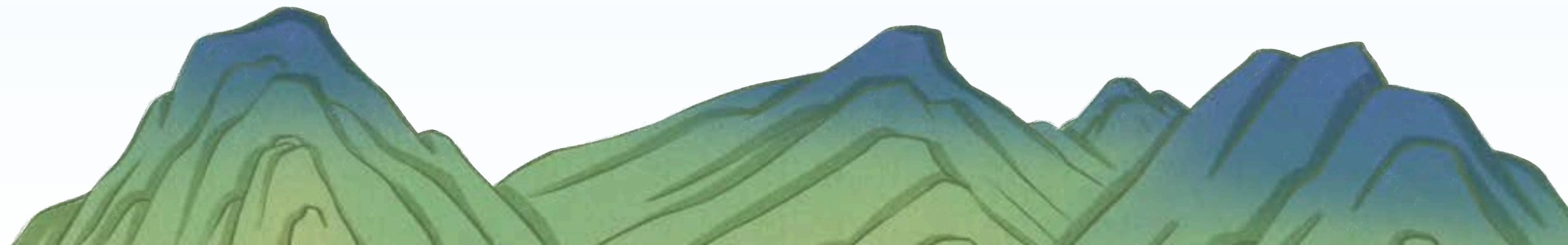






STEM PROJECT

POPULATION DYNAMICS AND MIGRATORY PATTERNS OF BIRDS

BY CLASS IX





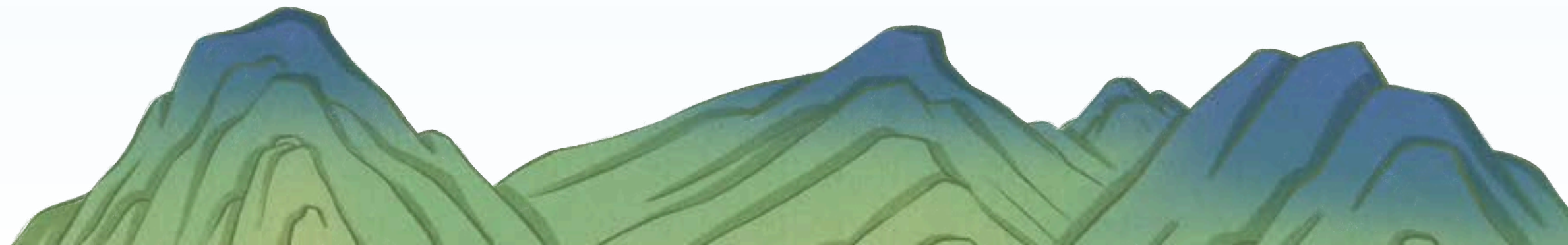
MEET OUR TEAM

TEACHERS: MR. RAHUL KUMAR,
MS. ANAMIKA, MS. POONAM KUMARI

MENTOR: MS. PUNAM NARDIYA

&

STUDENTS OF GRADE IX





PROJECT OVERVIEW

OBJECTIVE

Estimate population size and migration patterns of selected bird species at Sultanpur Bird Sanctuary, and identify factors influencing their trends.

The study will combine direct counts, camera traps, acoustic sensors, and tagging to produce population estimates and temporal migration profiles.

DURATION

3 MONTHS (OCTOBER - DECEMBER)



INTRODUCTION

Sultanpur National Park is a living classroom where students explore ecosystems, biodiversity, and conservation. The program builds stewardship through workshops, field visits, and citizen science, helping students understand habitat protection and species monitoring. By engaging with wetlands and their role in ecological balance, learners gain awareness while contributing to sustainable conservation outcomes.





Ruddy Shelduck
(*Tadorna ferruginea*)

Great White Pelican
(*Pelecanus onocrotalus*)



Painted Stork
(*Mycteria leucocephala*)

Grey Heron
(*Ardea cinerea*)



