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RESEARCH NOTES

(I)

Conservation of local tree species in historical Kangla fort, Manipur

Kangla is the ancient historical sites located in the heart of the city Imphal, the capital of Manipur. The site is listed as a sacred place for religious and cultural significances for the people of Manipur and it stands on the western bank of Imphal River with 765m. msl as taken by GPS. The fort is protected under the provision of Manipur Ancient and Historical Monument and archaeological Sites and Remains Act, 1976 (Architecture of the Kangla palace).

Conserving the local tree species is an essential strategy for habitat and species preservation in the present era. The royal chronicle, Chietharol Kumbaba mentioned the traditional culture of worshipping and protecting historical tree species like Meitram Khongnang, Pureiromba Khongnang, Satikhongnang, Khongnang Pheidekpi, Naharup Panggong (Sangai express) which is growing in different parts of historical monuments in Manipur. Khongnang (*Ficus religiosa*) is one of the highly revered species for the people of Manipur. Tairen (*Toona ciliata*) is another tree species required for cultural and customary rituals and protection. The Panggong tree (*Butea monosperma*) is used for making effigies of death ones when their body is not found. The Heikreng trees (*Celtis timorensis*) is used in funeral pyres during rainy days because the tree can be burnt even when it is freshly felled. Uningthou (*Phoebe hainesiana*) is considered as king of timber in Manipur used in making furniture, wardrobe, interior construction etc. In olden days, history of trees, flowers and plants were described as Leirol (description of flowers), Urol (description of trees) and Warol (description of bamboos) in archaic language. However the changing scenario of climate change, agricultural practices and other anthropogenic causes has threatened the natural unique genetic resources in the verge of extinction. In addition, review literature suggests that little or no sufficient systematic studies work has been done on the local tree species of Kangla fort. Keeping in view the importance of local tree species and richness of indigenous knowledge, systematic efforts to document the important local tree species before it vanishes unknown. The main gate of Kangla open with the eucalyptus plantation and different kinds of flowering and fruiting tree surrounding the three division of entrance, two on the western side and one on the southern side. The entrance on the left end of the western face was opposite to the coronation hall and the entrance to the right end of the same wall faced the durbar hall. The southern entrance was connected with the passage leading to the Shree Govindajee temple. The vegetation is of mixed type with other varieties of shrubs. Some of the local major trees observed in inside Kangla Fort are *Mangifera indica, Magnolia champaca, Toona ciliata, Mimosops elengi, Ficus religiosa, Ficus racemosa, Artocarpus heterophyllus, Tectona grandis, Jacaranda mimosifolia, Ficus glaucescens, Grivillea robusta, Albizia odoratissima, Bauhinia variegata, Ficus hispida, Syzygium cumini, Parkia roxburghii, Aegle marmelos, Ficus benghalensis, Hevea brasilensis* etc. such conservation of tree species can contribute immensely to the quality of life in Imphal area. Environmental services like climate and air quality, reduction of global warming and carbon dioxide, water conservation, soil conservation and nature conservation are other attributes for the conservation of local tree species in Kangla fort. Therefore, the present study is aim to record the local tree species and composition plant based in the historical palace of Kangla.

For tree specimen, standard methodology is used for the collection. The species is provided with nomenclature, family, vernacular name (Manipuri) and type of habit. Different floras and review literature were used for the identification of collected plant materials (Jain and Rao, 1977). Knowledgeable person were also contacted to identify the local species in Kangla fort. The collected specimen is sent for herbarium in the Directorate of Environment Library. Field survey and collection of data was carried out at regular intervals during the study period. It is the right time to save the local tree species for essential ecological diversity and life support systems in the present era.

During the survey, altogether 50 tree species belonging to different family were calculated with their composition status and total number of respective families. The highest tree species was recorded in Moraceae family followed by Caesalpiniaceae, Myrtaceae, Rutaceae and Mimosaceae family respectively. The lowest recorded family includes Anacardaceae, Meliaceae, Lythraceae, Euphorbiaceae and Verbenaceae followed by Magnoliaceae, Sapotaceae, Bignoniaceae, proteaceae, Elaeocarpaceae, Rhamnaceae, Arecaceae, Bombacaceae, Fabaceae, Juglandaceae and Oleaceae. The fruit trees like Chorphon (*Elaeocarpus floribundus)*, Heining (*Spondias pinnata)*, Nobab (*Citrus acuminatum)*, Jam (*Syzygium cumini)*, Boroi (*Ziziphus mauritiana)*, Champra (*Citrus lemon)*, Mange (*Tamarindus indica)*, Heikru (*Emblica officinalis)* and Pungton (*Psidium guajava)* are on the verge of vulnerable due to the extensive process of urbanization, wetland destruction, destroyed community forests or increased demand of natural resources. It is very important for the local people to know about the conservation of local tree species with its medicinal value and its importance in the present context. The overall causes of diversity loss are the same as those responsible for land use and surface of land

Tree species of Kangla fort (Not in alphabetical order)

