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An updated checklist of the butterflies of Sironcha forest division, Gadchiroli District, Maharashtra, central India

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ABSTRACT: The study was carried out to reveal the butterfly diversity in the Sironcha Forest Division, Gadchiroli district, Maharashtra. A total of 137 species were recorded. Most of the butterflies recorded belonged to the family Lycaenidae (44 species), followed by Nymphalidae (42 species), Hesperiidae (23 species), Pieridae (17 species), Papilionidae (10 species), and a single representative from the Riodinidae family. Notably, 15 species recorded in the Sironcha Forest Division had not been previously documented in the Vidarbha region of Maharashtra. About 19 species of the recorded ones come under the protection category of the Indian Wild Life (Protection) Act 1972. These findings highlight the ecological significance of the Sironcha Forest Division as an important habitat supporting rich butterfly biodiversity, thereby contributing to a broader understanding of regional Lepidoptera diversity and associated conservation priorities. The study also presents an updated checklist of butterfly species for the Sironcha Forest Division, Gadchiroli.. © 2026 Association for Advancement of Entomology

KEY WORDS: Diversity, checklist, conservation, lepidoptera, papilionoidea, reserve forest, habitat, new records

INTRODUCTION

Butterflies are among the most extensively studied insect groups (Robbins and Opler, 1997) and are widely recognized as sensitive bio-indicators of ecosystem health because they respond rapidly to changes in vegetation and environmental conditions (Gardner et al., 1995; Wood and Gillman, 1998). Their ecological roles as pollinators and as integral components of food webs further underscore their importance in biodiversity assessments (Tiple *et al.,* 2006). Although global butterfly diversity is estimated at around 18,000 species (Martinez *et al.,* 2003), regional documentation remains incomplete, and diversity is often underestimated even in well-known taxa (Willmott *et al.,* 2001). In India, butterfly research has a long tradition beginning with the works of Fabricius and Cramer in the eighteenth century, followed by major contributions from Moore, Marshall, de Nicéville, Bingham, Bell, and Talbot (Moore, 1881; Marshall and de Nicéville, 1883; de Nicéville, 1886, 1890; Moore, 1890-1913; Bingham, 1905; Bell, 1909-1927; Talbot, 1939, 1947). Despite this extensive foundation, many regions-particularly the forested landscapes of central India remain poorly

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documented. Early accounts from central India were provided by Forsayeth (1884), Betham (1890, 1891), and Witt (1909), followed by the broader regional studies of Evans (1932), Talbot (1939, 1947), and Wynter-Blyth (1957), which recorded numerous species from central India. D'Abreu (1931) recorded 177 species in the former Central Provinces, covering regions such as Pachmari, Pench, Seoni, and Nagpur (now Madhya Pradesh and Vidarbha). India's diverse geography and climate support around 1,504 butterfly species (Tiple, 2011), with 351 species found in peninsular India and 336 in the Western Ghats (Sadasivan and Sengupta, 2024). D'Abreu (1931) documented 177 species, and recent studies recorded 43 species from the Tiger Reserve in Tadoba National Park (Rai *et al.,* 2006) and 68 species from the Tadoba Andhari Tiger Reserve (Sharma and Radhakrishnan, 2006). Tiple (2010) reported 111 species from Tadoba National Park. While 167 species have been documented in Vidarbha (Tiple, 2011), gaps in the data remain, with additional records contributed by Deokar and Shukla (2015); Tiple (2018, 2019), Tiple and Bhagwat (2023) and Tiple and Deokar (2024). The present study was started with a view to examine the diversity of butterflies from Sironcha forest division, Gadchiroli District, Maharashtra. Since there is no published checklist of butterfly from Sironcha forest division, prior to this, the present work could be the baseline for further research.

MATERIALS AND METHODS

The findings presented in this paper are the result of opportunistic sampling and biweekly photographic documentation conducted in and around Sironcha Forest Division, Gadchiroli. This study is carried out from May 2023 to June 2024. Surveys were conducted in reserve forest areas, buffer zones, along lake shores, riverbanks, and surrounding regions, primarily during the monsoon and post-monsoon seasons. All butterfly records were documented using high-resolution digital cameras. Photographs were captured using a Canon EOS 90D DSLR paired with a 100mm macro lens. Specimens were photographed from different angles in the field to aid in identification. Butterflies were primarily identified in the field using photographs taken from multiple angles, with the help of field guides (Wynter-Blyth, 1957; Kunte, 2000). The species were categorized on the basis of their abundance in Sironcha Forest Division. The butterflies were categorized as VC-Very common (> 100 sightings), C- Common (51-100 sightings), FC-Frequent common (16-50 sightings), R-Rare (2-15 sightings), VR-Very rare (< 2 sightings) (Tiple, 2018). The species that come under Indian Wild Life protection Act 1972 and its amendments till 2022 are marked with an asterix*.

