trade. SAVE Brasil has implemented the project *Ararinha na Natureza* (Spix's Macaw in Nature) since 2012 to return captive-bred offspring into the wild. This needs to be paired with environmental education and awareness initiatives, as well as mitigation of impacts in the species's habitat, creating favorable conditions for the released animals to thrive. The project has three priorities: (1) awareness and involvement of local communities currently being developed by local organizations in Curaçá, Bahia State; (2) creation of protected areas, with a 17,800 ha protected area being created in Curaçá; and (3) captive population breeding management. The captive population totals 110 individuals, currently split across breeding centers in Qatar, Germany and Brazil. There are another 13 individuals in captivity which may join the project soon. In terms of the *National Action Plan for the Conservation of Spix's Macaw*, release into the wild is planned for 2021. This brave and ambitious initiative has the support of several partners, namely the ICMBio, Funbio, Al Wabra Wildlife Preservation (AWWP), Association for the Conservation of Threatened Parrots (ACTP) and Criatório Nest e Fundação Lymington. Support is also provided by the Brazilian mining multinational Vale. The current estimate of existing birds in *ex situ* collections is 127 (Tomiska, 2015).

6) "Flight Plan" (Plano do Voo) – Release of Confiscated Birds

The Animal Rescue Center of the State of São Paulo (Parque Ecologico do Tiete -CRASS PET/DAAE-SP) received 47,000 birds between 2003 and 2013. After a quarantine period and technical evaluation of each bird, 70% have been returned to nature. The *Protocol for Release and Monitoring of Birds Rescued from the Illegal Wildlife Trade* in São Paulo, developed as part of the collaborative agreement between SAVE Brasil and the Environment Secretariat of the State of São Paulo, has three main objectives: (1) Implement an integrated program of liberation back into nature of confiscated birds, and monitoring them with technical criteria; (2) develop a volunteer program for the monitoring of reintroduced birds following advice from the Scientist Citizens Program (developed by SAVE Brasil); and (3) develop education and information diffusion campaigns about wildlife trade and habitat conservation.

3.13 CONCLUSIONS

IBAMA authorities calculate that every year 38 million birds are removed from nature to feed the illegal trade in species, or parts of birds (ANDAs, 2013). Between 35,000 and 40,000 are confiscated by authorities every year, a number that has remained fairly constant through the years. After almost five decades of prohibition, it is recognized by enforcement authorities, managers, judiciary officials, NGOs and experts that a strategy to tackle illegal bird trade based primarily on confiscations is not working. Legal disincentives are not having the desired effect of reducing levels of trade. Fines are not paid, and jail sentences are inadequate. The size of the country, its large population and the high poverty levels in rural areas make it a futile struggle that is shifting attention away from more pressing problems that affect wildlife in the country. Results indicate that the education component has also fallen short of complementing the enforcement efforts. No attempt has been made to review the whole strategy to address the problem, other than identifying the weaknesses of the current strategies to explain their failures.

The use of economic incentives to promote legal and sustainable use of bird populations by local communities in the dry north-east region of the country or the Amazon region are options to explore, but it requires a change in attitude by powerful sectors about the need to work more collaboratively with local populations in the places where birds are currently trapped extensively. Rewriting the Brazilian strategy to tackle illegal bird trade is a major challenge as the very vocal, well-connected and increasingly radical anti-use and anti-captive breeding lobbyists do not accept measures promoting wild bird use and trade—a difficult scenario for a radical change in strategy to happen. For many, the simplest solutions would be to ban all captive breeding gradually to choke the hobby throughout the country. The attitudes of some within IBAMA is to eliminate captive breeding activities as the major solution to the problem. However, the experience of neighboring Colombia, where all wildlife trade is banned and there is no captive breeding program of its wild birds is enlightening: there is very little open trade in birds but the flow of illegal animals into cities continues in high volumes.

Brazilian wildlife trade pioneer and opinion leader, Dener Giovannini, has revisited his opinions on solutions to illegal trade mainly based on enforcement. His opinions contradict the predominant version about the causes of the problem, its complexities and required solutions. He insists that there is an urgent need for a revised approach to have more lasting impacts, promoting a technical discussion about sustainable use of wildlife through publications (RENTAS, 2017) and technical debates.

The strategy to tire out commercial breeders seems to be having some effect as their numbers keep decreasing, but the hundreds of thousands of hobbyists pose a greater challenge as the customary possession of native bird species as companion animals is too widespread to be significantly curbed soon. Thus, demand for birds will continue independent of what institutions, lobbyists, NGOs or experts do or think about the problem. The only viable approach is to tackle the situation realistically to avoid the worst impacts on birds, habitats and the conflicts between breeders and anti-bird trade sectors.

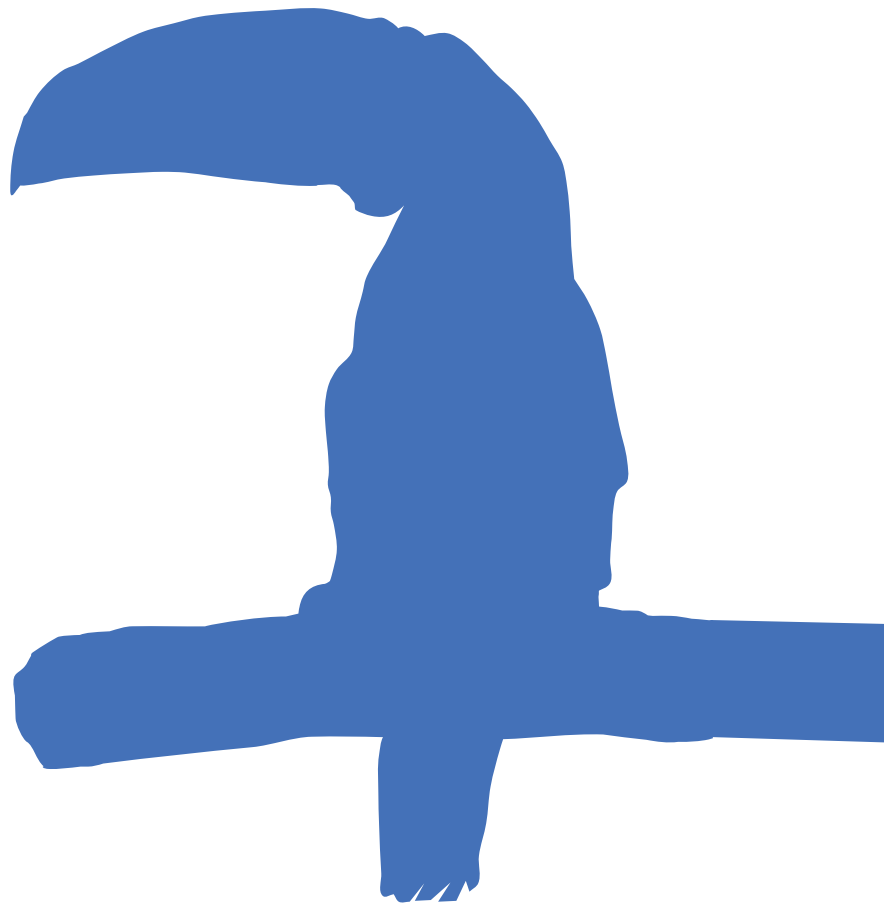
It is possible that the opportunities for conservation of the many threatened species in Brazil have been affected by the marginalization of professional breeders by authorities and pressure groups, which means that reintroduction efforts depend on bird breeders in Europe or elsewhere. This major contradiction—that many Brazilian species are openly and freely reproduced and traded outside their natural range—is a consequence of the prohibition agenda that was designed 50 years ago in response to decades of irresponsible plunder of animal species.

The creation of protected areas throughout the country is not enough to guarantee that wildlife within its borders will not be poached for trade, but support from NGOs through species-specific projects has been very important to halt extinction processes for a few species. Also, general environmental awareness has increased in certain sectors of urban Brazil, which constitutes 70% of the population. But the wider rural and suburban population—almost 30 million people (Trading Economics, 2017), still lacks the education levels,



motivation and awareness about respect for wildlife laws, nature, and animals in their habitats. Poverty will always push people to capture wildlife for profit or opportunistically access food or other goods. As indigenous groups that have based their livelihoods on local resources see their food security threatened by encroachment from outsiders and cultural changes, wildlife will be significantly affected.

Meanwhile, professional wildlife traffickers and their criminal networks, those that are after the most valuable, rare and threatened species, operate their businesses by taking advantage of the multiple opportunities the country offers: its size, poverty, corruption, weak legal system, institutional complexities and disarticulate efforts. Crucially, society's efforts have distracted from those activities that pose more conservation problems for the future of Brazil's biodiversity.





4. COLOMBIA

BIRD MEGA-DIVERSITY AND MEGA THREATS

“In 1845 the first examples (15) from Bogotá are recorded, and in 1854 the Museum bought 57 specimens from the same place. These were the commencement of that endless stream of Bogotá birds, now to be reckoned by millions which have steadily come to Europe as articles of trade down to the present day. These skins are prepared by Indians in a somewhat rough manner, and are easily recognized by their ‘make’.”

R. Bowdler Sharpe, Assistant Keeper, Department of Zoology, British Museum (1906).

Introduction

With 0.7% of the world's land mass and 10% of its biodiversity, Colombia is always in the global “top-five” for number of vertebrate species (including parrots and other birds, amphibians, primates and bats) as well as plants. This magnitude of biological wealth is, at the same time, experiencing advanced and ongoing destruction as half of the country already has severe environmental problems generated mainly by deforestation, logging, hunting, pollution and introduced exotic species. Growing mercury pollution in many river systems is a major concern for human and ecosystem health. According to BirdLife, Colombia ranks third for the number of globally threatened bird species (126) in the world (BirdLife 2017a), and has dozens of vanishing species in all groups of plants and animals. Its geographic position has favored the confluence of such biodiversity, but also the opportunities for plundering, trading and trafficking of resources amidst weak governance in extensive portions of its territory.

Colonization dynamics and occupation of the territory have destroyed huge expanses of wetlands and forests. In the last 70 years, poor farmers have been pushed into remote jungles by political violence and subsequent booms in legal and illegal economic activities. In the last ten years, illegal mining, oil and agribusiness expansion onto public lands have severely impacted the existence of indigenous communities. The Andean region and its valleys connecting it with the Caribbean plains—including biological jewels like the Sierra Nevada de Santa Marta—have been the most impacted. Ninety percent of the population of almost 50 million people and the bulk of economic activities over the last 100 years have concentrated here. Most of this part of the country has been turned into pastures, coffee crops, potato plantations, flower greenhouses, vast sugarcane plantations and urban sprawl. This has destroyed millions of hectares of forests, wetlands and high-altitude grasslands or “paramos.”

Habitat destruction has been exacerbated by illegal poppy, coca and marijuana plantations that have encroached into the most remote corners of different regions of Colombia. Negative impacts have been boosted by aerial chemical-spraying by authorities⁴⁹ to kill the illegal crops, resulting in poisoned water and soils. To keep ahead of law enforcement efforts, illegal crop producers have continued to deforest new areas into the Amazon and Pacific coastal forested areas boosting deforestation and biodiversity destruction. Thus, some of the richest biological treasures on the planet including the forests of the Pacific/Chocó foothills and lowlands, the Perija and Catatumbo forests on the border with Venezuela, and the western portions of the Amazon (Meta, Caquetá and Putumayo departments), have been severely impacted. Peace agreements with the more than half-century old guerrilla groups open options for better control of the territory but also for renewed waves of deforestation. The conservation of the still-forested half of the country depends in many ways on how the so called “post-conflict” period develops in Colombia.

Through Colombians’ self-determination, creativity and hard work, the extinction tide for some species has been contained or even reversed. This has been achieved through the work of NGOs, local community organizations and the commitments of a few landowners, with support of local and national environmental authorities.

Half of Colombia’s territory is still covered by forests (IDEAM, 2015), 67% of these in the Amazon region which comprises 42.3% of the Colombian territory. Colombia has the third largest area of the Amazon basin—6.2% (483,164 km²) containing a population of almost one million people (Sinchi/SIAT-AC). There are 11 protected areas in the Amazon covering 8.3 million hectares. Indigenous territories cover an additional 25.6 million hectares (70% of the Colombian Amazon), for a total area of 33.9 million hectares of Amazon forests under some form of legal protection. Another 14%, mostly in its western portion, has already been lost to deforestation.

⁴⁹ Suspended by presidential decree in May 2015 <http://www.elspectador.com/noticias/judicial/santos-ordena-suspender-fumigacion-de-cultivos-ilicitos-articulo-559592>

4.1 THE BIRDS OF COLOMBIA

With 1,877 resident and migrant birds registered in its continental territory and adjacent waters, Colombia is first in global diversity with almost 10% of the world's bird species (BirdLife 2017a). There are 87 breeding endemic species in Colombia, many of them threatened with extinction. The Colombian Grebe *Podiceps andinus* went extinct in the late 1970s, as happened with the subspecies of the Yellow-billed Pintail *Anas georgica niceforoi*, both primarily due to wetland degradation. Possibly Extinct (CR-PE) species include the Bogota Sunangel *Heliangelus zussi* and the Turquoise-throated Puffleg *Eriocnemis godini* (Renjifo *et al.* 2017). Dozens of other endemic species and subspecies are on the brink of extinction due to widespread habitat destruction, mainly in the Andes and Sierra Nevada de Santa Marta regions. It is surprising that more species have not already gone extinct because of the ecological degradation of extensive regions in the country, mainly in areas where most threatened birds inhabit; the forests on the slopes of the three Andean cordilleras and their deep, connecting valleys and wetlands. Many other endemic and threatened species are affected by deforestation in the isolated but degraded mountain ranges of the Sierra Nevada de Santa Marta, Perijá, San Lucas, Macarena and others.

BirdLife (2017a) lists a total of 126 species as threatened with extinction; 50 of these are country breeding endemics. The threat categories include 16 species as **CR**; 36 as **EN**, and 74 as **VU**. The number of listed species grows to 225 when those categorized as **NT** are included in the tally. The bird conservation status assessment of Renjifo *et al.* (2016) includes 140 species in any of the IUCN Red List threat categories, 55 of which are country endemics. Three of these species are considered CR-PE, 14 as CR (7 endemics), 56 EN (23 endemics), 67 as VU (23 endemics), 23 are assessed as NT (3 endemics) and 9 are DD.

Some species have changed their listing categories between the first Colombian Red Data Book in 2002 (Renjifo *et al.*, 2002), and the recent versions (Renjifo *et al.*, 2014; Renjifo *et al.*, 2017). In comparing 2002 with 2014–2016 results, in the earlier Red Book 30 species had not yet been analysed; six because they were described after 2002, one was revalidated as a species (previously considered a hybrid), and another was at the time considered a subspecies. In the 2014 review, 42 species remained in the same category, 30 diminished and 16 increased their threat category, while one passed from **NT** to **DD**. For some species, these changes in conservation status are because there is better information about their status and threats, while others have genuinely improved their conservation status. The latter applies to the Black Inca *Coeligena prunellei* which has improved from **EN** to **NT** and the Yellow-eared Parrot *Ognorhynchus icterotis* which moved from **CR** to **EN** thanks to conservation measures and discovery of new populations. Three species from 2002 have

gone from **VU** to **LC** as their distribution was found to be larger than initially considered. Fourteen species passed from **NT** to **LC** as they are found to be more tolerant to disturbed habitats, or their distribution has been found to be larger.

Colombia has 124 IBAs⁵⁰ with bird monitoring occurring in just 7% of them.

4.2 BIRDS WITH A TENUOUS EXISTENCE: PREVENTING EXTINCTIONS IN COLOMBIA THROUGH SUBNATIONAL GOVERNMENT AND PRIVATE EFFORTS

The Ministry of the Environment co-ordinates action plans for the conservation and recovery of threatened plant and animal species. The Andean Condor *Vultur gryphus* (**NT**) is the only bird for which one of these plans was formulated for (2006–2016), co-ordinating actions among different authorities and civil society to support its recovery in the country.

ProAves is an NGO that in the last 20 years has focused its work on protecting critical habitats for endangered endemic and migrant bird species where the coverage of the National Protected Areas System is insufficient. By buying land to protect such places, ProAves currently runs 27 private reserves throughout the country, and also develops conservation and species recovery initiatives. Project successes of note center on the endangered high-Andean parrots, including the recovery of the Yellow-eared Parrot *Ognorhynchus icterotis*. This Colombian near-endemic is considered probably now extinct in Ecuador but has reduced its global Red List Threat category from **CR** to **EN** thanks to the combined impacts of awareness campaigns, involvement of local communities preventing nest poaching and installation of nesting boxes to increase reproductive success.

Colombia has the most organized and numerous groups of local birdwatchers and bird-concerned citizens in the Amazon countries. These have evolved around universities and researchers since the 1980s in Bogota (*Asciacion Colombiana de Ornitologia*), Cali (*Grupo Calidris*) and Medellin (*Sociedad Antioqueña de Ornitologia*), leading to the publication of several bird guides, holding of member meetings, support for conservation efforts of critical habitats, and general increased awareness about birds and their conservation needs. It is no surprise that bird tourism is on the rise as birders around the world seek to experience Colombia's unique bird diversity. As security has improved significantly in many of the most interesting bird regions of the country, more and more birdwatchers are coming into Colombia touring the ProAves private reserves and other networks throughout the country. Awareness and

⁵⁰ <http://datazone.birdlife.org/country/colombia/ibas>

education campaigns with local communities and schools in the areas of influence of these reserves and protected areas have certainly helped consolidate conservation efforts for recovery, or at least are helping to halt the pressure on the endangered species.

Five Central-Andean corporations (Corporación Autónoma Regional de Risaralda CARDER, Corporación Autónoma Regional de Caldas-Corpocaldas, Corporación Regional del Quindío CRQ; Corporación Regional del Tolima Cortolima; and Corporación Regional del Valle del Cauca CVC) with support of NGOs (WWF, Wildlife Conservation Society and local organizations) and National Parks of Colombia, have created a regional network of protected areas called Sistema Regional de Areas Protegidas del Eje Cafetero (SIRAP) in the Central Andes of Colombia, the main coffee producing region of the country, in order to protect high-Andean habitats. SIRAP has produced conservation action plans for five endemic and threatened bird species,⁵¹ one guan, two toucans and two parakeets, to boost institutional co-ordination to guarantee the existence of these species that have been hard-hit by deforestation, fragmentation and poaching for decades.

One of these corporations, namely CVC, in 2011 developed a management plan for the conservation of 16 threatened species within its jurisdiction in the department of Valle del Cauca. The species included are three freshwater fishes, five mammals (all felines) and eight birds.⁵² None of the birds were under threat from capture for trade, but habitat destruction and degradation was the common threat to all of them.

WCS Colombia co-ordinates the Wildlife Project (Proyecto Vida Silvestre; 2015–2018), an effort of ten NGOs with different expertise and geographical coverage, to prevent the extinction in Colombia of ten emblematic species, seven animals and three trees, in the Magdalena and Orinoco basins (WCS Colombia, 2015). The project is designed to bring innovative options to improve conservation success for species and their habitats. Among the animal species,⁵³ the only bird included in the project is the Blue-billed Curassow *Crax alberti* (CR), a Colombian endemic whose habitat has been severely transformed and fractioned, which adds to the hunting pressure. Fundación Biodiversa Colombia, the NGO in charge of the conservation work for this species, has developed conservation agreements with landowners and communities to conserve the relict populations and help in habitat restoration.

WCS Colombia also develops conservation support for Colombian priority species. Birds included are two Cauca Valley species—the Cauca Guan *Penelope perspicax* (EN) and the Cauca Valley wetlands resident population of the Cinammon Teal *Spatula cyanoptera* (EN)

⁵¹ Cauca Guan *Penelope perspicax*, Grey-breasted Mountain-toucan *Andigena hypoglaucha*, Black-billed Mountain-toucan *A. nigrirostris*, Rusty-faced Parrot *Hapalopsittacus amazonina* and Golden-plumed Conure *Leptosittacus branickii*.

⁵² Horned Screamer *Anhima cornuta*, Cloudforest Pygmy-owl *Glaucidium nubicola*, Chestnut Wood-quail *Odontophorus hyperythrus*, Black-billed Mountain-toucan *Andigena nigrirostris*, Yellow-headed Manakin *Chloropipo flavicapilla*, Black-and-gold Tanager *Bangsia melanochlamys*, Gold-ringed Tanager *Bangsia aureocincta*, Purplish-mantled Tanager *Iridosornis porphyrocephalus*.

⁵³ The other animal species are the Barred Catfish *Pseudoplatystoma fasciatum* (CR in Colombia), the Giant South American Turtle *Podocnemis expansa* (EN in Colombia), the Orinoco Crocodile *Crocodylus orinocensis* (CR), the Lowland Tapir *Tapirus terrestris* (CR in Colombia), the Caribbean Manti *Trichechus manatus* (EN in Colombia) and the Brown Spider Monkey *Ateles hybridus* (CR).

and the high Andean Golden-plumed Parakeet *Leptopsittaca branicki* (VU). Tapping on the Red Book methodology and process, the Ministry of Environment established in 2014 through a Resolution,⁵⁴ the list of threatened species of fauna and flora of Colombia with legal implications for offenders that directly affect the species included in this official list. There are 132 bird species listed, 45 of them (34%) can be potentially affected by hunting/trapping (basically any large bird that can be eaten or traded as a live animal or its parts); of these, 14 (10.6% of the total) are known to be impacted by illegal trade, seven of which are psittacines. Of the species affected by hunting and/or trade, six are categorized as **CR**, 22 species as **EN**, and 15 as **VU**; the list does not consider the **NT** category. The other 87 listed birds are mainly impacted by habitat destruction.

4.3 BIRD TRADE IN COLOMBIA

Since the mid 19th century and during all peak moments for international bird trade, Colombia was a major supplier: heron feathers, hummingbird skins, cagebirds, were all massively exported around the world until fashion changes plummeted demand, or commercial bird exports were banned (Doughty 1975, Banks 1970; Banks and Clapp 1972; Franco 1997, Quintero 2012). Simultaneously throughout the bird export booms that swept the country, badly hitting dozens of species, the national habit of keeping (mainly) songbirds and psittacines fed a business putting intense illegal pressure on hundreds of species that authorities have been tackling for four decades to shut down. Also, more affluent and newly rich elites have been fond of keeping private zoos and collections of exotic colorful birds (i.e. flamingoes, toucans, eagles, macaws, cock-of-the-rocks), an additional opportunity to show off their wealth that fuels demand and trade channels for rarer more conservation-sensitive species, both native and exotic. The outcome of these national and international efforts to curb bird trade is that its impact on threatened species has been severely reduced. Nevertheless, the threat posed to Colombian wildlife by the chances of someone making a profit from its appropriation, is always present and will always be a threat for many species as long as a number of root causes are not addressed.

4.4 DOMESTIC BIRD MARKETS

In Colombia, reptile species are the taxonomic groups of animals most impacted by illegal trade for food and skins: iguanas, tortoises, turtles, boas and caimans are heavily persecuted for commercial purposes in many parts of the country. By total numbers of confiscations, birds come in a distant second place as the most trafficked animal group. As in all other

⁵⁴ Resolucion Ministerio del Ambiente 0192, Feb. 10, 2014. http://www.minambiente.gov.co/images/normativa/resoluciones/2014/res_0192_2014.pdf

countries in South America, the illegal internal market for birds is much larger than any known international export of live birds. The number of bird species hunted and traded in Colombia ranges between 113 (BIOCOLOMBIA, 1999) and 124 (MMA, 2012). Passerines are the most diverse group in trade with 33 species, followed by psittacines with 21. Confiscation numbers indicate that no more than 11 species make up 65% of all trade (listed below), all of them relatively common (LC) species from secondary forests, scrub and farmlands.

Medrano-Bitar (2003) cites 34 species traded in the Caribbean region, with the Saffron Finch *Sicalis flaveola* being the most in demand and traded species for its song, although there is no culture of singing tournaments in Colombia as there is in Guyana, Suriname and Brazil.

Nevertheless, the size of local markets (abundance of birds and species diversity) has fallen to minimal numbers at least in cities that recently had large volumes of animals present in markets: Bogota, Medellin, Cali, Barranquilla, Cartagena, Girardot, and Villavicencio. This drop in trade can be attributed to a combined strategy of local environmental agencies and National Police intervening in these markets, increased awareness by urban populations about the illegality and negative impacts of buying and keeping wild species, and changes in urban lifestyles that reduce spaces for keeping wild animals.

For example, the well-known “Barrio Restrepo” market in the south of Bogota, until a few years ago, offered dozens of species of birds, mammals and reptiles for sale. When visited by the author (August 2015) no wild birds were exhibited for sale. However, shopkeepers did offer macaws, other parrots and further species when asked. They can place orders via cell phone contacts to get the animals from wherever they are stored to where they need to be taken into Bogota. They ask for an address for delivery and a partial cash advance payment to guarantee the order. This mirrors findings in Peru and Ecuador, where wildlife trade is restricted to clients that explicitly request wild species as pets. The bulk of the trade in these countries had previously been motivated by a demand stimulated by the visible specimens in cages in shop windows or streets: these species now have to be specifically asked for.

4.5 INTERNATIONAL ILLEGAL BIRD TRADE

It has been more than 20 years since an illegal shipment of birds has been detected by authorities leaving or arriving from Colombia in another country. In 1990, the Belgian Police captured three containers with macaws from Colombia on ships carrying containers of bananas. The lack of illegal shipments of birds being detected is all the more relevant considering the special scrutiny given to cargo and passenger luggage arriving from

Colombia based on the prevalence of the smuggling of narcotics. However, the lack of major bird confiscations does not mean all international traffic has ceased, rather it may be an indication it has grown increasingly difficult to smuggle larger numbers of birds. Nevertheless, the biggest challenge for authorities lies inside the country.

Colombia has developed binational strategies to prevent and control illegal wildlife trade in its border areas with Ecuador and Peru. These strategies bring together all relevant government institutions (police, prosecutor's office, navy, army, Customs, foreign affairs ministries, environment ministries, subnational environmental bodies, local governments and representatives from indigenous communities) to agree on plans of action (2017–2023) to achieve better co-ordination between the institutions of the two countries on each side of the border, develop joint operations, monitor trade activities and exchange information for more efficient controls. Plans propose the development of a sustainable use option, environmental awareness and participation from civil society. These new mechanisms to tackle different issues, challenges and crimes that occur in Amazonian country borders are an important step forward to tackle wildlife trafficking that has been facilitated by opportunities that border areas offer to criminals.

4.6 CURRENT APPROACHES TO CONTROL ILLEGAL BIRD TRADE

Since 2002, Colombia abides by a *National Strategy to Prevent and Control Illegal Traffic in Wild Species* (MADS, 2002; 2012). A second iteration of an *Action Plan* to implement the strategy was formulated for the period 2012–2020 (MADS, 2012): this is the main vehicle for stakeholder co-ordination towards implementation to combat illegal wildlife trade.

The Plan has four lines of action: (1) monitoring and control of illegal trade; (2) management and disposal of confiscated animals; (3) promotion of productive alternatives; and (4) civil society participation. Currently for birds, only actions 1, 2 and 4 are implemented:

- 1) **Monitoring and control:** The main focus of authorities to eradicate illegal wildlife trade has been through confiscations by environmental and police authorities in public spaces—markets, roads, airports, bus terminals, and inside town and country houses, according to the current legal framework.
- 2) **Management and disposal of confiscated animals:** The improvement of controls has resulted in an avalanche of confiscated wildlife, creating the need for facilities where these animals can recover from the usually poor conditions in which they

were found, and maintained until their final disposal or release. The Ministerio de Ambiente y Desarrollo Sostenible (MADS) has compiled six protocols to guide local authorities through the technical management of animals from the moment of confiscation to either euthanasia or reintroduction into the wild (Procuraduría General de la Nación, 2006). Only a small proportion of birds can be returned to the wild. The technical and humane management of these animals is an expensive activity that absorbs large portions of the budgets of the 37 subregional and metropolitan environmental bodies⁵⁵ which are responsible for the enforcement of wildlife crimes in their jurisdictions.

- 3) Promotion of productive alternatives: Since 2000, sustainable use of wildlife has been legal in Colombia.⁵⁶ Instituto Alexander von Humboldt (IvH) in 2001⁵⁷ compiled five cases of fauna resources impacted by traditional consumption demand which created illegal commercial dynamics in different regions of the country. The purpose of the project was to identify options to transform illegal uses into legal and sustainable practices. One of the proposed options was the sustainable harvest of parrots for the local pet market by indigenous groups in the Araracuara area in the Amazon region. A legal conundrum was created as the promotion of initiatives based on extant illegal activities by a government body was a dead end, so the project never developed. Moving beyond the enforcement agenda to deal with illegal wildlife could generate seasonal incomes for local communities installing wildlife management as an economic practice that improves livelihoods and habitat conservation. The most traded species are common (LC) birds that have thrived in agricultural landscapes and secondary forests, so their harvest would not imply major conservation risks.

Unfortunately, no other project of this kind has since been proposed for birds, thus losing the opportunity to test alternative approaches for reducing illegal wildlife trade. Since IvH's failed attempt in 2001, only Medrano-Bitar (2003) proposed legalizing the wild bird trade in the Caribbean coastal areas of Colombia, where it is a culturally embedded practice, to tackle illegal trapping and trade. Here it could help conserve the secondary forests where the trapping takes place and improve family incomes in agriculturally marginal areas. Sustainable use of wild animal populations is legally possible in Colombia, an alternative yet to be explored through the management of wild populations.

⁵⁵ Corporaciones Autónomas Regionales, the subnational environmental bodies in charge of implementing conservation and natural resource management measures in their territories; there are also five in the larger capital cities.

⁵⁶ Ley 611, 2000

⁵⁷ "Programa de Uso y Conservación" which led the agenda on sustainable use, existing or potential, to drive towards legality and sustainability promoting wider conservation through this tool. Species proposed: green iguanas, turtles, marine turtles, parrots and butterflies.

- 4) Civil society participation: What is labelled as “participation” in the *Action Plan* is a compilation of environmental education actions towards increasing the public’s recognition about the illegality, conservation impacts and cruelty behind the trade in wild animals. Informative sessions and campaigns have been run throughout the years by government institutions, NGOs and the media with anti-wildlife trade messages.

The reduced number of wild animals currently found in most cities’ markets is a testament to the impacts of the combined elements of this strategy that have been implemented since 2002. Nevertheless, the failure to promote productive alternatives has reduced options to increase conservation and social goals where animals are captured to feed the trade chain. As in all other countries, legal and sustainable economic options are reduced in the rural landscapes where poverty levels are high, so wildlife is always a resource that can generate income. No wildlife strategy will ever succeed until comprehensive solutions, including productive alternatives, are installed in the places where illegal trade is originated.

4.7 INSTITUTIONS FOR WILDLIFE TRADE CONTROLS

The MADS, both as CITES Management Authority and national wildlife authority, sets and co-ordinates the conservation and sustainable use policies. Combating wildlife trade is one of its responsibilities, a problem recognized as a major threat to the biodiversity of the country.⁵⁸ MADS undermines wildlife trade by co-ordinating the development of the National Strategy described above. The implementation of the Strategy’s Action Plan is the responsibility of the 33 subnational bodies which are the highest environmental authority in their jurisdictions. These Autonomous Regional Corporations (CARs), are part of a decentralized environmental system that has been in place since 1993.⁵⁹ Unfortunately, implementation capacity is weakest in the departments of the country where most of the trafficking originates (i.e. Magdalena, Cesar, Guajira, Chocó, Nariño, Putumayo, Meta, Arauca, Casanere, Caquetá, and Cauca). Parts of this decentralized system are also the municipal environmental departments in cities with more than 1 million inhabitants; they have the same responsibilities as CARs. These municipal institutions are very relevant for wildlife trade as cities are the major destination of illegally traded wildlife and where most confiscations take place.

One of the best examples of wildlife control within these decentralized environmental agencies is Bogota’s SDA Environmental Department⁶⁰ which operates its own “Wildlife Group” dealing with all citizens’ wildlife requirements, supporting police in confiscations,

⁵⁸ http://www.humboldt.org.co/images/pdf/PNGIBSE_espa%C3%B1ol_web.pdf

⁵⁹ Ley 99, 1993

⁶⁰ SDA - Secretaría de Ambiente de Bogotá

and permitting of exports from the city's airport. Bogota, with more than 8 million inhabitants, presents a major challenge for the control of environmental problems of all sorts, wildlife trade included. A large part of the population is composed of immigrants from all regions of the country who bring with them their traditions of consuming reptile meat and eggs (mainly turtles and iguanas) and keeping birds and mammals as pets.

The strategy of the current administration is to stop illegal wildlife products from entering the city from multiple remote rural destinations. This is achieved by permanent controls on inter-municipal buses as they arrive into the city's main terminal, at the airport where all national and international commercial flights arrive, as well as in the central food market (Corabastos) where produce from all over the country reaches Bogota by truck. Controls in these strategic locations have seriously diminished the chances of wildlife products reaching markets and has successfully reduced the number of live animals sold in the city.

SDA has also run since 1996 a large Reception and Rehabilitation Center for Wildlife (CRRFS)⁶¹ where all confiscated animals are received, recovered and a few re-introduced when it is technically and humanely feasible. In 2014, CRRFS received 2,195 animals, 1,466 of these were birds although the most abundant species—618 Purple Gallinules *Porphyrio martinica*—are commonly found by inhabitants in the city's parks and gardens as they migrate through Bogota, taking them to authorities for their recovery at CRRFS. Another 80 different bird species were received in 2014, both from confiscations and recovery by citizens that found them unable to fly (Policia Nacional 2015).

Colombia's specialized "*Environmental and Ecologic Protection Unit*" of the National Police are the best organized in Andean countries addressing wildlife trade. Enforcement is led by the "*Animal Protection Partrols*" which are present in 26 departments of the country with vehicle support and trained personnel in wildlife handling. Since 2002, with the formulation of the "*National Strategy to Prevent and Control Illegal Wildlife*", the quality of police interventions in wildlife trade significantly improved thanks to organizational support, training in environmental awareness, management of confiscations, updating legal framework and procedures. Improved co-ordination with prosecutors, armed forces and environmental authorities has been instrumental in removing wildlife from urban markets and achieving the high numbers of confiscations. The National Police installed in 2014 a specialized wildlife forensics laboratory, the first in Latin America, for technical treatment and analysis of samples to be used in court cases and crime research (Policía Nacional de Colombia, 2014). To boost detection capacity, in 2015, the National Police also created a sniffer dog squad for the detection of wildlife and its products mainly in airports and bus terminals throughout

⁶¹ Centro de Recepción de Flora y Fauna Silvestre

the country (Policía Nacional de Colombia, 2015, 2016). Another duty of the Environmental Police is promoting environmental education about wildlife trade with schoolchildren and communities, especially to explain that keeping wildlife in homes is illegal. After these informative meetings, a few animals held as pets are usually surrendered by citizens to the authorities.

The National Prosecutor of Colombia (Fiscalía) also has a specialized unit against crimes affecting natural resources and the environment,⁶² and is responsible for training staff and co-ordinating crime investigative work in each of its offices in every department of the country. The Prosecutor's budget in 2017 for environmental crime investigation, wildlife trade included, was USD337,100 (1.7% of the institutional budget).⁶³ The country's judiciary has also been periodically trained by MADS to improve conviction rates and increase the chances of successful prosecutions in court. Wildlife crimes have jail sentences ranging from four to nine years;⁶⁴ however, in Colombia jail sentences below six years can be commuted with house arrest, so traffickers are rarely sent to jail. Experts consider these punishments not powerful enough to deter wildlife crimes. Bogota's SDA has also launched the city's *Public Policy on Animal Welfare and Protection*⁶⁵ focused on preventing the abuse and mistreatment of domestic and wild animals. In the case of wildlife, mistreatment includes inhumane cage conditions, illegal tenure⁶⁶ and transportation. This is another case in South America in which newer laws to deal with animal welfare issues are broad enough to include wildlife trafficking dynamics.

4.8 CITIZEN INVOLVEMENT

In 2013, 65 citizens reported to the SDA's "Wildlife Group" the illegal possession and trade of wildlife resulting in the confiscation of 112 live and 211 animal products (Secretaria de Ambiente, 2014). The fact that ordinary citizens are reporting these events to city authorities is a sign of increasing awareness about the problem. "Conserva", an organization described as a, "*Virtual network of citizens and institutions committed to the environment and created to help in the protection of wild fauna and flora, water resources, air and land,*" allows citizens from all over the country to report environmental crimes including wildlife trade and possession. They channel the reports to enforcement authorities and monitor action about the reported case. People have been reporting incidents of sale of wild animals and products through the Internet, possession of animals in illegal/improvised zoos, restaurants and hotels, sale of animals at roadsides (the most common way of offering live animals in Colombia), and possession in household gardens. Most of the reports include photographic evidence. They have developed a free application for smartphones for mobile reporting.

