

Unveiling the Vital Role of Grasslands: Earth's Green Guardians

About Kangeyam: On 28 October 2023, the RHATC fellows visited Kangeyam; a historic town based in Tiruppur district of Tamil Nadu state of India. It is 70 km from Coimbatore. The grassland is located between 11.0054 N & 77.5620 E. It is one of the driest regions that receives approximately 600mm of rain yearly. In October and November, it receives only about 250-300mm of rainfall due to the north-east monsoon; it does not get the South-west monsoon. Throughout the year, the temperature normally ranges 30–38 °C. April is the hottest month and December is the coldest month in Kangeyam. The calcium-rich soil helps retain moisture and is ideal for grass species to grow. The pride of the Kangeyam town is the Kangeyam breed



of cows and bulls. They are an excellent drought breed known for drought power and sturdiness. Kangeyam cows produce moderate amounts of milk in harsh environments. The bullocks are in great demand in Kerala and Tamil Nadu as they are great workers and the breed has been exported to Brazil, Malaysia, Sri Lanka and the Philippines. (Panneerselvam & Kandasamy 2008).

Kangeyam grassland in the tropical region of South India has been sustainably managed for over one hundred and fifty years (Kumar et al.





2011). Grassland is a dynamic ecosystem that has its own equilibrium managed by nature and also with people participation for economic benefit. Grasslands provides numerous regulating services like climate regulations, carbon sequestrations, erosion control, water and air regulation, soil formation, pest control, waste management and pollination services (Yuanyuan Zhao et al. 2020). The cultivated crops are Sorghum vulgare, Pennisetum typhoids, Oryza sativa, Arachis hypogea (The coconuts are dried and made into organic coconut oil), Zea mays etc (Panneerselvam & Kandasamy 2008).

We met Rani, Ramnathan, and Ravichandran, engineers by profession and now they are proud farmers. They are practicing organic farming in the 50 acres of land and they are the only people who are considering grasslands as a vital ecosystem and kept it preserved. They faced many challenges during their initial days because their adventures with 20 odd acres of land in an area which neither receives south west monsoon nor south east monsoon, is commendable. They follow natural farming that is without much human interference and inputs like fertilizers or pesticides. The farm is a good mix of commercial crops, medicinal plants, ornamental plants and wild varieties. In a way, they are self-sufficient. On one side, there is grazing land full of Kolukattai grass

Cenchrusciliaris, which is abundant due to its ability to grow in drought-prone regions and calcium-rich soils and serve as fodder for the Kangeyam bulls.

The side of the farm is cultivated with mostly coconut and the other side is left wild. There is an area where all the coconuts are dried and made into organic coconut oil. The water usage is critical here. Few decades back the people had water after digging 180m underground. Unfortunately, this is not the case today, the water table has dropped drastically and digging 300–400 m doesn't yield water anymore.

This dire situation tells us even in a water scarce region with previously abundant water for daily activities, now the bore wells and wells in region are interconnected in such a way that, if one or a few withdraw water, many others will not be able to get water. In other words, there is competition among the people to draw the last drop of water. Ramanathan's land had 40 by 40 well which is 21m deep. They also had 5 bore wells dug by their fathers and forefathers. Ramanath had mentioned that they had stopped digging more bore wells as it became pointless due to the fact that water is scarce and digging



Variety of Grass species in the field of Kangeyam.
 © Tandrili Baruah.

more wells will only cause more damage to the earth. Hence they use water only if it comes to either of their bore wells. From there the water will be transferred to the well from where it will be used for activities.

Farming: Problems and Solutions – They believe that sustainability of agriculture is difficult so the land is divided as agriculture and grassland. The challenges they faced when they started farming.

- Water scarcity

Water is the most basic fundamental resource for agriculture, so it needs to be utilized efficiently to overcome the problem of water scarcity. In agriculture farmers consider weeds as their enemy and they tend to remove it either by using herbicide or by weed cutter. But if we study the ecology of weeds and grass cover it has a lot to contribute. If we consider the Kangeyam farm that we went, their major crop was coconut and they said that they tried not to remove the weeds instead increase the grass cover so that it can retain the moisture in the soil for a long time and keep the soil temperature low. By doing this they can manage to water the trees once in 15 days, which will be sufficient for the coconut trees even in dry season when the water availability is very less. Retaining the weeds and grass cover also helps in enrichment of soil, as the grass and weed litter decomposes and forms the organic matter

which will act as a manure to the trees. This is a classic example for organic farming.

