

BIRDS WITHOUT BORDERS: AMERICAN AND MEXICAN UNIVERSITY WORKSHOP FOCUSES ON AVIAN CONSERVATION

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Abstract. Precipitous declines in migrant bird populations have led to increased public concern. Conservation programs based solely in the U.S. will have little overall success in avian population recovery if areas such as over-wintering grounds, are not included. Birds Without Borders is a collaborative study-abroad workshop between Miami University, the College of Mount St. Joseph, and the Autonomous University of Tamaulipas, Mexico. Participants in this two-part workshop spent 6 days in Mexico and 6 days in Ohio studying temperate and neotropical migrants. Bird banding and biological surveys were conducted at El Cielo Biosphere Reserve in Mexico and at the Miami University Bird Observatory in Ohio. Pairs of students, one from each country, selected a migrant bird known to winter in Tamaulipas and nest or pass through Ohio. Important communication, critical thinking, socio-cultural, ethical and interdisciplinary skills were developed as they worked together in Mexico and Ohio observing, banding, and researching conservation of "their" bird. Students also designed and participated in environmental education activities in the remote village of 20 de Abril where the endangered Military Macaw (*Ara militaris*) breeds. Collaborative projects planned for the future include isotopic, genetic and physiology studies, exchange of students between universities, increased biological surveys of El Cielo, establishment of a Mexican bird banding station and the creation of a sustainability program in 20 de Abril.

Key Words: conservation, environmental education international, Mexico, Neotropical.

AVES SIN FRONTERAS: UN TALLER DE UNIVERSIDADES AMERICANAS Y MEXICANAS PARA LA CONSERVACIÓN DE LAS AVES

Resumen. El declive acelerado de las poblaciones de aves migratorias ha incrementado la preocupación de la sociedad. Los programas de conservación dentro de los Estados Unidos tendrán poco éxito en la recuperación de las poblaciones de aves si no se incluyen los hábitats invernales. Aves sin Fronteras es un Taller de colaboración y estudio internacional entre la Universidad de Miami, el Colegio de Mount St. Joseph y la Universidad Autónoma de Tamaulipas, México. Los participantes de este taller pasaron 6 días en México y 6 en Ohio estudiando las aves migratorias neárticas y neotropicales. Se llevó a cabo anillamiento de aves y estudios biológicos en la Reserva de la Biosfera El Cielo en México y en el Observatorio de Aves de la Universidad de Miami en Ohio. Cada par de estudiantes seleccionó una especie de ave migratoria que invierte en Tamaulipas y que anida o pasa por Ohio. La comunicación, el análisis crítico, socio-cultural, ético y las habilidades interdisciplinarias se fomentaron al trabajar de manera conjunta, al implementar el anillando e investigar aspectos de conservación ornitológica. Los estudiantes también diseñaron y participaron en actividades de educación ambiental en la comunidad 20 de Abril donde la guacamaya verde, *Ara militaris*, una especie en peligro de extinción se reproduce. A futuro, los proyectos de cooperación incluyen estudios fisiológicos, genéticos e isotópicos, biológicos, intercambio de estudiantes, establecimiento de una estación de anillamiento de aves y creación de un programa de desarrollo sostenible en la comunidad 20 de Abril.

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INTRODUCTION

In the past few years, a new era of understanding and cooperation has begun as researchers, citizen scientists, and government agencies are realizing that in order to protect and preserve our migrant species, representatives from all geographic areas important within a species' range must work in cooperation. Successful conservation programs in the U.S. might have little or no overall success if the other areas important in the bird's annual cycle, such as their wintering homes and migration rest stops are negatively impacted.

In 2005, Miami University (MU), Oxford, Ohio, U.S., re-signed a collaborative agreement, originally penned in the early 1990s, with the Universidad Autónoma de Tamaulipas (UAT) located in Cuidad Victoria, Tamaulipas, Mexico, to offer international partnership opportunities to students and faculty at both universities. Birds Without Borders was the first of many long-term collaborations planned between MU and UAT. This cooperative international program engages students from both countries in both conservation issues and field methods for monitoring neotropical and temperate migrants. Included in the partnership is the non-profit Avian Research and Education Institute (AREI), providing the Master Banding license for all bird banding activities and in 2007, the College of Mt. St. Joseph (MSJ), Cincinnati, OH, joined the Birds Without Borders collaborative.

