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*Vachellia nilotica*

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**Cover: Parts of *Vachellia nilotica*, medium - watercolours. © P Kritika**

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ARTICLE

# An annotated checklist of bryophytes of Rajouri District, Jammu & Kashmir, India

**Manju Sharma [1], Nazia Kouser [2], P.L. Uniyal [3] & Shreekar Pant [4]**

[1,2,4] Conservation Ecology Lab, Environmental Science, Centre for Biodiversity Studies, Baba Gulam Shah Badshah University, Rajouri, Jammu & Kashmir 185156, India.

[3] Department of Botany, University of Delhi, Delhi 110007, India.

[1] manjusharmaevs@gmail.com, [2] naziakouser90@gmail.com, [3] pluniyal@botany.du.ac.in,

[4] shreekarpant@bgsbu.ac.in (corresponding author)

**Abstract:** Significant altitudinal variation seen in the area ranging from 490 to 4,700 m has resulted into three distinct climate zones, viz, subtropical, temperate, and alpine in the district Rajouri which is home to a diverse range of plants and animals. The goal of the current study is to record and evaluate the diversity of bryophytes in district Rajouri, Jammu & Kashmir. The checklist comprises of 118 species of bryophytes, out of which one species belongs to hornworts, 47 species to liverworts and the remaining 70 species to the mosses. This article includes an inventory of all known plant species along with their family, local distribution range, elevation, geographic coordinates, and habitat.

**Keywords:** Bryophyta, climate zones, distribution range, diversity, elevation, habitat, hornworts, liverworts, mosses.

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**Author details:** Manju Sharma: research scholar, Centre for Biodiversity studies, School of Biosciences and Biotechnology, Baba Gulam Shah Badshah University Rajouri. Nazia Kouser: research scholar, Centre for Biodiversity studies, School of Biosciences and Biotechnology, Baba Gulam Shah Badshah University Rajouri. P.L Uniyal: senior professor, Department of Botany, University of Delhi, Delhi. Shreekar Pant: senior assistant professor, Centre for Biodiversity studies, School of Biosciences and Biotechnology, BGSBU Rajouri.

**Author contributions:** Manju Sharma—data curation, formal analysis, writing original draft and review and editing; Shreekar Pant—review and editing; P.L. Uniyal—review and editing; Nazia Kouser—data curation.

## INTRODUCTION

India is one of the mega biodiversity countries harbouring about 56,177 plant taxa including 22,368 angiosperms, 83 gymnosperms, 1,325 pteridophytes, 2,850 bryophytes, 3,151 lichens, 15,986 fungi, 9,117 algae, and 1,297 microbes (Mao et al. 2025). The Indian bryophytes account for about 5.07 percent of the total plant species of the country.

Jammu & Kashmir has rich bryophyte diversity owing to its suitable climatic conditions (Dar et al. 2012). Banday (1997) investigated the bryophytes of Gulmarg and the surrounding regions, gathering 63 species, including 49 mosses and 14 liverworts. Later Banday et al. (1998) classified 48 liverworts from Kashmir, including 23 thallose and 25 foliose varieties, and noted that there were no hornworts in the area. Prior research on mosses and liverworts in Kashmir was reviewed by Dar (2002), who listed 48 species of liverworts spread across 25 genera in 16 families and 162 species, two subspecies, and nine varieties of mosses spread across 70 genera in 25 families. Likewise, some initial findings on the Ladakh region's liverworts have been published (Dolma & Langer 2012, 2013). Many uncommon, threatened, and endangered taxa have been reported as a result of the exploration of Jammu region's bryoflora, which has also shown a high diversity of liverworts (Tanwir & Langer 2004; Bhagat et al. 2012; Rashid et al. 2012). Riaz et al. (2015) reported 17 mosses belonging to 17 genera in 12 families from Kistwar, Jammu & Kashmir. A preliminary survey of mosses in Rajouri and Poonch districts of Jammu & Kashmir by Sharma et al. (2016) documented 21 species belonging to 16 genera in 11 families. Ismail et al. (2020) listed 420 species of bryophytes from Jammu & Kashmir, of which 328 species distributed over 117 genera and 32 families are mosses, while 91 species distributed across 40 genera and 23 families are liverworts. Only one species of hornworts, *Phaeoceros laevis* is recorded from the state, that too from district Rajouri of the Jammu province. The present study is an attempt to survey the bryophytes of district Rajouri, Jammu & Kashmir and to prepare an updated checklist of these plants in the area.

## MATERIALS AND METHODS

The Rajouri District lies between 32°57′–33°34′ N and 74°00′–74°48′ E in the southern foothills of Pir Panjal Himalaya in the Indian state of Jammu & Kashmir (Image 1). The specimens collected from different habitats were air dried and kept in paper packets. Field data such as name of locality, habitat, longitude, latitude and elevation was also recorded. Collected samples were identified by using the available literature Gangulee (1969–1980), Chopra & Kumra (1988), and Aziz & Vohra (2008) for mosses. The classification of liverworts in this checklist follows the recent molecular framework proposed by Crandall-Stotler et al. (2009). Mosses are classified according to the recent molecular system of Goffinet et al. (2008). Species names and authorship were verified and updated following World Flora Online (WFO 2025 ). The collected samples have been deposited in the Centre for Biodiversity studies, Baba Gulam Shah Badshah University (BGSBU).

## RESULTS

A total of 118 species have been recorded from the district Rajouri based on the present and past collection of bryophytes belonging to one species of hornwort, 47 taxa of liverworts in 26 genera and 19 families, and 70 species of mosses in 44 genera and 19 families.

### Enumeration

### Hornworts

1. *Phaeoceros laevis* (L.) Prosk., Bull. Torrey Bot. Club 78: 347. 1951. *Anthoceros laevis* L., Sp. Pl. 2: 1139. 1753 (Notothyladaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non- epilithic, 900–2000 m (Rashid et al. 2012).

