



NIRMALA COLLEGE MUVATTUPUZHA

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FOURTH CYCLE NAAC ACCREDITATION 2019

CRITERION 1

CURRICULAR ASPECTS

1.3.3. Percentage of students undertaking field projects/ internships
(current year data)

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THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

CRITERION 1

CURRICULAR ASPECTS

1.3.3. Percentage of students undertaking field projects/ internships (current year data)

M.Sc Zoology-Field Visit



DEPARTMENT OF ZOOLOGY

FIELD STUDY REPORT -PARUNTHUMPARA AND RAMESWARAM – DHANUSHKODI

II M.Sc ZOOLOGY (2018-2019)

As part of the curriculum, M.Sc Zoology students of Nirmala college, Muvattupuzha conducted a field study tour to Parunthumpara, Rameswaram and Dhanushkodi for studying the various features of grassland and marine ecosystem respectively. The field trip was conducted from 13/09/2018 to 15/09/2018. The 15 students of post graduate department of zoology were accompanied by three teachers, Dr. Vinod K.V, Dr. Ani Kurian and Ms. Arya M.S.

PARUNTHUMPARA GRASSLAND ECOSYSTEM

Parunthumpara or Eagle Rock is an enchanting hill station located 6 KM away from Peerumedu in Idukki district, Kerala on national highway 220. The latitude of Parunthumpara is 9.578746⁰N and longitude 77.024059⁰E.

The main attractions of Parunthumpara are suicide point and Tagore Head Rock (a rock that appear to have the shape of Tagore's head). The place is endowed with water scavenger beetles, and arthropod belong to family *Hydrophilidae*, *Clangahastate* (Indian spotted Eagle) and *Euphlyctis hexadactylus*(Indian green frog).

The mountain ranges has three main region, lowermost deciduous forest, middle wet evergreen forest and the top grasslands and sholas including parunthumpara. The vegetation seen in Parunthumpara region were adapted to withstand strong wind in the hilltop and one of the main flora we seen were *Cymbopogon*, better known as lemongrass.

RAMESWARAM – DHANUSHKODI MARINE ECOSYSTEM

Pamban bridge is a railway bridge which connects the town of Rameswaram on Pamban island to main land India(Mandapam). In 1988 a road bridge was also constructed parallel to the rail bridge. This is Indira Gandhi road bridge. The Pamban road bridge connects the NH49 with Rameswaram island. This 2.345 KM long bridge took close to 14 years to be completed. The railway bridge is located 12.5 M(41ft) above sea level and is 2065M(6776ft)long.

The common flora seen on the way from Rameswaram to Dhanushkodi are *Azadirachta indica* (Neem), *Mangifera indica*(Mango), *Thespesi populnea*(Indian Tulip tree), *Borassus flavellifer*(*Doub palm*) etc. The most important among them is an invasive species *Prosopis juliflora* is shrub or small tree in the family of Fabaceae, a kind of mesquite. It is native to Mexico, South America and Carribean. It has become established as an invasive weed in Africa, Asia, Australia and elsewhere. It is hard and expensive to remove as the plan can regenerate from the roots. It grows to a height up to 12 m(39 ft) and has a trunk with a diameter of up to 1.2 m (3.9 ft). Leaves are deciduous bipinnate light green, compounded with 12-20 leaflets. A mature plant can produce hundreds of thousands of seeds. Seeds retain viable for up to 10 years. The tree is believed to have existed in Vanni and Mannar regions for a long time. This weed is a contributing factor to continuing transmission of Malaria, especially during dry periods when sugars get from native plants are largely unavailable to mosquitoes.

Dhanushkodi is stretched between Gulf of Mannar at right side and Palk strait at left. This region is the Gulf of Mannar marine national park. It is a protected area in India consisting of small Islands and adjacent coral reefs in Gulf of Mannar in Indian ocean. It lies 1 to 10 KM away from east cost of Tamil Nadu for 160 KM between Thoothukudi (Tuticorin) and Dhanushkodi.

