



सत्यमेव जयते



SURSUTI MEDICINAL PLANTS CONSERVATION AREA (MPCA) WEST BENGAL



Spatial Distribution Map of Sursuti MPCA in West Bengal.

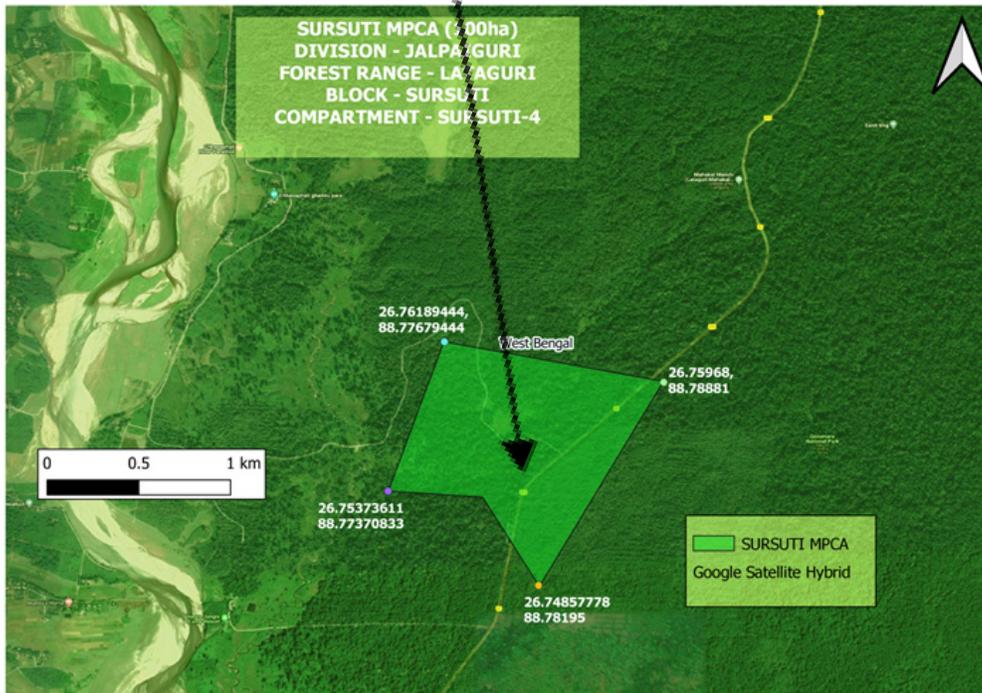
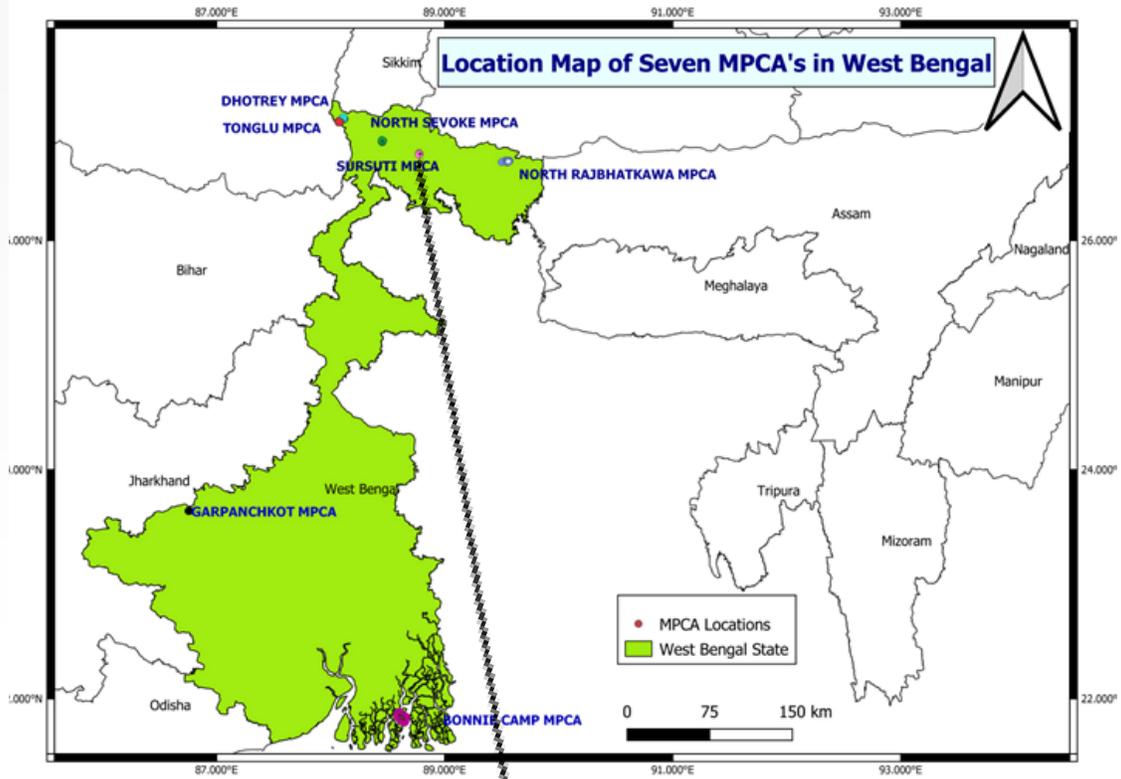


Fig. No.1: Spatial distribution Map of Sursuti demarcating the area under the MPCA.

