

Floristic Survey of Dhanbad-A Case Study of Baliapur Bypass Road, Jharkhand

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The studies concern along the bypass road vegetation lying in the Dhanbad district, Jharkhand State. Which possess highly valuable vegetation; these areas are covered with different habits types of vegetation, like tree, small tree, cactus tree, fern, shrub, small shrub, cactus shrub, climber, herb, bulb, grass and stem parasite. The study area is also rich in medicinal plants and economic importance. The assessment has resulted in the recording of 129 plant species belonging to Angiosperms, 2 plants to Pteridophytes and 2 plants to Gymnosperms. Among under 50 families and 120 genera during 21 May, 2013 to 30 June, 2014. For each species scientific name, family name and habit are provided. Out of 133 plants identified along the bypass road of Dhanbad district.

KEYWORD

Dhanbad, Floristic inventory, Jharkhand, By-Pass road, Vegetation.

INTRODUCTION

Dhanbad district lies in the mid eastern part of Jharkhand State. Giridih bound it in the north, Bokaro in the west, Purulia district in the south and Jamtara district in the east. It is connected through Baliapur bypass road and NH-32 from state capital and different district headquarters of the state. The district has total area of 2089 km² and is located between 23° 26' - 24° 01' north latitude to 86° 10' - 86° 48' east longitude. Area is included in toposheet no. 73I/1, 73I/2, 73I/5, 73I/6, 73I/7, 73I/9, 73I/10, 73I/13 and 73I/14 of Survey of India. Forest cover is spread over 189 km² area in the district. Land put to non-agricultural use covers 431 km², Barren and uncultivable waste covers 325 km², cultivable wasteland covers 113 km² and current fallow is 392 km² Net area sown is 346 km². Man has surveyed remote galaxies and has stood on the surface of moon but has not so far come anywhere near to completing a taxonomic catalogue of the fewer than half a million species of higher plants that grow on our planet (Burmit *et al.*, 2001). The first and foremost process in ascertaining the

biodiversity is the taxonomic treatment of living organisms. This can be achieved only through the process involving extensive exploration, identification and documentation. Earlier works in this branch of science in the Indian subcontinent resulted in the preparation of national and provincial floras.

In IPNI, the number of new descriptions/ revisions of vascular plants per continent (period 2004-2008, below), for Africa is surprisingly low, considering the estimated biodiversity for that continent (Kier, 2005). The study of floristic composition of the vegetation is crucial for conservation management and the ecologically sustainable management of natural resources that provides the starting point for more detailed study (Ejtehadi *et al.*, 2005; Tastad *et al.*, 2010). Vegetation documentation and classification efforts also required for biological conservation, from planning and inventory to direct resource management (Jennings *et al.*, 2009).

MATERIAL AND METHOD

The whole study area was thoroughly visited through walking method and mapped the whole study area also scored the important point of vegetation by GPS. Plant specimen was collected weekly from April to March in



Figure 1. Study area map of Dhanbad district, Baliapur bypass road (Big Bazar More to Baliapur)

2013-2014. Plant specimens were identified with the help of Duthie (1905), Hooker (1872), Roxburgh (1832). The list of plants (Texas) was ordered according to the vegetation of British India (Hooker, 1872), after the species name (scientific name), family name, habitat properties, altitude, collection date, plant code names were identified and registered.

