

Annexure - I

List of Plants at Toranmal Forest Area during December 2006 to November 2008

Sr.No.	Scientific Name of Plants	Local Name	Habit	Flowering	Family
1	<i>Achyranthes aspera</i> L. Var	Aghada	Herbs	Aug-Feb.	Amaranthaceae
2	<i>Vernonia cinerea</i> (L)	-	Herbs	Aug-Feb.	Compositae
3	<i>Cassia tora</i> (L)	Tarota	Herbs	Aug-Dec.	Caesalpinaceae
4	<i>Ageratum conyzoides</i> (L)	-	-	Annual	Asteraceae
5	<i>Celosia argentea</i> (L)	Curdu	Herbs	Aug-Jan.	Amaranthaceae
6	<i>Argemone mexicana</i>	Piwala Dhotra	Herbs	Nov-May	Papaveraceae
7	<i>Ipomoea quamoclit</i>	Ganesh wel	Herbaceous	Aug-Oct.	Convolvulaceae
8	<i>Andropogon spp</i>	Boru	Grass	-	Poaceae
9	<i>Bambusa nana</i>	Bambu	Shrubs	-	Poaceae
10	<i>Xanthium strumarium</i>	Kutri	Herbs	Oct-May	Asteraceae
11	<i>Plectranthus mollis</i>	Rantili	Herbs	Sept-Nov.	Lamiaceae
12	<i>Commelina maculata</i>	Kena	Herbs	Aug- Oct.	Commelinaceae
13	<i>Leucas aspera</i>	Pandhari Tilvan	Herbs	July - Dec.	Labiatae/Lamiaceae
14	<i>Leucas zeylanica</i>	-	Herbs	Sept-Dec.	Labiatae/Lamiaceae
15	<i>Tridax procumbens</i>	Gav-pala or Ekdandi	Herbs	Annual	Compositae
16	<i>Vernonia anthelmintica</i>	Kadu-jeera	Herbs	Sep.-Nov.	Compositae
17	<i>Vernonia cinerea</i>	Sahadevi	Herbs	-	Compositae
18	<i>Solanum anguvi</i>	Ubhi ringni	-	Aug- Dec	Solanaceae
19	<i>Solanum incanum</i>	-	-	Sept-Dec.	Solanaceae
20	<i>Phyllanthus emblica</i>	Awala	Trees	Feb-Aug	Euphorbiaceae
21	<i>Euphorbia pycnostegia</i>	-	Herbs	Sept-Nov.	Euphorbiaceae
22	<i>Euphorbia cristata</i>	-	Herbs	Aug-Nov.	Euphorbiaceae
23	<i>Euphorbia neriifolia</i>	Sabar	Shrubs	Mar-June	Euphorbiaceae
24	<i>Tectona grandis</i>	Sag	Trees	-	Verbanaceae
25	<i>Vitex negundo</i>	Nirgudi	Trees	Annual	Verbanaceae
26	<i>Cassia mimisoides</i>	-	Herbs	Sept-Oct	Caesalpinaceae
27	<i>Cassia fistula</i>	Bahava, Amaltas	Trees	Mar-June	Caesalpinaceae
28	<i>Cassia Obtusifolia</i>	Tarota	Shrubs	Aug-Dec.	Caesalpinaceae
29	<i>Terminalia arjuna</i>	Arjun Sadada	Trees	Mar-Nov	Combretaceae
30	<i>Terminalia bellicica</i>	Behada	Trees	Feb-Aug	Combretaceae
31	<i>Terminalia chebula</i>	Hirda	Trees	May- Dec.	Combretaceae
32	<i>Terminalia crenulata</i>	Sadada	Trees	May- Dec.	Combretaceae
33	<i>Justicia procumbens</i>	-	Herbs	Aug-Nov.	Acanthaceae
34	<i>Sonchus oleraceus</i>	-	Herbs	Aug- Mar.	Asteraceae
35	<i>Pongamia glabra</i>	Karanj	Trees	Mar- June	Fabaceae
36	<i>Psoralea corylifolia</i>	Bhapcha	-	Oct-Mar.	Fabaceae
37	<i>Diospyros melanoxylon</i>	Tenru	Trees	Mar-Aug.	Ebenaceae
38	<i>Diospyros chloroxylon</i>	-	Trees	July - Dec.	Ebenaceae
39	<i>Asparagus racemosus</i>	Shatavari	-	July - Oct.	Liliaceae
40	<i>Mimosa pudica</i>	Lajalu	Under-Shrubss	Sept-Nov.	Mimosaceae
41	<i>Bauhinia variegata</i>	Kanchan	Small Trees	Feb-May	Caesalpinaceae
42	<i>Bauhinia tomentosa</i>	-	Small Trees	July-Dec.	Caesalpinaceae
43	<i>Abelmoschus manihot</i>	Ran-Bhendi	Herbs	Aug- Jan	Malvaceae
44	<i>Agave americana</i>	-	Herbs	Annual	Agaraceae
45	<i>Sida gluninosa</i>	-	Herbs	-	Malvaceae
46	<i>Tagetes erecta</i>	Zendu	Herbs	Annual	Asteraceae
47	<i>Syzygium heyneanum</i>	Kath-Jamun	Trees	Mar- June	Myrtaceae

