

SPRING/SUMMER 2018

PASO PACÍFICO

MAKING CONNECTIONS FOR CONSERVATION





A VISION FOR THE PACIFIC

PASO DEL PACÍFICO



Our name has a special meaning. The word *Paso* can mean “passage” in Spanish, and of course *Pacífico* signifies our great blue Pacific Ocean. We are working to build a passage for wildlife and communities by restoring and protecting the unique dry tropical forest and coastal ecosystems of the region. Our first “local” corridor, the Paso del Istmo, is where we have developed a powerful model for conservation. By learning from our experience in the Paso del Istmo, we plan to build other corridors in the region, thereby re-connecting people and wildlife across western Mesoamerica.

Front cover: Community members travel with supplies in the Paso del Istmo. Photo courtesy Franklin Ruiz.

Back cover: Junior Rangers explore a mangrove forest in Ostional, Nicaragua. Photo courtesy Eliza Woolley.

Dear Friends,

This spring, we have seen many clear signs of recovery and renewal in the Paso del Istmo Biological Corridor, located in the southwest Nicaraguan province of Rivas. Sensitive wildlife species such as tapirs have been documented, and for the first time our camera traps have videotaped peccaries (*javelinos*), which are important prey for the jaguar and puma. We have also had a record year in our parrot program, with 24 baby parrots successfully fledging the nest. All these hopeful signs reminds us that nature can and does recover.

Despite these positive developments, Nicaragua is experiencing a difficult period. Over the past two months, there has been widespread civil unrest as members of the public call for the departure of Daniel Ortega as president. As an organization we stand by, hoping for the best, as the Nicaraguan people work to determine their future as a nation. We continue to support our local staff as they carry out our conservation programs at the forests and beaches of the country. Thank you for your generous support as we continue forward with our conservation programs.

Warm Regards,

A handwritten signature in white ink, appearing to read 'S. Otterstrom', set against the green background.

Sarah M. Otterstrom, Ph.D.

Founder & Executive Director





A stingless jicote manso bee (*Melipona beecheii*) guards her hive in the Paso del Istmo.

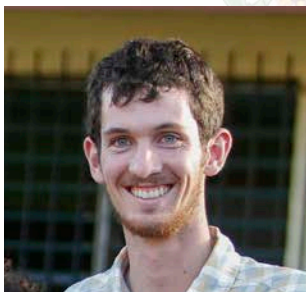
FROM THE FIELD



Marcos Calero

Bee & Jaguar Projects Coordinator
Paso Pacífico

Marcos Calero is a certified veterinarian who has managed Paso Pacífico's meliponiculture programs for nearly six years. He now also manages our jaguar monitoring program.



Written by Richard Joyce

Bee Project Consultant
Paso Pacífico

Richard Joyce double-majored in environmental science and Spanish at Bowdoin University. A valued friend to Paso Pacífico, he has contributed greatly to our bee and migratory bird programs.

This dry season, Paso Pacífico's bee program coordinator, Marcos Calero, harvested no fewer than seven bottles of native stingless bee honey from Paso Pacífico's demonstration hives at the Mono Bayo Reserve. Sweet, floral, and slightly acidic, the honey of native bees is a substance prized in Central America for its superior flavor and remarkable nutritional and medicinal properties. It reflects the region's indigenous heritage and its biological patrimony. *Melipona beecheii* has been raised in Mesoamerica for millennia, and it occurs nowhere else on Earth.

Over the past six years of working at Paso Pacífico, Marcos has crisscrossed the Paso del Istmo to regularly meet with dozens of farmers. On these trips, he explains the ecological importance of bees as pollinators on farms and in the forest, trains beekeepers to manage their hives in more innovative ways, and engages rural communities as partners in the quest to preserve both native bees and native beekeeping.

