1st Butterfly Survey 2023

Nawegaon Nagzira Tiger Reserve
Gondia

NNTR
NAWEGAON - NAGZIRA
TIGER RESERVE, GONDIA

1st Butterfly Survey 2023

Preface

Nawegaon Nagzira Tiger Reserve (NNTR) stands as a testament to ecological significance, renowned for its diverse wildlife, including the majestic tiger. However, the vibrant butterfly population within this reserve had long been overlooked. In a pioneering initiative, a dedicated team of butterfly enthusiasts, along with the support of forest staff and the technical collaboration of the Hirwal Foundation, embarked on the first comprehensive butterfly survey in NNTR.

The Hirwal Foundation, an NGO based in Gondia, played a pivotal role as the technical partner, contributing expertise and support for field exercises and data collection. This collaboration was instrumental in the success of the three-day butterfly survey held from November 17th to 19th, 2023.

Thirty butterfly enthusiasts from three states participated in the survey, documenting a remarkable total of 85 butterfly species. The participants explored various habitats, including woodland, wetland, riparian forest, and scrubland, providing a holistic understanding of butterfly diversity within the NNTR landscape.

The survey not only unveiled the diverse butterfly species but also documented a total of 85 different butterfly species, highlighting the rich diversity within the reserve. Notable observation included species like Bamboo Treebrown, Gaudy Baron, Monkey Puzzle, and Plumbeous Silverline adding to the biodiversity richness of the reserve.

The NNTR Butterfly Survey 2023 represents a pivotal contribution to the understanding and appreciation of butterfly diversity in the reserve. The collected data serves as a crucial baseline for future monitoring, comparison, and informed conservation strategies in the region.

Overall, the success of the survey owes much to the dedication and enthusiasm of the butterfly survey team. The NNTR Butterfly Survey 2023 marks a significant milestone in understanding and safeguarding the vibrant wings of this remarkable landscape. This collaborative effort stands as a testament to the importance of collective endeavors in wildlife conservation, emphasizing the need for ongoing collaboration to protect the biodiversity of NNTR.

Jayramegowda R. (IFS)
Dy. CF and Field Director
Nawegaon Nagzira Tiger Reserve
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1st Butterfly Survey 2023

Preface

Nawegaon Nagzira Tiger Reserve (NNTR), nestled in the central Indian landscape, has long been celebrated for its ecological significance, housing a diverse array of wildlife, including the majestic tiger. However, the vibrant floral and faunal diversity, particularly in the realm of butterflies, had remained largely unexplored. In a ground-breaking initiative Poonam Pate (IFS), Deputy Director NNTR and Uttam Sawant, Division Forest Officer NNTR with unwavering support from the dedicated forest staff, initiated the first comprehensive butterfly survey in 2019 at department level. This pioneering effort resulted in the documentation of 115 butterfly species within the reserve.

To build on this momentum and further enhance butterfly documentation, the NNTR undertook its first collaborative butterfly survey from 17th to 19th November 2023. The survey was conducted with the active participation of thirty butterfly enthusiasts from three states, facilitated by technical assistance from the Hirwal Foundation, an NGO based in Gondia.

The dedicated team explored various habitats within NNTR, including woodlands, wetlands, riparian forests, and scrublands, offering a holistic perspective on butterfly diversity in this unique landscape. The survey successfully documented a remarkable total of 85 butterfly species, showcasing the rich avian population within the reserve.

The documented species spanned six families: Nymphalidae, Lycaenidae, Hesperiidae, Pieridae, Papilionidae, and Riodinidae. Noteworthy discoveries included species like Bamboo Treebrown, Gaudy Baron, Monkey Puzzle, and Plumbeous Silverline, contributing to the biodiversity richness of NNTR.

The success of the survey can be attributed to the dedication and enthusiasm of the entire butterfly survey team. The NNTR Butterfly Survey 2023 represents a significant milestone in comprehending and safeguarding the diverse wings of this remarkable landscape. This collaborative effort serves as a testament to the importance of collective endeavors in wildlife conservation, underscoring the ongoing need for collaboration to protect and preserve the biodiversity of NNTR.

Pawan Jeph (IFS)
Deputy Director
Nawegaon Nagzira Tiger Reserve
Sakoli

1st Butterfly Survey 2023

Acknowledgments

The success of the NNTR Butterfly Survey 2023 owes a debt of gratitude to the diligent efforts of the 14 field teams who tirelessly worked to capture the intricate beauty of butterflies through their lenses. However, this endeavor would not have been meaningful without accurate identifications, especially for challenging species like those in the Hesperiidae family.

Our sincere appreciation goes to Fahim Khan, one of the editors of www.ifoundbutterflies.org, who played a crucial role in meticulously verifying the photographs and confirming the identifications for the Hesperiidae family. His expertise and attention to detail have laid a solid foundation for the documentation of these species within NNTR.

Special thanks are extended to the individuals whose unwavering support and ground arrangements made the survey possible: S. Dongarwar (RFO Nawegaon P), V. Bhosale (RFO Nagzira), S. Madavi (RFO Bonde), M. Makade (RFO Koka) C. Bhadange (RFO Dongargaon) and S. Tembhare (RFO Umarzari and Pitezari)

A heartfelt acknowledgment is also due to all Beat Guards and Van Majors who accompanied the participants in the field, contributing significantly to the success of the butterfly survey. The collaborative efforts of the office staff involved in coordinating the event have been indispensable.

Every individual's contribution, whether in the field or behind the scenes, has played a vital role in making the NNTR Butterfly Survey 2023 a resounding success. Their dedication and support have been instrumental in enriching our understanding of butterfly diversity in this remarkable landscape.

1st Butterfly Survey 2023

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Hirwal (NGO), Gondia

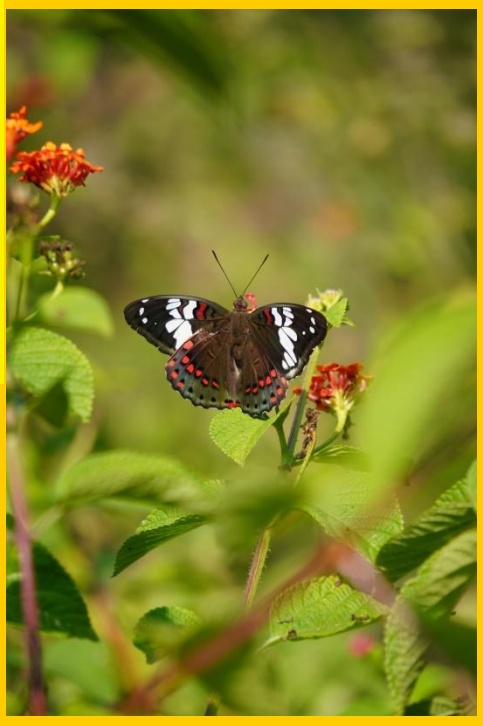


Photo Courtesy:

All the captivating images featured in this report were skillfully captured by the enthusiastic participants during the field survey.

Introduction

The initiative to study butterflies in Nawegaon Nagzira Tiger Reserve (NNTR) reflects the significance of these delicate creatures as indicators of environmental health. Butterflies, often regarded as colorful flying jewels, have captivated the interest of people of all ages. The short lifespan of butterflies allows for the study of multiple generations within a brief period, making them valuable for scientific research.

In India, the systematic study of butterflies began during the British regime, and it has continued to be a subject of interest worldwide. Their presence, absence, increase, or decrease in numbers can serve as direct indicators of the overall environmental well-being. Given their sensitivity to changes in the ecosystem, butterflies play a crucial role in understanding the impact of environmental factors.

Survey Background

The Nawegaon Nagzira Tiger Reserve, with its unique geography and ecology, provides an interesting backdrop for butterfly research. In 2019, a butterfly survey was conducted under the guidance of Ms. Poonam Pate (IFS), Deputy Director and Shri. Uttam Sawan, DFO with the help of forest guard. The survey documented around 115 butterfly species within the reserve (Annexure-1). Building on this foundation, a proposal was made to conduct another survey in 2023, involving citizens in the process.

Shri Rupesh Nimbarte of Hirwal Bahuuddeshiya Sanstha (NGO), Gondia, took on the coordination of this survey in collaboration with the Nawegaon Nagzira Tiger Reserve. Engaging citizens in such studies not only enhances community involvement but also contributes to a more comprehensive understanding of the butterfly population in the area.

The collaborative effort between the forest department team, led by Shri Pawan Jeph (IFS), and Shri Rupesh Nimbarte's coordination with citizens reflects a commitment to biodiversity conservation and environmental awareness. The ongoing research and involvement of the community are essential steps toward maintaining the ecological balance of the Nawegaon Nagzira Tiger Reserve (Figure 1) and preserving its rich biodiversity.

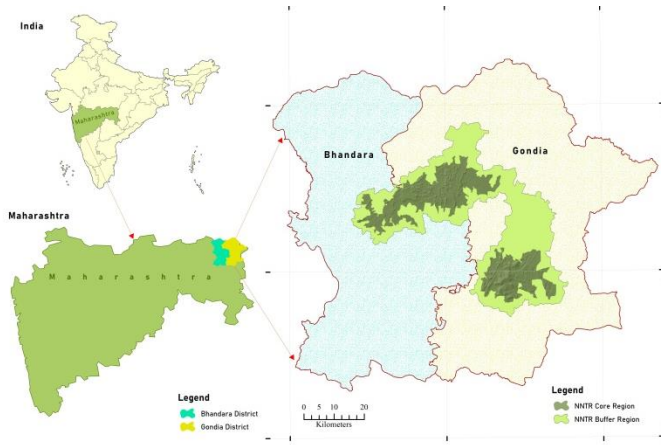


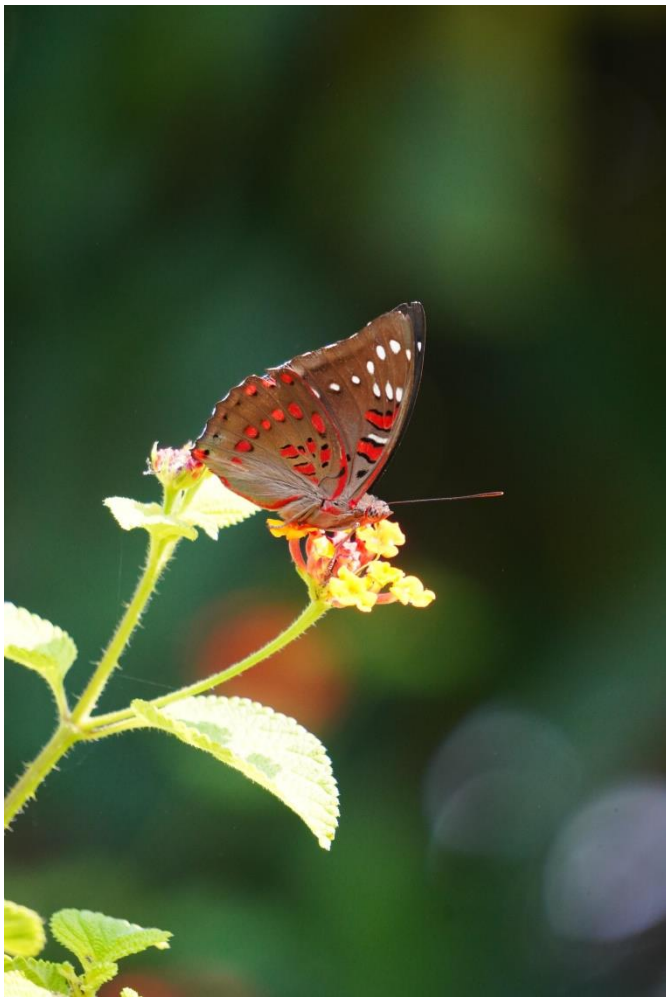
Figure 1: Location map of Nawegaon Nagzira Tiger Reserve

Butterfly Enthusiasts and Survey

With the post-monsoon season painting the forests in a kaleidoscope of colors, heralding the bloom of flora, the stage was set for a unique adventure into the wild. The abundance

of host plants promised a haven for butterflies, providing a captivating opportunity for observation in their natural habitat.

