

● YELLOW LAND CRABS

A CRAB CALLED JOHN

The yellow land crab lives a secret life on an island stronghold off the coast of Brazil. One photographer went to find out more about this charismatic crustacean.

Words and photos by **FERNANDO FACIOLE**



Globally, the yellow land crab can only be found on three other islands

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The volcanic island of Trindade was thrown out of the sea three million years ago

I'M CROUCHING UNCOMFORTABLY AMONG SHARP volcanic rocks, yet I'm buzzing with the thrill of discovery. Behind me, a vast sea stretches to the horizon, the waves crashing against the shore with a rhythmic roar; in front of me, a large, vivid crustacean is scuttling across a dark, lumpy outcrop with a gentle tip-tap of its claws, offering a welcome burst of colour in this rugged, almost alien landscape. It's a yellow land crab, otherwise known as John.



Males often have elongated claws or 'chellae'



Aboard the naval ship

This is my first encounter with this species, yet it feels like I'm greeting an old friend. Ever since I first clapped eyes on an image of a yellow land crab, I've been eager to find it and tell its story. Seeing it in the flesh is a dream come true.

It's March 2024 and I have just arrived on the remote island of Trindade, about 1,100km east of the coast of Brazil, on a four-day photographic assignment. With me is Márcio João, a doctoral student from São Paulo State University. We are lucky to even be here: Trindade is off-limits to the general public, and the only way we could get to the island was by hitching a lift with the Brazilian Navy, which supports research through the ProTrindade project. Our ocean odyssey from Rio de Janeiro had been marked with endless views of blue, engaging conversations and games of dominoes.

WITH THE NAVY shielding its shores and no human presence save a small military base and a research station, Trindade is a sanctuary for wildlife. This protected island, stretching more than 10km², allows the Johns – and other wild residents – to live out their lives in peace. Its jagged profile, characterised by rugged peaks as much as 620m high, points to its volcanic history. The sheer cliffs teem with seabirds such as boobies and petrels, and the endemic Trindade petrel, while the surrounding waters are home to myriad species of sharks and cetaceans, including humpback whales, which arrive during the winter months.

Where is Trindade?



Trindade is the largest island in the Trindade and Martim Vaz archipelago, which comprises five islands in total and lies about 1,100km off the coast of Brazil. It's the country's easternmost point.

ABOUT THE AUTHOR

Fernando Faciole is a conservation photographer based in Brazil who focuses on Latin America, shedding light on endangered species and threatened ecosystems

