

## 1.0 WORKSHOP INTRODUCTION

Macaws are New World members of the parrot family, distinguished by their large, dark (usually black) beaks, relatively featherless and light colored facial patches, and long tails that are often one-third to one-half the total length of the bird. Several macaw species are the largest (hyacinth macaw: *Anodorhynchus hyacinthinus*) and heaviest (great green or Buffon's macaw: *Ara ambiguus*) of the flighted parrots (The flightless kakapo is heaviest of the parrot species). Of 18 known species of macaws, two are already extinct (glaucous macaw: *Anodorhynchus glaucus*; and the Cuban macaw: *Ara tricolor*), and one clings to survival only in captivity (Spix's macaw: *Cyanopsitta spixii*). Most of the other 15 species are endangered in the wild.

The greatest problems threatening wild macaw populations are the rapid rate of deforestation and illegal trapping for the bird trade. In some remote areas, macaws are still killed for food. Nine of the 16 species of macaws are listed on CITES Appendix I, or Threatened with Extinction, the highest ranking on the three lists of the Convention on International Trade in Endangered Species of Wild Flora and Fauna, or CITES. The species of concern in this Workshop, the northern subspecies of the scarlet macaw, *Ara macao cyanoptera*, is one of those listed on Appendix I.

The scarlet macaw has the greatest range of all macaws, ranging originally from southern Mexico in Oaxaca southward through Central America and throughout northern South America east of the Andes and south as far as Bolivia and southern Brazil. In pre-Columbian times, scarlet macaws were bred in northern Mexico for trade. Scarlet macaw bones and rock art have been found in Anasazi ruins in southern New Mexico and Arizona, and their Native American Pueblo descendants still prize red feathers for ceremonial headdresses and other ceremonial art.

Wiedenfeld (1994) identified two subspecies of scarlet macaw, *Ara macao cyanoptera* in the northern part of the range and *Ara macao macao* in the southern. Costa Rica and Panama represent a transitional zone. Morphologically, *A. m. cyanoptera* is distinguished from *A. m. macao* by being larger and having a broad band of yellow on the wing with some yellow feathers tipped in blue. The yellow band abruptly changes to blue on the rest of the wing. *A. m. macao* is somewhat smaller, and has a narrower yellow band that grades into green before turning into blue on the rest of the wing. Kari Schimdt, a PhD student at Columbia University in the United States is investigating the genetic taxonomy of scarlet macaws, and at the conclusion of her research will be able to identify groups of genetic assemblages (haplotypes) and relate them to the morphologically determined subspecies. Among other things, she will be able to tell if there are two or possibly more subspecies (Abramson, 1996, suggests three) and how close or distant they are genetically. One aspect of her work is described in the Appendix.

As early as its designation as *Ara macao cyanoptera* (Wiedenfeld 1994), the subspecies was already in peril. Wiedenfeld wrote:

*Even as I describe a new form of Scarlet Macaw, I must report that it is in danger of extinction. Although once widespread in southern Mexico and northern Central America, Ara macao cyanoptera has been reduced to only a small number of birds in isolated populations. It has been almost completely extirpated from the Pacific slope in Mexico,*

*Guatemala, El Salvador (from which country it was completely extinguished "some decades ago"; Thurber et al. 1987), Honduras, and Nicaragua (Ridgely 1982). There is a small remnant population on the Peninsula of Cosigüina, Nicaragua (pers. observ.). On the Caribbean slope, the macaw now occurs in Mexico only in the Selva Lacandona (Forshaw 1989), in the forest of southwest Belize (Manzanero 1991), in the southwestern Petén region of Guatemala (J. Vannini, pers. comm.), northeastern Honduras (pers. observ.), and eastern Nicaragua (Martínez 1991)....*

*Extrapolating from the numbers estimated for the Honduran Mosquitia, the total Middle American population of both subspecies of the Scarlet Macaw is probably about 5000 birds, including 4000 *Ara macao cyanoptera*. These birds are in several isolated populations. Although each population (for example, Selva Lacandona/Petén, or the Mosquitia) now may be large enough to avoid genetic inbreeding problems, because the populations are small and isolated, their long-term survival seems unlikely....*

*Because the macaw's numbers are so low, strong efforts should be begun immediately to preserve the species. These should include an enforced prohibition of trade, both within Middle America and for export as pets to the developed countries. Habitat preservation should also be a high priority. Continued efforts to preserve the forests in the Selva Lacandona and Petén areas will provide habitat in the remaining northern part of the subspecies's range.*

One region mentioned by Wiedenfeld is the “Selva Lacandona and Petén” areas. These areas are part of the tri-national Selva Maya, or Maya Forest, in the nations of Belize, Guatemala, and Mexico. The Maya Forest contributes to the extremely high biodiversity of the Mesoamerican isthmus. Mesoamerica contains 7-10% of all known forms of life on earth, and 17% of terrestrial biodiversity in less than 0.005% of the planet's land area (CEPF, 2004), and the levels of endemism among its mammals (15%), plants (17.3%), birds (18.7%), reptiles (34.7%), and amphibians (64.5%) rank it among one of the top twenty-five biodiversity hotspots in the world: <http://www.biodiversityhotspots.org/xp/Hotspots/mesoamerica/Pages/biodiversity.aspx>. The three nations that share the Selva Maya are linked together by the rich cultural traditions of the Maya people that have inhabited the region for over five thousand years. The trinational Selva Maya also shares similar ecosystems including montane and lowland tropical moist forest, seasonally flooded scrub forests known as bajos, oxbow lakes and the largest areas of freshwater wetlands in Central America. Every year, during the winter, the region becomes home to up to one billion migratory birds from Canada and the United States.