MPCA as an inventive tool for Forest Biodiversity Conservation in West Bengal

The State of West Bengal is blessed with varied phytogeography that allows it to host a diverse range of plants and animals. The state has 11, 879 sq. km of forested area of which 39.50% is under protected area network. In 2007-09, seven (7) Medicinal Plant Conservation Areas (MPCAs) were established in the State for promoting Conservation of Medicinal Plants and Traditional Knowledge for enhancing health and livelihood security of the surrounding indigenous communities. In the face of global warming and climate change the MPCA's can act as buffers for carbon sequestration, habitat protection, gene pool conservation, health and poverty issues and other ecosystem services. Each MPCA can act as a permanent plot for future assessments on impact of climate change on forest ecosystems. Awareness regarding the objectives and presence of the MPCA is of paramount importance to meet the Global Sustainable Development Goals (SDG) of UN. A pictorial guide book of the medicinal plants of the MPCA's and their IUCN (International Union for Conservation of Nature) and CAMP (Conservation Assessment and Management Plan) status is a prerequisite for facilitating the conservation initiatives of every MPCA.

Of the 7 MPCA's in the State of West Bengal; three were established in North Bengal, namely North Sevoke, Sursuti and North Rajabathkhawa; two in Darjeeling Hills namely Tonglu and Dhotrey MPCA and two in South Bengal namely Bonnie Camp in Sundarbans and Garpanchakot in Purulia.

The Sursuti MPCA has an area of 100 ha in the Lataguri Forest Range of Sursuti Block of Jalpaiguri.

Table 1. Community, Phytogeographic, Climatic, Edaphic and Administrative profile of Sursuti MPCA.

Community	
The people residing adjacent to the MPCA are mostly Nepali and few Bengali communities.	The major livelihood sources are farming, animal husbandry, forest dept daily wage labour, farming, small business, eco-tourism guide, teaching, government jobs
Phytogeography	
Lat- N 26°45' Long- E 88°47' Forest Type – As per Champion & Seth's Classification: 3C- North India Wet Temperate Montane	Dominant tree species (as per VI values) <i>Viburnum erubescens</i> <i>Rhododendron griffithianum</i> <i>Neolitsea cuipala</i> <i>Rhododendron arboretum</i> <i>Lithocarpus pachyphyllus</i> <i>Symplocos lucida</i> <i>Pieris formosa</i> <i>Daphne papyracea</i> <i>Litsea sericea</i> <i>Gamblea ciliata</i>
Climatic Condition	
Temperature in oC Max – 32 Min –15.5 Average Rainfall (mm) : 3390.8 units	Spring- January- February Summer- March-May Monsoon- June-September. Winter –October- January.
Edaphic Condition	
Soils are sandy loam, Red and yellow podzolic soil.	
Administration	
The MPCA comes under Biodiversity and Wildlife Conservation and Preservation Working Circle and managed by the Forest Protection Committee (FPC).	This Working Circle coordinates research, extension, land use, soil conservation, planning and, salvaging wind fallen, diseased and dead trees, educational activity through specialized agencies and line departments.



The Sursuti MPCA harbours 377 medicinal plants. Of these, 9 plants are endangered, 5 are vulnerable and 1 critically endangered (Table 2).

