



Project Report On Drosophila Culture

Submitted by

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Year : 2023





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CERTIFICATE

This is to certify that Aman Ananda Upadhyay a student of 6th semester of Department of Zoology, Sonari College, has successfully completed the project report on **Drosophila Culture** under the guidance of Amrita mam Assistant Professor Department of Zoology, during year 2023. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Science in Zoology, Dibrugarh University.

Amrita Mech

Dr. Amrita Mech
Assistant Professor
Department of Zoology
Sonari College

Date.. 30/05/2023....

PROJECT ON PARASITOLOGY



TOPIC :- A BRIEF REPORT ON PARASITE (Ascaris lumbricoides).

SUBMITTED BY :

CLASS : B.Sc. 6th Sem

ROLL NO : 23420041

REGISTRATION NO : S1906445

SESSION : 2022

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23/07/22

SUBMITTED TO:

Department of Zoology

**A PRELIMINARY CHECKLIST OF DIURNAL AND
NOCTURNAL INSECTS OF SONARI TOWN OF
CHARAIDEO DISTRICT, ASSAM**

*A PROJECT REPORT SUBMITTED TO DIBRUGARH UNIVERSITY
FOR PARTIAL FULL FILMENT OF THE REQUIREMENT FOR THE
DEGREE OF BACHELOR OF SCIENCE IN ZOOLOGY.*



SUBMITTED BY

Roll NO- 22820063

Registration No- S2007015

5th Semester

SONARI COLLEGE 2022

DEPARTMENT OF ZOOLOGY

Sonari College

Sonari- 785690

Charaideo


Sonari- 785690

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ASSAM

CERTIFICATE

This is to certify that DARSHANA CHETIA



A student of 5th semester of department of zoology, Sonari college, has carried out the project entitled "**A PRELIMINARY CHECKLIST OF DIURNAL AND NOCTURNAL INSECTS OF SONARI TOWN OF CHARAIDEO DISTRICT, ASSAM**" under my guidance and supervision. The project is a bonafide record submitted for partial fulfillment of the requirement for the degree of bachelor of science in zoology.

Examined
Amrita Mech
24.12.22

Amrita Mech
24/12/22

AMRITA MECH

Assistant Professor

Department of zoology

Sonari college

Date.....*24/12/22*.....

“A Preliminary checklist of of insects of Charaideo district of Assam.”

Abstract:

A study on the diversity of insects during day and night time which attracted by lights was conducted in Sonari town of Charaideo district of Assam in the year 2022 during October – December. A total of**36**..... Species of diurnal insects were recorded during the study period, which belonged to**21**..... Families and**34**..... genera of the order .

Insects are the most divers sucessful and dominant taxon of the animal kingdom . they are found in almost every habitat across the globe . it is due to their diverse body size, habbit, fecundity, different mods of respiration, food diversity ETC . Beacause of these diverse characteristics they become and important component of our eco system . they have significant influence and agriculture , human health and natural resource . This was the main reson for analyzing the status of insects diversity across SONARI and some other local placed of CHARAIDEO district . during the study various species of insects ware collected and identified for estimating the insects species diversity and abundance in the different typs of habites found in the areas . Insects ware collected from various habitats like public parts , gaurden ETC .

Instruction:

Insects are the largest one and most diverse, successful and dominant taxon group on the earth because of their diversity they play an important role in ecology and influence on agriculture, human health and natural resources. Insect biodiversity is the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems. They possess amazing diversity in size and the ability to fly permits them to run away from the enemies and scatter to new environment as they got a protective shell or exoskeleton. Insects have a nervous system that makes them similar to be ours like they can see, hear, smell, taste, and feel. There are different kinds of insects according to their habit and habitats are as follows –

- ✦ *Dragon Beetles- (coleopterans)- front wings changed into a hard shell to protect back wings.*
- ✦ *Butterflies and moths - (lepidoptera) - large often colorful wings.*
- ✦ *Flies-(dipterans)- have only two wings.*
- ✦ *Ants, bees and wasps (hymenoptera)-mostly in large colonies, some-times stinger.*
- ✦ *True-bugs(hemiptera) - have beak a kind of mouth like drinking straw.*
- ✦ *Grasshoppers (orthoptera) - jump with their legs and eat grass.*
- ✦ *Odonata-flies and damselflies are predator of other insects.*

The biodiversity consists of three major parts genetic – diversity species diversity and ecosystem diversity. The insect community in habitats sources could affect the species survival and further effects the species composition and distribution pattern of insect community. The insects possess amazing diversity in size and shape their ability to fly help them to defend from enemies and scatter a new environment as exoskeleton a protective shell ETC.

Materials and Methods:

The study on the diversity of insects was conducted in Sonari town during Oct – Dec in the year 2022.

Sonari Town –

The village is bordered by rice fields, tea gardens. A pvt. Tea factory and market area.

Insects were studied after sunrise when they are found to be time before sunset. Some insects are also studied at night. They were collected by hand picking. Nocturnal insects attracted to lights were found near the electric bulb and where photographed by using personal mobile. Species were recorded with data and time observance.

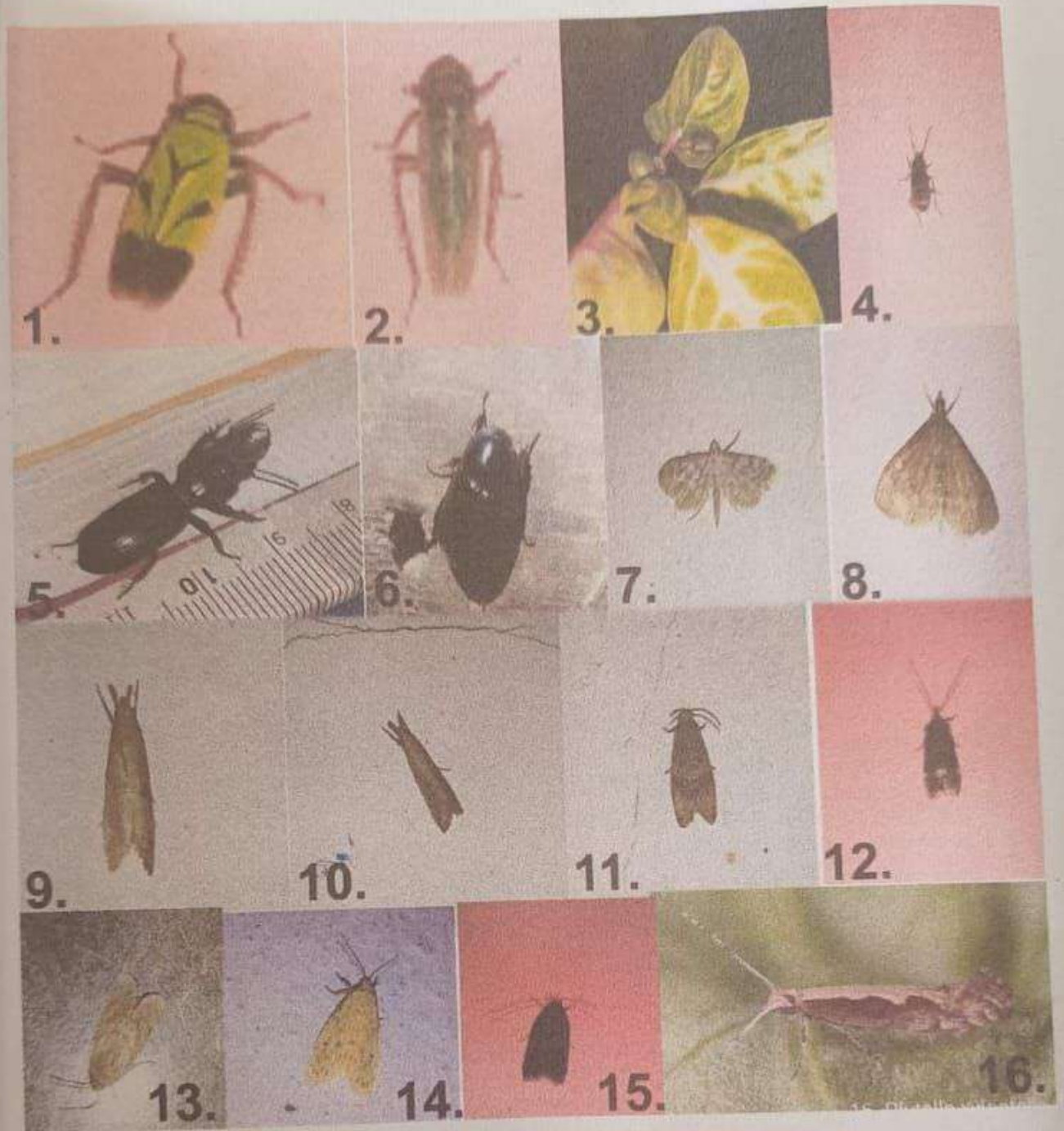
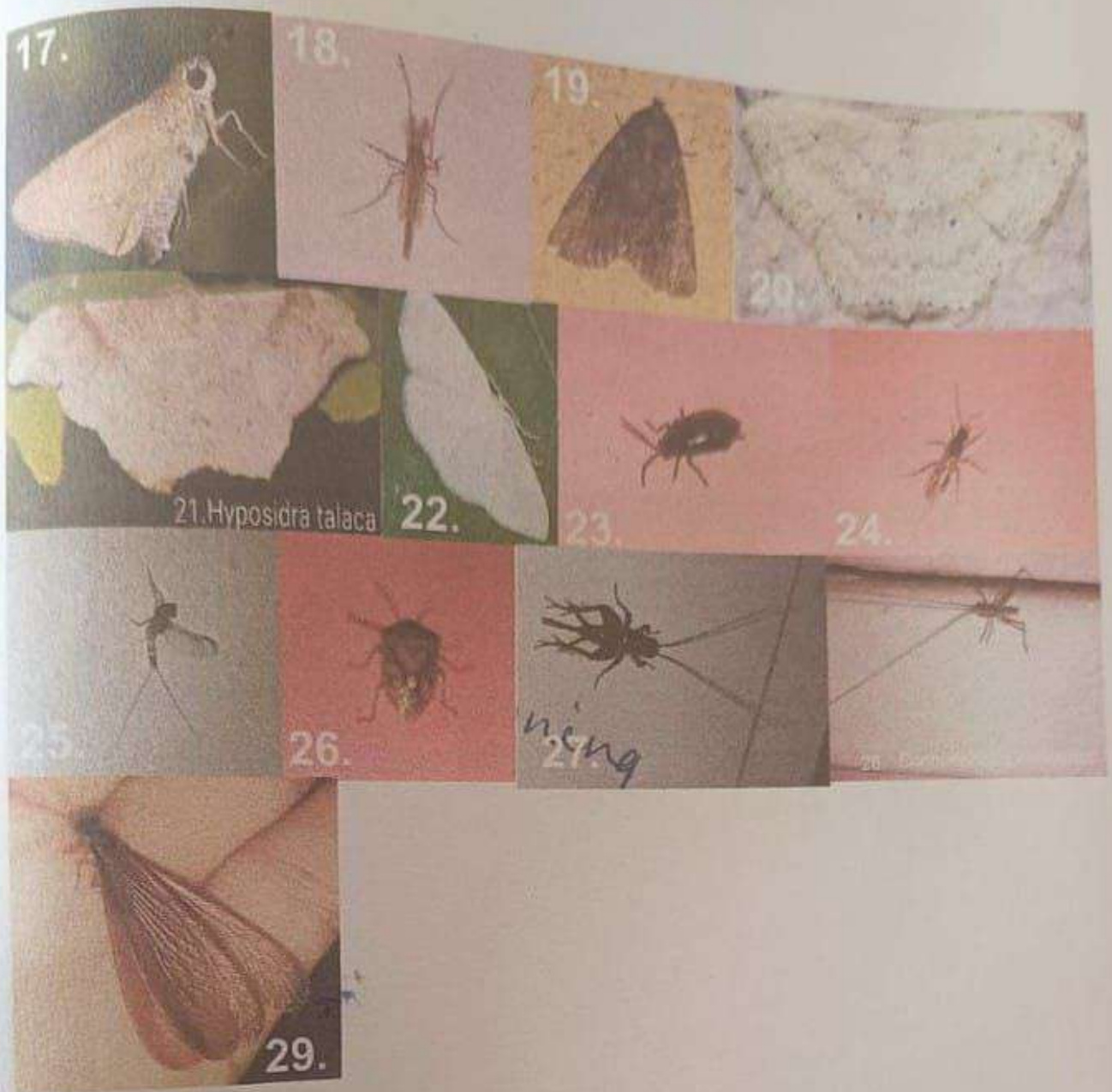


Fig 1:- 1.Nephrotettix virescens 2.Macrosteles quadrilineatus 3.Bradycellus
 4.Laemostenus 5.Scarites quadricaps 6.Heteronychus arator
 7.Herpetogramma addominali 8.Herpetogrammia licarsisalis 9.Chilo partellus
 10.Agriphila cyrenaicellus 11.Sodoptera frugiperda 12.Orthosia miniosa
 13.Noctua fimbriata 14.Lithosiina 15.Dichomeris juncudella
 16.Plutella xylostella

Table3:- A Checklist of Nocturnal insects recorded.