48	<i>Gliricidia sepium</i>	-	Trees	Jan- June	Fabaceae
49	<i>Cajanus sericeus</i>	-	Herbs	Sept- Nov.	Fabaceae
50	<i>Butea monosperma</i>	Palas	Small Trees	Mar- June	Fabaceae
51	<i>Mucuna pruriens</i>	Khaj-Kuiri	Sub-Shrubs	Aug-Mar.	Fabaceae
52	<i>Ougeinia oojeinesis</i>	Tiwas	Trees	Mar-May	Fabaceae
53	<i>Smithia purpurea</i>	-	Herbs	Oct- Dec.	Fabaceae
54	<i>Smithia setulosa</i>	-	Herbs	Sept-Oct	Fabaceae
55	<i>Stylosanthes fruticosa</i>	-	Herbs	Aug-Nov.	Fabaceae
56	<i>Ensete superbum</i>	Jangali-Kela	Stout-Herbs	Annual	Musaceae
57	<i>Kaempferia scaposa</i>	-	Herbs	July-Nov.	Zingiberaceae
58	<i>Acacia chundra</i>	Khair	Trees	April-Sept.	Mimosaceae
59	<i>Acacia leucophloea</i>	Hivar	Small Trees	Aug-Feb.	Mimosaceae
60	<i>Acacia pennata</i>	Shenara	-	July-Mar.	Mimosaceae
61	<i>Delonix regio</i>	Gulmohar	Trees	Mar-August	Caesalpinaceae
62	<i>Hardwickia binata</i>	Anjan	Trees	Dec-July	Caesalpinaceae
63	<i>Dalbergia sissoo</i>	Sisam	Trees	Feb-Nov.	Fabaceae
64	<i>Crotalaria montana</i>	-	Herbs	Aug-Oct.	Fabaceae
65	<i>Tamarindus indica</i>	Chinch	Trees	Nov-April	Caesalpinaceae
66	<i>Acalypha indica</i>	-	Herbs	-	Euphorbiaceae
67	<i>Annona squamosa</i>	Sitaphal	Small Trees	April-Dec.	Anonaceae
68	<i>Madhuca longifolia</i>	Mahu	Trees	Mar- June	Sapotaceae
69	<i>Carvia callosa</i>	Karvi	Shrubs	Aug-Feb.	Acanthaceae
70	<i>Ficus benghalensis</i>	Wad	Trees	Annual	Moraceae
71	<i>Ficus arnottiana</i>	Amsa	Trees	-	Moraceae
72	<i>Girardinia diversifolia</i>	Kolta	Shrubs	Sept-Dec.	Urticaceae
73	<i>Garuga pinnata</i>	Kakad	Trees	Feb-Aug	Burseraceae
74	<i>Bombax ceiba</i>	Kate-sawar	Trees	April-June	Bombacaceae
75	<i>Bridelia airy-shawii</i>	Asan	Trees	July-Dec.	Euphorbiaceae
76	<i>Nymphaea pubescens</i>	Kamal	Aquatic-Herbs	Aug-Jan.	Nymphaceae
77	<i>Polygonum barbatum</i>	-	Herbs	Sept- Feb.	Polygonaceae
78	<i>Mangifera indica</i>	Amba	Trees	Dec-July	Anacardiaceae
79	<i>Ipomoea carnea</i>	Besharmi	Shrubs	Annual	Convolvulaceae
80	<i>Typha domingensis</i>	Pandad Deodanda	Herbs marshes	Sept-Feb.	Typhaceae
81	<i>Abutilon indicum</i>	-	Under-Shrubss	Oct- April	Malvaceae
82	<i>Asystasia lawiana</i>	-	Herbs	Aug- Sept.	Acanthaceae
83	<i>Barleria montana</i>	-	Herbs	Oct-Nov.	Acanthaceae
84	<i>Clematis smilacifolia</i>	-	Climber	Oct-Jan	Ranunculaceae
85	<i>Cyperus exaltatus</i>	-	Perennial-Herbs	Sept-Dec.	Cyperaceae
86	<i>Arisaema murrayi</i>	-	Perennial-Herbs	July-Dec.	Araceae
87	<i>Tradescantia cristata</i>	-	Herbs	July-Dec.	Commelinaceae
88	<i>Clitoria biflora</i>	Garali	Herbs	Aug-Oct.	Fabaceae
89	<i>Impatiens balsamina</i>	-	Herbs	Aug-Oct.	Balsaminaceae
90	<i>Arisaema murrayi</i>	Nag-phani	Herbs	July-Oct	Araceae
91	<i>Ehretia laevis</i>	-	Trees	Mar-July	Ehretiaceae
92	<i>Barleria prionitis</i>	Kate-Koranti	Shrubs	Sept-Mar	Acanthaceae
93	<i>Launaea procumbens</i>	-	Herbs	Sept-April	Asteraceae
94	<i>Cochlospermum religiosum</i>	Ghaneri	Trees	Feb-May	Cochlospermaceae
95	<i>Lantana camara</i>	Haldi-Kunku	Shrubs	Annual	Verbanaceae
96	<i>Rivea hypocrateriformis</i>	Fangoda-wel	Perennial-climber	-	Convolvulaceae

97	<i>Zornia gibbosa</i>	Samarapani	Herbs	Aug-Nov.	Fabaceae
98	<i>Ipomoea aquatica</i>	-	-	-	Convolvulaceae
99	<i>Hygrophila schulli</i>	-	Herbs	-	Acanthaceae
100	<i>Bacopa monnieri</i>	Bramhi	Herbs	-	Scrophulariaceae
101	<i>Altecrantha sessilis</i>	-	Herbs	-	Amaranthaceae
102	<i>Justicia quinque angularis</i> <i>Var peploides</i>	-	Herbs	-	Acanthaceae
103	<i>Dopatrium junceum</i>	-	-	-	Scrophulariaceae
104	<i>Ammannia bispinosa</i>	-	Herbs	-	Lythraceae
105	<i>Ceratophyllum demersum</i>	-	Herbs	-	Ceratophyllaceae

Annexture-II

Phytoplanktons observed in Lotus Lake water at Toranmal plateau in Satpura ranges during December 2006 to November 2008

A) Cyanophyceae (Blue green algae) (07)

1. *Aphanocapsa* TA. Montage Cramer
2. *Microcystis viridis* A.Br. Lemm
3. *Oscillatoria limosa* (Ag)
4. *Phormidium ambigum* (Gomont)
5. *Lyngbya limnetica* (Lemm)
6. *Nostac spongiaeformae*
7. *Anabaena spiroides* klebnn

B) Chlorophyceae (Green algae) (09)

8. *Ulothrix aqualis* Kuetz
9. *Oedogonium* spp
10. *Bulbochaetae* spp
11. *Closterium microporum* Nageli
12. *Pediastrum simplex* (Meyen)
13. *Cosmerium* spp
14. *Staurastrum* spp
15. *Eudorina* spp
16. *Spirogyra hyalina* (Cleve)

C) Bacillariophyceae (Diatoms) (21)