To extend this unique experience to fellow butterfly enthusiasts, an announcement was disseminated far and wide, gracing the pages of newspapers and resonating across various social media platforms (Annexure 2). The call to be part of an immersive butterfly survey was met with enthusiasm, and applications were invited through a convenient Google form. Following a scrutiny of all applications, a diverse and passionate group of 30 participants emerged as the chosen few. The selection process was anchored in two crucial criteria: a genuine interest in butterflies and willingness to reside within the forest, diligently documenting the enchanting sightings. Two days before the much-anticipated meet-up, a virtual gathering unfolded in the form of a video conference.



This served as a crucial forum to delve into the survey methodology, set expectations, and address queries from the participants. Beyond the technical details, this prelude provided an opportunity for the participants to acquaint themselves with one another, fostering a sense of community among the soon-to-be expedition companions. After video meeting a WhatsApp group was created for on-going communication, ensuring that vital information and updates flowed seamlessly among the members.

Objective

The primary objective of this study is to comprehensively document the diversity of butterfly species within the captivating landscape of Nawegaon Nagzira Tiger Reserve. Through systematic observation and data collection, the aim is to create a detailed record of the various butterfly species inhabiting this unique ecosystem.

Survey Methodology

In accordance with the methodology proposed by Dr. Krushnamegh Kunthe, NCBS (S. Attiwilli et al. 2023), the butterfly diversity survey in the Nawegaon Nagzira Tiger Reserve landscape adopts a time-constrained count approach. This systematic method involves periodic butterfly counts at intervals of 30 minutes, allowing for a structured and efficient data collection process.

S Attiwilli, N Ravikanthachari and K Kunte (2023) A comparison between time-constrained counts and line transects as methods to estimate butterfly diversity and monitor populations in tropical habitats.

https://doi.org/10.1111/icad.12693

Survey Protocol:

Each of the 15 camps were given print outs of survey form (Annexure 3) that they needed to fill while butterflying in field. The team was required to note the following every 30 minutes.

- Location Details: Precise information about the survey location.
- Count Start and End Time: The exact time when the 30-minute count begins and concludes.
- GPS Coordinates: Geographical coordinates (latitude and longitude) at the start and end points of the count.
- Weather Condition: Observations on the prevailing weather conditions during the count such as Sunny/Windy/Cold etc.
- Temperature and Humidity: If possible through smart phones.
- Total Number of Team Members: Documentation of the number of individuals participating in the survey.
- Species Observed: Total Number of species seen and total number of individual species count.

Participants were free to go in any direction and note the counts there. Just they needed to ensure that in one-time constrained count (which is of 30-minute duration) they should observe one habitat type. For example, if they started count in a grassland habitat, they should finish the count in grassland habitat and then move to another habitat type in their survey area.

They could take break when they wanted, but not in between the 30-minute count.

Though this type of data collection is useful in a long term based periodic studies our aim with the survey was to gather as much data as possible to

a) See if any interesting trend is observed during the survey period.
b) Access and keep record of every possible detail for future reference.
c) Inculcate a habit of doing a structured and focused study

The team was also required to take at least one photograph of the individual species they are entering in the survey sheet. This would help clear confusion/incorrect identification in field/confirm any rare species observed by any team.

All these 30-minute observations from the survey are compiled in a standard excel sheet format used for such counts.

Inauguration Day Highlights

The Inauguration Day marked the commencement of the Nawegaon Nagzira Tiger Reserve (NNTR) Butterfly Survey 2023, a collaborative effort bringing together participants from Maharashtra, Madhya Pradesh, and Chhattisgarh. Sakoli served as the central meeting point, where the participants gathered for a day filled with informative sessions and preparations for the upcoming survey.

All participants completed the registration process, and each received a comprehensive survey kit. The survey kit included butterfly identification brochure, checklists of past surveys, the butterflies of Maharashtra and a survey sheet for documentation.

After participants registration Shri Pawan Jeph, IFS, Deputy Director of NNTR, extended a warm welcome to the participants and provided an overview of NNTR administration, logistics, forest conduct and the overall arrangements made for the butterfly survey team. Followed by Shri Pavan Tikhile, GIS Expert at NNTR, delivered a presentation on the NNTR landscape and shared insights from the butterfly survey conducted in 2019 by the department field staff.

Technical session led by Ms. Savita Bharti, a distinguished Resource Person from Pune, presented on butterfly diversity in Maharashtra. Ms. Savita Bharti provided practical insights into field identification techniques, emphasizing visual cues, wing patterns, and behavioral traits that aid in accurate identification. Recognizing the challenges posed by butterflies with similar appearances, Ms. Bharti shared identification keys tailored for field observations. The presentation aimed to empower participants to confidently identify butterflies in their natural habitat during the survey. Lastly, Shri Rupesh Nimbarte detailed the survey requirements and announced the teams along with their assigned locations for the survey. A total of 15 locations were covered **(Figure 2)**, each with two participants accompanied by field staff from the Forest Department.

The Inauguration Day set the stage for a three-day exploration of butterfly diversity, with participants geared up for the exciting survey ahead. The collaborative spirit and dedication of the participants laid a strong foundation for the success of the NNTR Butterfly Survey 2023.

Location of Butterfly Survey Camps

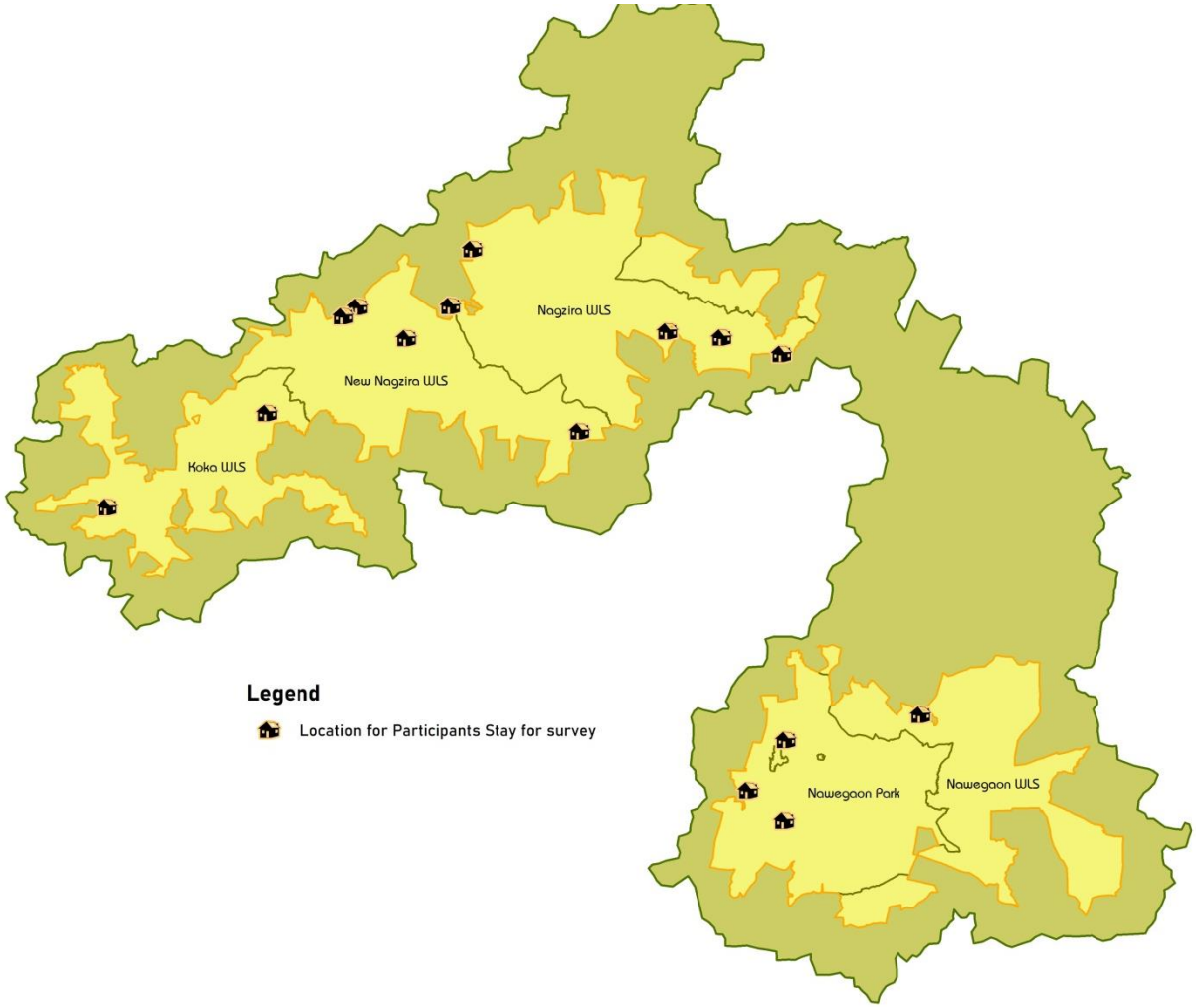


Figure 2 Selected Locations for Butterfly Survey

Following locations were selected for survey

1. Hiwarwala Camp (Nagzira WLS)
2. Rengepar Camp (Nagzira WLS)
3. Murpar Camp (Nagzira WLS)
4. Badbadya Camp (Nagzira WLS)
5. Chorkhamara camp (New Nagzira WLS)
6. Kamkazari Camp (New Nagzira WLS)
7. Raghoba Camp (New Nagzira WLS)
8. Risala Camp (New Nagzira WLS)
9. Khindapahadi Camp (New Nagzira WLS)
10. Bundelghat Camp (Koka WLS)
11. Rajdoh Camp (Koka WLS)
12. TK Joint Camp (Nawegaon Park)
13. Kalmati Camp (Nawegaon Park)
14. Ghatmara Camp (Nawegaon Park)
15. Mushanzorwa Camp (Nawegaon WLS)

List of Participants

1) Manojkumar S. Sutar
2) Kishor P. Bhonde
3) Pranjali M. Tawade
4) Gita Tidake
5) Pranay Shukla
6) Rajat Gautam
7) Dr. Arvindkumar Gajbhiye
8) Ankushkumar S. Patle
9) Dr. Gopal T. Paliwal
10) Bhimrao Lade
11) Narendra K. Meshram
12) Swapna R. Meshram
13) Savita Bharti
14) Nutan Uikey
15) Anjali Chauhan
16) Pooja Kawas
17) Monika Kore
18) Subhash A Padghan
19) Danesh Kumar Sunha
20) Pratik R. Raut
21) Amol Choube
22) Mitesh Deorao Ninave
23) Dilip Pandhare
24) Anoop Kumar Naik
25) Shubham Thote
26) Nandkishor S. Morande
27) Chhatarpal Choudhari
28) Ashish Dubay
29) Rupesh Nimbarte

Survey and Concluding Day Highlights

Day-1: After post-lunch, participants were assigned to their allotted camp locations on 17th November 2023. Few teams conducted the count exercise in the evening. **Day-2**: This was the main day for survey. All participants were already in their base camps. Almost all started as early as 7-7:30 am to do the time constrained counts. Everyone got to explore their respective habitats covering early morning, morning, noon and evening post lunch time until sunset to survey the butterflies. On an average 10-12 time constraint counts were carried out by the each team. **Day-3**: Was the day participants had got complete hands on the survey, however it was also the day to move out. The farthest team had to leave as early as 7 am and near by team left by 10 am to reach the venue, this time at Nagzira Sankul for the concluding event. Few teams were able to do one or two time constraied counts while few staying far from meeting venue had to start early morning to reach the venue in time.