Common name	Scientific name	Family name
1.Green Leafhopper	<i>Nephotettix virescens</i>	Cicadellidae
2.Aster Leafhopper	<i>Macrosteles quadrilineatus</i>	Cicadellidae
3.Beetles	<i>Bradycellus</i>	Carabidae
4.Ground beetles	<i>Laemostenus</i>	Carabidae
5. Ground beetles	<i>Scarites quadriceps</i>	Carabidae
6. Black lawn beetles	<i>Heteronychus arator</i>	Scarabaeidae
7. Snout moth	<i>Herpetogramma abdominali</i>	Crambidae
8.	<i>Herpetogramma licarsisalis</i>	Crambidae
9.Spotted stem borer	<i>Chilo partellus</i>	Crambidae
10.	<i>Agriphila cyrenaicellus</i>	Crambidae
11. Fall armyworm	<i>Sodoptera frugiperda</i>	Noctuidae
12. Blossom underwing	<i>Orthosia miniosa</i>	Noctuidae
13.		
14.		
15. Skinny black moth	<i>Dichomeris juncidella</i>	Gelechiidae
16. Diamond black moth	<i>Plutella xylostella</i>	Plutellidae
17. Grey swift	<i>Parnara bada</i>	Hesperiidae
18. Buzzer midge	<i>Chironomus plumosus</i>	Chironomidae
19.	<i>Catamola funera</i>	Pyralidae

20. Moth	<i>Scopula sp</i>	Geometridae
21. Black inch worm	<i>Hyposidra talaca</i>	Geometridae
22. Large flax flea beetles	<i>Aphthona euphorbiae</i>	Chrysomilidae
23. Parasitoid wasps	<i>Braconid wasps</i>	Braconidae
24. Mayfly	<i>Ephemeroptera</i>	Bactidae



17. *Parnara bada*, 18. *Chironomus plumosus*,
 19. *Catantopus funera*, 20. *Scopula* sp, 21. *Hyposidra talaca*,
 22. *Pleuroprucha insularia*, 23. *Aphthona euphorbiae*,
 24. Braconid wasps, 25. Ephemeroptera,
 26. *Teleogryllus commondus*, 27. *Halyomorpha halys*
 28. *Conocepholus melaenus*, 29. Termites

Conclusion:

These checklist aims to provide an insight into the diversity of insects of the certain selected area of NEAR SONARI Town , Charaideo district. More studies required to be conducted as the district is rich in hills and plains to get an overall report on the diversity of the insects. The records and documentations would further help in preservation of the environment as insects are environmental indicators.

"A preliminary checklist of butterflies and moths of Charaideo district of Assam"

A project report to Dibrugarh University for partial fulfilment of the requirement for the degree of Bachelor of Science in Zoology.



◆ **Submitted by-**

Name :- Rupjyoti Arandhara

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Class:- B.sc 5th sem

Department of Zoology

Sonari college ,2022



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Sonari-785692,
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CERTIFICATE

This is to certify that Rupjyoti Arandhara Roll No _____
Rag No _____ Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my guidance and supervision. The
project is a bona fide record submitted for partial fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date.....

Amrita Mech
29/12/22
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College

"A Preliminary checklist of Butterflies and Moths of Charaideo District of Assam"

Abstract:

A study on the diversity of butterflies during day time and moths attracted by light at night was conducted in Charaideo district of Assam in the year 2022-23. A total of 48 species of butterflies were recorded during the study period, which belonged to 5 families and 31 genera of the order Lepidoptera. The family Nymphalidae dominated, with 54.16% of recorded species followed by Hesperidia and Lycaenidae with 14.58 and 12.5% respectively. A total of 95 species of moths were recorded during the study period, which belonged to families. The families Erebidae and Geometridae, dominated, followed by Crambidae and Noctuidae.

Introduction:

The Charaideo district of Assam was carved out from Sivsagar district in 2015. It is located at 27.07 Degree N and 95.03 Degree E and at an elevation of 318 feet. The district is bounded by Dibrugarh in the North East, Sivasagar in the West and the states of Nagaland and Arunachal Pradesh in the south. With an area of 1069.15 sq kms, the district has approximately 14,863.64 hectares of land under 5 forest reserves-Dilli, Abhoypur, Sapekhathi, Diroi and Chala. Five rivers, viz. river, viz. Towkak, Desang, Teok, Suffry, Timon flow through the district (assam.gov.in). The climatic condition of the area is favourable for flora and fauna to flourish as it also being included under the Indo Burma hotspot.

Insects are the most abundant, diverse and supreme conquerors on Earth, populating about three-fourths of the total known faunal species. The Lepidoptera - butterflies and moths are sensitive bio indicators of environmental pollution (McGeogh, 1998; Rakosy and Schmitt, 2011). They also play important roles as pollinators of food crops (Kunte, 2000; Ostiguy, 2011; Walton et al, 2020), preys to small animals and birds and herbivores of our food crops (Kunte, 2000; Irwin 2010). The jewels of nature - the charismatic butterflies are being studied but the study of moths and their diversity is lagging behind. The reasons behind this might be moths being nocturnal in behaviour, though few are found during day time and moreover many of them are dull coloured and hence are unable to grab the attention of people. The moths are attracted to bright light sources and gather around lights especially in summer time, thus study easier during that time.

The larvae of both butterflies and moths are active plant feeders and deforestation, degradation of wetlands and weeds insecticide application have very much threatened their existence (Kehmikar). The survey, identification and proper documentation of butterfly and moth species is thus very much necessary for conservation and management of habitats. There is dearth of literature on the diversity study of butterfly and moths of Charaideo district and thus the present work was aimed to study on the butterfly and moth diversity in Charaideo district, which is the first report on the area.

Materials and Methods:-

The study on the diversity of butterflies and moths was conducted in the 8 selected sites during 2022-23.

- **Site 1:** The residential area of **Haluwa Forest Reserve** (near Borhat). The area is bordered by Disang River to its East. There is also a bridge called Dilighat and there is a water fall to the north.
- **Site 2:** Near **Sonari College**. The area is bordered by the tea gardens and market area.
- **Site 3:** **Lukhurakhan**. Rice fields & Tea gardens are present. The sites of **Arunachal Pradesh** and **Nagaland** are in close vicinity.
- **Site:** **Ouguri Shyam Gaon**. Rice fields & Tea gardens are present. There also a Bhudish Temple. The sites of Arunachal Pradesh and Nagaland are in close vicinity.
- **Site 4 :** **Pehi Pukhuri** . Rice fields, Tea garden ,Wetlands like the Historical **Pehi Pukhuri** are present.
- **Site 5 :** **Longpotiya**. The area is covered by Tea garden, peddy filed, and there also a Railway Junction is present.
- **Sites 6:** **Aideo Phukhuri**. Tea gardes are present. Wetlands like the historical Aideo phukhuri is present.
- **Sites 7 :** **Bogori guri** (Near Bhojo Railway junction). Tea gardes ,Rice fields are present.
- **Sites 8:** **Deepling**. Tea garden and rice field are present.

Butterflies were after sunrise when they are found to be basking in the sun and at evening time before sunset. They were mostly photographed using personal mobiles. Species were recorded with date and time of observance. Butterflies were identified using book guides of Isaac Kehmikar and Peter Smetacek and website-ifoundbutterflies.org, Web resources like Google Lens. The moths were identified based on available literature of Holloway (1987, 1998) and Kristensen (1999) and other publications. Web resources like Google Lens, Patangasuchaka.in, Field guides, and biodiversity portals, dedicated to lepidopteran diversity were also utilized to confirm or to check the species names.

Table 1: A partial checklist of butterflies recorded

Column1	Column2	Column3	Column4
SL NO.	Common name	Name of the species	Family
1	Common Evening Brown(dry season)	Melanitis leda	Nymphalidae
2	Common Evening Brown (Dry season)	Melanitis leda	Nymphalidae
3	Common Evening Brown (wet season)	Melanitis leda	Nymphalidae
4	Common palmfly(female)	Elymnias hypermnestra	Nymphalidae
5	Black Rajah	Charaxes solon	Nymphalidae
6	Indian Plain Tawny Rajah	Charaxes bernardus	Nymphalidae
7	Blue Admiral	Kaniska canace	Nymphalidae
8	Great Eggfly	Hypolimans bolina	Nymphalidae
9	Common palmfly	Elymnias hypermnestra	Nymphalidae
10	Lime butterfly	Papilio demoleus	Papilionidae
11	Spangle	papilio protenor	Papilionidae
12	Painted Lady	Vanessa cardui	Nymphalidae
13	Striped blue crow	Euploea mulciber	Nymphalidae
14	Plain tiger	Danaus chrysippus	Nymphalidae
15	Common mormon	papilio polytes	Papilionidae
16	Grey pansy	Junonia atlites	Nymphalidae
17	Peacock pansy	Junonia almana	Nymphalidae
18	lemon pansy	junonia lemonias	Nymphalidae
19	Common baron	Euthalia aconthea	Nymphalidae
20	Archduke	Lexias paradalis	Nymphalidae
21	Grey count	Tanaecia lepidea	Nymphalidae
22	Common baron	Euthalia aconthea	Nymphalidae
23	Commander	Moduza procris	Nymphalidae
24	Common bluebottle	Graphium sarpedon	Papilionidae
25	Blue King Crow	Euploea klugii	Nymphalidae
26	Common fivering	Ypthima baldus	Nymphalidae
27	Moore`s fivering	Ypthima nikaea	Nymphalidae
28	Common grass yellow	Eurema hacabe	Pierdae
29	Mottled Emigrant	Catopsilia pyranthe	Pierdae
30	Indian Cabbage White	Pieris canidia	Pierdae
31	Large Cabbage White	Pieris brassicae	Pierdae
32	Three spot Grass Yellow	Eurema blanda	Pierdae
33	Common sergeant	Athyma perius	Nymphalidae
34	Short-banded sailer	Phaedyra columella	Nymphalidae
35	The Black tip Archduke	Lexias dirtea	Nymphalidae
36	Common Spotted flat	Celaenorrhinus leucocera	Hesperiidae
37	Conjoined swift	Pelopidas conjuncta	Hesperiidae
38	Great swift	Pelopidas assamensis	Hesperiidae
39	Common RedEye	Matapa aria	Hesperiidae
40	Small branded swift	Pelopidas mathias	Hesperiidae
41	Common dartlet	Oriens goloides	Hesperiidae
42	Himalayan Common Gem	Poritia hewitsoni	Lycaenidea
43	Lime Blue Butterfly	Chilades lajus	Lycaenidea
44	Common Apefly	Spalgis epius	Lycaenidea
46	Forget me not	Catochrysops Strabo	Lycaenidea
47	Common pierrot	Castalius rosimon	Lycaenidea

Table 2: Summary of Families of Butterflies:

Family	Number of Species	% to total
Nymphalidae	30	
Papilionidae	6	
Hesperiidae	8	
Pieridae	9	
Lycaenidae	8	
Total	61	

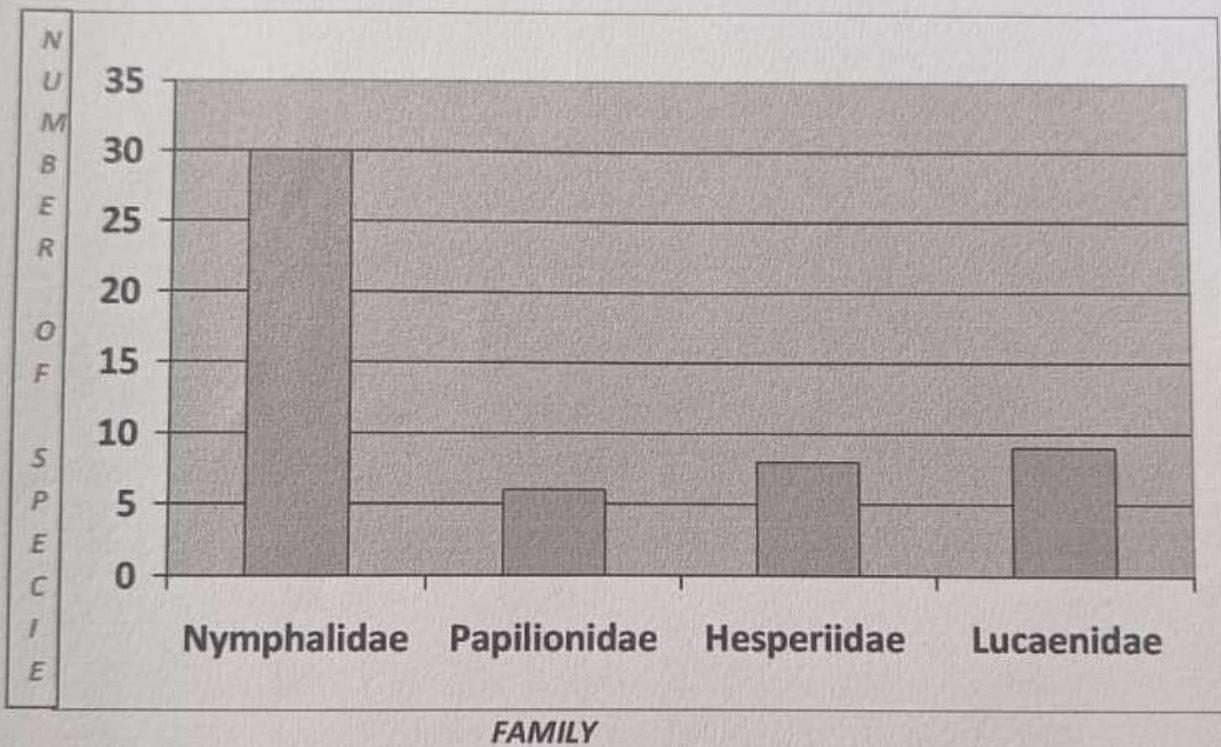


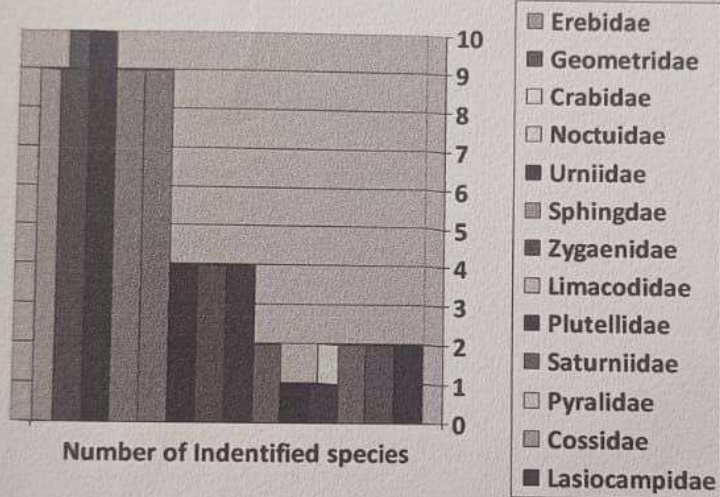
Fig :- shows the number of species of butterflies belonging to each family

