



सत्यमेव जयते



वन विभाग

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**NORTH RAJABHATKHA MEDICINAL PLANTS  
CONSERVATION AREA (MPCA)  
WEST BENGAL**

# Spatial Distribution Map of North Rajabathkhawa MPCA in West Bengal

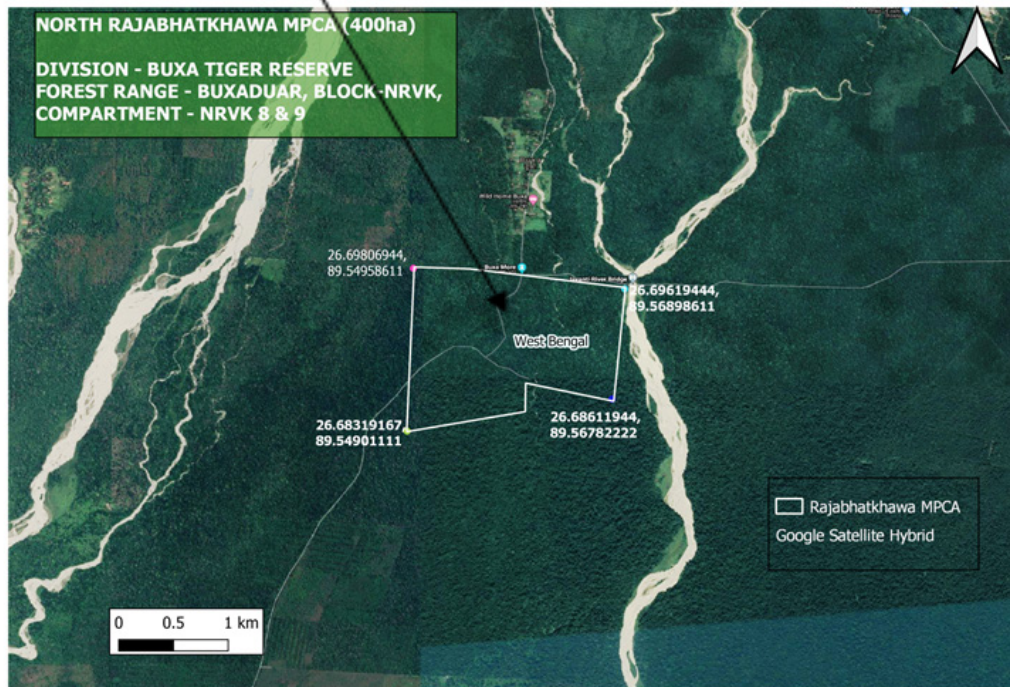
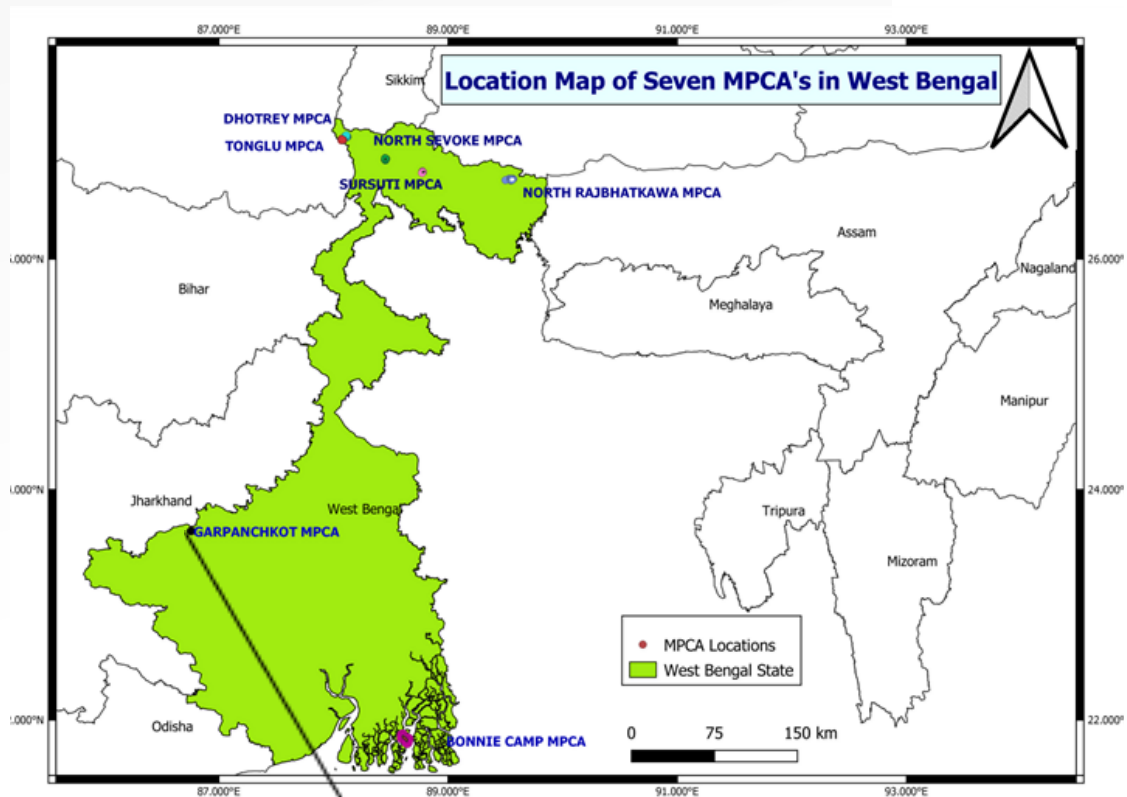


