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TAMILNADU FOREST DEPARTMENT

வரையாடு
VARAIYAADU

THE OFFICIAL NEWSLETTER OF PROJECT NILGIRI TAHR

PROJECT NILGIRI TAHR

SAVE OUR STATE ANIMAL
OUR NILGIRI TAHR, OUR PRIDE

DIRECTOR'S MESSAGE

For the first quarter of 2025, with brightening summer, this news newsletter was prepared. From January to March 2025, our entire project team was working diligently for second synchronized survey and fragmented survey. One of the finest places was surveyed by the Assistant Director at Kurudi Malai in Coimbatore based on the Tamil literature source "Tirupugazh" gave insight on the habitat and Tahr prevalence in this habitat. Along with this, the Switzerland of Tamil Nadu state, the Grass Hills National Park was surveyed, perambulated and field investigation done by Dr.Subbaiyan was the wonderful works and observation made about the landscape. Remarkable observations done by Mr.Manigandan, SRF at Mukurthi National Park about Horsefly and its impact on Nilgiri Tahr behaviours. It induces us to study more on this for understanding its movement and escape from the threats.

In flora corner, *Hypericum mysorense* is narrated meticulously and nutshell of the species will be useful for the students and field biologists. It is important fodder species in Nilgiri Tahr habitats and particularly Tahr is consuming inflorescence.

In special column, *Coleus ater* species documentation in Anamalais given by Dr.K.Kiruthika and Dr. Sunita kumari is wonderful document and this species narration was much scientific. It will be useful for researchers to deepen the study into the species.

Velliyangiri hills field visit, investigation and examination of different threats on Nilgiri Tahr is new dimensional documentation. It will be useful for management perspective and species conservation efforts needed on this landscape. One of the interesting observations was Chomophytes plants which are growing crevices and cracks of Basalt rocks.

History of Nilgiri Tahr is collection of past information and usefulness for the present is given. It will definitely useful to the readers and current status of same place and landscape changes will be thought provoking one.

Ibex stalking from the history will be painful history and how this species survived even such ruthless attack and hunting carried out by colonial people. Those survived today is lineage of past left out individual and method of hunting is given as nutshell to feel the tragedy happened to the animal, same should not be repeated now.

I encourage all our readers, stakeholders and supporters to share valuable suggestions and innovative solutions for the conservation of state animal "The Nilgiri Tahr"

Project Director,
Project Nilgiri Tahr

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OUR VISION

Our vision is to be a hub for passionate individuals, conservationists, and communities united in their commitment to safeguard the Nilgiri Tahr and its unique ecosystem.

OUR MISSION

Our mission is to excel in the conservation and protection of Nilgiri tahr, an iconic species endemic to the Western Ghats

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நீலகிரி வரையாடுகள் மற்றும் புல் மலை அழிந்ததால் வறண்ட நொய்யல் ஆறு

கே.கணேஷ்ராம், உதவி இயக்குநர், நீலகிரி வரையாடு திட்டம்

13.02.2025 மற்றும் 14.02.2025 ஆம் தேதிகளில் பண்டை காலத்தில் நீலகிரி வரையாடுகள் இருந்ததாக அறிப்பட்ட கோயமுத்தூர் வனச்சரகத்தின் மேல்முடி பகுதிகளையும் பெரியநாயக்கன்பளையம் வனச்சரகத்தின் நாடுகண்டான்பொளி பகுதிகளையும் தணிக்கை செல்ல வேண்டி பெரியநாயக்கன்பாளையம் வனச்சரகத்தில் நாயக்கன்பாளையம் பிரிவு, நாயக்கன்பாளையம் தெற்கு சுற்றில் பாலமலை பெருமாள் கோவிலுக்கு செல்கின்ற பாதையில் செங்கோதை தயார் அம்மன் கோயில் பகுதி வரையில் ஈப்பு வாகனத்தில் சென்று அங்கிருந்து பெரியநாயக்கன்பாளைய வனச்சரகத்தின் வனக்காவலர் திரு. செந்தில்குமார் மற்றும் கோயமுத்தூர் வனச்சரகத்தின் துரைசாமி வேட்டைதடுப்பு காவலர் மற்றும் பெரும்பதி செட்டில்மெண்டை சார்ந்த ரங்கநாதன் மற்றும் முருகன் ஆகியோருடன் நடைபயணமாக புறப்பட்டு சுமார் 800 மீ கடல் மட்ட உயரத்தில் பூச்சிக்கொட்டான் மற்றும் வேங்கை மரங்களில் காய்கள் தென்பட்டன. சுமார் 1060 மீ உயரம் அடைந்த போது அப்பகுதியினை கம்பிப்பாலம் என வனக்காவலர் குறிப்பிட்டார், கம்பி பாலம் எங்குள்ளது என வினவிய போது வலது பக்கம் உள்ள மலையினை காண்பித்தார். அம்மலையானது கவிட்டை குச்சியினை போன்று இரண்டு மலைகள் தென்பட்டது. இம்மலைகளின் இடையில் ஒத்தையடி பாதை தென்பட்டது. அது பாலம் போல் தெரிவதன் காரணமாக இதனை கம்பி பாலம் என குறிப்பிடுவதாக கூறினார். மேலும் கண்ணுக்கு தெரிகின்ற இரண்டு மலைக்கு அப்பால் மற்றொரு மலை உள்ளதாகவும் அந்த மலை இப்பகுதியிலிருந்து பார்கின்ற போது தெரியாது என கூறி இம் மலைகளுக்கு குருடி மலை என குறிப்பிட்டார். மேலும் இப்பெயர் வரக்காரணம் ஆங்கிலேயர் ஆட்சிக்காலத்தில் துரை ஒருவர் பங்களா மேடு என்றப் பகுதியில் தேயிலை மற்றும் காப்பி தோட்டங்கள் எழுப்ப முயற்சி செய்து கொண்டிருந்த போது அவரின் கண்கள் மங்களாகி பார்வை தெரியாமல் போனதை தொடர்ந்து, அவரை இம்மலையிலிருந்து உடனே தரைப்பகுதிக்கு அழைத்து செல்லப்பட்டதாகவும் தரைப் பகுதிக்கு சென்ற உடனே அவரின் பார்வை சரியாகி விட்டதாகவும், ஏதோ சக்தி இம்மலைகளில் உள்ளதை உணர்ந்து ஆங்கிலேயர் துரை அவர்கள் தேயிலை மற்றும் காப்பி தோட்டம் அமைக்கும் முயற்சிகளை கைவிடப்பட்டதாக வனக்காப்பாளர் கூறினார். பின்னர் 1070 மீ உயரம் உள்ள ஆலமரத்து ஓடை என்ற பகுதியில் சிறிது ஓய்வெடுத்து நடக்க ஆரம்பித்தோம். நாவல் மர ஓடை சராகப்பகுதியிலிருந்து சற்று மேடு அதிகமாக இருந்தது. இப்பகுதியில் இடப்புரி வலப்புரி செடிகள் காய்களுடன் காணப்பட்டது. 1387 மீ சென்றடைந்த போது மலை மட்டத்தில் தீ தடுப்பு கோடு அமைக்கப்பட்டிருந்தது. இப்பகுதி பெரியநாயக்கன்பாளையம் மற்றும் கோயமுத்தூர் வனச்சரகங்களின் எல்லைப் பகுதிகள் என தெரியவந்தது. இயற்கையின் அடிப்படையில் வன எல்லைகள் பிரிக்கப்பட்டுயிருந்தன. அப்பகுதியில் கற்களில் சாமி சிலை அமைக்கப்பட்டிருந்தன.