On November 19, 2023, all participants gathered at the Nagzira Complex from their respective camps. The filled-up datasheets and photographs of observed butterfly species for each camp were collected.

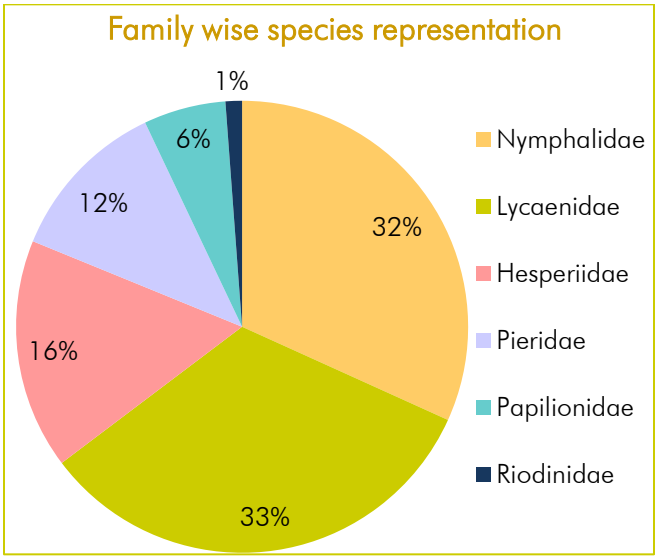
The valediction function was coordinated by Shri Sachin Dongarwar, RFO, Nawegaon Park. The event included a brief overview of the three-day survey, a keynote address by Shri Jayaramegowda R. (IFS), Dy. CF and Field Director, NNTR, and Shri Pawan Jeph (IFS), Dy. Director, NNTR. The ceremony also featured certificate distribution, feedback from the participants and concluded with a vote of thanks.

In his keynote address, Shri Jayaramegowda R. highlighted the importance of participants not only in observing butterflies but also understanding their role in the ecosystem, particularly in agricultural landscapes. He encouraged collaborative studies with NNTR in this context and urged participants to contribute to and facilitate such initiatives. The ceremony provided a platform for reflection, acknowledgment, and future collaboration in the realm of butterfly research and conservation.

Result and Analysis

A comprehensive survey was conducted, encompassing a total sampled track of 176 counts (**Annexure 4**) and a cumulative distance of 320 kilometers covered by participants to document the butterfly diversity within the Nawegaon Nagzira Tiger Reserve (**Figure 3**). The survey revealed an average observation of 10 butterfly species per 30-minute count.

A total of 85 butterfly species were documented during the survey period, all six families: Nymphalidae, Lycaenidae, Hesperiidae, Pieridae, Papilionidae and Riodinidae. The Nymphalidae family had a count of 27 species, closely followed by Lycaenidae with 28 species, Hesperiidae with 14 species, Pieridae with 10 species and and the smallest of family, Riodinidae had one species, the double banded judy.



Certain species, due to their specific behavior and habitat characteristics, post challenge in positive identification. These species require close examination of both upper and underside wing photographs for accurate classification. Whenever feasible, efforts were made to identify these butterfly species at the genus level mentioned in the report.

Teams and individuals may not have consistently identified species correctly in the field, possibly due to overlooking of the minor differences in external apperances, due to fast movements or unable to take photographs etc.. To mitigate errors, a rigorous validation process was implemented. For example, observations of the three-spot grass yellow were carefully reviewed, and individuals were identified in photographic submissions before inclusion in the final list. Certain species, like the Blue Tiger and Glassy Tiger, reported by some participants, were not included in the checklist due to the absence of photographic records. However, few dart and potanthus species are difficult to identify based on external characteristics. Many participants could not get both the upper side and underside in order to make an attempt for positive identifications. These are left at genus level. Until more studies/surveys and photographic evidences confirm their presence.

The survey results provide a comprehensive overview of the butterfly diversity in Nawegaon Nagzira Tiger Reserve. Despite challenges in identification, the documentation of 85 species contributes significantly to our understanding of the rich biodiversity in this landscape. The dominance of certain families highlights the importance of continued conservation efforts to preserve the diverse butterfly species in this habitat. The detailed list of recorded butterfly species shows in the table 1 and **Annexure 5**.

Table: Detailed list of recorded butterfly species showcasing the diversity and richness in NNTR.

Sr. No.	Family	Species	Abundance
1	Nymphalidae	Chocolate Pansy	769
2		Bushbrown species (Mycalesis perseus, Mycalesis visala or Mycalesis mineus)	508
3		Common Evening Brown	505
4		Lemon Pansy	499
5		Baronet	415
6		Common Sailer	318
7		Tawny Coster	236
8		Grey Pansy	211
9		Common Leopard	180
10		Common Crow	177
11		Blue Pansy	118
12		Peacock Pansy	112
13		Striped Tiger	91
14		Commander	91
15		Sailer species	84
16		Common Palmfly	77
17		Common Castor	22
18		Great Eggfly	16
19		Plain Tiger	15
20		Plain Tawny Rajah	14
21		Indian Nawab	13
22		Gaudy Baron	13
23		Chestnut-streaked Sailer	12
24		Yellow Pansy	11
25		Common Baron	4
26		Bamboo Treebrown	2
27		Anomalous Nawab	1

Sr. No.	Family	Species	Abundance
28	Lycaenidae	Common Pierrot	366
29		Tarucus species (Tarucus nara, T balkanicus, T indica)	103
30		Common Cerulean	50
31		Gram Blue	46
32		Tiny Grass Blue	46
33		Black-spotted Grass Jewel (Freyeria Putli)	34
34		Purple Leaf Blue	19
35		Dark Cerulean	14
36		Common Lineblue	13
37		Common Silverline	10
38		Angled Pierrot	8
39		Forget-me-not	8
40		Zebra Blue	8
41		Lesser Grass Blue	8
42		Silverline species	7
43		Dark Grass Blue	6
44		Lime Blue	5
45		Common Hedge Blue	4
46		Pointed Ciliate Blue	3
47		Dingy Lineblue	3
48		Plains Cupid	2
49		Small Cupid	2
50		Plumbeous Silverline	1
51		Orange-crowned Cupid / Indian Cupid	1
52		Tailless Lineblue	1
53		Common Red Flash	1
54		Common Guava Blue	1
55		Monkey Puzzle	1

Sr. No.	Family	Species	Abundance
56	Hesperiidae	Swift species	33
57		Golden Angle	13
58		Rice Swift	9
59		Asian Grizzled Skipper	6
60		Complete Paint-brush Swift	4
61		Obscure branded swift	3
62		Dark Palm-Dart	2
63		Small branded swift	1
64		Pale Pam Dart	1
65		Common Banded Awl	1
66		Grass Demon	1
67		Pelopidas spp	2
68		Parnara swift spp	9
69		Caltoris swift species	3
70		Dart spp	1
71	Pieridae	Common Grass Yellow	572
72		Grass yellow species	93
73		Small Grass Yellow	66
74		Lemon Emigrant	58
75		Indian Jezebel	44
76		Indian Wanderer	13
77		Psyche	9
78		Mottled Emigrant	5
79		Common Gull	5
80		Spotless Grass Yellow	4
81	Papilionidae	Common Mormon	105
82		Lime Swallowtail	100
83		Common Rose	92
84		Crimson Rose	11
85		Tailed Jay	1
86	Riodinidae	Double-banded Judy	16

