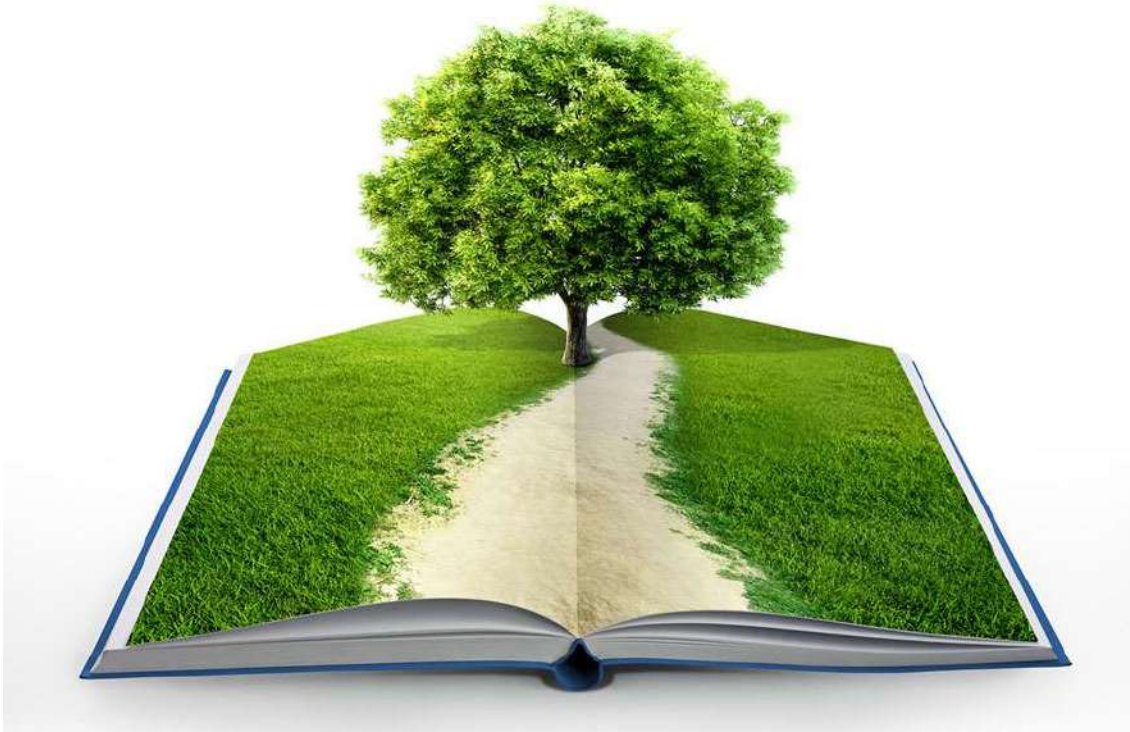


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2020 – 2023



INTERNAL QUALITY ASSURANCE CELL (IQAC)

St. John's College Anchal



GREEN AUDIT ASSESSMENT TEAM

Internal Audit Team

Team Co-Ordinator:

Dr. Alexander T., Research and PG Department of Environmental Science

Supporting Team:

Dr. Anila George, Research and PG Department of Environmental Science

Mr. Arun M. George, Department of English & Communicative English

Students of 3rd semester M. Sc. Environmental Science



External Audit Team

External Green Auditor:

Dr. Jaya D. S.,

**Professor, Department of Environmental Science, University of Kerala,
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Local Body Member:

Mrs. Anie Babu,

President, Anchal Grama panchayath



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Dr. JAYA D.S.
PROFESSOR

CERTIFICATE OF APPRECIATION FOR GREEN/ENVIRONMENTAL AUDIT

This is to certify that St. John's College, Anchal, Kollam, Kerala has conducted a comprehensive environmental audit to assess the eco-friendly initiatives. As per the report and credentials submitted, the activities and measures carried out by the college have been verified for validity and reliability. They have planned and implemented various activities in the campus to maintain a sustainable environment for the stake holders, and were found to be highly appreciable and commendable.

A handwritten signature in green ink, appearing to read 'JDS'.

Dr. Jaya D S
Professor
Dept. of Environmental Sciences
University of Kerala
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Dr. JAYA D.S.
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1. INTRODUCTION

St, John's College Anchal is an educational system affiliated to Kerala university, which was established in 1964 by late Archbishop Most. Rev. Benedict Mar Gregorios and presently with the strength of 1300 students annually. Significant advances the college made in academic and research activities were matched with parallel improvements in the technical and infrastructure facilities of the campus, which makes it retain its position of excellence across time. It has 12 teaching departments housed in 10 blocks of buildings spread across 25.16 acres with a built up area of 2.48 acres. The college offers quality education and maintains consistently high academic standards, giving students equal opportunity for themselves and bettering their own life. The prime aim of the college is to reach out to students from socially and economically backward sections of society and to equip them with the necessary skills and education to meet the challenges of a rapidly changing world.

The fundamental aim of the college is to impart sound learning to young women under circumstances congenial to their all-round development. It encourages the students to aim at excellence not only in academic pursuits, but also in every aspect of human endeavour to achieve perfection.

The students are prompted to strive for academic excellence so that in course of time they may take up suitable careers for the betterment of their lives and also of their families and society at large. The various co-curricular activities of the college especially the extension programmes provide them with a rare social consciousness that motivates them to reach out to their fellowmen particularly the needy and the marginalised.

Conservation of environment is cardinal to the sustenance of life on earth. Environmental audit is an effective management tool towards evolving sustainable development strategies and has become mandatory since the declaration of National Environmental Policy 2006. It is a systematic process of identifying and assessing whether the practices and initiatives of any institution or establishment are sustainable and eco-friendly that help in improving human activities which could reduce the adverse effects on the environment. The auditing is visualized to detect and monitor changes in the environment to improve the quality in terms of different components such as air, water soil, pollution levels, energy consumption, water management, biodiversity, carbon footprint as well as human induced hazards. It has been recognized that the maintenance of healthy environment is the responsibility of both the state and every citizen.

2. SCOPE OF THE AUDIT

Green audit forms part of a resource management process. Although they are individual events, the real value of green audit is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in the process of “Green Auditing of this educational institute”. Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute’s energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy,

Waste and green campus initiatives.

Being a prominent institution of higher learning, St. John’s College, Anchal quite aware of its responsibility towards environmental issues and wellbeing, the role in education, research, policy formation and information exchange necessary for a sustained environmental campaign and activities. The audit is the outcome of a combined effort of an expert group and the college community. It provides a base line data on the environment like the energy utilization, quality of water, soil, air, the quantitative assessment of solid waste as well as biodiversity status of the campus, that certainly find useful in planning the various future activities with reduced or no impact on the environment. The details presented here constitute a consolidated environmental audit for the year 2022-2023

Auditing for water management

Water is a natural resource; all living organisms depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. Groundwater depletion and water contamination are taking place at an alarming rate. Hence it is essential to examine the quality and usage of water in the college. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water.