17. *Melosira islandica* (O. Muell)
18. *Synedra ulna* (Nitz) Her. V. biceps Kuetz.
19. *Synedra acus* (Kuetz)
20. *Asterionella* spp
21. *Frustulina* spp
22. *Gyrosigma acummatum* Kuetz
23. *Navicula cuspidata* Kuetz. V. Conspicua Venkat
24. *Navicula cuspidate* Kuetz. V. major Meister

25. *Navicula rhynchocephala* Kuetz
26. *Amphora ovalis*. Kuetz
27. *Pinnularia interrupta* W. Smith
28. *Pinnularia vidarbhensis* Sarode Kamat
29. *Rhopalodia gibba* Her O. Muell
30. *Nedium longiceps* Grey A. Cl. V.
31. *Stauroneis obtuse* Lagerst. V.
32. *Surirella capronii* Breb.
33. *Surirella robusta* Ehr.
34. *Cymbella ventricosa* Kuetz
35. *Gomphonema intricatum* Kuetz
36. *Fragilaria construens* Ehr. Grun
37. *Nitzschia obtusa* W. Smith

E) Euglenophyta (04)

38. *Euglena acus* Ehr
39. *Euglena clavata*
40. *Phacus longicauda* Her Duj
41. *Phacus* spp.

Annexture-III

Zooplanktons of Lotus Lake observed at Toranmal in Satpura ranges during December 2006 to November 2008

A. Rotifera

Phylum - Rotifera (Pennak, 1953)

Class - Monogonota (Remane, 1933)

Order – Ploimida (Delage, 1997)

Family – Brachionidae ((Ehrenberg, 1938)

Sub-family – Brachioninae

Genus – Brachionus (Pallas, 1938)

1. *Brachionous caudatus* (Barrois and Daday, 1894)
2. *Brachionous bidentata* (Anderson, 1889)
3. *Brachionous qudridentatus* (Hermann, 1783)
4. *Brachionous fulcatus* (Zacharias, 1898)
5. *Brachionous diversicornis* (Daday, 1883)
6. *Brachionous plicatilis* (Muller, 1786)
7. *Brachionous forficula* (Wierzejski, 1891)
8. *Brachionous caliciflorus* (Pallas, 1776)

Genus – Keratella (Bory de St. Vincent, 1822)

9. *Keratella tropica* (Apstein, 1907)
10. *Keratella cockleris* (Gosse, 1851)

Family – Lecanidae

Genus – Lecane (Nitzsch, 1827)

11. *Lacana luna* (Muller, 1776)
12. *Lacana ohioensis* (Herrick, 1885)

Genus – Monostyla (Ehrenberg, 1830)

13. *Monostyla bulla* (Gosse, 1851)

Family – Trichofercidae

Genus – Trichocera (Lamarck, 1801)

14. *Trichocera cylindrical species*

Family – Asplanchnidae

Genus – Asplanchna (Gosse, 1850)

15. *Asplanchna priodonta* Gosse, 1850)

Order – Flosculariacea

Family – Filinidae

Genus – Filina (Bory de St. Vincent, 1824)

16. *Filinia opaliensis* (Zach, 1898)

17. *Filinia longiseta* (Ehrb., 1834)

18. *Filinia terminalis*

Family – Testudinellidae

Genus – Testudinella (Bory de Vincent, 1826)

19. *Testudinella mucranata* (Gosse, 1886)

Class – Bdelloidea (Dujardin, 1841)

Order – Bdelloida

Family – Philodinidae (Ehrb., 1838)

Genus – Rotaria (Scapoli, 1777)

20. *Rotaria neptunis* (Ehrb., 1832)

B. Cladocera

Phylum – Arthropoda

Class – Crustacea (Pennant, 1777)

Order – Cladocera (Latreille, 1829)

Family – Sididae (Baird, 1850)

Genus – Diaphanosoma (Fischer, 1850)

21. *Diaphanosoma sarsi* (Richard, 1895)

Family – Daphniidae (Straus, 1820)

Genus – Ceriodaphnia (Dana, 1853)

22. *Ceriodaphnia cornuta* (Sars, 1888)

Family – Moinidae (Goulden, 1968)

Genus – Moina (Baird, 1850)

23. *Moina micrura* (Kurz., 1874)

24. *Moina brachiata*

25. *Microthrix spinosa*.

Family – Chydoridae (Stebbing, 1902)

Sub-Family – Chydorinae

Genus – Chydorus (Leach, 1843)

26. *Chydorus* spp.

Sub-Family – Aloninae (Frey, 1967)

Genus – Alona (Baird, 1850)

27. *Alona* *rectangula* (Sars, 1862)

Genus – Indialona (Petkovaski, 1966)

28. *Indialona* *ganpati* (Petkovaski, 1966)

29. *Simocephalus* *ventulus* (Muller, 1776)

C. Copepoda

Phylum – Arthropoda

Class – Maxillopoda (Dahl, 1956)

Sub-Class – Copepoda (Milne – Edwards, 1840)

Order – Calanoida (Sars, 1903)

Family – Diaptomidae (Baird, 1850)

Sub-Family – Diaptominae (Kiefer, 1932)

Genus – Diaptomus (Westwood, 1836)

30. *Diaptomus* *species* (Westwood, 1836)

Order – Cyclopoida (Burmeister, 1834)

Family – Cyclopidae (Dana, 1853)

Sub-Family – Eucyclopinae (Kiefer, 1929)

Genus – Ectocyclops (Brady, 1904)

31. *Ectocyclops* spp.

Genus – Cyclops (Muller, 1770)

32. *Cyclops* spp.

