



## DISTRIBUTION BUTTERFLIES IN THE MANOLI RESERVE FOREST AREA AND AMBA VILLAGE.

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### ABSTRACT:

The Amba and Manoli forest area is situated in Western Ghats which is UNESCO's World natural heritage site. The area is having rich in biodiversity. In 2015 to 2017 recorded 80 butterfly species in Amba and Manoli forest region. The area is having forest indicator species like Blue oak leaf and Tamil yeoman. The area is needed to conserve from the mining and uncontrolled tourism.

**Keywords :** *AM fungi, Diversity, Wheat, Parner Tahsil*

### INTRODUCTION:

The Amba reserve forest is located in Kolhapur district, Maharashtra state. This is situated in Western Ghats UNESCO world heritage site. The district of Kolhapur lies in the south-west of Maharashtra between 150 to 170 North latitude and 730 to 740 East longitude and spreads across the Deccan Plateau in the rain shadow region of the Sahyadri mountain ranges on the southernmost tip of the state of Maharashtra. The Sangli district lies to the north, the Belgaum district of Karnataka State is to the east and south, Ratnangiri and Sindhudurg districts of Maharashtra are to the West. The Amba and Manoli region is situated in the Tehsil Shahuwadi.

The diversity of butterflies in Amba Reserve forest is pretty good. The dense semi evergreen forest patch is having number of butterflies in Amba and Manoli area. The Manoli area is having dam reservoir which is suitable place for mudpuddling of various species.

### MATERIALS AND METHODS

Field guides, Magnified glass, Camera. Survey carried by ecological sampling techniques. Line

transects survey conducted for butterflies during Jun 2015 to Oct 2017 (Sharma 2009). The morning time (9 to 11 a.m.) was chosen for sampling. The ecological survey carried out for seasonal variation. Total eighty species of butterflies recorded during the survey. The highest number of species observed after monsoon.

### RESULT & DISCUSSION:

If we see the family and species number wise distribution. The nymphalidae family is having highest number of butterfly species. The second largest family number is Lycaenidae is having twenty species of butterflies. The data is collected from two different location first is Amba village and Manoli Reserve Forest. The locations were selected basis on two different habitat one was residential and one was forest area. Six species of butterflies from Hesperidae family were found in Amba village area. Two species were found in both village and forest area. One species found in Manoli reserve forest area. The Papilionidae family is having total nine species. The four species were found in Amba village area. Two species found in both Amba village and Manoli Reserve forest. Three species were found in Manoli forest area.

Pieridae family is having total ten species butterflies. Three species were found in amba village area. Two species were found in Manoli forest and five species were found in both village and forest area. Lycaenidae family was having total twenty species. Ten, six, four was found respectively from village, Manoli forest and both area. Nymphalidae family was having total thirty two species. In this family five species were found from village area, twelve species from forest area and fifteen species from both village and forest area. Some species occurred only in Manoli forest area blue oak leaf, Tamil yeoman, pointed ciliate blue. Total eighty species were found in Amba village and Manoli Reserve Forest both areas.

**The graph shows number of butterflies** occurred in different seasons. The post monsoon season is having large number of butterfly species. The post monsoon area is having butterflies diversity due to favourable climate and availability of nectarine flowers.

Conclusion- The amba forest region is very crucial area for butterflies. The area is having rich in diversity of butterflies. The area is having different future threats like mining, uncontrolled tourism, deforestation so it needed to be conserving the area.

#### **ACKNOWLEDGEMENT-**

I am thankful to Fergusson College, Pune and I am thankful to Forest Department of Kolhapur. Also I am thankful to local guide Kishor Bagam for unconditional support and help in forest area. Last but not least Butterflies of India website for Identification.

