

**Post Graduate and Research Department of Zoology,
Union Christian College, Aluva
Centenary Project Proposals**

I..Title: Preparing a Faunal Biodiversity Register of the Union Christian College Campus.

Proposer: Mrs. Rima Joseph, Assistant Professor in Zoology,
UC College, Aluva

Target Group: Students of Zoology in the college, Community at large.

Objective:

- To have a systematic documentation of the fauna of Union Christian College Campus
- To train students in species identification and to sensitize them about the importance of biodiversity conservation.
- To make the data available in the college website.

Action Plan:

- A workshop on Biodiversity Documentation. The workshop will help the teachers & students to get an idea on species identification & documentation. Experts in taxonomy will be identified as the resource persons of the workshop.
- Field Sessions accompanied by teachers to further train the students in species collection and identification.
- Identification: Validating the collections and identifications by students with the help of expert taxonomists.
- Biodiversity register: Preparation of faunal Biodiversity register with the scientific name of the organism and photograph.
- Publish in website: Making the data available in the college website

- Publish in Journals: Share the data in online repositories of biodiversity information.

Expected Outcome:

- The vast area of the college campus with its lush greenery hosts a rich fauna which will get documented.
- This documentation can serve as baseline for the college to shift to more eco-friendly developments in future.
- Students involved will gain experience and expertise in species identification in field and proper documentation. This will be an additional skill for students of Zoology.
- Will sensitize students about the importance of biodiversity and its conservation.
- Will be our share in enriching the information on biodiversity.

Edge on Best Practice:

India is a signatory to the International Biodiversity Convention and is bound to document and preserve biological diversity of the country. Documenting biodiversity is the first step in conserving campus biodiversity. Our campus hosts rich faunal diversity and this project will create an awareness in students about the importance of campus biodiversity and its conservation.

II.Title: Decentralized Solid Waste Management in the College Campus and neighbourhood

Proposed by: Dr. Elizabeth V. Mathew, Assistant Professor in Zoology,
Union Christian College, Aluva.

Beneficiaries: College community and neighbourhood.

Description: Segregation and management of solid waste is mooted or college in the initial stage. Different types of solid waste – food, plastic, medical waste, cloth, glass, electronic waste and sanitary waste - need to be first segregated in differently colored bins. In the next stage bio bins can be tried for processing of food waste. The other wastes have to be handed over to appropriate agencies by collaborating with them. The system can be tried in Biology block on an experimental basis and followed for the entire college if found successful. Individual bio bin units for different blocks and bigger units for canteen and hostels would be ideal. The manure thus generated can be used for gardening and can even be marketed at a later stage. Assistance from industry experts would be sourced at every stage for efficient implementation. Vermicomposting and marketing of vermicompost would be tried simultaneously. Medical waste from laboratories need to be collected by IMA authorized agency for collection and processing of this category of waste. Correspondence with the concerned agency can be done. Association with agencies specialized in plastic waste collection and management would be a crucial component of the project. Upcycling of plastic waste can be done on a small scale in college.

Sanitary waste often poses a major challenge. In addition to incinerating this category of waste, menstrual cups and compostable pads would be introduced and promoted as alternatives. Once the system runs efficiently in college, the system can be extended to neighbourhood. As a sequel to the training on solid waste management and public health sanitation conducted by the proposer in

2019 for residential associations and local governments (sponsored by KSCSTE), trainings can be conducted for beneficiaries. Hence this can also be an extension activity. Training in packaging and marketing of manure can be provided to women, self help groups (SHGs) and other interested groups for income generation. Financial assistance for the whole system can be mobilized from college management and government bodies.

Significance of the project

College and the society at large is in dire need of an effective system for solid waste management. Plastic waste is accumulating in heaps and often burnt to avoid the menace. The hazardous effects of these practices take a toll on health and quality of life in general. Even non plastic waste accumulates in every nook and corner due to lack of a scientific waste management system. This projects seeks a permanent solution to these issues. This project can also be a best practice.

Expected outcome

- Segregation of solid waste would be done efficiently in the campus
- College becomes self-reliant in solid waste management
- Burning of waste in college premises would be avoided altogether
- Sanitary waste would be minimized
- Neighbouring communities can be assisted to manage solid waste effectively

Best Practice : The mini model of waste management can be taken up for the college at large and followed in other colleges as well as a best practice.

III. Title: Science Extention Programme: Introducing biological experiments for primary school students.

Proposer: Dr. Revathy V S, Assistant Professor in Zoology, Union Christian College, Aluva

Target Group: Primary school students.(Science extention programmes in Chamaparambu Primary School and Kadungallur U.P School)

Objective:

- ❖ A science demonstration fair for primary school students will introduce the wonderful world of science to very young minds.
- ❖ Science fairs proves a good media for the students to understand theory by putting into practice.
- ❖ To understand the practical application and utility of science.
- ❖ To create interest in young students and to make science learning joyful.
- ❖ To nurture the creative talents of students.

