

CONTRIBUTION TO THE FLORA OF THE GORAKHPUR FOREST DIVISION,
UTTAR PRADESH

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A B S T R A C T

The paper presents the main features of the geology, topography, climate and vegetation together with floristic analysis of the 313 species collected from the forests of the Gorakhpur forest division. In the enumeration of species, data on the flowering and fruiting condition and exact localities where it occurs and the field number of the collector, are furnished.

INTRODUCTION

In pursuance of the annual programme of work for botanical survey and collections of flora from the eastern Uttar Pradesh, two botanical tours were undertaken in the forests of the Gorakhpur forest division in September, 1963 and February, 1966. The forests are situated between $26^{\circ} 42'$ & $27^{\circ} 25'$ N and $83^{\circ} 52'$ & $88^{\circ} 13'$ E, and vary between 80 m to 113 m above the sea level. They are geographically a part of the great belt of Sal forests which extends almost without interruption throughout the submontane districts of Uttar Pradesh. The forests of Gorakhpur comprising of 1,11,755 acres form a number of separate patches and consist of 16 reserves varying in extent from 60 to 44,063 acres. With the exception of the extreme north-east, all the other reserves are surrounded by cultivated fields. The forests nearest to Gorakhpur, are the Ramgarh and Tilkonia reserves, which are 10 km to the east. But for some remote areas, the forests are easily accessible by road and rail, even during the rains.

CONFIGURATION OF THE GROUND

The northern-most portions of the division lie in the Tarai and are within a few miles of the foot hills of the Himalayas. The district is interspersed with numerous rivers and streams. The Doma forests in the north-east is drained by the Great and Little Gandak while the remaining forests including almost the whole of the Sal area lie in the basin of the Rapti river and are mostly scattered along the banks of the tributaries, the Rohin, the Payas, and Tura etc.

The country is almost flat and the drainage is slow. Therefore, large numbers of Tals, swamps and small depressions, the larger rivers which flow through the forests have generally broad, low-lying

valleys which are inundated every year during the rains. There is thus a very large area of low-land, liable to submergence, on which Sal cannot grow.

GEOLOGY, ROCK & SOIL

The whole area is built up of the Gangetic alluvium and the soil particles are very fine. Soil in most places is of very close texture. The banks of rivers are raised above the general level of the land. The subsoil, mostly of hard clay, is badly aerated and with little thickness of loam at the surface. Beneath this, from a few meter to 6 m or more, there is usually a deposit of pure sand. The clay and the sand are sometimes separated by a pan of block Kankar upto 30 cm in thickness. The sand usually coincides with the subsoil water level. The types of soil are not suitable for best tree growth except on the slopes near streams where the coarser texture and more loamy nature of the soil enable sal of good quality to grow. In certain parts of the forest there are clear signs that the soil has been formed by the silting up of a Jheel; such areas do not support good sal growth. In certain parts of Doma, the soil consists of alluvium brought by the Great Gandak. This alluvium is of fine texture, with great admixture of lime and retains abundant moisture even in the driest months, and, therefore, provide valuable grazing grounds.

CLIMATE

Temperature varies greatly in different seasons, as it is characteristic of the Uttar Pradesh, in general. Average humidity is slightly higher and climate more equable than further west. Hot weather starts from March and maximum temperature occasionally exceeds 43°C . The nights practically remain cool throughout the hot weather. The cold weather lasts from November to February. The

days are bright and cool; nights are cold and clear. The temperature normally does not fall below freezing point. There is generally heavy dew fall and morning mist often hangs over majhars, young taungyas and open glades in the winter.

The prevailing winds are damp and blow from the south-east but the hot westerly winds or 'loo', and sometimes short-lived storms, blow during April and May.

Monsoon normally commences during June and usually ends in September or occasionally in October. The weather is hot and damp. From October to May, long dry weather prevails with only a little winter rain. The average rainfall varies from 1368 mm (1933-1942) to 1200 mm (1943-1952). Of these, about 1000 mm rain falls between the months of June to September.

VEGETATION

According to Champion (1936), the forests of Gorakhpur may be classified under 8 forest types, as follows:

Moist western low-level clayey alluvial sal; North Indian moist deciduous; North Indian moist Terminalia; Cane-brake; Tropical valley fresh water swamp; Gangetic moist deciduous riverain; North Indian moist alluvial savannah; Khair-sissoo.

Moist western low-level clayey alluvial sal: This represents almost pure sal (*Shorea robusta* Gaertn. f.) forest consisting of old crop and clear-felled areas with even-aged crops. Sal is associated with *Adina cordifolia* (Roxb.) Hook. ex Brandis (Haldu); *Dillenia pentagyna* Roxb. (Agai); *Diospyros tomentosa* Roxb. (Tandu); *Lagerstroemia parviflora* Roxb. (Asidh); *Lannea coromandelica* (Houtt.) Merr.; *Madhuca longifolia* (Koenig) Mac Bride var. *longifolia* (Mohua); *Mitragyna parvifolia* (Roxb.) Korth. (Kaim); *Ougeinia oogeinensis* (Roxb.) Sochrent (Panan); *Pterocarpus marsupium* Roxb. (Bizasal); *Sizygium cumini* Wall. (Jamun); *Stereospermum suaveolens* DC. (Pandar); *Terminalia bellerica* Roxb. (Bahera); *T. chebula* Retz. (Harrah); *T. tomentosa* W. & A. (Asana), among the trees. Evergreen shrubs and small trees viz. *Carissa spinarum* Linn. (Karanda); *Clerodendrum infortunatum* Linn. (Bhant); *Croton roxburghii* Bal. (Chigrata); *Desmodium pulchellum* Benth. (Gheopatta); *Glycosmis pentaphylla* (Retz.) Correa (Bananimbu); *Holarrhena antidysenterica* Wall. (Dudhi); *Mallotus philippensis* (Lamk.) Muell.-Arg. (Rohini); *Saccopetalum tomentosum* Hook. f. & Th. (Kari),

and grasses form dense growth along the banks of nalas, streams, majhars and grassy depressions.

In areas of taungiya plantations *Cajanus cajan* (Linn.) Millsp. (Arhar) is cultivated to prevent the grass growth, to protect the young seedlings of sal etc. from frost and to improve the soil. Natural regeneration of Sal is satisfactory in most of the forests.