⁶² Unidad Nacional de Delitos Contra Recursos Naturales y el Medio Ambiente –Fiscalía General de la Nación

⁶³ http://www.fiscalia.gov.co/colombia/wp-content/uploads/Proy_Inv_2017_FGN.pdf 1USD = 3,0250 COP (www.oanda.com; July 1, 2017)

⁶⁴ Artículo 29 Ley 1453 (2011) that modifies the Penal Code

⁶⁵ Política Pública Distrital de Protección y Bienestar Animal; Refers to the Capital city and its environs (district)

⁶⁶ In Colombia it is illegal to be in possession of wild animals.

4.9 CONFISCATIONS

The *Procuraduría General de la Nación* (2006), based on information from the National Police, reported 44,274 live animal specimens confiscated between 1996 and 2006 throughout Colombia. Regarding confiscation numbers, as mentioned above, birds are always second to reptiles and ahead of mammals (Table 15), but in species diversity birds are the highest (355 species), followed by mammals (111 species), reptiles (93 species) and amphibians (five species) (MADS, 2012).

TABLE 15. TERRESTRIAL VERTEBRATES CONFISCATED BY THE NATIONAL POLICE 2000–2006

Year (s)	Number of birds (%)	Reptiles %	Mammals %
1992–1999	7,063 (7.3)	90.5	2.2
2000	3,016 (21)	57	22
2001	6,334 (21)	77	2
2002	7,591 (42)	53	5
2003	8,211 (32)	43	25
2004	7,718 (22)	75	3
2005	10,360 (25)	72	3
2006	11,411 (24)	72	3
TOTAL	55,541 (18.5%)		

Source: Procuraduría 2006

The Departamento Administrativo de Seguridad (DAS; decommissioned in 2011) reports an additional 2,349 confiscated birds between 1998 and 2004, comprising 4% of their total wildlife confiscations, whereas reptiles are 95% and mammals 1% (Contraloría, 2006). In 2013 and 2014, 7,221 birds were confiscated, 14% of the total of confiscated animals. In 2015, confiscations spiked at 8,779 birds, and at 5,600 birds in 2016.

The compiled statistics of confiscated birds between 2005 and 2009 from the Ministry of Environment⁶⁷ (MADS, 2012) indicated that:

⁶⁷ Some 36 out of 40 Corporaciones and mayor city's authorities reported to the Ministry of Environment.

- A total of 29,005 birds were confiscated in those five years, some 13.7% of all animal confiscations in the country which reached 211,571 for all live terrestrial vertebrates (97.6%) and invertebrates (2.4%).⁶⁸
- The ten most confiscated bird families are, in order by numbers: Psittacidae, Fringillidae, Icteridae, Thraupidae, Strigidae, Columbidae, Anatidae, Turdidae, and Mimidae.
- Families with more than 20 species confiscated were Psittacidae (49 species), Emberizidae (25 species), Icteridae (23 species) and Thraupidae (22 species).
- The eleven most confiscated species (65% of the national total of confiscated bird species) were:
 - Orange-chinned Parakeet *Brotogeris jugularis* (5,251)
 - Yellow-crowned Amazon *Amazona ochrocephala* (3,090)
 - Saffron Finch *Sicalis flaveola* (1,775)
 - Brown-throated Parakeet *Aratinga pertinax* (1,595)
 - Tropical Mockingbird *Mimus gilvus* (1,309)
 - Orange-winged Amazon *Amazona amazonica* (1,103)
 - Yellow-backed Oriole *Icterus chrysater* (1,017)
 - Blue-headed Parrot *Pionus menstruus* (959)
 - Southern Mealy Amazon *Amazona farinosa* (945)
 - Spectacled Parrotlet *Forpus conspicillatus* (897)
 - White-winged Parakeet *Brotogeris versicolorus* (750)
- More than half, 54%, of confiscated birds, belong to the three most-confiscated species.
- Eight of the most confiscated species are parrots and parakeets, 78% of birds of the 11 most confiscated species.
- All confiscated species are classified as LC, which means none are included in any Red List Threat category national or global.

Less frequently, specimens of Black-headed Parrots *Pionites melanocephala* and Red-fan Parrots *Deroptyus accipitrinus* appear in markets as these are rarer, more expensive species brought all the way into major cities from the lowland forests of the Amazon.

⁶⁸ If data from the Secretaria de Ambiente de Bogotá were included, the number would rise to 224,000 (MADS 2012).

Most of the birds confiscated during the last two decades have been small stashes of up to five birds, frequently part of animal shipments that include reptiles and/or mammals. Sometimes, larger numbers are detected, like the 34 Yellow-crowned Amazons *Amazona ochrocephala* confiscated in Puerto Gaitan, Meta department (March 2017), or the 25 Green-rumped Parrotlets *Forpus passerinus* found in a bus between Valledupar and Incelejo on the northern coast (Policía Nacional de Colombia, 2016). Confiscations are made in urban markets (Policía Nacional de Colombia, 2017) or in buses as authorities retrieve them at their destination. Other animals are confiscated when offered along roadsides to passing cars on routes that connect major towns and the Caribbean coast as families travel to and from holidays. A cheap price is quickly bartered through the car's window and tourists continue their trip with their new pets. Many of these animals, if they survive, are later "voluntarily donated" to the respective environmental authority as they turn into a problem in their new urban homes. The increasing economic demands on the CARs' budgets, as they must house and feed all of these returned animals appropriately, is a major administrative challenge, as in all other countries in South America.

Very little work has been done to study and understand the socioeconomic dynamics of wild bird markets. Baquero and Baptiste (2004) offer an interesting analysis of three bird markets: Villavicencio, Espinal and Girardot, which have sold psittacines for decades near Bogotá. The study describes the socioeconomic profile of the traders and the species sold. At the time, the bulk of the trade affected smaller parrotlet and parakeet species (*Forpus* and *Brotogeris*), which could offer opportunities for developing legal and sustainable harvest programs by rural communities of these widespread and abundant smaller species, although none of the proposals put forward to do this have been implemented.

Police have also confiscated corpses of the boreal migrant Blue-winged Teal *Spatula discors*, which visit the wetlands of northern Colombia and are lured to poisoned rice then captured to be sold in nearby markets (Policía Nacional de Colombia, 2017b). For example, in January 2006, 5,000 dead ducks were confiscated (El Tiempo, 2006).

In Focus: Operation “Artemisa”: finally combating organized illegal wildlife trade

In June 2016, Operation Artemisa, the first ever large-scale sting operation took place after months of intelligence gathering by the authorities. Colombian police dismantled an organized gang which specialized in wildlife trade operating in the central area of the country with international links to Mexico and Ecuador.⁶⁹ “The Pajareros” gang (literally translated as

⁶⁹ <http://www.fiscalia.gov.co/colombia/noticias/fiscalia-incauto-87-especimenes-de-fauna-silvestre-en-girardot-cundinamarca/>

“the birders”), had been operating for years from the main market of Girardot.⁷⁰ Eight gang members were jailed and 83 specimens including several birds (toucans, flamingos, macaws, parrots), mammals (capybaras and primates) and reptiles (tortoises) were confiscated, most coming from the neighboring departments of Meta, Cundinamarca and Tolima. Operation Artemisa started as a police investigation in June 2015, and these initial confiscations are considered first steps in a longer operation to dismantle these large criminal gangs which had not been tackled before. As enforcement actions mostly target wildlife confiscations when authorities detected animals in shops, vehicles or in the possession of street vendors, combatting illegal wildlife trade at the level of dismantling organized crime in Colombia reduces the impacts of trade on rarer threatened species which mainly feed the specialized collector’s demands.

4.10 CONCLUSIONS

1. After three decades of exhaustive harvest of wildlife for the international market, in the mid-1980s Colombia’s policy (Garcia-Duran, 1988) was to establish captive breeding farms (“zoocriaderos”) as a conservation friendly option to develop wildlife-based businesses, while stopping the flow of animals and their products from ecosystems to overseas markets. Since then, captive breeding as an instrument theoretically to promote wildlife conservation and recovery has consolidated into the single national policy to keep wildlife injecting incomes into the country’s economy. This exclusive focus on captive breeding has removed the management of wildlife populations from the policy and institutional radar. Regarding birds, no species made it to the list of animals that could be commercially captive bred,⁷¹ which mainly focused on reptiles, some amphibians and mammals. The exclusion of birds from the captive breeding list is perhaps a fortuitous decision for avian conservation, as the 30-year experience of captive breeding reptiles has become a permanent reminder of the difficulties of a clear-cut separation between the dynamics of farming animals from those of trapping them from the wild.
2. Since trade from the wild was banned, most bird-related conservation action has been reduced to confiscations. In the last decade, concerns to protect threatened species, impacted by trade or otherwise, have grown as Red Lists highlight conservation priorities (i.e. Andean Condor,⁷² Andean psittacines) promoted by NGOs such as ProAves, WCS and several organizations with support from Ministry of Environment and Humboldt Institute.

⁷⁰ A city on the east bank of the Magdalena river 120 km southwest of Bogota with a long tradition as a wild bird trading center.

⁷¹ INDERENA; Acuerdo 39, 1985

⁷² Although Andean Condor reintroduction efforts started in the early 1990s.

3. Lawlessness, rural poverty and a general lack of awareness and education about the importance of wildlife in its habitat all contribute to the flow of live animals or their parts into urban markets throughout the country. Annually, some 30,000–50,000 animals are confiscated by authorities, of which around 20–25% are birds. Confiscated animals fill zoos and rescue centers created by sub-national authorities (CARs). Large amounts of effort and money are required adequately to deal with these animals, a small number of which are returned to their natural habitats. Funds to maintain confiscated animals take up significant portions of environmental institutions' budgets; funds that could have wider conservation impacts if invested in protection of critical habitats or restoration of populations of threatened species.
4. Since 2002, when the national strategy to combat illegal wildlife trade was launched, the work of environmental police and prosecution authorities has significantly improved the quality and impacts of interventions to tackle illegal wildlife trade. The specialized police and prosecution units have increasingly professionalized their performances. Positive impacts can be seriously boosted if the fight against wildlife crime increases its focus on the organized gangs that have made this business their main source of income. International co-operation through INTERPOL has increased recently through meetings, workshops and development of joint operations between countries, thus offering better opportunities to tackle the international wildlife networks.
5. No authority, NGO or research institution has yet proposed an alternative strategy to address wildlife trade problems beyond enhanced enforcement and citizen awareness. There is a marked absence of incentives that can encourage poor rural inhabitants to be allies of free-roaming wildlife instead of the current appreciation as immediate sources of income. Sustainable use designed as a conservation tool has not yet been implemented. Wildlife tourism in the form of birdwatching is the only economic activity in Colombia that creates a direct economic incentive for the conservation of avifauna. The development of productive alternatives is the missing element of the national anti-wildlife trade strategy of the full implementation of its plan of action.
6. As in many other countries, the impact of habitat destruction on wildlife is the most serious challenge faced by the biodiversity of Colombia. When the effects of poaching, habitat destruction and degradation are added up, the consequences for wildlife are more profound and the risks of extinction are boosted. Dozens of species are already

seriously affected in Colombia by the combination of these dynamics, even within protected areas. The absence of strategies and capacities to address the complexities of the socioeconomic dynamics that generate deforestation, pollution and poaching of wildlife, create a dire scenario for hundreds of animal populations and species, many of which will not survive as viable populations in the coming decades.

7. Work to recover endangered bird species from further decline has had positive results mainly through the creation of private reserves and the engagement and associated education work towards local communities in adjacent areas. The success story of reducing the threat category of the Yellow-eared Parrot *Ognorhynchus icterotis* from **CR** to **EN** offers hope to other species with reduced distributions in the high-Andean ecosystems that require urgent interventions to curb the spiral towards extinction.
8. Social outrage at reports of the killing of flagship mammal species (such as Jaguars *Panthera onca*, Ocelots *Felis* spp., Spectacled Bears *Tremarctos ornatus*, Manatees *Trichechus* spp., Capybaras *Hydrochaeris hydrochaeris*), often circulated through Facebook by the actual hunters as they boast about their feats, indicate an increased concern by urban populations about the need to protect wildlife. Cases of reported illegal trade also cause outrage among large sectors of the population through social media, probably the result of years of campaigns and environmental education efforts that generate negative social reactions to particular events that directly affect wildlife.

5. ECUADOR

CONSERVATION EFFORTS FOCUSED ON ENFORCEMENT AND BIRD TOURISM

“The Ecuadorians seem to take no interest whatever in their bird life which surrounds them on every side, and it is quite the exception rather than the rule to find them keeping birds in captivity, and when they do, their ambition does not soar beyond a Parrot. However, at times in Guayaquil, birds are offered for sale in fair quantities, even if the varieties in vogue are limited. No doubt the European population has caused a certain demand for them there, and prices range very cheap indeed -1 real (2 1/2 d) or 2 reals each seems to be the usual price for almost any bird.”

Walter Goodfellow, narrating his two-year (1897–1899) bird explorations and collections in Ecuador, “A Naturalist’s Notes in Ecuador” *The Avicultural Magazine* VI (64). February 1900.

Scarlet Macaw Ara macao © Adriano Gambarini / WWF Living Amazon Initiative





Yellow-throated Toucan *Ramphastos ambiguus* © Mega Lorenz

“La Carolina is a small marshy place outside Quito (5 kilometres distant north). In the rainy season it is covered with water and many ducks and other water-fowl alight there. The people living in the huts along the road are always on the lookout for the birds and almost invariably kill them within an hour or so of their arrival. The ducks are never left to breed there.”

Ludovico Söderström, Royal Swedish Consul in Quito, cited by E. Lonnberg and H. Rendahl (1921). “A Contribution to the Ornithology of Ecuador” *Arkiv fur Zool Band* 14(25) 1–87. Paper on the hundreds of birds collected by Soderetom during the several decades he served alternatively as British and Swedish Consul in Ecuador.

“So I might continue to present evidence illustrating dependency of evolution on change of environment, but I may sum up my case by offering the entire avifauna of Ecuador as an exhibit. What more adequate tribute to the power of environment can one ask than to discover within this comparatively small but marvelously diversified country one-fourth of the birds of all South America and one-twelfth those of the entire world!”

Frank M. Chapman, *The Distribution of Bird-Life in Ecuador: A Contribution to a Study of the Origin of Andean Bird-Life*. (1926).

Being a relatively small South American country, Ecuador, with its registered 1,619 bird species, is fifth in the world in bird diversity count behind other South American “giants” and Indonesia, and the same position in the list of countries with most globally threatened birds (in Ecuador’s case 105) (BirdLife 2017b). Brazil is 30 times the size of Ecuador, Peru 4.5 times and Colombia four times its size. Ecuador is the smallest of the so-called “mega-diverse” countries in the world, which is a select group of 17 countries in which a disproportionate proportion of biodiversity is concentrated.

As elsewhere, deforestation is the greatest threat to bird species, a process that in Ecuador has seriously affected the Andean central corridor from the Colombian border to Peru, as well as the coastal lowland forests. Only 10% of Choco lowland forests remain in the north-west of the country. North-central Amazonia has also been seriously affected, as have extensive areas of the western Andean slopes. Most of the threatened bird species belong to these heavily deforested areas, a process that continues as the agriculture frontier expands, aided by the development of roads and infrastructure.

Ecuador has an impressive 20% of its territory included within some protection category in its National Protected Areas System (Ministry of Environment, 2014), with 48 protected areas in continental Ecuador. The most represented region within the Protected Areas System is the

eastern (Amazon) slopes of the Andes, while others are poorly covered as they have already been deforested and are heavily populated. Poaching in most protected areas is a serious problem which diminishes their conservation value. There are, however, some good examples of communities collaborating with authorities in support of enforcement, and where livelihood improvement has been possible without further reducing the areas' wildlife. Dozens of private reserves conserve critical habitats not covered by the government-protected areas network (Ridgley and Greenfield, 2006).

Forty-five percent of Ecuador's territory is part of the Amazon basin, with diverse habitats ranging from the crest of the Andes to the lowlands extending into Peru and Colombia. Nevertheless, Ecuador's part of the Amazon comprises only 1.5% of the total basin area, a small proportion, but one endowed with extraordinary species diversity. The most species-diverse area falls in the foothills of the Andes, coinciding with the most heavily populated and increasingly deforested areas in the east of the country. Ecuador has already lost some 12% of its Amazon forest cover mainly to cattle production, oil palm and cocoa plantations, urban sprawl and small producer encroachment alongside roads (RAISIG, 2015).

5.1 THE BIRDS OF ECUADOR

Because of its small size there are few endemic birds in continental Ecuador. Ten continental species are considered effectively endemic (although the distributions of some of the rarer species just go beyond Ecuador's borders into neighboring Colombia and Peru). The Galapagos archipelago adds 33 endemic breeding species to the national bird count. Ridgley and Greenfield (2001) identified nine different natural regions within continental Ecuador with distinct bird faunas, helping explain the high diversity within its borders. BirdLife has described 109 IBAs in the country (BirdLife 2017b).

As in most other countries, psittacids (45 species in Ecuador; 40% of total in Amazon countries) have been the most sought-after birds for the pet trade, followed by toucans (18 species in the country). Except for vultures, hunting affects all large species and impacts raptors, owls, curassows and guans (Cracidae), as well as waterfowl. In the opinion of former Quito Zoo director, Juan Manuel Carrion, Ecuador is victim of the process of "defaunation," a much less understood and politically invisible issue compared to the analogous process of deforestation. Larger faunal components are lost before habitat destruction by clear cutting or fire during the dry months. The combined impact of hunting and habitat destruction is jeopardizing the future of most populations of large, rare and vulnerable animal species, many of which will disappear before the end of this century unless radical steps are taken to curb these trends (Ceballos *et al.*, 2015).

BirdLife lists 108 threatened bird species in Ecuador (BirdLife 2017b). These species fall in the IUCN Red List threat categories as follows: **CR** 7 species, **EN** 23 species, **VU** 78 species plus a further **NT** 86 species and **DD** 3 species. Trade is identified as a cause of population decline for 12 listed species of psittacids and 3 toucans (Plate-billed Mountain-toucan *Andigena laminirostris*, Yellow-throated Toucan *Ramphastos ambiguus*, Yellow-ridged Toucan *Ramphastos culminates*). All raptors, cracids, tinamous, trumpeter, and waterfowl species are impacted by subsistence hunting across the country. The endemic Turquoise-throated Puffleg *Eriocnemis godini* has not been seen since the 19th century and is considered to be Possibly Extinct, while the Yellow-eared Parrot *Ognorhynchus icterotis* is suspected to be extinct in Ecuador, although its recent recovery is considered a conservation success in Colombia, the only other range country for the species. The Black-breasted Puffleg *Eriocnemis nigrivestis* and Marañon Spinetail *Synallaxis maranonica* are considered **CR**, as are four species found on the Galapagos.

Ecuador's only Red Book assessment for birds was published more than 15 years ago, in 2002. Most threatened birds are found in the severely deforested Andean and Pacific coast regions.

It offers the following categorization of threatened species in the country (Table 16).⁷³

TABLE 16: ECUADOR'S RED BOOK ASSESSMENT OF NATIONALLY THREATENED BIRD SPECIES

EX 5 - 2 terrestrial Andean
CR 16 - 12 terrestrial from the Andean and Pacific coast region, 4 psittacids
EN 47 - 39 terrestrial, 37 (86%) from the Andean and Pacific coast regions, 6 psittacids
VU 98 - 89 terrestrial, 66 (67%) from Andean and Pacific coast regions (67%), 7 psittacids
NT 68 - 67 terrestrial, 40 (59%) from Andean and Pacific regions (59%), 2 psittacids
DD 12 - 10 terrestrial; 1 psittacine, the Red-fan Parrot <i>Deroptyus accipitrinus</i>
Total Threatened bird species: 246, 20 of them psittacids.

Source: Ecuador's Red Book Assessment (2002)

The 20 threatened psittacids⁷⁴ are the largest group of the 32 bird species considered as affected by trade (13% of all threatened vertebrate species). Additionally, all cracids (8 species), tinamous (3) and waterfowl (7) are affected by subsistence hunting, as are raptors (13), owls (4) and other large species like the Andean Condor *Vultur gryphus*, targeted for their supposed threatening presence to farm animals. This means that around 70 species, 28% of all threatened species, are affected by direct capture by humans. All other species (72%) are affected by the destruction of their habitats or water pollution. The Galapagos species are mostly affected by introduced species.

⁷³ These are Red List assessments for Ecuadorian bird populations, not global assessments that include the whole range for each species.

⁷⁴ 43.5% of all psittacid species recorded in Ecuador.

5.2 HALTING BIRD TRADE IN ECUADOR

Since Ecuador stopped all legal commercial wildlife exports by the mid-1980s, mechanisms to curb illegal wildlife trade have been based on enforcement and awareness raising. Indeed, currently the open offer of wild birds is very limited; it is difficult to find birds offered in markets or streets—even on the Internet—anywhere in the country. However, demand still exists and purchases require placing orders with specific market sellers who make the birds available through their network of contacts. Enforcement action in Ecuador is basically confiscations—police acting when wild animals are reported for sale or in someone’s hands, or when they are found during routine searches.

It is a crime to hunt or trade threatened species (those categorized as **VU**, **EN** or **CR** in the Ecuador Red Data Book or included in the CITES Appendices). But penalties for wildlife crimes have maximum three-year jail sentences,⁷⁵ and in Ecuador any crime with less than a five-year sentence allows jail time to be replaced with house arrest. Except for a condor poacher in 2013 (ANDES), no other bird-related crime has sent anyone to jail in Ecuador. Ecuador has the lightest penalties for wildlife trade within Amazon-Andean countries. Under the law, poaching or trading one or 50 birds of a threatened, endemic species makes little difference to the penalty; a maximum three-year sentence, a misdemeanor that does not entail imprisonment. Jail time for wildlife crime only occurs when it is carried out with other crimes such as drug trafficking, illegally carrying a weapon or organized crimes that are penalized with more than five-year jail terms.

Indigenous groups in the Amazon customarily keep different bird species as pets in their villages which can be sold to outsiders. They also sell bird parts (claws of raptors, beaks of toucans, feathers) to shamans, traditional healers, jewelers or handicraft artisans, which are usually byproducts of subsistence hunting. It is in these communities where the sourcing of species for trafficking starts that are then taken to villages and major cities or across borders. With the knowledge that these local inhabitants have about species reproductive cycles, nesting places, diets and trapping techniques, they know how to access them and can sell them to middlemen if they place orders. Alternatively, community members may take birds and bird parts directly to markets when they have a specific economic need, such as the start of the school year and cash is needed to buy uniforms and notebooks, or a health issue arises that needs transport to a health center and the purchasing of medicines.

Awareness raising has been a gradual effort where media, NGOs and organizations such as zoos and rescue centers have played a key role periodically raising the issue over the years.

⁷⁵ Passed in August 2014, the Código Integral Penal Art. 247. “Anyone who hunts, fishes, captures, collects, extracts, possesses, transports, traffics, benefits from, exchanges or trades in wild animals or their parts...will be penalized with one to three years in prison.” (translated by the author)

Many conservation projects in cities and in communities where projects take place have brought an awareness raising component that touches on wildlife trade as a target issue. Newspapers and informative journalism TV programs like *La Television*, which ran for more than 20 years, or the still ongoing (since 1998) *Dia a Dia*, regularly address wildlife trade as a threat to the country's biodiversity. Local campaigns developed since the late 1980s by NGOs and environmental authorities have increased general awareness, at least in the urban populations and very locally in the rural areas where specific conservation projects are developed. In October 2017, a national campaign against wildlife trade was launched by the Ministry of Environment with the Ecuadorian Police.⁷⁶ Under the slogan "If you take one [animal], none will remain" (Si te llevas uno, no quedará ninguno; wording that rhymes in Spanish), the campaign has prompted provincial level support from authorities and celebrities to keep promoting awareness about the risks that illegal trade poses to wildlife. In October 2017, the latest national campaign against wildlife trade was launched by the Ministry of Environment with the Ecuadorian Police⁷⁷ (#NoTrafiquesAnimales). Under the slogan "If you take one [animal], none will remain" (Si te llevas uno, no quedará ninguno; wording that rhymes in Spanish), the campaign has promoted provincial level support from authorities and celebrities to keep promoting citizen awareness about the risks that illegal trade poses to wildlife.

The stakeholders interviewed during this study mentioned the urgent need for environmental education in schools to boost awareness about the nation's biological wealth and the practices that threaten it, including wildlife trade. Until this vacuum is addressed, the opinion is that there will be limited commitment from citizens to resolve environmental problems and put pressure on governments to take appropriate action on behalf of Ecuador's biodiversity. Sporadic information campaigns and messages on the negative impacts of wildlife trade have been important but insufficient to reduce the negative defaunation trends, worsened by a lack of incentives to improve the environmental behavior of the population.

With the evident reduction in the presence of live birds for sale in markets as a result of continued patrolling and confiscation, the presence of live birds in people's homes or public places has also gradually decreased in most of the country. The centuries-old cultural practice of keeping wild birds in cages has waned. Younger generations are likely to change their interest with respect to birds in captivity, making this practice and hobby increasingly rare, at least in cities where 70% of the population lives. In general, keeping birds as pets in Ecuador is not as relevant for people as in other Amazon countries. Even regular pet shops

⁷⁶ <http://www.policiaecuador.gob.ec/policia-implementara-un-sistema-de-alertas-para-contrarrestar-el-trafico-ilegal-de-animales-silvestres/>

⁷⁷ <http://www.policiaecuador.gob.ec/policia-implementara-un-sistema-de-alertas-para-contrarrestar-el-trafico-ilegal-de-animales-silvestres/>

that offer non-native cagebirds—canaries, budgerigars and the like, are not many in major cities. It still needs to be assessed whether diminished trade demand has had a positive effect on the most sought-after bird species. It is difficult to isolate the effects of trade from those of habitat degradation and hunting, which continue throughout the country.

Additionally, animal well-being legislation (2017) penalizes the possession or trade of wildlife in cities, an urban concern promoted by vocal animalist groups that combine environmental issues with animal rights in their platforms.

5.3 BIRD TOURISM

The strongest incentive in Ecuador to keep birds alive in their habitats is tourism, a growing activity that annually brings thousands of birdwatchers to enjoy a large number of species within short distances, many of them particular to one of the faunal regions cited above. Birdwatchers from all over the world recognize Ecuador as a prime destination. The Ecuadorian Ministry of Tourism promotes birdwatching as one of the attractions for visitors to the country, proposing six routes through different parts of the country to experience its bird diversity.⁷⁸ It is recognized that the potential of the country is huge in a competitive market: neighboring Colombia, being number one in bird species in the world, is rapidly surging as a major bird tourism destination that can seriously compete with Ecuador for birdwatchers.

Importantly, the birdwatching hotspot in the north-western Andean slopes of the Choco biographic region is close to Quito, offering an extraordinary diversity of hummingbirds, tanagers and other cloud-forest groups. Guianas apart, the Ecuadorian Amazon is the closest to the capital city among Amazon countries. It thus offers the chance to see a large number of bird species (up to 600 species at single locations) while staying in well-equipped lodges with canopy walks, observation towers and clay-lick observatories. Particularly notable is the community-owned Napo Wildlife Center situated within the Yasuní National Park boundaries.

The country is dotted with at least 50 private reserves with lodges, some of them community run, that significantly increase opportunities for the rapidly growing birdwatching market. The majority of tourists interested in birdwatching are foreigners, with the number of Ecuadorians interested in this specialized tourism being minimal. Organizations such as

⁷⁸ Birdwatching Ecuador; <http://visit.ecuador.travel/birdwatching/index.php>

Fundacion Jocotoco own and administer ten private reserves that add some 22,000 ha of high conservation value habitats that have been strategically set aside for conservation. Such reserves help protect more than half of Ecuador's terrestrial continental bird fauna, and importantly, are also the only known ranges of rare endemic bird species like the El Oro Parakeet *Pyrrhura orcesi* (EN) which is the main conservation purpose of the Reserva Privada Buenaventura (2,000 ha). Jocotoco encouragingly confirms that poaching for bird trade has not been identified as a problem in any of their extensive network of reserves throughout the country; they only deal with sporadic hunting for food in the Tapichalaca Reserve in the lowlands of the north-west Pacific forests of Esmeraldas Province (pers. comm., to TRAFFIC, August 2015).

5.4 LOCAL THREATS

In most parts of the country where economic incentives from tourism are not present, larger animals including birds are hunted, trapped, eaten or sold. This occurs even within protected areas where subsistence hunting is allowed for local communities and enforcement capacity is insufficient. Subsistence hunting, which is legal, is the most important direct pressure for most large bird species in Ecuador leading to the depletion of many populations throughout the country. Its “byproducts” include chicks kept as pets or sold as welcome sources of cash, or parts of birds sold to artisans that use them in jewelry or other decorations.

Ecuador formerly had an active industry of artisanal gunsmiths which made very cheap shotguns available, facilitating hunting throughout the country. However, a law was passed in 2009 aimed at reducing crime rates, and among other measures, putting an end to this cottage-arms industry; it also made it illegal for civilians to carry guns outside of their homes. Access to cheap weapons and ammunition has become increasingly difficult, although thousands of these shotguns are still in the hands of the rural population throughout the country. In the Amazon, birds make up a small proportion of the produce in wild meat markets and confiscations (Suarez *et al.*, 2009).⁷⁹ The bulk items available are mainly mammals and reptiles.

A particular bird group, *Ramphastos* toucans, experience heavy hunting pressure in the Amazon region as the use of their skins, feathers and bills for traditional ornamental use is maintained, primarily for headdresses (local name “tawáshap”) by the Shuar, Achuar and some Kichwa indigenous Amazon groups. These orange-feathered “crowns” are increasingly popular among male leaders as a statement of cultural identity in meetings and events outside of their communities.

⁷⁹ Nine species making 0.6% of surveyed volumes 2005–2007

“Suicidal” birds and tourism in the Ecuadorian high Andes⁸⁰

Around September each year, indigenous communities living in the Andean highlands of eastern Chimborazo Province witness hundreds of birds falling from the sky into the lakes around Ozogoché (2° 18' S; 78° 28' W; 3,750 metres above sea level) to die. This natural phenomenon is interpreted by communities as a suicidal sacrifice by the birds that are attracted to these lakes by their magnetic allure and beauty. As this strange event has received media publicity over the years, the municipality of Alausí added one more tourist attraction to its portfolio by creating the “Tourist Live-Cultures Festival as a Tribute to the Cuvivies birds in Ozogoché” (the 15th festival took place on 23–24 September 2017). “Cuvivies” is the name given by local people to these birds that may be onomatopoeic in derivation—inspired by the whistling noises the birds make when they take flight. People from across Ecuador are attracted to this annual cultural festival of music, food, dancing, a beauty queen contest, and rituals, with shamans conducting lakeside ceremonies to thank mother nature (Pachamama) for the sacrifice of these birds. Around 1,200 tourists attended in 2016. The local people also gather as many birds as they can to supplement their diet with this “heavenly” source of protein.

The birds that fall from the sky are Upland Sandpipers,⁸¹ a shorebird found in grasslands in the Americas, that each year depart from their breeding grounds in Canada and northern USA around mid-July on their south-bound migration to reach wintering grounds in southern South America (Argentina, Bolivia, Brazil, Paraguay and Uruguay). Upland Sandpipers fly through Ecuador during September after crossing Central America and Colombia and arrive emaciated to rest and refuel before continuing their long journey. Many die and are gathered either dead or in a very weak state by locals in the Ozogoché area.

Local shamans have created the story about the mass suicide to provide some sort of explanation for this annual “natural wonder”. Local people are pleased to find a new source of seasonal income from providing food and lodging for tourists, as well as offering horseback rides and trekking experiences in these beautiful high-mountain grassland landscapes. The Ministries of Tourism, Environment, Culture, Security, indigenous organizations and others have come together to plan and execute the annual festival and its growing reputation in order to reduce the impacts on the environment caused by the influx of hundreds of tourists.

This curious phenomenon has not been reported elsewhere in the highland “paramos” of Ecuador, where hundreds of lakes dot the magnificent landscapes, and there is no reported equivalent event taking place as the birds return to North America during the Boreal Spring. This is a unique example of wild bird use in South America, one based on the difficulties that birds encounter during their annual migration.

⁸⁰ <http://www.alausi.gob.ec/index.php/noticias/631-xv-festival-turistico-de-culturas-vivas-tributo-a-las-aves-cuvivis-ozogoché-2017>

⁸¹ *Bartramia longicauda*; IUCN/Birdlife conservation status assessment: LC - Least Concern; <http://datazone.birdlife.org/species/factsheet/upland-sandpiper-bartramia-longicauda/distribution>; accessed November 2017

Up to 120 bird skins are used to make each crown which are further decorated with iridescent Spangled Cotinga *Cotinga cayana* feathers (pers. comm., Milton Caliera, Achuar leader).

The review of several webpages⁸² selling and buying goods shows that there are very few instances of live birds being offered online. Offers through Facebook are more frequent than other websites according to Ministerio del Ambiente (MAE)⁸³ authorities. There is, however, a perturbing recent development which is the sale via the internet of mistnets advertised to control bats and birds that affect crops. These nets in the wrong hands can do serious harm to bird populations in the country.

Threats of roadkill to wildlife in the country have increased as new roads have been built and improved all over the country. Collisions of birds with powerlines and wind turbines have also escalated as new energy infrastructure is being built. Powerlines are a particular threat to raptors and condors as the lines pass through high-Andean paramo ridges linking hydroelectric dams to urban and industrial centers in the country (F. Sornoza pers. comm., to TRAFFIC, August 2015).

5.5 INSTITUTIONS AND CONSERVATION PROGRAMS

The MAE is the national entity in charge of the protection of wildlife through its network of protected areas and 24 provincial offices. The task of combating illegal wildlife trade is supported by the National Police's Environmental Unit, Unidad de Proteccion del Medio Ambiente (UPMA), albeit both with very limited personnel. The MAE offices in each province have a biodiversity unit that is responsible for wildlife. Most of their time is dedicated to dealing with animal confiscations in support of police interventions, capacity building and lecturing about wildlife trade in their jurisdiction. An environmental law passed in April 2017⁸⁴ and a new decentralization law⁸⁵ gives subnational governments (provincial, municipal and village-level)⁸⁶ environmental responsibilities including the protection of wildlife by reducing wildlife trade (with the support of their municipal guards in local markets and streets).

Most of MAE's species conservation work focuses on keeping wildlife trade at bay either when transported, traded or in the possession of citizens—all illegal activities. Confiscated animals end up in privately owned rescue centers and zoos that carry the economic burden of caring for the animals, some of which are returned to their habitats. These rescue centers

⁸² Websites: www.olx.com.ec/otros-animales; www.doplim.ec/animales; www.listado.mercadolibre.com.ec/animales-mascotas/otros/

⁸³ Biodiversity Director to TRAFFIC April 2017

⁸⁴ Codigo Organico Ambiental, which comes into force in April 2018.

⁸⁵ Codigo Organico de Organizacion Territorial, Autonomia y Decentralizacion: COOTAD-passed in January 2014.

⁸⁶ From larger to smaller, provincia, cantón and parroquia are names of the three recognized subnational divisions in Ecuador.

(22 throughout the country in 2013; MAE, 2014) recognize that the flow of birds in the last four years has significantly diminished. Authorities' interventions reduced the number of animals reaching markets, while public spaces have cut down on the selling of animals and their parts. The Yanacocha rescue center⁸⁷ in Puyo, Province of Pastaza, notes that in the last four years the number of people coming to offer them birds for sale has diminished by about 95% (Jorge Flores pers. comm., to TRAFFIC June 2015). Yanacocha staff consider that animal trafficking has reduced due to the risk of losing the animals in confiscations by authorities, although the general population's environmental awareness is still very low and demand for animals persists. In their opinion, the largest environmental education efforts should be at the household level. The species with the largest number received by rescue centers from confiscations is the Blue-headed Parrot *Pionus menstruus*, only second to tortoises *Geochelone* spp. whose numbers saturate their capacity but are easy to reintroduce.