Workshop participants work together, both in Mexico and the U.S., in various activities relating to the observation, banding, and conservation of shared birds. This is truly a unique opportunity for students to see all aspects of a migrant bird's life. This experience not only teaches students about bird biology and conservation, but also shows the short-term and long-term benefits of international scientific collaboration. In addition to learning important bird conservation methodologies, participants cross cultural and language barriers to learn about "their" birds in their neighbor's backyard. As important as technical skills are, the ability to learn from and work with people who speak different languages, have different priorities, and see the world differently from oneself is paramount if we are ever to be successful in preserving our natural heritages.

This workshop consists of two phases designed to advance our understanding of ecological and environmental impacts and sustainability of ecosystems in one of the most important migratory pathways for birds in the western hemisphere. During Phase 1 of the workshop,

participants from the U.S. and Mexico visit El Cielo Biosphere Reserve (EC), Mexico. EC is a United Nations designated biosphere located in the eastern escarpment of the Sierra Madre Oriental in Tamaulipas, Mexico with a unique ecosystem comprising tropical, temperate, and arid zones. This 144 530-ha area is home to 743 species of plants, 25 species of amphibians, 60 species of reptiles, 385 species of birds, 92 species of mammals, and 300 species of butterflies (WildShare 2005). EC contains the northern-most cloud forests in the Western Hemisphere and is located less than 30 km from desert regions containing cacti and acacia. This workshop offers tremendous opportunities to observe first-hand the amazing dichotomy found between the wintering and summering habitats of many of our shared migrants species. During Phase 2 of the workshop, all participants visit the AREI banding stations in the eastern deciduous forest communities of southwestern Ohio and then take a two-day trip up-state to the shores of Lake Erie and visit the Magee Marsh Boardwalk and the Black Swamp Bird Observatory. Black Swamp Bird Observatory is one of the most active migratory bird banding locations in North America, banding over 15 000 birds per year. Students not only get to observe the incredible diversity and numbers of migrants, but also see first-hand the pros and cons of the strong ecotourism industry at Magee Marsh Boardwalk.

Goals of workshop are to 1) bring people from the U.S. and Mexico together to study global avian conservation issues and underscore the necessity of collaboration between agencies, academic institutions and concerned groups, 2) survey and band bird species in the U.S. and Mexico—emphasizing the birds we share, 3) educate the public on the conservation needs of neotropical migrants by conducting environmental education festivals in communities in both countries to raise public awareness of the importance of conservation of bird habitat, 4) provide cultural exchange, and 5) educate students from both countries in conservation issues and field methods for monitoring neotropical migrants.

PROGRAM DETAILS

Birds Without Borders is a 2-phase workshop encompassing community-based environmental education and two weeks of field study; one week in Mexico in March and one week in the U.S. in May. Participants work together focusing on neotropical migrant species, particularly those shared between the two countries but also sharing with their partners the resident, nonmigratory species of their home countries.

TABLE 1. SPECIES OF NEOTROPICAL MIGRATORY BIRDS SHARED BETWEEN TAMAULIPAS, MEXICO AND OXFORD, OHIO.

White-eyed Vireo (<i>Vireo griseus</i>)
Ruby-crowned Kinglet (<i>Regulus calendula</i>)
Blue-gray Gnatcatcher (<i>Poliophtila caerulea</i>)
Hermit Thrush (<i>Catharus guttatus</i>)
Gray Catbird (<i>Dumetella carolinensis</i>)
Nashville Warbler (<i>Vermivora ruficapilla</i>)
Black-throated Green Warbler (<i>Dendroica virens</i>)
Black-and-white Warbler (<i>Mniotilta varia</i>)
Ovenbird (<i>Seiurus aurocapillus</i>)
Wilson's Warbler (<i>Wilsonia pusilla</i>)
Yellow-breasted Chat (<i>Icteria virens</i>)

Students from the U.S. were partnered with students from Mexico to work together learning about the natural history and conservation issues affecting a subset of birds that over-winter in Mexico and migrate through or breed in Ohio. This subset included birds that are regularly encountered at our bird banding stations in southern Ohio (Table 1). Although the focus of the workshop was birds, plant surveys of each field site and community-based environmental education programs were included, so students experienced a wide variety of topics pertinent to a broad understanding of avian conservation. The workshop is both a college course for some, where college credit is earned, and a scholarship for other participants, who do not get college credit, but are granted the opportunity to experience the cultural exchange, learn field techniques in ornithology and participate in community-based conservation activities.

