

Ethnobotanical Knowledge Studied in Pocharam Wildlife Sanctuary, Telangana, India

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Abstract

A survey was conducted in 31 fringe villages of Pocharam wildlife sanctuary, Telangana, India, during 2010 to 2012, in order to explore and document the ethnobotanical knowledge of Yerukulas and Lambadis communities. There was revealed the use of 173 Angiosperm species. The pattern of the plant use as per habitat (terrestrial/aquatic), habit (growth form), plant part (organ) and taxonomic category (families), nativity and occurrence (wild/cultivated) were established. Dicots contribute more than Monocots to the medicinal and ethnobotanical use. This might be due to the species strength in the region. When the plant use-data were analyzed, trees contributed with 68 uses, followed by herbs (51), climbers (32) and shrubs (22). Perhaps this was a reflection of the floristic composition and the prevailing *Phanero-therophytic* climate. Out of the 173 plant taxa that were noted as being utilized by the ethnic people in the sanctuary, the greatest number (154; 89.1%) were indigenous and wild. The introduced species were the crops under cultivation and planted. Although the local people use plants for various purposes, they largely serve medicinal scopes (83.24%) and for subsistence (21.96%).

Keywords: ethnic use, native species, plant resource, sanctuary, wildlife

Introduction

Eighty percent of the Indian population lives in villages and a considerable proportion of it comprises the tribal communities residing in remote forest areas. The traditions, beliefs, taboos and needs of the tribes vary with the floral diversity of the habitat that dearly contributes to plant-folklore. Obviously, the plants play a vital role in the maintenance of health besides providing food, fibre and shelter which are very basic to these people.

For Telangana region in southern India, Khan (1953) was perhaps the first to record the ethnobotanical uses of some plant species. Kapoor and Kapoor (1980), Hemadri (1990) and Naqvi (2001) enumerated the medicinal plant wealth of Karimnagar district. Ramarao (1988) visited Rangapur and Thupakulagudem hamlets and interacted with Koyas and Lambadis of Warangal district for his doctoral thesis on ethnobotany of Eastern Ghats, while Ravishankar (1990) studied the ethnobotany of Adilabad and Karimnagar districts. Pullaiah and Kumar (1996) and Kumar and Pullaiah (1998) enumerated the medicinal herbs in Mahabubnagar district. Reddy *et al.* (1998) documented the ethnoveterinary practices in Warangal district; they made 49 additions to the Dictionary of Ethnoveterinary Plants of India (cf. Appendix by Jain SK, 1999). Certain research articles were published on the traditional botanical knowledge of Gonds of Northern Telangana (Adilabad district: Ravishankar and Henry, 1992; Swamy, 2009; Omkar *et al.*, 2011; Karimnagar district: Reddy *et al.*, 2002).

The ethnobotany of Khammam district received fair attention. Upadhyay and Chauhan (2000) published a brief account of ethnobotany of Gundala mandal. Reddy *et al.* (2001) reported the ethnic medicinal uses of the endemic *Heterostemma decanense* at Sukkumamidi. Reddy (2002) documented the ethnobotanical information for 550 plants from Warangal district. Reddy and Raju (2002) published the ethnobotanical observations on Konda Reddis of Mothugudem and Raju and Reddy (2005) reported the ethnomedicine for dysentery and diarrhoea. Reddy *et al.* (2007) published an account of the phytotherapy practiced by Gonds in Warangal district, while Murthy *et al.* (2007) made a brief report of the ethnoveterinary practices in vogue among the Koyas in Pakhal wildlife sanctuary. Recently, there were investigated the medicinal and economic uses of 204 climbing plants of 132 genera, 50 families of Magnoliophyta and two ferns of northern Telangana (Suthari *et al.*, 2014a) and the varying traditional botanical knowledge of plant medicines of Koya community inhabiting in 16 villages of Eturnagaram wildlife sanctuary area (Suthari *et al.*, 2014b).

For Southern Telangana, Padmarao *et al.* (1999) published a note on folk treatment of bone fractures in Ranga Reddy district and Reddy and Raju (2000) enlisted the folklore biomedicine for common veterinary diseases in Nalgonda district. Reddy *et al.* (2010) reported 82 medicinal plant species of ethnic use in Medak district without mentioning any tribe. Later, Sreeramulu *et al.* (2013) reviewed the ethno-botanical-medicinal aspects for common human ailments in Nalgonda and Warangal districts.

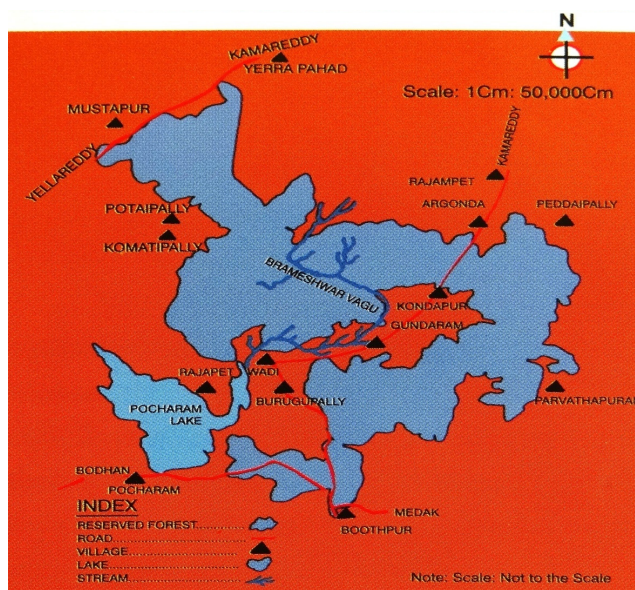


Fig. 1. The study area- outline of Pocharam wildlife sanctuary (Source: Brochure published by Andhra Pradesh Forest Department, Hyderabad)

Conversely, there is no field-level baseline of ethnobotanical data published on Pocharam wildlife sanctuary. Therefore, an attempt was made to provide an inventory of the area.