### Liverworts

2. *Acrolejeunea sandvicensis* (Gottsche) Steph., Bot.jahrb. Syst. 23(3): 312.1986. *Phragmicoma sandvicensis* Gottsche., Ann. Sci.Nat., Bot., ser.4,8: 344.1857(Lejeuneaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epiphytic, 700–1700 m (Rashid et al. 2012 as *Trocholejeunea sandvicensis* Mizut.).

3. *Apopellia endiviifolia* (Dicks.) Nebel & D. Quandt., Taxon 65(2): 230. 2016. *Jungermannia endiviifolia* Dicks., Fasc. Pl. Crypt. Brit. 4: 19. 1801(Pelliaceae) (Image 2E)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Manjakote, 74.25° E, 33.4° N, 1,780 m, growing on soil rich in lime, 5.iii.2022, Manju Sharma and Nazia Kouser S36B3 (Rashid et al. 2012 as *Pellia endiviifolia* (Dicks.) Dumort.).

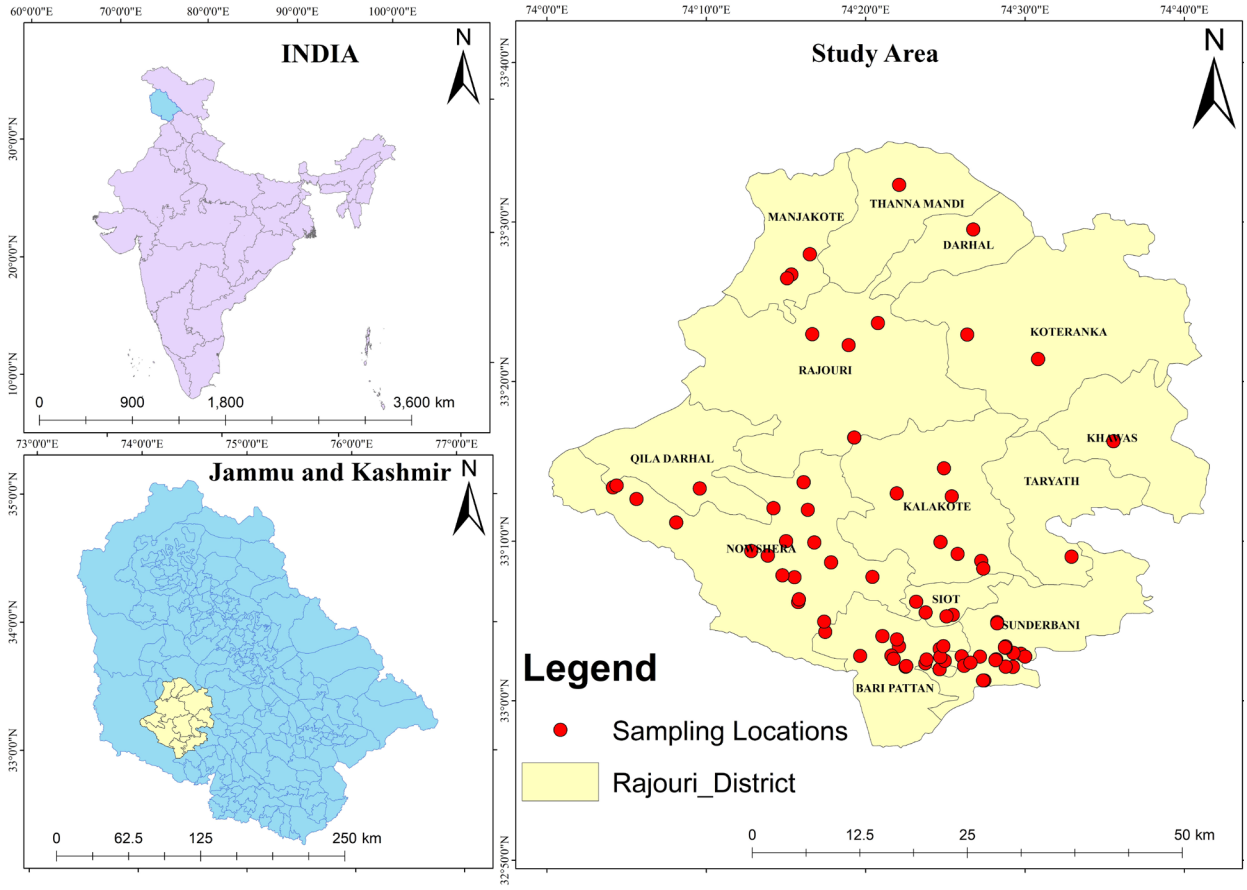


**Image 1. The study area—Rajouri District, Jammu & Kashmir.**

4. *Asterella blumeana* (Nees) Kachroo, J. Gauhati India Univ. 3:130.1952. *Fimbraria blumeana* Nees, Syn. Hepat.: 564. 1846 (Aytoniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Palwal, 74.38° E, 33.04° N, 589.43 m, on soil covered rock, 10.ii.2022, Manju Sharma S9B6 (see also Rashid et al. 2012).

5. *Asterella khasyana* (Griff.) Grolle., Khumbu Himal 1(4): 267. 1966. *Octokepos khasyanus* Griff., Not. Pl. Asiat. 2: 343. 1849(Aytoniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kalakote, Karmha, 74.41° E, 33.21° N, 657.02 m, onsoil covered rock, 15.ii.2022, Manju Sharma and others S29B1.

6. *Asterella leptophylla* (Mont.) Grolle, Feddes Repert. 87: 246. 1976. *Fimbraria leptophylla* Mont., Ann. Sci. Nat., Bot., sér. 2,18: 16. 1842 (Aytoniaceae)

Specimen examined: Jammu & Kashmir, Rajouri District, epilithic, non-epilithic, 1,000–2,000 m, (Rashid et al. 2012 as *Asterella reticulata* (Kashyap) Pandé, K.P. Srivast. & Sultan Khan).

7. *Asterella wallichiana* (Lehm. & Lindenb.) Grolle., Khumbu Himal 1(4): 262, 1966. *Fimbraria wallichiana* Lehm. & Lindenb., Nov. Stirp. Pug. 4: 4. 1832 (Aytoniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Mangaldai, 74.23° E, 33.15° N, 261.33 m, on soil covered rock,15.ii.2022, Manju Sharma S17B1 (Rashid et al. 2012 as *Asterella angusta* (Steph.) Pandé, K.P. Srivast. & Sultan Khan).