Since its inception in 2006, more than 100 students and faculty members from four universities have participated in the Birds Without Borders workshop, and their experiences have changed their lives forever. Each year, scientists from different disciplines, including mammalogy (bats), botany, herpetology, entomology, and neuroendocrinology accompany the workshop participants and bring a more holistic perspective of each field site.

In 2007, eight investigators from UAT, MU, AREI and MSJ along with 22 students, participated in workshop activities that included: bird surveys, bird banding, ecological surveys of ants and plants, cultural exchange and environmental education at two sites in EC, Mexico and two sites in southwestern Ohio. Workshop participants prepared for the workshop by attending pre-trip training sessions that covered; bird banding techniques, field research techniques, a study of neotropical migrants and native birds expected to be seen in Mexico and the U.S., Spanish and English lessons, cultural diversity, and a study of the geography and ecology of each of the study sites.

Prior to leaving for Phase 1, U.S. students were required to write a paper on the natural history and conservation issues affecting a shared neotropical migrant (Table 1). Students were informed that when they arrived in Mexico, they would be paired with a UAT student who was also assigned the same bird. The students were then expected to work together to survey that species, actively participate in the banding of their bird and develop a comprehensive collaborative report that would be turned in to their professors at the completion of the workshop. UAT students were required to present public seminars about their bird, as well as hold press conferences in Mexico to educate the public about the local conservation issues affecting avian survivorship. U.S. students were required to present similar presentations to the public upon their return to the U.S.

All students maintained daily journals, which were evaluated by the workshop leaders. Topics addressed in the journals included: A daily summary of activities; methods and materials used in each activity/protocol; data from all birds banded; data from ant and plant surveys; field notes and drawings; personal relationships; effectiveness and teamwork, including team dynamics; relationship with professors; positive and negative aspects of workshop; workshop strengths/weaknesses; and recommendations for future workshops.

The workshop was evaluated by student participants who were given post workshop evaluation forms to complete, and community members who were asked to provide feedback on the environmental education programs to the UAT faculty. Workshop leaders met at the end of each Phase of the workshop to discuss what worked, what didn't work, and how to make the workshop better next year.

PHASE 1—MEXICO

During March of 2007, Phase 1 of Birds Without Borders was conducted at two study sites in EC, Mexico. Students and faculty from the U.S. traveled to Brownsville, TX, where they were picked up by faculty from UAT. U.S. participants then traveled to the main UAT campus in Ciudad Victoria, Tamaulipas, Mexico and joined the group of students from UAT. U.S. participants were greeted by officials from UAT and then the group headed out into the field. The first field site in Montecarlo of EC was approximately 5 hours southwest of Ciudad Victoria by 4-wheel drive vehicles—most of the trip was driven at about 5 mph on rarely used dirt roads/trails through the mountains. Everything from tents, drinking water, food

and cooking supplies for a week, field equipment and supplies for the environmental education workshops, to gasoline for the vehicles had to be packed in and packed out.

Daily chores were divided among all participants. Four work groups were created to equally blend participants from Mexico and the U.S. These four work groups shared duties including; cooking, cleaning up after meals, setting up field experiments, maintaining field equipment, sample collection and documenting data. One of the benefits of this system was the mandatory interaction between students from each country, enabling them to cross both cultural and language barriers in order to get their jobs done. The result was an efficient workforce, life-long friendships, and really good food!

The site at Montecarlo was picked because it is home to Neotropical migrants that are shared by Ohio and Mexico, it is the northern-most cloud forest in this hemisphere, and the site has three cabins, owned by the Mexican government that were offered to the workshop at no expense. The cabins provided sleeping quarters as well as a kitchen/dining area, along with flushing toilets and electricity (provided by a generator). The forests were different, and yet somehow familiar as they have species of trees similar to those in the eastern deciduous forests of Ohio. Numerous oak species (*Quercus* spp.), beeches (*Fagus* spp.) and redbuds (*Cercis canadensis*) were present. Intermixed were large pines (*Pinus* spp.) and madrones (*Arbutus* spp.), all covered with a thick mat of moss and lichens. The understory was cool, relatively open, and filled with ferns and rotting logs.