Auditing for energy management

Energy conservation is an important aspect of campus sustainability which is also linked with carbon foot print of the campus. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

3. OBJECTIVES OF ENVIRONMENTAL AUDIT

1. To examine the current practices in the college campus which can impact on the environment.
2. To identify and analyse significant environmental issues.
3. Set up goal, vision and mission for green practices in the campus enabling effective conservation and utilization of resources.
4. Establish and implement effective environment management.
5. To conduct continuous assessment and evaluation for shaping healthy practices that help to nurture a green campus.
6. To assess the vegetation and floral components
7. To enumerate the invertebrate fauna (dragonflies/damselflies and butterflies)
8. To document the vertebrate fauna (fishes, reptiles, birds and mammals)
9. To identify and document the invasive alien species
10. To suggest suitable conservation measures

4. BENEFITS OF ENVIRONMENTAL AUDIT

- Help to protect the environment in the campus.
- Identify cost saving methods through energy conservation, water conservation and waste minimization.
- Enhancement of biodiversity resources.
- Reduction in carbon dioxide emission making the campus climate friendly.
- Impart a good image to the institution through its clean and green campus.
- Empower the College to frame a better environmental performance.

5. BIODIVERSITY ASSESSMENT METHODS

Biodiversity Audit includes observations and analytic findings of rapid assessment of biotic components in a specific area. It highlights the current status of flora and fauna and suggestions for better management of biodiversity and green campus.

The biodiversity assessment team perambulated the campus covering all the paths, roads and criss-crossed the habitats wherever it is necessary for detailed or specific observations of flora and fauna. Standard protocols were followed for the assessment of faunal and floral components. Focal animal sampling, visual encounter method, point count and visual estimation, transect walk etc. Are the specific assessment methods followed. Informal talks with the staff, inmates, security personnel and gardeners were made to get additional information.

Visual estimation of vegetation cover was made during the transect walks across the campus. Enumerations of individual species of trees, shrubs, herbs, climbers, garden species; alien and exotic species were noted and categorised into native species, garden as well as introduced species and the invasive-exotic species. The emerging vegetation and saplings in the altered land is categorised as secondary vegetation. Photographs were taken in certain cases for identification and confirmation of species. A systematic survey of flora and fauna was carried out by direct observations and indirect evidences.

6. OBSERVATIONS AND FINDINGS

6.1. Greenery of the campus

Mental health concerns have become a common problem among college students. Studies have shown that college students have a higher depression rate than the general population. The effect of campus green spaces on college students' mental health has been widely studied. However, the internal mechanism of campus green spaces affecting college students' mental health is not fully discussed.

The effect of campus green spaces on mental health was higher in males than females, while the effect of campus green spaces on academic achievement had little gender difference. We call for the construction, improvement, and renewal of campus green spaces in the future not only to meet the needs of different gender groups, but also to pay more attention to the needs of female college students and improve the differences in mental health, so as to improve the mental health of the whole college student population.

Plate 01: Selected aesthetic views of the campus



Trees play an important role in climate change, being able to pull carbon dioxide out of the air and sink it into the ground. Tree wealth of the campus not only help the environment, but also the students and staff. Another way the trees improve the quality of the campus is what they do to the temperature of the air around campus. They provide shade, which creates cooler outdoor spaces that are more comfortable to be in, but they also cool the air around them by simply being there. Management and staff take initiative to plant trees in addition to the existing trees to create a soothing environment around us, to maintain calmness of students and teachers, interact with good vibes and stay away from negative energy. Documentation of flora revealed that more than 90 species of trees are widely distributed in the campus premises of which dominant tree species (67) are listed below. In fact greenery of the colleges campus is very beneficial for students as well as researchers and educators.

Plate 02: Students area of the campus



Table 01: Dominant tree species of the campus

Sl. No.	Botanical Name	Common Name
1.	<i>Acacia auriculiformis</i>	Acacia
2.	<i>Acacia caesia</i>	Incha
3.	<i>Acacia mangium</i>	Mangium
4.	<i>Adenantha pavonina</i>	Manchadi
5.	<i>Ailanthus triphysa</i>	Perumaram
6.	<i>Albizia lebeck</i>	Vaka, Nenmenivaka
7.	<i>Alstonia scholaris</i>	Ezhilam Pala
8.	<i>Anacardium occidentale</i>	Kashumavu,
9.	<i>Aphanamixis polystachya</i>	Chemmaram
10.	<i>Areca catechu</i>	Kamuku
11.	<i>Artocarpus heterophyllus</i>	Plavu
12.	<i>Artocarpus hirsutus</i>	Anjili, Ayani
13.	<i>Azadirachta indica</i>	Aryaveppu, Veppu
14.	<i>Bambusa bambos</i>	Mula
15.	<i>Bambusa vulgaris</i>	Manja Mula
16.	<i>Bombax ceiba</i>	Elavu
17.	<i>Caesalpinia sappan</i>	Pathimugham
18.	<i>Carallia brachiata</i>	Vallabham
19.	<i>Careya arborea</i>	Peezhu
20.	<i>Cassia fistula</i>	Kanikonna
21.	<i>Ceiba pentandra</i>	Panji ilavu
22.	<i>Cinnamomum malabatum</i>	Vayana
23.	<i>Cocos nucifera</i>	Thengu, Coconut
24.	<i>Commiphora caudata</i>	Kilimaram
25.	<i>Dalbergia sissoo</i>	Eetti
26.	<i>Delonix regia</i>	Gulmohar
27.	<i>Dyopsis lutescens</i>	Areca palm
28.	<i>Dyopsis lutescens</i>	Golden cane palm
29.	<i>Erythrina variegata</i>	Murukku
30.	<i>Ficus benghalensis</i>	Peral
31.	<i>Ficus racemosa</i>	Athi
32.	<i>Gliricidia sepium</i>	Sheemakonna
33.	<i>Hevea brasiliensis</i>	Rubber
34.	<i>Hydnocarpus pentandra</i>	Marotti
35.	<i>Lanea coromandelica</i>	Udhi
36.	<i>Macaranga peltata</i>	Vatta
37.	<i>Macaranga tanarius</i>	Parasol leaf tree
38.	<i>Mangifera indica</i>	Mavu
39.	<i>Manilkara zapota</i>	Sapota
40.	<i>Memecylon umbellatum</i>	Kanjavu
41.	<i>Michelia champaca</i>	Chembakam
42.	<i>Mimusops elengi</i>	Elengi
43.	<i>Nephelium lappaceum</i>	Rambutan
44.	<i>Panjanelia longifolia</i>	Azhantha
45.	<i>Pavetta indica</i>	Pavatta
46.	<i>Peltophorum ferrugineum</i>	Silon konna

47.	<i>Phyllanthus emblica</i>	Nelli
48.	<i>Plumeria rubra</i>	Ezhachempakam
49.	<i>Polyalthia longifolia</i>	Aranamaram
50.	<i>Pongamia pinnata</i>	Pongu
51.	<i>Prunus dulcis</i>	Almond
52.	<i>Psidium guajava</i>	Pera
53.	<i>Pterocarpus marsupium</i>	Venga
54.	<i>Samanea saman</i>	Urakkamthoongi
55.	<i>Saraca asoca</i>	Asokam
56.	<i>Sesbania grandiflora</i>	Agasthyacheera
57.	<i>Simarouba glauca</i>	Lekshmitharu
58.	<i>Spondias pinnata</i>	Ambazham
59.	<i>Strychnos nux-vomica</i>	Kanjiram
60.	<i>Swietenia macrophylla</i>	Mahagani
61.	<i>Syzygium cumini</i>	Njaval
62.	<i>Syzygium jambos</i>	Champa
63.	<i>Tamarindus indica</i>	Puli
64.	<i>Tectona grandis</i>	Teak
65.	<i>Terminalia arjuna</i>	Neermaruthu
66.	<i>Terminalia catappa</i>	Badam
67.	<i>Terminalia paniculata</i>	Maruthu

