



## Current Status of Floral Richness in Phayeng Community Forests, Imphal West

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### Abstract

Conservation of community forests is an important part for the survival of local populations. The survival of community forests not only provide with shade, shelter, clean air and water but also protect from natural disasters like floods, drought or any sort of anthropogenic disturbances. The present paper presents the current status of the floral diversity in Phayeng Community forests with their scientific name, local name, family and their uses. The study also records the fruit tree species growing inside the village home orchard. Out of the 95 total tree species recorded, 44 families were identified according to the tree diversity growing inside the forests. The highest number of tree density was found in Meliaceae, Moraceae, Rubiaceae and Lauraceae families followed by Euphorbiaceae, Fabaceae, and Fagaceae respectively. Likewise, 41 fruit tree species were recorded in the village home orchard. The identified fruit species were commonly used for their economic livelihood and quality of the community. Community forests play an important role in the conservation and sustainable use of available resources.

### Keywords

Conservation; Community; Phayeng; Orchard

### History of Chakpa Phayeng

Historically, the name Phayeng originated from the paddy god "Phaoibi". The older version ascribes the place as Phouoibi *lam*, where the goddess enters every house leaving behind phou (paddy) for her existence. Chakpa phayeng is more commonly used as the place belongs to indigenous community shrouded in traditional and cultural superstition. The whole population of phayeng is included in scheduled caste category. They worshipped the Meitei god "Koubru" since the reign of Chakpa Gulamba. The people celebrate the *Koubru Lai Haraoba* in the month of February (*Phairen 12 ni panba*) for a period of 12-13 days every year in honor of the respected king. The formation of community forests known as "Sanjaibung" is formed during the reign of *Chakpa Gulamba* in restoring and improving the health of the community forests. Such conservation of forests is a matter of preservation of natural resources which are of vital interest to mankind. The conservation process continues with the following of local hierarchical system. It was only in the year 1965, *Umang* forest committee or *Loijing Chingjao* was formed because of the globalized

process of the local community and also for the survival of the local community as a balanced habitat. The conservation of community forests is also a vital issue for an economy, soil, water, climate condition, forest cover and biological diversity. Community conservation efforts have been promoted as a way to address the livelihood needs of the local communities, and to encourage sustainable practices [1]. The poorer sections of the community, the fuel-wood collectors, depend on the sale of these products for their livelihood [2]. The success of many of these projects in reducing impact on the forest and in changing behavior towards more sustainable practices has not been independently evaluated. The overall survival of community conservation efforts was to reduce household dependence on forest resources through incentives [3].

### Introduction

Phayeng (24° 50, 26.5; 93° 48, 51.4) is located in Imphal west district. The village is 13km away from Imphal city, towards the west. The socio economic condition of the village is low as most of the villagers depend on the forests for their livelihoods. Majority of the village speak Manipuri dialect while the Chiru Kuki tribes living on the upper part of the village speak their own local dialect. The geographical area of the zone is 241 sq km at an altitude of 780 above mean sea level. The river, Maklang form the major turel flowing in the middle of the Phayeng village, dividing the community forests and the village households. The river is the universal source of drinking water supply and irrigational purposes for the local people. Moreover, the people also depend on stream water (Sudong lok), community tanks or private ponds for additional uses. The community forest was felled down in the year 1971 for household purposes, making schools (Phayeng High School, Phayeng LP School and Phayeng Middle English School) and other construction works. Many educated local and social activity hold that certain species of trees can coexists with humans, and there is an urgent need to preserve at least some parts of forests to conserve these species with the conservation of water in the surrounding environment. A *Warak* committee was formed in the year 1973, which will be helpful in protecting the forest through education on importance of environment and its conservation. The committee selected 60 members from each Singlup or colony of houses for the conservation of community forests. In addition, fire lines or *Meiram* are formed in different parts of the forest to protect the forest from wild fires or during the dry season. However, the villagers can lawfully extract minor forest produce (leaves, fruits, dry fuel woods) and wood fire (during someone death) to pursue their low consumption lifestyle but felling of trees has been specifically ruled out. Agriculture is the main occupation of the villagers and many of them also engaged themselves as agricultural laborers. Most of the villagers have large area of homestead land as well as agricultural land surrounded by varieties of trees and bamboos.