Sl. No	Sc. Name	Family	Habit	Status
1	<i>Alangium chinense</i> (Lour.) Harms	Alangiaceae	Shrub	Rare
2	<i>Allophylus simplicifolius</i> Radlk.	Sapindaceae	Shrub	Rare
3	<i>Alpinia calcarata</i> (Andrews) Roscoe	Zingiberaceae	Herb	Less common, Endangered
4	<i>Ampelocissus barbata</i> (Wall.) Planch.	Vitaceae	Climber	Common, endangered
5	<i>Aristolochia indica</i> L.	Aristolochiaceae	Climber	Less common, Endangered
6	<i>Aristolochia tagala</i> Cham.	Aristolochiaceae	Climber	Rare
7	<i>Bauhinia acuminata</i> Vell.	Fabaceae	Shrub	Rare
8	<i>Canarium sikkimense</i> King	Burseraceae	Tree	Rare
9	<i>Casearia graveolens</i> Dalzell	Salicaceae	Shrub	Rare
10	<i>Castanopsis argentea</i> (Blume) A.DC.	Fagaceae	Tree	Rare
11	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Climbing shrub	Less common, Endangered
12	<i>Chisocheton cumingianus</i> (C.DC.) Harms	Meliaceae	Tree	Rare
13	<i>Cinnamomum bejolghota</i> (Buch.-Ham.) Sweet	Lauraceae	Tree	Common, Endangered
14	<i>Cissus pallida</i> (Wight & Arn.) Steud.	Vitaceae	Climber	Rare
15	<i>Clinopodium umbrosum</i> (M.Bieb.) Kuntze	Lamiaceae	Herb	Rare
16	<i>Crinum viviparum</i> (Lam.) R.Ansari & V.J.Nair	Amaryllidaceae	Herb	Rare
17	<i>Crotalaria Montana</i> Heyne ex Roth	Fabaceae	Herb	Rare
18	<i>Cryptolepissinensis</i> (Lour.) Merr.	Apocynaceae	Climber	Rare
19	<i>Dioscorea prazeri</i> Prain & Burkill	Dioscoreaceae	Climber	Less common, Endangered
20	<i>Drosera burmanni</i> Vahl	Droseraceae	Herb	Less common, Endangered
21	<i>Gynocardia odorata</i> R.Br.	Achariaceae	Tree	Rare, Endangered
22	<i>Helminthostachys zeylanica</i> (L.) Hook.	Ophioglossaceae	Herb	Less common, endangered
23	<i>Machilus glaucescens</i> (Nees) Wight	Lauraceae	Tree	Less common, Critically Endangered
24	<i>Mesua ferrea</i> L.	Caryophyllaceae	Tree	Less common, Endangered
25	<i>Morinda citrifolia</i> L.	Rubiaceae	Shrub	Common, vulnerable
26	<i>Pericampylus glaucus</i> (Lam.) Merr.	Menispermaceae	Climber	Rare, Vulnerable
27	<i>Phaiustanker villeae</i> var. <i>pulchra</i> (King & Pantl.) Karth.	Orchidaceae	Herb	Rare
28	<i>Piper locnchites</i> Roem. & Sch.	Piperaceae	Climber	Rare
29	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Tree	Less common, endangered
30	<i>Stereospermum colais</i> (Buch.-Ham. ex Dillwyn) Mabb.	Bignoniaceae	Tree	Common, vulnerable

Rare (<50 plants), Less common (< 100 plants), Common (>500 plant).

The Sursuti MPCA has a species rich ecosystem with 377 medicinal plants in only 100 ha. The uniqueness of the ecosystem is evident from its species diversity as well as the presence of 13 orchid species namely *Acampepa pillosa*, *Bulbophyllum roxburghii*, *Bulbophyllum sarcophyllum*, *Dendrobium densiflorum*, *Dendrobium stuposum*, *Flickengeria macraei*, *Gastrochilus obliquus*, *Otochilus fuscus*, *Papilion antheretes*, *Phaiustanker villeae* var. *pulchra*,

Saccolabiopsis pussila, *Smitinandia micrantha* and *Tropidia angulosa*. The 6 species of *Ficus* such as *F. cordata*, *F. hispida*, *F. curtipes*, *F. hederacea*, *F. fistulosa*, *F. mysorensis* var. *subrepanda* act as the keystone species of the ecosystem providing food to the frugivores during the period when other plants are not fruiting. These frugivores disperse seeds within and between ecosystems thereby increasing the species diversity of a place. The Sursuti MPCA also acts as a gene pool for the genus *Desmodium* with six species, *Phyllanthus* with 5 species and *Piper* with 5 species.

The critically endangered species *Machilus glaucescens* is a tree that is found less commonly in the MPCA. Other endangered plants that are found less commonly and rarely in the MPCA are *Pterocarpus marsupium*, *Mesua ferrea*, *Helminthostachys zeylanica*, *Drosera burmanni*, *Dioscore aprazeri*, *Celastrus paniculatus*, *Aristolochia indica* and *Alpinia calcarata*. Such species require additional *in-situ* conservation and nursery management. The MPCA acts as a *in-situ* conservation area for such endangered species with high conservation concern. On the other hand endangered and vulnerable species such as *Ampelocissus barbata*, *Cinnamomum bejolghota*, *Morinda citrifolia* and *Stereospermum colais* are found more commonly in the MPCA with a good population size.

The community adjacent to the Sursuti MPCA collect fuelwood, fruits and medicinal plants from the areas adjoining the MPCA. The medicinal plants growing in the neighbourhood of the MPCA are used for treating ailments such as epilepsy, cancer, jaundice, gynecological infections, diabetes, fever, joint pain, bone fracture, skin disease, arthritis, ulcer, stomach ailment and as food item (Table 3).

