

GOVERNMENT DEGREE COLLEGE, SHADNAGAR



DEPARTMENT OF BOTANY

PROJECT WORK



SUBMITTED BY:

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GOVERNMENT DEGREE COLLEGE, SHADNAGAR

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DECLARATION

We the following students studying B.Sc. III Yr. at Government Degree College, Shadnagar during the academic year 2021-22 here by declared that it is our original project work on India's Endangered Plant Species submitted under the guidance of Dr.T.Uttara Phalguni.

Sr. No.	Name of the Student	Hall Ticket No.	Sign. of the Student
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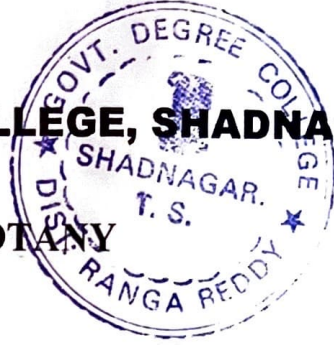
Guided by

Dr. T. Uttara Phalguni

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CERTIFICATE

This is to certify that

1. G. Prema Latha (19033067445504)
2. K. Anitha (19033067445505)
3. K. Divya (19033067445508)
4. S. Swathi (19033067445519)
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6. K.Shireesha (19033067445001)

Have successfully completed their project work on **India's Endangered Plant Species.**


Signature of Supervisor


Signature of Principal
Principal
GOVT. DEGREE COLLEGE
SHADNAGAR
Ranga Reddy Dist.

Indias Endangered plant species

Endangered species:-

An endangered species is a species that is very likely to become extinct in the near future, either worldwide or in particular political jurisdiction because of a sudden rapid decrease in its population or a loss of its critical habitat. Endangered species may be at risk due to factors such as habitat loss, poaching and invasive species.

The International Union for Conservation of Nature (IUCN) Red List lists the global conservation status of many species, and various other agencies assess the status of species within particular areas. Many nations have laws that protect conservation-reliant species which, for example, forbid hunting, restrict land development, or create protected areas. Some endangered species are the target of extensive conservation efforts such as captive breeding and habitat restoration.

The flora of India is one of the richest in the world due to the country's wide range of climate, topology, and environment. There are over 15,000 species of flowering plants in India which account for 6% of all plant species in the world. Many plant species are being destroyed, however, due to their prevalent removal.

Roughly 1/4 of all plants species in the world are at risk of being endangered or

going extinct. The combination of global warming and habitat destruction is the sole reason for the disappearance of many plants. Though there are thousand for interesting and unusual plants, here are some common plants which have become rare and endangered species in the past 30 years due to habitat destruction.

1. Polygala irregularis:

Polygala irregularis is a species of flowering plant in the family Polygalaaceae. It is a perennial herb with a height up to 60 centimetres (24 in), though the average ranges from 17 to 34 centimetres.

They are commonly known as milkworts or snakeroots. The genus is distributed widely throughout much of the world in temperate zones and the tropics. The genus name *Polygala* comes from the ancient Greek "much milk" as the plant was thought to increase milk yields in cattle. *Polygala* includes annual and perennial plants, shrubs, vines and trees. The roots often have a scent reminiscent of winter green. The leaf or blades are generally undivided and smooth-edged, and are alternately arranged in most species. The inflorescence is a raceme or spike-like array of several flowers; the occasional species bears solitary flowers. The flower is bilateral in shape with two large petal-like sepals on the sides, often called the wings, and three smaller sepals behind. There are three petals in shades of reddish purple, yellow or white, which are joined at the bases.

The plant have been destroyed to make room for human habitats and use land for agriculture.