### Materials and Methods

Standard method is used for identification of floras. We also consult different article on local tree species and review literature during the process of identification. Each tree species is photographed for digital herbarium and sent to the Directorate of Environment Museum. All the specimens are identified up to the species and varieties level based on the available authentic literature. The villagers are well convergent in identifying the medicinal tree species growing inside the community

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forests. Plantation of fruit tree species in the surrounding home orchard is used for their economic livelihood and quality of life (Figure 1).

## Result & Discussion

A total of 95 tree species in community forests and 41 fruit species in home orchards belonging to 44 families and 26 families respectively were recorded as in Table-1 and Table-2 respectively. Out of this, the family with highest tree density were from in Meliaceae, Moraceae, Rubiaceae and Lauraceae family followed by Euphorbiaceae, Fabaceae, and Fagaceae respectively. Likewise, 41 fruit tree species were recorded in the village home orchards. Rutaceae family has the highest number of species followed by Moraceae, Rosaceae, Euphorbiaceae, Anacardiaceae and Vitaceae. The identified fruit species were commonly used by the

villagers for their economic livelihood and quality of life. Some of the fruit tree species grown inside the home orchards are also found in the community forests. *Zanthoxylum alatum* and *Oroxylum indicum* is very common and show dominance both in community forests as well as home orchards. The highly indigenous trees found in the forests are *Amoora rohituka* (Heiranggoi), *Aquilaria agallocha* (Agar), *Butea monosperma* (Panggong), *Celtis cinnamomea* (Heigreng), *Entada scandens* (Kangkong), *Litsea polyaltha* (Tumitla), *Terminalia arjuna* (Mayokpha), *Xylosma longifolium* (Nongleishang) etc. Many of the tree species have medicinal values; some of them are *Amoora rohituka* (Heiranggoi), *Aporosa roxburghii* (Tinsibi), *Adina cordifolia* (Terakeena),

*Aegle marmelos* (Harikhagok), *Bauhinia variegata* (Mai hou lei), *Bauhinia purpurea* (Chingthrao), *Castanopsis hystrix* (Thangji),

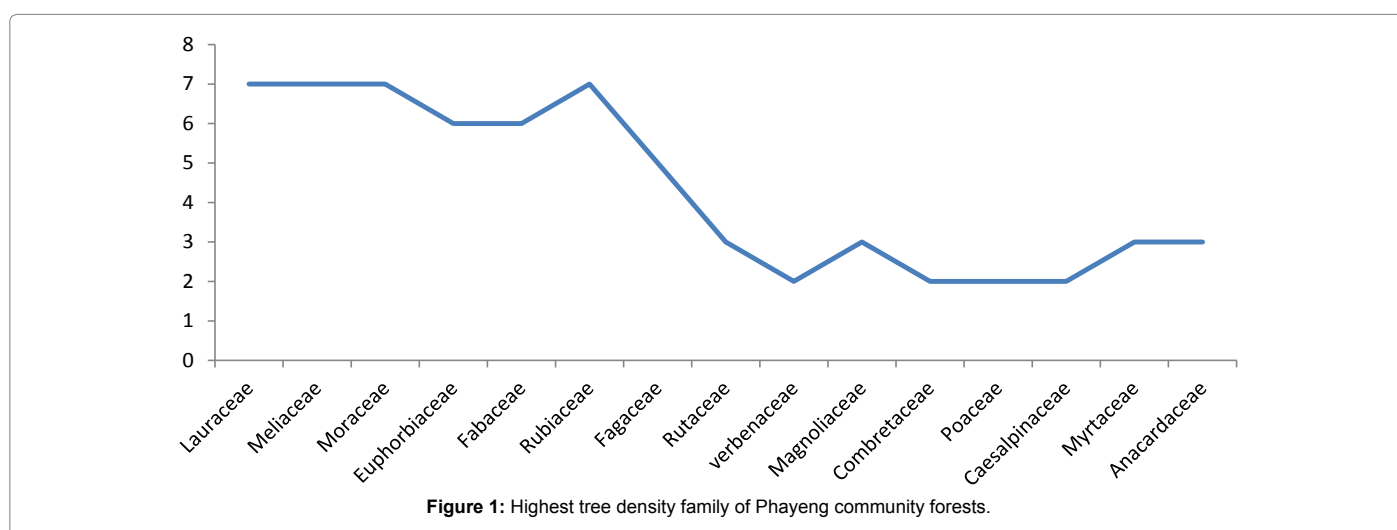


Figure 1: Highest tree density family of Phayeng community forests.