8. *Athalamia pinguis* Falc., Trans. Linn. Soc, London 20:397.1851 (Cleveaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Suderbani, DhokBanyard, 74.25° E, 33.13° N, 604.54 m, grows on swampy soil, 02.ii.2022, Manju Sharma S13B4 (see also Rashid et al. 2012).

9. *Clevea pusilla* ( Steph.) Rubas. & D.G. Long., J.Bryol. 33(2): 167.2011. *Gollaniella pusilla* Steph., Hedwigia 44: 74. 1905(Cleveaceae) (Image 2B)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Suderbani, near Beripattan bridge, 74.36°E , 33.06° N, 485.7 m, on soil covered rock, 02.ii.2022, Manju Sharma S1B1 (Rashid et al. 2012 as *Athalamia pusilla* (Stephani) Kashyap).

10. *Conocephalum conicum* (L.) Dumort., Comment. Bot.: 115. 1822.*Marchantia conica* L. Sp. Pl. 2: 1138. 1753 (Conocephalaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, non-epilithic, 1,000–2,000 m (Rashid et al. 2012).

11. *Dumortiera hirsuta* (Sw.) Nees., Nova Acta Phys.-Med, Acad. Caes. Leop.- Carol. Nat.Cur. 12(1): 410.1825. *Marchantia hirsute* Sw., Prodr.: 145. 1788(Dumortieraceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, Channi, 74.47° E, 33.08° N, 588.02 m, on rock, rock cervices, 27.ii.2022, Manju Sharma S25B4 (Rashid et al. 2012).

12. *Fossombronia cristula* Austin., Proc. Acad. Nat. Sci. Philadelphia 21 (4): 228.1869 (Fossombroniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Nariyan, 74.27° E, 33.19° N, 654.67 m, growing on soil, 15.ii.2022, Manju Sharma S42B3.

13. *Frullania gaudichaudii* (Nees & Mont.) Nees & Mont., Syn. Hepat.: 435. 1845. *Jabula gaudichaudii*Nees & Mont., Ann. Sci. Nat., Bot., sér. 2, 5: 64. 1836 (Frullaniaceae)

Specimen examined: Jammu & Kashmir, Rajouri District, epilithic, 1,300–1,800 m (Rashid et al. 2012).

14. *Frullania muscicola* Steph., Hedwigia 33: 146. 1894 (Frullaniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,300–1,800 m (Rashid et al. 2012).

15. *Frullania neurota* Taylor, London J. Bot. 5: 400. 1846 (Frullaniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,300–1,800 m (Rashid et al. 2012).

16. *Gymnocolea inflata* (Huds.) Dumort., Recueil Observ. Jungerm.: 17. 1835.*Jungermannia inflata* Huds. Fl.Angl. (ed. 2) 2: 511. 1778(Anastrophyllaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non-epilithic, 900–1,200 m, (Rashid et al. 2012).

17. *Jungermannia atrovirens* Dumort., Syll. Jungerm. Europ.: 51. 1831 (Jungermanniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non-epilithic, 900–1,500 m (Rashid et al. 2012 as *Jungermannia lanceolata* L.).

18. *Lejeunea aloba* Sande Lac., Plagiochila Sandei: 10. 1856. (Lejeuneaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 800–1,100 m (Rashid et al. 2012).

19. *Mannia californica* (Gottsche) L.C. Wheeler, Bryologist 37(5): 88.1934[1935].*Grimaldia californica* Gottsche, Bot. Gaz. 13(5): 114. 1888(Aytoniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non- epilithic, 900–1,500 m (Rashid et al. 2012 as *Mannia foreaui* Udar & V. Chandra).

20. *Marchantia emarginata* Reinw., Blume & Nees, Nova Acta Phys.- Med. Acad. Caes. Leop.- Carol. Nat. Cur. 12: 192. 1825 (Marchantiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non-epilithic, 700–1,800 m, (Rashid et al. 2012 as *Marchantia palmata* Reinw., Blume &Nees ).

21. *Marchantia paleacea* Bertol., Opusc. Sci. 1(4): 242.1817(Marchantiaceae) (Image 2D)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Brebi, 74.45° E, 33.14° N, 657.0 m, grows on wet rock, 27.ii.2022, Manju sharma, S27B10 (Rashid et al. 2012 as *Marchantia nepalensis* Lehm. & Linden.

22. *Marchantia pappeana* subsp.*robusta* (Steph.) Bischl., Bryophyt. Biblioth. 45: 91. 1993. *Marchantia robusta* Steph., Candollea 14: 111. 1953 (Marchantiaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, non-epilithic, 1,700–2,500 m (Rashid et al. 2012 as *Marchantia kashyapii* Udar & Shaheen).

23. *Marchantia polymorpha* L., Sp. Pl. 2: 1127. 1753 (Marchantiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 700–2,000 m (Rashid et al. 2012).

24. *Marchantia subintegra* Mitt., J. Proc. Linn. Soc., Bot. 5: 125. 1861 (Marchantiaceae)

Specimen examined: India, Jammu & Kashmir,


**Image 2. A—*Ectropothecium ramuligerum* | B—*Clevea pusilla* | C—*Brachythecium salebrosum* | D—*Marchantia paleacea* | E—*Apopellia endiviifolia* | F—*Plagiochasma appendiculatum*. © Manju Sharma.**

Rajouri District, non- epilithic, 600–1,700 m (Rashid et al. 2012).

25. *Plagiochila chinensis* Steph., Mém. Soc. Sci. Nat. Math. Cherbourg 29: 233. 1894 (Plagiochilaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 700–2,000 m (Rashid et al. 2012).

26. *Plagiochila korthalsiana* Molk. ex Sande Lac., Ned. Kruidk. Arch. 3(4): 416. 1855 (Plagiochilaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, non- epilithic, 700–2,000 m (Rashid et al. 2012 as *Plagiochila accedens* Steph. and *P. woronofii* Steph.).

