

## Status of vegetation in Darranga Reserve Forest, Baksa District of Assam, India

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### Abstract

The Darranga Reserve Forest is located in the North-Eastern part of Baksa District, Assam. Topographically the area consists of foot hill and plain which supports semi-evergreen, deciduous, moist deciduous, scrub forest and grassland vegetation. The area falls under sub-tropical climatic regime. The maximum and minimum temperature is found to be 36°C and 9°C respectively with average rainfall ranging from 1000 mm to 2000 mm. The study has been carried out with an aim to understand the present status of plant diversity of the reserve forest supported by field survey during 2010-2012. The dominant flora of the study area consist of *Magnolia champaca*, *Sterculia villosa*, *Diospyros malabarica*, *Trewia nodiflora*, *Flacourtia jangomas*, *Hydnocarpus kurzii*, *Casearia glomerata*, *Tectona grandis*, *Grewia hirsuta*, *Tinospora crispa*, *Eupatorium odoratum*, *Euphorbia hirta*, *Solanum torvum*, *Scoparia dulcis*, *Calotropis gigantea*, *Clerodendrum infortunatum*, *Boerhavia repens* and *Natsiatum hepaticum*. However, over the years the state of forest cover in the area is degrading due to illegal felling of trees, encroachment of forest land and establishment of sand stone quarry.

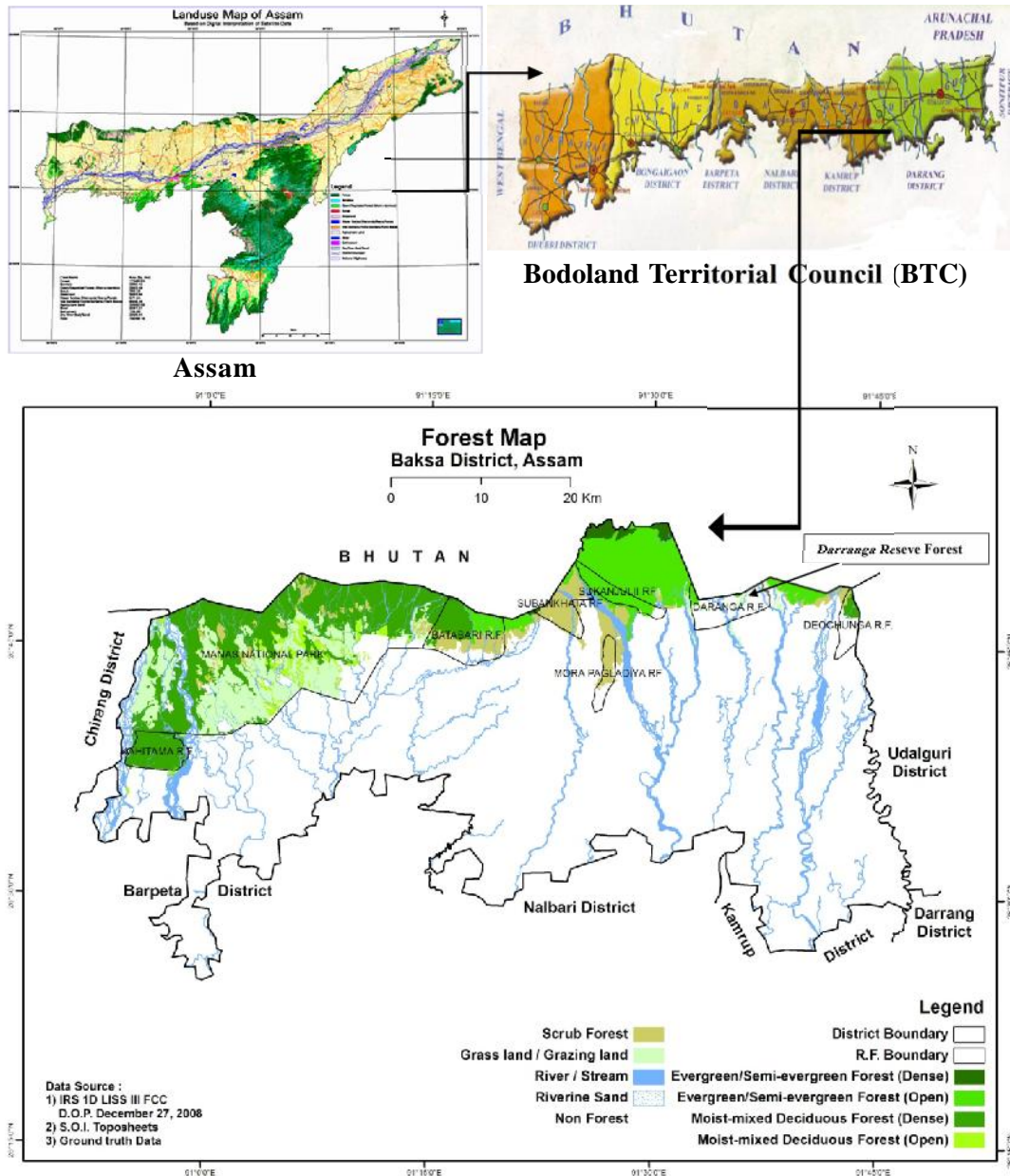
**Key words:** Darranga Reserve Forest, Topography, Vegetation

