

***Chusua nana*: An orchid, new record for Nanda Devi National Park (Nanda Devi Biosphere Reserve), Uttarakhand, India**

Bhupendra Singh Adhikari
Department of Habitat Ecology, Wildlife Institute of India
P.O. Box # 18, Chandrabani, Dehradun 248 001, Uttarakhand, India
Email: adhikaribs@wii.gov.in

Abstract: Nanda Devi National Park (NDNP) is one of the “World Heritage Site” covering an area 624.6 km² and forms one of the core zones of Nanda Devi Biosphere Reserve, which was established in 1988 under the MAB programme of UNESCO. Nanda Devi NP was unexplored and naturally protected by high mountains and glaciers until the scaling of Nanda Devi peak in 1934. In 1962 the widely acclaimed “Chipko Movement” brought the National Park into limelight for the efforts of villagers in conservation of natural resources. During 1934-1983 park faced serious threats and environmental degradation due to human activities, particularly mountaineering. [The Journal of American Science. 2008;4(4):27-31]. (ISSN: 1545-1003).

Keywords: *Chusua nana*; Nanda Devi National Park; World Heritage Site

Introduction

A complete ban was imposed in 1983 and a baseline survey was conducted by Botanical survey of India and Zoological Survey of India in the years 1981-1984. Two explorations conducted in the park yielded a total number of 312 plant species distributed over 199 genera and 81 families (Hajra 1983). Since then several efforts has been made to conserve the biodiversity of the park through effective protection, management and people’s participation. An assessment of changes in the status of flora and fauna was made in 1993 by a team of scientist from various organizations. A total of 793 plant species belonging to 406 genera and 120 families from Nanda Devi Biosphere Reserve were recorded by Hajra and Balodi (1995), however, Samant (1999) reported 620 plant species belonging to 344 genera and 118 families from Nanda Devi Biosphere Reserve. The difference is mainly due to that in both the studies different areas were visited. According to the study by Samant and Joshi (2005) Nanda Devi National Park harbours 490 species belonging to 281 genera and 89 families of Angiosperms and Gymnosperms.

The orchidaceae family has more than 17000 species belonging to 735 genera, which are cosmopolitan in distribution, chiefly in tropical and temperate regions in the world. Over 1100 species of orchids are occurring in India, of which 30 orchid species belonging to 19 genera and 21 species belonging to 18 genera have been reported from Nanda Devi Biosphere Reserve (Hajra & Balodi 1995, Samant 1999).

To assess the status of decadal change in the flora and fauna another significant effort was made by Forest Department of Uttarakhand in 2003. During the ecological expedition (18 June - 8 July, 2003) various parts inside the core zone of Nanda Devi NP were visited (Adhikari 2004) for sampling and on 28 June, 2003 enroute to Betartoli at an altitude *ca.* 4075-4150m asl, *Chusua nana*, a new record for Nanda Devi National Park was collected and photographed (Plate I & II).

***Chusua nana* (King & Pantling) Pradhan, Indian Orc.: Guide Identif. Cult. 2: 678 (1979); Pearce & Cribb, Orch. Bhutan, 134 (2002)**

Orchis chusua var. *nana* King & Pantling in Ann. Roy. Bot. Gard. (Calcutta) 8:304, t.402 (1998).

Ponerorchis nana (King & Pantling) Soo, Acta Bot. Acad. Sci. Hung. 12: 353 (1966); Seidenfaden & Arora 2: 24; Deva et Naithani, Orch. North-West Himalaya 199. t. 106 (1986).