The Sironcha Forest Division, Gadchiroli, Maharashtra spans approximately 212,492 hectares, covering both reserved and protected forest lands. It is located between latitudes 18°41'15" N to 19°20' N and longitudes 79°55'19" E to 80°22'30" E, with an elevation ranging from 130 to 660m above sea level. The region's geology consists of formations from the Recent, Upper Gondwana, Lower Gondwana, Upper Cuddapah, and Archaean periods. The climate is predominantly hot and dry, with maximum temperatures reaching 45°C and minimum temperatures around 9.6°C in winter. The area receives an average annual rainfall of 1,923mm (Fig. 1). The forests in Sironcha are distributed across various agro-climatic zones and include sub-tropical hill forests, tropical moist and dry deciduous forests, and lush green deciduous forests (Champion and Seth, 1968), providing habitat for a wide range of plant and animal species.

RESULTS AND DISCUSSION

During the course of study 137 species of butterflies, belonging to 6 families, were recorded in Sironcha Forest Division (SDF), Gadchiroli. The family Lycaenidae had the highest representation, with 44 species, followed by Nymphalidae 42 species, Hesperiidae (23 species), Pieridae (17 species), Papilionidae (10 species) and one species recorded from the family Riodinidae. Out of the 137 species recorded, 15 species documented in the SDF, had not been previously recorded in the Vidarbha region of Maharashtra. These species include *Athyma ranga* Moore, [1858], *Athyma selenophora* (Kollar, [1844]), *Pantoporia hordonia* (Stoll, [1790]), *Tanaecia lepidea* (Butler, 1868), *Curetis*

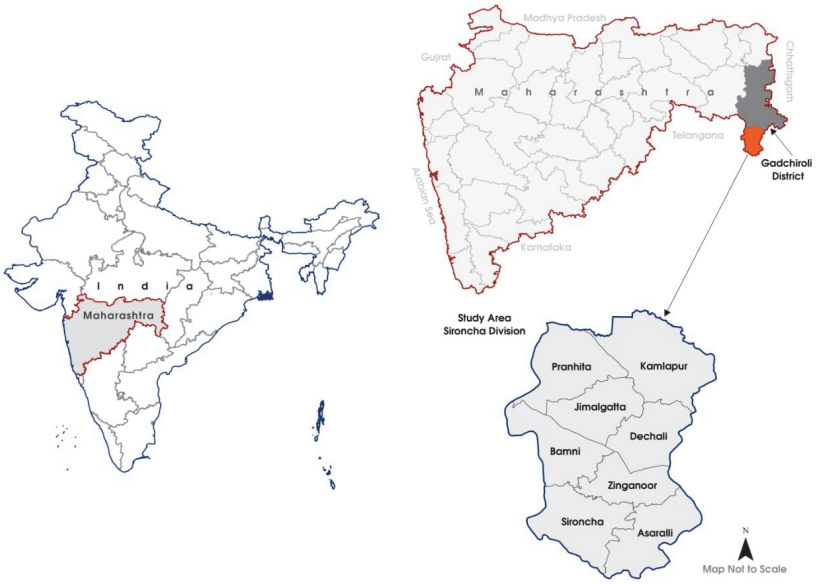

Fig 1. Location map of Sironcha Forest Division, Gadchiroli, Maharashtra, central India

Fig. 2 Newly recorded butterfly species for the Vidarbha region from the Sironcha Forest Division, Gadchiroli

Table 1. Butterfly species of Sironcha Forest Division, Gadchiroli and surroundings together with common name. * Come under Indian Wild Life (Protection) Act 1972 & amendments till 2022 (contd.) and the species recorded for the first time from Vidharbha region are marked with pound sign/ hash (#).

