



OVERVIEW OF FOREST AND BIODIVERSITY WEALTH OF MEGHALAYA

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Biodiversity

'Biological Diversity' - the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. (CBD, 1992)

India is one of the 17 mega-diverse countries. It has only 2.4 % of the world's land area but harbours 6.7% of the animal species and 9.13% of the floral diversity of the world.



Biodiversity of Meghalaya

Meghalaya is situated in the North East India Bio-geographic zone (along with Assam, Nagaland, Manipur, Mizoram and Tripura)

Represents a transition zone between the Indian, Indo-Malayan, Indo-Chinese bio-geographic regions as well as a meeting place of Himalayan mountains with that of Peninsular India.

The state also represents an important part of the Indo-Burma biodiversity hotspot which is one of the 4 bio-diversity hotspots present in India and 34 in the world.

The state of Meghalaya has been identified as a key area for biodiversity conservation due to its high species diversity and high level of endemism.

The eastern Himalayas are Mega Biodiversity centre and hospot for its rich biodiversity.

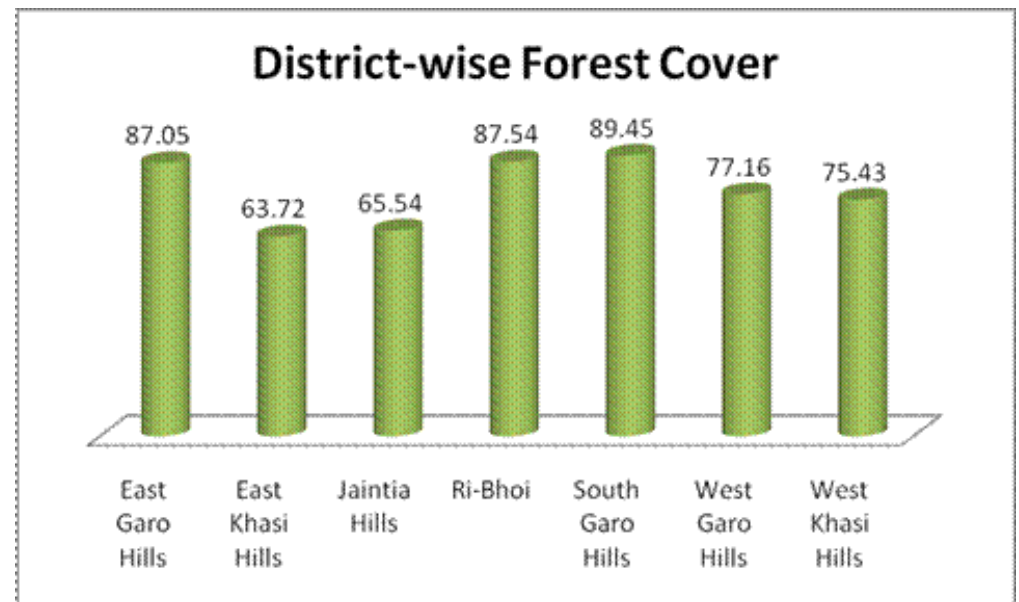
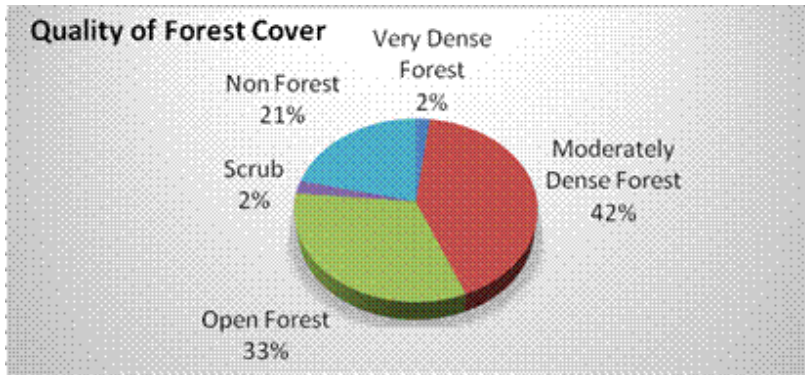
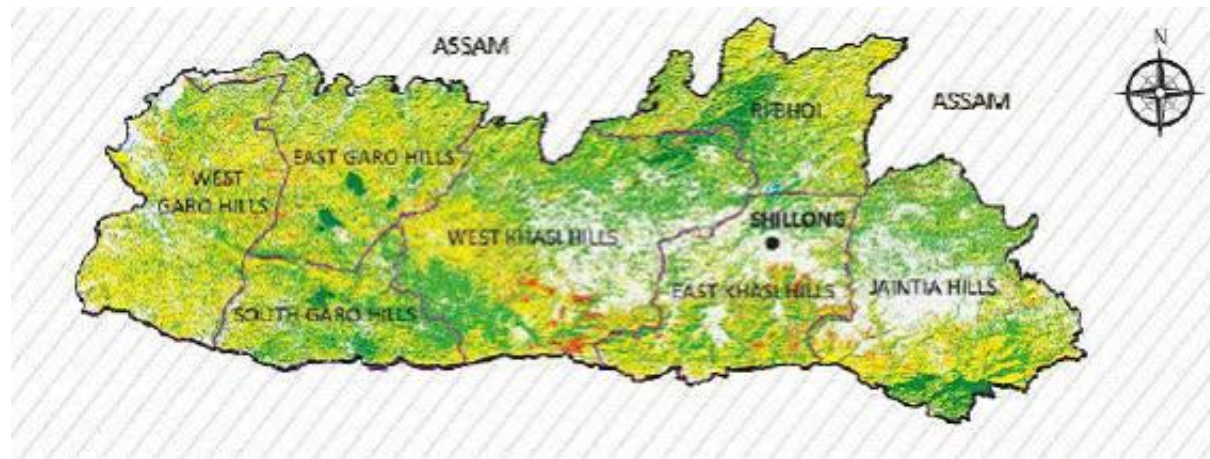
The Meghalayan forests are considered to be among the richest botanical habitats of Asia.