Table 3 : Checklist of Moths recorded

Sl no	Common name	Name of species	Family
1		Urapteroides astheniata	Uraniidae
2	Common looper moth	Autographa precationis	Noctuidea
3	Green pergesa hawkmoth	Pergesa acteus	Sphingidae
4	Tropical Swallowtail moth	Lyssa zampa	Uraniidae
5	Stinging caterpillar moth	Thosea magna	Limacodidae
6	Fall armyworm moth	Sodoptera frugiperda	
7	Cabbage Looper moth	Trichoplusia ni	Noctuidea
8	Stinging rose caterpillar moth	Parasa sp	Limacodidae
9	False armyworm	Leucania adjuta	Noctuidea
10		Scopula sp	Geometridae
11		Ramila sp	Crambidae
12	Blood vein moth	Timandra sp	Geometridae
13		Lyclene conjunctana	Eebidae
14		Heterostegane subtessellata	Geometridae
15		Oeonistis entella	Erebidae
16		Cretonotos gangis	Erebidae
17	Common Emaerald moth	Hemithea tritonaria	Geometridae
18	Beet web Worm moth	Spoladea recurvalis	Crambidae
19		Plutella xylostella	Plutelidae
20		Orudiza protheclaria	Uraniidae
21	Lichen moth	Cyana bianca	Erebidae
22	Tropical tiger moth	Asota caricae	Noctuidea
23	Pupillata emerald	Phrudocentra pupillata	Geometridae
24		Cretonotos transiens	Erebidae
25	False tiger moth	Dysphania millitaris	Geometridae
26	Leopard moth	Zeuzera pyrina	Cossidae
27	Lappet moth	Gastropacha species	Lasiocampidae
28	Passenger	Dysgonia algira	Noctuidea
29		Eliema costalis	Erebidae
30		Rupela sp	Crambidae
31		Achyra bifidalis	Crambidae
32		Orgyiini llema	Erebidae
33	Lace border moth	Scopula sp	Geometridae
34		Celenna festivaria	Geometridae
35	Brinjal Leaf webber	Psara bipunctalis	Pyralidae

Table 4 : Summary of Families of Moths :-

Family	Number of Identified species
Erebidae	9
Geometridae	10
Crabidae	9
Noctuidea	9
urniidae	4
Sphingdae	4
Zygaenidae	4
Limacodidae	2
Plutellidae	1
Saturniidae	1
Pyralidae	2
Cossidae	2
Lasiocampidae	2
Total identified species	59





Images 1-23 : 1. *Urapteroides astheniata* , 2. *Autographa precationis* . 3. *Pergesa acetus* , 4. *Lyssa zampa* , 6. *Thosea magna* , 7. *Sodoptera frugiperda* , 9. *Trichoplusia ni* , 12. *Parasa* sp .13. *Leucania adjuta* , 15. *Scopula* sp , 16. *Ramila* sp , 17. *Timandra* sp , 18. *Lyclene conjunctana* 20. *Heterostegane subtelessellata* , 26. *Oeonistis entella* , 27. *Cretonotos gangi* , 28. *Hemithea tritonaria* , 32. *Spoladea recurvalis* , 33. *plutella xylostella* , 34. *Orudiza protheclaria* , 38. *Cyana Bianca* , 39. *Asota caricae* , 40. *Phrudocentra pupillata*

Table 3 : Checklist of Moths recorded

Sl no	Common name	Name of species	Family
1		<i>Urapteroides astheniata</i>	Uraniidae
2	Common looper moth	<i>Autographa precationis</i>	Noctuidea
3	Green pergesa hawkmoth	<i>Pergesa acteus</i>	Sphingidae
4	Tropical Swallowtail moth	<i>Lyssa zampa</i>	Uraniidae
5	Stinging caterpillar moth	<i>Thosea magna</i>	Limacodidae
6	Fall armyworm moth	<i>Sodoptera frugiperda</i>	
7	Cabbage Looper moth	<i>Trichoplusia ni</i>	Noctuidea
8	Stinging rose caterpillar moth	<i>Parasa</i> sp	Limacodidae
9	False armyworm	<i>Leucania adjuta</i>	Noctuidea
10		<i>Scopula</i> sp	Geometridae
11		<i>Ramila</i> sp	Crambidae
12	Blood vein moth	<i>Timandra</i> sp	Geometridae
13		<i>Lyclene conjunctana</i>	Eebidae
14		<i>Heterostegane subtessellata</i>	Geometridae
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25	False tiger moth	<i>Dysphania millitaris</i>	Geometridae
26	Leopard moth	<i>Zeuzera pyrina</i>	Cossidae
27	Lappet moth	<i>Gastropacha species</i>	Lasiocampidae
28	Passenger	<i>Dysgonia algira</i>	Noctuidae
29		<i>Eliema costalis</i>	Erebidae
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31		<i>Achyra bifidalis</i>	Crambidae
32		<i>Orgyiini llema</i>	Erebidae
33	Lace border moth	<i>Scopula</i> sp	Geometridae
34		<i>Celenna festivaria</i>	Geometridae
35	Brinjal Leaf webber	<i>Psara bipunctalis</i>	Pyralidae

	<i>Heortia vitessoides</i>	Crambidae
36 Tropical tiger moth	<i>Asota plaginota</i>	Noctuidae
37 Tropical tiger moth	<i>Asota ficus</i>	Noctuidae
38 Rice leaf roller	<i>Cnaphalocrocis medinalis</i>	Crambidae
	<i>Notarcha quaternalis</i>	Crambidae
39 Olender Hawk Moth	<i>Daphnis nerii</i>	Sphingidae
40	<i>Eutelia adaltricoides</i>	Noctuidae
41 Drury's jewel	<i>Cyclosia papilionaris</i>	Zygaenidae
42 Brown shaded gray moth	<i>Iridopsis defectaria</i>	Zygenidae

Conclusion:-

These checklists aims to provide an insight into the diversity of butterflies and moths of certain selected sites of charadio district. More studies are required to be conducted as the district is rich in hills and plains to get an overall report on the diversity of the Lepidopteron. The records and documentations would further help in preservation of the environment as moths and butterflies are environmental indicators.

"A Preliminary Checklist Of Various Insects Of Charaideo District Of Assam"



A Project Report submitted to Dibrugarh University for partial fulfilment of the requirement of the Degree of Bachelor of Science in Zoology



Submitted By :

Roll No :22820058

Registration No : S2006991

5th Sem

Department of Zoology

Sonari College

2022



Sonari College

Sonari : 785690

Charaideo

Assam

CERTIFICATE

This is to certify that Akanksha Saikia a student of 5th Semester of Department of Zoology, Sonari College, has carried out the project entitled "A Preliminary Checklist Of Various Insects Of Charaideo District Of Assam" under my guidance and supervision. The project is a bonafide record submitted for partial fulfilment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Ameh
24/12/22
Dr Amrita Mech

Assistant Professor

Department of Zoology

Sonari College

Date :

• RESULTS AND DISCUSSION :

Biodiversity of insects presents a scene-setting overview of the value of insects through examples of regional biodiversity, taxon biodiversity, tools and approaches, and management and conservation to a historical view of the quest for the true number of insect species which is the wide variety in type and number and their evolutionary relationships. The biology and ecology of insects is the only way to sustainably manage ecosystems in an ever changing global environment.

The various insect species were collected from the study area to identify the insect species and their diversity. Among them various insect species belonging to order Lepidoptera, Coleoptera, Hemiptera, Hymenoptera, Diptera, Orthoptera, Odonata and Neuroptera were collected. The total identified species were 61 in number from 36 families and 8 orders. In which order Lepidoptera identified with maximum number of species (30) with eleven families i.e. Nymphalidae, Hesperidae, Papilionidae, Pieridae, Erebidae, Geometridae, Lycaenidae, Pyrolidae, Crambidae, Tortricidae and Noctuidae. Coleoptera (7) is the second rich diverse order with five families Scarabaeidae, Curculionidae, Carabidae, Carambycidae and Coccinellidae. Order Hemiptera (6) and Hymenoptera (6) are also rich in number with four and three families respectively. Orthoptera with (3) species of two families. Order Odonata (2) with one family and order Neuroptera (1) with one family.

Table-1 : A Partial Checklist Of Insects Recorded

SI No	Common Name	Name of the Species	Family	Order
1	Green stink bug	<i>Chinavia hilaris</i>	Pentatomidae	Hemiptera
2	Yellow paper wasp	<i>Polistes versicolor</i>	Vespidae	Hymenoptera
3	Grey pansy	<i>Junonia atlites</i>	Nymphalidae	Lepidoptera
4	Skipper	<i>Pelopidas mathias</i>	Hesperiidae	Lepidoptera
5	Common mormon(female)	<i>Pachllopta aristolochiae</i>	Papilionidae	Lepidoptera
6	Common mormon (male)	<i>Papilio polytes</i>	Papilionidae	Lepidoptera
7	Mottled emigrant	<i>Catopsilia pyranthe</i>	Pieridae	Lepidoptera
8	Green lacewing	<i>Chrysoperla carnea</i>	Chrysopidae	Neuroptera
9	Green grasshopper	<i>Omocestus viridulus</i>	Acrididae	Orthoptera
10	Odorous house ant	<i>Tapinoma sessile</i>	Formicidae	Hymenoptera
11	Pome looper	<i>Pasiphilodes testulata</i>	Geometridae	Lepidoptera
12	Dysgonia moth	<i>Dysgonia</i>	Erebidae	Lepidoptera
13	Rhodogastria	<i>Rhodogastria amasis</i>	Erebidae	Lepidoptera
14	Rapala manea or slate flash	<i>Rapala manea</i>	Lycaenidae	Lepidoptera
15	Dragonfly	<i>Orthetrum sabina</i>	Libelluloidea	Odonata
16	Eastern forktail	<i>Ischnura verticalis</i>	Coenagrionidae	Odonata
17	Dock bug	<i>Coreus marginates</i>	Coriidae	Hemiptera
18	Dum skipper	<i>Euphyes vestris</i>	Hesperiidae	Lepidoptera
19	Palm bob	<i>Suastus gremius</i>	Hesperiidae	Lepidoptera
20	Blue winged grasshopper	<i>Oedipoda caerulescens</i>	Acrididae	Orthoptera
21	Ant	<i>Polyrhachisdives</i>	Formicidae	Hymenoptera
22	Canna skipper	<i>Calpodesehtlius</i>	Hesperiidae	Lepidoptera
23	Bug	<i>Diaphorina citri</i>	Liviidae	Hemiptera
24	Glassing tiger	<i>Parantica aplea</i>	Nymphalidae	Lepidoptera
25	Common sailor	<i>Neptis hylas</i>	Nymphalidae	Lepidoptera
26	Blue emperor or Dragon fly	<i>Anax imperator</i>	Aeshnidae	Odonata
27	Talicada	<i>Talicada nyseus</i>	Lycaenidae	Lepidoptera
28	Adoretus	<i>Adoretus bicaudatus</i>	Scarabaeidae	Coleoptera
29	Asian bombardier beetle	<i>Pheropsophus jessoensis</i>	Carabidae	Coleoptera
30	Crane fly	<i>Limnobia modesta</i>	Tipulidae	Diptera