Study area

The present study was primarily focused on

vegetation along the bypass highway in Dhanbad (Figure 1) which enters from Barakar river in Dhanbad district and moves towards Gaya via Barwaadda, Raj Nagar and Isri. Numbers of activities are failing on both sides of bypass road but my investigation area is the start to Big Bazar More to Baliapur bypass road. Actions are small townships, commercial activities, agriculture and manufactures, such as coke oven plant and brick making units. Depending on the nature of the

Table 1. List of species recorded along the study area

Botanical name	Authority	English name	Family	Habit
<i>Abutilon indicum</i>	(L.) sweet	Indian mallow	Malvaceae	S
<i>Acacia Arabica</i>	(L.)	Babula tree	Fabaceae	T
<i>Acacia auriculiformis</i>	A.cunn. ex Benth.	Earleaf acacia	Fabaceae	T
<i>Achyranthes aspera</i>	L.	Prickly chaff flower	Amaranthaceae	H
<i>Acmella uliginosa</i>	(Sw.) Cass.	Marsh para cress	Asteraceae	H
<i>Aegle marmelos</i>	(L.) Correa	Stone apple	Rutaceae	T
<i>Aerva lanata</i>	(L.) Juss.	Knot grass	Amaranthaceae	H
<i>Ageratum conyzoides</i>	L.	Chick weed	Asteraceae	H
<i>Ailanthus excels</i>	Roxb.	Heaven tree	Simaroubaceae	T
<i>Albizia lebbeck</i>	(L.) Benth.	Siris tree	Fabaceae	T
<i>Alstonia scholaris</i>	(L.) R.Br.	Devil tree	Apocynaceae	T
<i>Alternanthera sessilis</i>	(L.) R.Br.	Joyweed	Amaranthaceae	H
<i>Amaranthus spinosus</i>	L.	Spiny amaranth	Amaranthaceae	H
<i>Annona squamosa</i>	L.	Sugar apple	Annonaceae	ST
<i>Anthocephalus indicus</i>	(Roxb.)	Kadam tree	Rubiaceae	T
<i>Argemone maxicana</i>	L.	Maxican poppy	Papaveracea	H
<i>Artocarpus heterophyus</i>	Lam.	Jackfruit	Moraceae	T
<i>Azadirachta indica</i>	A.Juss.	Neem	Meliaceae	T
<i>Bauhinia verigata</i>	(L.) Benth.	Orchid tree	Fabaceae	T
<i>Blumea lacera</i>	DC.	Blumea	Asteraceae	H
<i>Boerhavia diffusa</i>	L.	Pig weed	Nyctaginaceae	H
<i>Bombax malabaricum</i>	L.	Cotton tree	Malvaceae	T
<i>Bougainvillea glabra</i>	Choisy	Paper flower	Nyctaginaceae	C
<i>Brassica compestris</i>	L.	Mustard	Brassicaceae	H
<i>Breynia retusa</i>	(Dennst.)	Cup saucer plant	Phyllanthaceae	S
<i>Bryophyllum pinnatum</i>	(Lam.) oken	Life plant	Crassulaceae	H
<i>Butea monosperma</i>	(Lam.)	Flame of the forest	Fabaceae	T
<i>Calotropis gigantean</i>	(Alt.) R.Br.	Milkweed	Asclepiadaceae	S
<i>Calotropis procera</i>	(Aiton) W.T. Aiton	Sodom apple	Asclepiadaceae	S
<i>Canabis sativa</i>	L.	Hemp	Cannabaceae	H
<i>Cassia alata</i>	(L.) Roxb.	Candlebush	Fabaceae	T
<i>Cassia fistula</i>	L.	Golden shower tree	Fabaceae	T
<i>Cassia siamea</i>	(Lam.)	Siamese cassia	Fabaceae	H
<i>Cassia tora</i>	L.	Wild senna	Fabaceae	H
<i>Catharanthus roseus</i>	(L.) G.Don	Periwinkles	Apocynaceae	SS
<i>Corchorus capsularis</i>	Linn.	Jute	Tiliaceae	H
<i>Ceiba pentandra</i>	(L.) Gaertn.	Silk-cotton tree	Bignoniaceae	T