These forests receive abundant rainfall and support a vast variety of floral and faunal biodiversity.

Meghalaya is among the few States in the country which can be proud of its abundance of natural forest wealth spanning across large part of its geographical area, much higher than national average.



Forest coverage Meghalaya



Source: State of Forest Report -2017 by FSI

Forests in Meghalaya

- The state is part of the Indo Burma Biodiversity Hotspot of the world.
- The Vegetation types ranging from tropical rain forest in foothill to Alpine meadows and cold desert.
- Forests of the State shelters more than 3500 flowering plants, including 1,237 endemic species 352 orchids, 40 bamboo species and about 800 medicinal plants resources.
- There are about 75 Threatened plant species found in Meghalaya.



Dendrobium densiflorum



Dendrobium stuposum

According to Champion & Seth (1968), major forest types in the state of Meghalaya are:-

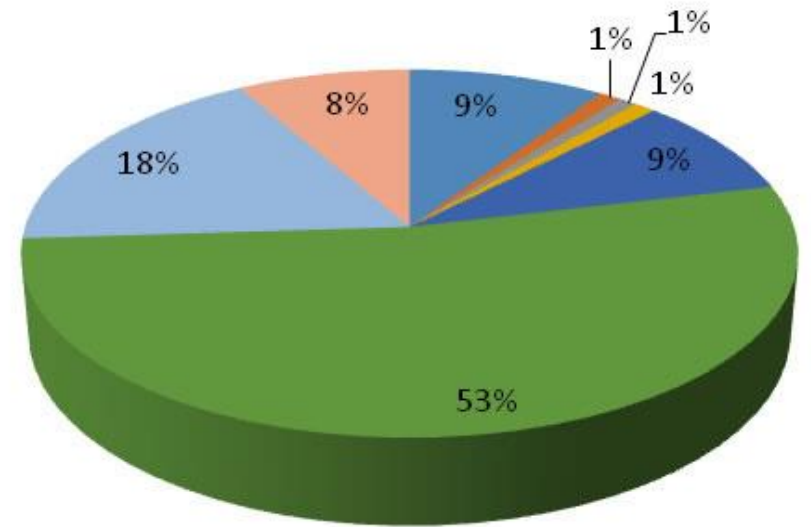
Assam Sub-tropical Hill Savanna
Khasi Sub-tropical Hill Forests
Assam Sub-tropical Pine Forests
Assam Sub-tropical Pine Savannah