Study area

The Pocharam Lake was built during 1916-1922 near Pocharam village by damming Allair, a tributary of Manjeera River. The Pocharam wildlife sanctuary (Fig. 1) was established in 1952 around this water body and lies in between the latitudes 18°6' to 18°18'N and longitudes 78°8' to 78°20'E. The sanctuary has two Reserve Forest blocks (dry deciduous type), namely Boothpur (1076.89 ha) and Lingampet (11907.67 ha). Presently, the wildlife sanctuary has a land area of 129.85 sq km spread in the districts of Medak (incl. Ramayampet) and Nizamabad (incl. Lingampet, Tadvai and Nizamabad).

A major portion of the sanctuary is of peninsular granite complex, basically of Archean formation. The soil varies from red to sandy loam. Heavy biotic pressure, indiscriminate felling/cutting of trees, uncontrolled grazing and annual forest fires are contributing to soil erosion and further depletion of soil nutrients. The soil has good forest growth only in valleys. In plains, the soil is compacted due to trampling. Very little percolation of water and run off occurs through this land soil surface (Anonymous, 2000). The area receives Southwest monsoon rains (June to September), with sporadic showers during Northeast monsoon season. The annual average rainfall in the sanctuary is 700 mm. During summer, the temperature rises up to 47°C while it falls down to 10°C in winter.

Tribes

The people inhabiting the study area are largely the Yerukalas and the Lambadis. Although both are of Scheduled-tribe category, the latter are non-endemic. Yerukalas are chiefly engaged in rearing pigs, making baskets and brooms. They live in small huts built with bamboo poles and grass roofs. Lambadis are economically better developed and politically alert in comparison to the local indigenous ethnic people such as Gonds, Koyas and others in Northern Telangana. Even though the sanctuary is proximate to Adilabad (Central India – the Gond Region),

neither the Gonds nor the familiar Teak forests abound. There are 53 villages within the 5 km border of the sanctuary, with sparsely populated ethnic people. These villagers mainly depend on forest for timber, agricultural implements, fibre, fuel, fodder and other non-timber forest produce (NTFPs). Of the abiotic factors, forest fire is deliberate in the area for the collection of beedi (tendu) leaf and other NTFPs, like grass.

Materials and methods

The field trips to the study area were designed to cover the four seasons for three years (2010-2012). Each field visit lasted 4-5 days. The ethnobotanical data were collected through Participatory Rural Appraisal (PRA), which deals the interaction with the indigenous people and direct surveillance in the field (Chambers, 1994). A number of semi-structured interviews from the tribes Yerukalas and Lambadis were conducted in groups or with individuals who are usually above 40 years, with heads of families, house-wives, mid-wives, cattle and/or sheep owners and local vaidyas. The use of plants by the people of 31 villages of the sanctuary was documented (Saidulu, 2014). The information sought was about the uses of plants, e.g. hut construction, agriculture, food, medicine, ornaments, textiles, rituals etc. A total of 59 key-informants have been interviewed as follows: male 48 (81.36%) and female 11 (18.64%), of 30-70 years in five age groups such as 30-39, 40-49, 50-59, 60-69, 70-79 and the percentage (%) of informants is 8.47 (5), 27.12 (16), 30.51 (18), 32.2 (19), 1.7 (01), respectively. The plant specimens with flower, fruit, tuber, rhizome etc. were collected to identify the species and to authenticate the ethnic claims. The voucher specimens of plants of use were collected, processed, labeled and incorporated into Kakatiya University Herbarium (KUW), Warangal (Saidulu, 2014).

Special attention was paid to solicit the field data relating to the habitat, habit, features of flower and fruit, economic/medicinal parts etc. of the plants used by the tribes. Information was documented for wild and cultivated species used by the two tribes in and around the sanctuary for nutrition, day-to-day living, human and ethnoveterinary medicine.

Prior Informed Content (PIC)

In compliance with CBD (Convention on Biological Diversity), PIC was consisted after relevant discussions by Kakatiya University Authority with the local tribal communities in Northern Telangana about the nature of use of their traditional knowledge. It is an understanding that any profit derived out of the research pursued after their medicinal plant knowledge shall belong to them (Suthari *et al.*, 2014a, b).

Results and discussions

Ethnobotany

The present study documented the uses of plants by the local ethnic tribes, the Yerukalas and Lambadis, who reside in 31 villages in and around the Pocharam wildlife sanctuary. Table 1 provides the scientific name followed by family, growth form, occurrence, plant part/s and the traditional use of each and every taxon documented. It was noted that Pocharam wildlife sanctuary was poor in regard to the ethnic diversity, forest