Sl No	Scientific name	Family	Local name	Habit
1	*Delonix regia*	Caesalpiniaceae	Krishna chura	Ornamental Tree
2	*Mangifera indica*	Anacardaceae	Heinou	Fruit bearing tree
3	*Callistemon viminalis*	Myrtaceae	Likli Lei	Ornamental tree
4	*Magnolia champaca*	Magnoliaceae	Leihao	Timber value
5	*Toona ciliata*	Meliaceae	Tairen	Timber value
6	*Mimosops elengi*	Sapotaceae	Bokul	Ornamental value
7	*Saraca asoca*	Caesalpiniaceae	Leisatpa ashok	Ornamnental tree
8	*Lagerstroemia speciosa*	Lythraceae	Jarul	Ornamental tree
9	*Ficus religiosa*	Moraceae	Sana khongnang	Religious use
10	*Ficus racemosa*	Moraceae	Heibong	Tree
11	*Eucalyptus spp*	Myrtaceae	Nasik	Essential oil
12	*Duabanga grandiflora*	Lythraceae	Tal	Timber tree
13	*Mallotus philippensis*	Euphorbiaceae	Ureirom Laba	Medicinal value
14	*Artocarpus heterophyllus*	Moraceae	Theibong	Fruit bearing tree
15	*Tectona grandis*	Verbenaceae	Chingsu	Timber value
16	*Jacaranda mimosifolia*	Bignoniaceae	Jacaranda	Ornamental tree
17	*Ficus glaucescens*	Moraceae	Chakri	Fruit bearing tree
18	*Grivillea robusta*	Proteaceae	Kouvilla	Tree
19	*Hevea brasilensis*	Moraceae	Rubber pambi	Tree
20	*Bauhinia variegata*	Caesalpiniaceae	Chingthrao	Ornamental tree
21	*Ficus hispida*	Moraceae	Ashi heibong	Fruit bearing tree
22	*Elaeocarpus floribundus*	Elaeocarpaceae	Chorphon	Fruit bearing tree
23	*Spondias pinnata*	Anacardaceae	Heining	Fruit bearing tree
24	*Citrus acuminatum*	Rutaceace	Nobap	Fruit bearing tree
25	*Syzygium cumini*	Myrtaceae	Jam	Fruit bearing tree
26	*Ziziphus mauritiana*	Rhamnaceae	Boroi	Fruit bearing tree
27	*Citrus lemon*	Rutaceae	Champra	Fruit bearing tree
28	*Calliandra futans*	Mimosaceae	Shijakusum	Ornamental value
29	*Parkia roxburghii*	Mimosaceae	Yongchak	Fruit bearing tree
30	*Psidium guajava*	Myrtaceae	Pungton	Fruit bearing tree
31	*Borassus flabellifer*	Arecaceae	Kona	Ornamental value
32	*Tamarindus indica*	Caesalpiniaceae	Mangge	Fruit bearing tree
33	*Emblica officinalis*	Euphorbiaceae	Heikru	Fruit bearing tree
34	*Aegle marmelos*	Rutaceae	Harikhagok	Medicinal value
35	*Ficus benghalensis*	Moraceae	Khongnang bot	Fodder tree
36	*Melia azaderach*	Meliaceae	Saijrak	Medicinal value
37	*Bombax ceiba*	Bombacaceae	Tera	Fodder tree
38	*Dalbergia sissoo*	Fabaceae	Sissoo	Avenue tree
39	*Albizia odoratissima*	Mimosaceae	Luwangkhoi	Timber tree
40	*Juglans regia*	Juglandaceae	Heijugak	Fruit bearing tree
41	*Nyctanthes arbour tritis*	Oleaceae	Singarei	Flowering tree
42	*Gmelina arborea*	Verbenaceae	Wang	Timber tree
43	*Meyna laxiflora*	Rubiaceae	Heibi	Fruit bearing tree
44	*Celtis timorensis*	Cannabaceae	Heikreng	Ornamental tree
45	*Phoebe hainesiana*	Lauraceae	Uningthou	Timber
46	*Messua ferrea*	Clusiaceae	Nageshor	Timber
47	*Cascabela thevetia*	Apocynaceae	Utonglei	Ornamental tree
48	*Pterospermum acerifolium*	Sterculiaceae	Kwakla	Wrapping material tree
49	*Macaranga denticulata*	Euphorbiaceae	Laikoi	Fodder tree
50	*Litsaea chinensis*	Lauraceae	Tumita	Avenue tree

(Meitram= Place name, Khongnang= Ficus tree, Pureiromba=Place name, Pheidekpi=Place name, Naharup=Place name, Sati= Pure)

changed. The flowers of Kwakla (*Pterospermum acerifolium)* tree is believed to cure ulcers, leprosy and diseases of blood. The dried flowers also act as an insect repellent. The plantation of local tree in historical area can help in improving the local ecosystem services and enhance biological diversity conservation. Therefore, it is the right time to record such knowledge from these people for proper assessment and conservation to the benefits of mankind.

References

Jain S.K. and Rao R.R. (1977). A handbook of field and herbarium methods. Today and tomorrow publ. New Delhi

ASHEM RAHUL SINGH, YENGKOKPAM SATYAJIT SINGH, BHARATI BRAHMACHARIMAYUM, VINO RAMAN, APAO BUNII AND K.T KHINO
State Climate Change Cell,
Directorate of Environment,
Government of Manipur, Imphal.
E-mail: benthhook@gmail.com

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