Amigos Newsletter

No. 93, May 2020

Organization for Tropical Studies

Wilson Botanical Garden
Las Cruces Research Station
Apdo. 73-8257 San Vito, Coto Brus, COSTA RICA

Who We Are

The Las Cruces Biological Station is one of three field stations owned and operated by the Organization for Tropical Studies (OTS) in Costa Rica. The station was acquired in 1973 and, along with the Wilson Botanical Garden, offers natural history visitors and researchers alike an extraordinary place to visit and conduct research.

Far from the noise and bustle of the country's capital city San José, Las Cruces is located in the remote southeastern corner of the country between Corcovado National Park on the Osa Peninsula, and the enormous La Amistad International Biosphere Reserve (472,000 hectares) that spans south-central Costa Rica and western Panama. In 1983, UNESCO declared Las Cruces and the Wilson Botanical Garden part of the Biosphere Reserve due to its incredible diversity and proximity to La Amistad.

The Wilson Botanical Garden, founded in 1962 by Catherine and Robert Wilson, is arguably the most important botanical garden in Central America and a "must see" stop on the itineraries of plant lovers, birders, and other natural history groups. It is famous for its worldwide collection of tropical plants that include palms, aroids, bromeliads, gingers, marantas, heliconias, and ferns. More than 3,000 exotic species of plants can be found in the 10-hectare (~ 25-acre) garden, including one of the largest collections of palms in the world.

There is an incredible diversity of animals that inhabit the Las Cruces reserve, and the forest fragments in the immediate surrounding area. The bird list has registered 410 species; close to half the number of birds found in all of Costa Rica. There are also more than 100 species of mammals, of which 60 are bats. Some of the more commonly sighted mammals include agoutis, white-faced capuchin monkeys, kinkajous, olingos, and tayras. Reptiles and amphibians also thrive in this moist, cloud-laden habitat and there is an impressive diversity of insects, and in particular moths and butterflies.

Las Cruces protects more than 200 hectares of primary forest (home to some 2,000 native plant species) and ~150 additional hectares that are in various stages of forest recovery. The reserve is surrounded by a mosaic of mixed-use agricultural fields and forest patches, and it is this fragmented setting that makes Las Cruces an ideal place to study the effects of forest fragmentation and isolation on animal and plant communities. The landscape surrounding Las Cruces is also ideally suited for research on biological corridors and restoration ecology; key fields of research that are of ever increasing importance. Part of our mission at Las Cruces is to continue to purchase land for reforestation and, in doing so, expand our protected areas and connect some of the isolated forest fragments around the station. For further information on this campaign please visit the Las Cruces website.

At approximately 1,200 meters elevation (3,900 feet), the prevailing temperatures at Las Cruces are cooler than one might expect. Temperatures range from 21-26 °C (70-80 °F) during the day and 15-21 °C (low 60's) at night. Mean annual rainfall is ~4,000 mm (157 inches)! The dry season runs from January – March, and the rainy season from May – November. Most visitors and researchers come during the dry season.

The station is well known for its visitor-friendly amenities: comfortable private sleeping quarters, excellent meals, knowledgeable and enthusiastic staff, and a well-maintained network of paths and trails. The nearest town is San Vito, the municipal capital of Coto Brus county. It was founded by Italian immigrants in the 1950's and to this day they have a strong presence in the community. For example, a Dante Alighieri Italian-Costa Rican Community Center provides Italian language instruction and Coto Brus is the only county in Costa Rica where Italian forms part of the elementary curriculum! But enough said here! We hope that you will be inspired to come and experience firsthand the splendid tropical diversity of the Las Cruces Biological Station and Wilson Botanical Garden!

Please visit the Las Cruces website at http://www.tropicalstudies.org/lascruces for more information or contact us directly by email at lcruces@tropicalstudies.org or telephone at: +506 2773-4004. Postal mail can be sent to: Estación Biológica Las Cruces/Jardín Botánico Wilson; Apdo. 73-8257; San Vito de Coto Brus, Puntarenas; Costa Rica.

Reservations can also be made by contacting the OTS office in San José by email: threepaths.reservaciones@tropicalstudies.org or by telephone +506 2524-0607.

The North American OTS office is located at Duke University, telephone: +1 (919) 684-5774 or email: ots@tropicalstudies.org

The Organization for Tropical Studies is a nonprofit consortium of universities and research institutions in the U.S., Costa Rica, Peru, Mexico, South Africa, and Australia.

