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Review of literature

2.1 Introduction

Endemic species and their potential value of plant resources are gradually shaping the future of several regions. However, sincepast hundred years the trends observed in the loss of plant diversity is our biggest concern. Despite all the efforts made to conserve plant diversity, the situation today is still very alarming.Takhtajan(1986) has stated India to be 'cradle for the origin of cultivated plants'. On similar lines, Vavilov (1992) and recently Khoury *et al.* (2016) have stated India to be prime pocket for the origin of pulses. The rich diversity of edible plantshas been valued and consumed consciously by the Indian villagers. According to Nayar(1996), 5725 species under 147 genera of angiosperms i.e., 33% are endemic. Documentation on wild flora of Indian region carried out by Singh and Arora(1978), shows that around 250 species occur in the western and nearly 300 species occur in the eastern Himalayan ranges.This diversity includes 258species of edible fruits, 121 species of green leafy vegetables, 37 species of roots and tubers, and 20 species of edible flower buds. Amongst the 214 threatened species occurring in the Himalayas, nearly 37 are exploited, being medicinal herbs of commercial value and need priority action for conservation (Arora and Nayar, 1984).

Threatened plants were first discussed in 1960s, by Sir Peter Scott (Chairman of lUCN SSC)and Ronald Melville(retired botanist, Royal BotanicGardens, Kew)and compiledthe first Red Data Book on Angiosperms to match the famous loose-leafbooks on threatened animal groups. In 1971, Melville had come up with theprediction that 20,000 flowering plant species could be threatened. This predictionstimulated the SSC to consider how to cover plants and to realize that a

Red Data Book,with pages on each threatened species, would not be practical. The SSC 'Threatened Plants Committee' was createdand funded by the WWF. The first project was to prepare a list ofthreatened plants of Europe. Involving hundreds of taxonomicexperts, this list was published in 1977, covering 2000 threatened plants,and was the first continent-wide list of its kind to be produced. In the following year thelUCN Plant Red Data Book was published in 1978 (Lucas and Synge, 1978). This bookprovided details on the conservation of 250 species of plants-1% of the estimated 25,000threatened species chosen to represent the types of threat plants are facing,and tohighlight few plants from virtually all parts of the globe. Hence, it stimulated many other countries to produce their own Red Data books. It was the firstinternational study of this sort and several nations have published their own Red DataBooks since then (e.g. Perring and Farwell 1977; Takhtajan, 1978; Jain,1984;NayarandSastry, 1987, 1988, 1990; and Jain and Rao, 1983).

2.2 Work done in India

2.2.1 Studies on plant endemism in India

Indian flora has always been an attraction for many naturalists and botanists. Hooker (1879),Championand Trevor (1938) and Takhtajan (1986) considered that Indian flora is highly influenced by adjacent biogeographical regions such as Malaya, Tibet, China and Africa. The major work on endemic plants of India was initiated by Chatterjee (1939, 1962)andfound that 6850 species were endemic, representing 61% of the flowering plants. He estimated 3169 species endemic to Himalayas and 2045 species endemic to peninsular India; this estimate included 134 genera endemic to Indian region. According to Takhtajan (1969), the Indian floristic region has nearly 150 endemic genera. Rao (1972) listed 164 endemic genera for Indian floristic region, including Myanmar and Sri Lanka. Nayar (1980) reported 141 endemic genera in India, while Ahmedullah and Nayar (1987) reported 55 genera endemic to peninsular India.Sarkar (1995) listed 142 genera as endemic to India. Balakrishnan (1996) estimated that, there are more than 6100 endemic species out of total 17500 species of flowering plants (more than 36%) in India. Nayar (1996)

mentioned 147 genera and 5725 species of flowering plants as endemic to Indian region. Karthikeyan (2000) estimated 141 genera and about 4500 species as 'strict Indian endemics'. This estimatewas reduced to 140 genera by Ahmedullah (2000). Mitra and Mukherjee (2007) estimated 121 genera as endemic to India. Irwin and Narasimhan (2011) enumerated only 49 genera as 'strict endemics to India', excluding several genera based on nomenclatural changes, and extended distributional range. Recently, Singh *et al.* (2015) enumerated 4381 species and infraspecfic taxa of vascular plants belonging to 1007 genera and 176 families, as strict endemics to the Indian political boundary. Of which 4303 species and infraspecfic taxa (98%) are angiosperms, pteridophytes contribute 66 species (1.5%) andgymnosperms with 12 species.

