

# An updated list of mosses of Korea

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Cardot (1904) first reported 98 Korean mosses, which were collected from Busan, Gangwon Province, Mokpo, Seoul, Wonsan and Pyongyang by Father Faurie in 1901. Thirty-four of these species were new species to the world. However, eight of these species have been not listed to the moss checklist of Korea before this study. Thus, this study compiles the literature including Korean mosses, and lists all the species there. As the result, the moss list of Korea is updated as including 775 taxa (728 species, 7 subspecies, 38 varieties, 2 forma) arranged into 56 families and 250 genera. This list include species that have been newly recorded since 1980. *Brachythecium* is the largest genus in Korea, and *Fissidens*, *Sphagnum*, *Dicranum* and *Entodon* are relatively large. Additionally, this study cites specimens collected from Jeju Island, Samcheok, Gangwon Province, and Socheong Island, and it is possible to confirm the distribution of 338 species in Korea.

Keywords: bryophytes, checklist, Korea, mosses, updated

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## INTRODUCTION

The first study on Korean bryophytes was published by Cardot (1904) based on specimens collected by French Father Faurie. Cardot (1904) reported 98 species from Korea, and 34 of them were new species. Following that and before the Korean War, Japanese researchers were responsible for most bryophyte studies in Korea. From the late 1950s to the 1960s, a study on Korean bryophytes was published by Won Shic Hong. In the 1970s and 1980s, Du-Mun Choe released a study on a flora of bryophytes of Korea. In 1980, Korea's first illustrated book on bryophytes was published. For approximately 20 years until 2000s, research on bryophytes of Korea has remained dormant. Lee and Choi (2012) summarized the history of research on bryophytes of Korea. Table 1 shows various lists of Korean mosses published since 1980. Korea's first illustrated book on bryophytes was published by Choe (1980), and Choe and Choi (1980) reported 484 moss species in Korea. A list of Hepaticae of Korea was reported by Hong (1997). In 1991, the Sporic Plants of Joseon, Volume 9 written by Ho-Jun Hwang was published in North Korea. Except these studies, there were no studies concerning lists of bryophytes of the Korea until 2007. Based on the study of Choe and

Choi (1980), Park and Choi (2007) reported a "New List of Bryophytes in Korea" by presenting an overview of bryophytes surveyed in Mt. Baekdu by Park (1997). In 2012, the National Institute of Biological Resources (NIBR) published a "National List of Species of Korea - Mosses & Liverworts". In case of Park and Choi (2007) and NIBR (2012), the lists of bryophytes compiled a lot of literature. However, some literature was not listed, and some species described in the literature were not recognized. And, although many species were newly added to the moss checklist of Korea, references or specimens were not included. Thus, this study has reviewed references for each species and updates the moss checklist of Korea by compiling papers published until September 2020. As the result, there are 775 taxa listed to the list of mosses of Korea, which can be classified into 56 families, 250 genera, 728 species, 7 subspecies, 38 varieties, and 2 forma. Additionally, this study cites specimens collected in Jeju Island, Samcheok, Gangwon Province, and Socheong Island collected from 2015 to 2018. About 1,593 specimens were collected, and identified as 338 species. The specimens newly secured through this study have been preserved at the herbarium of the National Institute of Biological Resources (KB). Some of the duplicate specimens are preserved at the

**Table 1.** List of Korean mosses published since 1980

Year	Author(s)	Literature	Genera	Species
1980	Choe and Choi	A List of Bryophytes of Korea	158	485
2007	Park and Choi	New List of Bryophytes in Korea	202	645
2012	NIBR	National List of Species of Korea: Moss, Liverwort	194	622
2019	NIBR	National Species List of Korea	200	629
2020	The present study	An updated List of Mosses of Korea	250	775

herbariums of the National Museum of Nature and Science (TNS) and the Hiroshima University (HIRO).

### Enumeration of Species

1. All name of genera and species of mosses described or reported from Korea are based on literature available to the author up to the end of September 2020.
2. The valid and accepted epithets are printed in bold-face. They are followed by author citation.
3. The synonym of the accepted scientific name is listed with a hyphen (-). It is placed under the boldfaced epithets.
4. The scientific names follow Frey *et al.* (2006), Goffinet *et al.* (2009), and Ignatov *et al.* (2012). The families, genera, and species are arranged alphabetically.

#### Sphagnaceae Dumort.

*Sphagnum annulatum* H.Lindb. ex Warnst.

- *Sphagnum jensenii* H.Lindb. (Hwang, 1991; Park, 1997)

*Sphagnum aongstroemii* C.Hartm. (Suzuki, 1958; Choe and Choi, 1980)

*Sphagnum capillifolium* (Ehrh.) Hedw.

- *Sphagnum acutifolium* Schrad. (Okamura, 1916; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Hwang, 1991)

- *Sphagnum nemoreum* Scop. (Choe and Choi, 1980; Hwang, 1991)

*Sphagnum cuspidatum* Ehrh. ex Hoffm. (Hwang, 1991)

*Sphagnum fimbriatum* Wilson (Saito, 1938; Kashimura 194 Choe and Choi, 1980; Hwang, 1991)

*Sphagnum fuscum* (Schimp.) H.Klinggr. (Choe and Choi, 1980)

*Sphagnum girgensohnii* Russow (Okamura, 1916; Nakai, 1917; Sasaoka, 1933; Kashimura, 1939; Sakurai, 1941b; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Sphagnum imbricatum* Hornsch. ex Russow (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Sphagnum inundatum* Russow (Park, 1997)

*Sphagnum junghuhnianum* Dozy & Molk.

- *Sphagnum acutifolioides* (Nakai, 1917; Park, 1997)

*Sphagnum magellanicum* Brid. (Choe and Choi, 1980; Park, 1998)

*Sphagnum microporum* Warnst. ex Cardot (Cardot, 1904; 1907; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Sphagnum oligoporum* Warnst. & Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Hwang, 1991)

*Sphagnum palustre* L. (Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)

- *Sphagnum cymbifolium* (Ehrh.) Hedw. (Saito, 1938)

*Sphagnum papillosum* Lindb. (Park, 1997)

*Sphagnum recurvum* var. *tenue* H.Klinggr. (Choe and Choi, 1980)

- *Sphagnum parvifolium* (Sendth. ex Warnst.) Warnst. (Saito, 1938)

*Sphagnum russowii* Warnst.

- *Sphagnum robustum* (Warnst.) Röhl. (Park and Hong, 1959; Hong, 1960; Choe and Choi, 1980)

*Sphagnum squarrosum* Crome (Okamura, 1916; Sasaoka, 1933; Kashimura, 1939; Horikawa, 1934a; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Sphagnum subnitens* var. *nitidum* (Warnst.) H.A.Crum (Higuchi and Kim, 2012)

*Sphagnum subsecundum* Nees (NIBRMS106712; NIB RMS105858) (Choe and Choi, 1980; Park, 1997; Hwang, 1991; He and Song, 2011)

*Sphagnum tenellum* (Brid.) Bory (Hwang, 1991)

*Sphagnum teres* (Schimp.) Ångstr. ex Hartm. (Hwang, 1991; Park, 1997)

#### Andreaeaceae Dumort.

*Andreaea rupestris* var. *fauriei* (Besch.) Takaki (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

- *Andreaea faureiei* Besch. (Horikawa, 1936b; Kashimura, 1939)

#### Oedipodiaceae Schimp.

*Oedipodium griffithianum* (Dicks.) Schwaegr. (Yoon *et al.*, 2011)

**Tetraphidaceae** Schimp.

- Tetraphis pellucida* Hedw. (Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 - *Georgia pellucida* (Hedw.) Rabenh. (Horikawa, 1936c; Kashimura, 1939)  
*Tetradontium brownianum* (Dicks.) Schwägr. (Higuchi and Kim, 2017)

**Polytrichaceae** Schwägr.

- Atrichum altecristatum* (Renauld & Cardot) Smyth & L.C.R.Smyth  
 - *Atrichum undulatum* var. *alte-cristatum* Renauld & Cardot (Choe and Choi, 1980; Hwang, 1991)  
*Atrichum crispulum* Schimp. ex Besch. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
 - *Catharinea spinulosa* Cardot (Cardot, 1909; Sasaoka, 1933; Kashimura, 1940; Hong, 1963; Choe, 1980)  
 - *Atrichum spinulosum* (Cardot) Mizush. (Hong and Ando, 1963)  
*Atrichum crispum* (James) Sull. (He and Song, 2007; 2011)  
*Atrichum rhystophyllum* (Müll.Hal.) Paris (NIBRMS 106986; NIBRMS107030; NIBRMS106224) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b)  
 - *Catharinea chlorochaeta* Cardot (Cardot, 1909; Sasaoka, 1933; Kashimura, 1940; Choe, 1980)  
*Atrichum tenellum* (Röhl.) Bruch & Schimp.  
 - *Mnium orthorrhynchum* Brid. (Sasaoka, 1933; Kashimura, 1939)  
*Atrichum undulatum* (Hedw.) P.Beauv. (NIBRMS107336; NIBRMS106974) (Osada, 1958; Park and Hong, 1959; Hong, 1960a; 1960b; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 - *Catharinea undulata* (Hedw.) F.Wedber & D.Mohr (Cardot, 1904; Sasaoka, 1933; Horikawa, 1936d; Kashimura, 1940; Chung and Uhm, 1961; Choe, 1980)  
*Atrichum undulatum* var. *gracilisetum* Besch. (Choe and Choi, 1980; Hwang, 1991; Yim *et al.*, 2013)  
 - *Catharinea haussknechtii* (Jur. & Milde) Broth. (Saito, 1938; Kashimura, 1940; Choe, 1980)  
 - *Atrichum haussknechtii* Jur. & Milde (Park, 1997)  
 - *Atrichum flavisetum* Mitt. (Yoon *et al.*, 2011b)  
*Atrichum yakushimense* (Horik.) Mizush. (NIBRMS 107395; NIBRMS107434)  
*Bartramiopsis lescurii* (James) Kindb. (Song, 1987; Yoon *et al.*, 2011b)  
*Oligotrichum aligerum* Mitt. (Horikawa, 1935d; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
*Oligotrichum parallelum* (Mitt.) Kindb. (Ellis *et al.*,

2016)

- Pogonatum contortum* (Menzies ex Bird.) Lesq. (NIBRMS106705) (Okamura, 1915; Nakai, 1917; Sasaoka, 1933; Hong, 1938; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011)  
 - *Pogonatum asperrimum* Besch. (Horikawa, 1935a; 1936a; Kashimura, 1940)  
*Pogonatum dentatum* (Menzies ex Brid.) Brid.  
 - *Pogonatum capillare* (Michx.) Brid. (Sakurai, 1935a; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
*Pogonatum inflexum* (Lindb.) Sande Lac. (NIBRMS 107229; NIBRMS106992; NIBRMS107038; NIBRMS 106696) (Nakai, 1917; Horikawa, 1918; Sasaoka, 1933; Sakurai, 1935a; Saito, 1938; Kashimura, 1940; Osada, 1958; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
*Pogonatum japonicum* Sull. & Lesq. (Choe, 1980; Park, 1997; Yoon *et al.*, 2011b)  
 - *Pogonatum grandifolium* (Lindb.) A.Jaeger (Okamura, 1916; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997)  
*Pogonatum neesii* (Müll.Hal.) Dozy (NIBRMS107166; NIBRMS107180; NIBRMS107230; NIBRMS106756; NIBRMS107116; NIBRMS105875) (Choe and Choi, 1980; Yim *et al.*, 2013)  
 - *Pogonatum akitense* Besch. (Cardot, 1904; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Choe, 1980; Hwang, 1991)  
 - *Pogonatum rhopalophorum* Besch. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940)  
 - *Pogonatum pygmaeum* Cardot (Hong and Ando, 1961)  
*Pogonatum nipponicum* Nog. & Osada (Hwang, 1991)  
*Pogonatum sphaerothecium* Besch.  
 - *Polytrichum sphaerothecium* (Besch.) Mull.Hall. (Sasaoka, 1933; Kashimura, 1940; Horikawa, 1951; Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
*Pogonatum spinulosum* Mitt. (Nakai, 1917; Horikawa, 1918; Kashimura, 1940; Osada, 1958; Chung and Hong, 1961; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
*Pogonatum urnigerum* (Hedw.) P.Beauv. (NIBRMS 105855) (Cardot, 1904; Okamura, 1916; Reimers, 1930; Sasaoka, 1933; Sakurai, 1935a; Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Noguchi, 1954; Osada, 1958; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
*Polytrichastrum alpinum* (Hedw.) G.L.Sm. (Okamura, 1916; Hong and Ando, 1962; He and Song, 2011; Yoon

- et al.*, 2011b)
- *Polytrichum alpinum* Hedw. (Nakai, 1917; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Chung and Uhm, 1961; Hong and Ando, 1963; Choe and Choi, 1980; Park, 1997)
  - *Pogonatum alpinum* (Hedw.) Röhl. (Hwang, 1991)
  - *Pogonatum alpinum* var. *brevifolium* (R.Br.) Brid. (Hwang, 1991)
- Polytrichastrum formosum*** (Hedw.) G.L.Sm. (NIBR MS107435; NIBRMS107440; NIBRMS107441) (He and Song, 2007; 2011; Yoon *et al.*, 2011b)
- *Polytrichum attenuatum* Menzies ex Brid. (Nakai, 1917; Saito, 1938; Kashimura, 1940; Hong, 1960a)
  - *Polytrichum formosum* Hedw. (Saito, 1938; Osada, 1958; Hong, 1960b; Hong and Ando, 1961; 1963; Chung and Uhm, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Polytrichastrum longisetum*** (Sw. ex Brid.) G.L.Sm.
- *Polytrichum gracile* Menzies (Saito, 1938; Kashimura, 1940)
  - *Polytrichum longisetum* Sw. ex Brid. (Saito, 1938; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Polytrichastrum pallidisetum*** (Funck) G.L.Sm.
- *Polytrichum decipiens* Limpr. (Hwang, 1991; Park, 1997)
- Polytrichum commune*** Hedw. (NIBRMS105863; NIBR MS107436) (Okamura, 1916; Nakai, 1917; Kashimura, 1933; 1938; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Hong, 1960a; 1963; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- *Polytrichum jensenii* I.Hgen (Hwang, 1991)
- Polytrichum juniperinum*** Hedw. (Saito, 1938; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Polytrichum juniperinum* subsp. *strictum*** (Menzies ex Brid.) Nyl. & Saelan (Sasaoka, 1933; Kashimura, 1940)
- *Polytrichum juniperinum* var. *gracilius* Wahlenb. (Kashimura, 1940; Osada, 1958; Choe and Choi, 1980)
  - *Polytrichum strictum* Menzies ex Brid. (Osada, 1958; Park, 1997)
- Polytrichum piliferum*** Hedw. (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

#### Buxbaumiaceae Schwägr.

- Buxbaumia aphylla*** Hedw. (Hwang, 1991)
- Buxbaumia minakatae*** S.Okamura (NIBRMS105845) (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

#### Diphysciaceae M.Fleisch.

- Diphyscium fulvifolium*** Mitt. (NIBRMS106097; NIBR

MS107197) (Horikawa, 1936a; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

***Diphyscium mucronifolium*** Mitt. (NIBRMS106796; NIBRMS106800)

***Diphyscium perminutum*** Takai (Yim *et al.*, 2013)

***Theriotia lorifolia*** Cardot (other use: ***Diphyscium lorifolium*** (Cardot) Magombo) (NIBRMS107477) (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Horikawa, 1934a; Uno and Takahasi, 1940; Kashimura, 1940; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

- ***Diphyscium lorifolium*** (Cardot) Magombo (Yoon *et al.*, 2011b)

#### Timmiaceae Schimp.

***Timmia megapolitana*** Hedw. (Hwang, 1991)

#### Encalyptaceae Schimp.

***Encalypta ciliata*** Hedw. (Horikawa, 1936a; 1939; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)

***Encalypta sinica*** J.-C.Zhao & M.Li (Ellis *et al.*, 2014)

#### Funariaceae Schwägr.

***Funaria hygrometrica*** Hedw. (NIBRMS106091; NIBR MS106208) (Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

- ***Funaria calvescens*** Schwägr. (Sasaoka, 1933; Kashimura, 1939)