No.	Common Name	Scientific Name	Status	IUCN
Papilionidae (10)				
1.	Tailed Jay	*Graphium agamemnon* (Linnaeus, 1758)	VC	NE
2.	Common Jay	*Graphium doson* (C. & R. Felder, 1864)	C	NE
3.	Spot Swordtail	*Graphium nomius* (Esper, 1799)	VC	NE
4.	Common Rose	*Pachliopta aristolochiae* (Fabricius, 1775)	VC	LC
5.	Crimson Rose	*Pachliopta hector* (Linnaeus, 1758)*	C	LC
6.	Common Mime	*Papilio clytia* Linnaeus, 1758*	VR	NE
7.	Common Banded Peacock	*Papilio crino* Fabricius, 1793	R	NE
8.	Lime Butterfly	*Papilio demoleus* Linnaeus, 1758	VC	NE
9.	Blue Mormon	*Papilio polymnestor* Cramer, [1775]	FC	NE
10.	Common Mormon	*Papilio polytes* Linnaeus, 1758	VC	NE
Pieridae (17)				
11.	Pioneer	*Belenois aurota* (Fabricius, 1793)	VC	NE
12.	Common or Lemon Emigrant	*Catopsilia pomona* (Fabricius, 1775)	VC	NE
13.	Mottled Emigrant	*Catopsilia pyranthe* (Linnaeus, 1758)	VC	NE
14.	Common Gull	*Cepora nerissa* (Fabricius, 1775)	VC	NE
15.	Plain Orange Tip	*Colotis aurora* (Fabricius, 1775)	R	NE
16.	Crimson Tip	*Colotis danae* (Fabricius, 1775)	C	NE
17.	Small Orange Tip	*Colotis etrida* (Boisduval, 1836)	VC	NE
18.	Large Salmon Arab	*Colotis fausta* (Olivier, 1804)	R	LC
19.	Common Jezebel	*Delias eucharis* (Drury, 1773)	VC	NE
20.	Small Grass Yellow	*Eurema brigitta* (Stoll, [1780])	C	LC
21.	Common Grass Yellow	*Eurema hecabe* (Linnaeus, 1758)	VC	NE
22.	Spotless Grass Yellow	*Eurema laeta* (Boisduval, 1836)	VC	NE
23.	Three-Spot Grass Yellow	*Eurema blanda* (Boisduval, 1836)	R	NE
24.	White Orange Tip	*Ixias marianne* (Cramer, [1779])	VC	NE
25.	Yellow Orange Tip	*Ixias pyrene* (Linnaeus, 1764)	C	NE
26.	Psyche	*Leptosia nina* (Fabricius, 1793)	C	NE
27.	Common Wanderer	*Pareronia valeria* (Cramer, [1776])	VC	NE
Nymphalidae (42)				
28.	Tawny Coster	*Acraea terpsicore* (Linnaeus, 1758)	VC	NE
29.	Angled Costor	*Ariadne ariadne* (Linnaeus, 1763)	VC	NE

30.	Common Castor	*Ariadne merione* (Cramer, [1777])	VC	NE
31.	Blackvein Sergeant	*Athyma ranga* Moore, [1858]*#	VR	NE
32.	Staff Sergeant	*Athyma selenophora* (Kollar, [1844])#	R	
33.	Spotted Joker	*Byblia ilithyia* (Drury, [1773])	VC	NE
34.	Tawny Rajah	*Charaxes psaphon* Westwood, 1847	FC	NE
35.	Black Rajah	*Charaxes solon* (Fabricius, 1793)	FC	NE
36.	Plain Tiger	*Danaus chrysippus* (Linnaeus, 1758)	VC	LC
37.	Striped Tiger	*Danaus genutia* (Cramer, [1779])	VC	NE
38.	Common Palmfly	*Elymnias hypermnestra* (Linnaeus, 1763)	C	NE
39.	Common Indian Crow	*Euploea core* (Cramer, [1780])	VC	LC
40.	Common Baron	*Euthalia aconthea* (Cramer, [1777])	VC	NE
41.	Gaudy Baron	*Euthalia lubentina* (Cramer, [1777]) *	VR	NE
42.	Great Eggfly	*Hypolimnas bolina* (Linnaeus, 1758)	VC	NE
43.	Danaid Eggfly	*Hypolimnas misippus* (Linnaeus, 1764)*	VC	NE
44.	Peacock Pansy	*Junonia almana* (Linnaeus, 1758)	VC	LC
45.	Grey Pansy	*Junonia atlites* (Linnaeus, 1763)	VC	NE
46.	Yellow Pansy	*Junonia hierta* (Fabricius, 1798)	C	LC
47.	Chocolate Pansy	*Junonia iphita* (Cramer, [1779])	VC	NE
48.	Lemon Pansy	*Junonia lemonias* (Linnaeus, 1758)	VC	NE
49.	Blue Pansy	*Junonia orithya* (Linnaeus, 1758)	VC	NE
50.	Bamboo Treebrown	*Lethe europa* (Fabricius, 1775)	C	NE
51.	Common Evening Brown	*Melanitis leda* (Linnaeus, 1758)	VC	NE
52.	Dark Evening Brown	*Melanitis phedima* (Cramer, [1780])	R	NE
53.	Commander	*Moduza procris* (Cramer, [1777])	C	NE
54.	Dark-brand Bushbrown	*Mycalesis mineus* (Linnaeus, 1758)	C	NE
55.	Long-brand Bushbrown	*Mycalesis visala* Moore, [1858]	FC	NE
56.	Common Bushbrown	*Mycalesis perseus* (Fabricius, 1775)	VC	NE
57.	Medus Brown	*Orsotriaena medus* (Fabricius, 1775)	R	NE
58.	Common Sailer	*Neptis hylas* (Linnaeus, 1758)	VC	NE
59.	Chestnut-Streaked Sailer	*Neptis jumbah* Moore, [1858]	C	NE
60.	Common Lascar	*Pantoporia hordonia* (Stoll, [1790]) #	VR	NE
61.	Short-banded Sailer	*Phaedyma columella* (Cramer, [1780])	C	NE
62.	Common Leopard	*Phalanta phalantha* (Drury, [1773])	VC	NE
63.	Anomalous Nawab	*Polyura agraria* (Swinhoe, 1887)	VC	NE
64.	Common Nawab	*Polyura athamas* (Drury, [1773])	C	NE