பின்னர் பெரியநாயக்கன்பாயைம் வனச்சரகத்திலிருந்து கோயமுத்தூர் வனச்சரகத்தில் வழியாக நடக்க ஆரம்பித்தோம் சிறிய நேரத்தில் நீர் ஓடையின் அருகில் அரங்கநாதன் கோயில் தென்பட்டது. மேல்முடி அரங்கநாதன் கோவில் என கூறப்பட்டது அக்கோயில் சுயம்பு வடிவில் பெருமாள் மற்றும் அம்மன் அமைந்திருந்தார்கள். இக்கோயிலை பற்றி அருணகிரிநாதர் தனது திருபுகழில் குருடிமலை முருகன் என குறிப்பிட்டு உள்ளார் என இக்கோயில் உள்ள பூசாரி தெரிவித்தார். இக்கோயிலுக்கு அருகில் உள்ள ஓடையினை மருததீர்த்தம் என்றும் வற்றாத நீர் ஓடை என்று தெரிவித்தார். பின்னர் அங்கிருந்து புறப்பட்டு சோலைக்காடுகளின் வழியாக சுமார் 1

மணி நேரம் நடந்து 1610 மீ உயரமான பகுதியை அடைந்தோம். இப்பகுதியில் லிங்க வடிவில் சிவன் கோயில் மிக சிறிய அளவில் காணப்பட்டது மேலும் அப்பகுதியில் குறிஞ்சி செடிகளும், சீமார் புல்களும் காணப்பட்டது. இம்மலையினை நாடுகண்டான்பொளி மலை எனக் குறிப்பிட்டார்கள், இம்மலையிலிருந்து பார்கின்ற போது தடாகம் மற்றும் பெரியநாயக்கன்பாளையம் போன்ற பகுதிகள் தெரிந்தது இதன் காரணமாகவே இம்மலைக்கு நாடுகண்டபொளி என பெயர் ஏற்படக்காரணமாக உள்ளதாக உணரப்பட்டது. இம்மலைகளில் 20 ஆண்டுகளுக்கு மேலாக நீலகிரி வரையாடுகளின் நடமாட்டம் இப்பகுதிகளில் காணப்படவில்லை என மலைவாழ்மக்களும், வனப்பணியாளர்களும் தெரிவித்தார்கள்.

பின்னர் தலைமையிடம் திரும்பி நீலகிரி வரையாடு திட்ட இயக்குநர் அவர்களை சந்தித்து மேற்கண்டவாறு களப்பணி மேற்கொண்ட விவரத்தினை எடுத்து கூறியதின் அடிப்படையில் அவர்கள் பன்னிரண்டாம் நூற்றாண்டில் வாழ்ந்த அருணகிரி நாதர் அவர்களின் திருப்புகழ் நூலினை ஆராய்ந்த போது,

'வருடை யினமது முருடு படுமகில்
மரமு மருதமு ..... மடிசாய
மதுர மெனுநதி பெருகி யிருகரை
வழிய வகைவகை ..... குதிபாயுங்
குருடி மலையுறை முருக குலவட
குவடு தவிடெழ ..... மயிலேறுங்
குமர குருபர திமிர தினகர
குறைவி லிமையவர் ..... பெருமாளே.சு

திருப்புகழ் -613 குருடிமலை

மலை ஆடுகளின் கூட்டமும், கரடு முரடு உள்ள அகில், மருதம் ஆகிய மரங்களும் அடி பெயர்ந்து சாயும்படி, மதுரம் என்ற ஆறு பெருகி இரண்டு கரைகளும் வழிந்து ஓடி, பல வகையாகக் குதித்துப் பாய்கின்ற குருடி மலையில் வீற்றிருக்கும் முருகனே என கூறியுள்ளார்.

ஆனால் தற்போது இம்மலைகள் மற்றும் இப்பகுதிகளின் அருகில் தொடர்ச்சியாக அமைந்துள்ள நொய்யல் ஆறு உற்பத்தியாகின்ற வெள்ளியங்கிரி மலையின் சரிவு பகுதிகள் மற்றும் சிறுவாணி மலை பகுதிகளிலும் வருடை எனக்குறிப்பிட்ட வரையாடுகளும் இவைகள் மேய்ந்த புல் மலைகளும் தற்போது இல்லை. இதன் காரணமாக பண்டைய காலத்தில் ஆண்டு முழுவதும் கரைபுரண்டு ஓடிய நொய்யல் ஆற்றில் தற்போது மழைக்காலங்களில் மட்டுமே தண்ணீர் வருகிறது.