Floras published in the region contributed to evaluate the number of endemic taxa to a greater extent. Following the first botanical book of the region by Garcia da Orta's (1565), anothersignificant work on the floristics of Western Ghats by Van Rheede (1678-1703) appeared under the title, 'Hortus Malabaricus'. Publications of regional and local floras by Cooke (1901-1908), Talbot (1909), Rao (1914) and Gamble (1915-1935) provided firm base for future floristic studies. BSI published volumesof 'Flora of India' (Sharma & Balakrishnan, 1993; Sharma & Sanjappa 1993; Sharma *et al.*, 1993; Hajra *et al.*, 1995a, 1995b, 1996, 1997) also contribute largely in understanding endemic plants along the Western Ghats. The herbarium collections deposited in major herbaria along the Western Ghats also provide valuable information on the distribution of the endemics along the Western Ghats. Some of the important herbaria along the Western Ghats are MH (Coimbatore), BSI (Pune), RHT (Tiruchirapalli), BLATT (Bombay), JCB (Bangalore) and HIFP (Pondicherry). Recently, Ramesh and Pascal (1997) have provided distribution of endemic tree species in the evergreen and semi-evergreen forests of the Western Ghats based on herbarium collections. However, the information on the distribution of endemic trees in the moist deciduous forests and information on endemic herbs, shrubs and climbers are lacking.

So far as endemic and threatened plants of Gujarat are concerned, no detailed study was undertaken in the past. In the volumes of the Red Data Book of Indian

plants (1987-1990) several taxa were included from Gujarat, but they were categorized on the basis of earlier IUCN categories and criteria. However, the criteria for categorizing the threatened plants have been modified by IUCN in 1994. So, there arose a need to get the present status of all endemic and threatened taxa of Gujarat.

2.2.2 Studies on threatened plants of India

The problem regarding threatened plants of India was first discussed in the 11th technical meeting of the IUCN in 1969. Subsequently, the Botanical Survey of India (BSI) initiated work on rare and endangered species way back in the 1980s and published lists of these species. Jain and Rao (1983) brought to light several hundred rare species from different parts of the country. The Red Data Book (RDB) of Indian Plants, published by BSI (Nayar and Sastry 1987, 1988, 1990), focuses exclusively on the floraof India, more precisely on threatened angiosperms, gymnosperms and pteridophytes. Scientists studying rarity use it as an analytical tool and the accuracy oftheir results depends on the accuracy of the RDB. Since Lucas and Synge (1978), the criteria used to define the categories of threatened species have been refined considerably (IUCN, 2001). It has been shown that about 1236 (7%) of the 17500 plants recorded for the Indian subcontinent are threatened globally (Walter and Gillett 1998). The RDB however, contains only 814 species (Nayar and Sastry, 1987).

Most of the endemic species, because of their narrow distribution range and habitat destruction come under endangered category. So a project on 'Study, survey and conservation of endangered species of flora' was undertaken by BSI. Although we have accurate information on nearly 1000 threatened and endangered plant species, still gap exists in our knowledge on biology and taxonomic status of several species and this information is essential in planning appropriate conservation strategies. The publications such as 'The Red Data Book of Indian plants' by Nayar and Sastry (1987, 1989, 1990), 'Threatened plants of India - a state of art report' by Jain and Sastry (1980) and 'Conservation of the Tropical Plant Resources' by Jain and Mehra (1983) have triggered the studies on endemic and threatened plants of the region.

Since then many new plant taxa have been described form this state and also several taxa which were earlier considered as endemic to only Gujarat state have been reported from other parts of India. Hence, it had become necessary to assess the present status of endemic plants of the state.

2.3 Work done in Gujarat

Gujarat is a prime location when we look into different phytogeographical habitats. However, when we discuss about endemism and threatened species there are scattered information available on it with no detailed documentation. Very few studies are available on endemic and threatened plant species. The first systematic studies were carried out by Gujarat Ecological Commission (2001) on threatened biodiversity of Gujarat during 1998–2002. Their documentation of threatened species resulted in a list of 318 taxa belonging to 74 families and 224 genera (223 dicots and 93 monocots). Prior to that Shah (1978) while studying the flora of Gujarat stated around 230 species as 'rare', 'very rare', 'not common' species out of the 1808 species reported from Gujarat. An effort was made to evaluate the status of Trees of Gujarat (Anonymous, 2008) based on population and population trends which resulted in analysis of total of 206 trees which were categorized as 102 Least Concerned, 32 Near Threatened, 26 Vulnerable, 19 Endangered, 12 Critically Endangered and 15 Data Deficient.

