



***'Meet the researcher –
Jesús Aguirre Gutiérrez
and Huanyuan Zhang'***
Podcast transcript
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Claudia

Welcome to meet the researcher, a podcast from Oxford Ecosystem Lab. I'm Claudia Cassidy and today I will be meeting with Jesús Aguirre and Huanyuan Zhang. Jesús is an independent research fellow and senior research in ecology and remote sensing at the University of Oxford, and one Huanyuan is a DPhil candidate in the Ecosystem Lab.

Welcome Jesús and Huanyuan. It is absolutely great to have you here with me today.

Jesús

Thank you Claudia.

Huanyuan

You're welcome.

Claudia

You have both been in a field trip to Ghana recently to investigate how forests are responding to climate change and I was wondering if you like tell me a little bit about your work, about your field trip. Would you like to start Jesús please?

Jesús

Yes, sure Claudia and thank you for having us here. So the this this project is actually part of a bigger project that I have together with my colleagues with funding from NERC, and in which we are looking across the tropics at how forests are responding to a changing climate.

So we know that changing temperature is rising and precipitation in some areas is actually becoming more scarce. So becoming dryer.

So we really want to know if the forests are being able to cope better with these changes and one of the study areas that we selected is Ghana. We have very good collaborators in there and we have a climatic gradient going from the savanna to the tropical wet forest. And in there, we basically know that we have vegetation census data we collected, foliar trades and about the morphology of the trees, the hydraulics, and now we went to continue collecting more data with drones specifically. Very cool

drones. And to connect soil data because there is almost no knowledge about the biota in the soil and the interactions that these biota like the fungi and bacteria may have with the trees and how they may help these trees to actually adapt to change.

Claudia

This sounds like a very fascinating project. It's very comprehensive and very 360 degrees. Did you find this it challenging?

Jesús

if I would find challenging what? the research process?

Claudia

What I mean is that often in field trips, researchers tend to focus on maybe one aspect. It could be leaf traits, or forest resilience or soil composition, but in this trip you seem to have looked at so many different aspects.

Jesús

Yes, yes indeed. I actually more, it's challenging, yes, but I think it's more kind of exciting because in here what we're doing is to put together different bits of what is actually going into the forest.

Now we are, as you said, we are not just looking into like a specific species or how just the tree is responding, but we are looking to different aspects like a bottom up approach in which we go into the soil, we see what is happening in there we see the interactions that these soil has with the plant, per say. Then how these interactions may actually be release cover into the foliar traits of these plants, and then we go even beyond that. Trying to map these interactions based on the drone remote sensing with these very high spatial accuracy and very high spectral resolution as well, so we are actually trying to put all these pieces together. Again, it's challenging, but it's exciting and the best part is that we are not just doing it in one site only, not only one country, but we are actually going across many different countries, across the tropics, to see what is there we hate what is really going on.

We don't really know.

Claudia

That sounds like something really novel and really unprecedented that has not been done before, and I can see why it is so exciting to work on this project.

Huan, I was wondering if you could tell us a bit more about your involvement in this field trip and how this ties into your DPhil project?

Huanyuan

I was having two tasks in this field trip, so one is that I was a research assistant to Jesús and to collect and data you just mentioned and another task I have is to us to sort out data, data management and analysis which all the data we have collected in the past.

So from Oxford Ecosystem lab have been in collaborations with Ghana researcher for 10 years already and in the past lots of data have been collected, so one of my other task is to manage and analyze the data.

Claudia

How did you find out Huan?

Huanyuan

I feel like we are trying to do something new and different and challenging so, you know, now we are not like we just pay field technicians and ask them to do what we ask them to do, but now we are also teaching about data management and data analysis and we are actually spreading science instead of, you know, just pay and ask people to do labor in the field.

Claudia

You foresee working with them again beyond this field trip? Anything planned for the future?

Huanyuan

We organized online workshop and we carry on with the data management and analysis and the teaching is going on on a weekly basis.

Jesús

Really interesting what Huanyuan is doing now with the carbon data, for instance, that has been collected as he mentioned.

Now, The other aspect that we want to explore with workshops and actually capacity building again, not only with our partners in Ghana, but as I mentioned we are working with people, including in Brazil and Santorin Nova Shantina in Mexico as well, I was just there collecting data, as well.

Ghana, Gabon, Malaysia and Australia and in all of these locations, what I want to do, and started doing is actually to have also local workshops in which we don't only not only go to the field, and as Huan said, just collect the data and take the people to the field because they are really experts in the field very. But we also with these workshops in which we try to transfer the knowledge that we have as well with the new technologies. For instance, now we are planning to have a workshop on remote sensing of plant functional traits based on the drone imagery that we just collected on site.

So I think this is going to kind of complete the knowledge that the people from the local areas have going beyond the field to actually to the computer and seeing the results from the data that they have collected with these new technologies. Again, it is not only the drone remote sensing with the spectral cameras that we have we also have quite other cool tools that we use as these Lidar equipment and which you basically do just working on the foyers as they did and these last days just pointing now to the different trees and they will just sit at the computer. You can reconstruct the forest in 3D. So we are trying to pass out these knowledge to them as well so they know how to do it and actually what it means, what they are seeing and how to interpret the results.