2. Lotus corniculatus:

Lotus corniculatus is a flowering in the pea family Fabaceae. Commonly known as birds-foot trefoil. Birds-foot trefoil is a short to medium-lived perennial legume. It is a sparsely pubescent plant with a habit varying from prostrate to erect. Erect forms can reach 60-90 cm in height. It is taprooted and has many lateral roots, mainly in the top 60 cm of soil. The root system can go as deep as 120 cm (UC SAREP, 2006). The stems grow from the roots of or from the basal nodes on the stubble left after grazing or cutting. The leaves are alternate, penta-foliate with 2 lower leaflets resembling stipules, hence the name trefoil. The foliage is glabrous, slender and pale green. The inflorescences of Lotus corniculatus are umbel-like cymes borne at end of axillary branches. Each inflorescences bears 8 pea-like, fragrant flowers, pale

yellow to bright yellow sometimes tinged with red, hence the common name "bacon-and eggs". The fruits are cylindrical pods (2.5 cm long) at right angles to each other, hence the name "birdfoot trefoil". It is often used as forage and is widely used as food for livestock due to its nonblotting properties.

It is used in agriculture as a forage plant, grown for pasture, hay and silage. It is highly quality forage that does not cause bloat ruminants. Taller-growing cultivars have been developed for this. It may be used as an alternative alfalfa in poor soils.

A double-flowered variety is grown as an ornamental plant, it is regularly included as a component of wildflower mixes in Europe. It can also prevent soil erosion and provide a good habitat for wildlife.



3. Amentotaxus assamica:

Arunachal Pradesh (threatened)

Amentotaxus assamica is commonly known as Assam catkin-yew. The species name refers to Assam, a state Northeastern India where this conifer is

endemic.

Assam catkin-yew is a shrubby evergreen, coniferous species of tree in the Taxaceae family that grows to mature heights of 30 feet (9m) tall.

The leaves are spirally arranged on the shoots, but twisted at the base to lie in two flat ranks (except on erect leading shoots): they are linear-lanceolate, 4-12 cm long and 6-10 mm broad (white stomatal) soft in texture, with a blunt tip, green above, and two conspicuous white stomatal bands below. The leaves and stems of various species in the genus are being investigated as a potential source of compounds used in anti-cancer drugs. The wood is used locally for house construction. Localized timber businesses, need for firewood, shifting agricultural practices and infrastructural developments like roads and dams have led to the decline in *Amentotaxus assamica* number. Even the plant's subpopulations have been affected.

It's found only in India where it is threatened by habitat loss



5
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4. Psilotum nudum:-

Also known as moa, skeleton, fork fern, belong the family Psilotaceae. This plant is both rootless, forming low growing clumps. The plant produces abundant spores which are collected and used for making powder. In Greek psido means bare. The scientific name reflects the plants appearance where many of the organs which would normally present in a plant are absent in this one, including leaves, flowers and roots, you can use the whisk fern as a small broom by tying a handful of its branches together. Large quantities of the spores are collected and used them medicinally as a purge. *Psilotum nudum* is a rare and endangered plant species distributed continuously in few pockets and is endemic to the Seshachalam Hills of Sri Venkateshwara Wildlife Sanctuary, Andhra Pradesh.



5. Diospyros celebica:-

Diospyros celebica (commonly known as black ebony or Makassar ebony) is a species of flowering tree in the family Ebenaceae that is endemic to the island of Sulawesi in Indonesia.

Makassar ebony wood is variegated, streaky brown and black and nearly always wide-striped. Ebony is well known as an outstanding tree species that produces durable, fancy wood with colorful mixed red brownish yellow. Because of its superior quality and luxury, ebony has been utilized for high class furniture and house interior. Before trade banning ebony was an important species exported mainly to Japan. High demand in both domestic and foreign markets has led the overcutting of the ebony and put the extinction of this species. To date only few ebony trees remaining in Sulawesi natural forest.

It also used as wood in fingerboards for guitars and other related instruments.

