# RAPHIA

Newsletter of Caño Palma Biological Station

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## Poachers vs Turtles -- How Are the Turtles Doing?

See Pg 3 For New Research From Station

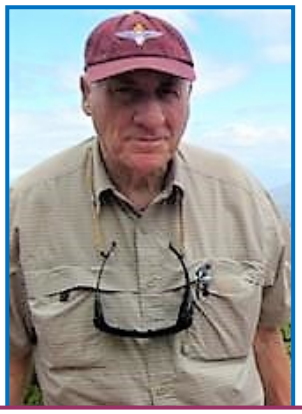
## Our 30th Anniversary

Dr Kym Snarr, Chair of COTERC, and Andrew Morris Raise A Toast -- pg 5

## COTERC & Caño Palma: Celebrating 30 years of discovery

# In This Issue of Raphia





## Giving Back

On page 7, you'll find a summary of the life of Dr Peter Silverman who passed away on October 7th at the age of 90. It describes a life of action - and I emphasize 'action'. When reading his obituary, it seems remarkable all the things he managed to pack in.

For Peter was a doer. And that calls to mind Aristotle's answer when he was asked "What is the essence of life?". He was succinct: "To serve others and do good". Dr Silverman put it in a more practical way: "I [help others] because I have an obligation to do it. I have certain skills so why not utilize them?"

He lent a hand to locals constructing homes and bridges in developing countries. He aided victims of Apartheid. He worked on race relations in the UK. In Ontario, he fought for victims of scammers for 19 years.

That might be a lesson for us all. It's fine to protest and fun to re-tweet stuff we agree with. But Peter showed us how to really make a difference.

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# Poaching Declining on Area Beaches by Dr Helen Pheasey

## Quantifying Illegal Extraction of Sea Turtles in Costa Rica

*Helen was a sea-turtle monitoring project manager at Caño Palma. This is a summary of her paper that appeared in "Frontiers in Conservation Research", August 23, 2021.*

Many of us have taken part in the nightly turtle patrols along Playa Norte. In so doing, we've been contributing to Caño Palma's long-term database. And, as we walked along the beach, we may have wondered if turtle poaching has been increasing or declining in our area. Helen Pheasey also wondered, so she undertook a study. That's one benefit of having the aforesaid database. Using it, Helen and the team could determine long-term trends for both poaching and poaching hotspots. They obtained similar data for Playa Tortuguero from the Sea Turtle Conservancy, and for Playa Pacuare, about 50 km south of Tortuguero, from Latin America Sea Turtles. The 14-year period studied was from 2006 to 2019.

Wildlife crime, by its nature, lacks victim reports.

That's true for most animals. But sea turtles are an exception since both turtles and poachers leave evidence at the scene of the crime. The turtles leave distinctive tracks when they plod up the beach and return to the sea. Poachers can leave footprints and/or evidence of disturbing the nest. These can be treated as equivalent to victim reports.

So, what did the evidence show to Helen and the other researchers (including Nicole Allison, a recent CP research coordinator)? Good news mostly. All three beaches show poaching rates are declining. The main deterrent is an increasing number of people on the beaches, including your presence in the increasing number of patrols. Playa Tortuguero also has a growing number of ecotourists. Pacuare is a different story. There they relocate clutches to a secured hatchery. This has reduced poaching, suggesting that, despite being an invasive method, relocating clutches is an effective anti-poaching strategy.

At the same time, we should note that the impact on each species is different. Given the relatively low numbers of leatherbacks and hawksbills on these beaches, poaching pressure on them is far greater than the impact on the more numerous green turtles. Only 1.1% of green-turtle clutches were lost to poachers. With such a proportionately small and declining rate, it's unlikely that poaching is having much impact on the greens. On the other hand, leatherbacks accounted for 2.6% of nesting events in the study, yet almost a quarter (21%) of clutches were lost to poachers. Our most vulnerable species, the hawksbill, had only 0.34% of nesting events whilst suffering 12.5% of the total clutch losses.

Not surprisingly, the poaching hotspots along Playa Norte and Playa Tortuguero are near the local villages, San Francisco and Tortuguero. Pacuare has no population center and poaching is uniformly distributed.

Now let's look at how poaching has been affected by 5 mitigation strategies used against traditional crimes.