65.	Baronet	*Symphaedra nais* (Forster, 1771)	VC	NE
66.	Blue Tiger	*Tirumala limniace* (Cramer, [1775])	VC	NE
67.	Grey Count	*Tanaecia lepidea* (Butler, 1868)*#	R	NE
68.	Common Three - ring	*Ypthima asterope* (Klug, 1832)	VC	LC
69.	Lesser Three - ring	*Ypthima inica* Hewitson, 1865	VC	NE
Riodinidae (1)				
70.	Two-spot Plum Judy	*Abisara bifasciata* Moore, 1877	C	NE
Lycaenidae (43)				
71.	Common Hedge Blue	*Acytolepis puspa* (Horsfield, [1828])	VC	NE
72.	Large Oakblue	*Arhopala amantes* (Hewitson, 1862)	FC	NE
73.	Pointed Ciliate Blue	*Anthene lycaenina* (R. Felder, 1868)*	R	NE
74.	African Babul Blue	*Azanus jesous* (Guérin-Méneville, 1849)	C	NE
75.	Angled Pierrot	*Caleta decidia* (Hewitson, 1876)	VR	NE
76.	Common Pierrot	*Castalius rosimon* (Fabricius, 1775)	VC	NE
77.	Forget-Me-Not	*Catochrysops strabo* (Fabricius, 1793)	VC	NE
78.	Lime Blue	*Chilades lajus* (Stoll, [1780])	VC	NE
79.	Small Cupid	*Chilades parrhasius* (Fabricius, 1793)	R	NE
80.	Indian Sunbeam	*Curetis thetis* (Drury, [1773])#	R	NE
81.	Angled Sunbeam	*Curetis acuta* Moore, 1877	VR	NE
82.	Gram Blue	*Euchrysops cnejus* (Fabricius, 1798)*	VC	NE
83.	Indian Cupid	*Everes lacturnus* (Godart, [1824])	R	NE
84.	Eastern Grass Jewel	*Freyeria putli* (Kollar, [1844])	VC	NE
85.	Common Onyx	*Horaga onyx* (Moore, [1858])*#	VR	NE
86.	Orchid Tit	*Hypolycaena othona* Hewitson, [1865] *#	R	NE
87.	Common Cerulean	*Jamides celeno* (Cramer, [1775])	VC	NE
88.	Pea Blue	*Lampides boeticus* (Linnaeus, 1767)*	VC	NE
89.	Zebra Blue	*Leptotes plinius* (Fabricius, 1793)	VC	NE
90.	Plains Cupid	*Luthrodes pandava* (Horsfield, [1829])	VC	NE
91.	Dingy Lineblue	*Petrelaea dana* (de Nicéville, [1884])	R	NE
92.	Tailless Lineblue	*Prosotas dubiosa* (Semper, [1879])	C	NE
93.	Common Lineblue	*Prosotas nora* (C. Felder, 1860)	C	NE
94.	Pale Grass Blue	*Psuedozizeeria maha* (Kollar, [1844])	C	NE
95.	Slate Flash	*Rapala manea* (Hewitson, 1863)	VR	NE
96.	Common Red Flash	*Rapala iarbus* (Fabricius, 1787)	C	NE
97.	Copper Flash	*Rapala pheretima* (Hewitson, [1863])#	VR	NE

