ASSESSMENT OF MONOCOT PLANT SPECIES DIVERSITY OF UDALGURI DISTRICT, BTAD, ASSAM

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ABSTRACT

Present study was conducted to collect, identify and document the monocot flora of Udalguri District (BTAD) Assam located in latitude 26°30´- 26°40´N and longitude 92°15´-92°23´E. Survey of monocot plants of the district were carried out during 2014-15. Plant materials have been collected for each of the species from all the study sites as per standard taxonomic procedure. Collected specimens were identified from Botanical Survey of India (BSI), Shillong and Department Botany, USTM by means of taxonomic literature and authentic herbarium specimen. A total of 141 monocotyledonous plants of 98 genera belong to 11 families have been found in the investigation. Family poaceae comprises maximum number of plant species (65). Most of the species are found in terrestrial ecosystems than the aquatic habitat. A total 4 epiphytic species found grown on the tree.

Key words: Ethnobotany, Floristic component, Habitat destruction, North east, Poaceae.

No:of Tables : 2 **No:of Figures : 3** **No: of References: 1**

INTRODUCTION

Monocotyledons in contrast to the Dicotyledons possess single cotyledon in embryo, parallel leaf venation, usually trimerous flowers on various kinds of underground stems. The leaves are long and with sheathing bases usually. The grass habit is the characteristic of the families Cyperaceae, Poaceae and Juncaceae, it is marked the slender tufted leaves arising from slender aerial stems and rhizomes.The North-eastern region of India enjoys interesting geographic and climatic conditions with one of the moistest tropical forest on one hand and temperate and alpine vegetation on the other, supporting a large variety of flora, thus the region could also be rich in monocot flora. North-east region is very much rich in flora whereas N.E. region is known as the "Floristic Gateway" of India. These areas have ample scope for monocot floral study due to its rich vegetation. Udalguri is an area located in the North Bank of Brahmaputra River in the State of Assam in Northeast region of India, by the foothills of Bhutan and Aurnachal Pradesh. The area is high plain land and covered with moderate forest towards northern part of the district.Our knowledge regarding their taxonomy, ethnobotany of Udalguri District, (BTAD) Assam is inadequate where as the monocot vegetation of this area is quite rich. No works have published on monocot flora in this area. So, the present work has been undertaken to invent the monocot plant diversity in Udalguri District (BTAD) Assam.

Materials and methods

Study site

Udalguri district (BTAD, Assam) is located in latitude 26°30´- 26°40´N and longitude 92°15´-92°23´E. the average altitude of the district is 590 feet. The total geographical area is above 1,985,68 sq.km and the annual rainfall varies from 1500 mm to 2600 mm. The district is bounded by Bhutan and Aurnachal Pradesh towards North. Sonitpur district in the East. Darrang district in the South and Baksa district in the West.

Methodology

Survey and collection

Survey of monocot plants of Udalguri District were carried out during 2014-15. Regular field visits were made at once in a week to collect the plant parts, photographs, GPS points, information such as plant uses by local people, habitat, etc. Plant materials have been collected for each of the species from all the study sites as per standard taxonomic procedure of Jain and Rao (1977).

Identification

Collected samples were processed into the mounted herbarium sheets following the methods of Jain and Rao (1977) herbarium sheets. The mounted specimens were identified from Botanical Survey of India (BSI), Shillong and Department Botany, USTM by means of taxonomic literature and authentic herbarium specimen.

