

# Additions to the bryoflora of Nilgiri Hills, Tamil Nadu, South India

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## ABSTRACT

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Three liverworts, *Calypogeia lunata* Mitt., *Pallavicinia lyellii* (Hook.) Carruthers and *Cyathodium cavernarum* Kunze, have been recorded for the first time from the Nilgiri Hills, Tamil Nadu, South India.

**Key-words:** Bryophyta, Liverworts, Nilgiri Hills, South India.

## INTRODUCTION

Nilgiri Hills host tropical and subtropical rain forests and exhibit plentiful diversity in bryoflora. Some of the areas are so arduous that no collection has been done for decades, resulting into meagre information about the taxa occurring there. During a recent floristic survey of Nilgiri Hills, three taxa of Hepaticae have been recorded for the first time. These include *Calypogeia lunata* Mitt., earlier known from eastern and western Himalayas in India. So far, only two species, *C. arguta* and *C. azurea*, are known from the Western Ghats. Similarly, *Pallavicinia lyellii* (Hook.) Carruthers known from Karnataka and Kerala and *Cyathodium cavernarum* Kunze known from eastern and western Himalayas, Central India and Maharashtra have also been recorded for the first time from the Nilgiri Hills (Srivastava & Udar 1979, Sharma & Srivastava 1993, Parihar et al. 1994, Srivastava & Dixit 1996, Srivastava 1998, Bapna & Kachroo 2000, Alam 2005). Further exploration of remote areas, including the national parks/biosphere reserves, may enrich the bryoflora of the Nilgiri Hills. The morpho-taxonomic description of all these taxa has already been published by earlier workers (Pande & Srivastava 1953, Sharma & Srivastava 1993, Srivastava & Dixit 1996). The present

communication provides distribution of each species in India with notes on their ecology.

### *Calypogeia lunata* Mitt.

Plate 1, figure 1

*Calypogeia lunata* Mitt., J. Proc. Linn. Soc. London 5: 107 (1861); Stephani Spec. Hep. 3: 401 (1908); *Calypogeia birostris* (Tayl.) Austin, Bot. Gaz. 1: 32 (1876); Stephani, Spec. Hep. 3: 408 (1908).

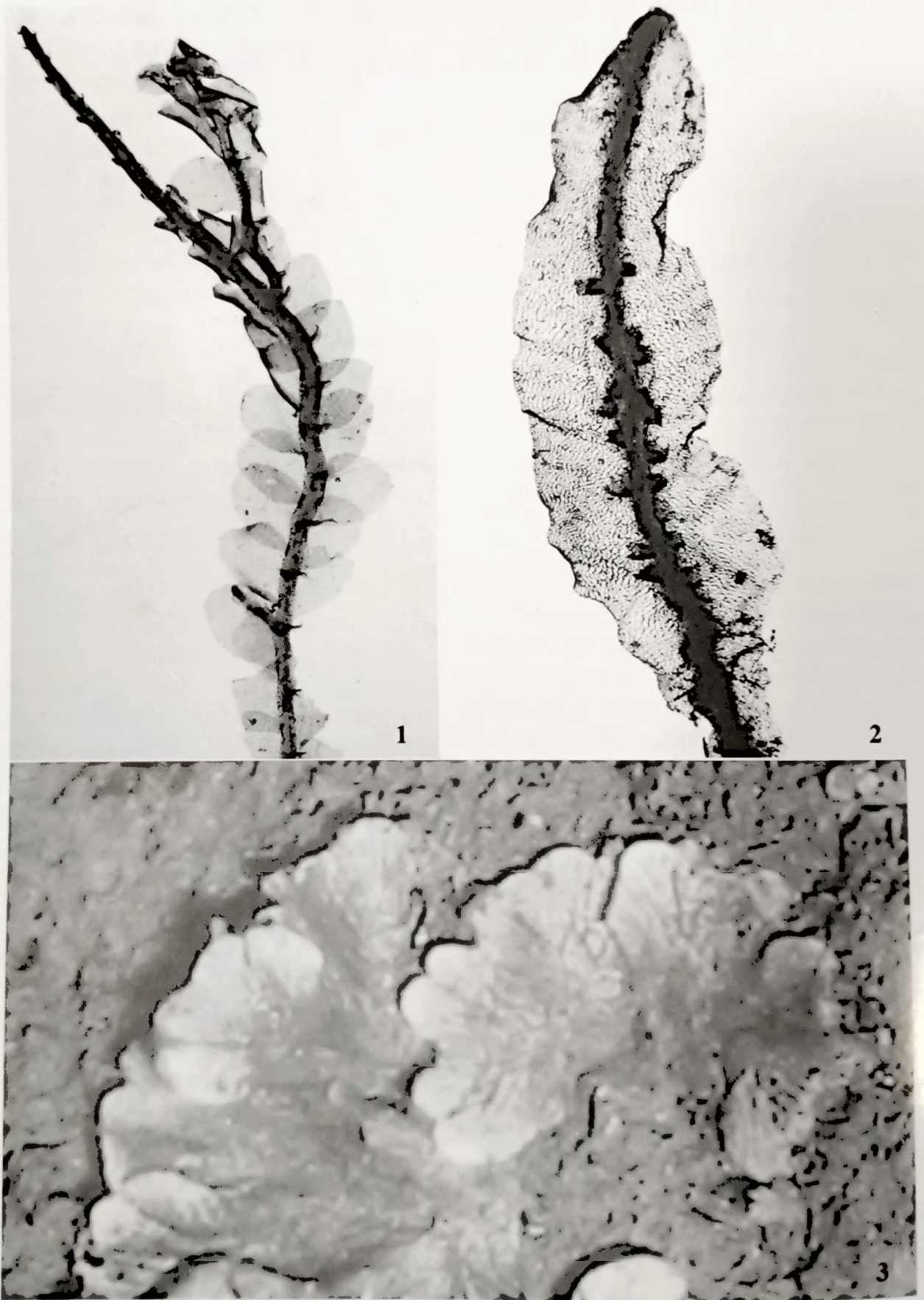
**Type locality:** Assam (Bonner 1963).

