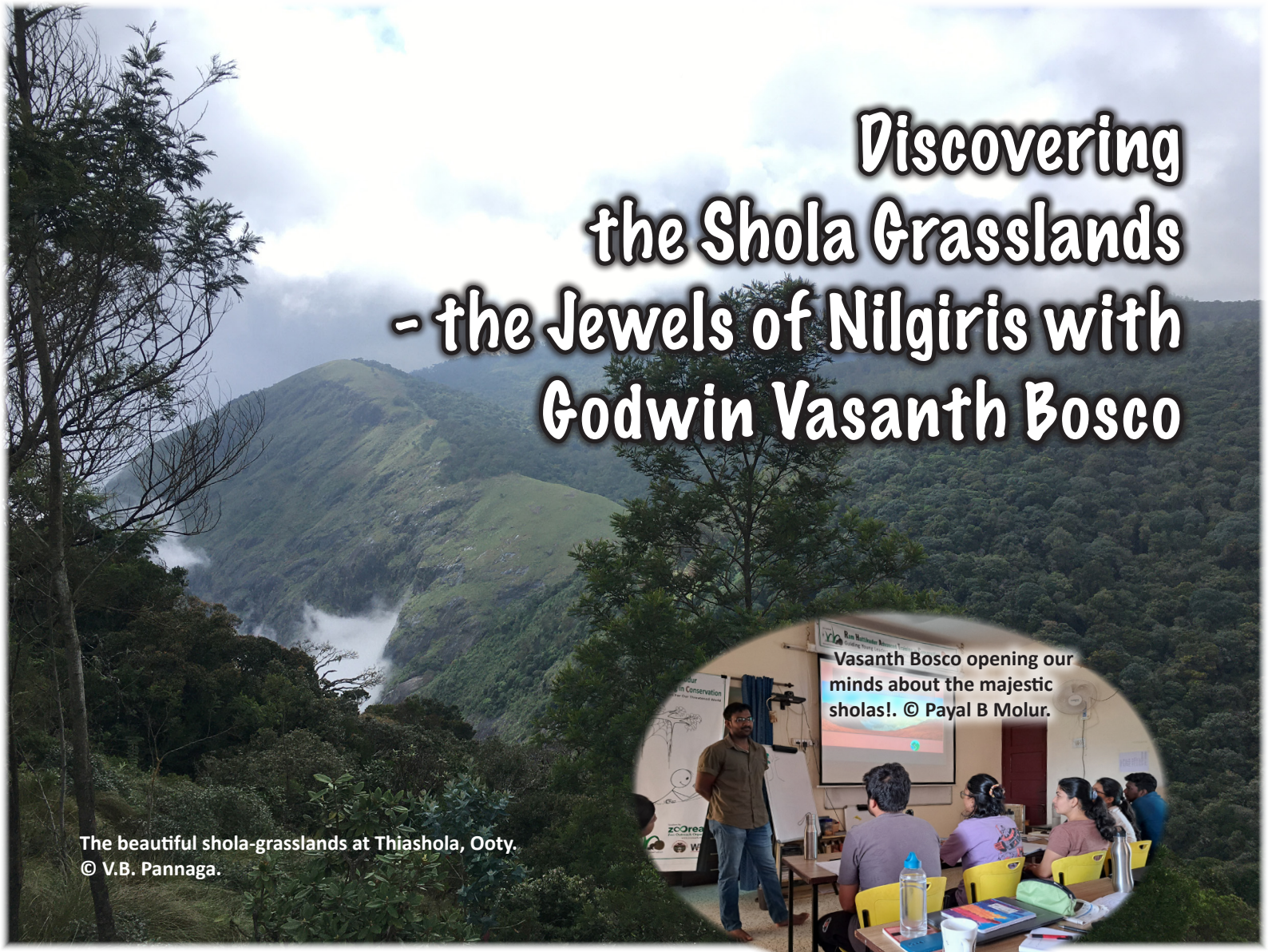
Discovering the Shola Grasslands - the Jewels of Nilgiris with Godwin Vasanth Bosco



The beautiful shola-grasslands at Thiashola, Ooty. © V.B. Pannaga.

Vasanth Bosco opening our minds about the majestic sholas!. © Payal B Molur.

