



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

SUSTAINING ECOSYSTEMS AND THEIR BIODIVERSITY

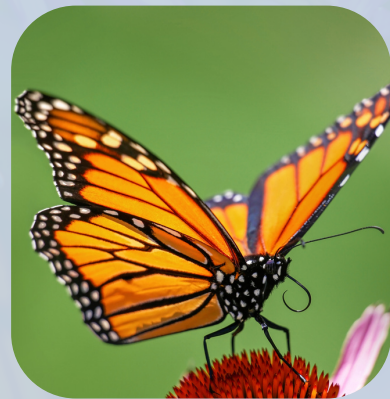


TABLE OF CONTENTS

1.	Butterfly, Bees and Cactus Garden	1
2.	Conservation of the Biodiversity and Ecology of Ramsagar	2
3.	Management of Invasive species of Flora and Fauna	3
4.	Biological Control for Aquatic Weeds	4

1. Butterfly, Bees and Cactus Garden

The Butterfly, Bees and Cactus Garden is a flourishing and thriving terrestrial ecosystem built by the University to support the local biodiversity and natural pollination systematically and efficiently. Butterflies and bees are major pollinators which support plant life and ecosystems. The garden was built to promote breeding and life of butterflies and bees, while at the same time raise awareness of their importance to the entire planet and environment sustainability at large.



2. Conservation of the Biodiversity and Ecology of Ramsagar

Ramasagar is a critical water source for Paralakhemundi and its neighbouring villages, supplying water for drinking and irrigation while also sustaining local fishermen's livelihoods. However, due to urbanization, over-exploitation of resources, and domestic waste pollution, the reservoir has suffered a significant reduction in fish biodiversity and catch.

To address these issues, the School of Fisheries at Centurion University is taking action to restore the ecological balance of Ramsagar. This initiative is aimed at rejuvenating the reservoir, mitigating the impact of urbanization and resource exploitation, and supporting the local fishing industry.

The School of Fisheries at Centurion University is actively engaged in ranching the Ramsagar reservoir to restore the ecological balance and support fisheries. Ranching, also known as artificial recruitment, involves culturing fish in a controlled lab until they reach a viable size. These fish are then released into the reservoir to enhance stock, improve production, and maintain ecological balance. The artificially recruited population, termed "ranching seeds," boosts fish numbers in their natural habitat with minimal energy, feed, or labor input.

In our fish rearing unit (CUTM, Paralakhemundi) we have reared the fingerlings of catla (*Catla catla*), rohu (*Labeo rohita*) and amur carp (*Cyprinus rubro fuscus*) for the seed ranching programme in Ramsagar reservoir. The details of the ranching programme are mentioned below.

Sl. No.	Species	Numbers Ranched	Size	Date
1	<i>Catla catla</i>	1000	100 mm	20.08.2018
2	<i>Labeo rohita</i>	500	100 mm	20.08.2018
3	Amur Carp	750	100 mm	14.09.2021
4	<i>Ctenopharyngodon idella</i>	1000	100mm	14.09.2021

However, no detailed study has been taken up so far on the fish fauna of Ramsagar reservoir in Gajapati district. Since, baseline data of fish biodiversity is one of the important components for any conservation interventions, CUTM has taken up research on the biodiversity in the reservoir to form a systematic check list of fishes therein.

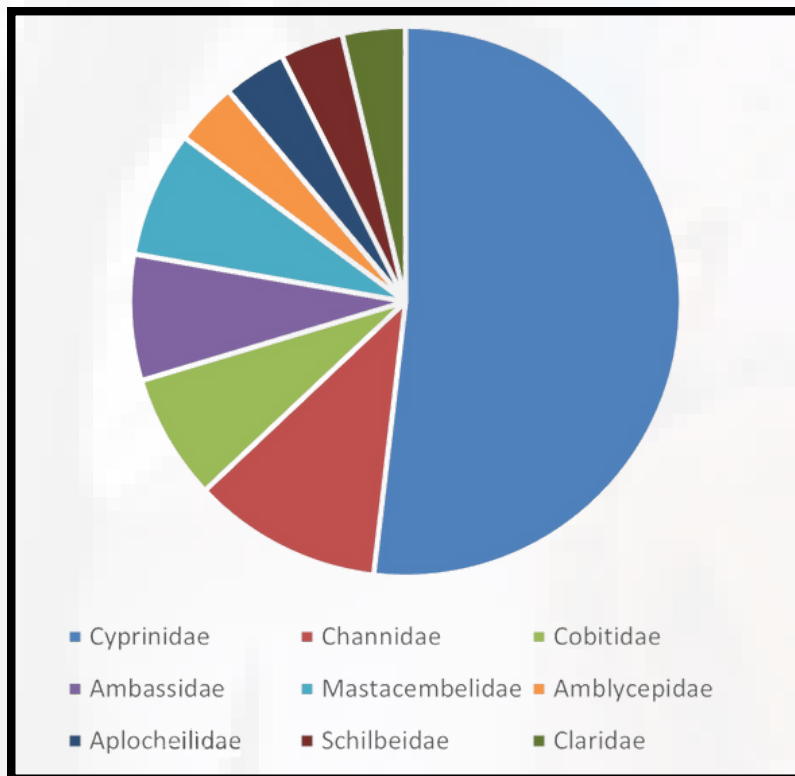
3. Management of Invasive species of Flora and Fauna

The school encourages sustainable development without having any detrimental effect on the environment. For this noble cause Ramsagar reservoir was selected where the school planned for the development of this natural ecosystem.

Invasive Alien Species refers to an alien species whose introduction and/or spread threaten biological diversity of the region/habitat. In the recent past, Invasive Alien Species have been emerging as the second biggest threat to global biodiversity after habitat destruction. Several species of alien flora and fauna have been reported from Ramsagar Reservoir. Plants like Water Hyacinth (*Eichhornia crassipes*), Giant Salvinia (*Salvinia molesta*), and water cabbage/ lettuce (*Pistia stratiotes*) caused severe damage to our wetland ecosystem.

The school had conducted a fish biodiversity study for Ramsagar reservoir and found that it is infested with *Eichhornia* aquatic weeds and some alien species of fish such as American sailfin catfish (*Pterygoplichthys pardalis*). Frequently the alien fishes were captured through cast net operations which were disposed of away from the reservoir.

Ichthyofaunal Biodiversity of Ramasagar



4. Biological Control for Aquatic Weeds



The school encourages sustainable development without having any detrimental effect on the environment. For this noble cause Ramsagar reservoir was selected where the school planned for the development of this natural ecosystem.

Several species of alien flora and fauna have been reported from Ramsagar Reservoir. Plants like Water Hyacinth (*Eichhornia crassipes*), Giant Salvinia (*Salvinia molesta*), and water cabbage/ lettuce (*Pistia stratiotes*) caused severe damage to our wetland ecosystem

The School had conducted a biodiversity study for Ramsagar reservoir and found that it is infested with *Eichhornia* aquatic weeds. The School is collecting the aquatic weeds on Bi-weekly basis and the fishermen are giving a positive response that now they can easily navigate into the pond with their boats and catch good quantities of fish for their livelihood. However, when infestation is more, we also tried to stock Grass carp (*Ctenopharyngodon idella*). It is a valuable biological control for aquatic weeds. They can provide economical long-term protection from many weeds.