North Indian moist deciduous: This type of forest is seen near Nagwa and Nichlaul ranges. *Bombax ceiba* Linn. (Semal); *Dalbergia sissoo* Roxb. (Sisham); *Ficus* sp., *Grewia* sp., *Kydia calycina* Roxb. (Patahi); *Lagerstroemia parviflora* Roxb. (Asidh); *Lannea coromandelica* (Houtt.) Merr.; *Mallotus philippensis* (Lamk.) Muell.-Arg. (Rohini); *Sizygium cumini* Wall. (Jamun); *Terminalia bellerica* Roxb.; *T. tomentosa* W. & A.; *Toona ciliata* Roem. (Tun); *Trewia polycarpa* Benth. (Gutel), constitute its chief tree components. Teak (*Tectona grandis* Linn. f.) plantations on suitable and well-drained soils, show good growth and sal (*Shorea robusta* Gaertn. f.) is gradually extending into these areas by plantations.

North Indian moist Terminalia: *Terminalia tomentosa* W. & A. in almost pure patches occur on clayey alluvial patches, on heavy wet soils along Rohini river in particular. Since the species is of no timber value, the trees are cut down and removed in early stages of growth from the easily accessible areas in the sal region. Occasionally, the top canopy comprise of Sal and Semul with *Clerodendrum infortunatum* Linn.; *Mallotus philippensis* (Lamk.) Muell.-Arg.; *Sizygium cumini* Wall.; *Terminalia tomentosa* W. & A. in the second storey.

Cane brake: *Calamus tenuis* Roxb. occurs abundantly, almost as the dominant species, in wet hollows on soils of fine clay, very rich in humus, and are seen along the banks of the Great Gandak in Doma, Nagwa Sonari and Dudhai reserves.

Tropical valley fresh water swamp: In depressions and in nalas which remain under water continuously for a fairly long period during the rains and after, *Barringtonia acutangula* Gaertn. (Paniha); *Bombax ceiba* Linn. (Semul); *Salix tetrasperma* Roxb. (Bhaisa); *Sizygium cumini* Wall. (Jamun); *Trewia polycarpa* Benth. (Gutel); among the trees, *Rosa involucrata* Roxb. (Jangli-gulab) as a scandent shrub, *Cephalanthus occidentalis* Linn. (Jala-kumbhi) together with *Phragmites karka* (Retz.) Trin. ex Steud. and *Typha elephantina*

Roxb. (Pater); *Lagerstroemia speciosa* (Linn.) Pers. (Asidha) an unexpected species, occurs also abundantly in these situations.

Gangetic moist deciduous riverain: This type occurs in the higher and more stable alluvial terraces as in Doma reserve and along the rivers Payas, Rohini and Baghela. Flood water occasionally submerges these areas for brief periods and enriches them by a deposit of fertile silt. *Acacia catechu* Willd. (Khair); *Alangium salvifolia* (Linn. f.) Wāng; *Albizia* spp.; *Aphanamixis polystachya* (Wal.) Parker (Sohaga); *Bauhinia* spp.; *Bombax ceiba* Linn. (Semul); *Bischofia javanica* Blume (Morcha); *Careya arborea* Roxb. (Kumbhi); *Dalbergia sissoo* Roxb. (Shisham); *Ficus* spp.; *Gmelina arborea* Roxb. (Kambhar); *Lagerstroemia speciosa* (Linn.) Pers. (Asidha); *Putrangiva roxburghii* Wall. (Patju); *Schleichera oleosa* (Lour.) O. Ken. (Kusum); *Semicarpus anacardium* Linn. f. (Bhilwa); *Trewia polycarpa* Benth. (Gutel), occur fairly commonly in Doma reserve only.

North Indian moist alluvial savannah: This type is met with in the more stable riverain flats of the Doma, Gandak and Kalanahi reserves which are subject to occasional floods and get waterlogged during the rainy season, but which dry out during the rest of the year. The soil is sandy alluvial with local clayey patches, particularly in depressions which become blocked and silted up. *Apluda mutica* Linn. (Dhonrhi); *Imperata cylindrica* (Linn.) P. Beauv.; *Phragmites karka* (Retz.) Trin. ex Steud. (Narkul); *Saccharum bengalense* Retz. (Munja); *Sclerostachya fusca* A. Camus (Retwa); *Typha elephantina* Roxb. (Pater) occur as the coarse grass species; in higher situations, the fine grasses viz. *Bothriochloa intermedia* (R. Br.) A. Camus (Sandhaur); *Cynodon dactylon* (Linn.) Pers. (Dub); *Eulaliopsis binata* (Retz.) C. E. Hubbard (Baib); *Heteropogon contortus* (Linn.) P. Beauv. ex Roem. et Schult. (Parna); *Saccharum spontaneum* Linn. (Kans); *Vetiveria zizanioides* (Linn.) Nash. occur abundantly.

Khair-sissoo: This type occurs on new sandy or gravelly alluvium in the Gandak and Kalanahi reserves along the banks of the river Great Gandak. *Acacia catechu* Willd.; *Dalbergia sissoo* Roxb.; are associated with *Tamarix dioica* Roxb. (Jhau) and *Calotropis procera* R. Br.; *Bombax ceiba* Linn. is colonising the older areas.

FLORISTIC ANALYSIS

Enumeration appended to this paper deals with 313 spp. represented amongst 465 field numbers of plants collected during the two seasonal tours in the area (For field nos. 1401 to 1564A, collected in September, 1963, C. M. Arora may be cited as the collector; similarly, field nos. 10501-10800, collected in February, 1966, Panigrahi may be cited as the collector).

The ten dominant ones from among 65 families represented in our collections and determined on the basis of their species number are: Leguminosae (50), Gramineae (30), Compositae (22), Euphorbiaceae (18), Cyperaceae (12), Labiatae (11), Acanthaceae (10), Urticaceae (10), Rubiaceae (9) and Scrophulariaceae (8). Similarly, the nine dominant genera as represented by their species number in our collections are: *Desmodium* (7), *Cyperus* (6), *Ficus* (5), *Polygonum* (4), *Ludwigia* (4), *Lindernia* (4), *Solanum* (4), *Oldenlandia* (3), and *Gnaphalium* (3).

A comparative study of our collections with the species reported by Duthie (1903), Raizada (1931, 1935, 1936, 1939, 1950), Sen (1959, 1960) and Dixit *et al.* (1966) shows that more than 444 species are now known to occur in the Gorakhpur district. This number is bound to increase with more seasonal tours in the area and with study of literature not yet available to us. We, however, report here about 230 spp. as new records of plants for Gorakhpur and the following 5 spp. as additions to the flora of the Upper Gangetic Plain:

Jurinea ceratocarpa Benth.; *Senecio vestitus* Berg.; *Cardanthera triflora* Buch.-Ham. ex Nees; *Chenopodium ambrosioides* Linn.; *Zannichelia palustris* Linn. subsp. *pedicellata* Wahlenberg and Rosen.

ENUMERATION

RANUNCULACEAE

Clematis cadmia Buch.-Ham. ex Wall.