Type: China (Xizang), Chumbi, Pantling 326 (holotype CAL)

Description

Plant terrestrial, 10-12cm tall; tuber small, ovoid, 7-8 x 7-8mm; *Stem*: Slender, glabrous, bearing a bladeless sheath at base, ebracteate above leaf, 3.5-6.5cm long; basal sheath tubular, 1.3-1.7cm long; *Leaf*: Single, linear to linear-lanceolate, acute, sessile, not sheathing, blotched with maroon patches, 1.7-3.5 x 0.15-0.2cm; *Inflorescence*: 1-2 flowered; rachis short, glabrous, 0.5-1.4cm long; floral bracts lanceolate, acute, margins minutely glandular, 0.9-1.1 x 0.2-0.25cm, longer than ovary; *Flowers*: 5-8mm across; sepals and petals purple, lip purple with red spots; pedicel and ovary fusiform, 7-8mm long; Sepals: subsimilar, lanceolate-ovate, acute, 1-veined, 2.5-3 x 2-3mm; Petals: ovate, acute, 1-veined, 2-3 x 1.5-2.5mm; Lip: obscurely 3-lobed, spurred, base broad, expanding to an equally 3-lobed apex, margins crenulate, 5-6 x 5-6mm; Spur: cylindric, wider at base, apex curved, 4-7mm long; Column: 1-1.5mm tall; Pollinia: clavate; caudicle long.

Flowering: Mid-June to mid-August

Distribution in World: Tibet-Qinghai to Eastern Himalaya (Govaerts 2003) and Bhutan (Pearce & Cribb 2002)

Distribution in India: Himachal Pradesh, Sikkim, Darjeeling and Arunachal Pradesh

Distribution in Uttarakhand: Chuli (alpine meadow in Uttarkashi District) and Betartoli in Nanda Devi National Park (Nanda Devi Biosphere Reserve) in Chamoli district of Garhwal Himalaya

Ecology: It is generally found in rolling grassy meadows. The associated species are *Cassiope* on depressed with moist areas and *Poa* and *Danthonia* on exposed with less moist areas.