Botanical name	Local Name	Medicinal use	Local use/traded
<i>Abroma augusta</i>	Ulatkamal	Roots and barks used in treating dhatu and stomach upset.	locally used
<i>Acorus calamus</i>	Boch	Roots used as nerve tonic and to treat people of ghost symptom.	locally used, Traded
<i>Arisaema cuspidatum</i>	Jangliolkachu	Plant used to treat kidney stone and tumor.	locally used
<i>Bombax ceiba</i>	Shimul	Roots used in dhatu problem.	locally used
<i>Calotropis gigantean</i>	Akan	Plant used in treating body and joint pain.	locally used
<i>Cassia alata</i>	Chakonda	Plant used to treat ring worm or fungal disease.	locally used
<i>Cissus quadrangularis</i>	Harjor	Plant used to treat bone fracture.	locally used
<i>Dillenia indica</i>	Chalta	Plant part used for treating dandruff and falling hair.	locally used
<i>Diplazium esculentum</i>	Dhekia	Plant is eaten as a laxative.	locally used
<i>Entada pursaetha</i>	Chakkor/Gila/kadrufal	Seeds used for treatment of carbuncles.	locally used
<i>Eupatorium odoratum</i>	Assamialat	Leaf paste used in cuts and wound.	locally used
<i>Gynocardia odorata</i>	Gante	Plant used to treat ring worm or fungal disease.	locally used
<i>Leucas cephaloites</i>	Goma/Dandakalash	Leaves used for appetite and headache.	locally used
<i>Litsea glutinosa</i>	Kaula/Khagar/Khardar	Bark used to treat diarrhoea and as head poultice during jaundice.	locally used, Traded
<i>Mimosa pudica</i>	Lajjhati	Plant used to treat dhaturog.	locally used
<i>Oroxylum indicum</i>	Totola	Bark used for jaundice; seeds used to treat pneumonia.	locally used, Traded
<i>Phlogacanthus thyriformis</i>	Rambasak	Plant treats cough, cold and asthma.	locally used

<i>Phyllanthus emblica</i>	Amlaki	Fruits consumed with harrah and borrah for stomach problem.	locally used
<i>Pueraria tuberosa</i>	Pataalkumra	Plant used for treating high blood sugar.	locally used
<i>Rauwolfia serpentina</i>	Nagbeil	Roots used for treating fever.	locally used, Traded
<i>Shorea robusta</i>	Sal sap	Tree sap used to treat diarrhoea and stomach upset.	locally used
<i>Smilax zeylanica</i>	Rampan	Rhizome used as an energy tonic.	locally used
<i>Terminalia arjuna</i>	Arjun	Bark used to treat chest pain.	locally used
<i>Podophyllum hexandrum</i>	Papari	Plant used for treatment of skin scars; used in gynaecological infections and other sexual infections; roots as blood purifier.	Locally used
<i>Swertia chirayita</i>	Chiroto	Whole plant used in fever.	Locally used
<i>Taxus wallichiana</i>	Dhangre Salla	Cancer, joint pain, decoction of leaves in body pain; decoction given in high blood pressure.	Locally used, traded

Gynocardia odorata that is an endangered species and also found rarely and used for local medical purpose. Though the species is collected from adjacent areas of the MPCA it would be useful to create awareness regarding the status of the plant among the local people for long term conservation goals of the species. Awareness among the ground level workers of the forest department and the local community can help in the conservation of such species in the MPCA and its surrounding area. Alternate livelihood sources can be generated for the local people by creating home nurseries of such medicinal plants. Further, value addition to medicinal plant part can reduce extraction pressure on the local biodiversity and also improve local economy. The MPCA can act as a major ecological and economic tool for the sustainable development of surrounding areas specially with respect to various ecosystem services.

Cinnamomum bejolghota (Buch.-Ham.) Sweet.



Common Name	Dalchini, Ram tejpat
Family	Lauraceae
Habitat and Distribution	India, Bangladesh, Cambodia, Central and Southeast China, East Himalaya, Hainan, Laos, Myanmar, Nepal, Andaman and Nicobar, Thailand, Vietnam. It grows well in mountainous region with high humidity and rainfall.
Ecology	They are partially shade tolerant, but matured trees grow well in full sunshine. Foragers include honeybees, butterflies, wasps, flies and ants visit flowers and helps in pollination.
Threat status	Vulnerable (VU) in West Bengal.
Description	A small to large trees with aromatic bark and leaf. Branches opposite; the young ones smooth, and somewhat four-cornered; obtusely tetragonous, red-brown when dry. Leaves generally two at a node, glabrous, 20-30 cm long, very coriaceous elliptic-oblong obtuse acute or acuminate 3-nerved, nerves not impressed above. Panicles very large and stout and corymb; flowers greyish yellow, small, numerous, often crowned at the end of the panicle. Fruits small 0.8-1.2 cm long, ellipsoid or subglobose, succulent with rounded lobes, smooth when ripe, black, one celled, one seeded.
Flowering and fruiting	February to November
Uses	Bark is used in folk medicine; also used as condiments.
Trade information	Leaves and barks are locally used, and sold in the local market.
Propagation and cultivation	Propagated with seeds from ripe fruits and from cuttings; seeds are briefly viable.

Morinda citrifolia L.



Common Name	Indian Mulberry, Noni
Family	Rubiaceae
Habitat and Distribution	Evergreen semideciduous to more or less xerophytic formations. It is native to tropical and subtropical Asia and Australia but now has pantropical distribution.