நொய்யல் ஆறு உற்பத்தியாகின்ற வெள்ளியங்கிரி மலை சரிவு பகுதிகள் மற்றும் சிறுவாணி மலைகளில் வரையாடுகள் அழிவின்றி தொடர்ந்து வாழ்ந்திருந்தால் தனது எச்சத்தின் மூலம் புல்மலைகளை விரிவுபடுத்தி, விரிவுபடுத்திய புல்மலைகளை தனது மேய்ச்சல் மூலம் சமபடுத்தி பொழிகின்ற மழை நீரை வீணாக்காமல் நிலத்திற்கு அடியில் சென்றடைய செய்து நீர் ஊற்றினை உருவாக்கி ஆண்டு முழுவதும் நொய்யலில் தண்ணீரை கரைபுரண்டு ஓட செய்திருக்கும். ஆகவே தமிழ்நாட்டின் மாநில விலங்கை பாதுகாத்து நொய்யல் ஆற்றைப் புதுப்பிப்போம்.

FIELD OBSERVATIONS

GRASSHILLS NATIONAL PARK, ANAMALAI TIGER RESERVE, POLLACHI

Dr. B. Subbaiyan, Senior Research Fellow

The Anamalai Tiger Reserve (ATR) a jewel of Western Ghats is a verdant tapestry where life's symphony unfolds in the heart of nature situated in the Anamalai sub-cluster of the Western Ghats Mountain range in Northwestern Tamil Nadu. It extends between the latitudes of 10˚13'08" N and 10˚33'27" N and the longitudes of 76˚49'02" E and 77˚21'09" E. The reserve is varying altitudes ranging from 280 msl to 2545msl, and the annual mean temperatures range from a maximum of 28˚C to a minimum of 13˚C. The Relative Humidity (RH) in this rolling terrain varies between 50% and 90%. The South-West monsoon is the primary rainy season, contributing to 77% of the Total Annual Rainfall. It has three National Parks such as Karian shola, Manjampatti, and Grass Hills.

An area of 31.225 sq.km of Grasshills in Anamalai Tiger Reserve was declared a National Park in 1989 and considered the natural home for the endemic Nilgiri Tahr in Tamil Nadu. Be next to the grasslands of the Eravikulam National Park, Kerala, with an area of 97 sq.km, was declared as a National Park in 1978 to conserve the Nilgiri Tahr and its Habitat.

Rhododendron arboreum subsp. *nilagiricum*

In 2012, the Western Ghats, a biodiversity hotspot, were declared a UNESCO World Heritage Site. This recognition included several protected areas within the Ghats, such as the Grass Hills National Park, acknowledging their exceptional ecological significance and unique shola-grassland ecosystem. The terrain is characterized by undulating hills, with altitudes varying from 1,500 meters to 2,513 meters above mean sea level. Both the grasslands form the most usable areas for the Nilgiri Tahr pull through in the Western Ghats. Fantastic iconic project on Nilgiri Tahr conservation was launched by the Government of Tamil Nadu ensures Tahr habitat is protected using different strategies of conservation and restoration activities, identification and assessment of tahr habitats, monitoring of Nilgiri Tahr and its behaviour, habitat utilisation pattern and home ranges using radiotelemetry.

Many field visits at Grass hills National Park were performed since June 2023. The natural home namely Koramparai, Tanakkamalai, Akkamalai, Kallar malai, and Varaiyattu Kurukku were identified in Grass hills which have massive flock of Nilgiri Tahr. These habitats provide favourable for the Nilgiri tahr, including precipitous to flee from the predators, water for staying alive, grass for nourish, and crag and escarpment for loaf and rest. During field study in Grass Hills National Park, we pick out various floral species discrete to the Nilgiri tahr habitat, including fodder species essential for their meals. The following species which are one-of-a-kind to the Nilgiri Tahr habitat were identified, such as *Chyrsopogon zeylanicus, Arundinella purpurea, Arundinella meshophylla, Heteropogon contortous, Andropogon lividus, Themeda tremula* and *Themeda triantra.* The tahr habitat is also home to other endemic mammals such as the

Rhodomyrtus tomentosa

Nilgiri marten and Nilgiri langur, in addition to other indicator species tigers, elephants, gaur, and sambar. The presence of these animals is emblematic of the soundness of the ecosystem.

The habitats like Koaramparai, Tanakkamalai and Akkamalai forms a connecting patch of grasslands. The population of Nilgiri Tahr bring to light in these areas are very large due to their serene and precipitous with ample forage species, everlasting water source and escarpment and cliffs. The Pothumalai, Usimalai and Kallar malai areas are connected with the Eravikulam National Park, the Nilgiri tahr population communes with Kerala and Tamilnadu. The Grass Hills National Park is natural home for the Nilgiri Tahr. Stemming from the field survey, more than 45 species of grass have been identified. Among them, 85 orchids, 28 *Impatiens* species and 12 species of *Strobilanthes* have been identified by Ganesan, IFS and his team in 2018-2020.

The habitat assessment shows the predilection of Nilgiri Tahr towards the grassland's habitats of Anamalais. The predilection is due to the virginal and immaculate of the grasslands. The study indicates that the grasslands are healthy with minimal invasive species infestation. The significance of grasslands and the habitat of Nilgiri tahr can be preferably studied in Grasshills National Park than any other habitats in Western ghats.

View of Grasshills National park

BITING PRESSURE: HORSEFLIES DISTURB NILGIRI TAHR FORAGING DURING SUMMER

Manigandan.K, Senior Research Fellow

As summer engulfing across the montane grasslands of the Mukuruthi National Park, the Nilgiri Tahr (*Nilgiritragus hylocrius*) faces not only rising temperatures and dwindling forage, but also contemplated seasonal irritant insect—The Horseflies or deer flies.