Nativity: Himalayan region

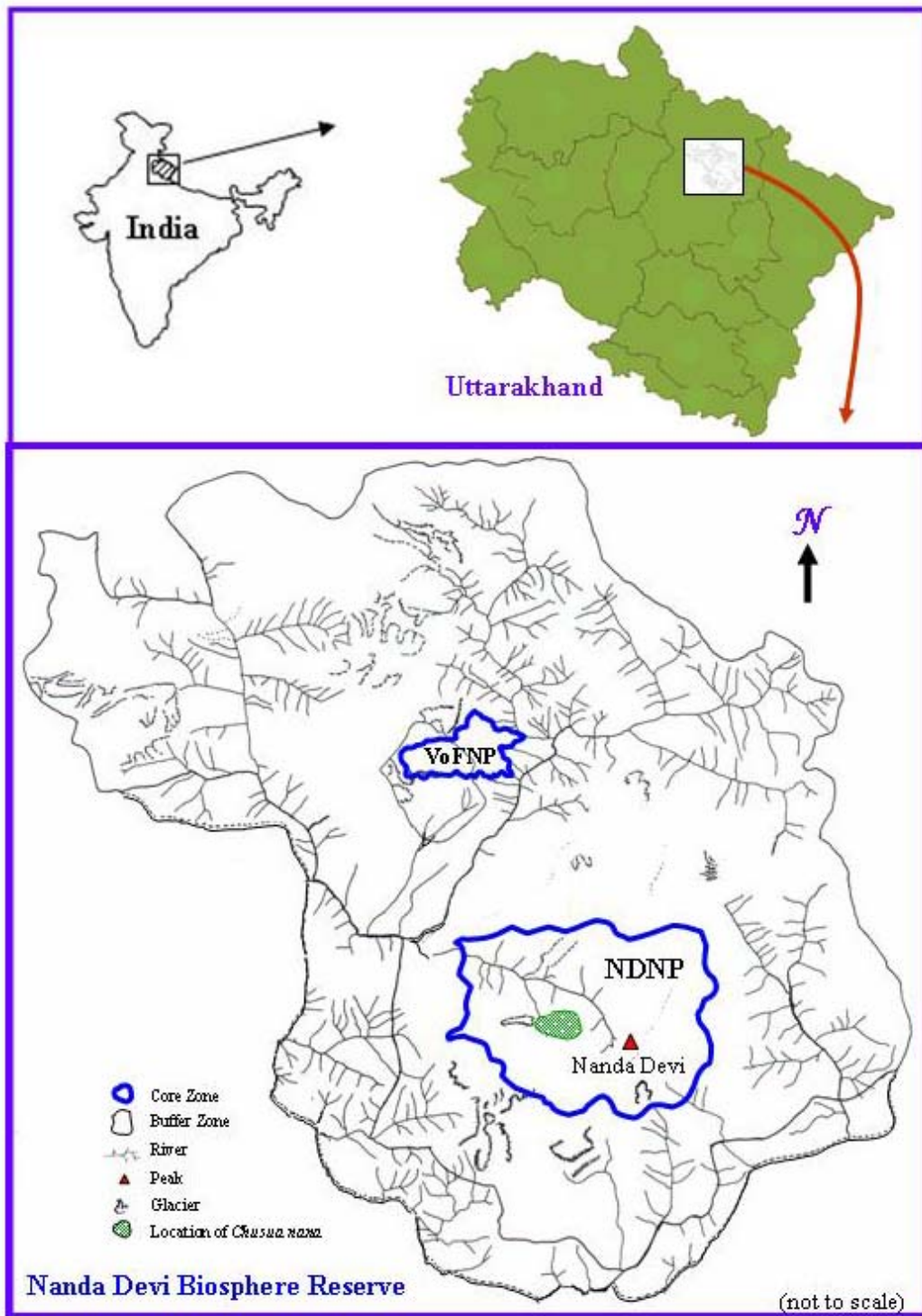


Fig. 1: Map of Nanda Devi Biosphere Reserve (Core zones: Nanda Devi National Park (NDNP) and Valley of Flowers National Park, VoFNP) showing location of *Chusua nana* in Uttarakhand, India.

Plate I. Cluster of
grassland



Chusua nana in an open

Plate II. An
nana



individual plant of *Chusua*

Acknowledgement

The author is thankful to the Director and the Dean at WII for providing facilities and Dr. G. S. Rawat for suggestions and encouragement, and Uttarakhand Forest Department for rendering help during the survey and team members for their nice company in the pristine area. The author is specially thankful to Pankaj Kumar and Dr. J.S. Jalal for helping in species identification.

References

1. Adhikari B.S. (2004). Ecological attributes of vegetation in and around Nanda Devi National Park. 2003. In: UAF, Biodiversity Monitoring Expedition Nanda Devi 2003. A report to the Ministry of Environment & Forests, Govt. of India, Uttaranchal Forest Department, Dehradun, 15-38.
2. Govaerts R. (2003). *World Checklist of Monocotyledons Database in ACCESS: 1-71827*. The Board of Trustees of the Royal Botanic Gardens, Kew.
3. Hajra P.K. (1983). *A contribution to the Botany of Nanda Devi National Park in Uttar Pradesh, India*. POSSCEF, Botanical Survey of India.
4. Hajra P.K. and Balodi B. (1995). *Plant wealth of Nanda Devi Biosphere Reserve*. Botanical Survey of India, Flora of India, Series 4.
5. Pearce N.R. and P.J. Cribb (2002). *The Orchids of Bhutan*. Royal Botanic Garden Edinburgh and Royal Government of Bhutan.
6. Samant S.S. (1999). Diversity, nativity and endemism of vascular plants in a part of Nanda Devi Biosphere Reserve in West Himalaya I. Himalayan Biosphere Reserves, Biannual Bulletin I (1&2): 1-28.
7. Samant S.S. and H.C. Joshi (2005). Plant diversity and conservation status of Nanda Devi National Park and comparison with highland National Parks of the Indian Himalayan Region. The International Journal of Biodiversity Science and Management 1(1): 65-73.

6/28/2008