# ANOTHER INCREDIBLE ACHIEVEMENT AT THE NATIONAL PLATFORM

Department of Botany proudly announces that three of our semester-1 and one of our Botany Sem-5 students have grabbed three budding researcher Awards of UG category in the National Webinar on "Wetlands: Versatile, valuable and Vulnerable on 21<sup>st</sup> January, 2022 organized by Gujarat University and we4nature. Best wishes to all winners.

## **BUDDING RESEARCHER AWARDS**

Theme-A Vulnerability of Wetlands Saloni Rani Swain (CBZ- Sem-1)

Theme- B Conservation of Wetlands (A) Jaydeep Parmar (CBZ- Sem-1)

(B) Pooja Dubey (CBZ- Sem-1)

Theme-C Biodiversity of Wetlands Nivedita Tripathi (T.Y. Botany Sem-6)

Heartily Congratulations to all students and their mentors Dr. Dhruv Pandya and Dr. Urvi Gupta.

# **BUDDING RESEARCHER AWARD CERTIFICATES WITH POSTERS**







# GUJARAT UNIVERSITY BOTANICALS SOCIETY



CERTIFICATE

# This is to certify that Pooja Dubey

**Prof. Dr. Bharat Maitreya** Professor-in-Charge, GUBS Department of Botany, Gujarat University, Ahmedabad - 380 009, INDIA.

**Dr. Archana U. Mankad** Patron, GUBS Professor & Head, Department of Botany, Gujarat University, Ahmedabad - 380 009, INDIA.





### Vulnerability of Wetlands of Gujarat (Theme-A)

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#### Abstract

Wetland, complex ecosystem characterized by flooding or saturation of the soil, which creates low-oxygen environments that favour a specialized assemblage of plants, animals, and microbes, which exhibit adaptations designed to tolerate periods of sluggishly moving or standing water. Wetlands are usually classified according to soil and plant life as bogs, marshes, swamps, and other similar environments. The vulnerability of wetlands to changes in climate depends on their position within hydrologic landscapes. There are different environmental parameters and geographical conditions by which we can assess vulnerability of wetland.

#### Key words: Wetland, Environmental and Geographical factors, Vulnerability.

### What is wetland

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season.

### **Types of wetland**

o There are four types of wetland are as follows:

BASIC STEPS TO CHECK VULNERABILITY

conservation but for that vulnerability data is

- ٠ SWAMPS
- ۰ MARSH
- ٠ BOG ٠
- FEN

required.



### Vulnerability

o To be exposed to the To be possibility of possibility of harmed, physically emotionally.



### Vulnerability of wetland

- The vulnerability of wetlands to changes in climate depends on their position within hydrologic landscapes. Hydrologic landscapes are defined by the flow characteristics of ground water and surface water and by the interaction of atmospheric water, surface water, and ground water for any given locality or region. Six general hydrologic landscapes are defined;
- mountainous, plateau and high plain, broad basins of interior drainage, riverine, flat coastal, and hummocky glacial and dune.

#### a BOM' method for workand **IDEAL MODEL TO CHECK VULNERABILITY** SPRC model Source Pathway Receptor Consequence P australis Habitat loss Mainlan Sea Uplift subsiden S. alternifle Leve Spacing com S mar Rise Mudflat Change in biodiversity Island Vulnerability indicators i using RS re Subsidence uplif Habitat elevatio Sea-level rise Expo dem REFERENCES rphic, DPSIR: D MCDM: Multi-Criteria Decis CONCLUSION Vulnerability assessment of any ecosystem is required specially for wetlands because there economically and environmentally are significant species for its conservation wet lands conservation is required. Different models can be designed for each wetlands



### CONSERVATION STRATAGIES OF WETLANDS OF GUJARAT (THEME B)

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### ABSTRACT

A wetland is a distinct ecosystem that is flooded by water, either permanently (for years or decades) or seasonally (for weeks or months). Flooding results in oxygen-free (anoxic) processes prevailing, especially in the soils. The water in wetlands is either freshwater, brackish or saltwater. There are environmentally significant and economical benefits of wetland because of these benefits conservation of these wetlands is required. There are mainly four conservation strategies can be implemented for the conservation of wetlands. **Keyword: Wetland, Conservation, Protection** 