***Physcomitrium eurystomum*** Sendth. (Sasaoka, 1933; Choe and Choi, 1980; Hwang, 1991)

***Physcomitrium japonicum*** (Hedw.) Mitt. (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

- ***Physcomitrium macrophyllum*** Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939)

***Physcomitrium sphaericum*** (C.Ludw.) Fürnr. (NIBR MS107125; NIBRMS106228) (Choe and Choi, 1980; Hwang, 1991)

- ***Physcomitrium eurystomoides*** Cardot (Cardot, 1904; Brotherus, 1909; Osada, 1958)

#### Bryoxiphiaceae Besch.

***Bryoxiphium norvegicum*** (Brid.) Mitt. (Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

***Bryoxiphium norvegicum* subsp. *japonicum*** (Berggr.) Á. Löve & D. Löve (NIBRMS107194; NIBRMS106732; NIBRMS106976; NIBRMS105888) (Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007;

- 2011; Yoon *et al.*, 2011b)  
 – *Bryoxiphium savatieri* (Husn.) Mitt. (Sasaoka, 1933; Kashimura, 1939)

#### Grimmiaceae M.Fleisch.

- Campylostelium brachycarpum* (Nog.) Z.Iwats., Yuk. Tateishi & Tad.Suzuki (NIBRMS107483)  
*Campylostelium saxicola* (F.Weber & D.Mohr) Bruch & Schimp. (NIBRMS107468)  
*Coscinodon humilis* Milde (Yoon *et al.*, 2011)  
 – *Grimmia brachyphylla* Cardot (Cardot, 1908; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980)  
*Grimmia decipiens* (Schultz.) Lindb. (Park, 1997)  
*Grimmia donniana* Sm. (Choe and Choi, 1980; Hwang, 1991)  
 – *Grimmia alpestris* (F.Weber & D.Mohr) Schleich. (Saito, 1938; Kashimura, 1939; Uno and Takahasi, 1940; Hong and Ando, 1961)  
*Grimmia elongata* Kaulf. (NIBRMS106968)  
 – *Grimmia unicolor* Hook. (Hwang, 1991; Park, 1997)  
*Grimmia longirostris* Hook. (TNS 85302 as *Grimmia affinis*)  
*Grimmia ovalis* (Hedw.) Lindb. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991)  
*Grimmia pilifera* P.Beauv. (NIBRMS107379; NIBRMS107380; NIBRMS107140; NIBRMS107149) (Sasaoka, 1933; Kashimura, 1939; Uno and Takahasi, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1962; 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Grimmia pensilvanica* Schwägr. (Cardot, 1904)  
 – *Grimmia atroviridis* Cardot (Cardot, 1908; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Hong and Ando, 1962; Choe and Choi, 1980)  
 – *Grimmia kirienensis* C.Gao (Park, 1997)  
*Grimmia trichophylla* Grev. (He and Song, 2011)  
*Racomitrium aciculare* (Hedw.) Brid. (other use: *Codriophorus acicularis* (Hedw.) P.Beauv. (NIBRMS107488) (Hwang, 1991)  
*Racomitrium anomodontoides* Cardot (other use: *Codriophorus anomodontoides* (Cardot) Bedn.-Ochyra & Ochyra) (NIBRMS107377) (Cardot, 1908; Brotherus, 1909; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Hong, 1960b; Hong and Ando, 1961; 1962; Park and Choi, 2007; Yoon *et al.*, 2011b)  
 – *Racomitrium fasciculare* var. *atroviride* Cardot (Cardot, 1908; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
 – *Racomitrium yakushimense* Sakurai (Park, 1997)  
*Racomitrium aquaticum* (Brid. ex Schrad.) Brid. (Choe and Choi, 1980; He and Song, 2011)  
*Racomitrium barbuloides* Cardot (other use: *Niphotrichum barbuloides* (Cardot) Bedn.-Ochyra & Ochyra) (NIBRMS107144; NIBRMS107375; NIBRMS107402; NIBRMS107403; NIBRMS107393) (Cardot, 1908; Brotherus, 1909; Sasaoka, 1933; Sakurai, 1937b; Kashimura, 1939; He and Song, 2011)  
*Racomitrium canescens* (Hedw.) Brid. (other use: *Niphotrichum canescens* (Hedw.) Bedn.-Ochyra & Ochyra) (Okamura, 1916; Nakai, 1917; Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
*Racomitrium carinatum* Cardot (other use: *Codriophorus carinatus* (Cardot) Bedn.-Ochyra & Ochyra) (NIBRMS107232) (Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939; Hong, 1960b; Chung and Uhm, 1961; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)  
*Racomitrium ericoides* (Brid.) Brid. (other use: *Niphotrichum ericoides* (Brid.) Bedn.-Ochyra & Ochyra)  
 – *Racomitrium canescens* var. *ericoides* (Brid.) Hampe (Okamura, 1915; Nakai, 1917; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Uno and Takahasi, 1940; Hong and Ando, 1961; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991)  
 – *Racomitrium canescens* var. *epilosum* H.Müll. ex Milde (Choe and Choi, 1980; Hwang, 1991)  
*Racomitrium fasciculare* (Hedw.) Brid. (other use: *Dilutineuron fasciculare* (Schard. ex Hedw.) Bedn.-Ochyra, Sawicki, Ochyra, Szczecińska & Plášek) (NIBRMS107392) (Okamura, 1916; Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Racomitrium fasciculare* var. *orientale* Cardot (Cardot, 1908; Sasaoka, 1933)  
*Racomitrium fasciculare* var. *brachyphyllum* Cardot (Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Park and Choi, 2007; He and Song, 2011)  
 – *Racomitrium brevisetum* Lindb. (Sakurai, 1937a)  
*Racomitrium heterostichum* (Hedw.) Brid. (Other use: *Bucklandiella heterosticha* (Hedw.) Bedn.-Ochyra & Ochyra) (Hong, 1960b; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)  
*Racomitrium japonicum* Dozy & Molk. (other use: *Niphotrichum japonicum* (Dozy & Molk.) Bednarek-Ochyra & Ochyra) (NIBRMS107142; NIBRMS106177) (Yim *et al.*, 2013)  
*Racomitrium laetum* Besch. & Cradot (other use: *Bucklandiella laeta* (Besch. & Cardot) Bednarek-Ochyra & Ochyra) (Cardot, 1908; Sasaoka, 1933; Kashimura, 1939; He and Song, 2011; Yoon *et al.*, 2011b)

- *Racomitrium diminutum* Cardot (Hong and Ando, 1962)
- *Racomitrium heterostichum* var. *diminutum* (Carot) Nog. (Choe and Choi, 1980; Hwang, 1991)
- Racomitrium lanuginosum*** (Hedw.) Brid. (Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011)
- *Racomitrium hypnoides* Lindb. (Okamura, 1916; Sasaoka, 1933; Kashimura, 1939)
- Racomitrium microcarpon*** (Hedw.) Brid. (Other use: ***Bucklandiella microcarpon*** (Hedw.) Bedn.-Ochyra & Ochyra) (Park, 1997)
- Racomitrium molle*** Cardot (other use: *Codriophorus mollis* (Cardot) Bedn.-Ochyra & Ochyra) (Hwang, 1991)
- Racomitrium nitidulum*** Cardot (Other use: ***Bucklandiella nitidula*** (Cardot) Bedn.-Ochyra & Ochyra) (Cardot, 1908; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; He and Song, 2011)
- *Racomitrium heterostichum* var. *ramulosum* (Lindb.) Corb. (Choe and Choi, 1980; Hwang, 1991)
- Racomitrium sudeticum*** (Funck) Bruch & Schimp. (Other use: ***Bucklandiella sudetica*** (Funck) Bedn.-Ochyra & Ochyra) (Hwang, 1991)
- Racomitrium varium*** (Mitt.) A.Jaeger (other use: *Codriophorus varius* (Mitt.) Bedn.-Ochyra & Ochyra) (Cardot, 1904; Sasaoka, 1933; Sakurai, 1937a; Kashimura, 1939)
- Schistidium agassizii*** Sull. & Lesq.
- *Grimmia alpicola* Hedw. (Hwang, 1991; Park, 1997)
- Schistidium apocarpum*** (Hedw.) Bruch & Schimp. (NIB RMS107374-b) (He and Song, 2007; 2011)
- *Grimmia apocarpa* Hedw. (Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Osada, 1958; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)
- Schistidium liliputanum*** (Müll.Hal.) Deguchi (NIB RMS107390; NIBRMS107394) (He and Song, 2007)
- Schistidium rivulare*** (Brid.) Podp.
- *Grimmia alpicola* var. *rivularis* (Brid.) Wahlenb. (Hwang, 1991)
- Schistidium strictum*** (Turner) Loeske ex Mårtensson (NIBRMS106726; NIBRMS107006) (Deguchi *et al.*, 1998)
- *Grimmia apocarpa* var. *microtheca* Cardot (Cardot, 1908; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980)
- *Grimmia gracilis* Schleich. ex Schwägr. (Sasaoka, 1933; Kashimura, 1939)
- *Grimmia apocarpa* var. *gracilis* Röhl. (Hwang, 1991)
- *Schistidium gracile* (Röhl.) Limpr. (He and Song, 2011)

#### Ptychomitriaceae Schimp.

***Ptychomitrium dentatum*** (Mitt.) A.Jaeger. (NIBRMS

- 107343; NIBRMS107352; NIBRMS106724) (Choe and Choi, 1980; He and Song, 2011; Yoon *et al.*, 2011b)
- Ptychomitrium fauriei*** Besch. (Choe and Choi, 1980; Hwang, 1991)
- Ptychomitrium linearifolium*** Reimers & Sakurai (NIB RMS107141; NIBRMS107242; NIBRMS107278; NIB RMS107286; NIBRMS106180) (Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- Ptychomitrium sinense*** (Mitt.) A.Jaeger. (NIBRMS107158; NIBRMS107287; NIBRMS107241; NIBRMS106110; NIBRMS106157; WKim1627b; NIBRMS107337) (Cardot, 1904; Kashimura, 1939; Osada, 1958; Hong, 1960a; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yim *et al.*, 2013)
- *Ptychomitrium sinense* var. *microcarpum* (Müll.Hal.) Cardot (Uno and Takahasi, 1940)
- Ptychomitrium wilsonii*** Sull. & Lesq. (Sasaoka, 1933; Kashimura, 1939; Hong, 1960a; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

#### Seligeriaceae Schimp.

- Blindia japonica*** Broth. (He and Song, 2011)
- Brachydontium olympicum*** (E.Britton) T.T.McIntosh & J.R.Spence (Park *et al.*, 2019)
- Seligeria austriaca*** Schauer (NIBRMS107372) (Tanaka *et al.*, 2001)
- Seligeria calcarea*** (Hedw.) Bruch & Schimp. (NIBRMS107370)
- Seligeria diversifolia*** Lindb. (NIBRMS107371)
- Seligeria donniana*** (Sm.) Müll.Hal. (NIBRMS107363)

#### Calymperaceae Kindb.

- Syrrophodon armatus*** Mitt. (Yoon *et al.*, 2015a)
- Syrrophodon japonicus*** (Besch.) Broth. (Yoon *et al.*, 2015a)

#### Dicranaceae Schimp.

- Anisothecium recurvmarginatum*** (S.Okamura) Ihsiba
- *Dicranella recurvmarginata* S.Okamura (Sasaoka, 1933; Kashimura, 1939; Okamura, 1915; Choe and Choi, 1980)
- Aongstroemiopsis julacea*** (Dozy & Molk.) M.Fleisch. (Ellis *et al.*, 2014)
- Arctoa fulvella*** (Dicks.) Bruch & Schimp. (NIBRMS107016) (Hwang, 1991)
- Brothera leana*** (Sull.) Müll.Hal. (NIBRMS107175) (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Uno and Takahasi, 1940; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang,

- 1991; Park, 1997; Yoon *et al.*, 2011b)
- Campylopodium medium*** (Duby) Giese & J.-P.Frahm (NIBRMS107387; NIBRMS107388)
- Campylopus atrovirens*** De Not. (Hong & Ando, 1959; 1961; Choe and Choi, 1980)
- *Campylopus japonicus* var. *fusco-viridis* Cardot (Sasaoka, 1933; Kashimura, 1939; Uno and Takahasi, 1940)
- *Campylopus fuscoviridis* (Cardot) Dixon & Thér. ex W.S.Hong & Ando (Hwang, 1991)
- Campylopus flexuosus*** (Hedw.) Brid. (Sakurai, 1941b; Choe and Choi, 1980; Hwang, 1991)
- Campylopus fragilis*** (Brid.) Bruch & Schimp. (Hwang, 1991; Park, 1997)
- Campylopus gracilis*** (Mitt.) A.Jaeger.
- *Campylopus schwarzii* Schimp. (Choe and Choi, 1980; Hwang, 1991)
- Campylopus schimperi*** Mild.
- *Campylopus handelii* Broth. (Park, 1997)
- Campylopus sinensis*** (Müll.Hal.) J.-P.Frahm (NIBRMS 106753; NIBRMS107034; NIBRMS106345; NIBRMS 106346)
- *Campylopus japonicus* Broth. (Sasaoka, 1933; Kashimura, 1939; Hong, 1960b; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)
- Campylopus umbellatus*** (Arn.) Paris (NIBRMS106944)
- *Campylopus coreensis* (Cardot) Broth. (Cardot, 1907; Sasaoka, 1933; Choe and Choi, 1980)
- *Pilopogon coreensis* (Cardot) Broth. (Brotherus, 1909)
- *Thysanomitrium coreense* (Cardot) Broth. (Kashimura, 1939)
- Cynodontium gracilescens*** (F.Weber & D.Mohr) Schimp. (Hwang, 1991)
- Cynodontium polycarpon*** (Hedw.) Schimp. (Hwang, 1991)
- Cynodontium strumiferum*** (Hedw.) Lindb. (Hwang, 1991)
- Dichodontium pellucidum*** (Hedw.) Schimp. (NIBRMS 107306) (Choe and Choi, 1980; He and Song, 2011)
- *Dichodontium verrucosum* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)
- Dicranella cerviculata*** (Hedw.) Schimp. (Hwang, 1991)
- Dicranella gonoi*** Cardot (NIBRMS107463)
- Dicranella heteromalla*** (Hedw.) Schimp. (NIBRMS 106685; NIBRMS106984; NIBRMS107024; NIBRMS107036; NIBRMS106216) (Sasaoka, 1933; Kashimura, 1939; Hong, 1960b; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b)
- Dicranella heteromalla* var. *curvipes*** Lindb. (Choe and Choi, 1980)
- *Dicranella quelpaertensis* Cardot (Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939)
- Dicranella varia*** (Hedw.) Schimp. (NIBRMS106766)
- (He and Song, 2011)
- *Dicranella rufescens* (With.) Schimp. (Choe and Choi, 1980)
- Dicranodontium denudatum*** (Bird.) E. Britton (NIBRMS106847; NIBRMS1070028) (Sasaoka, 1933; Hong and Ando, 1961; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; Hwang, 1991)
- Dicranoloma cylindrothecium*** (Mitt.) Sakurai (Choe and Choi, 1980; Hwang, 1991)
- *Dicranum fragiliforme* Cardot (Cardot, 1907; Hong and Ando, 1961)
- *Dicranoloma fragiliforme* (Cardot) Broth. (Sasaoka, 1933; Kashimura, 1939)
- *Dicranum cylindrothecium* Mitt. (Saito, 1938; Hong and Ando, 1962)
- *Dicranum stratulum* Mitt. (He and Song, 2011)
- Dicranoweisia crispula*** (Hedw.) Milde (Hwang, 1991)
- Dicranum caesium*** Mitt. (Hwang, 1991)
- Dicranum drummondii*** Müll.Hal. (Hwang, 1991)
- Dicranum elongatum*** Schieich. ex Schwägr. (Hwang, 1991)
- Dicranum flagellare*** Hedw. (Kashimura, 1939; Osada, 1958; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- *Orthodicranum flagellare* (Hedw.) Loeske (Reimers, 1930; Hwang, 1991)
- Dicranum fulvum*** Hook. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- *Dicranum subleiodontum* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962)
- Dicranum fuscescens*** Turner (Osada, 1958; Choe and Choi, 1980; Hwang, 1991)
- Dicranum japonicum*** Mitt. (NIBRMS107228) (Nakai, 1917; Kashimura, 1939; Osada, 1958; Park and Hong, 1959; Hong, 1960a; Hong and Ando, 1962; Park, 1997; Hwang, 1991; He and Song, 2011)
- Dicranum klauteri*** Reimers (Reimers, 1930; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)
- Dicranum leiodontium*** Cardot (Eillis *et al.*, 2017)
- Dicranum majus*** Turner (NIBRMS105987) (Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Song, 1987; Park, 1997; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2011; Yoon *et al.*, 2011b)
- Dicranum mayrii*** Broth. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)
- Dicranum montanum*** Hedw. (Yoon *et al.*, 2015c)
- *Orthodicranum montanum* (Hedw.) Loeske (Hwang, 1991; Park, 1997)
- Dicranum nipponense*** Besch. (NIBRMS107233; NIBRMS107078) (Nakai, 1917; Sasaoka, 1933; Kashimura,

1939; Osada, 1958; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

*Dicranum polysetum* Sw. (Hwang, 1991)

*Dicranum sasaokae* Broth. ex Ihsiba (Sasaoka, 1933; Kashimura, 1939)

**Comment:** Sasaoka (1933) dicaribed a species, *Dicranoloma Sasaokae*. However, it is a nonexistent scientific name. Thus, it is possible to consider that the name seems to be a simply typo. *Dicranum sasaokae* was reported as a new species by Iisiba (1932).