- Coconut market

The farmers face a lot of problems in terms of market price when it comes to selling their produce. Even if the crop is of good quality the price, they get is very poor and the middle men make huge profits. In this context it is the coconut which is used to produce coconut oil. So instead of selling their produce as a raw material to middle men they can try to process it themselves and then market it and directly sell the product. In this case it is the coconut oil. So, by doing so they will be able to get the price that they deserve.

- Kangeyam breed

They had a hybrid jersey of cow, Murrah breed of buffalo and few other breeds of bull and goats. Due to the modern technology the conventional methods of ploughing had reduced to a great extent. Earlier where the bulls were used to plough has now replaced by tractors and tillers. So rearing cattle is also a major challenge because it costs a lot to have the cattle. So to overcome this they can use the cattle (cow dung) for producing the organic manure which if marketed properly can make a huge difference. Since, the native cow grazes on the grasses which are rich in calcium makes their milk much more rich in calcium comparing to other milks.



Cows and bulls of Kangayam. © S. Joel.



• **Grazing**

In Kangeyam, each household at least has a cow or a buffalo or a goat. Due to this the grazing pressure is high in nearby grasslands. Biofencing is one such age old method which is adopted by the people belonging to Kangeyam. It is a natural boundary which is made by plants or grasses in a semi-arid region to protect the cultivated agricultural fields from humans and grazing cattles. Here the live fence is made with *Balsamodendron berryi*, a highly drought resistant thorny shrub.

Species diversity in Kangeyam: We walked down in the grassland and also visited in their organic farm. Raghavan told us about many medicinal plants around his farm. The grassland species are *Pennisetum*, *Cymbopogon*, *Chryosopogon*, *Cenchrus*, and *Themeda*.

Below is the list of diversity we observed at the Kangeyam town:

1. Medicinally important plants:

	Scientific name	Native / non-native	Medicinal uses
1	<i>Tinospora cordifolia</i>	N	Leaves are applied on snake bites.
2	<i>Gloriosa superba</i>	E	Intestinal diseases, kidney ulcers.
3	<i>Asparagus sp.</i>	N	Increases blood circulation.
4	<i>Acacia leucophloea</i>	N	Antibacterial.
5	<i>Abutilon indicum</i>	E	High concentration of zinc.
6	<i>Euphorbia hirta</i>	E	Used for female disorders.
7	<i>Acalypha indica</i>	E	Antivenom.
8	<i>Calophyllum inophyllum</i>	E	Leaves used in ulcers
9	<i>Sida acuta</i>	E	Blood disorder
10	<i>Cissus quadrangularis</i>	E	Bone fractures

2. Birds:

	Common names
1	Indian Night Jar
2	Red-whiskered Bulbul
3	Spotted Dove
4	Rock Dove
5	Indian Peafowl
6	Purple Sunbird

3. Insects and beetles:

	Family / Scientific name
1	Coccinellidae
2	Chrysomelidae
3	<i>Blochmannia sp.</i>
4	<i>Hycleus sp.</i>
5	<i>Junonia lemonias</i>
6	<i>Buthus occitanus</i>
7	<i>Gametis versicolor</i>



Gametis versicolor.
© C.K. Arjun.



Sunbird on *Hamelia patens.*
© Praveen Rozario.



Crocothemis servilia.
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Conclusion: Ramanathan and Rani are a remarkable couple who have made a conscious and inspiring choice to leave their corporate life behind and embrace a more sustainable and nature-centered lifestyle in the countryside. Their decision to cherish and appreciate whatever nature provides sets a shining example for all of us, one that can have a profound impact on the environment and ecology. In a world where the relentless pursuit of corporate success often leads to overconsumption and environmental degradation, Ramanathan and Rani's choice is a breath of fresh air. By moving to the countryside, they have minimized their ecological footprint, reduced their reliance on fossil fuels, and embraced a simpler, more self-sufficient way of life. They've chosen to live closer to the land, growing their own food and utilizing renewable energy sources, which significantly reduces their impact on the environment.

By following in their footsteps, we can collectively contribute to a better environment and a healthier ecology. Their actions serve as a reminder that we don't need to sacrifice our comfort or happiness to live in harmony with nature. We can reduce waste, conserve resources, and support sustainable practices while still enjoying a fulfilling life. Ramanathan and Rani's journey is a testament to the idea

that small changes can have a big impact. By emulating their commitment to a sustainable, nature-centered lifestyle, we can collectively work toward a greener, more ecologically balanced future. It's a future where we can all reap the benefits of a healthier environment while still enjoying the beauty and serenity of the countryside they cherish.

References

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