Three days were spent at Montecarlo, surveying bird species, banding birds, and surveying insect and plant populations. Twenty-four 60-mm mist nets were set up in two sections of the site each morning. Nets were checked by work teams every 15 min and all birds caught in the nets were transported to the banding station in mesh bags. Migrant birds were banded with United States Geological Survey (USGS) bands, and resident birds were banded with sequentially numbered non-USGS bands. Standard bird banding measurements (Pyle 1997) were taken on each bird, including: species and sex, tail, wing, culmen and tarsal lengths, age, weight, and fat. Photos were taken of each species banded and birds were released. The daily schedule consisted of breakfast at 05:00, nets open at 05:30, and nets closed at about 14:00. Afternoon activities included plant transects, surveying ant diversity, and bird observation. Evening activities included roundtable discussions about local conservation issues,

observations from the day's activities, and nighttime mist-netting for owls and bats.

In the cloud forest, bird banding was surprisingly slow, with resident Golden-browed Warblers (*Basileuterus belli*) being the dominant species encountered. Birds banded at Montecarlo included migrants such as Blue-headed Vireo (*Vireo solitarius*), Black-and-white Warbler (*Mniotilta varia*), Blue-gray Gnatcatcher (*Poliophtila caerulea*), and Hermit Thrush (*Catharus guttatus*) (Table 2).

Through the efforts of the two bat specialists that accompanied our 2007 group, we captured and measured five bat species including common vampire bats (*Desmodus rotundus*), a species that caused tremendous excitement for all participants! Other bats included migratory species such as Hoary (*Lasiurus cinereus*) and Western Red Bats (*Lasiurus blossevillii*).

On the third day, we packed our gear and traveled 40 km over the Sierra Madre Oriental Mountains to Joya de Salas and set up camp in a cow pasture at our second field site. This site was at about the same elevation as Montecarlo (5500 m), but in the rain shadow of the mountains. Thus the vegetation was xeric, desert scrub with pine- and oak-filled ravines. For the students, this site was an ideal counterpoint. Our camp was shared with an abundance of fire ants (*Solenopsis*) which made it necessary to be aware of where you were standing (or sleeping) at all times. Again, participants worked with their partners to conduct bird, insect (primarily ant), and plant surveys, and to band birds (Table 3). In the evening, participants gathered to organize themselves and prepare material to use in the activities of environmental education the following day in Ejido 20 de Abril.

On the fifth day, participants set up and conducted an environmental education festival in the remote village of 20 de Abril. This village is one of the poorest areas in Mexico, and access to the village requires 4-wheel drive vehicles, or more commonly horseback. The village gets water from mountain streams, and there is no electricity. Power is generated on a limited basis by gas-powered generators, and solar panels have been installed in some homes. There is a school building, but no teacher. It is also one of the few villages that still has men living there. Most other villages are composed only of women and children, because the men have moved to larger cities or the U.S. to find employment. With little water (their small reservoir had silted in), it was difficult to produce enough food to subsist, consequently the income earned from trapping and selling local bird species, including the endangered Military Macaw (*Ara militaris*), was an important way to make ends meet.

TABLE 2. SPECIES OF BIRDS SEEN OR BANDED DURING THE BIRDS WITHOUT BORDERS WORKSHOP AT MONTECARLO, TAMAULIPAS, MEXICO, MARCH 2007.