Founded in 1963, OTS is dedicated to providing leadership in education, research and the responsible use of natural resources in the tropics. To this end, OTS offers graduate, undergraduate and professional education, facilitates research, participates in conservation activities, conducts environmental education programs and maintains three fields stations in Costa Rica: La Selva Biological Station in the Atlantic lowland rain forest; Palo Verde Biological Station in the Pacific deciduous dry forest; and Las Cruces Biological Station in the premontane cloud forest near the Panamanian border.

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Front Cover: *Heliconia ramonensis*. Photo by Rodolfo Quirós.

Back Cover: Las Cruces personnel is preparing for reopening the station and help visitors enjoy it safely. Photo by Endal Zúñiga.

Editorial Committee: Rodolfo Quirós F., Emilce Ramírez

What's New at Las Cruces?

A Sanitary Emergency Chronicle

One year ago, OTS was facing a panorama full of plans on how to develop new academic ideas, how to offer new attractions to the natural history visitors and how to improve the infrastructure. At Las Cruces, the personnel were making all needed arrangements and plans for the many researchers and academic groups to arrive after May. By then, there were also many tourist reservations already made for the high season at the beginning of the next year.

One year later, we are facing a different window. Our days show changes in vocabulary and actions that were not common before, such as social distance, home working, safety protocols, social policy, and more. Many personal and social changes of behavior are shaping our days.

OTS has taken measures to help protect the health of station visitors, as well as our staff. The sanitary emergency for COVID-19 was declared in Costa Rica on March 6th. A week later Las Cruces had already implemented several protocols to maintain safety of the visitors we had for those few days. The station was ahead of other similar facilities on the implementation of measures on the cleaning of rooms and other spaces, as well as on how to serve the food, among others. By then, we did not foresee how the pandemic would affect everything around us.

The situation started with the cancellation of all the field courses for which OTS is internationally known, and of the university faculty-led courses for which we provide facilities and logistics. On top of this, researchers with current projects could not plan their summer field season and had to cancel their reservations. Later on, the Government issued a mandate to close the access to the natural forest in all research stations to prevent the spread of the COVID to the wildlife, preventing field work of researchers who were already in the country and their assistants. The next phase was the decrease of the number of people to visit the station for the rest of the season, and the suspension and cancellation of new tourist reservations started to pour.

> **"When the threat of COVID-19 has subsided, OTS will join many other organizations and businesses in Costa Rica as we endeavor to restart our services and carry out our mission. With your support, we will not only rebuild – we will thrive."**
>
> **Dr. Elizabeth Braker**
> **OTS CEO**

All this has brought our activities to a minimum, knowing that there will be financial implications, not only for the station, as it needs to be maintained and all associated expenses be covered, but also to the surrounding communities, for which visitation to the area brings support.

As we have been learning how to deal with the disease and are concerned with the safety of our visitors in the near future, we are also making efforts to provide good experiences to meet their expectations of exploring the flora and fauna of our tropical rain forests. As you read this, we are already preparing to reopen the station and reactivate it and our lives to the extent of our possibilities. We hope to share the station with you and with more people so that the field experiences are rewarding.

Safety for Garden's Visitors

All public restrooms at the different Wilson Garden buildings will have new ornaments beside the traditional liquid soap container. Signs with the indications for how to wash properly your hands and other protocols have been prepared and located visibly for easy follow of the instructions. Paper towel dispensers are an asset with a hidden value that we did not expect a year ago, when we decided to purchase them.

Furthermore, when the need knocks on the door, the ingenious mind of our personnel shows up. This is the case of a device that was built by Mauricio Barquero and Diego Meza, our maintenance crew. They built a hands-free water faucet for the public bathrooms located in the grounds of the botanical garden. The lever to open the faucet is located below the sink, and is activated with your foot. The idea may not be original, but their contribution and involvement towards enhancing safety of the visitors is greatly appreciated.

Photos by Rodolfo Quiros.

Photo by Jeisson Figueroa.

Fresh from the Forest

As there are no visitors at the station, some rarely seen animals venture to explore various sites where they have not been at other times. This porcupine showed up on the terrace of the Wilson Garden and stayed for several days. They stay in a safe location for a while, leaving it at night to find food: fruits, seeds, buds and young leaves, easily found in the garden grounds.

Same place, contrasting situations...