Results and Discussion

In the present study a total of 141 monocotyledonous plants of 98 genera belong to 18 families have been found (Table 2). Maximum number of species (65) belongs to the poaceae, followed by cyperaceae (36), Zingiberaceae (9), Araceae (6), Orchidaceae(4), Commelinaceae (4) (Table 1) etc. Nowhere else in the study area poaceae and cyperaceae family comprise a significant floristic component. Most of the families have only a single species in study area. Habit of plants area tree (3), shrub (18), herb (117), climber (3) (Table 2) & (Figure 2). Most of the species are found in terrestrial ecosystems than the aquatic habitat. A total 4 epiphytic species found grown on the tree (Figure 3). Species per genus is found to be highest in Cyperaceae family, followed by Amaryllidaceae, Commelinaceae, Orchidaceae, Zingiberaceae, Poaceae etc. and minimum 1.00 found in other 12 family such as Araceae, Cannaceae, Eriocaulaceae, Iridaceae, Juncaceae etc. (Table 1).

Table. 1. No. of species and genera per family

Sl. No.	Families	No. of Genera	No. of Species	Species/genus
1	Amaryllidaceae	2	3	1.50
2	Araceae	6	6	1.00
3	Arecaceae	1	1	1.00
4	Cannaceae	1	1	1.00
5	Commelinaceae	3	4	1.33
6	Costaceae	1	1	1.00
7	Cyperaceae	13	36	2.77
8	Dioscoreaceae	1	1	1.00
9	Eriocaulaceae	1	1	1.00
10	Iridaceae	1	1	1.00
11	Juncaceae	1	1	1.00
12	Musaceae	1	1	1.00
13	Nazadaceae	1	1	1.00
14	Orchidaceae	3	4	1.33
15	Poaceae	51	65	1.27
16	Pontederiaceae	3	3	1.00
17	Typhaceae	1	1	1.00
18	Zingiberaceae	7	9	1.29

Table. 2. Monocot plant species enumerated in the study site

Sl No	Species	Family	Habit	Habitat
1	*Acorus calamus* L.	Araceae	S	T
2	*Alocasia indica* (Lour) Koch.	Araceae	H	T
3	*Colocasia esculenta* (L) Schott	Araceae	H	T
4	*Pistia strati*otes L.	Araceae	H	A
5	*Typhonium trilobatum* (L.) Schott.	Araceae	H	A
6	*Crinum defixum* Ker. Gawl.	Amaryllidaceae	S	T
7	*Crinum pratens* Herb.	Amaryllidaceae	S	T
8	*Commelina benghalensis* L.	Commelinaceae	H	T
9	*Commelina diffusa* Burm.	Commelinaceae	H	T
10	*Commelina erecta* L.	Commelinaceae	H	T
11	*Floscopa scandens* Lour	Commelinaceae	H	T
12	*Bulbostylis barbata Clarke*	Cyperaceae	H	T
13	*Carex cruciata* Wahlenb.	Cyperaceae	H	T
14	*Cyperus albostriatus* Schrad.	Cyperaceae	H	T
15	*Cyperus capitatus* Vand.	Cyperaceae	H	T
16	*Cyperus compactus Retz.*	Cyperaceae	H	T
17	*Cyperus cyperinus* (Retz.) Surinp.	Cyperaceae	H	T
18	*Cyperus digitatus* Roxb.	Cyperaceae	H	T
19	*Cyperus distans* L.	Cyperaceae	H	T
20	*Cyperus flavidus* Retz.	Cyperaceae	H	T
21	*Cyperus imbricatus* Retz.	Cyperaceae	H	T
22	*Cyperus iria* Linn.	Cyperaceae	H	T
23	*Cyperus kyllinga* Euds.	Cyperaceae	H	T
24	*Cyperus michelianus* (L)	Cyperaceae	H	T
25	*Cyperus pilosus* Vahl.	Cyperaceae	H	T
26	*Cyperus pumilus* Linn.	Cyperaceae	H	T
27	*Cyperus rotundus* Linn.	Cyperaceae	H	T
28	*Cyperus sanguinotentus* Vahl.	Cyperaceae	H	T
29	*Cyperus silletensis* Nees.	Cyperaceae	H	T
30	*Cyperus sulcinux* C.B.Clarke	Cyperaceae	H	T
31	*Cyperus tenuispica* Steud.	Cyperaceae	H	T
32	*Eleocharis congesta* D.Don.	Cyperaceae	H	T
33	*Eriophorum comosum* Wall.	Cyperaceae	H	T
34	*Fimbristylis aestivalis* Vahl.	Cyperaceae	H	T
35	*Fimbristylis complanata (*Retz.) Link.	Cyperaceae	H	T
36	*Fimbristylis dichotoma* (L.)Vahl.	Cyperaceae	H	T
37	*Fimbristylis diphylla* Vahl.	Cyperaceae	H	T
38	*Fimbristylis littoralis* Gaud.	Cyperaceae	H	T
39	*Fimbristylis miliacea* (Burm) Vahl.	Cyperaceae	H	T
40	*Fuirena umbellata* Rottb.	Cyperaceae	H	T
41	*Kyllinga brevifolia* Rottb.	Cyperaceae	H	T
42	*Lipocarpha argentea* Br.	Cyperaceae	H	T
43	*Mariscus paniceus* Vah.	Cyperaceae	H	T