Table 1: Tree species of Phayeng community forests.

Sl No	Scientific name	Family	Local name	Uses
1	<i>Amoora rohituka</i>	Meliaceae	Heiranggoi	Uses for breast and pancreatic cancer
2	<i>Aporosa roxburghii</i>	Euphorbiaceae	Tinsibi	Use for jaundice stomach ulcer and fever
3	<i>Ardisia colorata</i>	Myrsinaceae	Uthum achaba	Anti microbial medicine
4	<i>Albizia stipulata</i>	Fabaceae	Khok	Young branches are eaten by cattle
5	<i>Albizia odoratissima</i>	Fabaceae	Uil	Cattle fodder
6	<i>Alnus nepalensis</i>	Betulaceae	Pareng nakuppi	firewood
7	<i>Aquilaria agallocha</i>	Thymelaceae	Agar	Use for incense and perfume
8	<i>Amoora wallichii</i>	Meliaceae	Rata	Use for fodder
9	<i>Artocarpus chaplasha</i>	Moraceae	Cham	Leaves and root used for medicinal purposes
10	<i>Adina cordifolia</i>	Rubiaceae	Terakeena	Used for chronic cough and jaundice
11	<i>Aglaia edulis</i>	Meliaceae	Manai	Used for furniture purposes
12	<i>Ailanthus grandis</i>	Simaroubaceae	Borpat	Used for cooling purposes
13	<i>Aegle marmelos</i>	Rutaceae	Harikhagok	Used for medicinal purposes
14	<i>Anthocephalus cadamba</i>	Rubiaceae	Kadam	Used for timber and paper making
15	<i>Buddleja asiatica</i>	Buddlejaceae	Ngamuyai	Use as fodder
16	<i>Bischofia javanica</i>	Euphorbiaceae	Uthum kharaobi	Ornamental tree
17	<i>Bambusa spp</i>	Poaceae	khok	Use for poles and construction purposes
18	<i>Bauhinia variegata</i>	Fabaceae	Mai-hou-lei	Used for medicinal purposes
19	<i>Bauhinia purpurea</i>	Fabaceae	Chingthrao	Used for medicinal purposes
20	<i>Bombax ceiba</i>	Bombacaceae	Tera Pambi	Used for medicinal purposes
21	<i>Butea monosperma</i>	Fabaceae	Panggong	Used for religious purposes
22	<i>Chukrassia tabularis</i>	Meliaceae	Taimareng	Used in Diarrhoea
23	<i>Callicarpa arborea</i>	Verbenaceae	Modol-Panamana	Used for headache
24	<i>Castanopsis hystrix</i>	Fagaceae	Thangji	Used for construction works