These tough, powerful, large size and fast-flying insects, belonging to the family Tabanidae is famous for its painful stings. While male horseflies feed on nectar, the females require blood meals to reproduce. Using their sharp, piercing and cutting mouthpart, they target large mammals, including wild herbivores. During recent field visits at Mukuruthi National Park, in multiple instances, the horsefly's torment was recorded in mountain ungulate Nilgiri Tahr populations, particularly during morning and gloaming foraging hours.

Individual Tahr were seen responding to the flies with obvious sign of exasperation, tail flicking, rapid skin twitching, head shaking, and sudden interruptions in grazing to avoid bites. In more intense episodes, groups shifted positions altogether, often moving to windier or more open slopes—possibly as a behavioral adaptation to de-stress themselves.

While such parasitic relationship may seem minor at first glance, they could have broader ecological implications. Repeated disturbances can lead to reduced foraging time, increased energy expenditure, and increase stress—explicitly during summer when resource availability is already limited. In livestock, heavy infestations of horseflies are known to result in weight loss, disease transmission and decreased productivity. Though less studied in wild ungulates, similar impacts cannot be ruled out for the Nilgiri Tahr, an already endangered species.

These observations underscore the importance of long-term ecological monitoring and species interaction studies in high-altitude ecosystems**.** Insect populations respond to shifting climate patterns, their interactions with native herbivores may become more frequent, intense, or ecologically significant. A deeper understanding of how parasitic insects like horseflies influence the behavior, health, and spatial use of mountain wildlife could inform future conservation strategies for the Nilgiri Tahr and other endemic species of the Western Ghats. Investigating such overlooked but ecologically relevant interactions will be crucial for anticipating emerging challenges in a rapidly changing environment.

FLORA CORNER

Hypericum mysorense Heyne - an important species of Nilgiri Tahr habitat of Tamil Nadu, India.

Dr. B. Subbaiyan, Senior Research Fellow

Hypericum mysorense, commonly known as Mysore Hypericum or Mysore St. John's Wort, is a species of flowering plant belonging to the family Hypericaceae.

Description: It is typically a shrub reaching up to 2 meters in height, often with unbranched stems. The leaves are usually stalkless and can vary from broadly to narrowly elliptic, arranged in opposite pairs along the stem. The flowers are a striking golden yellow, with five petals and a prominent tuft of long stamens in the center. They can appear singly at the top of erect stems or in clusters of 2-5 flowers.

Distribution: This species is primarily found at higher elevations in the Western Ghats of India (including regions like Mysore, Konkan, and the Palani hills) and in the mountains of Sri Lanka. It is found on open grassy slopes and in shola forests, which are also habitats frequented by the Nilgiri Tahr.

Habitat of Nilgiri Tahr: The Nilgiri Tahr inhabits open montane grassland at elevations from 1200 to 2600 m, often interspersed with pockets of stunted forests known as "sholas". Therefore, it is likely that *Hypericum mysorensis* is present within the habitat range of the Nilgiri Tahr in the Western Ghats. According to a study on the food habits of the Nilgiri Tahr, they eat the inflorescences (flowering heads) of *Hypericum mysorense*. The study noted that Nilgiri Tahr showed preferences for particular parts of certain plants, and in the case of *Hypericum mysorense*, they "ate only or mainly inflorescences"(Rice, 1988).

Traditional Uses: In traditional Ayurvedic medicine, *Hypericum mysorense* has been used to treat wounds. It is also mentioned in folklore medicine for its potential spasmolytic, hypotensive, and antibacterial activities. It is an important plant species closely associated with the Nilgiri tahr and their habitats. This species closely associated with *Arundinella mesophylla, Chrysopogon zylanicus, Themeda tremula, Impatiens chinnesis, Arundinella purpurea* and *Ceropegia hirsuta.*

The Nilgiri Tahr showed preferences, sometimes eating only or mainly the inflorescences of this plant. Therefore, we can conclude that Hypericum mysorense is a plant species present within the Nilgiri Tahr habitat in the Western Ghats of Tamil Nadu, and it forms a part of the Nilgiri Tahr's diet. We can protect the Nilgiri Tahr by protecting their food plants and habitats. Conservation of their fodder species and habitats is a prime component of Project Nilgiri Tahr.

GRASS SEED CALENDER - Dr R. Rajmohan, DCF, Forest Genetics Division -Coimbatore

The Forest Genetic division team plays a crucial role in research and development, with a unique focus on the multiplication of Rare, Endangered, and Threatened (RET) species. Our activities extend to providing educational awareness programs for field staff, as well as school and college students. Through extensive field observations across Tamil Nadu, we have identified over 150 grass species. The Genetics team has meticulously documented the flowering and fruiting phenology of these 150 species, a valuable resource for future conservation studies.

S.No	Binomial name	Flowering & Fruiting	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	*Acrachne racemosa* (B. Heyne ex Roem. & Schult.) Ohwi	Throughout the year	Throughout the Year											
2	*Agrostis peninsularis* Hook.f.	Nov–Jan											Nov – Jan	
3	*Agrostis schmidii* (Hook.f.) C.E.C. Fisch.	Throughout the year	Throughout the Year											
4	*Agrostis pilosula* Trin.	Aug–Mar								Aug - Mar				
5	*Agrostis stolonifera* L.	Jan–June	Jan – Jun											
6	*Agrostis zenkeri* Trin.	July–Dec							July – Dec					
7	*Alloteropsis cimicina* (L.) Stapf	Throughout the year	Throughout the Year											
8	*Alloteropsis semialata* (R.Br.) Hitchc.	Mar–Aug			Mar – Aug									
9	*Andropogon chinensis* (Nees) Merr.	Oct–Dec										Oct – Dec		
10	*Andropogon hallii* Hack.	Aug–Nov								Aug – Nov				
11	*Andropogon lividus* Thwaites	Aug–Feb								Aug - Feb				
12	*Andropogon longipes* Hack.	Sep–Jan									Sep – Jan			
13	*Andropogon polyptychos* Steud.	Feb–June		Feb – June										
14	*Andropogon pumilus* Roxb.	Sep–Apr									Sep – Apr			
15	*Anthoxanthum borii* S.K. Jain & Pal	July–Dec							July – Dec					
16	*Anthoxanthum odoratum* L.	Aug–Mar								Aug - Mar				
17	*Apluda mutica* L.	Oct–Nov										Oct – Nov		
18	*Apocopis courtallumensis* (Steud.) Henrard	Oct–Feb										Oct – Feb		
19	*Apocopis mangalorensis* (Hochst.) Henrard	Oct–Feb										Oct – Feb		
20	*Aristida adscensionis* L.	Throughout the year	Throughout the Year											