Table 1. Documentation of ethnobotanical plants from Pocharam wildlife sanctuary

	Scientific Name	Family	Growth form	Occurrence	Plant part/s used	Traditional use
	Magnoliopsida					
1	<i>Abrus precatorius</i>	Papilionaceae	Climber	Wild	Seed	Arrow poison, Contraceptive, Scorpion sting
2	<i>Abutilon indicum</i>	Malvaceae	Shrub	Wild	Root/Leaf	Dysentery/Toothache
3	<i>Acacia chundra</i>	Mimosaceae	Tree	Wild	Bark/Wood	Evil spirits/Agricultural implements
4	<i>Acacia farnesiana</i>	Mimosaceae	Tree	Wild	Fruit/Gum	Dog bite/Toothache
5	<i>Acacia leucophloea</i>	Mimosaceae	Tree	Wild	Bark/Wood	Liquor/Agricultural implements
6	<i>Acacia nilotica</i>	Mimosaceae	Tree	Planted	Wood/Bark	Commerce, Agricultural implements/ Burns
7	<i>Acacia torta</i>	Mimosaceae	Shrub	Wild	Root/Bark	Fever/Stupefying fish
8	<i>Acalypha indica</i>	Euphorbiaceae	Herb	Wild	Root/Leaf	Antiemetic/Skin disease
9	<i>Achyranthes aspera</i>	Amaranthaceae	Herb	Wild	Leaf	Toothache, Scorpion sting
10	<i>Aegle marmelos</i>	Rutaceae	Tree	Wild	Fruit/Bark	Cooling effect, Diarrhoea/Dysentery
11	<i>Aerva lanata</i>	Amaranthaceae	Herb	Wild	Whole plant	Kidney stones, Leafy vegetable
12	<i>Ailanthus excelsa</i>	Simaroubaceae	Tree	Natur	Bark	Piles, Rheumatism, Skin disease
13	<i>Alangium salviifolium</i>	Alangiaceae	Tree	Wild	Fruit/Root bark/Wood	Anorexia/Purgative/Fuel
14	<i>Albizia amara</i>	Mimosaceae	Tree	Wild	Gum	Anti-ulcer
15	<i>Albizia lebbek</i>	Mimosaceae	Tree	Planted/R_wild	Wood/Seed	Timber/Toothache
16	<i>Alteranthera sessilis</i>	Amaranthaceae	Herb	Wild	Whole plant/Shoots	Bone fracture/Leafy Vegetable
17	<i>Amaranthus spinosus</i>	Amaranthaceae	Herb	E/Natur	Root/Leaf	Rheumatic pains/Vegetable
18	<i>Ampelocissus latifolia</i>	Vitaceae	Climber	Wild	Stem/Fruit/Leaf	Anorexia/Cooling effect/Vegetable
19	<i>Andrographis paniculata</i>	Acanthaceae	Herb	Wild	Whole plant	Cold, Fever, Dyspepsia
20	<i>Anisomeles indica</i>	Lamiaceae	Herb	Wild	Root/Leaf	Centipede bite/Dog bite
21	<i>Anogeissus latifolia</i>	Combretaceae	Tree	Wild	Wood/Gum	Agricultural implements/Commerce
22	<i>Aristolochia indica</i>	Aristolochiaceae	Climber	Wild	Root	Chest pain, Snake bite
23	<i>Atylosia scarabaeoides</i>	Papilionaceae	Herb	Wild	Seed/Whole plant	Vegetable/Fodder
24	<i>Azadirachta indica</i>	Meliaceae	Tree	Planted/R_wild	Leaf/Branchlet/Wood	Chicken pox/Tooth brush/Agricultural implements
25	<i>Bacopa monnieri</i>	Scrophulariaceae	Herb	Wild	Whole plant	Cooling effect, Tonic
26	<i>Balanites roxburghii</i>	Balanitaceae	Tree	Wild	Fruit	Fish poison, Whooping cough
27	<i>Bambusa arundinacea</i>	Poaceae	Tree	Wild	Culms/Sprouts	Baskets/Food
28	<i>Barringtonia acutangula</i>	Barringtoniaceae	Tree	Wild	Wood/Leaf/Bark	Boat building/Diarrhoea/Fish poison
29	<i>Bauhinia racemosa</i>	Caesalpiniaceae	Tree	Wild	Leaf/Bark	Beedi wrappers/Cordage
30	<i>Boerhavia diffusa</i>	Nyctaginaceae	Herb	Wild	Whole plant	Jaundice
31	<i>Bombax ceiba</i>	Malvaceae	Tree	Wild	Bark/Wood	Anthrax/Utensils
32	<i>Boswellia serrata</i>	Burseraceae	Tree	Wild	Resin	Commerce, Dog bite, Eruptions
33	<i>Buchanania axillaris</i>	Anacardiaceae	Tree	Wild	Gum/Kernels	Wounds/Food
34	<i>Buchanania cochinchinensis</i>	Anacardiaceae	Tree	Wild	Gum/Leaf	Chest pain/Blister, Boils
35	<i>Butea monosperma</i>	Papilionaceae	Liana	Wild	Flower	Dye, Adoration
36	<i>Calotropis gigantea</i>	Apocynaceae	Shrub	E/Natur	Latex	Dental care, Migraine, Ear-ache
37	<i>Canavalia virosa</i>	Papilionaceae	Climber	Wild	Pod/Branch	Food/Galactagogue
38	<i>Canthium coromandelicum</i>	Rubiaceae	Shrub	Wild	Root bark/Fruit	Dysentery/Food
39	<i>Capparis zeylanica</i>	Capparaceae	Climber	Wild	Leaf/Root	Boils/Evil spirits
40	<i>Caralluma adscendens</i> var. <i>attenuata</i>	Apocynaceae	Herb	Wild	Pulp/Whole plant	Burns/Galactagogue, Fever
41	<i>Cardiospermum halicacabum</i>	Sapindaceae	Climber	Wild	Leaf/Fruit	Cooling effect/Ringworm
42	<i>Careya arborea</i>	Barringtoniaceae	Tree	Wild	Bark/Flower	Body swellings/Maternal pain
43	<i>Carissa spinarum</i>	Apocynaceae	Shrub	Wild	Fruit	Cooling effect
44	<i>Cassia fistula</i>	Caesalpiniaceae	Tree	Wild	Leaf/Root bark	Dyspepsia/Purgative
45	<i>Catunaregam spinosa</i>	Rubiaceae	Shrub	Wild	Fruit	Fish poison
46	<i>Celosia argentea</i>	Amaranthaceae	Herb	E/Natur	Leaf/Inflorescence	Insect bite, Toothache/Worship
47	<i>Chamaesyce hirta</i>	Euphorbiaceae	Herb	Wild	Whole plant	Boils, Blisters, Cuts, Galactagogue
48	<i>Chloroxylon swietenia</i>	Flindersiaceae	Tree	Wild	Wood/Leaf	Furniture/Mosquito repellent
49	<i>Cissus vitriginea</i>	Vitaceae	Shrub	Wild	Stem	Bronchitis, Headache
50	<i>Cleistanthus collinus</i>	Phyllanthaceae	Tree	Wild	Whole plant/Bark	Fish poison/Wounds
51	<i>Cleome gynandra</i>	Cleomaceae	Herb	E/Natur	Leaf	Inflammation, Food
52	<i>Coccinia grandis</i>	Cucurbitaceae	Climber	Wild	Leaf	Diabetes
53	<i>Cocculus hirsutus</i>	Menispermaceae	Climber	Wild	Leaf	Cooling effect, Food
54	<i>Cochlospermum religiosum</i>	Cochlospermaceae	Tree	Wild	Bark/Gum	Bone fracture/Ulcers
55	<i>Corchorus trilobularis</i>	Malvaceae	Herb	Wild	Leaf	Fever
56	<i>Cordia dichotoma</i>	Boraginaceae	Tree	Wild	Fruit	Dyspepsia
57	<i>Croton bonplandianum</i>	Euphorbiaceae	Herb	E/Natur	Bark/Latex	Contraceptive/Cuts, Wounds
58	<i>Cyathbillium cinerareum</i>	Asteraceae	Herb	E/Natur	Leaf	Ring worm
59	<i>Derris scandens</i>	Papilionaceae	Climber	Wild	Leaf/Root	Fish poison/Rheumatism
60	<i>Desmodium triflorum</i>	Papilionaceae	Herb	Wild	Root/Leaf	Asthma/Diarrhoea
61	<i>Dichrostachys cinerea</i>	Mimosaceae	Shrub	Wild	Leaf/Bark	Boils, Blisters, Cuts/Rheumatism
62	<i>Diospyros chloroxylon</i>	Ebenaceae	Tree	Wild	Fruit/Bark	Food/Snake bite
63	<i>Diospyros melanoxylon</i>	Ebenaceae	Tree	Wild	Leaf/Fruit/Wood	Beedi making/Food/Rafters
64	<i>Diplocyclos palmatus</i>	Cucurbitaceae	Climber	Wild	Fruit	Fever
65	<i>Dregea volubilis</i>	Apocynaceae	Climber	Wild	Root/Leaf	Rheumatism/Veterinary
66	<i>Eclipta prostrata</i>	Asteraceae	Herb	Wild	Leaf	Food, Jaundice
67	<i>Enicostema axillare</i>	Gentianaceae	Herb	Wild	Whole plant	Chronic fever, Diabetes
68	<i>Euphorbia nivulia</i>	Euphorbiaceae	Tree	Cult	Latex	Rheumatism
69	<i>Evolvulus alsinoides</i>	Convolvulaceae	Herb	Wild	Whole plant	Aphrodisiac, Mental disorders
70	<i>Ficus benghalensis</i>	Moraceae	Tree	Wild	Latex	Rheumatism
71	<i>Ficus hispida</i>	Moraceae	Small tree	Wild	Leaf/Bark	Boils/Galactagogue
72	<i>Ficus racemosa</i>	Moraceae	Tree	Wild	Fruit/Stem bark	Food/Liquor
73	<i>Firmiana simplex</i>	Malvaceae	Tree	Wild	Gum/Seed	Commercial, Cooling, Dysentery/Food
74	<i>Flacourtia indica</i>	Flacourtiaceae	Tree	Wild	Bark/Fruit	Boils, Blisters, Cuts/Food
75	<i>Gardenia gummifera</i>	Rubiaceae	Tree	Wild	Gum-resin	Snake bite
76	<i>Gardenia resinifera</i>	Rubiaceae	Tree	Wild	Gum-resin	Fever, Whooping cough
77	<i>Getonia floribunda</i>	Combretaceae	Climber	Wild	Leaf	Purgative