Haridasan & Rao (1985-87) recognized the following major categories of vegetation in Meghalaya based on altitude, rainfall and dominant species composition:-

Tropical Evergreen Forests
Tropical Semi-Evergreen Forests
Tropical Moist and Dry Deciduous Forests
Grasslands and Savannas
Temperate Forests
Sub-tropical Pine Forests

Forest Types in Meghalaya

Meghalaya has six principal forest types: i) tropical evergreen forest, ii) tropical moist mixed deciduous forest, iii) 'Khasi hill sal' forest, iv) Khasi-Jaintia subtropical pine forest, v) Khasi subtropical mixed broadleaved forest, and vi) Khasi subtropical oak-dominated forest.



- 18/C3 Cachar Tropical Evergreen Forest
- 1B/2S1 Poineer Euphorbiaceous Scrub
- 2B/C1a Assam Alluvial Plains Semi-Evergreen Forest
- 2/2S1 Secondary Moist Bamboo Brakes
- 3C/C1a(ii) Khasi Hill Sal Forest
- 3C/C3b East Himalayan Moist Mixed Deciduous Forest
- 8B/C2 Khasi Subtropical Wet Hill Forest
- 9/C2 Assam Subtropical Fone Forest

Meghalaya Subtropical Forests

The Meghalaya Subtropical Forests ecoregion are influenced by rainfall .

The forests have an extremely rich flora.

The ancient tree family Magnoliaceae have fossils dating back to over 95 million years, several of which were found in these hills.

Magnolia rabaniana, was rediscovered in the Khasi Hills after 100 years, and now, its entire known population consists of 65 plants from 5 sites.



Magnolia rabaniana



Sonerila maculata

The ecoregion is a 'hotspot' of endemic plants; over 70 of 142 rare plants in the Garo Hills and Jaintia Hills, are endemic. Over 110 mammal species are known from this ecoregion.

clouded leopard, Asian elephant, wild dog, Malayan sun bear, sloth bear, Chinese and Indian pangolins, and hoolock gibbon.

The bird fauna is richer, with more than 450 species.

These include several threatened species such as the rufous-necked hornbill, white-winged duck, Pallas's fish-eagle, marsh babbler, tawny-breasted wren-babbler, Manipur bush-quail, black-breasted parrotbill to name but a few.



Fig- Long Tailed Minivet



rufous-necked hornbill

Sacred Groves

In Meghalaya, sacred groves represent an age old tradition of environmental conservation based on indigenous knowledge, culture and religious beliefs.

At least 514 species representing 340 genera and 131 families in these sacred groves.

In Meghalaya, plants used in the primary healthcare are mostly drawn from the sacred groves.

Traditional method of medicinal practice has a strong relevance to the socio-economic feature of the tribal communities of Meghalaya.



Medicinal Plants:

Of the total 3,331 plant species recorded in the state around 834 (25.04%) are estimated to be employed in healthcare.

These species are distributed in 548 genera and 166 families. These species are restricted mainly to sacred groves,

Orchids:

Meghalaya is endowed 352 species belonging to 98 genera representing 27.08% of the country's orchid floras.

Aerides multiflorum, *Coelogyne corymbosa*, *Cymbidium elegans*, *Dendrobium devonianum*, *Dendrobium longicornu*, *Paphiopedilum insigne*, *Rhynchostylis retusa*, *Phaius tankervilleae*, *Thunia marshalliana* and *Vanda coerulea* are few of the orchids of Meghalaya



Some ethnomedicinal plants found in the sacred groves of Meghalaya

Name	Useful parts	Uses
<i>Acanthus leucostachyus</i>	Leaves	Fever, toothache
<i>Ageratum conyzoides</i>	Asteraceae	Snakebite
<i>Ecbolium linneanum</i>	Roots	Jaundice
<i>Polygonum chinense</i>	Roots	Urinary disorders
<i>Rhaphidophora hookeri</i> Scott	Leaves	Antidote for poison
<i>Eupatorium odoratum</i> Linn	Leaves	Anticoagulant
<i>Centella asiatica</i> (Linn.) Urban	Leaves	Brain tonic

Ethnozoology



State Animal of Meghalaya - Clouded Leopard

Neofelis nebulosa

It is listed as Vulnerable on the IUCN Red List.