Ecology	<i>Morinda citrifolia</i> is especially attractive to weaver ants, which make nests from the leaves of the tree. These ants protect the plant from some plant-parasitic insects. The smell of the fruit also attracts fruit bats, which aid in dispersing the seeds. <i>Drosophila sechellia</i> , a fruit fly, feeds exclusively on these fruits.
Threat status	Vulnerable (VU) in West Bengal.
Description	It can grow up to 9 m tall, and has large, simple, dark green, shiny and deeply veined leaves. The plant flowers and fruits all year round. The flowers are small and white. The fruit is a multiple fruit that has a pungent odor when ripening. It is oval and reaches 4-7 cm in size; it contains many seeds. It is sometimes called starvation fruit.
Flowering and fruiting	Flowering and fruiting throughout the year.
Uses	The fruits, seeds and leaves are used for preparation of a variety of beverages, powders, cosmetic products, oil, leaf powders for encapsulation or pills. Green fruit, leaves, and root or rhizomes used to treat cancer, gastric ulcers and depression. Yellowish dye extracted from roots used to dye cloth.
Trade information	Fresh fruits, processed items are traded in the national and international market
Propagation and cultivation	Propagated from either seeds or stem cuttings.

Ampelocissus barbata (Wall.) Planch



Common Name	Mikrum-rik, Jarilalaha
Family	Vitaceae
Habitat and Distribution	Eastern and North Eastern India. Grows well in hilly areas.
Ecology	It is one of the larger climber
Threat status	Endangered (EN) in West Bengal.
Description	Large climber with hollow branches and large glandular hair on the young shoots, petioles and peduncles. Leaves are large ovate, cordate, acute or acuminate, petiole long, tendril on the peduncle. Flowers polygamous. pentamerous, monoecious. The fruit are long, elliptic, black, shortly stalked, and has 1-2 seeds.

Flowering and fruiting	Flowering and fruiting – March to September.
Uses	Root pulp is used for eczema . Tubers used in wounds, inflammation and body pain.
Trade information	Locally used
Propagation and cultivation	Best propagated through seeds.

Celastrus paniculatus Willd.



Family	Celastraceae
Habitat and Distribution	It grows in wild, evergreen forest. In Sub Himalayan tracts up to 2000m in central India, Western and Eastern ghats extending to Rajmahal hills in Bihar and Orissa
Ecology	It is a deciduous vine, a woody climber. The stem twine into the surrounding vegetation helping to support themselves by the meaning of hooked prickles.
Threat status	Endangered (EN) in West Bengal.
Description	It is deciduous woody vine with stem up to 10 cm in diameter and 6m long. Bark exfoliating covered with small elongated lenticels. Leaves simple, broad and oval in shape with toothed margins. Greenish yellow unisexual flowers. Fruits are bright yellow and transversely wrinkled.
Flowering and fruiting	Flowering – April –June and Fruiting –June –September
Uses	Seed oil used to treat sciatica , amnesia, leprosy , pneumonia , pleurisy, anaemia , loss of appetite, amenorrhea, sexual weakness, leucoderma and as nervine tonic .
Trade information	The <i>Celastrus paniculatus</i> import export sector contributes significantly to overall GDP percentage of India.
Propagation and cultivation	It is propagated through seeds.

Machilus glaucescens (Nees) H.W. Li



Common Name	Bandoisam(Assames)
Family	Lauraceae
Habitat and Distribution	It is found in temperate, subtropical, and tropical forest. Plant recorded from Bangladesh, China South-Central, East Himalaya, India, Myanmar, Nepal, Sri Lanka.
Ecology	Prefers moist, brushy hillsides, or most often in rather open, mixed or pine-oak forest, at elevations from 1,300- 3,500 metre.
Threat status	Critically Endangered (CR) in West Bengal
Description	Medium-sized to large trees, 8-22 m tall; Branchlets blackish brown. Leaf blade elliptic, 8.5-16 × 2.5-5.5 cm, leathery, midrib and lateral veins abaxially elevated. Cymose panicles, longer than leaf blade, densely yellowish brown pubescent, branched at upper part of peduncle. Flowers yellowish. Perianth lobes subequal, ovate or broadly ovate. Stamens subequal, pubescent; Ovary subglobose. Fruit globose, 9 mm in diam
Flowering and fruiting	Flowering January to February, fruiting March to April
Uses	Plant is used as anti-ulcer, anti-rheumatic and for bone fracture and weakness.
Trade information	Leaves are collected and sold in the local market; preferred as good quality firewood and sold in the local market;
Propagation and cultivation	Propagated by Seed; the pulp needs to be removed and the seed soaked in luke-warm water prior to sowing; a germination rate of 30- 60% is expected.

Pterocarpus marsupium Roxb

Common Name	Vijaysar,Bijasar
Family	Fabaceae



Habitat and Distribution	The tree is found in dry mixed deciduous tropical forests of Gujarat, Madhya Pradesh, and sub- Himalayan tracts, at up to 1000 m altitude. Natural populations have greatly declined.
Ecology	The tree occurs in tropical region and thrives well in open sun under moderate rainfall of 80–200 cm. It prefers fertile, deep clayey loam soil with good drainage. It can tolerate excessive temperatures in summer
Threat status	Endangered (EN) in West Bengal and NT (G)
Description	Trees have straight bole upto 30 cm height and 2.5 cm girth, longitudinally fissured bark, imparipinnate and elliptic leaves, fragrant yellow flowers in long large panicles. Pods are flat, orbicular, winged, and up to 5 cm in diameter. Seeds are one to three in number, bony and convex in shape.
Flowering and fruiting	Flowering begins in November, while fruiting continues up to March
Uses	Heartwood is antibiotic and hypoglycaemic and treats diabetes . Bark gum treats diarrhoea and haemorrhage. Leaves treat boils, flowers as febrifuge.
Trade information	Domestic market has a demand of over 522 MT/year.
Propagation and cultivation	Freshly collected seeds are used for raising the plantations.