78	<i>Grewia hirsuta</i>	Malvaceae	Shrub	Wild	Root	Boils, Blisters, Cuts
79	<i>Grewia tiliifolia</i>	Malvaceae	Shrub	Wild	Stem/Fruit/Leaf	Cordage/Dyspepsia/Fodder
80	<i>Gymnema sylvestre</i>	Apocynaceae	Climber	Wild	Leaf	Diabetes, Opacity of cornea
81	<i>Hardwickia binata</i>	Caesalpiniaceae	Tree	Wild	Bark/Gum	Cordage/Gonorrhoea
82	<i>Helicteres isora</i>	Malvaceae	Shrub	Wild	Bark	Cordage
83	<i>Hemidesmus indicus</i> var. <i>indicus</i>	Apocynaceae	Climber	Wild	Root	Blood purifier
84	<i>Hemidesmus indicus</i> var. <i>pubesens</i>	Apocynaceae	Climber	Wild	Root	Galactagogue
85	<i>Hibiscus sabdariffa</i>	Malvaceae	Herb	Cult	Bark/Leaf	Fibre/Food
86	<i>Holarrhena pubescens</i>	Apocynaceae	Tree	Wild	Leaf/Bark	Dysentery/Headache
87	<i>Holoptelea integrifolia</i>	Ulmaceae	Tree	Wild	Wood/Leaf	Fuel/Skin disease
88	<i>Hybanthus enneaspermus</i>	Violaceae	Herb	Wild	Whole plant/Leaf	Aphrodisiac/Purgative
89	<i>Hygrophila auriculata</i>	Acanthaceae	Herb	Wild	Root/Leaf	Gonorrhoea/Oedema
90	<i>Hyptis suaveolens</i>	Lamiaceae	Herb	E/Natur	Whole plant/Dried shoots	Mosquito repellent/Fencing thatching
91	<i>Ipomoea aquatica</i>	Convolvulaceae	Climber	Wild	Whole plant/Leaf	Cooling effect/Food
92	<i>Ipomoea carnea</i> ssp. <i>fistulosa</i>	Convolvulaceae	Climber	E/Natur	Whole plant	Fence
93	<i>Lannea coromandelica</i>	Anacardiaceae	Tree	Wild	Stem bark/Wood	Bone fracture, Foot cracks/Agricultural implements
94	<i>Lepidagathis cristata</i>	Acanthaceae	Herb	Wild	Root/Whole plant	Body pains/evil spirits
95	<i>Limonia acidissima</i>	Rutaceae	Tree	Wild	Fruit	Dysentery, Food, Indigestion, Renal problems
96	<i>Litsea glutinosa</i>	Lauraceae	Tree	Wild	Bark/Leaf	Bone fracture/Horn cancer
97	<i>Madhuca longifolia</i> var. <i>latifolia</i>	Sapotaceae	Tree	Wild	Flower/Seed	Galactagogue, Liquor/Food
98	<i>Mangifera indica</i>	Anacardiaceae	Tree	Wild	Bark/Fruit	Boils, Blisters, Wounds/Food
99	<i>Manilkara hexandra</i>	Sapotaceae	Tree	Wild	Fruit/Branch	Cooling effect/Decoration
100	<i>Maytenus emarginata</i>	Celastraceae	Shrub	Wild	Leaf	Oedema
101	<i>Millettia tomentosa</i>	Annonaceae	Tree	Wild	Wood	Agricultural implements
102	<i>Morinda pubescens</i>	Rubiaceae	Tree	Wild	Wood/Root bark	Agricultural implements/Stomach ache
103	<i>Mucuna pruriens</i> var. <i>hirsuta</i>	Papilionaceae	Climber	Wild	Root	Centipede bite, Filariasis
104	<i>Mukia maderaspatana</i>	Cucurbitaceae	Climber	Wild	Fruit/Leaf	Blood purification/Dandruff
105	<i>Nelumbo nucifera</i>	Nymphaeaceae	Herb	Wild	Leaf	Epistaxis
106	<i>Nymphaea nouchali</i>	Nymphaeaceae	Herb	Wild	Flower	Adoration, Eye infection
107	<i>Ocimum americanum</i>	Lamiaceae	Herb	E/Cult/Natur	Leaf	Mosquito repellent
108	<i>Ocimum tenuiflorum</i>	Lamiaceae	Herb	E/Cult	Leaf	Cold, Cough, Malaria
109	<i>Olax scandens</i>	Oleaceae	Shrub	Wild	Leaf/Fruit	Diarrhoea/Food
110	<i>Pavonia zeylanica</i>	Malvaceae	Shrub	Wild	Leaf	Diuretic
111	<i>Pergularia daemia</i>	Apocynaceae	Climber	Wild	Leaf/Latex	Leprosy/Rheumatism
112	<i>Phyllanthus nodiflorus</i>	Verbenaceae	Herb	Wild	Leaf/Whole plant	Kidney stones/Toothache
113	<i>Phyllanthus amarus</i>	Phyllanthaceae	Herb	E/Natur	Whole plant	Diabetes, Jaundice
114	<i>Phyllanthus emblica</i>	Phyllanthaceae	Tree	Wild	Fruit	Food, Dandruff
115	<i>Phyllanthus reticulatus</i>	Phyllanthaceae	Shrub	Wild	Leaf/Shoots	Fodder/Making baskets
116	<i>Physalis angulata</i>	Solanaceae	Herb	E/Natur	Fruit	Intestinal disorders, Purgative
117	<i>Pithecellobium dulce</i>	Mimosaceae	Tree	Planted	Wood/Arils	Agricultural implements/Blood purification
118	<i>Polycarpea corymbosa</i>	Caryophyllaceae	Herb	Wild	Leaf	Inflammation, Jaundice