### INTRODUCTION

Baksa district is a curved out part of Nalbari, Barpeta, Kamrup, and Darang districts of Assam to give effect to the Bodoland Territorial Council (BTC) accord signed on 10<sup>th</sup> February 2003. Darranga Reserve Forest (DRF) is one of the most important reserve forests in the Baksa district having mixed natural vegetation. Topographically the area is admixture of foothills and plain land. The total area of the Reserve is 2651.26 hectares out of which open forest covers 193.76 hectares and grassland 396.76 hectares. Mainly four types of vegetation have been observed in DRF. Those are (i) Evergreen and Semi-evergreen forest, (ii) Moist mixed deciduous forest, (iii) Scrubs and (iv) Grasslands. All these types of vegetation support a good variety of plant species. Due to the varied geographical attributes like location, topography, climate, soil, and water bodies, their growth and development are varied from place to place.

### STUDY AREA

The Darranga Reserve Forest is located between 91° 35' E to 91° 45' E latitude and 26° 45' N to 26° 51' longitude and is bounded by International border of Bhutan in the north, thickly populated villages to the south, Goibargaon in the east and Subankhata Reserve Forest in the west [Map 1]. The climatic condition of the area is warm and humid. The recorded maxi-



**Map - 1.** Location Map of Darranga Reserve Forest in Baksa District

imum and minimum temperature are 36° C and 6° C, respectively. The annual rainfall of the area ranges between 1000 mm to 2000 mm with over 80 % of average Relative Humidity (ARSEC 1990).

### METHODOLOGY

Field survey has been carried out to collect the floristic elements from the study area during the period 2010 – 2012. The survey was conducted at regular interval covering all seasons of the year. Voucher specimens were processed in to Herbarium sheets following the methods of Jain & Rao (1977). Plants were identified with the help of relevant literature including

Hooker (1872 – 1897), Kanjilal *et al.* (1934 – 1940), Haridasan & Rao (1985, 1987), and Chowdhury (2005). Identity of specimens were confirmed by matching with the previously identified specimens at GUBH. All voucher specimens will be deposited at GUBH after the project is over.

## RESULT AND DISCUSSION

A total of 112 species belonging to 55 families and 85 genera has been recorded from the Darranga Reserve Forest. Evergreen and semi evergreen plants have been found mainly in Bhutan foothill areas of the DRF. Evergreen and Semi-Evergreen vegetation includes 29 plant species belong to 13 families with 20 genera. Dominating trees are mainly *Terminalia citrina*, *Terminalia myriocarpa*, *Dipterocarpus mannii*, *Alstonia scholaris* and *Holarrhena pubescens*.

The Mixed Moist Deciduous Forest consist of 42 plant species belong to 22 families with 36 genera and dominant species are *Trewia nudiflora*, *Callicarpa arborea*, *Callicarpa macrophylla*, *Dalbergia sisoo*, *Dillenia indica* and *Dillenia pentagyna*. On the other hand, the Scrub Forests include 25 plant species belong to 18 families with 21 genera. Among the climbers, dominant species are *Tinospora sinensis*, *Natsiatum herpaticum*, *Dioscorea pentaphylla*; dominant shrub species include are *Lantana camara*, *Solanum torvum*, *Clerodendrum infortunatum*. Grassland vegetation includes 16 plant species belong to 2 families with 16 genera. They are mainly *Vetiveria zizanioides*, *Thysanolaena latifolia*, *Scirpus articulatus*, *Cyperus rotundus*.

At present the study area is covered with secondary growth of vegetation, mainly the scrubs. Due to encroachment of forest and development of transport and settlement the forest cover of the study area is degraded. Thus tree species are found to be few than the climbers and shrubs.