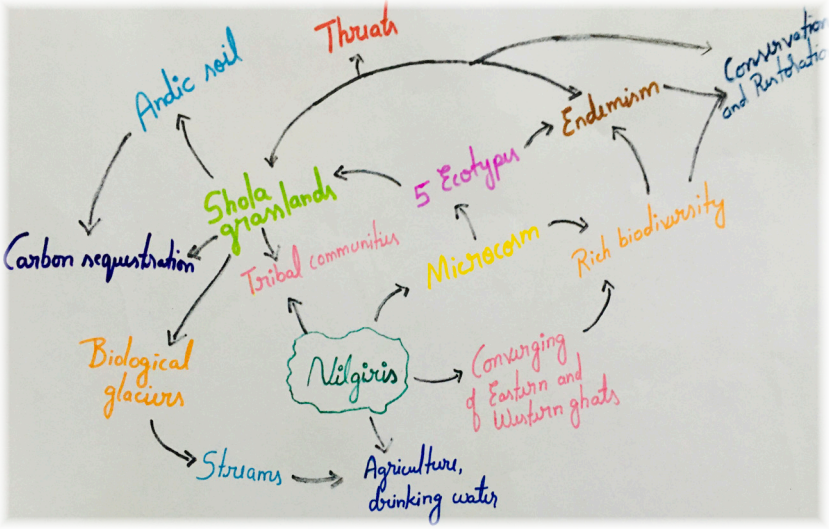
About Vasanth Bosco

Godwin Vasanth Bosco is a conservationist and researcher working towards the restoration of the shola grasslands in the Nilgiris. Even as a child he was fascinated by the grasslands and sholas and ventured to grasslands for the first time when he was in school. And this experience developed a curiosity towards the grasslands and shola which created an impression that stayed with him forever. He refers to the landscape as one of the greatest teachers he has come across so far.

He went to Finland to pursue his higher studies in environmental engineering. He owns two patents in the domain of alternative technology. Even after achieving all these somewhere deep in his mind, he had a sense of unfulfillment so he returned to his native place. After attending a program at the Gurukula Botanical Sanctuary on the ecology of mountain landscapes and observing the destruction of precious landscapes he decided to work towards the conservation of grasslands and sholas.

Upstream Ecology

On 27 October 2022, Upstream Ecology was established as a private, non-profit company by Godwin Vasanth Bosco



Mind map about Nilgiris. © V.B. Pannaga.

Image depicting importance of grasses. © V.B. Pannaga.

A glimpse of nursery at Upstream Ecology, Ooty nurturing native species of grasses, shrubs, and trees. © V.B. Pannaga.

with a strong motive to make a difference in the society, from the level of plant ecology ascending to social, political, and economic obstacles towards sustainable solutions. In this regard, all the three dimensions are interlinked with the foundation of ecological studies. Upstream Ecology believes in a bottom-up approach; changes need to take place from the ground level by understanding the root cause of a problem and ascending upwards to fix the issues from the source. The ultimate aim of the foundation is to conserve and restore the shola-grasslands which are the biological glaciers. Hence by restoration of these precious landscapes, all the other types of vegetation which are downstream could be conserved (Upstream Ecology 2023; Zauba Corp 2023).

Our interaction with Godwin Vasanth Bosco

Vasanth is a soft-spoken and an incredibly talented person. He started his session by explaining the evolution of the Nilgiris.

Nilgiris means blue-mountains it is due to the presence of *Strobilanthes*, which makes the whole mountain range bluish. Nilgiris is a mountain range spread among the states of Karnataka, Tamil Nadu, and Kerala.

He explained about the landscape of the Nilgiris, the extent, rainfall patterns and temperature variations, types of vegetation, floral and faunal diversity, and endemism. The most fascinating thing was to know about the tribal community who are living in the Nilgiris. There are a total 22 tribes who are completely dependent on the grasslands which is a very interesting fact. We were very curious to know about the speciality of the soil which is known as the andic soil which acts as a rich source of carbon. Due to the presence of organo-metallic compounds in the soil, the carbon is retained in the soil which makes it more porous and the water-retaining capacity is increased which is why grasslands are termed 'biological glaciers' giving rise to perennial streams. He explained about the invasive species and challenges and other threats due to anthropogenic activities. Later, he concentrated on the sholas as a distinct habitat, the microclimate associated with it nurturing unique life forms within. At the beginning of the session, we were asked about the grasslands and we shared our opinion with only a few points but after his explanation, our whole perspective changed.