31	Eucalyptus snout beetle	<i>Gonipterus scutellatus</i>	Curculionidae	Coleoptera
32	Tanbark borer beetle	<i>Phymatodes testaceus</i>	Cerambycidae	Coleoptera
33	Green leaf hopper	<i>Nephotettix virescens</i>	Cicadellinae	Hemiptera
34	Brown water scorpion	<i>Ranatra fusca</i>	Nepidae	Hemiptera
35	Rice water weevil	<i>Lissorhoptrus oryzophilus</i>	Curculionidae	Coleoptera
36	Fire ant	<i>Solenopsis invicta</i>	Formicidae	Hymenoptera
37	Blue beetle fly	<i>Calliphora vomitoria</i>	Calliphoridae	Diptera
38	Ladybird	<i>Epilachna varivestis</i>	Coccinellidae	Coleoptera
39	Snow flat	<i>Tagiades japetus</i>	Hesperiidae	Lepidoptera
40	Asian mosquito or forest mosquito	<i>Aedes albopictus</i>	Culicidae	Diptera
41	Common pierrot	<i>Castalius rosimon</i>	Lycaenidae	Lepidoptera
42	Transverse ladybird	<i>Coccinella transversalis</i>	Coccinellidae	Coleoptera
43	Syntomini	<i>Amata phegea</i>	Erebidae	Lepidoptera
44	Alpine argus	<i>Agrides orbitulus</i>	Lycaenidae	Lepidoptera
45	Long legged flies	<i>Chrysosoma</i>	Dolichopodidae	Diptera
46	Meat ant	<i>Iridomyrmex purpureus</i>	Formicidae	Hymenoptera
47	Drain fly	<i>Psychoda griseocens</i>	Psychodidae	Diptera
48	Eastern striped albatross	<i>Appias olferna</i>	Pieridae	Lepidoptera
49	Honey bee	<i>Apis cerana indica</i>	Apidae	Hymenoptera
50	Dung beetles	<i>Scarabaeus viettei</i>	Scarabaeidae	Coleoptera
51	Common jezebel	<i>Delias eucharis</i>	Pieridae	Lepidoptera
52	Snout moth	<i>Phalaena (Pyralis) farinalis</i>	Pyrolidae	Lepidoptera
53	European corn borer	<i>Ostrinia nubilalis</i>	Crambidae	Lepidoptera
54	Common owl moth	<i>Erebus hieroglyphica</i>	Erebidae	Lepidoptera
55	Common glider	<i>Neptis sappho</i>	Nymphalidae	Lepidoptera
56	Yellow winged knapweed root moth	<i>Agapeta zoegana</i>	Tortricidae	Lepidoptera
57	Cricket	<i>Velarifictorus micado</i>	Gryllidae	Orthoptera
58	Geometer moth	<i>Chiasmia</i>	Geometridae	Lepidoptera
59	Common grass yellow	<i>Eurema hecabe</i>	Pieridae	Lepidoptera
60	Moth	<i>Chasmina tibialis</i>	Noctuidae	Lepidoptera

61	Handmaiden moth	<i>Syntomoides imaan</i>	Erebidae	Lepidoptera
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Table- 2: Summary Of Orders of Insects

Orders	Number of Species
1. Hemiptera	6
2. Hymenoptera	6
3. Lepidoptera	30
4. Neuroptera	1
5. Orthoptera	3
6. Coleoptera	7
7. Diptera	5
8. Odonata	2

Table – 3 : Summary of Families of Insects

Families	Number of species
1. Pentatomidae	1
2. Vespidae	1
3. Nymphalidae	4
4. Hesperidae	5
5. Papilionidae	2
6. Pieridae	4
7. Chrysopidae	1
8. Acrididae	2
9. Formicidae	4
10. Geometridae	2
11. Erebidae	5
12. Lycaenidae	1
13. Libelluloidea	1
14. Coenagrionidae	1
15. Coreidae	1
16. Noctuidae	1
17. Gryllidae	1
18. Tortricidae	1
19. Crambidae	1
20. Pyralidae	1
21. Scarabaeidae	2
22. Apidae	1
23. Psychodidae	1
24. Dolichopodidae	1
25. Lycaenidae	3

26. Coccinellidae	2
27. Culicidae	1
28. Calliphoridae	1
29. Curculionidae	2
30. Nepidae	1
31. Cicadellinae	1
32. Cerambycidae	1
33. Tipulidae	1
34. Carabidae	1
35. Aeshnidae	1
36. Libellulidae	1



Images.1-20: 1. *Chinavia hilaris*, 2. *Polistes versicolor*, 3. *Junonia atlites*, 4. *Pelopidas mathias*, 5. *Pachliopta aristolochiae*, 6. *Papilio polytes*, 7. *Catopsilia pyranthe*, 8. *Chrysoperla carnea*, 9. *Omocestus viridulus*, 10. *Tapinoma sessile*, 11. *Pasiphilodes testulata*, 12. *Dysgonia*, 13. *Rhodogastria amasis*, 14. *Rapala manea*, 15. *Orthetrum sabina*, 16. *Ischnura verticalis*, 17. *Coreus marginates*, 18. *Euphyes vestris*, 19. *Suastus gremius*, 20. *Oedipoda caerulescens*.



Images. 42- 60: 42. *Coccinella transversalis*, 43. *Amata phegea*, 44. *Agriades orbitulus*, 45. *Psilopus bituberculatus*, 46. *Iridomyrmex purpureus*, 47. *Psychoda grisescens*, 48. *Appias olfema*, 49. *Apis mellifera*. 50. *Scarabaeus viettie*, 51. *Delis eucharis*, 52. *Phalaena (Pyrallis) farinalis*, 53. *Ostrinia nubilalis*, 54. *Erebus hieroglyphica*, 55. *Neptis sappho*, 56. *Agapeta zoegana*, 57. *Velarifictorus micado*, 58. *Chiasmia*, 59. *Eurema hecabe*, 60. *Syntomoides imaon*.

• CONCLUSION :

These checklist aims to provide an insight into the diversity of insects of certain selected areas of Charaideo district. More studies are required to be conducted as the district is rich in hills, river, agricultural fields. The records and documentaries would further help in preservation of environment as environmental indicator.

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"A Project report on variety of insects"

A project report submitted to Dibrugarh University for partial fulfillment of requirement for Degree of Bachelor of Science in Zoology.



Submitted by

Roll No. : 22820034

Registration No: S2007048

5th Sem

Department of Zoology

Sonari College

2022

DEPARTMENT OF ZOOLOGY

Sonari College
Sonari-785690
Charaideo
ASSAM

CERTIFICATE

This is to certify that **PARAMANANDA TANTI** a student of 5th semester of Department of Zoology, Sonari College has carried out the project entitled "A **Project report on variety of insects**" under my guidance and super vision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Date : 24/12/2022

AMech
23/12/22
AMRITA MECH
Assistant Professor
Department of Zoology
Sonari College

Examined

Ammini (exl)
24-12-22

Abstract:

A study on the diversity of insects during night times in Charaideo (Borhat) district in the year 2022.

A Total 30 Species of insects were recorded during the study period.

Introduction:

The Charaideo district of Assam was carved out from Sivsagar district in 2015. It is located at 27.07°N 95.03°E and at an elevation of 318 feet. The district is bounded by Dibrugarh in the North East.

Borhat is a partially urbanised village in the eastern part of the Charaideo district Assam, separated from Namrup town in the east by the river Disang or Delehi.

Insect are the most abundant diverse and supreme conquerors on earth. Populating about three – fourths of the total known faunal species. Most insects like beetles, ants, are used as biological indicator in this study because they are sensitive to even a slight change in environment and also used in monitoring of various pollutants in environment.

Method and Materials

The study on the diversity of insects was conducted in 3 selected sites during 2022.

Site 1: The village Nahar Pukhuri Konwar Gaon is located in Sapekhati circle of charaideo district.

Site 2: The Michajan Gaon is located in Sapekhati Circle of charaideo district.

Site 3: Mahalakhi Tea state is located in Sapekhati circle of charaideo district.

The insects are mostly photographed and a few were collected using sweep nets. Moths attracted to light were photographed using personal mobiles. Species were recorded with date and time of observation. Insects are identified using websites I found insects.org. web resources like Google lens.

Result and Discussion :

A total of 30 type of insects are recorded. The checklist is given in Table. The highest number of insects recorded belonged to lepidoptera order. Moths were highly attracted to light source, the plant growing around the study sites – rice fields tea garden and Vegetable gardens and altitudes.

Table : A Partial checklist of insects recorded.

<u>Name of the Species</u>	<u>Order</u>	<u>Family</u>
Large yellow underwing	Lepidoptera	Noctuidae
Scirpophaga	Lepidoptera	Crambidae
Scarite	Coleopter	Carabidae
Bee Moth	Lepidoptera	Pyralidae
Long Horned Moth	Lepidoptera	Adelidae
Arilus Cristatus	Hemiptera	Reduviidae
Teleogryllus Emma	Orthoptera	Gryllidae
Water Scorpions	Hemiptera	Nepidae
Pheropsophus Jesoensis	Coleoptera	Carabidae
Fungus Weevils	Coleoptera	Anthribidae
Grass Hopper	Orthoptera	Acrididae
Firefly	Coleoptera	Lompyridae
Statilia Maculata	Mantodae	Mantidae
True Bugs	Hemiptera	
Hylo Trupes	Coleoptera	Cerambycidae
Rhynocouris Iracundus	Hemiptera	Reduviidae
Adoretus	Coleoptera	Scarabaeoidea
Heteronychus Arator	Coleoptera	Scarabaeidae
Pelosia	Lepidoptera	Erebidae
Cyclosia Papilionaris	Lepidoptera	Zygaenidae
Amyna Puctum	Lepidoptera	Noctuidae
Cretonotos Transiens	Lepidoptera	Erebidae
Cuban Cockroach	Blattodae	Blaberidae
Yellow Bever Mosquito	Diptera	Culicidae
Hornfly	Diptera	Muscidae
Pterostichus Melanarius	Coleoptera	Carabidae



A



B



1



House cricket



Scimporhaga



Scopula



Longhanded moth



stafilis maculata



Water Scorpion



Amyna





10



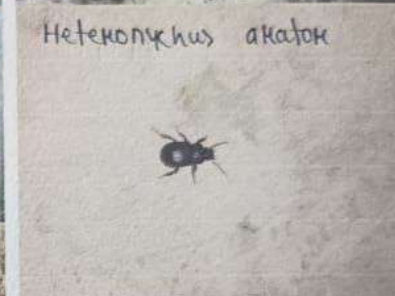
Rhyncolobus thacunctus



Anthribidae



Grasshopper



Heteronyxus akator



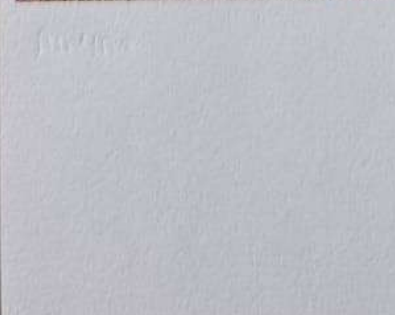
Hylotrupes



Pheopsophus jessoensis



Adonetus



Conclusion:

These checklists aims to provide an insight into the diversity of insects of certain selected sites of (Borhat) Charaideo district. More studies are required to be conducted as the district is rich in hills and plains to get an overall report on the diversity of the Lepidopteron. The records and documentations would further help in preservation of the environment as both moths and butterflies are environmental indicators.

A Preliminary checklist of diurnal and nocturnal insects of Jalah gaon of Charaideo district, Assam



A project report submitted to Dibrugarh University for partial fulfilment of the requirement for the Degree Bachelor of Science in Zoology.



Submitted by,
Roll No-22820076
Registration No-S2007059
5th Semester
Sonari College
2022
DEPARTMENT OF ZOOLOGY



CERTIFICATE

This is to certify that Pubali Basumatani

a student of 5th semester of department of Zoology, Sonari college, has carried out the project entitled "A preliminary checklist of diurnal and nocturnal insects of Jalah gaon of Charaideo district, Assam" under my guidance and supervision. The project is a bona fide record submitted for partial fulfillment of the requirement for the degree Bachelor of Science in Zoology, Dibrugarh University.

Date- 24/12/2022

Amrita Mech 24/12/22

Dr. Amrita Mech
Assistant professor
Department of Zoology
Sonari college

Examined
Amrita Mech (net)
24-12-22

"A preliminary checklist of diurnal and nocturnal insects of Jalah gaon of Charaideo district."

Abstract:-

A study on the diversity of insects during day and night time which attracted by lights was conducted in Jalah gaon of Charaideo district of Assam in the year 2022 during October-December.

A total of 36 species of diurnal insects were recorded during study period, which belong to 21 families and 34 genera of the order Lepidoptera and diptera. The family **Nympholidae** and **Lycaenidae** is dominated.

A total of 32 species were found at the night time. The family **Cicadellidae** and **Crambidae** is dominated followed by **Carabidae** and **Noctuidae**.

INTRODUCTION:-

The Jalah gaon village is located in Sonari subdivision of Charaideo district in Assam, India. It is situated 12km away from sub-district headquarter Sonari. The total geographical area of village is 389.22 hectares. The district is bounded by Dibrugarh in North East, Sivsagar in West and the states of Nagaland and Arunachal Pradesh in the South. The climate condition of the area is favourable for flora and fauna to flourish as it is also being included under the Info Burma hotspot.