Butterfly Survey Trails and Field Photos

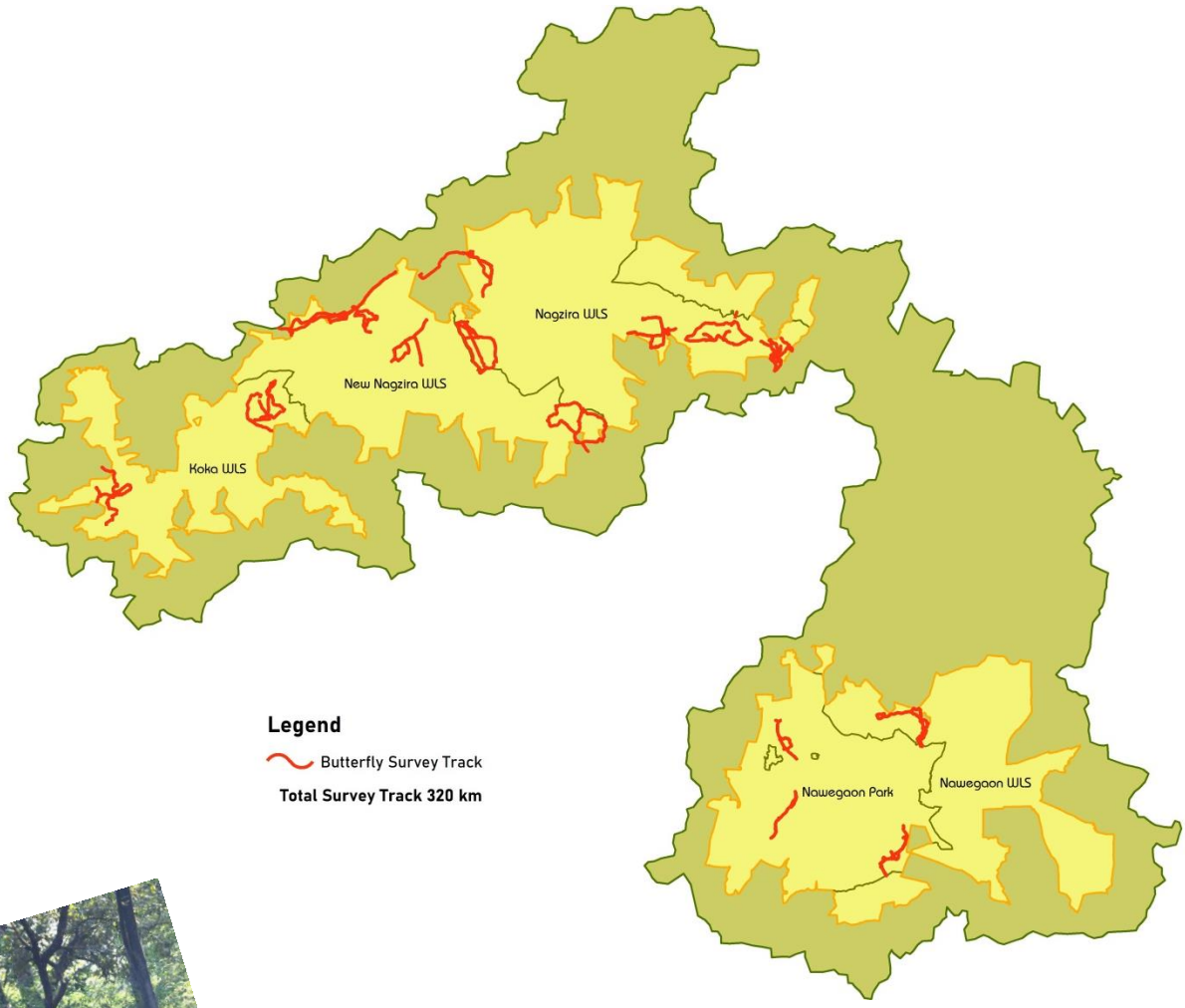
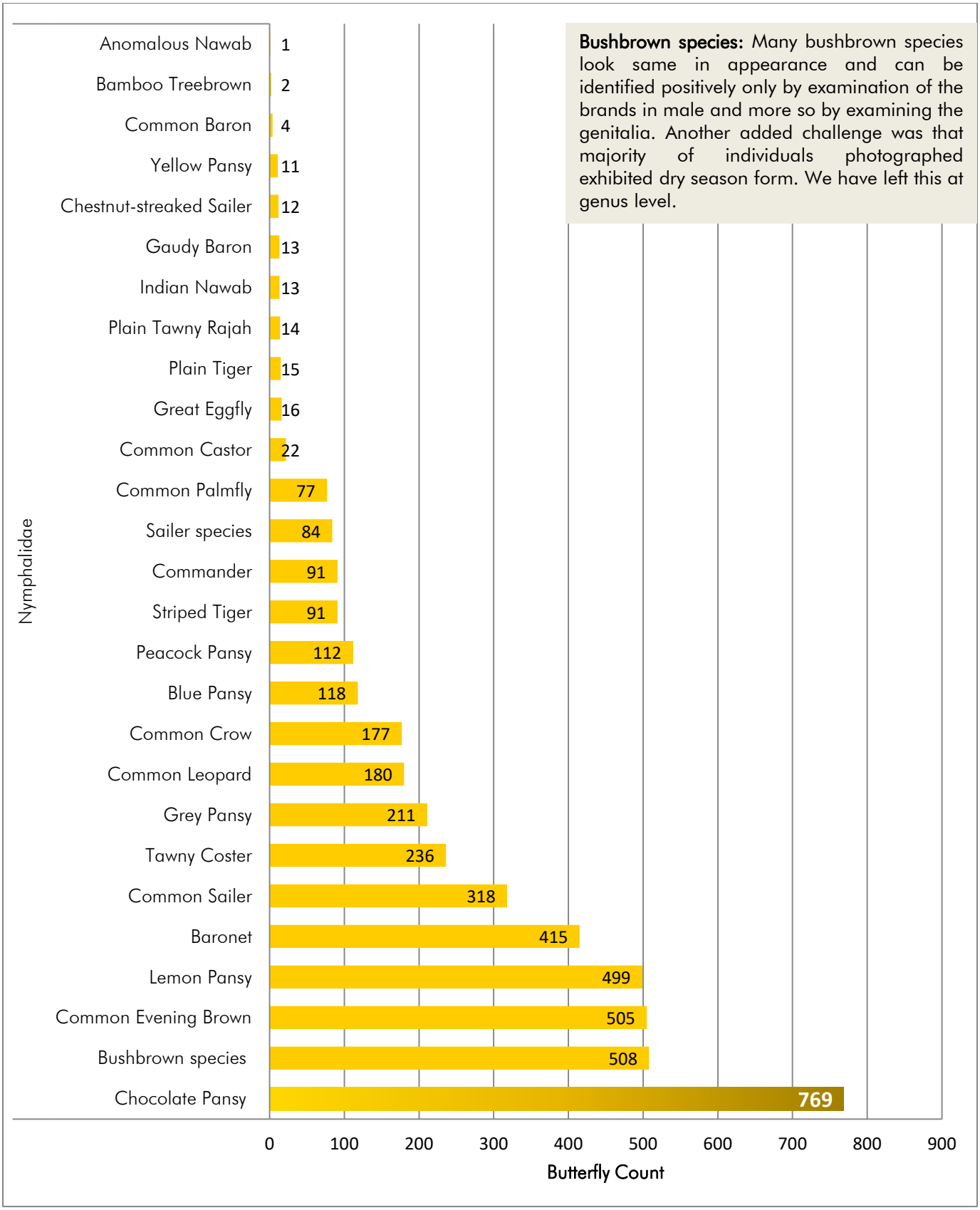


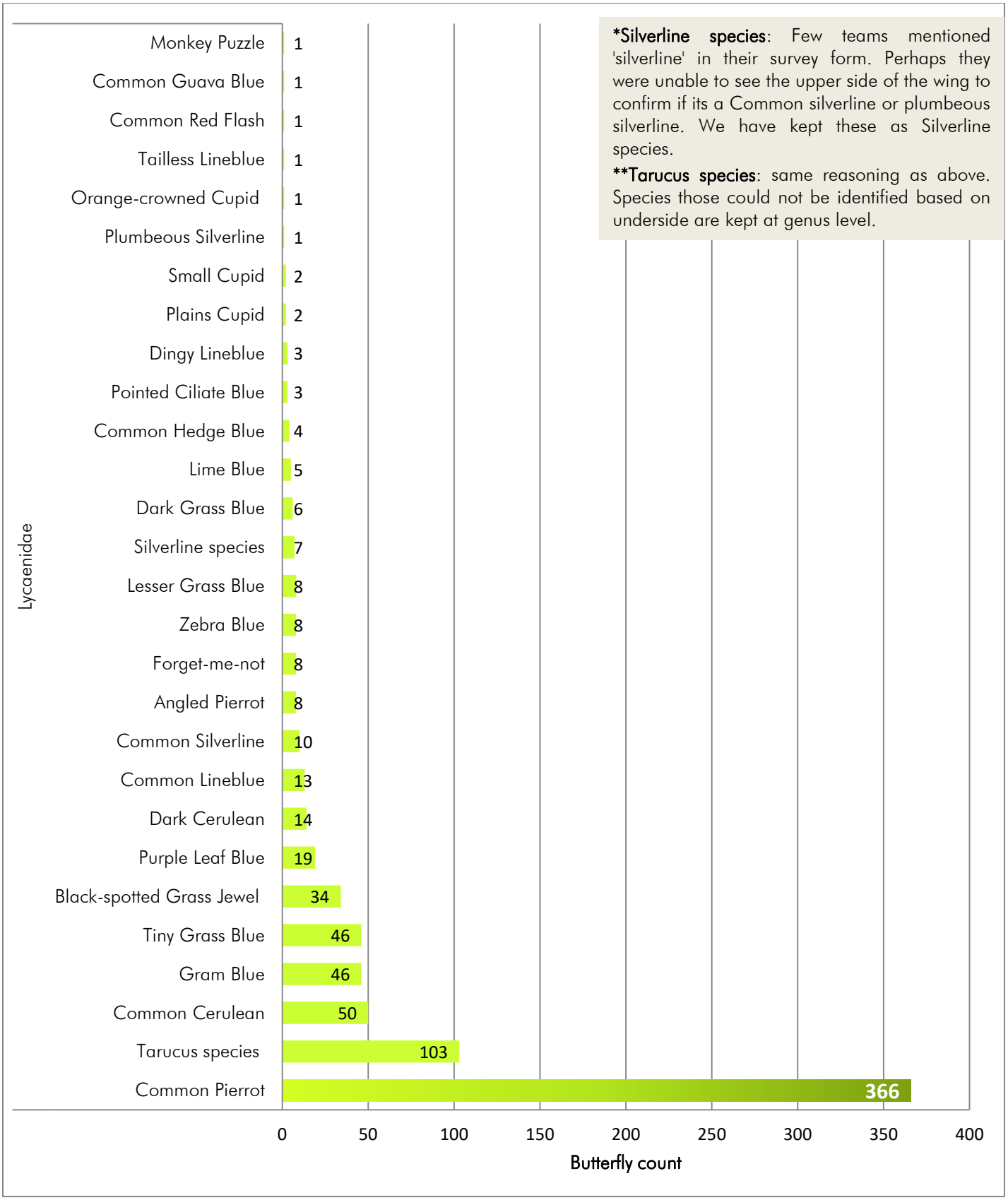
Figure 3 Sampled Trails for Butterfly Survey

Butterfly Species Abundance of Nymphalidae Family



Bushbrown species: Many bushbrown species look same in appearance and can be identified positively only by examination of the brands in male and more so by examining the genitalia. Another added challenge was that majority of individuals photographed exhibited dry season form. We have left this at genus level.

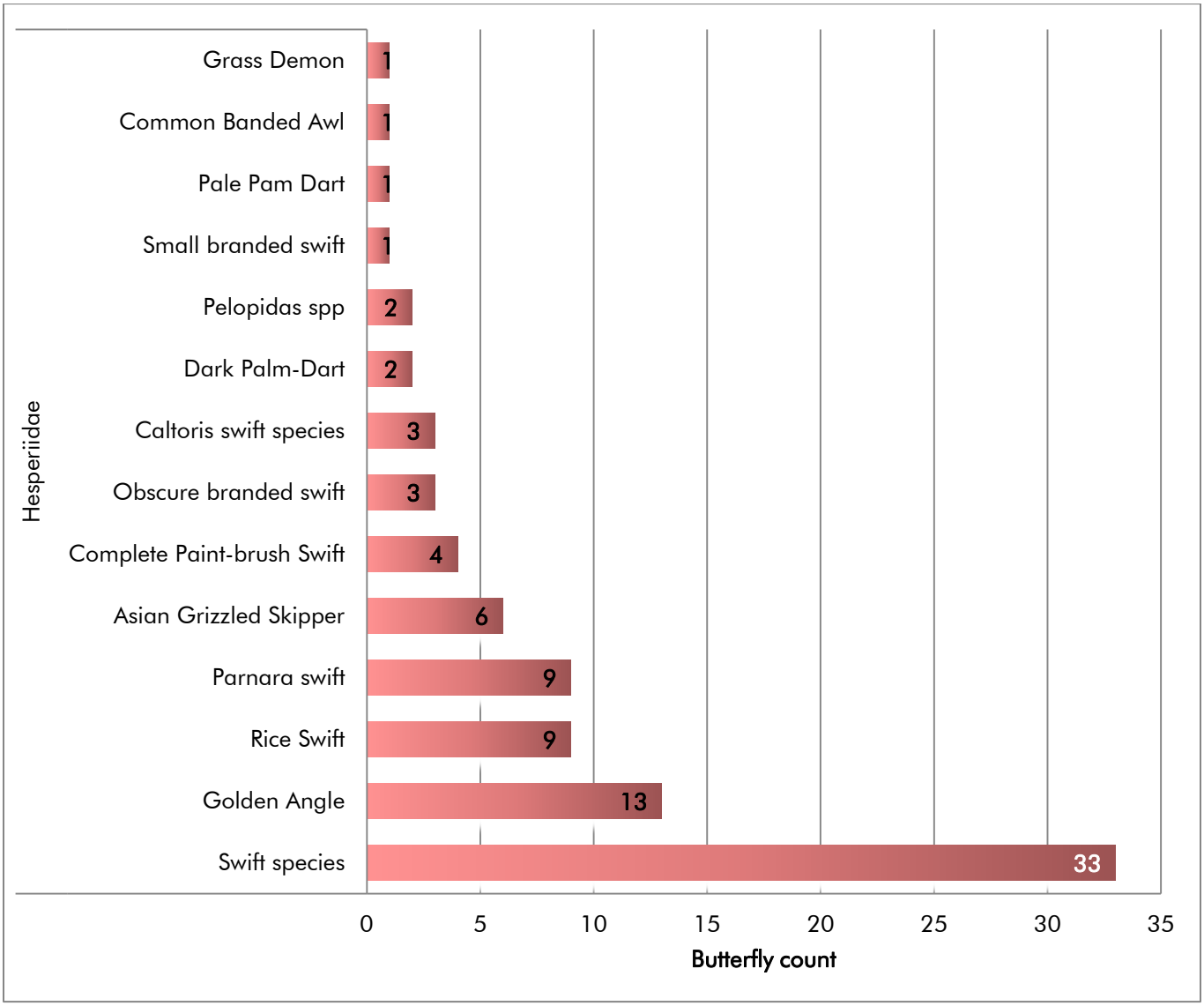
Butterfly Species Abundance of Lycaenidae Family