Our interactive session with him comprised

Native tussock grass, *Eriochrysis rangachari* saplings at Upstream Ecology. © Praveen Rozario.

The picturesque Lawrence School. © C.K. Arjun.

Diligient labor uprooting the invasives. © Payal B Molur.

Smiling faces after Thiashola restoration. © H. Byju.

very informative group assignments on understanding the origin and distribution of three grass species- *Crysopogon*, *Themeda*, and *Dicanthium*, mapping grasslands of southern India and the history of the origin of grasslands, which expanded our understanding and gave us more clarity on these topics. Just in two hours, we were surprised to see how much we read and learned about grasses through this activity. He also amazed us by informing us of a lot of myth-busting facts about solar panels and their contribution to global warming. Our interaction with him has made such an impression that now wherever we see grasses, we remember him first.

Bosco has a great passion for music; he has written and composed many songs. He started his session the next day by making us sing one of his songs on nature named, 'May Be the Mist Knows'. We loved the lyrics, so deep and intense, a particular line says 'maybe the heart speaks, it's made of the same essence that fills the forest floor'.

We also went out for a short field visit where he explained about the grass diversity and invasive species. We came across some of the genera of grasses which included *Pennisetum*, *Themeda*, *Eragrostis*, *Cyperus*, *Festuca*.

Vasanth Bosco's contribution towards shola-grassland

His contribution in the field of

Pennisetum **grasses spotted in Coimbatore on a short field visit. © Praveen Rozario.**

***Eragrostis* grasses spotted in Coimbatore short field visit. © Praveen Rozario.**

conservation, restoration and choosing to revive the shola-grassland of Nilgiri is truly remarkable! Upstream Ecology focuses on restoration and research on shola-grasslands. Research includes his 12 years of experience, observation and understanding of rapid change due to various pressures on the landscape. He also strives to promulgate a deeper understanding of nature that the world needs.

Upstream Ecology has developed the nursery which is dedicated towards growing and nurturing of native species of shrubs, plants, trees, and grasses. The nursery focuses on the selection and propagation of mature plants that can be planted at the restoration sites. After figuring out land topography, soil texture, rainfall, weather, and complex ecology specific sites are marked for the restoration process. They are also involved in the eradication of exotic, invasive species from the grasslands.

It is a very hectic and requires lot of coordination and collaboration with support from the forest department and volunteers. They have successfully removed exotic pine trees from a particular region of Nilgiris. Upstream Ecology also works with 15 stakeholders, across 5,500 km^2 in close to 60 different sites across the biosphere in the restoration and conservation process. Bosco has also written a book titled ‘Voice of a Sentient Highland’

in which he has depicted Nilgiris, grasslands and sholas, the changes and altered ecology, challenges, regeneration, and conservation.

Nursery visit

On 24 November 2023, we visited the Upstream Ecology nursery which is being maintained by Godwin Vasanth Bosco in Ooty where we had a small tour to learn about the variety of shola trees, shrubs, and grasses that have been propagated successfully for restoration. The nursery has a total of 110 species of native flora.

A few native species which play an important role in the shola grassland ecosystem are:

- The nitrogen-fixing legume *Crotolaria longipes* which can be planted on the restoration sites to make the soil fertile and support the growth of other native flora.
- Hill guava *Rhodomyrtus tomentosa* which is widely distributed in the Nilgiris at higher altitudes, bears edible fruits that serve as a food source for many animals.
- The endemic *Kalanchoe grandiflora* which evolved in Pangia around 120 million years ago and shares a common ancestor from India and South Africa.
- *Rhododendron arboreum* which efficiently stores water in its bark and makes it a suitable habitat for the growth of mosses.
- The recently rediscovered Toda Grass *Eriochrysis rangacharii* which was earlier assumed to be extinct. It is a native and utilized by the Toda tribe for building their temples and traditional houses.