Insects are the most diverse group of animals; they include more than a million described species and represent more than half of all known living organisms. Humans regard certain insects as pests. Some insects damage crops by feeding on sap, leaves, fruits, or wood. Some species are parasitic, and may vector diseases. Some insects perform complex ecological roles: for example, blow-flies help consume carrion but also spread disease. Insect pollinators are essential to the life cycle of many flowering plant species on which most organisms, including humans, are at least partly dependent; without them, the terrestrial portion of the biosphere would be devastated. Many insects are considered ecologically beneficial as predators and a few provide direct economic benefit. Human activities also have effects on insect biodiversity.

MATERIAL AND METHODS:-

The study on the diversity of insects was conducted in Jalah gaon during oct-dec in the year 2022.

Jalah gaon is (26.1206 latitude, 92.6523 longitude). The village is bordered by rice fields, tea gardens. A Pvt. Tea factory and a small stone crusher factory is also present.

Insects were studied after sunrise when they are found to be basking in the sun and at evening time before sunset. Some insects are also studied at night. They were mostly photographed and a few were collected by hand picking. Nocturnal insects attracted to lights were found near the electric bulb and were photographed by using personal mobile. Species were recorded with date and time of observance. Insects were identified by using google lense and book guides of Issac Kehimkar and Peter Smetacek and websites ifoundbutterflies.org, Patangasuchaka.in, mothsofindia.org, Google scholar, web resources like google lens, field guides are use to confirm or to check the species names.

Results and discussion:-

A total of 36 species of diurnal insects were recorded under 21 families. The checklist is given in the Table1. The highest number of insect recorded belonged to the family **Nympholidae** followed by **Lycaenidae** and **Formicidae**.(table1 and fig1). It was seen that the most common insect gray pansies were recorded in large number in the study site.

A total of 32 nocturnal insects were recorded under 18 families. It was seen that the **Nephotettix virescens** of the **Cicadellidae** family were the dominant insects at night during the study period. Nocturnal insects are highly attracted by light sources so that it becomes easier to study them. A checklist is given in the table3.

(However I couldn't identify a few of insects, but attached photographs of them.)

Table 1: A partial Checklist of Diurnal insects.

COMMON NAME	SCIENTIFIC NAME	FAMILY
1.Gray pansy	<i>Junonia atlites</i>	Nympholidae
2.Peacock pansy	<i>Junonia almana</i>	Nympholidae
3.Common evening brown (dry season)	<i>Melanitis leda</i>	Nympholidae
4.Common evening brown (wet season)	<i>Melanitis leda</i>	Nympholidae
5.Short banded sailer	<i>Neptis columella</i>	Nympholidae
6.The common pierrot	<i>Castalius rosimon</i>	Lycaenidae
7.Karner blue butterfly	<i>Lycaeides melissa samvelis</i>	Lycaenidae
8.African grass blue butterfly	<i>Zizeeria knysna</i>	Lycaenidae
9.Cabbage white	<i>Pieris canidia</i>	Pieridae
10.Red slug caterpillar moth	<i>Eterusia aedea</i>	Zygaenidae
11.Conjoined swift (skipper butterflies)	<i>Pelopidas conjuncta</i>	Hesperiidae
12. Skipper butterflies	<i>Cephrenes trichopepla</i>	Hesperiidae
13.The hand maiden moth	<i>Syntomoides imaon</i>	Erebidae
14.Asian lady beetle	<i>Harmonia axyridis</i>	Coccinellidae
15.Ursine spurleg lady beetle	<i>Brachiacantha ursina</i>	Coccinellidae
16.		Coccinellidae
17.Cereal leaf beetle	<i>Oulema melanopus</i>	Chrysomelidae
18.Pumpkin beetle	<i>Aulacophora foveicollis</i>	Chrysomelidae
19.Oriental beetle	<i>Anomola orientalis</i>	Scarabaeidae
20.Mealybug	<i>Planococcus citri</i>	Pseudococcidae
21.Bean bug	<i>Riptortus pedestris</i>	Alydidae
22. Black inch worm	<i>Hyposidra talaca</i>	Geometridae

23. Black inch worm	<i>Hyposidra talaca</i>	Geometridae
24. Honey bee	<i>Apis mellifera</i>	Apidae
25. Banded wasp	<i>Vespa tropica</i>	Vespidae
26. Green grasshopper	<i>Omocestus viridulus</i>	Acrididae
27. Grasshopper		
28. Big headed ant	<i>Pheidole megacephala</i>	Formicidae
29. Fire ant (red ant)	<i>Solenopsis</i>	Formicidae
30. Weaver ant	<i>Oecophylla</i>	Formicidae
31. Green bottle fly	<i>Lucilia sericata</i>	Calliphoridae
32. Polietes dominator		
33. Housefly	<i>Brachycera</i>	
34. Housefly	<i>Musca domestica</i>	Muscidae
35.	<i>Odontomyia virgo</i>	Stratiomyidae
36. Cheese skipper fly	<i>Piophilina casei</i>	Piophilidae

37. Dragon fly	<i>Anisoptera</i>	Libellulidae
38. Damsel fly	<i>Enallagma cyathigerum</i>	Coenagrionidae

Table 2 :- Summary of families of diurnal insects recorded-

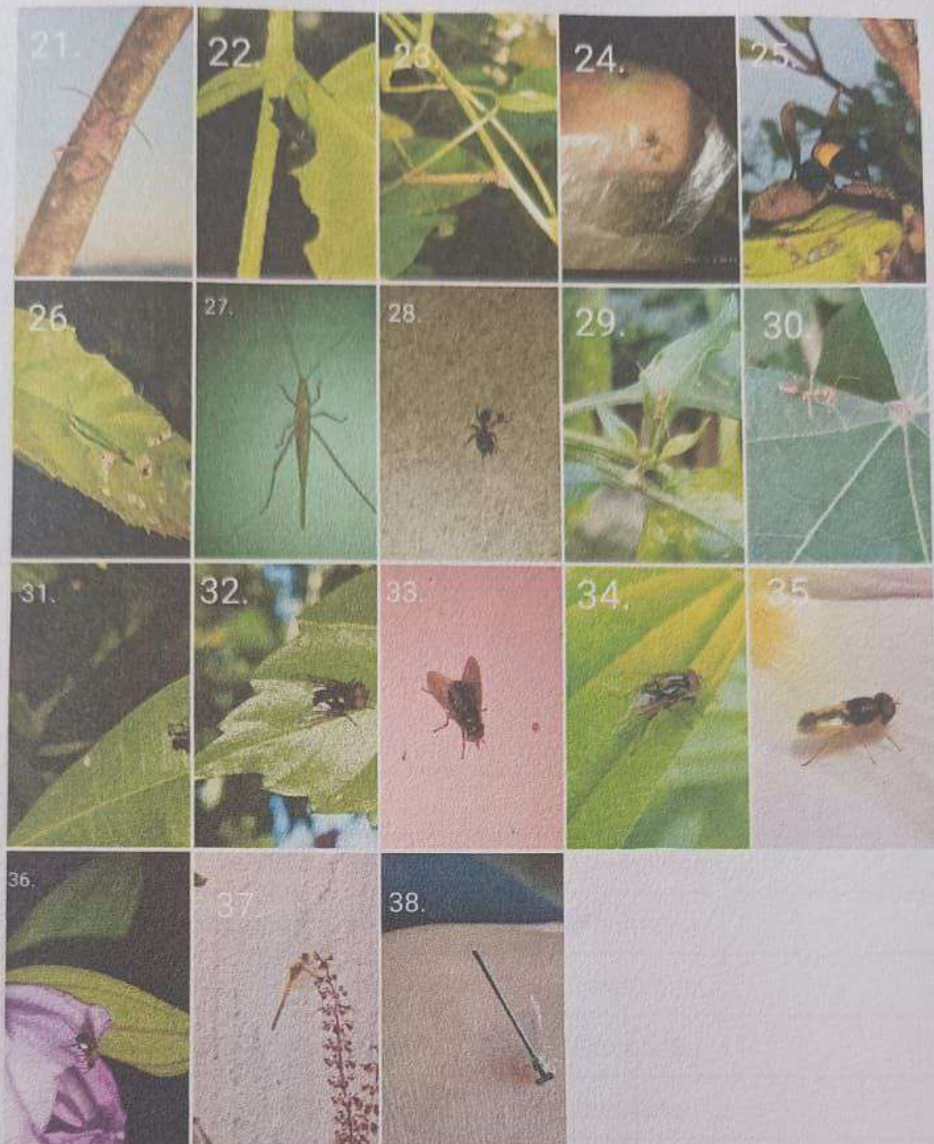
Family name	Number of species
Nympholidae	5
Lycaenidae	3
Zygaenidae	1
Hesperiidae	2
Erebidae	1
Coccinellidae	3
Coenagrionidae	1
Chrysomelidae	2
Scarabaeidae	1
Pseudococcidae	1

Alydidae	1
Geometridae	2
Apidae	1
Vespidae	1
Acrididae	1
Formicidae	3
Calliphoridae	1
Muscidae	1
Stratiomyidae	1

Libellulidae	1
Pieridae	1
Total	34



Fig 3:- 1. *Junonia atlites* 2. *Junonia almana* 3. *Melanitis leda* 4. *Melanitis leda* 5. *Neptis columella* 6. *Castalius rosimo* 7. *Lycaeides melissa samvelis* 8. *Zizeeria knysna* 9. *Pieris canidia* 10. *Eterusia aedea* 11. *Pelopidas conjuncta* 12. *Cephrenes trichopepla* 13. *Syntomoides imaon* 14. *Harmonia axyridis* 15. *Brachiacantha ursina* 17. *ulema melanopus* 18. *Aulacophora foveicollis* 19. *Anomola orientalis* 20. *Planococcus citri*



21. *Riptortus pedestis* 22. *Hyposidra talaca*
 23. *Hyposidra talaca* 24. *Apis mellifera* 25. *Vespa Tropica*
 26. *Omocestus viridulus* 27.
 28. *Pheidole megacephala* 29. *Solenopsis* 30. *Oecophylla*
 31. *Luicilla sericata* 33. *Brachycera* 34. *Musca domestica*
 35. *Odontomyia virgo* 36. *Piophillicia casei* 37. *Anisaptera*
 38. *Enallagma cyathigerum*

Table3:- A Checklist of Nocturnal insects recorded.

Common name	Scientific name	Family name
1.Green Leafhopper	<i>Nephotettix virescens</i>	Cicadellidae
2.Aster Leafhopper	<i>Macrosteles quadrilineatus</i>	Cicadellidae
3.Beetles	<i>Bradycellus</i>	Carabidae
4.Ground beetles	<i>Laemostenus</i>	Carabidae
5. Ground beetles	<i>Scarites quadriceps</i>	Carabidae
6. Black lawn beetles	<i>Heteronychus arator</i>	Scarabaeidae
7. Snout moth	<i>Herpetogramma abdominali</i>	Crambidae
8.	<i>Herpetogramma licarsisalis</i>	Crambidae
9.Spotted stem borer	<i>Chilo partellus</i>	Crambidae
10.	<i>Agriphila cyrenaicellus</i>	Crambidae
11. Fall armyworm	<i>Sodoptera frugiperda</i>	Noctuidae
12. Blossom underwing	<i>Orthosia miniosa</i>	Noctuidae
13.	<i>Noctua fimbriata</i>	Noctuidae
14.	<i>Lithosiina</i>	Erebidae
15. Skinny black moth	<i>Dichomeris juncidella</i>	Gelechiidae
16. Diamond black moth	<i>Plutella xylostella</i>	Plutellidae
17. Grey swift	<i>Parnara bada</i>	Hesperiidae
18. Buzzer midge	<i>Chironomus plumosus</i>	Chironomidae
19.	<i>Catamola funera</i>	Pyralidae
20. Moth	<i>Scopula sp</i>	Geometridae
21. Black inch worm	<i>Hyposidra talaca</i>	Geometridae
22. Common tan wave	<i>Pleuroprucha insulsaria</i>	Geometridae
23. Large flax flea beetles	<i>Aphthona euphorbiae</i>	Chrysomilidae
24. Parasitoid wasps	<i>Braconid wasps</i>	Braconidae

