**NOTE**

**REDISCOVERY OF THE BHUTAN PRIMROSE PRIMULA JIGMEDIANA W.W. SMITH (ANGIOSPERMS: PRIMULACEAE) AFTER 87 YEARS IN BUMDELING WILDLIFE SANCTUARY, BHUTAN**

Tez B. Ghalley, Tshering Dendup, Karma Sangay & Namgay Shacha

26 August 2021 | Vol. 13 | No. 9 | Pages: 19386–19388
DOI: 10.11609/jott.7289.13.9.19386-19388

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.
Rediscovery of the Bhutan Primrose *Primula jigmediana* W.W. Smith (Angiosperms: Primulaceae) after 87 years in Bumdeling Wildlife Sanctuary, Bhutan

Tez B. Ghalley1, Tshering Dendup2, Karma Sangay3 & Namgay Shacha4

1–4 Bumdeling Wildlife Sanctuary, Department of Forests and Park services, Ministry of Agriculture and Forests, Royal Government of Bhutan.

1 tbghalley@moaf.gov.bt (corresponding author), 2 tsheringdendup@moaf.gov.bt, 3 karmasangay1970@gmail.com, 4 namgayshacha22@gmail.com

The genus *Primula* L. of the family Primulaceae is one of the largest and widely spread of all genera with approximately 430 species distributed mainly in temperate and alpine regions of the northern hemisphere (Richards 2003). In Bhutan, there are about 71 species of *Primula* L. recorded in the country (Grierson & Long 1999). The first expedition of Ludlow & Sherriff to explore eastern Himalaya, particularly Bhutan and southeastern Tibet, was in 1933. During their expedition they discovered no less than 26 species of *Primula* new to science (Richards 2003). It was during that time the species *Primula jigmediana* was discovered for the first time and was named in honour of His Majesty the 2nd King of Bhutan for his kindness and courtesy during their visit to the country (Smith 1936).

*Primula jigmediana* is atypical compared to other *Primula* species and its distribution is still poorly studied (Smith & Fletcher 1942). Bawri et al. (2018) during botanical expedition in Arunachal Pradesh, India discovered *Primula jigmediana* for the first time. The species is found to be rare with few individuals (Bawri et al. 2018). The same species found in Arunachal Pradesh has narrower leaves as compared to species recorded in Bhutan (Bahrali et al. 2018). The present observation of the species from Bumdeling Wildlife Sanctuary, Bhutan records the rediscovery of this species after a lapse of 87 years, and presents additional morphological description along with conservation threat and distribution of the species.

*Primula jigmediana* was sighted in northeastern part of Bumdeling Wildlife Sanctuary, Bhutan (91.541°E, 27.906°N) on 18 July 2020 at an elevation of 4,490 m. The manual Flora of Bhutan (Grierson & Long 1999) was used for identification and morphological description of *Primula jigmediana*. The herbarium was prepared following Smith (1971). The specimen is deposited in the herbarium section of the Bumdeling Wildlife Sanctuary.

**Taxonomy**

*Primula jigmediana* W.W. Smith (1936); Smith & Fletcher (1942); Grierson & Long (1999); Richard (2003); Bawri et al. (2018).

Type: Bhutan, Me La, 3.viii.1933, Ludlow & Sherriff 397 (Holotype- BM!). Seen as a photo.

Description: *Primula jigmediana* W.W. Smith is a perennial herb in the family Primulaceae. It has calyx...
Rediscovery of *Primula jigmediana* from Bumdeling WS, Bhutan

Ghalley et al.


---

up to 2.5–3 cm tall. Leaves in compact rosettes, 6–11 mm. Petiole and leaf blade almost equal in length, 2–5 mm. Lamina oblanceolate, bluntly dentate at the margin, glabrous, efarinose, leaf apex obtuse, 5–6 pairs, alternate, yellowish-green. Scapes 2.5–3 cm tall with single heterostylos flower. Pedicel 1–3 mm and is curved and farinose. Single curved bract, 1–2 mm long. Calyx greenish or blackish-purple, 2-3 mm, cup shape with faintly farinose, parted to middle, lobes ovate, acute to obtuse. Corolla funnel shaped, 4–8 mm long, bluish-purple with dark wine purple annulus, lobes obovate (Image 1). Long style makes the stigma above the anther (pin flower), some flowers have short style making the anther above the stigma (Thrum flower). Capsule sub-globose (Smith 1936; Grierson & Long 1999; Richard 2003; Bawri et al. 2018).