Main fauna found in Gulf of Mannar marine national park include Dugong-a vulnerable marine mammal, Green turtle, clownfish, vulnerable olive

ridley turtle. Mangrooves dominate the intertidal zones of the Palk Islands. 12 species of seagrass and 147 species of sea weeds were recorded. This vegetation provides important feeding grounds for the Dugong, Green turtle and olive ridley turtle. Cetaceans include Indo-pacific bottle nosed Dolphin, Spinner dolphin, Common dolphin, sperm whales, blue whale etc. About 510(23%) of 2200 fin fish species in Indian waters are found in the Gulf, making it most highly diverse fish habitat in India. Coral associated ornamental fishes include parrot fish, Amphiprion species (Clown fish) etc. 4 species of shrimp and lobsters, 106 species of crabs, 17 species of sea cucumber, 466 species of molluscs including 271 gastropods, 174 bivalves etc occur in the gulf. Stony coral species belonging to Poritidae and faviidae sub orders constitute the dominant reef builders here.

The team also got the great opportunity to lively see some of the fauna there, such as Astropectan(Star fish), Eupagurus(Hermit crab), Jellyfish(a cnidarian) and sponges including Scypha, Demospongiae etc. Moreover, shells of different molluscs such as gastropods, bivalves etc..were also collected. Other organisms we observed there include Charadrius(Sand plover) and Apodidae (Swifts)-birds and Tiger beetle – a Coleopteran(Cicindelidae) an insect.

Sethusamudram shipping canal project is a proposed project to create a shipping route in the shallow straits between India and Srilanka. This would provide a continuously navigate sea route around the Indian peninsula. The channel would be dredged in the Sethusamudram sea between Tamil Nadu and Srilanka, passing between limestone shoals of Adam's bridge(also known as Rama's bridge). The project involves digging a long deep water channel linking the shallow straits with Gulf of Mannar. The government of India appointed Sethusamudram project committee in 1955 headed by Dr.A Ramaswamy Mudaliar who was charged with examining the desirability of the project. After evaluating the costs and benefits, this committee found the project feasible and viable.

In 2008, Prime minister Manmohan Singh appointed Rajendra K Pachauri as head of a six-member committee to look at an alternative alignment avoiding the sensitive Ramasethu stretch. In 2013, the committee released it's report calling the project "unviable both from economic as well as ecological analysis". The Indian government rejected the committee report and decide to go ahead with the project in its current form.

The project would disturb the ecological balance and destroy corals. The area is an important fishing ground for Tamil Nadu and Gulf of Mannar marine national park is in the vicinity of the proposed project. The local fisherman suggested that the planned route would destroy marine life corals and would impact the trade in the conch shells. The deposits of Thorium important for nuclear fuel repairments would also be affected. Opponents also say that the dumping of dredged material from the palk strait and the Gulf of Mannar in deeper waters would "Endangered those areas which are rich reserves containing 400 endangered species including whales, sea turtles, dugongs and dolphins."





Danushkodi Beach



Dr.A.P.J Abdul Kalam Memorial
National Meuseum



In search of birds at Jadayu temple



CENTRAL MARINE FISHERIES RESEARCH INSTITUTE, MANDAPAM,

ZY2CP10 PRACTICAL 2: ECOLOGY, GENETICS AND BIO-INFORMATICS, DEVELOPMENTAL BIOLOGY, BIOPHYSICS, INSTRUMENTATION AND BIOLOGICAL TECHNIQUES.

Credit-3

90 Hours (5 hrs./week)

Ecology

- Study of Pond/ wetland/ River ecosystem- Food web and food chain (no museum specimen). Record the date, time, methodology, and observations in the record book.
- Determination of soil organic carbon and chlorides.
- Separation and identification of soil arthropods using Berlese funnel.
- Qualitative and Quantitative study of marine/freshwater planktons.
- Estimation of primary productivity.
- Quantitative estimation of salinity, phosphates and nitrates in water samples.
- Study of pH and conductivity using pH and conductivity meter (2 different samples).
- Principles and application of the following instruments: Rain Guage, Plankton Net, Secchi Disc, GPS.
- Field Study Report:** Three days field study covering River/ Wetland/ Marine and forests/ grassland.
- Record ecosystem components (Soil, water, flora, fauna) and interactions. Viva based on Field study.