**1. Make it harder** - With more people (patrols and ecotourists) on the beaches at night, the temptation to poach is reduced.

**2. Make it less rewarding** - Number 1 increases the effort that poachers have to expend in searching while reducing their chances of success.

**3. Increase the risk of offending** - In Costa Rica, the likelihood of arrest and prosecution for poaching is low. So, poachers might decide that the benefits of poaching outweigh the risk of being witnessed or intercepted by law enforcement.

**4. Removing excuses** - Most Costa Ricans, law-abiding citizens and poachers alike, already understand that poaching is a crime. So this strategy is less relevant to our situation.

**5. Removing provocations** - This is about removing the things that stimulate (cont'd on next page)

## Poaching Declining on Area Beaches (cont'd)

poaching - in our case that would be the demand. A 2021 study in Tortuguero found that most consumers questioned stated that they purchased turtle eggs from poachers rather than actively doing the poaching themselves. So, the illegal trade is predominately supply driven. Therefore, our conservation efforts focus predominantly on the poacher rather than the consumer by attempting to deter and reduce poaching.

To conclude, Helen notes that she and her co-authors are leading the way by collaborating and sharing data with other NGOs. This allows for a better understanding of what's happening on a broader scale. Plus their paper straddles natural and social sciences as well as drawing on theories of criminology. More such multidisciplinary studies into the behavior of humans in the exploitation of endangered species is encouraged. Specifically, the paper recommends further research and data sharing between NGOs working on leatherback and hawksbill nesting beaches to enhance the conservation of their declining populations.

Frontiers | Quantifying Illegal Extraction of Sea Turtles in Costa Rica | Conservation Science (frontiersin.org)

## Saving A Turtle From Poachers

**1. Our patrol finds evidence of turtle dragged off beach**

**2. Dragged along path**

**3. And trail leads into bush**

**4. Turtle found upside down, stashed until poachers could arrange transport**

**5. And off she goes into the sunrise, rescued by our interns and volunteers.**

**Thanks to Luisa Steiger, Rachel Novak, Morgan Hughes and Wookie for their valiant efforts in thwarting the poachers (and for photos).**

# Thanks To All For a Successful Fiesta Treinta

Well, that was one successful fundraiser. The pandemic has been hard on all of us and Caño Palma was no exception. Thanks to all of you out there, we raised over $13,800 and counting. These dollars will help us in continuing to carry out the important work that the station does.

Those who tuned in may have been surprised by the great show that was put on. But those who know Patrick Traynor (at right), the producer of this online extravaganza, will understand why it was such a success. A big thumbs-up to him for bringing such high entertainment and production values to the virtual stage. It requires a lot of time and hard work. Thanks Patrick.

A well-deserved shout-out to Andrew Morris (below right) for the big personality he brought to the screen. Without cue cards, there's quite a bit of pressure to keep things moving smoothly. Both he and Dr Snarr looked like they might do this for a living.

As well, many others made presentations. Some talked about their research while others recalled their experiences at Caño Palma and how it changed their lives. Thanks to all.

| | | |
|---|---|---|
| Charlotte Foale | Helen Pheasey | Sam Orpin |
| Greg Mayne | Morgan Hughes | Branden Schmidt |
| Emily Khazan | Molly McCargar | Clement Lalait |
| | Melina Damian | Maarten Vonhof |

Donations can still be made at coterc.com/donations

Fiesta Treinta highlights available at http://www.coterc.com/fiesta-30-highlights.html

Cheers also to Brandee Diner who recently joined the COTERC Board. As an auction item, Brandee donated a two-night stay at her chalet in the Laurentians, which brought in $1200. Congrats to the winning bidders Suzanne and Russell Pearson along with Scott and Brigette Snarr.

Brandee rents out La Maison Bleue via Airbnb. If you're interested in visiting this large log cabin, you can find the details plus impressive reviews at https://www.airbnb.ca/rooms/1538912?source_impression_id=p3_1633369032_rKlnh49%2F7IRkrrcc&guests=1&adults=1

# Notes from the Chair by Dr Kym Snarr

## Happy 30th Anniversary!

Thanks to all of you who helped COTERC celebrate our special day on Sunday, September 26th! That day we paused in our 30th year to honour those who have worked towards building Caño Palma Biological Station and COTERC. So many of you have carried out the important work of documenting the incredible biodiversity in our region. Then there are all the staff and fellowship holders at the station who have helped to shape the minds of incoming students by delivering methods and ensuring rigour.