Fig. No. 4 Spatial distribution Map of North Rajabathkhawa demarcating the area under the MPCA

## 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 Sustainable Development Goals (SDGs) of UN. A pictorial guide book of the medicinal plants of the MPCA's and their 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 North Rajabathkhawa MPCA has an area of 400 ha in the Buxaduar Forest Range of North Rajabathkhawa Block of Jalpaiguri adjacent to the Buxa Tiger Reserve.

Table 1. Community, Phytogeographic, Climatic, Edaphic and Administrative profile of North Rajabathkhawa MPCA	
Community	
The people residing adjacent to the MPCA are mostly Nepali and few Bengali communities.	The major livelihood sources are farming, small business, homestay, eco-tourism guide, NTFP (Non-Timber Forest products) collection.
Phytogeography	
Lat- N 26° 41' Long- E 88° 33' Elevation- m asl Forest Type – As per Champion & Seth's Classification: 3C-North India Moist Deciduous Forest	Dominant tree species (as per VI values) <i>Polyalthia simiarum</i> <i>Dysoxylum reticulatum</i> <i>Aphanamixis polystachya</i> <i>Trewia nudiflora</i> <i>Shorea robusta</i> <i>Lagerstroemia parviflora</i> <i>Gynocardia odorata</i> <i>Lepisanthes deficiens</i> <i>Alstonia scholaris</i>
Climatic Condition	
Temperature in °C Max – 33 Min – 11 Average Rainfall (mm) : 3600 unit	Spring- January to February Summer- March-May Monsoon- June-September. Winter –October to January.
Edaphic Condition	
Alluvial and Sandy loam with boulders and gravels.	
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 in coordination with the development programs of Buxa Tiger Reserve.



The North Rajabathkhawa MPCA harbours 339 medicinal plants. The herbs (130) had maximum no of species, followed by trees (84), Shrubs (60), climbers (51) and lianas (13). Of these, 11 plants are endangered, 5 are vulnerable and 1 critically endangered (Table 2).

Table 2: Medicinal plants of conservation concern in NRVK MPCA.