*Dicranum scoparium* Hedw. (Okamura, 1916; Nakai, 1917; Reimers, 1930; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Uno and Takahasi, 1940; Osada, 1958; Hong, 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2011; Yoon *et al.*, 2011b)

*Dicranum spadiceum* J.E.Zetterst. (Park, 1997; Hwang, 1991)

*Dicranum spurium* Hedw. (Hwang, 1991)

*Dicranum scottianum* Sappegin

- *Orthodicranum strictum* Broth. (Park, 1997)

*Dicranum viride* (Sull. & Lesq.) Lindb. (Hong and Ando, 1962; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)

*Dicranum viride* var. *hakkodense* (Cardot) Takaki (NIBRMS107224; NIBRMS106960; NIBRMS105848) (Choe and Choi, 1980; He and Song, 2007)

- *Dicranum hakkodense* Cardot (Cardot, 1907; Kashimura, 1939)

- *Orthodicranum hakkodense* (Cardot) Broth. (Sasaoka, 1933)

*Holomitrium densifolium* (Wilson) Wijk & Margad. (Choe and Choi, 1980; He and Song, 2011)

- *Holomitrium japonicum* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Park and Hong, 1959; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1962; Hwang, 1991)

*Oncophorus crispifolius* (Mitt.) Lindb. (NIBRMS106725; NIBRMS106728; NIBRMS106734; NIBRMS106942; NIBRMS107012; NIBRMS107026; NIBRMS107048; NIBRMS107120; NIBRMS106098; NIBRMS105889) (Sasaoka, 1933; Kashimura, 1939; Hong, 1960a; 1960b; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

- *Cynodontium crispifolium* (Mitt.) A.Jaeger (Cardot, 1904)

- *Dicranoweisia fauriei* Cardot (Cardot, 1904; Brotherus, 1909)

- *Cynodontium crispifolium* var. *brevipes* Cardot (Cardot, 1907)

- *Oncophorus fauriei* (Cardot) Ihsiba (Sasaoka, 1933; Kashimura, 1939)

- *Oncophorus crispifolius* var. *brevipes* (Cardot) Thér. (Sasaoka, 1933; Kashimura, 1939; Chung and Uhm, 1961; Choe and Choi, 1980; He and Song, 2011)

*Oncophorus virens* (Hedw.) Brid. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Oncophorus wahlenbergii* Brid. (Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

*Oreoweisia laxifolia* (Hook. f.) Kindb. (Kim *et al.*, 2019)

*Paraleucobryum longifolium* (Ehrh. ex Hedw.) Loeske (NIBRMS105996; NIBRMS105997) (Song, 1987; Hwang, 1991; Park, 1997)

*Symblepharis vaginata* (Hook.) Wijk. & Margad. (Gao *et al.*, 1999)

*Trematodon ambiguus* (Hedw.) Hornsch. (Hwang, 1991)

*Trematodon longicollis* Michx. (NIBRMS105999) (Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

- *Trematodon drepanellus* Besch. (Hong, 1960a)

- *Trematodon drepanellus* var. *flaccidisetus* (Cardot) Dixon (Hong and Ando, 1962)

*Trematodon flaccidisetus* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939)

**Comment:** This species was originally reported by Cardot (1904), its type specimen was collected in Gangwond-do. Cao and Gao (1988) was considered that this species was a synonym of *T. longicollis*. However, Suzuki (2015) recognized that this species was distinguished from *T. longicollis* by the length of its peristome teeth. This study agrees to the concept of Suzuki (2015).

#### Ditrichaceae Limper.

*Ceratodon heterophyllus* Kindb.

- *Ceratodon purpureus* var. *rotundifolius* Berggr. (Hwang, 1991; Park, 1997)

*Ceratodon purpureus* (Hedw.) Brid. (NIBRMS107243) (Okamura, 1916; Sasaoka, 1933; Osada, 1958; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Park, 1997; Deguchi *et al.*, 1998; Yoon *et al.*, 2011b)

- *Ceratodon perplexans* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)

*Distichium capillaceum* (Hedw.) Bruch & Schimp. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Ditrichum divaricatum* Mitt. (Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

- *Ditrichum divaricatum* var. *exaltatum* Cardot (Cardot, 1908; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980)

*Ditrichum flexicaule* (Schwägr.) Hampe (NIBRMS10



7460)

*Ditrichum heteromallum* (Hedw.) E. Britton (NIBRMS 107461; NIBRMS107462) (He and Song, 2007)

*Ditrichum pallidum* (Hedw.) Hampe. (Hong, 1960a; 1960b; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

*Ditrichum pusillum* (Hedw.) Hampe. (Gao *et al.*, 1999)

**Comment:** This species was first added to the list of bryophytes of Korea by Park and Choi (2007), but references including specimens or literature is not presented. Still, specimens collected from Mt. Baekdu were cited in Gao *et al.* (1999). Therefore, it is accepted that this species is distributed on the Korean Peninsula.

*Ditrichum rhynchostegium* Kindb. (NIBRMS107428)

*Pleuroidium subulatum* (Hedw.) Rabenh. (Choe and Choi, 1980)

*Saetania glaucescens* (Hedw.) Broth. (Hwang, 1991)

#### Erpodiaceae Broth.

*Aulacopilum japonicum* Broth. ex Cardot (NIBRMS 106305; NIBRMS106176) (Carot, 1909; Broth. 1921; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

*Venturiella sinensis* (Venturi) Müll. Hal. (NIBRMS107122; NIBRMS106152) (Cardot, 1904; Broth. 1909; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

#### Fissidentaceae Schimp.

*Fissidens adianthoides* Hedw. (Osada, 1958; Choe and Choi, 1980; He and Song, 2011)

*Fissidens anomalus* Mont. (Yoon *et al.*, 2015c)

*Fissidens borealis* C. Gao (Hwang, 1991)

*Fissidens bryoides* Hedw. (NIBRMS107275; NIBRMS 107276; NIBRMS107309) (Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; Yoon *et al.*, 2011b)

*Fissidens bryoides* var. *lateralis* (Broth.) Z. Iwats. & Tad. Suzuki (NIBRMS106982; NIBRMS106988; NIBRMS106352)

*Fissidens bryoides* var. *ramosissimus* Thér. (Deguchi *et al.*, 1998)

*Fissidens crenulatus* Mitt. (NIBRMS107430)

*Fissidens crispulus* Brid. (NIBRMS107426)

*Fissidens crispulus* var. *robinsonii* (Broth.) Z. Iwats. & Z. H. Li (Yoon *et al.*, 2015c)

*Fissidens dubius* P. Beauv. (NIBRMS107165; NIBRMS 107186; NIBRMS106745; NIBRMS106996; NIBRMS107112; NIBRMS106184; NIBRMS106191; NIBRMS105880) (He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

– *Fissidens cristatus* Wilson ex Mitt. (Horikawa, 1935a; 1935b; Kashimura, 1939; Park and Hong, 1959; Hong,

1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1962; Choe and Choi, 1980; Song, 1987; Hwang, 1991)

*Fissidens gardneri* Mitt. (NIBRMS107176; NIBRMS 106817; NIBRMS106819; NIBRMS106840; NIBRMS 106861; NIBRMS106863; NIBRMS107095; NIBRMS 107127; NIBRMS106113; NIBRMS106178; NIBRMS 105884) (Yoon and Sun, 2010)

*Fissidens geminiflorus* Dozy & Molk. (NIBRMS107 445; NIBRMS107446)

*Fissidens geppii* M. Fleisch. (Choe and Choi, 1980; He and Song, 2011)

*Fissidens grandifrons* Brid. (NIBRMS107498)

– *Fissidens grandifrons* var. *planicaulis* (Besch.) Nog. (Choe and Choi, 1980)

*Fissidens gymnogynus* Besch. (NIBRMS107315; NIBRMS106101; NIBRMS107391) (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Hong, 1960a; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

*Fissidens hyalinus* Wilson & Hook. (NIBRMS107425)

*Fissidens involutus* var. *jejuensis* Y. J. Yoon, B. C. Tan & B. Y. Sun (Yoon *et al.*, 2015c)

*Fissidens linearis* var. *obscuriretis* (Broth. & Paris) I. G. Stone

– *Fissidens micro-serratus* Sakurai (Choe and Choi, 1980)

*Fissidens nobilis* Griff. (NIBRMS106769; NIBRMS 107082; NIBRMS106134; NIBRMS105899) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yim *et al.*, 2013)

– *Fissidens japonicus* Dozy & Molk. (Okamura, 1915; Kashimura, 1939; Chung and Uhm, 1961; Hong and Ando, 1962)

*Fissidens osmundoides* Hedw. (Hwang, 1991)

*Fissidens pallidinervis* Mitt. (Yoon *et al.*, 2015b)

*Fissidens pellucidus* var. *asterodontius* (Müll. Hal.) Pursell

– *Fissidens latifolioides* (Broth.) Sas. (Sasaoka, 1933)

– *Fissidens latifolius* Broth. (Kashimura, 1939)

*Fissidens protonematicola* Sakurai (Kwon *et al.*, 2019)

*Fissidens pseudolateralis* Cardot (Cardot, 1908; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991)

*Fissidens taxifolius* Hedw. (NIBRMS106866; NIBRMS106870; NIBRMS107054) (Choe and Choi, 1980; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

*Fissidens teysmannianus* Dozy & Molk. (NIBRMS 106736; NIBRMS106791; NIBRMS106820; NIBRMS107088; NIBRMS107094; NIBRMS106130; NIBRMS106193) (He and Song, 2007; 2011; Yim *et al.*, 2013)

– *Fissidens adelphinus* Besch. (Cardot, 1907; Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998)

– *Fissidens fauriei* Cardot (Cardot, 1907; Broth. 1909;

Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962)

*Fissidens tosaensis* Broth. (NIBRMS107471) (Choe, 1982)

#### Leucobryaceae Schimp.

*Leucobryum bowringii* Mitt. (NIBRMS107452) (He and Song, 2007)

*Leucobryum glaucum* (Hedw.) Ångstr. (Hong, 1960a; 1960b; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

*Leucobryum galeatum* fo. *longifolia* Cardot (Cardot, 1904)

- *Leucobryum galeatum* var. *longifolium* Cardot (Kashimura, 1939; Choe and Choi, 1980)

**Comment:** This species was originally recorded by Cardot (1904). Cardot (1904) reported that this species distributed in Korea and Hong Kong. However, other researchers except Kashimura (1939) and Choe and Choi (1980) have been not recognized this species.

*Leucobryum humillimum* Cardot (Yamaguchi, 1993)

- *Leucobryum galeatum* Besch. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939)

*Leucobryum juniperoideum* (Brid.) Müll.Hal. (NIBRMS107169; NIBRMS107042; NIBRMS106095; NIBRMS105916) (He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

- *Leucobryum neilgherrense* Müll.Hal. (Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Park and Hong, 1959; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991)

- *Leucobryum neilgherrense* var. *galeatum* (Besch.) Dixon (Choe and Choi, 1980)

- *Leucobryum brevicaulis* Besch. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939)

#### Rhabdoweisiaceae Limpr.

*Glyphomitrium humillimum* (Mitt.) Cardot (NIBRMS107193; NIBRMS106149; NIBRMS106153; NIBRMS106160; NIBRMS106175; NIBRMS106181; NIBRMS105946) (Sasaoka, 1933; Horikawa, 1936a; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Yim *et al.*, 2013)

- *Aulacomitrium humillimum* Mitt. (Cardot, 1904)

*Rhabdoweisia crispata* (Dicks.) Lindb. (NIBRMS106815; NIBRMS106707) (Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)

*Rhabdoweisia fugax* (Hedw.) Bruch & Scimp. (Hong and Ando, 1961; Hong and Ando, 1962)

#### Pottiaceae Hampe

*Anoetangium aestivum* (Hedw.) Mitt. (Choe and Choi, 1980; Hwang, 1991)

- *Anoetangium torquescens* Mitt. (Sasaoka, 1933; Kas-

himura, 1939)

*Anoetangium microphyllum* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)

*Anoetangium stracheyanum* Mitt. (Choe and Choi, 1980; Hwang, 1991)

- *Anoetangium coreense* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939)

- *Anoetangium rivale* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939)

*Anoetangium thomsonii* Mitt. (NIBRMS107271) (Choe and Choi, 1980; He and Song, 2011)

- *Anoetangium sublaetevirens* Cardot (Cardot, 1907; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980)

- *Anoetangium laetevirens* Besch. & Cardot (Cardot, 1907; Sasaoka, 1933)

- *Anoetangium crispulum* Wilson (Hong and Ando, 1962)

*Ardeuma aurantiacum* (Mitt.) R.H.Zander & Hedd. (NIBRMS107361)

*Barbula convoluta* Hedw. (He and Song, 2007; 2011)

*Barbula coreensis* (Card.) K. Saito. (Hwang, 1991)

- *Barbula paludosa* var. *coreensis* Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980)

*Barbula unguiculata* Hedw. (NIBRMS107240) (Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; Yoon *et al.*, 2011b)

*Bryoerythrophyllum recurvirostrum* (Hedw.) P.C.Chen (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

- *Didymodon rubellus* Bruch & Schimp. (Uno and Takahashi, 1940)

- *Didymodon recurvirostris* (Hedw.) Jenn. (Hong and Ando, 1961)

*Chionoloma tenuirostre* (Hook. & Taylor) M.Alonso, M.J.Cano & J.A.Jiménez (NIBRMS107317; NIBRMS106100; NIBRMS106199)

- *Trichostomum cylindricum* (Bruch ex Brid.) Müll.Hal. (Reimers, 1930; Kashimura, 1939)

- *Oxystegus cylindricus* (Bruch ex Brid.) Hilp. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

- *Oxystegus cuspidatus* (Dozy & Molk.) P.C.Chen (Hwang, 1991)

*Didymodon erosodenticulatus* (Müll.Hal.) K.Saito (Choe and Choi, 1980; He and Song, 2011)

*Didymodon rigidulus* Hedw. (Yoon *et al.*, 2011b)

*Didymodon tophaceus* (Brid.) Lisa

- *Weissia platyphylla* Broth. (Cardot, 1904; Kashimura, 1939)