But first off, I should recognize Patrick Traynor, our Director of Marketing, who was the big-energy source who pulled together our online celebration. By mixing music, streaming pre-recorded videos, and live-streaming, Patrick managed to recognize work from the past, where we are currently, and our hopes for the future. In addition, Board members contributed in a multitude of ways to support Patrick in bringing this celebration to life. As well, we asked for those who could give financially to assist in helping us on our way into the next 30+ years. Deeply we thank you for your generosity, allowing us to reach and surpass our goal. Finally, let me thank Sam Orpin, former research assistant at CP, who assisted Patrick.

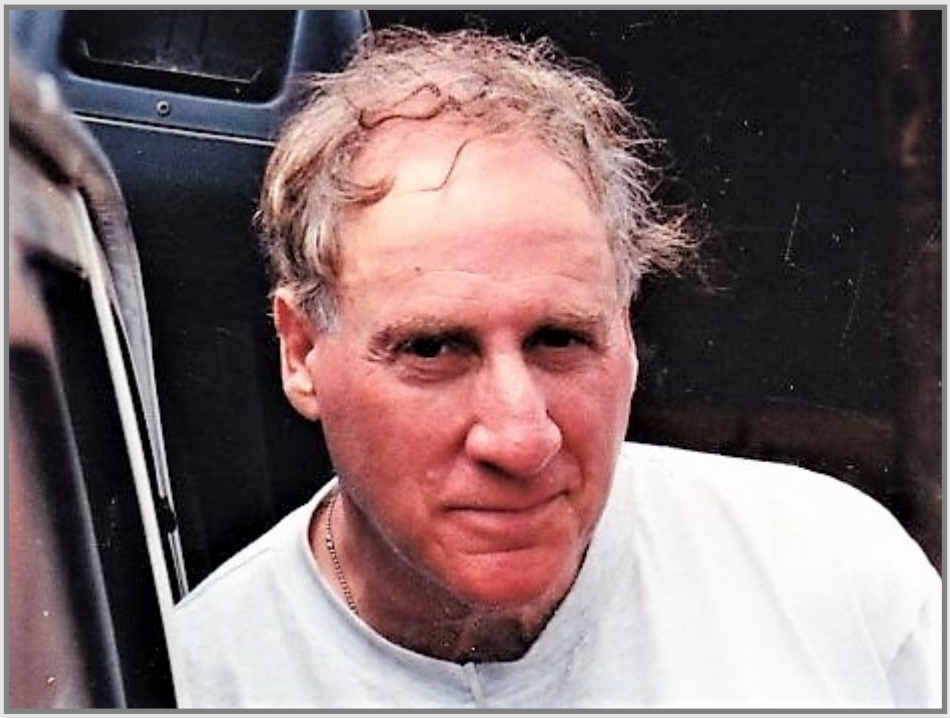
In reflecting on those 30 years, we are grateful for Marilyn Cole, our founder. To Tom, Fran and Pennie Mason who have worked so hard in so many ways on/off the COTERC Board to help fundraise and support research. To June and Blue Enright – June for her many years as Executive Director, and Blue for being supportive to all our efforts. To Jim Taylor who has been with the Board in many capacities, giving technological and other much-needed support. To the late Peter Silverman, former Chair, and his wife, Dr. Frances Burton. And to all those Board members who have worked so hard over 30 years - your pitching in with ideas and fundraising have always supported the station's basic research, reporting, and environmental education.

In the coming years, we will continue our long-term research in multiple taxa; training of young scientists and citizen scientists from all over the world; conservation and educational support for local populations; and maintaining our strong partnership with the local Ministry of Environment and National Park system. Our long and ongoing partnership with the Toronto Zoo, a multitude of educational institutions from Canada and across the globe, and all of our funders who have allowed COTERC to support our biological station. Our positive impact has been felt locally, nationally and globally. Aided by your generosity, we can continue in this positive work!