In continuation to the above, after a decade, theCAMP workshop (Conservation Assessment and Management Plan for plants of Gujarat, 2014) was organized by GEER foundation, Gandhingar for assessing the endemic and threatened species of Gujarat using the IUCN Red List criteria. Initially during this workshop, 269 species were proposed by different experts from all over Gujarat, of which 41 species were scrutinized for assessment. The brain storming discussions by various experts resulted in six critically endangered plants of Gujarat this includes *Bombax insigne, Commiphora stocksiana, Entada rheedi, Corallocarpus conocarpus, Ceropegia odorata* and *Dactyliandra welwitschii*.

2.3.1 Historical survey on vascular plant studies

Floristic journey can be traced far back since 18th century when Toren Ol visited Surat and collected some seeds for Linnaeus. The French zoologist, Sonnerat, collected plants from Surat in 1782 and his specimens are at Paris. In 1787, president of the Royal Society of that time sent a Polish Surgeon, Anton Pantaleon Hove, to Bombay and from there to Ahmedabad to collect plants for the Kew Garden. His travel diary 'Tours made in Guzerat, Kathiawar and the Concans' was published in 1787-88 long after his death. In 1819, Nimmo collected specimens from Surat and sent to Hooker. Gibson in 1838, collected specimens from Gujarat and it is prevalent that he had good knowledge of the plants of the region from his general sketch of the province of Gujarat (Hajra *et al*., 1996).

Roxburgh (1832), Graham (1839), Dalzell (1850), Palin (1880), Hooker (1872-1897),Gray (1886), Narine (1894), Libosa (1890-1893) and Woodrow (1897-1901) were some of the distinguished botanists, who visited small areas and made occasional collections of plants. But their works seem to have been restricted to flying visits conducted in the better months of the year (Santapau, 1953; Nagar, 2005).After independence of India workers have made important contributions in the field of flora and vegetation of some selected localities in Gujarat.

These significant contributions includes floristic works like Plant Systematics (Sutaria, 1958), Flora of Devgadh Hills (Chavan, 1961), Flora of Saurashtra Vol. I (Santapau, 1962), Flora of Pavagadh Hills (Chavan and Oza, 1966), Flora of Khedbrahma Region (Bhatt, 1969), Vegetation of Dangs district (Jain, 1963), Flora of Gora range of Rajpipla (Bhatt, 1971): Flora of Gujarat state (Shah, 1978); a sketch of the Flora of Gujarat (Shah *et al*., 1981); and Flora of Saurashtra Vol. II and III (Bole and Pathak, 1988). Isolated but important information about the plant resources of Gujarat are also available from the works of Vaidya (1952) and Chaudhari (1959).

Kachchh

Flora of Kachchh was extensively explored by Blatter which resultedinto 'On the Flora of Kutch' (1908-1909).In 1926,Thakar published 'Plants ofKutch and their utility'.Jain andDeshpande (1960) from BSI reported 23 new records fromKachchh.Rao from BSI (1970)published a paper on the Flora of Kachchh and their economic values.An insight into various parts of Gujarat shows that South-Eastern Kachchh has been explored by Rao (1981); Raole (1993) Studied Endangered and Endemic Desert Taxa of Kachchh, and Bhatt (1993) studied the flora of Western Kuchh and gave an account of plants that needed special conservation. Joshi and Bhatt (2006) published a paper on observations on the weed flora with special emphasis to cropfields of Bhuj and Mandvi Talukas, Kachchh.Recently, Patel (2012) revised the floristic and phytosociology of western Kachchh.

Saurashtra

In Saurashtra region, systematic studies were initiated by a vernacular taxonomist Indrajit Thakar on his noteworthy work on the Flora of Barda hills (1910). Santapau studied the flora of Kathiawar in 1950 and published 'Plants of Saurashtra - a preliminary list' (1953). Kapadia published notes on some grasses of Junagadh (1945) and the forest wealth of Girnar in Junagadh District of Saurashtra(1951).Santapau and Raizada (1954) contributed to the flora of the Gir forest.Raizada and Vaid (1957) listed 256 species in their 'Glimpses of the vegetation ofOkhamandal', followed by Santapau's (1962) noteworthy contribution on the Flora of Saurashtra. Raoand Mukherjee (1967) studied vegetation of coastal area of Saurashtra and published 'Ecological studies of Saurashtra coast and neighbouring islands'. Raizada (1967) on the Flora of Gir forest. Rao (1968-74) worked upon the ecological studies of Saurashtra coast and neighbouring islands. Yogi (1970) dedicatedly studied the Flora of Saurashtra. Malhotra and Wadhwa from BSI (1973) exploredJamnagar district and gave a list of 785 taxa.A detailed study in Saurashtra by Pandya (1976) resulted intoFlora and vegetation of Saurashtra.Menon (1979) published his work on Floristics and phytosociological studies on some parts of Saurashtra.Biological