Genus – Mesocyclops (Claus, 1830)

33. *Mesocyclops* *hyalinus* (Rehberg, 1880)

34. *Mesocyclops* *leucartii* (Claus, 1857)

Genus – Microcyclops (Claus, 1893)

35. *Macrocylops* *species* (Claus, 1893)

Annexure-IV

Molluscs of Toranmal Observed during December 2006 to November 2008

Aq-Aquatic molluscs at Lotus Lake; Lm- Land molluscs

Phylum :Mollusca

Class mesogastropoda

Family: Viviparidae

Sub-family: Bellamyinae

AqM 1 *Bellamyia bengalensis* (F. bengalensis) Lamark

AqM 2 *Bellamyia bengalensis* (F. annandalai) Kobelt

Family : Thiariidae

Sub-family : Thiariinae

AqM 3 *Thiara tuberculatus* Muller

Order : Basommatopphora

Family: Lymnaeidae

AqM 4 *Lymnaea acuminata* Lamark

AqM 5 *Lymnaea luteola* Lamark

Family : Planorbidae

Sub-family : Bulinae

AqM 6 *Indoplanorbis exustus* Deshayes

AqM 7 *Gyraulus labiatus* Benson

Order : Systellommatophora

Family: Veronicellidae

LM 1 *Laevicaulis alte* Ferussac

LM 2 *Semperula maculata* Templeton

Order: Stylommatophora

Family: Cerastidae

Sub-family: Napaeinae

LM 3 *Cerastus moussonianus* Petit

Family: Ariophantidae

Sub-family: Ariophantinae

LM 4 *Ariophanta laevipes* Muller

Sub-family: Macrochlamydinae

LM 5 *Macrochlamys indica* Godwin

Class: Bivalvia

Order: Eulamellibranchiata

Family: Unionidae

Sub-family: Unioninae

AqM 8 *Lamellidens marginalis* Lamark

Sub-family: Parreysiinae

AqM 9 *Parreysia* (Radiatula) *caerulea* Lea

Annexure-V
Odonates of Toranmal area

S. N.	Dragonflies (Anisoptera)		Status	Occurrence (months)	Biotopes			
	Family Gomphidae				L	Y	SS	K
					L	L		S
1.	Common Clubtail	<i>Ictinogomphus rapax</i> Rambur, 1842	C	1-12	√	√	√	√
	Family Aeshnidae							
2.	Blue-tailed Green Darner	<i>Anax guttatus</i> (Burmeister, 1839)	VC	7-11	√	√	-	-
3.	Blue Darner	<i>Anax immaculifrons</i> Rambur, 1842	C	10-1	-	√	√	-
	Family Libellulidae							
4.	Trumpet Tail	<i>Acisoma panorpoides</i> Rambur, 1842	R	9-11	√	√	-	-
5.	Ditch Jewel	<i>Brachythemis contaminata</i> (Fabr., 1793)	VC	1-12	√	√	-	-
6.	Granite Ghost	<i>Bradinopyga geminata</i> (Rambur, 1842)	VC	1-12	√	√	√	√
7.	Ruddy Marsh Skimmer	<i>Crocothemis servilia</i> (Drury, 1770)	VC	7-12	√	√	√	√
8.	Ground Skimmer	<i>Diplacodes trivialis</i> (Rambur, 1842)	VC	1-12	√	√	√	√
9.	Tricoloured Marsh Hawk	<i>Orthetrum luzonicum</i> (Brauer, 1868)	R	7-11	-	-	√	√
10.	Crimson-tailed Marsh Hawk	<i>Orthetrum pruinosum</i> (Rambur, 1842)	C	1-12	√	√	√	√
11.	Green Marsh Hawk	<i>Orthetrum sabina</i> (Drury, 1770)	VC	6-11	√	√	√	√
12.	Wandering Glider	<i>Pantala flavescens</i> (Fabr., 1798)	VC	6-2	√	√	√	√
13.	Red Marsh Trotter	<i>Tamea basilaris</i> (Kirby, 1889)	C	8-1	-	-	√	√
14.	Crimson Marsh Skimmer	<i>Trithemis aurora</i> (Burmeister, 1839)	VC	1-12	√	√	√	√
15.	Black Stream Skimmer	<i>Trithemis festiva</i> (Rambur, 1842)	C	7-11	√	√	-	-
16.	Orange Winged Dropwing	<i>Trithemis kribyi</i> (Selys, 1891)	C	7-12	√	√	√	-
17.	Long Legged Marsh Glider	<i>Trithemis pallidinervis</i> (Selys, 1889)	C	1-12	√	√	-	-

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S. N.	Dragonflies (Anisoptera)		Status	Occurrence (months)	Biotores			
	Damselflies (Zygoptera)				L	YL	SS	K
	Family Coenagrionidae				L			S
18.	Pigmy Dartlet	<i>Agriocnemis pygmaea</i> (Rambur,1842)	VC	7-1	√	√	√	√
19.	Coromandel Marsh Dart	<i>Ceragrion coromandelianum</i> (Fabr.,1798)	VC	1-12	√	√	√	√
20.	Golden Dartlet	<i>Ischnura aurora</i> (Brauer,1865)	VC	1-12	√	√	√	√
21.	Senegal Golden Dartlet	<i>Ischnura senegalensis</i> (Ramb.,1842)	C	10-2	√	√	-	-
22.	Blue Grass Dartlet	<i>Pseudagrion microcephalum</i> (Rambur,1842)	R	7-11	√	√	-	-
	Family Protoneuridae							
23.	Black winged Bambootail	<i>Disparoneura quadrimaculata</i> (Ramb.,1842)	R	8-11	-	-	√	√
	Family Lestidae							
24.	Brown Spreadwing	<i>Lestes umbrinus</i> (Selys,1891)	VC	10-12	-	-	√	√