The tree grows up to 20m (66ft) high under favourable circumstance, although such trees are rarely seen nowadays. Since Makassar ebony has been a woodworker's favourite for centuries, most of it has been felled and used in high-quality furniture. The wood is often defective, showing cracks and in particular heart shakes and splits. It is not easy to dry and is best given ample time for this. Converting logs into boards as soon as possible is recommended. It is listed as vulnerable due to a population reduction of over 20% in the past three generations, caused by decline in its natural range and exploitation.

Also called the ebony tree, this is a flowering tree that is highly regarded by woodworkers as its wood is widely used for making high quality furniture. The trees can grow up to 20 meters high under favourable conditions. However, in the past two

centuries, it has become very scarce and is hardly found anymore in India.



6. Actinodaphne lawsonii

Actinodaphne lawsonii is an Asian genus of the family Lauraceae, bay laurel-related, that comprise a group of flowering plants within be the order Laurales.

This genus of both dioecious evergreen trees and shrubs has 100 species, in tropical and subtropical regions of Asia, with 17 Chinese species, 13 of which are endemic. The trees are 3 to 25 m tall, with leaves usually clustered or nearly verticillate, rarely alternate or opposite, unlobed, pinnerved, and rarely tripinnerved. The flowers are star shaped, small and greenish. The flowers are clustered or whorled and are unisexual. Umbels are solitary or clustered or arranged in a panicle raceme; involucre bracts are imbricated and caducous. The perianth tube is short; perianth segments usually number six in two whorls of three each; filament of the first and second whorls are

fertile stamens usually 9 in three whorls are biglandular at the base; anthers are all introrse and four celled; cells opening by lids; rudimentary pistil is small or lacking. The female flowers has stamens as fruit is berry-like drupe seated on shallow or deep, cup-shaped or discoid, perianth tube. It has a small single seed dispersed mostly by birds.

Actinodaphne species require continuously moist soil, and do not tolerate drought and frost. The laurel trees fall within the broad-leaved forests; mind montane deciduous forests; and high-montane mixed stunted forests. Some species grow in high-altitude forests at 15,000 - 3,300 m (4,900 - 10,800 ft).

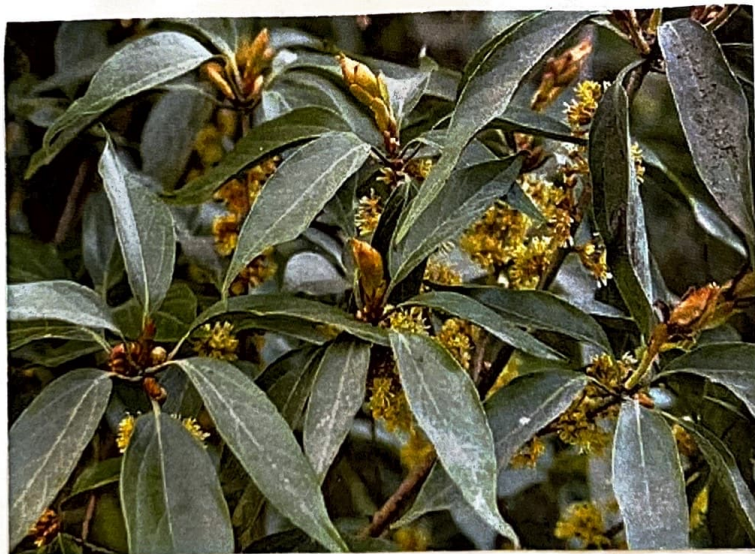


7. *Acacia platifrons*:-

The umbrella thorn (*Acacia platifrons*) is a species of the family Leguminaceae. It is native to India and Sri Lanka. It is commonly called as Thron Babool. It is a tree with a flat spreading umbrella like crown. Greyish-brown bark is thick with horizontal markings. Leaves are bipinnate, alternate;

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10
apex obtuse; merge into. Flowers are the white in color. Peduncles bracteates near the base. Fruit is a pod. The tree is used as fuel and fodder for sheep and goats. When the tree is fully grown, it looks like a spread umbrella.