spectrum of the Flora of Shetrujaya Hills, Palitana was published byPatel *et al*. (1981).TobyHodd and Patricia Hodd (1982) worked exclusively on Grasses of Western India.Biological Flora ofRajkot was published by Thakrar in 1987.Taxonomical and ecological studies of and around Bhavnagar was published byOza (1991). Chavan (1993) made studies on the vegetation of Gir.Taxonomical study of angiosperms of Palitana was publishedby Mehta (1997).Nagar (2000)studied the biodiversity of Barda Hills and also published a book (2005) on 'FloristicBiodiversity of Barda Hills and its surroundings'.Nagar and Pandya (2002) made severalnew additions to the flora of Saurashtra.Salvi (2005) surveyed coastalvegetation of Gujarat with reference to Marine National Park.Sisodia (2007) made ecological studies in Gir national park.

Northern Gujarat

As compared to other pockets of Gujarat, there are few contributions in Northern Gujarat. Systematic studies were initiated by Saxton and Sedgewick (1918) who gave an account of plantsof North Gujarat records. Bharati (1959) explored some parts of northern Gujarat.Shah and Yogi (1974) published some more plantsfrom Khedbrahma region in North Gujarat.Patel (2009) contributed the floristic and ethnobotanical aspects of angiosperms of palanpur and dantiwada talukas.

Central Gujarat

In Central Gujarat, Gandhi (1958) initiated plant collections in Ahmedabad and its vicinity. Pathak and Oza (1959) studied some useful weeds of Baroda and its neighbourhood and Pavagadh. Pavagadh hills were surveyed by Oza (1961). Sabnis (1967) extensively studiedthe Flora of Baroda and its environs including an account of the Cyperaceae of Gujarat. Vaidya (1967) published an account on the Flora of Ahmedabad.Deshpande (1968) carried out work onfloristic diversity of Tuwa region. Thaker *et al*. (1970-1971) studied the flora and vegetation of Chhotaudepur and Kawant. Bedi *et al*. (1968, 1972), followed by Bedi's (1969) contribution on Flora of Ratanmahal hills.Karetala (1973) made floristic and phytosociological studies of Chhota Udepur, same year Padate (1973) documented theflora and vegetation of

Savali taluka. Thaker (1974) documented thefloristic diversity and ethnobotanical studies on Kawant, Bhatt (1975)studied the floristics and phytosociology of the Panchmahal. Patil (1980) contributed on urban vegetation of Baroda.Joshi (1994)did floristic, phytosociological and ethnobotanical studies of Cambay taluka.Anjaria (2002) carried outfloristic studies ofAnand District.Floristic diversity and ethnobotany of Chhota-Udepur were revised after three decades by Desai (2002). Gohil (2013) carried outfloristic studies of Baroda and Panchmahal.

Southern Gujarat

Santapau contributed to the Flora of Dangs forest (1955), which was later revised by Suryanarayana (1968). Inamdar and Patel (1971) made a survey of Bulsar–Tithal–Dungari and listed 538 species.The Gora range of the Rajpipla wassurveyed by Bhatt (1971). Patel (1971) contributed on Flora of Valsad. More (1972) studied the Flora of Palnera Hill, Pardi and Udwada. Explorations were also conducted on the floristics and phytosociology of the river Narmada by Vyas (1973). Parabia (1974) worked on the Cyperaceae of Gujarat.Desai (1976) documented the flora of Bansda.Patel *et al*. (1978) published a paper on a study ofhydrophytes and marsh plants of Bulsar district in South Gujarat.Yadav (1979) carried out floristic studies of South Gujarat. Further explorations were conducted on the coastal belt of Khambhat to Umargam by Bhagwanani (1980). Joshi (1980) studied the flora of Surat and its environs.Vora (1980) studied the flora of Dharampur, Kaprada and Nana Pondha. Joshi (1983)submitted a thesis on floristic and phytochemical survey of some important southGujarat Forests with special reference to plants of medicinal and ethnobotanicalinterest.Vashi (1985) took interest on floristics of Umarpada. Contractor (1986) worked on Floristic of Vapi and Umargaon; Mac (1982) worked upon Flora of Surat. Bhatt (1987) studied Flora of Navsari.Reddy (1987) studied the flora ofDharampur forests and made several new records for Gujarat. Pradeepkumar (1993) on the Flora of Shoolpaneshwar Wildlife Sanctuary;Pradeepkumar and Prathapasenan(2001) studied the tree diversity of Shoolpaneshwar wildlife sanctuary.Kshirsagar *et al*. (2003) gave the status of coastalvegetation along the coast of South Gujarat. Desai andRaole (2008-2013) studied the sedges andgrasses of south