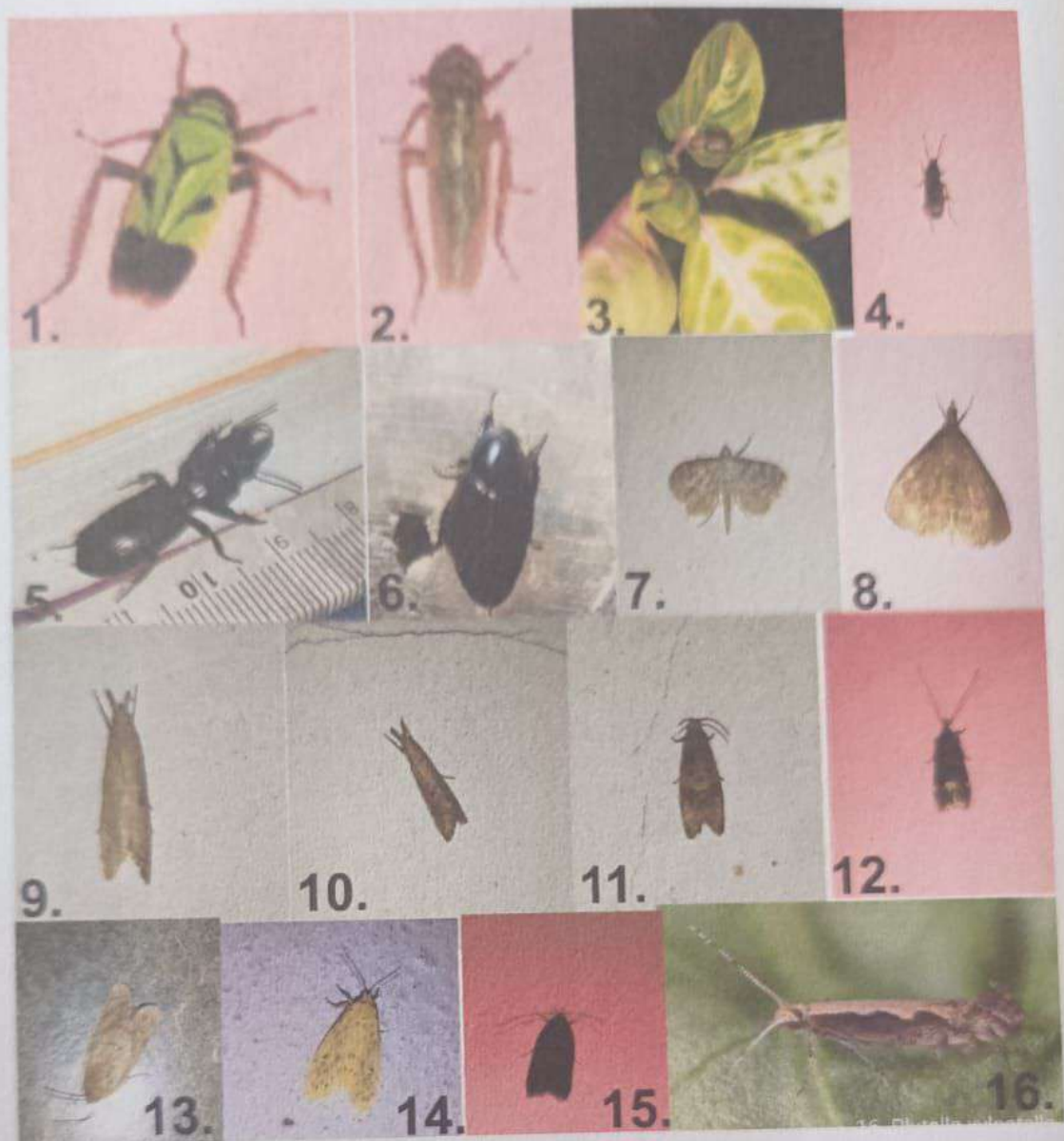


Fig4:- 1.Nephrotettix virescens 2.Macrosteles quadrilineatus 3.Bradycellus
 4.Laemostenus 5.Scarites quadriceps 6.Heteronychus arator
 7.Herpetogramma addominali 8.Herpetogrammia licarsisalis 9.Chilo partellus
 10.Agriphila cyrenaicellus 11.Sodoptera frugiperda 12.Orthosia miniosa
 13.Noctua fimbriata 14.Lithosiina 15.Dichomeris juncudella
 16.Plutella xylostella

CONCLUSION

These checklist aims to provide an insight into the diversity of insects of the certain selected area of jalah village of Charaideo district. More studies required to be conducted as the district is rich in hills and plains to get an overall report on the diversity of the insects. The records and documentations would further help in preservation of the environment as insects are environmental indicators.



Sonari College

Sonari- 785690

Charaideo

Assam

CERTIFICATE

This is to certify that Ruhini Das a student of 5th semester of Department of Zoology, Sonari College has carried out the project entitled "A preliminary checklist of butterflies and moth of Charaideo district of Assam ". Under my guidance and supervision. The project is a bona field record submitted for partial fulfillment of the requirement for the degree of Bachelor of Science in Zoology. Dibrugarh University.

Date: 26/12/22

AMRITA MECH

Assistant professor

Department of Zoology

Sonari College

Introduction:

The Charaideo district of Assam was carved out from Sivasagar district in 2015. It is located at 27.07°N 95.03 E and at an elevation of 318 feet. The district is bounded by Dibrugarh in the North East Sivasagar in the West and the states of Nagaland and Arunachal Pradesh in the South. With an area of 1069.15 sqkms, the district has approximately 14, 863.64 hectares of land under 5 forest reserves – Dilli, Abhoypur, Sapekhati, Diroi and Chala. Five rivers viz Towkak, Desang, Teok, Suffy, Timon flows through the district (Assam.gov.in). The climatic condition of the area is favorable for flora and fauna to flourish as it is also being included under the Indo Burma hotspot.

Insects are the most abundant, diverse and supreme conquerors on Earth, populating about three fourths of the total known faunal species. The Lepidopterans butterflies and moths are sensitive bioindicators of environmental pollution of (MC Geogh, 1998, Rakosy and Sachmit, 2011). They also play important roles as pollinators of food crops (Kunte, 2000, Ostiguy, 2011, Walton et al herbivores of our food crops (Kunte 2000, Irwin 2010). The jewels of nature the charismatic Butterflies are being studied but the study of moths and their diversity is lagging behind. The reasons behind this might be moths being nocturnal in behaviors, though few are found during day time and moreover many of them are dull colored and hence are unable to grab the attention of people. The moths are attracted to bright light sources and gather around lights especially in summer time, thus making their study easier during that time.

The larvae of both Butterflies and moths are active plant feeders and deforestation, degradation of wetlands and weeds, insecticide application have very much threatened their existence (Kehonker). The survey, identification and proper documentation of butterfly and moth species is thus very much necessary for conservation and management of habitats. There is dearth of literature on the diversity study of butterfly and moth diversity in Charaideo district, which is the first report on the area.

Results and Discussions:

A total of 20 species of butterflies were recorded under 4 families. The checklist is given in table 1. Butterflies have always fascinating people because of their charismatic appearance. The number of butterflies recorded belonged to the nymphalidae family followed by Lycaenida, Pieridae and Papilionidae. A similar trend was recorded by Bora and Meitei (2014) while studying butterfly fauna in five tea gardens of Sivasagar district and 3 of the gardens now fall under Charaideo district. Nymphalids are the largest family of butterflies, they are polyphagous. It was seen that the most common butterflies the cabbage White's, yellows, common Mormons and the pansies were recorded in large numbers in all the study sites and site 1 which is tea gardens area.

A total no of 8 moths were recorded under 4 families only 8 numbers of moths. A checklist is given in table 2. Moths were highly attracted to light source, the plants growing around the study sites rice fields, vegetable gardens wetlands etc. The larvae of the moths recorded are pests of vegetable crops and plants. This preliminary study shows that highest number of moth belonged Geometridae and Erebidae families followed by Crambidae and Noctuidae families.

Table 1 : A partial Checklist of Butterflies recoded.

Sl No	Common name	Scientific Name	Family
1	Peacock Pansy	Junonia almana	Nymphalidae
2	Lemon Pansy	Junonia lemonios	Nymphalidae
3	Common cerulean	Jamides celeno	Lycaemidae
4	Common mormon	Papilio polytes romunus	Papilionidae
5	Evening brown butterfly	Melanitis leda	Nimphalidae
6	Plain Tiger	Danaus Chysippus	Nimphalidae
7	Scalloped Grass Yellow B	Urema Alitha	Pierida
8	Cruiser	Vindula	Nymphalidae



Table 2 : A partial Checklist of Moths recoded.

Sl No	Common name	Scientific Name	Family
1	Pyraustinae	Crambid Moth	Crambidae
2	Anomis	Anomis flava	Eredide
3	Jasmine Moth	Palpita vitrealis	Crambidae
4	Swallo tailed moth	Ourapteryx sambcaria	Geometridae
5	Brimstone moth	Opisthographitis luteolata	Geometridae
6	Bogong moth	Agrotis infusa	Noctudae
7	Mint green moth	Pyrausta aurata	Crambidae



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Examined

"A preliminary checklist of butterflies and moths of Charaideo district of Assam"

A project report to Dibrugarh University for partial fulfilment of the requirement for the degree of Bachelor of Science in Zoology.



◆ **Submitted by-**

Name :- Rupjyoti Arandhara
Roll no:-22820047
Registration no:- S2007071
Class:- B.sc 5th sem
Department of Zoology
Sonari college ,2022



Sonari College
Sonari-785692,
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Assam

CERTIFICATE

This is to certify that Rupjyoti Arandhara Roll No
Rag No Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my guidance and supervision. The
project is a bona fide record submitted for partial fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date.....

Amrita Mech
29/12/22
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College

"A Preliminary checklist of Butterflies and Moths of Charaideo District of Assam"

Abstract:

A study on the diversity of butterflies during day time and moths attracted by light at night was conducted in Charaideo district of Assam in the year 2022-23. A total of 48 species of butterflies were recorded during the study period, which belonged to 5 families and 31 genera of the order Lepidoptera. The family Nymphalidae dominated, with 54.16% of recorded species followed by Hesperidia and Lycaenidae with 14.58 and 12.5% respectively. A total of 95 species of moths were recorded during the study period, which belonged to families. The families Erebidae and Geometridae, dominated, followed by Crambidae and Noctuidae.

Introduction:

The Charaideo district of Assam was carved out from Sivasagar district in 2015. It is located at 27.07 Degree N and 95.03 Degree E and at an elevation of 318 feet. The district is bounded by Dibrugarh in the North East, Sivasagar in the West and the states of Nagaland and Arunachal Pradesh in the south. With an area of 1069.15 sq kms, the district has approximately 14,863.64 hectares of land under 5 forest reserves-Dilli, Abhoypur, Sapekhati, Diroi and Chala. Five rivers, viz. river, viz. Towkak, Desang, Teok, Suffry, Timon flow through the district (assam.gov.in). The climatic condition of the area is favourable for flora and fauna to flourish as it also being included under the Indo Burma hotspot.

Insects are the most abundant, diverse and supreme conquerors on Earth, populating about three-fourths of the total known faunal species. The Lepidoptera - butterflies and moths are sensitive bio indicators of environmental pollution (McGeogh, 1998; Rakosy and Schmitt, 2011). They also play important roles as pollinators of food crops (Kunte, 2000; Ostiguy, 2011; Walton et al, 2020), prey to small animals and birds and herbivores of our food crops (Kunte, 2000; Irwin 2010). The jewels of nature - the charismatic butterflies are being studied but the study of moths and their diversity is lagging behind. The reasons behind this might be moths being nocturnal in behaviour, though few are found during day time and moreover many of them are dull coloured and hence are unable to grab the attention of people. The moths are attracted to bright light sources and gather around lights especially in summer time, thus study easier during that time.

The larvae of both butterflies and moths are active plant feeders and deforestation, degradation of wetlands and weeds insecticide application have very much threatened their existence (Kehmikar). The survey, identification and proper documentation of butterfly and moth species is thus very much necessary for conservation and management of habitats. There is dearth of literature on the diversity study of butterfly and moths of Charaideo district and thus the present work was aimed to study on the butterfly and moth diversity in Charaideo district, which is the first report on the area.

Materials and Methods:-

The study on the diversity of butterflies and moths was conducted in the 8 selected sites during 2022-23.

- **Site 1:** The residential area of **Haluwa Forest Reserve** (near Borhat). The area is bordered by Disang River to its East. There is also a bridge called Dilighat and there is a water fall to the north.
- **Site 2:** Near **Sonari College**. The area is bordered by the tea gardens and market area.
- **Site 3:** **Lukhurakhan**. Rice fields & Tea gardens are present. The sites of **Arunachal Pradesh** and **Nagaland** are in close vicinity.
- **Site:** **Ouguri Shyam Gaon**. Rice fields & Tea gardens are present. There also a Bhudish Temple. The sites of Arunachal Pradesh and Nagaland are in close vicinity.
- **Site 4 :** **Pehi Pukhuri**. Rice fields, Tea garden, Wetlands like the Historical **Pehi Pukhuri** are present.
- **Site 5 :** **Longpotiya**. The area is covered by Tea garden, peddy field, and there also a Railway Junction is present.
- **Sites 6:** **Aideo Phukhuri**. Tea gardens are present. Wetlands like the historical Aideo phukhuri is present.
- **Sites 7 :** **Bogori guri** (Near Bhojo Railway junction). Tea gardens, Rice fields are present.
- **Sites 8:** **Deepling**. Tea garden and rice field are present.

Butterflies were after sunrise when they are found to be basking in the sun and at evening time before sunset. They were mostly photographed using personal mobiles. Species were recorded with date and time of observance. Butterflies were identified using book guides of Isaac Kehmikar and Peter Smetacek and website ifoundbutterflies.org, Web resources like Google Lens. The moths were identified based on available literature of Holloway (1987, 1998) and Kristensen (1999) and other publications. Web resources like Google Lens, Patangasuchaka.in, Field guides, and biodiversity portals, dedicated to lepidopteran diversity were also utilized to confirm or to check the species names.