On bushes along forest roadside. Flowering. On way to Daibhar, 10725.

C. gouriana Roxb.

Liana on *Acacia*. Fruiting. Doma forest, 10672.

Ranunculus sceleratus Linn.

Flowering and fruiting. Banki forest, 10525.

MENISPERMACEAE

Tinospora cordifolia Miers.

On Mango trees. Flowering. Lakhimpur, 10619.

FUMARIACEAE

- Fumaria indica** (Haussk.) Pugsley
Cultivated fields. Flowering and fruiting.
Lakhimpur, 10602.

CRUCIFERAE

- Brassica juncea** (Linn.) Czern. et Cos. var. **laevis**
(Prain) Schultz.
In barley fields. Flowering. Tehrighat, 10631.
Eruca sativa Mill.
In barley fields. Flowering and fruiting. Tehri-
ghat, 10631.

CAPPARIDACEAE

- Capparis zeylanica** Linn. non Hook. f. & Th.
Along railway lines bordering upon shallow maj-
hars. Flowering. On way to Daibhar, 10742.

FLACOURTIACEAE

- Flacourtia indica** (Burm. f.) Merr.
Edge of forest near *Bambusa arundinacea*
groves. Flowering. Banki, 10537; on way to
Daibhar, 10722.
Wood very hard, used for fuel.
Xylosma longifolium Clos.
Edge of forest of Khair sissoo. Fruiting. Doma
forest, 10704.

MALVACEAE

- Abutilon indicum** Sweet
Flowering. Doma forest, 10682.
Hibiscus solandra L'Herit.
Flowering and fruiting. Nichlaul, 1552.
Kydia calycina Roxb.
Occasional in forest belt. Fruiting. On way
from Tehrighat to Pakri, 10755; Pharenda, 1483.
Sida rhombifolia Linn.
Along tramway line. Flowering. Lakhimpur,
10610.
S. veronicaefolia Lamk.
Throughout the division. Flowering. Pakri,
10763; on way from Pakri to Gorakhpur, 10777.
Urena lobata Linn.
Flowering. Pharenda, 10567.

STERCULIACEAE

- Helicteres isora** Linn.
Flowering. Tehrighat, 1533.

TILIACEAE

- Grewia berberi** J. R. Drumm.
Fruiting. Doma forest, 10734.
G. polygama Roxb.
Fruiting. Tehrighat, 1541.

G. tiliacfolia Vahl

Fruiting. Pakri, 1564.

Triumfetta pentandra A. Rich.

Flowering and fruiting. Pharenda, 1421; Pakri,
10764.

GERANIACEAE

Biophytum sensitivum DC.

Amidst grasses. Flowering. Pharenda, 1479.

RUTACEAE

Aegle marmelos Correa

Fruiting. Pharenda, 1401; Tehrighat, 10645.
Root, bark and leaves used medicinally.

Clausena pentaphylla DC.

Occasional. Flowering. On way to Tehrighat,
10732.

Glycosmis pentaphylla (Retz.) Correa

Flowering and fruiting. Pharenda, 1402, 1473;
Doma forest, 10703.

Murraya koenigii Spreng.

Flowering. Scarce. Doma forest, 10684.

SIMARUBIACEAE

Ailanthus excelsa Roxb.

Flowering. Scarce. Tehrighat, 10648.

CELASTRACEAE

Elaeodendron roxburghii W. & A.

Fruiting. Rare. Tehrighat, 10719.

RHAMNACEAE

Zizyphus mauritiana Lamk.

Edge of forest. Fruiting. Tehrighat, 1513, 1514.

Z. oenoplia Mill.

Fruiting. Pharenda, 1460.

Z. xylopyrus Willd.

Fruiting. Tehrighat, 1532.

VITACEAE

Ampelocissus latifolia (Roxb.) Planch.

Fruiting. Pakri, 1560.

Cayratia carnosa Gagnep.

On *Eugenia* and *Zizyphus* etc. Fruiting. Phar-
enda, 1491.

Cissus adnata Roxb.

In damp soil. Flowering and fruiting. Nichlaul,
1551; Doma to Bhaisanlotan, 10671A.

Leea crispa Linn.

Fruiting. Tehrighat, 1497; Nichlaul, 1555.

Tetrastigma serrulatum (Roxb.) Planch.

On *Eugenia* and *Zizyphus* etc. Flowering. Doma
forest, 10713.

SAPINDACEAE

Cardiospermum halicacabum Linn.

Flowering. Doma forest, 10685; Tehrighat, 1515.

ANACARDIACEAE

Buchanania lanzan Spreng.

Flowering. Tehrighat, 10620.

Lannea coromandelica (Houtt.) Merr.

In sal forests and *Trewia*, *Acacia catechu* and *Streblus asper* forest. Flowering. Doma forest, 10662.

Mangifera indica Linn.

Flowering. Ramgarh, 10785.

Semecarpus anacardium Linn. f.

Fruiting. Pharenda, 1452.

LEGUMINOSAE

Abrus precatorius Linn.

Fruiting. Tehrighat, 1496.

Acacia catechu Willd.

Fruiting. Abundant. Doma forest, 10710; Pharenda, 1478.

A. concinna DC. var. *rugata* Baker

Fruiting. Doma forest, 10663; Doma to Bhaisanlotan, 10681; Nichlaul, 1548.

Aeschynomene indica Linn.

Flowering. Lakhimpur, 10618.

Alysicarpus bupleurifolius (Linn.) DC.

Flowering and fruiting. Pharenda, 1428.

A. monilifer DC.

Flowering. On way to Pakri, 10771; Pharenda, 1429.

Bauhinia racemosa Lamk.

Fruiting. On way to Daibhar, 10727.

Butea monosperma (Lamk.) Taub.

Flowering. Scarce. Lakhimpur, 10613.

Caesalpinia crista Linn.

Fruiting. Abundant. Tehrighat, 10642; Nichlaul, 1544.

C. decapetala (Roth.) Alston

Flowering. Lakhimpur, 10615.

Cassia occidentalis Linn.

Flowering and fruiting. Doma forest, 10674.

C. renigera Wall.

Planted in forest rest house. Fruiting. Doma forest, 10698.

Cicer arietinum Linn.

Cultivated. Banki, 10555.

Crotalaria calycina Schrank

Flowering and fruiting. Tehrighat, 1505.

C. prostrata Roxb.

Flowering and fruiting. Rare. Pharenda, 1458.

C. sericea Retz.

Inside forest of Khair sissoo. Flowering and fruiting. Doma forest, 10701.

C. mucronata Desv.

Flowering and fruiting. Campiergunj, 10599.

Cylista scariosa Ait.

Flowering. Doma to Bhaisanlotan, 10699.