"I consider myself a leader in meliponiculture [the cultivation of native stingless bees] in the Paso del Istmo, and this is something that I've achieved through the knowledge I've attained with Paso Pacífico," Marcos says. Twice now, he has presented at the Mesoamerican Congress on

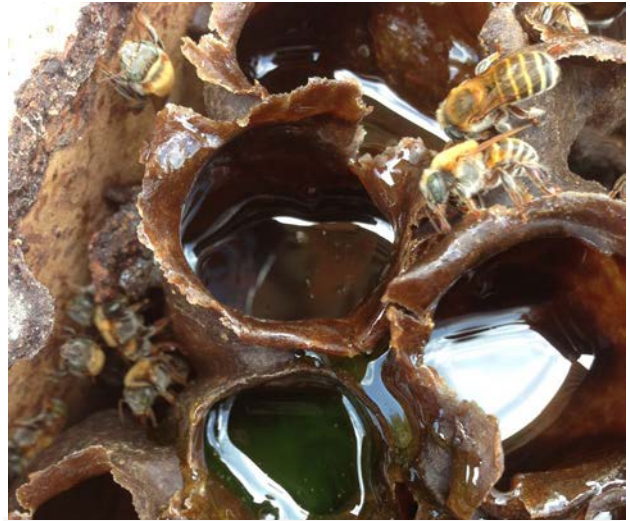
Native Bees, first in Chiapas, Mexico, and then in Antigua Guatemala, Guatemala, last November. These opportunities showcase both his beekeeping trainings and the understudied diversity of Nicaragua's bees.

Marcos reflects, "When I first got involved with Paso Pacífico's native bee program, I was already familiar with the important roles that bees play in the environment, but I had no idea how many different types of bees we had in the region." The truth is, no one else did either. After sampling native bees in habitats across the Paso del Istmo throughout 2016 and 2017, Marcos is now a local expert on bee biodiversity. His diligent collecting efforts revealed that at least 107 species of bees in five different taxonomic families inhabit the forests and farms of Paso del Istmo. These bees have intricate relationships of interdependence with the region's flowering plants and help pollinate a long list of crops that includes squash, coconut, coffee, avocado, guava, chayote, annatto, tomatoes, and passionfruit.

After all his research, "it's hard to choose a favorite type of bee, because they are all important and beautiful in their own way," he says. "But I've taken a liking to *Melissodes* [a genus that visits morning glories] because of the males' long antennae."



Marcos Calero shows community members how to use a syringe to harvest honey. Using a syringe helps the honey stay more pure.



Several native bee species store honey in *potes* (pots) instead of honeycomb.

Collecting native bee specimens on the properties of local farmers has provided opportunities for Marcos to raise awareness about the hidden biodiversity of the region's bees. Some farmers are surprised to learn that what they had thought were just flies were actually bees. "That's what I'd tell them," says Marcos, "they're not all flies!"

Like the pollinators that it seeks to protect, Paso Pacifico's native bee program synergizes with other branches of Paso Pacifico. The reforestation program is very important for the bees, and vice versa: increased forest cover, with its variety of native trees, provides nectar and pollen for multiple bee species. In return, the bees' pollination services ensure future generations of trees. Local communities also benefit through increased honey production and better

pollination for many crops. To help spread the word, Paso Pacifico's Junior Ranger program recently added a permanent native bee component. So far, Marcos has introduced over one hundred Junior Rangers to the world of these special pollinators. He says that the kids show interest in everything he explains, and they especially light up when they get to look at bee specimens through magnifying glasses.

Marcos envisions a future in which bees are safeguarded and keepers of stingless bees thrive. "I hope we can reduce the amount of insecticides used by *campesinos* [small farmers]," he says, "and we should continue to grow plants that help bees and beekeepers." With your support, Marcos can lead local communities toward realizing this vision.

Images courtesy Marcos Calero and Richard Joyce.



Francisco Cerda, one of the oldest beekeepers in the Paso del Istmo, displays one of his *jicote manso* hives.

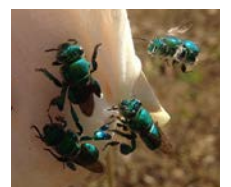
"Strictly speaking, one never 'keeps' bees—one comes to terms with their wild nature."