Gujarat and made severalnew discoveries of Gujarat grasses. Sharma (2010) documented the diversity, distribution and local utility of medicinal plants in Shoolpaneshwar. Rao (2012) revised the floristic and ethnobotanical survey of Kaprada and Umbergaon.Tadvi (2013) revised the Floristics of Dangs.

Moreover, Parabia (1974) documented a detailed account on Cyperaceae of Gujarat. Sanjappa (1977) made intensive studies on some genera oftribes Indigofereae and Desmodieae. Gopal (1983) carried out ethnobotanical studies in the forest areas of Gujarat. Binojkumar (1993) maderevisionary studies of the genus *Euphorbia*. Rao (2002) analysed the distributional status survey of threatened plants of Gujarat. Patel (2013) made a critical study on the climbingplants of Gujarat and made 28 new records for Gujarat State.

Pandey and Padhya (1997, 2005) made additions to the flora of Gujarat. Pandey(2001, 2002 and 2005) made several new records to the flora of Gujarat. Kothari andRao (2001) studied mangroves of Gujarat. Rao (2002) studied the distributional status ofThreatened Plants of Gujarat. Parmar andShrivastava (2003) published some new plant records from Gujarat. Parmar and Singh(2003) made some interesting new plant records for Gujarat. Meena (2004a, 2005,2007) published a series of papers on some new plants to the Gujarat State I, II and III and made two new records of *Fimbristylis* (Cyperaceae) for Gujarat (2004b).Meena and Pandey (2004) published a paper on reassessment of the phytodiversityof Gujarat State: floristic composition and floristic analysis, vegetation, threatenedand rare taxa and their conservation strategies. Parmar (2006, 2008a,b) made several new records, especially innorthern Gujarat and Kachchh.

During the course of time some new plant taxa were described from Gujarat. Sahniand Naithani (1976) described *Cyperus dwarkensis*. Shetty and Pandey (1992) described *Tamarix kutchensis*. Parmar (2008c) described a new variety i.e. *Hygrophila schulli* var. *alba* from Gujarat. Desai and Raole described three newspecies viz. *Desmostachya pingalaiae* Raole & Desai (2008), *Ischaemum sayajiraoi*Raole & Desai (2011) and *Spodiopogon aristatus* Desai & Raole (2012).

The major compilation on the flora of three states *viz*. Gujarat, Maharashtra andKarnataka earlier known as Bombay Presidency was done by Cooke (1903-1908). Afew botanists such as Santapau (1962), Thakar (1910, 1926), Saxton and Sedgwick (1918), Bole and Pathak (1988) published regional Floras. Vast information wasfurther compiled at state level in the form of Forest Flora of Gujarat State (Patel, 1971). For the first time Flora of Gujarat was brought out by Shah (1978) encompassing of 153 families, 788 genera, 1580 species, 124 varieties and 14 subspecies. It has been the landmark in the history of plant taxonomy in India, beingthe first State Flora of independent India. Raghavan *et al*. (1981) from BSI published A checklist of the plants of Gujarat enlisting of 155families, 861 genera, 1964 species and 87 varieties. GEC (1996) also attempted to update the checklist of Flora of Gujarat in the form of 'current knowledge on the flora of Gujarat' enumerating 2168 species. Jani (2014) revised the checklist for the Flora of Gujarat and reported 2555 angiosperm taxa for Gujarat. However, the Flora of Gujarat State (Shah, 1978) still remains animportant landmark, due to the comprehensive information as well as theidentification keys for each plant species included therein.