Sl. No	Sc. Name	Family	Habit	Status
1	<i>Alpinia calcarata</i> (Andrews) Roscoe	Zingiberaceae	Herb	Less common, Endangered
2	<i>Aristolochia indica</i> L.	Aristolochiaceae	Climber	Rare, Vulnerable
3	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Climber	Less common. Endangered
4	<i>Aspidopterys nutans</i> (Roxb. ex DC.) A.Juss.	Malpighiaceae	Climber	Rare
5	<i>Bauhinia vahlii</i> Wight & Arn.	Fabaceae	Liana	Rare
6	<i>Canarium sikkimense</i> King	Burseraceae	Tree	Rare
7	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Climbing shrub	Less common, Endangered
8	<i>Chisocheton cumingianus</i> (C.DC.) Harms	Meliaceae	Tree	Rare
9	<i>Claoxylon longipetiolatum</i> Kurz	Euphorbiaceae	Shrub	Rare
10	<i>Cryptolepis sinensis</i> (Lour.) Merr.	Apocynaceae	Climber	Rare
11	<i>Dioscorea prazeri</i> Prain & Burkill	Dioscoreaceae	Climber	Less common, Endangered
12	<i>Drosera burmanni</i> Vahl	Droseraceae	Herb	Less common, Endangered
13	<i>Euonymus laxiflorus</i> Champ. ex Benth.	Celastraceae	Tree	Rare
14	<i>Ficus curtipes</i> Corner	Moraceae	Tree	Rare
15	<i>Gastrochilus obliquus</i> (Lindl.) Kuntze	Orchidaceae	Herb	Rare
16	<i>Gynocardia odorata</i> R.Br.	Achariaceae	Tree	Rare, Endangered
17	<i>Helminthostachys zeylanica</i> (L.) Hook.	Ophioglossaceae	Herb	Less common, Endangered
18	<i>Hiptage benghalensis</i> (L.) Kurz	Malpighiaceae	Shrub	Rare
19	<i>Impatiens trilobata</i> Colebr.	Balsminaceae	Herb	Rare
20	<i>Machilus glaucescens</i> (Nees) Wight	Lauraceae	Tree	Less common, Critically Endangered
21	<i>Mesua ferrea</i> L.	Caryophyllaceae	Tree	Less common, Endangered
22	<i>Otochilus fuscus</i> Lindl.	Orchidaceae	Herb	Rare
23	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Tree	Less common, Endangered
24	<i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz	Apocynaceae	Herb	Rare, Endangered
25	<i>Rauvolfia tetraphylla</i> L.	Apocynaceae	Shrub	Rare
26	<i>Sauropus compressus</i> var. <i>puberulus</i> (Kurz) Chakrab. & M.Gangop.	Phyllanthaceae	Herb	Rare
27	<i>Stephania japonica</i> var. <i>discolor</i> (Blume) Forman	Menispermaceae	Climber	Rare
28	<i>Stereospermum colais</i> (Buch.-Ham. ex Dillwyn) Mabb.	Bignoniaceae	Tree	Less common, Vulnerable
29	<i>Toona ciliate</i> M.Roem.	Meliaceae	Tree	Less common,
30	<i>Vulnerable</i>	Orchidaceae	Herb	Rare
	<i>Uraria lagopodoides</i> (L.) DC.	Fabaceae	Herb	Rare

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

The North Rajabathkhawa MPCA has a species rich ecosystem with 339 medicinal plants. The uniqueness of the ecosystem is evident from its species diversity as well as the presence of 20 orchid species such as *Acampe papillosa*, *Aerides multiflorum*, *Ascocentrum pullaceum*, *Bulbophyllum roxburghii*, *Bulbophyllum sarcophyllum*, *Dendrobium spp*, *Eria pumila*, *Gastrochilus obliquus*, *Micropera obtusa*, *Oberoniare curva*, *Flickengeria macraei*, *Gastrochilus obliquus*, *Otochilus fuscus*, *Papilionanthe teres*, *Pelatantheria insectifer*, *Phaius mishmensis*, *Rhynchostylis retusa*, *Saccolabiopsis pussila* and *Tropidia angulosa*. The 5 species of *Ficus* such as *F. cordata*, *F. hispida*, *F. curtipes*, *F. hederacea* and *F. pumila* 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 the place. The North Rajabathkhawa MPCA also acts as a genepool for the genus *Phyllanthus* with 5 species.