The dining room at Wilson Garden

Global Big Day at Las Cruces

Jeisson Figueroa (jeisson.figueroa@tropicalstudies.org)

The Cornell Lab of Ornithology created the Global Big Day in 2015. It is an initiative for building citizen science, and raising awareness for the importance of bird conservation.

Global Big Day is a twice-yearly global event, one in May during the north bird-migration season and the other during the southward migration season in October. Anyone can participate whether expert or amateur, all you have to do is go out and watch birds and share your lists on the eBird platform, all this for 24 hours on the designated day.

This year's first Global Big Day was on May 9, and despite what is happening with COVID-19, Big Day has been a worldwide success with 6,488 species recorded in 12,710 lists, made by 50,385 participants.

In Costa Rica, 682 bird species were recorded, being number 7 in the world, surpassed only by other American countries with higher density per area or greater number of species per country. In Costa Rica, Puntarenas is the province with more species recorded with 495.

At Las Cruces Biological Station and Wilson Botanical Garden, our naturalist guide Jeisson Figueroa, with the help of Paula Mesén, counted 151 species, and 351 individuals. The list was compiled from observations in primary and secondary forest along the Gamboa and Ridge trails, and on roadsides around the station, walking nearly 12 kilometers during 12 hours.

Common name	Count		Common name	Count		Common name	Count
Barred Forest-Falcon	1		Snowy-bellied Hummingbird	1		Palm Tanager	2
Bay-headed Tanager	1		Spot-crowned Euphonia	1		Piratic Flycatcher	2
Black-faced Antthrush	1		Spotted Barbtail	1		Plain Antvireo	2
Black-faced Solitaire	1		Spotted Sandpiper	1		Plain Xenops	2
Black-hooded Antshrike	1		Squirrel Cuckoo	1		Red-crowned Woodpecker	2
Blue-crowned Manakin	1		Streaked Saltator	1		Red-legged Honeycreeper	2
Bran-colored Flycatcher	1		Streak-headed Woodcreeper	1		Rufous-breasted Wren	2
Bright-rumped Attila	1		Stripe-throated Hermit	1		Shining Honeycreeper	2
Charming Hummingbird	1		Swallow-tailed Kite	1		Short-billed Pigeon	2
Chestnut-capped Brushfinch	1		Tropical Gnatcatcher	1		Slaty Antwren	2
Chiriqui Foliage-gleaner	1		Tropical Kingbird	1		Slaty-tailed Trogon	2
Chiriqui Quail-Dove	1		Tropical Parula	1		Social Flycatcher	2
Costa Rican Brushfinch	1		Violet Sabrewing	1		Southern Lapwing	2
Dusky-capped Flycatcher	1		Wedge-billed Woodcreeper	1		Southern Rough-winged Swallow	2
Eastern Wood-Pewee	1		White-lined Tanager	1		Speckled Tanager	2
Eye-ringed Flatbill	1		White-ruffed Manakin	1		Thick-billed Euphonia	2
Garden Emerald	1		White-throated Spadebill	1		White-breasted Wood-Wren	2
Gartered Trogon	1		White-tipped Dove	1		White-throated Thrush	2
Giant Cowbird	1		Yellow Tyrannulet	1		White-vented Euphonia	2
Golden-olive Woodpecker	1		Yellow-bellied Flycatcher	1		White-winged Tanager	2
Gray-chested Dove	1		Yellow-headed Caracara	1		Yellow-bellied Elaenia	2
Great Tinamou	1		Yellow-olive Flycatcher	1		Yellow-crowned Euphonia	2
Green Hermit	1		Bananaquit	2		Yellow-faced Grassquit	2
Green Heron	1		Bank Swallow	2		Yellow-throated Toucan	2
Greenish Elaenia	1		Bicolored Antbird	2		Brown-hooded Parrot	3
Isthmian Wren	1		Black-striped Sparrow	2		Common Chlorospingus	3
Lesser Elaenia	1		Blue-black Grassquit	2		Ruddy Ground Dove	3
Lesser Greenlet	1		Blue-black Grosbeak	2		Black Swift	4
Little Blue Heron	1		Blue-gray Tanager	2		Clay-colored Thrush	4
Long-billed Gnatwren	1		Blue-headed Parrot	2		Crested Guan	4
Neotropic Cormorant	1		Brown Jay	2		Crested Oropendola	4
Northern Schiffornis	1		Buff-rumped Warbler	2		Dot-winged Antwren	4
Ochre-bellied Flycatcher	1		Buff-throated Saltator	2		Golden-hooded Tanager	4
Olivaceous Woodcreeper	1		Common Tody-Flycatcher	2		Gray-cowled Wood-Rail	4
Olive-striped Flycatcher	1		Crowned Woodnymph	2		Least Grebe	4
Purple-crowned Fairy	1		Dusky Antbird	2		Orange-billed Sparrow	4
Red-crowned Ant-Tanager	1		Elegant Euphonia	2		Scarlet-rumped Tanager	4
Riverside Wren	1		Golden-crowned Warbler	2		Silver-throated Tanager	4
Roadside Hawk	1		Gray-capped Flycatcher	2		Tawny-crowned Greenlet	4
Ruddy Pigeon	1		Gray-headed Tanager	2		Variable Seedeater	4
Ruddy Woodcreeper	1		Great Kiskadee	2		Olivaceous Piculet	5
Rufous-browed Peppershrike	1		Green Honeycreeper	2		Black Vulture	6
Rufous-tailed Hummingbird	1		House Wrenon	2		Blue-and-white Swallow	6
Russet Antshrike	1		Lesson's Motmot	2		Gray-headed Chachalaca	6
Scale-crested Pygmy-Tyrant	1		Masked Tityra	2		Vaux's Swift	8
Scaled Pigeon	1		Mistletoe Tyrannulet	2		White-collared Swift	12
Scaly-breasted Hummingbird	1		Northern Jacana	2		White-crowned Parrot	12
Scaly-breasted Wren	1		Orange-billed Nightingale-Thrush	2		Costa Rican Swift	13
Scarlet-thighed Dacnis	1		Orange-chinned Parakeet	2		Cattle Egret	15
Slate-throated Redstart	1		Orange-collared Manakin	2		Crimson-fronted Parakeet	30
Smoky-brown Woodpecker	1						