44	*Rhynchospora corymbosa* (L.) Britton.	Cyperaceae	H	T
45	*Rhynchospora rubra* (Lour) Makino.	Cyperaceae	H	T
46	*Scirpus articulatus* L.	Cyperaceae	H	T
47	*Scleria poaeformis Ritz*	Cyperaceae	H	T
48	*Eriocaulon quinguangulare* Linn.	Eriocaulaceae	S	T
49	*Juncus articulatus* L.	Juncaceae	H	T
50	*Aerides odoratum* Lour.	Orchidaceae	H	E
51	*Dendrobium aphyllum* (Roxb) Fischer.	Orchidaceae	H	E
52	*Dendrobium fimbriatum* Hook.	Orchidaceae	H	E
53	*Rhynchostylis retusa* (L.) Bl.	Orchidaceae	H	E
54	*Acrocerus munroanum* (Balansa) Henn.	Poaceae	H	T
55	*Alopecurus aequalis* Sobol.	Poaceae	H	T
56	*Andropogon jwarancusa* Jones	Poaceae	H	T
57	*Andropogon micronthus* Kunth	Poaceae	H	T
58	*Apluda mutica* L.	Poaceae	H	T
59	*Arundenella benghalensis* (Spreng) Druce.	Poaceae	S	T
60	*Arundinella khasiana* Nees ex. Steud.	Poaceae	S	T
61	*Axonopus compressus*(Sw) Beauv.	Poaceae	H	T
62	*Capillipidium parviflorum* Stapf.	Poaceae	H	T
63	*Centothecea lappacea* (L.) Desv.	Poaceae	H	T
64	*Chrysopogon aciculatus* (Retz.) Trin.	Poaceae	H	T
65	*Coix lacryma - jobi* Linn.	Poaceae	H	T
66	*Cryptococcum accrescens* (Trin) Stapf.	Poaceae	H	T
67	*Cryptococcum patens* (Linn) A.Camus	Poaceae	H	T
68	*Cymbopogon jwarancusa* Schult Syn.	Poaceae	H	T
69	*Cymbopogon khasianus* Hack.	Poaceae	H	T
70	*Cynodon dactylon* (Linn) Pers.	Poaceae	H	T
71	*Cynosurus cristatus* L.	Poaceae	H	T
72	*Cyrtococcum accrescens* Stapf.	Poaceae	H	T
73	*Dactyloctenium aegyptium* (L) Beauve.	Poaceae	H	T
74	*Dendrocalamus hookeri* Munro.	Poaceae	T	T
75	*Digitaria pedicellaries* Prain.	Poaceae	H	T
76	*Digitaria pruriens* Buse.	Poaceae	H	T
77	*Dimeria ornithopoda* Trin	Poaceae	H	T
78	*Echinochloa colonum*(L) Link	Poaceae	H	T
79	*Echinochloa crus* pavonis Schult	Poaceae	H	T
80	*Echinochloa stagnina* P. Beauv	Poaceae	H	T
81	*Eleusine indica* Gaert	Poaceae	H	T
82	*Eragros japonica* Train	Poaceae	H	T
83	*Eragrostis atrovirens* (Desf) Trin. ex. Steud.	Poaceae	H	T
84	*Eragrostis coartata* Stapf.	Poaceae	H	T
85	*Eragrostis gangetica* (Roxb) Steud.	Poaceae	H	T
86	*Eragrostis nigra* Nees ex. Steud	Poaceae	H	T
87	*Eragrostis tenella* (L) Beauv. ex. Schult.	Poaceae	H	T
88	*Eragrostis unioloides* (Retz.) Nees ex. Steud.	Poaceae	H	T