**Table 1.** Plant species of evergreen and semi- evergreen vegetation

Botanical name [Family]; voucher specimen	Local name	Habit
<i>Actinodaphne obovata</i> (Nees) Blume [Lauraceae]; Choudhury-100	Patisonda, Nagabaghnala	Tree
<i>Alstonia scholaris</i> (Linnaeus) R. Brown [Apocynaceae]; Choudhury-108	Chatiyana	Tree
<i>Barringtonia acutangula</i> (Linnaeus) Gaertner [Lecythidaceae]; Choudhury-109	Paniamra, Hijal	Small tree
<i>Castanopsis armata</i> (Roxburgh) Spach [Fagaceae]; Choudhury-200	Saru Singgiri, Mekhu	Tree
<i>Castanopsis indica</i> (Roxburgh) de Candolle [Fagaceae]; Choudhury-198	Singgiri,	Tree
<i>Cinnamomum glanduliferum</i> (Wallich) Meissner [Lauraceae]; Choudhury-123	Bar Gandhsarboi	Tree
<i>Cinnamomum glaucescens</i> (Nees) Handel-Mazzetti [Lauraceae]; Choudhury-80	Gandhsarboi	Tree
<i>Cinnamomum tamala</i> (Buchanan-Hamilton) T. Nees & Ebermaier [Lauraceae]; Choudhury-82	Tejpat	Small tree
<i>Diospyros malabarica</i> (Desrousseaux) V.F. Kosteletzky [Ebenaceae]; Choudhury-97	Kendu	Tree
<i>Diospyros racemosa</i> Roxburgh [Ebenaceae]; Choudhury-67	Kendu, Gulal	Tree
<i>Dipterocarpus retusus</i> Blume [Dipterocarpaceae]; Choudhury-230	Halang	Tree
<i>Drypetes assamica</i> (Hooker f.) F.A. Pax et Hoffmann [Euphorbiaceae]; Choudhury-45	Dukaha	Tree
<i>Ficus benghalensis</i> Linnaeus [Moraceae]; Choudhury-105	Bot	Tree
<i>Flacourtia jangomas</i> (Loureiro) Raeuschel [Salicaceae]; Choudhury-203	Panial	Small tree

Botanical name [Family]; voucher specimen	Local name	Habit
<i>Holarrhena pubescens</i> Wallich ex D. Don [Apocynaceae]; Choudhury-111	Dudkhari	Tree
<i>Litsea glutinosa</i> (Loureiro) C.B. Robinson [Lauraceae]; Choudhury-86	Baghnala	Tree
<i>Litsea laeta</i> (Wallich ex Nees) Hooker f. [Lauraceae]; Choudhury-90	Seluk	Tree
<i>Litsea salicifolia</i> (J. Roxburgh ex Nees) Hooker f. [Lauraceae]; Choudhury-112	Dighlati	Shrub
<i>Persea villosa</i> (Roxburgh) Kostermans [Lauraceae]; Choudhury-75	Bandhaisam	Tree
<i>Phoebe cathia</i> (D. Don) Kostermans [Lauraceae]; Choudhury-55	Mekhali, Kohi	Tree
<i>Streblus asper</i> Loureiro [Moraceae]; Choudhury-83	Soura	Small tree
<i>Syzygium malaccense</i> (Linnaeus) Merrill & L.M. Perry [Myrtaceae]; Choudhury-91	Pani jam	Small tree
<i>Syzygium nervosum</i> A. Cunningham. ex de Candolle [Myrtaceae]; Choudhury-64	Godha jamu	Small tree
<i>Terminalia arjuna</i> (Roxburgh ex de Candolle) Wight & Arnott [Combretaceae]; Choudhury-102	Arjun gas	Tree
<i>Terminalia chebula</i> Retzius [Combretaceae]; Choudhury-150	Shilikha	Tree
<i>Terminalia citrina</i> Roxburgh ex Flemming [Combretaceae]; Choudhury-125	Hariteki shilikha	Tree
<i>Terminalia myriocarpa</i> Van Heurck & Müeller Argoviensis [Combretaceae]; Choudhury-119	Halakh	Tree
<i>Thespesia populnea</i> (Linnaeus) Solander ex Corrêa [Malvaceae]; Choudhury-243	Parsh papal	Small tree
<i>Wrightia arborea</i> (Dennstedt) Mabberley [Apocynaceae]; Choudhury-88	Saru Dudkhari	Small tree