119	<i>Pongamia pinnata</i>	Papilionaceae	Tree	Wild/Planted	Seed/Shoots	Commerce/Tooth brush
120	<i>Portulaca oleracea</i>	Portulacaceae	Herb	Wild	Shoot	Leafy vegetable
121	<i>Portulaca quadrifida</i>	Portulacaceae	Herb	Wild	Leaf	Burns, Skin disease
122	<i>Prosopis cineraria</i>	Mimosaceae	Tree	Wild	Shoots, Leaf/Wood	Ceremonial/Fuel
123	<i>Prosopis juliflora</i>	Mimosaceae	Tree	E/Natur	Fruit/Wood	Fodder/Fuel wood
124	<i>Pterocarpus marsupium</i>	Papilionaceae	Tree	Wild	Gum/Wood/Bark	Adhesive/Agricultural implements/Cordage
125	<i>Rauwolfia serpentina</i>	Apocynaceae	Shrub	Wild	Root	Centipede bite, Snake bite
126	<i>Ricinus communis</i>	Euphorbiaceae	Shrub	E/Cult/R_wild	Seed/Leaf	Constipation/Sun stroke
127	<i>Rivea hypocrateriformis</i>	Convolvulaceae	Climber	Wild	Root/Leaf	Dog bite/Piles
128	<i>Sapindus emarginatus</i>	Sapindaceae	Tree	Wild	Leaf/Fruit	Cooling effect/Dandruff
129	<i>Schleichera oleosa</i>	Sapindaceae	Tree	Wild	Bark/Leaf	Chest pain, Sores/Ulcers
130	<i>Semecarpus anacardium</i>	Anacardiaceae	Tree	Wild	Hypocarp/Seed	Food/Magico religious beliefs
131	<i>Senna auriculata</i>	Caesalpiniaceae	Shrub	Wild	Seed/Flower	Adoration/Diabetes
132	<i>Sida acuta</i>	Malvaceae	Herb	Wild	Whole plant	Broom
133	<i>Sida cordata</i>	Malvaceae	Herb	Wild	Whole plant/Leaf	Dysentery/Scorpion sting
134	<i>Solanum americanum</i>	Solanaceae	Shrub	E/Natur	Leaf/Fruit	Food/Skin disease
135	<i>Solanum virginianum</i>	Solanaceae	Climber	E/Natur	Root/Stem/Fruit	Leprosy/Cough/Worm killing
136	<i>Solanum torvum</i>	Solanaceae	Shrub	R_Wild	Fruit	Vegetable
137	<i>Solenia amplexicaulis</i>	Cucurbitaceae	Climber	Wild	Whole plant	Diabetes
138	<i>Soyimida febrifuga</i>	Meliaceae	Tree	Wild	Bark/Wood	Agricultural implements, Fuel/Diarrhoea
139	<i>Sphaeranthus indicus</i>	Asteraceae	Herb	Wild	Whole plant	Lice killing, Stomach ache
140	<i>Strychnos nux-vomica</i>	Loganiaceae	Tree	Wild	Bark/Seed	Magico religious beliefs, Poison/Snake bite
141	<i>Strychnos potatorum</i>	Loganiaceae	Tree	Wild	Seed	Detergent, Water purification
142	<i>Syzygium cumini</i>	Myrtaceae	Tree	Wild	Branch/Fruit pulp/Wood	Adoration/Eye sight/Making carts
143	<i>Tectona grandis</i>	Lamiaceae	Tree	Wild	Inflorescence/Wood	Adoration/Commerce
144	<i>Tephrosia purpurea</i>	Papilionaceae	Herb	Wild	Root	Fever
145	<i>Terminalia arjuna</i>	Combretaceae	Tree	Wild	Wood/Stem bark/Whole plant	Agricultural implements/Boils, blisters/Magico religious beliefs
146	<i>Terminalia bellirica</i>	Combretaceae	Tree	Wild	Gum, Fruit/Whole plant	Commerce/Evil spirits
147	<i>Tinospora cordifolia</i>	Menispermaceae	Climber	Wild	Root/Stem	Cough, Galactagogue/Fever
148	<i>Tribulus lanuginosus</i>	Zygophyllaceae	Climber	Wild	Root/Fruit	Cooling, Demulcent/Gonorrhoea
149	<i>Trichosanthes cucurbitina</i>	Cucurbitaceae	Climber	Wild	Fruit	Skin disease
150	<i>Tridax procumbens</i>	Asteraceae	Herb	E/Natur	Leaf/Whole plant	Boils, Blisters, Cuts/Wounds
151	<i>Tylophora indica</i>	Apocynaceae	Climber	Wild	Leaf/Root	Asthma/Cough, Jaundice
152	<i>Ventilago denticulata</i>	Rhamnaceae	Climber	Wild	Leaf/Stem bark	Debility/Stomach ache
153	<i>Vitex negundo</i>	Verbenaceae	Tree	Planted	Leaf	Arthritis, Headache, Post-partum problems
154	<i>Wrightia tinctoria</i>	Apocynaceae	Tree	Wild	Bark/Wood	Boils, Blisters, Wounds/Toys, decorative
155	<i>Xanthium indicum</i>	Asteraceae	Herb	E/Natur	Root/Whole plant	Evil spirits/Sores
156	<i>Xylia xylocarpa</i>	Mimosaceae	Tree	Wild	Wood/Leaf	Agricultural implements/Purgative
157	<i>Ziziphus oenopolia</i>	Rhamnaceae	Climber	Wild	Fruit/Stem bark	Edible/Mouth wash
158	<i>Ziziphus xylopyrus</i>	Rhamnaceae	Tree	Wild	Leaf/Fruit	Fodder/Wounds

