STATE LEVEL WEBINAR

The club organised **Two-Day State Level Webinar on Environment and Present Crisis: The Steps Forward** in collaboration with Barrackpore Rastraguru Surendranath College.

COVID-19 pandemic is changing the dimensions of human society and civilization throughout the globe in every possible sphere of thought, planning and action. This pandemic has radically changed the way people take up issues related to environment. As a drastic measure to combat the situation, several countries including India have imposed a lockdown of varying period in which activities and mobility of people have been severely restricted to control the spread of this marauding viral infection. This is having a massive impact on human society in various ways. This pandemic has already caused huge job losses and threatened the sustenance of millions of people, as private and public enterprises have been shut down to control the spread of virus. In almost all affected countries public transport systems including flight and railways have also been closed. All these have given a severe jolt to the economy in all the affected countries. Along with this, the mandatory use of protective gears like masks, gloves and hand sanitizer on a daily basis has resulted in generation of a massive amount of medical wastes in the environment, introducing a sudden and unprecedented rise in this new class of pollutants in environment. However, with all these troubles, the lock down of the COVID-19 pandemic also caused an improvement in the air quality in many cities across the globe and a drop in water pollution in some parts of the world. A positive effect of all these on biota is gradually emerging in many parts of the world including our country. As it seems, the effect of the pandemic on environment in the coming days is going to be decided by multiple novel and hitherto unknown parameters. In our state, an added issue in this respect is the impact of a devastating cyclone during the lockdown period which added to the already existing misery of people. In this backdrop, the webinar provided a platform for brain storming regarding the future of the planet after the combined effect of global issues, complicated by a local one.

The Program Schedule was as follows:

Day I. July 25, 2020 (5 – 8 pm)

Lecture 1: Dr. Anirban Roy,
Research Officer, West Bengal Biodiversity Board
Title of the Talk: **Agro-biodiversity and wild crop relatives**

Lecture 2: Dr. Santanu Saha,
Associate Professor, Department of Botany, Bidhannagar College
Title of the Talk: **Mangroves *vis-à-vis* Sundarban - Utilities, Threats & Challenges**.

Lecture 3: Dr. Arup Kumar Sen,
Associate Professor, Department of Commerce, Serampore College
Title of the Talk: **Imagining Post-Pandemic India**.

Day II. July26, 2020 (5 – 8 pm)

Lecture 1: Dr. Suman Bhusan Chakraborty,
Associate Professor, Department of Zoology, University of Calcutta
Title of the Talk: **Fisheries in Post-COVID Scenario: balancing act on fine thread**

Lecture 2: Dr. Ashim Kumar Nath,
Professor, Department of Zoology, Sidho- Kanho- Birsha University, Purulia
Title of the Talk: **Approaches to bring about Blue Revolution through sustainable and responsible development of fisheries sector- amidst COVID- 19 and Amphan**

Lecture 3: Mr. Agni Mitra, IFS
Title of the Talk: **Possible Effect of COVID-19 Pandemic on Wildlife Crime**

MANGO GERMPLASM CENTRE

In the month of January, 2020 Serampore College has provided a space of 1600 sqM for conservation of some less common varieties of mango under the project funded by West Bengal Biodiversity Board. This garden will act as a source of the cultivar varieties of mango and will distribute the seedlings or cuttings to the local people or interested institutions to cultivate them so as to protect the cultivar varieties. To initiate the mango germplasm centre we have selected 31rare varieties of mango including some traditionally coveted ones like *Champa, Madhuchuski, Molamjam, Rani, Sindure, Bhabani, Sarikhas, Chandankhosa, Bimli, Kohitur, Anaras, Lakkhanbhog, Kishanbhog, Aswina, Golapkhas, Shahdulla, Chinichampa* etc.