Wild bird population management in Ecuador is restricted to the protection of key sites, deterrents for people to capture and trade birds and awareness raising. There are also focused efforts supporting the recovery of priority species like the above-mentioned El Oro Parakeet *Pyrrhura orcesi* and the Andean Condor *Vultur gryphus*, which is the national symbol. The Ministry of Environment leads the *National Plan for the Conservation of the Andean Condor*, bringing stakeholders together, importantly local governments and high Andean communities, to agree on measures that can help recover its dwindling populations in the country. The city of Guayaquil has declared the IUCN Red Listed **CR** subspecies of the Great Green Macaw *Ara ambiguus guayaquilensis* as its flagship species, the "Guayaquil Macaw", and the city's environmental symbol, promoting the conservation of its extremely fragmented habitats in Ecuador's Pacific lowlands. Poaching for trade has added to the pressures on this subspecies whose future is very uncertain, with a population of less than 500 individuals (Fundación Cerro Blanco, Centro Jambelí).

The city of Quito in 2005 declared the Black-breasted Puffleg *Eriocnemis nigrivestis* (**CR**) as its flagship species,⁸⁸ supporting the conservation of its cloud-forest habitat in the foothills of Pichincha volcano, of which more than 90% has been destroyed (BirdLife, 2008). In 2012, Quito expanded its list of emblematic species with an additional 13 flagship species including mammals and birds, reptiles, amphibians, fish and insects. Through *Resolución C481* (June 1, 2012), the city council added the Plate-billed Mountain-toucan *Andigena laminirostris*, the Toucan Barbet *Semnornis ramphastinus* and the Rufous-collared Sparrow

⁸⁷ www.yanacocharescue.org

⁸⁸ *Resolución Consejo Metropolitano de Quito C349*, June 23, 2005.

Zonotrichia capensis. The latter species is very common in the city's gardens and parks and hence one that citizens can easily relate to, while the other two birds are scarce Pacific slope cloud-forest dwellers few Quito inhabitants will ever see.

Ecuador has developed binational strategies to prevent and control illegal wildlife trade in its border areas with Colombia and Peru, bringing together all relevant government institutions (police, prosecutor's office, navy, army, Customs, foreign affairs ministries, environment ministries, subnational environmental bodies, local governments and representatives from indigenous communities) to agree on plans of action (2017–2023). The purpose of these plans is to achieve better co-ordination between neighbors on both sides of the border, develop joint enforcement operations, monitor trade activities and exchange information for more efficient controls. Plans propose the development of a sustainable use option, environmental awareness and participation from civil society. These new mechanisms to tackle different issues, challenges and crimes that occur along country borders are important steps forward to tackle wildlife trafficking facilitated by the special conditions that border areas offer to criminals.

5.6 CONFISCATIONS

MAE (2015) reports that between 2003 and 2016, a total of 10,114 terrestrial vertebrates (Fig. 2) were confiscated as live pets⁸⁹ by authorities: 4,779 reptiles (47.4%), 2,687 mammals (26.6%) and 2,644 birds (26%) (Fig. 2). The majority (91%) of the confiscated live birds belonged to 15 Psittacine species (Fig. 3 and 4). The average number of birds confiscated between 2003 and 2016 is 431 birds per year (SD: +/- 49); little can be inferred from the annual confiscations numbers which range from 28 (2009) to 673 (2014) when a single event (210 birds were confiscated;⁹⁰ Table 17) significantly increased that year's account.

TABLE 17: MAJOR BIRD CONFISCATIONS IN ECUADOR 2012–JULY 2015

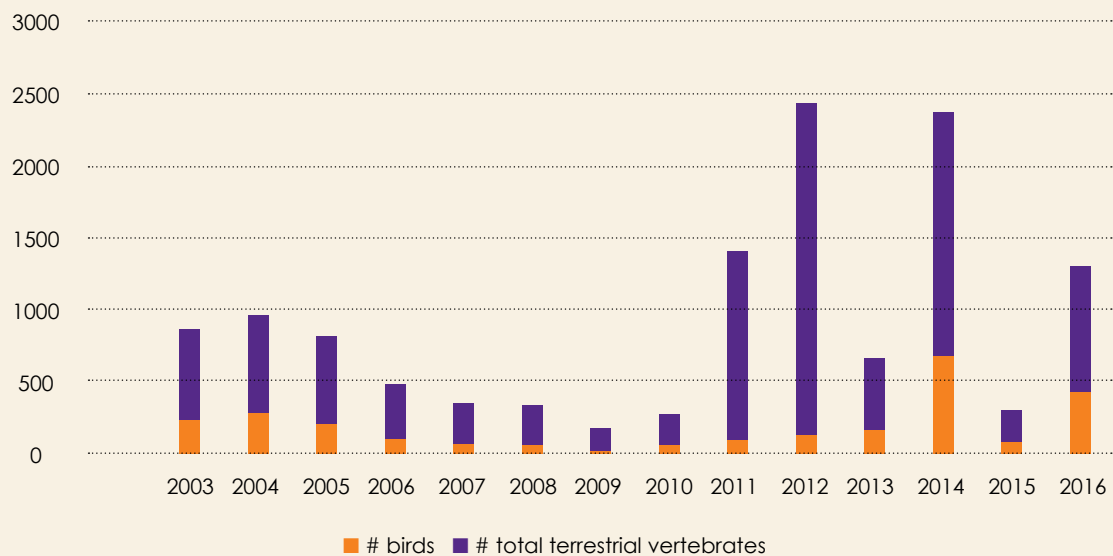
Date	Locality	Species	Amounts
November 2012	Loja	White-eyed Parakeet <i>Aratinga leucophthalmus</i> LC	54
December 2014	Quito	Red-masked Parakeet <i>Psittacara erythrogenys</i> NT	2980
		Grey-cheeked Parakeet <i>Brotogeris pyrrhoptera</i> EN	101
		Blue-winged Parrotlet <i>Forpus xanthopterygius</i> LC	
May 2015	Loja	Red-masked Parakeet NT	72
July 2015	Cotopaxi	Grey-cheeked Parakeet EN	27
		Red-masked Parakeet NT	11

Source: MAE

⁸⁹ The wild meat confiscations are tallied separately by MAE with the bulk being mammals (1,225 kg; 96.5% of confiscations in three years: 2013–2015; during same period 10 kg of wild birds sold for meat were confiscated, same amount of reptile meat was confiscated; birds sold for meat in the Ecuadorian Amazon are Cracidae (86%) and Tinamidae (10%) (Suarez *et al.* 2009). The data on bird-parts indicates that 9 undescribed elements (feathers? claws?) were confiscated 2012–2015 (MAE email to the author, May 8, 2017).

⁹⁰ The birds were accidentally found by police in Quito during a raid on a drug gang although the parrot and drug hauls were unrelated. No one was detained for possession of the parrots, and the only information retrieved was that a man known as “El Peruano” was the owner.

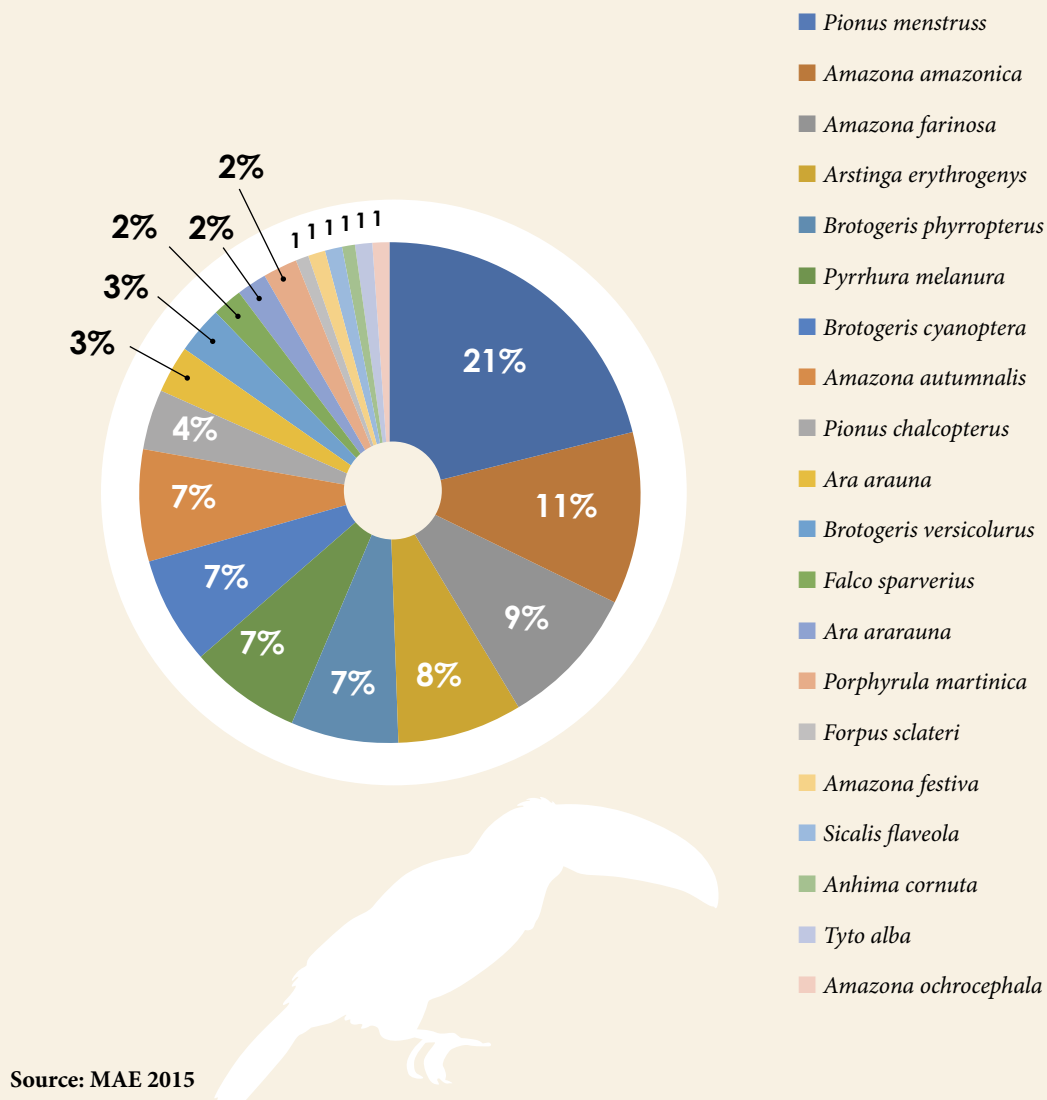
FIGURE 2: LIVE CONFISCATED TERRESTRIAL VERTEBRATES HIGHLIGHTING BIRDS IN ECUADOR 2003–2016



Source: MAE 2017

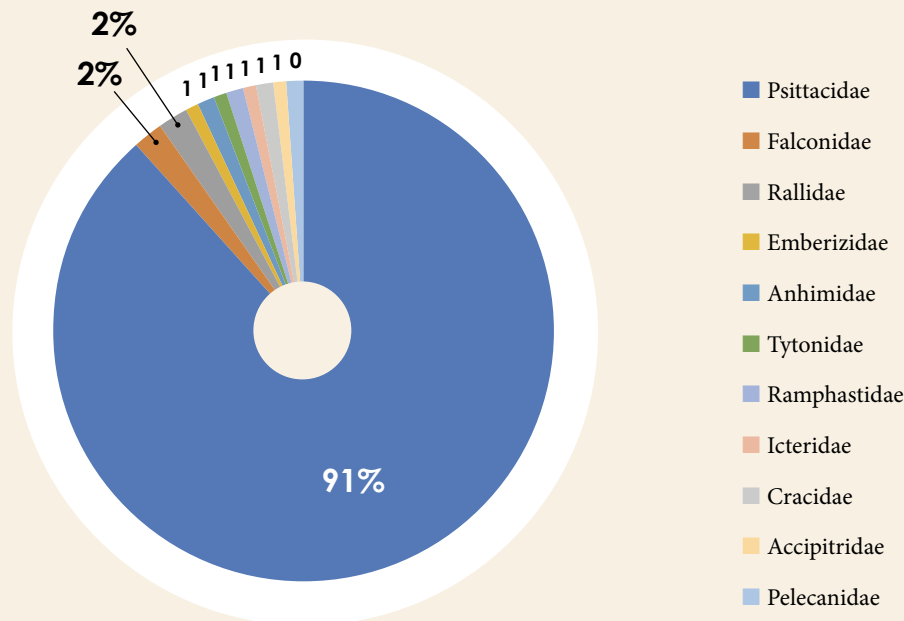
Other significant bird confiscations (Table 17) include one in November 2012 when 54 chicks (about two weeks old) of the White-eyed Parakeet *Aratinga leucophthalma* were seized off a long-distance bus running between the town of Macará on the Peruvian border and Guayaquil. This species has a wide distribution in the Amazon including Ecuador and Peru, and the fact that the bus was en route from Peru and had crossed the Andes indicates that this was a case of international trafficking. Cross-border smuggling of birds from Peru to Ecuador has been suspected in several other instances, but it is unknown which market is being supplied. Also in Loja Province, 72 birds of different ages of Red-masked Parakeets *Psittacara erythrogenys* were confiscated from a long-distance bus (MAE, 2015). The origin of these birds could also have been Peru, but their final destination is unknown. In neither case was there an investigation into the owners or transporters and no one has been detained or prosecuted. The most recent case was in July 2015 when 38 parrots were confiscated in the Andean province of Cotopaxi, comprising 11 Red-masked Parakeets and 27 Grey-cheeked Parakeets *Brotogeris pyrrhopterus*.

**FIGURE 3:
MOST CONFISCATED BIRD SPECIES IN ECUADOR 2003–2014**



Red-masked Parakeets *Psittacara erythrogenys* featured in three of the larger confiscations between 2014 and July 2015, with 112 confiscated birds, all heading to unknown destinations. Populations of this species experience heavy pressure from nest poaching both in Ecuador and Peru, and require special attention to prevent further depletion. This parakeet is endemic to the dry coastal forests of northern Peru and southern Ecuador and was previously heavily exported from Peru. Between 1982 and 1993, 84,172 were exported, with 26,375 destined for the USA (Thomsen and Brautigam, 1991), while Ecuador exported only 45 during the same period. The species is still sold illegally in shops in the Peru-Ecuador border town of Aguas Verdes (Tumbes region), Peru. Ecuador and Peru consider it both a VU species in their respective lists of threatened birds (2002 and 2014 respectively). Paradoxically, the global status of the species is assessed by IUCN as NT.

FIGURE 4:
FAMILIES OF CONFISCATED BIRDS IN ECUADOR 2003–2014



Source: MAE 2015

The above-mentioned events, where significant numbers of birds were confiscated, indicate the involvement of organized networks, likely supplying precise orders of birds to unidentified markets. The remainder of the confiscations, often from buses of one or two birds per instance, are probably on their way to major cities to be sold in markets as cagebirds for households, restaurants or hotels.

Organized wildlife trafficking was also apparent through the confiscation of an Ecuadorian⁹¹ bird species in Lima's International Airport in Peru. On 14 December 2016, a Spanish national and two Peruvians on their way to Madrid were found in possession of 25 birds of seven species inside his suitcase.⁹² Among these were two birds of a species that does not occur in Peru: Toucan Barbets *Semnornis ramphastinus* (NT in Ecuador and globally).

⁹¹ Birds could also be Colombian but geographically and logistically it is more likely they were captured in Ecuador.

⁹² <http://larepublica.pe/sociedad/830536-rescaten-25-aves-silvestres-que-iban-ser-comercializadas-de-manera-ilegal-en-europa>

This species only occurs in the cloudforests of the western slopes of the Andes in Colombia and Ecuador, some 800 km from the Ecuador–Peru border, indicating there are smuggling channels to move birds from Ecuador into Peru beyond the well-known local trade border dynamics.

The flow of confiscated or “donated” animals into Quito Zoo has prompted its Director to believe that even though open sales are rarely seen, ongoing deals must be occurring to explain the volumes (mainly common species of psittacids) arriving.

Confiscated bird species reported by authorities (Fig. 3) were, except for the Red-masked Parakeet *Psittacara erythrogenys* and the Grey-cheeked Parakeet *Brotogeris pyrrhoptera* (globally EN: VU in Ecuador), all LC. This indicates the trade is affecting mainly non-threatened species and is likely not generating a major conservation problem.

It is difficult to draw conclusions about trends in illegal trade in the country from the confiscations’ data available for the past 15 years. However, it is safe to conclude that at its root are high poverty levels and reduced opportunities for income generation in rural areas, particularly indigenous populations.

5.7 CONCLUSIONS

As in all other countries, habitat loss is the largest threat to Ecuador’s avifauna. Forest clearing for agriculture, cattle, infrastructure and urban sprawl, added to forest fires and wetland destruction and pollution are all huge threats to the country’s biodiversity. Subsistence hunting, poaching and killing of raptors (and the Andean Condor *Vultur gryphus*), that pose threats to farm animals, are additional causes to the continued population depletion of dozens of the larger bird species.

Bird confiscation numbers remain annually in the lower hundreds affecting mainly common psittacid species that feed the local demand for pets. A few threatened birds are also impacted, mainly those endemics from the dry coastal forests shared with northern Peru. International trade in rarer more expensive species also persists as demonstrated by the confiscation of two Toucan Barbets *Semnornis ramphastinus* in Lima’s airport (December 2016) on their way to Europe. According to a source requesting anonymity (formerly involved in illegal wildlife trade), a few transborder bird-trafficking networks actively take advantage of the non-existent road controls on small vehicles, thus creating porous borders between the country with both Colombia and Peru.

Open sale of wild birds in urban markets and streets has nearly vanished from most of the country. Sporadic confiscations of larger numbers of psittacids indicate that demand persists through informal channels that keep birds away from the sight of authorities. Some of these birds come from Peru through an active illegal smuggling activity that is being binationally addressed by enforcement authorities.

Beyond traffickers losing confiscated birds, little is expected from the current penal laws that offer few options to impose harsher punishments as a disincentive to illegal trade.

Beyond the places where bird tourism is installed as an important economic activity—a small portion of the country—Ecuadorians have no economic incentives or enough environmental sensibility to conserve birds alive and free roaming in their natural habitats. Poverty and lack of economic options for the rural populations will always be a major threat for the survival of birds and other wildlife in Ecuador as roads open access to pristine areas. If these root causes to biodiversity loss are not addressed, the future of many species and populations is very dire as their threat with extinction will increase as we move into the 21st century.

Two species that require special attention: the new Ecuador-Peru government plan of action to deal with wildlife trade issues in border areas should pay special attention to Grey-cheeked Parakeets *Brotogeris pyrrhoptera* and Red-masked Parakeets *Psittacara erythrogenys*.

Co-ordinated intelligence operations are urgently needed to tackle the illegal poaching and trade in these birds from the dry forests of Ecuador and Peru. Research is needed to identify the origins and market destinations for these birds, as well as trade-chain dynamics including participants, routes and storage locations.

To assist with the above, detailed analysis and monitoring is required of the population status and habitat quality of the above-mentioned species. Additional information and action should be taken to:

- Determine available habitat (continuity/fragmentation/connectivity);
- Assess coverage by protected areas of its habitats and populations;
- Describe current and potential threats including infrastructure, poaching, logging;
- Establish the dynamics and connections with Peruvian populations, habitat and illegal trade.

A national enforcement strategy with UPMA in collaboration with Customs, armed forces and anti-drug police units, needs to ensure that enforcement pressure is maintained over

illegal trade and tenure of wildlife, improving controls in bus terminals, airports and border posts.

Authorities need to be pay special attention to key routes and monitoring of parrot nests in breeding seasons in coastal dry forests and in the Amazon region.

In general, the government is encouraged to promote further birdwatching and biodiversity appreciation among Ecuadorians, especially rural populations in smaller villages in the Amazon region and other critical areas.



6. GUYANA AND SURINAME

“IF YOU HAVE A RESOURCE, WHY NOT USE IT?”⁹³

“The men-only custom transcends social and racial divides in the former British colony on the shoulder of South America....For more than a half century, [Guyana] has been held back by ethnic and political tensions, primarily between descendants of African slaves and those of indentured Indian servants, in a hangover from European colonial rule. All backgrounds and religions come together, all because of one bird.”

Naturalist Gajendra Nauth Narine “Andy”, quoted by Reuters in an online press article “Amazon Songbirds Compete in Guyana ‘races’” by Girish Gupta December 1, 2014.⁹⁴

“The majority of Venezuelan Psittacidae in the international pet market leave the country from the delta of the Orinoco River....Considering the alleged destination of these birds, it is highly likely that a major portion of the legal export quotas for Psittacidae established by Guyana, over 36,000 in the previous year, are filled by illegally exported Venezuelan birds. The destination of surplus birds is probably the illegal international market via both Guyana and Trinidad.”

Philip Desenne and Stuart Strahl (1991). “Trade and the Conservation Status of the Family Psittacidae in Venezuela” *Bird Conservation International* 1: 153–169.

6.1 COUNTRY CONTEXTS

Their shared historic, cultural and economic roots, added to their similar wildlife trade approaches, makes neighbors Guyana and Suriname stand out in the South American context and it is therefore feasible to combine them into a single chapter in this report. These countries, plus French Guiana, are part of a well conserved wider region in northeastern South America. This ecological hotspot (the Guiana Shield Ecoregion) is within a distinct geological formation that also includes parts of southern Venezuela, eastern Colombia and northern Brazil. This South American eastern “shoulder,” cornered between Brazil and Venezuela, is known as the “Three Guianas.”

⁹³ This quote is the pragmatic perspective from Ferdinand Baal, Suriname’s Wildlife Director for many years, a dedicated professional whose influence on the country’s policy is widely felt years after his retirement.

⁹⁴ <http://www.reuters.com/article/us-guyana-birds-idUSKCN0JF3D520141202>

The non-Iberian occupation processes in the “Three Guianas” since the 16th century isolated these countries from the rest of continental Latin America in language, cultural backgrounds, administrative and judiciary systems. Both Guyana and Suriname are more closely connected to Caribbean political and economic processes.⁹⁵ Both have relatively low population density, concentrated mainly on their capital cities and coastal strips. These countries also differ in terms of racial composition and demographic outcomes. The current population is a mixture between native indigenous peoples, the descendants of African slaves and of indentured Asian workers brought by the colonial powers in the 19th century. There is a growing presence of Brazilians centered on mining activities dotted along the southern borders with Brazil.

French Guiana, a French Overseas Territory, is even less integrated into the rest of South America, and as part of the EU, most of its economic and political ties are with Europe. This territory has equivalent demographic characteristics and a predominance of forest cover as Guyana and Suriname but has not experienced legal commercial wildlife trade in the last five decades (Duplaix, 2001) and therefore has not been included in this analysis.

The joint territory of the “Three Guianas” adds up a region 25% larger than Germany—where 81 million people live, or 10% larger than the US State of California—where 39 million people live. The Guianas have a combined population of less than two million people which means large expanses are devoid of human presence and hence there are conservation opportunities in the well-preserved ecosystems. Guyana itself is a bit smaller than Ecuador but has less than 5% of its population. Table 18 provides comparative data on the “Three Guianas.”

The increasing influx of Chinese investments for road-building that allows access to mining and logging operations is generating major environmental changes with previously inaccessible regions within both countries now open to intensive economic development. This transforming economic penetration into the hinterland generates unsustainable demands on previously pristine or minimally utilized wildlife. The problem has been accelerating since the 1990s, particularly for Guyana as purported by Colchester (1997) and Kratter (1998).

As in all other South American countries, bird populations in Guyana (Kratter, 1998) and Suriname are also affected by trapping for domestic pet markets, hunting for food or harvesting of feathers for ornaments. Hunting also affects psittacines as they are shot because of their impacts on fruit and corn crops, and raptors because of the threat they pose to household animals.

⁹⁵ With whom they share British and Dutch historic colonial links as members of CARICOM—the Caribbean Community—although recently they have been integrated with other South American countries through UNASUR—the Union of South American Nations.

As the predominant approach in all other Amazon countries except Peru⁹⁶ has been to reverse their wildlife trade-permitting policies to impose a total prohibition on trade in wild caught birds, Guyana and Suriname stand out for their more liberal approach to commercial uses of wildlife. In some ways, these two countries represent a glimpse into the past of how wild bird trade took place in the other Amazon countries until the 1970s. The Guyana and Suriname cases can help to understand the long-term conservation implications of the different approaches—banning or allowing commercial uses, for species, ecosystems, as well as for local livelihoods. This chapter aims to extract lessons, conclusions and recommendations on how best to address future challenges for birds as the environmental quality of forests in both countries is quickly changing with the expansion of mining and logging operations, while international markets for their wildlife keep shrinking.

6.2 THE EARLY TRADE YEARS: FROM A FEW HUNDRED TO HUNDREDS OF THOUSANDS OF BIRDS EXPORTED

Before CITES, in 1971 Guyana was ranked as the 37th country⁹⁷ by number of birds of eight families, but not including parrots, imported by the US,⁹⁸ at a time when exports from Peru, Colombia, Ecuador, Paraguay and Argentina were in the thousands (Clapp and Banks, 1973). A year later, in 1972, Guyana was the 35th exporter (out of 53 countries) of birds into the US with 102 birds from three families—one of them Psittacidae.⁹⁹ Suriname appears in neither of these US bird imports accounts (Clapp, 1975). Guyana became a party to CITES in August 1977 but there were no laws or permitting entity to meet the legal requirements mandated by CITES (Duplaix, 2001). In 1978, when records started being kept, 8,492 parrots were exported, indicating that trade in parrots was already well established. The business must have become organized between 1973 and 1977.

In the early 1980s, exports became much more intensive and alarms about overharvesting began to sound. Parrot exports peaked at around 37,000 in 1984. During the 1980s, around 165,000 parrots were exported from Guyana. To date, the Orange-winged Amazon *Amazona amazonica* has been the species with the highest number of exported birds (Kratter, 1998).

⁹⁶ Bolivia, Brazil, Colombia, Ecuador and Venezuela; Peru is the only other Amazon country that allows legal export of wild bird species but bans all local commercial trade. Even though Peru's list of birds that can be legally exported is larger than Suriname and Guyana's, it captures less attention in the international conservation arena, probably because the Appendix II CITES species it exports are only three types of parakeets (not managed through CITES quotas), compared to more than 25 species included in the 2017 CITES quotas for Guyana and Suriname, including macaws, parrots and toucans, plus a long list of mammals, reptiles and amphibians <https://cites.org/eng/resources/quotas/index.php>

⁹⁷ Out of 65 countries registered by USA authorities as origin of their bird imports.

⁹⁸ A total of 80 birds of eight families (Threskiornithidae, Accipitridae, Ramphastidae, Psittacidae, Icteridae, Thraupidae and Fringillidae). No psittacids in the list.

⁹⁹ The majority Thraupidae (82), followed by Accipitridae (8) and Psittacidae (2).

Since then, Guyana's bird exports have created national and international concern that this trade has led to the decline in its parrot populations (Desenne and Strahl, 1991; Thomsen and Brautigam 1991; Kratter 1998). One year after the last of the major Amazon bird exporting countries, Bolivia, shut down its exports in mid-1984, Guyana jumped in to fill the gap as a psittacine provider, turning into Latin America's main exporter of macaws. By 1985, 85% of imports into the USA of these birds came from Guyana (Brautigam and Thomsen, 1991). After Guyana's capacity to guarantee legal and sustainable harvest of its exported birds was questioned by the international community (EC, US, CITES in that order; see account below), the country reacted with a moratorium to try to fix things in-house, including updates of laws and procedures to comply with market-country demands. Boosting the assurance of legality and sustainability in its traded birds has been Guyana's desired objective, although this is difficult to achieve for a country without the resources to attain a comprehensive wildlife management program.

The case of the Sun Parakeet *Aratinga solstitialis* is very interesting to highlight as part of Guyana's bird trade history. A fairly common species up to the 1970s in western Guyana and adjacent Brazil, there is strong evidence that trapping caused the species to be almost extirpated from Guyana (Kratter, 1998) in the 1980s and early 1990s. The CITES trade database registered 2,276 Sun Parakeets exported from Guyana between 1981 and 1992. Kratter (1998) compiles 2,721 birds exported between 1979 and 1986, while J. Gilardi *et al.* (2007 *in litt.*) reported that the USA imported 2,200 from Guyana between 1981 and 1985; relatively similar quantities from three sources at a time when records were not very accurate. These are not huge numbers of birds, but it seems this species is very habitat-specific and so its numbers were never large, making it very susceptible to trapping pressure. The Sun Parakeet might well be the most evident victim of the uncontrolled international bird trade explosion that hit Guyana's birds from the late 1970s.

6.3 RECENT INSTITUTIONAL AND LEGAL DEVELOPMENTS, 1986 TO DATE

Guyana

The four decade-long development of Guyana's wildlife trade history since ratifying CITES in 1977 to date goes from completely informal to the current arrangement of institutions and laws that have been gradually molded to comply with the demands of importing countries, mainly through CITES. Conservation and animal welfare organizations lobbied importing country governments (US and EU) to take administrative measures that would reduce imports and curb excessive bird harvests in Guyana. In 1986, the same year that the Wildlife Services Division was established (Kratter, 1998),¹⁰⁰ the European Commission (EC) banned all bird imports from Guyana, claiming it lacked a proper wildlife management program. Guyana reacted unilaterally, suspending its wild bird exports for nine months (January–October 1987), and instituted a quota system, although not based on scientific analysis, and other export controls (Edwards, 1992). Bans by main market countries mobilized Guyana's government and traders to take measures that would assure importers that the existing doubts over sustainability and legality were being addressed. Measures were not convincing enough as in August 1993, conservation and animal welfare NGOs submitted a petition to the US Department of the Interior requesting the imposition of a moratorium on the import of wild birds from Guyana under the recently passed *Wild Bird Conservation Act*. The NGOs claimed that export quotas for macaws and Amazon parrots were exceedingly high in the absence of scientific information, at a time when Guyana was Latin America's largest exporter of macaws.¹⁰¹ By then, Guyana had already set a unilateral moratorium (from May 1993 to 1995) at the end of which a more formal licensing system for exporters was established.

Kratter (1998) commented that the same amount of scrutiny should have also gone to much more environmentally damaging activities like mining and logging, but the type of exported end products (live birds vs. minerals or logs) do not relate as deeply as birds do to certain citizen groups, or have a specific multilateral treaty such as CITES, with the single purpose to supervise wildlife management and controls performance.

Guyana's *Environmental Protection Act of 1996* created the Environmental Protection Agency (EPA), which reports directly to the President and has been fully staffed and operational since 1998. The EPA's Wildlife Division is described as, "*The operational arm of the Wildlife Management Authority and the Wildlife Scientific Authority. It carries out the day to day*

¹⁰⁰ The first institution created specifically to deal with wildlife exports. A dependency of the Ministry of Agriculture

¹⁰¹ Export quotas for 1991 included 6,000 macaws belonging to four species

activities associated with the international wildlife trade...” (licensing, permitting, etc.).¹⁰²

To comply further with CITES requirements, the 1996 Act created a Scientific Authority, expected to co-ordinate inputs from several government agencies, academia and NGOs to obtain technical guidance to the decisions on those species allowed or not to be traded, as much as the sizes of their quotas.

As accusations grew from neighboring and importing countries about poached animals being laundered through the formal wildlife export system, Guyana stepped up to enact a more comprehensive wildlife legislation, the *Species Protection Regulation of 1999*, geared to implement CITES regulations within the country. However, between the time of the President’s signature of the law and its publishing, CITES requested other countries not to trade with Guyana because legislation for the protection of endangered species was non-existent (Wilkinson, 1999). Nevertheless, the enacted new regulation returned things to normal as it improved the wildlife-trade management structure and permitting processes.

Additional legal improvements, conceptual and managerial, were developed with the 2013 *Wildlife Management and Conservation Regulations*.¹⁰³ It was the first attempt to allow or ban the capture or trade in particular species, based on a technical analysis of their conservation status in the country using the IUCN Red List categories. The law also included the protection of important areas for wildlife conservation, a comprehensive licensing system that encompassed all possible situations in which a person relates to use of wildlife (capture, possession, trade, export, exhibit, breeder, etc.) with economic sanctions for offenders. However, this new 2013 legislation didn’t go far enough to meet CITES requirements, which needs higher juridical hierarchical-level legislation to include all aspects that can guarantee the legal and sustainable international trade of wildlife.

In October 2016, a separate act¹⁰⁴ was drafted—*The Wildlife Conservation and Management Bill*,¹⁰⁵ which in 15 Chapters and 85 articles, includes all possible aspects related to the administration of wildlife, clearly aligned with CITES text and procedures to guarantee the fulfilment of its objectives. As of August 2017, the Bill was still awaiting to be ratified by parliament as new wildlife legislation. The expectation is it will fulfill all CITES requirements to achieve *National Legislation Category 1*, a set of legal requirements set by CITES to ensure Parties comply with the appropriate national legislation to implement the Convention

¹⁰² <http://www.wildlife.gov.gy>

¹⁰³ Which regulates the “Environmental Protection Act” of 1996 in wildlife matters; the Act created the current wildlife management and control institution, the “Environmental Protection Agency”

¹⁰⁴ Explanatory Memorandum to Bill No. 14, 2016. The Act was deemed necessary (1) to provide for the protection, conservation, management, sustainable use and the internal and external trade of Guyana’s wildlife, both flora and fauna; and (2) to establish the requisite framework for the creation of an appropriate and Convention compliant legal and regulatory mechanism in Guyana.

¹⁰⁵ Bill No. 14, May 10, 2016.

correctly. Some of the legal improvements include clearly defined institutional roles and the incorporation into the Bill's text of the three CITES Appendices (I, II, III) as the lists of species for which the major regulatory measures are required to prevent trade from impacting their conservation status. Responsibility of all wildlife administrative and technical measures is placed in the Guyana Wildlife Conservation and Management Commission,¹⁰⁶ which acts as the CITES Management Authority of the country.

Additional chapters of the Bill cover captive breeding, wildlife ranching, commercial import and export of wildlife, licensing, keeping of records, offenses and penalties, and enforcement. The Bill establishes the costs of fees for permitting (in Guyana Dollars), export levies per exported animal (in Guyana Dollars according to exchange rates to USD at the time), costs of fines according to type and severity of offenses; the Bill includes all Forms to be filled in by different types of permit applicants. Further legal regulation is expected for most of the procedures that determine the quality of management and trade in wildlife.

Suriname

In Suriname, national trade is regulated by the Game Law of 1954 and the Game Act of 2002 which categorizes most psittacine species as “cage species” requiring the establishment of bag limits but are exempt of permits for keeping them. Most of these species can be traded domestically in pet shops during the hunting season (Sinovas 2017). Suriname ratified CITES in February 1981, four years after Guyana, closing an open wildlife trade loophole in northeastern South America. Nevertheless, new smuggling mechanisms took advantage of the limited capacity of staff to check all export consignments and identify the species leaving these countries.

In Suriname, the CITES Management and Scientific Authority are placed in the same institution: the Head of Nature Conservation Division of the Suriname Forest Service, which enforces the Game Law and CITES, including setting quotas since 1986, permitting and reporting.

¹⁰⁶ Commission, Chaired by the Ministry of Natural Resources and the Environment (MNRE), has representatives from the Ministries of Finance, Agriculture, Leader of Parliamentary Opposition, University of Guyana, private sector and other appointed by MNRE.

6.4 WILDLIFE MANAGEMENT SYSTEMS

*“The Government (of Guyana)...is anxious to begin a survey of wild parrot populations.”*¹⁰⁷

Stephen Edwards, 1992

This quote describes Guyana’s 25-year-old aspiration to develop a scientific basis for making its wildlife management decisions; essentially to have surveyed and monitored populations of its traded birds, setting CITES quotas accordingly to guarantee the achievement of sustainability considerations. Current annual quotas per species have been set from the studies developed by Andrew Kratter in 1997 (CITES Guyana WSD, 1998), which developed the basis for quantitative information about the status of parrot populations, and hence the confidence about the acceptable impacts of its annual quotas on the species’ populations. Two decades later in 2017, with a single exception,¹⁰⁸ the psittacines species for which quotas were set are the same 18 species as in 1997, and quota numbers have remained quite similar (Table 19). No quotas have been reduced, they have increased for 10 species and remained the same for eight. The last four years of CITES annual quotas¹⁰⁹ between 2014–2017 maintain precisely the same numbers, meaning that the amounts adopted by the government since 1997 based on Kratter’s calculations have not been replaced by any new population assessments that alter what is considered sustainable. These persistent quota numbers do not worry exporters¹¹⁰ as the total number of animals exported per species has been a fraction of each species’ quota (Wildlife Division 2017; pers. comm., to TRAFFIC) since 2008.¹¹¹

¹⁰⁷ Edwards, S.R. 1992. Wild bird trade: perceptions and management in the Cooperative Republic of Guyana. In: Perceptions, Conservation & Management of Wild Birds in Trade. J.B. Thomsen, S.R. Edwards & T.A. Mulliken Eds. Pp. 77-91. *Species in Danger* series. TRAFFIC International, Cambridge, UK.