—Sue Hubble, *A Book of Bees*

THE **WORD** OF THE SEASON

"meliponia"

"Meliponia" is the practice of keeping stingless bees. Over 40 species of stingless bee are known in the genus, which is mostly found in the neotropics. Our meliponia efforts aim to help farmers sustainably pollinate their crops through supporting local bee species.





DONOR SPOTLIGHT

Melanie Miller

Melanie Miller is a fire ecologist. She obtained a Bachelor of Science, Honors, in geography at the University of Calgary and a master's in fire science at the University of Montana. She first met Paso Pacífico founder Sarah Otterstrom in 2003, when they both served on the board of the Association for Fire Ecology. Two years later, when Melanie learned of the launch of Paso Pacífico, she was immediately supportive. Melanie has been a generous donor ever since, and we are honored that she is also including Paso Pacífico in her estate plans.

Melanie is passionate about nature conservation and would like to leave a legacy for future generations. She understands the importance of exploring the natural world and the deep influence it has on our overall wellbeing. During Paso Pacífico's donor trip in 2015, Melanie was able to visit numerous projects in Nicaragua and meet firsthand the people involved, including Paso Pacífico's Junior Rangers.

She states, "I want younger people to know that they are allowed to love, care for, and protect this planet; I want them to know that that is their right."

Melanie travels often, constantly going on adventures and learning about the world. She has an incredible, unbreakable spirit and we are grateful to her for choosing to support Paso Pacífico in the long term.

To inquire about making a bequest to Paso Pacífico, please email alice@pasopacifico.org.



Top: Sea turtle ranger Elena Yajaira Vargas (left) and Melanie Miller (right), 2015

Middle: Donor trip participants above Lake Nicaragua, 2015

Bottom: Melanie Miller at Lake Nicaragua, 2015

Photos courtesy Melanie Miller.



Women in the Ostional oyster cooperative work on installing *mallas*, the nets that hold raised oyster beds, in April 2018.

RECENT HIGHLIGHTS

- With the help of Paso Pacífico and local community members, 24 young endangered yellow-naped Amazon parrots have fledged their nests this year in the Paso del Istmo—a record number! 75% of these baby parrots stayed free through our incentives program, which pays local families to protect baby parrots that would otherwise be sold on the black market.
- The InvestEGGator technology continues to progress. We have received more funding from National Geographic. Kim Williams-Guillén, who invented these artificial sea turtle eggs, has been named a National Geographic Fellow. PBS NewsHour featured this technology earlier in the year, and InvestEGGator field trials will occur throughout Central America later this fall.
- We finished another season with our two MoSI stations, which monitor overwintering migratory birds from approximately November to March. We measured over 250 migratory birds (some for the second time) and put tags on over 30 of them. These stations will start back up when the birds return this fall.
- We are launching a new leatherback sea turtle protection program. Using large canvas books painted by Junior Rangers, our partners at Creative Action Institute led workshops on leadership, public art projects, and social change with emphasis on sea turtle protection.
- On Earth Day, we launched a new reforestation initiative called Million Trees By 2020. Let's plant one million native trees in Central America! To plant yours, please visit support.pasopacifico.org/milliontrees.
- Our camera traps are recording new mammals in the Paso del Istmo biological corridor. The greater grison, captured in April, has never before been reported in the Paso del Istmo. We also recorded an endangered tapir more than 25 miles (40 km) north of the Costa Rican border, and for the first time we are seeing peccaries frequently in the camera traps. They are an important prey species for large mammals such as the jaguar.
- Oyster season is in full swing for our two women's oyster cooperatives. After being heavily impacted by last fall's severe flooding, the Ostional cooperative has nearly 2000 oysters in production. In the nearby village of Pochote, a second cooperative of intrepid women has set up five longlines and are now cultivating oysters.
- Our collaborations with partners continue around the world. At the 2018 World Oceans Summit, Paso Pacífico met with other ocean leaders to discuss strategies for building conservation corridors in the eastern Pacific. At the World Land Trust meeting in England, we explored approaches for securing core habitat that will strengthen wildlife corridors.