S.No	Binomial name	Flowering & Fruiting	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21	*Aristida funiculata* Trin. & Rupr.	Nov–May											Nov – May	
22	*Aristida hystrix* L.f.	Oct–Jan										Oct – Jan		
23	*Aristida setacea* Retz.	Throughout the year	Throughout the Year											
24	*Aristida mutabilis* Trin. & Rupr.	Aug–Mar								Aug - Mar				
25	*Arthraxon castratus* (Griff.) V. Naray. ex Bor	Dec–Mar	Dec – Mar											
26	*Arthraxon depressus* Stapf ex C.E.C. Fisch.	Sep–Dec									Sep – Dec			
27	*Arthraxon hispidu* s (Thunb.) Makino	Apr–Feb				Apr - Feb								
28	*Arthraxon lanceolatus* (Roxb.) Hochst.	Oct–Feb										Oct – Feb		
29	*Arthraxon lancifolius* (Trin.) Hochst.	Oct–Jan										Oct – Jan		
30	*Arthraxon nudus* (Nees ex Steudel) Hochst.	Oct–Feb										Oct – Feb		
31	*Arundinella ciliata* (Roxb.) Nees ex Miq.	Oct–Mar										Oct – Mar		
32	*Arundinella leptochloa* (Nees ex Steud.) Hook.f.,	Throughout the year	Throughout the Year											
33	*Arundinella mesophylla* Nees ex Steud.	Oct–Jan										Oct – Jan		
34	*Arundinella metzii* Hochst. ex Miq.	Oct–Jan										Oct – Jan		
35	*Arundinella mukurthiana* Murug. & Anusuba	Aug–Dec								Aug–Dec				
36	*Arundinella nepalensis* Trin.	Sep–Nov									Sep – Nov			
37	*Arundinella pumila* (Hochst. ex A. Rich.) Steud.,	July–Dec							July – Dec					
38	*Arundinella purpurea* Hochst. ex Steud.	Aug–Dec								Aug–Dec				
39	*Arundinella setosa T*rin.	July–Mar							July - Mar					
40	Arundinella vaginata Bor	June–Sep						Jun – Sep						
41	*Arundo donax* L.	July–Mar.							July - Mar					
42	*Avena barbata* Pott ex Link in Schrad.	Feb.–May.		Feb – May										
43	*Avena sativa* L.	Apr.–Sept.				Apr–Sep								

SPECIAL COLUMN

Coleus ater A.J.Paton : An endemic taxon in the Nilgiri Tahr Habitat of Anamalai Hills, Western Ghats

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The Anamalais, a range of undulating hills forming part of the Western Ghats, are renowned for their exceptional biodiversity. These hills begin after the Palghat Gap and harbor unique habitats and ecological niches, ideal for supporting endemic taxa. One such remarkable species is described here. Amid the rolling grasslands and shola forests, patches of exposed rock often appear on the slopes or summits. From a distance of around 100 meters, a vivid purple flower caught our attention, emerging from the arid crevices of these rocks. As we approached the plant, a distinctive aromatic scent hinted at its identity as a member of the Lamiaceae family. The flower displayed striking features—its purplish corolla dotted with yellow glandular spots, and a galeate-shaped bud that was equally captivating.

Robert Wight, a Scottish surgeon with the East India Company who later turned to natural history, was deeply inspired by the biodiversity of the Western Ghats. While botanizing the Anamalai Hills in July 1851, he collected this species (Herb. Wight 2132/1) and identified it at the genus level as *Dysophylla* sp. Later, J.D. Hooker recognized its novelty and described it in Flora of British India (Volume 4, 1885) as *Anisochilus wightii* Hook.f., honouring the collector in the specific epithet.

However, recent phylogenetic studies have led to major taxonomic revisions within the Lamiaceae subtribe Plectranthinae. The genus *Coleus* is now recognized as distinct and sister to the rest of the subtribe, comprising 294 species (Paton *et al.*, 2019). As a result, many species formerly placed under *Plectranthus* L'Hér., *Pycnostachys* Hook. and *Anisochilus* Benth. have been reclassified under *Coleus* (Paton *et al.*, 2018, 2019). This reclassification is supported by molecular evidence from plastid genome regions, which revealed that the traditional concept of *Plectranthus* was paraphyletic (Paton *et al.*, 2018). Consequently, the currently accepted name for *Anisochilus wightii* Hook.f. is *Coleus ater* A.J.Paton. This species closely resembles *C. scaber* but is easily distinguished by its orbicular leaves with purple margins and its inflorescence, which is deep purple when young and turns black upon drying. It is distributed in the Anamalai Hills, with a flowering season that spans from July to December.