The Government of Guatemala and UNESCO moved in 1990 to protect the vast majority of Guatemala's remaining intact part of the Selva Maya by creating the multi-use Maya Biosphere Reserve (MBR). The MBR spans roughly the northern half of the Department of the Petén, covering some 2.1 million hectares, consisting of 19% of the surface area of the country of Guatemala, or an area twice the size of Yellowstone National Park. After years of investments and mixed successes, approximately 70% of the reserve<sup>1</sup> remains intact, no small feat given the accelerating loss of habitat across Mesoamerica. Today, some 18 years after its ambitious

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<sup>1</sup> Including areas in all three reserve zones: the Buffer, Zone, the Multiple Use Zone, and Core Zones (i.e. National Parks and Biotopes).

creation the reserve faces numerous threats, including wildlife poaching, illegal natural resource extraction, expansion of oil exploration, illegal colonization and ranching, habitat destruction, and purposely-set forest fires, in addition to a recent increase the intensity of threats due to the influx of money from the illegal drug trade. Not a good environment in which to be a scarlet macaw.

The Wildlife Conservation Society's Guatemala Program has been promoting the conservation of the Maya Biosphere Reserve since the early 1990's when it began operating out of a modest office in the northern Guatemalan town of Flores. Over the years WCS has developed integrated conservation and community development programs, with a focus on conserving the eastern MBR due to its keystone role in ensuring connectivity between intact adjacent sections in the Mexican Yucatan Peninsula and northern Belize. This large block of trinational lowland forest currently ranks as the largest intact block of forest remaining in Mesoamerica (Ramos, V.H. 2005).

In 2002, WCS began monitoring macaws in the reserve for the first time, recording extremely low fledging rates, and detecting high numbers of poached nests. In 2004, as part of their Living Landscapes Program, WCS-Guatemala began addressing conservation issues of five wide-ranging and charismatic "landscape species" of the Petén: jaguar (*Panthera onca*), white-lipped peccary (*Tayassu pecari*), Baird's tapir (*Tapirus bairdii*), Mesoamerican river turtles (*Dermatemys mawii*), and scarlet macaws (*A. m. cyanoptera*). They began identifying active macaw nests and monitoring nesting success in seven locations, including the important archaeological site of El Perú-Waka'. At that site, in particular, the number of scarlet macaw breeding pairs seemed to be declining and over time the fate of the population did not look promising. Yet it was also clear that if macaws were to survive, improved protection from habitat loss, poaching, and fire would be essential. Support was obtained from the Guatemalan government, the Critical Ecosystem Partnership Fund, and the United States Agency for International Development to address these threats. The results to date include the stabilization of much of the remaining intact habitat, and a drastic decrease in the severity of poaching.

In 2006, preliminary population modeling using the VORTEX model hinted that releasing 5 additional individuals per year into the population would keep the population from going extinct. Those "back of the envelop calculations" piqued the interest of WCS-Guatemala in a possible population augmentation program. In addition, two aviaries containing scarlet macaws were in periodic communication with each other and with WCS. Mrs. Nini de Berger had established a large aviary in the southern part of the country during the early 1980s, Aviarios Mariana, with a collection of scarlet macaws and other species in the hope that perhaps some day she could release the offspring back into the wild. The ARCAS Wildlife Rescue Center, located near Flores, Petén, where WCS-Guatemala was based, had been taking in confiscated and relinquished macaws for a decade or more and had begun evaluating a possible scarlet macaw reintroduction program.

In spring of 2007, Dr. Janice Boyd of the parrot conservation and research organization, Amigos de las Aves-USA, visited the WCS program in Guatemala. Dr. Boyd brought a strong interest in scarlet macaw reintroduction and captive breeding, having worked in those fields in Costa Rica, and in addition had many contacts in the parrot research, avian medicine, and aviculture fields.

After a number of months of discussing macaw reintroductions, Dr. Boyd, M.S., Gabriela Ponce of WCS Guatemala, and Dr. Robin Bjork of SalvaNATURA visited the Puerto Rican Parrot Recovery Program in Puerto Rico where discussions were held with Dr. Thomas White, director of the field project. Following this inspirational visit, the three institutions decided to convene a “Scarlet Macaw Species Recovery Workshop” in March of 2008 in Flores, consisting of visits to Aviarios Mariana, ARCAS, and the El Peru-Waka’ macaw nesting site. Former WCS research fellow, Dr. Robin Bjork, was by this time working on a possible reintroduction project for scarlet macaws in El Salvador, so the geographical area of interest for the Workshop was expanded to cover El Salvador, as well.

These proceedings summarize the extensive findings of that Workshop. Unfortunately, in most parts of Central America, the status of *Ara macao cyanoptera* has not improved from what Wiedenfeld observed 14 years ago. We hope other supporters of scarlet macaw species survival will find various parts of this document of help in their struggle to preserve for future generations this intelligent, beautiful, and charismatic subspecies that has shared the land of Central America with human beings for thousands of years.

#### **LITERATURE CITED**

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