We invite you to download the eBird app on your cell phone, and be part of this wonderful passion that is bird watching and, in turn, do science and contribute on the conservation of birds.

Research at Las Cruces

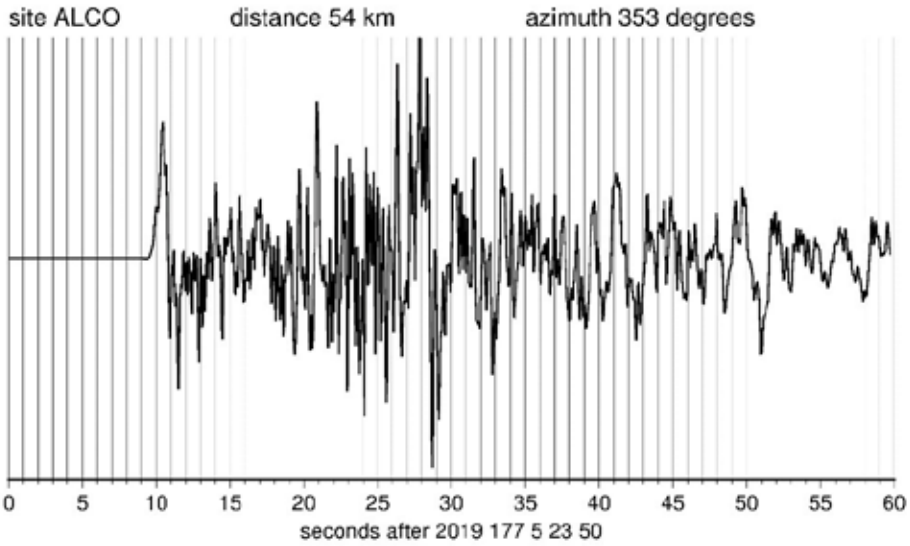
Rutgers University students and RSN staff after the installation of the seismic station at Las Alturas, August 2018. Photo by Vadim Levin.

Las Alturas – a GREAT location for science

Vadim Levin (vlevin@eps.rutgers.edu) / Earth and Planetary Sciences, Rutgers University

Flanks of the tall and rugged Cordillera de Talamanca, in southern Costa Rica, host diverse habitats both natural and cultured. The origins of these mountains are a puzzle for geologists. Walking along the Pan-American highway at the elevation of over 3000 meters one finds yellowish rocks with shells, similar to those you can find all along the Pacific coast. What made the mountains rise in geologically recent times, are they still growing, why are there no active volcanoes among their peaks – these are questions motivating an international research project that has established an observatory on the grounds of Las Alturas research station, a satellite station from the OTS Las Cruces Research Station.