### RAMSAR'S DEFINITION OF WETLAND

"wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres"

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### TYPE OF WETLAND CONSERVATION

- 1. Physical conservation
- 2. Mechanical conservation
- 3. Chemical conservation
- 4. Legislative Conservation

#### Conservation Practices <u>CRP CP-39: Farmable</u> <u>Wetlands Program</u> • 50% cost-share • 40% practice incentive payment • stoo/acre signing <u>CRP CP-39: Farmable</u> <u>ADAPT Network</u> • Nitrogen field trials on corn (rate, timing, methods) • Corn stalk and soil testing, aerial imagery



- Corn stalk and soil testing, aerial imagery to determine nitrogen uptake
- Nitrogen management plan

MECHANICAL CONSERVATION



**Benefits of Wetlands** 



### CONCLUSION

After assessment of vulnerability, conservation is required which can be implemented through four different methods. For weed control mechanical and physical methods can be implemented. To control water pollutants different chemicals and for remediation of hazardous chemicals organisms can be cultivated such as plants and certain microorganisms like *Azolla*, *Nostoc*, *Typha* etc. At the end to control its over exploitation legislative methods can be implemented like Ramsar Site conservation.

### REFERENCES

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### **Conservation strategies of wetlands of Gujarat**

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#### Abstract

Wetland is an area where water lobbed conditions are observed through out the year or for some time. Even for environmental and economical prospective wetlands plays very important role in biome or in biosphere. Its very important to conserve it because it has so many endemic, endangered, critically endangered species which naturally propagate in the area. As per IUCN guidelines conservation of these area is necessary. Different approaches can be used for the conservation of wetlands. Keywords: Wetland, Conservation, Ecofriendly methods





### Biodiversity of Great Rann of Kutch of Guajrat (Theme-C)

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### ABSTRACT

Wetlands are the lands transitional between terrestrial and aquatic ecosystems where the water table is usually at or near the surface or the land is covered by shallow water. Biodiversity means **all the different kinds of life you'll find** in one area—the variety of animals, plants, fungi, and even microorganisms like bacteria that make up our natural world.

Keywords: Biodiversity, Wetlands, Endangered species.

#### INTRODUCTION

Biodiversity is the biological variety and variability of life on Earth. Biodiversity is a measure of variation at the genetic, species, and ecosystem level. Terrestrial biodiversity is usually greater near the equator, which is the result of the warm climate and high primary productivity. Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Wetlands can generally be classified into five basic systems, namely: Lacustrine, Riverine, Palustrine, Marine and Estuarine.





Great Runn of Kutch is the zone of **ecotone** in which seasonal variations are observed in the habitat. Because of its fragileness it is **single biosphere reserve of Gujarat**.

The wetland has more than 1 lakh varities of animals, birds and microorganisms are discovered yet.

From which more than 100 species are under VL,CE, Endangered, DD categories according to IUCN Red databook recent data. There should be proper conservation methods including legislative approaches by which we can conserve the ecosystem and allied species.

We can focus on the molecular aspects for the species identification.

Canis lupus pallipses

Gujarat state has flourish with Biodiversity regions. Little Rann of Kutch, Greater Rann of Kutch, Jamnagar, Porbandar, Velavadar, Thol lake, Nal sarovar etc. It is home to passage migratory birds and winter migratory birds. Diversity of flora and fauna is high in the wetlands of Gujarat. A total of 3,23 species of wetlands of India are endemic or globally threatened, and at least 30 of them are from Gujarat. Of 114 endemic wetland plants of India, 11 are found in the wetlands of Gujarat.

Salt-impregnated GRK is one of the most remarkable and unique region in the entire world due to its wilderness value and appears like a tabletop surface, interspersed with small uplands (islands) locally called beyts or Dhoi with green vegetation.