Results and Discussion:-

A total of species of butterflies were recorded under families .The checklist is given in table 1.Butterflies have always fascinating people because of their charismatic appearance.The highest number of butterflies recorded belonged to the Nymphalidae family(26)followed by hesperiidae,Lycaenidae,Pieridae and Papilionidae(Table 2 and fig 3).A similar trend was recorded by Bora and Meitei while studing butterfly fauna in five tea gardens of sivasagar district and 3 of the gardens now fall under Charaideo district.Nymphalids are the largest family of butterflies,they are polyphagous.It was seen that the most common butterflies-the cabbage whites,yellows,common mormons and the pasies were recorded in large numbers in all the study sites and site 2 which is a town area.

A total of moths were recoded under 13 families however we could only identify only number of moths.A checklist is given in table 3.Moths were highly attracted to light source,the plants growing around the study sites-rice fields,tea gardens,weeds,wetlands,vegetable gardens and altitudes.The larvae of the moths recorded are pests of vegetable crops and plants.This preliminary study shows that the highest number of moths belonged erebidae and Geometridae families followed by Crambidae and noctuidae families.Antherea assamensis,the muga silk moth belonging to the family saturniidae is a semi domesticated moth and is reared in sericulture farms or at home.

Table 1: A partial checklist of butterflies recorded

Column1	Column2	Column3	Column4
SL NO.	Common name	Name of the species	Family
1	Common Evening Brown(dry season)	Melanitis leda	Nymphalidae
2	Common Evening Brown (Dry season)	Melanitis leda	Nymphalidae
3	Common Evening Brown (wet season)	Melanitis leda	Nymphalidae
4	Common palmfly(female)	Elymnias hypermnestra	Nymphalidae
5	Black Rajah	Charaxes solon	Nymphalidae
6	Indian Plain Tawny Rajah	Charaxes bernardus	Nymphalidae
7	Blue Admiral	Kaniska canace	Nymphalidae
8	Great Eggfly	Hypolimans bolina	Nymphalidae
9	Common palmfly	Elymnias hypermnestra	Nymphalidae
10	Lime butterfly	Papilio demoleus	Papilionidae
11	Spangle	papilio protenor	Papilionidae
12	Painted Lady	Vanessa cardui	Nymphalidae
13	Striped blue crow	Euploea mulciber	Nymphalidae
14	Plain tiger	Danaus chrysippus	Nymphalidae
15	Common mormon	papilio polytes	Papilionidae
16	Grey pansy	Junonia atlites	Nymphalidae
17	Peacock pansy	Junonia almana	Nymphalidae
18	lemon pansy	junonia lemonias	Nymphalidae
19	Common baron	Euthalia aconthea	Nymphalidae
20	Archduke	Lexias paradalis	Nymphalidae
21	Grey count	Tanaecia lepidea	Nymphalidae
22	Common baron	Euthalia aconthea	Nymphalidae
23	Commander	Moduza procris	Nymphalidae
24	Common bluebottle	Graphium sarpedon	Papilionidae
25	Blue King Crow	Euploea klugii	Nymphalidae
26	Common fivering	Ypthima baldus	Nymphalidae
27	Moore`s fivering	Ypthima nikaea	Nymphalidae
28	Common grass yellow	Eurema hacabe	Pierdae
29	Mottled Emigrant	Catopsilia pyranthe	Pierdae
30	Indian Cabbage White	Pieris canidia	Pierdae
31	Large Cabbage White	Pieris brassicae	Pierdae
32	Three spot Grass Yellow	Eurema blanda	Pierdae
33	Common sergeant	Athyma perius	Nymphalidae
34	Short-banded sailer	Phaedyma columella	Nymphalidae
35	The Black tip Archduke	Lexias dirtea	Nymphalidae
36	Common Spotted flat	Celaenorrhinus leucocera	Hesperiidae
37	Conjoined swift	Pelopidas conjuncta	Hesperiidae
38	Great swift	Pelopidas assamensis	Hesperiidae
39	Common RedEye	Matapa aria	Hesperiidae
40	Small branded swift	Pelopidas mathias	Hesperiidae
41	Common dartlet	Oriens goloides	Hesperiidae
42	Himalayan Common Gem	Poritia hewitsoni	Lycaenidea
43	Lime Blue Butterfly	Chilades lajus	Lycaenidea
44	Common Apefly	Spalgis epius	Lycaenidea
46	Forget me not	Catochrysops Strabo	Lycaenidea
47	Common pierrot	Castalius rosimon	Lycaenidea

Table 2: Summary of Families of Butterflies:

Family	Number of Species	% to total
Nymphalidae	30	
Papilionidae	6	
Hesperiidae	8	
Pieridae	9	
Lycaenidae	8	
Total	61	

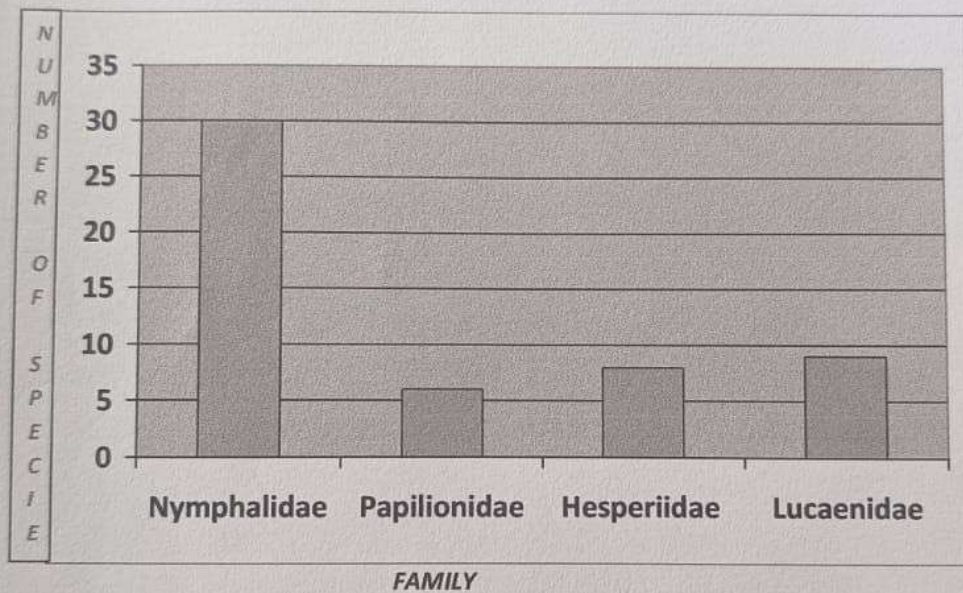


Fig :- shows the number of species of butterflies belonging to each family

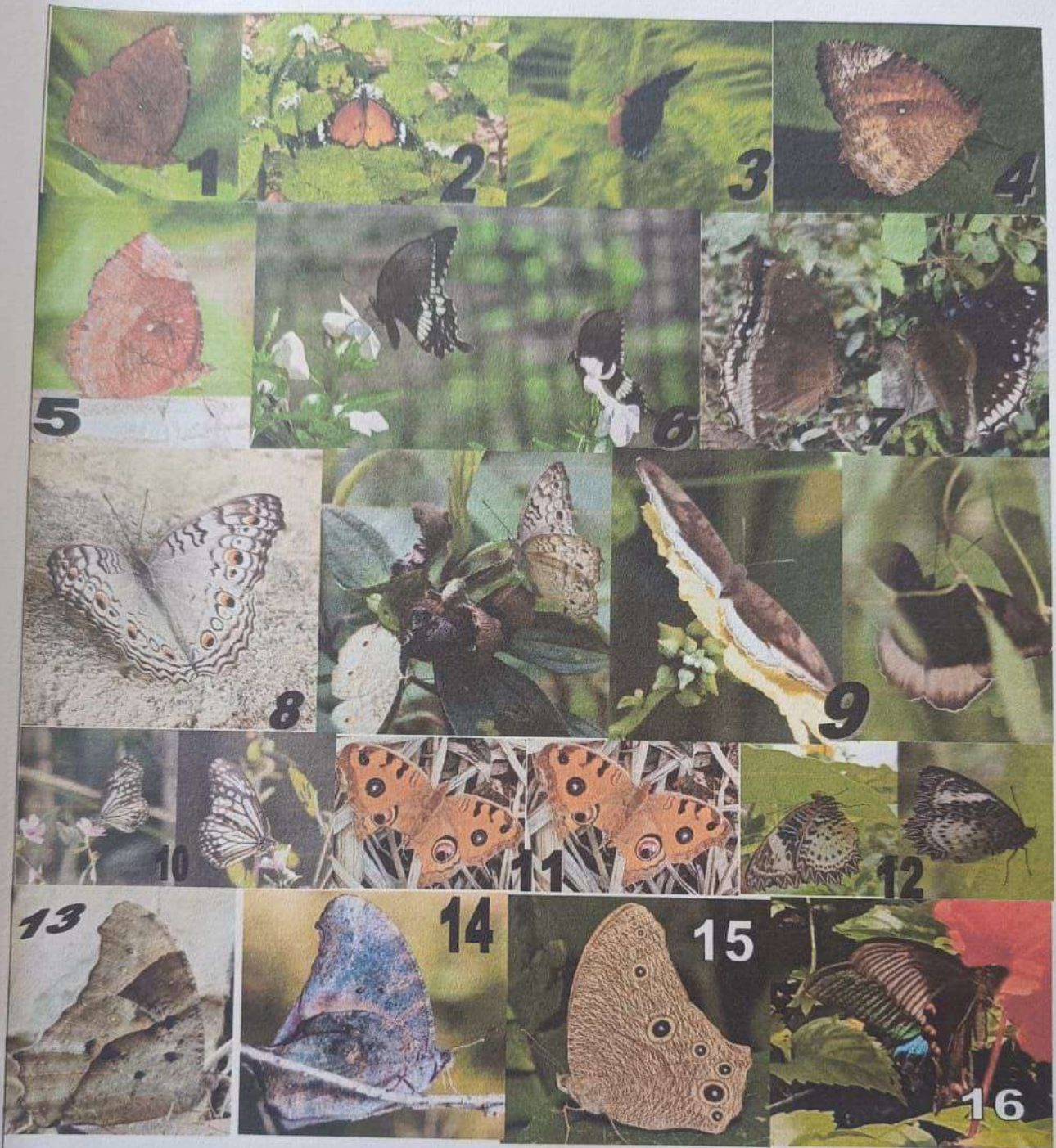


Image of butterfly:-

1 & 2. *Elymnias hypermnestra*, 3,4&5. *Elymnias caudata* , 6. *Papilio polytes*, 7. *Hypolimnas bolina* , 8. *Junonia atlites*, 9. *Tanaecia* ,10. *Tirumala limniace*(blue tiger),11. *Junonia almanac* (peacock pansy),12. *Cethosia* , 13, 14&15. *Melanitis leda*{evening brown}, 16. *papilio memnon*



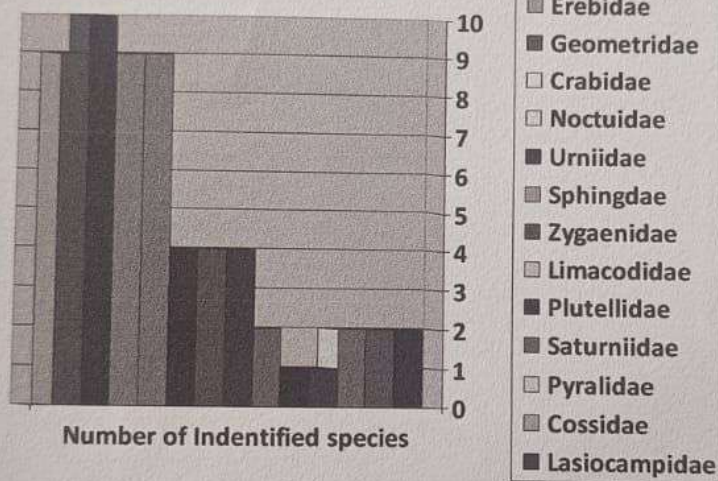
Image:- 17.Charaxes solon, 18.Charaxes bernardus, 19.Kaniska cancae, 20.Papilio demoleus ,21.Papilio protenor,22.Vanessa cardui, 23.Euploea Mulciber, 24.Danaus chrysiptu ,25.Junonia lemonias ,26. Euthalia aconthea.27.Euploea klugii 28.Graphium sarpedon,29.Moduza Procris,31.Athyma perius,32. Eurema blanda, 33.Catopsilia pyranthe, 34.Pieris canidia35.Pieris brassicae