Funded by the US National Science



A seismogram (time history of ground motion) depicting up-down movement following an earthquake across the border in Panama (June 25, 2019; Mw=6.4), that happened at 11:23 pm local time (5:23 UTC of June 26).

Satellite positioning (GNSS) observation and gravity measurement with a relative gravimeter in January of 2019. Photo by Vadim Levin.

Foundation, the project involves faculty and students of Rutgers, the State University of New Jersey (an OTS member institution) and the Centro-American School of Geology at the University of Costa Rica. Called "Geoscience Research At the cordillera de Talamanca" (GREAT) –acronyms are everything! This project brings undergraduate students from Rutgers to Costa Rica for 5 weeks in July and August, and then again for a week in January. Working with mentors from the School of Geology, students carry out projects aimed at understanding what lies beneath the Talamanca, where earthquakes happen around them, how rain and wind make their slopes steep and, sometimes, unstable.

At Las Alturas we have established a seismological observatory that continuously records ground motion, sensing everything from earthquakes (our primary signal) to an occasional cow (our inevitable noise). The signal is transmitted to the control center of the Red Sismológica National (RSN), a national agency based at the University of Costa Rica that is tasked with monitoring earthquake activity in and around Costa Rica for the needs of seismic hazard assessment, as well as for academic research on the nature and causes of earthquakes in Central America. Our observatory started recording in August of 2018. It contributes to the operating goals of the RSN, helping locate and measure earthquakes along the Costa Rica – Panama border. It also accumulates data for the study of the Cordillera de Talamanca. We intend to use records of multiple earthquakes (like the one shown in Figure 2) to improve the knowledge of rock layers extending to a depth of a few 10s of kilometers beneath Las Alturas, contributing new first-order facts to the body of knowledge about the mountains. Visiting our instrument once every six months for maintenance is a high point of the trips for the New Jersey contingent of the GREAT project, we always look forward to the tranquility and beauty of this remarkable science outpost.

In January of 2019 we also performed measurements of the gravity field at Las Alturas, making observations at different elevations in order to understand the effect of the Cordillera de Talamanca on the distribution of mass below the surface. We are confident that the influence is significant and intend to return for more observations that will help define it better. This measurements will also contribute to the calculation of different references for height systems allowing for a more efficient transition between heights obtained from satellite positioning (GPS) and classical surveying methods.

Use of OTS facilities at Las Alturas is a tremendous benefit for the GREAT project that has at its core the training of future globally engaged research professionals. The location is auspicious for the scientific objectives of the project, while the expertise and the enthusiastic support of the staff of the Las Cruces Biological Station make achieving those objectives that much easier.

RELEVANT LINKS:
GREAT project:
rugreat.aresty.rutgers.edu
Red Sismológica Nacional: **rsn.ucr.ac.cr**
Twitter @RSNcostarica
Facebook @RSN.CR

A Wild Classroom

Darko D. Cotoras (darkocotoras@gmail.com) /Associate Researcher, California Academy of Sciences

For several years, I have been fortunate to participate with the Organization for Tropical Studies (OTS) as a guest professor and co-coordinator of some of its courses, such as Field Ecology, Tropical Biology, Tropical Ecology and Conservation, and the Research Experience for Undergraduates, implementing its teaching style in the field, focusing on the scientific method. In retrospect and looking at this experience as an educator, I have two reflections that I would like to share.

The first is to see how, in the same way that it has happened to me many times, students go through three steps during the development of their projects. First, they approach their research in a very scholastic way with a strong methodological emphasis. In a second stage, while working in the field, they live the experience that it seems that nature is dedicated to playing jokes and its entire methodological rigor goes with the rainwater. Finally, the last stage is when the ideas on paper meet the reality of the forest and a result is reached, often times different from what was expected.

It is in the field where you appreciate the complexity of nature. Direct exposure to natural phenomena reveals their multifactorial nature, the role of random events and the interdependence between explanatory variables. This exposition also reveals the challenges of obtaining data, showing you that in the real world simple things like a rain, a dry month or a very thin tree to be climbed can make the difference between getting data or returning empty-handed. These pragmatism lessons teach us about the process of how we understand nature. How we move from a "just so story" to a testable hypothesis.

