

On a very small collection of bryophytes from North Korea

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Abstract: Schwarz, U. (2021): On a very small collection of bryophytes from North Korea. *Frahmia* 21:1-4.

During a sightseeing trip to North Korea the author was able to collect a few bryophyte samples. Altogether 14 mosses and 1 liverwort was discovered at 2 collection sites.

1. Introduction

The author had the chance to visit North Korea on a sightseeing trip in April 2005. The predefined, and preapproved tight schedule didn't have much flexibility to use the time for botanical studies. Nevertheless it was possible to collect a few samples at the locations mentioned below. Fortunately, the two official, North Korean tourist guides though cautious, were curious and finally very open to allow the collection of mosses. As North Korea is one of the most isolated countries in the world from where information is hardly available it seems recommendable to even publish these few records.

LEE & CHOI (2012) summarized the history of bryological studies on the Korean Peninsula. Starting with European bryologists in the early twenties century the bryological research was continued mostly by Japanese scientists. After World War II, mainly Korean bryologists continued with the exploration of the peninsula. There is only limited information about bryological activities in North Korea. The few papers mentioned date back to the 1980s till the early 21st century, covering specific taxonomical groups or certain regions in North Korea.

All those activities resulted in an updated list of mosses of Korea (KIM ET AL. [2020]). 775 moss taxa are so far known from the Korean Peninsula.



Figure 1: Collection Sites (Pyongyang only shown for reference)

2. Collection Sites

During the visit in 2005, samples were collected from the following 2 locations:

- Province Kangwŏn-do (강원도), District Pŏptong-gun (법동군), Taebaek Mountains (태백산맥), Ullim Waterfall (울림폭포), 39° 11' 58" N, 127° 8' 16" E; leg. Uwe Schwarz & Michael Brodbeck; April 11, 2005.
- Province Pyŏngyang (평양직할시), District Sangwŏn-gun (상원군), Park around the tomb of King Tongmyŏng (동명왕릉); 38° 53' 43.18" N, 125° 55' 22.93" E; leg. Uwe Schwarz & Michael Brodbeck; April 16, 2005.

Due to time restrictions samples were collected randomly. A systematic exploration of the bryophyte flora at these locations were not possible.

3. List of Species

The following bryophyte species were collected during the trips. The mentioned herbarium number refers to the number of the specimen in the authors herbarium. For species that were only intermixed, the name of the main species is also given.

1. *Amblystegium serpens* (HEDW.) SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. *Bryologia Europaea*. Vol. 6. Fasc. 55-56. 53. pl. 564. 1853. (Amblystegiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9944 in *Plagiomnium maximoviczii*)
2. *Anoetangium microphyllum* CARDOT. *Bulletin de l'Herbier Boissier, Sér. 2*. 7:712. 1907. (Pottiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 14819, 14825)
3. *Anomobryum nitidum* (MITT.) A. JAEGER. *Bericht über die Thätigkeit der St. Gallischen Naturwissenschaftlichen Gesellschaft 1873-74*:142. 1875. (Bryaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9939, 14819 in *Anoetangium microphyllum*, 14821)
Remark: HOLYOAK & KÖCKINGER (2010) synonymized *A. gemmigerum* Broth. to *A. nitidum*. Records of *A. gemmigerum* mentioned by KIM ET AL. (2020) should be transferred to *A. nitidum*.
4. *Brachythecium populeum* (HEDW.) SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. *Bryologia Europaea*. Vol. 6. Fasc. 52-54. 7. 1853. (Brachytheciaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9944 in *Plagiomnium maximoviczii*)
5. *Brotherella yokohamae* (BROTH.) BROTH. *Die Natürlichen Pflanzenfamilien*. 2. Aufl. (Band 11). 425. 1925. (Sematophyllaceae)
Park around the tomb of Tongmyong (동명왕릉), on bark. (Herbar No. 9943)
6. *Cratoneuron filicinum* (HEDW.) SPRUCE. *Catalogus muscorum*. 21. 1867. (Amblystegiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 14819 in *Anoetangium microphyllum*)
7. *Didymodon constrictus* (MITT.) K. SAITO. *Journal of the Hattori Botanical Laboratory* 39:514. 1975. (Pottiaceae)
Syn.: *Geheebia constricta* (MITT.) R.H.ZANDER & R.T.CANER
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9940, 14820, 14826)