Liliopsida						
159	<i>Aloe vera</i>	Xanthorrhoeaceae	Herb	Planted	Leaf	Burning urine, Menstrual troubles, Piles
160	<i>Asparagus racemosus</i>	Asparagaceae	Herb	Wild	Tuber	Dyspepsia, Ulcers
161	<i>Borassus flabellifer</i>	Arecaceae	Tree	Natur	Sap/Leaf/Petiole	Toddy/Mats, Baskets/Fibre
162	<i>Chlorophytum tuberosum</i>	Amaryllidaceae	Herb	Wild	Tuber	Dysentery, Hydrocele
163	<i>Croton tiglium</i>	Euphorbiaceae	Herb	Wild	Tuber	Snake bite, Wounds
164	<i>Curculigo orchioides</i>	Hypoxidaceae	Herb	Wild	Tuber	Aphrodisiac, Inflammation, Piles
165	<i>Curcuma pseudomontana</i>	Zingiberaceae	Herb	Wild	Tuber/Leaf	Jaundice/Meal plates, Wounds
166	<i>Cynodon dactylon</i>	Poaceae	Herb	Wild	Whole plant	Cold, Cough, Fodder
167	<i>Cyperus rotundus</i>	Cyperaceae	Herb	Wild	Tuber	Ephemeral fever
168	<i>Dendrocalamus strictus</i>	Poaceae	Tree	Wild	Whole plant/Grains	Construction/Food
169	<i>Dioscorea bulbifera</i>	Dioscoreaceae	Climber	Wild	Tuber	Food
170	<i>Dioscorea oppositifolia</i>	Dioscoreaceae	Climber	Wild	Tuber	Food
171	<i>Gloriosa superba</i>	Colchicaceae	Climber	Wild	Leaf/Tuber	Lice eradication/Rheumatism
172	<i>Phoenix sylvestris</i>	Arecaceae	Tree	Wild	Fruit/Leaf/Sap	Cooling effect/Making mats, Thatching/ Toddy
173	<i>Vanda tessellata</i>	Orchidaceae	Herb	Wild	Whole plant	Ephemeral fever, Evil spirits