25	<i>Cassia fistula</i>	Caesalpinaceae	Thaonam	Used in Ayurveda purposes
26	<i>Canarium resiniferum</i>	Burseraceae	Mekruk	Used for commercial resin
27	<i>Cinnamomum zeylanicum</i>	Lauraceae	Usingsha	Use as digestive, carminative and aphrodisiacs
28	<i>Cinnamomum camphora</i>	Lauraceae	Karpur	Used for medicinal values
29	<i>Celtis timorensis</i>	Ulmaceae	Heigkregng	Use for traditional medicine
30	<i>Cordia fragrantissima</i>	Caprifoliaceae	Lamuk laba	Leaves, flower use for rheumatism
31	<i>Cinnamomum cecicodaphne</i>	Lauraceae	Usingsha manbi	Use as spices
32	<i>Castanopsis hystrix</i>	Fagaceae	Thangji	Seed is eatable
33	<i>Croton caudatus</i>	Euphorbiaceae	Hingrei	Used for medicinal purposes
34	<i>Dendrocalamus strictus</i>	Poaceae	Utang wa	Use for poles, construction works
35	<i>Duabanga grandiflora</i>	Sonneratiaceae	Tal	Used for making crates and furniture
36	<i>Dillenia indica</i>	Dilleniaceae	Heigri	Used for medicinal purposes
37	<i>Dysoxylum</i> Spp	Meliaceae	Bandar dima	Used as timber
38	<i>Delonix regia</i>	Caesalpinaceae	Gulmohor	Used for traditional medicine
39	<i>Derris ferruginea</i>	Papilionaceae	Kho	Used as insecticide
40	<i>Entada scandens</i>	Fabaceae	Kangkong	Seed use for wound, fever, skin disease
41	<i>Emblica officinalis</i>	Euphorbiaceae	Heikru	To enhance digestion, purify blood
42	<i>Eurya entida</i>	Pentaphyllaceae	Uyanggan	Leaves and leaf paste use for stomach ulcer and tooth ache
43	<i>Eugenia praecox</i>	Myrtaceae	Silheima	Use for edible purposes
44	<i>Ehretia acuminata</i>	Boraginaceae	Lamuk	Use for furniture and building construction
45	<i>Eucalyptus</i> Spp	Myrtaceae	Nasik	Used for construction poles
46	<i>Ficus hispida</i>	Moraceae	Ashi heibong	Bark is use for ulcer, leucoderma and jaundice etc
47	<i>Ficus religiosa</i>	Moraceae	Sana khongngang	Leaves are laxative and tonic
48	<i>Ficus cunii</i>	Moraceae	Heirit	Fruits is edible
49	<i>Ficus benghalensis</i>	Moraceae	Khongngang Bot	Used as medicinal purposes
50	<i>Ficus auriculata</i>	Moraceae	Heiba	Used as plates
51	<i>Ficus palmata</i>	Moraceae	Haibam	Used as medicinal purposes
52	<i>Gmelina arborea</i>	Verbenaceae	Wang	Use for construction, furniture and musical instruments
53	<i>Gardenia campanulata</i>	Rubiaceae	Lam heibi	Use for cathartic and anthelmintic More for fish poison and larvicidal
54	<i>Grevillia robusta</i>	Proteaceae	Kouvilla	Used for dye purposes
55	<i>Holigarna longifolia</i>	Anacardaceae	Kherai	Bark use for decoction wash scabies and boils
56	<i>Litsea augustifolia</i>	Lauraceae	Heiyu	Use for additional purposes
57	<i>Litsea polyatha</i>	Lauraceae	Tumitla	Barks and roots use for pains,bruises and contusions and for fracture in animals
58	<i>Litsea glutinosa</i>	Lauraceae	Thanghidak	Latex use for cuts and wounds
59	<i>Lagerstroemia speciosa</i>	Lythraceae	Jarul	Used for medicinal values
60	<i>Meyna spinosa</i>	Rubiaceae	Heibi	Leaves and fruits are edible
61	<i>Michelia champaca</i>	Magnoliaceae	Leihao	Use for construction purposes
62	<i>Mallotus philippinensis</i>	Euphorbiaceae	Ureirom laba	Use for cosmetics purposes
63	<i>Mussaendra frondosa</i>	Rubiaceae	Hanurei	Used for medicinal purposes
64	<i>Mimosops elengi</i>	Sapotaceae	Bokul	Used for medicinal purposes
65	<i>Melanorrhoea usitata</i>	Anacardaceae	Kheu	Used for producing varnish
66	<i>Moringa oleifera</i>	Moringaceae	Shajna	Used for malnutrition medicine
67	<i>Magnolia pterocarpa</i>	Magnoliaceae	Uthambal	Used as timber
68	<i>Marlea bengoniaefolia</i>	Cornaceae	Kokan	Leaves used as religious purposes
69	<i>Oroxylum indicum</i>	Bignoniaceae	Samba	Use for astringent, bitter tonic, stromachic and anodyne
70	<i>Osbeckia chinensis</i>	Melastomataceae	Yachubi	Use for commercial dye
71	<i>Phoebe hainesiana</i>	Lauraceae	Uningthou	Use for fuel purposes
72	<i>Pteris ensiformis</i>	Pteridaceae	Changkhrang	Frond is use for dysentery and glandular swelling of neck
73	<i>Parkia roxburghii</i>	Mimosaceae	Yongchak	Used for medicinal purposes
74	<i>Pinus kesiya</i>	Pinaceae	Uchaan	Used for resin purposes
75	<i>Quercus pachyphylla</i>	Fagaceae	Kuhi	Use for fuel and fodder
76	<i>Quercus dealbata</i>	Fagaceae	Sahi	Use for fuel and fodder
77	<i>Quercus serrata</i>	Fagaceae	Uyung	Use for fuel and fodder
78	<i>Rhus chinensis</i>	Anacardaceae	Heimang	Extract of dry fruit to treat diarrhoea and dysentery
79	<i>Ricinus communis</i>	Euphorbiaceae	kege	Used for medicinal purposes
80	<i>Rhododendron arborium</i>	Ericaceae	Ching leihao	Used for medicinal purposes