Developmental Biology

- Identification of different developmental stages of frog (egg, blastula, gastrula, neurula, tadpole, with external gill and internal gill).
- Vital staining of early gastrula of chick – window method.
- Blastoderm mounting of chick embryo using vital stains.
- Morphological and histological studies of different types of placenta in mammals.
- Study of serial sections of embryo (tadpole and chick).
- Regeneration studies in fish (Zebra Fish/ Earth worm).

Genetics and Bioinformatics

- Culture, sexing and etherization of *Drosophila*.
- Study of Mutants in *Drosophila*.
- Genetics problems (Di hybrid cross, test cross and sex linked inheritance).
- Abnormal human karyotypes (any five).
- Data base search and data retrieval-using NCBI, SWISS-PROT, PDB, ExPasy.
- Methods of sequence alignment-BLAST and ClustalW.
- Phylogenetic tree using PHYLIP.
- Gene Prediction using GENSCAN/GRAI.
- Protein structure visualization using RASMOL.

Biophysics/Instrumentation/Biological Techniques

- Micrometry- principle and measurement of microscopic objects: Low power and high power.
- Camera Lucida drawing with magnification and scale.
- Principle and working of phase contrast microscope, micro-photographic equipment and pHmeter.
- TLC using amino acids from purified samples and biological materials.
- Study of Enzyme kinetics - Salivary amylase on maltose standards- influence of temperature and Substrate concentration on enzyme activity (Lineweaver Burk Plot) on enzyme activity.

FIELD STUDY REPORT
I M.Sc ZOOLOGY (2018-2019)

FIELD STUDY REPORT
M.Sc. Zoology Second Semester 2018-2019



DEPARTMENT OF ZOOLOGY
NIRMALA COLLEGE MUVATTUPUZHA

REPORT OF THE FIELD STUDY TOUR PROGRAMME TO GRASS LAND ECOSYSTEM AND MARINE ECOSYSTEM

INTRODUCTION

As part of the curriculum, we, MSc. Zoology students of Nirmala College, Muvattupuzha conducted a field study tour to Panchalimedu, Paruthumpara, Rameswaram and Dhanushkodi to study various features of grassland and marine ecosystem. The study tour was conducted for three days from 23rd of July to 25th July, 2019.

Field research or field work is a collection of information outside a laboratory, library or workplace setting. The approaches and methods used in field research vary across disciplines. It involves a range of well defined, although variable methods: informal interviews, direct observations, collective discussions etc. Although the method generally is characterized as a qualitative research, it may include quantitative dimensions.

Field study tours are of great pedagogical importance as it let the students to experience the geography of a particular region which theoretical texts can't do. It enhances the understanding about patterns and spatial distribution, their associations and relationships, at the local level. It helps to understand the theoretical concepts better. It gives a chance to enjoy a wide variety of environments and landscapes. It also develops an understanding about the culture and people of the field area. Most importantly, it is enjoyable and gives the great memorable experience.

PANCHALIMEDU

Panchalimedu meaning the Hill of Panchali, a hill station situated in Peerumedu, Idukki. The place is characterised with deep valleys and green meadows. The high altitude grassland is situated at a height of 2500 ft (760 m) above the mean sea level. The place forms a part of the magnificent Ghats, the range of towering mountains, winding rivers, open grasslands and dense forests.

We reached the station by 4:15 pm. The fresh drizzles of the monsoon gave a charming welcome. A calm and pleasant climate prevailed throughout. The station is predominantly an open grassland with scattered Sholas. Firstly, we headed towards the Hill's major view point. The distant hills branching the Ghats could be seen in clear view. It invades several hectares amidst the rural settlements. The farming type, hence, adopted is terrace farming the most

suiting one along those ranges. Many streams were seen arising from the hill vents which later meet the rivers. All the beauty and the biodiversity of the Ghat ranges could be perceived from this single Hill Station of Panchalimedu.