**Table 2.** Plant species of moist mixed deciduous vegetation

Botanical name Family and voucher specimen	Local name	Habit
<i>Acacia catechu</i> Willdenow [Fabaceae : Mimosoidae]; Choudhury-63	Khawer	Small tree
<i>Adina oligocephala</i> Haviland [Rubiaceae]; Choudhury-90	Haldhi Capa	Tree
<i>Ailanthus integrifolia</i> Lamarck [Simaroubaceae]; Choudhury-58	Barpat	Tree
<i>Albizia odoratissima</i> (Linnaeus f.) Bentham [Fabaceae : Mimosoidae]; Choudhury-23	Samkarois	Tree
<i>Antidesma acidum</i> Retzius [Phyllanthaceae]; Choudhury-5	Abu tenga	Small Tree
<i>Artocarpus chama</i> Buchanan-Hamilton [Moraceae]; Choudhury-97	Cam Kathal	Tree
<i>Artocarpus lacucha</i> Buchanan-Hamilton [Moraceae]; Choudhury-60	Bahat	Tree
<i>Baccaurea ramiflora</i> Loureiro [Phyllanthaceae]; Choudhury-74	Leteku	Small tree
<i>Cleistanthus monoicus</i> (Loureiro) Müeller Argoviensis [Phyllanthaceae]; Choudhury-71	Pat kuhir	Tree
<i>Bridelia retusa</i> (Linnaeus) A. Jussieu [Phyllanthaceae]; Choudhury-81	Kuhir	Tree
<i>Callicarpa arborea</i> Roxburgh [Lamiaceae]; Choudhury-58	Banamala, maskata	Shrub
<i>Callicarpa macrophylla</i> Vahl [Lamiaceae]; Choudhury-12	Tang lati	Shrub
<i>Canarium bengalense</i> Roxburgh [Bursaceae]; Choudhury-66	Dhuna gac	Tree
<i>Careya arborea</i> Roxburgh (Lecythidaceae); Choudhury-39	Kumvi	Tree
<i>Cassia fistula</i> Linnaeus [Fabaceae : Caesalpinioidae]; Choudhury-40	Sonaru	Tree
<i>Catunaregam spinosa</i> (Thunberg) Tirvengadam [Rubiaceae]; Choudhury-32	Bih Mana	Small Tree
<i>Dalbergia sissoo</i> de Candolle [Fabaceae : Papilionoidae]; Choudhury-48	Sishu gac	Tree
<i>Dillenia indica</i> Linnaeus [Dilleniaceae]; Choudhury-29	Outenga	Tree
<i>Dillenia pentagyna</i> Roxburgh [Dilleniaceae]; Choudhury-178	Oxi, bancalata	Tree
<i>Duabanga grandiflora</i> (Roxburgh ex de Candolle) Walpers [Lythraceae]; Choudhury-142	Khakan, Hakal	Tree

<b>Botanical name Family and voucher specimen</b>	<b>Local name</b>	<b>Habit</b>
<i>Ficus benjamina</i> Linnaeus [Moraceae]; Choudhury-160	Jari gac	Tree
<i>Ficus geniculata</i> Kurz [Moraceae]; Choudhury-153	Tenggabar	Tree
<i>Ficus racemosa</i> Linnaeus [Moraceae]; Choudhury-136	Jagya Dimaru	Tree
<i>Garuga floribunda</i> Decaisne [Bursaceae]; Choudhury-147	Ban Micree	Tree
<i>Glochidion ellipticum</i> Wight [Euphorbiaceae]; Choudhury-26	Dal paduli	Tree
<i>Gmelina arborea</i> Roxburgh [Lamiaceae]; Choudhury-71	Gameri	Tree
<i>Haldina cordifolia</i> (Roxburgh) Ridsdale [Rubiaceae]; Choudhury-164	Laopatia	Shrub
<i>Lagerstroemia parviflora</i> Roxburgh [Lythraceae]; Choudhury-188	Jorali	Small Tree
<i>Macaranga indica</i> Wight [Euphorbiaceae]; Choudhury-195	Jagalu	Tree
<i>Mallotus philippensis</i> (Lamarck) Müller Argoviensis [Euphorbiaceae]; Choudhury-153	Jarath	Small Tree
<i>Meyna laxiflora</i> Robyns [Rubiaceae]; Choudhury-103	Maina	Shrub
<i>Morus indica</i> Linnaeus (Moraceae); Choudhury-159	Nuni gac	Small tree
<i>Phyllanthus fraternus</i> G.L. Webster [Phyllanthaceae]; Choudhury-35	Mati amlakhi	Herbs
<i>Sambucus javanica</i> Blume [Caprifoliaceae]; Choudhury-383	Sukati	Shrub
<i>Semecarpus anacardium</i> Linnaeus f. [Anacardiaceae]; Choudhury-96	Vela	Small Tree
<i>Shorea assamica</i> Dyer [Dipterocarpaceae]; Choudhury-172	Mekai	Tree
<i>Sterculia villosa</i> Roxburgh [Sterculiaceae]; Choudhury-4	Odal	Tree
<i>Tectona grandis</i> Linnaeus f. [Verbenaceae]; Choudhury-305	Cegun	Tree
<i>Terminalia bellirica</i> (Gaertner) Roxburgh [Combretaceae]; Choudhury-207	Vomora	Tree
<i>Tetrameles nudiflora</i> R. Brown [Tetramelaceae]; Choudhury-185	Velu	Tree
<i>Trewia nudiflora</i> Linnaeus [Euphorbiaceae]; Choudhury-205	Velcal	Tree
<i>Viburnum colebrookianum</i> Wallich ex de Candolle [Adoxaceae]; Choudhury-47	Mejenga	Shrub