*Didymodon vinealis* (Brid.) R.H.Zander

- *Barbula vinealis* Brid. (Hwang, 1991)

*Eucladium verticillatum* (With.) Bruch & Schimp. (NIBRMS107455)

*Geheebia constricta* (Mitt.) R.H.Zander & R.T.Caner

- (NIBRMS107360)  
***Gymnostomum aeruginosum*** Sm. (Choe and Choi, 1980)  
***Hydrogonium orientale*** (F. Weber) Jan Kucera (NIBRMS 107397; NIBRMS107398; NIBRMS107429)  
 – *Barbula indica* (Hook.) Spreng. (He and Song, 2007)  
***Hymenostylium recurvirostrum*** (Hedw.) Dixon (NIBR MS107014)  
 – *Gymnostomum recurvirostrum* Hedw. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2015b)  
***Hyophila amblyphylla*** Cardot (Cardot, 1907; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939; Hwang, 1991)  
***Hyophila involuta*** (Hook.) A. Jaeger. (NIBRMS106150) (Osada, 1958; Saito, 1975; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)  
 – *Tayloria coreana* Sakurai (Uno and Takahasi, 1940; Hong and Ando, 1961)  
***Hyophila propagulifera*** Broth. (NIBRMS107272) (Choe and Choi, 1980; Yoon *et al.*, 2011b)  
***Leptodontium flexifolium*** (Dicks.) Hampe (Choe and Choi, 1980; Hwang, 1991)  
 – *Leptodontium nakaii* S. Okamura (Okamura, 1915; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1961)  
 – *Bryoerythrophyllum yichunense* C. Gao (Park, 1997)  
***Chenia leptophylla*** (Müll. Hal.) R. H. Zander (NIBRMS 107478; NIBRMS107479)  
***Molendoo sendtneriana*** (Bruch & Schimp.) Limpr. (Choe and Choi, 1980)  
***Scopelophila cataractae*** (Mitt.) Broth. (Choe and Choi, 1980; Hwang, 1991)  
 – *Hyophila coreensis* Cardot (Cardot, 1907)  
 – *Weisiopsis coreensis* (Cardot) Broth. (Brotherus, 1921; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; He and Song, 2011)  
***Syntrichia sinensis*** (Müll. Hal.) Ochyra (NIBRMS107374-a)  
***Timmiella anomala*** (Bruch & Schimp.) Limpr. (Choe and Choi, 1980)  
***Tortella fragilis*** (Hook. & Wilson) Limpr. (Kim *et al.*, 2019)  
***Tortella japonica*** (Besch.) Broth. (NIBRMS107365)  
***Tortella tortuosa*** (Schrad. ex Hedw.) Limpr. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007)  
***Tortula modica*** R. H. Zander  
 – *Pottia intermedia* (Turner) Fühnr. (Choe and Choi, 1980)  
***Tortula muralis*** Hedw. (Hwang, 1991; Yoon *et al.*, 2015b)  
***Trichostomum crispulum*** Bruch (NIBRMS107494) (Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
***Trichostomum deciduifolium*** (K. Saito) R. H. Zander (He and Song, 2011)  
***Trichostomum planifolium*** (Dixon) R. H. Zander (NIBR MS107438-b; NIBRMS107366)  
 – *Weissia planifolia* Dixon (Hwang, 1991; Yoon *et al.*, 2011b)  
***Trichostomum platyphyllum*** (Broth. ex Ihsiba) P. C. Chen (Hwang, 1991)  
***Tuerckheimia svihlae*** (E. B. Bartram) R. H. Zander (NIBR MS107362)  
***Weisiopsis anomala*** (Broth. & Paris) Broth. & Paris (Brotherus, 1921; Sasaoka, 1933; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
 – *Hyophila anomala* Broth. & Paris ex Cardot (Cardot, 1907; Brotherus, 1909)  
 – *Hyophila weisiaeformis* Cardot (Cardot, 1907)  
 – *Weisiopsis cardotii* Broth. (Brotherus, 1921; Sasaoka, 1933; Kashimura, 1939)  
***Weissia breviseta*** (Thér.) P. C. Chen (Hwang, 1991)  
***Weissia controversa*** Hedw. (NIBRMS106103) (Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)  
 – *Weissia viridula* Hedw. ex Brid. (Sasaoka, 1933; Kashimura, 1939)  
***Weissia crispa*** (Hedw.) G. Gaerthn., B. May. & Scherb.  
 – *Astomum crispum* (Hedw.) Hampe (Choe and Choi, 1980)  
***Weissia edentula*** Mitt. (Hwang, 1991)  
 – *Weissia platyphylloides* Cardot (Sasaoka, 1933; Kashimura, 1939)  
 – *Weissia controversa* var. *tenuiseta* (Besch.) Nog. (Choe and Choi, 1980)  
***Weissia exserta*** (Broth.) P. C. Chen (NIBRMS107373)  
***Weissia longidens*** Cardot (NIBRMS106151; NIBRMS 106158)  
***Weissia newcomeri*** (E. B. Bartram) K. Saito (NIBRMS 107143; NIBRMS106105) (Deguchi *et al.*, 1998)
- Meesiaceae** Schimp.
- Meesia longiseta*** Hedw. (Hwang, 1991)  
***Meesia uliginosa*** Hedw. (Park, 1997)
- Splachnaceae** Grev. & Arn.
- Splachnum luteum*** Hedw. (Park, 1997)  
***Tetraplodon angustatus*** (Hedw.) Bruch & Schimp. (Park, 1997)  
***Tetraplodon mnioides*** (Hedw.) Bruch & Schimp. (Hwang, 1991; Park, 1997)  
***Tetraplodon urceolatus*** (Hedw.) Bruch & Schimp. (Hwang, 1991)  
***Voitia nivalis*** Hornsch. (Hwang, 1991)
- Hedwigiaceae** Schimp.
- Hedwigia albicans*** var. ***microcarpa*** (Cardot) Sasaoka (Sasaoka, 1933; Kashimura, 1940)

- *Hedwigia ciliata* var. *microcarpa* Cardot (Cardot, 1904; Choe and Choi, 1980)
- Hedwigia ciliata*** (Hedw.) P.Beauv. (NIBRMS107148) (Osada, 1958; Park and Hong, 1959; Hong, 1960a; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Hedwigia albicans* Lindb. (Brotherus, 1909; Okamura, 1916; Sasaoka, 1933; Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Hong, 1960a)
- Hedwigia ciliata* var. *viridis*** Bruch & Schimp. (Cardot, 1904; Choe and Choi, 1980)
- *Hedwigia albicans* var. *viridis* (Bruch & Schimp.) Limpr. (Sasaoka, 1933; Kashimura, 1940)

#### Bartramiaceae M.Menzel

- Bartramia ithyphylla*** Brid. (Sakurai, 1941b; Choe and Choi, 1980; Park, 1997)
- Bartramia pomiformis*** Hedw. (Sato1274; NIBRMS 107195) (Osada, 1958; Hong, 1960a; 1960b; Hong and Ando, 1961; 1962; Park, 1997; He & Song; 2011; Yoon *et al.*, 2011b)
- *Bartramia stenophylla* Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939)
- *Bartramia crispata* Schimp. ex Besch. (Horikawa, 1935a; Kashimura, 1939; Park and Hong, 1959)
- *Bartramia pomiformis* var. *elongata* Turner (Choe and Choi, 1980; Park, 1997)
- Bretelia arundinifolia*** (Duby.) M.Fleisch. (Hwang, 1991)
- Philonotis calcarea*** (Bruch & Schimp.) Schimp. (Sakurai, 1941b; Choe and Choi, 1980; Hwang, 1991)
- Philonotis coreensis*** Cardot (Cardot, 1909; Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Hong and Ando, 1962; Choe and Choi, 1980; He & Song; 2011)
- Philonotis falcata*** (Hook.) Mitt. (NIBRMS106012) (Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; Yoon *et al.*, 2011b)
- *Philonotis japonica* (Schimp.) Paris (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939)
- *Philonotis laxiretis* Cardot (Saito, 1938; Kashimura, 1939; Sakurai, 1941a)
- *Philonotis falcata* var. *carinata* (Mitt.) Ochi (Choe and Choi, 1980)
- Philonotis fontana*** (Hedw.) Brid. (NIBRMS105865) (Osada, 1958; Hong and Ando, 1961; 1962; Hwang, 1991; Park, 1997; He and Song, 2011)
- Philonotis fontana* var. *chosonica*** Sakurai (Sakurai, 1941a)
- Philonotis hastata*** (Duby) Wijk & Margad. (NIBRMS107444)
- Philonotis lancifolia*** Mitt. (Hong, 1960b; Choe and Choi, 1980; Hwang, 1991)

- Philonotis longiseta*** (Michx.) E.Britton
- *Philonotis radicalis* P. Beauv. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)
- Philonotis marchica*** (Hedw.) Brid. (Cardot, 1904; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Sakurai, 1941a; Hwang, 1991)
- Philonotis tenuissima*** Cardot (Cardot, 1909; Sasaoka, 1933; Kashimura, 1939; Osada, 1958)
- Comment:** In Kabiersch (1937), *Ph. tosana*; *Ph. coreensis* and *Ph. tenuissima* were considered to be a synonym of *Ph. socia*. Given that he did not observe *Ph. socia* directly, he made such an assertion. Consequently, it is hard to see his taxonomic treatment is correct. Accordingly, a full-scale taxonomic revision on *Ph. coreensis* and *Ph. tenuissima*, which were published by Cardot (1909) based on specimens collected from Korea, has not been done yet. Therefore, it is believed reasonable to maintain these scientific names.
- Philonotis thwaitesii*** Mitt. (NIBRMS106711; NIBRMS 107028; NIBRMS105864 Sato1163) (Choe and Choi, 1980; He and Song, 2007; Yoon *et al.*, 2011b)
- *Philonotis socia* Mitt. (Hong and Ando, 1961; Hwang, 1991)
- *Philonotis revouta* Bosch & Sande Lac. (Hwang, 1991)
- Philonotis turneriana*** (Schwägr.) Mitt. (Choe and Choi, 1980; He and Song, 2011)
- *Philonotis setschuanica* (Müll.Hal.) Paris (Park, 1997)
- Philonotis yezoana*** Besch. & Cardot (Cardot, 1909; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- *Philonotis fontana* var. *tenuicaulis* (Cardot) Nog. (He and Song, 2007)
- Plagiopus oederianus*** (Sw.) H.A.Crum & L.E.Anderson
- *Plagiopus oederi* (Brid.) Limpr. (Choe and Choi, 1980; Hwang, 1991)

#### Bryaceae Rchb.

- Anomobryum filiforme*** (Griff.) A.Jaeger. (Choe and Choi, 1980; Park, 1997)
- Anomobryum gemmigerum*** Broth. (Osada, 1958; Hwang, 1991)
- Anomobryum lanatum*** (P.Beauv.) J.R.Spence & H.P. Ramsay
- *Bryum argenteum* var. *lanatum* (P.Beauv.) Hampe (Kashimura, 1939)
- Brachymenium exile*** (Dozy & Molke.) Bosch & Sande Lac. (NIBRMS107470-b; NIBRMS107438) (Choe and Choi, 1980; Hwang, 1991)
- Brachymenium nepalense*** Hook. (NIBRMS107252; NIBRMS105842) (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

- *Brachymerium clavulum* Mitt. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939)
- *Brachymerium nepalense* var. *clavulum* (Mitt.) Ochi (Choe and Choi, 1980; Choe and Choi, 1980; Hwang, 1991)
- Bryum alpinum*** Huds. ex With. (Nakai, 1917; Sasaoka, 1933; Kashimura, 1939; Hwang, 1991; Park, 1997)
- Bryum arcticum*** (R. Br.) Bruch & Schimp. (Hwang, 1991)
- Bryum argenteum*** Hedw. (NIBRMS107470-a; NIBRMS107124; NIBRMS106102; NIBRMS106155) (Cardot, 1904; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Sakurai, 1941b; Osada, 1958; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- Bryum caespiticium*** Hedw. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Bryum dichotomum*** Hedw. (He and Song, 2007)
- Bryum handelii*** Broth. (Yoon *et al.*, 2015b)
- Bryum paradoxum*** Schwägr. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011)
- *Bryum pseudoalpinum* Renaud & Cardot (Osada, 1958; Hong, 1960a; Hong and Ando, 1961; Hong and Ando, 1962)
- Bryum uliginosum*** (Brid.) Bruch & Schimp. (Choe and Choi, 1980; Park, 1997)
- Epipterygium tozeri*** (Grev.) Lindb. (NIBRMS107464; NIBRMS105902) (Hwang, 1991)
- Leptobryum pyriforme*** (Hedw.) Wilson (Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Orthodontium pellucens*** (Hook.) Bruch & Schimp. (He and Song, 2007)
- Osculatia coronata*** (Schwägr.) Ochyra, Plášek & Bedn.-Ochyra (NIBRMS107396)
- Plagiobryum zieri*** (Dicks. ex Hedw.) Lindb. (Hwang, 1991)
- Pohlia camptotrachela*** (Ren. & Cardot) Broth. (Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)
- Pohlia cruda*** (Hedw.) Lindb. (Hwang, 1991; Park, 1997)
- Pohlia drummondii*** (Müll.Hal.) A.L.Andrews (Hwang, 1991)
- Pohlia elongata*** Hedw. (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)
- Pohlia fauriei*** (Cardot) Ihsiba (Choe and Choi, 1980; He and Song, 2007)
- Pohlia flexuosa*** Hook. (NIBRMS106678) (Choe and Choi, 1980)
- Pohlia lescuriana*** (Sull.) Ochi
- *Pohlia pullchella* (Hedw.) Lindb. (Park, 1997)
- Pohlia longicolla*** (Hedw.) Lindb. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011)
- Pohlia marchica*** Osterwald (Choe and Choi, 1980; Park, 1997)
- Pohlia melanodon*** (Brid.) A.J.Shaw
- *Mniobryum carneum* (L. ex F.Weber & D.Mohr) Limpr. (Sakurai, 1937c)
- Pohlia nutans*** (Hedw.) Lindb. (Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; Hwang, 1991; He and Song, 2007)
- *Webera nutans* Hedw (Sasaoka, 1933; Kashimura, 1939)
- *Pohlia sphagnicola* (Lindb. & Shimp) Broth. (Hwang, 1991)
- Pohlia otaruensis*** (Cardot) Ochi (He and Song, 2007; Ellis *et al.*, 2018b)
- Pohlia prolifera*** (Kindb. ex Breidl.) Lindb. ex Arnell (Hwang, 1991; Yoon *et al.*, 2011b; Lai *et al.*, 2007)
- *Pohlia camtotrachella* var. *vestitissima* (Sakurai) Ochi (Choe and Choi, 1980)
- Pohlia pseudodeflecta*** Ochi (He and Song, 2007)
- Pohlia revolvens*** (Cardot) Nog.
- *Pohlia crudoides* var. *revolvens* (Cardot) Ochi (Hong and Ando, 1961; Choe and Choi, 1980; Park, 1997)
- Pohlia seoulensis*** (Cardot) Broth., comb. nov. (Brotherus, 1909; Ochi, 1953)
- *Webera seoulensis* Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939)
- Comment:** Cardot (1904) first reported this species as the genus *Webera*. Later, Brotherus (1909) treated this species to the genus *Pohlia* before Ochi (1935).
- Pohlia wahlenbergii*** (F.Weber & D.Mohr) A.L.Andrews (Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011)
- *Mniobryum albicans* (Wahlenb.) Limpr. (Horikawa, 1935a; Kashimura, 1939)
- Ptychostomum cellulare*** (Hook.) D.Bell & Holyoak (NIBRMS107126)
- *Bryum cellulare* Hook. (Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991)
- Ptychostomum cyclophyllum*** (Schwägr.) J.R.Spence
- *Bryum cyclophyllum* (Schwägr.) Bruch. & Schimp. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Yoon *et al.*, 2011b)
- *Bryum gonoi* Broth. ex Cardot (Sasaoka, 1933; Kashimura, 1939)
- *Bryum tortifolium* Brid. (Hong, 1960a; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)
- Ptychostomum knowltonii*** (Barnes) J.R.Spence
- *Bryum knowltonii* Barnes (Park, 1997)
- Ptychostomum pallescens*** (Schleich. ex Schwägr.) J.R. Spence
- *Bryum pallescens* var. *quelpaertense* Cardot (Cardot, 1909; Sasaoka, 1933; Kashimura, 1939)
- *Bryum pallescens* Schleich. ex Schwägr. (Hong and Ando, 1962; Choe and Choi, 1980; Park, 1997; Hwang, 1991; He and Song, 2011)
- *Bryum clathratum* J.J.Amann (Hwang, 1991)
- Ptychostomum pseudotriquetrum*** (Hedw.) J.R.Spence