27. *Plagiochila parvifolia* Lindenb., Sp. Hepat. (Lindenberg) (fasc. 1): 28. 1839 (Plagiochilaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 600–1,800 m (Rashid et al. 2012).

28. *Plagiochasma appendiculatum* Lehm. & Linden., Nov. Stirp. Pug. 4:14.1832(Aytoniaceae) (Image 2F)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, 74.49° E, 33.09° N, 586.2 m, on rock, in rock crevices, 5.ii.2022, Manju sharma S8B2 (see also Rashid et al. 2012).

29. *Plagiochasma intermedium* Lindenb. & Gottsche, Syn. Hept.: 513. 1846 (Aytoniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, non- epilithic, 900–2,500 m (Rashid et al. 2012).

30. *Plagiochasma pterospermum* C.Massal., Mem. Accad. Verona 73(2): 46.1897 (Aytoniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kalal, 74.23° E, 33.15° N, 261.33 m, on rock, soil covered rock,15.ii.2022, Manju Sharma S21B1 (Rashid et al. 2012 as *Plagiochsma articultum* Kashyap).

31. *Plectocolea stygia* (Nees) Bakalin & S.S.Choi., Plants 12 (23, 3935) : 5. 2023.*Chiloscyphus stygius* Nees, Syn. Hepat.: 189. 1845 (Solenostomataceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Brebi, 74.45° E, 33.14° N, 657.0 m, on rock, rock cervices,27.ii.2022, Manju Sharma S27B11.

32. *Porella acutifolia* (Lehm. & Lindenb.) Trevis., Mem. Reale Ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat. 4: 408. *Madotheca acutifolia* Lehm & Lindenb., Nov. Stirp. Pug. 7: 8. 1838(Porellaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 900–1,700 m (Rashid et al. 2012).

33. *Porella caespitans* (Steph.) P.Syd., Just's Bot. Jahresber. 21(1): 232. 1896.*Madotheca caespitans* Steph., Mém. Soc. Sci. Nat. Mth. Cherbourg 29: 218. 1894(Porellaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,100–1,600 m (Rashid et al. 2012).

34. *Porella campylophylla* (Lehm. & Lindenb.) Trevis., Mem. Reale ist. Lombardo Sci., Ser. 3, Cl. Sci. Mat. 4: 408. 1877.*Jungermannia cmpylophylla* Lehm.& Lindenb., Nov. Strip. Pug. 6: 40. 1834(Porellaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,300–1,800 m (Rashid et al. 2012).

35. *Porella chinensis* (Steph.) P.Syd., Just's Bot. Jahresber. 21(1): 232. 1896. *Madotheca chinensis* Steph., Mém. Soc. Sci. Nat. Math. Cherbourg 29: 218. 1894 (Porellaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,100–1,800 m (Rashid et al. 2012).

36. *Porella platyphylla* (L.) Pfeiff., Fl. Niederhessen 2: 234. 1855.*Jungermannia platyphylla* L. Sp. Pl. 2: 1134. 1753(Porellaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1100–1,800 m (Rashid et al. 2012).

37. *Radula complanata* (L.) Dumort., Syll. Jungerm. Europ.: 38.1831. *Jungermannia complanata* L., Sp. Pl. 2: 1133. 1753 (Radulaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non-epilithic, epiphytic, 900–1,900 m (Rashid et al. 2012).

38. *Reboulia hemisphaerica* (L.) Raddi, Opusc. Sci. 2(6): 357.1818.*Marchantia hemisphaerica* L., Sp. Pl. 2: 1138. 1753(Aytoniaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, Dabbar, 74.23° E, 33.15° N, 261.33 m, on rock, soil covered rock,15.ii.2022, Manju Sharma, S19B4(see also Rashid et al. 2012).

39. *Riccardia multifida* (L.) Gray., Nat. Arr. Brit. Pl. 1: 684. 1821.*Jungermannia multifida* L., Sp. Pl. 2: 1136. 1753(Aneuraceae)

Specimen examined: India, Jammu & Kashmir, Rajouri

District, epiphytic, 700–2,000 m (Rashid et al. 2012).

40. *Riccia aravalliensis* Pandé & Udar., J. Indian Bot. Soc. 36(3): 249. 1957. (Ricciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non- epilithic, 800–1,800 m (Rashid et al. 2012).

41. *Riccia discolor* Lehm. & Lindenb., Nov. Stirp. Pug. 4: 1. 1832 (Ricciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epiphytic, 700–1,900 m (Rashid et al. 2012).

42. *Riccia huebeneriana* Lindenb., Nova Acta phys.-Med. Acad. Caes. Leop.- Carol. Nat. Cur. 18(1) : 504d.1836[1837] ( Ricciaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanamandi, 74.36° E, 33.53° N, 1,708.65 m, growing on soil, 18.ii.2022, Manju Sharma S31B1.

43. *Riccia warnstorfii* Limpr.ex Warnst., Verh. Bot. Vereins Prov. Brandenburg 27(2): 85. 1885 (Ricciaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, non-epilithic, 700–1,900 m (Rashid et al. 2012).

44. *Scapania verrucosa* Heeg., Rev. Bryol. 20: 81. 1893 (Scapaniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non epilithic, 900–1,900 m (Rashid et al. 2012).

45. *Solenostoma fusiforme* (Steph.) R.M.Schust., Hepat. Anthocerotae N.Amer. 2:944.1969.*Nardia fusiformis* Steph. Bull. Herb. Boissier 5(2): 99. 1897(Solenostomataceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, Peli, 74.45° E, 33.53° N, 702.72 m, growing on soil,25.ii.2022, Manju Sharma S2B7.

46. *Targionia hypophylla* L., Sp.Pl. 2:1136.1753(Targioniaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, Julla Water Point, 74.36° E, 33.06° N, 485.7 m, on rock, soil covered rock, 02.ii.2022 Manju Sharma 2024, S1B4, S5B1 (see also Rashid et al. 2012).