Action Plan:

- ◆ To organize the science fair, we have to gather a group of people who will be responsible for the conceptualization and the implementation of the science fair.
- ◆ It could be a group of teachers, students, and others who will be trained
- ◆ The fair will be conducted in 2 or more primary schools where appointments will be fixed with the school authorities and executed on available days.
- ◆ The degree students will demonstrate the science sessions as planned and trained. It is best described as a basic demonstration of how the world of science works through research, observation, and experimentation.

Expected Outcome:

- Introduce the wonderful world of science to very young minds.
- Helps to develop the spirit of learning and cooperativeness.
- Application of scientific knowledge in a newer situation.
- Improve the creativity of students and inculcate scientific temper.
- Facilitate the students to update their knowledge in science

Edge on Best Practice:

- Stimulating interest in science and technology and inculcate scientific spirit in younger generations.
- Encouraging and exploring scientific talent among students.
- Encourage problem solving and developing the appropriate technologies, especially for rural areas and integrating scientific ideas in real life situations.
- Popularizing science among masses creating an awareness regarding the role of science and technology in socio-economic and sustainable growth of the country.

IV.Title: Initiation of Conservation of animals by ‘Adopt an endangered animal’ scheme in Zoos in Kerala.

Proposed by: Dr. Shirley Thomas, HOD, Post graduate and Research Department of Zoology, Union Christian College, Aluva

Target group:

1. An animal will be adopted in the name of Department of Zoology, Union Christian College, Aluva as a gift for centenary year celebrations.
2. Students of various schools and colleges and public will be drawn into active animal conservation programmes as ‘Adopt an animal’.

Description of the proposal:

International Union for Conservation of Nature (IUCN) and Species Survival Commission (SSC) has been assessing the conservation status of species, on a global scale for the past 50 years in order to highlight taxa threatened with extinction, and thereby promote their conservation. Towards conservation of animals the department proposes to “adopt a threatened/endangered animal in the Zoo and sponsor its welfare in the form of feed, medicine and other facilities for a year.

Wildlife conservation strategy is an essential component of Zoology curriculum and both the UG and PG students learn about the theoretical aspects of the same during their course of study. However, the chances are meagre for the students to get directly involved in activities related to conservation because of the time constraints associated with fulfilling university curriculum. Hence, the Department of Zoology, Union Christian College, Aluva would like to initiate the scheme of ‘Adopt an animal’ at any one of the zoos in the state level (Thrissur or Trivandrum) and national level (Mysore/ West Bengal). Many of

the zoos in different parts of India is running this scheme successfully with the support and participation of public, it has yet to be initiated and propagated in Kerala.

Objectives:

1. By 'adopting an endangered animal ' we support the cause of animal care in captivity and its welfare in Zoos and Sanctuaries.
2. To bring awareness among the student community and general public about the need for wildlife conservation and conservation of endangered species of animals .
3. To inculcate the love and empathy towards animals and develop a humanitarian attitude in students by providing them a chance to directly care and serve other coexisting creatures.
4. To provide an aid for the better care of the endangered animal species and directly involve in conservation of animals in captivity by sponsoring its feed, medication and other facilities.
5. To promote the concept of 'Adopt an animal' among other zoology students, faculty and colleges and promote this scheme in other colleges of M.G.University, in turn supporting our ZOOS in their endeavour to provide better care and facility for animals in captivity.

Action Plan:

- The superintendents of national Zoos who conduct 'Adopt an animal programme ' successfully are contacted (the Mysuru Zoo and West Bengal) and an animal will be adopted in the name of Department of Zoology, Union Christian College, Aluva as a gift for centenary year celebrations. The adoption will provide feed, medicine, or facilities as prescribed by Zoo officials for a year.

- To initiate ‘Adopt and animal ‘ in Kerala Zoos, the authorities of the Department of forests and wildlife and superintendents of Zoos of the state would be contacted to initiate the scheme.
- Once initiated, seminars/webinars will be conducted for the student community and faculty of various schools and colleges to popularise the scheme and create awareness and be a part of it.
- Programmes will be conducted within the college to raise the funding for sponsoring of animals with student’s participation.
- Student campaigns will be organized to create awareness among the public of its importance and promote their direct participation.

Expected Outcome:.