- & H.P.Rasmsay ex Holyoak & N.Pedersen (NIBRMS 107368)
- *Bryum pseudotriquetrum* var. *angustatum* Cardot (Cardot, 1904)
- *Bryum ventricosum* Dicks. (Sasaoka, 1933; Kashimura, 1939; Hong, 1960a)
- *Bryum pseudotriquetrum* (Hedw.) G.Gaertn., B.Mey. & Scherb. (Osada, 1958; Hong, 1960b; Choe and Choi, 1980; Hwang, 1991)
- Rhodobryum giganteum*** (Schwägr.) Paris. (Okamura, 1915; Sasaoka, 1933; Horikawa, 1934b; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- Rhodobryum ontariense*** (Kindb.) Paris (NIBRMS107489) (Song, 1987)
- Rhodobryum roseum*** (Hedw.) Limpr. (Horikawa, 1936c; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Park and Hong, 1959; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011)
- *Bryum roseum* (Hedw.) Schreb. ex G.Gaertn., B.Mey. & Scherb. (Hong and Ando, 1961; Hong and Ando, 1962)
- Rosulabryum capillare*** (Hedw.) J.R.Spence (NIBRMS 107139; NIBRMS107299; NIBRMS106846) (He and Song, 2007; 2011; Yim *et al.*, 2013)
- *Bryum capillare* Hedw. (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)
- Rosulabryum torquescens*** (Bruch & Schimp.) J.R.Spence
- *Bryum torquescens* Bruch & Schimp. (Uno and Takahasi, 1940; Hong and Ando, 1961)

#### Mniaceae Schwägr.

- Cinclidium arcticum*** (Bruch & Schimp.) Schimp. (Hwang, 1991)
- Cinclidium stygium*** Sw. (Hwang, 1991)
- Mnium heterophyllum*** (Hook.) Schwägr. (Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011)
- *Mnium sapporense* Besch. (Horikawa, 1936e; Kashimura, 1939)
- Mnium laevinerve*** Cardot (Reimers, 1930; Sasaoka, 1933; Kabiersch, 1937; Kashimura, 1939; Osada, 1958; Hong and Ando, 1961; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- Mnium lycopodioides*** (Hook.) Schwägr. (NIBRMS107290; NIBRMS107304; NIBRMS107312; NIBRMS106789; NIBRMS106980; NIBRMS107108)
- Comment:** Park and Choi (2007) recognized *M. laevinerve* as a synonym of this species. On the other hands, Li *et al.* (2007) treated both as separate species. This study verifies a distribution of this species in Jeju Island.
- Mnium marginatum*** (Dicks.) P.Beauv. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

- Mnium orientale*** R.E. Wyatt, Odrzyk. & T.J.Kop. (Yoon and Sun, 2010; NIBR, 2012)
- Mnium orthorrhynchum*** Brid. (Cardot, 1904; Choe and Choi, 1980; Hwang, 1991)
- Mnium spinosum*** (Voit.) Schwägr. (NIBRMS107357-a; NIBRMS107453; NIBRMS107454;) (Horikawa, 1936c; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Mnium stellare*** Hedw. (Osada, 1958; Park and Hong, 1959; Hong, 1960a; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Mnium thomsonii*** Schimp. (NIBRMS107344) (Horikawa, 1936d; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- *Mnium decurrens* Müll.Hal. & Kindb. (Park, 1997)
- Orthomnion arbuscula*** (Müll.Hal.) T.J.Kop. & Y.Sun
- *Plagiomnium arbuscula* (Müll.Hal.) T.J.Kop. (Hwang, 1991)
- Orthomnion acutum*** (Müll.Hal.) T.J.Kop. & Y.Sun (NIBRMS107172; NIBRMS107178; NIBRMS107184; NIBRMS107291; NIBRMS106826; NIBRMS106859; NIBRMS106881; NIBRMS107052; NIBRMS107058; NIBRMS107106; NIBRMS106112; NIBRMS106183; NIBRMS105886)
- *Mnium subintegrum* Cardot (Cardot, 1904; Brotherus, 1909; Ando, 1961; Sasaoka, 1933; Kashimura, 1939)
- *Mnium dubitatum* Cardot (Cardot, 1909; Sasaoka, 1933; Kashimura, 1939)
- *Mnium noguchii* Sakurai (Sakurai, 1935c; Kashimura, 1939; Hong and Ando, 1962)
- *Mnium trichomanes* Mitt. (Horikawa, 1935a; 1935b; 1936b; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Uno and Takahasi, 1940; Sakurai, 1941b)
- *Mnium cuspidatum* subsp. *trichomanes* Kabiersch (Kabiersch, 1936; Ando, 1961)
- *Plagiomnium acutum* (Lindb.) T.J.Kop. (Choe and Choi, 1980; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Plagiomnium trichomane* (Kabiersch) T.J.Kop. (Hwang, 1991; Park, 1997)
- Orthomnion affine*** (Blandow ex Funck) T.J.Kop. & Y.Sun
- *Mnium affine* Blandow ex Funck (Uno and Takahasi, 1940; Osada, 1958; Hong and Ando, 1961)
- *Plagiomnium affine* (Blandow ex Funck) T.J.Kop. (Choe and Choi, 1980; Hwang, 1991)
- Orthomnion confertidens*** (Lindb. & Arnell) T.J.Kop. & Y.Sun
- *Mnium ligulifolium* Cardot (Okamura, 1916; Sasaoka, 1933; Kashimura, 1939)
- *Mnium koraiense* Sakurai (Sakurai, 1941b)
- *Plagiomnium confertidens* (Lindb. & Arnell) T.J.Kop. (Choe and Choi, 1980; Song, 1987; Hwang, 1991; Yoon *et al.*, 2011b)
- *Mnium arbusculum* Müll.Hal. (Park, 1997)

- Orthomnium cuspidatum*** (Hedw.) T.J.Kop. & Y.Sun  
 – *Mnium cuspidatum* Hedw. (Sakurai, 1935b; Sasaoka, 1933; Saito, 1938; Kashimura, 1939; Osada, 1958; Park and Hong, 1959; Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; Hong and Ando, 1962; Park, 1997)  
 – *Mnium cuspidatum* subsp. *eucuspidatum* Kab. (Kaier-sch, 1936)  
 – *Plagiomnium cuspidatum* (Hedw.) T.J.Kop. (Choe and Choi, 1980; Song, 1987; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b)
- Orthomnion drummondii*** (Bruch. & Schimp.) T.J.Kop. & Y.Sun  
 – *Plagiomnium drummondii* (Bruch & Schimp.) T.J.Kop. (Hwang, 1991; Park, 1997)
- Orthomnion elatum*** (Bruch & Schimp.) T.J.Kop. & Y.Sun  
 – *Mnium affine* var. *elatum* Bruch & Schimp. (Horikawa, 1936d; Kashimura, 1939)
- Orthomnion ellipticum*** (Brid.) T.J.Kop. & Y.Sun  
 – *Mnium rugicum* Laurer (Park, 1997)
- Orthomnion integrum*** (Bosch & Sande Lac.) T.J.Kop. & Y.Sun  
 – *Plagiomnium integrum* (Bosch & Sande Lac.) T.J.Kop. (He and Song, 2011)
- Orthomnion japonicum*** (Lindb.) T.J.Kop. & Y.Sun (NIBR MS107433)  
 – *Mnium japonicum* Lindb. (Hong and Ando, 1962)  
 – *Plagiomnium japonicum* (Lindb.) T.J.Kop. (Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- Orthomnion maximoviczii*** (Lindb.) T.J.Kop. & Y.Sun (NIBRMS107198; NIBRMS107260; NIBRMS106749; NIBRMS107050; NIBRMS105885)  
 – *Mnium maximoviczii* Lindb. (Okamura, 1915; Sasaoka, 1933; Kashimura, 1939; Osada, 1958; Hong and Ando, 1961; 1962)  
 – *Plagiomnium maximoviczii* (Lindb.) T.J.Kop. (Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- Orthomnion medium*** (Bruch & Schimp.) T.J.Kop. & Y.Sun  
 – *Plagiomnium medium* (Bruch & Schimp.) T.J.Kop. (Hwang, 1991)  
 – *Mnium medium* Bruch & Schimp. (Park, 1997)
- Orthomnion rostratum*** (Schrad.) T.J.Kop. & Y.Sun  
 – *Mnium rostratum* Schrad. (Reimers, 1930; Kabiersch, 1936; Kashimura, 1939)  
 – *Mnium longirostrum* Brid. (Osada, 1958; Hong and Ando, 1961; 1962; Hwang, 1991; Park, 1997; He and Song, 2011)  
 – *Plagiomnium rostratum* (Schrad.) T.J.Kop. (Choe and Choi, 1980; He and Song, 2011)
- Orthomnion tezukae*** (Sakurai) T.J.Kop. & Y.Sun  
 – *Plagiomnium tezukae* (Sakurai) T.J.Kop. (Hwang, 1991)
- Orthomnion undulatum*** (Hedw.) T.J.Kop. & Y.Sun  
 – *Mnium undulatum* Hedw. (Osada, 1958)  
 – *Plagiomnium undulatum* (Hedw.) T.J.Kop. (Hwang, 1991)
- Orthomnion vesicatum*** (Besch.) T.J.Kop. & Y.Sun (NIBR MS107266)  
 – *Mnium vesicatum* Besch. (Horikawa, 1935a; Kashimura, 1939; Hong and Ando, 1962; Park, 1997)  
 – *Plagiomnium vesicatum* (Besch.) T.J.Kop. (Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- Pseudobryum cinclidioides*** (Huebener) T.J.Kop. (Hwang, 1991)
- Pseudobryum speciosum*** (Mitt.) T.J.Kop. (Hwang, 1991)
- Rhizomnium glabrescens*** (Kindb.) T.J.Kop  
 – *Mnium glabrescens* Kindb. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Uno and Takahasi, 1940)
- Rhizomnium hattorii*** T.J.Kop. (NIBRMS107496; NIBR MS107497) (He and Song, 2007; 2011)
- Rhizomnium magnifolium*** (Horik.) T.J.Kop. (Park, 1997; Lai *et al.*, 2007)  
 – *Rhizomnium perssonii* T.J.Kop. (Hwang, 1991)
- Rhizomnium nudum*** (R.S. Williams) T.J.Kop. (NIBR MS107205) (Choe and Choi, 1980)
- Rhizomnium parvulum*** (Mitt.) T.J.Kop.  
 – *Rhizomnium minutulum* (Besch.) T.J.Kop. (Hwang, 1991)
- Rhizomnium pseudopunctatum*** (Bruch & Schimp.) T.J. Kop. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
 – *Mnium subglobosum* Bruch & Schimp. (Okamura, 1916; Sasaoka, 1933; Horikawa, 1934a; Kashimura, 1939)  
 – *Mnium pseudopunctatum* Bruch & Schimp. (Kabiersch, 1936)
- Rhizomnium punctatum*** (Hedw.) T.J.Kop. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Mnium punctatum* Hedw. (Sasaoka, 1933; Horikawa, 1935a; Kashimura, 1939; Hong, 1960a; Hong and Ando, 1961; 1962; Park, 1997)  
 – *Mnium punctatum* var. *eupunctatum* Kab. (Kabiersch, 1936)
- Rhizomnium striatulum*** (Mitt.) T.J.Kop. (NIBRMS 106990; NIBRMS107040) (Choe and Choi, 1980; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Mnium striatulum* Mitt. (Kabiersch, 1936; Hong, 1960a; Hong and Ando, 1961; 1962)
- Rhizomnium tuomikoskii*** T.J.Kop. (NIBRMS107199; NIBRMS105948) (Hwang, 1991; He and Song, 2011)
- Trachycystis flagellaris*** (Sull. & Lesq.) Lindb. (NIBRMS 106855; NIBRMS106972; NIBRMS106267; NIBR MS106144) (Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*,

- 2011b)  
 - *Mnium flagellare* Sull. & Lesq. (Horikawa, 1936c; Kashimura, 1939; Uno and Takahasi, 1940; Hong and Ando, 1961)  
*Trachycystis microphylla* (Dozy & Molk.) Lindb. (NIBR MS106762; NIBRMS107074; NIBRMS106201; NIBRMS105930) (Kabiersch, 1936; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)  
 - *Rhizogonium microphyllum* (Dozy & Molk.) A. Jaeger (Cardot, 1904)  
 - *Mnium microphyllum* Dozy & Molk. (Horikawa, 1935a; Sasaoka, 1933; Kashimura, 1939; Hong, 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1962)  
*Trachycystis ussuriensis* (Maack & Regel) T.J. Kop. (NIBRMS106006; NIBRMS106007; NIBRMS106008) (Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 - *Mnium arcuatum* Broth. (Nakai, 1917; Horikawa, 1934a; Kashimura, 1939)  
 - *Mnium immarginatum* Broth. (Osada, 1958; Hong and Ando, 1961; Hong and Ando, 1962; Park, 1997)  
 - *Trachycystis immarginata* (Broth.) Laz. (Choe and Choi, 1980; Hwang, 1991)

#### Rhizogoniaceae Broth.

- Pyrrhobryum dozyanum* (Sande Lac.) Manuel (NIBR MS107084; NIBRMS105947) (He and Song, 2011)  
 - *Rhizogonium dozyanum* Sande Lac. (Choe and Choi, 1980)

#### Orthotrichaceae Dixon

- Amphidium clastophyllum* Cardot (Cardot, 1908; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1939; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
*Drummondia sinensis* Müll. Hal. (Hwang, 1991; Park, 1997; Ellis *et al.*, 2018a)  
*Macrocoma tenuis* subsp. *sullivantii* (Müll. Hal.) Vitt.  
 - *Macromitrium consanguineum* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)  
 - *Macromitrium hymenostomum* (Mont.) Grout. (Ando, 1961; Choe and Choi, 1980; Hwang, 1991)  
 - *Macromitrium sullivantii* Müll. Hal. (Hwang, 1991)  
*Macromitrium clastophyllum* Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Hong, 1960b; Choe and Choi, 1980; Hwang, 1991)  
*Macromitrium comatum* Mitt. (Uno and Takahasi, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)  
*Macromitrium ferriei* Cardot & Thér. (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)  
*Macromitrium gymnostomum* Sull. & Lesq. (NIBR

- MS106958) (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Osada, 1958; Hong, 1960b; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
*Macromitrium japonicum* Dozy & Molk. (NIBRMS 107201; NIBRMS106188) (Hong, 1960b; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)  
 - *Macromitrium bathyodontum* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Hong and Ando, 1961)  
 - *Macromitrium incurvum* (Lindb.) Mitt. (Sasaoka, 1933; Kashimura, 1940)  
 - *Macromitrium insularum* Sull. & Lesq. (Sasaoka, 1933; Kashimura, 1940)  
*Macromitrium japonicum* var. *makinoi* (Broth.) Nog.  
 - *Macromitrium makinoi* (Broth.) Paris (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Park and Hong, 1959; Hong, 1960a)  
*Macromitrium prolongatum* Mitt. (Cardot, 1909; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
 - *Macromitrium prolongatum* var. *brevipes* Cardot (Sasaoka, 1933; Kashimura, 1940)  
 - *Macromitrium brachycladulum* Broth. & Paris (Uno and Takahasi, 1940)  
*Macromitrium sinense* E.B. Bartram (Park, 1997)  
*Orthotrichum affine* Brid. (Hwang, 1991)  
*Orthotrichum anomalum* Hedw. (Deguchi *et al.*, 1998)  
*Orthotrichum consobrinum* Cardot (NIBRMS107154; NIBRMS107159; NIBRMS107218; NIBRMS107219) (Choe and Choi, 1980; Yoon *et al.*, 2011b)  
*Orthotrichum erubescens* Müll. Hal. (NIBRMS107237; NIBRMS107249)  
*Orthotrichum ibukiense* Toyama (Kim *et al.*, 2019)  
*Orthotrichum sordidum* Sull. & Lesq. (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)  
*Orthotrichum speciosum* Nees (Hwang, 1991; Park, 1997)  
*Orthotrichum striatum* Hedw. (Hwang, 1991)  
*Ulota crispa* (Hedw.) Brid. (NIBRMS106856; NIBRMS 105847) (Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
*Ulota eurystoma* Nog. (Hwang, 1991; Park, 1997)  
*Ulota japonica* (Sull. & Lesq.) Mitt. (Choe and Choi, 1980; Hwang, 1991)  
*Ulota perbreviseta* Dixon & Sakurai (Choe and Choi, 1980; Hwang, 1991)  
*Ulota reptans* Mitt. (Hwang, 1991)

#### Aulacomniaceae Schimp.

- Aulacomnium androgynum* (Hedw.) Schwägr. (Cardot, 1904; Hwang, 1991)  
*Aulacomnium heterostichum* (Hedw.) Bruch & Schimp.