Annexture-VI

Butterflies of Toranmal area

S. N.	Common Name	Scientific Name	Occurrence (months)	Status	Biotope		
					T-1	T-2	T-3
	Papilionidae						
1.	Common Rose	Pachliopta aristolochiae	7-12	C	√	√	√
2.	Crimson Rose	Pachliopta hector*	7-1	R	-	√	√
3.	Tailed Jay	Graphium agamemnon	8-12	C	√	√	√
4.	Lime	Papilio demoleus	6-12	VC	√	√	√
5.	Common Mormon	Papilio polytes	8-1	C	√	√	√
	Pieridae						
6.	Common Emigrant	Catopsilia pomona	1-12	VC	√	√	√
7.	Mottled Emigrant	Catopsilia pyranthe	7-12	F	√	√	√
8.	Spotless Grass Yellow	Eurema laeta	6-12	C	√	√	√
9.	Common Grass Yellow	Eurema hecabe	1-12	VC	√	√	√
10.	Common Jezebel	Delias eucharis	8-1	C	√	√	-
11.	Common Gull	Cepora nerissa*	6-12	R	√	√	-
12.	Pioneer Or Caper White	Anaphaeis aurota	9-3	C	√	√	√
13.	White Orange Tip	Ixias Marianne	8-12	C	√	√	√
14.	Large Salmon Arab		9-10	VR	-	√	-
	Nymphalidae						
15.	Common Evening Brown	Melanitis leda	5-12	VC	√	√	√
16.	Common Bushbrown	Mycalesis perseus	9-2	C	√	√	√
17.	Common Threering	Ypthima asterope	7-9	C	√	-	-
18.	Tawny Coster	Acraea violae	6-10	F	√	√	√
19.	Common Leopard	Phalanta phalantha	6-1	VC	√	√	√
20.	Common Sailer	Neptis hylas	7-11	VC	√	√	√
21.	Common Sergeant	Athyma perius	8-11	R	-	√	-
22.	Common Baron	Euthalia aconthea	11-2	R	√	√	√
23.	Baronet	Euthalia nais	11-2	C	√	√	-
24.	Joker	Byblia ilithyia	7-12	C	-	√	√
25.	Angled Castor	Ariadne ariadne	6-8	C	-	-	√
26.	Common Castor	Ariadne merione	10-2	R	-	√	√
27.	Blue Pansy	Junonia orithya	10-4	VC	√	√	√
28.	Lemon Pansy	Junonia lemonias	5-12	VC	√	√	√
29.	Peacock Pansy	Junonia almanac	6-12	VC	√	√	√

Annexure-VI

Butterflies of Toranmal area

30.	Grey Pansy	<i>Junonia atlites</i>	8-3	C	-	√	√
31.	Chocolate Pansy	<i>Junonia iphita</i>	8-3	C	√	√	√
32.	Painted Lady	<i>Cynthia cardui</i>	5-7	R	√	-	-
33.	Great Eggfly	<i>Hypolimnas bolina</i>	7-12	C	√	√	√
34.	Danaid Eggfly	<i>Hypolimnas misippus</i> *	6-12	VC	√	√	√
35.	Blue Tiger	<i>Tirumala limniace</i>	1-12	VC	√	√	√
36.	Dark Blue Tiger	<i>Tirumala septentrionis</i>	8-11	VR	-	√	-
37.	Plain Tiger	<i>Danaus chrysippus</i>	1-12	VC	√	√	√
38.	Striped Tiger	<i>Danaus genutia</i>	10-2	VC	√	√	√
39.	Common Indian Crow	<i>Euploea core</i> *	1-12	VC	√	√	√
	Lycaenidae						
40.	Common Pierrot	<i>Castalius rosimon</i> *	7-9	C	-	√	-
41.	Zebra Blue	<i>Leptotes plinius</i>	6-8	VC	√	√	√
42.	Pale Grass Blue	<i>Psuedozizeeria maha</i>	5-7	C	-	√	√
43.	Dark Grass Blue	<i>Zizeeria karsandra</i>	6-11	R	√	√	√
44.	Small Cupid	<i>Chilades parrhasius</i>	8-11	C	√	√	√
45.	Plains Cupid	<i>Chilades pandava</i>	6-8	VC	√	√	-
46.	Pea Blue	<i>Lampides boeticus</i> *	8-12	C	√	√	√
47.	Common Line Blue	<i>Prosotas nora</i>	7-1	VC	√	√	√
48.	Common Silverline	<i>Spindasis vulcanus</i>	8-12	R	-	√	-
49.	Large Oakblue	<i>Arhopala amantes</i>	5	VR	-	√	-
	Hesperiidae						
50.	Grass Demon	<i>Udaspes folus</i>	10-12	VR	√	-	-
51.	Rice Swift	<i>Borbo cinnara</i>	6-12	VC	√	√	√

Occurance, status and biotopes of butterfly species at Toranmal Area status (Tiple *et al.*, 2006;Tiple and khurad, 2009); VC, Very common (> 100 sightings) ; C, Common (50-100 sightings) ; F, Frequent (25-50 sighting) ; R , Rare (10-25 sightings) ; Very rare (< 10 sightings).

Biotopes: T-1: Sitakhai Transect, T-2: Kalapani Transect, T-3: Lotus Lake area.

* Species come under Indian Wildlife Protection Act. 1972.

Annexure – VII
List of Birds of Toranmal Area observed during December 2006 to November 2008

Sr No	Common Name	Scientific Name	Study Area			Status	Habitat	Feeding Habits	Abundance	Family
			LL	Kp	Kh					
1	Little Grebe	<i>Tachybaptus ruficollis</i> (Pallas, 1764)	√	-	-	R	WL	Cv	C	Podicipedidae
2	Little Cormorant	<i>Phalacrocorax niger</i> (Vieillot, 1817)	√	-	-	R	WL	Cv	C	Phalacrocoracidae
3	Little Egret	<i>Egretta garzetta</i> (Linnaeus, 1766)	√	√	-	R	WL	Cv	C	Ardidae
4	Grey Heron	<i>Ardea cinerea</i> (Linnaeus, 1758)	√	-	-	LM	WL	Cv	C	Ardidae
5	Purple Heron	<i>Ardea purpurea</i> (Linnaeus, 1766)	√	-	-	LM	WL	Cv	O	Ardidae
6	Large Egret	<i>Casmerodius albus</i> (Linnaeus, 1758)	√	-	-	R	WL	Cv	C	Ardidae
7	Cattle Egret	<i>Bubulcus ibis</i> (Linnaeus, 1758)	√	√	√	R	WL	Cv	C	Ardidae
8	Indian Pond-Heron	<i>Ardeola grayii</i> (Sykes, 1832)	√	√	-	R	WL	Cv	C	Ardidae
9	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i> (Linnaeus, 1758)	√	√	-	R	WL	Cv	C	Ardidae
10	White-necked Stork	<i>Ciconia episcopus</i> (Boddaert, 1783)	√	-	-	R	WL	Cv	O	Ciconiidae
11	Oriental White Ibis	<i>Threskiornis melanocephalus</i> (Latham, 1790)	√	-	-	R	WL	Cv	U	Threskiornithidae
12	Eurasian Wigeon	<i>Anas penelope</i> (Linnaeus, 1758)	√	-	-	M	WL	Om	O	Anatidae
13	Common Teal	<i>Anas crecca</i> (Linnaeus, 1758)	√	-	-	M	WL	Gr	O	Anatidae
14	Common Pochard	<i>Aythya ferina</i> (Linnaeus, 1758)	√	-	-	M	WL	Om	O	Anatidae
15	Black Kite	<i>Milvus migrans</i> (Boddaert, 1783)	√	√	-	R	T	Om	R	Accipitridae
16	Brahminy Kite	<i>Haliastur indus</i> (Boddaert, 1783)	√	√	-	R	WL	Cv	U	Accipitridae
17	Egyptian Vulture	<i>Neophron percnopterus</i> (Linnaeus, 1758)	√	-	√	R	T	Sc	R	Accipitridae
18	Long-billed Vulture	<i>Gyps indicus</i> (Scopoli, 1786)	√	-	√	R	T	Sc	R	Accipitridae
19	Red-headed Vulture	<i>Sarcogyps calvus</i> (Scopoli, 1786)	-	√	-	R	T	Sc	R	Accipitridae
20	Crested Serpent-Eagle	<i>Spilornis cheela</i> (Latham, 1790)	-	√	-	R	T	Cv	C	Accipitridae
21	Western Marsh-Harrier	<i>Circus aeruginosus</i> (Linnaeus, 1758)	√	-	-	M	WL	Cv	O	Accipitridae