***Silverline species**: Few teams mentioned 'silverline' in their survey form. Perhaps they were unable to see the upper side of the wing to confirm if its a Common silverline or plumbeous silverline. We have kept these as Silverline species.

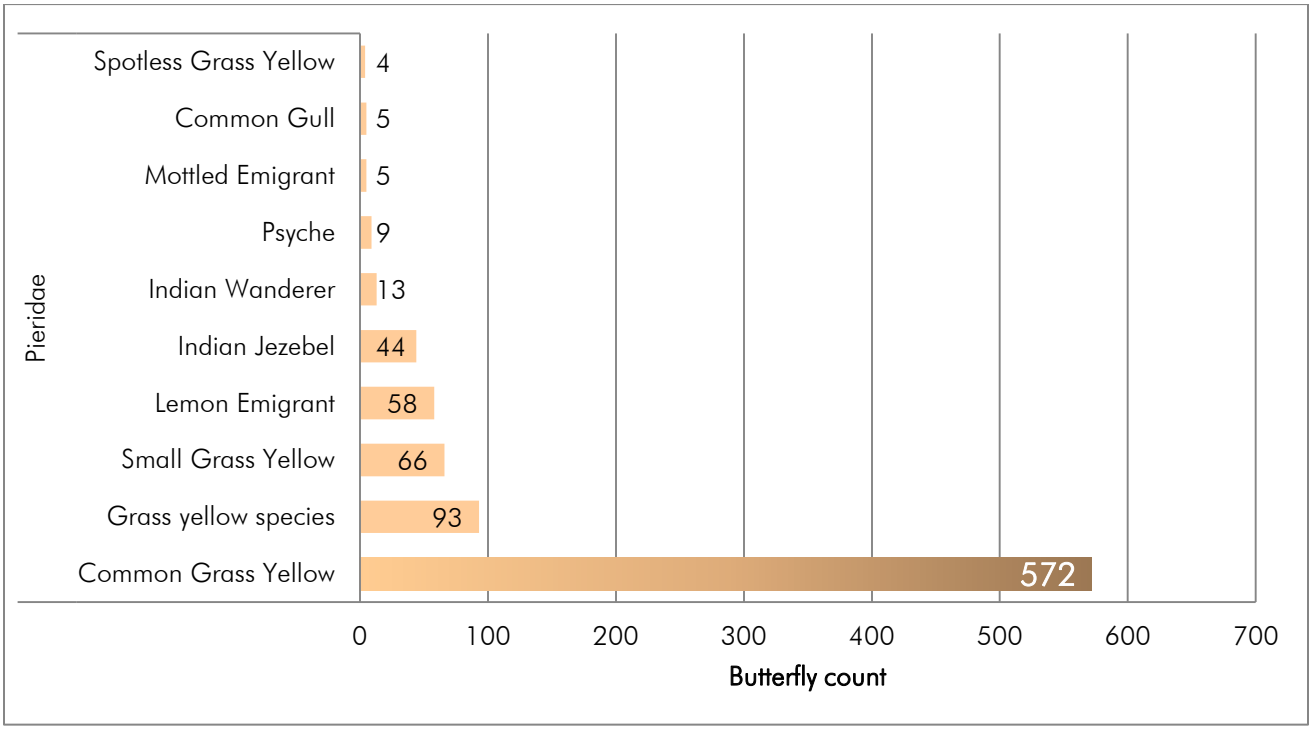
****Tarucus species**: same reasoning as above. Species those could not be identified based on underside are kept at genus level.

Butterfly Species Abundance of Hesperiidae Family

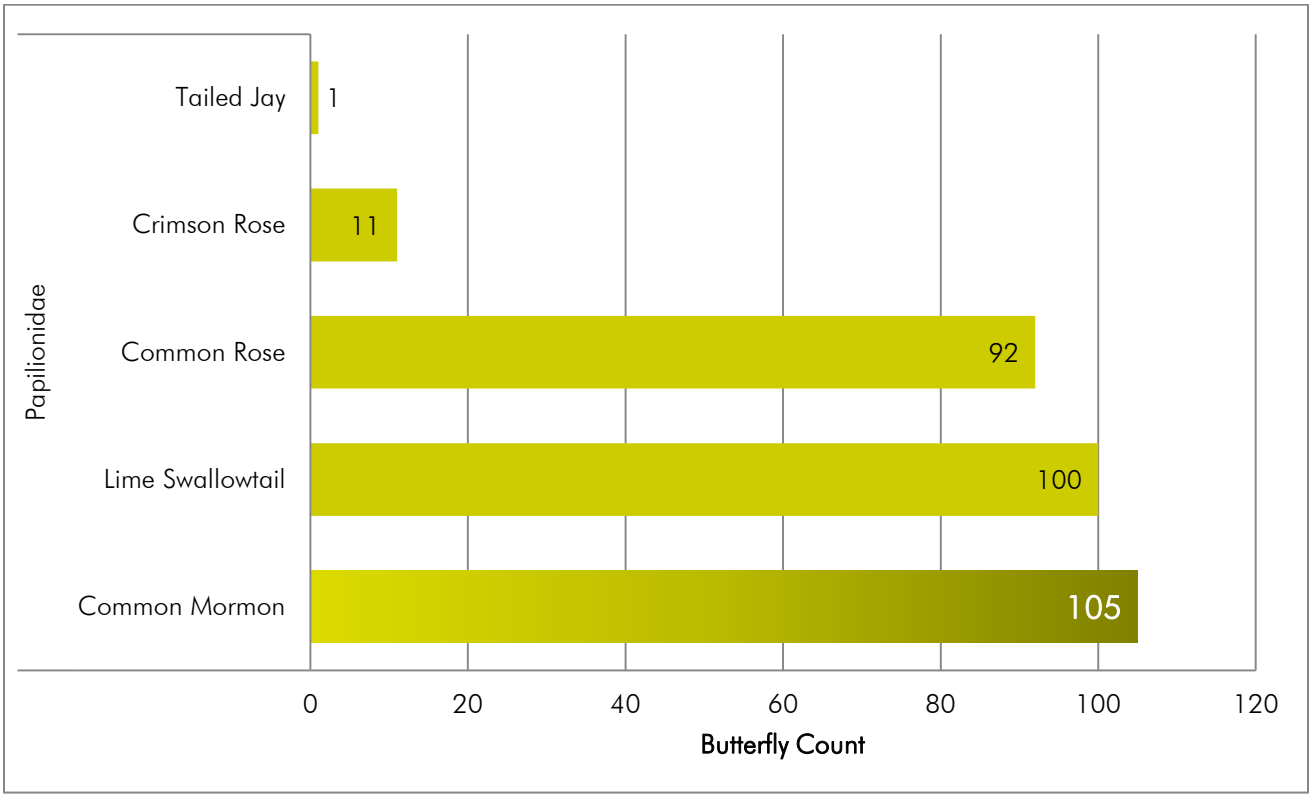


*Few species level confirmation is possible only on dissection of genitalia, cannot be easily identified based on external wing patterns. These butterflies are kept at genus level.