Dalbergia sissoo Roxb.

Flowering and fruiting. Abundant. Tehrighat to Pakri, 10754.

D. volubilis Roxb.

Flowering and fruiting. On way to Daibhar, 10754.

Desmodium gangeticum DC.

Flowering and fruiting. Tehrighat, 1503; on way to Daibhar, 10729.

D. heterocarpum (Linn.) DC.

Fruiting. Pakri, 10759; Pharenda, 1470.

D. pulchellum Benth.

Along forest roadside in sal forest. Fruiting. Pakri, 10761; Pharenda, 1406.

D. traingulare (Retz.) Merr.

Fruiting. Banki, 10512; Pharenda, 1468.

D. triflorum (Linn.) DC.

Fruiting. Pakri, 10757.

D. triquetrum (Linn.) DC. subsp. *triquetrum*

Fruiting. Pakri, 10758.

D. velutinum (Willd.) DC. var. *velutinum*

Along forest roadside of sal forest. Fruiting. Pakri, 10760.

Indigofera linifolia Retz.

Flowering and fruiting. Doma to Bhaisanlotan, 10668; Pakri, 10770; Tehrighat, 1517.

I. cassoides Rottl. ex DC.

Flowering. On way to Tehrighat, 10715.

Lathyrus aphaca Linn.

In the newly made seasonal flower beds in compound. Seen in the cultivated field also. Flowering. Lakhimpur, 10606.

Lens esculenta Moench

Cultivated. Fruiting. Tehrighat, 10624.

Medicago denticulata Willd.

In barley fields. Fruiting. Abundant. Pakri, 10766.

M. lupulina Linn.

In the newly made flower beds and in the grassy meadow in the rest house compound. Flowering and fruiting. Lakhimpur, 10605.

Melilotus alba Lamk.

Weed in *Triticum* field. Flowering. Tehrighat, 10649.

Milletia auriculata Baker

Fruiting. Tehrighat, 1530.

Mimosa himalayana Gamble

Fruiting. Banki, 10554.

Moghania bracteata (Roxb.) St. H. L. Li

In the sal forest floor. Flowering. Scarce. Banki, 10553; Pharenda, 1416.

M. chappar (Buch.-Ham. ex Benth.) O. Ktze.

In the edge of forest. Flowering. Abundant. Pharenda, 1563; Pakri, 1562.

M. lineata (Linn.) Ktze.

Associated with grasses in open forest floor. Flowering. Abundant. On way to Daibhar, 10724.

M. prostrata (Roxb.) Mukerjee

Fruiting. Pharenda, 1432.

Mezoneurum cucullatum W. & A.

Liana on *Ficus*, *Mallotus* and on various bushes in the margin of the forest. Fruiting. Abundant. Doma to Bhaisanlotan, 10661.

Ptilostigma malabaricum (Roxb.) Benth.

Fruiting. Tehrighat, 1512.

Prosopis juliflora DC.

Planted on forest roadside. Flowering. Tehrighat, 10626.

Tephrosia candida DC.

Flowering and fruiting. Tehrighat, 1539.

T. purpurea Pers.

Near cultivated fields. Flowering and fruiting. Pharenda, 1464.

Uraria neglecta Prain

Fruiting. Tehrighat, 1509.

U. prunellaefolia R. Grah.

Occasional. Fruiting. Tehrighat, 1504.

Vicia fava Linn.

Cultivated. Flowering and fruiting. Scarce. Campiergunj, 10598.

V. hirsuta Koch

In the grassy meadow in the rest house compound and also in open flower beds. Flowering and fruiting. Lakhimpur, 10601.

V. sativa Linn.

In barley fields. Flowering and fruiting. Banki, 10506.

ROSACEAE

Potentilla supina Linn.

In sandy alluvium near wet depressions. Flowering. Banki, 10529.

Rosa involucrata Roxb.

Flowering. Abundant. Tehrighat, 10638.

COMBRETACEAE

Combretum roxburghii Spreng.

Flowering. Abundant. Nichlaul, 1547.

Terminalia tomentosa W. & A.

Fruiting. Abundant. Pharenda, 1466.

LYTHRACEAE

Ammannia baccifera Linn.

In moist alluvial soil. Flowering and fruiting. Pharenda, 1407.

A. multiflora Roxb.

In wet places. Pharenda, 1410.

Lagerstroemia speciosa (Linn.) Pers.

Along the forest paths. Occur naturally in the Surpar and Doma forest. Fruiting. Pharenda, 1425; Campiergunj, 10592.

Rotala indica (Willd.) Koehne

On roadside through sal forests. Flowering and fruiting. Pharenda, 1412.

R. rotundifolia Koehne

Forms mat in swampy ground. Flowering. Banki, 10530.

Woodfordia fruticosa (Linn.) Kurz

Occasional in sal forest. Flowering. Tehrighat, 10652.

ONAGRACEAE

Ludwigia octovalis (Jacq.) Raven subsp. **octovalis**

Flowering and fruiting. Pharenda, 1474.

L. octovalis subsp. **sessiliflora** (Mich.) Raven

In dried-up ditches along with *Cyperus*, *Ranunculus sceleratus*. Flowering. Banki, 10558.

L. perennis Linn.

Flowering and fruiting. Abundant. Pharenda, 1013.

L. prostrata Roxb.

In sal forest. Fruiting. Abundant. Pharenda, 1418.

CACTACEAE

Opuntia monacantha Haw.

Form a large clumps in open forest of *Trewia*, *Khair*, *Mallotus*. Fruiting. On way to Daibhar, 10737.

FICOIDEAE

Glinus lotoides Linn.

On the roadside in a depression. Flowering and fruiting. Tehrighat to Pakri, 10752.

Mollugo pentaphylla Linn.

On dry and hard-soil. Flowering and fruiting. Banki, 10544.

UMBELLIFERAE

Centella asiatica (Linn.) Urban

In moist places and on dry grounds. Flowering and fruiting. Banki, 10534.

Coriandrum sativum Linn.

Cultivated in fields. Flowering and fruiting. Doma to Bhaisanlotan, 10693.

CORNACEAE

Alangium salvifolium (Linn. f.) Wang. subsp. **decapetalum** (Lamk.) Wang.

Associated with *Ficus*, *Phoenix*. Flowering. Doma forest, 10706.

RUBIACEAE

Adina cordifolia (Roxb.) Hook. ex Brandis

Fruiting. Tehrighat, 1519.

Wood used as timber and fuel.

Dentella repens Forst.

Near edge of water on sandy alluvial soil. Flowering and fruiting. Banki, 10527.

Hymenodictyon excelsum Wall.

Flowering and fruiting. Nichlaul, 1557.