Continued to next page

Sr No	Common Name	Scientific Name	Study Area			Status	Habitat	Feeding Habits	Abundance	Family
			LL	Kp	Kh					
22	Pied Harrier	<i>Circus melanoleucos</i> (Pennant, 1769)	-	-	√	M	T	Cv	R	Accipitridae
23	Shikra	<i>Accipiter badius</i> (Gmelin, 1788)	-	√	-	R	T	Cv	C	Accipitridae
24	White-eyed Buzzard	<i>Butastur teesa</i> (Franklin, 1832)	-	√	-	R	T	Cv	C	Accipitridae
25	Common Buzzard	<i>Buteo buteo</i> (Linnaeus, 1758)	-	-	√	M	T	Cv	U	Accipitridae
26	Tawny Eagle	<i>Aquila rapax</i> (Temminck, 1828)	-	√	√	R	T	Cv	U	Accipitridae
27	Bonelli's Eagle	<i>Hieraetus fasciatus</i> (Vieillot, 1822)	-	√	-	R	T	Cv	O	Accipitridae
28	Booted Eagle	<i>Hieraetus pennatus</i> (Gmelin, 1788)	-	√	-	M	T	Cv	O	Accipitridae
29	Osprey	<i>Pandion haliaetus</i> (Linnaeus, 1758)	√	-	-	M	WL	Om	O	Accipitridae
30	Common Kestrel	<i>Falco tinnunculus</i> (Linnaeus, 1758)	√	√	√	M	T	Cv	C	Falconidae
31	Painted Francolin	<i>Francolinus pictus</i> (Jardine & Selby, 1828)	-	√	√	R	T	Om	C	Phasianidae
32	Grey Francolin	<i>Francolinus pondicerianus</i> (Gmelin, 1789)	-	-	√	R	T	Gr	C	Phasianidae
33	Jungle Bush-Quail	<i>Perdica asiatica</i> (Latham, 1790)	-	√	√	R	T	Gr	C	Phasianidae
34	Red Spurfowl	<i>Galloperdix spadicea</i> (Gmelin, 1789)	-	√	√	R	T	Gr	C	Phasianidae
35	Indian Peafowl	<i>Pavo cristatus</i> (Linnaeus, 1758)	√	-	-	R	T	Om	C	Phasianidae
36	Common Moorhen	<i>Gallinula chloropus</i> (Linnaeus, 1758)	√	-	-	R	WL	Cv	C	Rallidae
37	Common Coot	<i>Fulica atra</i> (Linnaeus, 1758)	√	-	-	LM	WL	Om	C	Rallidae
38	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i> (Boddaert, 1783)	√	-	-	R	T	In	O	Charadriidae
39	Red-wattled Lapwing	<i>Vanellus indicus</i> (Boddaert, 1783)	√	√	-	R	T	Cv	C	Charadriidae
40	Common Snipe	<i>Gallinago gallinago</i> (Linnaeus, 1758)	√	-	-	M	WL	Cv	O	Scolopacidae
41	Green Sandpiper	<i>Tringa ochropus</i> (Linnaeus, 1758)	√	-	-	M	WL	Cv	C	Scolopacidae
42	Wood Sandpiper	<i>Tringa glareola</i> (Linnaeus, 1758)	√	-	-	M	WL	Cv	U	Scolopacidae