Below is the list of *Strobilanthes* species present in the nursery:

Scientific name	Common name	Flowering
Strobilanthes kunthiana	Neelakurinji	12 years
Strobilanthes cuspidatus	Silver Kurinji	6 years
Strobilanthes lawsoni	Copper Kurinji	17 years
Strobilanthes heteromalla	Forest Kurinjii	8 years
Strobilanthes wightiana	NA	every year
Strobilanthes lanata	Golden Kurinjii	9 years
Strobilanthes homotropa	NA	

Sapling segregation:

In the later part of the day, we were involved in individual replantation of the native Toda Grass *Eriochrysis rangacharii* into polybags to make them easy to carry for the upcoming restoration projects. Some of us sorted and arranged different sapling batches based on their age and also measured the height of all saplings to record their growth. Another group prepared a suitable medium for the grasses by mixing three different types of soil and compost and filled them in the bags. And last group separated individual grass that were ready for planting at the restoration site from the cluster and planted the root slips in the packets.

Restoration at Carrington

On the second day, we visited one of the sites owned by Upstream Ecology at Carrington, located 60 km away from Ooty town. It is located on top of the hill next to a small patch of tea plantation, which is currently not under active cultivation.

The place is indeed a treasure land with plenty of flora, including captivating orchids like *Calanthe sylvatica*, *Osbeckia sublaevia*, and an amazing variety of endemic fauna. Along the way, the fellows also came across Tiger pugmarks. They had a small tour of the restoration site where Vasant claimed the gradual succession of grasslands post-restoration. He also instructed the fellows on plantation techniques and tool usage. He enlightened them about the nutrient-rich black soil (Andic soil). The fellows successfully planted 21 saplings of Golden Kurinji and Toda grass. They also effectively removed the invasive *Cestrum trees* from the adjoining rainforest patch which had overgrown and dominated the landscape.

Lawrence school

The Lawrence School, Lovedale, Ooty was established in 1858 during the colonial period. It is a picturesque landscape with rich biodiversity of grasslands capturing the beauty of Nilgiris. Vasanth is currently involved in restoring five acres of land with the vision of restoring 100 acres in the next five years. We were accompanied by the NCC cadets of Lawrence and spent the day uprooting invasives like *Eupatorium* and African Mat Grass (*Kikyui*) *Pennisetum clandestinum* that were suffocating the native grass from growing. After successfully uprooting a giant heap of invasive plants, the landscape looked a little different, not a great change but a small step towards a better future for the species.

Restoration without regular monitoring and intervention has no point. Vasanth is meticulous in maintaining restoration, intervention, and regular monitoring of the landscape. He is truly an inspiration for budding conservationists.

Conclusion

The Nilgiri Biosphere or the microcosm of Earth is a unique landscape catering different types of vegetation, providing habitat for numerous species of flora and fauna also sheltering different tribal communities making it one of the world's most diverse ecosystems. The shola-grasslands are the most special and precious landscapes which are present only in a small portion of southern India which serves as the source of fresh water to millions of people downstream. However, due to increased developmental activities these grasslands have undergone drastic changes. We are losing the grasslands and sholas gradually due to various factors such as climate change, invasive

species and anthropogenic activities. We are destroying the habitat of numerous endemic species and pushing them towards the urge of extinction. Our mentor Godwin Bosco with his organization 'upstream ecology' is working towards the restoration and conservation of the grasslands. His contribution in developing the nursery, removal of invasive species, education, and outreach programs is phenomenal. We all know that reformation cannot be brought in one night and also not by one man. It is the collective responsibility of every individual to understand the essence of nature and try to conserve it in all aspects. We need to remind ourselves that we are also a part of nature and we cannot exist without it. We should think about the future generation, what are we leaving behind for them? Is it the money, property, inheritance, unbearable temperature, scarcity of freshwater, harsh climate, barren-infertile land or the precious forests, pleasant weather, good rainfall, fresh water, and air?! We need to think.