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

The communities adjacent to the North Rajabathkhawa 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 problem and stomach upset.	locally used
<i>Ageratum conyzoides</i>	Gondhejhar	Leaves used to treat cut and wound.	locally used
<i>Canarium strictum</i>	Ginari	Bark is used as appetizer.	locally used
<i>Cissus quadrangularis</i>	Harchur	Plant used to treat bone fracture.	locally used
<i>Clerodendron</i>	Bhat	Plant used to treat high blood pressure.	locally used
<i>Costus speciosus</i>	Betlauri	Rhizome and stem used to treat stomach upset and jaundice.	locally used
<i>Dendrobium densiflorum</i>	Orchids	Plant used for the treatment of tuberculosis, flatulence, night sweats, fever, kidney, and stomach ache.	Traded
<i>Diplazium esculentum</i>	Dheki sag	Plant is used as a vegetable for its laxative properties.	locally used
<i>Dysoxylum</i>	Fatalali	Plant is used to treat skin diseases.	Traded
<i>Entada pursaetha</i>	Gila	Seeds used for treatment of carbuncles.	locally used
<i>Eupatorium odoratum</i>	Assamia lahara/ Bonmara	Leaves are used to treat cut and wound.	locally used
<i>Gmelina arborea</i>	Gamari	Bark used to treat stomach problem.	locally used
<i>Gynocardia odorata</i>	Gante	Plant used to treat ring worm or fungal disease of skin.	locally used, traded
<i>Litsea glutinosa</i>	Kaula bark	Leaves and bark used for treating diarrhoea and fever.	Traded

<i>Oroxylum indicum</i>	Kanaidinga/ Totola	Bark used for jaundice; seeds used to treat pneumonia.	locally used, traded
<i>Phyllanthus emblica</i>	Amlaki/Aamla	Fruits consumed with Harrah and Borrah for stomach problem	locally used
<i>Piper</i>	Pipla	Fruit used to treat cold and cough.	Traded and locally used
<i>Pterygota alata</i>	Narkeli	Bark juice used in treating body pain and swelling.	locally used, traded
<i>Rauvolfia serpentina</i>	Nagbail/ Nagbelia/ Kulein	Roots used for treating fever.	locally used, traded
<i>Solanum torvum</i>	Bee Dana	Plant used in treating high blood pressure.	locally used
<i>Shorea robusta</i>	Sal gum	Leaves and bark used to treat diarrhoea and stomach upset.	locally used
<i>Sterculia</i>	Udal/Odal	Bark is used to treat jaundice.	Traded
<i>Terminalia arjuna</i>	Arjun bark	Bark used to treat chest pain.	locally used
<i>Terminalia bellirica</i>	Borrah/Bohera	Fruit used to treat liver and respiratory problems.	Traded and locally used
<i>Terminalia chebula</i>	Harrah/Haritaki	Fruits used locally for cough.	Traded and locally used
<i>Wrightia arboria</i>	Koichepata	Fruits used for treating gynecological, renal problems, snakebite and tooth problems.	Traded

*Gynocardia odorata* and *Rauvolfia serpentina* that are endangered species and also found rarely in the MPCA are both locally used and traded. Though the species is collected from adjacent areas of the MPCA it would be useful to create awareness regarding the status of the plants 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 by 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.