From time to time Forest Department explored different protected areas, reservedforests and biodiversity rich wetlands and documented the distribution status of theflora in respect to area viz. Study of plant species bio-diversity of Banaskantha forest, Floristic study of Shamlaji Area dist. Sabarkantha,Biodiversity study on Vansda National Park (Singh *et al*., 2000), Ecological status ofNarayan Sarovar Wildlife Sanctuary, Biodiversity study in RatanmahalsWildlife Sanctuary (Singh *et al*., 2002), Study of plant species diversity in theprotected areas of the Central North and South Gujarat (Reddy, 2002), The status ofbiodiversity in Purna Wildlife Sanctuary (Jethva and Aiyadurai, 2004), Ecology andbiodiversity of Khijadiya Bird Sanctuary and its environs (Pandey and Teli, 2005),Study of wetland habitats in Kachchh district and suggesting stakeholder drivenmanagement strategies, Biodiversity of Shoolpaneshwar WildlifeSanctuary.

The compilation on Gujarat flora by GEC (1996) presents merely a list of 2199 angiosperms from Gujarat. In the recent work by Jani (2014), the author has compiled information on 2555 angiosperms reported so far from Gujarat State; thus

the knowledge gap of 356 plants including four new records of the present investigation has been abridged. Moreover, the literature published after the publication of Gujarat Flora (Shah, 1978) has been scrutinized thoroughly. Thus, the records missed by GEC (1996) as well as Raghavan *et al.* (1981) have also been considered. Further, all the names were also checked for their present nomenclature status and 352 names updated accordingly, whereas 57 species and infra specific taxa have been merged with other taxa. When compared the current status on the floristic composition of angiosperms recorded for Gujarat with that of India (BSI, 2014); it comes to 14.19%.

Table 1: Comparative account of floristic diversity of Gujarat

SN	Authors	Year of publication	No. of species	No. of genera	No. of families
1.	Saxton & Sedgwick	1918	614	346	88
2.	Patel RI	1975	610	345	85
3.	Shah GL	1978	1808	827	155
4.	Raghavan *et al.*	1981	1964	868	160
5.	GEC report	1996	2199	903	156
6.	Jani MD	2014	2555	1003	162*

*as per APG III

Jani (2014) reported 2555 angiosperms for Gujarat state, but the present work added 48 more taxa which are Indian endemics and reported by various authors from Gujarat. Amalgamation of the previous, recent and present data, the number of total taxa has gone to 2603.

In the present review, the status of each taxon has been cross-checked in the IUCN Red List. The review shows that 417 taxa *i.e.*, sixteen percent of the total floristic diversity of Gujarat, has been evaluated by the IUCN Red List, of which only nine percent (23 taxa) come under threatened categories; whereas 84%, 2186 taxa are still Not Evaluated.

Table 2: Threatened species (as per IUCN Red List) found in Gujarat

Name of species	Red List category and criteria
Chlorophytum borivilianum Santapau & R. R. Fern.	CR A2cd
Tribulus rajasthanensis Bhandari & V. S. Sharma	CR A2cd
Commiphora wightii (Arn.) Bhandari	CR A2cd
Jasminum azoricum L.	CR D
Eriocaulon richardianum (Fyson) R. Ansari & N.P. Balakr.	EN B2ab(ii,iii)
Ischaemum vembanadense R.B. Patil & D'Cruz	EN B1ab(iii)+2ab(iii)
Pterocarpus santalinus L.f.	EN B1+2de
Guaiacum officinale L.	EN C2a
Ammannia nagpurensis T. Mathew & M.P. Nayar	EN B1ab(ii,iii)+2ab(ii,iii)
Swietenia mahagoni (L.) Jacq.	EN A1cd
Curcuma pseudomontana J. Graham	VU A2cd
Acacia ferruginea DC.	VU A1c
Dalbergia latifolia Roxb.	VU A1cd
Saraca asoca (Roxb.) De Wilde	VU B1+2c
Garcinia indica (Thouars) Choisy	VU A2cd
Joannesia princeps Vell.	VU A1cd
Cleistanthus collinus (Roxb.) Benth. ex Hook. f.	VU A1d
Khoya senegalensis (Desr.) A. Juss.	VU A1cd
Swietenia macrophylla King	VU A1cd+2cd
Chloroxylon swietenia DC.	VU A1c
Dyerophytum indicum (Gibbs ex Wight) Kuntze	VU D2
Santalum album L.	VU A1d
Jacaranda mimosifolia D. Don	VU B1+2ac