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<i>Chenopodium album</i>	L.	Lamb's quarters	Chenopodiaceae	H
<i>Cleome rutosperma</i>	DC.	Fringed spider flower	Cleomaceae	H
<i>Cleome viscosa</i>	L.	Sticky spider-flower	Cleomaceae	H
<i>Clerodendron infortunatum</i>	L.	Glory tree	Lamiaceae	S
<i>Cocas nucifera</i>	L.	Coconut	Cucurbitaceae	T
<i>Coccinia indica</i>	L.	Little gourd	Cucurbitaceae	C
<i>Corypha lecomtei</i>	L.	Palm tree	Arecaceae	T
<i>Colocasia esculenta</i>	(L.) Schott	Elephant-ear	Arecaceae	H
<i>Combretum indicum</i>	(L.) DeFilipps	Rangoon creeper	Combretaceae	C
<i>Carica papaya</i>	L.	Papaya	Caricaceae	ST
<i>Crinum bulbispermum</i>	(Burm.f.) Milne-Redh and Schweick	Orange river lily	Amaryllidaceae	ST
<i>Crotalaria retusa</i>	L.	Rattleweed	Fabaceae	S
<i>Croton bonplandianus</i>	Baillon	Bantulsi	Euphorbiaceae	H
<i>Cuscuta reflexa</i>	L.	Giant dodder	Convolvulaceae	SP
<i>Cycas revoluta</i>	Thunb.	Cycas	Cycadaceae	T
<i>Cynodon datetylon</i>	(L.) Pers.	Cynodon	Poaceae	G
<i>Cyperus rotundus</i>	L.	Nut grass	Cyperaceae	G
<i>Dalbergia sissoo</i>	Roxb.	<i>Indian redwood</i>	Fabaceae	T
<i>Datura stramonium</i>	L.	<i>Datura</i>	Solanaceae	SS
<i>Delonix regia</i>	(Hook.) Raf.	<i>Gold mohar</i>	Fabaceae	T
<i>Dryopteris marginalis</i>	(L.) Gray	Marginal woodfern	Dryopteridaceae	F
<i>Emblica officinalis</i>	(L.)	Indian gooseberry	Euphorbiaceae	T
<i>Eucalyptus citriodora</i>	(Hook.) F.M.Bailey	Spotted gum	Myrataceae	T
<i>Euphorbia abyssinica</i>	J.F.Gmel.	Desert Candle	Euphorbiaceae	CT
<i>Euphorbia hirta</i>	L.	Asthma weed	Euphorbiaceae	H
<i>Euphorbia neriifolia</i>	L.	Common milk hedge	Euphorbiaceae	S
<i>Ficus bengalensis</i>	L.	Banyan tree	Moraceae	T
<i>Ficus religiosa</i>	L.	Bodhi tree	Moraceae	T
<i>Ficus racemosa</i>	Linn.	Cluster fig	Moraceae	T
<i>Gamelina arborea</i>	Roxb.	Beechwood	Verbenaceae	T
<i>Gomphrena celosoides</i>	Mart.	Gomphrena weed	Amaranthaceae	H
<i>Heliotropium indicum</i>	L.	Indian heliotrope	Boraginaceae	H
<i>Hibiscus rosa sinensis</i>	L.	Rose mallow	Malvaceae	ST
<i>Hemidesmus indicus</i>	R. Br.	Indian sarsaparilla	Apocynaceae	H
<i>Holoptelea integrifolia</i>	Roxb.	Indian elm	Ulmaceae	T
<i>Hygrophila auriculata</i>	(Schum.) Heyne.	Starthorn	Acanthaceae	H
<i>Hyptis suaveolens</i>	(L.) Poit	Pignut	Lamiaceae	H
<i>Ipomoea aquatica</i>	Forssk.	Water spinach	Convolvulaceae	C

Continued...