81	<i>Schima wallichii</i>	Theaceae	Usoi	Corolla is use to treat uterine disorders and hysteria
82	<i>Syzizium cuminii</i>	Myrtaceae	Jam	Fruits is edible
83	<i>Salix tetrasperma</i>	Salicaceae	Uuyum	Flowers are edible
84	<i>Sapindus trifoliatus</i>	Sapotaceae	Kekru	Used to shine jewels
85	<i>Toona ciliata</i>	Meliaceae	Tairen	Use for timber and traditional use
86	<i>Toona serrata</i>	Meliaceae	Lam tairrel	Use for timber
87	<i>Talauma hodgsonii</i>	Magnoliaceae	Uthum laba	Use for gastrointestinal disorders
88	<i>Terminalia chebula</i>	Combretaceae	Haritok	Used for health benefits
89	<i>Terminalia arjuna</i>	Combretaceae	Mayokpha	Used for cardiovascular diseases
90	<i>Thevetia nerifolia</i>	Apocynaceae	Utonglei	Used as ornamental tree
91	<i>Wendlandia tinctoria</i>	Rubiaceae	Pheija	Used as medicine
92	<i>Wendlandia exerta</i>	Rubiaceae	Pheija laba	Used as vegetables
93	<i>Xylosma longifolium</i>	Flacourtiaceae	Nongleishang	Leaves use for haemmorids and rheumatism
94	<i>Zanthoxylum budrunga</i>	Rutaceae	Ngang	Use for digestive system, analgesic
95	<i>Zanthoxylum alatum</i>	Rutaceae	Mukthruhi	Leaves used as medicinal purposes