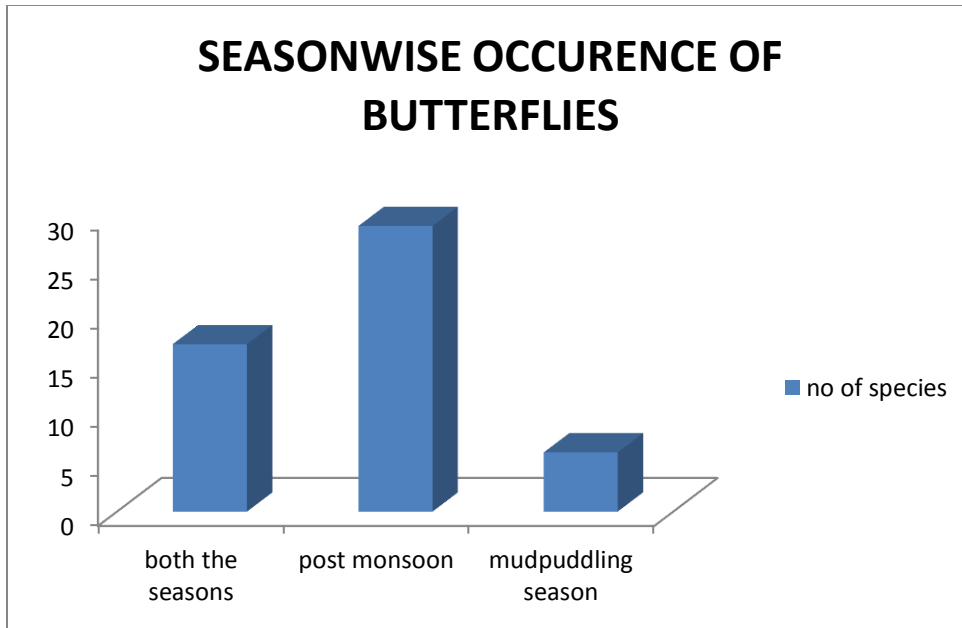
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**RESULT & DISCUSSION:**

S.N.	FAMILY	COMMON NAME	SCIENTIFIC NAME	SPECIES NUMBER	OCCURRED LOCATION				
					AV	MRF			
1	<b>Hesperiidae</b>	Tamil grass dart	<i>Taractrocera ceramas</i>	9	Y	----			
		conjoined swift	<i>Pelopidas conjuncta</i>		Y	----			
		Rice swift	<i>Borbo cinnara</i>		Y	----			
		chestnut bob	<i>Iambrix salsala</i>		Y	Y			
		Restricted demon	<i>Notocrypta curvifascia</i>		Y	----			
		Water snow flat	<i>Tagiades litigiosa</i>		Y	----			
		Blank swift	<i>Caltoris kumara</i>		Y	----			
		Common Banded Owl	<i>Hasora chromus (Cramer)</i>		----	Y			
		Common small flat	<i>Sarangesa dasahara(Moore)</i>		Y	Y			
2	<b>Papilionidae</b>	Common bluebottle	<i>Graphium sarpedon (Linn)</i>	9	----	Y			
		Common jay	<i>Graphium doson (C &amp; R Feldel)</i>		Y	----			
		Tailed jay	<i>Graphium agamemnom(Linn)</i>		Y	Y			
		Common Mormon	<i>Papilio polytes (Linn)</i>		Y	----			
		Red Helen	<i>Papilio halenus (Linn)</i>		----	Y			
		Blue Mormon	<i>Papilio polymnestar (Cramer)</i>		Y	Y			
		Lime	<i>Papilio demoleus (Linn)</i>		Y	----			
		Common Rose	<i>Atrophaneura aristolochiae (Fabricus)</i>		Y	----			
		Southern Birdwing	<i>Troides minos (Cramer)</i>		----	Y			
		3	<b>Pieridae</b>		Common grass Yellow	<i>Eurema hecabe (Linn)</i>	10	Y	Y
					Common emigrant	<i>Catopsilia pomona</i>		Y	Y
Mottled emigrant	<i>Catopsilia pyranthe(linn)</i>			Y	Y				
Great orange tip	<i>Hebomoia glaucippe(Linn)</i>			----	Y				
Yellow orange tip	<i>Ixias pyrene (Linn)</i>			Y	----				
Common wanderer	<i>Pareronia valeria (Cramer)</i>			Y	----				
Chocolate albatross	<i>Appias lynceida (Cramer)</i>			Y	Y				
Common gull	<i>Cepora nerissa (Fabricus)</i>			----	Y				
Common Jezebel	<i>Delias eucharis (Drury)</i>			Y	Y				
Psyche	<i>Leptosia nina (Fabricus)</i>			Y	----				
4	<b>Lycaenidae</b>			Leaf blue	<i>Amblypodia anita (Hewitson)</i>	20		----	Y
				Silverstreak blue	<i>Iraota timoleon (Stoll)</i>			----	Y
				Guava blue	<i>Deudorix Isocrates (Fabricus )</i>			----	Y
		Large Guava blue	<i>Deudorix perse (Hewitson)</i>	----	Y				
		Common silverline	<i>Spindasis vulceanus (Fabricus)</i>	Y	----				
		Pointed ciliate blue	<i>Anthene lycaenina (C &amp; R Felder )</i>	----	Y				
		Common pierrot	<i>Castalius rosimon (Fabricus)</i>	Y	Y				
		Red pierrot	<i>Talicauda nyseus (G M)</i>	Y	----				
		Common cerulean	<i>Gamidea celeme (Cramer)</i>	Y	----				
		Forget me not	<i>Catochrysops Strabo (Fabricus)</i>	Y	----				
		Pea blue	<i>Lampides boeticus (Linn)</i>	Y	Y				
		Dark grass blue	<i>Zizeeria karsandra (Moore)</i>	Y	----				
		Grass jewels	<i>Freyeria trochylus (Freyer)</i>	----	Y				
		Lesser grass blue	<i>Zizina otis (Fabricus )</i>	Y	----				
		Tiny grass blue	<i>Zizula hylax (Fabricus)</i>	Y	----				
		Gram blue	<i>Euchrysops cnejus (Fabricus)</i>	Y	Y				
		Common hedge blue	<i>Acytoletis puspa (Horsfield)</i>	Y	Y				
		Plains cupid	<i>Chilades pandava (Horsfielde)</i>	Y	----				
Lime blue	<i>Chilades lajus (Stoll)</i>	Y	----						
Plum Judy	<i>Abiessara echerius (Stoll)</i>	Y	Y						
5	<b>Nymphalidae</b>	Blue tiger	<i>Tirumala limniace (Cramer)</i>	32	Y	Y			