8. *Abutilon indicum*:-

Abutilon indicum (Indian abutilon, Indian-mallow) is a small shrub in the family Malvaceae, native to tropical and subtropical regions. This plant is a value medicinal and ornament plant, its root and leaves being used for curing fever. It has been widely introduced outside of its native range, and is considered invasive on certain tropical islands. In traditional medicine, *A. indicum* various parts of the plant are used as a demulcent, aphrodisiac, laxative, diuretic, sedative, astringent, expectorant, tonic, anti-convulsant, anti-inflammatory, anthelmintic and analgesic and to treat leprosy, ulcers, headaches, gonorrhoea and bladder infection. The whole plant is uprooted, dried and is powdered. In ancient days, maidness were made to consume a spoonful of this powder with a spoonful of honey once in a day, for 6 months until the day of marriage, for a safe and quick pregnancy.



9. Chlorophytum tuberosum:

Chlorophytum tuberosum is a species of flowering plant in the Asparagaceae family. It is one of several species known by the common name mesquite. It is native to parts of Africa and India. It has historical uses in Ayurveda.

Chlorophytum tuberosum is a herb usually growing up to 10-50 cm (long and 1 cm wide). The flowers are borne tall. Its underground part comprise a short rhizome, often surrounded by, which bears swollen roots with dark tubers to up to 7 cm long at their tips.

Leaves: The leaves are borne in a rosette and are linear-lanceolate, 10-50 cm long and 1 cm wide. The flowers are borne in a simple raceme with two flowers at each node. The flowers are large, white, showy and sweetly-scented and there is no differentiation between the petals and sepals.

C. tuberosum collected from the wild in India, where it is heavily used, and not cultivated, so that over-harvesting could affect population there. Consequently, it is increasingly considered as 'rare' in India. *Chlorophytum tuberosum* roots are usually collected before plants have reached maturity, thus hampering natural regeneration.

Chlorophytum tuberosum is being monitored as part of the IUCN Sampled Red List Index for Plants; which aims to produce conservation assessments for a representative sample of the world's plant species.



10. Chlorophytum malabaricum:

Chlorophytum malabaricum is a species of *Chlorophytum* found in the Western ghats. This plant is also known as Malabar lily. It belongs to the family *Chlorophytaceae*. A perennial herb with tuberous roots. White flowers arise in an erect spike. The leaves are 14-20 x 1.5 cm, linear, tip blunt, subpointed. Flowering system at branch ends to 3, racemes simple or paniculate, to 15 cm. Racemes lax, paired, often solitary, bract 8 mm, lance-shaped, bractlet 3 mm, linear, 4.5 cm x 0.5 mm, flower stalk, 6 mm joined. Flowers are about 3 cm across, tepals oblong, nearly equal, white; stamens 6, to 3 mm; ovary 6-lobbed. Capsule 6 mm across, spherical, 3-winged; seeds about 3 x 2 mm, ovoid.



11. Nymphaea tetragona :-

Jammu and Kashmir (Endangered and threatened)
Nymphaea tetragona is a species of flowering plant commonly called pigmy waterlily and small water lily belonging to the family Nymphaeaceae.

Nymphaea tetragona is an aquatic perennial with floating leaves and white flowers growing from unbranched rhizomes. The leaves have entire margins and may be tinted purple or sometimes mottled reddish brown or purple. The receptacle is four-angled. Plants produce a single floating flower that is 1.5 to 3 inches wide, with up to 15 petals; each flower has 30 to 45 yellow stamens. The sepals and outer petals are produced in whorl of four, the sepals are green in color. The seeds are rounded in shape and $2-3 \times 1.5-2$ mm long being (sepals (are green in color) 1.3-1.5 times as long as broad; the species has 112 pair of chromosomes. Flowering occurs in summer and the flowers close at night. In India, the original distribution of *N. tetragona* was confined to the states of Jammu & Kashmir and Meghalaya but came under local threat due to mainly unplanned human activities, such as road construction, agriculture conservation