6.2. Vegetation and floral components

Considering the entire college campus together, a total number of 303 species of plants, including 8 species of Pteridophytes (*Salvinia molesta*, *Selaginella sp.*, *Adiantum lunulatum*, *Adiantum philippense*, *Pteris vittate*, *Pteris quadriaurita*, *Pteris muricata* and *Nephrolepis exaltata*) and 1 Gymnosperm (*Cycas circinalis*) and 294 Angiosperms have been documented. Based on our observation, the vegetation composition is considerably rich and diverse. Altogether a total of 296 species of plants were recorded that falls under about 82 families. The vegetation composition includes trees, woody shrubs and climbers, shrubs and herbs. Considering the use value, a large proportion is ornamental garden varieties, which is followed by fruit trees, medicinal herbs, trees of timber value and some rare and native species.

Table 02: Comprehensive list of campus flora

NO.	FAMILY	BOTANIC NAME	LOCAL NAME
1	Acanthaceae	<i>Justicia adhatoda</i>	Adalodakam
2		<i>Justicia diffusa</i>	Cherupulladi
3	Achariaceae	<i>Hydnocarpus pentandra</i>	Marotti
4	Alismataceae	<i>Sagittaria guayanensis</i>	
5	Amaranthaceae	<i>Achyranthes aspera</i>	Devil horsewhipe
6		<i>Aerva lanata</i>	Cherula
7	Anacardiaceae	<i>Anacardium occidentale</i>	Kashumavu,

8		<i>Lanea coromandelica</i>	Udhi
9		<i>Mangifera indica</i>	Mavu
10		<i>Spondias pinnata</i>	Ambazham
11	Annonaceae	<i>Polyalthia longifolia</i>	Aranamaram.
12	Apiaceae	<i>Centella asiatica</i>	Kodangal.
13	Apocynaceae	<i>Allamanda cathartica</i>	Golden trumpet
14		<i>Alocasia indica</i>	Maran chembu
15		<i>Alstonia scholaris</i>	Ezhilam Pala.
16		<i>Calotropis gigantea</i>	Erukku
17		<i>Catharanthus pusillus</i>	Tiny periwinkle
18		<i>Carissa carandas</i>	Kara
19		<i>Cascabela thevetia</i>	Manja-arali
20		<i>Catharanthus roseus</i>	Savamnari
21		<i>Hemidesmus indicus</i>	Narunindi, Nannari
22		<i>Ichnocarpus frutescens</i>	Palvalli
23		<i>Nerium odorum</i>	Arali
24		<i>Plumeria rubra</i>	Ezhachempakam
25		<i>Rauvolfia serpentine</i>	Sarpagandhi
26		<i>Tabernaemontana alternifolia</i>	Kundalappala
27	<i>Tabernaemontana coronaria</i>	Nandhyarvattom	
28	Araceae	<i>Alocasia macrorrhiza</i>	Anachembu
29		<i>Caladium bicolor</i>	Angel wing
30		<i>Colocasia esculenta</i>	Chembu
31		<i>Colocasia gigantea</i>	Elephant's ear
32		<i>Philodendron rugosum</i>	Pigskin Philodendron
33		<i>Philodendron hederaceum</i>	vile vine
34		<i>Pistia stratiotes</i>	
35	Araliaceae	<i>Hydrocotyle vulgaris</i>	Pinnywort
36	Arecaceae	<i>Areca catechu</i>	Kamuku
37		<i>Cocos nucifera</i>	Thengu, Nalikeram
38		<i>Dypsis lutescens</i>	Areca palm
39		<i>Dypsis lutescens</i>	Golden cane palm
40	Asparagaceae	<i>Asparagus racemosus</i>	Sathavari
41		<i>Cordyline fruticosa</i>	Cabbage palm
42		<i>Dracaena trifasciata</i>	Snake plant
43		<i>Dracaena reflexa</i>	Song of India
44	Asteraceae	<i>Chromolaena odorata</i>	Poochedi
45		<i>Chrysanthemum sanctum</i>	Jamanthi
46		<i>Eclipta alba</i>	Kaithonni
47		<i>Elephantopus scaber</i>	Anachevudi
48		<i>Erigeron canadensis</i>	Horse weed
49		<i>Grangea maderaspatana</i>	
50		<i>Parthenium hysterophorus</i>	
51		<i>Spilanthes cilita</i>	Pallurvethana Chedi
52		<i>Synedrella nodiflora</i>	Synedrella weed
53		<i>Tridax procumbens</i>	Odiyanpacha
54		<i>Vernonia cinerea</i>	Poovamkurunthal
55	Athyriaceae	<i>Diplazium esculentum</i>	Vegetable fern

56	Bignoniaceae	<i>Panjanelia longifolia</i>	Azhantha
57		<i>Tecoma stans</i>	Swarna petti
58	Boraginaceae	<i>Heliotropium keralense</i>	
59	Burseraceae	<i>Commiphora caudata</i>	Kilimaram
60	Capparaceae	<i>Cleome viscosa</i>	Kattukaduku
61		<i>Cleome rutidosperma</i>	Springed spider flower
62	Caricaceae	<i>Carica papaya</i>	Oma, Pappaya
63	Casuarinaceae	<i>Casuarina equisetifolia</i>	Kattadi
64	Clusiaceae	<i>Mamea longifolia</i>	Sarampunna
65	Colchicaceae	<i>Gloriosa superba</i>	Menthonni
66	Combretaceae	<i>Quisqualis indica</i>	Rangoon creeper
67		<i>Terminalia arjuna</i>	Neermaruthu
68		<i>Terminalia bellerica</i>	Thanni
69		<i>Terminalia catappa</i>	Badam
70		<i>Terminalia paniculata</i>	Maruthu
71	Commelinaceae	<i>Commelina diffusa</i>	Climbing day flower
72		<i>Callisia repens</i>	Turtle vine
73	Convolvulaceae	<i>Evolvulus alsinoides</i>	Vishnukranthi
74		<i>Ipomaea muritiana</i>	Nityavazhuthana
75		<i>Ipomoea obscura</i>	Morning Glory
76		<i>Ipomea aquatica</i>	Kozhuppa
77	Cornaceae	<i>Alangium salvifolium</i>	Angolam
78	Cucurbitaceae	<i>Coccinia cordifolia</i>	Kovakka
79		<i>Echinocystis lobata</i>	Wild cucumber
80	Cupressaceae	<i>Platyclusus orientalis</i>	Oriental Arbor Vitae
81	Cyperaceae	<i>Cyperus bifax</i>	
82		<i>Cyperus brevifolius</i>	Green Kyllinga
83		<i>Cyperus rotundus</i>	Muthanga
84		<i>Eleocaris dulcis</i>	
85		<i>Rhychospora corymbosa</i>	
86		<i>Rikliella squarrosa</i>	Mottapullu
87		<i>Schoenoplectus aurticulatus</i>	
88		<i>Schoenoplectus juncoides</i>	
89		<i>Schoenoplectus supinus</i>	
90	Dipterocarpaceae	<i>Vateria indica</i>	Vella kunthirikkam
91	Dipterocarpaceae	<i>Vatica chinensis</i>	
92	Eriocaulaceae	<i>Eriocaulon cuspidatum</i>	
93		<i>Eriocaulon heterolepis</i>	
94	Euphorbiaceae	<i>Codiaeum variegatum</i>	Croten
95		<i>Codiaeum variegatum</i>	Narrow leaf croton
96		<i>Euphorbia heterophylla</i>	Paal perukki
97		<i>Euphorbia hirta</i>	Athsma plant
98		<i>Euphorbia tirucalli</i>	Indian tree spurge
99		<i>Hevea brasiliensis</i>	Rubber
100		<i>Jatropha curcas</i>	Kadalavanakku
101		<i>Jatropha gossypifolia</i>	Kuruvatti
102		<i>Macaranga peltata</i>	Vatta
103		<i>Macaranga tanarius</i>	Parasol leaf tree