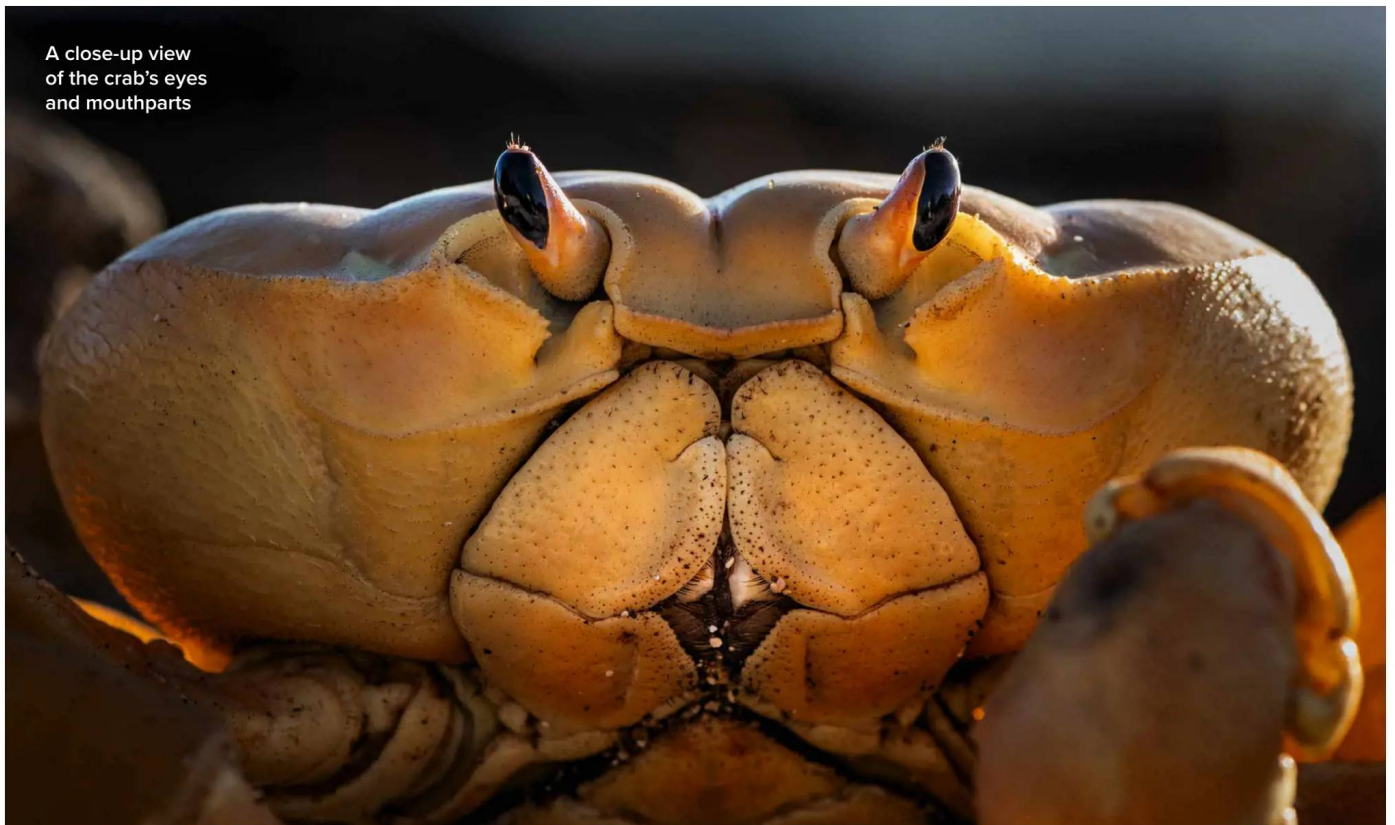


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The Johns tend to be more active when the sun sets

A close-up view of the crab's eyes and mouthparts



Green turtles use the same beaches to lay eggs



The yellow land crab *Johnngarthia lagostoma* is named after John Garth, a distinguished American naturalist. It's a relatively hefty species – on Trindade, its carapace can reach up to 10.7cm, and the powerful claws can grow as large as 10.5cm.

While the species occurs on three other islands – Fernando de Noronha and Rocas Atoll, both part of Brazil, and Ascension Island – Trindade is its last stronghold. It is not listed as Endangered on the IUCN's Red List, yet is considered so by Brazilian researchers, who are currently trying to determine the exact size of the population. On Fernando de Noronha and Ascension Island, the Johns have faced significant threats from humans, including harvesting for food.

Indeed, there is still lots to learn about the life of the Johns: the first research expedition to Trindade only took place in spring 2019. Since then, the study team has undertaken five more expeditions, totalling seven months on the island. They've managed to collect data, such as sex and body measurements, on 1,500 individuals.

THE JOHNS ARE TERRESTRIAL creatures and live scattered across the island. They are largely nocturnal and solitary by nature, coming together only in the mating season and going their separate ways immediately after copulation. Yet they undertake a migration en-masse during the breeding season, a spectacle Márcio and I had timed our visit to witness.

Adults live in the vegetated, humid and cooler mountain areas, but migrate down to the beaches for reproduction. The mating season and all associated reproductive processes occur from November to May,



Researchers Márcio João (left) and Esli Mosna on night duty

“Each female releases about 80,000 eggs during full-moon tides”

across all four of the species' oceanic island homes. Once they've mated, female crabs store the sperm in a seminal receptacle and retreat to their burrows where they wait for their eggs to mature. The eggs are then fertilised internally and transferred to the abdomen. When the eggs are ready to hatch, the females emerge and make their way to the sea, each releasing about 80,000 eggs during full-moon tides.

The eggs hatch upon contact with seawater, developing into larvae known

as zoeas that resemble tiny shrimps. The zoeas swim near the surface, feeding on smaller plankton. After another three to four weeks, they move into the next stage of development, megalopae, at which point they resemble tiny adult crabs. They then move towards the land, guided by chemical signals, coming ashore during the next full-moon high tide.

Leaving the water behind, they must now navigate rocks and sand to seek shelter from predators, sometimes travelling almost



The crustaceans spend time on the island's highest hills and mountains

“Their huge claws gently move above their heads as if giving me a welcoming wave”

a kilometre inland. They typically hide away under rocks until they've completed their final moult to become fully fledged juvenile crabs. Once their shells reach about 1cm in width, they emerge from their hideouts and begin their journey into the mountains.

I NEED TO GET TO MY ACCOMMODATION in the research station and unpack, yet I am transfixed by the John in front of me, and several others I have spotted nearby. Unlike many crabs, including their agile cousin, the Sally lightfoot crab, Johns move very slowly. Their large eyes seem to be studying me intently,

and their huge claws lend them an almost robotic appearance, gently moving above their heads as if giving me a welcoming wave. It is with great reluctance that I eventually drag myself off to my digs.