Turkey Vulture (<i>Cathartes aura</i>)
Common Black Hawk (<i>Buteogallus anthracinus</i>)
Band-tailed Pigeon (<i>Patagioenas fasciata</i>)
Common Ground-Dove (<i>Columbina passerina</i>)
Military Macaw (<i>Ara militaris</i>)
Mottled Owl (<i>Ciccaba virgata</i>)
Broad-billed Hummingbird (<i>Cyanthus latirostris</i>)
Amethyst-throated Hummingbird (<i>Lampornis amethystinus</i>)
Magnificent Hummingbird (<i>Eugenes fulgens</i>)
Mountain Trogon (<i>Trogon mexicanus</i>)
Blue-crowned Motmot (<i>Momotus momota</i>)
Olivaceous Woodcreeper (<i>Sittasomus griseicapillus</i>)
Ivory-billed Woodcreeper (<i>Xiphorhynchus flavigaster</i>)
Spot-crowned Woodcreeper (<i>Lepidocolaptes affinis</i>)
Tufted Flycatcher (<i>Mitrephanes phaeocercus</i>)
Greater Pewee (<i>Contopus pertinax</i>)
Hammond's Flycatcher (<i>Empidonax hammondi</i>)
Dusky-capped Flycatcher (<i>Myiarchus tuberculifer</i>)
Brown-crested Flycatcher (<i>Myiarchus tyrannulus</i>)
Blue-headed Vireo (<i>Vireo solitarius</i>)
Green Jay (<i>Cyanocorax yncas</i>)
Chihuahuan Raven (<i>Corvus cryptoleucus</i>)
Ruby-crowned Kinglet (<i>Regulus calendula</i>)
Blue-gray Gnatcatcher (<i>Poliophtila caerulea</i>)
Brown-backed Solitaire (<i>Myadestes obscurus</i>)
Hermit Thrush (<i>Catharus guttatus</i>)
Clay-colored Thrush (<i>Turdus grayi</i>)
White-throated Thrush (<i>Turdus assimilis</i>)
American Robin (<i>Turdus migratorius</i>)
Cedar Waxwing (<i>Bombycilla cedrorum</i>)
Nashville Warbler (<i>Vermivora ruficapilla</i>)
Crescent-chested Warbler (<i>Parula superciliosa</i>)
Black-throated Green Warbler (<i>Dendroica virens</i>)
Townsend's Warbler (<i>Dendroica townsendi</i>)
Hermit Warbler (<i>Dendroica occidentalis</i>)
Black-and-white Warbler (<i>Mniotilta varia</i>)
Wilson's Warbler (<i>Wilsonia pusilla</i>)
Painted Redstart (<i>Myioborus pictus</i>)
Golden-browed Warbler (<i>Basileuterus belli</i>)
Red-throated Ant-Tanager (<i>Habia fuscicauda</i>)
Summer Tanager (<i>Piranga rubra</i>)
Flame-colored Tanager (<i>Piranga bidentata</i>)
White-winged Tanager (<i>Piranga leucoptera</i>)
Rufous-capped Brush-Finch (<i>Atlapetes pileatus</i>)
Chipping Sparrow (<i>Spizella passerina</i>)
Lincoln's Sparrow (<i>Melospiza lincolni</i>)
Northern Cardinal (<i>Cardinalis cardinalis</i>)
Black-headed Grosbeak (<i>Pheucticus melanocephalus</i>)
Bronzed Cowbird (<i>Molothrus aeneus</i>)
Audubon's Oriole (<i>Icterus graduacauda</i>)
Black-headed Siskin (<i>Carduelis notata</i>)
Hooded Grosbeak (<i>Coccothraustes abeillei</i>)

TABLE 3. SPECIES OF BIRDS SEEN OR BANDED DURING THE BIRDS WITHOUT BORDERS WORKSHOP AT JOYA DE SALAS, TAMAULIPAS, MEXICO, MARCH, 2007.

Gadwall (<i>Anas strepera</i>)
Blue-winged Teal (<i>Anas discors</i>)
Black Vulture (<i>Coragyps atratus</i>)
Turkey Vulture (<i>Cathartes aura</i>)
Zone-tailed Hawk (<i>Buteo albonotatus</i>)
Red-tailed Hawk (<i>Buteo jamaicensis</i>)
Crested Caracara (<i>Caracara cheriway</i>)
American Kestrel (<i>Falco sparverius</i>)
Bat Falcon (<i>Falco ruficularis</i>)
Rock Pigeon (<i>Columba livia</i>)
Mourning Dove (<i>Zenaidura macroura</i>)
Inca Dove (<i>Columbina inca</i>)
Common Ground-Dove (<i>Columbina passerina</i>)
Military Macaw (<i>Ara militaris</i>)
Maroon-fronted Parrot (<i>Rhynchopsitta terrisi</i>)
Greater Roadrunner (<i>Geococcyx californianus</i>)
Vermiculated Screech Owl (<i>Otus guatemalae</i>)
Mottled Owl (<i>Ciccaba virgata</i>)
Whip-Poor-Will (<i>Caprimulgus vociferous</i>)
Broad-billed Hummingbird (<i>Cyanthus latirostris</i>)
Buff-bellied Hummingbird (<i>Amazilia yucatanensis</i>)
Magnificent Hummingbird (<i>Eugenes fulgens</i>)
Mountain Trogon (<i>Trogon mexicanus</i>)
Acorn Woodpecker (<i>Melanerpes formicivorus</i>)
Golden-fronted Woodpecker (<i>Melanerpes aurifrons</i>)
Ladder-backed Woodpecker (<i>Picoides scalaris</i>)
Hairy Woodpecker (<i>Picoides villosus</i>)
Bronze-winged Woodpecker (<i>Piculus rubiginosus aeruginosus</i>)
Greater Pewee (<i>Contopus pertinax</i>)
Dusky-capped Flycatcher (<i>Myiarchus tuberculifer</i>)
Vermillion Flycatcher (<i>Pyrocephalus rubinus</i>)
Blue-headed Vireo (<i>Vireo solitarius</i>)
Mexican Jay (<i>Aphelocoma ultramarina</i>)
Common Raven (<i>Corvus corax</i>)
Bridled Titmouse (<i>Baeolophus wollweberi</i>)
Black-crested Titmouse (<i>Baeolophus atricristatus</i>)
Canyon Wren (<i>Catherpes mexicanus</i>)
House Wren (<i>Troglodytes aedon</i>)
Ruby-crowned Kinglet (<i>Regulus calendula</i>)
Blue-gray Gnatcatcher (<i>Poliophtila caerulea</i>)
Brown-backed Solitaire (<i>Myadestes obscurus</i>)
Hermit Thrush (<i>Catharus guttatus</i>)
Clay-colored Robin (<i>Turdus grayi</i>)
American Robin (<i>Turdus migratorius</i>)
Orange-crowned Warbler (<i>Vermivora celata</i>)
Crescent-chested Warbler (<i>Parula superciliosa</i>)
Tropical Parula (<i>Parula pitaiayuma</i>)
Black-and-white Warbler (<i>Mniotilta varia</i>)
Painted Redstart (<i>Myioborus pictus</i>)
Summer Tanager (<i>Piranga rubra</i>)
Rufous-capped Brush-Finch (<i>Atlapetes pileatus</i>)
Chipping Sparrow (<i>Spizella passerina</i>)
Lincoln's Sparrow (<i>Melospiza lincolni</i>)
Black-headed Grosbeak (<i>Pheucticus melanocephalus</i>)
Great-tailed Grackle (<i>Quiscalus mexicanus</i>)
Lesser Goldfinch (<i>Carduelis psaltria</i>)
House Sparrow (<i>Passer domesticus</i>)