Claudia

I find that really impressive. I mean, it's easy sometimes, or easier, to just go to a forest and take your data, but here you're actually doing something for the local population.

You're empowering them to understand their own forest, and It's a really great contribution and I'm sure they were and will be very appreciative for this.

Something else I wanted to ask you guys now, with COVID, things have been very difficult, especially going abroad doing field work.

How did you find being back in the field and doing what you love? Jesús?

Jesús

That was, this has certainly been a different period in not just in my life but guess in most of the people around the world, and certainly It caused delays as well in in the research that we are doing.

I was supposed to be in Ghana like one year and a half ago and I couldn't do it, so being back now there and actually talking to the people, going to places in there, seeing the forest again and listening into the forest as well is just magical is kind of this like when you have a dream and then you wake up and you say 'Oh yeah! this is kind of what I dreamed about that!' and then when you go to the place you say OK, this is what I was dreaming about and this is kind of at the moment in which you realize 'OK, this is again, what I really wanted to do and this is what fills my heart with pleasure you know.

it is, of course, it is work we have to do work in the field, but also it feels kind of much more than just work. It feels kind of part of your life and that thing that you love. So it was exciting just to get to be back in the forest and with the people.

Claudia

Absolutely. I think, as an ecologist, the soul of the work is actually go into the field and collect samples and interact with the local population, rather than just start at a computer and look at the data - which is important as well of course.

Jesús

Yeah and having these interactions, you know, that I think are super valuable. Not only with the people from the region, or from the location, but also I think that this time it reminded me about how we still have the relationship with the field team and people that you are actually going to the field with, from in this case, from Oxford.

So it was pretty cool to providing as small team, you know, and having to live with them for, for I don't know 2-3 weeks and sharing everything basically day and night so that that was also very very cool to help again.

Claudia

Huan was this your first field trip as part of your DPhil project?

Huanyuan

So unfortunately I think I started my DPhil just before the Covid period. So yes, this is my first field trip during my whole PhD..

Claudia

How did you find out?

Huanyuan

So for me, it's kind of a mixture of nervousness and excitement. My impression is that I stayed in a comfortable zone for like 2 years and then it does get a bit nervous when we are walking out of the comfortable zone. I'm sure that lots of people still feel the same thing like me, like having Zoom meeting for two years or again going to a big lecture halls and things like that.

And I was getting a little bit nervous, but everything turned out to be very enjoyable and exciting.

So do be brave and walk out of the office and enjoying the field and join the crowd.

Claudia

Absolutely. I think that's a really good point Huanyuan, because a lot of people are in your situation where they started a PhD but due to Covid and being unable to do any field work. And it must have been great to actually get out and do the real thing, And also I'm sure Jesús this was a great mentor.

Jesús

You'd better say yes Huan! (laughter)

Claudia

Of course!

The last thing I wanted to ask you is what was the best part of the trip? What was it worse, if any part of the trip? Jesús, would you like to start?

Jesús

Sure, well there are many best parts, I think some not so good.

One of the best I guess was this this community sharing, to me is really important.

And it is a mix, community sharing and also being in the field and filling the forest. I'm waiting that. In the forest, I was really excited that we took some new equipment there, so we had, I got a new kind of drone that is a call at Trinity F90 and this is exciting because it's basically a small plane that takes up vertically and then goes horizontally. You know, so it was kind of a challenge to learn how to how to drive it in a way and actually to send it to fly in the middle of the forest. You know, with these huge trees like 40-50 meters tall trees which you cannot see much in there. And just let it go, you know So I was a bit nervous about that. But now that I'm looking at my data that I collected with that, it looks just amazing. So it was worth the nervousness.

One of the less enjoyable things. I think, it was when there was a very small canopy gap we tried to fly a small drone, not this big one that I was talking about, but without GPS you know and things didn't go as planned, let's put it that way. The drone is fine though.

Claudia

Well, I guess every field trip has some little glitches here and there. Huan what about you? What was great and what was not so great?

Huanyuan

And so, as I mentioned, I actually started my PhD two years ago, so it turned out I was researching at tropical forest that I had never seen.

I would say the best part is that the forests do surprise me and absolutely changed my imaginations of the forest. One of the amazing things I had about ecology is that the nature kept surprising me, every time I went to field or forest I would have an imagination of it and to conceive it when I read some papers, but when I actually see it in person it totally changed all the pictures in my heart.

So I would say that that's the best part.

Claudia

That's fantastic, seeing the real thing rather than imagining. Was there a worse part would you say? Or was it all perfect?

Huanyuan

The worst part I think, we had a lot, like but most of them is life, I just can't get used to cold water shower/ bath. And also people started the local markets about 4:00 AM. so it turned out I always wake up about 4:00 AM.

Claudia

Yeah, it definitely sounds like a bit of an early start, but overall it sounds like you guys had an amazing time there and managed to get some really good useful data.

I would like to, thank you first of all for being here with me today, and end his recording with sounds of the forest, which is something you both recorded in Ghana in one of the most productive forests in the world and well, thanks again and keep up the amazing work.

Jesús and Huanyuan

Thank you Jesús

All:

Bye bye