Sr No	Common Name	Scientific Name	Study Area			Status	Habitat	Feeding Habits	Abundance	Family
			LL	Kp	Kh					
43	Common Sandpiper	<i>Tringa hypoleucos</i> (Linnaeus, 1758)	√	-	-	M	WL	Cv	O	Scolopacidae
44	Little Stint	<i>Calidris minuta</i> (Leisler, 1812)	√	-	-	M	WL	Cv	O	Scolopacidae
45	Black-winged Stilt	<i>Himantopus himantopus</i> (Linnaeus, 1758)	√	-	-	R	WL	Cv	C	Charadriidae
46	River Tern	<i>Sterna aurantia</i> (J.E. Gray, 1831)	√	-	-	R	WL	Cv	O	Laridae
47	Blue Rock Pigeon	<i>Columba livia</i> (Gmelin, 1789)	√	-	-	R	T	Gr	R	Columbidae
48	Little Brown Dove	<i>Streptopelia senegalensis</i> (Linnaeus, 1766)	-	-	√	R	T	Gr	C	Columbidae
49	Spotted Dove	<i>Streptopelia chinensis</i> (Scopoli, 1786)	√	√	√	R	T	Gr	C	Columbidae
50	Eurasian Collared Dove	<i>Streptopelia decaocto</i> (Frisvaldszky, 1838)	-	√	-	R	T	Gr	C	Columbidae
51	Alexandrine Parakeet	<i>Psittacula eupatria</i> (Linnaeus, 1766)	-	√	-	R	T	Fr	C	Psittacidae
52	Rose-ringed Parakeet	<i>Psittacula krameri</i> (Scopoli, 1769)	√	√	√	R	T	Fr	C	Psittacidae
53	Plum-headed Parakeet	<i>Psittacula cyanocephala</i> (Linnaeus, 1766)	√	√	-	R	T	Fr	C	Psittacidae
54	Pied Crested Cuckoo	<i>Clamator jacobinus</i> (Boddaert, 1783)	-	√	-	M	T	In	C	Psittacidae
55	Indian Cuckoo	<i>Cuculus micropterus</i> (Gould, 1838)	√	√	-	LM	T	In	U	Cuculidae
56	Asian Koel	<i>Eudynamis scolopacea</i> (Linnaeus, 1758)	√	√	√	R	T	Om	C	Cuculidae
57	Greater Coucal	<i>Centropus sinensis</i> (Stephens, 1815)	√	-	√	R	T	Cv	C	Centropodidae
58	Oriental Scops-Owl	<i>Otus sunia</i> (Hodgson, 1836)	-	√	-	R	T	In	U	Strigidae
59	Collared Scops-Owl	<i>Otus bakkamoena</i> (Pennant, 1769)	√	-	-	R	T	Cv	O	Strigidae
60	Eurasian Eagle-Owl	<i>Bubo bubo</i> (Linnaeus, 1758)	-	-	√	R	T	Cv	O	Strigidae
61	Franklin's Nightjar	<i>Caprimulgus. affinis</i> (Horsfield, 1821)	-	√	√	R	T	In	C	Caprimulgidae
62	Asian Palm-Swift	<i>Cypsiurus balasiensis</i> (J.E. Gray, 1829)	√	-	-	R	T	In	O	Apodidae
63	House Swift	<i>Apus affinis</i> (J.E. Gray, 1830)	√	√	-	R	T	In	C	Apodidae

Sr No	Common Name	Scientific Name	Study Area			Status	Habitat	Feeding Habits	Abundance	Family
			LL	Kp	Kh					
64	Eurasian Kingfisher	<i>Alcedo atthis</i> (Linnaeus, 1758)	√	-	-	R	WL	Cv	O	Alcedinidae
65	Stork-billed Kingfisher	<i>Halcyon capensis</i> (Linnaeus, 1766)	√	-	-	R	WL	Cv	O	Halcyonidae
66	White-breasted Kingfisher	<i>Halcyon smyrnensis</i> (Linnaeus, 1758)	√	√	-	R	WL	Cv	C	Halcyonidae
67	Small Bee-eater	<i>Merops orientalis</i> (Latham, 1801)	√	√	√	R	T	In	C	Meropidae
68	Blue-tailed Bee-eater	<i>Merops philippinus</i> (Linnaeus, 1766)	-	-	√	M	T	In	U	Meropidae
69	Indian Roller	<i>Coracias benghalensis</i> (Linnaeus, 1758)	-	√	-	R	T	In	C	Coraeiidae
70	Common Hoopoe	<i>Upupa epops</i> (Linnaeus, 1758)	√	-	-	R	T	In	C	Upupidae
71	Indian Grey Hornbill	<i>Ocyrceros birostris</i> (Scopoli, 1786)	-	√	-	R	T	Om	C	Bucerotidae
72	Brown-capped Pygmy Woodpecker	<i>Dendrocopos nanus</i> (Vigors, 1832)	-	√	-	R	T	In	C	Picidae
73	Yellow-fronted Pied Woodpecker	<i>Dendrocopos mahrattensis</i> (Latham, 1801)	√	-	-	R	T	In	C	Alaudidae
74	Singing Bush-Lark	<i>Mirafra cantillans</i> (Blyth, 1845)	-	-	√	R	T	Om	O	Alaudidae
75	Eastern Skylark	<i>Alauda gulgula</i> (Franklin, 1831)	-	√	√	R	T	Om	O	Alaudidae
76	Plain Martin	<i>Riparia paludicola</i> (Vieillot, 1817)	√	-	-	R	WL	In	O	Hirundinidae
77	Common Swallow	<i>Hirundo rustica</i> (Linnaeus, 1758)	√	-	√	M	WL	In	C	Hirundinidae
78	Wire-tailed Swallow	<i>Hirundo smithii</i> (Leach, 1818)	√	-	-	R	WL	In	C	Hirundinidae
79	Red-rumped Swallow	<i>Hirundo daurica</i> (Linnaeus, 1771)	-	-	√	M	T	In	C	Hirundinidae
80	White Wagtail	<i>Motacilla alba</i> (Linnaeus, 1758)	√	-	-	M	WL	In	O	Passeridae
81	Large Pied Wagtail	<i>Motacilla maderaspatensis</i> (Gmelin, 1789)	-	√	-	R	WL	In	C	Passeridae
82	Yellow Wagtail	<i>Motacilla flava</i> (Linnaeus, 1758)	-	-	√	M	WL	In	O	Passeridae
83	Grey Wagtail	<i>Motacilla cinerea</i> (Tunstall, 1771)	√	-	-	M	WL	In	C	Passeridae
84	Paddyfield Pipit	<i>Anthus rufulus</i> (Vieillot, 1818)	√	-	-	R	T	In	C	Passeridae