A guest examines the InvestEGGator at this year's Turtle Friend Beach Party in Santa Barbara, California.



WHO FUNDS OUR PROJECTS?

We are grateful to have received over \$140,000 of funding for our turtle-saving InvestEGGator technology. Much of this funding comes from the Wildlife Crime Tech Challenge, which is sponsored by National Geographic, the US Global Development Lab, the US Agency for International Development (USAID), the Smithsonian Institution, and TRAFFIC International. Since our very first prototypes in 2015, we have refined the InvestEGGator's materials and components and conducted field trials in Costa Rica. The funding we have received will help implement more trials throughout Central America and begin mass-producing this unique conservation technology.



DID YOU KNOW?

- Leatherback sea turtles are the third largest reptiles in the world and can weigh up to 2000 pounds (900 kg).
- Like whales, leatherbacks migrate thousands of miles and can dive to more than 4000 feet (1220 m) deep.
- To keep their body temperatures in a safe range, leatherbacks have mammal-like adaptations. When they are too warm, their blood goes to their skin to release heat and turns some of their white patches pink.
- Eastern Pacific leatherbacks are genetically distinct and critically endangered. The number of adult females is in the hundreds at best.



WELCOME, NEW DONORS!

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Aimee Black
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Allison Smith
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Amy Pizzolatto
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Andrew Lower
Andrew Scales
Andrew Seligman
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Ann Wheeler
Annalise Briggs
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Caitlyn Thai
Anthony Miller
Arjun Sarkar
Ashley Clow
Barbara Holzman
Belle Reeger

Ben Rifkin
Brenda Rodriguez
Bridget & Roland Lewin
Bridget Donald
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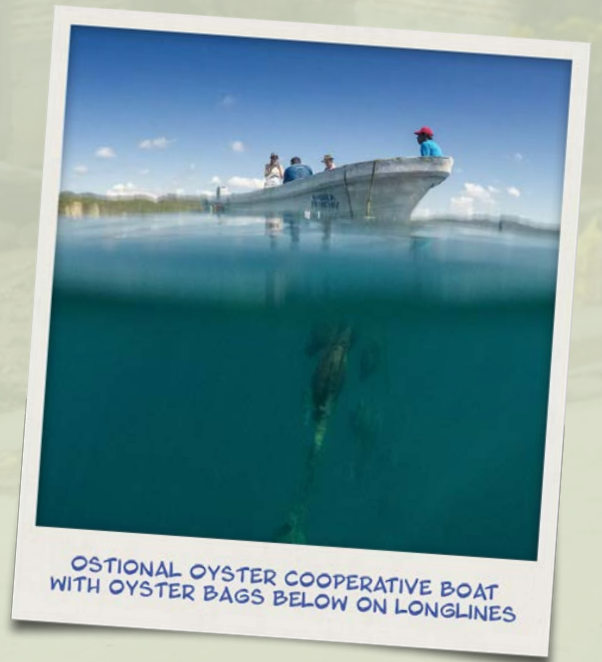




PECCARIES IN A CAMERA TRAP, 5/12/18
(NEW IN THE AREA, GREAT JAGUAR FOOD)

Richard Joyce
Richard Palafox
Rob Moseley
Robert Buan
Rocio Ritchot
Rosalie Acutt
Rosemary Cornell
S. Neil Larsen
Samantha Bearman
Samantha Moore

Sarah Grunewald &
Ryan Shields
Scott Linde
Scott Lockwood
Sean Doherty
Sharon Martinez
Shauna Ericksen
Sherie Higgins
Sherri Diaz
Sophia Espinoza
Stephen L. Wilson