References

Upstream Ecology (2023). https://upstreamecology.org/. Accessed on 8 November 2023.
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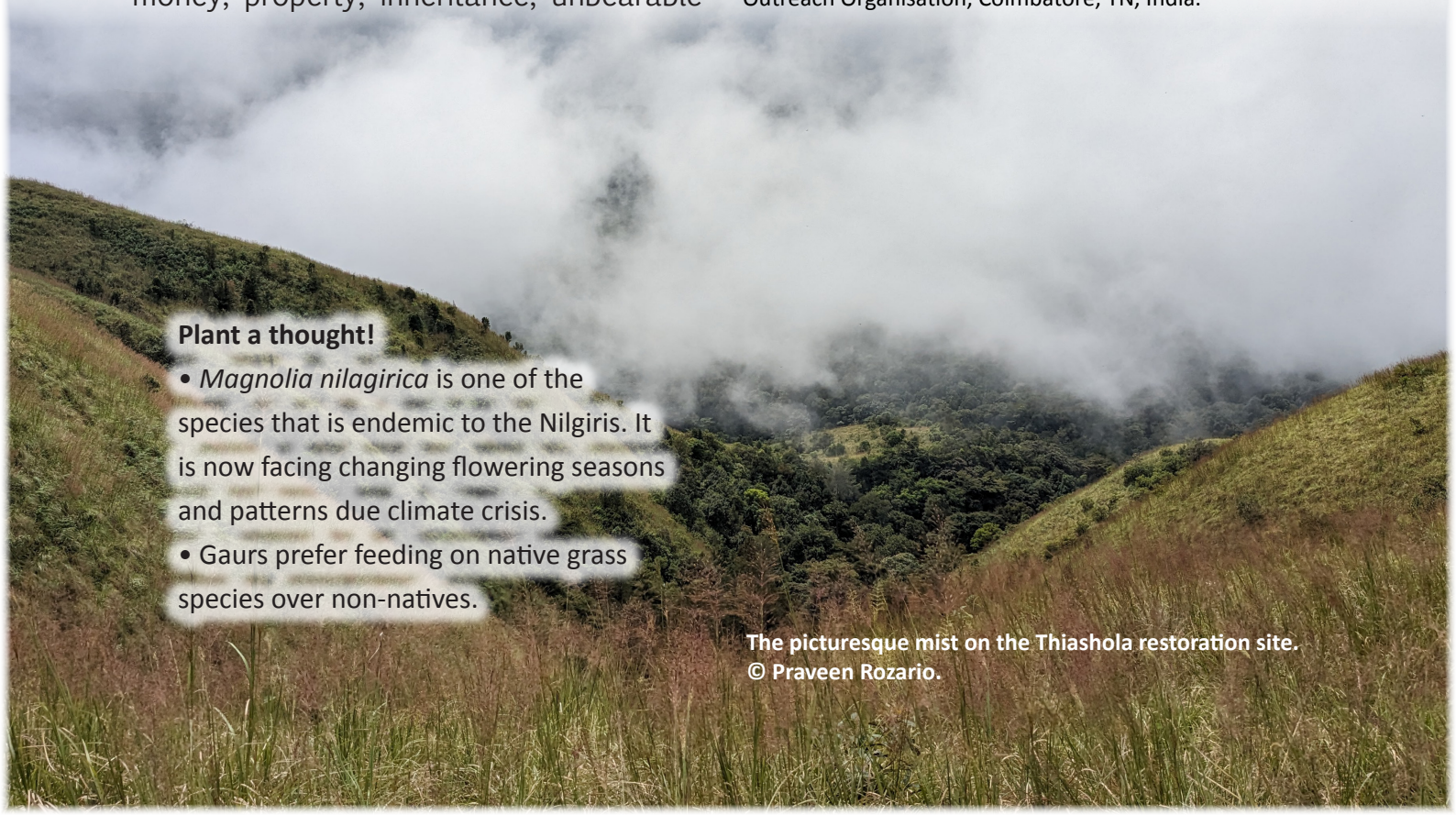
V.B. Pannaga, Amrin Ansari, L.M. Aparna, S. Joel, C.K. Arjun, Praveen Rozario, N. Suraj, H. Maitreyi, M. Paridhi & A. Shivaani, RHATC Fellows 2023–24, Zoo Outreach Organisation, Coimbatore, TN, India.

Plant a thought!

- *Magnolia nilagirica* is one of the species that is endemic to the Nilgiris. It is now facing changing flowering seasons and patterns due climate crisis.
- Gaurs prefer feeding on native grass species over non-natives.



The picturesque mist on the Thiashola restoration site. © Praveen Rozario.