Butterfly Species Abundance of Pieridae Family



Butterfly Species Abundance of Papilionidae Family

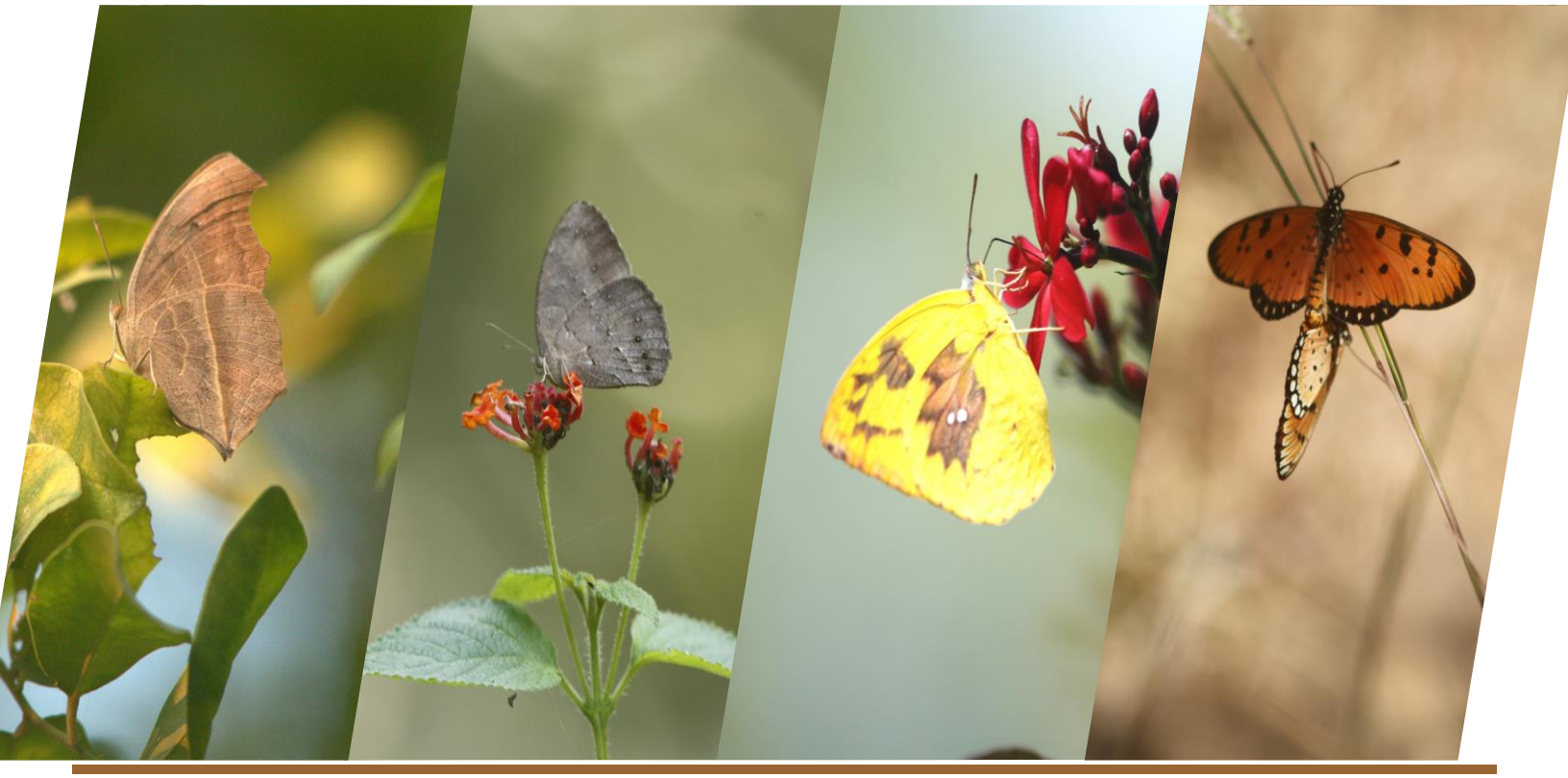


Inputs and Recommendations

Based on the butterfly field survey and data collected by participants, some inputs and suggestion:

- Skippers from the Pelopidas, Parnara, and Potanthus genus present a difficulty in field identification. Given the necessity for dissection of male butterflies for accurate identification based on genitalia structure, it is recommended to avoid species-level identification solely based on photographs.
- Bushbrowns, especially those found in the region, exhibit significant similarities. Examination of male brands is required for confirmation, and due to the difficulty in photographing them under overlapping wings, species-level identification of three Bushbrown species is not included in the checklist. However, photographic evidence suggests the partial confirmation of Mycalesis perseus (Common Bushbrown), Mycalesis mineus (Dark Brand Bushbrown), and Mycalesis visala (Long-Brand Bushbrown) (Annexure 5).
- Identification of the Tarucus genus relies on upper-side wing features of male butterflies. In the absence of upper-side photographs, identification is maintained at the genus level, suggesting the possibility of Tarucus nara (Striped Pierrot), Tarucus balkanicus (Black-spotted Pierrot), and Tarucus indica (Pointed Pierrot).
- Some camps entered incomplete species names like pierrot, tiger, and silverline. These observations are valid but challenging to precisely identify. They are categorized under 'Tarucus species' and 'silverline species' for reference.
- Species like Blue Tiger and Danaid Eggfly were mentioned in the survey sheet but are not included in the final list due to the lack of photo documentation. However, their mention is retained in the camp and data sheet was observed and noted by respective teams.
- It is recommended to conduct regular/periodic butterfly monitoring, ideally involving interested forest staff. This continuous observation over time, especially seasonal data, can significantly enhance and update the checklist for Nawegaon Nagzira Tiger Reserve (NNTR). The time-constrained count method is suggested for maintaining records.
- It is recommended to use a time constraint count or 30-minute count method (Time constrained count/30 min count is proposed by the iBMS network) and maintain the records, that over a period of time will help understand the impact of changes (good/bad) on butterfly count and diversity, which in turn will help aid conservation efforts.
- NNTR can collaborate with Indian Butterfly Monitoring Scheme (iBMS) network that will help guide survey, identify species in field and possibly give inputs that will be integral to conservation initiatives taken up by NNTR. The collaborative work can also translate to publications and research papers in future.

- Some initiatives can be given to keep up interest and motivation. Like a WA group / FB page to share butterfly observations, an annual check list published or maintained on social media platforms like www.ifoundbutterflies.org which is one of its kind website that publishes observations of Indian butterflies and is an indigenous platform managed by the National Center for Biological Studies, Bangalore.
- These efforts can contribute to monitoring and understanding long-term trends and dynamics of butterfly populations, providing valuable insights for conservation, research, and education.
- The survey has generated interest not only locally but also from neighboring states. This presents an opportunity to involve people from various walks of life, creating awareness and fostering empathy for national heritage and wildlife.



Annexure-1 Checklist of Butterfly Survey (2019)

Sr No	Family	Scientific Name	Common Name
1	Hesperiidae	Telicota colon	Pale palm dart
2	Hesperiidae	Baoris farri	Paintbrush swift
3	Hesperiidae	Cephrenes acalle	Plain palm dart
4	Hesperiidae	Telicota ancilla	Dark palm dart
5	Hesperiidae	Caprona ransonnetti	Golden angle
6	Hesperiidae	Udaspes folus	Grass demon
7	Hesperiidae	Suastus gremius	Indian palm bob
8	Hesperiidae	Spialia galba	Indian skipper
9	Hesperiidae	Hasora badra	Common awl
10	Hesperiidae	Potanthus pseudomaesa	Common dart
11	Hesperiidae	Taractrocera maevius	Common grass dart
12	Hesperiidae	Notocrypta curvifascia	Restricted demon
13	Hesperiidae	Borbo cinnara	Rice swift
14	Hesperiidae	Borbo cinnara	
15	Hesperiidae	Parnara naso	Oriental straight swift
16	Hesperiidae	Coladenia indrani	Tricolored pied flat
17	Hesperiidae	Hasora vitta	Plain banded awl
18	Hesperiidae	Badamia exclamationis	Brown awl
19	Hesperiidae	Pelopidas mathias	Small branded swift
20	Hesperiidae	Hasora chromus	Common banded awl
21	Lycaenidae	Caleta decidia	Angled pierrot
22	Lycaenidae	Jamides celeno	Common cerulean
23	Lycaenidae	Anthene emolus	Common ciliate blue
24	Lycaenidae	Actolepis puspa	Common hedge blue
25	Lycaenidae	Prostas nora	Common line blue
26	Lycaenidae	Castalius rosimon	Common pierrot
27	Lycaenidae	Spindasis vulcanus	Common silverline
28	Lycaenidae	Zizeeria karsandra	Dark grass blue

Sr No	Family	Scientific Name	Common Name
29	Lycaenidae	Catochrysops strabo	Forget me not
30	Lycaenidae	Euchrysops cnejus	Gram blue
31	Lycaenidae	Freyeria trochylus	Grass jewel
32	Lycaenidae	Everes lacturnus	Indian cupid
33	Lycaenidae	Rapala iarbus	Indian redflash
34	Lycaenidae	Curetis thetis	Indian sunbeam
35	Lycaenidae	Amblypodia anita	Leaf blue
36	Lycaenidae	Zizina otis	Lesser grass blue
37	Lycaenidae	Jamides alecto	Metallic cerulean
38	Lycaenidae	Chiaria othona	Orchid tit
39	Lycaenidae	Pseudozizeeria maha	Pale grass blue
40	Lycaenidae	Lampides boeticus	Pea blue
41	Lycaenidae	Celastrina lavendularis	Plain hedge blue
42	Lycaenidae	Chilades pandava	Plains cupid
43	Lycaenidae	Spindasis schistacea	Plumbeous silverline
44	Lycaenidae	Anthene lycaenina	Pointed ciliate blue
45	Lycaenidae	Tarucus nara	Rounded pierrot
46	Lycaenidae	Prostas dubiosa	Tailless line blue
47	Lycaenidae	Zizula hylax	Tiny grass blue
48	Lycaenidae	Leptotes plinius	Zebra blue
49	Lycaenidae	Chilades parrhasius	Small cupid
50	Lycaenidae	Euthalia lubentina	Gaudy baron
51	Lycaenidae	Agiades litigiosa	Water snow flat
52	Lycaenidae	Papilio polymnestor	Blue mormon
53	Lycaenidae	Chilades lajus	Lime blue
54	Lycaenidae	Papilio crino	Common banded peacock
55	Nymphalidae	Lethe europa	Bamboo tree brown
56	Nymphalidae	Euthalianais	Baronet
57	Nymphalidae	Charaxes solon	Black rajah
58	Nymphalidae	Athyma ranga	Black vein sergeant

Sr No	Family	Scientific Name	Common Name
59	Nymphalidae	Junonia orithya	Blue Pansy
60	Nymphalidae	Tirumala limniace	Blue tiger
61	Nymphalidae	Junonia iphita	Chocolate pansy
62	Nymphalidae	Moduza procris	Commander
63	Nymphalidae	Euthalia aconthea	Common baron
64	Nymphalidae	Mycalesis perseus	Common bushbrown
65	Nymphalidae	Adriadne merione	Common castor
66	Nymphalidae	Melanitis leda	Common evening brown
67	Nymphalidae	Euploea core	Common Indian crow
68	Nymphalidae	Phalanta phalantha	Common leopard
69	Nymphalidae	Polyura athamas	Common nawab
70	Nymphalidae		Common palmfly
71	Nymphalidae	Neptis hylas	Common sailor
72	Nymphalidae	Hypolimnas misippus	Danaideggfly
73	Nymphalidae	Mycalesis mineus	Dark banded bushbrown
74	Nymphalidae	Hypolimnas bolina	Great eggfly
75	Nymphalidae	Junonia atlites	Grey pansy
76	Nymphalidae	Junonia lemonias	Lemon pansy
77	Nymphalidae	Mycalesis visala	Long banded bushbrown
78	Nymphalidae	Vanessa cardui	Painted lady
79	Nymphalidae	Junonia almana	Peacock pansy
80	Nymphalidae	Danaus chrysippus	Plain tiger
81	Nymphalidae	Neptis columella	Short banded sailor
82	Nymphalidae	Phalanta alcippe mercea	Small leopard
83	Nymphalidae	Athyma selenophora	Staff sergeant
84	Nymphalidae	Danaus genutia	Striped tiger
85	Nymphalidae	Acraea violae	Tawny coster
86	Nymphalidae	Junonia hierta	Yellow pansy
87	Papilionidae	Graphium doson	Common jay
88	Papilionidae	Papilio polytes	Common mime

Sr No	Family	Scientific Name	Common Name
89	Papilionidae	Papilio polytes	Common mormon
90	Papilionidae	Pachliopta aristolochiae	Common rose
91	Papilionidae	Pachliopta hector	Crimson rose
92	Papilionidae	Graphium antiphates	Five-bar swordtail
93	Papilionidae	Papiliodemoleus	Lime butterfly
94	Papilionidae	Graphium nomius	Spot swordtail
95	Papilionidae	Graphium agamemnon	Tailed jay
96	Pieridae	Catopsilia pomona	Common emigrant
97	Pieridae	Eurema hecabe	Common grass yellow
98	Pieridae	Cepora nerissa	Common gull
99	Pieridae	Delias eucharis	Common jezebal
100	Pieridae	Pareronia valeria	Common wanderer
101	Pieridae	Colitis danae	Crimson tip
102	Pieridae	Catopsilia pyranthe	Mottled emigrant
103	Pieridae	Leptosia nina	psyche
104	Pieridae	Eurema brigitta	Small Grass Yellow
105	Pieridae	Eurema blanda	Threespot grass yellow
106	Pieridae	Eurema andersonii	One spot grass yellow
107	Pieridae	Appias albina	Albatross
108	Pieridae	Belenois aurota	pioneer
109	Pieridae	Eurema laeta	Spotless grass yellow
110	Pieridae	Rapala varuna	Indigo flash
111	Pieridae	Cigaritis ictis	Common shot silverline
112	Pieridae	Charaxes bernardus	Tawny rajah
113	Pieridae	Parantica aglea	Glassy tiger
114	Pieridae	Melanitis phedima	Dark evening brown
115	Pieridae	Melanitis zitenius	Great evening brown
116	Pieridae	Mycalesis subdita	Tamil bushbrown
117	Riodinidae	Abisara echerius	Plum judy