Mesua ferrea L.

Common Name	Ironwood, Nagakesar/Nagkesar
Family	Clusiaceae
Habitat and Distribution	The species is distributed in Indo-Malaysian region; in India it grows in Eastern Ghats, North-East Region, and Andaman Islands, along the stream sides and river banks.
Ecology	During full bloom, thousands of bees visit the tree and helps in pollination.
Threat status	Endangered (EN) in West Bengal.



Description	Tree upto 25 mt height. Stems buttressed at the base, bark exfoliates in brown large thin flakes, Leaves are shining green; narrow base and pointed apex, lance shaped, about 10 cm long, ventral surface light green, young leaves red coloured. Flowers white, small, fragrant, 1, 2, or 3 in axillary cluster.
Flowering and fruiting	April to November
Uses	Flower buds used as stomachic, stamens and flowers are used for the treatment of blood dysentery, diarrhoea; seed oil applied on rheumatism, wounds and skin disease.
Trade information	It is one of the highly traded medicinal plants; consumption in domestic herbal market is around the range of 200- 500 MT.
Propagation and cultivation	Grows in wide range of soil with hot, humid and much precipitation; propagated with seeds

Gynocardia odorata Roxb..

Common Name	Chaulmoogra
Family	Flacourtiaceae
Habitat and Distribution	Found in deciduous evergreen forest of Indian sub-continent and grows extensively in tropical forest of hilly region of North-East India.
Ecology	This species grows well in deciduous evergreen forest in a community having an association of <i>Stereospermum colai</i> . <i>Gynocardia</i> species are dioecious. Cross pollinated by insects. Seeds dispersed by birds, animals or humans.
Threat status	Endangered (EN) in West Bengal.



Description	An evergreen dioecious trees upto 10-30 m tall. Leaves simple, alternate; 10-33 x 3.5-10.5 cm, oblong. Male flowers solitary or few in axillary, 2.5-3.5 cm across, pale yellow, fragrant; calyx, 5-lobed at apex, stamens about infinite, female flowers few on tubercles on stem; Berry globose, 8-12 cm across; pericarp thick, hard, seeds numerous, variable, ovoid or ellipsoid, endosperm oily and fleshy.
Flowering and fruiting	March to May
Uses	The fruit juice is taken as antipyretic agent; the seeds are extracted and the oil is used as lotion in leprosy and other skin diseases.
Trade information	The fruits and seeds are collected and sold in the market. Also, the crude oil is sold as an ointment in the local market for treatment of skin disease.
Propagation and cultivation	Propagated with seeds

Alpinia calcarata Roscoe.

Common Name	Chittaratha, Aratha, Rasna
Family	Zingiberaceae
Habitat and Distribution	Distributed in India, Myanmar, Sri Lanka, Thailand, Malaysia, China, Indonesia, New Guinea. In India it is cultivated in several places.
Ecology	This species grows in a community of many other species such as <i>Berlaria strigosa</i> , <i>Cayratia pedata</i> , <i>Commelina longifolia</i> , <i>Curculigo orchoides</i> , <i>Curcuma zedoaria</i> etc.
Threat status	Endangered (EN) in West Bengal
Description	Robust herb up to 2 m height, rhizomes horizontal, leaves aromatic, narrowly elongated, 15-30 x 2-3 cm; margin entire. Terminal branched inflorescence; Flowers white; largest petal (labellum) is variegated with red and yellow stripes; Fruits are capsules, hairy, globose, orange red with many seeds.



Flowering and fruiting	Late spring too early summer.
Uses	It is a stimulant, carminative and has anti-tubercular properties . Roots / rhizome used to treat rheumatism and bronchial catarrh, seeds treat colic, diarrhea and vomiting.
Trade information	It is a highly traded medicinal plants. Around 200 MT of dry rhizomes are traded and consumed by the herbal industries per year .
Propagation and cultivation	Propagated with rhizome.

Stereospermum colais (Buch. –Ham. Ex Dillwyn) Mabb.



Common Name	Patala/ Trumpet flower , yellow snake tree
Family	Bignoniaceae
Habitat and Distribution	It is distributed in Indo-China and Indo-Malaysia. It grows in scrub, moist deciduous and semi evergreen forest of tropical region.
Ecology:	The individuals are sparsely distributed in the moist deciduous forest; It has winged seed dispersal mechanism; the associated species are <i>Pterygota alata</i> , <i>Tetrastigma campylocarpum</i> , <i>Trewia nudiflora</i> , <i>Aphanamixis polystachya</i> etc.
Threat status	Vulnerable (VU) in West Bengal.
Description	Trees up to 25 m tall. Leaflets 7-9, lance-shaped, 5-12 x 2.5-5.5 cm, base pointed, apex long, pointed, caudate, margin entire. Flowers 1.5 cm across in axillary and terminal panicles, yellowish brown. Capsules up to 35x1 cm long bent. Seeds winged.
Flowering and fruiting	April –December
Uses	Root bark is one of the constituents of “Dashmula” preparation used as tonic, diuretic in Ayurveda. It is anti-inflammatory, anti-asthmatic, cardi tonic, and used in piles and nervous disorders.
Trade information	Roots are traded with <i>Stereospermum chelonoides</i> .
Propagation and cultivation	Propagation with seeds.

