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Lecture 34
Avian Conservation Case study 3

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Conserving the Critically Endangered Bugun Liocichla through a community-managed protected area

The slide features a central photograph of a misty mountain valley with lush green forests. Below the photo are three logos: Rainforest Trust (with a tiger icon), WCS India (with a blue 'W' icon), and Bugun Welfare Society (with a green and red flag icon). The NPTEL logo is visible in the bottom left corner of the slide frame. A small video inset of the speaker is visible on the right side of the slide.

So, I am not going to be talking about any research over here, just peripherally. But I will talk about the conservation project that our team has been working on for the last few years to try and conserve this typically endangered bird species called the *Bugun Liocichla*. But I say the team the team is made up of NGOs like Rainforest Trust and WCS India, the Arunachal Pradesh forest department, Bugun community here Bugun village Singchung.

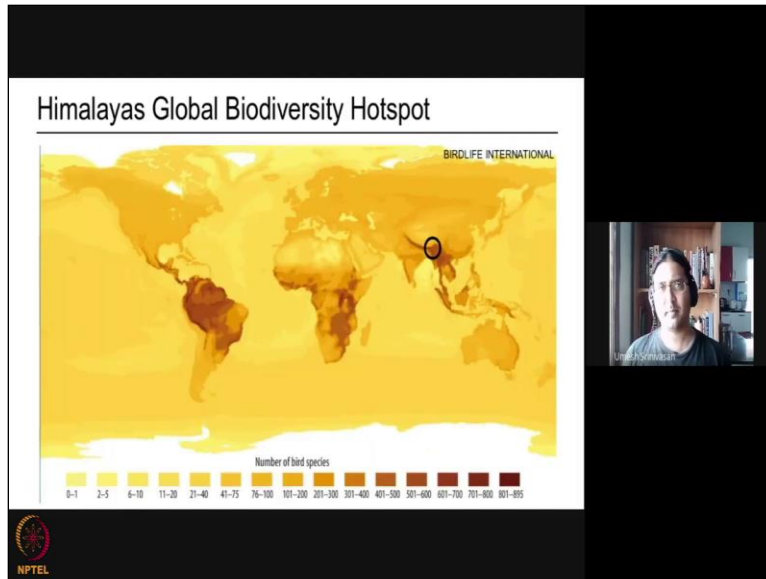
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This landscape is in the west coming district which is in western Arunachal Pradesh, you are seeing part of that landscape here Eaglenest Wildlife, scientifically which is sort of a becoming very iconic and reputed now is outlined in white you are seeing to the left the plains of Assam. So, that is towards the south and north of Eaglenest Wildlife Sanctuary are the community lands of Singchung village of the Bugun pride. And that those lands which are within that yellow outline are entirely owned and managed by the village council of Singchung village.

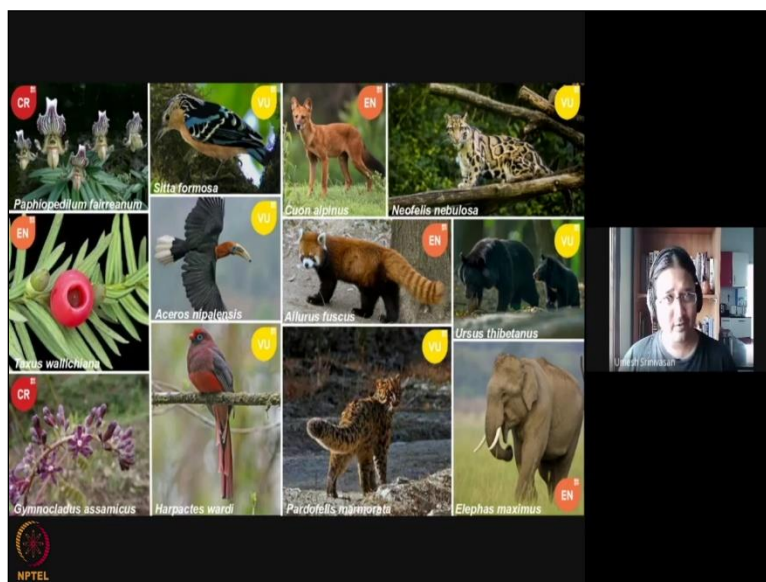
So, it is a traditional form of land management where decisions are taken at the community level, at the village council level about land use and so on rather than at individual levels and you know having individual land holdings. So, Singchun village is where all this action is happening.