NNTR
NAWEGAON - NAGZIRA
TIGER RESERVE
NAWEGAON - NAGZIRA TIGER RESERVE
Invites
Butterfly Enthusiasts for its
first Butterfly Survey
17 - 19 Nov 2023
Scan QR Code for Registration
For queries Please Contact :
Mr. Pavan Tikhile : +91 9423231110

Nawegaon Nagzira Tiger Reserve, Gondia

Butterfly Survey Form (30-minute count)

Page No:

Trail No:

30-minute count No:

Date: _____ Start time: _____ End time: _____

Weather: _____ Temperature: _____

Habitat type: _____

Location: _____Taluka: _____District: _____

Name of team leader: _____ No of team members: _____

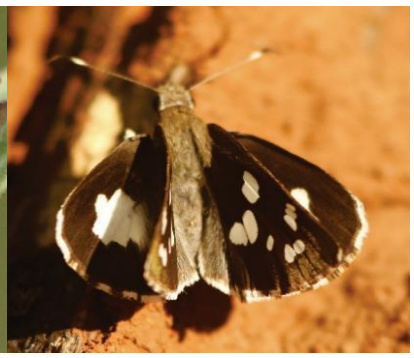
Phone number: _____ Email Id: _____

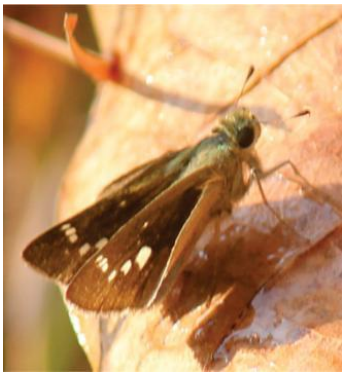
GPS co-ordinates: Starting point: _____ End point: _____

Serial No	Name of Butterfly	Species Count							Any special remark about species observed
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
13									
14									

Annexure-4 Details of Camp wise count track between 17-19 November 2023

Sr No	Participant Name	Camp	PA	30 min. Count
1	Ms. Anjali Chauhan	Badbadya Camp	Nagzira WLS	10
2	Ms. Pooja Kawas			
3	Ms. Savita Bharti	Kalimati Camp	Nawegaon NP	15
4	Ms. Nutan Uikey			
5	Ms. Monika Kore			
6	Ms. Pranjali M. Tawade	Ghatmara Camp	Nawegaon NP	15
7	Ms. Gita Tidke			
8	Mr. Rupesh M. Nimbarte	Hiwarwala Camp	Nagzira WLS	11
9	Mr. Ashish Dubay			
10	Mr. Chhatrapal Choudhari	Risala Camp	New Nagzira WLS	14
11	Mr. Nandkishor Morande			
12	Mr. Mitesh D. Ninave	Rajdoh Camp	Koka WLS	10
13	Mr. Dilip Pandhare			
14	Mr. Pratik R. Raut	Raghoba Camp	New Nagzira WLS	16
15	Mr. Amol Choube			
16	Dr. Gopal T. Paliwal	Kamkazari Camp	New Nagzira WLS	12
17	Mr. Bhimrao Lade			
18	Dr. Arvindkumar Gajbhiye	TK Join Camp	Nawegaon NP	12
19	Mr. Ankushkumar S. Patle			
20	Mr. Pranay Shukla	Bundelght Camp	Koka WLS	11
21	Mr. Rajat Gautam			
22	Mr. Narendra K. Meshram	Khindapahadi Camp	New Nagzira WLS	14
23	Ms. Swapna R. Meshram			
24	Mr. Subhash A Padghan	Chorkhamara madhali gate Camp	New Nagzira WLS	11
25	Mr. Shubham Thote			
26	Mr. Anoop Kumar Naik	Rengepar Camp	Nagzira WLS	12
27	Mr. Danesh Kumar Sunha			
28	Mr. Kishor Pralhad Bhonde	Murpar Camp	Nagzira WLS	13
29	Mr. Manojkumar S. Sutar			
			Total →	176

Sr No	Species Details	Under-side Wing	Upper-side Wing
1	Family- Hesperiidae *Genus- Hasora* Scientific Name- *Hasora chromus* Common Name- Common Banded Awl Wingspan- 45–50 mm		
2	Family- Hesperiidae *Genus- Udaspes* Scientific Name- *Udaspes folus* Common Name- Grass Demon Wingspan- 40–48 mm		
3	Family- Hesperiidae *Genus- Baoris* Scientific Name- *Baoris farri* Common Name- Complete Paint-brush Swift Wingspan- 43–48 mm		
4	Family- Hesperiidae *Genus- Borbo* Scientific Name- *Borbo cinnara* Common Name- Rice Swift Wingspan- 30–36 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
5	Family- Hesperiidae *Genus- Parnara* Scientific Name- *Parnara spp.* Common Name- Parnara swift spp Wingspan- 28–38 mm		
6	Family- Hesperiidae *Genus- Pelopidas* Scientific Name- *Pelopidas agna* Common Name- Obscure Branded Swift Wingspan- 33–36 mm		
7	Family- Hesperiidae *Genus- Pelopidas* Scientific Name- *Pelopidas mathias* Common Name- Small Branded Swift Wingspan- 32–38 mm		
8	Family- Hesperiidae *Genus- Pelopidas* Scientific Name- *Pelopidas spp.* Common Name- Pelopidas swift spp Wingspan- 35–45 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
9	Family- Hesperiidae *Genus- Telicota* Scientific Name- *Telicota bambusae* Common Name- Dark Palm-Dart Wingspan- 34–36 mm		
10	Family- Hesperiidae *Genus- Telicota* Scientific Name- *Telicota colon* Common Name- Pale Palm-Dart Wingspan- 32–36 mm		
11	Family- Hesperiidae *Genus- Potanthus* Scientific Name- *Potanthus spp.* Common Name- Dart species Wingspan- 22–32 mm		
12	Family- Hesperiidae *Genus- Spialia* Scientific Name- *Spialia galba* Common Name- Asian Grizzled Skipper Wingspan- 20–27 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
13	Family- Hesperiidae *Genus- Caprona* Scientific Name- *Caprona ransonnettii* Common Name- Golden Angle Wingspan- 35–45 mm		
14	Family- Lycaenidae *Genus- Cigaritis* Scientific Name- *Cigaritis schistacea* Common Name- Plumbeous Silverline Wingspan- 28–37 mm		
15	Family- Lycaenidae *Genus- Cigaritis* Scientific Name- *Cigaritis vulcanus* Common Name- Common Silverline Wingspan- 26–34 mm		
16	Family- Lycaenidae *Genus- Anthene* Scientific Name- *Anthene lycaenina* Common Name- Pointed Ciliate Blue Wingspan- 24–29 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
17	Family- Lycaenidae *Genus- Acytolepis* Scientific Name- *Acytolepis puspa* Common Name- Common Hedge Blue Wingspan- 28–35 mm		
18	Family- Lycaenidae *Genus- Caleta* Scientific Name- *Caleta decidia* Common Name- Angled Pierrot Wingspan- 26–32 mm		
19	Family- Lycaenidae *Genus- Castalius* Scientific Name- *Castalius rosimon* Common Name- Common Pierrot Wingspan- 24–34 mm		
20	Family- Lycaenidae *Genus- Catochrysops* Scientific Name- *Catochrysops strabo* Common Name- Forget-me-not Wingspan- 25–35 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
21	Family- Lycaenidae *Genus- Chilades* Scientific Name- *Chilades lajus* Common Name- Lime Blue Wingspan- 26–30 mm		
22	Family- Lycaenidae *Genus- Chilades* Scientific Name- *Chilades pandava* Common Name- Plains Cupid Wingspan- 25–35 mm		
23	Family- Lycaenidae *Genus- Chilades* Scientific Name- *Chilades parrhasius* Common Name- Small Cupid Wingspan- 25–35 mm		
24	Family- Lycaenidae *Genus- Everes* Scientific Name- *Everes lacturnus* Common Name- Orange-crowned Cupid / Indian cupid Wingspan- 22–28 mm		

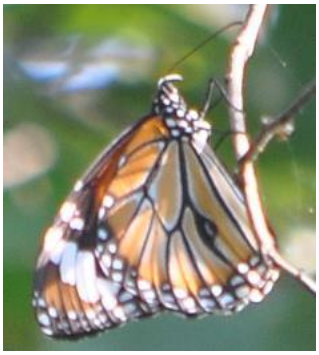
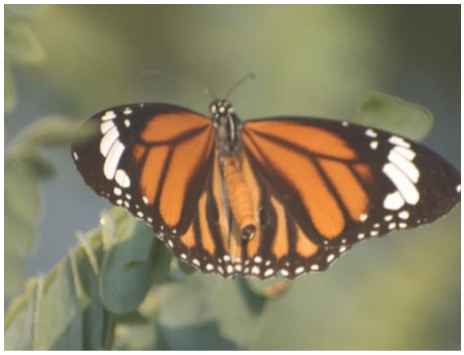
Sr No	Species Details	Under-side Wing	Upper-side Wing
25	Family- Lycaenidae *Genus- Euchrysops* Scientific Name- *Euchrysops cnejus* Common Name- Gram Blue Wingspan- 25–33 mm		
26	Family- Lycaenidae *Genus- Freyeria* Scientific Name- *Freyeria putli* Common Name- Black-spotted Grass Jewel Wingspan- 15–22 mm		
27	Family- Lycaenidae *Genus- Jamides* Scientific Name- *Jamides celeno* Common Name- Common Cerulean Wingspan- 27–40 mm		
28	Family- Lycaenidae *Genus- Leptotes* Scientific Name- *Leptotes plinius* Common Name- Zebra Blue Wingspan- 22–32 mm		