Inflorescence

Whole plants

EDITOR'S CHOICE

FIELD NOTES ON VELLIYANGIRI BLOCK, BOLUMVAMPATTI RANGE, COIMBATORE DIVISION

M.G.Ganesan, Project Director, Project Nilgiri Tahr
Dr. B. Subbaiyan, Senior Research Fellow

The Velliyangiri hills is known as Thenkailasam or Kailash of south which is part of the Nilgiri Biosphere Reserve are located at the Bolumvampatti range in Coimbatore Forest division, Western Ghats of Coimbatore district, Tamil Nadu. It is otherwise called Sapthagiri or Seven Hills. Aloft of the Velliyangiri hills, at the last hill, the seventh hill top, Lord Shiva is reverence as Swayambhu, one who was self-created and, in this form, he graces the devotees. It is 2000-3000 years old temple. Customarily, from February to May, the Velliyangiri hills was opened to devotees to perform their pooja and consecration. The altitudes ranging from 520 m – 1840 m are bordered by the plains of Coimbatore district to the east, the Palakad district of Kerala on the western boundary, the Nilgiri mountains to the north, and the Siruvani hills on the southern boundary. The air is remarkably cooler as compared to the city, with moistness. The trail is having 3-6m width.

The Velliyangiri hills are historic home for the Nilgiri Tahr. To understand the habitat and natural home of Nilgiri Tahr, The Project Team with Project Director was inspected the seven hills on 15th March, 2025. Due to the hot spell during the day, the trek was started at twilight from bottom temple with field staffs. We have picked up 6 feet length of rattan sticks which is used for support along the treks in seven hills which is very hard vertical line, altitude and home for various flora and fauna. In the calm night, we walked peacefully in harmony with nature towards the habitat of the Nilgiri Tahr in the moonlight. It is good home range for elephants. In the bottom of hills, scrub jungles is the biome. The Noyyal river is originated here which is tributary to Cauvery River. The Velliyangiri watershed feed Siruvani dam for drinking and agricultural purposes.

Each hill has its own unique character based on the elevation. Each mountain range has its own unique name given by the local people, especially the Vazhukkappaarai, Snake charmer cave, Pampatti sunai, Sunrise point, Thiruneermalai, Adiyogi view point, Chandana Malai, Bheeman Kali Urundai Malai. It ends with Velliyangiri view point and meditation top. In second and third hill, we can see evergreen forest and in seventh hill top, we can see mountain shola open grassland with rocky slopes.

Velliyangiri hills is primarily consists of Basalt rocks and limestone which are part of Deccan trap. Thiruneer malai is known for the fine silt which is used by devotees for using as Tilak. Because of large congregation of devotees and trekking by people, soil became fine silt look like Viboothi. Chandana malai is known for sandal trees which was prevalent in olden days and not it is not thriving due to continuous disturbances. Bheeman Kali Urundai malai is famous for the presence of two bigger rocks which was assumed that left over food bunch by Bheema. The upper reaches

(last four hills) are characterized by shola forest types, indicating a significant change in microclimate and vegetation. Along the route to the seven hills, we have observed the Tropical Dry Deciduous Forests, Tropical Wet Evergreen Forests, Shola Forests (Temperate Forests), Southern Montane Humid Grasslands and Chasmophytic Vegetation. The Chasmophytes are plants rooted in clefts of rocks that are filled with detritus.

Vegetation type:

The team has observed range of tree species in the lower elevations, typically of dry deciduous forests. Bamboo is prevailing in certain areas. Even higher up, the denser, evergreen foliage is apparent, though specific species were identified such as *Mesua ferrea*, *Elaeocarpus recurvatus*, *Bombax insigne*, *Impatiens leschenaultii*, *Crotalaria fysoni*, *Strobilanthes kunthiana*, *Osbeckia gracilis* etc. During the field study, we have identified some grass species such as *Chrysopogon zylanicus*, *Arundinella purpurea, Arundinella mesophylla*, *Andropogon lividus* and *Tripogon bromides*. These species are chief fodder species of Nilgiri Tahr.

Interferences:

The existence of the Velliyangiri Andavar Temple at the peak is a significant pilgrimage site, particularly during the months of February to May. The tribal who are residing here is Irulas. The trail leading upwards shows signs of constant flow of people. The impact of pilgrimage and habitat disturbances have been noticed like firewood collection, NTFP collection and tribal shops along the trekking trail. Further, exploration of the different altitudinal zones was giving comprehensive understanding of the Velliyangiri forest ecosystem.

Disturbances noticed during visit was high volume of pilgrim's congregation and trekking along the route. Also, they are resting along the pathway and brim of the trail. Tribals who are having residents near to the Velliyangiri temple, erect the temporary shops for four months with local materials like firework, timber and bamboos. Along the entire stretch, we found about 50 shops (Approximately). They are using gas stove and local fire woods for making tea and other hot drinks. Due to huge crowd, people are using good shola habitats for morning calls and lavatory purposes. This area falls in Nilambur elephant reserve which is vital natural home for elephants. From the base temple till 4th hills, we can see *Chromolaena odorata* weeds and from 4th hills till hill top, we see *Eupatorium glandulosum* weeds sporadically. Focused surveys on flora and fauna, and an assessment of human impact, would be beneficial.

During the pilgrimage to the Velliyangiri grassland, dust pollution generated from the movement of a large number of devotees can negatively impact the native flora, particularly *Strobilanthes kunthiana* and other flowering plants. The deposition of dust on the leaves can lead to stomatal closure, reducing photosynthesis and overall plant health. For flowering plants like *Strobilanthes*, dust accumulation on floral structures could hinder pollination by affecting the visibility and scent of the flowers, as well as the mobility of pollinators, ultimately reducing seed production and the regeneration of these unique species within the sensitive grassland ecosystem.

Kunjiramudi is another hill adjacent to Velliyangiri hills which is the home for Nilgiri Tahr. Here, Nilgiri Tahr pellets were seen by our field staffs and during off season, at Velliyangiri hills also our people have noticed Nilgiri Tahr pellets. It seems that, this is good habitat for Nilgiri Tahr, because these habitats have good crag, precipitous, cliff, shola grasses and water sources. Due to continuous disturbances in this potential habitat, we could not see animal directly and slowly this habitat is getting deteriorated. It is high time to manage this habitat for conserving state animal of Tamil Nadu.