¹⁰⁸ The Scarlet Macaw *Ara macao* was included in 1997 with a zero quota; there were some CITES-registered exports before the species was listed in Appendix I in 1985.

¹⁰⁹ <http://wildlife.gov.gy/quotas.html>

¹¹⁰ In Guyana, unlike many other countries, there is no pressure on the government from traders to increase export quotas.

¹¹¹ For example, for Orange-winged Amazon *Amazona amazonica*, the numbers exported between 2008–2012 range between 834 and 1,339, averaging 1,098/year, some 11% of the 9,900 annual quota for each of the years.

TABLE 19. CITES APPENDIX II-LISTED SPECIES EXPORT QUOTAS FOR GUYANA (1997 AND 2017) AND SURINAME (2017).

Species Scientific Name	Guyana CITES quota 1997	Guyana CITES quota 2017	Difference and % 20 year change	Suriname CITES quota 1997	Suriname CITES quota 2017	Difference and % 20-year change
Psittacines						
<i>Amazona amazonica</i>	9,000	9,900	+900 (10)	5,406	3,600	-1,806 (33)
<i>Amazona dufresniana</i> ¹¹²	0	520	+520	85	70	-15 (18)
<i>Amazona farinosa</i>	1,000	1,100	+100 (10)	517	450	-67 (13)
<i>Amazona festiva</i>	0	520	+520	-	-	
<i>Amazona ochrocephala</i>	1,000	1,000	Same	678	580	-98 (14)
<i>Ara ararauna</i>	720	792	+72 (9)	738	650	-88 (12)
<i>Ara chloropterus</i>	900	990	+90 (10)	295	250	-45 (15)
<i>Ara macao</i>	0	-		135	100	-35 (26)
<i>Ara severus</i>	-	-		309	188	-121 (39)
<i>Aratinga leucophthalma</i>	300	300	Same	970	594	-376 (39)
<i>Aratinga pertinax</i>	500	500	Same	2,925	2,033	-892 (30)
<i>Aratinga aurea</i>	-	-		115	100	-15 (91)
<i>Brotogeris chrysopterus</i>	180	180	Same	1,249	896	-353 (28)
<i>Diopsittaca nobilis</i>	1,000	1100	+100 (10)	170	40	-130 (76)
<i>Deroptyus accipitrinus</i>	0	780	+780	355	150	-205 (57)
<i>Orthopsittaca manilata</i>	1,500	1,650	+150 (10)	539	470	-69 (13)
<i>Forpus passerinus</i>	600	600	Same	4,707	3,434	-1,273 (27)
<i>Pionus fuscus</i>	0	780	+780	821	800	-21 (3)
<i>Pionus menstruus</i>	36	900	+864	1,578	1,125	-453 (29)
<i>Pionites melanocephalus</i>	600	600	same	1,605	1,103	-602 (31)
<i>Pyrrhura egregia</i>	120	120	same	-	-	-
<i>Pyrrhura picta</i>	300	300	same	941	641	-300 (32)
Toucans¹¹³						
<i>Ramphastos toco</i>		200		-	-	-
<i>Ramphastos tucanus</i>		170		258	188	-70 (27)
<i>Ramphastos vitellinus</i>		120		378	263	-115 (30)
<i>Pteroglossus aracari</i>		300		328	225	-103 (31)
<i>Pteroglossus viridis</i>		52			225	

Source: CITES; Guyana Wildlife Division

¹¹² One of four species listed with a zero quota in 1997.

¹¹³ No data available on toucan quotas in 1997.

In fact, both Guyana and Suriname operate their wildlife trade systems based on annual quotas for the set of species they allow to be exported, which are all categorized by IUCN Red List as LC.

Of the combined exported species from the two countries, 27 are listed in CITES,¹¹⁴ 22 (81%) of them in common between the two countries: this is unsurprising given the countries largely share the same Amazon ecosystems and biotas. Each country exports three CITES species the other does not; both countries also set export quotas for a few other species that are not CITES listed.¹¹⁵

Both government agencies and traders regard setting annual quotas as the most relevant management tool to keep export numbers below any possible unsustainable threshold. As indicated in Table 20, actual export numbers are always below the maximum quota limits, which offers additional assurance of low-impact harvests. The average for the actual export quantities of the ten species with the highest quota numbers between 2008 and 2012 was 20.6%, with the highest proportions of their quotas used by two macaws: Blue-and-yellow Macaw *Ara ararauna* and Red-and-green Macaw *Ara chloroptera*, with 74.6% and 73.3% respectively, the former peaking at 95.3% of its annual quota in 2012. In 2009, 0% of the annual quota for Dusky Parrot *Pionus fuscus* was utilized and it has one of the lowest average quota use, at just 5.5%, with only the Red-bellied Macaw *Orthopsittaca manilata* average lower at 5.4%. The species with the highest quota in Guyana since the late 1970s is the Orange-winged Amazon *Amazona amazonica*, which barely reached 12% used of its 9,900 annual quota during 2008 and 2012.

Guyana's total 2017 CITES species quotas add up to 23,474 birds of 23 species: 18 psittacids and five toucans, while Suriname's total bird quota adds up to 18,335 birds of 24 species: 20 psittacines and four toucans. The Orange-winged Amazon *Amazona amazonica* has the highest quota numbers in both countries; in Guyana representing 44.7% of the total psittacid quota allowance, and 20.6% in Suriname where two other species make up for important portions of the total annual export allowance: Green-rumped Parrotlet *Forpus passerinus* with 19.7%, and Brown-throated Parakeet *Aratinga (Eupsittula) pertinax* with 11.7%.

¹¹⁴ 23 psittacid species, 5 toucans and 1 duck are listed in Appendix III

¹¹⁵ Guyana 24 CITES; 4 non-CITES; Suriname 25 CITES; 86 non-CITES

TABLE 20. GUYANA ´S ANNUAL EXPORT QUOTAS FOR THE 10 SPECIES WITH HIGHEST NUMBERS ALLOCATED, AND ACTUAL PROPORTIONS USED 2008–2016. QUOTA NUMBERS ARE THE SAME THROUGH 2017.

Species	Quota	2008	2009	2010	2011	2012	Average
		actual # used and (% of total)					
<i>Amazona amazonica</i>	9,900	886 (8.9)	834 (8.4)	1276 (12.9)	1156 (11.7)	1,339 (13.5)	11.8
<i>Orthopsittaca manilata</i>	1,650	30 (1.8)	32 (1.9)	52 (3.2)	196 (11.9)	138 (8.4)	5.4
<i>Diopsittaca nobilis</i>	1,100	124 (11.3)	65 (5.9)	494 (45)	367 (33.4)	487 (44.3)	28
<i>Amazona farinosa</i>	1,100	142 (12.9)	179 (16.3)	381 (34.6)	354 (32.2)	403 (36.6)	26.6
<i>Amazona ochrocephala</i>	1,000	353 (35.3)	349 (34.9)	657 (65.7)	663 (66.3)	755 (75.5)	55.5
<i>Ara chloroptera</i>	990	517 (52.2)	813 (82.1)	735 (74.2)	826 (83.4)	741 (74.8)	73.3
<i>Pionus menstruus</i>	900	78 (8.7)	28 (3.1)	242 (26.9)	105 (11.7)	242 (26.9)	15.46
<i>Ara ararauna</i>	792	383 (48.4)	628 (79.3)	557 (70.3)	630 (79.5)	755 (95.3)	74.6
<i>Deroptyus accipitrinus</i>	780	51 (6.5)	65 (8.3)	114 (14.6)	21 (2.7)	43 (5.5)	7.5
<i>Pionus fuscus</i>	780	29 (2.7)	0 (0)	78 (10)	42 (5.4)	74 (9.4)	5.5
Total	18,992	2,593 (13.7)	2,993 (15.8)	4,566 (24.1)	4,360 (23)	4,977 (26.2)	20.6

Source: Guyana Wildlife Division

For the same species, some quotas are higher in Suriname while others are higher in Guyana; Suriname's are fixed with more "precise" numbers compared to those of Guyana which are all rounded to the hundreds (e.g. Black-headed Parrot *Pionites melanocephalus*: Guyana 600; Suriname 1,103); this gives the impression quota calculations are based on technical parameters, although no recent bird population estimates have been carried out. Contrary to Guyana, where all quotas remained the same or increased between 1997 and 2017, all Suriname quota numbers have been reduced during this time, by anything between 3% to 91%, although the average reduction is 31% (Table 19).

Suriname also sets quotas for a wide taxonomic array of the 86 non-CITES bird species it exports. Quotas are distributed among the registered exporting companies; a proportion of the quota is set aside and given as a reward to the exporters who use their quota. No more than 25% of a quota can be utilized in each region of the country (Sinovas 2017).

Suriname maintains a CITES Reservation and quota for an Appendix I-listed species, the Scarlet Macaw *Ara macao* (the only CITES Appendix I-listed bird species Reservation in South America), which can only be imported by other CITES Parties for non-commercial purposes.

Another management measure implemented by both countries is fixing the trapping season dates between 1 June and 31 December. No hunting or capture of any bird species is allowed between 1 January and 31 May. Guyana and Suriname wildlife administrators have learned that matching the timing of trapping seasons and of the species that both countries export through CITES quotas, is very important to reduce trans-border smuggling. When seasons and species are different on either side of the border, illegal trade occurs, flowing towards the country where legality makes it feasible to mobilize, store and trade specimens. Co-ordination between the authorities in both countries is fundamental to resolve the common problems posed by the lengthy, remote and uncontrolled shared border.

A TRAFFIC visit on 23 April 2015 to a wild bird holding facility in Paramaribo, Suriname, confirmed the existence of hundreds of birds in cages from at least 15 species—most of them psittacines.¹¹⁶ In theory, there should not be any birds stored in April, an indication of implementation challenges at least in Suriname where this case was witnessed. A few Sun Parakeet *Aratinga solstitialis* specimens were found at the holding center, a species classified as EN in the IUCN Red List that is not included in Suriname's export quota.

Analyses have been developed for both Guyana and Suriname on bird-trade dynamics and systems (Thomsen and Brautigam 1991; Edwards 1992; Nash 1997; Krater 1998; Duplaix 2001) that are useful benchmarks for assessing the current situation and possible conservation outcomes from different scenarios. Both countries' governments have taken steps to improve their wildlife administrative systems in response to CITES commitments through more efficient licensing, monitoring of traded volumes, supervision of holding facilities and sanctioning of offenders. However, little has changed in practice beyond each respective capital city's administration of the process for animals to be exported. Although government agencies have knowledgeable and experienced staff who understand issues on the ground in remote areas where birds are trapped, their institutional presence in such places is basically

¹¹⁶ The visit to the holding facility was documented through photographs and video records.

non-existent. Thus, there are big gaps in knowledge and control of several aspects of the management systems in place. Information about bird mortality rates from capture to export, the well-being of live birds throughout the process, as well as about the monitoring of numbers of birds and species trapped, are all poorly known; measures and assurances about these issues are badly needed to improve the reputation of the management programs beyond the countries' borders.

Sustainability has to be measured not only regarding the number of birds exported, but more importantly, how many are captured each year and in what areas—which are needed to assess the impacts of the harvest on the species' populations. All harvest is currently self-managed by trappers, middlemen and exporters who keep the birds healthy and alive to the best of their ability and interests until their exit from the country. Kratter (1998) estimated that for every 1,000 birds trapped in Guyana, 15% die or are defective for export and 10% end up in the domestic pet market; of the remaining 750,375 are smuggled to Suriname. Thus, for every 1,000 birds trapped in Guyana, only 375 are legally exported. Smuggling levels are likely to have dropped significantly since the Kratter report was written, as at the time several species exported by Suriname had zero quotas in Guyana and trapping/export seasons were different in both countries, enhancing the cross-border smuggling out of Guyana into Suriname. Levies per exported animal were also smaller in Suriname, another economic incentive to export through that country.

The economic injection needed by Guyana and Suriname to develop accountable technical and administrative follow-up in the remote places where wildlife is harvested would be considerable. Many needs compete for government budget, and wildlife management for commercial purposes, if not a shrinking activity, is stable at best and has little expansion possibilities. As socially significant as it might be for the indigenous population and some individual exporters, wildlife trade is a marginal economic sector whose outlook makes it unrealistic to expect from decision makers the allocation of increased funding to implement the needed capacities in the field. In Guyana, wildlife export levies and fines produced USD233,000¹¹⁷ in 2015 for the Wildlife Division, enough income to cover the expenses of the central administration system and support some wildlife monitoring. Beyond sporadic support from co-operation projects through NGOs and co-operation agencies, all indications are that the institutional capacities are going to stay as they are currently. Identification of possible collaborative arrangements with more financially capable sectors (e.g. forestry) could facilitate a wildlife management institutional presence in the field for better monitoring and control over the use of these resources.

¹¹⁷ 50 million Guyanese Dollars GYD, exchange rate 1USD- 215 GYD. Guyana Chronicle. (2015).

6.5 TO TRADE OR NOT TO TRADE WILD BIRDS?

Calvin Bernard, Head of the Scientific Authority of Guyana, said in March 2017 that the country's strategy to reduce illegal trade in wildlife was through promoting legal wildlife trade (Alarcón, 2017). This rationale of reducing illegality by promoting more legal options is unique in South America and increasingly rare worldwide. In some ways, this approach recognizes the weak possibilities of controlling illegal trade dynamics in places where there is a marginal presence of the authorities. The most pragmatic approach is abstaining from making illegal practices that have been legal for many years or reverting them to being legal if they were previously. Guyana's authorities emphasize their focus on the soundness of their administrative processes mainly related to CITES species as periodically there are doubts from importing countries and exported species' range States about the reliability of the country's technical and administrative controls over their wildlife exports.

Authorities have the responsibility to make sure that some management practices are put in place to guarantee the sustainability of various activities, even through there are few chances of verification as they are implemented in the field. Administration of wild resources is concentrated on the management of export procedures, including quota management, licensing and export permits, all of which are implemented close to the capital cities. Authorities deal only with exporters and have no relationship with bird suppliers. Some exporters do not want to disclose who their suppliers are, and the laws do not require this critical information, which should form an essential component of a complete traceability system from trapping to export for each bird.¹¹⁸

Empowering local stakeholders as stewards of their resources could be a cost-effective solution to the institutional absence in the field. For example, involvement of Amerindian communities in controlling fishing of Arapaima *Arapaima gigas*, a freshwater fish species whose extraction was until recently completely illegal, has embarked them on a sport-fishing initiative that generates incomes from a lodge they build and run (Rewa Ec lodge) deep inside Guyana's forests. Ecotourism has changed community attitudes towards wildlife in this Rewa community, even stopping the trapping of birds as they are also engaged in birdwatching tourism.¹¹⁹ Another option developed in Guyana to bring a sustainability rationale into the harvest of a valuable species has been turning the illegal harvest of Black Caiman *Melanosuchus niger* into a legal management program. Community based ecotourism is thus an option that can help conserve species and habitats and prevent depletion of key species not by prohibiting, but by regulating and controlling legal wildlife extractive activities.

¹¹⁹ Pers comm Alona Sankar, Head Wildlife Division, interview with TRAFFIC, April 2015.

¹¹⁸ C. Bernard pers comm to TRAFFIC June 2015.

As mentioned above, wild birds have been captured and commercially exported from Guyana for 40 years. Throughout these four decades, Guyana has been accused of promoting illegal bird trade from its neighbor's forests, while constant allegations from the international community about irregularities in the trade and harvest levels being unsustainable led to situations that overwhelmed the authorities who self-imposed export bans in 1987 and 1993–1995 (Kratter, 1998). Poor record keeping, technical capacities and general administration of the export activity have all been gradually addressed according to the country's capacities, updating and improving national legislation and institutions to resolve the most immediate problems with support from NGOs (e.g. WWF) and foreign aid agencies.

Ultimately, bird and wildlife trade in general, are economically important for up to 20,000 indigenous inhabitants of Guyana's hinterlands—almost every community is involved in the business. In the remote regions where wildlife is trapped for commercial purposes, jobs and cash generating options are scarce and generally result in adverse impacts on the environment through logging, agriculture and mining.

Wildlife exporters are aware of the international pressure to convince the governments of Guyana and Suriname to stop the trade in wild animals. Such is the case with Brazilian delegations in international meetings, arguing that exports of birds by the two countries open legal loopholes through which birds captured in Brazil are funneled, weakening the Brazilian efforts to control illegal trade in its Amazon region. The live animal trade for the pet business is increasingly perceived as a 20th century anachronistic practice, one that still uses nature as a source of wild animals for commercial interests while many consider that Suriname and Guyana should “move forward” into more contemporary perspectives about nature and the way people use and appreciate it. Exporters are thus aware that their businesses are in danger, mainly “*based on lobbying and false attacks*”¹²⁰ from pressure groups, and are moving to captive breeding experiments which, they believe, are internationally perceived to be more conservation and animal welfare friendly.¹²¹ The socio-economics of both systems—wild trapping vs. captive breeding—need to be carefully assessed, including whether their conservation secondary impacts are negative or positive, before deciding to abandon the current system. In 2016, Suriname Forest Service issued a license to a company to breed parrots in captivity; more licenses could be granted if this experience is succesful (Sinovas 2017).

Other than the feedback from experts, trappers and traders, there are no indications whether the numbers of birds captured from the wild are sustainable or not. Available information indicates that the size and quality of forest cover in the remote places where

¹²⁰ Pers comm wildlife exporter Ms Violet Low, interview with TRAFFIC, April 2015

¹²¹ Same as footnote 33

birds are trapped has been maintained and the bird populations can withstand the levels of harvest without affecting their conservation status. As economic development penetrates the remote hinterlands, the health of these ecosystems will be affected, including wildlife resilience to harvest pressure. This pressure on species' populations may impact on the sustainability of harvesting levels, thus affecting livelihoods and ecosystem productivity.

This bird trade assessment's literature review didn't find a single article or report scientifically addressing the sustainability of the bird harvest for any species or for a particular place in either country; no research has been done either to assess the socioeconomic value of this trade for the livelihoods of local communities. Wildlife harvest and trade are activities that lack any scientific data to argue for or against their conservation or social impacts—positive or negative, in Guyana and Suriname. Currently, any decision to stop or continue with these activities will be based on perceptions and opinions of interest groups.

6.6 LOCAL BIRD TRADE AND ITS INTERNATIONAL CONNECTIONS: THE EXPORT OF A MALE HOBBY INTO EUROPE AND NORTH AMERICA

The very popular hobby among men in Guyana and Suriname of songbird competitions (called bird races), as in parts of Brazil and Trinidad and Tobago, has generated an unsustainable demand for the most appreciated species: the best singers. Seedeaters of the genus *Oryzoborus* (*Sporophila*) are widely used within Guyana and Suriname and illegally exported (see below), reaching prices of up to USD5,000 for a well-trained, aggressive male singer. Trapped almost to extinction in Guyana and Suriname, they go completely unnoticed in other Amazon countries,¹²² (except in Brazil), where there is no trade pressure because this type of hobby does not exist. Considered the best songster, the Large-billed Seed-Finch *Sporophila crassirostris*, or “twa-twa” as it is locally known, is now expensive and rare; the second-best singer is the Chestnut-bellied Seed-Finch *Sporophila angolensis*, or “towa-towa” locally. Singing competitions mostly feature the cheaper and thus more readily available Plumbeous Seedeater *Sporophila plumbea*, or “mountain canary” locally. The sight of men carrying the cages through town as they bike on their way to singing contests is common in both countries, as is the ubiquitous presence of cages with songbirds in shops and houses. There is active smuggling of these songbirds from Venezuela into Guyana, mainly caught by indigenous inhabitants. Guyana's Wildlife Division has established annual quota numbers for the legal trade of the three commonest songster species mentioned above; 200 individuals for each species, without reference to sexes (males are the target of the trade), capture areas or selling points. A 20% levy on the calculated commercial price of each bird of the three species is charged. Thus a revenue of 15, 14 and 10 Guyana Dollars for

¹²² Bolivia, Colombia, Ecuador, Peru and Venezuela.

each of the three species in the order described above is collected, affording a total of 7,800 Guyana Dollars—some USD38—that can be accrued by the Guyana Wildlife Division from these quotas—an amount that cannot even pay for the administration of the quota. These are the amounts to be paid for legal birds without pushing buyers to the illegal market, which is one of the usual consequences of establishing legal administration systems that add costs to traded animals.

This songbird hobby has also taken root in countries where there are large colonies of Surinamese and Guyanese expatriates. In the Netherlands, Surinamese immigrants have created bird singing clubs, tournaments and product lines for hobbyists in major cities like Amsterdam and The Hague. Guyanese migrants have exported their hobby to the USA where there is a large community of expatriates in Queens, New York. Much of the market is supplied by birds illegally taken into the USA from Guyana, a number of which have been detected by the authorities at Miami and New York airports. To avoid detection, smugglers will zip birds into suitcase linings, stuff them into toilet paper rolls, inside plastic hair curlers, inside socks, pantyhose or specially tailored pants—anything that will not trigger airport metal detectors (Rueb, 2015). Some have also been legally imported from Brazilian breeders.

The difficulties of importing birds legally into the USA because of the paperwork and the 30-day quarantine period has encouraged smugglers, who are said to make several thousand dollars in a single trip from Guyana, depending on how many birds survive the trip (Rueb, 2015). In 2004, the USFWS launched *Operation G*, an eight-year investigation, which resulted in multiple arrests and the confiscation of 150 birds (Rueb, 2015).

Trade in and possession of other types of birds is open and widespread in Guyana and Suriname: macaws, parrots, parakeets and toucans are kept in people's backyards, as it is calculated that 10% of all trapped birds end up in the domestic market (Kratter, 1998). The government currently does not have intentions to curb this demand and tradition of bird keeping. In both countries, there are no large bird markets in cities; birds are mainly sold in small shops within larger town markets, such as Starbroek market in Georgetown.

6.7 WILDLIFE TRADE RECORD

Between 2000 and 2016, Guyana exported 145,000 birds belonging to 24 CITES Appendix II-listed species. The most exported species from Guyana was Orange-winged Amazon *Amazona amazonica*: 147,825 birds between 1981 and 2015, the years for which data are available (UNEP-WCMC CITES Trade Database; Edwards, 2001). This species represents almost half of all the currently exported birds by the country's 16 licensed exporters.

In 2015, there were 12 licensed bird exporters in Guyana¹²³ organized into the Guyana Wildlife Exporters Association. Quotas are divided by the number of registered exporters that are active traders in birds. An individual trader completes his or her quota through gathering animals from different areas. As supportive as they are of the government's efforts in wildlife conservation and management, many consider the activity is over-regulated. The government continues to tighten procedures in response to CITES demands, making business increasingly expensive and complicated for the exporters. Currently, the main markets for Guyana birds are in China for the supply of wildlife to zoos,¹²⁴ and to other countries like Singapore, Turkey and Pakistan.

This trade provides 439 direct jobs and temporary incomes to some 7,540 trappers and domestic traders while the total population that benefits from this economic activity is likely to be around 20,000 people,¹²⁵ some 5% of the country's rural population. In comparison, forestry activities provide incomes for 70,000 people and generate three times more income than birds. As economically important as the bird trapping activity still is, communities have felt the impact of the closures of the USA and EU markets as bird sales have plummeted.¹²⁶ Outside of the bird trapping season (June–December), trappers supplement their incomes by collecting other wildlife (reptiles, amphibians, mammals, fish) to keep them busy and earning incomes throughout the year.¹²⁷ The wildlife exporter sector sees a threat from a shifting workforce moving into agriculture and mining as development extends into the interior of the country, and for better wages people will stop trapping animals.¹²⁸

Between 2000 and 2013, Suriname exported 590 birds of one CITES Appendix I-listed species, namely Scarlet Macaw *Ara macao* and 74,300 individuals of 17 CITES Appendix II-listed parrot species. The main Suriname bird importers (2005–2014) were Singapore (20%), Russia (15%) and Thailand (15%) (Sinovas 2017). As with Guyana, Suriname's most traded species is also the Orange-winged Amazon *Amazona amazonica* with some 51,478 birds over the period. There are no known bird population assessments for any of the trapped species in either of the two countries.

¹²³ Out of a total of 17 wildlife exporters, some also trading in crocodilian skins, mammals and ornamental freshwater fish.

¹²⁴ Pers. comm., Ms Violeta Low, wildlife exporter; interview with TRAFFIC April 2015.

¹²⁵ Pers. comm., Adrian Wellington, bird trapper and trader, interview with TRAFFIC April 2015.

¹²⁶ Pers. comm., Clayton Hall, Chairman GY Wildlife Exporters Association; interview with TRAFFIC April 2015.

¹²⁷ Same as footnote 42.

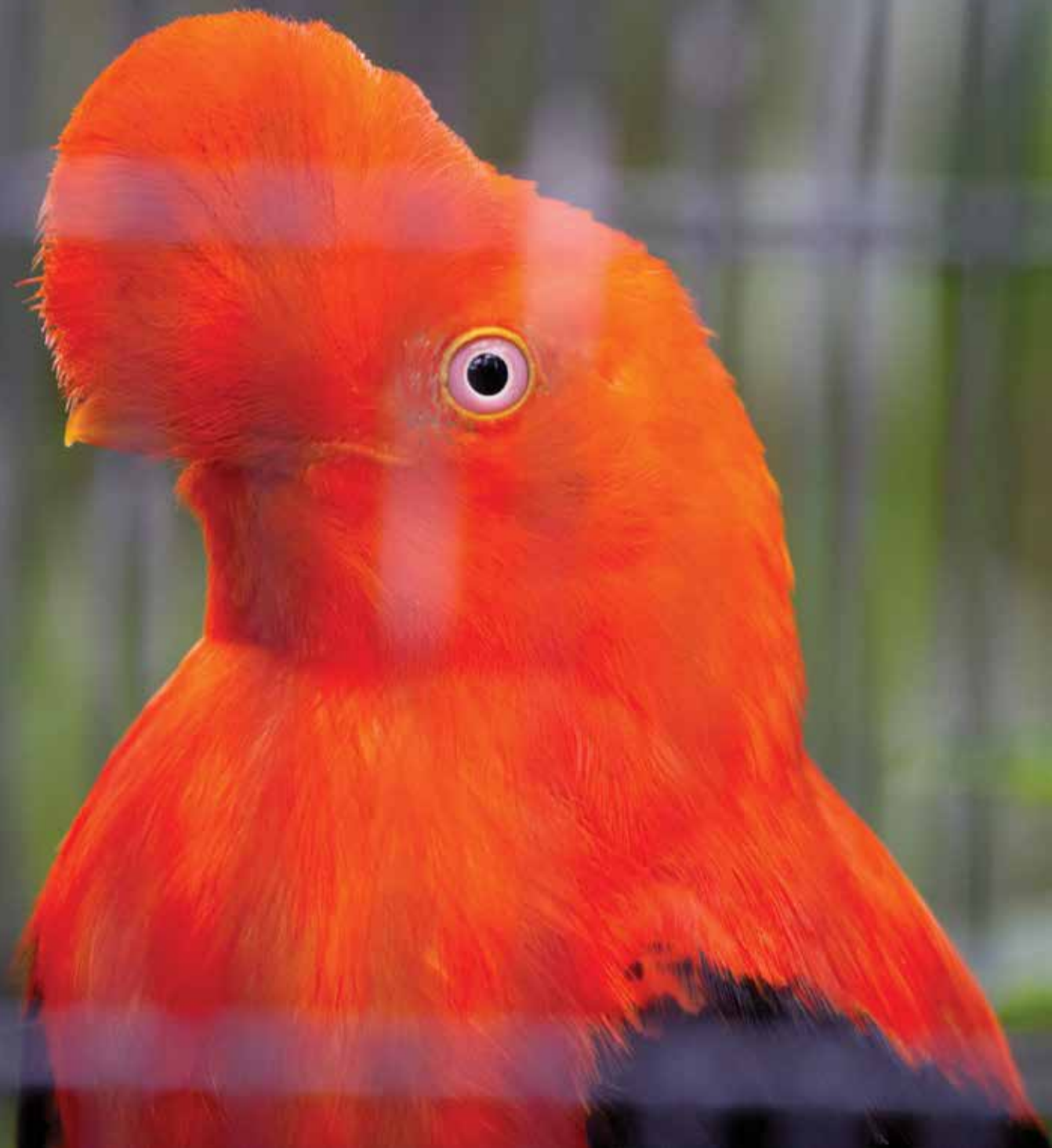
¹²⁸ Same as footnote 43.

The estimated average financial value of Suriname's CITES-species exports (reptiles, amphibians and birds 2005–2014) was USD2.4 million per year, of which live birds had the highest total estimated value: Black-headed Parrot *Pionites melanocephalus* USD0.6 million/year, Blue-and-yellow Macaw *Ara ararauna* USD0.4 million/year, and Orange-winged Amazon *Amazona amazonica* USD0.3 million/year (Sinovas 2017). Guyana's average annual value of its CITES-species exports (Caiman skins, live reptiles and birds 2005–2014) was USD4.1 million. The two species with the highest total estimated value were the Spectacled Caiman *Caiman crocodilus* (USD0.9 million/year) and Blue-and-yellow Macaw (USD0.6 million/year) (Sinovas 2017). Between the two countries, the Blue-and-yellow Macaw generated at least USD1 million between 2005 and 2014.

Other issues identified

An increase in the number of resident Chinese citizens in Guyana and Suriname has created new demands for wildlife products such as Jaguar *Panthera onca* bones and fangs, meat of reptiles and mammals, turtle eggs, although the extent of this impact on wildlife populations is presently mostly unknown. Meanwhile, the open sale in outdoors shops of mistnets in Guyana, as verified by TRAFFIC in Georgetown in April 2015, is potentially a major threat to bird and bat populations in the country. The availability and use of these items should be regulated to avoid their misuse and abuse since they are not currently included in the list of banned methods of hunting.¹²⁹

¹²⁹ Fourth Schedule. "Prohibited Wildlife Collecting Devices and Methods" of the "Wildlife Management and Conservation Regulations" of 2013, of the "Environmental Protection Act" No. 11 of 1996. The Official Gazette 16th November 2013, Legal Supplement B



7. PERU

AT THE HEART OF ILLEGAL TRADE

“Billion-dollar birds, they have easily been without exaggeration.”

Robert E. Coker, in charge of the Scientific Inquiry of the US Bureau of Fisheries referring to the guano-producing birds of the islands off the coast of Peru.

7.1 COUNTRY CONTEXT

Peru ranks second for the number of bird species in the world (1,857), and once hosted large fish stocks that fed hundreds of millions of seabirds that created the guano islands (see Box 4). Peru has also been heavily impacted by bird trade for both internal and external markets. The country is bordered by five other South American countries, and there are particular illegal trade dynamics associated with each of these nations. The country has extreme variations in topography and climatic environments, and the associated biodiversity ranges from coastal deserts and dry forests, the deepest of the Andean river canyons, and extensive rainforests that harbor hundreds of bird species. Manu National Park for example, hosts as many as 1,000 species of birds (BirdLife, 2005). Peru takes up the second largest portion of the Amazon basin, comprising almost 75% of the country's territory. Indigenous Amazon groups and wildlife are experiencing heavy pressures from a rapidly increasing rate of deforestation for cultivation of oil palm and other monoculture crops, oil exploitation, mining, logging and illegal coca plantations. The country is also vulnerable to the effects of climate change as Andean glaciers vanish and flash floods are becoming more frequent. The geographic diversity and complexity of its territory make possible the presence of 84 of the 104 known Life Zones on the Planet accounting for Peru's inclusion in the “elite” list of the 17 Mega-diverse countries in the world (Biodiversity A-Z, 2014).

Peru is the only Andean-Amazon country that allows the trapping and export of wild birds from 101 species, five of them psittacids listed in CITES Appendix II. The birds for which trade is legal are relatively common species that are not included in the country's official endangered species list, which bans commercial use of those listed as threatened. The country also has a few bird breeding farms, with most of their outputs destined for the international market. Peru's main city within the Amazon, Iquitos, has served for more than 100 years as a hub for stockpiling wildlife products, and there is still an active open market for live

birds. The same happens in Pucallpa, the second largest Amazon city, which, alongside Yurimaguas and Puerto Maldonado, are the Amazon towns connected by road with coastal Peru where the majority of the population is concentrated. These roads channel most of the flow of illegal wildlife products (mainly in long-distance buses) to be sold in the markets of Lima, Chiclayo, Arequipa, Trujillo and other major towns, despite efforts by the authorities to contain the situation.

Peru has 183 protected areas (SERNANP, 2016)¹³⁰ covering 17.2% of the country's territory, while native communities and indigenous territories add another 14 million hectares to the wider conservation setting in the country. Meanwhile, the country is experiencing pending threats that will increase fragmentation, deforestation and degradation of natural habitats; infrastructural developments include the anticipated construction of dams in the Amazon region, as well as more road and railroad connections with Brazil and Colombia (RAISIG, 2012). These developments will increase access to currently pristine regions, and hence accelerate degradation. Expansion of monoculture plantations for biofuels and food in its last frontier—the Amazon region—is a further major source for concern. Impacts will be biological and ecological, and there will also be severe impacts on the nation's 60 indigenous ethnic groups. Around 70% of the Amazon region has been allocated for oil exploration and drilling, and mining already affects more than 10 million hectares. Illegal logging also continues unabated (Dourojeanni *et al.*, 2010).

For this study, a few key markets were visited by the author in 2015 (Lima, Pucallpa, Tarapoto, Chiclayo) and stakeholders interviewed to assess the status of bird trade within Peru, trying to establish how the situation has changed in recent years.

¹³⁰ Private reserves are included as part of the National Protected Areas System

7.2 BIRDS OF PERU

With some 1,857 bird species, Peru ranks second in the world. It also has one of the highest numbers of endemic species (138). Up to 355 migrant species visit the country at some point during the year, either from North America or from the extreme latitudes of South America (BirdLife, 2017d). The extraordinary biological richness of the Humboldt Current flowing north along the coast harbors its own group of endemic seabirds and channels a wide array of cold water species from the southern oceans that make it one of the most diverse bird assemblages in the world's oceans.

There are 116 Important Bird Areas (IBAs) in Peru (BirdLife, 2017d), which encompass 15% of the country's territory and almost all of the globally threatened terrestrial bird species are included. Eighty-nine percent of all IBAs in Peru are found in coastal and Andean habitats as it is in these regions where most species with restricted distributions and those categorized as threatened, occur. A total of 121 globally threatened bird species (238 including NT) occur, which ranks Peru third globally in terms of its number of threatened birds (BirdLife, 2017d).