The place is rich with diverse flora and fauna inhabiting the tropical conditions of the Ghats. Several grassland species like *Arundinella mesophylla*, *Apluda mutica* sp., *Themeda triandra* sp., *Echinochloa colona* were seen surrounding the Sholas of *Actinodaphne* sp., *Ficus* sp. etc. The fauna include several insects, amphibians and reptiles inhabiting the moist soils.

We, then, moved further to explore the grasses. The presence of a devitemple, a shivalinga, several granite edicts of crosses and the popular Panchalikkulam shows its mythical significance. An authentic study was made on our way treading down to reach the epic pond. We spend more than an hour there in the place and left the place by 5:30 pm.

PARUNTHUMPARA

Our next spot of visit was Parunthumpara, a scenic village stretched like an eagle (hence the name) near Vagamon in Idukki district. We reached the spot by 6 pm in the evening after the Panchalimedu visit. The place is about 22 km from the Panchalimedu and situated at a height of 3600 ft from mean sea level. The spot is a major tourist attraction as it locates the Tagore head (a rock that had the shape of the head of Tagore) and the Suicide point. Also, the Magarajyothi of Sabarimala is visible from here.

As soon as we got dropped down, we headed down the valleys towards the popular site of Tagore head. On the way down, we could watch and understand the unfurling Western Ghats which expands with steep and gentle hills. The hills are characteristic with the tropical wet evergreen trees to montane grasslands containing numerous medicinal plants and genetic resources. It contained the wild relatives of grains, fruits and spices.

The way towards the Tagore Head is rocky and rather slippery with moist algae and bryophytes covered by the tropic herbs. It is hence the best habitat for several amphibian species and reptiles. Our teachers had spotted out the exotic frog species of the region like the tiny tadpoles that camouflaged the moist rocks. It was surprising to note that all these tiny forms play crucial roles in the harmonic existence of the entire biota along the mighty Ghats. Another indigenous bird species named Red-whiskered bulbul, *Haliastur Indus* (Brahmini kite) etc, were also spotted as a common one in the site.

It was about 7:15 in the evening and was the time to wind up the first day visits. We then drove down the Western Ghats towards the Coromandel coast of Rameshvaram, Tamil Nadu.

monuments that related to Pamban Bridge and Rameshwaram. At that time, train had passed across the Pamban Bridge.

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE, MANDAPAM, TAMILNADU

On the second day of our study tour 27/7/2019, Thursday, we visited CMFRI, Mandapam, Tamilnadu. Beautiful morning with a sunny sky warmly welcomed us to the new land. We started off our day with a tremendous breakfast. By 9.30 am we reached CMFRI, Mandapam centre. There we got the chance to visit their marine biodiversity museum, aquarium center, sea plankton collection plant and the stretch of sea extending from the backyard of the institution, with a long pathway to the sea.

The Central Marine Fisheries Research Institute (CMFRI) was established by government of India, on February 3rd, 1947. Initially the institute focussed its research efforts on creating a strong database on marine fisheries sector by developing scientific methodologies for estimating the marine fish landings and effort inputs, taxonomy of marine organisms and the biological aspects of the exploited stocks of finfish and shellfish on which fisheries management were to be based. Presently the Institute has 3 regional centres located at Mandapam, Visakhapatnam and Veraval .The nearly five-fold increase in marine fish production and the increasing contribution of marine fisheries to the GDP growth are supported by the robust research efforts and its impact on fisher folk, fish farmers, fisheries policy planners and managers. Subsequently, with the infrastructure and expertise built over half a century and looking towards the future needs of the nation, CMFRI began to undertake research in new areas like marine finfish farming, biotechnology and biodiversity. Along with this, fisheries management plans for each maritime state were formulated and the institute addressed climate change issues affecting coastal habitats and fishers. In the mariculture front, commercial bivalve farming became a popular women empowerment programme in the beginning of this century. The new knowledge and technologies developed in finfish farming have been transferred to end users and many cutting edge technologies have been patented in marine biotechnology. The Institute's multidisciplinary approach to research in marine capture and culture fisheries has won its recognition as a premier institute comparable to any well-established marine laboratory in the world.