### *Gynocardia odorata* Roxb.

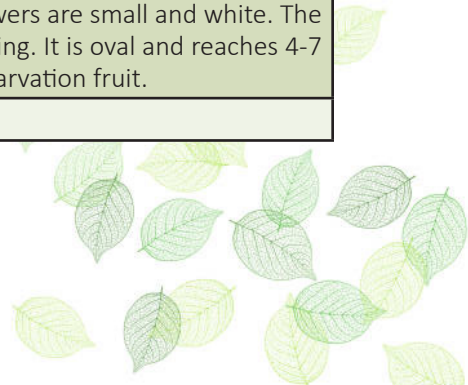
Common Name	Chaulmoogra
Family	Flacourtiaceae
Habitat and Distribution	Found in deciduous evergreen forest of Indian sub-continent and grows extensively in tropical forest of hilly region of North-East India.
Ecology	This species grows well in deciduous evergreen forest in a community having an association of <i>Stereospermum colais</i> , <i>Gynocardia species</i> are dioecious. Pollination is by insects, by cross. Seeds dispersed by self, by birds or animals, dispersal by humans.
Threat status	Endangered (EN)
Description	An evergreen dioecious trees, ca. 10-30 m tall. Leaves simple, alternate; ca. 10-33 x 3.5-10.5 cm, oblong. Male flowers solitary or few in axillary, ca. 2.5-3.5 cm across, pale yellow, fragrant; calyx, 5-lobed at apex, stamens ca. 100; female flowers few on tubercles on stem; Berry globose, ca. 8-12 cm across; pericarp thick, hard, seeds numerous, variable, ovoid or ellipsoid, endosperm oily and fleshy.



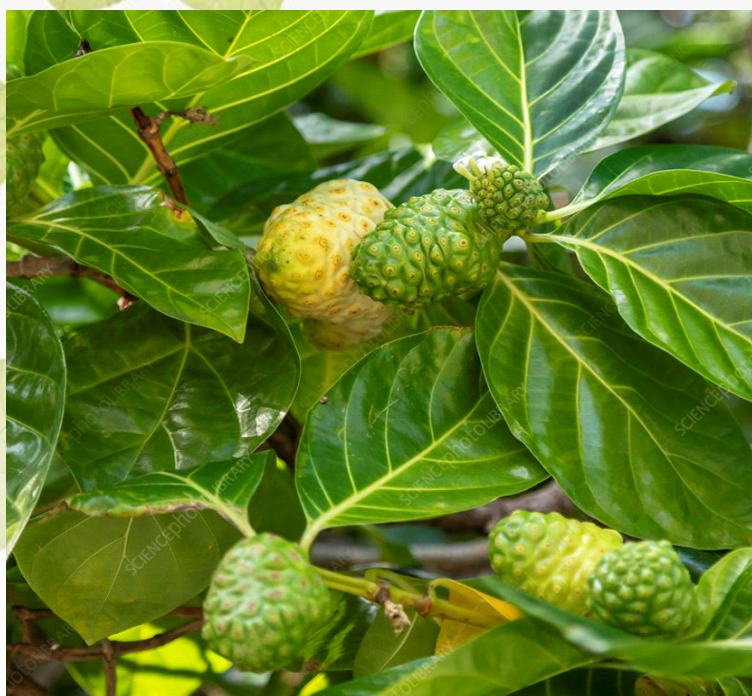
Flowering and fruiting	March to May
Uses	The fruit juice is taken as antipyretic agent; the seeds are extracted and the oil is used as lotion in leprosy and other skin diseases.
Trade information	The fruits and seeds are collected and sold in the market. Also, the crude oil is sold as an ointment in the local market for treatment of skin disease.
Propagation and cultivation	Propagated with seeds

*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)
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.

