Diving into Diversity
Aquatic Beetles of Sukhna Wildlife Sanctuary, Chandigarh
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Background
India has an impressive 776 species of aquatic beetles[1], highlighting the country’s exceptional biodiversity. Previous studies on Indian aquatic beetles have predominantly concentrated on taxonomic characteristics, offering little understanding of their habitats and ecology[2].

• This study explores the population dynamics and spatial dispersion of aquatic beetles.
• It also sheds light on the species of water beetles and is the first ever taxonomic exploration of the Adephaga of this region.

Why water beetles and why the Shivaliks?
• Aquatic beetles play crucial roles in freshwater ecosystems by engaging in nutrient cycling and serving as integral components of aquatic food webs[3]. Furthermore, their sensitivity to environmental changes provides valuable insights into ecosystem health.
• The Shivalik hill acts as a way point between the Himalayas and the plains and its biodiversity remains largely unexplored.
• Sukhna WLS is located at the heart of this region and hosts the maximum number of freshwater bodies; around 175 sizeable dams and 4 rain fed rivers.

Methodology
Collection of beetles through sweep netting water bodies
Mounting & photographing of specimens
Taxonomic identification & reviewing literature

Results
11 species across 7 genera and 3 families were found.

1. Hyphoporus sp.
2. Hydroglyphus flammulatus
3. Halipus angustifrons
4. Sternomolus rufigipes
5. Sternomolus inconspicuus
6. Eretes sticticus
7. Berosus pulchellus
8. Berosus inconspicuus
9. Laccophilus parvullus
10. Laccophilus sharpi
11. Laccophilus exuosus

• Laccophilus was the most widespread and abundant species followed by Hydroglyphus.
• Species richness and population exhibited an upward trend with increasing altitude and deeper penetration into the sanctuary.

Future Work
Increase the sampling area: The mountain range extends to over 1200 km and may home to new, un-described species due to its high local endemicity.

Long term Monitoring: Conduct extensive surveys to see temporal variation in beetles.

Genetic Based Taxonomy: Employ the use of genetic techniques such as DNA barcoding for accurate and efficient identification of beetles, which may reveal further insights for cryptic & closely related species

Discussion

Habitat Generalists: The uniform distribution of species like Laccophilus and Hydroglyphus implies adaptability to diverse conditions, highlighting potential habitat generalism[4].

Altitudinal influence: Altitude may have a substantial influence on the composition of beetles through influencing the distribution of species[5], coupled with anthropogenic and habitat quality, since diversity and populations were greater in the sanctuary’s deeper, untouched regions.

Biogeographic Insights: It was observed that seven out of the eleven aquatic beetle species found in Chandigarh have not yet been reported in the north west region of India[6]. Further exploration may reveal additional endemic or rare species, necessitating targeted conservation efforts.

References
6. Ghosh et al. (2012)., Catalogue of the Diving Beetles of India

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