(Cardot, 1904; Sasaoka, 1933; Kashimura, 1939; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Aulacomnium palustre* (Hedw.) Schwägr. (Saito, 1938; Kashimura, 1939; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Aulacomnium palustre* subsp. *imbricatum* (Bruch & Schimp.) Kindb. (Sakurai, 1941b; Hwang, 1991; Park, 1997)

*Aulacomnium turgidum* (Wahlenb.) Schwägr. (Okamura, 1916; Sasaoka, 1933; Saito, 1938; Horikawa, 1939; Kashimura, 1939; Sakurai, 1941b; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

#### Racopilaceae Kindb.

*Racopilum cuspidigerum* (Schwägr.) Ångstr.

– *Racopilum aristatum* Mitt. (Choe and Choi, 1980)

#### Hypopterygiaceae Mitt.

*Hypopterygium flavolimbatum* Müll.Hal. (He and Song, 2011)

– *Hypopterygium japonicum* Mitt. (Okamura, 1915; Nakai, 1917; Horikawa, 1934b; Sasaoka, 1933; Kashimura, 1940; Chung and Uhm, 1961; Choe and Choi, 1980; Hwang, 1991)

– *Hypopterygium fauriei* Besch. (Park, 1997)

#### Hookeriaceae M.Fleisch.

*Distichophyllum maibarae* Besch. (other use: *Leskeodon maibarae* (Besch.) B.-C. Ho & Pokorny) (NIBR MS107491; NIBRMS107492; NIBRMS107493) (Yoon *et al.*, 2015c)

*Hookeria acutifolia* Hook. & Grev. (NIBRMS107161; NIBRMS106281) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; Yoon *et al.*, 2011b)

– *Hookeria nipponensis* (Besch.) Broth. (Horikawa, 1936b; 1936c; Kashimura, 1940)

#### Amblystegiaceae Kindb.

*Acrocladium cuspidatum* var. *coreanum* Cardot (Cardot, 1913)

*Amblystegium humile* (P.Beauv.) Crundw.

– *Amblystegium pseudoradicale* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991)

*Amblystegium serpens* (Hedw.) Schimp. (NIBRMS 107342) (Saito, 1938; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

– *Amblystegium juratzkanum* Schimp. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991)

*Amblystegium subulatum* Cardot (Cardot, 1913)

*Campyliadelphus chrysophyllus* (Brid.) Kanda (NIBR MS107281; NIBRMS107340) (Yoon *et al.*, 2011b)

– *Campylium chrysophyllum* Brid. (Sasaoka, 1933; Saito,

1938; Kashimura, 1940; Osada, 1958; Hong, 1960a; Chung and Uhm, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Campyliadelphus polygamus* (Shmip.) Kanda (He and Song, 2011)

*Campylium chrysophyllum* var. *tenellum* (Schimp.) G. Roth (Saito, 1938; Kashimura, 1940; Choe and Choi, 1980)

*Campylium hispidulum* var. *coreense* (Card.) Broth. (Brotherus, 1909; Kashimura, 1940; Choe and Choi, 1980)

– *Hypnum hispidulum* var. *coreense* Cardot (Cardot, 1904; Sasaoka, 1933)

*Campylium rufochryseum* (Schimp. ex Besch.) Broth. (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)

– *Hypnum rufochryseum* Schimp. ex Besch. (Cardot, 1904)

*Campylium stellatum* (Hedw.) Lange & C.E.O.Jensen (Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

– *Hypnum setellatum* Hedw. (Cardot, 1904)

*Campylophyllopsis hispidula* (Brid.) Ochyra (NIBRMS 107302)

– *Campylium hispidulum* (Brid.) Mitt. (Sasaoka, 1933; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

*Cratoneuron filicinum* (Hedw.) Spruce (NIBRMS107259; NIBRMS107265; NIBRMS107295) (Osada, 1958; Hong, 1960a; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Drepanocladus aduncus* (Hedw.) Warnst. (Hwang, 1991)

*Drepanocladus sendtneri* (Schimp. ex H.Müll.) Warnst. (Hwang, 1991)

*Hygroamblystegium varium* var. *humile* (P.Beauv.) Vanderpoorten & Hedenäs

– *Leptodictyum humile* (P. Beauv.) Ochyra (He and Song, 2007)

*Hygrohypnum coreanum* Cardot (Cardot, 1913)

*Hygrohypnum eugyrium* (Schimp.) Loeske (other use: *Pseudohygrohypnum eugyrium* (Schimp.) Kanda (NIBRMS107303) (Hwang, 1991)

*Hygrohypnum luridum* (Hedw.) Jenn.

– *Hygrohypnum palustre* Loeske (Choe and Choi, 1980; Uno and Takahasi, 1940)

*Hygrohypnum molle* (Hedw.) Loeske

– *Hygrohypnum dilatatum* (wilson) Loeske (Choe and Choi, 1980; Hwang, 1991)

*Hygrohypnum ochraceum* (Wilson.) Loeske. (Sakurai, 1941b; Osada, 1958; Choe and Choi, 1980; Hwang, 1991)

*Hygrohypnum purpurascens* Broth. (NIBRMS106348)

*Leptodictyum riparium* (Hedw.) Warnst. (Hwang, 1991)

***Palustriella commutata*** (Hedw.) Ochyra

– *Cratoneuron commutatum* (Hedw.) G.Roth (Hwang, 1991)

***Palustriella falcata*** (Brid.) Hedenäs

– *Cratoneuron commutatum* var. *sulcatum* (Schimp.) Moenk. (Choe and Choi, 1980; Hwang, 1991)  
– *Cratoneuron glaucum* var. *sulcatum* (Schimp.) Broth. (Sakurai, 1941b)

***Platydictya subtilis*** (Hedw.) H.A.Crum (NIBRMS107472)***Pseudocampylium radicale*** (P. Beauv.) Vanderp. & Hedenäs

– *Campylium radicale* (P. Beauv.) Grout (He and Song, 2011)

***Sanionia uncinata*** (Hedw.) Loeske. (NIBRMS107353)

– *Drepanocladus uncinatus* (Hedw.) Warnst. (Okamura, 1916; Sasaoka, 1933; Kashimura, 1940; Osada, 1958; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
– *Drepanocladus uncinatus* fo. *longicuspis* Z.Smirn. (Hwang, 1991)

***Sasaokaea aomoriensis*** (Paris) Kanda (Yoon *et al.*, 2015b)**Anomodontaceae** Kindb.

***Anomodon abbreviatus*** Mitt. (NIBRMS107206; NIBRMS107212; NIBRMS105839) (Uno and Takahasi, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

***Anomodon dentatus*** C.Gao. (Park, 1997)

***Anomodon giraldii*** Müll.Hal. (Other use: *Pseudanomodon giraldii* (Müll.Hal.) Ignatov & Fedosov (NIBRMS107209; NIBRMS107253; NIBRMS106831; NIBRMS107136; NIBRMS105964) (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)

***Anomodon longifolius*** (Schleich. ex Brid.) Hartm. (other use: *Anomodontella longifolia* (Schleich. ex Brid.) Ignatov & Fedosov) (Park, 1997; He and Song, 2007; 2011)

***Anomodon minor*** (Hedw.) Lindb. (NIBRMS106827; NIBRMS106829; NIBRMS106876; NIBRMS106954; NIBRMS107080; NIBRMS107347; NIBRMS107285; NIBRMS107255; NIBRMS106347) (Cardot, 1904; Brotherus, 1909; Nakai, 1917; Sasaoka, 1933; Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998)

– *Anomodon ramulosus* Mitt. (Osada, 1958)

– *Anomodon integerrimus* Mitt. (Honag & Ando, 1961; Choe and Choi, 1980; Park, 1997)

***Anomodon rugelii*** (Müll.Hal.) Keissl. (other use: *Ano-*

*modontopsis rugelii* (Müll.Hal.) Ignatov & Fedosov) (NIBRMS107321) (Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

– *Anomodon apiculatus* Bruch & Schimp. ex Sull. (Reimers, 1930; Kashimura, 1940; Park and Hong, 1959)

– *Anomodon uematsui* Broth. (Hong and Ando, 1963)

***Anomodon solovjovii*** Laz. (Hwang, 1991; Yoon *et al.*, 2011b)

***Anomodon thraustus*** Müll.Hal. (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

***Anomodon viticulosus*** (Hedw.) Hook. & Taylor (NIBRMS107456; NIBRMS107457) (Choe and Choi, 1980; Hwang, 1991)

– *Anomodon decurrens* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)

***Haplohymenium longinerve*** (Broth.) Broth. (Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; Yoon *et al.*, 2011b)

– *Anomodon longinervis* Broth. (Cardot, 1904)

– *Haplohymenium biforme* Broth. (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)

– *Haplohymenium longinerve* fo. *piliferum* (Broth. & M. Yasuda) Nog. (Uno and Takahasi, 1940; Hong and Ando, 1961; 1963)

***Haplohymenium pseudo-triste*** (Müll.Hal.) Broth. (Other use: *Anomodon pseudotriste* (Müll.Hal.) Broth.) (NIBRMS107443; NIBRMS106306) (Choe and Choi, 1980; Hwang, 1991)

***Haplohymenium sieboldii*** (Dozy & Molk.) Dozy & Molk. (Other use: *Anomodon sieboldii* (Dozy & Molk.) Granzow (NIBRMS107151; NIBRMS107236; NIBRMS106198; NIBRMS105879) (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

***Haplohymenium triste*** (Ces.) Kindb. (NIBRMS106868) (Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Cardot, 1904; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

***Herpetineuron toccoae*** (Sull. & Lesq.) Cardot (NIBRMS107153; NIBRMS106813; NIBRMS106823; NIBRMS106108; NIBRMS106125; NIBRMS106126; NIBRMS106156; NIBRMS106162; NIBRMS106187; NIBRMS106337; NIBRMS105878) (Uno and Takahasi, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; Hong and Ando, 1961; 1963; Choe and Choi,

- 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)  
 – *Herpetineuron attenuatum* S.Okamura (Park and Hong, 1959)  
***Schwetschkeopsis fabronia*** (Schwäger.) Broth. (NIBR MS107147; NIBRMS107298; NIBRMS106793; NIBR MS106794; NIBRMS107066; NIBRMS106120; NIBR MS106121; NIBRMS106132; NIBRMS106164 NIBR MS105838) (Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Schwetschkea denticulata* (Sull.) Cardot (Cardot, 1904; Sasaoka, 1933; Saito, 1938)  
 – *Schwetschkea japonica* Besch. (Brotherus, 1909; Kashimura, 1940; Sasaoka, 1933)  
 – *Schwetschkeopsis japonica* (Besch.) Broth. (Park and Hong, 1959)  
 – *Schwetschkeopsis denticulata* (Sull.) Broth. (Hong, 1960a; Hong and Ando, 1961; 1963)  
 – *Schwetschkeopsis denticulata* subsp. *japonica* (Besch.) Z.Iwats. (Chung and Uhm, 1961)  
***Schwetschkeopsis robustula*** (Broth.) Ando (Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

#### Brachytheciaceae Schimp.

- Brachythecium albicans*** (Hedw.) Schimp. (Hwang, 1991; Park, 1997)  
***Brachythecium brotheri*** Paris (NIBRMS107221) (other use: *Sciuro-hypnum brotheri* (Paris) Ignatov and Huttunen) (Hong and Ando, 1963; Choe and Choi, 1980; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2011; Yoon *et al.*, 2011b)  
***Brachythecium buchananii*** (Hook.) A.Jaeger (NIBR MS106750; NIBRMS107068; NIBRMS107104; NIBRMS105955) (Sasaoka, 1933; Uno and Takahasi, 1940; Osada, 1958; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)  
 – *Brachythecium buchananii* var. *japonicum* Cardot (Cardot, 1911; Kashimura, 1940)  
***Brachythecium buchananii* var. *gracillimum*** Dixon (TNS 055351)  
***Brachythecium buchananii* var. *sawadae*** (Cardot) Takaki (Hong and Ando, 1962; Choe and Choi, 1980; He and Song, 2011)  
 – *Brachythecium sawadae* Cardot (Cardot, 1911; Sasaoka, 1933; Hwang, 1991)  
***Brachythecium camptothecioides*** Takaki (NIBRMS 107339)  
***Brachythecium cirrosum*** (Schwäger.) Schimp. (other use: *Cirriphyllum cirrosum* (Schwäger.) Grout) (Park, 1997; as *Cirriphyllum cirrosum*)  
***Brachythecium coreanum*** Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)  
***Brachythecium garovaglioides*** Müll.Hal.  
 – *Brachythecium wichurae* (Broth.) Paris (Choe and Choi, 1980)  
***Brachythecium glareosum*** (Bruch & Spruce) Schimp. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
***Brachythecium helminthocladum*** Broth. & Paris (NIBR MS107351; NIBRMS107292; NIBRMS105963) (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011)  
 – *Brachythecium laxitextum* Broth. (Cardot, 1911; Sasaoka, 1933)  
***Brachythecium kuroishicum*** Besch. (Hwang, 1991)  
***Brachythecium moriense*** Besch. (NIBRMS107273) (Choe and Choi, 1980; Yoon *et al.*, 2011b)  
***Brachythecium nitidulum*** (Broth.) Nog. (NIBRMS 107349)  
***Brachythecium novae-angliae*** (Sull. & Lesq.) A.Jaeger (NIBRMS107173; NIBRMS107313; NIBRMS106111)  
 – *Bryhnia novae-angliae* (Sull. & Lesq.) Grout (Osada, 1958; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b)  
 – *Bryhnia noesica* (Besch.) Broth. (Park and Hong, 1959; Hong, 1960a; Choe and Choi, 1980; Park, 1997)  
***Brachythecium novae-angliae* subsp. *hultenii*** (E.B. Bartram) Huttunen  
 – *Bryhnia hultenii* E.B.Bartram (Osada, 1958; Hwang, 1991; He and Song, 2011)  
***Brachythecium piligerum*** Cardot (Deguchi *et al.*, 1998)  
***Brachythecium plumosum*** (Hedw.) Schimp. (other use: *Sciuro-hypnum plumosum* (Hedw.) Ignatov & Huttunen) (NIBRMS107192; NIBRMS107217; NIBR MS106142; NIBRMS106310; NIBRMS106185; NIBR MS105837; NIBRMS107422; NIBRMS107423; NIBR MS107424) (Cardot, 1904; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)  
 – *Brachythecium flagellare* (Hedw.) Jenn. (Osada, 1958; Hong, 1960a; Hong and Ando, 1961; 1963)  
***Brachythecium plumosum* var. *mimmayae*** Cardot (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)  
***Brachythecium plumosum* var. *stenocarpum*** Cardot (Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1962; Choe and Choi, 1980)  
***Brachythecium populeum*** (Hedw.) Schimp. (NIBRMS 106170) (Cardot, 1904; Okamura, 1915; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et*