Great White Egret *Ardea alba* © Hugh Smith

TABLE 22. PERUVIAN BIRD SPECIES IMPACTED BY TRADE AND HUNTING PRESSURE, THEIR THREAT CATEGORIES IN DECRETO SUPREMO 004, 2014

Critically Endangered (CR)	Endangered (EN)
<p><i>Crax globulosa</i></p> <p><i>Pauxi koepckeae</i> endemic</p> <p><i>Penelope albipennis</i> endemic</p> <p><i>Podiceps taczanowski</i> endemic</p> <p><i>Rhea pennata</i> CITES I</p>	<p><i>Bolborhynchus pyropterus</i></p> <p><i>Aulacorhynchus huallagae</i> endemic</p> <p><i>Netta erythrophthalma</i></p> <p><i>Rollandia microptera</i></p> <p><i>Spheniscus humboldti</i> CITES I</p> <p><i>Vultur gryphus</i> CITES I</p>

Source: DS 004 MINAGRI-Serfor2014

	Vulnerable (VU)	Near Threatened (NT)
	<p><i>Ara militaris</i> CITES I</p> <p><i>Primolius couloni</i> CITES I</p> <p><i>Forpus xanthops</i> endemic CITES II</p> <p><i>Pyrrhura albipectus</i> CITES II</p> <p><i>Leptosittaca branickii</i> CITES II</p> <p><i>Touit stictoptera</i> CITES II</p> <p><i>Hapalopsittaca melanotis</i> CITES II</p> <p><i>H. pyrrhops</i> CITES II</p> <p><i>Harpia harpyia</i> CITES I</p> <p><i>Morphnus guianensis</i></p> <p><i>Spizaetus isidori</i></p> <p><i>Leptotila ochraceiventris</i></p> <p><i>Patagioenas oenops</i></p> <p><i>Aburria aburri</i></p> <p><i>Mitu salvini</i></p> <p><i>Ortalis erythroptera</i></p> <p><i>Penelope barbata</i></p> <p><i>Fulica rufifrons</i></p> <p><i>Neochen jubata</i></p> <p><i>Theristicus melanopis</i></p> <p><i>Phoenicoparrus andinus</i> CITES II</p> <p><i>P. jamesi</i> CITES II</p> <p><i>Nothoprocta taczanowskii</i></p> <p><i>Tinamus osgoodi</i></p>	<p><i>Ara macao</i> CITES I</p> <p><i>Ara chloroptera</i> CITES II</p> <p><i>Amazona festiva</i> CITES II</p> <p><i>Derophtus accipitrinus</i> CITES II</p> <p><i>Aratinga erythrogenys</i> CITES II</p> <p><i>Nannopsittaca dachileae</i> CITES II</p> <p><i>Pionus chalcopterus</i> CITES II</p> <p><i>Falco deiroleucus</i> CITES II</p> <p><i>Podiceps occipitalis</i></p> <p><i>Fulica gigantea</i></p> <p><i>Jabiru mycteria</i> CITES I</p> <p><i>Mycteria americana</i></p> <p><i>Phenicopterus chilensis</i> CITES II</p> <p><i>Platalea ajaja</i></p> <p><i>Mitu tuberosum</i></p> <p><i>Pipile cumanensis</i></p> <p><i>Andigena hypoglaucha</i></p> <p><i>Pteroglossus beauharnaesii</i></p> <p><i>Ramphastos ambiguus</i></p> <p><i>R. toco</i> CITES II</p> <p><i>Tinamotis pentlandi</i></p>

Just over 10% of all Peruvian bird species, 191, are part of the list of Legally Protected Threatened Wildlife Species (Table 22);¹³¹ five of the species are country endemics. Fifty-seven of the species—all of them non-passerines—are considered impacted by demand for trade, food or parts. This subset of species for which hunting and trade are a threat factor includes 5 (**CR**), 6 (**EN**), 24 (**VU**) and 22 (**NT**) species. Nine species are listed in CITES Appendix I, and 21 in Appendix II. Psittacines (16 species of 52 occurring in Peru) are the most represented family, followed by Cracidae (9 species of 16 occurring in Peru), raptors (Accipitridae and Falconidae; 5 species), waterfowl (15 species of 7 Families: Podicipedidae 3, Threskiornitidae 2, Anatidae 2, Rallidae 2, Spheniscidae 1, Ciconiidae 2, Phoenicopteridae 3), Ramphastidae (5 species of 19 occurring in Peru), Tinamidae (3 species), Columbidae (2), the Lesser Rhea *Rhea pennata* (Rheidae) and the Andean Condor *Vultur gryphus* (Cathartidae).

Other bird species in the National Threatened Species List are mostly small passerines with no interest from trade or for any other trapping purpose. The major threats for many of them are deforestation and water pollution, or they are seabirds that are abundant and legally protected because of their role in guano production. The only use legally allowed for these listed species is subsistence hunting by indigenous groups of the Amazon region. The List is supposed to be revised every three years, although the first was compiled in 1977 and subsequently updated in 1990, 1999, 2004 and 2014.

The Servicio Nacional Forestal y de Fauna Silvestre del Ministerio de Agricultura y Riego (SERFOR) has recently produced Action Plans for three emblematic threatened bird species: the Lesser Rhea *Rhea pennata* (SERFOR 2015a), the Andean Condor *Vultur gryphus* (SERFOR 2015b), and the White-winged Guan *Penelope albipennis* (SERFOR 2016). The plans were compiled to galvanize strategic actions by different stakeholders to prevent their extinction and facilitate recovery.

Bird-focused conservation projects in Peru include the Tambopata Research Project, since 1989 researching parrot ecology, particularly macaws, and the White-winged Guan Recovery Project (see Box 2) in the dry forests of the north of the country. Loro Parque Fundación supports population research and conservation in the Blue-headed Macaw *Primolius couloni* and the Grey-cheeked Parakeet *Brotozeris pyrrhoptera*.

Birdwatching tourism is a growing activity in Peru, and is much appreciated by authorities for the relatively high revenues it produces, thanks to the longer than average stays per trip (20 to 27 days), and expenses of up to USD3,000 per trip per person, one of the highest cost

¹³¹ Through the Agriculture Ministry's Supreme Decree DS 004 of 2014

profiles for travelers in Peru (PROMPERU, 2013). Rainforest Expeditions, a Peruvian ecotourism company, has since 1989 offered many different nature and birdwatching packages in the Tambopata area in Madre de Dios region. Other major birdwatching areas are situated near Iquitos in Pacaya-Samiria Natural Reserve, and protected areas in Tumbes and Lambayeque in the dry forests to the north of the country. PROMPERU, which promotes Peru's exports and tourism, has established three birdwatching regions dividing the country into north, central and southern routes where different endemic and notable species are highlighted. Sights include parrot clay licks, condors, seabird colonies, cock-of-the-rock mating leks or the Marvelous Spatuletail *Lodggesia mirabilis*, a hummingbird found in the dry canyons of the upper Marañón river, populations of which have recovered thanks to tourism incentives in the area (F. Angulo pers. comm., Sept 2015).

7.3 INSTITUTIONAL AND LEGAL DEVELOPMENTS

Since the creation of the first Servicio Forestal y de Caza in 1963 (Ley 14552), wildlife management and control issues have always depended on institutions that are a part of the Ministry of Agriculture; Direccion Forestal y de Fauna Silvestre since 1975, then Instituto Nacional de Recursos Naturales (INRENA), subsequently Direccion General Forestal y de Fauna Silvestre from 2008, and since 2010 SERFOR. The Ministry of the Environment, created in 2008, oversees biodiversity policy including protected areas, while the Agriculture Ministry through SERFOR maintains national oversight on forests and wildlife management and conservation.

Discussions that started in 2009 resulted in a new *Forests and Wildlife Law* (Ley Forestal y de Fauna Silvestre # 29763) in 2011; its ruling, compiled into four different texts, was finally approved in 2015. The law creates new institutions, decision making bodies and processes, and sets the decentralization process to give Regions¹³² many environmental management and control responsibilities, wildlife included. One ruling specifically deals with wildlife,¹³³ and another deals with forests and wildlife specifically by indigenous communities.¹³⁴ The wildlife ruling establishes SERFOR as the national wildlife authority, and the Wildlife Offices (ARFFS)¹³⁵ in each of the 24 Regions' governments within their borders are in charge of wildlife permitting and controls. OSINFOR¹³⁶ is the government agency in charge of supervising the performance of SERFOR and ARFFS regarding the permits they have approved for wildlife resources use (i.e irregularities happening outside State-authorized permit areas are not followed by OSINFOR). The ruling establishes all legal requirements for different types of activities that can legally be developed in Peru (wild population management, captive breeding, rescue centers, zoos, research, sport and subsistence hunting, falconry etc.) and sanctions against offenders.

¹³² Peru's territory is divided into 24 regions, the country's main subnational administrative entities, plus the El Callao Constitutional Province.

¹³³ Sanctioned through Decreto Supremo 019-2015. Ministry of Agriculture.

¹³⁴ Sanctioned through Decreto Supremos 021-2015. Ministry of Agriculture; The other two ruling texts deal with native forests and forest plantations respectively.

¹³⁵ Autoridad Regional Forestal y de Fauna Silvestre (ARFFS), a department of the Regional Government (Gobiernos Regionales)

¹³⁶ OSINFOR – Organismo de Supervision de los Recursos Forestales y de Fauna Silvestre (Forest and Wildlife Resources Supervision Organism)

A third opportunity for a Peruvian endemic: A new approach to the recovery of the Critically Endangered (CR) White-winged Guan

By Fernando Angulo, Centro de Ornitología y Biodiversidad (CORBIDI).

The White-winged Guan *Penelope albipennis* is one of 16 species of Cracids that lives in Peru and is categorized as (CR), both at the national and global level mainly due to hunting and habitat destruction. The species is endemic to Peru, inhabiting a strip of dry forests on the Pacific foothills of the northern Andes and part of the Tumbesian Eco-region in the departments of Piura, Lambayeque and Cajamarca. Its population is estimated at 200 individuals.

The species was discovered in 1877 and was believed extinct for almost a century until rediscovered. In the early 1980s, a captive breeding program was established with funding from a beverage company and between 2001 and 2007, 52 individuals were reintroduced to the wild. Four protected areas were specially created to aid in the recovery of the species, several awareness campaigns were developed and a series of legal measures were taken to ensure its recovery. The history of the struggle to recover this emblematic species is a symbol of conservation efforts in Peru over the past 30 years. However, the species's population status has not improved and it is still categorized as (CR). So, what has prevented an effective recovery of the species despite so many efforts and hard work in the last three decades?

In 2006 while trekking through the region's forests in search of the guan, myself and my companions found a campsite with guan bones where someone had supplemented their meal with a White-winged Guan. Disappointed, a short time later, we encountered the peasant with his rustic .16-gauge shotgun, and vehemently asked him why he had shot the guan—did he not know about its threatened status, its restricted distribution and risk of extinction? The answer was no; he had no idea about any special aspect of these birds that they had always hunted and every now and then enjoyed in a meal. Furthermore, he knew nothing about the term endemic, or what risk of extinction meant. At that moment, all the previous efforts and huge investments to bring back the species looked impotent when viewed through this mind-changing experience: the local inhabitants had never been approached!

Therefore, Asociación Cracidae-Peru and CORBIDI decided to rethink and redesign the whole approach to the recovery of the species, focusing efforts on education and outreach and highlighting the importance of conserving this species. This time, prioritizing the local communities that share their territories with the forests where the White-winged Guan lives. After so many years and invested resources, it was finally recognized that if this conservation effort kept excluding the people whose daily decisions affect the survival of the guan, it was never going to achieve its conservation aims. Awareness campaigns are now strategically planned following careful socio-economic studies of the region and its stakeholders, focusing efforts since 2009 on educating local people about facts they were not aware of. This increases their pride about protecting such a unique creature. The results are encouraging as positive awareness about the species and its importance as a threatened endemic and its habitat has grown. Local people's perspectives and perceptions about the value of the species as a living resource have greatly increased. We hope that in the coming years this new approach yields the expected conservation results, as part of a whole set of measures taken to recover the guan's population and the dry forests that also help conserve critical water resources in this dry region with its many unique biological values.

In January 2016, SERFOR produced a "White-winged Guan Action Plan (2016–2021) bringing together experts and stakeholders to "Increase the species's populations to keep its long-term viability."

Peru's National Police has been a key ally in the process of reducing and closing urban markets throughout the country in support of the environmental authorities. Their task has been developed from the Police's own "Direction of Environmental Protection" (Dirección de Protección del Medio Ambiente – PNP), which covers several environmental issues, among them, "*The control of the extraction of forest and wildlife, and the transformation and trade of its products.*"¹³⁷ Co-ordination with INTERPOL on wildlife crimes is carried out under this Direction. The environmental police also co-ordinate activities and information exchange with the police forces of neighboring countries.

The size of metropolitan Lima and its 10 million inhabitants, almost one third of the population of Peru, is covered by a special Wildlife and Forestry Department that is part of Lima's own Environmental Police Division. Each of the 24 Regions has its own group of Forestry and Wildlife Police officers dedicated to wildlife controls and investigations in support of the Region's environmental authorities.

A fundamental element in the fight against wildlife crime has been the General Attorney's Specialized Environmental Attorneys (FEMAS),¹³⁸ created in 2008 to "*prevent and investigate environmental crimes,*" co-ordinating with other agencies: SERFOR, OSINFOR, National Police and Customs.¹³⁹ FEMAS operate in each Region, including wildlife crimes in their complex agendas that cover all those illicit activities included in *Title XIII of the Penal Code*: illegal gold mining, logging, illegal fisheries, oil spills, etc., as well as those committed by organized crime networks. FEMAS is recognized by Dr. Noga Shanee, wildlife researcher, conservationist and activist, (Box 6; interview with TRAFFIC June, 2015) as one of the most collaborative and effective enforcement bodies in Peru. In her opinion, unfortunately when the cases arrive in judges' hands for prosecution, little if anything happens, so wildlife crime impunity is very high. Citizens can report wildlife crimes through a 1-800 phone line and through the National Attorney's web page.

A National Strategy to Reduce Illegal Wildlife Trade in Peru (2016–2021) was formulated in 2016 by SERFOR with support from WCS, to establish the main action lines, responsibilities and goals seriously to reduce current levels of wildlife crimes, co-ordinating efforts of different institutions at the national and subnational levels, with the participation of NGOs, experts and academia.

¹³⁷ https://www.pnp.gob.pe/direcciones_policiales/dirture/nosotros.html

¹³⁸ Acronym in Spanish of the Fiscalías Especializadas en Materia Ambiental, branch of the Ministerio Público-Fiscalía General de la Nación.

¹³⁹ http://www.mpf.gob.pe/fiscalias_especializadas/

7.4 DECENTRALIZATIONS: CURRENT RISKS AND OPPORTUNITIES

The most important institutional development in the last decade regarding wildlife resources is decentralization. As mentioned above, the new *Forests and Wildlife Law* has devolved management and control authority to the Regions' governments. The authority-granting process has been implemented in the Regions encompassing the Amazon portion of the territory, namely Loreto, Amazonas, San Martin, Ucayali and Madre de Dios. Decentralization is still to be finalized in other Regions falling along the Coast and in the Andes. Decentralizing governance of territories is generally considered a positive step in bringing government administration closer to citizens' needs, and budgets are better implemented in a more participatory environment, especially in a hyper-centralized country like Peru. However, in the case of wildlife resources, the decentralizing process has meant little advance beyond the previous arrangement where all decisions were taken in Lima. Regions now highlight the huge gap created by the devolution of responsibilities that has not been accompanied by the respective budgets to fulfill the management and control tasks. The national authority accepts that this situation might have been true for the first year after responsibilities were delegated to Regions, but considers that after the second year of authority delegation, the Regions should have started to allocate resources according to their priorities, and this did not happen.¹⁴⁰ The Regions blame Lima for not giving them the funds to accomplish their new responsibilities without strategically identifying income-generation opportunities to confront the challenges of protecting and managing the vast array of resources in their jurisdictions. This means current capacities are under-resourced to carry out all but the most basic functions, such as confiscations by police authorities and administration of documents regarding the live bird Commercial Hunting Calendar.

Additionally, the new administrative units within Regions are not implementing national policy and plans developed and agreed in Lima; thus many of those well intentioned policies developed by the Ministry of Environment and SERFOR have no guarantee of implementation in the huge Amazon Region. The new decentralized offices politically and administratively act on the Regions' governments agendas, since they are locally elected and respond to local political cycles and associated interests. These can only be overcome as the democratic exercise of participation by citizens evolves towards driving transparency and good governance. Decentralization has limited the likelihood of the country's compliance with national and international commitments for sustainable management of its wildlife resources, but at the same time offers new opportunities for better integration with local needs when honest and committed individuals are part of decision-making processes and implementation.

¹⁴⁰ Fabiola Muñoz, Director of SERFOR in video interview with TRAFFIC, June 2015.

7.5 PERU'S BIRD EXPORTS

According to the UNEP-WCMC CITES Trade Database, between 2000 and 2013 Peru commercially exported 20% of all CITES birds from Amazon countries comprising 37,233 birds. Almost all its CITES bird exports (36,534 individuals) belonged to nine species of psittacines of which the Cordilleran Parakeet *Psittacara frontatus* (split by BirdLife from the Scarlet-fronted Parakeet (*Aratinga*) *wagleri* and both species placed in the genus *Psittacara*) and Mitred Parakeet *Psittacara mitratus* were the most numerous, with 41% and 16.9% of all exports respectively. With this number of psittacines, Peru ranked 6th as world parrot exporter during this period. The other 2% of commercially exported birds were distributed between nine captive-bred raptor species,¹⁴¹ totaling 592 birds and two owls (50 individuals of the Spectacled Owl *Pulsatrix perspicilata* and the Peruvian Pygmy-owl *Glaucidium peruanum*), two hummingbirds (Amazon Hummingbird *Amazilia amazilia* and Sparkling Violetear *Colibri coruscans* with 10 birds each) and seven birds of two *Ramphastos* toucans. CITES bird exports suffered a big dip between 2005 and 2007 due to the EU ban on imports of wild birds. Numbers rebounded to 6,000 in 2007 from the low point of 800 birds in the previous year, but since then numbers have decreased year by year to 628 individuals in 2013.

Sinovas *et al.* (2017) consider that two psittacine species exported by Peru, the Cordilleran Parakeet *Psittacara frontatus* (NT) and Tui Parakeet *Brotogeris sanctithomae* (LC), meet the “noteworthy trends criteria” (i.e. exported numbers are high and/or indicate a sharp increase) for the period 2005–2014; a CITES Review of Significant Trade should be developed for both species to prevent further possible impacts on their populations from international trade.

Non-CITES listed bird species are captured throughout Peru, all for the export market. According to the USFWS Law Enforcement Management Information System (LEMIS) database, Peru was the most important Amazon bird-exporting country to the USA (2003–2012), contributing 67% (74,783 birds) of the total from the region (Reuter and Mosig, unpub.). This number comprised 20% taken from the wild (15,279) and 80% captive bred (59,504). The most imported non-CITES Peruvian bird species into the USA were songbirds with the Saffron Finch *Sicalis flaveola* representing 25%, Hooded Siskin *Spinus magellanicus* 12%, Black Siskin *Spinus atratus* 8%, Grassland Yellow-finch *Sicalis luteola* 5% and Blue-black Grassquit *Volatinia jacarina* 4% (TRAFFIC, 2015). USA imports of Peruvian birds have been decreasing since 2006 when about 13,000 were imported from Peru, and currently the numbers are a couple of hundred per annum.

¹⁴¹ Peregrine Falcon *Falco peregrinus*, Aplomado Falcon *F. femoralis*, Bat Falcon *F. ruficularis*, Harris's Hawk *Parabuteo unicinctus*, Variable Hawk *Geranoaetus polyosoma*, Black-chested Buzzard-eagle *G. melanoleucus*, Bicolored Hawk *Accipiter bicolor*, Ornate Hawk-eagle *Spizaetus ornatus*, Black Hawk-eagle *S. tyrannus* and Black-and-white Hawk-eagle *Spizaetus melanoleucus*.

How Peru lost sovereignty over a species: The case of the Blue-headed Macaw *Primolius couloni*

UNEP's Convention on Biological Diversity (CBD, 1992) reaffirms in its Preamble that countries (Parties) have sovereign rights over their biological resources, and one of its three Objectives is the equitable distribution of benefits from biodiversity. However, the way another UNEP Convention, CITES, operates, an Appendix I listing of a species can result in the effective withdrawal of sovereignty and economic benefits from the country of origin of the listed species. The 2003 inclusion of the Blue-headed Macaw *Primolius couloni* (*Ara couloni*) in Appendix I is a case that helps illustrate this unexpected spin that places the possible economic benefits from the use of this species in the hands of private operators in Asia, Europe and Africa, with range States running with all the conservation costs in remote regions where enforcement is very difficult and expensive. Most of the CITES Appendix I-listed parrot species are actively reproduced and traded on other continents, with a few projects channeling some funds to help *in situ* conservation of some of those species and their habitats.

The Blue-headed Macaw (VU) is a little-known species from the south-central Amazon of Peru and neighboring areas of Brazil and Bolivia with at least 70% of its distribution within Peru. It has a patchy abundance throughout its range, and a small number but regular confiscations during the late 1990s (up to 150 birds) led to its uplisting to CITES Appendix I (CoP12, 2002) after it had been in Appendix II since 1981. Germany, on behalf



Blue-headed Macaw *Primolius couloni* © Linda De Volder

of the EU, submitted the proposal, which was later joined by Brazil as co-proponent. This parrot was virtually unknown in trade beyond Amazon countries until 1997. By 2002, there were 150 birds in the Czech Republic and Slovakia, with at least 50 smuggled through Russia. It reached Brazilian markets in the hundreds, and foreign traders were actively buying groups of 20–30 birds in the Bolivian Amazon by 1995. International trade increased tremendously between 1995 and 2000, although surprisingly, all birds in trade were reported as captive bred. Peru reported legal exports of 16 wild-origin birds between 1983 and 1999, although imports by others only accounted for nine specimens, seven of them confiscations. The CITES Appendix I-inclusion proposal document stated that “It is very likely that all captive *Ara couloni* in Europe and anywhere are illegal, except for those confiscated and entrusted in zoos.”

After the species was included in Appendix I, the German CITES Management Authority (Mr. Muller-Boge) consulted the Peruvian CITES Authority (Biologist Rosario Acero, Head of Biodiversity Conservation, INRENA) about a request Germany received in February 2004 to import specimens of the Blue-headed Macaw from captive bred animals in the Philippines. The Peruvian Authority responded (copy faxed to TRAFFIC 13 February 2014) with a recount of three legal measures produced in 1973, 1990 and 1999 that reiterate the prohibition of the export of this species as it was included in Peruvian lists of endangered species banning harvest for trade (even though as noted above, there are reports of 16 wild origin birds exported from Peru between 1983 and 1999). The Peruvian Authority requested Germany to allow the imports only if the legality of the original breeding stock was demonstrated by the Philippines according to CITES requirements.

Between 1993 and 2013 (a whole decade in Appendix II), there were accounts of the export of 329 birds by 11 countries (Peru + 8 European, 1 African and 1 Asian), with only 24 originating from Peru itself (two exports of 12 birds each, one to Mexico, the other to South Africa) as captive bred. The Philippines (which since 2003 placed a Reservation on this species's inclusion in CITES Appendix I) has turned into the major exporter of this species (132 birds), followed by the Czech Republic (57) and South Africa (36). According to comments posted online, it is a very rare species in trade in the USA, it is mainly in the hands of specialist collectors. Birds can be found on the internet for around USD10,000 a pair (<http://www.birdbreeders.com/bird/140475/blue-headed-macaw>; revised July 2017). The species is also bred in the Al-Wabra Wildlife Preservation facilities in Qatar for conservation purposes, and by Loro Parque Fundacion in the Canary Islands, which also supports population assessment projects in Peru. There is currently one breeding facility in Lima that has some Blue-headed Macaws without any commercial intentions (Rosa Vento SEFOR, pers. comm.). Some resources have been invested to explore the status of the wild populations of the Blue-headed Macaw in Peru (Kyle, 2007; Tobias and Brightsmith 2007; SERNAP-Fundación Loro Parque 2010). The Blue-headed Macaw case is not an isolated one; range countries of Appendix I-listed species have called on CITES to help clarify the origin of the breeding stocks currently in the hands of commercial breeders outside their range States, with little success. This obviously favors the *ex situ* monopoly that has been created in a number of cases.

7.6 THE COMMERCIAL HUNTING CALENDAR

Every year, the Ministry of Agriculture publishes a list of wild bird species allowed for capture for the pet trade. The total number of birds allowed to be exported per species from the different regions is specified, as well as trapping seasons and fees to pay to SERFOR per individual of each species. In 2015 (*Resolución* MINAGRI 0334-2015), the list included 104 species (close to 6% of the country's terrestrial bird species) belonging to 23 families (11 of them passerines) allowed to be captured in 20 of the country's 24 provinces, and later mobilized, stored and exported. The total number of birds allowed for 2015 was 73,485 with a diverse range of numbers for different species. The following are some highlights of this bird export Commercial Hunting Calendar:

- Numbers allowed: These range from just 30 Black-tailed Trogons *Trogon melanurus* to 5,500 Hooded Siskins *Spinus magellanicus*. Quotas for 12 species of the genus *Tangara* range between 200 for Golden-eared Tanager *Tangara chrysotis* and 800 for Bay-headed Tanager *Tangara gyrola*, while the total number of exported tanagers is 6,040, averaging 503 birds per species.
- Fees paid: The fees to pay per individual bird range between PEN0.64 (USD0.20 at rate of 3 July 2015 when quota was published) for each Chestnut-bellied Seed-Finch *Sporophila castaneiventris* with a total quota of 3,000 birds, to PEN75.00 (USD23.81) for the two species of aracarís (Chestnut-eared Aracarí *Pteroglossus castanotis* and Ivory-billed Aracarí *P. azara*). The six species of parrot range between PEN5.25 (USD1.67) for the Pacific Parrotlet *Forpus coelestis* and PEN7.47 (USD2.37) for the Mitred Parakeet *Psittacara mitratus*.
- Changes in 2015: The list was expanded in 2015 with three new species added, namely the West Peruvian Dove *Zenaida meloda*, Scrub Blackbird *Dives warczewiczii* and Opal-rumped Tanager *Tangara velia*. Quota numbers increased in 2015 for nine species and were halved for one species, the Highland Tinamou *Nothocercus bonapartei*, from 800 to 400. The number of avian species with quotas has nearly doubled from 56 in 2001 to 104 in 2015, although the maximum number of potential exports decreased overall by 15%, from 86,600 to 73,485 individuals between 2001 and 2015. Numbers of birds per species have not changed significantly but the fees have increased by small amounts for most (mainly by a few cents, except for the Golden Tanager *Tangara aurulenta* that increased from PEN7.72 to 12.30 (59% higher)). There is no information available about the justification for adding new species to the Calendar, nor the rationale for increases and decreases in quotas per species.

7.7 HOW THE BIRD EXPORT BUSINESS OPERATES IN PERU¹⁴²

From 1990 to 2000, quotas per species were distributed equally between exporting companies that submitted a request for a particular species. Since 2000, quotas have been distributed per species between registered hunters in different Regions. The new system gave hunters/trappers and middlemen greater control as the exporting companies had to compete for the hunters/trappers' birds. To secure their supplies, companies started paying for all the permitting, travel expenses and export fees per bird, plus paying workers by the day. It is likely that these increased operational expenses were the reason why most of the export companies closed. In 2005 there were 26 companies, and by 2017 there were only two in business (one only operating partially), with a new one soon to open.

ZOO and ZOO is the company that currently manages up to 80% of the exports from the annual quota, a family company in operation since 1976. It is currently run by the daughter of the original founder, Mr. Victor Padilla, whose company was called V.S. Padilla & Co., S.A. and based in Lima. The weight of the hunter/middlemen's agenda in the running of the business pushed exporters (who are also registered as hunters and acquire the right to receive parts of the quotas) to arrange their own networks of trappers that catch and store the birds before they are transported by airplane (when there are regular commercial flights to Lima, otherwise the birds are sent in long-distance buses to Lima). ZOO and ZOO has tried to work with the Awajún indigenous communities of the Northern Amazonas province on the border with Ecuador. These people were happy to receive a new source of income from live bird sales, although their alleged increasing demands for money, gifts and favors made it increasingly difficult for the exporters to work with them. The relationship with Andean indigenous communities, however, has been smoother as they are more culturally used to complying with business arrangements, following bird-capture guidelines and the general management of the activity. Bird sales bring much welcomed cash income to these communities in the lean months after their crops are harvested and sold. In many other places, the hunters are welcomed by farmers as the capture of birds reduces their impacts on cereal and fruit crops.

Currently not more than 30% of the annual Commercial Hunting Calendar allowance is used for most species, although for the most in-demand species, up to 60% of this allowance is used. Currently the birds in highest demand are CITES Appendix II-listed species, namely the Red-masked Parakeet *Psittacara erythrogenys*, Mitred Parakeet *Psittacara mitratus*, Tui Parakeet *Brotogeris sanctithomae*, and non-CITES species Saffron Finch *Sicalis flaveola*, Golden Grosbeak *Pheucticus chrysogaster*, Black Siskin *Spinus atratus*, Hooded

¹⁴² All information from an interview granted to TRAFFIC by Ms. J. Padilla, owner and manager of ZOO and ZOO Co., June 2015.

Siskin *Spinus magellanicus*, Green Jay *Cyanocorax yncas*, Southern Band-tailed Pigeon *Patagioenas albilinea* and Bare-faced Ground-dove *Metriopelia ceciliae*. According to ZOO and ZOO, death rates have been close to zero in shipments of up to 200 birds to the USA, and on a longer trip to Kuwait, two birds were reported dead on arrival. Birds are stabilized in suitable housing conditions for up to 45 days before the export trip, according to the requirements of destination countries.

Non-CITES bird species (for example the Green Jay, Southern Band-tailed Pigeon and Social Flycatcher *Myiozetetes similis*) are mainly exported to the USA, with CITES Appendix II-listed birds being banned from entering the USA. Kuwait, Taiwan and Mexico are the main export destinations of the CITES Appendix II-listed psittacine species. Mexico's mandatory 45-day quarantine period and blood test screening for avian diseases (1 sample for each 59 birds in every shipment), makes it very expensive to export there.

Peruvian birds are bought by zoos, for bird collections or for the pet business and many are re-exported to other countries. According to the annual ministerial decree that sets the annual quotas, the money collected by the government from the fees paid by exporters per bird should be used to undertake bird population assessments, although this has seldom been carried out and has had limited benefit. In 2008, an importer from the USA donated USD13,000 to support the development of these studies and little is known about how this money was used.

Since 2003, the *Museo de Historia Natural del Perú*, has been undertaking bird censuses in regions where the Commercial Hunting Calendar authorizes trapping of certain species. The objective is to assess species' population status and make recommendations on Calendar management (Franke and Salinas, 2003). The methodology used for calculating bird densities is non-systematic and hence the results should be viewed with caution. Nevertheless, useful advice is provided including the timing of harvest seasons in relation to species' reproductive cycles.

In 2014, the Ministry of the Environment (DGDG-MINAM, 2014) commissioned a study carried out by the National Museum of Natural History of the Universidad Mayor de San Marcos (UNMSM) and Instituto de Investigaciones Amazonicas del Peru (IIAP), the two Peruvian CITES Scientific Authorities for terrestrial fauna. The study assessed the conservation risks in the harvest of seven parrot species, the only CITES Appendix II-listed species currently included in the annual Commercial Hunting Calendar. The *Dictamen de Extracción No-Perjudicial (DENP) para Psittacidos de Importancia Comercial* (or Non-Detriment Finding for Psittacids of Commercial Interest) concluded that for the analysed

species, the proposed quota numbers, their geographic harvest areas and trapping seasons, “Do not represent a threat to the populations of these species in their natural habitats,”¹⁴³ allowing SERFOR to formulate the annual *Commercial Hunting Calendar for Vertebrates* in compliance with CITES Appendix II requirements. However, it should be noted that the population assessment methodology was not clearly documented, as highlighted by local experts who consider the studies inadequate for guiding decision making.

The listing of a species in a CITES Appendix can complicate the import process into the USA in such a way that for example, a USA importer will not buy the Chestnut-eared Aracari *Pteroglossus castanotis* from Peru because Argentina has included its populations in Appendix III, complicating the import process for this species from any country.¹⁴⁴ As a way to avoid these complications, ZOO and ZOO plans to captive breed some toucanet and aracari species (genus *Pteroglossus* and *Aulacorhynchus*) as, in their opinion, the business requires new approaches.

Daut *et al.* (2015) conclude that the export Commercial Hunting Calendar system and the dynamics it creates is resulting in increased illegal bird trade within Peru.

7.8 SHORTFALLS OF THE COMMERCIAL HUNTING CALENDAR SYSTEM

The management of the current bird export Calendar has no requirements to prevent or report on mortality rates during capture, storing or transport to export points. There also is no traceability system from the place of capture to export. Of key importance, there is no means of verifying that the capture of the authorized species is not impacting other species caught in mistnets, one of the main tools used for capturing the Calendar birds (and which was previously noted to be increasing in availability online). Mistnets indiscriminately capture any bird species. This avian bycatch can have significant impacts on non-target birds including rare, endangered or migrant species. In forest areas, nets are operated from ground to canopy level up to 12 meters high, targeting the 13 species of tanagers in the Calendar (J. Padilla pers. comm.). There is no certainty about the way individual hunters deal with the inevitable capture of dozens of non-target species. There is a lack of training and awareness about reducing the harm to non-target birds, and there are no sanctions for the misuse of mistnets. The annual Commercial Hunting Calendar allows only relatively common species to be captured, but the system could be having important impacts on more conservation-sensitive species. There has never been technical monitoring of this activity to assess the magnitude of its greater impact on the bird fauna in areas where trapping occurs.

¹⁴³ “...no ponen en peligro a las poblaciones de estas especies en sus habitats naturales”

¹⁴⁴ Julith Padilla, ZOO and ZOO general manager, personal interview with TRAFFIC, June 2015.

Dauphine (2006) offers the only known published account of the impacts of live bird trapping undertaken in terms of the annual quota for export. His investigation focused on the Paradise Tanager *Tangara chilensis* occurring in the forest canopy in the Loreto Region of the Amazon. These tanagers are trapped within the Allpahuayo-Mishana National Reserve (despite being protected from any commercial exploitation as stipulated in the annual resolution setting quotas). Dauphine was offered a Ferruginous Pygmy-owl *Glaucidium brasilianum*, trapped by a hunter who had spent several days in the reserve using canopy nets to capture his quota of 60 Paradise Tanagers, who said many non-target species caught in his nets were killed and discarded. Species suitable for the pet trade are kept, other species are killed. Dauphine obtained this information from a park ranger who had observed the trapping but had apparently done nothing to stop it. Dauphine makes other interesting observations on the sources of live birds that enter trade. Fewer birds are trapped in indigenous-controlled areas of the northern Peruvian Amazon than in areas where there are cash-poor colonist villagers. The latter trap birds to sell to travelers and shoppers for small amounts of money. Birds are transported by traders on large and small river boats on the Ucayali and Huallaga Rivers with no apparent intervention by enforcement officials.

“...officers at road checkpoints appeared to have knowledge of a Peruvian law prohibiting a single individual from owning more than three individual birds. On the road from Yurimaguas to Tarapoto [San Martín], I was traveling in a group including a bird trader who was transporting more than 10 parrot nestlings who was delayed at several Customs checks; presumably these delays were resolved by bribes of unknown amounts, as the trader successfully passed through the checkpoints following brief private meetings with the Customs officers” (Dauphine, 2006).

Dauphine is also the only author who has reported on the major problem of the open sale of mistnets in Lima. The nets are offered for the protection of crops from birds or controlling bats. Mistnets offered in Lima markets as “redes japonesas” (Japanese nets) are also available through the internet, advertised for control of vampire bats, bird damage to crops and for biological monitoring. In some places, biological control is carried out by placing mistnets next to crops, indiscriminately killing thousands of birds of many species. For some of these netted species, the loss of birds could be equivalent to the surplus individuals generated by the additional food source created by the raided crops themselves, so the net impact on their populations could be negligible. However, the impacts on many other bird species, such as hummingbirds or raptors, are potentially serious. The open sale of mistnets in Peru and their indiscriminate use has potential to harm the bird fauna of the country as a whole.

Seabirds and guano: A recovering wild bird product unique to Peru

Miller (2007) highlights guano protection as an example of an autochthonous resource conservation program that started in the early 20th century. Typical of many conservation efforts, officials over-seeing guano collection focused their attention on the natural resources with direct benefit to humans—the birds and their nesting sites.

Guano (accumulated bird droppings) has regained interest during the last decade in Peru. During the 19th century this product created huge fortunes in Peru and led to a war with Chile with important consequences for Bolivia, who lost their Pacific coast dominions and hence their maritime connection. Nesting seabird colonies (Peru's "billion-dollar birds" Cushman, 2013) have thrived for millions of years, based on the biological productivity of the Humboldt Current that brings cold waters from Antarctic oceans, but have been severely affected by overfishing for anchovy (*Engraulis ringens* and *Odontestes regia*) since the 1960s. Combined with severe periodic "El Niño" events, anchovy levels have collapsed, leading to the plummeting of bird populations, only to increase again later when favorable conditions return—a typical boom-and-bust cycle (Cushman 2013), which is reflected in the varying accumulation of guano at nesting sites.

From about 1906, Peru began to take guano conservation seriously, hiring foreign fish and bird experts (for example William Vogt, who worked for the Compañía Administradora del Guano in Lima, and famous seabird scientist Robert Cushman Murphy) as consultants in a national effort to turn the guano industry from its destructive dead end towards sustainable yields. Legislation protected the birds' nesting sites and regulated guano harvesting. A sizable government-paid staff of researchers and bird guards were placed in the guano management authority, an institution created to deal with the sustainable use of the resource. Within a short time, Peru's annual guano yields quadrupled (Miller, 2007). Peru banned guano exports to reduce demand in the interests of promoting sustainable and competitive national agriculture. The zeal to protect guano-producing birds led to the killing of any bird that would attack the nests; thousands of gulls, condors and peregrine falcons were killed by the guards that were protecting the guano-producing seabirds from human predation. In 1917, 5,000 gulls were shot in just two months in the southern islands to protect the cormorant eggs that would help produce the following year's guano.