PROCESS

1

PLANNING
AND
RESEARCH
1-15 OCTOBER



2

FIELD SETUP
AND
EQUIPMENT
DESIGN
16-31 OCTOBER

3

FIELD
OBSERVATION
AND DATA
COLLECTION
1-15 NOVEMBER

4

DATA
ANALYSIS AND
MAPPING
16-30
NOVEMBER



PROCESS

5

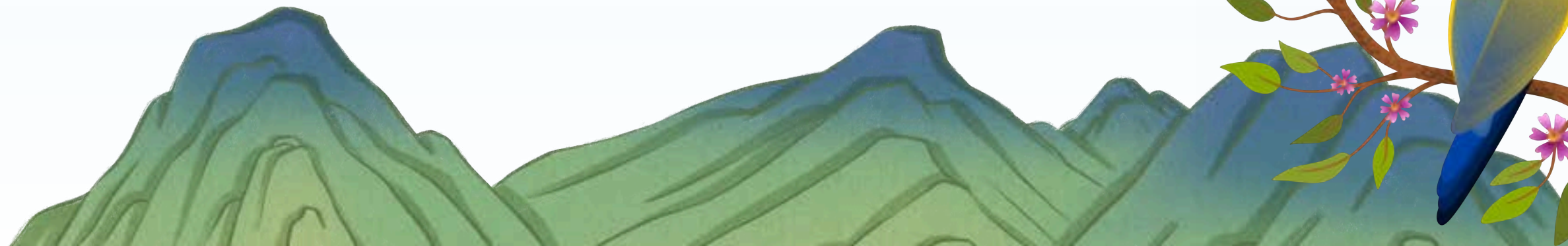
INTERPRETATION
AND CONSERVATION
STRATEGIES
1-15 DECEMBER

3

6

4

PRESENTATION
AND REFLECTION
16-31 DECEMBER





PRE-VISIT WORKSHOP & ORIENTATION




- A. Introduction to Ecosystems & Wetlands**
- B. Resident vs Migratory Birds**
- C. Do's and Don'ts During the Visit**

CLASS-WISE PRE-VISIT ACTIVITIES



Class 9A — Pre-Visit Task
Topic: Place and Causes of Migration

 **Class 9B — Pre-Visit Task**
Topic: Flash Cards of Native (Resident) Birds

Class 9C — Pre-Visit Task
Topic: Flash Cards of Migratory Birds

Class 9D — Pre-Visit Task
Topic: Why Birds Migrate to India



Lesser Flamingo
Phoeniconaias minor

Bill: Dark red, black tips. Specialized for filtering blue-green algae.

Smallest flamingo about 80cm tall.

Wingspan: Around 95-100cm.

Colour: Bright pink with summer highlights.



FLAMINGO'S BILL

- It is curved beak that flamingos use to...
- Unlike most birds, flamingos feed with their heads upside down in water.
- Their bills are uniquely adapted to filter-feeding, allowing them to sift tiny organisms like algae, plankton & small crustaceans from muddy water.

How it works

The bill has lamellae - comb like structures inside that act like a sieve.

Flamingos pump water in & out using their tongue, trapping food particles.



Six Flamingo Species

- (i) GREATER FLAMINGO
- (ii) AMERICAN FLAMINGO
- (iii) CHILEAN FLAMINGO
- (iv) LESSER FLAMINGO
- (v) ANDEAN FLAMINGO
- (vi) JAMES'S FLAMINGO

Notable Migration Routes

to Africa: Greater Flamingo

Europe migrate to North

PRE-VISIT activities

GREATER FLAMINGO

Bill - highly specialized for filtering blue-green algae & small organisms.

Wing span up to 165cm.

Largest flamingo species 120-150cm tall.

Greater Flamingo
Phoenicopterus roseus

found across: Africa, Europe, Asia.
(most widespread)

Bill: Grayish-white with black tip.

medium sized about 110-130cm tall.

Colour: Trige...
Pale pink, grayish... & pink...



FLAMINGOS

Found in :- shallow lakes, lagoons & wetlands across the Americas, Africa, Europe & Asia.

Habitat :- found in Saline or Alkaline lakes & estuarine lagoons. They prefer warm, watery regions where they can wade & feed easily.

Appearance :- Their signature pink color comes from carotenoid pigments in their diet - mainly algae & crustaceans.