104		<i>Mallotus philippensis</i>	Kurangu manjal Chengolli
105		<i>Manihot esculenta</i>	Kappa, Maracheeni
106		<i>Pedilanthus tithymaloids</i>	
107		<i>Ricinus communis</i>	Avanakku
108		<i>Sebastiana chamaelea</i>	Kodiyavanakku
109		<i>Tragia involucrata</i>	Indian stinging nettle
110		<i>Trewia polycarpa</i>	Pambarakumbil
111		<i>Variiegatum punctatum</i>	Narrow Leaf Croton
112	Fabaceae	<i>Abrus precatorius</i>	Kunni
113		<i>Acacia auriculiformis</i>	Acacia
114		<i>Acacia caesia</i>	Incha
115		<i>Acacia mangium</i>	Mangium
116		<i>Adenanthera pavonina</i>	Manchadi
117		<i>Albizia lebbeck</i>	Vaka, Nenmenivaka
118		<i>Alysicarpus vulgaris</i>	Buffullo clover
119		<i>Alysicarpus monilifer</i>	Necklace Pod Alyce Clover
120		<i>Butea monosperma</i>	Bastard teak
121		<i>Caesalpinia pulcherrima</i>	Pavizhamalli
122		<i>Caesalpinia sappan</i>	Pathimugham
123		<i>Cassia alata</i>	Anathakara
124		<i>Cassia fistula</i>	Kanikonna
125		<i>Cassia occidentalis</i>	Oolanthakara
126		<i>Centrosema pubescens</i>	Butterfly pea
127		<i>Clitoria ternatea</i>	Shangupushpam
128		<i>Crotalaria juncea</i>	Kilukilukki
129		<i>Crotalaria pallida</i>	Kilukilukki
130		<i>Dalbergia sissoo</i>	Eetti
131		<i>Delonix regia</i>	Gulmohar
132		<i>Desmodium canescens</i>	Hoary Tick trefoil
133		<i>Desmodium gangeticum</i>	Orila
134		<i>Desmodium heterophyllum</i>	Spanish clover
135		<i>Desmodium triflorum</i>	Nilamparanda
136		<i>Erythrina variegata</i>	Murukku
137		<i>Gliricidia sepium</i>	Sheemakonna.
138		<i>Leucaena leucocephala</i>	Subabul
139		<i>Mimosa pudica</i>	Thottavadi
140		<i>Neptunia prostrata</i>	Neerthottavadi
141		<i>Peltophorum ferrugineum</i>	Silon konna
142		<i>Pongamia pinnata</i>	Pongu
143		<i>Prosopis juliflora</i>	
144		<i>Pterocarpus marsupium</i>	Venga
145		<i>Samanea saman</i>	Urakkamthoongi
146		<i>Saraca asoca</i>	Asokam
147		<i>Sesbania grandiflora</i>	Agasthyacheera
148		<i>Tamarindus indica</i>	Puli
149	Icacinaceae	<i>Sarcostigma kleinii</i>	Odal
150	Lamiaceae	<i>Callicarpa tomentosa</i>	Theragam
151		<i>Clerodendrum inerme</i>	Puzhamulla

152		<i>Clerodendrum viscosum</i>	Peruvalam
153		<i>Coleus amboinicus</i>	Njavara
154		<i>Hyptis suaveolens</i>	Nattapuchedi
155		<i>Leucas aspera</i>	Thumba
156		<i>Mentha arvensis</i>	Peppermint
157		<i>Ocimum americanum</i>	Karpurathulasi
158		<i>Ocimum gratissimum</i>	Ramathulasi
159		<i>Ocimum sanctum</i>	Krishna Thulasi
160		<i>Plectranthus amboinicus</i>	Indian Borage
161		<i>Plectranthus mollis</i>	Perumthulasi
162		<i>Salvia splendens</i>	
163		<i>Tectona grandis</i>	Teak
164	Lauraceae	<i>Cinnamomum malabathrum</i>	Vayana
165		<i>Litsea coriacea</i>	Moorikatta
166		<i>Persea macrantha</i>	Ooravu, Kulamavu
167	Lecythidaceae	<i>Barringtonia acutangula</i>	Neerpezhu.
168		<i>Careya arborea</i>	Peezh
169	Loganiaceae	<i>Strychnos minor</i>	Vallikanjiram
170		<i>Strychnos nux-vomica.</i>	Kanjiram
171	Lythraceae	<i>Lawsonia inermis</i>	Mailangi
172	Magnoliaceae	<i>Michelia champaca</i>	Chembakam
173	Malpighiaceae	<i>Malpighia glabra</i>	Cherry
174	Malvaceae	<i>Abelmoschus esculentus</i>	Venda
175		<i>Abutilon theophrasti</i>	China Jute
176		<i>Abutilon indicum</i>	Monkey brush
177		<i>Bombax ceiba</i>	Elavu
178		<i>Ceiba pentandra</i>	Panji ilavu
179		<i>Hibiscus hispidissimus</i>	Karthikapooove
180		<i>Hibiscus rosa-sinensis</i>	Chemparuthi
181		<i>Pavonia candida</i>	Achahuita
182		<i>Sida acuta</i>	Manja kurumthotti
183		<i>Sida alnifolia</i>	Kurumthotti
184		<i>Sida cordifolia</i>	Vankurumthotti
185		<i>Sida rhombodia</i>	Kurumthotti
186		<i>Thespesia lampas</i>	Kattupoovarasu
187		<i>Urena lobata</i>	
188		<i>Urena sinuate</i>	
189	Marantaceae	<i>Maranta arundinaceae</i>	Koova
190	Melastomataceae	<i>Melastoma malabathricum</i>	Kalampotti
191		<i>Memecylon umbellatum</i>	Kanjavu
192		<i>Osbeckia travancorica</i>	Kalampotti
193	Meliaceae	<i>Aphanamixis polystachya</i>	Chemmmaram
194		<i>Azadirachta indica</i>	Aryaveppu
195		<i>Swietenia macrophylla</i>	Mahagani
196	Menispermaceae	<i>Cyclea peltata</i>	Padathali
197	Molluginaceae	<i>Mollugo pentaphylla</i>	Parpadakapullu
198	Moraceae	<i>Artocarpus heterophyllus</i>	Plavu
199		<i>Artocarpus hirsutus</i>	Anjili, Ayani