At present, vaccination numbers are increasing in Costa Rica. So, in these somewhat safer times, the station is now seeing a rise in intern and volunteer arrivals. We welcome all – each individual with their different skills can help continue the legacy started by Marilyn Cole and all of those who gave time to COTERC or CPBS. As always, our path remains clear - continuing the hard work of supporting this incredibly rich biocultural region. Again, we thank all who answered the call during our online celebration. If you can further contribute time or effort, you are always welcome to contact us at chair@coterc.org.

On another happy note, I am excited to announce that we have been selected to receive a substantial donation from the Griggs Family Foundation. In a year in which we have only sought stability, their donation will help transform our organization significantly.

# A Life Well Lived R.I.P. Dr Peter Silverman



Dr Peter Silverman, a former president of COTERC, has died at the age of 90. His wife Dr Frances Burton perhaps best summed up his life: "He believed in Tikkun Olam, the Jewish philosophy that you were put on Earth to repair the Earth and help others."

Though Dr Silverman was president of COTERC for 7 or 8 years in our early days, and helped build our organization, it almost seems like that was the least of his accomplishments. Here are some specifics I found online:

Peter's work in journalism led him to fight for people with rare illnesses. It also brought him to developing countries and war zones - always trying to help people who needed it most.

He is the author of two books on child welfare and child protection in Canada (*Who Speaks for the Children?* and *Voices of a Lost Generation*).

He worked on many projects in the developing world including the refurbishment of a hospital in Rwanda, new housing in India, and the building of a bridge in Ethiopia, which enabled farmers to get their crops to market more quickly.

In South Africa, he aided victims of Apartheid in finding employment, and helped build homes.

While living in the UK, he worked for the Institute of Race Relations.

In 2012, Dr Silverman was presented with the Queen's Diamond Jubilee Medal for his continuing volunteer work with NGOs.

For 19 years at City TV, he hosted 'Silverman Helps', a consumer-protection segment that saw Peter relentlessly go to bat for people who'd been ripped off while fearlessly confronting a slew of scammers.

He was a 2005 winner of the Edward R. Murrow Award for broadcast excellence.

Dr Silverman described his outlook thusly: "I do this because I have an obligation to do it. I have certain skills so why not utilize them?"

In addition to the above, he was a dependable fundraiser and apparently quite an electrician - he did the initial wiring of Caño Palma to bring us light. All these achievements are but a small sampling of a life well lived. His obituary gives a more extensive appreciation.

https://www.legacy.com/obituaries/thestar/obituary.aspx?pid=200358149

# Notes from the Station by Charlotte Foale

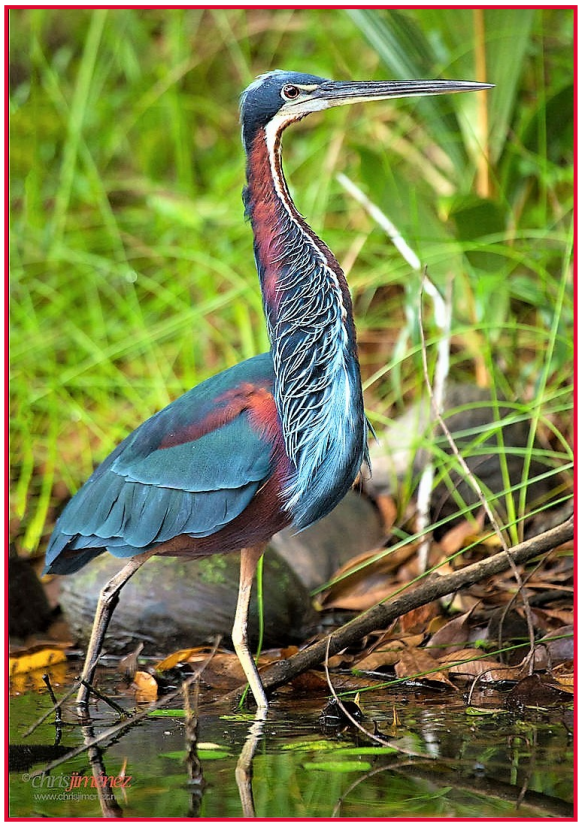
This month will be a short note as, with dwindling numbers, we STILL have greens nesting at night and we're now sending out two morning teams to cover meshing, nest checks and excavations. We've had a crazy few months as the turtle season peaked, interns started to head home to continue their studies, and Conservation Club has been filling a regular weekly spot, with local students spending their Saturday afternoons at the station.