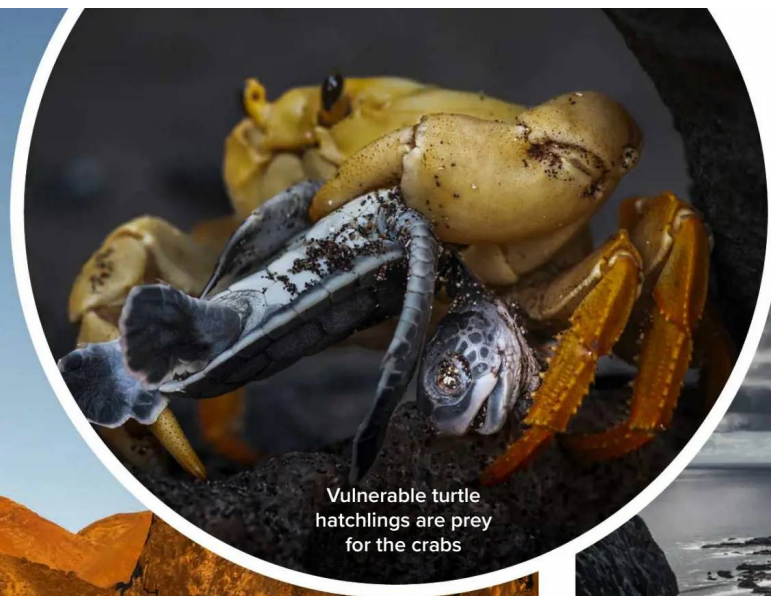
I unpack quickly, then join Márcio and Master's student Esli Mosna for an evening of survey work on Andradas Beach. The sun is setting, and the large swathes of vegetation near the beach are rapidly transforming into crab gardens. Hundreds of Johns are beginning to emerge from their burrows higher up the slope, clustering among the vegetation, spreading out and gathering around my feet with a noisy clacking of

claws. Their movements are slow and deliberate, yet there are so many of them that the ground is swirling.

Suddenly, I am more preoccupied with not treading on the crabs than I am about taking good photos of them. I now understand what Márcio meant when he said that these animals truly dominate Trindade.

I capture some images of the Johns and of the researchers setting up transects, and we wait for darkness to fall, so we can observe the crabs' night-time activity. One aim of the research is to understand the genetic connectivity among the individuals distributed across the four islands.

Marcelo Pinheiro, coordinator of the Research Group in Crustacean Biology at São Paulo State University, explains that what first struck him about the Johns was their curiosity. “They approached me without hesitation. It was unforgettable, something that only a preserved environment like Trindade can offer,” he recalls. “My scientific



Vulnerable turtle hatchlings are prey for the crabs



Trindade's vegetation is slowly returning

Green again

Trindade wasn't always the rugged island it appears today. Its appearance changed drastically once it started to be frequented by humans, particularly following the introduction of goats in 1700. With no natural predators, the goats grew rapidly in number and consumed nearly all of the island's plant cover. The goats were finally eradicated in 2005, allowing Trindade's native vegetation to start to make a recovery.

It's a sad scene, yet a natural one. "When I started working here, I didn't really like the Johns because they ate turtle hatchlings," admits biologist Joice Soares from the Marine Turtle Project, who is also carrying out research. "But everything is in balance here; now they are our fieldwork friends."

AFTER TWO MORE DAYS ON Trindade, my final task is to photograph the crabs at altitude. Many crab species live on beaches, but Johns only come down to the shore to mate and spawn. On Trindade, they are found as high as 600m, including on the slopes of Desired Peak, the island's highest point at 620m. Disappointingly, our planned overnight campout on the mountain is cancelled for logistical and safety reasons, so we plan instead to head for Prince Hill, whose 150m plateau hosts the largest concentration of juveniles, first thing in the morning.

Permission to hike to Prince Hill is granted by the Brazilian Navy at 6am, when it's already first light. Since the crabs are usually back in their burrows by sunrise, and it's a 90-minute walk to the plateau, I know good photos will be almost impossible. I set off regardless, but the sun is soon high in the

sky and scorching hot, and only one or two Johns are visible. My optimism starts to fade.

Suddenly, I see a large, brooding cloud making for the island. This is the *pirajá*, a famous rainstorm that refreshes Trindade in a hard-and-fast downpour. Rain is usually a challenge for photographers, but conversely, I know the storm brings one final chance.

All crabs breathe through gills, which require moisture for gas exchange. Terrestrial crabs can use ambient humidity for this process. However, during rain, or when they locate sources of fresh water, they will take advantage of the increased water availability to refresh their gills.

As the *pirajá* approaches and lashes the island, the Johns begin to appear across the landscape, allowing me to capture the photographs I had hoped for. But then the clouds part, the crabs disappear back into their burrows, and it is also my time to leave. The team from São Paulo State University will continue their research in the coming years, uncovering new aspects of the Johns' biology and devising conservation plans. "Protecting the John crabs on Trindade is not just about saving a species," says Marcelo. "It's about learning how to restore and sustain the delicate balance of nature in a rapidly changing world." 📷

curiosity was piqued, and since then, these crabs have been sharing their life story with us, trusting us as guardians of their future."

Trindade is not only a stronghold for the Johns, but is also the largest nesting ground in Brazil for green turtles. Mouth agape, I watch as, among dozens of crabs, a huge green turtle lumbers across the sand and digs a hole in which to lay its eggs. While the two species tend to keep themselves to themselves for most of the year, their worlds now collide.

Yellow land crabs are predominantly herbivores, but are also opportunistic feeders, preying on carcasses, turtle eggshells and turtle hatchlings. The following morning, the fallout of this behaviour is clear. Many Johns are still loitering among the turtle burrows, the detritus from the previous night's feast scattered across the beach. Most predation on hatchlings occurs at night, when the youngsters are making their way towards the sea.