Oroxylum indicum (L.) Benth. Ex Kurz



Common Name	Indian Trumpet flower, Totola
Family	Bignonaceaea
Habitat and Distribution	Indo-Malaysian region to China. Occurs in sub-montane to deciduous forests between 600 to 1200 m altitude.
Ecology:	Papery winged seeds are dispersed by wind. Flowers are pollinated by small bats and bear foul smell of over-ripe jackfruit, the bees are frequent pollinators.
Threat status	Least Concern (LC) in West Bengal.

Description	Deciduous, medium sized tree up to 10 m ht. Stems with prominent leaf scars, Bark is rough, brown-grey. Leaves are pinnate, leaflets elliptical to oval, Flowers bell shaped on terminal long stalked inflorescence. Fruits are capsules, sword shaped 45 cm long, woody with transparent winged seeds.
Flowering and fruiting	Flowering from July to August, Fruiting in the month of December to March
Uses	Locals use root bark to treat jaundice and seeds for pneumonia.
Trade information	Dried root barks of 8-10 kg per day is collected and sold at Rs 15-20 per kg. In India 1201 MT of this crude drug is used by the domestic herbal industry.
Propagation and cultivation	Propagated through seeds collected before February-March.

Rauvolfia serpentina (L.) Benth. Ex. Kurz



Common Name	Sarpagndha
Family	Apocynaceae
Habitat and Distribution	Distributed in Indo-Malaysian region. In India, it is found in eastern and peninsular India and Andaman Islands, in moist deciduous to evergreen forests.
Ecology:	Flowers attract wide variety of insect pollinators such as <i>Papiliodemoleus</i> and <i>Amegilla zonata</i> . Population declined drastically due to indiscriminate collection from the wild.
Threat status	Endangered (EN) in West Bengal
Description	Small shrub, up to 1.5 m tall with milky latex. Leaves are two in opposite or 3 in whorles, broadly inverted lance-shaped, about 15 cm long. Flowers are red (sepals) and white (petals), 5-7 flowers in corymbose inflorescence; fruits drupe, spherical purplish-black.
Flowering and fruiting	March to December

Uses	Roots used to treat high blood pressure , rheumatism, epilepsy eczema and snake bite ; leaves used in removal of opacities of the cornea ; used to treat pneumonia.
Trade information	One of the highly traded medicinal plants having a total estimated consumption of around 280-290 MT per year in India.
Propagation and cultivation	Propagated through seeds, stems and root cuttings.

Asperagus racemosus Willd.



Common Name	Satamuli/ Satmul
Family	Liliaceae
Habitat and Distribution	Distributed in the tropical regions of the old world. In India, it is found in the tropical and sub-tropical regions including Andaman Islands.
Ecology:	This species grows well in sandy loam fertile soil under shade.
Threat status	Endangered (EN) in West Bengal.
Description	Perennial climber. Roots stock consists of several fleshy tubers around 10-50 cm long. Green cylindrical stems with spines. Leaves small and reduced to scales. Flowers white, 8 mm across, borne on dense, racemose inflorescence. Fruits are berries, seeds 3-6.
Flowering and fruiting	September to January
Uses	Roots used in diarrhoea, piles, menorrhagia, internal haemorrhage, gout, eye problem, health rejuvenators ; for lactating mother ; leaves used to treat night blindness.
Trade information	One of the highly traded medicinal plants of India. Around 3000- 3200 MT are consumed by the domestic herbal industries.
Propagation and cultivation	Tubers and seeds.

UTILITY OF THIS PICTORIAL GUIDE

Sursuti MPCA comes under the Gorumara National Park which is bestowed with enormous gifts of nature. This whole area falls in the foothills of Eastern Himalayan region that makes it an important biodiversity rich zone. This unique ecosystem harbours the most important and magnificent forest having rich genepools of many threatened species. It has immense value with respect to various ecosystem services such as climate regulation, carbon sink, soil reclamation, water supply, nutrient cycling, pollination, recreation, aesthetic value and livelihood for many local communities.

This guide booklet will help one to know about the important plants, their global distribution, medicinal uses, issues, related to various threats to these plants and the dependence of local communities on the forest resources such as food, fuelwood, fodder, medicines, honey and many other non-timber forest products (NTFPs).

