

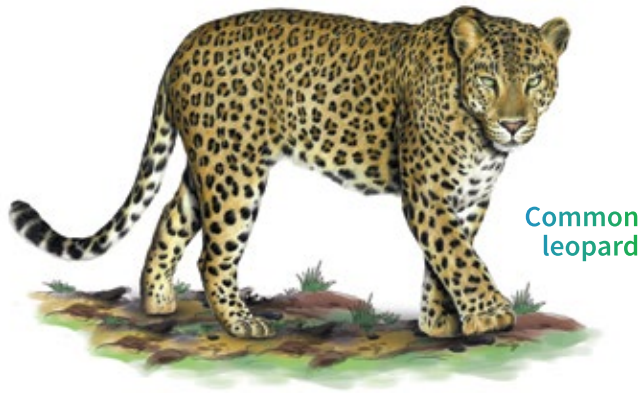


Developing sustainable solutions
for mountain communities in the
Hindu Kush Himalaya



Key species at Living Mountain Lab

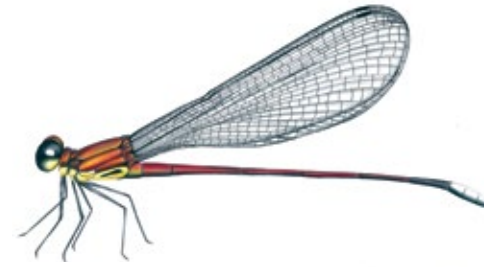
Among the hundreds of species of diverse fauna and flora at LML, here's a selection of our favourite species



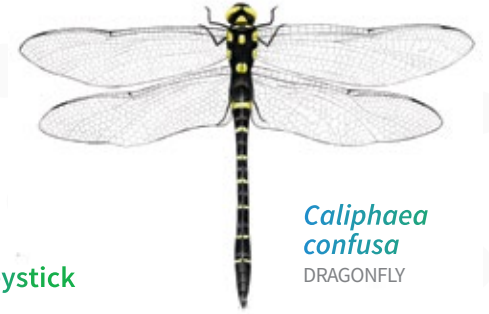
Common leopard



Chinese pangolin



Anotogaster nipalensis
DAMSELFLY



Caliphaea confusa
DRAGONFLY



Great hockeystick sailer



White-crested laughingthrush



Golden emperor



Rhododendron arboreum



Barking deer



Rufous-gorgeted flycatcher



Spiny babbler

Illustrations by Peter Iepcha, Lenin Raj, and Dibyendu Roy

Share your photos of nature at LML and tag us!
#LML #LivingMountainLab #Godavari #sustainablesolutions #ICIMOD

It is highly unlikely for our visitors to see a leopard, as it is nocturnal or crepuscular so ventures out at night or in twilight, though you might be lucky enough to see some of the other species on your visit to LML.



Introduction

ICIMOD's Living Mountain Lab is a scientific and technological hub, where over 90 sustainable, innovative and easily replicable technologies, practices and approaches are prototyped, tested and demonstrated with a view to scaling their use across the Hindu Kush Himalaya.

With a focus on agriculture, aquaculture, biodiversity conservation, disaster risk reduction, forestry, livestock, soil and water management, and renewable energy, these solutions address a number of challenges faced by mountain communities – in ways that benefit both people and nature.

Set in Godavari – a lush green area of hills and forests just 17 kilometres to the south of Nepal's capital, Kathmandu – the Living Mountain Lab (LML) invites visitors to experience sustainable technologies and approaches in a landscape that echoes the environment of mountain communities and is home to an amazing array of biodiversity.

LML's rich biodiversity
In the space of just 30 hectares, LML hosts:



10%
OF NEPAL'S
FLOWERING
PLANTS



~84
SPECIES OF
ORCHIDS



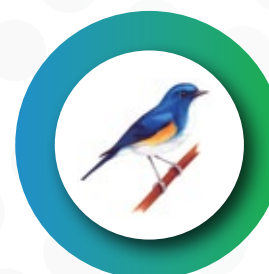
~86
MEDICINAL
& AROMATIC
PLANTS



~280
SPECIES OF
BUTTERFLIES



~54
SPECIES OF
DRAGONFLIES &
DAMSELFLIES



~100
SPECIES
OF BIRDS

Our history

A successful story of natural regeneration

LML was set up in 1993, following the generous provision of 30 hectares of land by the Government of Nepal. At that time, it was largely degraded forest. Over the last three decades, the area has been restored, mostly through natural regeneration – a process by which trees and shrubs are renewed by natural seeding, sprouting, suckering or layering.