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And this is part of the global biodiversity hotspot which is the Himalaya's biodiversity hotspot are exceptionally rich in name any taxonomic group. Exceptionally rich in diversity and this is just a graph of bird species richness across the world, the darker the colour the higher number of breeding bird species. And the eastern Himalayas is amongst the top three sites across the world for portfolio species diversity. So, it is it is an incredibly diverse landscape.

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Now like I was saying this is a highly biodiverse area and it has a variety of threatened species, vulnerable, endangered and critically endangered like you know plant species on the left like the *Paphiopedium fairreanum*, Himalyan yew, and *Gymnocladus assamica* which is typically

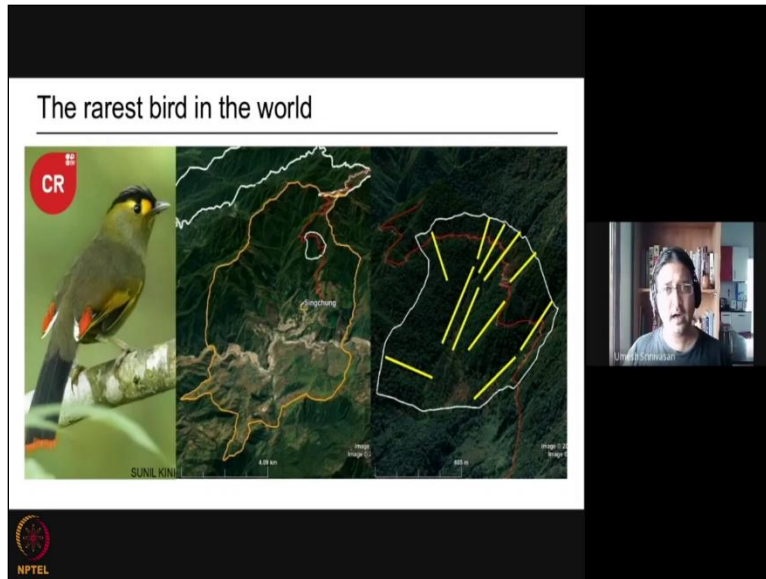
The Bugun Liocichla



And it is a spectacular bird, it is it is a you see a male at the top of the female below, it is got a distinctive song. It cannot be confused with anything else and it is it is a pretty bird, it is it is like you know surprising that it is not been that it had not been described before that had not been discovered before. In fact, you know even if the Bugun community does not distinguish this species from other species.

That might be a similar you know taxonomic but when Ravana just described he named it after the Bugun community. So, it is called the *Bugun liocichla* because it is only found in the lands of the Bugun community.

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Again, what you are seeing in the middle here is the outline of the lands owned by the Singchungvillage and the little white polygon inside is the entire global range of the *Bugun liocichla* which is about two square kilometers I mean look at the scale bar at the bottom over there it is you know that that line is four kilometers long. The entire known global range of the *Bugun liocichla* is four by four kilometers.

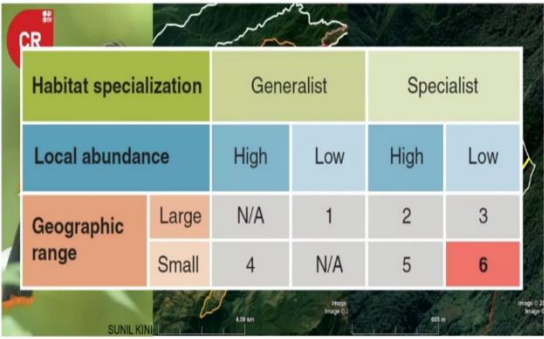
I am sorry about two square kilometers and within this range the you know the maximum of maybe 20 birds in this area. So, there are about 3 or 3 and a half times more people listening to this songs right now than there are *Bugun liocichla* in the entire world. And even within its range is a habitat specialist you know it occupies ravines. So, you will not find it in areas that have gentler slopes you will not find it in areas that are continuous sort of you will find it in ravines.

And so, those are the sort of territories over there on the right in yellow which are all the ravines within this range of this species.