### *Machilus glaucescens* (Nees) H.W. Li

Common Name	Bandoisam(Assamesh)
Family	Lauraceae
Habitat and Distribution	It is found in temperate, subtropical, and tropical forest. Bangladesh, China South-Central, East Himalaya, India, Myanmar, Nepal, Sri Lanka; in India it is recorded from Assam, Meghalaya and North of West Bengal.
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, (6-)8.5-16(-21.5) × (1.5-)2.5-5.5 cm, leathery, midrib and lateral veins abaxially elevated. Cymose panicles, usually longer than leaf blade, (6.5-)11-18 cm, densely yellowish brown pubescent, branched at upper part of peduncle. Pedicel 3-10 mm. Flowers yellowish. Perianth lobes subequal, ovate or broadly ovate. Stamens subequal, ca. 3 mm, pubescent; Ovary subglobose. Fruit globose, ca 9 mm in diameter.
Flowering and fruiting	Flowering January-February, fruiting March to April
Uses	The leaves are often harvested from the wild for local use as a <b>flavouring agent</b> especially in soup, stews and pickles ; it is also used as anti-asthmatic, anti-rheumatic, anti-tuberculosis, anti-ulcer,
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.

*Aristolochia indica* L.



Common Name	Indian Birthwort, Ishwaramooli
Family	Aristolochiaceae
Habitat and Distribution	Grows in shaded areas in thick forests of India, Nepal, Bangladesh and Sri Lanka.
Ecology	Seeds are winged and dispersed by wind. The population of this species is declining due to habitat fragmentation and indiscriminate collection.
Threat status	Endangered (EN)
Description	Plant is a climber with oblong leaves of various size. The perianth is globose at base and extends upwards as a column that ends in expanded coloured tongue. Fruit is a dehiscent capsule with 6 valves.
Flowering and fruiting	July to March
Uses	Leaves and tender shoots are used to treat snakebite, fever, bone fracture, intestinal pain, gall bladder pain, arthritis, rheumatism, weight loss and wounds,
Trade information	Not traded from the area.
Propagation and cultivation	Propagate by seeds and roots.

### *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)

Description	It is a scandent undershrub, a perennial climber growing on other standing shrub branches. Roots stock consists of several fleshy tubers around 10-50 cm long. Stems are cylindrical and green with spines. Leaves are small and reduced to scales. Flowers are white ca 8 mm across and borne on dense, racemose inflorescence. Fruits are berries, globose with 3-6 seeds.
Flowering and fruiting	September to January
Uses	Roots are used in diarrhoea, piles, menorrhagia, internal haemorrhage, gout defects of vision, poisoning and as a health rejuvenators; tubers are good 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.

*Alstonia scholaris* (L.) R. Br..



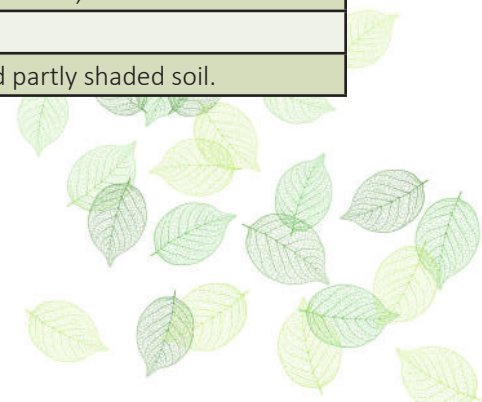
Scientific name	<i>Alstonia scholaris</i> (L.) R. Br.
Common name	Devil's Tree, Chatim
Family	Apocyanaceae
Habitat and Distribution	Grows in tropical, subtropical and moist deciduous forests. It is native of Indian sub-continent, China, South East Asia and Australia. It is the State tree of West Bengal.
Ecology	The nocturnal fragrant anthesis of flowers attracts moths for pollination.
Threat status	Least Concern (LC)
Description	Medium sizes evergreen tree reaching upto 27 m ht. Palmate leaves with are four or seven in a whorl, leafy leather with obtuse tips. Flowers are in a bunch of greenish white fragrant flowers; follicles are narrowly cylindrical. Bark is rough; grayish white, yellowish inside and excludes bitter latex.

Flowering and fruiting	Flowering is from March to July; Fruiting in August.
Uses	Bark infusion is used to treat <b>fever, skin diseases</b> , liver complaint and dysentery ; latex from fresh bark extracted in water and taken orally in case of tuberculis.
Trade information	Trade name is saptaparni. Parts used are Stem bark, leaves, latex and flowers.