- Animals under captivity, especially the endangered/threatened species would get a better care in the form of good food and feeding for a year, medication, other facilities required from the contributions provided.
- Students would learn more about the animals, their food habits and other needs that will add to their theoretical knowledge gained from syllabus.
- Students involved in the adoption scheme can themselves become the ambassadors of wildlife conservation and derive joy from the act of conservation they were involved.
- Public awareness and participation would help the Zoo authorities to take up the scheme at larger scale in the future and help the great cause of better care for animals in captivity.

Best practice:

It provides a better opportunity for students to learn more about the animal world and its preservation and put into practice what they learn. Human

intervention and activities are the major threats to the existence of many of the animals. Hence, it is our responsibility to take care of at least a few of them and prevent their extinction even under captivity. The propagation of this scheme to other colleges will help the revamping of our Zoos and promote more public sponsors for Zoo animal care. By this scheme of 'Adopting an animal' the message of practical wildlife conservation will be realized as a possibility in the young minds of student community, who are the pillars of future society to propagate the cause.

V. Title: Teachers Workshop on MSc Zoology practicals

Proposed by: **Dr. Elizabeth V. Mathew**, Assistant Professor in Zoology,
Union Christian College, Aluva.

Target audience: Faculty of MSc Zoology in colleges affiliated to Mahatma Gandhi University

Description: A two day workshop on practicals is envisaged for teachers who handle MSc Zoology. Practical in Biostatistics, Bioinformatics and Genetics will be discussed in detail. In the wake of a revision in the P.G. Curriculum teachers find great difficulty with new soft ware analyses for the subjects like Statistics and Bioinformatics. Therefore, focus will be on problem solving (Biostatistics and Genetics) and training in modern, relevant software used for Biological data analysis, as XLSTAT, SPSS and MEGA softwares. Expertise of the faculty of Zoology and Bioinformatics can be tapped for this purpose. Funds can be sought from government agencies or the DBT-STAR programme.

Significance: PG syllabus was revised in 2019 with greater focus on practicals. Number of practical hours and content of practicals have been increased. This calls for better training for teachers, especially in the most modern areas of Biostatistics, Genetics and Bioinformatics. Since a workshop in this direction has not been conducted yet, we consider it an opportunity to host this workshop.

Expected outcome

- Teachers get acquainted with the modern trends in Zoology practicals
- Teachers get trained in the recent additions to practical syllabus that include mathematical problem solving and modern software, which in turn benefit the student community by equipping them better for research and teaching.
- Meaningful discussion on further improvement of practical syllabus in terms of content and quality of examinations.

VI.Title: Inter collegiate competition for best project in PG Zoology

Proposer: Dr. Elizabeth V Mathew

Target audience: MSc Zoology students of outgoing batch

Description: Applications will be invited from MSc Zoology students. After initial scrutiny of dissertation of applicants by a panel of competent judges, a few selected students will be asked to present their project before the judges. Top three finalists will be awarded certificates and cash prizes. The competition can be an annual one.

Significance

PG students would get motivated to carry out high quality research oriented project work. Students will know what to expect while presenting their work before a team of researchers and how to face questions on the same.

Expected outcome

- The competition can be a flagship annual event of the department.
- Good promotion for the department and college across Kerala (Can be made a national event in later stages)

VII. Title: Centenary series webinars/seminars by Department of Zoology.

Proposer: Dr Shirley Thomas

Target audience: BSc and MSc Zoology students, teachers and researchers in life sciences of all colleges of M.G.University.

Action plan:

1. A series of webinars and seminars are planned for Life science students, researchers and faculty to cater to supplement the curriculum, guide students in career, and assist in higher learning and research in Zoology.

2. Experts in each area will be identified and invited for the same in areas of

- ✓ Forensic Sciences,
 - ✓ Environmental Sustainability,
 - ✓ Animal taxonomy and identification,
 - ✓ Animal rearing and breeding,
 - ✓ Health, Nutrition and Life style diseases,
 - ✓ IPR, Patents, Biostatistics, Bioinformatics,
 - ✓ Advanced Molecular Biological techniques,
 - ✓ Cyberlaws and precautions,
- and other P.G and U.G curriculum based topics.

Significance

UG and PG students are guided in higher learning, career options and research. Animal taxonomy and identification of animals will be guided by experts, Nutrition, life style disease prevention encouraged. Supplemental information are provided in curricular aspects. Application of sciences are introduced. Training in advanced laboratory techniques are provided. This will motivate the students to pursue quality research.

Expected outcome

- ✓ The webinars and seminars will supplement the curricular information.
- ✓ The students develop good communication and coordination skills while organizing such webinars and seminars.
- ✓ The students are inspired for higher learning and research.
- ✓ Good promotion for the department and college among the colleges in M.G.University and colleges in other Universities across Kerala.