It is the state animal of Meghalaya.

To strengthen the efforts for its conservation, it has been included in India's Recovery Program for Critically Endangered Habitats and Species.

In India, it is found in Sikkim, northern West Bengal, and Meghalaya subtropical forests, Tripura, Mizoram, Manipur, Assam, Nagaland, and Arunachal Pradesh.



State Bird of Meghalaya- Hill Myna

Scientific name -Gracula Religiosa.

The whole body of the mountain myna is bright black, while their beak and two strong legs are orange in color.

If we talk about the size of this bird, then this bird is around 28 to 30 centimeters. Whereas the weight of this bird varies from about 200 grams to 250 grams.

The female lays around 3 eggs at a time, which are blue in color. And these birds bear eggs for about 14 to 18 days.



State Tree of Meghalaya-Gamhar

Scientific name - *Gmelina arborea*

It is a giant tree whose height is up to 50 - 60 feet. The branches of the tree are white (with some whiteness) and rosy.

The leaves of Gambhari are 4 to 9 inches long and 3 - 7 inches wide. They are often ridged, heart-shaped, and pointed from the front.

The leaves of the Gambhari plant are smooth and cool. Its bark also removes inflammation.

The leaves of Gambhari have a sweet juice like honey. For this reason, it is also called Madhuparnika. It is called Shriparni because of its beautiful leaves.



New Discoveries in Meghalaya

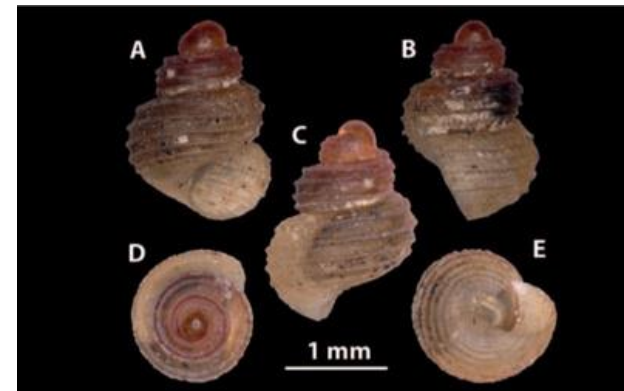
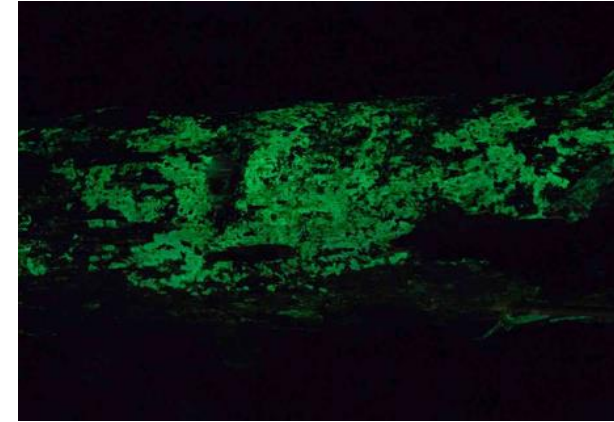
Glowing mushrooms, used by locals as natural torches

Neolissochilus pna Largest cave fish discovered recently

Zoological Survey of India (ZSI) have discovered a new species of frogs from deep within the Siju cave in the South Garo Hills district of Meghalaya.

Bamboo dwelling bat

A micro-snail species named *Georissa mawsmiensis* have recently been discovered from Mawsmai