This scenario is common around the world and for students to see the economic conditions that lead to the use of local resources, whether plant or animal, is critical in forming an understanding of how to solve the issue of bird conservation. Understanding the choice between survival and capturing and selling locally procured birds to help support their families is a decision of necessity, not greed, and is central to appreciate how to approach and ultimately solve local conservation problems. Realizing that bird conservation cannot be accomplished without the inclusion, and ultimately the success, of the local community is paramount in any conservation program.

20 de Abril is located at the base of Guacamaya Canyon, a remote mountain canyon and breeding site for several of the approximately 50 pairs of Military Macaws in northern Mexico. A single macaw chick can sell for as much as \$1000 U.S.—the equivalent to several years' worth of wages. One of the aims of this workshop was to educate the villagers of 20 de Abril of the importance of protecting and maintaining the native plant and bird species in their area. Consequently, one of the focuses of the environmental education festival was to help the villagers come up with ways to implement sustainability programs including ecotourism centered around macaw observation in their village.

The festival began at about 10:00 and lasted about 3 hours. Four different activity areas were set up. To our surprise, nearly 60 children and adults were transported for over 5 hrs by 4-wheel drive trucks from several neighboring villages to attend the festival. The mayor of 20 de Abril, state government representatives and the private secretary of the Governor of Juamave (the county seat) were also in attendance. The Governor had planned on coming, but earlier that morning his wife had been in a car accident, so he was unable to attend. Activities included a marionette show with songs, (sung by both MU and UAT students in Spanish) and didactic games that covered topics such as bird habitat, food, breeding, plumage, and migration. Cakes, drinks and a piñata filled with candy, all led to widespread laughter and fun. The festival was well received and also made a tremendously positive impression on our students.

Later that afternoon, one of the local children led us on a 7 km hike up the mountain to Guacamaya Canyon. Exciting as it was to think about the prospect of seeing the endangered Military Macaw, the hike just about killed some of us. But, the reward was worth it. As the last of our group made it to the top of the canyon, gasping and wheezing for air, a pair of macaws,

heard long before they were seen, flew below us and out of the canyon—eventually landing in a pine tree within spotting scope range. As we made our way back down the mountain to 20 de Abril, the group was quiet, each of us deep in thought about the plight of the beautiful and regal Military Macaw.

On the sixth day, we broke camp and headed back to Ciudad Victoria where workshop participants exchanged parting gifts with their partner and bid a tearful farewell to our dear Mexican friends. The week in the field together created a deep bond between all of the workshop participants.

PHASE 2—UNITED STATES: OHIO

In May 2007, students and faculty from UAT flew to the U.S. to spend the second week of Birds Without Borders at field sites in southwestern Ohio. This time of year was chosen because university classes have finished, migrants are plentiful, and early migrants have already started nesting.