View of Velliyangiri Hills

Velliangiri hills connected with Kunjira mudi area

Strobilanthes kunthiana

Arundinella purpurea affected by dust pollution

HISTORY ABOUT NILGIRI TAHR - EXTRACT FROM BNHS

M.G. Ganesan, Project Director, Project Nilgiri Tahr

The first documented population surveys of the Nilgiri Tahr were conducted in the early 20th century. In 1915, Mr. C.E.C. Fischer estimated approximately 100 individuals in the Grass Hills and Anamalai regions. Later, in 1927, Lieutenant Colonel Phythian-Adams estimated around 400 individuals in the Kundah Hills of the Nilgiris". He was the Honourable Superintendent of the Nilgiri Game Association.

Mr. Phythian Adams has endeavoured to conduct survey on Nilgiri Tahr which was verge of extinction owing to poaching and indiscriminate shooting. In the letters which was appeared in the press to the effect that Nilgiri Ibex in the Nilgiri hills were on verge of extinction. Hence, to preserve and save the game animals, it was decided to ascertain the exact position of the population in Nilgiri hills.

He made attempt on May, 1954 to April, 1955 but abandoned due to horsefly interference in peak summer period. The horsefly was major issue while surveying of Nilgiri Ibex, which was causing irritants to the field staffs and tahr too.

After summer period, onset of monsoon, they trekked along the great 20 miles sweep of the cliffs from Nilgiri Peak (2623m MSL) to Sispara and Ankinmalai (Both fall in Kerala state) about 296 Nilgiri Tahr was sighted in 7 herds. Also, a herd of 43 was enumerated in Billithadahalla area (now it is in Mukurthi National Park). By adding altogether, the total population was 338.

In 1947 year, at Glenmorgan area, no Nilgiri Tahr was found and nor any droppings. Some of 30 individuals were wiped out due to poaching and other issues. Hence, shooting was closed about some 20 years to revive the game animal especially Nilgiri Tahr. Native name for Nilgiri tahr was "Bare adu" during 1880's. It was mentioned in Nilgiri hunting reminiscences book.

Fig.1. Nilgiri landscape with Nilgiri Tahr sketch

Fig.2. Sispara range

IBEX STALKING

M.G. Ganesan, Project Director, Project Nilgiri Tahr

Nilgiri Ibex was famously called by the British colonial officers due to its famous for game hunting by them in Madras presidency. Hunting of Ibex was entertainment for them in leisure time and use to behind the saddle back by crawling and stalking. It fetches them good pound at British in those days. In history of Nilgiri Tahr popularly known as BARE' ADU. The colonial people use to call them as Ibex since it was look like ungulates of their country origin. While searching for the literatures about this species written by many popular authors, one among them was "The Nilgiri Sporting Reminiscences" by An Old Shikari during 1880's. The interest and excitement of the colonial officers are narrated here.

"It makes not the least difference to me, whether the scenery be beautiful, grand or otherwise, so long as I bag what I am after." – Unknown.

The attraction for Ibex stalking is also perhaps enhanced by there being a spice of peril and danger mingled with its pleasures, such as is experienced by the Alpine tourist in scaling and surmounting the almost inaccessible peaks of the mighty Matterhorn and other kindred mountains. Science will not permit us to call him an Ibex, and really, he is nothing more than a wild goat. In former times, that is about fifty years ago from 1880, the Ibex appears to have roamed at will in vast herds over all the grassy uplands of the higher plateau of the Nilgiris, not confining themselves to the precipitous ghat cliffs on the verges of the hills overlooking the plains, and where they are now chiefly to be found.

The Ootacamund was first commencing to be established, and Stonehouse (the present Government offices) was being built, several Ibex were shot on Dodabett about the Craigmore rocks, and information gleaned from the oldest Kaity Badagas, as well as Todas. Avalanche was, favourite resort of sportsmen as a sure find for Ibex, and almost countless numbers used to be seen feeding, unalarmed by the many travellers who frequented the Sispara Ghat road, then, the only route to the Western Coast and Bombay from the Hills. Fig.1 illustrates the Avalanche locality, and is taken from a pencil sketch drawn on the spot in 1863.

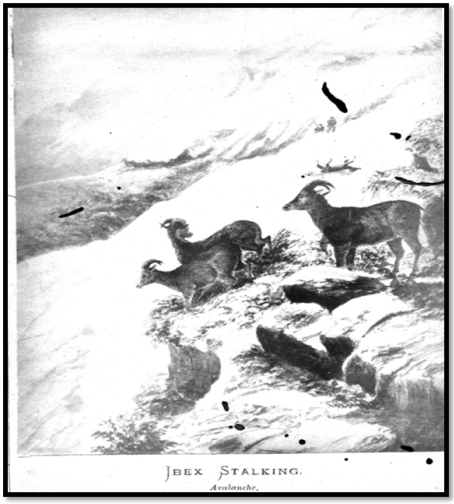
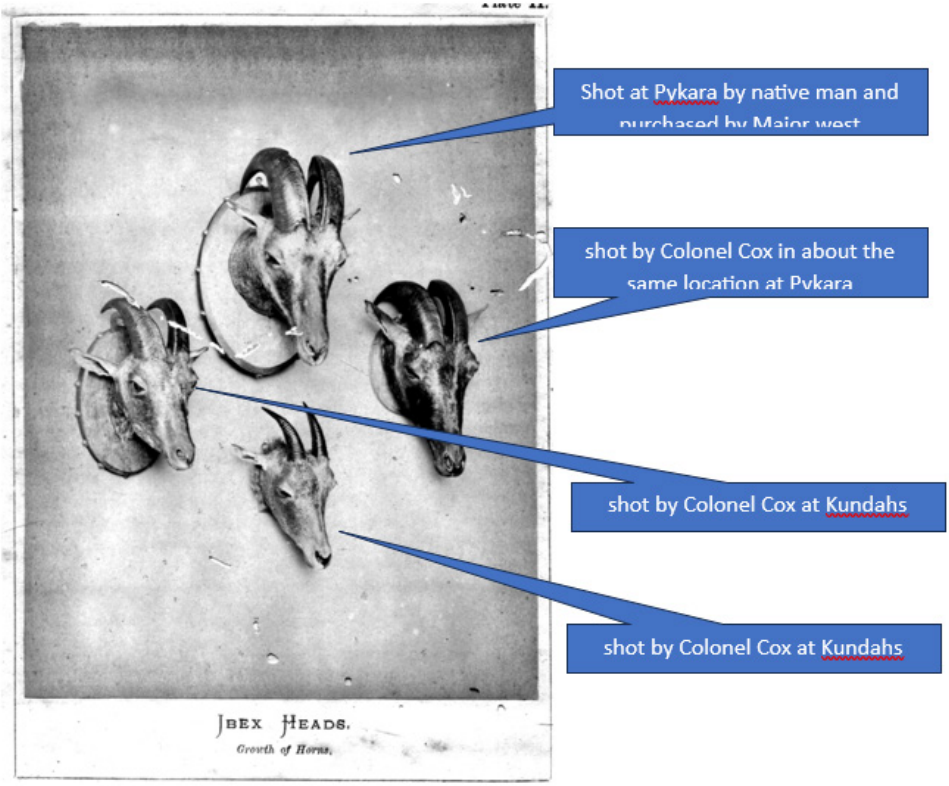