Table 3 : Checklist of Moths recorded

Sl no	Common name	Name of species	Family
1		<i>Urapteroides astheniata</i>	Uraniidae
2	Common looper moth	<i>Autographa precationis</i>	Noctuidea
3	Green pergesa hawkmoth	<i>Pergesa acteus</i>	Sphingidae
4	Tropical Swallowtail moth	<i>Lyssa zampa</i>	Uraniidae
5	Stinging caterpillar moth	<i>Thosea magna</i>	Limacodidae
6	Fall armyworm moth	<i>Sodoptera frugiperda</i>	
7	Cabbage Looper moth	<i>Trichoplusia ni</i>	Noctuidea
8	Stinging rose caterpillar moth	<i>Parasa</i> sp	Limacodidae
9	False armyworm	<i>Leucania adjuta</i>	Noctuidea
10		<i>Scopula</i> sp	Geometridae
11		<i>Ramila</i> sp	Crambidae
12	Blood vein moth	<i>Timandra</i> sp	Geometridae
13		<i>Lyclene conjunctana</i>	Eebidae
14		<i>Heterostegane subtessellata</i>	Geometridae
15		<i>Oeonistis entella</i>	Erebidae
16		<i>Cretonotos gangis</i>	Erebidae
17	Common Emaerald moth	<i>Hemithea tritonaria</i>	Geometridae
18	Beet web Worm moth	<i>Spoladea recurvalis</i>	Crambidae
19		<i>Plutella xylostella</i>	Plutelidae
20		<i>Orudiza protheclaria</i>	Uraniidae
21	Lichen moth	<i>Cyana bianca</i>	Erebidae
22	Tropical tiger moth	<i>Asota caricae</i>	Noctuidea
23	Pupillata emerald	<i>Phrudocentra pupillata</i>	Geometridae
24		<i>Cretonotos transiens</i>	Erebidae
25	False tiger moth	<i>Dysphania millitaris</i>	Geometridae
26	Leopard moth	<i>Zeuzera pyrina</i>	Cossidae
27	Lappet moth	<i>Gastropacha species</i>	Lasiocampidae
28	Passenger	<i>Dysgonia algira</i>	Noctuidae
29		<i>Eliema costalis</i>	Erebidae
30		<i>Rupela</i> sp	Crambidae
31		<i>Achyra bifidalis</i>	Crambidae
32		<i>Orgyiini llema</i>	Erebidae
33	Lace border moth	<i>Scopula</i> sp	Geometridae
34		<i>Celenna festiviaria</i>	Geometridae
35	Brinjal Leaf webber	<i>Psara bipunctalis</i>	Pyralidae

Table 4 : Summary of Families of Moths :-

Family	Number of Identified species
Erebidae	9
Geometridae	10
Crabidae	9
Noctuidea	9
urniidae	4
Sphingdae	4
Zygaenidae	4
Limacodidae	2
Plutellidae	1
Saturniidae	1
Pyralidae	2
Cossidae	2
Lasiocampidae	2
Total identified species	59





Images 1-23 : 1. *Urapteroides astheniata* , 2. *Autographa precatonis* . 3. *Pergesa acetus* , 4. *Lyssa zampa* , 6. *Thosea magna* , 7. *Sodoptera frugiperda* , 9. *Trichoplusia ni* , 12. *Parasa* sp .13. *Leucania adjuta* , 15. *Scopula* sp , 16. *Ramila* sp , 17. *Timandra* sp , 18. *Lyclene conjunctana* 20. *Heterostegane subtelessellata* , 26. *Oeonistis entella* , 27. *Cretonotos gangi* , 28. *Hemithea tritonaria* , 32. *Spoladea recurvalis* , 33. *plutella xylostella* , 34. *Orudiza protheclaria* , 38. *Cyana Bianca* , 39. *Asota caricae* , 40. *Phrudocentra pupillata*

Conclusion:-

These checklists aims to provide an insight into the diversity of butterflies and moths of certain selected sites of charadio district. More studies are required to be conducted as the district is rich in hills and plains to get an overall report on the diversity of the Lepidopteron. The records and documentations would further help in preservation of the environment as moths and butterflies are environmental indicators.



Sonari College

Sonari - 785690

CHARAIDEO

ASSAM

CERTIFICATE

This is to certify that Sawilati a student of 5th semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of butterflies and moths of Charaideo district of Assam" under my guidance and supervision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Examined
Amrita Mech
24-12-22

Amrita Mech
24/12/22
AMRITA MECH

Assistant professor

DEPARTMENT OF
Sonari

ZOOLOGY Date 24

College



Sonari College
Sonari- 785690
Charaideo
Assam

CERTIFICATE

This is to certify that Ruhini Das a student of 5th semester of Department of Zoology, Sonari College has carried out the project entitled "A preliminary checklist of butterflies and moth of Charaideo district of Assam ". Under my guidance and supervision. The project is a bona field record submitted for partial fulfillment of the requirement for the degree of Bachelor of Science in Zoology. Dibrugarh University.

Date: 26/12/22

AMech

AMRITA MECH

Assistant professor

Department of Zoology

Sonari College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that ^{Biswal Babuan} ~~Amrita Mech~~ Roll No ²²⁸²⁰⁰¹⁵ Rag No ²²⁰⁰⁷⁰¹⁰ Students of Bsc 6TH semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of butterflies and moths of Charaideo district of Assam." under my guidance and supervision. The project is a bona fide record submitted for partial fulfilment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University. *Examined by Amrita Mech (400/1) 12-22*

Date.. 24/12/22

AMech
24/12/22
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that PAROTH PANIKA Roll No 22820035 Rag No S2007049 Students of Bsc 5TH semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of butterflies and moths of Charaideo district of Assam." under my guidance and supervision. The project is a *bona fide* record submitted for partial fulfilment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Date..... 24/12/22

AMech
24/12/22

Dr. AMRITA MECH.

Assistant Professor

Department of Zoology,

Sonari College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that ~~Amrita Mecha~~ Roll No 22820033
Rag No 52007025 Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my guidance and supervision. The
project is a bona fide record submitted for partial fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date 24/12/22

Amrita Mecha
24/12/22
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College

SONARI COLLEGE

SONARI-785690

CHARAIDEO

ASSAM

CERTIFICATE

This is to certify that Amlandeep Changmai a student of 5th semester of Department of Zoology, Sonari College. He had carried out the project entitled "Diversity of Insecta" under my guidance and supervision. The project is about insect species found in Parvatipur, Sonari. The record submitted for partial fulfilment of the requirement for the Bachelor of Science in Zoology, Dibrugarh University.

Date 23/12/22

Examined

*Amrita Mech (sent)
24.12.22*

*Amrita Mech
23/12/22*

AMRITA MECH

Assistant Professor

Department of Zoology

Sonari College



Sonari College

Sonari - 785690

CHARAIDEO

ASSAM

CERTIFICATE

This is to certify that Subma Lama a student of 5th semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of butterflies and moths of Charaideo district of Assam" under my guidance and supervision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Examined
Amrita Mech
24.12.22

Amrita Mech
24/12/22

AMRITA MECH

Assistant professor

DEPARTMENT OF

Sonari

ZOOLOGY Date 24/12/2022

College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that Rupjyoti Arandhara Roll No _____ Rag No _____ Students of Bsc 6TH semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of butterflies and moths of Charaideo district of Assam." under my guidance and supervision. The project is a bona fide record submitted for partial fulfilment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Date.....

AMech
29/12/22
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College



CERTIFICATE

This is to certify that Pobali Brasumatani
a student of 5th semester of department of Zoology, Sonari college, has carried out the
project entitled "**A preliminary checklist of diurnal and nocturnal insects of Jalah gaon
of Charaideo district, Assam**" under my guidance and supervision. The project is a bona
fide record submitted for partial fulfillment of the requirement for the degree Bachelor of
Science in Zoology, Dibrugarh University.

Date- 24/12/2022

AMech 24/12/22

Dr. Amrita Mech
Assistant professor
Department of Zoology
Sonari college

Examined
Amrita Mech (AMF)
24.12.22



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that AKASH TASSA Roll No
22820003 Rag No 52006993 Students of Bsc 5TH
semester of Department of Zoology, Sonari College, has carried
out the project entitled "A preliminary checklist of butterflies
and moths of Charaideo district of Assam." under my guidance
and supervision. The project is a bona fide record submitted for
partial fulfilment of the requirement for the Degree of Bachelor
of Science in Zoology, Dibrugarh University.

Date 24/12/22

Examined
Amrita Mech (ext)
24.12.22

AMech 24/12/22
Dr. AMRITA MECH.

Assistant Professor

Department of Zoology,

Sonari College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that *Project Gahattori* Roll No
22820638 Rag No *S2007054* Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my guidance and supervision. The
project is a bona fide *record* submitted for partial fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date.....*24/12/22*.....

AMech 24/12/22
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that **Grunjan Shyam** Roll No. 22820021
Reg No. S2007024 Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my guidance and supervision. The
project is a bona fide record submitted for partial fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date.....

Amrita Mech
AMRITA MECH.

Assistant Professor
Department of Zoology,
Sonari College



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that *Aman Ananda Upadhyay* Roll No *22820004*
Rag No *S2006994* Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my *guidance* and supervision. The
project is a *bona fide record* submitted for *partial* fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date.....

AMech
24/12/22

AMRITA MECH.

Assistant Professor

Department of Zoology,

Sonari College



Sonari College

Sonari : 785690

Charaideo

Assam

CERTIFICATE

This is to certify that Akanksha Deka a student of 5th Semester of Department of Zoology, Sonari College, has carried out the project entitled "A Preliminary Checklist Of Various Insects Of Charaideo District Of Assam" under my guidance and supervision. The project is a bonafide record submitted for partial fulfilment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Ameh
24/12/22
Dr Amrita Mech

Assistant Professor

Department of Zoology

Sonari College

Date :



Sonari College
Sonari-785692,
Charaideo,
Assam

CERTIFICATE

This is to certify that Nayanjyoti Borah Roll No 228200
31 Rag No S20070₄₂ Students of Bsc 6TH semester of Department of
Zoology, Sonari College, has carried out the project entitled "A
preliminary checklist of butterflies and moths of Charaideo
district of Assam." under my guidance and supervision. The
project is a bona fide record submitted for partial fulfilment of
the requirement for the Degree of Bachelor of Science in
Zoology, Dibrugarh University.

Date.....

AMech
24/12/22

AMRITA MECH.

Assistant Professor

Department of Zoology,

Sonari College

Sonari- 785690

Charaideo

ASSAM

CERTIFICATE

This is to certify that DARSHANA CHETIA



A student of 5th semester of department of zoology, Sonari college, has carried out the project entitled "**A PRELIMINARY CHECKLIST OF DIURNAL AND NOCTURNAL INSECTS OF SONARI TOWN OF CHARAIDEO DISTRICT, ASSAM**" under my guidance and supervision. The project is a bonafide record submitted for partial fulfillment of the requirement for the degree of bachelor of science in zoology.

Examined
Amrita Mech
24.12.22

Amrita Mech
24/12/22

AMRITA MECH

Assistant Professor

Department of zoology

Sonari college

Date.....*24/12/22*.....

Longpotia – 785692

Charaideo

ASSAM

CERTIFICATE

This is to certify that **CHAYANIKA GOGOI**

A student of 5th semester of department of zoology, Sonari College has carried out the project entitled "**A PRELIMINARY CHECKLIST OF INSECTS OF LONGPOTIA OF CHARAIDEO DISTRICT, ASSAM**" under My guidance and supervision. The project is a bonafide record submitted for partial fulfillment of the requirement for the degree of bachelor of science in zoology.

AmMech

AMRITAMECH

Assistant Professor

Department of zoology

Sonari college

Date.....

Sonari College
Sonari-785690
Charaideo
ASSAM

CERTIFICATE

This is to certify thatRavi Das.....a student of 5th semester of Department of Zoology, Sonari College has carried out the project entitled "**A Project report on variety of insects**" under my guidance and supervision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Date : 24/12/2022

AMech
24/12/22

AMRITA MECH
Assistant Professor
Department of Zoology
Sonari College

Examined
Rajni (asst)
24.12.22

Sonari College
Sonari-785690
Charaideo
ASSAM

CERTIFICATE

This is to certify that **PARAMANANDA TANTI** a student of 5th semester of Department of Zoology, Sonari College has carried out the project entitled "**A Project report on variety of insects**" under my guidance and super vision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Date : 24/12/2022

AMech
23/12/22

AMRITA MECH
Assistant Professor
Department of Zoology
Sonari College

Examined

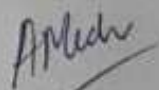
Ami (H.S.)
24/12-22

Sonari College
Sonari- 785690
Charaideo
ASSAM

CERTIFICATE

This is to certify that Tyoti Kumari Seh.....a student of 5th semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of moths of Charaideo district of Assam." under my guidance and supervision. The project is a bina fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Date. 24/12/22.....


AMRITA MECH.
Assistant Professor
Department of Zoology,
Sonari College



Sonari College

Sonari - 785690

CHARAIDEO

ASSAM

CERTIFICATE

This is to certify that _____ a student of 5th semester of Department of Zoology, Sonari College, has carried out the project entitled "A preliminary checklist of butterflies and moths of Charaideo district of Assam" under my guidance and supervision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

Examined

*Amrita Mech (HKT)
24.12.22*

Amrita Mech 24/12/22

AMRITA MECH

Assistant professor

DEPARTMENT OF

Sonari

ZOOLOGY Date _____

College

Sagorika Mahanta

Sonari College
Sonari-785690
Charaideo
ASSAM

This is to certify that Nikhil Paik a student of 5th semester of Department of Zoology, Sonari College has carried out the project entitled "A **Project report on variety of insects**" under my guidance and supervision. The project is a bona fide record submitted for partial fulfillment of the requirement for the Degree of Bachelor of Science in Zoology, Dibrugarh University.

CERTIFICATE

Date : 24/12/2022

Examined
Amrita Mech
24.12.22

Amrita Mech
24/12/22
AMRITA MECH
Assistant Professor
Department of Zoology
Sonari College