OSTIONAL OYSTER COOPERATIVE BOAT
WITH OYSTER BAGS BELOW ON LONGLINES

Kara Ferguson
Katherine Hurxthal
Kathleen Boehm
Kelcey Case
Kelly Donegan
Kelsey Miller
Kim Malcolm
Kristen LaBonte
Lance Bernard
Lauren Tartaglia
Lawrence Hickenbolhar
Linda Bobolia
Lorna Miller
Lys Poet
Madison Wilson
Marc Talisman
Margaret Busse
Mary McMaster
Matt Koch
Matt Legere
Matt Whitmire
Megan Wentworth
Melinda Wells
Melissa Sapp
Meredith McMinn
Michael Whitaker
Michele St. Clair

Michelle Rose
Michelle Trew
Nan Busse & Tobey Kaplan
Nancy Chew
Nick Peets
Norma Dvorsky
Paige Hoyt
Patricia Nicoli
Patricia Wells-Turnage
Paul Woodward
Peter & Corena Engdall



PUMA IN A CAMERA TRAP, 6/1/18
WHERE PUMAS THRIVE, JAGUARS CAN TOO!

Sue Talty
Summer Bennett
Susan Wolstencroft
Suzanne Levanas
Terry Soriano-Zucker
Thomas Pecore
Tim Eaves
Todd Myers
Victoria Jennings
Vincenza Previte
Walter Kleemeier
Will Hogue
Rebecca Tinsley

*This list includes new donors
from October 2017
to the printing date.*

THANK YOU, 2018 DONORS!

You are the engine that keeps Paso Pacífico running.

Alexa Calfee
Alexis & Tom Davis
Alice O'Connor
Allison Connor
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Gerald White
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Elena Vizanko
Eliza Woolley
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Juan Bosco Aburto



JUNIOR RANGERS PLAY WHILE LEARNING ABOUT PHOTOSYNTHESIS, 1/27/18

Frank Kling
Frederick Janka
Gabriela Garay
Gary & Patricia Hedden
George & Amy Gorman
George & Jane Schmidt
Ginger Woolley
Grace Robinson
Harriet K. Jerquinst
Jacob Farnar

Jade & Todd Doolittle
Jane Furchgott &
Charles Munch
Janet & Victor Schachter
Janice Thomas &
Brian Stafford
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Jennifer Hicks
Jim Goetz &
Francie Rutherford



YELLOW-NAPED AMAZON PARROTLETS, SAFE IN ONE OF OUR ARTIFICIAL NESTS

Caroline Lujan
Catherine Cartier
Charlene Cerny
Charles Casey
Christine Schmidt &
Bob Brewer

Eric Ponçon
Fabien & Dine Castel
Felice Berenson
Felipe Farme D'Amoed
Frank Joyce &
Katy Van Dusen



PARROT RANGER HECTOR ESPINOZA MONITORS YELLOW-NAPED AMAZONS



SOMETIMES WE GO TO GREAT LENGTHS (OR PEPTHS) TO GET TO WHERE THE BIRDS ARE!

Renato & Heloisa Farne
D'Amoed
Rhonda & Oded Fehr
Richard & Nancy Noble
Richard Joyce
Rick & Kathy Smith
Rob Fischer

Sara Katz
Sarah & Alex Sheshunoff
Sarah Grunewald &
Ryan Shields
Sarah Otterstrom &
Rick Rutherford
Sarah Robinson
Sean Carney



WE CAUGHT & MONITORED MORE THAN 250 MIGRATORY BIRDS AT OUR MOSI STATIONS

Joan & Bill Bailey
Joanne & William Sherrard
John & Mary Catherine
Taylor Siebel
Jonathan & Elizabeth King
Joyce Tollefson
Kai Ewert
Karl & Kate Otterstrom
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WE SPOTTED THESE WHITE IBISES DURING OUR CHRISTMAS BIRD COUNT IN JANUARY

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This season, our list includes the names of our beach rangers, who play a crucial role in sea turtle conservation.

Paso Pacífico Sea Turtle Rangers

Liessi Calero

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Karen Lacayo

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Yorlin Vargas

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