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The worst possible form of rarity

Habitat specialization	Generalist		Specialist		
	High	Low	High	Low	
Local abundance	High	Low	High	Low	
Geographic range	Large	N/A	1	2	3
	Small	4	N/A	5	6




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And so, you know in terms of threat, if you want to look at habitat specialization local abundance in geographical range. This species is sort of the worst has the worst form of rarity. It is a habitat specialist its local abundance is low and this geographical range is tiny and that is what is called the sixth form of rarity. And so, it is vulnerable and environment stochasticity and demographic stochasticity and so on.

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Threats: climate change and habitat loss



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What are the threat facing right now, two major threats are climate change and habitat loss. You know if you look at the left again that is *Bugun liocichla* and the range that it occupies and Llama camp which is sort of the stronghold of the *Bugun liocichla* is showing very clear patterns of

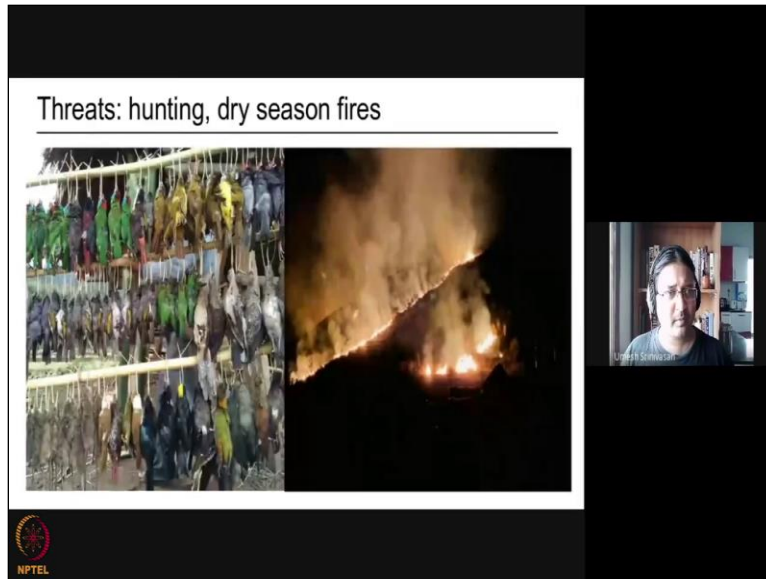
climate change or bird species that this is some more formalized work that we have done recently. On the right side is a graph showing you low elevation species on the x-axis below zero to the left of zero.

And higher elevation species to the right of zero on the x-axis and the change in the frequency of reporting of species over time using e-bird data, so this is a birding hotspot. And probably by data you can see that low elevation species are increasing in their frequency of reporting over time whereas high elevation species are showing declines in the frequency of reporting over time and that is because birds are moving up in response to climate change.

As the as mountains become warmer and proper marked species need to move up to to stay within the you know the same environmental niche or the same thermal niche that is the pattern we seen in the tropical mountain species across the world. It is the *Bugun liocichla* has very little ways to go, it is moving up the highest ridge line over there which is marked in yellow is where it can go there is no area above that at all.

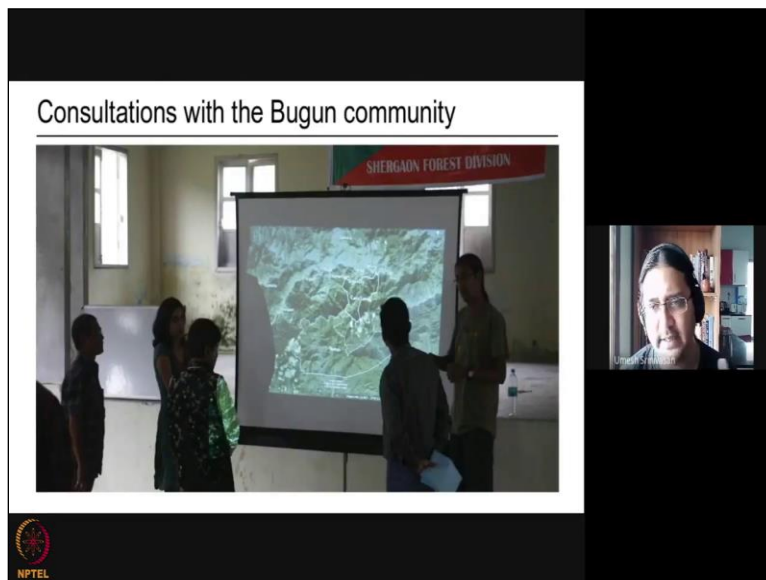
And so, it is likely that it will reach that ridge line and then you know it will just stop. It will go locally or extinct because this is run out of space. The other problem is habitat loss. So, what you see on the right, these farms are actually what you can see just outside the *Bugun liocichla* habitat at the bottom right. So, it is very important to conserve unbroken plaques of forests across the entire elevational gradient to allow these species to move up into primary forest and be somewhat resilient against climate change.