As guano recovered its value as a natural source of fertilizer for agriculture within Peru and abroad, all 22 coastal islands and groups of islands, plus 11 key nesting sites on the coast ("puntas guaneras") were declared protected areas in 2009 (Reserva Nacional Sistema de Islas, Islotes e Islas Guaneras, covering a total of 14 833 ha) as part of the National Protected Areas System. A USD10 million project funded since 2014 by the World Bank supports the consolidation of a conservation strategy and actions to protect the guano birds' nesting sites better for the next five years. Since conservation actions began in 2009, bird numbers have doubled to 4 million, a fraction of the estimated hundreds of millions that could have existed before industrial fisheries developed for fish meal production. The main guano species are all included in the national List of Legally Protected Threatened Wildlife Species (Decreto Supremo MINAGRI No. 004, 2014) either as Endangered, Vulnerable or Near Threatened, which protects them from any commercial use or even subsistence hunting.

This example of political will supporting bird conservation, despite pressure from the fisheries sector, demonstrates that well thought out social and economic arguments can, in a short space of time, reverse natural resource depletion. Guano is distributed free of charge as a fertilizer to the poorest Andean subsistence farmers and indigenous communities, an act that carries great political weight.

“Biological Control:” A new use for native raptor species in South America

Biological control using raptors is a growing activity in the coastal region of Peru. They are used to control birds that cause damage to crops or to disperse gulls that pollute fisheries unloading in ports. Using falconry techniques to reduce bird damage is considered an environmentally-friendly solution for export commodities, compared to the use of chemicals or shooting the birds. Nevertheless, the extraction of raptors from wild populations has affected certain species used to keep birds away from vineyards, quinoa crops and grain storage facilities. Those factories that deal with anchovy for human consumption or export with high hygiene standards need to keep gulls away to avoid their excrement getting onto the produce. Falconry is regulated by Agriculture Ministerial Decree 148 of 2012 that allows a set of 17 raptor (Falconidae, Accipitridae) and owl (Strigidae, Tytonidae) species to be bought from breeding facilities or captured from the wild under strict conditions, although as outlined below these controls are seldom enforced.

There are currently some 30 small companies and 20 individuals that offer biological control solutions, only a few of whom use birds produced in legal facilities (“El Huaico” (<http://www.corbidi.org/zoocriadero-el-huayco.html>) raptor breeding farm near Lima sells birds for the local market for USD500, one third of the USD1,500 paid by international markets, to make legal captive-bred birds more competitive for these small companies, hence reducing harvesting from wild populations (pers. comm. Jose Antonio Otero, owner of “El Huaico”). The pressure on wild populations of medium-sized raptor species (Peregrine Falcon *Falco peregrinus*, Aplomado Falcons *F. femoralis*, Harris Hawk *Parabuteo unicinctus*, goshawks *Accipiter* spp. and Black-chested Buzzard-eagle *Geranoetus melanoleucus*) remains high due to the continuous need to replace birds that fly away. In January 2016, four Harris Hawks that had been illegally captured and used for biological control were confiscated in Chiclayo on the northern coast of Peru.

In March 2016, SERFOR opened the option to capture raptors from the wild for biological control or falconry through Executive Resolution #066 of April 1, 2016, setting guidelines about the 10 species allowed, as well as numbers, management of birds, etc.



Harris Hawk *Parabuteo unicinctus* © Nick Goodrum/CC BY 2.0

7.9 ILLEGAL DOMESTIC MARKETS

WCS Peru (2016) reports 29,591 birds confiscated between 2000 and 2015, an annual average of about 1,850 birds. Of all wildlife confiscated during this period, birds made up the highest proportion (43%), followed by amphibians (40%), reptiles (13%) and mammals (4%). A fraction of these birds were confiscated at Lima airport or at international border checks on their way to international destinations like Ecuador, Chile or Bolivia.

Gastañaga *et al.* (2011) estimated that during the first decade of the 2000s, between 80,000 and 90,000 wild birds were illegally traded in Peru every year. Since Begazo's (1989) first market analysis in Lima which found 118 bird species,¹⁴⁵ several studies in the last decade have reported abundant live bird sales in markets throughout the country (Pautrat 2002, Rios *et al.* 2008; Dauphine 2006; Ortiz 2010; Gastañaga *et al.* 2011; Miranda 2012). Mendoza and Cavero (2013, 2014, 2014b) also monitored several markets throughout Peru between 2007 and 2012, offering information about bird diversity at the time in those markets; for example, there were 40 bird species, half of them psittacines, in two different markets in the Tumbes region which borders Ecuador. At Bellavista, the main market in Pucallpa, 44 bird species, 27 of them psittacids, were openly sold. It is interesting to note that, in the heart of the Peruvian Amazon region where there are many psittacine species, at least three species from the coastal forests were found in this Pucallpa market¹⁴⁶ an unexpected internal illegal trade dynamic probably motivated by people that migrated from the coast to the Amazon and seek the species they are most familiar with. This trade is facilitated by road connections between the coastal cities and Pucallpa. In the Belen Market in Iquitos, the capital of the Loreto region, 74 bird species, 21 of them psittacines, were registered.

However, by mid-2015, open bird sales had virtually vanished from most markets and streets throughout Peru. The few birds currently on sale are a mere fraction of the volumes and diversity that were available a few years ago. Psittacine species continue to be the most sought and traded species, for some of which there are still major trade pressures that threaten the future of many populations.

The shrinking of open markets started in Lima in the 1990s. By the time Pautrat (2002) did her wildlife market research in 2000, wild animals were scarce in shops in Lima's Mercado Central as a result of the periodic confiscations by authorities, although a total of 30 species were identified during three different visits between October and November that year. The recent drastic reduction in live birds at Lima's Mercado Central and the main market in

¹⁴⁵ The most traded wildlife species were the Red-masked Parakeet *Psittacara erythrogenys*, Grey-cheeked Parakeet *Brotogeris pyrrhoptera*, and Green Iguana *Iguana iguana*

¹⁴⁶ Pacific Parrotlet *Forpus coelestis*, Cordilleran Parakeet *Psittacara frontatus* (split by BirdLife from the Scarlet-fronted Parakeet (*Aratinga*) *wagleri* and both species placed in the genus *Psittacara*) and Red-masked Parakeet *P. erythrogenys*.

Tarapoto is attributed by Daut *et al.* (2015) to the persistent pressure by NGOs on authorities, prompting their confiscatory actions. During the present study, no more than six “pihuichos” *Brotogeris* spp. were found by the author in a single count in July 2015 in Pucallpa, although as experienced elsewhere in Peru, placing personal orders could get almost any desired species. Shanee (2015) accounts for the significant decrease in live animal selling in the Pucallpa market to be the result of law enforcement action by Ucayali’s Fiscalía Especializada en Materia Ambiente (FEMA), since April 2014. This was based on tip-offs by local people provided to the campaign outlined below. Prior to these actions, hundreds of animals could be found daily with numbers increasing during weekends. The ongoing nature of enforcement actions are aimed at preventing the resurgence of wild animal sales. Nevertheless, reports about wild animal confiscations are still frequent throughout the country as authorities maintain the pressure on urban markets.¹⁴⁷ Begazo’s (1989) study undertaken almost 30 years ago describes the same live-bird sale techniques used by shop owners observed in July 2015; the larger macaws, parrots, primates and other species are kept hidden in rooms inside the shops or stored somewhere nearby to keep them away from the authority’s view. Early in 2016, the UK television Channel 4 program *Unreported World: Peru’s Monkey Business*, aired an undercover operation in Iquitos¹⁴⁸ to highlight the wildlife trade problem in the city.¹⁴⁹ In a co-ordinated bust with prosecutors (the “fiscalia”) and wildlife experts, a woman was caught while delivering some dozen animals¹⁵⁰ to the program’s fake buyer in a hotel room. This red-handed trafficker was claimed to be “the largest wild animal trader in Belen market” and she was fined and received a two-and-a-half-year prison sentence (Neotropical Primate Conservation, 2017). This operation offers several important insights into current live animal trade in what used to be the largest wildlife market in the country:

- The busted live animal business was run from a house near Belen market. Interested buyers, those who asked around for wild pets, were directed to the business owner who took them to the house to show them the available animals, negotiate a price and delivery in a way that avoided the authority’s intervention.
- The animals filmed inside the house and those later taken to the hotel room were a diverse assembly (some 15 species including snakes, young Caiman Lizards, baby Spectacled Caimans, tortoises, baby marmosets, a baby peccary, Kinkajou, parrots, etc.) rather than a wildlife trade business that specialized in certain group(s) of species. It was more a place that local people knew would buy whatever animal they caught, emphasizing the argument that wildlife means to most people little more than a welcome source of cash.

¹⁴⁷ <http://elcomercio.pe/whatsapp/sucesos/pucallpa-animales-silvestres-son-ofrecidos-mercados-fotos-noticia-1842776>

¹⁴⁸ Ade Adepitan goes undercover in Peru to reveal the shocking scale and the brazen nature of the illegal trade in protected wildlife in the Amazon jungle. <http://www.channel4.com/programmes/unreported-world/on-demand/65524-001> <https://www.youtube.com/watch?v=9xBdF5W6eTk&app=desktop>

¹⁴⁹ Recalling the above reference (Mendoza and Caverio 2014b) found 74 bird species in Belen market between 2007–2012; at the time the TV program was filmed, no wild bird species were found openly for sale.

¹⁵⁰ Two each of tortoises *Geochelone* sp., Spectacled Caimans *Caiman crocodylus*, Caiman Lizards *Dracaena guyanensis*, marmosets *Saguinus* sp., capuchins *Cebus* sp., agoutis *Dasyprocta* sp., one Speckled Chachalaca *Ortalis guttata* LC and two Orange-cheeked Parrots *Pyrilia (Pionopsitta) barrabandi* NT

- Even though the TV program highlighted the situation as a concerning conservation problem of “...*shocking scale and...brazen nature...*” in which many animals suffered captivity and mistreatment, the reported case showed a low-intensity trade affecting a few species in small numbers and unlikely to pose a significant threat to them—unlike events in Iquitos in the last 60 years.
- The effective action of authorities and the short time it took to prosecute the trader were good signs about the effectiveness of the system to stop illegal wildlife trade in Iquitos. The pressure from the media, experts and NGOs seem an important motivator for co-ordinated action by authorities to contain a problem that until recently had been largely uncontrolled in Iquitos. For the majority of the population, wildlife trade is considered part of the local culture, leaving little room for education initiatives and the environment in general.

Even though the root causes for illegally harvesting species remain in place (poverty, wildlife *de facto* considered by local people as a free access resource, weak institutions, absence of incentives for conservation, corruption); if the demand-offer cycle keeps diminishing as animals vanish from the public eye (i.e. availability of birds is limited to those who ask for them), the whole illegal trade dynamic can be expected to continue decreasing as it has in Ecuador and certain parts of Colombia.

As most markets have considerably shrunk, large confiscations occasionally take place when numbers of birds are transported in public buses on their way to intermediate or final destinations. Recent confiscations of significant numbers of White-winged Parakeets *Brotogeris versicolurus*, the most traded bird in Peru, en route to markets include:

- **November 2007:** 200 birds from a long-distance bus en route to Lima from the Amazon city of Tingo Maria; no arrests were made.
- **August 2008:** 500 birds from a long-distance bus en route Tarapoto to Lima, a 984 km trip (Rios *et al.*, 2008); no arrests were made.
- **September 2015:** At least 1,000 birds seized from a long-distance bus in Bagua Grande en route from the Amazon to the coastal city of Chiclayo; 3 people were detained.
- **October 2015:** 90 parakeets plus 104 Green Iguanas seized from a bus en route from Sullana to Lima; one person was detained.

The most critical trafficking season runs from August to November, which coincides with the end of the nesting season for parrots in the dry forests once the chicks poached from

nests can survive the journey to markets in Lima, Chiclayo or northwards into Ecuador. F. Angulo confirmed (email to TRAFFIC on 5 October 2015) that in September and October 2015, the Red-masked Parakeet *Psittacara erythrogenys*, Pacific Parrotlet *Forpus coelestis* and Gray-cheeked Parakeet *Brotogeris pyrrhoptera*, appeared in small numbers: 6, 15 and 2 respectively in Chiclayo's central market. None were recorded in the same market the previous June.

Species in the genera *Brotogeris*, *Forpus*, *Aratinga*, *Psittacara*, *Amazona* and *Ara* are the most traded and sought-after in markets. These include threatened endemics like the Yellow-faced Parrotlet *Forpus xanthops* (VU) and globally endangered species like the Gray-cheeked Parakeet *Brotogeris pyrrhoptera* (EN). Both Rios *et al.* (2008) and Gastagna *et al.* (2011) recognize that illegal trade is a much more severe problem in the northern and central portions of the Amazon (Loreto and Ucayali Regions respectively), while it is better controlled in the southern portion in Madre de Dios where several confiscations and awareness campaigns have reduced numbers of birds on offer in markets (Pautrat, 2002).

As in other Amazonian countries, jungle lodges and hotels have traditionally kept live wild birds, mammals and reptiles on display in their gardens to improve their attractiveness to guests and to enhance the "Amazonian experience." This practice has been greatly reduced through the commitment of lodge owners who have stopped buying animals offered by indigenous local people, who found in these buyers a source of income (Pautrat, 2002).

D. Brightsmith (pers. comm., August 2015) does not consider that the Tambopata area in the southern Peruvian Amazon (Region Madre de Dios) has been significantly affected by poaching of nests or birds for wildlife trade since 1989 when the Tambopata Macaw Project and associated tourism facilities started operating. The recent threat from increased illegal gold mining in Madre de Dios could generate new illegal wildlife trade dynamics including in well-conserved habitats and protected areas. These activities will require early detection and a co-ordinated response by authorities, local communities, project networks and tourism enterprises, as well as concerned citizens.

An individual's brave struggle to stop illegal wildlife trade

Noga Shanne, scientist, wildlife biologist and activist, is director of the NGO Neotropical Primate Conservation based in Amazonas, Peru. Noga settled in Peru to study and protect primates in the northern Amazon mountains of the Amazonas region. She quickly witnessed the severe threat that illegal wildlife trade poses for many species and decided to take action. Noga created an email account (denunciafauna@gmail.com) where citizens can confidentially report cases of illegal trafficking and possession of wildlife throughout Peru, which are then transmitted to authorities, whose enforcement actions are monitored. Noga organized this public reporting campaign as she was frequently receiving information not only about illegal trade in primates, which was her initial interest, but about a wide diversity of species. She thus expanded the scope of her campaign to report all illegal wildlife trade incidents. Since the start of the campaign in April 2014 to January 2015 she received 74 different reports from 13 regions. People send their report to the email address because they are unaware of where and how to contact the environmental authorities in their own regions. Although some members of the public do not believe tip-offs will generate any effective reaction, others consider the authorities to be openly corrupt and useless to report to. There are even reported cases where authorities, after confiscating the animals, have given them back to traffickers in exchange for money. They also have allegedly kept animals to sell or give to relatives. On occasion, the names of those that have reported illegalities have allegedly been passed on to the traders in question, leading to personal threats against whistle-blowers and diminishing trust in authorities and reporting.

From the end of January 2015, when Noga passed a compilation of cases to national and regional authorities, at least three months passed before any action was taken (in many cases the animals had already disappeared when they showed up to verify the report). Other limitations detected are the difficulties in ensuring co-ordinated action between police and prosecutors, and an absence of administrative or penal sanctions against offenders after confiscations occur. Wildlife units in the different regional offices are understaffed to below the minimum capacity necessary to deliver significant conservation outcomes. They face other challenges, including limited knowledge about wildlife handling and insufficient vehicles and equipment to do their jobs. Enforcement officers allegedly have little support from superiors as wildlife trafficking is regarded as a lower priority compared to illegal mining and forestry issues overflowing the agendas of these institutions. The absence of animal holding facilities is another limitation that in certain cases prevents intervention by the authorities as they have no means of dealing with the confiscated animals, thus they might choose to leave the wildlife in the hands of the alleged perpetrators.

Noga and her team have been active mobilizers of Peruvian citizens; organizing marches in cities like Pucallpa, facilitating crime busting operations with authorities and media, promoting training, capacity building in wildlife management issues and educating the public about the impacts of this trade for conservation of species, habitats and the well-being of animals. Threats to her integrity are regular but it is her brave attitude that has helped shrink wildlife markets in most cities of Peru since 2007.

7.10 THE SOURCES OF ILLEGAL TRADE: WHERE IT ALL STARTS

There is no wildlife crime intelligence network that allows enforcement efforts to reach beyond street vendors; thus, there is no way to trace the origin of the illegal businesses and their funding sources, to reach and convict the higher tiers of the illegal networks that move and trade animals throughout the country.

A few studies have analysed the source of birds in local indigenous and ribereño communities, mainly in Loreto, and how they connect to the Iquitos market (Claget 1998; Gonzales 1999 and 2003; Dauphine 2006), as well as the impacts of subsistence hunting on different bird species (Gonzales 1999). Gonzales' investigation included a compilation of the legal and illegal use of bird resources by local communities in parts of the Pacaya-Samiria National Reserve, including authorized or non-subsistence hunting. Local communities are reliant on birds to fulfil a wide range of their livelihood needs. This is founded on a pragmatic and utilitarian approach by communities irrespective of limits set by the legal framework or the conservation concerns around some of these species. Gonzales found that 55 different species were used by local communities, grouping them according to their uses: eight species were hunted for meat, and eggs were harvested from nests of another 22 species. Sixteen species were used for medicinal, magical and ornamental purposes, while 23 were kept as pets. Some species were used for more than one purpose, like the Speckled Chachalaca *Ortalis guttata* and the Wattled Curasow *Crax globulosa* which supply meat, eggs and live chicks that are kept as pets or sold in markets. Each year, parrot and macaw chick-gathering takes place between February and April, the season termed the “loreadas”, from nests situated in seasonally flooded Moriche Palm *Mauritia flexuosa* forests (locally named “aguajales”). This is an important economic activity for many communities in Loreto close to Iquitos when forests are flooded and incomes from fishing and agriculture are low (Gonzales, 2003). Nevertheless, nest collection practices are unsustainable as it includes chopping down the palm trees to access the nests or digging holes in the trunks of trees to allow removal of the chicks, which damages the nest and prevents future use.

The decision by local people to generate income by selling birds as pets is legal if falling within the annual Commercial Hunting Calendar and quotas, otherwise it is illegal. Middlemen arrive by boat during the harvest season to buy different species from the communities along rivers for stockpiling in Iquitos or Pucallpa. They allegedly bribe their way through the lax authority controls or circumvent them altogether (Gonzales, 2003). When sufficient numbers of birds have been stockpiled, they are taken to major coastal cities by bus. Mortalities are high throughout the process: the more secretive the smuggling process, the greater the mistreatment and deaths of parrots en route to markets. Although incomes to local harvesters

are the lowest in the chain, nevertheless such trade is important for their cash needs in these subsistence marginal economies where poverty levels are high and opportunities are scarce. Four species of macaws and three Amazon parrots were the most exploited species through these dynamics (Gonzales, 2003). Dauphine (2006) mentions that “ribereños”¹⁵¹ are more disposed to the sale of birds than indigenous people from their respective forests.

These local populations are legally authorized to hunt for subsistence purposes, but not to sell or keep the proceeds. However, keeping birds, mammals and tortoises for pets is part of a deeply rooted tradition and they can usually be found around homes in rural communities throughout Peru, especially in the Amazon. This is a custom rural people take to cities when they migrate, thus sustaining demand for pets in urban environments.

7.11 ONCE IN COASTAL CITIES...

The Orange-winged Amazon *Amazona amazonica*,¹⁵² “pihuichos” (parakeets of the genus *Brotogeris*), the Pacific Parrotlet¹⁵³ *Forpus coelestis* and the Red-masked Parakeet *Psittacara erythrogenys*¹⁵⁴ are the most common species in the city markets in the country.

The Lima markets, which some three decades ago offered many dozen different species, currently have no more than five pet shops that mostly sell exotic canaries, budgerigars, hamsters, as well as dogs and cats. However, as described above, shop attendants responded positively when asked by the author about the possibility of buying native birds, with a few being hidden in the back of the shop.¹⁵⁵ They offered the possibility of procuring marmosets, toucans, macaws or other parrots by placing orders that could take up to a week while they are brought to Lima. In Mercado de Magdalena in the Lima District of the same name, pet-shop owners also offered wild bird species when asked, although none were being sold openly.

In Chiclayo on the north coast of the country, the number of downtown pet shops in the city’s main Mercado Moderno have reduced from about a dozen a decade ago to three presently (F. Angulo pers. comm., to TRAFFIC). The specimens observed on display by the author in June 2015 included two adult Orange-winged Amazons *Amazona amazonica*, about 10 Pacific Parrotlets *Forpus coelestis* and 8 Blue-gray Tanagers *Thraupis episcopus*. A single Orange-winged Amazon was also seen on sale in a nearby street. This market and sellers on surrounding streets used to offer hundreds of birds of many species (F. Angulo pers. comm.). The consensus is that these open markets have been drastically reduced, owing to confiscation pressure by the authorities.

¹⁵¹ Mixed-race communities.

¹⁵² locally called “aurora”

¹⁵³ local name “esmeralditas”

¹⁵⁴ local name “cara-roja”

¹⁵⁵ One Orange-winged Amazon and a few Pacific Parrotlets were seen by the author in a well-hidden cage in June 2015.

7.12 ILLEGAL INTERNATIONAL TRADE

The USA has recorded 56 birds illegally imported from Peru (2000–2012), the second largest number from an Amazon country. The EU Trade in Wildlife Information eXchange (EU-TWIX) database records five specimens of Variable Hawk *Geranoaetus polyosoma* as illegally introduced into the EU from Peru (2000–2012) (TRAFFIC, 2015). Such small numbers of birds confiscated overseas means that illegal international trade is not considered a major conservation problem compared to the local situation, although it can target more trade-sensitive species.

There are reports of frequent confiscations of Saffron Finch *Sicalis flaveola* from Peru in Brazil (pers. comm., IBAMA to TRAFFIC, June 2015). The species is in high demand for singing duels by bird breeders as, in their opinion, it is more aggressive than the Brazilian populations of the same species. The Brazilian finches are larger, so crossing them with the smaller but bolder Peruvian birds¹⁵⁶ creates the ideal combination of size and temperament to win tournaments where significant amounts of money are placed on bets. The demand from Brazil is so high that the quotas in the annual Commercial Hunting Calendar are difficult to complete by the Peruvian companies who export the species legally to the USA. It seems it is more lucrative to smuggle Saffron Finches across the border into Brazil through the only road that connects both countries to end up in coastal States and cities.

Peru has also been reported as a destination for threatened birds illegally trapped in the Bolivian lowlands (Herrera and Hennesey, 2009), especially the largest and most expensive macaw species that sometimes also end up in Brazil or Chile through Peru. Only a small number of Peruvian species were detected in Santa Cruz (Bolivia): 20 out of more than the 27,000 wild birds counted during the Herrera and Hennesey study.

Peruvian citizens have allegedly been involved in the trans-border trafficking of endemic dry coastal forest species from Peru into neighboring Ecuador. The confiscation of 54 White-winged Parakeets *Brotogeris versicolurus* from a bus en route from the Peruvian border to Guayaquil, Ecuador, in 2012 make it almost certain that the birds came from the Peruvian Amazon. Peruvian and Ecuadorian wildlife authorities have gathered on the Peruvian side of the border to plan actions to contain the illegal flow of wildlife across the border and similarly with their Colombia peers. This is within a new co-operation mechanism between neighbor countries aiming to solve the many urgent problems that plague border areas.¹⁵⁷

¹⁵⁶ “boton de oro” is the local name in Peru

¹⁵⁷ <http://www.serfor.gob.pe/noticias/ecuador-y-peru-se-unen-para-combatir-el-trafico-ilegal-de-fauna-silvestre-en-la-region-fronteriza>

7.13 THE SPANISH CONNECTION

Three important confiscations took place in 2016 at Jorge Chávez International Airport in Lima. In April, two Spanish citizens on their way to Madrid concealed ten live Andean Cock-of-the-rock *Rupicola peruvianus* in their suitcases. A PEN5,000 (around USD1,600) fine was the most serious punishment as the 12-month sentence did not include a mandatory jail term.¹⁵⁸ Surprisingly, one person was caught the following June in the same airport trying to exit Peru with 14 toucans and 19 “violet birds” (probably Violaceous Jays *Cyanocorax violaceus*).¹⁵⁹

On 14 December 2016 another confiscation took place with 25 birds of seven species confiscated in Lima airport inside a suitcase bound for Madrid, Spain.¹⁶⁰ One Spanish national and two Peruvians were detained, and later each fined PEN40,000 (around USD13,300). The birds included six Pavonine Quetzals *Pharomachrus pavoninus*, two Paradise Tanagers *Tangara chilensis*, one Flame-faced Tanager *T. parzudakii*, four Golden-naped Tanagers *T. ruficervix*, three Saffron-crowned Tanagers *T. xanthocephala*, four Green-and-gold Tanagers *T. schrankii*, five Thick-billed Euphonias *Euphonia laniirostris* and two Toucan Barbets *Semnornis ramphastinus*. This last species is the most interesting confiscated as it is an endemic of the cloud forests of the western slopes of the Andes in Colombia and Northern Ecuador. Its distribution doesn't reach Peru, which means there is an active cross-border trade, most likely from Ecuador to Peru, for these birds whose distribution goes as far south as the slopes of the Illinizas Ecological Reserve in Cotopaxi province¹⁶¹—at least a 400 km road trip to the Peruvian border crossing, and then another 1,000 km to Lima. The other six species are present in Peru and in other Amazon countries,¹⁶² on the Andean slopes or lowlands so it is difficult to infer where they were captured without further analysis (i.e. identify subspecies or DNA analysis). The Toucan Barbet is classified by IUCN as NT;¹⁶³ the others are considered LC.

¹⁵⁸ www.pj.gob.pe/wps/wcm/connect/corte+superior+callao+pj/s_csj_callao_nuevo/as_inicio/as_imagen_prensa/as_noticias/csjcl_n_corte_callao_condena_espanoles_trafico_animales_gallito_rocas_21042016

¹⁵⁹ http://elcomercio.pe/sociedad/lima/trafico-animales-silvestres-67-mil-sacados-15-anos-noticia-1914463?ref=flujo_tags_111073&ft=nota_9&e=titulo

¹⁶⁰ <http://larepublica.pe/sociedad/830536-rescatan-25-aves-silvestres-que-iban-ser-comercializadas-de-manera-ilegal-en-europa>

¹⁶¹ <http://datazone.birdlife.org/species/factsheet/22681956>

¹⁶² Three of the tanagers (Flame-faced, Black-faced and Golden-naped) are cloud-forest dwellers in the Andean-Amazon slopes between Colombia and Bolivia; the other two Tanagers (Paradise and Green-and-gold) have a wide distribution in the Amazon lowlands as do the quetzal and the euphonia which have a large distribution on both sides of the Andes and Central America.

¹⁶³ <http://www.iucnredlist.org/details/full/22681956/0>

7.14 CHILE: AN ATTRACTIVE MARKET FOR PERUVIAN AND BOLIVIAN BIRDS

Chile has a developed economy bordering two Amazonian countries where poverty levels are much higher, namely Peru and Bolivia. This set of conditions presents the opportunity for the smuggling of a wide cross-section of wildlife products (including timber, birds, mammals and reptiles), as well as drugs across borders. There are hundreds of kilometers of unprotected borders, and boats have also been used to smuggle wildlife from Peru's coastal towns. Peruvian parrots and toucans are periodically confiscated in Chile, though it is usually difficult to clarify if the birds come from Bolivia or Peru as most species are shared. Major import points in Chile (mainly the city of Arica in the extreme north) are also shared by Bolivia and Peru, contributing to the difficulty in tracking the source of wildlife. Some of these shipments can also include reptiles (tortoises and boas) and primates. The very long border between Argentina and Chile is also used to smuggle birds into the attractive Chilean markets¹⁶⁴ where higher prices are paid than in any other South American country for species of parrots, raptors, songbirds and toucans.

Recent instances of confiscations in Chile include the following examples:

- In October 2005, a man was stopped by a sniffer dog with four boas, ten turtles and two parrots at Arica's international border post.¹⁶⁵
- In June 2006, 43 birds were confiscated from a woman who had brought them to Arica, including 7 Toco Toucans *Ramphastos toco*, 30 Blue-headed Parrots *Pionus menstruus* and 6 Turquoise-fronted Amazons *Amazona aestiva*. This shipment could have fetched a price of around USD40,000 in Santiago.¹⁶⁶
- In January 2009, 407 animals were found by the Chilean Navy on board a boat sailing at night into a Chilean port sailing from a nearby Peruvian origin. The haul included dozens of tortoises, turtles, baby caimans, squirrels and 18 parrots and three Toco Toucans. One man was detained for illegal trafficking.¹⁶⁷

¹⁶⁴ <http://www.mdzol.com/nota/281548-el-negocio-del-traffic-aves-en-mendoza>

¹⁶⁵ <http://diario.elmercurio.com/detalle/index.asp?id={9536ba84-063b-4bd1-b579-7c74c12e15d5}>

¹⁶⁶ <http://diario.elmercurio.com/detalle/index.asp?id={8babc92f-bbe9-4372-ac56-f195bdadafc}>

¹⁶⁷ <http://diario.elmercurio.com/detalle/index.asp?id={05e26b0d-e3f4-4b10-9132-cb295d98ab44}>

7.15 CONCLUSIONS

Excepting Guianas, Peru has the most liberal policies, laws and attitudes regarding wildlife among Amazon countries: sport hunting is allowed, falconry is promoted as a hobby as well as “environmentally-friendly” biological control of bird pests to crops or the fisheries industry, and a few dozen bird species can be harvested from the wild or bred in farms for the pet export market. None of these activities are allowed in any of Peru’s five neighboring South American countries who only share with Peru bird tourism as an avian-dependent economic activity. As regulated as all these bird use activities are, the country is still seriously affected by illegal harvest and trade in birds. Even though the reduction of urban wildlife markets has been very significant over the last two decades, with more pronounced results in the last five years in those cities traditionally known for their open offer of dozens of wild bird species: Iquitos and Pucallpa, illegal trade networks still operate throughout the country bringing animals from the Amazon to the coastal cities, across borders mainly into Ecuador, Brazil and Chile, or smuggling them to other latitudes through Lima’s international airport.

All root causes of illegal bird capture and trade are intact throughout the country, namely poverty in the remote rural areas where most wildlife is captured and channeled to markets. The absence of any kind of incentive for local people to refrain from capturing animals with the expectations of profit, food or medicine, combined with corruption, weak enforcement capacity and low interest of authorities to act to prevent or punish wildlife crimes, are contributing to this issue. Profound decentralization of wildlife governance and controls to regional authorities is a new scenario that will require time to mature before a major benefit is appreciated in wildlife government performance, compared to the previous centralized system. Nevertheless, better co-ordination at the local level between enforcement authorities has happened on occasion when motivated by the constant pressure of small NGOs and activists who include wildlife conservation in their agendas.

The high number of confiscations that affect some species of smaller parakeets, parrots and parrotlets, which have been traded for decades, could motivate the development of sustainable use programs that involve the communities where these birds are captured. Because trade in these birds is currently illegal, they are crammed into boxes and cages in compartments of buses that take many hours to reach their destinations, resulting in high mortality by the time the birds make it to market. Buffer zones around protected areas offer opportunities for the development of alternative projects aligned with activities such as birdwatching, sport hunting, non-timber forest products harvest, etc. Diversified sustainable commercial activities can alleviate poverty and bring about local empowerment aimed at the long-term conservation of biodiversity. A technically managed sustainable program of

wild bird harvesting could solve the problems that affect the thousands of birds illegally captured every year.

An appreciation for free-roaming, healthy populations of wildlife species will come when local people's awareness about their importance is improved, and when there is a vested economic interest in conserving those bird stocks, their breeding and feeding places, protecting them from their own uses and from the attempts of strangers to capture them. Bird tourism could be a major motivator, as has been demonstrated in Ecuador. The annual Commercial Hunting Calendar should be refined to increase its conservation and social value, as well as reduce the side effects of mistnets on-target species. The scientific studies of CITES Appendix II-listed birds that are included in the Calendar should be technically improved to guarantee the sustainability of the harvest. The success of the individual action plans led by SERFOR to prevent further depletion of endangered species should be closely monitored to assess their success and quickly adapted when implementation measures are not resulting in the desired outcomes.



Red-legged Honeycreeper *Cyanerpes cyaneus* © WWF US / Keith Arnold

8 THE US'S ROLE AS THE MAIN MARKET FOR SOUTH AMERICAN BIRDS

“The U.S. is the world’s largest consumer of wild-caught, exotic birds. We bring into this country each year more than 500,000 parrots and other birds that are taken from the wild. International trade in many wild-caught birds for use as pets is not sustainable, and this trade, along with habitat destruction, is contributing to a significant decline in these species throughout the world. Consequently, the United States has a responsibility... to eliminate its imports of many of these birds. As early as 1976, the parties to CITES urged exporting countries to gradually restrict the collection of wild animals for the pet trade. They recommended that all member nations, including the United States, encourage the breeding of animals for this purpose so that eventually pets would be limited to those species that can be bred in captivity.”

Hon. Max Baucus, US Senator, Chairman US Senate Subcommittee on Environmental Protection, Committee on Environment and Public Works. Hearing on the “Conservation of Exotic Wild Birds”, 31 July 1992.

In the mid-1950s, the USA's booming middle-class economy and regular commercial air travel boosted in South America a feasible and profitable export business based on wild pets. Live bird imports peaked between 1986 and 1988 when nearly two million birds, 43% of them parrots, entered the USA from 85 countries. During that period, the USA was the main importer of Neotropical birds, followed by EU countries and Japan.

A legal ban was enforced in 1992 in the USA through the *Wild Bird Conservation Act* (WBCA), aimed at stopping the import of the most impacted wild-bird populations (CITES-listed species). After the ban, the USA cagebird business was mainly sourced from captive breeding facilities within the US, a proportion of which is exported.

8.1 BRIEF ACCOUNT OF BIRD IMPORTS FROM SOUTH AMERICA

Since the late 19th century, USA regulations on the importation of animals generated documentation about the movement of birds into the country, at a time when wild bird imports from South America represented a scant 1% of the total brought from different parts of the world (Oldys 1907). Later, and before the South American bird imports picked up, a psittacine-imports ban was imposed by the US Public Health Service from the 1930s until 1967 due to concerns about the presumed link between parrots and the health hazard caused to humans from “psittacosis” disease (Clapp, 1975). Since the mid 1950s, air transport connected the main South American wild-pet export hubs (Barranquilla, Leticia, Iquitos, Manaus) with Miami, which turned into the main USA port of entry for all these commodities. Air travel allowed the rapid movement of more delicate cargo—live birds, primates and ornamental fish—between tropical countries and North America (Thomsen & Brautigam, 1991), reducing mortalities and accessing a wider range of wild species—about 1,450 different bird species from up to 72 countries from all corners of the world (Banks & Clapp 1972).

After 1967, USA imports of parrots increased rapidly, and between 1967 and 1992, some 10 million wild psittacines from up to 100 species were brought for the pet market into the USA from all Latin American and Caribbean countries (Thomsen & Brautigam 1991). Data on species for which permits were issued, combined with Customs declarations of other imported birds, made it possible to compile a comprehensive tally of wildlife coming into the country during peak bird imports years of the late 1960s and 70s (Banks 1970, Banks & Clapp 1972, Clapp & Banks 1973, Clapp & Banks 1973a, Clapp 1975). There was a brief period from 1972 to 1974 when all exotic bird imports were banned because of an outbreak of Newcastle Disease in domestic poultry (Clapp 1975).

As Brazil, Colombia and Peru shut their live-pet exports (1967–1973), other South American countries—Bolivia, Guyana, Suriname, Paraguay, Venezuela, and Argentina—stepped in to fill the USA demand, until the above mentioned 1992 US-WBCA import ban shut the bulk of the imports in South American wild birds. South American bird exports shifted mainly to Europe and then to Asia as the EU also banned imports in 2007. The pet-trade dynamics in Colombia and Peru (1950–1975), created commercial linkages, business infrastructure and transport channels, that, as wildlife trade was banned (pets and skins), were later used to consolidate the following wild resource extractive boom from the Amazon: food and ornamental fisheries. Cocaine smuggling (1980s–1990s) out of these remote outposts was

also facilitated by the logistics and transport mechanisms created for pets since the mid 20th century (Pantevis 2010).

For almost four decades, dozens of millions of birds had been harvested from all corners of the South American ecosystems to feed the USA pet demands, an import business that transformed into a multimillion dollar domestic activity around the breeding, trading and keeping of birds of dozens of South American species. Current USA imports of wild South American birds are reduced to a few non-CITES species from Peru, Guyana and Suriname, and a few CITES-listed species from captive-breeding operations.