<i>Eclipta alba</i>	L.	False Daisy	Asteraceae	H
<i>Ipomoea turpethum</i>	R. Br.	Turpeth root	Convolvulaceae	C
<i>Ixora chinensis</i>	Lam.	Ixora	Rubiaceae	S
<i>Jatropha gossypifolia</i>	L.	Cotton-leaf physic nut	Euphorbiaceae	S
<i>Kyllinga nemoralis</i>	J.R.Forst. and G.Forst.	White Kyllinga	Cyperaceae	H
<i>Lagrestroemea speciosa</i>	(L.) Pers.	Pride of India	Lythraceae	T
<i>Lantana camara</i>	L.	Lantana	Verbenaceae	S
<i>Lathyrus aphaca</i>	L.	Sweet peas	Fabaceae	H
<i>Lennea coromandelica</i>	(Houtt.) Merr.	Indian ash tree	Anacardiaceae	T
<i>Leonotis nepetiifolia</i>	(L.) R. Br.	Lion's Ear	Lamiaceae	H
<i>Lippia alba</i>	(Mill.) N.E. Brown	Wild sage	Verbenaceae	S
<i>Mangifera indica</i>	L.	Mango	Anacardiaceae	T
<i>Melia azedarachta</i>	L.	Indian lilac	Meliaceae	T
<i>Mimosa pudica</i>	L.	Touch-me-not	Fabaceae	SS
<i>Monochoria vaginalis</i>	(Burm.f) C.Presl.	Pickerel weed	Pontederiaceae	H
<i>Moringa oleifera</i>	Lam.	Moringa	Moringaceae	T
<i>Murraya koenigii</i>	(L.) Spreng.	Curry leaves	Rutaceae	ST
<i>Nerium oleander</i>	L.	Oleander	Apocynaceae	S
<i>Ocimum canum</i>	Sim.	Basil	Lamiaceae	H
<i>Ocimum tenuiflorum</i>	L.	Holy basil	Lamiaceae	H
<i>Oxalis corniculata</i>	(Haw.) Haw.	Erect prickly pear	Cactaceae	CS
<i>Parthenium</i>	L.	Creeping wood sorrel	Oxilidaceae	H
<i>Pithecolobium dulce</i>	L.	Carrot weed	Asteraceae	H
<i>Plumbago zeylancia</i>	L.	Slipper plant	Euphorbiaceae	SS
<i>Plumeria alba</i>		Copperpod	Fabaceae	T
<i>Pongamia pinnata</i>	(Retz.) Nees.	Panicled peristrophe	Acanthaceae	H
<i>Prosopis juliflora</i>	(L.) Opiz	Water-pepper	Polygonaceae	H
<i>Phoneix Sylvestris</i>	(L.) Roxb.	Sugar date palm	Arecaceae	T
<i>Phyllanthus Niruri</i>	L.	Stonebreaker	Euphorbiaceae	H
<i>Physalis Anguluta</i>	L.	Angular winter cherry	Solanaceae	H
<i>Plumbago zeylancia</i>	L.	White leadwort	Plumbaginaceae	H
<i>Plumeria alba</i>	L.	White frangipani	Apocynaceae	T
<i>Pongamia pinnata</i>	(L.) Pierre	Indian Beech	Fabaceae	T
<i>Prosopis juliflora</i>	(Sw.) DC.	Mesquite tree	Fabaceae	T
<i>Psidium guajava</i>	L.	<i>Guava</i>	Myrtaceae	T
<i>Pteris vittata</i>	L.	Ladder brake	Pteridaceae	F
<i>Ricinus communis</i>	L.	Castor bean	Euphorbiaceae	ST
<i>Senna occidentalis</i>	(L.) Link	Coffee senna	Fabaceae	S