**Table 3.** Plant species of scrub vegetation (climbers, herbs and shrubs)

<b>Botanical name [Family]; voucher specimen</b>	<b>Local name</b>	<b>Habit</b>
<i>Achyranthes aspera</i> Linnaeus [Amaranthaceae]; Choudhury-80	Uvat kata	Herb
<i>Amaranthus spinosus</i> Linnaeus [Amaranthaceae]; Choudhury-62	Hatikhutura	Herb
<i>Boehmeria nivea</i> (Linnaeus) Gaudichaud [Urticaceae]; Choudhury-154	Remi	UnderShrub
<i>Boerhavia diffusa</i> Linnaeus [Nyctaginaceae]; Choudhury-270	Purna-naba (White)	Herb
<i>Calotropis gigantia</i> (Linnaeus) Dryander [Apocynaceae : Asclepiadoideae]; Choudhury-253	Akan	Shrub
<i>Chromolaena odorata</i> (Linnaeus) R.M. King & H. Robinson [Asteraceae]; Choudhury-26	Germany ban	Herbs
<i>Cissus quadrangularis</i> Linnaeus [Vitaceae]; Choudhury-50	Harjora lata	Climber
<i>Clerodendrum infortunatum</i> Linnaeus [Lamiaceae]; Choudhury-38	Dhapat Tita	Shrub
<i>Dioscorea esculenta</i> (Loureiro) Burkill [Dioscoreaceae]; Choudhury-77	Mowa alu (Asiatic yam)	Climber
<i>Dioscorea pentaphylla</i> Linnaeus [Dioscoreaceae]; Choudhury-149	Paspata alu	Climber
<i>Euphorbia hirta</i> Linnaeus [Euphorbiaceae]; Choudhury-68	Gakhirati ban	Herb
<i>Grewia hirsuta</i> Vahl [Malvaceae]; Choudhury-301	Suktapata	Under shrub
<i>Hyptis suaveolens</i> (Linnaeus) Poiteau [Lamiaceae]; Choudhury-113	Tokma Tita	Herb
<i>Ipomoea aquatica</i> Forsskål [Convolvulaceae]; Choudhury-158	Kalmou	Climber