8.2 USA LEGISLATION AFFECTING WILD BIRD IMPORTS

The documented concerns from the 1930s to the 1970s on importing birds into the USA, started with human and animal health issues, and were later complemented with conservation concerns as the USA Endangered Species Act (ESA) was signed into law by President Richard Nixon in 1973, and CITES was ratified in 1975. The ESA was designed to protect endangered species from extinction, one of several wildlife laws enacted in the 1970s, as many species were threatened by development and expansion into their habitats. There are currently 14 species of South American birds (Table 23) listed in the ESA that have been affected by trade, most of them psittacines.

TABLE 23. INTERNATIONAL TRADE-IMPACTED SOUTH AMERICAN BIRDS LISTED IN US ENDANGERED SPECIES ACT¹⁶⁸

Parrots, Macaws and Conures:¹⁶⁹

Lear's Macaw *Anodorhynchus leari*
 Glaucous Macaw *Anodorhynchus glaucus*
 Spix's Macaw *Cyanopsitta spixii*
 Great Green Macaw *Ara ambiguous*
 Military Macaw *Ara militaris*
 Blue-throated Macaw *Ara glaucogularis*
 Red-browed Amazon *Amazona rhodocorytha*
 Red-spectacled Amazon *Amazona pretrei*
 Red-tailed Amazon *Amazona brasiliensis*
 Vinaceous-breasted Amazon *Amazona vinacea*
 Pileated Parrot *Pionopsitta pileata*
 Ochre-marked Parakeet *Pyrrhura cruentata*
 Golden Parakeet *Aratinga (Guarouba) guarouba*

Other

Red Siskin *Spinus cucullatus*¹⁷⁰

¹⁶⁸ <https://ecos.fws.gov/ecp0/pub/SpeciesReport.do?lead=10&listingType=L> revised July 25, 2017

¹⁶⁹ Except for the Golden Parakeet from the Amazon, the other 7 species are Mata Atlántica and adjacent forest endemics, mostly restricted to Brazil and some also in the margins of southern neighbors Paraguay and Argentina

¹⁷⁰ Venezuela and Guyanese grasslands endemic finch depleted by demand for cagebirds in the 20th Century.

8.3 THE WILD BIRD CONSERVATION ACT (WBCA) OF 1992

The increasing number of wild birds imported into the USA in the late 1980s created a big concern in conservation organizations. Trade statistics showed that between 1980 and 1991, 7.4 million birds legally entered the USA, with millions more imported illegally in breach of CITES, mainly through the Mexico border. From 1985 to 1990, over 330,000 birds arrived dead into the USA or died during the 30-day quarantine period. This destructive business, considered biologically unsustainable and ethically unacceptable, prompted the concern for radical change to the *status quo*.

In 1988, WWF convened a “*Cooperative Working Group on Bird Trade*” in Washington, D.C. The purpose was to develop a comprehensive analysis of imports of exotic birds into the USA. Recommendations were refined over two years of meetings between stakeholders and helped set the groundwork for the Wild Bird Conservation Act (WBCA). Recommendations were based on a compromise between pet-industry representatives and conservation organizations. In 1992, the legal imports of wild-caught birds for commercial purposes came to a halt when the WBCA was passed. The WBCA implementation was phased in, commencing in October 1992 as follows:

- October 1992: Implementation of a moratorium on imports of 10 species of concern listed in CITES Appendix II.
- 1993: Imports allowed under a quota for one year during 1993; 84,655 CITES-listed birds were imported in 1,460 different shipments.
- 1994 onwards: Imports were prohibited for all CITES-listed birds except those included in an approved list, including 45 captive-bred exotic bird species.

Initially, the WBCA only covered certain families of birds, and only those listed in CITES Appendices I and II; shortly after, CITES Appendix III species were included as well. One exception in the WBCA allows the import of certain CITES-listed birds for the pet trade. This compromise stemmed from aviculturists’ concerns over impacts the WBCA might have on the pet trade industry in the USA. The US Fish and Wildlife Service (USFWS) produced a short list of species that are widely available in aviculture and not being exploited or traded from the wild, with a proven track record of breeding in captivity. In the list of 32 WBCA-waived species, only three South American species comply with these conditions, namely the Jandaya Parakeet *Aratinga jandaya*, Barred Parakeet *Bolborhynchus lineola* (also present in Mexico and Central America) and Pacific Parrotlet *Forpus coelestis*. Aviculturists can petition the USFWS to add species based on the listing criteria, although no other species would currently qualify for addition to the list.

8.4 USA IMPORTS OF AMAZON BIRDS 2003–2012: THE DECADE OF BIRD TRADE COLLAPSE

A total of 77,514 live birds (CITES and non-CITES species) were imported into the USA from Amazon countries for commercial purposes between 2003 and 2012 (TRAFFIC, 2015). Only 3.95% were CITES-listed species (3,059 birds) from captive breeding operations. Of all bird species imported, 74% came from captive breeding operations and 25% from the wild. Peru was the main source with 53,500 birds (69% of all the imports),¹⁷¹ followed by Brazil (23%), Suriname (7%) and Guyana (2%).

There are several pet-trade bird species (mainly passerines, but also toucans) that are not listed in any CITES appendices, and therefore can be imported into the USA. Currently Guyana exports seven bird species, Suriname eight species and Peru 95 species to the USA. Of these wild imported species into the USA, the highest numbers are songbirds (Saffron Finch *Sicalis flaveola*, Hooded Siskin *S. magellanicus* and seedeaters *Sporophila* spp), plus the Red-legged Honeycreeper *Cyanerpes cyaneus*. In general, imports increased between 2003 and 2006, then crashed in 2010 to negligible numbers and have remained low since. Peru reported a total of 8,003 bird exports to the USA in 2003, significantly decreasing to 2,289 in 2004, and 1,978 in 2005 (INRENA 2004, 2005 and 2006).¹⁷² The year 2005 had the highest number (9,807 individuals) of wild-harvested imports into the USA from all Amazon countries combined in the period analysed.

The USA registered 373 captive bred birds of CITES Appendix-listed species imported between 2003 and 2012 from Brazil, the most important being the Red-spectacled Amazon *Amazona pretrei* with 91 birds (CITES-WCMC). According to the LEMIS database, 5,201 birds imported from Brazil had a declared wild origin, which would not have been permitted according to Brazil's legislation. Another 1,116 imported birds were reported as captive bred; however, such imports from Brazil vanished in 2009 following a sharp decrease from 2005 onwards. The import of birds from Guyana and Suriname, the other major Amazon-region exporters to the USA, shows the same pattern of sharp decrease after 1992 when all wild-caught CITES-listed species (mainly psittacids, some toucans and raptors) stopped entering the USA. There was an unexplained spike in imports from both countries between 2006 and 2008 that have since dropped to the current negligible levels. No imports have been declared subsequently from these two countries whose entire current production is from wild origin. The species most imported from Suriname (2000–2012) were the non-CITES Red-legged Honeycreeper *Cyanerpes cyaneus* (13%), Violaceous Euphonia *Euphonia violacea* (11%) and Purple Honeycreeper *Cyanerpes caeruleus* (10%).

¹⁷¹ Both CITES (captive bred) and non-CITES (wild harvested) species.

¹⁷² More than 90% of the imports from Peru were passerines, mainly Saffron Finch *Sicalis flaveola* 25%, Hooded Siskin *S. magellanicus* 12%, Black Siskin *S. atratus* 8%, Grassland Yellow-finch *S. luteola* 5%, Blue-black Grassquit *Volatinia jacarina* 4%, and *Sporophila* spp 10%. Although the LEMIS database says they are all captive bred although the reality is they are all almost certainly wild caught.

8.5 USA EXPORTS OF SOUTH AMERICAN BIRD SPECIES

As imports of birds into the USA were significantly restricted under the terms of the WBCA, since the early 1990s the strong pet market within the country boosted the hobby of breeding Neotropical parrot and toucan species. A wide array of South American bird species hatched and raised in the USA were on sale in shops and via the internet, an activity nowadays worth millions of dollars (Tables 24 and 25). Another commercial opportunity from the breeding of these species was the export of these birds to global destinations. However, according to the American Federation of Aviculture's website: *"The legal exportation of a bird from the United States can be frustrating and expensive. Each and every step along the way has administrative costs associated with it. From permit costs, to license fees, to inspection fees, the cost of exporting a single bird can be high. Sometimes it is just best to tell your foreign friends to find a pet bird locally."*¹⁷³

Most birds produced within the USA remain in the country to feed the internal demand for pets, and only a portion is exported. Between 2000 and 2013, the USA exported 8,637 parrots of 46 South American species, making it the 12th largest exporter of South American psittacine species in the world (Table 24). This amount corresponds to 1.3% of all South American parrots exported during this period from the numerous countries around the world that breed and export South American species, most of them countries outside the original biological distribution for the species (i.e. they are captive bred *ex situ* in Asia, Africa or Europe).

¹⁷³ http://www.afabirds.org/import_export.shtml (accessed 18th July 2017)

TABLE 24. USA EXPORTS OF SOUTH AMERICAN PSITTACINE SPECIES 2000–2013

Species Common Name	Species Scientific Name	Number of birds exported
Yellow-crowned Amazon	<i>Amazona ochrocephala</i>	1,331
Blue-and-yellow Macaw	<i>Ara ararauna</i>	1,212
Orange-winged Amazon	<i>Amazona amazonica</i>	1,052
Red-and-green Macaw	<i>Ara chloropterus</i>	720
Turquoise-fronted Amazon	<i>Amazona aestiva</i>	702
Pacific Parrotlet	<i>Forpus coelestis</i>	495
Southern Mealy Amazon	<i>Amazona farinosa</i>	490

Source: CITES/WCMC Trade Data Base

TABLE 25. PRICES PAID FOR SOME SOUTH AMERICAN BIRD SPECIES TRADED IN THE US

Species Common Name	Species Scientific Name	Price for each (USD)
White-winged Parakeet	<i>Brotogeris versicolurus</i>	145
Jandaya Parakeet	<i>Aratinga jandaya</i>	350
Sun Parakeet	<i>Aratinga solstitialis</i>	400
Monk Parakeet	<i>Myiopsitta monachus</i>	300
Red-crested Cardinal	<i>Paroaria coronata</i>	400
Black-faced Tanager	<i>Schistoclamys melanopis</i>	145
Blue-and-yellow Tanager	<i>Pipraeidea bonariensis</i>	125
Blue-gray Tanager	<i>Tangara episcopus</i>	125
Blue-necked Tanager	<i>Tangara cyanicollis</i>	450
Blue-black Grassquit	<i>Volatinia jacarina</i>	45
Tropical Mockingbird	<i>Mimus gilvus</i>	145

Source: www.thefinchfarm.com (accessed 1 July 2017)

8.6 SUPPORTING IN SITU BIRD CONSERVATION IN SOUTH AMERICA

As volumes of bird imports from South America collapsed, trade in home-produced birds of these species consolidated into a major business and hobby within the USA, at the same time that concern for species conservation grew in the country. Hobbyists became increasingly concerned about the future of the species they kept in their countries of origin. As owners and breeders of Neotropical birds, many hobbyists have enthusiastically provided financial support to conservation efforts in the countries of origin. Initiatives include funding research projects, key habitat protection for endangered species and support to threatened species reintroductions into the wild. Parrots, followed well behind by toucans, are the two most charismatic groups of Neotropical birds garnering support for their protection amongst USA breeders and collectors. Many NGOs, including Parrots International, collector clubs of specific groups of birds such as the genus *Pyrrhura*, and breeder associations including the American Federation of Aviculture (AFA) provide support to conservation projects. Others sponsor *in situ* conservation projects, including several USA zoos, breeding companies and pet food and accessories stores who gain recognition from their customers for their support to bird conservation. Supporting conservation projects also aims to reduce criticism from sectors that consider it inappropriate to keep bird species in captivity and because, allegedly, it maintains channels for illegal trade of endangered species into the USA.



8.6.1 EARS FOR LEAR'S¹⁷⁴

The Lear's Macaw is EN in its natural habitat in Brazil. Recent conservation efforts have resulted in an increase in the wild population, but now the birds are seeking out new feeding grounds. Lear's Macaws have taken to raiding the corn fields of local farmers, destroying corn that is vital to these subsistence farmers and their families. Parrots International, Lymington Foundation, Amigos de las Aves (USA), Nutropica Bird Foods of Brazil, Pennies for Parrots, and AFA have come together to help protect these birds. A corn subsidy program is underway where sacks of corn are purchased from other parts of Brazil and distributed to these struggling farmers by Brazilian conservation partners. This ensures that the birds are protected instead of exterminated for raiding corn crops.

8.6.2 AFA SUPPORT TO THE TAMBOPATA MACAW PROJECT IN THE PERUVIAN AMAZON

Due to their large size and great beauty, macaws make excellent flagship species and serve as charismatic focal points for the conservation of the ecosystems in which they occur. Unfortunately, throughout most of the tropical Americas, large macaws have suffered major population declines. The Tambopata Macaw Project began in 1989 with the goal of learning about the basic ecology and natural history of large macaws to aid their conservation.

In 1999 the project focused on increasing the reproductive output of wild macaws, expanding knowledge on their nesting behavior and clay lick use. Other important activities central to species conservation include tracking macaw movements through satellite telemetry and evaluating tourism as a means of protecting macaws and their habitat. This scientific information is being dispersed through a variety of channels to local indigenous communities, to the Peruvian government, and via the Internet to classrooms and conservationists worldwide.

¹⁷⁴ http://www.afabirds.org/cons_earsforlears.shtml<https://journals.tdl.org/watchbird/index.php/watchbird/.../3656>

9 REGIONAL CONCLUSIONS

A series of conclusions about the outcomes of 50 years of trade prohibitions, institutional and legal developments, enforcement, awareness raising, ex situ bird breeding, closure of international markets, CITES implementation, and wider conservation policies for birds, wildlife and nature in general.

The following set of conclusions is based on current bird trade dynamics and conservation in the region and must be understood in the context of the greatest threat to birds and broader biodiversity survival: habitat loss. Deforestation, fragmentation and disconnection of habitats, wetland destruction and pollution, invasive species, as well as abrupt changes in weather patterns that lead to prolonged droughts, fires or flash floods, have already affected many areas of South America. It is perhaps surprising that more bird species have not gone extinct in the last 50 years (currently only two species classified as **EX**). However, the outlook is grim for many species and populations, particularly as deforestation continues unabated on a wide range of fronts. There appears to be little political will, and legal and technical tools are lacking to stop this crisis. Future generations could be excused for resenting this current inaction and are likely to be perplexed when trying to understand why, knowing it was happening and how it happened, so little was done to save Earth's biological treasures as we embarked on the sixth mass extinction process (Ceballos *et al.*, 2015).

As Foreshaw (2010) stated, little is gained by prohibiting the capture of birds if the effects of habitat loss are neglected. Capture for the live bird market is seldom the primary threat to the survival of a species (see the Guyana and Suriname cases), but as a secondary pressure it takes on much greater significance when the species is already suffering habitat loss.



The following conclusions are all interrelated and the explanations of each, its causes and possible solutions, relate to the others in some way or another. These conclusions are grouped by major issues regarding the different aspects a study of this kind detects as it is important to understand all facets of the bird trade and the outlook for ongoing trends in the Amazon region.

1. For many of the South American reptile, bird and mammal species (particularly larger species), the animals found today are descendants of the survivors of decades—if not centuries—of intensive uses. National and international demand for species has fluctuated in response to factors including fashion, changes in technology and improvements in transport. Many species were harvested by the hundreds of thousands to millions and their current struggle towards recovery is hampered by factors including subsequent habitat loss and climate change

Bird conservation outcomes after 50 years of trade regulations

2. It is difficult to assess the conservation outcome for many bird species following prohibition of their trade in various countries. As bans and regulations have been implemented and markets shrunk, the lives of scores of birds from hundreds of species must have been spared from capture, although the conservation of their habitats was never a consequence of these bans. On the contrary, eliminating incomes from bird trade to local communities could have led to habitat destruction for economic activities to replace the incomes provided through selling wildlife. Feedback from trappers and their families in Guyana reveal that if they did not receive income from harvest of wild animals including live bird sales, the alternative cash-producing activities would have much more serious impacts on the environment. These alternatives include logging, wild meat trade, gold mining and illegal crops for the drugs market. Although it has not been verified by a comprehensive assessment, the harvest of birds in Guyana and Suriname is considered by many authorities to be sustainable for the majority of species harvested.¹⁷⁵

¹⁷⁵ Except for the most valuable seed-eater species.

Subsistence hunting

3. The subsistence hunting of wild animals for food by local communities is legally accepted in all countries in the region. However, sustainable management of such practices is occurring only in a few places through NGO projects in Peru, Brazil and Colombia. It is generally considered that “subsistence” equates to “sustainable” based on the former’s relatively low intensity. However, the continued exploitation of larger species for subsistence across increasingly extensive areas is a growing threat for the larger species of birds, mammals and reptiles. There is clearly a need for local agreements informed by monitoring of hunting activities, with regular updates based on appropriate feedback. Currently there is no such policy or administrative intervention in place for the management of subsistence hunting. This hunting increasingly affects protected areas and the health of forest ecosystems, as well as depleting animal populations, hampering the possibilities of species recovery. Urgent landscape-level interventions are required to address subsistence hunting to prevent this legal right from continuing to deplete fauna throughout the Amazonian countries. Projects that increase the value of free-ranging wild animal populations, complemented with environmental education, will be key to prevent the extinction of many species in the remainder of the 21st century.

Bird trade bans and market controls

4. The banning of wild bird exports and the reduction of bird sales in urban markets¹⁷⁶ is likely to have spared the lives of millions of birds in the region over the last 50 years. The drastic reduction in markets likely means that the local communities who harvest them find no value in trapping more animals than will meet the local demand for pets. This means that the wild harvest has probably been greatly diminished, a direct outcome of the ban on wildlife trade.
5. Wild birds have basically vanished from markets in cities and towns in most of South America, and where they still persist are a fraction of the quantities traded in the recent past. The scenario described in the street markets of Jakarta, Indonesia, (Chng *et al.*, 2015) involving the sale of more than 19,000 birds of 206 species¹⁷⁷ is a thing of the past in South America.

¹⁷⁶ Although there continues to be a hidden trade in response to demand for certain species and eventual exports of eggs or live birds.

¹⁷⁷ Only three South American birds were detected in this survey: one each of *Ara ararauna*, *A. macao* and *A. militaris*.

6. Most trade is now reduced to the offer of birds to interested buyers (those who ask for them) in urban markets where birds are kept away from the public's view. Rarer species can be accessed by placing orders that can take weeks or months to arrive. Although this type of trade is still an issue, it is also true that the offer-demand dynamics have eliminated impulse-buying prompted by seeing the animals on display.
7. It is much more difficult to assess the indirect and unintended impacts of trade bans on birds and their habitats. In certain places a wildlife trade ban might have prompted the economy to shift to logging or intensified slash-and-burn agriculture. Such activities affect wider bird communities, as well as all other biodiversity in affected habitats. In 2008, TRAFFIC received feedback from Paraguayan indigenous families who sold Toco Toucan *Ramphastos toco*¹⁷⁸ chicks harvested on their land for export by a local company. The ban on the export of CITES-listed species from Paraguay closed this economic option for the families, who then replaced their income source with charcoal made from the trees of local forests. Charcoal can only be harvested and sold once. In contrast, keeping the forests healthy to maintain toucan production supported a wide range of biodiversity as toucans were replenished every breeding season. It can be concluded that each plan to ban or limit a wildlife resource should first be analysed to determine the (at times predictable) socioeconomic and resulting environmental consequences of such a measure. A ban on the trade of a wildlife resource is usually considered a conservation win for the future of the targeted species, but the wider conservation and socioeconomic impacts of such a measure are seldom taken into consideration. It is necessary to analyse the economic options left to those affected by the limitations to trade and the possible environmental impacts derived from the activities developed to replace the lost incomes. The well-intended solution (in this case the ban) could have more serious environmental impacts than the practice it intended to resolve.

Bans make work easier for enforcement authorities

8. National enforcement authorities benefit from the completely illegal status of any type of wild bird trade when it comes to controlling markets. In Bolivia, Colombia, Ecuador, Peru¹⁷⁹ and Venezuela, when authorities find a wild bird in a market or in someone's possession, they are certain it is an illegal bird because there are no legal sources of these birds. Brazil, on the other hand, has laws that allow the export and sale in local markets of a few dozen captive bred wild bird species. The enforcement of these laws requires enormous efforts from authorities to prevent possible laundering of wild birds through the legal system. This has created a tense situation as pragmatic solutions cannot be assessed due to conceptual barriers that block the discussion of innovative approaches that could be more socially and administratively feasible.

¹⁷⁸ CITES Appendix II

¹⁷⁹ Peru allows some captive breeding and trapping of a few dozen species for trade but they are all for the export market so authorities are sure that everything they find on the streets is illegal (except the raptors described in Conclusion # 14 below).

ILLEGAL TRADE

Illegal domestic bird trade

9. Within the region, Brazil continues to have a serious problem with internal trade of songbirds. An average of 30,000–35,000 birds are confiscated in Brazil every year, a number that has not significantly varied in the last 15 years. Law enforcement has made little impact on the massive trade in these species, although there is little space for discussion of alternative solutions due to a lack of opinions about how better to manage bird trade beyond prohibition. Nevertheless, little recognition has been given to the verifiable reduction in traded amounts of birds in cities' markets, which can be attributed to the zeal of authorities in doing their job.

Illegal international trade—overseas

10. International illegal trade in live South American birds has been reduced to its lowest level in decades, mainly because the bird species most highly sought-after by collectors already exist in most consumer countries. This has followed decades of export—both legal and illegal—of the breeding stocks that nowadays produce South American birds *ex situ* for trade. Large consignments of live birds from South America have not been detected by European or USA authorities for many years (Goyenechea & Indebaum 2015), the only recent cases being the smuggling of parrot eggs into Europe from Brazil (see Brazil Chapter and next point), and a few confiscations of songbirds, toucans and cock-of-the-rocks from Spanish citizens at airports in Peru and Argentina. The expatriate Guyanese and Surinamese communities living in the USA, Canada and Europe create an important and sustained demand for songbirds through the cultural practice of holding singing tournaments. This has created a constant flow of illegal birds into these countries.

Over the last 15 years, smuggling of eggs has affected some high-value species of psittacids (Red-browed Amazon *Amazona rhodocorytha*, Hyacinth Macaw *Anodorhynchus hyacinthinus*, Red-and-green Macaw *Ara chloropterus*, Short-tailed Parrot *Graydidascalus brachyurus*) and toucans *Rhamphastos* spp. Their eggs have been confiscated in airports attached to smugglers' bodies before flights to Europe. This is the most frequently detected international bird-related CITES contravention; all cases have involved direct flights from Brazilian cities bound for Portugal. It is not known whether Portugal or other EU countries are the final destination for the eggs. As serious as the problem of egg smuggling can be for rare and vulnerable species, it does not necessitate killing or harvesting adult birds and hence is likely to have less impact on the conservation status of the affected species assuming the nesting capacity of the target species is not impacted.

Illegal international trade—cross border

11. Bird trafficking between South American countries through its porous borders is an issue of concern, with the role of Peru both as recipient and source of wild bird species from and to its neighbors (Ecuador, Brazil, Bolivia, Chile) being the biggest regional challenge.

Bird trade and the internet

12. The internet and social media present an opportunity to serve as channels for promoting illegal wildlife trade, potentially offsetting authorities' successful interventions in streets and markets. Several online trade web pages were reviewed for this study and did not reveal a major problem in the countries covered (Brazil, Colombia, Ecuador, Guyana, Suriname, Peru) at least in terms of what was openly offered. Facebook sellers reportedly offer illegal wildlife for sale in Ecuador, Colombia and Peru (pers. comm., from national authorities to TRAFFIC May 2017). Recent reactions to coverage of animals being hunted or abused on social media websites is a trend that builds opposition to these activities. It has also resulted in a few convictions, including jail sentences, and public apologies as institutions are pushed to act on public demand.

LEGAL TRADE

Legal bird exports from Amazon countries

13. Over the years, the legal harvest of birds from the wild has been reduced to some 150 species from three countries—Peru, Guyana and Suriname—whose production is all for the export market.¹⁸⁰ Wild species harvest for trade is economically valuable for local and indigenous communities in these three countries as an important seasonal income for families. Exported wild-caught CITES Appendix II-listed species have been reduced to 30 species (one-fifth of all species exported by the three South American countries analysed for this study), primarily psittacines and two *Ramphastos* toucan species. These birds are exported to countries including Mexico, China, Gulf States, Thailand, Malaysia, Philippines and Indonesia. The regular reports of South American bird species showing up in Asian markets requires verification as they do not regularly include the roughly 150 legal species that are currently exported from South America. Once birds of illegal origin have been confirmed it is important to trace back the smuggling networks to South American source countries through international collaboration.

¹⁸⁰ Some captive-bred raptors stay in Peru thanks to the “El Huaico” farm that sells some at competitive prices for Peruvian enterprises who use them for the control of bird pests in plantations and at anchovy disembarkation ports. This reduces extraction of raptors from the wild.

Legal Domestic Bird Trade

14. The only known cases of legal domestic trade in wild birds come from: Peru, where certain raptor species can be trapped and traded for falconry; Guyana, for three species of songbirds managed through quotas; and Brazil, which allows trade in captive-bred songbirds and psittacines from wild origin stocks, a permanent source of tension as doubts about the real origin of these animals is always suspected. There are no other sources of legal wild birds for the domestic market in the region.

CAPTIVE BREEDING

Ex situ production and trade in South American bird species

15. The main legal exporters of South American parrot and toucan species are South Africa, Singapore and Philippines in that order, a commercial activity executed under the provisions of CITES. As South American range States outlawed the legal harvest and export of their species, countries on other continents have continued breeding and exporting these birds. They have benefited from inadequacies in the CITES and Convention on Biological Diversity (CBD) that have not helped to address the inequitable distribution of benefits from the use of biodiversity. The current situation is an unintended consequence whereby the countries of origin for birds are legally denied an opportunity that is taken instead by other nations, and in the process, they lose any form of control over those species. South American countries have taken the responsibility for conservation and recovery of various species, with some limited economic and technical support from *ex situ* producers, such as the Loro Parque Foundation.

Captive bird breeding in Amazon countries

16. Captive breeding of wild bird species as a legal economic option occurs in only two countries—Brazil and Peru. Brazil has dozens of commercial breeders, while Peru has only two breeders. In Brazil, these breeders, although heavily controlled by government authorities, are often accused of being major promoters of illegality. They are allegedly involved in laundering wild birds through their businesses and promoting the practice of keeping wild birds in captivity. Captive breeding has not replaced wild bird harvest as a legitimate legal and sustainable use of birds, and currently the limited enterprises are focused on international markets.

Confiscations and disposition of birds

17. Confiscating birds is the main deterrent tool used by authorities to stop illegal wildlife trade when detected or reported in markets or other public or private locations. Very few poachers or traffickers pay fines or go to jail; they just lose the birds. In Brazil, when dozens or hundreds of birds are confiscated, fines can add up to large amounts of money (equivalent to hundreds of thousands of USD) that the trafficker alleges he/she has no economic means to pay, so the financial sanction has no effect. To the best of the author's knowledge, in the region, a Situational Crime Prevention (Clarke 1997) approach to tackle wildlife crime is only practiced by Colombian Police during the first three or four months of the year (which coincides with Lent week) when reptiles (turtles, caimans, iguanas) are extensively harvested and traded, a dynamic that also affects birds and capybaras. Reducing wildlife crime opportunities is the main purpose of such an analysis as described by Kurland *et al.* (2017). Such analysis would be helpful in every country to assess better critical times of the year when poaching and trafficking increase (i.e. the end of the nesting season), "hot spots" where most of the illegal captures occur, and the routes taken to reach bird storage facilities or markets. The predicted wildlife crime scenarios allow authorities to concentrate their efforts on key moments and places to be more effective in reducing the success of wildlife crimes.¹⁸¹ This type of analysis, developed by crime science (Clarke 1980, cited by Kurland *et al.*, 2017), is useful to assess the effectiveness of current interventions to accomplish the desired reduction in crimes.
18. The bulk of bird confiscations in South America, more than 95%, correspond to common species with large distributions that inhabit transformed habitats. Most are categorized by IUCN as LC and their extraction and trade does not apply major pressures on rare, endemic or threatened species. These common species (including members of the parrot genera *Brotogeris*, *Forpus*, *Pionus*) feed demand from low-income populations in villages and towns that maintain the practice of keeping birds as pets in their homes. By contrast, demand from wealthier buyers (for private bird collections) poses a significant threat to many species of raptors, owls, toucans, flamingos, cock-of-the-rocks, rare parrots and macaws, cracids, etc. whose conservation status is affected by the harvest of their reduced populations. These high-value species are the targets of more organized wildlife crime networks that move animals across South American borders and may be related to other types of illegal commodities.

¹⁸¹ Five criminal reduction mechanisms: 1) making it harder; 2) less rewarding; 3) riskier; 4) reduce provocation; and 5) removing excuses, the last two points associated with human-animal conflicts that affect mainly psittacines and seedeater species throughout South America.

Punishments for illegal bird trade

19. In South America, where judicial impunity is systematic in most countries for many types of crimes, wildlife crimes attract minimal punishment beyond confiscations of the animals or their products. If countries count on the enforcement of the law as the most important disincentive to trafficking in wildlife, its impacts are minimal. The rule of law must create the possibility for offenders to receive effective sanctions, which should include loss of vehicles, payment of substantial fines or jail terms. The lack of such disincentives results in the system being ineffective. Also of relevance, few attorneys and judges consider wildlife crimes as serious threats to society, so they usually overlook the need to penalize offenders, even if they are caught red-handed. Wildlife crimes are below the penal code threshold to send criminals to jail in Brazil, Colombia and Ecuador, thus very few offenders have served sentences behind bars. This is an enormous frustration for environmental authorities and wildlife activists. There are aggravating circumstances in countries when crimes include CITES-listed species or those that are part of official threatened-species lists (like Peru).

Disposing of confiscated birds

20. Wildlife rescue centers are intermediate solutions for the technical disposal of confiscated animals. In Brazil and Colombia they are run by subnational authorities, and in Ecuador and Peru private efforts pay for the task of recovering wildlife that arrives, often in appalling conditions. Important portions of authorities' budgets are used to run these centers, an expenditure with a marginal conservation value but one that has high citizen and political support. Due to its tangible nature, many people and senior government officials appreciate supporting an infrastructure with laboratories, veterinary facilities, spaces for cages, and afterwards releasing animals back into the environment in front of the press. These centers clog very quickly with newly confiscated animals; some end permanently in zoos, others are set free under doubtful technical accompaniment and follow up, and an uncertain number are euthanized. The majority linger in the centers for many months or years, kept mainly for humane reasons. The continuous flow of confiscated animals is indicative of the ingrained desire of portions of the population to own pet animals, and of others that try to make a profit from their trade.

INSTITUTIONS

Government institutional capacities

21. National and provincial government wildlife institutions are desperately under-resourced and under-staffed. Their wildlife conservation performances go little beyond confiscating and disposing of traded wildlife, actions which consume important resources and efforts from these institutions in all countries. There are no wildlife protection services *per se*, and wildlife patrolling in the field only exists through the rangers within protected areas' borders. There are always insufficient numbers of staff and equipment, as well as a lack of legal and institutional support. Countries like Ecuador and Peru are currently going through the process of decentralizing nature conservation and management responsibilities, wildlife included, to local institutions with little knowledge or experience about the technical aspects of conservation. It is hoped that this transition will be beneficial for nature in the longer term (not that the previous centralized arrangements worked well) as governance is brought closer to the affected landscapes, resources and people.

Police role and support to combat bird trade

22. Specialized environmental police units in every country have offered important support to the work of environmental authorities in the task of patrolling city markets and streets preventing illegal wild animal trade. Such units have played a major role in the dramatic reduction of bird trade in cities and have increasingly professionalized their performance in Brazil and Colombia. The last five years have seen increased co-operation between neighboring police forces to improve the effectiveness in addressing trans-border wildlife crime through the exchange of experiences, information and training, and on occasion enhanced by INTERPOL through joint intelligence operations such as Operation CAGE in 2012 (INTERPOL 2012).¹⁸² Armed forces are also increasingly involved in enforcement support. However, in general, there is little or no wildlife enforcement capacity outside of cities. In some areas depending on their willingness, capacity and resourcing, landowners, as well as local and indigenous communities, become involved in protecting wildlife on their land.

Bird trade perceptions and local support to conservation

23. While wildlife is a low political priority, it has increasing public visibility through media coverage focused on the abuse of animals through hunting, caging of smuggled animals and unacceptable conditions of captivity in zoos and exhibitions. Colombia has featured

¹⁸² Of the 32 countries included in the Operation, seven were South American: Argentina, Brazil, Colombia, Guyana, Paraguay, Uruguay and Venezuela

several cases raising public pressure for action including the slaughter of Manatees *Trichechus manatus*, hunting of Spectacled Bears *Tremarctos ornatus*, Jaguars *Panthera onca*, Ocelots *Leopardus tigrinus* and Andean Condors *Vultur gryphus*, as well as the starvation of Capybaras *Hydrochaeris hydrochaeris*. Some of these cases, made visible through social media, are examples of centuries-old conflicts between humans and animals: crop-raiding, predation (real or potential) on farm animals, as well as competition for water during dry seasons. These conflicts are increasing in some cases as species recover from decades of voracious commercial hunting, and/or human populations encroach into wilderness areas. As wildlife increases in popularity amongst urban communities, rural inhabitants need practical solutions to address the conflicts that do not result in these peoples' criminalization.

24. A fundamental problem is that local appreciation for wildlife and their habitats, the respect for their existence and continuity as healthy populations, has not improved in most of South America. Rural inhabitants with limited economic options make use of fauna for cash income from sales as pets, or for meat, skins and other products. The future of South American wildlife depends in a large part on the change of these utilitarian attitudes towards wildlife, worsened of course by poverty and the absence of economic options in the rural landscapes.
25. Rural inhabitants perceive birds and other wildlife as a free-access resource with few barriers preventing their capture when opportunities arise. Enforcement in the field is difficult, expensive and usually non-existent. For a rural inhabitant, not capturing animals when the opportunity arises is not a wise economic decision; a free access resource means that if you do not take it, someone else will. This dynamic keeps many populations and species under permanent hunting pressure preventing population recovery.
26. Although the wild bird trade has reduced significantly in all South American countries, the general perception is that the problem is as bad as ever (Funk 2016). This perception is not restricted to birds: a Colombian environmental magazine, *Catorce*⁶, recently carried a misleading cover story claiming thousands of sloths had been trafficked to the USA (Saldarriaga 2015).¹⁸³ Although such claims may be aimed at boosting sales of the magazine, a number of other misconceptions regarding wildlife trade persist. For example, that “ten animals die for each one that reaches a market” or that wildlife is the “third most lucrative illegal business after drugs and weapons.” Such messages have been effectively used to reach the wider public to stop buying these animals. Another piece of misinformation about the severity of bird trade in South America is the frequent assumption that any confiscation of a valuable wild species (for example a Scarlet Macaw *Ara macao*) is destined

¹⁸³ The magazine highlighted the capture of a major Three-toed Sloth *Bradypus variegatus* trafficker on their #49 edition cover, claiming that 3,000 sloths had been illegally exported to the US. In fact, the sloth trade is a local activity for sale to tourists as they drive between cities like Medellín to the Caribbean coastal resort towns. There is little purpose or possibility of these mammals being massively exported to the USA without detection.

for the international market. These inferences are continuously published in news articles and interviews without substantiation of the real destination of the confiscated birds, when the great majority of animals are trapped and traded for the internal market in each country, or at most to smuggle across the border. Most articles about wildlife trade in the region perpetuate the idea that wildlife resources are harvested for foreign markets that have created a demand that pays thousands of dollars for animals for which local people get paid only a fraction. Media messages need to mature into an accurate reflection of this trade and the demands that drive it to achieve wider conservation needs. Furthermore, some articles (e.g. Pires *et al.*, 2015) and e-journals (Mowbray 2016) maintain the perception that the situation has not improved in most countries.