MARINE BIODIVERSITY MUSEUM

We began the journey at CMFRI from the Marine Biodiversity Museum. The most advanced and scientific methods of specimen storages were clearly exhibited in the museum. They have more than 2500 number of specimens of corals, seafans, fishes, crustaceans, etc.. Inside the museum, we were introduced to the most wonderful view of conserving the jaw bones of sperm whale (*Physeter macrocephalus*). Sperm whales are the largest toothed predators. The amber obtained from these organism's intestines are used for manufacturing perfumery products. Then several other specimens were introduced to us; all of them were preserved using various techniques. Some were preserved in formalin solutions, some were stuffed, and skin of certain big fishes like sharks were tanned and preserved. Some of the important specimens we got familiar with are listed below.

AQUARIUM

Later we were taken to the Aquarium Centre of CMFRI. The aquarium had several aquatic organisms including, sea urchin, sea lilies, sea stars, sea slugs, various kinds of fishes, lobsters, turtles etc...The live forms of organisms excited us in quite a different extend. Most of us, for the first time saw several organisms in their live condition. Sea cucumbers were closely observed; their several behaviours of movements were seen live. Different forms of them were also available in the aquarium. Star fishes, their specific mode of locomotion, and several other behaviours were also observed. Hermit crabs hid in the shells of crustaceans and stood almost steady the whole time of our visit. But we were a lucky enough to see their movements too alive. Varieties of fishes were also introduced to us; clown fishes, angel fishes, dog fishes, echeneis etc... The most heart-warming view was that of the turtles that were swimming in and out of or sights. They were *Chelonia mydas* (green turtles); they are the only species in *Chelonia* genus. They were very kind to let us make a warm touch on their hard skeletonised body too.

At the end of the official session we visited the stretch of sea extending from the backyard of the institution. It was the most beautiful experience we had at CMFRI. The long pathway extending to the vast extend of sea took us to the edge of sea shore. The sunny atmosphere with fluttering breeze from the sea with, a touch of saltiness elevated the beauty of the place. It was the stretch of Gulf of Mannar that we were watching by standing on that cemeneted pathway of bridge over the sea. Gulf of Mannar had a group of 21 islands in it. One of the spot is a marine biodiversity park too. Another mind capturing scene was the group of fishes that were coming to the pathway; they looked like some sort of sea grasses at first, but

we soon we realized that they were small fishes crowding the particular area. What made them stay there for hours was mystic, but they really gave a wonderful goodbye to us.

Second day of the study tour, after long lecture in CMFRI museum and aquarium visit we collect plankton sample from the store and headed towards Rameswaram. We had our lunch at 1:50 in a restaurant nearby the highway. By 2:30pm we finished our lunch headed towards the most exciting place in Rameswaram, it was Dr.APJ Abdul Kalam's Memorial. It was very hot climate with breeze. The memorial was made fabulous and well maintained. We were three day early, on 27th July (death anniversary) there were many program's scheduled. Photography was strictly prohibited and was under tight security procedures. We all were very fascinated to see his life history, rare photographs, important events in his life as still models and of course his tomb.

DR. APJ ABDUL KALAM'S MEMORIAL

Avul Pakir Jainulabdeen Abdul Kalam, better known as A. P. J. Abdul Kalam who was the 11th president of India. Kalam was born and brought up in Rameswaram and became a scientist and worked for DRDO and ISRO. After his sudden demise at Shillong on 27th July 2015, he was laid to rest at Pei Karumbu, Rameswaram on 30th July 2015. A memorial has been built at the burial site. Inside, the memorial, one can see the selected photos, paintings and miniature models of missiles etc., .The memorial is less than 1 km from Rameswaram.