Hyptianthera stricta W. & A.

Fruiting. Scarce. Doma to Bhaisanlotan, 10669.

Mitragyna parvifolia (Roxb.) Korth.

Flowering and fruiting. Pharenda, 1404; Doma to Bhaisanlotan, 10688.

Oldenlandia corymbosa Linn.

Flowering and fruiting. Banki, 10541; Pharenda, 1409.

O. gracilis Hook. f.

In sandy alluvium. Flowering. Rare. Campiergunj, 10573.

O. paniculata Linn.

Flowering and fruiting. Pharenda, 1488.

Xeromorphis speciosa (Thunb.) Keay

Fruiting. Doma to Bhaisanlotan, 10675.

COMPOSITAE

Adenostemma lavenia (Linn.) O. Ktze. var. **rugosum** comb. nov.

Flowering and fruiting. Pharenda, 1433.

Blumea laciniata (Roxb.) DC.

In the wet soil near the forest bridge. Flowering. Tehrighat, 10629.

Caesulia axillaris Roxb.

Weed in wheat fields. Flowering. Doma to Bhaisanlotan, 10686.

Centipeda minima (Linn.) A. Br. et Aschers

In sandy loam-form patches. Flowering. Campiergunj, 10577.

Remedy for colds and toothache.

Chrysanthellum indicum DC.

Amidst grasses. Flowering. Tehrighat, 1518.

Cotula anthemoides Linn.

In the moist alluvial loam. Flowering. Banki, 10518.

Crepis japonica Benth.

In a depression of moist soil along with *Oxalis*. Tehrighat, 10644.

Elephantopus scaber Linn.

In sal forest. Flowering. Abundant. Pharenda, 1415.

Gnaphalium luteo-album Linn.

Associated with *Gnaphalium indicum* and *G. pulvinatum*. Abundant. Banki, 15035.

G. pulvinatum Delile

In the alluvial loam—in moist depressions. Flowering. Banki, 10517.

G. purpureum Linn.

Associated with *Anthoceros* and other mosses. Flowering. Abundant. On way to Tehrighat, 10716.

Grangea maderaspatana Poir.

In wet depressions. Banki, 10533, 10559. Campiergunj, 10575.

Jurinea ceratocarpa Benth.

In moist ground near the edge of tangiya cultivation. Flowering. On way to Daibhar, 10730.

Lactuca polycephala Benth.

Associated with *Ampelopteris prolifera* along the moist depressions, of the roadsides—along edge of forest. Flowering. Banki, 10547; Lakhimpur, 10607; on way to Daibhar, 10743.

Lagera aurita Sch.

In grassy meadow. Flowering. Fairly abundant. Lakhimpur, 10603.

Blumeopsis falcata (Don) Merr.

In moist and shady places. Flowering. Tehrighat, 1507.

Launaea nudicaulis Hook. f.

Along the canal bunds. Flowering. Doma forest, 10656.

Spharanthus indicus Linn.

Along the roadside depressions. Amidst grasses. Flowering. Campiergunj, 10574.

Senecio vestitus Berg.

In sandy alluvium. Flowering. Tehrighat, 10628.

Sonchus arvensis Linn.

In the grassy meadow. Flowering. Lakhimpur, 10604.

Vernonia cineria Less.

In hard and dry soil. Flowering. Pakri, 10765, 10774.

Xanthium strumarium Linn.

In the edge of wheat and mustard fields. Fruiting. Doma forest, 10711. Pharenda, 1480.

CAMPANULACEAE

Campanula canescens Wall.

In moist situations—in the edge of forest—along with mosses. Flowering. Tehrighat, 10646, 10749, 10717, 10637.

Lobelia alsinoides Lamk.

Flowering. Pharenda, 1411.

Wahlenbergia marginata (Thunb.) A. DC.

Near the edge of water. Flowering and fruiting. Abundant. Banki, 10523.

PLUMBAGINACEAE

Plumbago zeylanica Linn.

In the sal forest. Flowering. On way to Daibhar, 10735.

PRIMULACEAE

Androsace saxifragaefolia Bunge.

In black alluvium amidst *Cyperus wallichii* etc. in all wet situations along with *Calamus*—*Eugenia* associations upto Doma. Flowering. Banki, 10521.

MYRSINACEAE

Ardisia solanacea (Poir.) Roxb.

In dampy shady spot under *Eugenia* canopy. Abundant. Fruiting. Pharenda, 1448; Banki, 10532; Tehrighat, 1520.

EBENACEAE

Diospyros melanoxylon Roxb.

Along forest roadsides. Fruiting. Tehrighat, 10621.

OLEACEAE

Jasminum multiflorum (Burm. f.) Anders.

Amidst grasses. Flowering. Doma to Bhaisanlotan, 10679.

APOCYNACEAE

Carissa congesta Wight

Flowering and fruiting. Pharenda, 1443.

Holarrhena antidysenterica Wall.

Along the edge of the forest, on both sides. Fruiting. Pharenda, 1424, 1455, 1531, 10568.

Ichnocarpus frutescens (Linn.) R. Br.

Both in the forest and outside—throughout the entire area. Flowering and fruiting. Abundant. Doma to Bhaisanlotan, 10673; Pharenda, 1444.

Nerium indicum Mill.

Planted in rest house campus. Flowering. Tehrighat, 10699.

Rauvolfia serpentina Benth. ex Kurz

In the natural edges of the rest-house compound. Flowering. Scarce. Tehrighat, 1096.

ASCLEPIADACEAE

Calotropis gigantea Dryand.

Forming clumps along the forest paths. Flowering. Pharenda 10591; Doma forest, 10657.

Cryptolepis buchanani R. & S.

Fruiting. Common with in the area. Doma to Bhaisanlotan, 10680.

Hemidesmus indicus (Linn.) Schultz.

In sal forest. Flowering. Pharenda, 1423.

Oxystelma esculentum R. Br.

Flowering and fruiting. Tehrighat, 1536.

GENTIANACEAE

Canscora decussata R. & S.

Flowering. Pharenda, 1486.

Nymphoides cristatum (Roxb.) O. Kuntze

On the edges of ponds. Flowering. Abundant. Banki, 10556; Ramgarh, 10783.

HYDROPHYLLACEAE

Hydrolea zeylanica Vahl

In roadside ditches. Flowering. Pharenda, 1437.

BORAGINACEAE

Bothriospermum tenellum Fisch. & Mey.

In shady situations near nalas. Flowering. Banki, 10524.

Cynoglossum zeylanicum (Wall.) Thunb. ex Lehm.

Along the side of barley fields. Flowering and fruiting. Tehrighat, 10633; on way to Daibhar, 10744.

Leaves used as curing wound by natives.