Amid all of this, the COTERC Board were planning and preparing for the Fiesta Treinta, and you all, yet again, blew us away with your support and generosity.

In addition to the gratitude we feel, it was also amazing to catch up with so many who've been here over the years. We truly get the very best of people come through our doors, and it was great to chat both during Fiesta Treinta and since, to find out the paths you've taken, and to hear of your successes. This is the first time we've had a truly international event, and having so many students and volunteers from around the globe work with us, I hope that this is a model that we can repeat over future years.

To all of the Caño Palma and COTERC family, thank you for continuing to be in our lives, sharing our dreams and supporting us as we continue our work!

# Life in the Backwaters -- The Agami Heron by Doug Durno



Six agami herons were spotted on a recent caiman survey. Yet the bird checklist for Caño Palma lists this species as a rare sighting. Maybe the agami isn't so rare around the station after all. It certainly isn't just 50 km down the coast in the Pacuare Nature Reserve. In 2015, 268 nests were counted by researchers there over the breeding season.

Could agamis from Pacuare be moving up the coast? It had long been thought that they lived out their lives hidden away in mangroves, swamp forests and wetlands, never migrating. Well, they certainly tuck away in such difficult-to-access habitats. But a few years ago, researchers in French Guiana, using tracking devices, discovered that agamis actually move around quite a bit. During nesting season, they flew up to 200 km from the colony. Outside breeding season, tracked agamis traveled anywhere from 280 to 1250 km. So, yes, those agamis spotted on caiman survey could indeed be from Pacuare.

This leads to the inevitable conclusion that, if nesting agamis are foraging over such a wide area, habitats like ours must be preserved. Access should also be limited. That's because if disturbed, agamis will quietly walk away deeper into their already inaccessible habitat. And, if it's a nest they're leaving, it could be vulnerable to other agamis seeking sticks for their own nest-building.

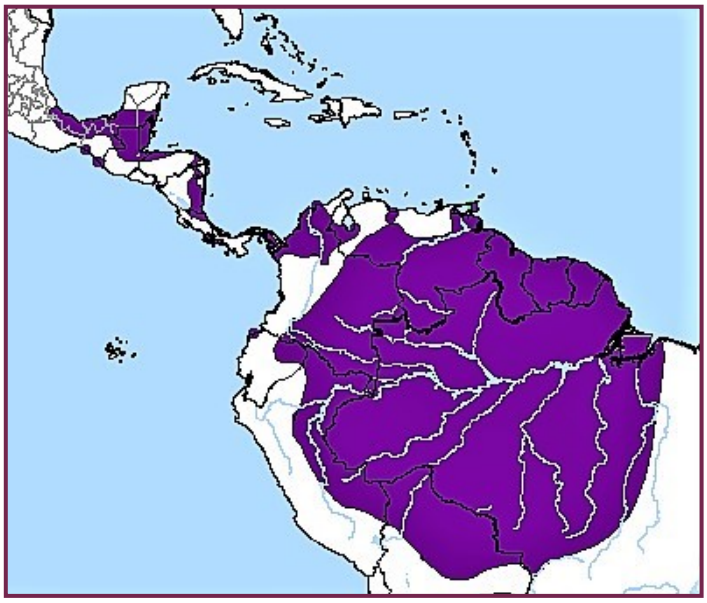
The nest is a rather large, loosely packed platform of sticks and twigs. Usually built about two meters over water.

It seems paradoxical that such a colorful bird -- in Brazil, they're sometimes called the 'hummingbird heron' -- should be difficult to spot. But their colors are fairly subtle so that, in a dark forest, the agami blends in. When hunting in shallow waters or from a low-hanging branch, it will stand motionless. Any movements are slow and deliberate - no flashy giveaways that it's there.

That may also apply to its feeding method. Herons typically capture prey with (cont'd on next page)

# Life in the Backwaters -- The Agami Heron (cont'd)

a 'bill stab'. But the researchers at Pacuare observed that the agami "feeds by stretching its neck and bill toward a prey item, and then carefully picking it up, like using a precision pair of tweezers". The relatively small size of such prey "may be characteristic of the species' prey base, as the rather gentle prey-capture approach would be ineffective for large, fast or deep fish."