The next destination was Dhanushkodi. It was 19 km far away from Rameswaram. Dhanushkodi is a small town and it has a rich story from the Ramayana period to catastrophic destruction from 1964 cyclone. Rameswaram to Dhanushkodi is a one of popular road route for the most scenic view. Dhanushkodi is a deserted area. There is no land, only sand. It is on the southern tip of Pamban Island in Tamil Nadu, India. The place is about 28 kilometers away from Sri Lanka. Dhanuskodi lies in the southern tip of the Rameswaram. The word Dhanushkodi literally means "tip of the bow". This spectacular place is bordered by Bay of Bengal Sea on one side and Indian Ocean on the other, at the very tip of Dhanushkodi one can view the merging point of the seas Indian Ocean (A sea with high tides) and Bay of Bengal (the low tide sea), this point is named as "Arichal Munai". A cyclonic storm with high-velocity winds and high tidal waves hit Dhanushkodi beach town from 22 December 1964 midnight to 25 December 1964 evening causing heavy damages and destroying the entire town of Dhanushkodi. The Government declared Dhanushkodi as a ghost town and not fit for habitation. Today skeletal remains of some of the stone structures stand as a silent testimony to the havoc wreaked by nature on that fateful December night. Dhanushkodi acts as a natural

birds sanctuary, During Winters (October,November) sea gulls , flamingos and some more birds from Europe and Australia visits Dhanushkodi .

DHANUSHKODI

The place is famous for its mythological importance. It is said that Lord Rama and his vanara sena together with his brother Lakshmana, Hanuman and Ravana's brother Vibhishana, built a bridge using floating stones. This bridge helped them to reach Lanka to rescue Sita from Ravana. After returning victorious from Lanka, Vibhishana, the new kin, asked Rama to destroy the bridge. So, Rama broke the bridge using one end of the bow, giving the place its name. Dhanush meaning bow and Kodi meaning end. It is believed that there is geological evidence suggesting that this 28 -Km Bridge known as Rama Sethu or Adam's Bridge once connected the Pamban Island trip to Talaimannar in Mannar Island, Sri Lanka.

Dhanushkodi is now an abandoned small town at the South –Eastern tip of Pamban Island of the state of Tamil Nadu in india. It is a ghost town and is the closest point on the Indian coast to SriLanka. It suffered significant damage in a devastating cyclone in 1964, which washed away the rail bridge connection of the town to mainland. The remains of the city can still be seen now..People in large numbers come here for seeing the ruined city, beautiful beach. It's one of the most idyllic virgin beaches in India. We spent some time in beach for the enjoyment. Though a bit risky to get into the water due to high waves, just to experience the beauty of the place and walking on the clean sands itself is a great experience. Standing on the beach surrounded by the sea, we might wonder if this place contains anything other than sand and blue water. The area is so pristine, isolated and far away from the crowd that one would not want to return to civilization.

The arrival and subsequent visit to Dhanushkodi provided an entirely new experience to us. The identification of several molluscan shells of gastropods, bivalves, crustaceans, jellyfish and the barnacles (*Lepas*) attached to abandoned plastic container was the most prolific experience. *Lepas* is a marine arthropod which belongs to the class 'Cirripedia', with a local name of 'ship barnacle which is founded as a cluster'.

On the way to the place which we stayed, we could find a peaceful area that surrounds a Jadayu temple. It was an area that is rich in several birds. It provided most amazing thing in this field trip.

The time was almost 6 pm around which all birds were busy to return to their roosting places. Eventhough it was an open land area with trees like *Casuarina*, *Azadirachta indica*, *Borassus* and *Ficus*. The bird diversity is rich. We got familiar with peacock and its cawl. Many night herons over trees indicated that the spot itself is a *heronary*. The other ones include *Indian parakeet*, *Drongo*, *Brahmini kite*, *Indian roller* and *Hoopoe*. By exploring and covering more areas around the place the foot prints were observed. Along with this darkling beetle belonging to *tenebroideae* and delicate shells of common snails were also identified. The presence of these species at the twilight hours indicates their crepuscular mode of life. The calm and peaceful surrounding of shrine shared the interesting facts about birds and different species.