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Now the other problems are hunting and hunting of small birds which is indiscriminate. It does not matter no particular species are targeted any species anybody with a caterpillar going through this area will hunt any bird that *Bugun liocichla* is small population size. We do not know what the removal of you know three or four birds might have on the population. And then there are crisis and fires which are which have a huge problem leading to massive loss of habitat.

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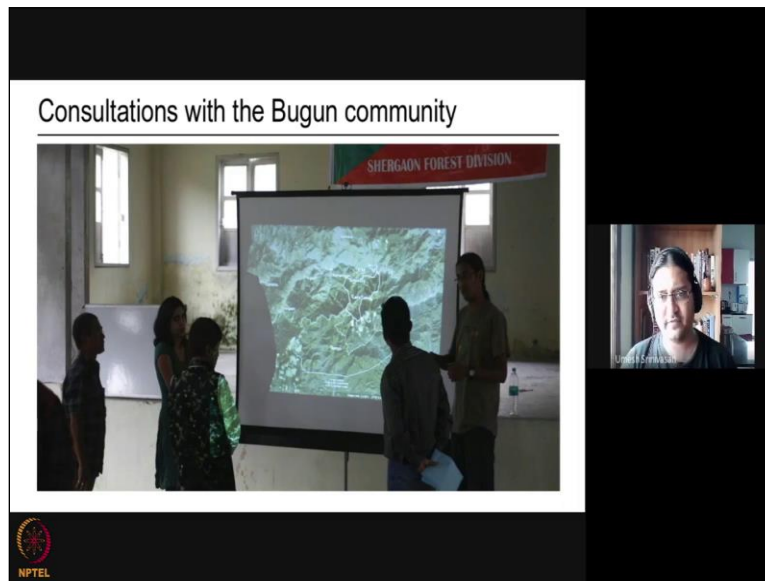


And so, you know with all this high biodiversity and the *Bugun liocichla* being sort of a flagship, we moved it to the village council of Singchung. the idea of creating a community reserve which is a kind of protected area under section 38 of the wildlife Protection act. And the unique kind of

protected area, because the land even if a community reserve is created, land ownership does not pass to the government. But land ownership remains in the village community and the management committee is the village community itself.

So, it is a very decentralized form of so we can certify the public community about you know potentially having the nuclearism of this form.

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And by then and bird based ecotourism had taken off at Eaglenest. Thanks largely to Ramana Athreya and others there was interest in birds and there was interest in protecting these birds.

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And we had you know multiple consultations with the village council and lots of deliberation boundaries and the rules and regulations and so on.

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And in 2017 finally the village Singchung village decided to set aside 17 square kilometers of its land as a community reserve which encompasses the entire known range of the Singchung that is the notification of that on the right. And that was a long process because the boundaries had to be resolved, the boundaries were sometimes uncertain between various trials of various villages those have to be resolved.

And then Singchung itself the community had to sit down and talk about what land were they willing to put aside versus what land would they still require to expand for example agriculture in future, for timber, house buildings, to extract other forest products like all spice and bamboo. But this happened in 2017 where the community reserve is declared.

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And you know the rules and regulations were then subsequently framed and it is basically like a protected area now where you know none of these activities are allowed, no hunting, no fishing no fellaini or forest no fire none and all rules and regulation are placed prominently at the boarder and this is all support from Rainforest trust and monetary and admisnistrative support from wildlife conservation society.

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Rules and regulations

You are entering the Singchung Bugun Village Community Reserve. The Singchung Village Community Reserve is a community-based conservation area.

20 numbered prohibitions:

- No smoking
- No alcohol
- No firearms
- No hunting
- No fishing
- No camping
- No littering
- No defecation
- No urination
- No drinking water
- No fire
- No firewood
- No charcoal
- No firecrackers
- No fireworks
- No fireworks
- No fireworks
- No fireworks
- No fireworks
- No fireworks
- No fireworks

Don't let your future go up in smoke
Lighting of fires is prohibited

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In the meanwhile, two minutes left two minutes yeah oops sorry we identified Bugun youth as rangers.