89	*Hackelochloa granularis* O. Kuntze.	Poaceae	H	T
90	*Hemarthria protensa* Steud	Poaceae	H	T
91	*Heteripogon contatus* Linn	Poaceae	H	T
92	*Hymenachne assamica* Hitch	Poaceae	H	T
93	*Hymenachne pseudo*- interrupta C. Muell	Poaceae	H	T
94	*Imperata cylindrica* (L) Beauv	Poaceae	H	T
95	*Isachne miliacea* Roth ex. Roem, et. Shult, Syst.	Poaceae	H	T
96	*Ischaemum aristatum* Linn.	Poaceae	H	T
97	*Leersia hexandra* Sw.	Poaceae	H	T
98	*Microstegium ciliatum* (Trin) A. Camus.	Poaceae	H	T
99	*Oplisminus burmanis* P. Beauv.	Poaceae	H	T
100	*Oryza officinalis* Wall.	Poaceae	H	T
101	*Panicum sermentosum* Roxb.	Poaceae	H	T
102	*Paspalum conjugatum* Berg.	Poaceae	H	T
103	*Paspalum disticum* L.	Poaceae	H	T
104	*Paspalum longifolium* Roxb	Poaceae	H	T
105	*Pennisetum alopecuraides* Preang	Poaceae	H	T
106	*Pennisetum purpureum* Schum.	Poaceae	H	T
107	*Pennisetum typhoides* Stapf	Poaceae	H	T
108	*Phlum nodosum* Linn.	Poaceae	H	T
109	*Phragmites karka* Trin. ex.Steud.	Poaceae	H	T
110	*Poa khasiana* Stapf.	Poaceae	H	T
111	*Polytoca bracteata* Br.	Poaceae	H	T
112	*Pseudostachya polymorphum* Munro	Poaceae	H	T
113	*Saccharum procerum* Roxb.	Poaceae	H	T
114	*Saccharum spontaneum* L.	Poaceae	H	T
115	*Setaria glauca* (L.) P.Beauv	Poaceae	H	T
116	*Sporobolus diander* (Ritz.) Beauv	Poaceae	H	T
117	*Sporobolus indicus* R.Br.	Poaceae	H	T
118	*Themeda subsericans* Ridley.	Poaceae	H	T
119	*Urochloa ramosa* (L.) Nguyen	Poaceae	H	T
120	*Vetiveria zizanioides* (L) Nash.	Poaceae	H	T
121	*Eichhornia crassipes* Solms- Laub.	Pontederiaceae	H	A
122	*Monochoria hastata* (L.) Solms.	Pontederiaceae	H	A
123	*Typha angustata* Chaub and Bory.	Typhaceae	S	T
124	*Curcuma amada* Roxb.	Zingiberaceae	S	T
125	*Curcuma aromatica* Salisb.	Zingiberaceae	S	T
126	*Curcuma zedoaria* Roase.	Zingiberaceae	S	T
127	*Hedychium coronarium* Koenig.	Zingiberaceae	S	T
128	*Hedychium spicatum* Buch-Ham ex. Stn.	Zingiberaceae	S	T
129	Kaempferia galanga L.	Zingiberaceae	S	T
130	*Kaempferia rotunda* L.	Zingiberaceae	S	T
131	*Zingiber purpureum* Rose.	Zingiberaceae	S	T
132	*Zingiber zerumbet* (L.) J.E.Smith	Zingiberaceae	S	T
133	*Calamus flagellum* Griff.	Arecaceae	T	T
134	*Canna indica* L.	Cannaceae	S	T
135	*Costus speciosus* (Koen) Smith.	Costaceae	S	T