**Ecology:** Terrestrial, growing on soil covered rocks, in crevices, on sloppy cliffs, loosely fixed with the substratum, commonly grows in association with *Cephaloziella kiaerii*, *Dumortiera hirsuta*, *Heteroscyphus argutus* and *Notoscyphus pandei*.

**Range:** Asia - Bhutan, China, India, Nepal (see also Sharma & Srivastava 1993).

**Distribution in India:** Western Himalaya: Uttarakhand - Mussoorie; Meghalaya - Cherrapunji, Shillong (Elephant falls); Sikkim-Manul; West Bengal-Darjeeling (Senchal lake, L.B.G., Sukia, Kurseong, Teesta valley); South India: Tamil Nadu - Nilgiri Hills - Coonoor, Kettabettu, Kotagiri.

**Specimens examined:** Sikkim Himalaya, Prope Kurseong (alt. ca. 1830m), 26 II 1899, Rev. P. Decoly

**Plate 1**

1. *Calypogeia lunata* Mitt., x16. 2. *Pallavicinia lyellii* (Hook.) Carruthers, x11. 3. *Cyathodium cavernarum* Kunze, x28

et Schaul, Det. Schiffner, n. 372 (*Kantia*) Bryotheca E. Levier, (NY); Eastern Himalaya: West Bengal (Darjeeling), alt. ca. 2000 m, R. Udar, January, 1970, 1588/1970, LWU; South India: Tamil Nadu - Nilgiri hills: Kotagiri (Kettabettu), alt. ca. 1750 m, 09.04.2002, P. K. Verma, A. Alam and N. Sahu, 15343/02, LWU.

***Pallavicinia lyellii* (Hook.) Carrunthers**

Plate 1, figure 2

*Pallavicinia lyellii* (Hook.) Carrunthers, J. Bot. 3: 302 (1865); *Jungermannia lyellii* Hook., British Jungerm., pl.77 (1816); *Pallavicinius lyellii* Gray, Nat. Arr. Brit. Pl. pl.775 (1821).

**Type locality:** England - Hampshire: New Forest (Schuster 1992).

**Ecology:** Grows on moist and shady rocks, rocks covered with soil and among wet rocks along with *Calypogeia azurea* and *Dumortiera hirsuta*.

**Range:** Cosmopolitan, occurs in temperate to tropical parts of the world, viz. Europe (Poland), North America, Mexico, West Indies, South America, Africa, Madagascar, Japan and Taiwan, Asia, New Guinea, Australia, New Zealand. (Schuster 1992, Mierzenska 2001).

**Distribution in India:** Eastern Himalaya, Western Himalaya, Central India, South India: Kerala, Karnataka, Tamil Nadu - Nilgiri Hills (Gudalur, Devala, Ootacamund, Iduhatty).

**Specimens examined:** South India: Tamil Nadu - Nilgiri Hills: Ootacamund (Iduhatty); alt. 1800-2200m; 02.12.2001, P. K. Verma and A. Alam; 14721/01, 14723/01, 14727/01, 14728/01, 14732/01, LWU.

***Cyathodium cavernarum* Kunze**

Plate 1, figure 3

*Cyathodium cavernarum* Kunze in Lehm., Pugillus 6: 17 (1834).

**Type locality:** Cuba (Bonner 1962).

**Ecology:** Moist and shady places.

**Range:** Asia: India, Myanmar, Indonesia (Java); America (Srivastava & Dixit 1996).

**Distribution in India:** Eastern Himalaya: Darjeeling, Khasi & Jaintia Hills, Shillong; Western Himalaya (Dehradun, Gunkhal, Karnprayag,

Mussoorie, Salkuli; Central India : Gujarat, Madhya Pradesh; Gangetic Plains : Bareilly, Lucknow; South India : Mumbai, Khandala, Mahabaleshwar, Malabar Hills, Panchgani, Pratapgarh. (Srivastava & Dixit 1996) and Tamil Nadu - Nilgiri Hills (Gudalur - Pandalur, Nellakota, Cherambadi Yallamalai).

**Specimens examined:** Tamil Nadu - Nilgiri Hills: Gudalur (Nellakota), alt. ca.1900m, 03.04.2002, P. K. Verma, A. Alam and N. Sahu, 14885/02, LWU; Gudalur (Pandalur), alt. ca.1100 m, 27.09.2002, P. K. Verma and A. Alam, 16042/02, LWU; Gudalur (Cherambadi), alt. ca.1200 m, 28.09.2002, P. K. Verma and A. Alam, 16092/02, 16093/02, 16095/02, LWU; Gudalur (Yellamalai), alt. ca.1200m, 29.09.2002, P. K. Verma and A. Alam, 16104/02, 16107/02, LWU.

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