Ehretia laevis Roxb.

In damp and shady places. Flowering. Abundant. Campiergunj, 10565.

Heliotropium strigosum Willd.

Associated with *Euphorbia thymifolia*. Flowering. Pakri, 10776.

Trichodesma indicum R. Br.

In rest-house compound. Flowering. Rare. Tehrighat, 10720.

CONVOLVULACEAE

Evolvulus alsinoides Linn.

Under shade in roadside of forests. Flowering. Tehrighat to Pakri, 10753; Tehrighat, 1501.

Merremia hederacea (Burm. f.) Hall. f.

Flowering. Pharenda, 1485.

M. vitifolia (Burm. f.) Hall. f.

On *Zizyphus*, *Pogostemon* and *Caesalpinia*. Flowering. Doma to Bhaisanlotan, 10678.

Porana paniculata Roxb.

On *Acacia* and *Mallotus*. Flowering. Doma to Bhaisanlotan, 10665.

Volvulus nummularia (Linn.) Roberty

Occurs throughout the area in all forest types. Flowering. On way from Pakri to Gorakhpur, 10778.

SOLANACEAE

Datura metel Linn.

On forest roadsides. Flowering and Fruiting. Doma forest, 10660; Pharenda, 1463.

Solanum indicum Linn.

On the canal side. Fruiting. Doma to Bhaisanlotan, 10664.

S. nigrum Linn.

Weeds in cultivated fields and in the edges of hedges etc. Campiergunj, 10597.

S. torvum Swartz

Fruiting. Doma to Bhaisanlotan, 10694.

S. verbascifolium Linn.

On the roadsides along with grasses. Flowering. Doma to Bhaisanlotan, 10697.

SCROPHULARIACEAE

Bacopa hamiltoniana (Benth.) Wellst.

In sal forest through roadsides. Flowering and fruiting. Pharenda, 1408.

Lindernia anagallis (Burm.) Pennell

In sal forest. Flowering. Pharenda, 1420.

L. parviflora (Roxb.) Haines

In sandy alluvium. Flowering. Scarce. Campiergunj, 10580.

L. pyxideria Linn.

Along the bank of ponds and in muddy nalas in between *Eugenia* forests in black alluvium-Associated with *Polygonum*, *Ranunculus* and *Ammania*. Flowering. Common. Campiergunj, 10583.

L. verbenacifolia (Colsm.) Pennell

In the wet sandy-alluvium along the roads. Flowering. On way to Daibhar, 10740.

Mazus japonicus (Thunb.) O. Ktze.

In moist situations along the bullock-cart roads and also near the edge of stagnant water—on black alluvium. Flowering. Campiergunj, 10582.

Verbascum chinense (Linn.) Santapau

In wet soil. Flowering. Tehrighat, 10647.

Veronica anagallis Linn.

Near the edge of water on black alluvial-loam. Flowering. Banki, 10528.

OROBANCHACEAE

Orobanche aegyptiaca Pers.

Flowering. Doma to Bhaisanlotan, 10690.

LENTIBULARIACEAE

Utricularia flexuosa Vahl

Abundant in stagnant water. Flowering. Pharenda, 1477.

U. exoleta R. Br.

Associated with *Pistia salvinia* and *Echornia*. Abundant. Flowering. Ramgarh, 10781.

PEDALIACEAE

Martynia annua Linn.

Fruiting. Pharenda, 1451.

ACANTHACEAE

Barleria cristata Linn.

Flowering. Pharenda, 1453.

Cardenthera triflora Buch.-Ham. ex Nees

On hard alluvium with *Vetivaria zizanoides*. Flowering. Banki, 10519.

Ebermaiera glauca Nees

In a drying depressions associated with *Gnaphalium indicum*. Flowering. Banki, 10520.

Eranthemum nervosum (Vahl) R. Br.

Flowering. Doma to Bhaisanlotan, 10689.

Hemigraphis latebrosa Nees var. *heyneana* Brem.

Flowering. Doma to Bhaisanlotan, 10695.

Hygrophila auriculata (Schumach.) Haines

In alluvial-loam of the drying nala. Flowering. Lakhimpur, 10611.

Justicia quinqueangularis Koen.

Along the edge of pond. Flowering. Banki, 10557; Pharenda, 1436.

Phlogacanthus thyrsiflorus Nees

In foot hills. Flowering. Doma to Bhaisanlotan, 10687.

Rungia pectinata (Linn.) Nees

In the edge of forest and in mixed sal forest floor. Flowering. Abundant. Banki, 10548.

R. repens Nees

In the grassy mats of *Imperata cylindrica*. Flowering. Campiergunj, 10578; Pharenda, 1482.

LABIATAE

Acrocephalus indicus (Burm. f.) O. Kuntze

Under shade in damp places. Flowering. Pharenda, 1484.

Anisomeles indica (Linn.) O. Kuntze

Near the edge of sal forest. Flowering. Abundant. Pharenda, 1422.

Ajuga bracteosa Wall. ex Benth.

Near edge of water—in sandy alluvium. Flowering. Scarce. Banki, 10526; Tehrighat, 10651.

Colebrookea oppositifolia Sm.

Along the edge of forest and roadside hedges in cleared forest. Flowering. Doma forest, 10666.

Hyptis suaveolens Poit.

In the open situations—in the edge of forest. Flowering. Banki, 10546.

Leonotis nepetaefolia R. Br.

Along border of forest. Flowering. Abundant. Tehrighat, 1508.

Lucas lavandulaefolia Rees

In cultivated fields. Flowering. Pharenda, 1465; Banki, 10538.

Mentha arvensis Linn.

Near the edge of a pond. Flowering. Tehrighat, 1527.

Nepeta hindostana (Roth.) Haines

Under the shade of a tree on the roadsides. Flowering. Doma to Bhaisanlotan, 10667.

Pagostemon plectranthoides Desf.

On the roadsides along with *Launea nudicaulis*. Flowering. Banki, 10514.

Salvia plebeia R. Br.

A common weed in all parts of the division. Flowering. Banki, 10539; Campiergunj, 10594; on way to Daibhar, 10739.

VERBENACEAE

Clerodendrum indicum (Linn.) Kuntze

Flowering and fruiting. Scarce. Nichlaur, 1559.

C. infortunatum Linn.

Gregarious in sal forest floor. Flowering. Banki, 1513.

Phyla nodiflora (Linn.) Greene

In the edge of cultivated fields in sandy soil. Flowering. Tehrighat, 10650.

Verbena officinalis Linn.

Near bridge in sandy soil. Flowering. Tehrighat, 1516; 10627.

NYCTAGINACEAE

Boerhaavia diffusa Linn.