136	*Dioscorea esculenta* (Lour) Burkill.	Dioscoreaceae	C	T
137	*Belamcanda chinensis* (L.) DC.	Iridaceae	H	T
138	*Musa velutina* Wendl. & Drude.	Musaceae	T	T
139	*Naias major* L.	Nazadaceae	H	T
140	*Pandanus fascicularis* Lamk.	Pandanaceae	C	T
141	*Monochoria vaginalis L.*	Pontederiaceae	C	T

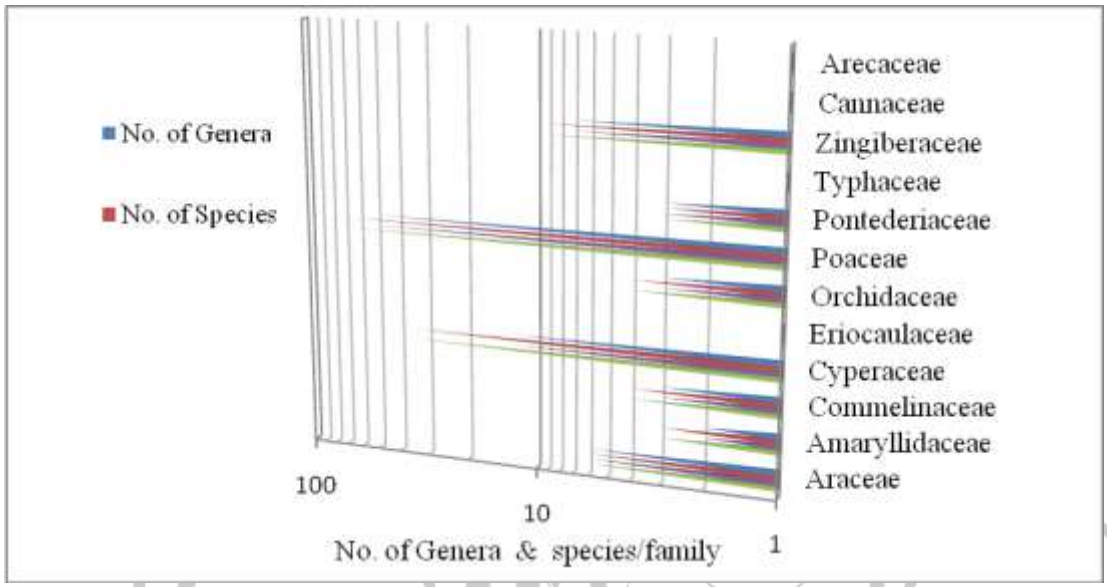

Figure 1. Number of monocot plant species & genera per family

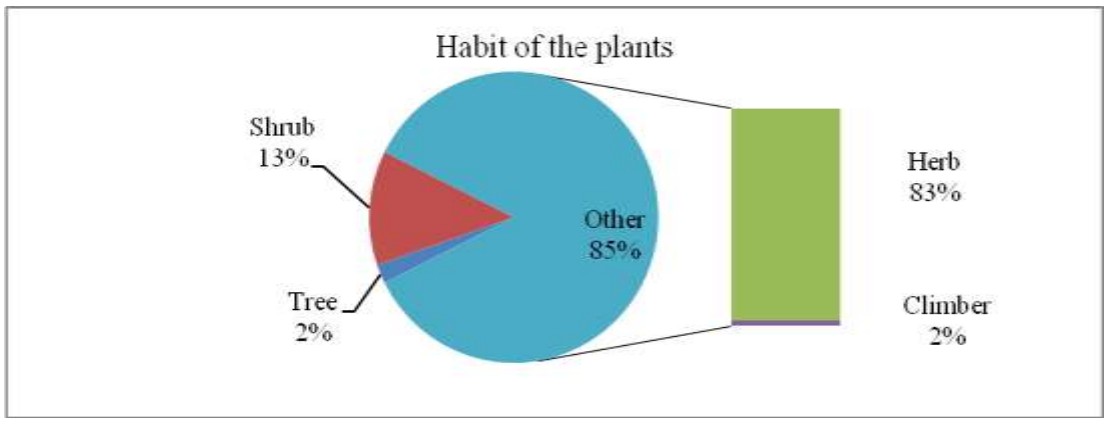

Figure 2. Habit of the plant species found in the study area

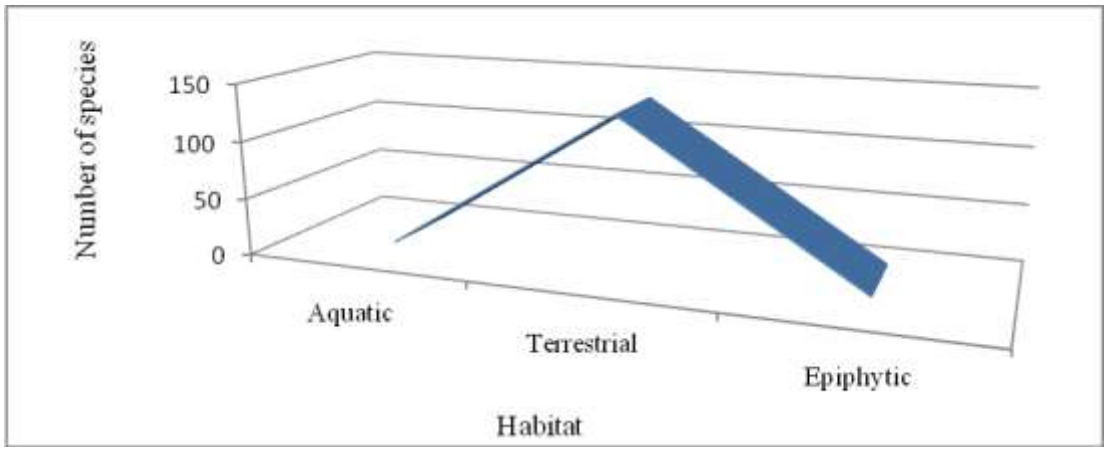

Figure 3. Broad habitat types of the plant species found in the different study area

Species like *Axonopus compressus, Chrysopogon aciculatus, Imperata cylindrical, Cynodon dactylon, Fimbristylis aestivalis, Cyperus kyllinga, Cyperus pilosus, Cyperus rotundus, Fimbristylis littoralis Eleusine indica, Paspalum conjugatum* are highly abundant while *Polytoca bracteata*, *Curcuma amada*, *Hedychium coronarium*, *Monochoria vaginalis* are relatively less common in the study sites. Though the area is rich in monocot diversity, still the area diversity is in grave danger. In the present era, human beings are the most dangerous cause of destruction of the plant diversity. Habitat destruction is a major cause for biodiversity loss. Habitat loss is caused by deforestation, overpopulation, pollution and global warming. Species which are physically large and those living in forests or oceans are more affected by habitat reduction. Thus we can see that diversity which is crucial for the well being of life on earth, is coming under the threat of many factors related to human activities. There is an urgent need to take action to protect the magnificent plant diversity. We must create economic policies in order to maintain the Earth's biodiversity and take appropriate measures to protect habitats and species.

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