Banding and activities were centered around the two bird banding stations in southwestern Ohio operated by AREI that are in close proximity to both MU and MSJ. Participants stayed in dorm rooms on the campus of MU and ate meals in the dining commons. Each evening, U.S. students gave presentations on their bird, what they learned in Mexico, and what they've learned about bird conservation during the workshop.

Day 1

On the first day of Phase 2, participants traveled to northern Ohio and the shores of Lake Erie to visit a popular birding ecotourism attraction—Crane Creek State Park and the boardwalk at Magee Marsh. Every spring tens of thousands of neotropical migrants stop in the trees and bushes along the lakeshore, refueling and waiting for favorable winds to help them cross Lake Erie on their way to breeding grounds in Canada. This is an amazing opportunity to see a large cross-section of our neotropical migrants in their breeding plumages and provides students with the opportunity to compare similar species and sexes up close and side by side. We spent the night at a local church camp, cooked meals in a common kitchen area and slept in a bunkhouse.

Day 2

The group traveled to the Black Swamp Bird Observatory, and spent the day interact-

ing with bird banders and seeing a wide variety of neotropical migrants in the hand. Nearly 20 000 birds are banded at Black Swamp annually. Kenn Kaufman, author of the only North American bird guide currently translated into Spanish, spent the morning with the group writing personalized messages in their field guides. Late in the afternoon, the group traveled back to southwest Ohio to prepare for our first day in the field at the AREI bird banding stations in Butler County.

Day 3

Well before dawn, participants put up 30 nets at the Hueston Woods Biological Station in Hueston Woods State Park. Hueston Woods State Park is nearly 600 ha of deciduous forest with a 250-ha lake in its midst. Within the state park is approximately 80 ha of old-growth beech/maple forest, thought to be about 20% of the remaining uncut beech/maple remaining in Ohio. Only deciduous trees are native to this forest (a few Eastern white pines (*Pinus strobus*) have been planted), with several ash species (*Fraxinus* spp.), American Beech (*Fagus grandifolia*), Sugar Maple (*Acer saccharum*), and various oaks (*Quercus* spp.) predominating. The understory is largely open with spicebush (*Lindera benzoi*) and near the edges, invasive bush honeysuckles (*Lonicera maackii*, *L. tatarica*, and *L. morrowii*). This site has been an active banding station since 2004, and the Birds Without Borders members were actively involved in identifying, sexing, aging, and data collection for all birds captured. In the afternoon, the group listened to UAT faculty members' seminars at MU on their current research projects in El Cielo Biosphere Reserve.

Day 4

Well before dawn, 30 nets were put up at the Miami University Bird Observatory (MUBO). This banding station provided a contrast to the site at Hueston Woods, because situated in an old hog pasture; 20-foot tall Bush honeysuckle and 30 foot Eastern red cedar (*Juniperus virginiana*) dominate the landscape. This successional growth surrounds about one-half hectare of constructed prairie built in the early 1970s, that is primarily Canada goldenrod (*Solidago canadensis*) and Reed canary grass (*Phalaris arundinacea*).

The birds banded (Table 4) include species found in more dense growth such as the migrating Mourning Warbler (*Oporornis philadelphia*), Connecticut Warbler (*Oporornis agilis*), Ovenbird (*Seiurus aurocapilla*), Swainson's Thrush (*Catharus ustulatus*) and White-eyed

TABLE 4. SPECIES OF MIGRATORY BIRDS SEEN OR BANDED DURING THE BIRDS WITHOUT BORDERS WORKSHOP AT OXFORD, OHIO, U.S.A, MAY, 2007.

Acadian Flycatcher (<i>Empidonax vireescens</i>)
Willow Flycatcher (<i>Empidonax trailii</i>)
Trail's Flycatcher (<i>Empidonax trailii/alnorum</i>)
Eastern Kingbird (<i>Tyrannus tyrannus</i>)
White-eyed Vireo (<i>Vireo griseus</i>)
Red-eyed Vireo (<i>Vireo olivaceus</i>)
Northern Rough-winged Swallow (<i>Stelgidopteryx serripennis</i>)
House Wren (<i>Troglodytes aedon</i>)
Blue-gray Gnatcatcher (<i>Poliopitila caerulea</i>)
Swainson's Thrush (<i>Catharus ustulatus</i>)
Wood Thrush (<i>Hylocichla mustelina</i>)
Gray Catbird (<i>Dumetella carolinensis</i>)
Brown Thrasher (<i>Toxostoma rufum</i>)
Cedar Waxwing (<i>Bombycilla cedrorum</i>)
Yellow Warbler (<i>Dendroica petechia</i>)
Ovenbird (<i>Seiurus aurocapillus</i>)
Mourning Warbler (<i>Oporornis philadelphia</i>)
Indigo Bunting (<i>Passerina cyanea</i>)
Common Grackle (<i>Quiscalus quiscula</i>)
Orchard Oriole (<i>Icterus spurius</i>)
Baltimore Oriole (<i>Icterus galbula</i>)