In open sunny situations—in the rest house compound. Flowering and fruiting. Pakri, 1775.

AMARANTHACEAE

Aerva sanguinolenta (Linn.) R. Br.

Flowering. Doma to Bhaisanlotan, 10683.

Alternanthera ficoidea (Linn.) R. Br.

In the dry drain near tramway-lines. Tehrighat, 10623.

A. sessilis (Linn.) DC.

Flowering. Pharenda, 1489.

Amaranthus paniculatus Linn.

Cultivated in fields. Tehrighat, 10622.

CHENOPODIACEAE

Chenopodium ambrosioides Linn.

Near roadsides. Fruiting. Doma to Bhaisanlotan, 10677.

POLYGONACEAE

Polygonum barbatum Linn.

Along the edge of pond. Flowering and fruiting. Ramgarh, 10779; Pharenda, 1441.

P. glabrum Willd.

Near edge of water also in roadside drains forming pure patches. Flowering. Abundant. Banki, 10549; Pharenda, 1438.

P. minus Huds.

Associated with *Diplazium* and other spp. of *Polygonum*. Flowering and fruiting. Scarce. Tehrighat to Pakri, 10748.

P. plebeium R. Br.

In moist soil of a nala. Flowering. Campiergunj, 10596; Doma forest, 10659.

Rumex dentatus Linn.

Common in shallow depressions throughout division. Flowering. Abundant. Campiergunj, 10576.

LORANTHACEAE

Dendrophthoe falcata (Linn. f.) Etting

On *Acacia catechu*, *Mangifera indica* and *Tectona grandis*. Flowering. Occasional. Nichlaur rest house, 1558; Campiergunj, 10590.

EUPHORBIACEAE

Acalypha indica Linn.

Flowering. Ramgarh, 10795.

Baliospermum axillare Blume

Along the forest roadsides of sal-mixed forest. Flowering. Banki, 10536.

Bischofia javanica Blume

Fruiting. Nichlaur, 1553.

Bridelia retusa (Linn.) Spreng

Fruiting. Abundant. Pharenda, 1457; Campiergunj, 10589; Tehrighat, 1511.

B. stipularis (Linn.) Blume

In sal forests. Fruiting. Common. Banki, 10531.

Chrozophora rottleri A. Juss.

On the roadside drain along with *Hygrophila auriculata*. Flowering. Scarce. Lakhimpur, 10609.

Croton bonplandianum Baill.

Along the tram-line. Flowering. Common. Campiergunj, 10612.

Croton roxburghii Bal

In the edge of forest along the forest roadsides. Flowering. Campiergunj, 10585.

Euphorbia thymifolia Linn.

In hard sandy loam. Fruiting. On way from Pakri to Gorakhpur, 10769.

Glochidion multiloculare Muell.-Arg.

In roadside. Flowering. Nichlaul, 1545.

Jatropha curcas Linn.

In roadsides. Lakhimpur, 1543.

Kirganelia reticulata (Poir.) Baill.

On *Barringtonia* near the edge of swamps Flowering. Doma forest, 10705.

Mallotus philippensis (Lamk.) Muell.-Arg.

In sal forest. Fruiting. Abundant. Pharenda, 1403; Banki, 10516.

M. repandus Muell.-Arg.

In roadsides in one patch only. Flowering. Nichlaul, 1546.

Melanthesa rhamnoides (Retz.) Bl.

Fruiting. Tehrighat, 1540.

Phyllanthus simplex Retz.

In moist places along with grasses. Fruiting. Pharenda, 1446.

Putranjiva roxburghii Wall.

Near nalas along with *Eugenia* etc. Fruiting. Abundant. Nichlaul, 1556; Campiergunj, 10593.

Trewia polycarpa Benth.

Along forest roadside. Flowering. Abundant. Tehrighat, 10639; on way to Tehrighat, 10738.

URTICACEAE

Artocarpus heterophyllus Roxb.

Flowering and fruiting. Doma forest rest house, 10655.

Broussonetia papyrifera Vent.

Flowering and fruiting. Pharenda, 1492.

Cannabis sativa Linn.

Occurring as wild near Tehrighat bridge. Flowering. Abundant. Tehrighat, 10625.

Ficus bengalensis Linn.

Associated with sal and *Mallotus*. Fruiting. Banki, 10515.

F. semicordata Buch.-Ham. ex J. E. Sm.

In the sal forest. Fruiting. Occasional. On way to Daibhar, 10746.

F. heterophylla Linn. f.

Fruiting. Tehrighat, 1537.

F. hispida Linn. f.

Associated with *Mallotus*, *Acacia*. Fruiting. Nichlaul, 1549; Doma forest, 10676.

F. virens Ait.

Fruiting. Doma forest, 10707.

Streblus asper Lour.

Forming the second storey in the *Trewia*. Flowering. Tehrighat, 1499; on way to Daibhar, 10736.

Trema orientalis (Linn.) Bl.

In the riverain forest on *Colebrookea*, *Clerodendrum* etc. Flowering. Tehrighat, 1529; Doma forest, 10671.

CERATOPHYLLACEAE

Ceratophyllum demersum Linn.

In running water of a nala along with *Vallisneria*, *Ottelia alismoides*. Flowering. Doma, 10709.

HYDROCHARITACEAE

Ottelia alismoides (Linn.) Pers.

In stagnant water along with *Vallisneria* and *Ceratophyllum*. Flowering. Pharenda, 1461; Campiergunj, 10586; on way to Daibhar, 10731.

Vallisneria spiralis Linn.

In dirty stagnant water along with *Salvinia* and *Polygonum*. Flowering. Campiergunj, 10587; Doma forest, 10708; Ramgarh, 10782.

LILIACEAE

Asparagus acerosus Roxb.

Along nala. Fruiting. Scarce. Pharenda, 1462.

Asphodelus tenuifolius Cav.

In the edge of a pond along with *Heliotropium*. Fruiting. Ramgarh, 10799.

Gloriosa superba Linn.

Fruiting. Pharenda, 1490.

Smilax prolifera Roxb.

In all types of forest sal to Sissoo-khair forests. Flowering. Tehrighat, 1510; Banki, 10552; Campiergunj, 10600.

S. zeylanica Linn.

Flowering. Pharenda, 1456.

COMMELINACEAE

Commelina diffusa Brum. f.

On roadside in moist soil. Flowering. Pharenda, 1419, 1427.

Cyanotis axillaris D. Don

In roadside ditches. Flowering. Pharenda, 1426; Tehrighat, 1500.

PALMAE

Calamus tenuis Roxb.

In swampy ground and also along nalas forming small Clones in the forest floor. Fruiting. Tehrighat, 1521; Banki, 10551.

