

# *Clematis roylei* Rehder (Ranunculaceae): A Threatened Plant from Dalma Wildlife Sanctuary, Jharkhand

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**Abstract:** *Clematis roylei* Rehder (Ranunculaceae) is a threatened species in Dalma Wildlife Sanctuary, Jharkhand. It is a climber of Himalayan origin. The present paper includes detailed citations, synonyms, description, specialize habitat, major threats and conservation priorities of *Clematis roylei* Rehder in Dalma Wildlife Sanctuary.

**Keywords:** *Clematis*, Ranunculaceae, threatened species, conservation, Dalma Wildlife Sanctuary

## 1. Introduction

*Clematis roylei* Rehder is a climbing shrub native to Himalaya [1] with beautiful cream coloured drooping bell shaped flowers. It is commonly known as "Royle's Clematis" [2]. It belongs to Family Ranunculaceae and genus *Clematis*. The genus *Clematis* has a number of ornamental plant species in the world. However, this genus also has some rare and endangered species such as *Clematis gouriana* Roxb. ex DC., *Clematis roylei* Rehder var. *patens* etc. [3][4] so this genus should have to be conserved and draw the attention of conservation biologists. *Clematis roylei* Rehder is also a threatened species which later becomes rare if not conserved.

## 2. Materials and Methods

**2.1 Study Site:** The Dalma Wildlife Sanctuary (22°46'30"N to 22°57'25"N latitudes and 86°03'15"E to 86°26'30"E longitudes) is situated on Chotanagpur plateau of South Jharkhand near the steel city of Jamshedpur. It covers an area of 193.22 sq km under Saraikela and East Singhbhum districts of Jharkhand. The forest of sanctuary area comprises dry deciduous open forest type but in core area it of mixed deciduous type. The forest of the sanctuary spread over the Dalma hill and hillocks which are also the rich source of mineral deposits.

### 2.2 Field survey, collection and identification of the specimen:

During the floristic survey of Dalma Wildlife Sanctuary, a beautiful and curious climbing shrub was collected from the core forest area near Pindraber forest guest house. The tribals of Dalma called this plant "Bonga ghanti" [5] means God's bell. After observation this plant was identified as *Clematis roylei* Rehder. It appears to be rare species as several attempts and floristic surveys of different parts of Dalma Wildlife Sanctuary this species was not spotted very frequently.

## 3. Result and Discussion

After observation of plant sample it was identified as *Clematis roylei* Rehder var. *roylei* and described as:

### 3.1 Description

***Clematis roylei* Rehder var. *roylei*** in J. Arnold Arb. 22: 575. 1941. *C. nutans* Royle. III. Bot. Himal. 51. 1834; Hook.f. & Thomson in Hook.f., Fl. Brit. India 1:5. 1872, *non* Crantz, 1763; Haines, Bot. Bihar Orissa 3. 1921 (Repr., ed., 1:3, 1961). [Figure. 1]

Perennial climbing shrub up to 4-5m long, with pubescent angled branches; leaves: exstipulate, petiolate, petiole twinning, leaves 3 foliate, with sharply, coarsely, doubly-serrate leaflets, lobed, Terminal leaflets 2.5x1.75cm, larger leaflets 5 cm, ovate with oblique base, smaller lanceolate, margin serrate, acute apex, glabrous on the both surfaces, venation reticulate, main nerves 3. Flowers: large, creamish white in axillary panicles; complete, actinomorphic, bisexual, tetramerous; 2.5x2.75 cm across on 2cm pedicel; Calyx: sepals infundibuliform, bell shaped, velvate, lobes 4, creamish white, lobes broadly oblong, 2.5-0.9 cm long with 3 parallel nerves, tomentose, with curled tips; stamens: numerous, free, filaments hairy, 1.5-2 cm long, light yellow, anther 2.5mm long, creamish white, versatile, dithecous, extrorse, dehiscence longitudinal; ovary: superior, achene ovoid, ellipsoid, 0.5x0.2 cm, hairy with 3.5 cm long style, feathery stigma. Pollinated by pollen-gathering insects and dispersed by wind.

Fl. & Fr.: October- April.

### 3.2 Habitat and Ecology

Rare, in shaded places near the hematite-schist rocks at higher altitude (2500ft – 3000ft). It grows in the sub-tropical forest areas and around water sources and on humus rich soils.



**Figure 1:** *Clematis roylei* Rehder var. *roylei* in Dalma Wildlife Sanctuary

### 3.3 Status and Conservation priorities

*C. roylei* Rehder must have then extended to Himalaya, Eastern Ghats, on one hand and into parts of Jharkhand on other that indicates its ecological amplitude. The present general decline in its population, area of occupancy, rarity and disjunctive distribution could be due to habitat loss by anthropological disturbance for development. The present day emphasis on awareness-building of these species is based on the further need for the identification of areas which are under serious threat of habit modification. The conservation biologists further emphasize the validation of such threatened species through a network of organizations, State Forest Departments and Universities employing quantification methods.

### 3.4 Conservation Measures Proposed

Dalma Wildlife Sanctuary has been declared as reserve forest and Eco-sensitive zone by the state forest department and attempt should be made to rehabilitate this species in that area.

### 3.5 Biology and Potential Value

The species is an annual climber of botanical interest and the species with its foliage and flower clusters should be of horticultural importance.

## 4. Conclusion

*C. roylei* Rehder is a rare and endemic species with a unique distribution pattern. It appears that the species has its origin in the Eastern tip of Himalayas and then spread into drier regions of Jharkhand, though discontinuously, indicating its wide ecological amplitude. Further, the altitudinal distribution ranging from 650m to 3000m and confinement to hilly tracts is an indication of its altitudinal adaptability. It requires conservation and sustainable use.

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## References

- [1] Lauener, L.A. (1980). The typification of Royle's Ranunculaceae. *Not. Roy. Bot. Gard. Edinburgh* 38(1): 125-128.
- [2] Royle, J.F. (1833-1834). *Illustrations of the Botany and other branches of the Natural History of the Himalayan Mountains and of Flora of Cashmere*, Vols. I-II. London. [Repr. ed.: Today & Tomorrow's Printers & Publications, New Delhi. 1970].
- [3] Singh, N.P., V. Mudgal, K.K. Khanna, S.C. Srivastava, A.K. Sahoo, S. Bandyopadhyay, N. Aziz, M. Das, R.P. Bhattacharya & P.K. Hajra. (2001). *Flora of Bihar – Analysis*. Botanical Survey of India, Calcutta, 23-24 pp.
- [4] Das, M., R. P. Bhattacharya, V. Mudgal. (1999). Bihar. In *Floristic Diversity and Conservation Strategies in India*, Vol- II: In the context of states and union territories. Botanical Survey of India, Calcutta, 663-692 pp.
- [5] Haines, H.H. (1992, 1925). *The Botany of Bihar and Orissa*. 3 parts. London, Govt. of Bihar & Orissa, (Vol- I) 1 pp.

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