	Plain Tiger	<i>Danaus chrysippus</i> (Linnaeus)		Y	Y
	Striped Tiger	<i>Danaus genutia</i> (cramer)		Y	Y
	Glassy Tiger	<i>Parantica agela</i> (stoll)		Y	Y
	Common crow	<i>Euploea core</i> (Cramer)		Y	Y
	Common evening brown	<i>Melanitis leda</i> (Linnaeus)		Y	----
	Common treebrown	<i>Lethe roharia</i> (Fabricius)		----	Y
	Common bushbrown	<i>Mycalesis perseus</i> (Fabricius)		Y	Y
	Common fivering	<i>Ypthima baldus</i> (Fabricius)		Y	Y
	Common fourring	<i>Ypthima huebneri</i> (Kirby)		Y	Y
	Tawny coster	<i>Acraea violae</i> (Fabricius)		Y	----
	Tamil yeoman	<i>Cirrochroa thais</i> (fabricius)		----	Y
	Common leopard	<i>Phalanta phalanta</i> (Drury)		Y	Y
	Commander	<i>Moduza procris</i> (Cramer)		----	Y
	Common lascar	<i>Pantoporia hardonia</i> (stoll)		----	Y
	Chestnut streaked sailor	<i>Neptis jumbah</i> (Moore)		----	Y
	Common sailor	<i>Nepatis hylas</i> (Linnaeus)		Y	Y
	Common baron	<i>Euthalia aconthea</i> (Cramer)		----	Y
	Gaudy baron	<i>Euthalia anosia</i> (Moore)		----	Y
	Common map	<i>Cyrestis thyodamas</i> (Boisduval)		----	Y
	Common castor	<i>Ariadne merione</i> (Cramer)		Y	Y
	Blue pansy	<i>Junonia orithiya</i> (Linnaeus)		Y	----
	Chocolate pansy	<i>Junonia iphita</i> (Cramer)		Y	Y
	Yellow pansy	<i>Junonia hierta</i> (Fabricius)		----	Y
	Grey pansy	<i>Junonia artites</i> (Linnaeus)		Y	----
	Peacock pansy	<i>Junonia almana</i> (Linnaeus)		Y	Y
	Lemon pansy	<i>Junonia lemonias</i> (Linnaeus)		Y	Y
	Great eggfly	<i>Hypolimnas bolina</i> (Linnaeus)		Y	Y
	Danaid eggfly	<i>Danaid Eggfly</i> (Linnaeus)		Y	----
	Blue oakleaf	<i>Kallima horsfieldi</i> (kollar)		----	Y
	Rustic	<i>Cupha erymanthis</i> (Drury)		----	Y
	Black Prince	<i>Rohana parisatis</i>		----	Y
				*AV- Amba Village *MRF-Manoli Reserve forest *Y-Yes	