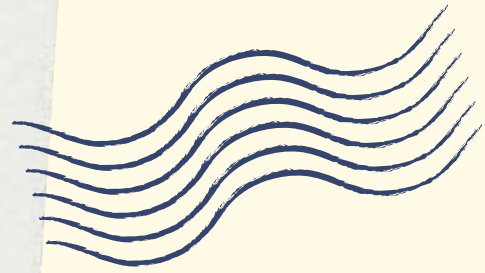
Behavior :-

- social birds
- live in large colonies

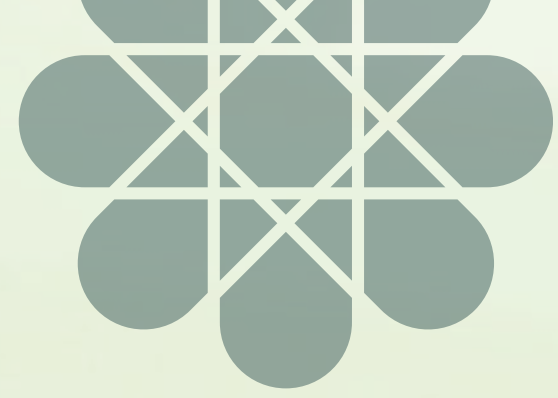
Feeding style

- They feed up by stirring mud with their feet & using their specialized beaks to filter out food.

VISIT TO SULTANPUR NATIONAL PARK



CLASS-WISE POST-VISIT ACTIVITIES



CLASS 9A — POST-VISIT ACTIVITIES

1. Migration Reflection Report
2. Map Making
3. Report on Conservation of Biodiversity
4. Sketch Work
5. Poster Making
6. Government Conservation Steps

CLASS 9B — POST-VISIT ACTIVITIES

1. Resident Bird Documentation Chart
2. Poster Making
3. Map Activity
4. Poem Writing
5. Sketching
6. Government Conservation Steps

CLASS 9C — POST-VISIT ACTIVITIES

1. Migratory Bird Identification Report
2. Government Conservation Report
3. Creative Poster
Poster theme: Protect Migratory Birds
4. Map of Migration Routes
Draw migration routes of at least 4–5 migratory birds.
5. Bird Sketching
6. Poem / Creative Writing
Poem titled –Journey of a Traveler Bird.

CLASS 9D — POST-VISIT ACTIVITIES

1. Analytical Report: Topic
2. Government Conservation Steps Report
3. Biodiversity Conservation Report
4. Poem Writing–Poem theme: Songs of the Sanctuary.
5. Sketch / Drawing
6. Poster Making
Poster theme: India – A Safe Heaven for Migratory Birds.
7. Map Task

RESULT

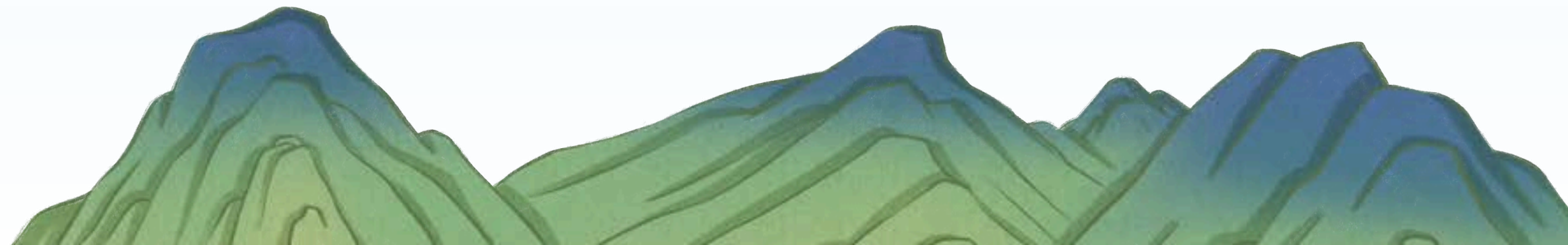
Students of Class IX successfully integrated science, mathematics, geography, and environmental studies to study bird populations and migration at Sultanpur Bird Sanctuary/National Park.

The group project helped students understand bird ecology, migration drivers, and conservation needs, while also building skills in research, technology use, teamwork, and environmental responsibility.

CONCLUSION

This project highlighted the interdependence of ecosystems and bird life, showing how climate, food availability, and habitat conditions shape migration and population trends. Students realized that wetlands like Sultanpur are vital for sustaining biodiversity, and that conservation efforts—such as habitat protection, anti-poaching measures, and awareness campaigns—are essential for safeguarding both resident and migratory birds. Beyond scientific learning, the project nurtured a sense of environmental stewardship and social responsibility, inspiring students to view themselves as active contributors to biodiversity conservation.

Priority actions: restore wetlands, strengthen monitoring, and expand education to build sustained local support.



THANK
YOU