200		<i>Ficus benghalensis</i>	Peral
201		<i>Ficus hispida</i>	Therakam
202		<i>Ficus racemosa</i>	Athi
203		<i>Ficus religiosa</i>	Arayal
204		<i>Morus alba</i>	Mulberry
205		<i>Streblus asper</i>	Paruvamarum
206	Muntingiaceae	<i>Muntingia calabura</i>	Birds cherry
207	Musaceae	<i>Musa paradisiaca</i>	Vazha
208	Myrtaceae	<i>Psidium guajava</i>	Pera
209		<i>Syzygium caryophyllatum</i>	Venjara
210		<i>Syzygium cumini</i>	Njaval
211		<i>Syzygium jambos</i>	Champa
212		<i>Syzygium malaccensis</i>	Shemachamba
213		<i>Syzygium zeylanicum</i>	Poochappazham
214	Nyctaginaceae	<i>Boerhavia diffusa</i>	Thazhuthama
215		<i>Mirabilis jalapa</i>	4'O clock plant
216	Oleaceae	<i>Jasminum sambac</i>	Kudamulla
217	Orchidaceae	<i>Bulbophyllum sterile</i>	Maravazha
218		<i>Vanda tessellata</i>	Maravazha
219	Oxalidaceae	<i>Biophytum reinwardtii</i>	Mukkutti
220		<i>Oxalis corniculata</i>	Puliyarila
221	Pandanaceae	<i>Benstonea monticola</i>	Scrub breadfruit
222	Passifloraceae	<i>Passiflora foetida</i>	Poochapazham
223	Pedaliaceae	<i>Sesamum orientale</i>	Ellu
224	Phyllanthaceae	<i>Glochidion tomentosum</i>	Pulinelli
225		<i>Glochidion ruschum</i>	
226		<i>Glochidion zeylanicum</i>	Neervetti
227		<i>Phyllanthus amarus</i>	Keezhanelli
228		<i>Phyllanthus emblica</i>	Nelli
229		<i>Phyllanthus emblica</i>	Puliyilachedi
230		<i>Sauropus androgynous</i>	Maduracheera
231		<i>Sauropus bacciformis</i>	Nilamthenga
232		Piperaceae	<i>Peperomia pellucid</i>
233	Piperaceae	<i>Piper betle</i>	Vettilakkodi
234		<i>Piper longum</i>	Thippali
235		<i>Piper nigrum</i>	Kurumulaku
236	Plantaginaceae	<i>Bacopa monnieri</i>	Brahmi
237		<i>Scoparia dulcis</i>	Kallurukki
238	Plumbaginaceae	<i>Plumbago zeylanica</i>	vella koduveli
239	Poaceae	<i>Axonopus compressus</i>	Erumapul
240		<i>Bambusa bambos</i>	Mula
241		<i>Bambusa vulgaris</i>	ManjaMula
242		<i>Cymbopogon flexuosos</i>	Ingipul
243		<i>Cynodon dactylon</i>	Karuka pullu
244		<i>Desmostachya bipinnata</i>	Dharbha
245		<i>Digitaria ciliaris</i>	Fingure grass
246		<i>Paspalum scrobiculatum</i>	
247		<i>Pennisetum polystachyon</i>	Poothiripullu

248		<i>Phragmites karca</i>	
249		<i>Rottboellia exaltata</i>	Itch grass
250		<i>Sacciolepis interrupta</i>	
251		<i>Setaria barbata</i>	Corn grass
252		<i>Sporobolus indicus</i>	
253		<i>Thyrsostachys siamensis</i>	Umberlla Bamboo
254		<i>Vetiveria zizanioides</i>	Ramacham
255	Polygonaceae	<i>Persicaria virginiana</i>	Jumpseed
256		<i>Polygonum pulchrum</i>	
257	Portulacaceae	<i>Portulaca grandiflora</i>	Moss Rose
258	Rhamnaceae	<i>Zizyphus mauritiana</i>	Ilantha
259		<i>Zizyphus oenoplia</i>	Thudali
260	Rhizophoraceae	<i>Carallia brachiata</i>	Vallabham
261	Rosaceae	<i>Prunus dulcis</i>	Almond
262		<i>Rosa rubiginos</i>	Elantine Rose
263	Rubiaceae	<i>Gardenia gummifera</i>	Gandharajan
264		<i>Hamelia patens Jacq.</i>	
265		<i>Hedyotis puberula</i>	Parpadakapullu.
266		<i>Ixora coccinea</i>	Thetti
267		<i>Mussaenda bellila</i>	Vellila, Parathola
268		<i>Pavetta indica</i>	Pavatta
269	Rutaceae	<i>Citrus limon</i>	Narakam
270		<i>Glycosmis pentaphylla</i>	Panchi
271		<i>Murraya koenigii</i>	Kariveppu
272		<i>Toddalia asiatica</i>	Thudali
273	Santalaceae	<i>Santalum album</i>	Chandanum
274	Sapindaceae	<i>Cardiospermum halicacabum</i>	Uzhinja
275		<i>Nephelium lappaceum</i>	Rambutan
276		<i>Schleichera oleosa</i>	Poovanam
277	Sapotaceae	<i>Manilkara zapota</i>	Sapota
278		<i>Mimusops elengi</i>	Elengi
279	Simaroubaceae	<i>Ailanthus triphysa</i>	Perumaram
280		<i>Samadera indica</i>	Karinjotta
281		<i>Simarouba glauca</i>	Lekshmitharu
282	Smilacaceae	<i>Smilax zeylanica</i>	Kariyilanchi
283	Solanaceae	<i>Capscicum frutescens</i>	Kanthari
284		<i>Solanum torvum</i>	Chunda
285	Urticaceae	<i>Pilea microphylla</i>	Pistol Plant
286	Verbanaceae	<i>Citharexylum subserratum</i>	Parijatham
287		<i>Lantana camara</i>	Konkinipoo
288		<i>Stachtarpheta cayennensis</i>	
289		<i>Vitex negundo</i>	Nochi
290	Vitaceae	<i>Ampelocissus elephantiana</i>	Vallimanga
291		<i>Cayratia pedata</i>	Bird fruit grape
292	Zingiberaceae	<i>Alpinia calcarata</i>	Chittaratha
293		<i>Hedychium coronarium</i>	Kalyana soughaudhi gam.
294		<i>Kaempferia galanga</i>	Sand ginger

6.3. Other Vertebrates and invertebrates

The college campus habitat harbours many species of reptiles, amphibians and mammals. Systematic and seasonal study would add many interesting species to the campus checklist. From the seasonal observation and assessment, it has been noticed that college campus is rich in various species of butterflies and birds, which together contribute the major animal diversity.