98.	Indigo Flash	*Rapala varuna* (Horsfield, [1829])*#	R	NE
99.	Monkey Puzzle	*Rathinda amor* (Fabricius, 1775)	VR	NE
100.	Apefly	*Spalgis epius* (Westwood, [1851])#	VR	NE
101.	Common Shot Silverline	*Spindasis ictis* (Hewitson, 1865)	C	NE
102.	Scarce Shot Silverline	*Cigaritis elima* (Moore, 1877)*	R	NE
103.	Plumbeous Silverline	*Spindasis schistacea* (Moore, 1881)	R	NE
104.	Common Silverline	*Spindasis vulcanus* (Fabricius, 1775)	VC	NE
105.	Red Pierrot	*Talicada nyseus* (Guérin- Menéville, 1843)	C	NE
106.	Black-spotted Pierrot	*Tarucus balkanicus* (Freyer, 1844)	FC	NE
107.	Spotted Pierrot	*Tarucus callinara* Butler, 1886 *	C	NE
108.	Striped Pierrot	*Tarucus nara* (Kollar, 1848)	VC	NE
109.	Plains Blue Royal	*Tajuria jehana* Moore, 1883#	VR	NE
110.	Common Guava Blue	*Virachola isocrates* (Fabricius, 1793)	C	NE
111.	Redspot	*Zesius chrysomallus* Hübner, [1819]*#	VR	NE
112.	Dark Grass Blue	*Zizeeria karsandra* (Moore, 1865)	VC	NE
113.	Lesser Grass Blue	*Zizina otis* (Fabricius, 1787)	VC	NE
114.	Tiny Grass Blue	*Zizula hylax* (Fabricius, 1775)	VC	NE
		Hesperiidae (23)		
115.	Brown Awl	*Badamia exclamationis* (Fabricius, 1775)	VC	NE
116.	Paintbrush Swift	*Baoris farri* (Moore, 1878)*	C	NE
117.	Rice Swift	*Borbo cinnara* (Wallace, 1866)	VC	NE
118.	Blank Swift	*Caltoris kumara* (Moore, 1878)	FC	NE
119.	Golden Angle	*Caprona ransonnetii* (Felder, 1868)	R	NE
120.	Tricolour Pied Flat	*Coladenia indrani* (Moore, [1866])	R	NE
121.	Giant Redeye	*Gangara thyrsis (Fabricius, 1775)*#	R	NE
122.	Common Banded Awl	*Hasora chromus* (Cramer, [1780])	VC	NE
123.	Plain Banded Awl	*Hasora vitta* (Butler, 1870)*	R	NE
124.	Moore's Ace	*Halpe porus* (Mabille, [1877])	R	NE
125.	Tree Flitter	*Hyarotis adrastus* (Stoll, [1780])*#	VR	NE
126.	Chestnut Bob	*Iambrix salsala* (Moore, [1866])	FC	NE
127.	Common Redeye	*Matapa aria* (Moore, [1866])	C	NE
128.	Restricted Demon	*Notocrypta curvifascia* (C. & R. Felder, 1862)	R	NE
129.	Small Branded Swift	*Pelopidas mathias* (Fabricius, 1798)	VC	NE
130.	Obscure Branded Swift	*Pelopidas agna* (Moore, [1866])	C	NE
131.	Fulvous Pied Flat	*Pseudocoladenia dan* (Fabricius, 1787)	C	NE

132.	Indian Skipper	*Spialia galba* (Fabricius, 1793)	VC	NE
133.	Indian Palm Bob	*Suastus gremius* (Fabricius, 1798)	C	NE
134.	Common Snow Flat	*Tagiades japetus* (Stoll, [1781])*#	VR	NE
135.	Dark Palm Dart	*Telicota bambusae* (Moore, 1878)	VC	NE
136.	Pale Palm Dart	*Telicota colon* (Fabricius, 1775)	C	NE
137.	Grass Demon	*Udaspes folus* (Cramer, [1775])	C	NE