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<i>Shorea robusta</i>	Gaertner f.	Sal tree	Dipterocarpaceae	T
<i>Sida cordifolia</i>	Linn.	Flannel weed	Malvaceae	S
<i>Solanum lycopersicum</i>	L.	<i>Tomato</i>	Solanaceae	H
<i>Solanum nigrum</i>	L.	<i>Black Night Shade</i>	Solanaceae	H
<i>Solanum xanthocarpum</i>	Schrad. and J.C.Wendl.	Yellow-berried night- shade solanaceae	Yellow-berried nightshade solanaceae	H
<i>Sonachus asper</i>	(L.) Hill	Spiny sowthistle	Asteraceae	H
<i>Syngonium podophyllum</i>	Schott	Arrowhead plant	Araceae	C
<i>Syzygium cumini</i>	(L.) Skeels	Jambul	Myrtaceae	T
<i>Tagetes patula</i>	L.	Marigold	Asteraceae	H
<i>Tamarindus indica</i>	L.	Tamarind	Fabaceae	T
<i>Tectona grandis</i>	L. f.	Teak	Verbenaceae	T
<i>Tephrosia purpurea</i>	(Linn.) Pers.	Wild Indigo	Fabaceae	H
<i>Terminalia arjuna</i>	(Roxb.) Wight and Arn.	Arjuna	Combretaceae	T
<i>Thevetia peruviana</i>	(L.) Lippold	Yellow oleander	Apocynaceae	ST
<i>Tridax procumbens</i>	L.	Coat-button	Asteraceae	H
<i>Urena lobata</i>	L.	Caesarweed	Malvaceae	SS
<i>Vernonia cinerea</i>	Less.	Purple fleabane	Asteraceae	H
<i>Vitex negundo</i>	L.	Five-leaved chastetree	Verbenaceae	S
<i>Xanthium strumarium</i>	L.	Rough cocklebur	Asteraceae	H
<i>Ziziphus mauritiana</i>	Lam.	Indian jujube	Rhamnaceae	ST

surrounding environment, the type of input into the flora on the bypass road differed from the site-A and site-B. The vegetation was very rich in both sides, but site-B (Big Bazar More to Bliapur bypass road) was very rich Comair to site-A (Baliapur bypass road to Big Bazar More).

RESULT AND DISCUSSION

Floristic inventory of floral diversity along the bypass road Balipur, Dhanbad, Jharkhand State, has revealed a total of 133 angiosperm taxa under 120 genera and 50 families, 2 gymnosperm taxa under 2 genera and 2 families, 2 pteridophyte taxa under 2 genera and 2 families, respectively (Table 1). The dominant family was fabaceae recorded in investigation area and other sub-dominant families were Malvaceae, Asteraceae, Amaranthaceae, Apocynaceae, Euphorbiaceae,

Solanacea and verbenaceae. The families which receive the highest number of genera were as follows : Fabaceae (22), Asteraceae (10), Euphorbiaceae (9), Solanaceae (7), Apocynaceae (6), Malvaceae (5), Amaranthaceae (5) and Verbenaceae (5). Among the total flora (T) tree was reported by 44 (31%), (S) shrub 16 (11%), (H) herb 51 (36%), (ST) small tree 8 (5%), (F) fern 3 (1%), (CT) cactus tree 1 (1%), (SS) small shrub 7 (5%), (CS) cactus shrub 1 (1%), (C) climber 8 (6%), (B) bulb 1 (1%), (SP) stem parasite 1 (1%) and (G) grass 2 (1%) the dominant species were reported *Achyranthes aspera*, *Clerodendron infortunatum*, *Cynodon datetylon*, *Hyptis suaveolens*, *Lantana camara*, *Peristrophe bicalyculata* and *Sida cordifolia* (Table 1).

In the present study the floral diversity of roadside of the area showed highest diversity and species richness especially in trees,

shrubs and herbaceous plants. The pattern of plant diversity is likely the result of complex in investigations at multiple scales among physical and biological factors events (Brockway, 1998). The results of spatial pattern within an historical context of stochastic disturbance analysis of shrubs and the perennial herbs. Additional research should be conducted to evaluate the intrinsic ecological values of the local flora and to incorporate characteristics of species composition with ecological functions (Zhao *et al.*, 2010) will provide a baseline for planning and proper conservation measures to safeguard phytodiversity which is facing ever growing biotic stress.

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