- al.*, 2013)
- *Brachythecium quelpaertense* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)
- *Brachythecium populeum* var. *quelpaertense* (Cardot) Takaki (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991)
- *Brachythecium populeum* var. *yamamotoi* (Sakurai) Takaki (Park, 1997)
- Brachythecium procumbens*** (Mitt.) A. Jaeger (Kashimura, 1940; Sasaoka, 1933; Choe and Choi, 1980; Hwang, 1991)
- Brachythecium pulchellum*** Broth. & Paris (He and Song, 2011)
- *Brachythecium rhynchostegielloides* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991)
- Brachythecium reflexum*** (Starke) Schimp. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Brachythecium rivulare*** Schimp. (NIBRMS107251; NIBRMS107256; NIBRMS107318) (Sasaoka, 1933; Uno and Takahasi, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- Brachythecium rutabulum*** (Hedw.) Schimp. (Park, 1997; Yoon *et al.*, 2011b)
- Brachythecium sakuraii*** Broth. (He and Song, 2011)
- Brachythecium salebrosum*** (Hoffm. ex F. Weber & D. Mohr) Schimp. (Hong and Ando, 1963; Choe and Choi, 1980; He and Song, 2011; Yim *et al.*, 2013)
- Brachythecium trichomitrium*** (Dixon & Thér.) Huttunen, Ignatov, Min Li & Y.F. Wang
- *Bryhnia trichomitria* Dixon. & Thér. (Choe and Choi, 1980)
- Brachythecium uncinifolium*** Broth. & Paris (other use: *Siuro-hypnum uncinifolium* (Broth. & Paris) Ochyra & Żarnowiec) (Choe and Choi, 1980)
- Brachythecium uyematsui*** Broth. ex Cardot
- *Brachythecium uematsui* Broth. (He and Song, 2011)
- Brachythecium velutinum*** (Hedw.) Schimp. (Deguchi *et al.*, 1998)
- Bryhnia alpicola*** Sakurai (Sakurai, 1941b; Hwang, 1991)
- Bryhnia brachycladula*** Cardot (Choe and Choi, 1980)
- Bryhnia hultenii* var. *cymbifolia*** Nog. (NIBRMS107325) (Choe and Choi, 1980; Hwang, 1991)
- Bryhnia tenerrima*** Broth. & Yasuda (other use: *Koponeniella tenerrima* (Broth. & Yasuda) Huttunen & Ignatov) (Hong & Ando, 1963; Choe and Choi, 1980; He and Song, 2011)
- *Bryhnia rigidula* Dixon & Thér. (Choe and Choi, 1980)
- Bryhnia tokubuchii*** (Broth.) Paris (He and Song, 2007; 2011)
- *Eurhynchium deltophyllum* Cardot (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940)
- *Bryhnia deltophylla* (Cardot) Takaki (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991)
- Cirriphyllum crassinervium*** (Taylor ex Wilson) Loeske & M. Fleisch. (Hwang, 1991)
- Cirriphyllum piliferum*** (Hedw.) Grout. (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- Eurhynchium angustirete*** (Broth.) T.J. Kop. (Yoon *et al.*, 2011b)
- *Eurhynchium striatum* (Hedw.) Schimp. (Choe and Choi, 1980; Hwang, 1991)
- Eurhynchium brachyphyllum*** (Cardot) B.E. Carter
- *Scleropodium brachyphyllum* Cardot (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Eurhynchium eustegium*** (Besch.) Dixon (other use: *Eurhynchiadelphus eustegia* (Besch.) Ignatov & Huttunen) (NIBRMS107385) (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007)
- Eurhynchium latifolium*** Cardot (other use: *Oxyrrhynchium latifolium* (Cardot) Podp.) (Cardot, 1904; Cardot, 1912; Sasaoka, 1933; Kashimura, 1940; Hwang, 1991)
- Eurhynchium laxirete*** Broth. (other use: *Oxyrrhynchium laxirete* (Broth.) Broth. (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007)
- Eurhynchium pulchellum*** (Hedw.) Jenn. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Homalothecium laevisetum*** Sande Lac. (NIBRMS106037; NIBRMS107157; NIBRMS107267) (Sasaoka, 1933; Kashimura, 1940; Chung and Uhm, 1961; Hong and Ando, 1963; Hwang, 1991; He and Song, 2011)
- *Homalothecium laevisetum* var. *latifolium* Cardot (Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)
- *Homalothecium tokiadense* (Mitt.) Besch. (Cardot, 1904; Reimers, 1930; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940)
- Homalothecium lutescens*** (Hedw.) H. Rob.
- *Brachythecium lutescens* (Hedw.) De Not. (Park, 1997)
- Isothecium hakkodense*** Besch. (Yoon and Sun, 2010)
- Isothecium subdiversiforme*** Broth. (NIBRMS 105935; NIBRMS106799; NIBRMS105925) (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Yoon *et al.*, 2011b)
- Kindbergia arbuscula*** (Broth.) Ochyra (NIBRMS107414)
- *Eurhynchium arbuscula* Broth. (Yoon *et al.*, 2015b)
- Kindbergia praelonga*** (Hedw.) Ochyra
- *Eurhynchium praelongum* (Hedw.) Schimp. (Cardot, 1904; Choe and Choi, 1980; Hwang, 1991)
- *Oxyrrhynchium praelongum* (Hedw.) Warnst. (Sasaoka, 1933; Kashimura, 1940)

- Myuroclada maximowiczii*** (G.G.Borshch.) Steere & W.B.Schofield (NIBRMS107274; NIBRMS107244; NIBRMS107293) (Chung and Uhm, 1961; Hong, 1960a; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007; Yoon *et al.*, 2011b)
- *Myuroclada concinna* Besch. (Brotherus, 1909; Okamura, 1916; Nakai, 1917; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Hong, 1960a; 1960b)
  - *Myuroclada concinna* var. *gracilis* Cardot (Cardot, 1911; Kashimura, 1940; Sasaoka, 1933)
  - *Myuroclada maximowiczii* var. *gracilis* (Cardot) Nog. ex W.S.Hong & Ando (Hong, 1959; Choe and Choi, 1980; Hwang, 1991)
- Oxyrrhynchium corrense*** (Cardot) B.E.Carter
- Scleropodium coreense* Cardot (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991)
- Oxyrrhynchium hians*** (Hedw.) Loeske (NIBRMS105904; NIBRMS107404; NIBRMS107420; NIBRMS107294; NIBRMS105882) (Yoon *et al.*, 2011b)
- *Eurhynchium hians* (Hedw.) Sande Lac. (Choe and Choi, 1980)
- Oxyrrhynchium savatieri*** (Shimp. ex. Besch.) Broth. (NIBRMS106298; NIBRMS106163; NIBRMS105922; NIBRMS107382; NIBRMS107383; NIBRMS107386; NIBRMS107399; NIBRMS107400; NIBRMS107401) (He and Song, 2007; Yim *et al.*, 2013)
- *Eurhynchium fauriei* Cardot (Hong and Ando, 1963; Choe and Choi, 1980)
  - *Eurhynchium savatieri* Schimp. ex Besch. (Deguchi *et al.*, 1998; He and Song, 2011)
- Palamocladium leskeoides*** (Hedw.) E.Britton. (He and Song, 2011)
- *Brachythecium brevirameum* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)
  - *Camptothecium auriculatum* (A.Jaeger) Broth. (Sasaoka, 1933; Kashimura, 1940; Hwang, 1991)
  - *Pleuropus sciureus* (Mitt.) Toyama (Hong and Ando, 1963)
  - *Brachythecium auriculatum* A.Jaeger (Choe and Choi, 1980)
  - *Palamocladium macrostegium* (Sull. & Lesq.) Z.Iwats. & Takaki (Choe and Choi, 1980; Hwang, 1991)
- Platyhypnidium riparioides* var. *coreanum*** (Cardot) Wijk & Margad.
- *Rhynchostegium rusciforme* var. *coreanum* Cardot (Cardot, 1912)
  - *Platyhypnidium rusciforme* var. *coreanum* (Cardot) Ihsiba (Sasaoka, 1933; Kashimura, 1940)
  - *Eurhynchium riparioides* var. *coreanum* (Cardot) W.S. Hong & Ando (Hong & Ando, 1959; Choe and Choi, 1980)
- Rhynchostegium contractum*** Cardot (NIBRMS106257; NIBRMS106128; NIBRMS106266) (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011)
- Rhynchostegium fauriei*** Cardot (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- Rhynchostegium inclinatum*** (Mitt.) A.Jaeger (He and Song, 2007; 2011)
- Rhynchostegium ovalifolium*** S. Okamura (NIBRMS107357-b)
- Rhynchostegium pallidifolium*** (Mitt.) A.Jaeger (NIBRMS106755; NIBRMS106851; NIBRMS106857; NIBRMS106962; NIBRMS107110; NIBRMS105932) (Park and Hong, 1959; Hong, 1960a; Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- Rhynchostegium pallidius*** (Hampe) A.Jaeger (Hong, 1960a)
- Steerecleus serrulatus*** (Hedw.) H. Rob.
- *Brachythecium serrulatum* (Hedw.) H.Rob. (Choe and Choi, 1980; Hwang, 1991)
- Torrentaria riparioides*** (Hedw.) Ochyra (NIBRMS105942; NIBRMS107247; NIBRMS107262; NIBRMS107264; NIBRMS106814)
- *Rhynchostegium tenuinerve* Cardot (Cardot, 1912; Hong and Ando, 1963)
  - *Platyhypnidium rusciforme* M.Fleisch. (Sasaoka, 1933; Hong, 1960a)
  - *Platyhypnidium tenuinerve* (Cardot) Broth. (Sasaoka, 1933; Kashimura, 1940)
  - *Eurhynchium riparioides* (Hedw.) P.W.Richards (Hong, 1960a; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991)
  - *Eurhynchium tenuinerve* (Cardot) Z.Iwats. (Choe and Choi, 1980)
  - *Platyhypnum riparioides* (Hedw.) Dixon (Deguchi *et al.*, 1998)
  - *Rhynchostegium riparioides* (Hedw.) Cardot (He and Song, 2007; 2011; Yoon *et al.*, 2011b)
- Calliergonaceae** Vanderpoorten, Hedenäs, C.J.Cox & A.J.Shaw
- Calliergon cordifolium*** (Hedw.) Kindb. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Scorpidium revolvens*** (Sw.) Rubers
- *Drepanocladus revolvens* (Sw.) Warnst. (Hwang, 1991; Park, 1997)
- Scorpidium cossonii*** (Schimp.) Hadenäs
- *Drepanocladus revolvens* var. *cossonii* (Schimp.) Podp. (Hwang, 1991)
- Warnstorfia fluitans*** (Hedw.) Loeske.

- *Drepanocladus fluitans* (Hedw.) Warnst. (Saito, 1938; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991)

#### Climaciaceae Kindb.

*Climacium americanum* Brid. (Hoirkawa, 1935d; Kashimura, 1940; Osada, 1958; Chung and Uhm, 1961; Choe and Choi, 1980; Park, 1997)

*Climacium dendroides* (Hedw.) F. Weber & D. Mohr (Uno and Takahasi, 1940; Osada, 1958; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yim *et al.*, 2013)

*Climacium japonicum* Lindb. (NIBRMS107328; NIBRMS107329; NIBRMS106841; NIBRMS106145; NIBRMS106195) (Cardot, 1904; Okamura, 1915; 1916; Nakai, 1917; Sasaoka, 1933; Horikawa, 1936c; Saito, 1938; Kashimura, 1940; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)

*Pleuroziopsis ruthenica* (Weinm.) Kindb. ex E. Britton (Okamura, 1916; Nakai, 1917; Reimers, 1930; Sasaoka, 1933; Kashimura, 1940; Sakurai, 1941b; Osada, 1958; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)

#### Cryphaeaceae Schimp.

*Pilotrichopsis dentata* (Mitt.) Besch. (Ellis *et al.*, 2014)

#### Entodontaceae Kindb.

*Entodon aeruginosus* Müll.Hal. (Park, 1997)

*Entodon brevisetus* (Hook. & Wilson) Lindb. (Hong and Ando, 1963; He and Song, 2011)

*Entodon calycinus* Cardot (NIBRMS107152; NIBRMS106738; NIBRMS106834; NIBRMS106835; NIBRMS106836; NIBRMS106874; NIBRMS107060; NIBRMS105877) (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

- *Platygyrium perichaetiale* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)

**Comment:** Mizushima (1960) regarded this species as a synonym of *E. brevisetus*, whereas Buck (1980) recognized these two as each independent species. This study accepts Buck's concept.

*Entodon challengerii* (Paris.) Cardot (NIBRMS107248; NIBRMS106751; NIBRMS107102; NIBRMS106190) (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Park and Hong, 1959; Hong, 1960a; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

*Entodon compressus* (Hedw.) Müll.Hal. (Cardot, 1904; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Hong and Ando, 1961)

- *Entodon nanocarpus* Müll.Hal. (Hwang, 1991)

*Entodon cladorrhizans* (Hedw.) Müll.Hal. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Entodon conchophyllus* Cardot (Hwang, 1991; Park, 1997)

*Entodon concinnus* (De Not.) Paris (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

- *Achrolepis concinna* (Wilson) Cardot (Cardot, 1904)

- *Entodon fauriei* Broth. & Paris (Hong and Ando, 1961)

*Entodon diffusinervis* Cardot (Cardot, 1913)

*Entodon diversinervis* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)

*Entodon flavescens* (Hook.) A. Jaeger (NIBRMS107210; NIBRMS106743; NIBRMS106950; NIBRMS107072) (He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

- *Entodon ramulosus* Mitt. (Cardot, 1904; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Hong, 1960a)

- *Entodon griffithii* (Mitt.) A. Jaeger (Chung and Uhm, 1961)

- *Entodon rubicundus* (Mitt.) A. Jaeger (Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hu Renliang, 1983; Hwang, 1991; Park, 1997)

*Entodon giraldii* Müll.Hal. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

*Entodon luridus* (Griff.) A. Jaeger. (NIBRMS107305) (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

- *Entodon robustus* Broth. (Osada, 1958; Hwang, 1991)

*Entodon macropodus* (Hedw.) Müll.Hal. (Hwang, 1991; Park, 1997)

- *Entodon angustifolius* (Mitt.) A. Jaeger (Park, 1997)

*Entodon morrisonensis* Nog. (NIBRMS107355)

*Entodon myurus* (Hook.) Hampe. (Cardot, 1904; Broth. 1909; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)

*Entodon rostrifolius* var. *coreense* Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)

*Entodon scabridens* Lindb. (NIBRMS106124; NIBRMS106194; NIBRMS105849) (Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)

*Entodon schensianus* Müll.Hal. (Choe and Choi, 1980; Hwang, 1991)

- *Entodon rostrifolius* Müll.Hal. (Osada, 1958)

*Entodon schensianus* var. *denticupis* Dixon (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)

*Entodon sullivanii* (Müll.Hal.) Lindb. (NIBRMS107150; NIBRMS107181; NIBRMS107246; NIBRMS107284; NIBRMS107323; NIBRMS106718; NIBRMS106830; NIBRMS106872; NIBRMS106109; NIBRMS106159; NIBRMS106165; NIBRMS106311; NIBRMS105909) (Choe and Choi, 1980; Hwang, 1991; He

- and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)  
 – *Entodon chloroticus* Besch. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940)  
 – *Entodon curvatirameus* Cardot (Cardot, 1911)  
 – *Entodon herbaceus* Besch. (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940)  
 – *Entodon rostrifolius* Müll.Hal. (Cardot, 1911; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)  
 – *Entodon attenuatus* Mitt. (Osada, 1958; Park, 1997)  
***Entodon viridulus*** Cardot (NIBRMS107338) (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