**Table 2:** Fruit species grown in home orchards.

SI No	Scientific name	Family	Local name	Uses
1	<i>Averrhoa carambola</i>	Oxylidaceae	Heinoujom	Fruit edible
2	<i>Artocarpus heterophyllus</i>	Moraceae	Theibong	Fruit edible
3	<i>Artocarpus lakoocha</i>	Moraceae	Harikokthong	Fruit edible
4	<i>Antidesma bunius</i>	Phyllanthaceae	Heiyen	Fruit edible
5	<i>Citrus maxima</i>	Rutaceae	Nobab	Fruit edible
6	<i>Citrus limon</i>	Rutaceae	Champra	Fruit edible
7	<i>Carica papaya</i>	Caricaceae	Awathabi	Fruit edible
8	<i>Citrus reticulata</i>	Rutaceae	Komla	Fruit edible
9	<i>Citrus sinensis</i>	Rutaceae	Mosambi	Fruit edible
10	<i>Calamus spp</i>	Cannaceae	Heiree	Fruit edible
11	<i>Citrus jambhiri</i>	Rutaceae	Heijang	Fruit edible
12	<i>Citrus sinensis</i>	Rutaceae	Heithum	Fruit edible
13	<i>Celtis timorensis</i>	Cannabaceae	Heikreng	Fruit edible
14	<i>Emblica officinalis</i>	Euphorbiaceae	Heikru	Fruit edible
15	<i>Eloeagnus pyriformis</i>	Eleagnaceae	Heiyai	Fruit edible
16	<i>Elaeocarpus floribundus</i>	Eleocarpaceae	Chorphon	Fruit edible
17	<i>Ficus racemosa</i>	Moraceae	Heibong	Fruit edible
18	<i>Ficus semicordate</i>	Moraceae	Heirit	Fruit edible
19	<i>Flacourtia jangomus</i>	Salicaceae	Heitroi	Fruit edible
20	<i>Garcinia xanthochymus</i>	Clusiaceae	Heibung	Fruit edible
21	<i>Litchi sinensis</i>	Sapindaceae	Litchi	Fruit edible
22	<i>Mangifera indica</i>	Anacardiaceae	Mango	Fruit edible
23	<i>Meyna laxiflora</i>	Rubiaceae	Heibi	Fruit edible
24	<i>Micrococos paniculata</i>	Tiliaceae	Heitup	Fruit edible
25	<i>Morus alba</i>	Euphorbiaceae	Heijampet	Fruit edible
26	<i>Musa paradisiaca</i>	Musaceae	Lafoi	Fruit edible
27	<i>Nephelium longana</i>	Sapindaceae	Nonganghei	Fruit edible
28	<i>Psidium guajava</i>	Myrtaceae	Pungton	Fruit edible
29	<i>Prunus dosmestica</i>	Rosaceae	Heikha	Fruit edible
30	<i>Prunus armeniaca</i>	Rosaceae	Malhei	Fruit edible
31	<i>Pyrus communis</i>	Rosaceae	Naspati	Fruit edible
32	<i>Prunus crasoides</i>	Rosaceae	Chumbrei	Fruit edible
33	<i>Phyllanthus acidus</i>	Euphorbiaceae	Gehori	Fruit edible
34	<i>Passiflora Spp</i>	Passifloraceae	Sitaphal	Fruit edible
35	<i>Punica granatum</i>	Punicaceae	Kamphoi	Fruit edible
36	<i>Saccharum officinarum</i>	Graminae	Chu	Fruit edible
37	<i>Spondias pinnata</i>	Anacardiaceae	Heining	Fruit edible
38	<i>Tamarindus indica</i>	Legumminoceae	Mange	Fruit edible
39	<i>Tetrastigma bracteolatum</i>	Vitaceae	Mojamahei	Fruit edible
40	<i>Vitis vinifera</i>	Vitaceae	Angoor	Fruit edible
41	<i>Ziziphus mauritiana</i>	Rhamnaceae	Boroi	Fruit edible

*Cordial fragrantissima* ( Lamuk laba), *Ficus hispida* (Ashi heibong), *Ficus benghalensis* (Khongnang bot), *Ficus palmata* (Haibam), *Litsea polyatha* (Tumitla), *Litsea glutinosa* (Thanghidak), *Mussaendra frondosa* ( Hanurei), *Moringa oleifera* (Shajna) and *Parkia roxburghii* (Yongchak) etc. During the winter season, the best species for production of charcoal is Sahi-Kuhi (*Quercus pachyphylla-Quercus dealbata*). These are the most common tree species found in the State. The families with lowest number of tree species are from Myrsinaceae, Betulaceae, Thymeliaceae, Simmaroubaceae, Flacourtiaceae, Buddlejaceae, Bombacaceae, Burseraceae, Ulmaceae, Ceprifoliaceae, Dilleniaceae, Papilionaceae, Pentaphyllaceae, Boraginaceae, Proteaceae, Lythraceae, Moraginaceae, Bignoniaceae, Melastomaceae, Pteridaceae, Mimosaceae, Pinaceae, Ericaceae, Theaceae, Salicaceae, Cornaceae, Somneratiaceae and Apocynaceae. Among the fruits, *Artocarpus lakoocha* (Harikokthong), *Antidesma bunius* (Heiyen), *Calamus spp* (Heiree), *Celtis timorensis* (Heikreng), *Flacourtia jangomus* (Heitroi), *Garcinia xanthochymus* (Heibung), *Meyna laxiflora* (Heibi), *Mecrocos paniculata* (Heitup), *Nephelium longana* (Nonganghei), *Tetrastigma bracteolatum* (Mojamahei) are the indigenous fruits found in the Phayeng community forests.

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## Notes

(Phouoibi= Paddy Goddess, Khul= Village, Chakpa=Indigenous Community, Chiru-Kuki= Tribal community, Turel= River, Koubru= God name, Lai Haraoba= Syvan diety worship, Phairen= February, Sanjaibung= Grazing ground, Umang= Forests, Lam= Place, Loijing Chingjao= Distant Mountain, Warak= Bamboo Group formation, Singlup= Committee, Lok= Stream, Meiram= Firelines).

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