E=Exotic; Cult=Cultivated; Natur=Naturalized; R_wild=Running wild

Table 2. Five top-rank angiosperm families used in Pocharam wildlife sanctuary

No. crt.	No. of species of traditional use	Family/Families
1	26	Leguminosae/Fabaceae (10 Papilionaceae + 04 Caesalpinaceae + 12 Mimosaceae)
2	12	Apocynaceae* (incl. 08 of Asclepiadaceae)
3	11	Malvaceae* (incl. 01 Bambiaceae+ 03 Tiliaceae + 01 Sterculiaceae)*
4	05	Amaranthaceae, Anacardiaceae, Asteraceae, Cucurbitaceae, Euphorbiaceae and Lamiaceae
5	04	Phyllanthaceae*

*As conceived by APG III (2009)

diversity, or its stakeholder botanical knowledge (Saidulu, 2014) in contrast to the Eturnagaram wildlife sanctuary in the neighbouring Warangal district, wherein more than 200 species are used only for medicinal use by Koya community alone (Suthari *et al.*, 2014b).

Floristic/Taxonomic account

The survey of the sanctuary area resulted in data record of 173 angiosperm (Magnoliophyta) species that are in use by the two ethnic communities. These species belong to 148 genera and 68 families as per the traditional system of classification of Takhtajan (1980) (Table 1). Of these, 57 families, 133 genera and 158 species are of Dicotyledonae (*Magnoliopsida*) and 11 families, 15 genera and 15 species are of Monocotyledonae (*Liliopsida*). The ratio of Dicots and Monocots of ethnic use is 10.5:1 for species and 5.2:1 for families. Conversely, as realized and recorded in other studies (Suthari *et al.*, 2014b), the Dicots contribute more than Monocots to the medicinal and ethnobotanical use. This might be due to the species strength in the region.

When one looks at the use-contribution from the angiosperm families, Leguminosae (incl. 12 of Mimosaceae, 10 of Papilionaceae and 04 of Caesalpinaceae) tops the list, followed by Apocynaceae (incl. Asclepiadaceae as per APG III, 2009). The third position is occupied by Malvaceae (*s.l.*), followed by Amaranthaceae, Anacardiaceae, Asteraceae, Cucurbitaceae, Euphorbiaceae and Lamiaceae with the same rank, and then by Phyllanthaceae (Table 2). However, Reddy *et al.* (2010) found Asclepiadaceae (5 species), Amaranthaceae and Caesalpinaceae (4 species each) as the dominant families contributing to ethnomedicine by ethnic tribes in Medak district.

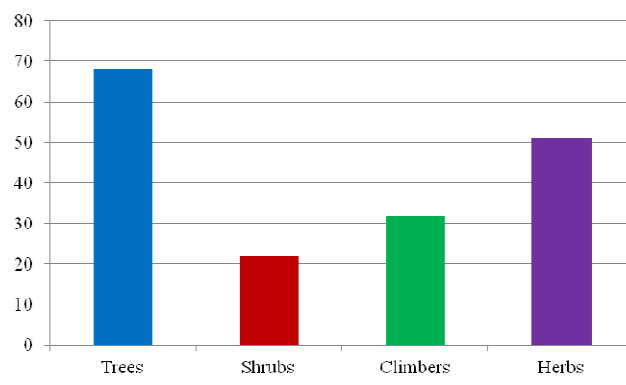


Fig. 2. Plant-use pattern in regard to growth forms

Plant growth forms

Plants are usually classified as trees, shrubs, climbers and herbs, as growth forms. When the plant use-data were analyzed, trees contributed with 68 uses, followed by herbs (51), climbers (32) and shrubs (22). Perhaps this was a reflection of the floristic composition and the prevailing *Phanero-therophytic* climate (Raju *et al.*, 2014), where the trees and annuals co-dominate in a disturbed tropical forest habitat. It can also be inferred that the ethnic people use the locally abundant vegetation (e.g. plant cover). Furthermore, in a habitat where trees are displaced, the preponderance of species increased from shrubs to herbs via climbers (Fig. 2). While the annuals were seasonal, the other growth forms were available throughout the year for use.

Ethnobotany

The people of Pocharam wildlife sanctuary do not indulge in the usual practice of Podu (slash and burn) cultivation, since a large part of the land area is already under modern agriculture. However, they use the local minor wood for making agricultural implements, construction of huts, putting fences to homes and fields etc. Besides, it was noted that the local people no longer cultivate the traditional or indigenous varieties of grains.