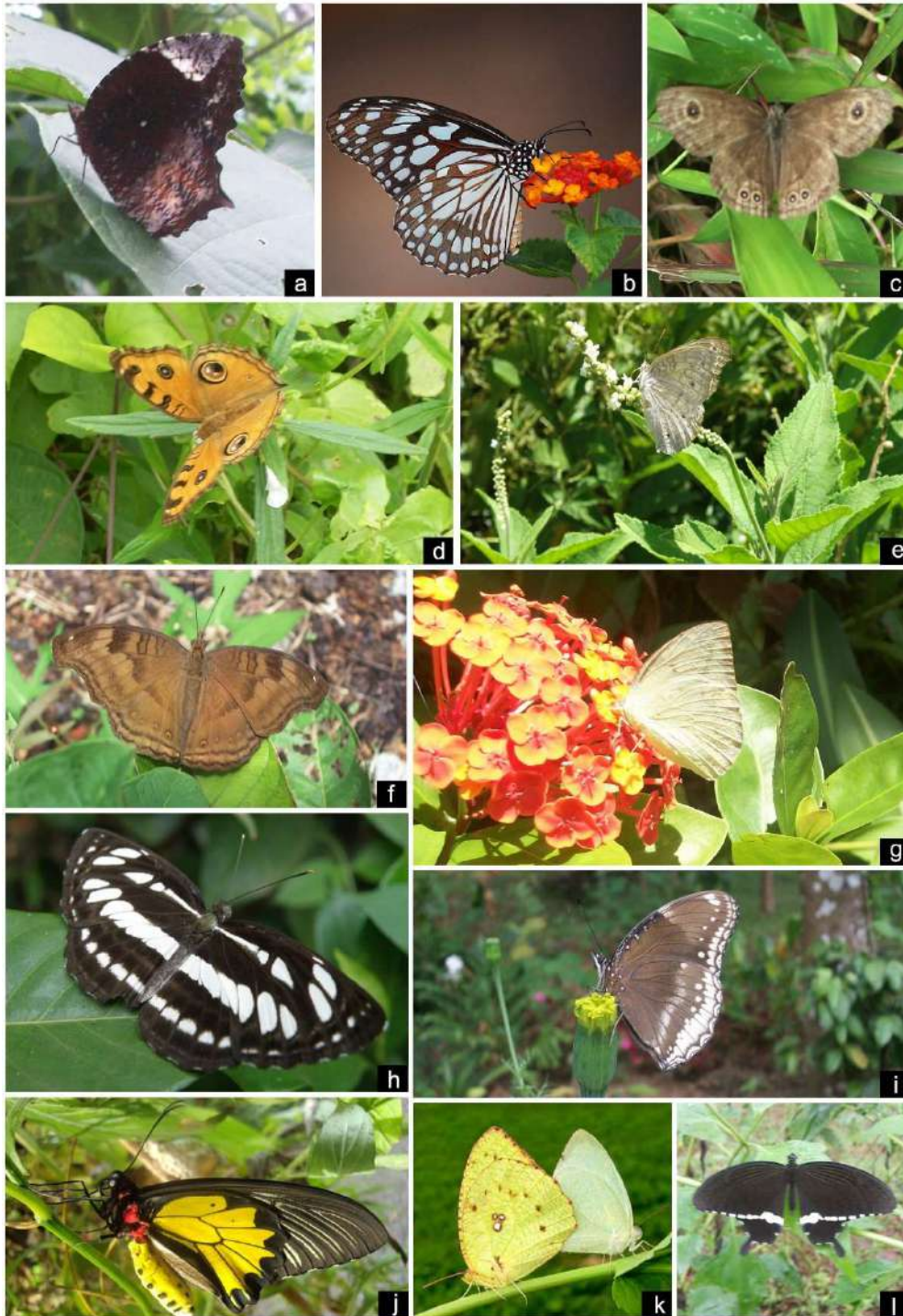
6.4. Butterflies

Butterflies are a special group of insects that arouses vision of bright colour fluttering admits sun-drenched flowering meadows. The role of butterflies in our natural world, their sheer numbers supply a vast food source for predators, and they are significant plant pollinators in addition to acting as a part of biodiversity. Documentation done by teachers and students revealed that 32 species of butterflies belonging 5 families are common butterflies in the premises of college campus. The species such as *Eurema hecabe*, *Papilio polytes*, *Leptosia nina*, *Mycalesis perseus*, *Orsotrioena medus*, *Junonia atlites* and *Junonia iphita* were frequently seen throughout the campus.

Table 03: Checklist of Butterflies

No.	Family	Common Name	Scientific Name	
1	Hesperiidae	Restricted Demon	<i>Notocrypta curvifascia</i>	
2		Water Snow Flat	<i>Tagiades litigiosa</i>	
3	Lycaenidae	Common Cerulean	<i>Jamides celeno</i>	
4		Common Pierrot	<i>Castalius rosimon</i>	
5	Nymphalidae	Blue Tiger	<i>Tirumala limniace</i>	
6		Chestnut-Streaked Sailer	<i>Neptis jumbah</i>	
7		Chocolate Pansy	<i>Junonia iphita</i>	
8		Common Bush brown	<i>Mycalesis perseus</i>	
9		Common evening brown	<i>Melanitis leda</i>	
10		Common Four Ring	<i>Ypthima huebneri</i>	
11		Common Indian Crow	<i>Euploea core</i>	
12		Common Palmfly	<i>Elymnias hypermenstra</i>	
13		Common Sailer	<i>Neptis hylas</i>	
14		Crusier	<i>Vindula erota</i>	
15		Nigger	<i>Orsotrioena medus</i>	
16		Peacock Pansy	<i>Junonia almana</i>	
17		Plain Tiger	<i>Danaus chrysippus</i>	
18		Striped Tiger	<i>Danaus genutia</i>	
19		White Four Ring	<i>Ypthima ceylonica</i>	
20		Yellow Pansy	<i>Junonia hierta</i>	
21		Papilionidae	Blue Mormon	<i>Papilio polymnestor</i>
22			Common Blue Bottle	<i>Graphium sarpedon</i>
23			Common Mime	<i>Papilio clytia</i>
24	Common Mormon		<i>Papilio polytes</i>	
25	Common Rose		<i>Pachliopta aristolochiae</i>	
26	Lime Butterfly		<i>Papilio demoleus</i>	
27	Southern Birdwing		<i>Troides minos</i>	
28	Tailed Jay		<i>Graphium agamemnon</i>	
29	Pieridae	Common Emigrant	<i>Captopsilia pomona</i>	
30		Common Grass Yellow	<i>Eurema hecabe</i>	
31		Common Jezebel	<i>Delias eucharis</i>	
32		Psyche	<i>Leptosia nina</i>	

Plate 03: Notable butterflies from the campus



a. *Elymnias hypermenstra* ☒ b. *Tirumala limniace* ☒ c. *Ypthima ceylonica* ☒ d. *Junonia almana* ☒ e. *Junonia atlites* ☒ f. *Junonia iphita* ☒ g. *Junonia atlites* ☒ h. *Neptis hylas* ☒ i. *Hypolimnas bolina* ☒ j. *Troides minos* ☒ k. *Catopsilia pomona* ☒ l. *Papilio polytes*

