

## PTERIDOPHYTES OF THE BISLE GHAT FORESTS, SOUTH WESTERN GHATS, KARNATAKA

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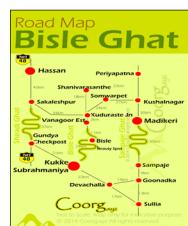
**Abstracts**— Pteridophytes constitute a significant component of the terrestrial ecosystem. They are the important part of the ground vegetation in many forest communities and also an important component of many epiphytic plant communities. The present paper concerns the documentation of pteridoptyes distributed in the Bisle Ghat region of south Western Ghats. The survey of rain forest was carried out between June 2016 and October 2016 to document the pteridoptyes. The collected plants were identified with the help of reference books and the subject experts. The study has resulted in the documentation of 51 species belonging to 34 different genera and 19 different families were recorded. But if the same trend of low rainfall of this year continues for the next few years, there might be some real challenges for the existence of these unique and diverse species. However, while widening the road, both sides of the road there is habitat destructions and various anthropogenic activities may adversely affect the growth and distribution of this valuable group of plants. Effort should be made for research, further study on habitat ecology, species richness for the management of ecosystem of this unique group of plants.

### INTRODUCTION:

The pteridophytes constitute a significant part of the earth's plant diversity and being the second largest group of vascular plant communities. Pteridophytes may comprise a significant component of the terrestrial ecosystem. Pteridophytes have an important role in the earth's biodiversity. Pteridophytes have economic significance as they are used as food,

fodder, medicine and many other ethno botanical uses. They are the important part of the ground vegetation in many forest communities and also an important component of many epiphytic plant communities. Many species attracts many plant lovers for their graceful, fascinating and beautiful foliage. Of the 12,000 or so pteridophyte species enumerated in the world, around 1000 species from 70 families and 192 genera occur in India. The major centers for pteridophytes diversity in India are Eastern and Western Himalayas, Western Ghats, Eastern Ghats, Central India and Andaman and Nicobar Islands. The Western Ghats constitute one of the 35 global biodiversity hotspots along with Sri Lanka. Western Ghats are a unique mountain range that harbours an incredible diversity of flora and fauna. Bisle ghat is a part of the Western Ghats of Karnataka. It is located in Hassan district's Sakaleshpur taluk. It is the meeting point of the mountain ranges of three districts Dakshina Kannada, Kodagu and Hassan. Bisle ghat is the natural link between Pusphagiri and Kudremukh wildlife sanctuaries. Bisle Ghat has some of India's most spectacular rain forests. Dense forest of Bisle Ghat makes it a rich place for biodiversity. The subtropical climate and heavy rain during rainy season create an environment where several unique species of pteridophytes flourish. The present paper documents pteridoptyes distributed in the Bisle Ghat region of south Western Ghats. The objectives of the study are to survey pteridoptyes found in the Bisle forest and to prepare a check-list of the pteridoptyes found in the Bisle forest.

### METHOD

		
Karnataka	Study site	Fern forest

The reserve forests of Bisle ghat spreads over 3,135 hectares, to the east is the Bisle village. The present investigation was carried out during May to November 2016 for the documentation of pteridophytes in the forests of Bisle Ghat. The documented plants were identified with the help of reference book "Pteridophytes of Karnataka State, India (P.K.Rajgopal and K.Gopalkrishna Bhat)". During the field visits, pteridophytes specimen were collected for herbarium. The herbarium collections are deposited in the Department of Botany, Vivekananda College Puttur.D.K.