BUTTERFLY GARDEN

Butterfly Garden is a conservation initiative in our college in which students from any discipline and any level can get involved on a regular basis. Studying these harmless colourful creatures in a garden like this is not only immensely attractive for anyone interested to learn about conservation, natural history and various aspects of life of these animals, but also immensely effective as a stress reliever. It also effectively orients a young mind towards nature and wildlife *per se* and can play a tremendous role in growing them up as aware and responsible citizens committed to protect environment for posterity. Our butterfly garden also acts as a reservoir of native flowering plants which are usually treated as weeds in spite of their immense importance in the ecosystem.

In our college, an open air plot receiving good amount of sunshine throughout the year has been specifically earmarked by the college authority for the butterfly garden. We have already conducted an extensive seasonal survey in the college campus to document the visiting species. Our idea is not only to augment the population for these species by providing a safe and rich source of host and nectar plants but also to bring in more species by providing the

plants they require for their life history. Along with the butterflies, a number of plant species has been selected for maintaining in the garden. Parallel to these, an avifaunal survey has been conducted in the college campus, with special note on bird species that act as potential predators of butterflies.

During a study of butterfly species in Serampore College, we have documented a total of 21 species of butterflies belonging to 4 families – Nymphalidae, Lycaenidae and Papiolinidae each with 6 species followed by Pieridae with 3 species. Maximum number of butterfly species was recorded in the month of March. Abundance of butterflies was recorded as maximum in the morning (between 10am- 2pm) and gradually decreased after 2 pm. With the increase in temperature during the month of April-May the number of butterfly species was also decreased. The diversity of butterflies recorded lowest in the month of June and July. In cloudy or windy days the activity of butterflies was also recorded to be less. Some of the plant species were found to attract different species the butterflies in varying degrees.

- *Tridax procumbens* is the plant species showing highest degree of interaction with butterfly species. It has been found to attract 6 species of butterflies (*Appias olferna, Castalius rosimon, Chilades pandava, Catopsilia pyranthe, Eurema hecabe, Jamides Celeno*). *Lantana camara* comes next to the list which attracts 4 species of butterflies (*Danaus genutia, Eurema hecabe, Graphium agamemnon* and *Junonia almana*). They all use these plants as their nectar plant.
- *Crotalaria retusa* attracts 4 species of butterflies. *Chilades pandava* and *Zizula hylax* use it for basking and resting, while *Euchrysops cnejus and Zizeeria karsandra* use this plant as their nectar plant.
- *Mimosa pudica* also attracts 4 butterfly species of which *Jamides celeno and Zizeeria karsandra* use this plant for nectar feeding, while *Mycaleris perseus* use this plant for basking or resting and *Zizula hylax* use this plant for both nectaring and basking.
- *Synedrella nodiflora also* attracts 4 species of butterflies (*Appias olferna, Mycalesis perseus, Zizula hylax, Ypthima baldus)* and they all use this plant as their nectar plant. *Saraca asoca* attracts 3 species of butterflies (A*ppias olferna, Graphium agamemnon, Papilio polytes*) and they all use the plant for nectar feeding. *Graphium agamemnon* specifically use this plant for collection of nectar.
- *Vernonia cinerea* attracts 3 species of butterflie*s* of which *Leptosia nina* and *Zizula hylax* use this plant for nectar, while *Zizeeria karsandra* use this plant for both nectar and resting. *Stachytarpheta jamaicensis* also attracts 3 species of butterflies including *Delias eucharis, Eurema hecabe* and *Catopsilia pyranthe*.
- *Atalantia missionis* were found mainly to attract 2 species of butterflies, *i.e. Euchrysops cnejus* and *Papilio polytes* and both of them use the plant as their resting plant. *Murraya koenigii* also attracts 2 different species of butterflies including *Delias eucharis* and *Chilades pandava* which use the plant as their nectar plant.