Vireo (*Vireo griseus*). That afternoon, the group was given a tour of the raptor rehabilitation facilities at the Nature Center in Hueston Woods State Park, where injured eagles, owls and vultures that cannot be returned to the wild are housed for educational activities. Later in the afternoon, students from UAT presented posters at MU on the conservation issues affecting their bird. Faculty members from UAT again gave seminars in the Zoology Department of MU on their current research projects.

Day 5

Participants moved to a third site to participate in the national program, Monitoring Avian Productivity and Survivorship (MAPS). AREI has run a MAPS site in the old growth forest of Hueston Woods State Park since 2004. Species banded included many woodland specialists such as Kentucky Warbler (*Oporornis formosus*), Louisiana Waterthrush (*Seiurus motacilla*), Red-eyed Vireo (*Vireo olivaceus*), and Great-crested Flycatcher (*Myiarchus crinitus*). That evening, everyone had a chance to relax, fish, and talk at a BBQ hosted at the home of a 2006 participant of Birds Without Borders.

Day 6

One of the most exciting activities of the workshop was the behind-the-scenes tour of the Cincinnati Zoo. Participants traveled to the new, "green" Education Building at the

Cincinnati Zoo for a full day of guided tours of exhibits and education programs. This activity enabled the workshop members the opportunity to meet, interact and share ideas with individuals actively directing environmental education programs on a very large scale and to a wide demographic audience. That evening, an American/Mexican Fiesta was held at the home of one of the U.S. faculty members of the workshop. Representatives from government, school and private organizations sponsoring the workshop attended and spent time interacting with the workshop participants. Among the aims of the workshop was the establishment of collaborations with individuals from another country, and that evening, many joint projects were born.

CONCLUSION

Birds Without Borders was born out of the desire for universities to better engage students and allow them to not only read and hear about, but more importantly, see and experience the world around them. Birds are the perfect glue to bind like-minded citizens from north and south of the U.S./Mexican border. The students, no matter what language they spoke, were able to communicate because they realized they saw and appreciated their worlds in much the same way. This realization, in conjunction with a framework under which collaborations can easily be fostered, is a powerful tool in building international cooperation and solving our shared problems.

As our students now consider neotropical migrant conservation, the actual birds are secondary to the economic and educational underpinnings that must be in place for any conservation effort to be truly successful. While laws and law enforcement are critical, without local community involvement and support, large-scale changes are impossible.

The UAT students were amazed by the size and scope of the development in Ohio necessary to support a high level of ecotourism. This realization caused them to hesitate somewhat in their consideration of opening up remote areas such as Guacamaya Canyon to outsiders.

Since the first Birds Without Borders workshop in 2006, collaborative research projects have been incorporated into undergraduate, graduate and doctoral programs in both the U.S. and Mexico. Participants have presented the results of their research projects at school, local, regional, national, and international conferences. The signed agreement between UAT and MU has been used to enable a student from Mexico to be accepted into a doctoral program at MU. Environmental education programs have been offered every year in remote villages of Mexico, providing children and adults the opportunity to learn about community based conservation. These programs have also allowed U.S. citizens the opportunity to immerse themselves in a culture that is under-developed and impoverished. Joint programs have been initiated to help remote villages earn an income while maintaining important bird habitat. Sustainability programs have been presented to local officials in 20 de Abril, and plans are underway to develop infrastructure necessary to establish ecotourism in Guacamaya Canyon and help protect the Military Macaws that breed there. In Ohio, the annual Queen City Bird Festival was established by former Birds Without Borders participants in Cincinnati, Ohio.

Future workshops include the addition of a Canadian organization/university so that we can connect researchers, students and environmentalists in the breeding grounds of Canada with people in the migratory grounds of the U.S. and the over-wintering grounds of Mexico. Future workshops will also be opened to community members so that they can have the same opportunity as our students to develop and support international connections.

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