The field experience also prepares you to ask good questions. Questions that have hypotheses that can be tested with explicit predictions. Questions for which there is a methodology for finding the answer or at least, a method can be developed in the duration of the project.

Eliciting questions in the field. Photo by Darko Cotoras.

Testing questions and looking for answers in the field. Photo by Darko Cotoras.

Related to the latter is my second reflection; it is an echo from something that my PhD advisor always told me (in fact, she still does): "You have to go to the field with a question, no matter if you change it in your first step. But always have a question." I did not fully understand this message at first, but over time, perhaps with a little more intellectual maturity, I have come to understand it. That initial question gives you a horizon to navigate and will be the one that directs your actions. Obviously, new interesting things may appear along the way, in fact, research often has difficult paths to predict. However, if you do not know what you are looking for, you will never know when you found it. Therefore, it is like in the OTS' courses, I have seen myself giving this advice over and over again.

Teaching courses with OTS has been an experience on how to teach to create new knowledge from a complex system, while handling a number of restrictions on what can actually be done. Teaching at the OTS' stations is teaching in a wild classroom.

Invaders, Be Aware

Rodolfo Quiros (rodolfo.quiros@tropicalstudies.org)

Invasive species are very common in many habitats around the world. They include insects, other invertebrates, fish, amphibians, reptiles, birds, plants, and many more groups.

Costa Rica is no exception to this subject. Just among plants, about 10% of Costa Rica's national flora is represented by exotic species (introduced plants from other countries and regions of the world). A significant percentage of plants introduced in Costa Rica originate in tropical Asia and South America. In both regions, tropical environmental conditions are similar to those in Costa Rica, which encourages introduced species to survive and establish. Additionally, most introduced species are herbs; this is partly because it is the most common habit of plants, but also because they have ornamental, edible and medicinal value.

The most common use of these introduced plants is ornamental, but other species were introduced as edible or industrial, and some of these are currently the main agricultural export products of the country. Many introduced exotic species have long-range dispersal characteristics, and have adapted to the local environment in such a way that there are currently local dispersal agents associated with these non-native species. This aggravates the problem significantly and causes competition problems with native species for resources such as water, nutrients, space and light, and ecosystem services such as pollination and dispersal, thus, changing the composition and dynamics of the natural ecosystem.

The Wilson Botanical Garden houses a collection of more than 3000 species of plants from different families and provenances, planted over the past 60 years on land that was originally a grassland adjacent to a fragment of natural and recovering forest of 350 hectares. Forty percent of the species planted in the garden (about 1200 species) are native to Costa Rica and the remaining 60% are exotic.

Despite the high number of exotic species included in that collection, only a few species have dispersed to the protected forest of Las Cruces and adapted to the prevailing environmental conditions. For several years, a monitoring and management plan for these species has been implemented, and much has been learned about their reproductive, habitat and growth characteristics, as well as eradication methodologies. Most of these species have been controlled, but some of them are considered to have an aggressive dispersal behavior, preventing their control.

The station is designing a two-year project to attack the problems related to invasive plants colonizing natural environments or in the process of natural regeneration. The project will cover at least 30

Species of exotic plants found in the natural forest of Las Cruces

Name	Habit	Dispersal	Concern
Angiopteris evecta (*)	Tree fern	Wind	
Caryota urens	Palm	Birds	
Impatiens marianae	Herb	Pod explotion	
Impatiens platypetala	Herb	Pod explotion	High
Musa velutina (*)	Banana	Birds	
Phyllostachys aurea	Bamboo	Stolons	
Zingiber spectabile (*)	Ginger	Birds	
Pinanga kuhlii	Palm	Birds	
Cordyline arborea	Herbacious shrub	Birds	
Etlingera hemisferica	Ginger	Birds	Low
Medinilla astronioides	Climber	Birds	
Musa sumatrana	Banana	Birds	
Palandra aequatorialis	Palm	Rodents	

(*) Focus species for the project

Students from National University removing *Impatiens marianae* plants along the Rio Java trail. Photo by Rodolfo Quiros.

hectares of the protected forest (20 has. of secondary forest close to the botanical garden, and 10 has. of primary forest), eradicating the three most problematic species with a specific procedure for each of them related to the habitat where it grows.