Today one third of the site showcases sustainable technologies. The rest of the area boasts an impressive mixed deciduous and evergreen broadleaved forests and wetlands which provide crucial habitats for biodiversity and offer a wide range of ecosystem services.

Such services include regulating stream flows, filtering water, recharging aquifers and providing water – which is collected and supplied to over 1100 households around Godavari; food – a variety of wild fruits, such as wild pear (mayal), barberry (chutro), and bayberry (kafal), vegetables like edible fern and stinging nettle, and fodder; carbon sequestration, nutrient recycling and flows; pollination and seed dispersal services by insects, birds and animals.

1. *Paulownia* tree plantation
2. Nursery
3. Green house
4. Puxin biogas plant
5. Beekeeping
6. Rainwater harvesting
7. Fruit farming
8. Trombe wall [solar technology]
9. Kiwi farming
10. Fog water harvesting
11. Citrus farming
12. Medicinal/aromatic plants
13. Heap compost
14. Compost making
15. Biomass study
16. Natural forest and shrubland management
17. Nitrogen-fixing hedgerows/SALT
18. Soil erosion monitoring experiment
19. Meteorological station
20. Water harvesting pond/fish pond
21. Tree fodder and fruits
22. Swamp wetland development
23. Large cardamom
24. Peltric set technology (hydroelectric power)
25. Treadle water pump
26. Briquette technology
27. Cool chamber
28. Solar cooker/solar drier
29. Photovoltaic solar system
30. Natural water harvesting
31. Flood early warning system
32. Plastic film technology
33. Floriculture
34. Broom grass
35. Shiitake mushrooms
36. Drip irrigation
37. Carbon monitoring plot
38. Earthquake-resistant model house
39. Livestock



Sustainable innovations

Our solutions are customised to co-exist with wildlife, and targeted to different communities to reduce risks of climate change impacts at the local level. Solutions include a model of circular economy, soil-less farming such as aquaponics and hydroponic systems for peri-urban and urban areas, and portable solar-powered irrigation system and hydraulic ram-pump for remote hills and mountain areas.

Here we highlight a selection of the 90+ sustainable, innovative and easily replicable solutions that are demonstrated throughout LML:

Renewable energy

SOLAR DRYER,
PICO-HYDROPOWER-
PELTS SET



Water management

HYDRAULIC RAM
PUMP, LOW-COST
RAINWATER
HARVESTING

Agricultural

SLOPING
AGRICULTURAL LAND
TECHNOLOGY (SALT),
3D FARMING, AND
AQUAPONICS



Income generation

RAINBOW TROUT
AND CARP FARMING,
KIWI, AND SHIITAKE
CULTIVATION

Disaster risk reduction

EARTHQUAKE-
RESISTANT HOUSE,
AND COMMUNITY-
BASED FLOOD EARLY
WARNING



Ecotourism

NATURE TRAILS,
ECO VILLAGE AND
'WORKATION'
(PLANNED)



Training centre

At LML's fully equipped training centre, a wide range of groups – from farmers to development practitioners, researchers and students – receive hands-on training on:

- Adopting and replicating sustainable development technologies
- Organic farming techniques
- Green and resilient entrepreneurship
- Training of trainers – for agricultural and development extension workers

We are creating a suite of remote learning materials – including explainer videos, and virtual tours, to expand our reach beyond those who can visit LML in person.

Research and support

Scientific research at LML focuses on recording and analysing meteorological data, vegetation dynamics, biodiversity and springshed functions, monitoring of carbon, soil erosion and biomass, and assessment of the effectiveness and efficiency of LML technologies and approaches. Plants raised in the nursery are used to replenish the green areas and also sold to the public.

Outreach events

We organise visits for schools to integrate hands-on learning into the curricula, with age-appropriate materials and guided tours for students from pre-school up to postgraduate. Topics covered include biodiversity conservation, natural resource management, and innovative technologies. We also facilitate the visits of representatives from development and non-governmental organisations, governments, research and business to LML to exchange knowledge and learning.



Join us

Join us to develop solutions for mountain communities. We welcome both new formal partnerships and more informal 'Friends of LML' – organisations interested in co-designing and co-delivering solutions, in-kind contributions including relevant technologies that can be installed and demonstrated at LML, and financial contributions to upgrade existing infrastructure and technologies. As partners and Friends of LML, all supporting organisations are acknowledged, and can organise company events on the premises.

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