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Insects of Costa Rica Podcast and "Meet the Scientists"

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José Montero and Manuel Zumbado, both of the Costa Rican National Biodiversity Institute, INBio, explain how this crossroads between North and South America became a hotspot for evolutionary innovation.

Transcript

Ari: For the Encyclopedia of Life, I'm Ari Daniel Shapiro. And this is: One Species at a Time. Costa Rica is full of life, and it's just swarming with insects. Recently Marie Studer – who runs the Learning and Education Group for EOL – took a trip to Costa Rica with her family.

Studer: Ok, I'm gonna go interview the bugs.

Ari: Studer recorded the nature sounds while she was there.

Studer: So everybody has to be really, really quiet.

Studer: The sounds of the forest were tremendous. They were just this chorus. And even though we had no idea what these things were, we just heard things all the time.

Gwen: Yeah. We heard a lot more than we saw.

Ari: That's Studer's daughter, Gwen.

Gwen: We could hear all the cicadas and just a lot of other bugs.

Ari: Costa Rica is home to over 300,000 different types of insects. Lavender wasps, iridescent flies. And a kaleidoscope of butterflies and moths, collectively called Lepidoptera.

While Studer was in Costa Rica, she spoke with Jose Montero.

Studer: He's got lots of energy – he's out there crossing Costa Rica this way and that, studying Lepidoptera.

Ari: He's an entomologist at INBio, or the National Biodiversity Institute.

Montero: There are about 160,000 species of butterflies and moth in the world and just in Costa Rica we have more than 20,000 species of moth and butterflies.

Studer: So is this a real hotspot, then?

Montero: Yes, for example, in Costa Rica we have the biggest moth in the world, which is Thysania agrippina. Thysania agrippina – the wingspan is about 25 centimeter.

Ari: The moth's basically as big as a sheet of paper.

Montero: When you see it, you can expect that is a bat…

Studer: Oh, my gosh!

Montero: …when it is a moth, because when this particular moth flies, it looks like a bat. It is huge.

Ari: There are 3 main reasons why there are so many kinds of butterflies and moths in Costa Rica.

Studer: One, it's the country's location so it's that nexus between North and South America.

Montero: That gives us a mix between the two parts of the continent.

Studer: Which enables plants and animals to establish themselves there. It's also got an incredible tropical climate and geological makeup that includes just a range of habitats.

Montero: Differences between elevation and localities.

Studer: It goes from sea level to high altitudes throughout the country, really.

Montero: The precipitation and humidity is, is very different.

Studer: All these micro-habitats throughout Costa Rica.

Ari: And the third reason is that about a quarter of the country is held under some type of conservation status.

Studer: Which has protected a significant percentage of its natural wonders.

Ari: Studer also spoke with the head of entomology at INBio – Manuel Zumbado. He studies flies.

Zumbado: Most people hate flies.

Ari: But flies are crucial when it comes to pollinating plants and decomposing natural waste. Zumbado is trying to catalog all the different types of flies in Costa Rica. He captures them, and he categorizes them. And he's constantly discovering new species.

Zumbado: It's a job that is – there's so much to, to be done that you will need several lives to finish it. And you will never finish it. So it's always something new, something interesting. You're learning all the time.

Ari: Zumbado's work with flies is connected to a larger vision he has for his country.

Zumado: We hope that society more and more will be inclined to conserve and use in a wise way the biodiversity.

Ari: That message of appreciating the natural world is being felt by visitors to Costa Rica, too.

Gwen: Um, I think now I notice things more.

Ari: That's Gwen again – Studer's daughter.

Gwen: There were some certain animals that we really wanted to see, and it just, like, gave me a new way to find things.

Ari: You just had to be, like, extra observant?

Gwen: I think so, and everything was so different so you just had to be looking really, really closely.

Studer: Going to this new place, suddenly it's all new. At home we sort of know where to find the things we might look for – a squirrel, or an owl, or a certain plant. But you know, we get caught up very quickly in our everyday whirlwind. I certainly don't take as much time to sit back and just observe and look.

Ari: Check out eol.org to find out why Manuel Zumbado thinks flies get such a bad rap, and to send us photos from a trip you've taken that's changed how you view the world around you..

Our series, One Species at a Time, is produced by Atlantic Public Media in Woods Hole, Massachusetts. I'm Ari Daniel Shapiro.

Meet the Scientists

Meet José Joaquín Montero Ramírez, and Manuel A. Zumbado, the scientists featured in the Insects of Costa Rica Podcast:

Joaquín Montero Ramírez

Where do you work?
I am a research scientist and curator of butterflies and moths at the National Institute of Biodiversity (INBio) in Costa Rica, Central America
Yo soy un científico investigador y curador de mariposas diurnas y nocturnas en el Instituto Nacional de Biodiversidad en Costa Rica, Centroamérica.

What do you study?
I study the biodiversity of frugivorous butterflies by using fruit-baited traps placed at different heights in the forest. I am also interested in moths, but with this group I am studying the taxonomy as well as natural history.
Yo estudio la biodiversidad de las mariposas diurnas frugívoras, utilizando trampas cebadas con frutas a diferentes alturas dentro del bosque. También yo estoy interesado en las mariposas nocturnas, pero con este grupo estoy estudiando la taxonomía, asi como su historia natural.

What are three titles you would give yourself?
Energetic, naturalist and entomologist
Energético, naturalista y entomólogo.

What do you like to do when you are not working?
Read, drinking good coffee and to share time with my family.
Leer, tomar un buen café y compartir tiempo con mi familia.

What do you like most about science?
That every day I learn new things and at the same time I have to share that information with society.
Que todos los días yo aprendo cosas nuevas y que al mismo tiempo yo tengo que compartir esta información con la sociedad.

Manuel A. Zumbado

Where do you work?

I am Head of the Entomology department and Diptera Curator at Instituto Nacional de Biodiversidad, Costa Rica (Costa Rican National Biodiversity Institute.)

Soy Curador de Diptera y Coordinador de la Unidad de Artrópodos del Instituto Nacional de Biodiversidad de Costa Rica.

What do you study?

I study the true flies (Order Diptera), particularly hover flies (Family Syrphidae) and tachinid parasitic flies (Family Tachinidae) as part of the national biodiversity inventory conducted by INBio in Costa Rica.

Estudio las moscas (Oden Diptera), particularmente las moscas de las flores (familia Syrphidae) y las moscas parasíticas de la familia Tachinidae, como parte del inventario nacional de biodiversidad que conduce el INBio en Costa Rica.

What are three titles you would give yourself?

Parataxonomist, entomologist, naturalist.

Parataxónomo, entomólogo, naturalista.

What do you like to do when you are not working?

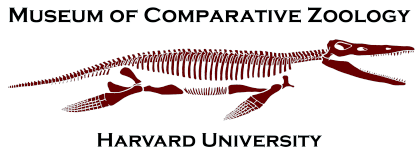
What I enjoy the most is walking in the woods and natural habitats, taking pictures of small creatures and observing the natural world. I also enjoy the movies, dance, theater. I love music, cooking and sharing with friends and family.

Lo que más me gusta es caminar en el bosque y en hábitat naturales, tomar fotografías de pequeñas criaturas y observar el mundo natural. También me gusta ver películas, bailar, ir al teatro; me gusta mucho escuchar música además de cocinar y compartir con mi familia y amigos.

What do you like most about science?

Discovering, particularly the natural history and life cycles of tropical insects and sharing that knowledge with the general public.

El descubrimiento, particularmente la historia natural y ciclos de vida de los insectos tropicales, compartiendo ese conocimiento con el público general.



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