6.5. Birds

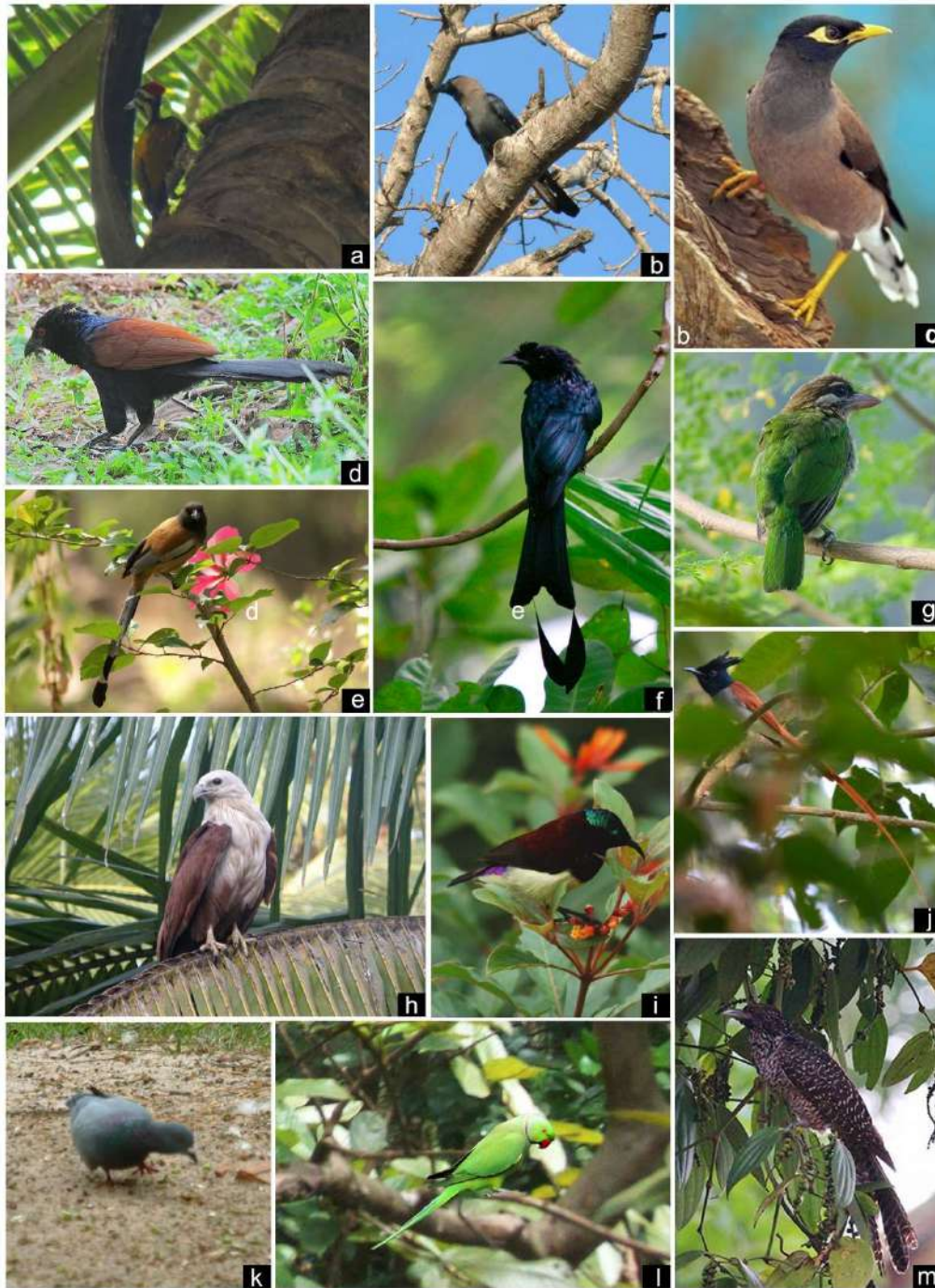
Birds are an important component of most of the natural ecosystems, as they occupy several trophic levels in the food web of nutrient cycles in an ecosystem. During the present survey 47 species of birds comprising 26 families are recorded from the entire college campus, of which 89% are noted as resident birds, also migratory birds are rare visitors of the campus. Ralidae, Corvidae cuculidae and stringidae are dominant families.

Table 04: Checklist of Birds

No	Scientific Name	Family	Common Name
1	<i>Acridotheres tristis tristis</i>	Sturnidae	Common Mina
2	<i>Alcedo atthis taprobana</i>	Alcedinidae	Common Kingfisher
3	<i>Alcedo meninting</i>	Alcedinidae	Blue-eared Kingfisher
4	<i>Amaurornis phoenicurus phoenicurus</i>	Rallidae	Kulakozhy
5	<i>Anas querquedula</i>	Anatidae	Eranda
6	<i>Apus affinis</i>	Apodidae	House Swift
7	<i>Ardeola grayii grayii</i>	Ardeieae	Indian Pond Heron
8	<i>Athene brama brama</i>	Strigidae	Spotted Owlet
9	<i>Bubulcus ibis coromandus</i>	Ardeieae	Cattle Egret
10	<i>Centropus sinensis parroti</i>	Cuculidae	Crowpheasant
11	<i>Ceryle rudis travancorensis</i>	Cerylidae	Pied Kingfisher
12	<i>Chalcophaps indica salimali</i>	Pteroclididae	Emerald Dove
13	<i>Chloropsis aurifrons insularis</i>	Pycnonotidae	Green Bulbul
14	<i>Clamator jacobinus jacobinus</i>	Cuculidae	Pied Cuckoo
15	<i>Columba livia intermedia</i>	Pteroclididae	Piegeon
16	<i>Corvus Macrorhynchus culminatus</i>	Corvidae	Jungle Crow
17	<i>Corvus splendens protegatus</i>	Corvidae	House Crow
18	<i>Cypsiurus parvus batasiensis</i>	Apodidae	Asian Palm Swift
19	<i>Dendrocitta vagabunda parvula</i>	Corvidae	Tree Pie
20	<i>Dicrurus macrocercus macrocercus</i>	Dicruridae	Black Drongo
21	<i>Dicrurus paradiseus paradiseus</i>	Dicruridae	Paccet-tailed Drongo
22	<i>Dinopium benghalense tehminae</i>	Picidae	Malabar Woodpecker
23	<i>Eudynamys scolapacea scolapacea</i>	Cuculidae	Koel
24	<i>Galerida malabarica</i>	Alaudidae	Malabar Crusted Lark
25	<i>Gallinula cloropus indica</i>	Rallidae	Indian Moorhen
26	<i>Halcyon smyrensis fusca</i>	Alcedinidae	White Breasted Kingfisher
27	<i>Haliastur Indus indus</i>	Accipitridae	Brahmini Kite
28	<i>Magalaima viridis</i>	Capitonidae	Small Green Barbet
29	<i>Milvus migrans govinda</i>	Accipitridae	Pariah Kite
30	<i>Motacilla maderaspatensis</i>	Motacillidae	Large-pied Wagtail
31	<i>Mycteria leucocephala</i>	Ciconiidae	Painted Stork
32	<i>Nectarinia asiatica asiatica</i>	Nectaridiidae	Purple Sunbird
33	<i>Oriolus oriolus kundoo</i>	Oriolidae	Indian Oriole
34	<i>Oriolus xanthornus maderaspatanus</i>	Oriolidae	Black headed Oriole