At Caño Palma, almost all sightings are at night. This dovetails with what the research has found: when seeking food for their young, agamis forage at night. This may account for their Vulnerable rating by the IUCN. When you consider that they live in remote, inhibiting habitat, are inclined to further seclude themselves when disturbed, and then add in their nocturnal foraging, it's no wonder they're so seldom seen. Until 2015, nesting locations had only been found in Costa Rica, Venezuela, Brazil, French Guiana and Trinidad. Lately, nesting colonies have been discovered in Mexico, Peru and Ecuador.

However, the IUCN's primary reason for a Vulnerable rating is the expectation of further deforestation in the Amazon. Since an agami colony requires thousands of hectares of habitat during breeding season, the destruction of almost any amount of their feeding territory will put a crimp in their efforts to raise their young. As well, with the agami's sensitivity at being disturbed at the nest during breeding season, conservation efforts often focus on preventing disturbances, human or otherwise.

**References**

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https://www.researchgate.net/publication/319707637_Breeding_Season_Home_Range_and_Migration_of_the_Agami_Heron_Agamia_agami

https://www.audubon.org/news/agami-herons-full-mating-ritual-photographed-first-time

# Research on Tent-Making Bats

This month our tent-making bat surveys have been boosted by Maxime Charrié and Romain Fischer from the National Veterinary School of Toulouse, France.

To fulfill the research component of their internship, they are looking into the thermoconduction of different plants available for use by the bats. This information can help us understand why the bats show a preference for some areas of the forest while not using other areas that, at first glance, seem suitable.

While such information is available for Pacific forests, there's little similar information for the Caribbean coast, which has some compositional differences.

Thank you to our Research Coordinator Morgan Hughes for guiding them through their first research experience. And to Maxime and Romain for their hard work and photos.

--CF--

# From Caño Palma's Early Days -- Photos from Tom Mason

First manager's cabin - Built by first station manager Greg Mayne

Station's first wash area

Our founder Marilyn Cole doing some welding

Co-founder Ozzie Teichner in the canal

# Innovating on Turtle Nests

With increasing temperatures being documented on many beaches around the world, the gender balance of turtles may have an impact on their long-term future. Typically, cooler nests produce more male hatchlings, and warmer nests produce more females. When nests are too warm for too long, we can also see nests with eggs failing to hatch.

Enter Filippo Andruccioli from Italy who has worked on several turtle projects around the globe. On one, he saw shelters made to keep nests from overheating. With the brains and brawn of the rest of the turtle team, we've set about making some shelters out of natural materials to see if they'll be effective on our beach.

We'll be measuring daily temperatures from both shaded sand and unshaded sand to see how much of a difference these shelters make, as well as testing if, on this well-walked beach, people will leave them in place. We work hard to make nests harder for poachers to find, so the last thing we want to do is draw them to the exact spot!

We'll review the data in a couple of months to see if shelters are a worthwhile addition to our turtle project.

Thanks to all the hard workers, and to Filippo and our Marine Turtle Research Coordinator Sarah Ravoth for the photos!

--CF--

# Station Happenings From reports by Morgan Hughes, Research Coordinator

## July

**Flooding** - Heavy rains caused flooding and the evacuation of many of us to San Francisco. While most beach surveys were able to be done, all forest and canal surveys were canceled. Conservation Club also had to be canceled with the exception of a visit to Tortuga Lodge. Many thanks to the Lodge for providing guides and transport.

**Large Mammal Survey** - The variation by transect is interesting. On the Cerro, the nine-banded armadillo was the most frequently observed large mammal. On the Caño Palma transect, it was the white-lipped peccary. Finally, agoutis were the mammal of the month in Tortuguero National Park.

## August

**Surveys** - With turtle season picking up, other surveys were reduced in frequency.

## September

**Long-term interns** - From Italy comes Karin Plank who will be completing her Master's thesis analyzing the relative importance of different causes of egg mortality throughout the year and across the length of our turtle project. As well, we welcomed Florentine Niemec from Germany who will be completing a project relating tent-making bat occupancy and group size with seasonality and weather.

**MINAE** - Morgan participated in one of their meetings, presenting an app to report marine-mammal observations with an emphasis on manatee observations.