47. *Targionia indica* Udar & A.Gupta, Geophytology 13:83.1983 (Targioniaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, Dhoka, 74.36° E, 33.06° N, 485.7 m, on rock, in rock crevices,02.ii.2022, Manju Sharma S4B4.

48. *Tuzibeanthus chinensis* (Steph.) Mizut., J. Hattori Bot.Lab.24:151.1961,*Ptychanthus chinensis* Steph., Sp.Hepat 4: 744.1912 (Lejeuneaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, epiphytic, 700–1,700 m (Rashid et al. 2012).

**Mosses**

49. *Amblystegium serpens* (Hedw.) Schimp., Bryol. Eur. 6: 53. 1853.*Hypnum serpens* Hedw., Sp. Musc. Frond.: 268. 1801(Amblystegiaceae).

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,005 m (Sharma et al. 2016).

50. *Atrichum longifolium* Cardot & Dixon ex Gangulee, Mosses E. India 1: 81. 1969 (Polytrichaceae)

Specimen examined : India, Jammu & Kashmir, Rajouri District, non- epilithic, 1047 m (Sharma et al. 2016).

51. *Barbula marginatula* Müll. Hal. ex Gangulee, Nova Hedwigia 12: 424.1966 [1967] (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kalal, 74.27° E, 33.07° N, 576.06 m, growing in rock cervices,20.x.2022, Manju Sharma S21B1.

52. *Brachymenium longicollum* Thér., Bull. Soc. Bot. Genève 26: 85.1936 (Bryaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Sarkani, 74.25° E, 33.13° N, 490.23 m, growing on soil rich in lime, 01.ii.2022, Manju Sharma S44B1.

53. *Brachythecium garvovaglioides* Müll. Hal., Bot. Ital., n.s. 4: 270. 1897 (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, BGSBU, 74.34° E, 33.39° N, 1,176.9 m, growing on dead wood, leaves and on organic debris, 11.xi.2023, Manju Sharma S30M2.

54. *Brachythecium salebrosum* (Hoffm. ex F.Weber & D.Mohr) Schimp., Bryol. Eur. 6: 20. 1853. *Hypnum salebrosum* Hoffm. ex F.Weber & D.Mohr, Index Mus. Pl. Crypt.: 2[verso]. 1803 (Brachytheciaceae) (Image 2C)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Darhal, 74.44° E, 33.49° N, 1,738.55 m, growing in rock crevices,25.xi.2023, Manju Sharma and Nazia Kouser S40B9.

55. *Bryoerythrophyllum recurvirostrum* (Hedw.) P.C.Chen., Stud. Ostasiat. Art, Pottiaceae 1:5.1940. *Weissia recurvirostra* Hedw., Sp. Musc. Frond.: 71. 1801 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Dhoka, 74.25° E, 33.13° N, 654.6 m, growing on soil, 8.iii.2023, Manju Sharma S4B4.

56. *Bryoerythrophyllum wallichii* (Mitt) P.C.Chen, Stud. Ostasiat. Art. Pottiaceae 1: 5. 1940. *Desmatodon wallichii* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1: 38. 1859 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Ralua, 74.25° E, 33.13° N, 702.5 m, growing on soil, 6.iii.2023, Manju Sharma S33B1.

57. *Bryum argenteum* Hedw., Sp. Musc. Frond.: 181.1801 (Bryaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Laman, 74.47° E, 33.04° N, 587.94 m, growing on soil rich in lime, 2.iii.2022, Manju Sharma S11B1.

58. *Ceratodon purpureus* (Hedw.) Brid., Bryol. Univ. 1: 480. 1826. *Dicranum purpureum* Hedw. Sp. Musc. Frond.: 136. 1801 (Ditrichaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kungra, 74.37° E, 33.04°N, 491.35 m, growing in rock crevices, 6.iii.2023, Manju Sharma SB5B5.

59. *Ceratodon purpureus* subsp. *stenocarpus* (Bruch &Schimp.) Dixon, New Zealand Inst.Bull. 3(2): 50. 1914. *Ceratodon stenocarpus* Bruch & Schimp, Bryol. Eur. 2: 146 (fasc. 29-30. Mon. 4). 1846 (Ditrichaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, BGSBU, 74.34° E, 33.39° N, 1,176.9 m, growing on rocks,11.xi.2023, Manju Sharma BS30B4.

60. *Chionoloma subduriusculum* (Müll.Hal.) M.Menzel., Willdenowia 22: 198. 1992. *Barbula subduriuscula* Müll.Hal., Linnaea 38: 554. 1874 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, DhokBanyard, 74.25° E, 33.13° N, 604.54 m, growing on rock rich in lime, 5.iii.2022, Manju Sharma S13B3.

61. *Chionoloma tenuirostre* (Hook. & Taylor) M.Alonso, M.J.Cano & J.A.Jiménez., Taxon 65(1): 15. 2016. *Weissia tenuirostris* Hook. & Taylor, Muscol. Brit. (ed. 2): 83. 1827 (Pottiaceae)

Specimen examined: India, Jammu and Kashmir, Rajouri, DhokBanyard, 74.25° E, 33.13° N, 604.54 m, growing on rock rich in lime, 3.iii.2022, Manju Sharma S13B3 (Sharma et al. 2016 as *Trichostoma tenuirostre* (Hook. & Taylor) Lindb.).

62. *Claopodium assurgens* (Sull. & Lesq.) Cardot, Bull. Soc. Bot. Genève 3: 283. 1911. *Hypnum assurgens* Sull. & Lesq., Char. New Musci: 5. 1859 (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,047 m (Sharma et al. 2016).

63. *Dicranella mollicula* (Mitt.) A.Jaeger., Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1870-71: 381. *Leptotrichum molliculum* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1: 11. 1859 (Dicranellaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Budhal, 74.43° E, 33.38° N, 1,560.52 m, growing on Soil, 2.iii.2022, Manju Sharma S32B4.

64. *Ditrichum tortuloides* Grout, Bryologist 30: 4. 1927. (Ditrichaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Minka, 74.36° E, 33.04° N, 537.16 m, growing on soil, 6.iii.2023, Manju Sharma S9B6.