65
deforestation, animal grazing and other factors that ruin its natural habitats. However, the species is now confined to Nongkrem Pond at Shillong in Khasi Hills, Meghalaya as an isolated population. This Extant population lies on the border of the Himalaya Biodiversity Hotspot range between Bangladesh and Bhutan. The plant also has ethno-medical uses as the rhizome is used locally to cure acute diarrhoea and dysentery by tribal herbal practitioners and it can also be used to join bone-fractures.



12. Belosynapsis vivipara:-

Madhya Pradesh (rare and endangered)

Belosynapsis is a genus of mainly perennial plants in the family Commelinaceae. It is native to Southeast Asia, the Indian Subcontinent, commonly called spider wort, you can find them from India and south Asia to New Guinea. Epiphytic, subscapigerous herbs, 10-15 cm long, covered with scattered reflex spreading hairs or glabrescent in the tender plants; rootstock small. Leaves radical and cauline; radical leaves 3-8 x 1-2 cm, sessile, linear or linear, lanceolate, base narrowed, apex acute or acuminate, covered with pilose hairs; cauline leaves 1-2 x 0.2-0.5 cm sessile, ovate or elliptic, apex acute.

The plant usually grows at high elevation on tree trunks densely covered in moss and on branches of trees in shady, evergreen riparian forest. This species is on the verge of extinction and is very important to biodiversity.



13. Colchicum luteum:-

Himachal Pradesh (rare and threatened)

It belongs to the family Liliaceae, commonly called as Suranjani. The plant is usually found on the edges of forests or in open grassy places and temperate western Himalayas from Kashmir to Chamba, at altitudes ranging from 200 m to 2800 m in India. Suranjani is an annual alpine herb. It can be recognized by an almost conical corm with a longitudinally grooved flat side, rapier-like leaves, short scape, and golden yellow flowers. Corms are almost conical, brownish in color, with one side flat and other rounded and can be either translucent or opaque.

Leaves are 15-30 cm long and 0.8-1.5 cm broad and few in number. They appear with flowers and are narrow but broader toward the tip. They increase in size as the plant approaches fruiting stage. *Colchicum luteum* is used as a carminative, laxative, and an aphrodisiac. Colchicines are effective in the treatment of gout, rheumatism, and diseases of liver and spleen. Externally, the corms are applied as paste to lessen inflammation and pain.

Colchicum luteum is currently a rare and threatened medicinal plant species in the Kashmir Himalaya.



14. Pterospermum reticulatum:-

These trees can grow upto 20m tall and are commonly known as Madagu-ran or Malavuram. *Pterospermum reticulatum* is a species of flowering plant in the family Malvaceae. Found only in India, these plants are threatened due to habitat loss. The bark is greyish in color with simple alternate leaves and flowers that are white and fragrant. They are sub canopy trees found in evergreen forests at height of 1000m. *P. reticulatum* are used in traditional medicine especially in the treatments of wounds, sprains, bone fracture etc. This study, we compare the antioxidant and anti-inflammatory potentials of the stem bark of the plants.



15. Ceropegia odorata:-

(Endangered)

Fragrant Ceropegia is a critically endangered species, belongs to the family Asclepiadaceae. It is found only in a few places in Gujarat, Maharashtra and Rajasthan. It can only be found in areas which are almost or completely inaccessible for humans, there it climbs through the surrounding vegetation.

The flowers are of a light color in the lower part, the united petals are yellow as corn. Ceropegia flowers have a strong fragrance bloom only for some days and exhale a very strong jasmine scent.

It is only species of the genus whose flowers have a very strong fragrance, hence the name odorata, They bloom for a few days.

They are called jeenukanda in Gujarat. These tubers are used in medication for the eye.