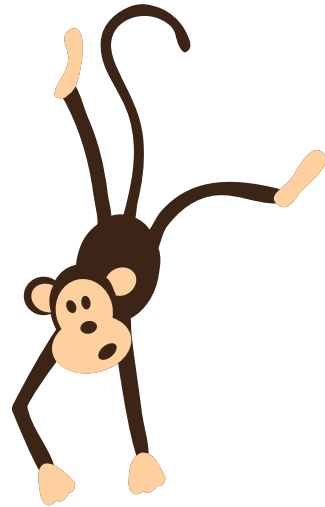
Wildlife of Meghalaya



Need for conservation

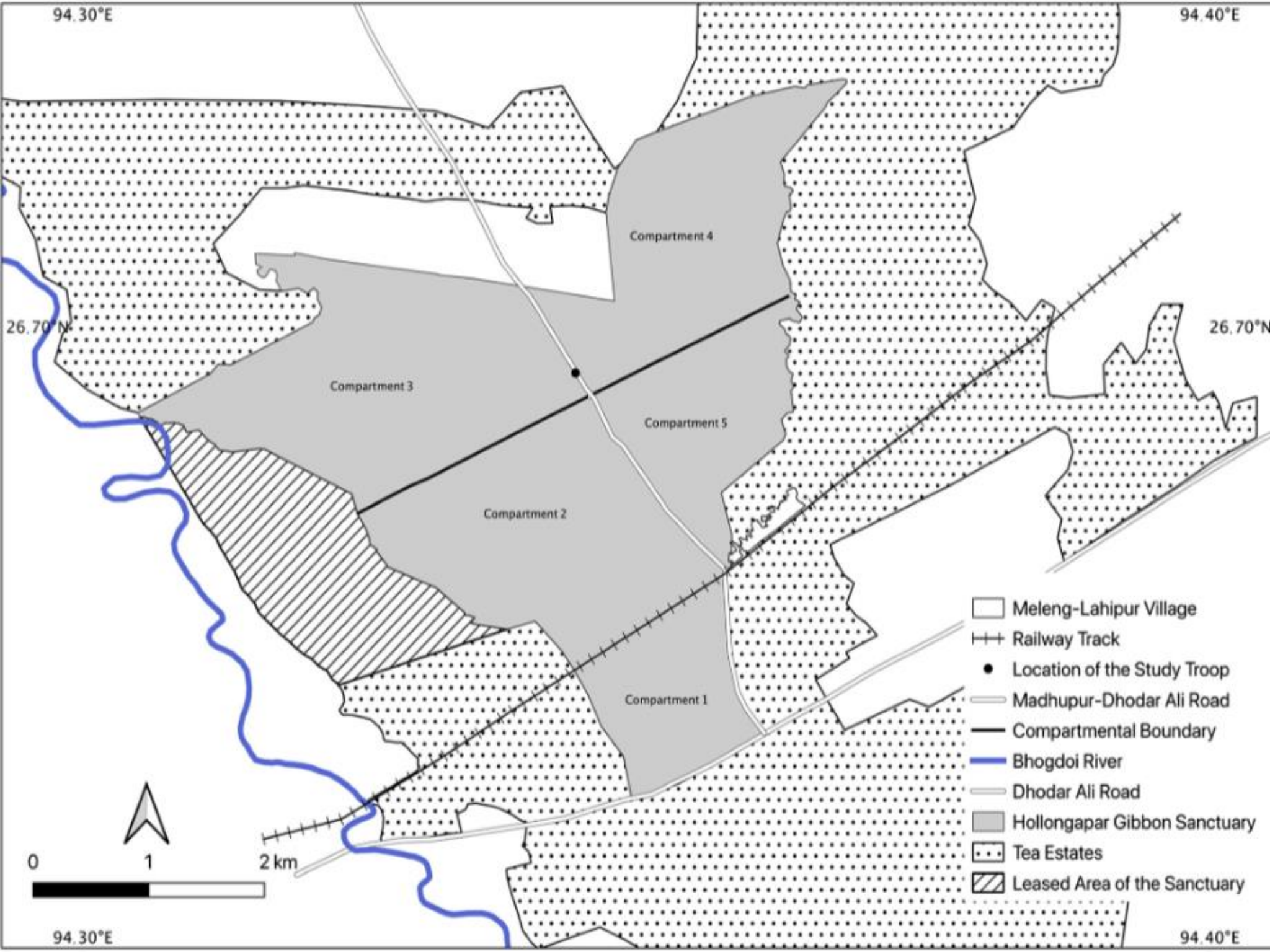






Is conservation everyone's job





- 1. Forest department**
- 2. Railway department**
- 3. Tea garden owner**
- 4. Village folks**
- 5. Researchers, local NGOs, conservationists**