ALISMACEAE

Sagittaria sagittifolia Linn.

In stagnant water along with *Potamogeton*.
Flowering. Tehrighat to Pakri, 10751.

NAIADACEAE

Aponogeton crispum Thunb.

Flowering. Pharenda, 1431.

Najas graminea Del.

In running water along with *Ottelia* and *Vallisneria*. Flowering. Abundant. Doma, 10750.

Potamogeton crispum Linn.

In pond. Flowering. Banki, 10563.

Zannichellia palustris Linn. subsp. **pedicellata**

Wahlenburg & Rosen

In dirty stagnant water pond. Flowering. Banki, 10562.

ERIOGAULACEAE

Eriocaulon sieboldianum Sieb et Zucc

In muddy soil. Flowering. Pharenda, 1475;
Tehrighat, 1525, 1525A.

CYPERACEAE

Carex wallichiana Presc. ex Nees

On black alluvium—form dense clumps in open roadsides underneath *Eugenia* tree with *Rosa involucrata* and *Polygonum glabrum*. Flowering. Banki, 10522; Ramgarh, 10784.

Cyperus brevifolia (Rottl.) Endl.

In the edge of dirty pond and nalas in black alluvium associated with *Ranunculus* etc. Flowering. Campiergunj, 10584; on way to Daibhar, 10741.

C. difformis Linn.

Along stagnant water pond. Flowering. Banki, 10560.

C. exaltatus Retz.

Flowering. Banki, 10561.

C. flavidus Retz.

Flowering. Tehrighat, 1526.

C. kyllingia Endl.

Weeds in muddy soil. Flowering. Tehrighat, 1522.

C. pygmaeus Rottl.

In depressions along with *Medicago denticulata*. Flowering. Pakri, 10767.

Elaeocharis palustris (Linn.) R. Br.

In moist sandy loam also in shallow water of stagnant nalas. Flowering. Campiergunj, 10571, 10579.

Fimbristylis dichotoma Vahl

Under forest bridge in wet soil. along with *Blumea*. Flowering. Tehrighat, 10630.

Scirpus articulatus Linn.

In dry ditches. Flowering. Pharenda, 1493;
Banki, 10564.

S. roylei Parker

In muddy places near tank. Flowering. Pharenda, 1494.

S. tuberosus Desf.

In muddy places and also in dry nala. Tehrighat, 10654.

GRAMINEAE

Brachiaria distachya (Linn.) Stapf

On the hard ground of sand alluvial loam of rest house campus. Flowering. Pakri, 10773.

Cynodon dactylon (Linn.) Pers.

Along the forest roadsides forming mat. Flowering. Banki, 10550; Campiergunj, 10569; Doma, 10658.

Cyrtococcum patens (Linn.) A. Camus

On roadsides in damp soil. Flowering. Tehrighat, 1523.

Desmostachya bipinnata (Linn.) Stapf

Forming clumps on roadside drains. Flowering. Campiergunj, 10572; Doma forest, 10714.

Dichanthium annulatum (Forsk.) Stapf

In the hard ground in rest houses. Flowering. Pakri, 10768.

Digitaria longiflora (Retz.) Pers.

On the sandy murrums. Flowering. On way to Tehrighat, 10721.

Eragrostis atrovirens (Desf.) Trin. ex Steud.

In roadside depressions. Flowering. Banki, 10540.

E. japonica (Thunb.) Trin.

On bund of wheat field. Flowering. Doma, 10691.

E. tenella (Linn.) P. Beauv. ex Roem. et Schult.

In hard soil under *Melia*. Flowering. Pakri, 10756.

E. unioloides (Retz.) Nees ex Steud.

In sal forest. Flowering. Scarce. Pharenda, 1417.

Eriochloa procera (Retz.) C. E. Hubbard

Inflorescence green. Pharenda, 1487.

Eulaliopsis binata (Retz.) C. E. Hubbard

On roadside in sal forest. Flowering. Pharenda, 1414.

Heteropogon contortus (Linn.) P. Beauv. ex Roem. et Schult.

Flowering. Pharenda, 1454.

Hygrophysa aristata (Retz.) Nees

In dirty stagnant water pond along with *Azolla* and *Salvinia*. Lakhimpur, 10614.

Imperata cylindrica (Linn.) P. Beauv.

Along forest roadside associated with *Rosa inviolata* and grasses. Tehrihat, 10640.

Narenga porphyrocoma (Hance) Bor

In sal forest. Flowering. Tehrihat, 1528.

Oplismenus compositus (Linn.) P. Beauv.

Along the forest roadside in moist places. Flowering. Campiergunj, 10566; Pharenda, 1405.

Oryza sativa Linn.

In stagnant water. Fruiting. Tehrihat, 10616.

Paspalum commersonii Lamk.

Amidst other grasses. Fruiting. Pharenda, 1481.

Phragmites karka (Retz.) Trin. ex Steud.

Along the roadside near canal. Flowering. Doma forest, 10653.

Polypogon monspeliensis (Linn.) Desf.

In wet sandy soil along open moist nālas. Flowering. Campiergunj, 10570.

Saccharum officinarum Linn.

Extensively cultivated. Flowering. Campiergunj, 10595.

S. spontaneum Linn.

Forming clumps inside and at the edge of Khair-sissoo forest. Flowering. Doma, 10702.

Sacciolepis interrupta (Willd.) Stapf

Near the edge of a pond. Flowering. Tehrihat, 10617.

Setaria pallide-fusca (Schumach.) Stapf et C. E. Hubbard

Along forest roadsides. Flowering and fruiting. Pharenda, 1449.

S. tomentosa (Roxb.) Kunth

In the edge of hedges with *Ichnocarpus* and *Caparis*. Fruiting. Lakhimpur, 10608.

Sporobolus diander (Retz.) P. Beauv.

Underneath of *Mangifera indica*, in forest rest house compound, along *Launea nudicaulis*. Flowering. Abundant. Pharenda, 1467; Doma, 10700.

Themeda arundinacea (Roxb.) Ridley

Flowering. Scarce. Tehrihat, 1495.

T. strigosa (Buch.-Ham. ex Hook. f.) A. Camus

Along forest roadsides. Flowering. Tehrihat, 10641; Pharenda, 1435.

Vetiveria zizanioides (Linn.) Nash

Flowering. Abundant. Pharenda, 1445.

ACKNOWLEDGEMENTS

Grateful thanks are due to Father H. Santapau, S.J., Director and Shri K. S. Srinivasan, Deputy Director, Botanical Survey of India, Calcutta for encouragement and interest. Thanks are also due to the Divisional Forest Officer, Gorakhpur for his kind assistance during the survey tour and for allowing us access to the "working plan" of this forest division for consultation and reference.

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