65. *Ectropothecium manii* Broth., Nat. Pflanzenfam. 1(3): 1066. 1908 (Hypnaceae)

Habitat: India, Jammu & Kashmir, Rajouri District, epilithic, 1,005 m (Sharma et al. 2016).

66. *Ectropothecium ramuligerum* Dixon, J. Bombay Nat. Hist. Soc. 39: 793. 1937. (Hypnaceae) (Image 2A)

Specimen examined: India, Jammu & Kashmir, Rajouri District, BGSBU, 74.34° E, 33.39° N, 1,176.9 m, growing in rock crevices, 11.xi.2023, Manju Sharma BS30B2.

67. *Fissidens bryoides* Hedw., Sp. Musc. Frond.: 153.1801. (Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Darhal, 74.44° E, 33.49° N, 1,738.55 m, growing on soil rich in lime, 25.xi.2023, Manju sharma S40B7.

68. *Fissidens crispulus* var. *robinsonii* (Broth.) Z.Iwats. & Z.H.Li, Moss Fl. China 2: 26. 2001. *F. robinsonii* Broth., Philipp. J. Sci., C. 13: 204. 1918 (Fissidentaceae)

Habitat: India, Jammu & Kashmir, Rajouri District, non-epilithic, 1,047 m (Sharma et al. 2016 as *F. robinsonii* Broth.).

69. *Fissidens ganguleei* Nork., Mosses E.India 2: 527.1971 (Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sayal, 74.35° E, 33.06° N, 527.41 m, growing on soil rich in lime, 18.iii.2022, Manju Sharma S15B2.

70. *Fissidens grandifrons* Brid., Muscol. Recent. Suppl. 1: 170. 1806.(Fissidentaceae)

Specimenexamined: India, Jammu & Kashmir, Rajouri District, Manjakote, 74.25° E, 33.47° N, 1,780.32 m, growing on soil rich in lime, 5.iii.2022, Manju Sharma S36B3.

71. *Fissidens griffithii* Gangulee., Nova Hedwigia 8:143.1964 (Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Palwal, 74.38° E, 33.04° N, 589.43 m, growing on soil rich in lime,10.ii.2022, Manju Sharma and others S7B6.

72. *Fissidens involutus* Wilsom ex Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1(2) 138.1859. (Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Suderbani, Jullawaterpoint, 74.46° E, 33.03° N, 503 m, growing on soil rich in lime, 02.ii.2022, Manju Sharma S1B3 (Sharma et al. 2016 as *F. plagiochiloides*).

73. *Fissidens laxitextus* Broth. ex Gangulee, Nova Hedwigia 8: 144.1964.(Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Jullawaterpoint, 74.46° E, 33.03° N, 502.33 m, growing on soil rich in lime, 02.ii.2022, Manju Sharma S1B2.

74. *Fissidens leptopelma* Dixon., J. Bombay Nat. Hist. Soc. 39: 733.1937.(Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Channi Prat, 74.47° E, 33.07° N, 542.6 m, growing on soil rich in lime. 27.ii.2022, Manju Sharma S26B5.

75. *Fissidens pellucidus* Hornsch., Linnaea 15: 146.1841.(Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Dabbar, 74.26° E, 33.12° N, 249.2 m, growing on soil rich in lime, 18.iii.2022, Manju SharmaS19B4.

76. *Fissidens polysetulus* Müll.Hal. ex Gangulee & Nork., Mosses E. India 2: 525. 1971.(Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Baripattan, 74.36° E, 33.06° N, 485.7 m, growing on soil rich in lime, 02.ii.2022, Manju Sharma S10B1.

77. *Fissidens pulchellus* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1(2): 140. 1859.(Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Manglamata, 74.06° E, 33.22° N, 809.05 m, growing on soil rich in lime, 20.ii.2022, Manju Sharma S23B5.

78. *Fissidens taxifolius* Hedw., Sp. Musc. Frond. :155.1801.(Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Suderbani, DhokBanyard, 74.25° E, 33.13° N, 604.54 m, growing on soil rich in lime, 02.ii.2022, Manju Sharma S13B5.

79. *Fissidens zollingeri* Mont., Ann. Sci. Nat., Bot., sér. 3, 4: 114.1845- (Fissidentaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Suderbani, Jullawaterpoint, 74.47° E, 33.04° N, 587.94 m, growing on soil rich in lime, 07.iii.2022, Manju Sharma S5B1.

80. *Ganguleea angulosa* (Broth. & Dixon) R.H.Zander., Phytologia 65: 427.1989. *Merceyopsis angulosa* Broth. & Dixon, J. Bot. 48: 302. 1910 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanger, 74.36° E, 33.05° N, 585.42 m, growing in rock cervices, 17.ii.2022, Manju Sharma S8B2.

81. *Gemmabryum exile* (Dozy &Molk.) J.R.Spence & H.P.Ramsay., Phytologia 87(2): 67. 2005. *Bryum exile* Dozy & Molk., Musc.Frond.Archip. Ind.: 3. 1844 (Bryaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Sarkani, 74.25° E, 33.13° N, 490.23 m, growing on soil rich in lime, 1.ii.2022, Manju Sharma S31B1.

82. *Hageniella isopterygioides* Dixon, J. Bombay Nat. Hist. Soc. 39: 791.1937 (Hypnaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Julla Waterpoint 74.46° E, 33.03° N, 502.23 m, growing in rock crevices, 5.iii.2023, Manju Sharma S1B1.

83. *Haplocladium angustifolium* (Hampe & Müll. Hal.) Broth., Nat. Pflanzenfam. 229 [1, 3]: 1008.1907. *Hypnum angustifolium* Hampe & Müll.Hal., Bot. Zeitung (Berlin) 13(45): 788. 1855 (Leskeaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Budhal, 74.43° E, 33.38° N, 1,560.52 m, growing on soil, 2.iii.2022, Manju Sharma S32B2.

84. *Hymenostylium recurvirostrum* (Hedw.) Dixon., Rev. Bryol. Lichénol. 6: 96. 1933 [1934]. *Gymnostomum recurvirostrum* Hedw., Sp. Musc. Frond.: 33. 1801 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, BGSBU, 73.34° E, 33.39° N, 1,176.9 m, growing in rock cervices, 5.x.2022, Manju Sharma S30B1.