INCENTIVES FOR BIRD CONSERVATION

Tourism and local economic incentives that keep birds in their habitats

27. Birdwatching as a hobby has grown slowly within the urban middle and upper classes in South America, currently practiced by a very small fraction of the population. Outreach in rural communities, where most hunting or trapping happens, has not been effectively implemented and requires enormous effort to reach key bird conservation areas; this can be achieved by investing in the protection of BirdLife's Important Bird Areas (IBAs), including the communities who live nearby. Ecotourism based on birdwatching is of key importance in Ecuador, some parts of Peru and increasingly in Colombia, thanks to a steady interest in birdwatching and appreciation of nature, mainly by Europeans, North Americans, Australians and New Zealanders. This tourism creates a huge incentive for local communities and governments for keeping wild bird populations healthy in places where other options for generating sustainable incomes are limited. In many parts of Brazil, Ecuador and Colombia, the only positive economic incentive that protects birds from poaching and trade comes from birdwatching tourism.

Incentives for conservation of wildlife on private lands

28. Economic incentives for landowners based, for example, on reduction of taxes or fees in exchange for commitments to conservation, do not exist in the region; though there is potential for these to be instituted where appropriate wildlife resources exist, such as endangered species' nesting sites and salt licks. These kinds of approaches could help the recovery of many species which require a particular habitat, protection from hunting pressures or help resolving wildlife-human conflicts. Sharing case studies and lessons learned about such incentives from elsewhere in the world could inspire policy makers to establish such programs in the Amazonian countries.

Sustainable use as an economic incentive

29. The scientific management and administration of wild animal populations for economic use is basically non-existent in the region (there were previously good examples in Argentina and Venezuela). Wildlife institutions are often not interested or technically incapable of installing or promoting such programs. Except for Guyana and Suriname, there are very few economic incentives in South American countries for the conservation of birds through sustainable consumptive use of wild populations. The literature review for this work identified only one paper (Medrano-Bitar, 2003) where the sustainable use option based on legal capture and trade in birds is recommended for the Caribbean region of Colombia as a more realistic solution for the socioeconomic issues behind wildlife trade; the proposal was never developed by authorities.

Private reserves and bird conservation

30. Many endemic or rare species fall outside of tourist-accessible areas. Fortunately, several species are protected by private reserves that have been created thanks to donations from foreign organizations who purchase key tracts of land vital for the conservation of many endangered bird species. Several NGOs in Brazil, Ecuador, Colombia and Peru dedicate important resources to run and protect these areas through involving local communities to achieve conservation success. This has proven a very important strategy complementing the protected areas systems in all South American countries, especially in Colombia and Ecuador. This action is taking place in a context where governments are not implementing sufficient controls on deforestation in Amazonian countries.

Species conservation projects for population recovery

31. Species-focused conservation projects targeting birds that have been affected by trade and/or habitat degradation have achieved positive results in Brazil and Colombia. These initiatives also help to conserve a broad range of biodiversity in places where there are no State-managed protected areas.

Wildlife and the animal welfare lobby in South America

32. Most countries have passed laws that protect animals from mistreatment. As these laws also include wild species, they add to the wildlife legal framework regulations. One of the most highlighted sources of ill-treatment of wildlife in trade has been the cruelty to which poached animals are subjected during the tortuous trip between harvest and end markets. The higher the risk of detection, the more the smugglers hide the animals, often cramming them into boxes, suitcases and cages, with many dying before reaching their destination. This is indicative of the low prices these animals fetch in the lower tiers of this business and thus high mortalities are not a major concern to the smugglers. All communications campaigns targeting potential buyers of wild animals highlight the suffering and high mortalities (and hence higher conservation impacts) of the illegal business and this is probably one of the elements that has most strongly caught the attention of the public. However, the anti-cruelty laws restrict the development of potential sustainable use programs based on the assumption that wild harvest of animals is negative. Extractive commercial uses of wildlife are increasingly being rejected by urban populations in South America, and the use of social media condemning and campaigning against such use is something authorities are aware of, making them reluctant to promote sustainable use programs.



BIBLIOGRAPHY

A Pagar El Pato (2006). El Tiempo, Bogotá. <http://www.eltiempo.com/archivo/documento/MAM-1886743> (Accessed January 2017)

Alarcón, L.B. (2017). *Así va el comercio legal de especies*. El Tiempo. <http://www.eltiempo.com/vida/medio-ambiente/conozca-el-comercio-legal-de-especies-68968> (Accessed July 2017)

Agência de Notícias de Direitos Animais ANDA. (2013). *Comércio retira 38 milhões de animais da natureza todos os anos*. Jusbrasil. <https://anda.jusbrasil.com.br/noticias/100602825/comercio-retira-38-milhoes-de-animais-da-natureza-todos-os-anos> (Accessed March 2015)

Agencia Pública de Noticias del Ecuador y Suramerica (ANDES). (2013). *Policía detiene a supuesto cazador de un cóndor andino*. <http://www.andes.info.ec/es/noticias/policia-detiene-supuesto-cazador-condor-andino.html> (Accessed March 2015)

Anon. (2017). *Red Nacional de Observadores de Aves*. Colombia. <https://www.sibcolombia.net/socios/red-nacional-observadores-de-aves-rnoa/> (Accessed July 2017)

Apreendidos no aeroporto de Lisboa 140 ovos de tucanos araras e papagaios. <http://www.publico.pt/ciencia/noticia/apreendidos-no-aeroporto-de-lisboa-140-ovos-de-tucanos-araras-e-papagaios-1519835> (Accessed November 2016)

Banks, R.C. (1970). *Birds Imported into the US in 1968*. Special Scientific Report #36 Fish & Wildlife Service, State Department, Washington, DC.

Banks, R.C., Clapp, R.B. (1972). *Birds Imported into the US in 1969*. Special Scientific Report #148. Fish & Wildlife Service, State Department, Washington, DC.

Baptiste, L.G., Hernández, S., Polanco, R., Quiceno, M.P. (2007). *La Fauna Silvestre Colombiana: una historia económica y social de un proceso de marginalización*. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. <http://www.humboldt.org.co/pdf/usoyval/Baptiste.pdf>

Bass, M.S., Finer, M., Jenkins, C.N., Kreft, H., Cisneros-Heredia, D.F., McCracken, S.F. (2010). Global Conservation Significance of Ecuador's Yasuní National Park. *PLoS ONE* 5(1): e8767. <https://doi.org/10.1371/journal.pone.0008767>

Beastall, C., Shepherd, C.R., Hadiprakarsa, Y., Martyr, D. (2016). Trade in the Helmeted Hornbill *Rhinoplax vigil*, the "Ivory Hornbill". *Bird Conservation International* 26: 137–146.

Bencke, G.A., Mauricio, G.N., Develey, P.F., Goerck, J.M. (orgs.) (2006). *Áreas importantes para a conservação das aves no Brasil. Parte I - Estados do domínio da Mata Atlântica*. São Paulo: SAVE Brasil.

Biodiversity A-Z. (2014). *Megadiverse Countries*. <http://www.biodiversitya-z.org/content/megadiverse-countries> (Accessed May 2015)

BirdLife International. (2017). *Country profile: Brazil*. Available from <http://www.birdlife.org/datazone/country/brazil>. (Accessed June 2017).

BirdLife International. (2017a). *Country profile: Colombia*. Available from <http://www.birdlife.org/datazone/country/colombia>. (Accessed June 2017).

- BirdLife International. (2017b). *Country profile: Ecuador*. Available from <http://www.birdlife.org/datazone/country/ecuador>. (Accessed June 2017).
- BirdLife International. (2017c). *Country profile: Guyana*. Available from <http://www.birdlife.org/datazone/country/guyana>. (Accessed June 2017).
- BirdLife International. (2017d). *Country profile: Peru*. Available from <http://www.birdlife.org/datazone/country/peru>. (Accessed June 2017).
- BirdLife International. (2017e). *Country profile: Suriname*. Available from <http://www.birdlife.org/datazone/country/suriname>. (Accessed June 2017).
- BirdLife International. (2017f). *The IUCN Red List of Threatened Species 2017*. <http://www.iucnredlist.org/> (Accessed June 2017).
- BirdLife International & Conservation International. (2005). *Áreas importantes para la conservación de las aves en los andes tropicales: sitios prioritarios para la conservación de la biodiversidad*. Quito, Ecuador: BirdLife International (Serie de Conservación de BirdLife No. 14)
- Birkhead, T. (2003). *A Brand New Bird. How two amateur scientists created the first genetically engineered animal*. Basic Books, NY, USA.
- Chng, S.C.L., Eaton, J.A., Krishnasamy, K., Shepherd, C.R., Nijman, V. (2015). *In the market for extinction: an inventory of Jakarta's bird markets*. TRAFFIC, Southeast Asia Regional Office
- Clapp, R.B. (1975). *Birds Imported into the US in 1972*. Special Scientific Report #193. Fish & Wildlife Service, State Department, Washington, DC.
- Clapp, R.B., Banks, R.C. (1973). *Birds Imported into the US in 1969*. Special Scientific Report #164. Fish & Wildlife Service, State Department, Washington, DC.
- Clapp, R.B., Banks, R.C. (1973a). *Birds Imported into the US in 1971*. Special Scientific Report #170. Fish & Wildlife Service, State Department, Washington, DC.
- Clarke, R.V. (1997). *Introduction*. In: *Situational Crime Prevention: successful case studies*. pp. 1–43. Clarke, R.V. (ed.). Second Edition. Harrow and Heston Publisher, New York. http://www.popcenter.org/library/reading/pdfs/scp2_intro.pdf (Accessed July 2017).
- Coates, S., Phelps Jr., W.H. (1985). *The Venezuelan Red Siskin: case History of an Endangered Species*. In: Buckley, P.A., Foster, M.S., Morton, E.S., R.S. Ridgley, R.S., Buckley, F.G. (eds). *Ornithological Monographs* No.36, pp.977–985. American Ornithologist Union, Washington, D.C.
- Collar, N.J., Long, A.J., Robles-Gil, P., Rojo, P. (2007). *Birds and People. Bonds in a Timeless Journey*. CEMEX-Agrupación Sierra Madre-BirdLife International, Mexico City, Mexico. 360pp.
- Corporación de Estudios y Publicaciones. (2000). *Ley Forestal y de Conservación de Áreas Naturales y Vida Silvestre, Reglamentos*. Quito, Ecuador.
- CVC-FUNAGUA (ed.) (2011). *Planes de Manejo para la Conservación de 16 Especies Focales de Vertebrados en el Departamento del Valle del Cauca*. Cali, Colombia. p.138.

- D'Amato, A.F., de Moraes Neto, M.A., Maria, J.L. (2009). Apreensão de ovos de Psittacidae com sucesso de eclosão–Relato de casos ocorridos na Bahia entre 2005 e 2008. *Atualidades Ornitológicas On-Line* 150: 7–40. (www.ao.com.br) (Accessed August 2015).
- Daut, E.F., Brightsmith, D.J., Peterson, M.J. (2015). Role of non-government organizations in combating illegal wildlife-pet trade in Peru. *Journal for Nature Conservation* 24: 72–82.
- De Luca, A.C., Develey, P.F., Bencke, G.A. Goerck, J.M. (orgs.). (2009). *Áreas importantes para a conservação das no Brasil. Parte II – Amazônia, Cerrado e Pantanal*. São Paulo: SAVE Brasil.
- Desenne, P., Strahl, S. (1991). Trade and the conservation status of the family Psittacidae in Venezuela. *Bird Conservation International* 1: 153-169.
- Devenish, C., Díaz-Fernández, D.F., Clay, R.P., Davidson, I., Yépez Zavala, I. (eds.). (2009). *Important Bird Areas Americas – Priority sites for biodiversity conservation*. Quito, Ecuador: BirdLife International (BirdLife Conservation Series No. 16).
- Eaton, J.A., Shepherd, C.R., Rheindt, F.E., Harris, J.B.C., van Bulen, S.B., Wilcove, D.S., Collar, N.J. (2015). Trade Driven Extinctions and Near Extinctions of Avian Taxa in Sundaic Indonesia. *Forktail* 31: 1–12.
- ECOLAP/ BIOSFERA. (1998). *Proyecto INEFAN/GEF, Actividad 20. El manejo para la protección y el uso sostenible de la vida silvestre en el Ecuador*. Diagnóstico de la Situación Actual. Tomo I y II. Quito, Ecuador.
- Edwards, S.R. (1992). *Wild bird trade: perceptions and management in the cooperative republic of Guyana*. In: Thomsen, J.B., Edwards, S.R., Mulliken, T.A. (eds.). *Perceptions, conservation and management of wild birds in trade* pp.77–92. TRAFFIC International, Cambridge, UK.
- Enenkel, A.K.E., Smith, P.J. (2014). *Zoology in Early Modern Culture: intersections of science, theology, philology and political and religious education*. Koninlijke Brill NV, Leiden, The Netherlands.
- Figuerola-Serrano, S. (1995). *Uso, valor, manejo y conservación de la fauna silvestre de la región amazónica ecuatoriana*. pp.171. Mimeo copy, Quito, Ecuador.
- Forshaw, J.M. (2010). *Parrots of the World*. Princeton Field Guides. Princeton University Press, Princeton, USA.
- Fundação Grupo Boticário de Proteção à Natureza. *Censo mundial do papagaio-de-peito-roxo indica situação de grave ameaça*. (2015). <http://www.fundacaogrupoboticario.org.br/pt/noticias/pages/censo-mundialdo-papagaio-de-peito-roxo-indica-situacao-de-grave-amea%C3%A7a.aspx> (Accessed May 2016).
- Funk, W.H. (2016). *El Edén Asediado: la increíble fauna alvaje del Amazonas saqueada por traficantes. Series de Mongabay: Comercio de Especies Silvestres en América Latina, Mongabay*. <http://es.mongabay.com/2016/01/el-eden-asediado-la-increible-fauna-salvaje-del-amazonas-saqueada-por-trafficantes/> (Accessed April 2017)
- García-Durán, G. (1988). *Inderena, ante el Desafío del Desarrollo Sostenible*. In: *ECOBIO Memorias Simposio Internacional–Estrategias, Políticas y Acciones, Bogotá Sept 20–23, 1988*. pp. 11–18. Rodríguez, J.V., Heliodoro, S. (eds). INDERENA; Bogotá.
- Goeldi, E.A. (1894). *As Aves do Brasil, Primeria Parte. Monographias Brasilieras II*. Livraria Classica de Alves & C. Rio de Janeiro & São Paulo.
- Goeldi, E.A. (1894). 1897 A Destruição das Garaças e Guarás. *Boletim do Museu Paraense* Vol. II Fasc. I: 27–40.

Gonçalves, P.M.F., Oliveira-Marques, A.R., Matsumoto, T.F., Miyaki, C.Y. (2015). DNA Barcoding Identifies Illegal Parrot Trade. *Journal of Heredity* 106: 560–564. Special Issue Latin America Conservation genetics. Online version <http://jhered.oxfordjournals.org/content/106/S1/560.full>.

Goyenechea, A., Indebaum, R.A. (2015). *Combating Wildlife Trafficking from Latin America into the United States. The illegal trade from Mexico, the Caribbean, Central America and South America and what we can do to address it*. Defenders of Wildlife <http://www.defenders.org/sites/default/files/publications/combating-wildlife-trafficking-from-latin-america-to-the-united-states-and-what-we-can-do-to-address-it.pdf> (Accessed April 2017).

Granizo, T., Pacheco, C., Ribadeneira, M.B., Guerrero, M., Suárez, L. (eds.). (2002). *Libro rojo de las aves del Ecuador*. SIMBIOE/Conservación Internacional/EcoCiencia/Ministerio del Ambiente/UICN. Serie Libros Rojos del Ecuador, Tomo 2. Quito, Ecuador.

Greenfield, P.J. (2006). *Aves del Ecuador*. Fundación Jocotoco y Academia de Ciencias de Filadelfia, Quito.

Groom, M.J., Podolsky, R.D., Munn, C.A. (1991). *Tourism as a sustained use of wildlife: A case study of Madre de Dios, southeastern Peru*. In: Robinson, J.G., Redford, K.H. (eds). *Neotropical wildlife use and conservation*. pp. 393–412. The University of Chicago Press, Chicago.

Guenther, K. (1931). *A Naturalist in Brazil: the record of a year's observations of her flora and fauna, and her people*. Houghton Mifflin Company, Boston and New York. Pp. 472.

Guyana Chronicle. (2015). *Closed season for hunting of wild birds—from January 1 to May 31, 2016*. <https://guyanachronicle.com/2015/11/16/closed-season-for-hunting-of-wild-birds-from-january-1-to-may-31-2016> (Accessed August 2015).

Hilty S.L., Brown, W.L. (1986). *A Guide to the Birds of Colombia*. Princeton University Press, Princeton, NJ.

Hinojosa-Coello, F. (1996). *Proyecto de factibilidad técnica y económica. Sistema de control de cacería, vedas y tráfico de la vida silvestre*. pp. 148. Mimeo copy. Quito, Ecuador.

IBAMA. (2001). *Ecosistemas Brasileiros*. IBAMA/DIREC/DECOE. Edições IBAMA, Brasília, Brasil.

INRENA. (1994). *Anuario Estadístico de Exportaciones de Flora y Fauna Silvestre Año 1993*. Dirección de Conservación de Fauna Silvestre, Dirección General de Áreas Naturales Protegidas y Fauna Silvestre, INRENA; MINAGRI, Lima Perú.

INRENA. (1995). *Anuario Estadístico de Exportaciones de Flora y Fauna Silvestre Año 1994*. Dirección de Conservación de Fauna Silvestre, Dirección General de Áreas Naturales Protegidas y Fauna Silvestre, INRENA; MINAGRI, Lima Perú.

INRENA. (1996). *Anuario Estadístico de Exportaciones de Flora y Fauna Silvestre Año 1995*. Dirección de Conservación de Fauna Silvestre, Dirección General de Áreas Naturales Protegidas y Fauna Silvestre, INRENA; MINAGRI, Lima Perú.

Inskipp, T., Broad, S., Luxmore, R. (eds). (1988). *Significant Trade in Wildlife: a Review of Selected Species in CITES Appendix II*. Volume 3: Birds. IUCN Conservation Monitoring Centre, Cambridge, UK.

Instituto Nacional De Estadística e Informática (INEI). (2014). *11 de julio día Mundial de la Población. Estadísticas poblacionales del Mundo y el Perú*. http://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Lib1157/libro.pdf (Accessed November 2014).

INTERPOL 2012. *Thousands arrested in INTERPOL operation targeting illegal trade in birds*. INTERPOL Media Release. <https://www.interpol.int/en/News-and-media/News/2012/PR059/> (Accessed June 2015).

Kindel, I., Kohler, G. (2017). *Rediscovery of Black-fronted Piping Guan Aburria jacutinga in the Itajai Vallet, Santa Catarina, Southern Brazil*. https://www.researchgate.net/publication/314358915_Rediscovery_of_Black-fronted_Piping_Guan_Aburria_jacutinga_in_the_Itajai_Valley_Santa_Catarina_southern_Brazil.

Kratter, A.W. (1998). *Status, Amanagment and Trade in Parrots in the Co-operative Republic of Guyana (Draft October 1998)*. CITES Secretariat and Wildlife Service Division (WSD) of Guyana, Ministry of Agriculture, Georgetown, Guyana. 149 pp. https://www.traffic.org/site/assets/files/5616/management_and_trade_of_parrots_in_the_cooperative_republic_of_guyana.pdf.

Juniper, T., Parr, M. (1998). *Parrots: a guide to parrots of the world*. Yale University Press, United States.

Moreno, C. (2017). *Los 10 Animales más Tráficados*. <http://especiales.semana.com/trafico-de-animales/>. Revista Semana Sostenible e Instituto Alexander von Humboldt. Semana, Bogotá, Colombia. (Accessed June 2017).

La República, Lima. (2016). *Rescatan 25 aves silvestres que iban a ser comercializadas de manera ilegal en Europa*. La República, Lima. <http://larepublica.pe/sociedad/830536-rescatan-25-aves-silvestres-que-iban-ser-comercializadas-de-manera-ilegal-en-europa> (Accessed October 2016).

Medrano-Bitar, S. (2003). *Tráfico y Tenencia Ilegal de Aves en el Caribe Colombiano*. In: *Manejo de Fauna Silvestre en Amazonía y Latinoamérica*. Polanco, R. (ed.). Selección de Trabajos. V Congreso Internacional, 10–14 Sept 2001, Cartagena, Colombia. pp. 357–359. CITES, Fundación Natura, Bogotá, Colombia.

Mendoza, P., Caverro, N. (2013). *Comercio de Animales Silvestres en los Mercados de Tumbes*. Documento de Trabajo #23. WCS Peru, Lima.

Mendoza, P., Caverro, N. (2014). *Comercio de Animales Silvestres en el Mercado de Bellavista (Pucallpa, Ucayali) 2007–2012*. Documento de Trabajo #26. WCS Peru, Lima.

Mendoza, P., Caverro, N. (2014b). *Comercio de Animales Silvestres en la Región de Loreto. 2007–2012*. Documento de Trabajo #27. WCS Peru, Lima.

Miller, S.W. (2007). *An Environmental History of Latin America*. pp. 257. New Approaches to the Americas Series. Cambridge University Press. Cambridge, UK.

MINAM. (2016). *Áreas Naturales Protegidas del Perú (2011–2015): Conservación para el Desarrollo Sostenible*. Informe Sectorial Ambiente #4. Ministerio del Ambiente del Perú, Lima.

Ministerio de Ambiente y Desarrollo Sostenible. (2012). *Estrategia Nacional para la Prevención y Control al Tráfico Ilegal de Especies Silvestres: Diagnóstico y Plan de Acción ajustado*. Dirección de Bosques, Biodiversidad y Servicios Ecosistémicos, Ministerio de Ambiente y Desarrollo Sostenible de Colombia, Bogotá.

Ministerio de Ambiente y Desarrollo Sostenible. (2012). *Estrategia Nacional para la Prevención y Control del Tráfico Ilegal de Especies Silvestres*. Bogotá. <http://www.humboldt.org.co/es/test/item/502-estrategia-nacional-trafico-ilegal-especies-silvestres> (Accessed June 2015).

Ministerio de Ambiente y Desarrollo Sostenible. (2012). *Política Nacional Para La Gestión Integral de la Biodiversidad y Sus Servicios Ecosistémicos (PNGIBSE)*. <https://www.cbd.int/doc/world/co/co-nbsap-v2-es.pdf> (Accessed June 2015).

Ministerio de Turismo del Ecuador. *Birdwatching Ecuador*. <http://visit.ecuador.travel/birdwatching/index.php?#> (Accessed June 2015).

Monteiro, A., Moreira, B.G., Pereira, A. (2008). *Livro Vermelho da Fauna Ameaçada de Extinção*. Brasília, DF, Belo Horizonte, MG. Fundação Biodiversitas, Brasil.

Mora, A., Sancho, A. (eds). (2006). *Catálogo de fauna silvestre más comercializada en Ecuador*. TRAFFIC América del Sur, Quito.

Murad-Ferreira, F. (2000). *Análise do Comércio Ilegal de Animais Silvestres através das Apreensões de Fauna no Brasil*. Disertação apresentada ao Programa de Pós-Graduação em Ecologia do Instituto de Biologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brasil.

Nassar-Montoya, F., Crane, R. (eds). (2000). *Actitudes Hacia la Fauna en Latinoamérica*. Humane Society Press, Washington, USA.

Neotropical Primate Conservation. (2017). *La Lucha Contra el Tráfico de Fauna*. Boletín #39, p.1. <http://www.neoprimate.org/Newsletters/NPC%20Bolet%C3%ADn%20Volumen%2039%20abril%202017.pdf>

Oldys, H. (1907). *Cage-Bird Traffic of the United States*. Reprint from Yearbook of Department of Agriculture for 1906. Pp. 165–180. Government Printing Office, Washington.

Pantevis, Y.A. (2010). *Construyendo la Historia de Leticia a través de la Pesca (1950–2008)*. Revista Territorios e Fronteiras 97–101. UFMY, Cuiabá, Brasil.

Parra-Monsalve, J. (2009). *Depredador depredado: cacería y comercio de jaguar en dos cuencas andino-amazónicas*. In: *Novos Cuadernos NAEA* 12: 109–134. Universidade Federal do Pará, Belem do Pará, Brasil.

Pires, S.F., Schneider, J.L., Herrera, M., Tella, J.L. (2016). Spatial, Temporal and Age Sources of Variation in Parrot Poaching in Bolivia. *Bird Conservation International* 26: 293–306. BirdLife International, Cambridge, UK. <https://www.cambridge.org/core/journals/bird-conservation-international/article/spatial-temporal-and-age-sources-of-variation-in-parrot-poaching-in-bolivia/29CD5AB3ED5284F29591D-5B0E16D1C82> (Accessed April 2017).

Poonai, N.O. (1973). Report from Guiana. *Oryx* 12: 281–284. Cambridge University Press. Cambridge, UK.

Policía Nacional de Colombia. (2014). *Policía inaugura primer Laboratorio en Latinoamérica de Identificación Genética Forense de Especies Silvestres*. Laboratorio de Identificación Genética Forense de Especies Silvestres. <https://www.policia.gov.co/noticia/polic%C3%ADa-inaugura-primer-laboratorio-en-latinoam%C3%A9rica-de-identificaci%C3%B3n-gen%C3%A9tica-forense-de> (Accessed June 2015).

Policía Nacional de Colombia. (2016). *Trabajamos porque ellos también son nuestro compromiso*. <https://www.policia.gov.co/noticia/trabajamos-porque-ellos-tambien-son-nuestro-compromiso> (Accessed July 2016).

Policía Nacional de Colombia. (2017). *Policía ambiental y ecológica incauta 73 ejemplares de fauna silvestre con el fin de protegerla*. <https://www.policia.gov.co/noticia/polic%C3%ADa-ambiental-y-ecol%C3%B3gica-incauta-73-ejemplares-de-fauna-silvestre-con-el-fin-de> (Accessed January 2017).

Policía Nacional de Colombia. (2017b). *Capturados dos presuntos responsables de envenenar 60 patos silvestres*. <https://www.policia.gov.co/noticia/capturados-dos-presuntos-responsables-de-envenenar-60-patos-silvestres>.

Procuraduría General de la Nación, PGN. (2006). *Diagnóstico sobre el Manejo y Disposición de Especímenes Decomisados de Fauna Silvestre en Colombia*. En: *Informe preventivo de la Procuraduría General de la Nación*. Bogotá, D.C.

Programa Día a Día. <http://www.teleamazonas.com/programacion/actualidad/dia-a-dia/> Quito, Ecuador (Accessed May 2017).

PROMPERU. (2013). *Perfil del Observador de Aves, Serie Turismo en Cifras*. Comision de Promocion del Peru para la Exportacion y Turismo–PROMPERU., Lima. <http://www.promperu.gob.pe/TurismoIN//sitio/Visor-Documentos?titulo=Perfil%20del%20Observador%20de%20Aves%20&url=Uploads/publicaciones/1005/TC-PerfildelObservadordeAves.pdf&nombObjeto=Publicaciones&back=/TurismoIN/sitio/Publicaciones&issuuid=0/31920582>

PROMPERU. (2014). *Rutas de Aves. Guia de Observacion de Aves en Areas Naturales Protegidas*. Comision de Promocion del Peru para la Exportacion y Turismo–PROMPERU., Lima. <http://issuu.com/visitperu/docs/guia-observacion-de-aves-en-ansps?e=1760695/12814639>.

Publico. (2013). *Ovos de papagaio sao o negocio de ouro dos traficantes de animais*. <http://www.publico.pt/portugal/jornal/ovos-de-papagaio-sao-o-negocio-de-ouro-dos-trafficantes-de-animais-27035964> (Accessed 2nd September 2016).

RAISIG. (2012). *Amazonia Bajo Presión*. RAISIG – Red Amazónica de Información Socioambiental Georeferenciada. pp.68. Instituto Socioambiental, São Paulo, Brasil.

RAISIG. (2015). *Deforestation in the Amazonia (1970–2013)*. RAISIG Amazonian Network of Georeferenced Socio-Environmental Information. pp. 48. Instituto Socioambiuntal, São Paulo, Brasil.

Remsen, Jr., J.V., Areta, J.L., Cadena, C.D., Jaramillo, A., Nores, M., Pacheco, J.F., Pérez-Emón, J., Robbins, M.B., Stiles, F.G., Stotz, D.F., Zimmer, K.J. *A classification of the bird species of South America*. (Nov. 2015 version). American Ornithologists' Union. <http://www.museum.lsu.edu/~Remsen/SACCBaseline.html>.

RENTAS. (2001). *1er Relatório Nacional sobre o Tráfico de Fauna Silvestre*. Brasília.

RENTAS. (2017). *I Relatório Nacional Sobre Gestão e Uso Sustentável da Fauna Silvestre*. 2nd Edition, March. http://www.rebras.org.br/rebras/userfiles/file/IREL_RENTAS_2EDICAO_reduzido.pdf (Accessed March 2017).

Renjifo, L.M., Franco-Maya, A.M., Amaya-Espinel, J.D., Kattan, G.H., López-Lanús, B. (eds.). (2002). *Libro Rojo de Aves de Colombia*. Serie Libros Rojos de Especies Amenazadas de Colombia. Instituto Alexander von Humboldt and Ministerio del Medio Ambiente, Bogotá, Colombia.

Renjifo, L.M., Gómez, M.F., Velásquez-Tibatá, J., Amaya-Villarreal, A.M., Kattan, G.H., Amaya-Espinel, J.D., Burbano-Girón, J. (eds). (2014). *Libro Rojo de las Aves de Colombia Vol. 1*. Bosques Húmedos de los Andes y Costa Pacífica. Editorial Pontificia Universidad Javeriana, Instituto Alexander von Humboldt, Bogotá, D.C., Colombia.

Renjifo, L.M., Amaya-Villareal, A.M., Burbano-Girón, J., Velasquez-Tibatá, J. (2017). *Libro Rojo de Aves de Colombia*. Vol. II. Ecosistemas Abiertos, Secos, Insulares, Acuáticos Continentales, Marinos, Tierras Altas del Darién y Sierra Nevada de Santa Marta y Bosques Húmedos del Centro, Norte y Oriente del País. Editorial Pontificia Universidad Javeriana, Instituto Alexander von Humboldt. Bogota, Colombia.

Reuter, A. and Mosig, P. Analysis of international bird trade involving Brazil, Bolivia, Peru, Colombia, Guyana and Suriname (unpublished).

Rodas, F., Sánchez, F., Cuenca, L., Manzanilla, J. (eds.). (2007). *Manual de Procedimientos contra el tráfico ilegal de fauna en el Ecuador*. Naturaleza y Cultura Internacional/DarwinNet / Ministerio del Ambiente.

Rueb, E.S. (2015). *Tiny Birds, Big Drama: inside the World of the Birdmen in Queens*. The New York Times, July 31, 2015, online version: http://www.nytimes.com/2015/08/02/nyregion/tiny-birds-big-drama-inside-the-world-of-the-birdmen-of-queens.html?_r=1.

Saldarriaga, V. (2015). *3,000 Perezosos sin Visa a USA: cayó el mayor traficante*. Revista Ambiental Catorce6 # 49: 26–29, Bogotá, Colombia. <https://www.catorce6.com/37-ediciones-anteriores/11573-edicion-49> (Accessed May 2017).

Sanders, R. (2014). *Peru's Manu National Park sets new biodiversity record*. Berkeley News (USA), February 18, 2014. <http://news.berkeley.edu/2014/02/18/manu-national-park-in-peru-sets-new-biodiversity-record>.

Semana Sostenible. *Cayó la mayor red de tráfico de especies silvestres de Colombia*. (2016). <http://sostenibilidad.semana.com/medio-ambiente/articulo/cayo-la-mayor-red-de-traffic-de-especies-silvestres-de-colombia/35551> (Accessed January 2017).

SERFOR/MINAGRI. (2015a). *Política Nacional Forestal y de Fauna Silvestre*. Ley Forestal y de Fauna Silvestre No. 29763. Lima, Perú.

SERFOR/MINAGRI. (2015a). *Reglmanetos Ley Forestal y de Vida Silvestre* <http://www.serfor.gob.pe/wp-content/uploads/2016/03/LFFS-Y-SUS-REGLAMENTOS.pdf> (Accessed June 2015).

SERFOR. (2015a). *Plan Nacional Conservacion Suri*. http://www.serfor.gob.pe/wp-content/uploads/2015/12/plan_nacional_conservacion_suri.pdf (Accessed May 2017).

SERFOR. (2015b). *Plan Nacional Conservacion Condor Andino*. http://www.serfor.gob.pe/wp-content/uploads/2015/12/plan_nacional_conservacion_condor_andino.pdf (Accessed May 2017).

SERFOR. (2016). *Plan Nacional Conservacion de la Pava Aliblanca*. <http://www.serfor.gob.pe/wp-content/uploads/2016/06/Plan-Nacional-de-Conservacion-de-la-Pava-Aliblanca.pdf> (Accessed May 2017).

Servicio Nacional de Áreas Naturales Protegidas por el Estado (SERNANP)/Ministerio del Ambiente. (2016). *Áreas Naturales Protegidas del Peru*. <http://www.minam.gob.pe/wp-content/uploads/2016/06/ANP240516.pdf> (Accessed March 2016).

Shanee, N. (2017). *Denuncia Pública General sobre Casos de Fauna Silvestre en Cautiverio. Vol. III. Informe Final*. Neotropical Primate Conservation. Peru http://neoprimate.org/Publications/Denunciafauna-Informe_Final.pdf (Accessed July 2017).

Silveira, J., Grattapaglia, D. (2014). *Seqüências de genes mitocondriais no combate aos crimes contra a fauna*. Informative poster with research results by Instituto Nacional de Criminalística–Policia Federal do Brasil, EMBRAPA e Universidad Católica de Brasilia.

Sick, H. (1993). *Birds in Brazil, a natural history*. Princeton University Press, Princeton, NJ. USA.

Sinovas, P., Price, B., King, E., Hinsley, A., Pavitt, A. (2017). *Wildlife Trade in the Amazon Countries: an analysis of trade in CITES listed species*. Technical report prepared for the Amazon Regional Program (BMZ/DGIS/GIZ). UN Environment-World Conservation Monitoring Centre, Cambridge, UK.

Suarez, E., Morales, M., Cuevas, R., Utreras Buchelli, V., Zapata Rios, G., Toral, E., Torres, J., Prado, W., Vargas Olalla, J. (2009). Oil industry, wild meat trade and roads: indirect effects of oil extraction activities in a protected area in north eastern Ecuador. *LZS Animal Conservation* 12: 364–373. <http://onlinelibrary.wiley.com/doi/10.1111/j.1469-1795.2009.00262.x/full>

- Terres, J.K. (1995). *The Audubon Society Encyclopedia of North American Birds*. Wings Books, NJ.
- Thomsen, J.B., Brautigam, A. (1991). *Sustainable use of Neotropical birds*. In: Robinson, J.G., Redford, K.H. (eds.). *Neotropical wildlife use and conservation*. pp. 369–379. The University of Chicago Press, Chicago.
- Thlusty, M. (2002). The benefits and risks of aquacultural production for the aquarium trade. *Aquaculture* 205: 203–219.
- Tomiska, L. (2015). *The world Spix's Macaws population comprises 127 birds, 20 youngers have been bred in this year*. Parrots Daily News.com. <http://www.parrotsdailynews.com/the-world-spixs-macaws-population-comprises-127-birds-20-youngers-have-been-bred-in-this-year/>.
- Trading Economics. (2017). *Brazil-Rural Population*. <http://www.tradingeconomics.com/brazil/rural-population-percent-of-total-population-wb-data.html> (Accessed January 2017).
- Vuilleumier, F. (2003). Neotropical ornithology: then and now. *The Auk* 120: 577–590.
- WCS Colombia. (2015). *Noticias, 22 January*. <https://colombia.wcs.org/Sobre-nosotros/Noticias/articleType/ArticleView/articleId/6553/Nace-una-esperanza-de-vida-para-diez-especies-de-flora-y-fauna-en-Colombia.aspx> (Accessed May 2017).
- Wetmore, A. (1927). *The Migration of Birds*. Harvard University Press, Cambridge, Mass, US.
- Wilkinson, B. (1999). *ENVIRONMENT: Guyana Faces Ban on Exotic Birds*. Inter Press Service News Agency. <http://www.ipsnews.net/1999/10/environment-guyana-faces-ban-on-exotic-birds/> (Accessed May 2015).



TRAFFIC, the wildlife trade monitoring network, is a leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:

**TRAFFIC
Headquarters Office
David Attenborough Building
Pembroke Street
Cambridge CB2 3QZ
UK**

**Phone: (44) 1223 277427
Fax: (44) 1223 277237
Email: traffic@traffic.org
Website: www.traffic.org**

*UK Registered Charity No. 1076722,
Registered Limited Company No. 3785518.*

TRAFFIC
the wildlife trade monitoring network