### RESULT:

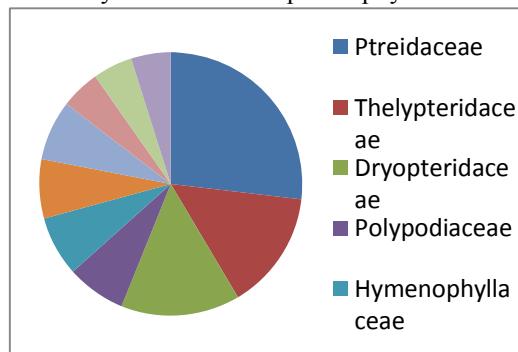
**Table-1: List of documented Pteridophytes**

Sl.No.	Scientific name	Family name	Habitat	Habit
1	<i>Adiantum latifolium</i> Lam.	Ptreidaceae	Shady places	Small size
2	<i>Adiantum philippense</i> L.	Ptreidaceae	On the road side walls	Small size
3	<i>Angiopteris heliferiana</i> C.	Marattiaceae	Near waterfalls	Very large size
4	<i>Arachniodes sledge</i> Fraser-Jenk.	Dryopteridaceae	Terrestrial	Medium size
5	<i>Asplenium aethiopicum</i> Bech.	Aspleniaceae	Terrestrial	Medium size
6	Asplenium species	Aspleniaceae	Terrestrial	Medium size
7	<i>Athyrium hohenackerianum</i> T.Moore:	Athyriaceae	Terrestrial	Medium size
8	<i>Blechnum orientale</i> L.	Blechnaceae	Terrestrial	Medium size
9	<i>Bolbitis appendiculata</i> K.Iwats.	Dryopteridaceae	Terrestrial	Small size
10	<i>Bolbitis presliana</i> Ching.	Dryopteridaceae	Terrestrial	Small size
11	<i>Bolbitis subcrenatoides</i> Fraser-Jenk.	Dryopteridaceae	Terrestrial	Medium size
12	<i>Ceratopteris thalictroides</i> Brongn	Ptreidaceae	Marshy soil	Small size
13	<i>Cyathea gigantia</i> Holttum.	Cyatheaceae	Near the stream inside dense forest	Tree fern Large size
14	<i>Cyclosorus dentatus</i> Ching.	Thelypteridaceae	Terrestrial	Medium size
15	<i>Cyclosorus papilio</i> Ching.	Thelypteridaceae	Terrestrial	Medium size
16	<i>Cyclosorus parasiticus</i> Farw.	Thelypteridaceae	Terrestrial	Medium size
17	<i>Cyclosorus terminans</i> K.H.Singh.	Thelypteridaceae	Terrestrial	Medium size
18	<i>Dicranopteris linearis</i> Underw. (Gleichenia sps.)	Gleicheniaceae	open area in damp soil	Creeper like
19	<i>Doryopteris concolor</i> Kunh.	Ptreidaceae	Terrestrial Road side	Small size
20	<i>Drymaria quercifolia</i> J.Sm.	Polypodiaceae	Epiphyte	Small size
21	<i>Dryopteris cocleata</i> C.Chr.	Dryopteridaceae	Terrestrial	Small size
22	<i>Dryopteris sparsa</i> Kunntze	Dryopteridaceae	Terrestrial	Small size
23	<i>Huperzia hamiltonii</i>	Lycopodiaceae	Epiphyte, hanging	Small size
24	<i>Huperzia phylantha</i> Holub.	Lycopodiaceae	Epiphyte hanging,	Small size
25	<i>Huperzia squarrosa</i> Trevis.	Lycopodiaceae	Epiphyte, hanging	Small size

The study region is rich in Pteridophytes. The study has resulted in the documentation of 51 species of Pteridophytes belonging to 34 different genera and 19 different families were recorded. Family Pteridaceae with 11 species is the first dominant family followed by Dryopteridaceae and Thelypteridaceae with 6 species each and 9 families represented by only one species. Among the total 51 species documented, two species are large sized (one species is the tree fern), 21 species are medium sized and 20 species are small sized. Habitat-wise 6 species are epiphytes, one species is creeper, 2 species are climbers and 28 species are terrestrial. We observed reproductive stages in 23 species.