thetis (Drury, [1773]), *Rapala varuna* (Horsfield, [1829]), *Rapala pheretima* (Hewitson, [1863]), *Horaga onyx* (Moore, [1858]), *Hypolycaena othona* Hewitson, [1865], *Spalgis epius* (Westwood, [1851]), *Tajuria jehana* Moore, 1883, *Zesius chrysomallus* Hübner, [1819], *Gangara thyrsis* (Fabricius, 1775), *Hyarotis adrastus* (Stoll, [1780]), *Tagiades japetus* (Stoll, [1781]) (Fig. 3). Among the 137 butterfly species observed in the Sironcha Forest Division, their distribution varied in terms of abundance. Approximately 44 per cent of the species, accounting for around 60 species, were classified as very common. Another 23 per cent (31 species), were categorized as common. About 6 per cent (8 species) were found to be frequently common. Additionally, 16 per cent (23 species) were considered rare, while the remaining 11 per cent, representing 15 species, were identified as very rare. A detailed list of these species along with their abundance status furnished (Table 1).

Among the 137 butterflies recorded from Sironcha Forest Division, 19 species come under the protected category of the Indian Wild Life (Protection) Act, 1972 and amendments till 2022 (contd.). Among them *Papilio clytia* Linnaeus, 1758 *and Hypolycaena othona* Hewitson, [1865] come under Schedule I of the Act. The species recorded which come under Schedule II were *Pachliopta hector* (Linnaeus, 1758), *Hypolimnas misippus* (Linnaeus, 1764), *Athyma ranga* Moore, [1858], *Anthene lycaenina* (R. Felder, 1868), *Cigaritis elima* (Moore, 1877), *Tanaecia lepidea* (Butler, 1868), *Euchrysops cnejus* (Fabricius, 1798), *Horaga onyx* (Moore, [1858]), *Zesius chrysomallus* Hübner, [1819], *Lampides boeticus* (Linnaeus, 1767), *Rapala varuna* (Horsfield, [1829]), *Tarucus callinara* Butler, 1886, *Tagiades japetus* (Stoll, [1781]). The species recorded which came under schedule IV were *Baoris farri* (Moore, 1878), *Euthalia lubentina* (Cramer, [1777]), *Hasora vitta* (Butler, 1870) *and Hyarotis adrastus* (Stoll, [1780]).

Out of the 137 butterfly species recorded in the SFD, nine are listed in the IUCN Red List of Threatened Species. The species classified as Least Concern include *Pachliopta aristolochiae, P. hector, Colotis fausta, Eurema brigitta, Danaus chrysippus, Euploea core, Junonia almana, J. hierta,* and *Ypthima asterope*. The remaining 127 species have not yet been evaluated (NE) by the International Union for Conservation of Nature. Among the 137 butterfly species recorded, several species were observed throughout the year, including *Papilio demoleus* (Papilionidae), *Catopsilia pomona, C. pyranthe, Eurema brigitta, E. hecabe, Cepora nerissa* (Pieridae), and *Melanitis leda, Junonia lemonias, J. almana, Hypolimnas bolina, H. misippus, Tirumala limniace, Danaus chrysippus, and Euploea core* (Nymphalidae). Species from Lycaenidae, such as *Castalius rosimon, Talicada nara, Lampides boeticus, Zizeeria karsandra, and Zizina otis*, as well as *Borbo cinnara* (Hesperiidae), were also present throughout the year. In contrast, the other 113 species were mainly active from June to early summer (April–May).

The abundance of butterflies increased during the monsoon (June–July), peaking in early winter (August–November), and then declined in late winter (December–January) until summer, reflecting seasonal patterns reported by Tiple *et al.* (2007) in similar Central Indian climates. These studies also noted that human-impacted areas lacked unique species, while less-disturbed zones supported greater species diversity. The Sironcha

Forest Division, where this study was conducted, is heavily impacted by human activities like habitat destruction, including cutting of grasses, shrubs, and trees, which may explain the lower presence of unique species in disturbed areas. Kunte (2001) observed similar peaks in butterfly abundance in Pune, with two distinct peaks one in the late monsoon and another in winter. Padhye *et al.* (2006) also highlighted seasonal differences, with species richness peaking in summer and early winter, consistent with Wynter-Blyth's (1957) observations. This study revealed that while species richness was lower in undisturbed and wild sites, these locations were more likely to harbor unique species. Conversely, disturbed and human-impacted sites showed greater species richness but less uniqueness. These findings support those of Padhye *et al.* (2006), Kunte (2001), Tiple *et al.* (2007), Tiple and Bhagwat (2023) and Tiple and Deokar (2024), who noted that impacted zones tend to have higher species richness.

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