**Large Mammal Survey** - Though only 6 surveys were completed this month, a total of 1476 mammals were observed. The white-lipped peccary was the most common detection - 1224. Two unusual sightings were the ocelot and the Mexican hairy dwarf porcupine.

**Ocelot**

**Mexican hairy dwarf porcupine**

**(cont'd on next page)**

## Station Happenings (cont'd)

**Playa Plástica** - We completed a short beach trash survey on 20 meters of beach following the **Promar** methodology which assesses the types, volumes and brands of plastic trash on beaches. After two workshops with our friends at Promar, we're back at it. This time we're cleaning 10m stretches, and our numbers will be combined with those of groups on other beaches in order to inform local and national decisions on how to tackle this ever-growing problem.

So, the stats... 1559 pieces of trash - 66% plastic... 27.4% styrofoam.
A remarkable 33 shoes, and 161 styrofoam plates.
Great job done by Flo Niemec (Germany), Luisa Steiger (Switzerland), Rachel Novak (USA) and Morgan Hughes, our research coordinator.

**PROMAR -- Prevention of Marine Litter in the Caribbean Sea**

As many as 200,000 pieces of plastic have been detected per square kilometer on the coastline of the north-eastern Caribbean. The majority of the plastic waste originates from Caribbean countries and northern waters.

PROMAR is contributing to the reduction of waste streams, namely plastic packaging and single-use plastics, into the Caribbean Sea while promoting circular-economy solutions in the Dominican Republic, Costa Rica & Colombia.

On their website, you can find a short video explaining what marine litter is, its causes, and possible measures to prevent it. Go to **https://promar.org/en/home** and scroll down a bit.

**Looks like everyone is having fun on trash pickup**

**Photos by Morgan Hughes**

# Sea-Turtle Happenings -- Sarah Ravoth & Filippo Andruccioli, Turtle RC's

## August

While emergence activity for greens is still building in August, hawksbill activity peaked in July. At least one patrol was on the beach every night this month.

| | Events | Nests | Half-moons |
|---|---|---|---|
| **Green** | 211 | 68 | 143 |
| **Hawksbill** | 24 | 9 | 15 |
| **Leatherback** | 0 | | |
| **Total** | 235 | 77 | 158 |

**Poaching -** After no poaching events in July, this month they increased substantially. Four nests were fully poached (all greens) and three nests were partially poached (2 hawksbill and 1 green).
Two deceased green turtles were found, both greens - one on the Cerro and the other in vegetation at marker 5. These incidents were reported to MINAE as we will continue to do.

## September

Activity for greens peaked in the first half of this month. On the busiest nights, there were over 20 emergences.

| | Events | Nests | Half-moons |
|---|---|---|---|
| **Green** | 252 | 86 | 166 |
| **Hawksbill** | 19 | 6 | 0 |
| **Leatherback** | 0 | | |
| **Total** | 271 | 92 | 166 |

**Triangulating** - We located and triangulated to the egg chambers of 44 green-turtle nests. For hawksbills, three of six nests were triangulated.

**Tagging** - We tagged 21 individual green turtles with no existing tags, and encountered 26 individuals with existing tags, often applied by the Sea Turtle Conservancy. Six individuals were re-nesters, meaning they had been encountered laying earlier in the 2021 season. One turtle was encountered three times.

**Poaching** - With the peak in the nesting season, poaching activity increased though most attempts were unsuccessful. Still, eight nests, all greens, were poached to some extent.
Night patrol encountered a track leading into the bush, leading them to suspect a turtle had been lifted. The morning-census team followed up and managed to find this green deep in the vegetation. It was successfully led back to the sea. A pictorial chronology of this event can be found on page 4.

**Excavations** - Fifteen nests were excavated this month (8 green, 7 hawksbill). Three nests were either predated or fully poached. Of the remaining 12 nests, two had 100% of hatchlings emerge. Otherwise, emergence success was quite variable.

# Canadian Organization for Tropical Education & Rainforest Conservation

# COTERC



**To ensure you feel involved, we welcome any comments or suggestions. If you have an idea for an article, or better yet, would like to write one yourself - if you have a photo or two that you think we could use - if you have a suggestion for improving Raphia, please send it along to us at raphia@coterc.org**


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