26	Hymenophyllum exsertum Wall.	Hymenophyllaceae	On the rocks of stream	Small size
27	Hymenophyllum sps	Hymenophyllaceae	On the tree trunks in very cool place	Small size
28	Lepisorus nudus Ching.	Polypodiaceae	Epiphyte, erect	Small size
29	Lindsaea heterophylla Dryand.	Lindsaeaceae	Terrestrial	Small size
30	Lycopodiella cernua Piv. Serm.	Lycopodiaceae	On the marshy walls	Creeper like
31	Lygodium flexuosum Sw.	Lygodiaceae	Terrestrial	Climbing fern
32	Lygodium microphyllum R.Br.	Lygodiaceae	Terrestrial	Climbing fern
33	Macrothelypteris toresiana Ching.	Thelypteridaceae	Terrestrial	Medium size
34	Microlepia speluncae T. Moore.	Dennstaedtiaceae	Terrestrial	Medium size
35	Microsorum zippelii Ching	Polypodiaceae	Epiphyte, erect	Small size
36	Nephrolepis multyiflora C.V. Morton.	Nephrolepidaceae	Exposed marshy area	Medium size
37	Odontosoria tenuifolia J. Sm.	Lindsaeaceae	Terrestrial	Small size
38	Osmunda hugeliana C. Presl.	Osmundaceae	Bank of stream	Medium size
	Pityrogramma calomelanos Link.	Pteridaceae	Forest slopes	Medium size
39	Pseudocyclosorus caudipinnus Ching.	Thelypteridaceae	Terrestrial	Medium size
40	Pteridium revolutum Nakai.	Dennstaedtiaceae	Open space	Medium size
41	Pteris biaurita Fraser.	Pteridaceae	Terrestrial	Medium size
42	Pteris cameroonian Kuhn.	Pteridaceae	Terrestrial	Medium size
43	Pteris confuse T.G. Walker	Pteridaceae	Terrestrial	Medium size
44	Pteris vittata L.	Pteridaceae	Terrestrial	Medium size
45	Selaginella delicatula Alston.	Selaginellaceae	On walls in shady place	Small size
46	Selaginella proniflora Baker.	Selaginellaceae	Under growth	Small size
47	Selaginella tenera Spring.	Selaginellaceae	Forest floor	Small size
48	Tectaria gemmifera Alston		Terrestrial	Medium size
49	Tectaria polymorpha Copel.	Tectariaceae	Terrestrial	Medium size with broad leaf
50	Cheilanthes tenuifolia	Pteridaceae	slopy Open area	Small size
51	Cheilanthes bicolor Sw.	Pteridaceae	slopy Open area	Small size

Fig 1 showing family wise species diversity of documented pteridophytes

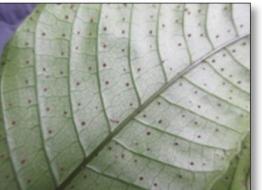


## CONCLUSION

Pteridophytes are habitat specific, shade and moisture loving. The possible threats to this eco-sensitive group are clear responsibility to conserve them. Therefore, the conservation measures should be extended for *ex situ* conservation for the pteridophytes. Since there are no mining sites or hydroelectric project sites at Bisile Ghat, the habit has remained unspoiled and undisturbed because which we can still find such diverse species. But if the same trend of low rainfall of this year continues

for the next few years, there might be some real challenges for the existence of these unique and diverse species. However, while widening the road, both sides of the road there is habitat destructions and various anthropogenic activities particularly tourism may adversely affect the growth and distribution of this valuable group of plants. Effort should be made for research on habitat ecology, species richness for the management of ecosystem of this unique group of plants.

**Plate-1: Pteridophytes of the study region**

<i>Blechnum orientale L.</i>		<i>Angiopteris heliferiana C.</i>	
			
<i>Dicranopteris linearis</i> Underw	<i>Tectaria gemmifera</i> Alston		<i>Tectaria polymorpha</i> Copel.
			
<i>Drynaria quercifolia</i> J Sm.	<i>Pteridium revolutum</i> Nakai.	<i>Ceratopteris thalictroides</i> Brongn	<i>Adiantum philippense</i> L.
			
<i>Cyathia gigantia</i> Holttum.	<i>Asplenium species</i>	<i>Selaginella tenera</i> Spring.	<i>Nephrolepis multiflora</i> C.V.Morton
			

<i>Microsorum zippelii</i> Ching.	<i>Lycopodiella cernua</i> Piv. Serm.	<i>Huperzia squarrosa</i> Trevis.	<i>Lygodium microphyllum</i> R.Br.

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