After taking supper , we wishes to visit the Rameshwaram temple. But it was already closed when we reached there. The temple is dedicated to the God Shiva. This temple has 4 huge towers (Gopurams) east, west, north and south. We walked through the sides of Rameshwaram temple during the time of twilight and observed visuals that surrounded the tower of the temple.

On the third day of the field trip, we said bye to Rameshwaram and started our journey at 7.00 am to our next destination, Meenakshi Amman Temple Madhurai. We reached there at 11.45 am. Meenakshi temple is a historic Hindu Temple located in the southern banks of Vaigai River, in the temple city of Madhurai. It is dedicated to Parvathy known as Meenakshi and her consort Shiva here name Sundeshwar. The temple is a geographic and ritual centre of the ancient city of Madhurai, and one of the largest temple complex in Tamil Nadu. The structure and architecture of the temple was quite amazing. Most of the present structures was built between 1623 and 1655. Each pillars in the temple is a curved monument of Dravidian Sculpture. There is an estimated 33000 sculptures in the temple. It was in the list of 30 nominees for the new Seven Wonders of the World. On the way back to home we got a chance to step down at the Theni. Theni is well known for the vineyard that is enriched with grape vines and gives a mesmerizing view.

The trip offered wonderful memories and information which cannot be gathered by usual theory class. We were back at college at 10 pm on 25.7.2019.

LIST OF SPECIES OBSERVED

Marine species

- Black coral *Antipatharia*
- Sea weed *Gracalaria*
- Sea horse *Hippocampus histrex*
- Venus flower basket *Euplectella aspergillum*
- Sea cucumber *Holothuria scabra*
- Limulus *Limulus polyphemus*
- Pearl oyster *Pinctada fucata*
- Sandboa *Erycinae*
- Sea cow *Dugong dugong*
- Sperm whale *Physeter macrocephalus*
- Green turtle *Chelonia midas*

Bird species

- Brahmini kite *Haliastur indus*
- Peacock *Pavo cristatus*
- Red wattled lapwing *Venellus indicus*

Mammals

- Fruit bat *Chiroptera*

Plant species

- Neem tree *Azadirachta indica*
- Asian pine tree *Casuarine equisetifolia*
- Asian Palmyra palm *Borassus*



Black coral



Venus flower basket



Sea cucumber



Gracalaria



Red wattled lapwin



Pavo cristatus



Fruit bat



Borassus



Neem tree

List of Students

Programme name	Program Code	Sl No:	Name of students
M.Sc. Zoology (II PG)	Field Visit - Parunthumpara and Rameswaram-Dhanushkodi (2018-19)	1	Akhila Baburaj
		2	Alphin Rose Mathew
		3	Amala Thomas
		4	Ancy Stephen
		5	Anitta Sunny
		6	Arya Peethu
		7	Ashitha K K
		8	Ashna Augustine
		9	Deepa K R
		10	Fathima A
		11	Josmy Joseph
		12	Lakshmi Ramesh
		13	Preethi K Paulose
		14	Surya V S
		15	Swathi K


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List of Students

M.Sc. Zoology (I PG)	Field Visit - Panchalimedu, Parunthumpara and Rameswaram-Dhanushkodi (2018-19) 13 students	1	ANN MARIA GEORGE
		2	JEBY ELDHO
		3	ALEENA SIMON
		4	ALKKA REJIMON
		5	BISMI SHUKKOOR
		6	DILSHA MURALI
		7	JESNA SAJI
		8	JOHNCY JOY
		9	KRISHNAPRIYA AK
		10	LEEMA ROSE MATHEW
		11	MAREENA CHACKOCHAN
		12	MERIN FRANCIS
		13	MILAN AUGUSTINE


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