Indigenous vs. Exotics

Out of the 173 plant taxa that were noted as being utilized by the ethnic people in the sanctuary, the greatest number (154; 89.1%) were indigenous and wild. The introduced species were the crops under cultivation and those planted (Table 1). The ratio of indigenous to exotics species of use was 12:1. As many as 154 indigenous taxa and 13 exotics (7.51%) are used besides the four species (*Acacia nilotica*, *Aloe vera*, *Pongamia pinnata* and

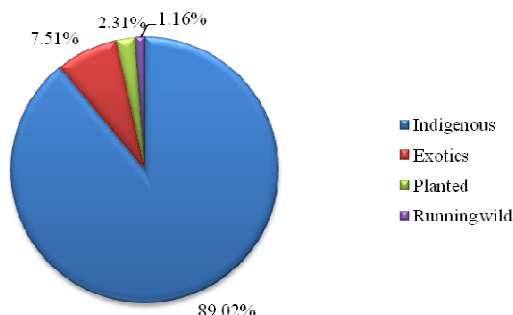


Fig. 3. Indigenous vs. exotic ethnocultural plants in the sanctuary

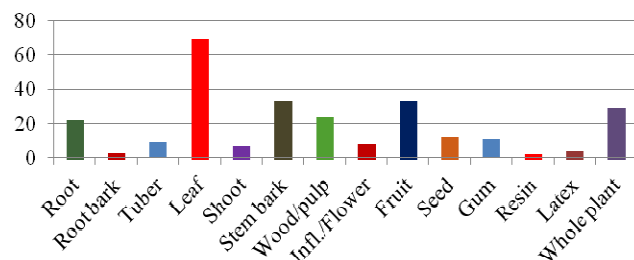


Fig. 4. Plant part-wise for ethnic use

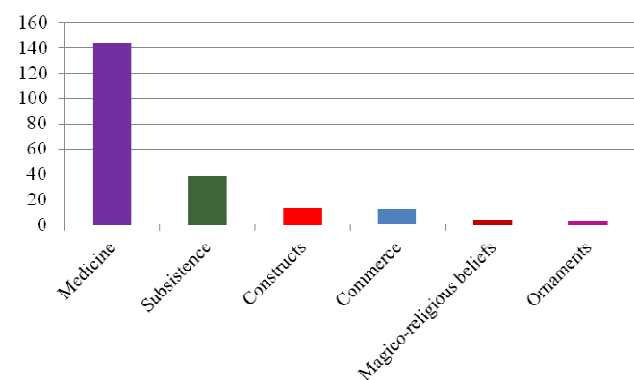


Fig. 5. Ethnic-use pattern and proportions in Pocharam wildlife sanctuary

Vitex negundo) that are planted (2.31%) and two (1.16%) species (*Albizia lebbek* and *Azadirachta indica*) that are running wild and naturalized. Obviously, the ethnic people were basically using the indigenous wild species (Fig. 3).

Plant part-wise use

The following is the plant part-wise analysis of ethnocultural uses (Fig. 4): (a) *Roots*: These are used as whole (22), bark (03), or as tubers (09), numbering a total of 34 species; (b) *Shoots*: Of the above ground parts, leaves are used in 69 cases, fruits and stem bark (33 of each), wood/pulp (24), seeds (12), inflorescence/flower (08) and shoots (07); (c) *Whole plant*: There are 29 species used for medicinal and/or consumptive purposes; and (d) *Un-organized* (latex, gum and resin): Gum is obtained from 11 taxa, whereas gum-resin from only 2. The latex of 4 species is used (Table 1).

Ethnic-use pattern

Although the local people use plants for various purposes, they largely serve medicinal scopes and for subsistence. The analysis of the baseline data indicated the following facts: (a)

Medicine: There were 140 species used for human medicine, either as single drug or in combinations. There were four species of use as ethnoveterinary medicine; (b) *Subsistence*: Of the 173 flowering plant taxa, 27 were used as food and/or vegetables, and 11 to catch (stupefy) fish; (c) *Constructs*: Plants are used to find additional value by their creative skills, e.g. make boats, carts, cots, agricultural implements and other household things. There were 13 tree species utilized for making agricultural implements and five for house/hut construction (Table 1); (d) *Commerce*: For the economic subsistence, during the off-season or non-agricultural season, people gather plant parts (leaves, flowers, fruits, seeds, bark, etc.) or extract through manipulation gums, resins and latex, in order to sell them to Girijan Cooperative Corporation Limited (GCC) or in the local candies. There were 12 such species of this category (Table 1). (e) *Magic/ritual-religious beliefs*: There are deep-rooted beliefs in the ethnic communities. Four species are used to get cured of a disease and six species to banish evil spirits; and (f) *Ornaments*: There were only three species used as ornaments (Table 1). However, most of the plant species used by Yerukalas and Lambadis were of medicinal (83.24%) and subsistence (21.96%) value (Fig. 5).

Conclusions

The present study has yielded the baseline ethnocultural data about a wildlife sanctuary in Northern Telangana after its six decades of standing, which is not in its prime and best care. Besides, the local forest-loving Gonds are displaced or wanted. The study clearly revealed that the extant tropical dry deciduous forest is not intact for the terrain and phytoclimate under state protection. It is to be reinstated that Pocharam wildlife sanctuary is very poor in regard to the ethnic diversity, forest diversity, or its stakeholder botanical knowledge. Gathering the forest produce for commerce is more so over their self-use, e.g. for household purposes, community beliefs and ornaments. However, it was interesting to note that the NTFPs are still providing a succor to the local people. It is recommended that communities' participation is to be called for the protection of the existing vegetation in the sanctuary, and watersheds are to be developed wherever feasible, while allowing the stakeholders to gather some of the forest produce (NTFPs), to encourage and educate them for mutual benefits. Thereby, ecological sustainability (functional) of the sanctuary is promoted.

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