Distribution: Bhutan, Bumdeling Wildlife Sanctuary (Figure 1) and India (Arunachal Pradesh).

Specimens examined: Bhutan, Bumdeling Wildlife Sanctuary, Rigsumlhatsho, (91.541°E, 27.906°N; 4,490 m), 18 July 2020, W.W. Smith, Me La, 1936 (Holotype BM, Photo!).

Habitat: *Primula jigmediana* in Bumdeling Wildlife Sanctuary was found growing in marshy and humid areas along the sides of streams and lakes. It was also found growing on wet stony slopes along with the mosses (Image 1). Associate species like *Potentilla penduncularis* D. Don, *Rumex nepalensis* Sprengel and the high value insect-pathogenic fungus *Ophiocordyceps sinensis* (Berk.) G.H. Sung, J.M. Sung, Hywel-Jones, & Spatafora were found growing in the area. *Primula jigmediana* was found growing in Rigsum Gonpa, Ngangpatsho, Padmaling, and Goneyla area in Bumdeling Wildlife Sanctuary in between elevation of 4,300- 4,600 m. Bawri et al. (2018) described the ecology of this species in humid and marshy areas along the sides of streams and wet stony slopes of meadows. In Arunachal Pradesh the species was recorded at the altitude of 3,500- 4,500 m (Bawri et al. 2015) and later in between the elevation of 3,900- 4,000 m (Bawri et al. 2018). This indicates narrow growth territory of *Primula jigmediana* as it is restricted to specific locality.

Flowering: *Primula jigmediana* flowers in June–July. Similar flowering time was recorded in Arunachal
Pradesh, India (Bawri et al. 2015, 2018).

Conservation status: A few individuals of *Primula jigmediana* were found growing at critical stage in a narrow habitat in northeastern part of Bumdeling Wildlife Sanctuary. Despite of being rare, *Primula jigmediana* is still not listed in the IUCN Red list category. It is palatable and a fodder species for yaks in Himalaya. Nomadic inhabitants rear a large number of yaks and other breeds of cattle. These animals destroy the population by browsing and trampling impeding natural regenerations. Similar threats from grazing, developmental activities, and landslides were recorded from Arunachal Pradesh, India (Bawri et al. 2015, 2018). Every year these areas receive hundreds of *Ophiocordyceps sinensis* collectors, which is also one of the threats to its habitat. Hence, larger damage to the population of *Primula jigmediana* by trampling can be foreseen from *Ophiocordyceps sinensis* collectors. Since, prime habitat of the Bhutan Primrose is along the sides of streams and lakes, the landslides and runoff were observed affecting the habitat of the species. Therefore, it is very important that concerned authorities and agencies initiate appropriate strategies to conserve this species from anthropogenic and natural threats.

References


The challenges of the climate crisis are frustrating. Learn to lead to make a positive change.

The **Ram Hattikudur Advanced Training in Conservation (RHATC)** is a four-month residential course mentored by Indian and international experts. The course will bridge the gap between academics and on-ground conservation realities by equipping you with knowledge, tools, and an understanding of global conservation issues.

**Challenge yourself**
- Resolve conservation challenges.
- Develop skills in assessments and planning.
- Exposure to real-time conservation needs.
- A window into conservation NGOs.
- Potential opportunities for internship.
- Potential job opportunities with conservation organizations.
- Pursue conservation careers
- Potential to start your own organization.
- Exposure to conservation experts.
- Develop leadership skills.