The plan to eradicate exotic species will be developed with the support of interns, preferably local university students. It is suggested to use students from the Natural Resources Management Program as a focus group for the project; this because of the affinity that program has with the subject of exotic plant management. Students from other programs, or even neighbors and amigos of the station may also be included. We want to have a group of people who are literate on the subject of plant invasiveness and who collaborate actively with the station on the control of this problem, but also people who can actively transfer this awareness to the communities.

The technical staff of the station will design an educational workshop on species of exotic plants and their problems, with which the participating interns will be educated. The workshop will include technical talks and discussions, and the participants will learn the correct ways in which plant waste should be disposed of. For each field activity performed, a recording sheet will be used to document and keep statistics of the work done.

Once a year an evaluation of the process will be carried out and the results will be released through community talks to raise awareness of this problem. Through lectures and visual presentations we hope to educate at least 250 people in the surrounding communities. An educational pamphlet will also be written per year to educate the local population about exotic plants and the ecological problems they can cause.

After two years of this project, we expect to eradicate, or at least control, the advance of the population of the species of invasive plants that are more aggressive in the forest of Las Cruces, to help restore the course of natural regeneration.

Migration Experiences with the Scarlet Tanager

Mark W. Larson (larsonwarren@gmail.com)
/ Maricopa Audubon Society, Phoenix, Arizona

Scarlet Tanager, *Piranga olivacea*, breeding male. Photo David Speiser.

Most of the sixteen trips I have made to Costa Rica have been in the Costa Rican winter, most often in the month of May, but once each in the months of June and July. I made two summer visits, once in February and once in April.

Those visits were especially interesting because many migrants were present. I can still remember the male Black-throated Green Warbler I found near Cerro de la Muerte in April and the brilliant Golden-winged Warbler and the Northern Waterthrush I saw in Carara National Park in February, for example. But most memorable have been my encounters with Scarlet Tanagers in migration and on their breeding grounds in the U.S.

When I brought a group of birders to Las Cruces early one April, we spent a productive morning at Cántaros, halfway down the hill to San Vito. We enjoyed seeing an abundance of local breeding birds that day, but I was astonished at seeing not one, but dozens of Scarlet Tanagers! I had never seen this species in Costa Rica, which spends the North American winter in the western Amazon Basin of South America.

I have also led some birding field trips to the coast of Texas in late April. On one of those trips, we were visiting a small woodland of live oaks near Galveston. Late in the morning as we began to leave, a flight of Scarlet Tanagers descended on the preserve. There seemed to be a tanager in every tree! These migrant tanagers had probably just crossed more than 600 miles of the Gulf of Mexico after having left the Yucatan Peninsula of Mexico the evening before.

Migrant birds are spectacular: hundreds of thousands of individuals –and even millions on some species- flight thousands of kilometers in a few days, facing the risk of exposure and exhaustion. Part of the explanation for this behavior is that the birds can exploit different feeding opportunities as they live in favorable habitats through the year.

Scarlet Tanagers are breeding birds in the mountains where I lived in Virginia and Pennsylvania, usually arriving from their winter homes in the tropics by late April and early May. The raspy notes of the males' warbling songs would signal their arrival and highlight visits to the forests for most of the summer. They sing from the canopy of the forest, so views are seldom ideal, nothing like the views we had in Costa Rica and in coastal Texas!

One World – One Community

James Boyle (james.boyle@tropicalstudies.org) / OTS Vice President, Philanthropy

The COVID-19 pandemic has clearly demonstrated that we live in a global community – the actions of one person, one community, or one nation impact all of us. The outbreak has also heightened our awareness of the importance of open space, healthy ecosystems, and science-based decision making – elevating OTS' mission more than ever before.

With all of the recent changes in lifestyles, schedules and daily habits, a few things have remained the same:

1. During this time of anxiety, social distancing, and adaptation, each of us needs places to recharge, reflect, and relax.

2. Our connection to the natural world runs deep. The work of OTS protects our past and our future; it defines who we are today and helps ensure a better future for our kids.

3. With your support, we can respond and adapt together to the unknown future, taking comfort in the quiet reassurance that nature marches on and so will OTS.

To continue our work we need you now more than ever – please consider a gift to OTS today!

Photo Rodrigo de Sousa

As always, a big THANK YOU to you all!

Las Cruces Donors through May 2020

Byron Adams
Susan Ackerman
Carol Kathleen Augspurger
Friedrich Barth
Pamela Bergmann
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