*Aphanamixis polystachya* (Wall.) R.N. Parker



Common Name	Rakta rohida, Rohitak, Pithharaj, Royna
Family	Meliaceae
Habitat and Distribution	It grows in lowland and hill forests, usually on hillsides and ridges. It is an Indo-Malayan species.
Ecology	The brightly coloured petals attract insects which play a vital role in the transference of pollen. Tree squirrels and terrestrial rodents are usually seed predators. It is a plant of primary and secondary rain forests at 1400 m altitude.
Threat status	Least Concern (LC) (G) and in West Bengal.
Description	Large evergreen trees grow upto 15-20 m tall. Leaves imparipinnate; Leaflets 8-, opposite, basal pair the smallest having tiny transparent spots. White flowers arranged in 10-20 cm spikes. Fruit is a 3-valved globose capsule, seeds with red aril.
Flowering and fruiting	May-September
Uses	Stem Bark is used to treat liver, ulcer, diabetes, jaundice, arthritis, leucorrhoea.
Trade information	Collected and sold in local markets.
Propagation and cultivation	Propagated by seeds. Seeds are germinated in well drained partly shaded soil.



## *Cinnamomum bejolghota* (Buch.-Ham.) Sweet



Common Name	Dalchini, Ramtejpat
Family	Lauraceae
Habitat and Distribution	India, Bangladesh, Cambodia, China South-Central, China Southeast, 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)
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, Buds small, ovoid; 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; stamens and ovary sparsely hairy or glabrous; 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 in the treatment of inflammation and as antihelminthic and diuretic. 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;

*Mesua ferrea* L.



Common Name	Ironwood, Nagakesar/Nagkesar
Family	Clusiaceae
Habitat and Distribution	The species is distributed in Indo-Malaysian region; in India Eastern Ghats, North-East Region, and Andaman Islands specially 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)
Description	Tree upto 25 mt ht, 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 <b>blood dysentery</b> , diarrhoea; seed oil applied on <b>rheumatism, wounds and skin disease</b> .
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



*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 seen near the style.
Threat status	Least Concern (LC)
Description	Deciduous, medium sized tree up to 10 m ht. Stems with prominent leaf scars, Bark is rough, brown-grey. Leaf is quadarypinnate, 1mt long; Flowers are large, fleshy, creamy, violet coloured and foul smelling; Fruit is 1.5mt. long and soward shapped capsule.
Flowering and fruiting	Flowering from July to August, Fruiting in the month of December to March
Uses	Locals use root bark to treat <b>jaundice</b> and seeds for <b>pneumonia</b> .
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	Through seeds collected before February-March.



*Rauvolfia serpentina* (L.) Benth. Ex. Kurz



Common Name	Sarpagnidha
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. Papilio demoleus was reported as most efficient pollinator followed by Amegilla zonata. Population declined drastically due to Indiscriminate collection from the wild uprooting the plants.
Threat status	Endangered (EN) in West Bengal. Global population is not evaluated yet.
Description	It is a 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 with shortly pointed apex. Flowers are red (sepals) and white (petals) borne on axillary, 5-7 flowers in the corymbose inflorescence; fruits are drupes, 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;

*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>Polyalthia simiarum</i> , <i>Aphanamixis polystachya</i> etc.
Threat status	Vulnerable (VU)
Description	Trees up to 25 m tall. Leaflets 7-9, lance-shaped, 5-12 x 2.5-5.5cm , base pointed, apex long –pointed –caudate, margin entire. Flowers ca. 1.5cm 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, cardiotoxic, and used in piles and nervous disorders.
Trade information	Roots are traded with <i>Stereospermum chelonoides</i>
Propagation and cultivation	Propagation with seeds

## UTILITY OF THIS PICTORIAL GUIDE

North Rajabhatkhawa MPCA (NRVK) comes under the Buxa Tiger Reserve 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 informed Biodiversity Conservation action programs of West Bengal.