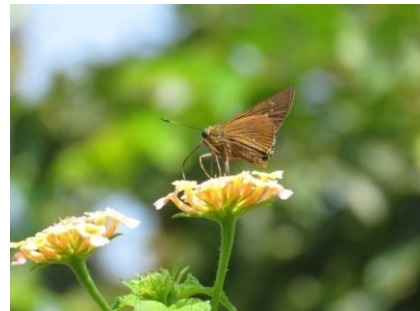
**PHOTO PLATES- BUTTERFLIES IN STUDY AREA**



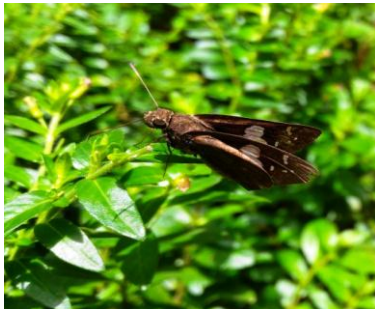
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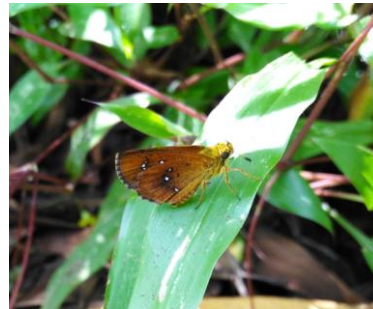
**2**



**3**



**4**



**5**



**6**

**1.Celaenorrhinus leucocera 2. Tagiades litigosa 3.Caltoris kumara 4.Notocrypta curvifascia  
5.Iambrix salsala 6.Taractrocera ceramas**





7



8



9



10

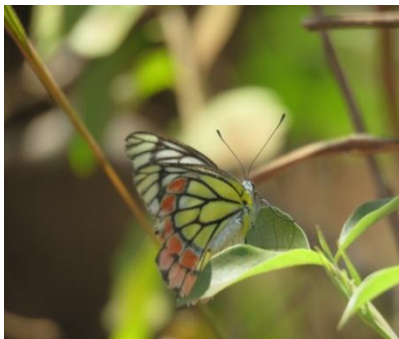


11



12

7. *Graphium sarpedon*, 8. *Papilio polymnestor*, 9. *Papilio demoleus*, 10. *Papilio helenus*, 11. *Catopsilia pomona* 12. *Eurema hecabe*



13.



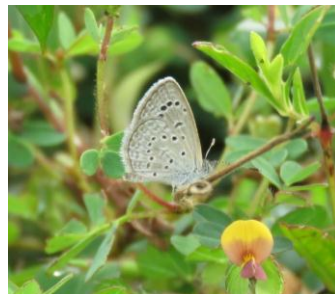
14.



15.



16.



17.



18.

13. *Delias eucharis*, 14. *Cepora nerissa* 15. *Spindasis vulcanus*, 16. *Abisara echerius*  
17. *Pseudozizeria maha* 18. *Jamides celeno*



19.



20.



21.



22.



23.



24.

**19. *Freyeria trochylus*, 20. *Acytoleipsis puspa* 21. *Deudorix perse* 22. *Zizeeria karasandra*  
23. *Cirrochora thais* 24. *Phalanta phalanta***



25.



26.



27.



28.

**25. *Junonia atlites*, 26. *Euthalia lubentina* 27. *Cyrestis thyodamas* 28. *Kalmia horsfieldi***