Sr No	Common Name	Scientific Name	Study Area			Status	Habitat	Feeding Habits	Abundance	Family
			LL	Kp	Kh					
85	Brown Rock Pipit	<i>Anthus. similis</i> (Jerdon, 1840)	√	-	√	M	WL	In	O	Passeridae
86	Eurasian Tree Pipit	<i>Anthus trivialis</i> (Linnaeus, 1758)	-	√	-	M	T	In	O	Passeridae
87	Oriental Tree Pipit	<i>Anthus hodgsoni</i> (Richmond, 1907)	-	√	-	M	T	In	C	Passeridae
88	Large Cuckoo-Shrike	<i>Coracina macei</i> (Lesson, 1830)	-	√	-	R	T	In	C	Laniidae
89	Small Minivet	<i>Pericrocotus cinnamomeus</i> (Linnaeus, 1766)	√	√	√	R	T	In	C	Corvidae
90	White-bellied Minivet	<i>Pericrocotus erythropygius</i> (Jerdon, 1840)	-	-	√	LM	T	In	U	Corvidae
91	Red-vented Bulbul	<i>Pycnonotus cafer</i> (Linnaeus, 1766)	√	√	√	R	T	Om	C	Regulidae
92	Bay-backed Shrike	<i>Lanius vittatus</i> (Valenciennes, 1826)	-	-	√	R	T	Cv	O	Laniidae
93	Rufous-backed Shrike	<i>Lanius schach</i> (Linnaeus, 1758)	√	-	√	R	T	Cv	C	Laniidae
94	Blue Rock-Thrush	<i>Monticola solitarius</i> (Linnaeus, 1758)	√	-	-	M	T	In	C	Muscicapidae
95	Orange-headed Thrush	<i>Zoothera citrina</i> (Latham, 1790)	-	-	√	R	T	In	O	Muscicapidae
96	Oriental Magpie-Robin	<i>Copsychus saularis</i> (Linnaeus, 1758)	-	√	√	R	T	In	C	Muscicapidae
97	Indian Robin	<i>Saxicoloides fulicata</i> (Linnaeus, 1766)	√	-	√	R	T	In	C	Muscicapidae
98	Common Stonechat	<i>Saxicola torquata</i> (Linnaeus, 1766)	√	-	√	M	T	In	O	Muscicapidae
99	Pied Bushchat	<i>Saxicola caprata</i> (Linnaeus, 1766)	-	-	√	LM	T	In	O	Muscicapidae
100	Large Grey Babbler	<i>Turdoides malcolmi</i> (Sykes, 1832)	√	-	√	R	T	Om	U	Sylviidae
101	Jungle Babbler	<i>Turdoides striatus</i> (Dumont, 1823)	-	√	√	R	T	Om	C	Sylviidae
102	Grey-breasted Prinia	<i>Prinia hodgsonii</i> (Blyth, 1844)	-	√	-	R	T	In	C	Cisticolidae
103	Ashy Prinia	<i>Prinia socialis</i> (Sykes, 1832)	-	-	√	R	T	In	U	Cisticolidae
104	Western Crowned Warbler	<i>Prinia occipitalis</i> (Blyth, 1845)	-	√	-	M	T	In	U	Sylviidae
105	Common Lesser Whitethroat	<i>Sylvia curruca</i> (Linnaeus, 1758)	-	-	√	M	T	In	C	Sylviidae

Sr No	Common Name	Scientific Name	Study Area			Status	Habitat	Feeding Habits	Abundance	Family
			LL	Kp	Kh					
106	Red-throated Flycatcher	<i>Ficedula parva</i> (Bechstein, 1792)	-	√	-	M	T	In	C	Muscicapidae
107	Tickell's Blue-Flycatcher	<i>Cyornis tickelliae</i> (Blyth, 1843)	-	√	-	R	T	In	C	Muscicapidae
108	Asian Paradise-Flycatcher	<i>Terpsiphone paradisi</i> (Linnaeus, 1758)	√	√	-	M	T	In	O	Muscicapidae
109	Black-naped Monarch-Flycatcher	<i>Hypothymis azurea</i> (Boddaert, 1783)	-	-	√	R	T	In	C	Muscicapidae
110	White-browed Fantail-Flycatcher	<i>Rhipidura aureola</i> (Lesson, 1830)	√	√	-	R	T	In	C	Muscicapidae
111	Great Tit	<i>Parus major</i> (Linnaeus, 1758)	√	√	√	R	T	In	C	Paridae
112	Black-lored Yellow Tit	<i>Parus xanthogenys</i> (Vigors, 1831)	-	√	√	R	T	In	O	Paridae
113	Purple Sunbird	<i>Nectarinia asiatica</i> (Latham, 1790)	√	√	-	R	T	N	C	Nectariniidae
114	Red Munia	<i>Amandava amandava</i> (Linnaeus, 1758)	-	-	√	R	T	Gr	C	Passeridae
115	White-throated Munia	<i>Lonchura malabarica</i> (Linnaeus, 1758)	√	-	-	R	T	Gr	C	Passeridae
116	White-rumped Munia	<i>Lonchura striata</i> (Linnaeus, 1766)	√	-	-	LM	T	Gr	O	Passeridae
117	Spotted Munia	<i>Lonchura punctulata</i> (Linnaeus, 1758)	-	-	√	R	T	Gr	O	Passeridae
118	House Sparrow	<i>Passer domesticus</i> (Linnaeus, 1758)	√	√	√	R	T	Gr	C	Passeridae
119	Yellow-throated Sparrow	<i>Petronia xanthocollis</i> (Burton, 1838)	-	√	√	LM	T	Gr	C	Passeridae
120	Baya Weaver	<i>Ploceus philippinus</i> (Linnaeus, 1766)	√	-	√	LM	T	Gr	O	Passeridae
121	Brahminy Starling	<i>Sturnus. pagodarum</i> (Gmelin, 1789)	√	√	√	R	T	Om	C	Sturnidae
122	Common Myna	<i>Acridotheres tristis</i> (Linnaeus, 1766)	√	√	√	R	T	Om	C	Sturnidae
123	Black Drongo	<i>Dicrurus macrocercus</i> (Vieillot, 1817)	√	√	√	R	T	Om	C	Corvidae
124	Ashy Drongo	<i>Dicrurus leucophaeus</i> (Vieillot, 1817)	-	√	-	M	T	In	O	Corvidae
125	White-bellied Drongo	<i>Dicrurus caerulescens</i> (Linnaeus, 1758)	-	√	-	R	T	In	C	Corvidae
126	House Crow	<i>Corvus splendens</i> (Vieillot, 1817)	√	-	-	R	T	Om	O	Corvidae
127	Jungle Crow	<i>Corvus macrorhynchos</i> (Wagler, 1827)	√	√	√	R	T	Om	C	Corvidae