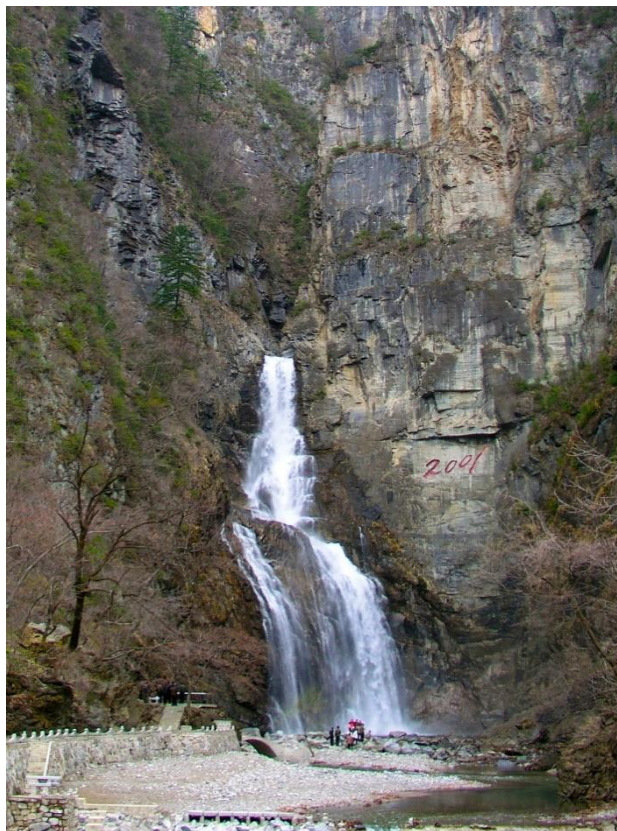


Figure 2: Ullim Waterfall

8. *Fissidens grandifrons* BRID. *Muscologia recentiorum*. Suppl. 1. 170. 1806. (Fissidentaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9937)
9. *Gymnostomum aeruginosum* SM. *Flora britannica*. Vol. 3. 1163. 1804. (Pottiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9938)
10. *Hymenostylium recurvirostrum* (HEDW.) DIXON. *Revue Bryologique et Lichénologique* 6:96. 1933[1934] (Pottiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 14823)
11. *Hyophila propagulifera* BROTH. *Hedwigia*. 38:212. 1899. (Pottiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 14819 in *Anoetangium microphyllum*, 14822, 14824)
12. *Hypnum plumaeforme* WILSON. *London Journal of Botany* 7:277. pl. 10, fig. d. 1848. (Hypnaceae)
Park around the tomb of Tongmyong (동명왕릉), on bark. (Herbar No. 14828)
13. *Plagiomnium maximoviczii* (LINDB.) T.J. KOP. *Annales Botanici Fennici* 5(2):147. 1968. (Mniaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9944)
14. *Reboulia hemisphaerica* (L.) RADDI. *Opuscoli scientifici d'una Società di professori della Pontificale Università di Bologna* 2(6):357. 1818. (Aytoniaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9938 in *Gymnostomum aeruginosum*)
15. *Trichostomum crispulum* BRUCH IN F.A. MÜLL. *Flora* 12:395. pl. 4. 1829 (Pottiaceae)
Ullim Waterfall (울림폭포), on damp, calcareous stone. (Herbar No. 9942)

Additionally, one unidentified, sterile *Bryum* species (Herbar No. 9941, 14827) was also collected from damp, calcareous stone at the Ullim Waterfall (울림폭포).

All the mentioned species are not rare in Eastern Asia. The rocks around Ullim Waterfall seem to be quite interesting, in particular the diversity of Pottiaceae. Amongst those, *Anoetangium microphyllum* should be mentioned as this species was first described from the Diamond Mountains, the mountain range in the east of the Korean Peninsula, south to the Ullim Waterfall.

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