<b>Botanical name [Family]; voucher specimen</b>	<b>Local name</b>	<b>Habit</b>
<i>Lantana camara</i> Linnaeus [Verbenaceae]; <i>Choudhury-193</i>	Gu phul	Shrub
<i>Mimosa pudica</i> Linnaeus [Fabaceae : Mimosoidae]; <i>Choudhury-208</i>	Lajuki lata	Under shrub
<i>Natsiatum herpeticum</i> Buchanan-Hamilton <i>ex</i> Arnott [Icacinaceae]; <i>Choudhury-209</i>	Oupat	Climber
<i>Physalis minima</i> Linnaeus [Solanaceae]; <i>Choudhury-280</i>	Pakmou	Herb
<i>Scoparia dulcis</i> Linnaeus [Plantaginaceae]; <i>Choudhury-158</i>	Bandhania	Herb
<i>Senna tora</i> (Linnaeus) Roxburgh [Leguminosae : Caesalpinioidae]; <i>Choudhury-161</i>	Saru medaluwa	Under shrub
<i>Solanum surattense</i> Burman <i>f.</i> [Solanaceae]; <i>Choudhury-138</i>	Bilkuli Tita	Under shrub
<i>Solanum torvum</i> Swartz [Solanaceae]; <i>Choudhury-121</i>	Hativekuri	Under shrub
<i>Tinospora sinensis</i> (Loureiro) Merrill [Menispermaceae]; <i>Choudhury-130</i>	Saguni lata	Climber
<i>Tinospora crispa</i> (Linnaeus) Hooker <i>f.</i> & Thomson [Menispermaceae]; <i>Choudhury-153</i>	Saguni lota	Climber
<i>Triumfetta rhomboidea</i> Jacquin [Malvaceae]; <i>Choudhury-125</i>	Agara	Under shrub

**Table 4.** Plants recorded from the grassland vegetation

<b>Botanical name Family and voucher specimen</b>	<b>Local name</b>	<b>Habit</b>
<i>Cyperus rotundus</i> Linnaeus [Cyperaceae]; <i>Choudhury-222</i>	<i>Keyaban</i>	Grassy
<i>Hygroryza aristata</i> (Retzius) Nees <i>ex</i> Wight & Arnott [Poaceae]; <i>Choudhury-206</i>	<i>Dalghah</i>	Grassy
<i>Imperata cylindrica</i> (Linnaeus) Raeuschel [Poaceae]; <i>Choudhury-212</i>	<i>Ulukher</i>	Grassy
<i>Leersia hexandra</i> Swartz [Poaceae]; <i>Choudhury-118</i>	<i>Arali ghah</i>	Grassy
<i>Phragmites karka</i> (Retzius) Trimen <i>ex</i> Steudel [Poaceae]; <i>Choudhury-152</i>	<i>Khagari</i>	Grassy
<i>Scirpus articulatus</i> Linnaeus [Cyperaceae]; <i>Choudhury-127</i>	<i>Cecuban</i>	Grassy
<i>Thysanolaena latifolia</i> (Roxburgh <i>ex</i> Hornemann) Honda [Poaceae]; <i>Choudhury-139</i>	<i>Jaru ban</i>	Grassy
<i>Vetiveria zizanioides</i> (Linnaeus) Nash [Poaceae]; <i>Choudhury-180</i>	<i>Birina, Mutha ban</i>	Grassy
<i>Arundo donax</i> Linnaeus [Poaceae]; <i>Choudhury- 553</i>	Nall	Grassy
<i>Bambusa arundinaceae</i> (Retzius) Wildenow [Poaceae]; <i>Choudhury- 476</i>	Kataha bah	Bamboo
<i>Bambusa balcooa</i> Roxburgh [Poaceae]; <i>Choudhury- 550</i>	Valuka bah	Bamboo
<i>Bambusa gigantean</i> Wallich [Poaceae]; <i>Choudhury-551</i>	Karia bah	Bamboo
<i>Cymbopogon citratus</i> , (DC.) Stapf [Poaceae]; <i>Choudhury-578</i>	Lemon grass	Grassy
<i>Cynodon dactylon</i> (Linnaeus) Persoon [Poaceae]; <i>Choudhury-513</i>	Dubari ban	Grassy
<i>Erianthus ravennae</i> (Linnaeus) P. Beauvois [Poaceae]; <i>Choudhury-520</i>	Ekara	Grassy
<i>Saccharum orundinaceum</i> Retzius [Poaceae]; <i>choudhury-521</i>	Megela	Grassy

### Conclusion

From the study it has been observed that no attention has paid for the conservation and protection of the natural vegetation of Darranga Reserve Forest. Though State forest

department and some N.G.O.s have taken up afforestation program within the Baksa District, but no such activities have been observed in an around DRF. The Darranga Reserve Forest has been seriously affected by illegal forest felling, sand stone quarries, encroachment for settlement and subsequent development of international transport facilities, etc. At present the existing plant species are also facing the fury of over exploitation. Therefore, there is an urgent need for much more intensive conservation efforts both from forest department and as well as from many other different inter-governmental agencies and N.G.O.s with the active cooperation of local communities. Steps should be taken to make people aware of the need to conserve their forest resources for the continuous supply of their own livelihood. With such a positive effort it will be possible to save the plant diversity of DRF up to a comfortable level.

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