VIII. Title : Animal rearing for improving Zoological studies in the department.

Proposer : Dr. Shirley Thomas

Target group: MSc and BSc Zoology students of the department

Objective;

- a) To instill the love of animals in Zoology students.
- c) To increase direct observation of animals and learning experience.
- b) Group activities increase group and coordinated work.

Action plan:

- i) Set up aquarium for ornamental fish rearing and breeding.
- ii) Set up vermicomposting units: Revive the vermicomposting pit in the college, establish temporary vermicomposting units in vermicomposting using pipes/ Clay pots etc near department and promote organic farming of vegetables, fruits and flowers in grow bags in eco-friendly manner by students using vermicompost.
- iii) Set up aviary (with quail /love birds)
- iv) Students are assigned in the above group activities for rearing of animals and maintaining them for a year. This causes a direct learning and understanding of animal behaviour and habit.
- v) Seminars on these group activities will be organized for better understanding of techniques of rearing .
- vi) Workshops will be conducted to train students to set and maintain butterfly gardens. Setting up a butterfly garden in the college campus in the centenary year lead by butterfly expert of department.

Expected outcome

- ✧ All zoology students are entitled to take care of animals in laboratories in the department.

- ✧ First hand animal study and research by students by their direct observation and activity.
- ✧ Instill the concept of individual waste management and promote organic farming on an individual basis and even in homes.

Best practice

- ✧ Instill love of animals in Zoology students by being caretakers of animals.
- ✧ Promote animal study and research by first hand direct observation and activities.
- ✧ Promote the spirit of entrepreneurship in rearing and breeding of animals.

IX Title: Research and infrastructure development in PG and Research Labs:

Proposer: Dr Shirley Thomas,

Target Group: Requests International and National bodies providing grants to improve infrastructure and research in universities and academic institutions.

Objective: Acquire grants to improve infrastructure in UG, PG and research Lab, class rooms, ICT facilities, books, equipments and research facilities.

Action Plan:

- ❖ Submit proposals for grants for projects of specialization topics to national and international bodies. (UGC, KSCTSE, DST, DBT ., etc)
- ❖ Submit proposals for grants for improvement of infrastructure in research centre, PG lab to national and international bodies. (UGC, KSCTSE, DST, DBT etc.,).
- ❖ Submit proposals for seminars, conferences, workshop, trainings, intercollegiate competitions, to national and international bodies. (UGC, KSCTSE, DST, DBT Etc.,).
- ❖ Signing of MOU with 2 or 3 institutes and arrange interaction of students and faculty and research scholars.
- ❖ Upgrading the research centre with sophisticated equipments.
- ❖ Developing departmental library for Post graduate student reference and research projects.

Expected outcome:

- To promote the department into a Centre of Excellence
- To improve P.G, and U.G laboratory facilities.
- To improve P.G, and U.G teaching and ICT facilities
- To improve the reading and reference material in the dept library

Best practice: To convert the department into a Centre of Excellence

X. Title: CENTENARY SCIENCE EXHIBITION

Proposer: HOD and staff of department of Zoology

Target group: Students of 8th to 12th from neighbouring schools, and colleges,

Objective; To increase the science learning experience in school students.

Action plan :

The students and teachers will prepare for the exhibition by revamping museum specimens, live rearing, models and dry specimens.

The teachers and students prepare action plan, training and fix dates.

The teachers will invite students and teachers from near by schools

The trained students and teachers will demonstrate experiments, exhibit specimens

- ✓ Science experiments, and
- ✓ Exhibit museum specimens,
- ✓ Models and charts
- ✓ Live microscope specimen viewing and
- ✓ Demonstrations of experiments
- ✓ Blood tests
- ✓ Display of ornamental fishes in aquaria
- ✓ Vermiculture and organic farming

Plan and execute a science exhibition for students and teachers of schools around, exhibiting the museum specimens, models, animal rearing in aquarium, aviary, vermiculture, organic farming etc.

Expected outcome

i) School students of 8th to 12th standard are inspired for higher learning in basic sciences in colleges.

- ii) School students can get a first hand experience in viewing of many specimens they learn in their books as theory only.
- iii) A first hand experience for science teachers in refreshing their knowledge .
- iv) Inviting school students to a world of animal rearing and promote the spirit of entrepreneurship.
- v) Promote better science learning by doing mode.
- vi) Promote virtual experimentation for alternating animal dissections.

Best practice

- i) Inspire the young minds to higher learning in basic sciences.
- ii) Promote learning by doing and inculcate interest by viewing live/museum specimens.
- iii) Promote the spirit of entrepreneurship.
- iv) Promote the spirit of organic farming and waste management in homes.



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