List of butterfly species and their host / Nectar/ Rest plant as reported from the medicinal plant garden of the Serampore College

Sl. No.	Family	Species	Plant Name	Activity
1.	Lycaenidae	1. *Chilades pandava*	1. *Tridax procumbens* L. 2. *Murraya koenigii* (L.) Spreng 3. *Crotalaria retusa* L.	1.Nectar 2.Nectar/Rest 3.Rest
		2. *Castalius rosimon*	1. *Tridax procumbens* L. 2. *Euphorbia hirta* L.	1.Nectar/Rest 2.Nectar
		3. *Euchrysops cnejus*	1. *Atalantia missionis* Oliv. 2. *Crotalaria retusa* L.	1.Rest 2.Nectar
		4. *Jamides celeno*	1. *Tridax procumbens* L.	1. Nectar
		5. *Zizeeria karsandra*	1. *Oxalis corniculata* L. 2. *Mimosa pudica* L. 3. *Mazus pumilus* (Burm.f.) Steenis 4. *Crotalaria retusa* L. 5. *Euphorbia hirta* L. 6. *Synedrella nodiflora* (L.) Gaertn. 7. Vernonia *cinerea*(L.)Less 8. *Cleome rutidosperma* DC.	1.Nectar 2.Rest 3.Nectar 4.Nectar 5.Rest 6.Nectar 7.Nectar 8.Nectar
		6. *Zizula hylax*	1. *Oxalis corniculata* L. 2. *Mazus pumilus* (Burm.f.) Steenis 3. *Vernonia cinerea* (L.) Less 4. *Imperata cylindrica*(L.)Raeusch. 5. *Crotalaria retusa* L.	1.Nectar/Rest 2.Nectar 3.Nectar 4.Rest 5.Rest
2.	Nymphalidae	1.*Acraea violae*	1. *Araucaria coloumnaris* (G.Forst.) Hook.	1.Rest
		2.*Elymnias hypermnestra*	1. *Areaca catechu* L. 2. *Hibiscus rosa-sinensis* L. 3. *Mussanenda erythrophylla* Schumach &Thonn. "Queen Sirkit"	1.Nectar/Rest 2.Rest 3.Nectar /Rest
		3.*Mycalesis perseus*	1. *Mimosa pudica* L. 2. *Synedrella nodiflora* (L.) Gaertn.	1.Rest 2.Rest
		4.*Junonia almana*	1. *Cynodon dactylon* (L.) Pers.	1.Basking
		5.*Ypthima baldus*	1. *Mimosa pudica* L. 2. *Tridax procumbens* L. 3. *Synedrella nodiflora* (L.) Gaertn.	1.Nectar/Rest 2.Nectar 3.Rest

3.	Papilionidae	1.*Graphium agamemnon*	1. *Saraca asoca* (Roxb.) Willd 2. *Azdirachta indica* A.Juss	1.Nectar 2.Nectar
		2.*Papilio polytes*	1. *Atalantia missionis* Oliv. 2. *Ixora chinensis* Lam. 3. *Saraca asoca* (Roxb.) Willd	1.Fluttering 2.Nectar 3.Nectar
4.	Pieridae	1.*Appias olferna*	1. *Saraca asoca* (Roxb.) Willd 2. *Tridax procumbens* L. 3. *Synedrella nodiflora* (L.) Gaertn.	1.Nectar 2. Nectar 3.Nectar/Rest
		2. *Cepora nerrisa*	1. *Cleome rutidosperma* DC.	1.Rest
		3.*Catopsilia pyranthe*	1. *Tridax procumbens* L. 2. *Stachyterpheta jamaicensis* (L.) Vahl	1.Nectar 2.Nectar
		4.*Delias eucharis*	1. *Azadiracta indica* A.Juss 2. *Murraya koenigii* (L.) Spreng. 3. *Stachytarpheta jamaicensis* (L.) Vahl	1.Nectar 2.Nectar 3.Nectar/Rest
		5.*Eurema hecabe*	1. *Tridax procumbens* L. 2. *Stachytarpheta jamaicensis* (L.) Vahl	1.Nectar 2.Nectar
		6.*Leptosia nina*	1. *Blumea lacera* (Burm.f.) DC 2. *Vernonia cinerea* (L.) Less	1.Nectar 2.Nectar