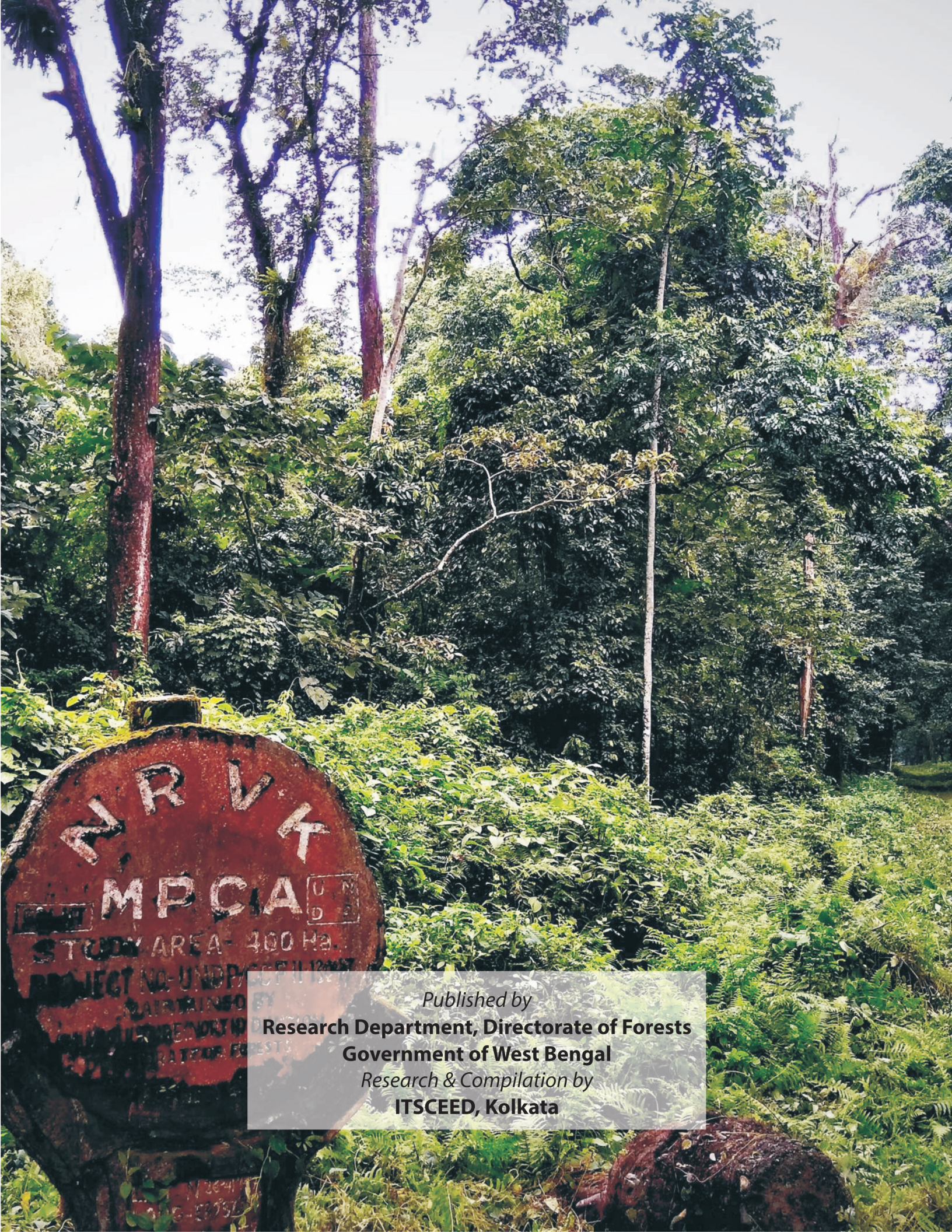
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