85. *Hyophila involuta* (Hook.) A.Jaeger, Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1871–72: 354. 1873. *Gymnostomum involutum* Hook., Musci Exot. 2: 154. 1819(Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 2,095 m (Sharma et al. 2016).

86. *Hyophila nymaniana* (M. Fleisch.) M. Menzel., Willdnowia 22: 198. 1992. *Gluphomitrium nymanianum* M. Fleisch., Musci Buitenzorg 1: 372. 1904 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Nonial, 74.21° E, 33.15° N, 590.92 m, growing on rock cervices,25.xi.2022, Manju Sharma S22B1.

87. *Hydrogonium arcuatum* (Griff.) Wijk & Margad., Taxon 7: 289.1958. *Barbula arcuata* Griff., Calcutta J. Nat. Hist. 2: 491. 1842 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Brebi, 74.45° E, 33.14° N, 613.3 m, growing on rocks,30.ii.2022, Manju Sharma S27B10.

88. *Hydrogonium orientale* (F.Weber) Jan Kuăera., Taxon 62(1): 35. 2013. *Trichostomum orientale* F.Weber, Arch. Syst. Naturgesch. 1(1): 129. 1804 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kund, 74.48° E, 33.03° N, 628.56 m, growing in rock cervices,10.x.2022, Manju Sharma S14B4.

89. *Leptodontium flexifolium* (Dicks.) Hampe ex Lindb., Öfvers. Kongl. Vetensk.- Akad. Förh. 21:227.1864. *Bryum flexifolium* Dicks., Fasc. Pl. Crypt. Brit. 4: [29]. 1801 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Budhal, 74.43° E, 33.38° N, 1,560.52 m, growing on rocks, 4.x.2023, Manju Sharma S32B3.

90. *Leptostomopsis systylia* (Müll.Hal.) J.R.Spence & H.P.Ramsay., Phytologia 87(2): 70.2005. *Bryum systylium* Müll.Hal., Syn.Musc.Frond. 1(2): 320. 1848 (Bryaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanamandi, 74.36° E, 33.53° N, 1,708.65 m, growing on soil rich in lime, 28.xi.2023, Manju Sharma S31B1.

91. *Leucomium decolyi* Broth. ex Gangulee, Mosses E. India 6: 1528. 1977. *Symphysodontella borii* Dixon J. Bombay Nat. Hist. Soc. 39: 781. 1937 (Leucomiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Julla waterpoint 74.46° E, 33.03° N, 502.23 m, growing on soil, 5.iii.2023, Manju Sharma S1B2.

92. *Longiella distichacea* (Mitt.) J.T.Wynns, Bryologist 123(4): 639.2020. *Stereodon distichaceus* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1(2): 105. 1859 (Neckeraceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, BGSBU, 74.34° E, 33.39° N, 1,176.9 m, growing on soil, 11.x.2023, Manju Sharma AS30B1.

93. *Molendoa roylei* (Mitti.) Broth., Nat. Pflanzenfam. 1(3): 391.1902. *Anoectangium roylei* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1: 30. 1859 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Breri, 74.24° E, 33.15° N, 565.65 m, growing in rock cervices,15.x.2022, Manju Sharma S20B6.

94. *Myurium borii* (Dixon) Magill, J. Hattori Bot. Lab. 48: 68. 1980. (Myuriaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Channi Prat, 74.47° E, 33.07° N, 542.6 m, growing on soil, 27.ii.2022, Manju Sharma S26B3.

95. *Orthomnion javense* (M.Fleisch.) T.J.Kop., Ann. Bot. Fenn. 17: 53. 1980. *Mnium javense* M. Fleisch, Musci Buitenzorg 2: 585. 1904 (Mniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanamandi, 74.36° E, 33.53° N, 1,708.65 m, growing on soil, 28.xi.2023, Manju Sharma S31B1.

96. *Orthomnion* Wilson, Hooker's J. Bot. Kew Gard. Misc. 9: 368. 1857 (Mniaceae)

Habitat: India, Jammu & Kashmir, Rajouri District, non- epilithic, 1,047 m (Sharma et al. 2016).

97. *Oxyrrhynchium swartzii* (Turner) Warnst., Krypt.-Fl. Brandenburg, Laubm. 2: 784.1905. *Hypnum swartzii* Turner, Muscil. Recent. Suppl. 2: 104. 1812 (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Mangalnar, 74.25° E, 33.44° N, 1,238.5 m, growing on rocks, 7.xi.2023, Manju Sharma S43B5.

98. *Oxyrrhynchium vagans* (A.Jaeger) Ignatov & Huttunen., Arctoa 11: 273. 2002 [2003]. *Rhynchostegium vagans* A.Jaeger, Ber. Thätigk. St. Gallischen Naturwiss.

Ges. 1876-77: 369. 1878 (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanamandi, 74.36° E, 33.53° N, 1,708.65 m, growing on bark, 18.ii.2022, Manju Sharma S31B4.

99. *Papillidiopsis luxurians* (Dozy &Molk.) W.R.Buck & B.C.Tan, Acta Bryolichenol. Asiat. 1: 12. 1989[1990]. *Hypnum luxurians* Dozy & Molk. Musc. Frond. Archip. Ind.: 12. 1844 (Sematophyllaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Panglote, 74.32° E, 33.27° N, 825.24 m, growing on soil, 2.iii.2022, Manju Sharma S28B1.

100. *Philonotis angusta* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1: 61. 1859. (Bartramiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Budhal, 74.43° E, 33.38° N, 1,560.52 m, growing on soil, 2.iii.2022, Manju Sharma S32B3.

101. *Philonotis mollis* (Dozy &Molk.) Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1: 60. 1859. *Bartramia mollis* Dozy & Molk., Musc. Frond. Archip. Ind.: 2. 1844 (Bartramiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kuldabi, 74.42° E, 33.02° N, 608.45 m, growing on soil, 5.iii.2023, Manju Sharma S12B3.