Fig.1.Avalanche Ibex herd in 1863's – Sketch

(Source: The Nilgiri Sporting Reminiscences)



Ibex stalking was not without its perils, as the nature of the ground one has to climb over is at times exceedingly dangerous. Steady nerves are as essential as strong and firm limbs in passing over guilds precipices or crossing narrow ledges of rock. Fatal accidents happily have been rare; the only instance in case of european, being that of the sad fate of Mr. Charles Buchnan, 1875, who, incautiously venturing to cross over a steep and slippery sheet rock (after an animal he had killed) in his heavy iron-soled boots, lost his foothold and was precipitated down some hundreds of feet, never to rise again alive. A somewhat similar accident befel to author some eighteen years ago, but fortunately without more serious results than a severe shock to his nerves, and which now vividly recurs to his mind especially when on Ibex ground. He was endeavouring to gain a lower ledge of rock, and thought he could save a long climb round to the point he wished to arrive at, by scrambling down the face of a sheet rock sloping away rapidly at about an angle of seventy. Is doing so, his rifle somehow or another slipped from his

Fig. 3. Sispara Landscape sketch from The Neilgherries book

grasp gliding down in front of him, muzzle upwards in which position it went off, the bullet passing through the front rim of his pith hat about two inches from his forehead! a narrow escape indeed, and which has served as a lasting caution to him. It has become too well known of late years how greatly the number of Ibex to be met with in their old haunts, is diminished. The ibex stalking for hunting was repaid to them with various dangerous and damages, nature cure its pain and difficulties through making different situation on ground. (Source: The Nilgiri sporting reminiscences by an old Shikarri book, 1880.)

PHOTO GALLERY

Glenmorgen, Mudumalai - Nilgiri Tahr was last directly sighted here in 1985

Thiruvannamalai Mottai, Kalakad - Fragmented herd residing here and reported by AJT John singh

Berijam range- Bodivarai Nilgiri tahr habitat, Kodaikanal

The Thirupugal song mentioned Kurudi Malai in Coimbatore and the Nilgiri tahr.

Facts about Nilgiri Tahr

1. The Nilgiri tahr is the world's southernmost population of naturally occurring caprids, and the closest to the equator. It is the most equatorial wild caprid (Rice, 1988)
2. The Nilgiris population is the Northernmost of the Nilgiri tahr range in the world.
3. The Nilgiri tahr (*Hemitragus hylocrius*) is the only species in the subfamily Caprinae (which includes goats, sheep, and related animals) found south of the Himalayas.
4. Two different populations of Nilgiri tahr from the North (NPG) and South (SPG) of Palghat gap (PG) were studied using the cytochrome b gene (Cyt b; 310 bp) of mtDNA genome in the Western Ghats, India. Two variable sites were observed in the Cyt b fragment while the mean pairwise genetic distance between these two populations was 0.007. All the samples phylogenetically clustered in either North or South of PG. The presence of shallow divergence indicates the presence of suitable habitat in past which may have facilitated movement between NPG and SPG. (Source: Palghat gap reveals presence of two diverged populations of Nilgiri tahr (*Nilgiritragus hylocrius*) in Western Ghats, India Bheem Dutt Joshi, Rakesh Matura, Predit M. A., Rahul De, Bivash Pandav, Vipin Sharma, Parag Nigam and Surendra Prakash Goyal Wildlife Institute of India, Dehradun, Uttakrakhand, India, MITO COMMUNICATION, 2018).
5. On 24 March 2016, a sub–adult female Nilgiri Tahr (*Nilgiritragus hylocrius*) was captured from Edappukulam (10.7852020 N & 76.7986580 E), near Kanchikkode in Walayar Range of Palakkad Forest Division, Kerala. This is the First recorded incident of a Nilgiri Tahr straying into the plains. It was found stranded amidst human habitation near BEML Ltd., Walayar. The exhausted animal was captured in the evening by the local people and later handed over to the Forest Department on the same day. The animal was then transferred to 'Sree Loknayak Jayaprakash Smritivanam Deer Park', Walayar, managed by Kerala Forest Department. Since then, the animal had been housed there in isolation. Multiple sites near Walayar hills were searched to release the animal. Two locations were found suitable for Tahr i.e. Kuppalan Challa (10.8188890 N & 76.7471560 E) and Kottamutti (10.8282100 N & 76.7816460 E) of which the latter was discarded due to the nearness to railway track (100m). On 28 March 2016, the Nilgiri Tahr was released in the proposed site by 08.30hr at Valiyeri.

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