**Apply now!**

- **Applications open:** 09 August 2021
- **Application last date:** 31 August 2021
- **Course start date:** 12 October 2021

To know more visit: [www.rhatc.zooreach.org](http://www.rhatc.zooreach.org)
On the impact of earthquake-induced landslides on Red Panda Allurus fulgens (Mammalia: Carnivora: Ailuridae) habitat in Langtang National Park, Nepal

Rhesus Macaque Macaca mulatta (Mammalia: Primates: Cercopithecidae) in a human-modified landscape: population, activity budget, and societal perceptions in Bangladesh

Factors affecting the species richness and composition of bird species in a community managed forest of Nepal

A large mammal survey in Koyli Alpha Community Wildlife Reserve and its surroundings in the Great Green Wall extension area in Senegal

Photographic evidence of Red Panda Allurus fulgens Cuvier, 1825 from West Kameng and Shi-Yomi districts of Arunachal Pradesh, India

On the reproductive biology of the invasive Armoured Catfish Pterygoplichthys pardalis (Castelnau, 1855) (Siluriformes: Loricariidae) from the natural drainages in Thiruvananthapuram, India

On the bird diversity in the non-protected regions of TrMuongShatbandz District in Bhutan

Is habitat heterogeneity effective for conservation of butterflies in urban landscapes of Delhi, India?

A preliminary checklist of moths (Lepidoptera: Heterocera) from Gangajalghati, Bankura, West Bengal, India

First report of three species of the genus Diaphanosoma (Crustacea: Cladocera: Sididae) from Jammu waters (J&K), India

Wild ungulates in Jordan: past, present, and forthcoming opportunities

The captive population of the Lion-tailed Macaque Macaca silenus (Linnaeus, 1758). The future of an endangered primate under human care

Notes

Notes on the reproductive biology of the invasive Armoured Catfish Pterygoplichthys pardalis (Castelnau, 1855) (Siluriformes: Loricariidae) from the natural drainages in Thiruvananthapuram, India

Notes on the bird diversity in the non-protected regions of TrMuongShatbandz District in Bhutan

Notes on habitat heterogeneity effective for conservation of butterflies in urban landscapes of Delhi, India?

A preliminary checklist of moths (Lepidoptera: Heterocera) from Gangajalghati, Bankura, West Bengal, India

First report of three species of the genus Diaphanosoma (Crustacea: Cladocera: Sididae) from Jammu waters (J&K), India

Wild ungulates in Jordan: past, present, and forthcoming opportunities

The captive population of the Lion-tailed Macaque Macaca silenus (Linnaeus, 1758). The future of an endangered primate under human care

Notes on the reproductive biology of the invasive Armoured Catfish Pterygoplichthys pardalis (Castelnau, 1855) (Siluriformes: Loricariidae) from the natural drainages in Thiruvananthapuram, India

Notes on the bird diversity in the non-protected regions of TrMuongShatbandz District in Bhutan

Notes on habitat heterogeneity effective for conservation of butterflies in urban landscapes of Delhi, India?

A preliminary checklist of moths (Lepidoptera: Heterocera) from Gangajalghati, Bankura, West Bengal, India

First report of three species of the genus Diaphanosoma (Crustacea: Cladocera: Sididae) from Jammu waters (J&K), India

Wild ungulates in Jordan: past, present, and forthcoming opportunities

The captive population of the Lion-tailed Macaque Macaca silenus (Linnaeus, 1758). The future of an endangered primate under human care

Notes on the reproductive biology of the invasive Armoured Catfish Pterygoplichthys pardalis (Castelnau, 1855) (Siluriformes: Loricariidae) from the natural drainages in Thiruvananthapuram, India

Notes on the bird diversity in the non-protected regions of TrMuongShatbandz District in Bhutan

Notes on habitat heterogeneity effective for conservation of butterflies in urban landscapes of Delhi, India?

A preliminary checklist of moths (Lepidoptera: Heterocera) from Gangajalghati, Bankura, West Bengal, India

First report of three species of the genus Diaphanosoma (Crustacea: Cladocera: Sididae) from Jammu waters (J&K), India

Wild ungulates in Jordan: past, present, and forthcoming opportunities

The captive population of the Lion-tailed Macaque Macaca silenus (Linnaeus, 1758). The future of an endangered primate under human care

Notes on the reproductive biology of the invasive Armoured Catfish Pterygoplichthys pardalis (Castelnau, 1855) (Siluriformes: Loricariidae) from the natural drainages in Thiruvananthapuram, India

Notes on the bird diversity in the non-protected regions of TrMuongShatbandz District in Bhutan

Notes on habitat heterogeneity effective for conservation of butterflies in urban landscapes of Delhi, India?