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Bugun youth identified as rangers

Group photo of Bugun youth identified as rangers.

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Nine men and one woman








And there are nine men and young women and one woman who work today as rangers have been trained intensively in you know GPS news we actually had one of the STF people who was in charge of you know part of the team that where Veerappan and Raman and come and teach these rangers.

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Checkpoint manned 24 x 7 at entrance to SBVCR

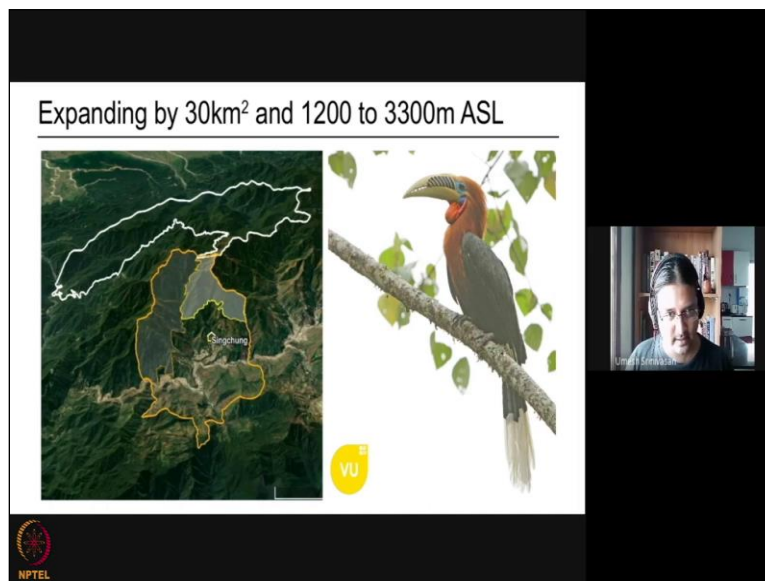
There is a check post there are three checkpoints now, three anti-poaching camps one checkpoint that is man 24x7 at the entrance to SBVCR which is the only entrance to the Singchung bugan village community reserve. And there is a continuous patrolling and firefighting happening by the staff of the reserve.

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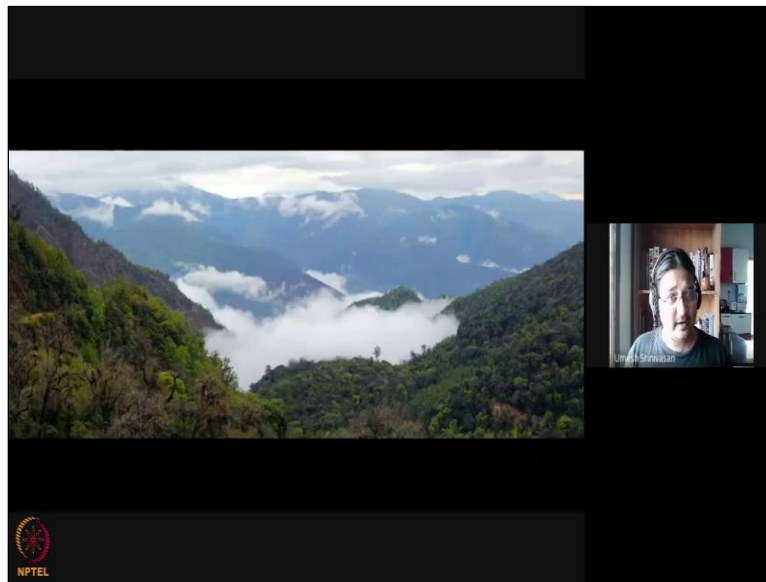
And so, just to wrap up over here, the community lines of Singchun village are you know highly biodiversity rich in biodiversity. 17 square kilometers of those were set aside as a community reserve to protect the *Bugun liocichla*.

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And you know recently the community has decided to add another 30 square kilometers to this community reserves and that spans an elevation from 1200 meters to 3300 meters which is a 2000 meter elevation gradient. So, there is some space for low elevation species to move up and retain populations and remain resilient to climate change species like the group of hornbill.

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And hopefully that is going to help preserve a large amount of biodiversity in the short to medium term in this landscape.