35	<i>Passer domesticus indicus</i>	Ploceidae	House Sparrow
36	<i>Phalacrocorax niger</i>	Phalacrocoracidae	Little Cormorant
37	<i>Picus xanthopygaeus</i>	Picidae	Green Woodpecker
38	<i>Pomatorhinus schisticeps travancoreensis</i>	Muscicapidae	Kerala Scimitar Babbler
39	<i>Porphyrio porphyrio poliocephalus</i>	Rallidae	Purple Moorhen
40	<i>Porzana pusilla pusilla</i>	Rallidae	Baillon's Crake
41	<i>Psittacula cynocephala cynocephala</i>	Psittacidae	Blossomheaded Parakeet
42	<i>Psittacula krameri manillensis</i>	Psittacidae	Rose Ringed Parakeet
43	<i>Pycnonotus cafer cafer</i>	Pycnonotidae	Red-vented Bulbul
44	<i>Pycnonotus jocosus fuscicaudatus</i>	Pycnonotidae	Redwhiskered Bulbul
45	<i>Streptopelia senegalensis cambayensis</i>	Pteroclididae	Senegal Dove
46	<i>Strix ocellata ocellata</i>	Strigidae	Mottled Wood Owl
47	<i>Vanellus indicus indicus</i>	Charadriidae	Redwattled Lapwing

Plate: 04: Selected Birds from the campus



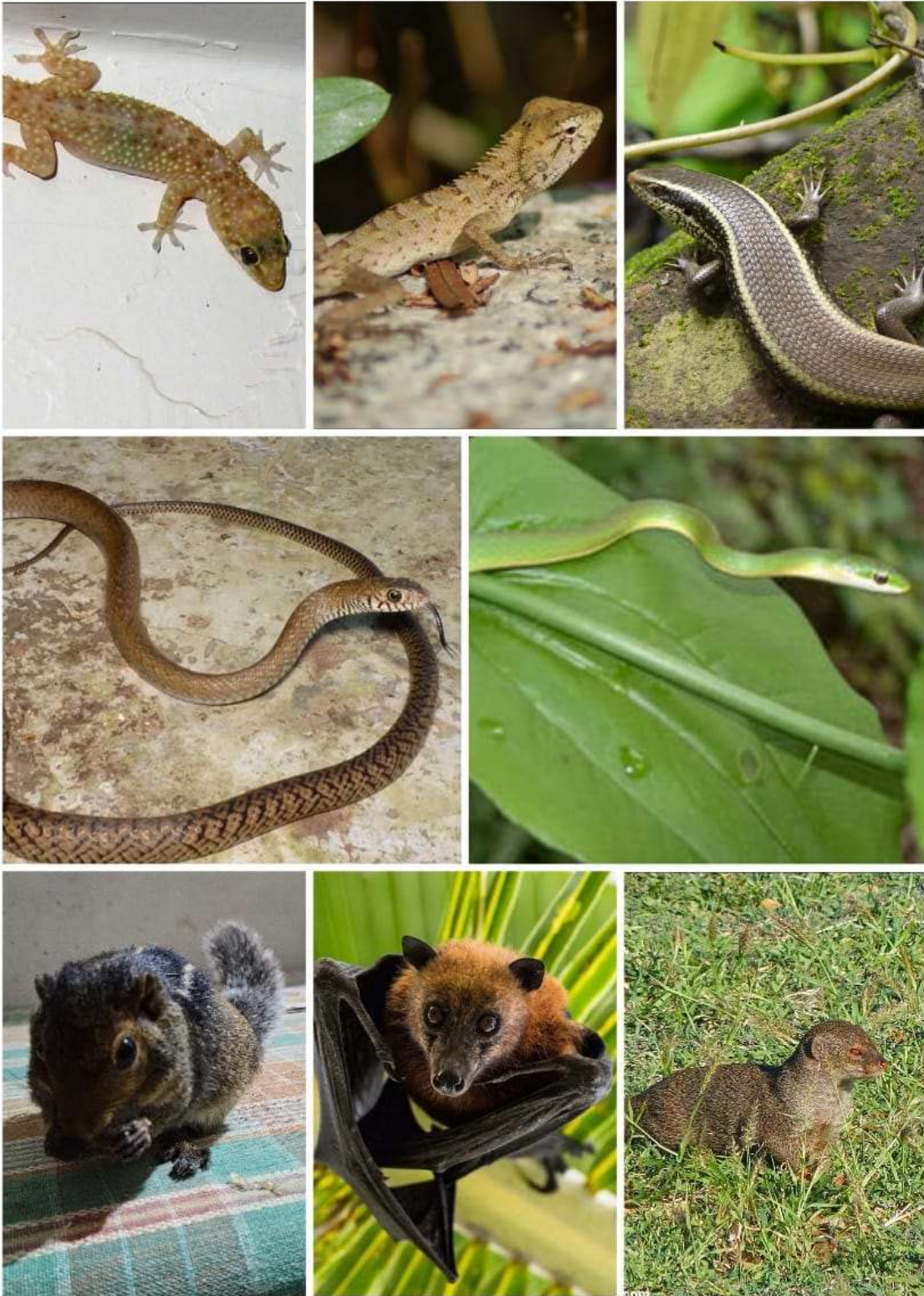
a. *Dinopium benghalense* □ b. *Corvus splendens* □ c. *Acridotheres tristis* □ d. *Centropus sinensis* □ e. *Dendrocitta vagabunda* □ f. *Dicrurus paradiseus* □ g. *Megalaima viridis* □ h. *Haliastur indus* □ i. *Nectarinia asiatica* □ j. *Clamator jacobinus* □ k. *Columbia livia* □ l. *Psittacula krameri* □ m. *Eudynamys scolopacea*

9.6. Reptiles and Mammals

The reptiles found in the campus includes, common garden lizard (*Calotes versicolor*), House lizard (*Hemidactylus frenatus*), common skink (*Eutropis englei*) and snake varieties such as Indian cobra (*Naja naja*), Rat snake (*Ptyas mucosa*), Common krait (*Bangarus caeruleus*), Wolf snake (*Lycodon aulicus*), and Common vine snake (*Ahetulla nasuta*). Mammals found in the campus are mainly squirrel (*Funambulus palmarum*), Indian Grey Mongoose (*Urva edwardsii*), Greater Bandicoot rat (*Bandicota indica*), and Common flying fox (*Pteropus medius*).

In addition to the above, the campus has good diversity of Beetles and moths, dragonflies and damselflies, spiders and many other pollinators and plant pest insects.

Plate 05: Common Reptiles and Mammals



7. RECOMMENDATIONS

- Periodic monitoring and removal of alien and invasive species would enhance restoration of native and wetland species.
- Allow natural regeneration of the endemic and native species wherever it is possible.
- Garden wastes out of trimming and disposal of excess seedlings should be done carefully to avoid further invasion into the natural areas.

8. CONCLUSION

Academic Institutions, especially colleges and universities in India are known for their rich and diverse campus establishments. Most of these establishments are found to have supported the coexistence of natural landscapes in the form of plantations and gardens simultaneously with the built up areas. The institutions that located in urban areas with such natural as well as plantation landscapes have proven themselves to be the lungs of the surrounding areas. St. John's College is located in the heart of Anchal town with its diverse and rich biodiversity components and no doubt it contributes significantly to the ecological and environmental services to the town.