List of butterflies recorded from Serampore College Main Campus & Adjoining Areas

A. Family Papilionidae

1. Common jay (*Graphium doson*)
2. Common mormon (*Papilio polytes*)
3. Lime butterfly (*Papilio demoleus*)
4. Tailed jay (*Graphium agamemnon*)

B. Family Pieridae

1. Common emigrant (*Catopsilia pomona*)
2. Common grass yellow (*Eurema hecabe*)
3. Common jezebel (*Delias eucharis*)
4. Mottled emigrant (*Catopsilia pyranthe*)
5. Psyche (*Leptosa nina*)
6. Striped albatross (*Appias olferna*)

C. Family Nymphalidae

1. Angled castor (*Ariadne ariadne*)
2. Blue pansy (*Junonia orithya*)
3. Blue tiger (*Tirumala limniace*)
4. Common bushbrown (*Mycalesis perseus*)
5. Common crow (*Euploea core*)
6. Common evening brown (*Melanitis leda*)
7. Great eggfly (*Hypolimnas bolina*)
8. Grey pansy (*Junonia atlites*)
9. Lemon pansy (*Junonia lemonias*)
10. Peacock pansy (*Junonia almana*)
11. Plain tiger (*Danaus chrysippus*)
12. Tawny coster (*Acraea terpscore*)

D. Family Lycaenidae

1. Common pierrot (*Castalius rosimon*)
2. Lime blue (*Chilades lajus*)
3. Pale grass blue (*Pseudozizeeria maha*)

E. Family Hesperiidae

1. Dark palm-dart (*Telicota ancilla*)
2. Indian skipper (*Spialiag alba*)

Initially Selected Host Plants for Butterflies in the Butterfly Garden

Host Plant(s)	**Butterfly Species**
Cassia tora	Common grass yellow
Cassia tora, Cassis sophera	Mottled emigrant
Cynodon dactylon	Common five ring
Oryza sativa, Cyperus rotundus	Common bush brown
Asteracantha longifolia	Grey pansy
Asteracantha longifolia, Phyla nodiflora	Peacock pansy
Asteracantha longifolia, Corchorus capsularis	Lemon pansy
Eleusine indica, Panicum repens, Oplismenus composites	Common evening brown
Cynodon dactylon	Common four ring
Tragia involucrata	Angled coster
Pisum sativum	Gram Blue
Oxalis corniculata	Pale grass blue

Observed Use of Plants by Different Species of Butterflies for Foraging and Mating

Butterfly Species	**Relevant Plant(s)**
Common mormon	*Mikania cordata, Sesamum indicum, Brassica campestris, Eupatorium odoratum*
Lime butterfly	*Parthenium hysterophorus, Sesamum indicum , Eupatorium odoratum, Lippia alba*
Common grass yellow	*Alternanthera sessilis, Tridax procumbens, Vernonia cinerea*
Mottled emigrant	*Tridax procumbens, Eupatorium odoratum, Sesamum indicum*
Common jezebel	*Eupatorium odoratum, Brassica campestris*
Common Pierrot	*Tridax procumbens, Parthenium hysterophorus, Cynodon dactylon, Urena sinuata*
Common silverline	*Tridax procumbens*
Common five ring	*Cynodon dactylon, Commelina banghalensis, Mikania cordata*
Common bush brown	*Commelina banghalensis*
Tawny coster	*Tridax procumbens, Xanthium strumarium*
Grey pansy	*Saccharum officinarum*
Peacock pansy	*Leucas aspera, Croton bonplandianum*
Lemon pansy	*Alternanthera philoxeroides*
Common evening brown	*Commelina banghalensis*
Common four ring	*Imperata cylindrical, Cynodon dactylon*
Angled coster	*Brassica campestris, Xanthium strumarium*
Plain Tiger	*Celosia argentea, Eupatorium odoratum, Brassica campestris*
Dark palm dart	*Mikania cordata*