
RNI No.37628/1981
Sanctuary Asia
VOLUME 44 | ISSUE 03 | MUMBAI
MARCH 2024 | PAGES 32 | INR 100/-
ON THE COVER
Asian Elephant
These ecosystem engineers modify the landscape around them, and create new habitat for smaller animals.
CONSERVATION
WE CAN DO IT
Fighting for the earth and its creatures in the face of outsized opponents.
make Change
TAKE ACTION
PROTECT INSECTS FROM LIGHTS!
Artificial outdoor lights are harmful to insects, with a cascading effect through the ecosystem.
PHOTOFEATURE
CREATURES GREAT & SMALL
In the battle between creatures large and small, and human influences, even the small can be mighty when it comes to their survival.
David & Goliath
Gigantic organisations that destroy the environment are sometimes felled by tiny, powerful individuals and groups.
CUB
FOR YOUNG READERS

We Need Bees.

Bumblebees help us understand Himalayan ecology as they survive in harsh conditions, where other bees cannot survive. They are tiny but play an irreplaceable role in ensuring human and nature health! Text by Dr. Rifat Raina, Keshav Kumar, Purnima Pathak and Trilok Jangid.

"*If the bee disappeared off the face of the Earth, man would only have four years left to live.*"

Famously attributed to physicist Albert Einstein, this quote alarmed us, and sparked our curiosity about the life of bees, and their importance for the environment and humans. Our interest took us to high-altitude locations in the Himalayan states of Arunachal Pradesh, Uttarakhand, Himachal Pradesh, UT of Ladakh, Jammu and Kashmir, where we met the rotund bumblebee. We were astounded by the critical role this tiny insect plays in the health of the entire ecosystem and humankind!

BUMBLEBEE BIOLOGY

Bees are classified into seven families, out of which six are present in India. Bumblebees are similar to honeybees as both forage for nectar, although the former don't produce honey. Globally, there are 265 wild species of bumblebees reported so far. Bumblebees are fast flyers and can work from dusk till dawn. They are eusocial and show great mimicry, and hence are not easily identified without a proper identification key.

Bumblebees are different from other species of bees as they are mostly found in high-altitude regions in the Himalaya, ranging from 1,000 m. to 5,300 m. above mean sea level. Around 64 species of bumblebees are present in the Himalayan region. These bees are helpful to understand Himalayan ecology because they are

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Bombus albopleuralis.

Bombus melanurus.

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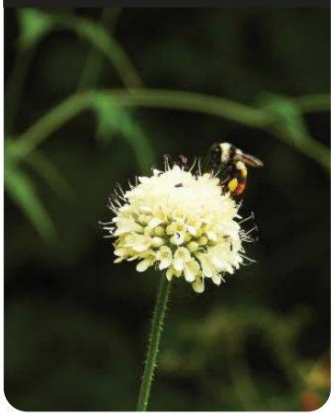
Bombus tunicatus.



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Bombus rufofasciatus.

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present at very low temperatures in harsh conditions, where other bees cannot survive. During winter, these bees hibernate and in spring and early summer, they resume their bodily functions and search for new places to start the colony. They are specialised pollinators, as no record of these bees has been reported from the Indian plains.

BUZZING TO WORK

Pollination is crucial for biological diversity. Insects are key pollinators of angiosperms in the forest as well as in the agricultural ecosystem, and among them bees are the best pollinators in low-land to high-land mountain ecosystems. They are useful in the pollination of various medicinal, aromatic, agricultural and horticultural plants, which are found in the Himalayan region.

Bumblebees have dense hair on their body and a pollen basket called corbicula on their hind leg, which helps accommodate more pollen and better contact with flowering plants. Pollination by these bees thus increases fruit production. They are a socio-economically important species. They are also useful in assessing the health of ecosystems.

Bumblebee populations are decreasing on account of natural as well as anthropogenic activities such as habitat loss, excessive pesticide use, urbanisation, overgrazing, deforestation, and climate change. Climate change is the most serious threat as these bees don't like the heat. The decline of bumblebees may cause a serious threat to the Himalayan region.

CONSERVING BUMBLEBEES

People generally take pollination for granted, often because it's not priced. More than one in every three bites of food we eat is possible because of pollinators. Pollinated plants produce fruits and seeds, a big part of the diet of about 25 per cent of bird species. Some regions may also be affected by poverty and malnutrition, if these bees disappear. Pollinator-dependent plant communities help bind the soil.

We wondered about the scale of the food crisis if bumblebees disappeared. But all hope is not lost. Many conservation practices are being used to increase the number of bumblebee species. Improving their habitat and low use of pesticides may help check their decline. Their absence will shake the foundations of nature as well as human well-being. We cannot be complacent about the survival of these tiny, dedicated ecosystem builders.

Dr. Dhriti Banerjee, Director/Country Head, ZSI provided necessary facilities for this study. Financial support from the NMHS Almora, MOEF&CC GOI enabled the study of the current status of bees in the Indian Himalayan Region.

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POLLINATORS GALORE

~ Flying insects: Butterflies, moths, beetles and flies.

~ Black and white ruffed lemur of Madagascar: Among the largest pollinators in the world; it pollinates the palm 'traveler's tree'.

~ Reptiles: Lizards, skinks and geckos transfer pollen from one flower to another when they feed on nectar.

Bombus festivus.

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