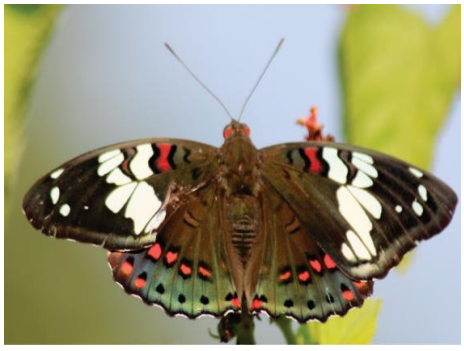
Sr No	Species Details	Under-side Wing	Upper-side Wing
29	Family- Lycaenidae *Genus- Petrelaea* Scientific Name- *Petrelaea dana* Common Name- Dingy Lineblue Wingspan- 25–28 mm		
30	Family- Lycaenidae *Genus- Prosotas* Scientific Name- *Prosotas dubiosa* Common Name- Tailless Lineblue Wingspan- 22–26 mm		
31	Family- Lycaenidae *Genus- Prosotas* Scientific Name- *Prosotas nora* Common Name- Common Lineblue Wingspan- 22–26 mm		
32	Family- Lycaenidae *Genus- Tarucus* Scientific Name- *Tarucus spp.* Common Name- Tarucus species (Either Tarucus nara, Tarucus indica or Tarucus balkanica) Wingspan- 24–30 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
33	Family- Lycaenidae *Genus- Zizeeria* Scientific Name- *Zizeeria karsandra* Common Name- Dark Grass Blue Wingspan- 18–24 mm		
34	Family- Lycaenidae *Genus- Zizina* Scientific Name- *Zizina otis* Common Name- Lesser Grass Blue Wingspan- 19–26 mm		
35	Family- Lycaenidae *Genus- Zizula* Scientific Name- *Zizula hylax* Common Name- Tiny Grass Blue Wingspan- 16–24 mm		
36	Family- Lycaenidae *Genus- Amblypodia* Scientific Name- *Amblypodia anita* Common Name- Purple Leaf Blue Wingspan- 45–52 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
37	Family- Lycaenidae *Genus- Rapala* Scientific Name- *Rapala iarbus* Common Name- Common Red Flash Wingspan- 33–41 mm		
38	Family- Lycaenidae *Genus- Virachola* Scientific Name- *Virachola isocrates* Common Name- Common Guava Blue Wingspan- 34–50 mm		
39	Family- Lycaenidae *Genus- Rathinda* Scientific Name- *Rathinda amor* Common Name- Monkey Puzzle Wingspan- 26–28 mm		
40	Family- Nymphalidae *Genus- Ariadne* Scientific Name- *Ariadne merione* Common Name- Common Castor Wingspan- 45–60 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
41	Family- Nymphalidae *Genus- Charaxes* Scientific Name- *Charaxes agrarius* Common Name- Anomalous Nawab Wingspan- 95–100 mm		
42	Family- Nymphalidae *Genus- Charaxes* Scientific Name- *Charaxes bharata* Common Name- Indian Nawab Wingspan- 60–75 mm		
43	Family- Nymphalidae *Genus- Charaxes* Scientific Name- *Charaxes psaphon* Common Name- Plain Tawny Rajah Wingspan- 90–100 mm		
44	Family- Nymphalidae *Genus- Danaus* Scientific Name- *Danaus chrysippus* Common Name- Plain Tiger Wingspan- 70–80 mm		

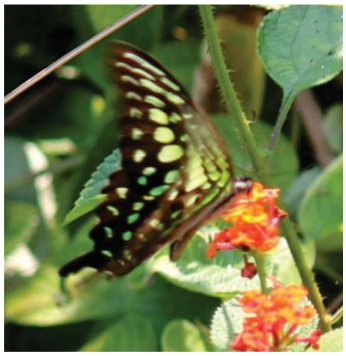
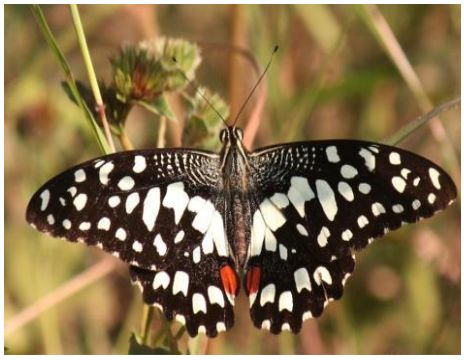
Sr No	Species Details	Under-side Wing	Upper-side Wing
45	Family- Nymphalidae *Genus- Danaus* Scientific Name- *Danaus genutia* Common Name- Striped Tiger Wingspan- 75–95 mm		
46	Family- Nymphalidae *Genus- Euploea* Scientific Name- *Euploea core* Common Name- Common Crow Wingspan- 85–95 mm		
47	Family- Nymphalidae *Genus- Acraea* Scientific Name- *Acraea terpsicore* Common Name- Tawny Coster Wingspan- 50–65 mm		
48	Family- Nymphalidae *Genus- Phalanta* Scientific Name- *Phalanta phalantha* Common Name- Common Leopard Wingspan- 50–60 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
49	Family- Nymphalidae *Genus- Euthalia* Scientific Name- *Euthalia aconthea* Common Name- Common Baron Wingspan- 55–80 mm		
50	Family- Nymphalidae *Genus- Euthalia* Scientific Name- *Euthalia lubentina* Common Name- Gaudy Baron Wingspan- 60–80 mm		
51	Family- Nymphalidae *Genus- Symphaedra* Scientific Name- *Symphaedra nais* Common Name- Baronet Wingspan- 60–70 mm		
52	Family- Nymphalidae *Genus- Moduza* Scientific Name- *Moduza procris* Common Name- Commander Wingspan- 60–75 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
53	Family- Nymphalidae *Genus- Neptis* Scientific Name- *Neptis hylas* Common Name- Common Sailer Wingspan- 50–60 mm		
54	Family- Nymphalidae *Genus- Neptis* Scientific Name- *Neptis jumbah* Common Name- Chestnut-streaked Sailer Wingspan- 60–70 mm		
55	Family- Nymphalidae *Genus- Hypolimnas* Scientific Name- *Hypolimnas bolina* Common Name- Great Eggfly Wingspan- 70–110 mm		
56	Family- Nymphalidae *Genus- Junonia* Scientific Name- *Junonia almana* Common Name- Peacock Pansy Wingspan- 60–65 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
57	Family- Nymphalidae *Genus- Junonia* Scientific Name- *Junonia atlites* Common Name- Grey Pansy Wingspan- 55–65 mm		
58	Family- Nymphalidae *Genus- Junonia* Scientific Name- *Junonia hierta* Common Name- Yellow Pansy Wingspan- 45–60 mm		
59	Family- Nymphalidae *Genus- Junonia* Scientific Name- *Junonia iphita* Common Name- Chocolate Pansy Wingspan- 50–60 mm		
60	Family- Nymphalidae *Genus- Junonia* Scientific Name- *Junonia lemonias* Common Name- Lemon Pansy Wingspan- 60–65 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
61	Family- Nymphalidae *Genus- Junonia* Scientific Name- *Junonia orithya* Common Name- Blue Pansy Wingspan- 40–60 mm		
61	Family- Nymphalidae *Genus- Elymnias* Scientific Name- *Elymnias hypermnestra* Common Name- Common Palmfly Wingspan- 65–80 mm		
63	Family- Nymphalidae *Genus- Melanitis* Scientific Name- *Melanitis leda* Common Name- Common Evening Brown Wingspan- 60–80 mm		
64	Family- Nymphalidae *Genus- Lethe* Scientific Name- *Lethe europa* Common Name- Bamboo Treebrown Wingspan- 65–75 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
65	Family- Nymphalidae *Genus- Mycalesis* Scientific Name- *Mycalesis spp.* Common Name- Bushbrown species Wingspan- 28–42 mm		
66	Family- Papilionidae *Genus- Graphium* Scientific Name- *Graphium agamemnon* Common Name- Tailed Jay Wingspan- 85–100 mm		
67	Family- Papilionidae *Genus- Papilio* Scientific Name- *Papilio demoleus* Common Name- Lime Swallowtail Wingspan- 80–100 mm		
68	Family- Papilionidae *Genus- Papilio* Scientific Name- *Papilio polytes* Common Name- Common Mormon Wingspan- 90–100 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
69	Family- Papilionidae *Genus- Pachliopta* Scientific Name- *Pachliopta aristolochiae* Common Name- Common Rose Wingspan- 80–110 mm		
70	Family- Papilionidae *Genus- Pachliopta* Scientific Name- *Pachliopta hector* Common Name- Crimson Rose Wingspan- 90–110 mm		
71	Family- Pieridae *Genus- Catopsilia* Scientific Name- *Catopsilia pomona* Common Name- Lemon Emigrant Wingspan- 55–75 mm		
72	Family- Pieridae *Genus- Catopsilia* Scientific Name- *Catopsilia pyranthe* Common Name- Mottled Emigrant Wingspan- 50–70 mm		

Sr No	Species Details	Under-side Wing	Upper-side Wing
73	Family- Pieridae *Genus- Eurema* Scientific Name- *Eurema brigitta* Common Name- Small Grass Yellow Wingspan- 30–40 mm		
74	Family- Pieridae *Genus- Eurema* Scientific Name- *Eurema hecabe* Common Name- Common Grass Yellow Wingspan- 40–50 mm		
75	Family- Pieridae *Genus- Eurema* Scientific Name- *Eurema laeta* Common Name- Spotless Grass Yellow Wingspan- 35–45 mm		
76	Family- Pieridae *Genus- Leptosia* Scientific Name- *Leptosia nina* Common Name- Psyche Wingspan- 35–50 mm		

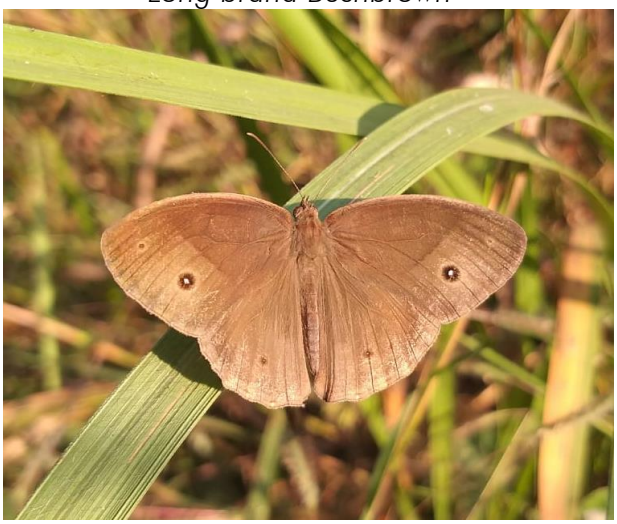
Sr No	Species Details	Under-side Wing	Upper-side Wing
77	Family- Pieridae *Genus- Pareronia* Scientific Name- *Pareronia hippia* Common Name- Indian Wanderer Wingspan- 65–80 mm		
78	Family- Pieridae *Genus- Cepora* Scientific Name- *Cepora nerissa* Common Name- Common Gull Wingspan- 40–65 mm		
79	Family- Pieridae *Genus- Delias* Scientific Name- *Delias eucharis* Common Name- Indian Jezebel Wingspan- 66–83 mm		
80	Family- Riodinidae *Genus- Abisara* Scientific Name- *Abisara bifasciata* Common Name- Double-banded Judy Wingspan- 40–50 mm		

Annexure-6 Bushbrowns up and un photographs showing tentative species level identification

Dark brand Bushbrown

Long brand Bushbrown

Dark brand Bushbrown



Common Bushbrown

Dark Brand Bushbrown

Common Bushbrown

महाराष्ट्र वन विभाग

NTR
NAWEGAON - NAGZIRA
TIGER RESERVE, GONDIA

Deputy Conservator of Forest and Field Director

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