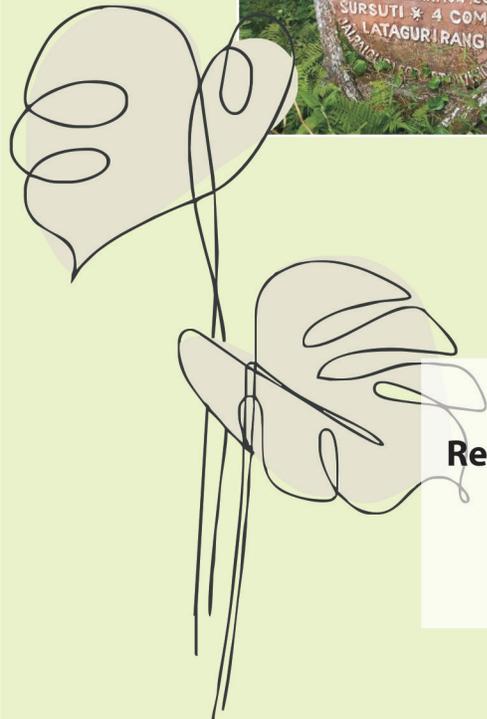
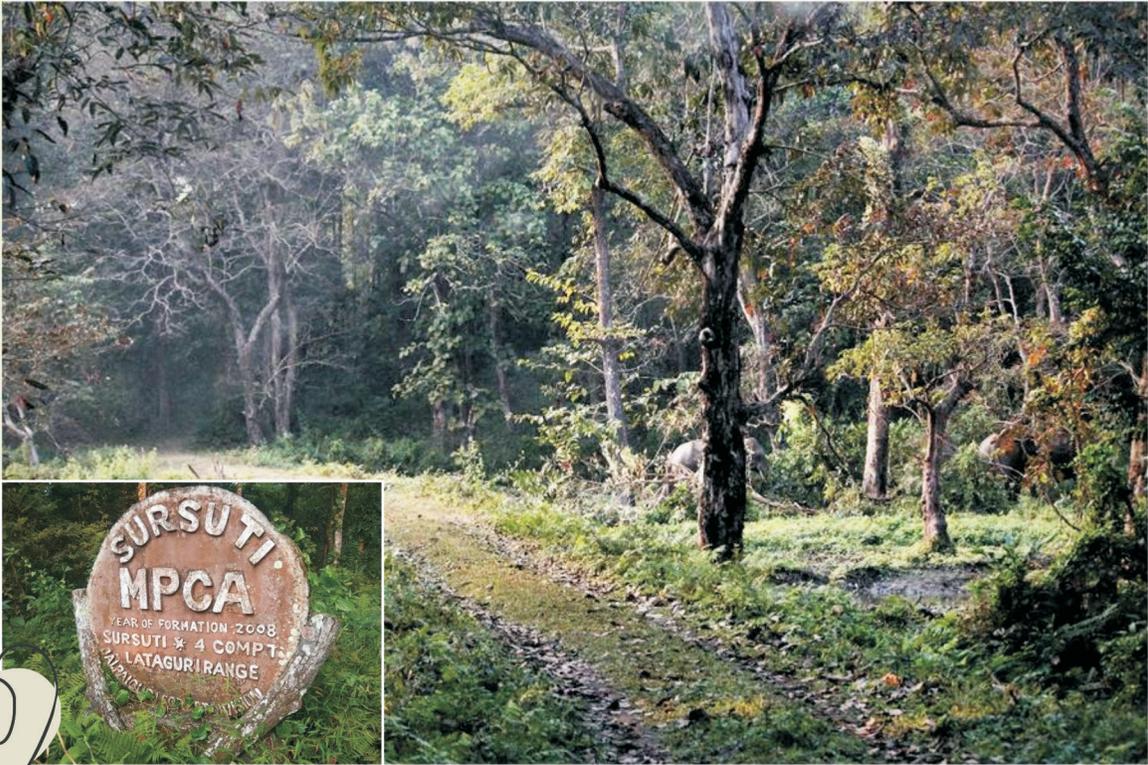
This book also provides a glimpse of the MPCA in a nutshell. It will allow quick identification of important medicinal plants through their photographs for the field staff from the Forest Department. The list of threatened and less commonly occurring species provides a blue print to the Forest Department for short listing species of conservation concern. The list of traditionally used medicinal plants can promote the sharing of traditional medicinal knowledge among the younger generation of residents neighbouring the MPCA, as well as for researchers, foresters, traders and others. The list of dominant tree species according to their Importance Value Index (IVI) gives a fair idea of the structure and composition of the community and tree species in the MPCA. Finally, this guide book can create awareness regarding the importance of MPCA and facilitate in informed Biodiversity Conservation action programs of West Bengal.

Published in 2022

Edited by Dr. Biswarupa Ghosh, Dr. Debabrata Saha, *ITSCEED*, Kolkata,
Compilation by Ms. Oindrila Ganguly, Ms. Dipika Jani, Ms. Niharika Das, *ITSCEED*, Kolkata

References:

UNDP-CCF-II Report published in 2010 by West Bengal Forest Department.
Report on Revisiting of seven old MPCAs in West Bengal published in 2022 by West Bengal Forest Department and TDU University, Bangalore.
<https://www.iucnredlist.org/species/46171879/9730085>



Published by
Research Department, Directorate of Forests
Government of West Bengal
Research & Compilation by
ITSCEED, Kolkata