102. *Philonotis turneriana* (Schwägr.) Mitt, J. Proc. Linn. Soc., Bot., Suppl. 1:62.1859. *Bartramia turneriana* Schwägr., Sp. Musc. Frond., Suppl. 3, 1(2): 238. 1828 (Bartramiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanamandi, 74.36° E, 33.53° N, 1,708.65 m, growing on soil, 18.ii.2022, Manju Sharma S31B1.

103. *Plagiobryum zieri* (Dicks. ex Hedw.) Lindb., Öfvers. Kongl. Vetensk.-Akad. Förh. 19(10): 606. 1862 [1863]. *Bryum zieri* Dicks ex Hedw, Sp.Musc.Frond.: 182. 1801 (Bryaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Julla waterpoint, 74.46° E, 33.03° N, 502.23 m, growing on soil rich in lime, 5.iii.2022, Manju Sharma S1B4.

104. *Plagiomnium japonicum* (Lindb.) T.J. Kop., Ann. Bot. Fenn. 5: 146. 1968. *Mnium japonicum* Lindb., Contr. Fl. Crypt.As,: 226. 1872[1873] (Mniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Thanamandi, 74.36° E, 33.53° N, 1,708.65 m, growing on soil, 28.xi.2023, Manju Sharma S31B3.

105. *Pohlia elongata* Hedw., Sp. Musc. Frond.: 171. 1801 (Mniaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Jullawaterpoint, 74.46° E, 33.03° N, 502.23 m, growing on soil, 5.iii.2022, Manju Sharma S1B3.

106. *Pseudokindbergia dumosa* (Mitt.) Min Li, Y.F.Wang, Ignatov & B.C.Tan., Cryptog., Bryol. 36(1): 61. 2015. *Hypnum dumosum* Mitt., J. Proc. Linn. Soc., Bot., Suppl, 1: 80. 1859 (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Kakora, 74.25° E, 33.44° N, 1,675.31 m, growing on soil, 20.xi.2023, Manju Sharma S35B4.

107. *Pylaisia speciosa* (Mitt.) A.Jaeger, Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1876–77: 306.1878. *Stereodon speciosus* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1: 95. 1859 (Pylaisidelphaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Manjakote, 74.25° E, 33.4° N, 1,780.32 m, growing on soil, 8.xi.2023, Manju Sharma S37B2.

108. *Rhynchostegiella humillima* (Mitt.) Broth., Nat. Pflanzenfam. 1(3): 1161. 1909. *Hypnum humillimum* Mitt., J.Proc. Linn. Soc., Bot., Suppl. 1: 80. 1859 (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sodapani, 74.25° E, 33.44° N, 1,238.5 m, growing on rocks, 8.xi.2023, Sharma and others S41B1.

109. *Rhynchostegium muelleri* A.Jaeger., Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1876-77: 378. (Brachytheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Manjakote, 74.25° E, 33.47° N, 1,580.32 m, growing on rocks, 10.xi.2023, Manju Sharma S36B1.

110. *Rhodobryum roseum* (Hedw.) Limpr., Laubm. Deutschl. 2(20): 445. 1892. *Mnium roseum* Hedw. Sp. Musc. Frond.: 194. 1801 (Bryaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, non-epilithic, 1,047 m (Sharma et al. 2016).

111. *Struckia argentata* (Mitt.) Müll. Hal., Arch. Vereins Freunde Naturgesch. Mecklenburg 47: 129. 1894. *Hypnum argentatum* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1:77. 1859 (Plagiotheciaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Manjakote, 74.25° E, 33.4° N, 1,580.32 m, growing on soil, 8.xi.2023, Manju Sharma S37B4.

112. *Timmiella barbuloides* (Brid.) Mönk., Laubm. Eur.: 273. 1927. *Trichostomum barbuloides* Brid., Muscol. Recent. Suppl. 1: 233. 1806 (Timmieliaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Manjakote, 74.25° E, 33.4° N, 1,580.32 m, growing on soil, 8.xi.2023, Manju Sharma and Nazia Kouser S37B3 (Sharma et al. 2016 as *T. subintegra* Dixon).

113. *Timmiella diminuta* ( Müll.Hal.) P.C.Chen, Hedwigia 80: 176. 1941. *Trichostomum diminutum* Müll.Hal., Nuovo Giorn. Bot. Ital., n.s. 5: 177. 1898 (Timmiellaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, epilithic, 1,047 m (Sharma et al. 2016).

114. *Trichostomum contractum* R.H.Zander., Bull. Buffalo Soc. Nat. Sci. 32: 92. 1993 (Pottiaceae)

Specimen examined: India, Jammu and Kashmir, Rajouri, Bakore, 74.51°E, 33.35°N, 1715.89 m, growing on rocks,9.11.2023, Manju Sharma and Nazia Kouser, S38B2.

115. *Trichostomum criotum* R.H.Zander., Bull. Buffalo Soc. Nat. Sci. 32: 92. 1993. (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, BGSBU campus, 74.34° E, 33.39° N, 1,176.9 m, growing on rocks, 5.xi.2023, Manju Sharma S30M1.

116. *Vinealobryum vineale* (Brid.) R.H.Zander., Framew. Post-Phylogenet.Syst.: 98. 2013. *Barbula vinealis* Brid., Bryol. Univ. 1: 830. 1827 (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sunderbani, Julla waterpoint 74.46° E, 33.03° N, 502.23 m, growing on rock rich in lime, 29.xi.2022, Manju Sharma S1B5.

117. *Weissia controversa* Hedw., Sp. Musc. Frond.: 67. 1801. (Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Sodapani, 74.25° E, 33.44° N, 1,380.89 m, growing on rocks, 5.x.2023, Manju Sharma and Nazia Kouser S41B1.

118. *Weissia edentula* Mitt., J. Proc. Linn. Soc., Bot., Suppl. 1:27.1859(Pottiaceae)

Specimen examined: India, Jammu & Kashmir, Rajouri District, Peli, 74.45° E, 33.53° N, 702.72 m, growing in rock cervices, 25.ii.2022, Manju Sharma S2B3.

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