#### Fabroniaceae Schimp.

- Anacamptodon fortunei*** Mitt. (Choe and Choi, 1980; Hwang, 1991)  
***Anacamptodon latidens*** (Besch.) Broth. (Hwang, 1991; Park, 1997)  
***Fabronia ciliaris*** (Brid.) Brid. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
***Fabronia matsumurae*** Besch. (NIBRMS107300; NIBRMS106357) (Deguchi *et al.*, 1998)  
***Schwetschkea matsumurae*** Besch. (Deguchi *et al.*, 1998)

#### Fontinalaceae Hedw.

- Fontinalis antipyretica*** Hedw. (Choe and Choi, 1980; Hwang, 1991)  
***Fontinalis antipyretica* var. *gracilis*** (Lindb.) Schimp.  
 – *Fontinalis perfida* Lindb. (Kashimura, 1940; Cardot, 1909; Sasaoka, 1933)  
***Fontinalis hypnoides*** Hartm. (Hwang, 1991)  
***Fontinalis squamosa*** Hedw. (Hwang, 1991)

#### Hylocomiaceae M.Fleisch.

- Hylocomiastrum himalayanum*** (Mitt.) Broth. (Sasaoka, 1933; Horikawa, 1935a; Kashimura, 1940; He and Song, 2011)  
 – *Hylocomium himalayanum* (Mitt.) A.Jaeger (Okamura, 1915; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)  
***Hylocomiastrum pyrenaicum*** (Spruce) M.Fleisch. ex Broth. (NIBRMS106719) (Reimers, 1930; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1961; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Hylocomium pyrenaicum* (Spruce) Lindb. (Okamura, 1916; Chung and Uhm, 1961; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997)  
***Hylocomiastrum umbratum*** (Hedw.) M.Fleisch. ex Broth.  
 – *Hylocomium umbratum* (Hedw.) Schimp. (Uno and Takahasi, 1940; Hong and Ando, 1961; Choe and Choi,

- 1980; Hwang, 1991; Park, 1997)  
***Hylocomium splendens*** (Hedw.) Schimp. (Okamura, 1916; Nakai, 1917; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Hylocomium proliferum* (Brid.) Lindb. (Sasaoka, 1933; Horikawa, 1935b; Kashimura, 1940; Sakurai, 1941b; Osada, 1958)  
 – *Hylocomium alaskanum* (Lesq. & James) Austin (Park, 1997)  
***Hylocomiadelphus triquetrus*** (Hedw.) Ochyra & Stebel  
 – *Rhytidiadelphus triquetrus* (Hedw.) Warnst. (Okamura, 1916; Nakai, 1917; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Hong and Ando, 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; He and Song, 2011)  
***Loeskeobryum brevirostre*** (Brid.) M.Fleisch. (Horikawa, 1935a; Kashimura, 1940; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Hylocomium brevirostre* (Brid.) Schimp. (Hong and Ando, 1961; 1963; Hwang, 1991)  
***Loeskeobryum cavifolium*** (Sande Lac.) M.Fleisch. ex Broth. (NIBRMS107490) (He and Song, 2011)  
 – *Hylocomium brevirostre* var. *cavifolium* (Sande Lac.) Nog. (Hong and Ando, 1963; Choe and Choi, 1980; Song, 1987)  
***Pleurozium schreberi*** (Brid.) Mitt. (Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Hong and Ando, 1961; Choe and Choi, 1980; Song, 1987; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Hypnum schreberi* Willd. ex Brid. (Okamura, 1915; 1916)  
 – *Calliergonella schreberi* (Willd. ex Brid.) Grout (Hong and Ando, 1963)  
***Rhytidiadelphus japonicus*** (Reimers) T.J.Kop. (NIBRMS107330; NIBRMS106842; NIBRMS107090) (Hwang, 1991; He and Song, 2011)  
***Rhytidiadelphus squarrosus*** (Hedw.) Warnst. (Okamura, 1916; Sasaoka, 1933; Kashimura, 1940)  
 – *Rhytidiadelphus calvescens* (Lindb.) Broth. (Okamura, 1916; Sasaoka, 1933; Kashimura, 1940; Sakurai, 1941b; Osada, 1958; Hong, 1960a; Hong and Ando, 1963)  
 – *Rhytidiadelphus subpinatus* (Lindb.) T.J. Kop. (Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)  
***Rhytidium rugosum*** (Hedw.) Kindb. (Okamura, 1915; 1916; Nakai, 1917; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

#### Hypnaceae Schimp.

- Breidleria erectiuscula*** (Sull. & Lesq.) Hedenäs (NIBRMS107092) (He and Song, 2011)

- *Hypnum homaliaceum* (Besch.) Ando (Hong and Ando, 1963)
- Callicladium haldaneanum*** (Grev.) H.A.Crum. (NIBRM S107216; NIBRMS107231; NIBRMS107319) (Choe and Choi, 1980; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- *Stereodon haldaneanus* (Grev.) Lindb. ex Broth. (Okamura, 1915; Nakai, 1917)
- *Heterophyllum haldaneanum* (Grev.) M.Fleisch. (Reimers, 1930; Sasaoka, 1933; Kashimura, 1940; Osada, 1958; Song, 1987; Hwang, 1991; Park, 1997)
- Calliergonella cuspidate*** (Hedw.) Loeske (Saito, 1938; Kashimura, 1940; Sakurai, 1941b; Choe and Choi, 1980)
- Calliergonella lindbergii*** (Mitt.) Hedenäs (NIBRMS106970; NIBRMS105860) (Hong and Ando, 1963; He and Song, 2011; Yoon *et al.*, 2011b)
- *Hypnum arcuatum* Lindb. (Cardot, 1904)
- *Breidleria arcuata* (Molendo) Loeske (Sasaoka, 1933; Kashimura, 1940)
- *Hypnum lindbergii* Mitt. (Choe and Choi, 1980; Hwang, 1991)
- Ctenidium capillifolium*** (Mitt.) Broth. (NIBRMS107183; NIBRMS107185; NIBRMS107215; NIBRMS106754) (Hong, 1960b; Chung and Uhm, 1961; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- *Ctenidium brevipes* Broth. (Choe and Choi, 1980)
- Ctenidium hastile*** (Mitt.) Lindb. (NIBRMS106994) (Okamura, 1915; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yim *et al.*, 2013)
- Ctenidium molluscum*** (Hedw.) Mitt. (Hwang, 1991; He and Song, 2011)
- Ectropothecium zollingeri*** (Müll.Hal.) A.Jaeger (NIBRMS107465)
- Eurohypnum leptothallum*** (Paris) Ando (NIBRMS107129; NIBRMS107137; NIBRMS106222; NIBRMS106300) (Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991)
- *Erythrodonium leptothallum* (Paris) Nog. (Osada, 1958)
- *Homomallium leptothallum* (Müll.Hal.) Nog. (Park, 1997)
- Giraldiella levieri*** Müll.Hal. (Hwang, 1991)
- Gollania neckerella*** (Müll.Hal.) Broth. (Hwang, 1991)
- Gollania ruginosa*** (Mitt.) Broth. (NIBRMS107235; NIBRMS107263; NIBRMS107270; NIBRMS107288; NIBRMS107307; NIBRMS107322) (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)
- *Hylocomium neckerella* var. *coreense* Cardot (Cardot, 1904)
- *Gollania neckera* var. *coreensis* (Cardot) Broth. (Brotherus, 1909; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980)
- *Gollania longibracteata* Dixon (Kashimura, 1940; Sasaoka, 1933)
- Gollania varians*** (Mitt.) Broth. (Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Herzogiella perrobusta*** (Broth. ex Cardot) Z. Iwats. (NIBRMS106214) (Choe and Choi, 1980; Hwang, 1991)
- *Dolichotheca perrobusta* (Broth. ex Cardot) Broth. (Hong, 1960a)
- Herzogiella turfacea*** (Lindb.) Z.Iwats. (NIBRMS106053) (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011; Yoon *et al.*, 2011b)
- *Isopterygium turfaceum* (Lindb.) Lindb. (Sasaoka, 1933; Kashimura, 1940)
- Homomallium connexum*** (Card.) Broth. (NIBRMS107156; NIBRMS107289; NIBRMS106167; NIBRMS107346) (Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940; Hong, 1960a; Chung and Uhm, 1961; Choe and Choi, 1980; Hwang, 1991)
- *Amblystegium connexum* Cardot (Cardot, 1904)
- Homomallium incurvatum*** (Schrad. ex Brid.) Loeske (NIBRMS107245; NIBRMS107250; NIBRMS107258; NIBRMS107269) (Hwang, 1991)
- Homomallium japonico-adnatum*** (Broth.) Broth. (NIBRMS106117; NIBRMS107010) (Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)
- Hypnum calcicola*** Ando (NIBRMS107447; NIBRMS107448) (Hwang, 1991; Tanaka *et al.*, 2001)
- Hypnum cupressiforme*** Hedw. (NIBRMS107457; NIBRMS107459) (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Hypnum densirameum*** Ando (NIBRMS107356) (Choe and Choi, 1980)
- Hypnum dieckii*** Renauld & Cardot (Choe and Choi, 1980)
- *Stereodon dieckii* (Renauld & Cardot) Broth. (Yoon *et al.*, 2011b)
- Hypnum fauriei*** Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; He and Song, 2011)
- *Stereodon fauriei* (Cardot) Broth. (Brotherus, 1909)
- Hypnum fujiyamae*** (Broth.) Paris (Saito, 1938; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)
- Hypnum hamulosum*** Schimp. (Hong and Ando, 1961; 1963; Hwang, 1991; Park, 1997; He and Song, 2011)
- Hypnum oldhamii*** (Mitt.) A.Jaeger (other use: ***Calohypnum oldhamii*** (Mitt.) Jan Kucera & Ignatov) (NIBRMS107234; NIBRMS106723; NIBRMS106765; NIBRMS107032; NIBRMS107098) (Sasaoka, 1933; Kashimura, 1940; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)



- Hypnum pallescens* (Hedw.) P.Beauv. (Kashimura, 1940; Choe and Choi, 1980; Park, 1997)  
 – *Hypnum reptile* Michx. (Cardot, 1904; Sasaoka, 1933; Hwang, 1991)
- Hypnum plicatum* (Lindb.) A.Jaeger (Reimers, 1930; Kashimura, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Song, 1987; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)
- Hypnum plumiforme* Wilson. (NIBRMS107146; NIBRMS107182; NIBRMS106782; NIBRMS106948; NIBRMS106978; NIBRMS107004; NIBRMS107056; NIBRMS107086; NIBRMS106093; NIBRMS106154; NIBRMS106200; NIBRMS105871; NIBRMS106690) (Cardot, 1904; Sasaoka, 1933; Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yim *et al.*, 2013)  
 – *Stereodon ctenium* (Schimp. ex Besch.) Broth. (Okamura, 1915)  
 – *Stereodon plumiformis* (Wilson) Mitt. (Nakai, 1917; Yoon *et al.*, 2011b)  
 – *Hypnum ctenium* Schimp. ex Besch. (Sasaoka, 1933; Kashimura, 1940)
- Hypnum plumiforme* var. *minus* Broth. ex Ihsiba (Osada, 1958)
- Hypnum pratense* W.D.J. Koch ex Spruce (Choe and Choi, 1980; Hwang, 1991)  
 – *Breidleria pratensis* (W.D.J.Koch ex Spruce) Loeske (Saito, 1938; Kashimura, 1940; Osada, 1958)
- Hypnum sakurarii* (Sakurai) Ando (NIBRMS107431) (Choe and Choi, 1980; Hwang, 1991; Yim *et al.*, 2013)  
 – *Hypnum sakurarii* var. *venustum* Ando (Hong & Ando, 1961)  
 – *Stereodon sakurarii* (Sakurai) Broth. (Yoon *et al.*, 2011b)
- Hypnum subimponens* Lesq. (Hwang, 1991)
- Hypnum subimponens* subsp. *ulophyllum* (Paris) Ando (Choe and Choi, 1980)
- Isopterygium albescens* (Hook.) A.Jaeger (NIBRMS 105918; NIBRMS105957; NIBRMS106772)
- Isopterygium minutirameum* (Müll.Hal.) A.Jaeger (NIBRMS107171; NIBRMS106760; NIBRMS106182; NIBRMS105958) (Yim *et al.*, 2013)
- Platygyrium repens* (Britt.) Schimp. (NIBRMS107449) (Reimers, 1930; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)
- Pseudohygrohypnum fertile* (Sendtn.) Jan Kucera & Ignatov  
 – *Stereodon fertilis* (Sendtn.) Lindb. (Okamura, 1916)  
 – *Hypnum fertile* Sendtn. (Sasaoka, 1933; Kashimura, 1940; Hwang, 1991; Park, 1997)
- Pseudotaxiphyllum densum* (Cardot) Z.Iwats. (NIBRMS 107350)
- Pseudotaxiphyllum elegans* (Brid.) Z.Iwats.  
 – *Isopterygium elegans* (Brid.) Lindb. (Hwang, 1991)
- Pseudotaxiphyllum pohliaecarpum* (Sull. & Lesq.) Z.Iwats. (NIBRMS107162; NIBRMS106790; NIBRMS106865; NIBRMS107114; NIBRMS106131; NIBRMS106203; NIBRMS105897; NIBRMS106691) (He and Song, 2011; Yim *et al.*, 2013)  
 – *Isopterygium neckeroides* Cardot (Cardot, 1912)  
 – *Isopterygium pohliaecarpum* (Sull. & Lesq.) A.Jaeger (Choe and Choi, 1980)
- Ptilium crista-castrensis* (Hedw.) De Not. (Horikawa, 1935a; 1935d; 1939; Saito, 1938; Kashimura, 1940; Sakurai, 1941b; Osada, 1958; Hong and Ando, 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; He and Song, 2011)
- Pylaisia subcircinata* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Park, 1997)  
 – *Pylaisiella subcircinata* (Cardot) Z.Iwats. & Nog. (Choe and Choi, 1980; Hwang, 1991)
- Pylaisia brotheri* Besch. (NIBRMS107238; NIBRMS 107239; NIBRMS107282) (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940; Hong, 1960a; Choe and Choi, 1980; Yoon *et al.*, 2011b)  
 – *Pylaisiella brotheri* (Besch.) Z.Iwats. & Nog. (Hwang, 1991)
- Pylaisia condensata* (Mitt.) A.Jaeger  
 – *Pylaisia selwynii* Kindb. (Yoon *et al.*, 2015c)
- Pylaisia cristata* Cardot (NIBRMS107432) (He and Song, 2011; Yoon *et al.*, 2011b)  
 – *Pylaisiella cristata* (Cardot) Z.Iwats. & Nog. (Choe and Choi, 1980; Hwang, 1991)
- Pylaisia intricata* Hedw. (Park, 1997; Yoon *et al.*, 2011b)  
 – *Pylaisiella intricata* (Hedw.) Grout (Choe and Choi, 1980; Hwang, 1991)
- Pylaisia polyantha* (Hedw.) Schimp. (Hwang, 1991; Park, 1997)  
 – *Pylaisia coreana* Nog. (Noguchi, 1954)  
 – *Pylaisiella coreana* (Nog.) Nog. (Choe and Choi, 1980; Hwang, 1991)
- Pylaisia stereodontoides* Broth. & Yasuda ex Ihsiba (NIBRMS107473; NIBRMS107474)  
 – *Pylaisia cardotii* Toyama (Toyama, 1938)
- Roaldia revoluta* (Mitt.) P.E.A.S.Câmara & Carv.-Silva  
 – *Hypnum revolutum* (Mitt.) Lindb. (Hwang, 1991; Park, 1997)
- Stereodon erectiusculus* (Sull. & Lesq.) Jan Kucera & Ignatov  
 – *Hypnum erectiusculum* Sull. & Lesq. (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)
- Trachytecium verrucosum* (A.Jaeger) M. Fleisch. (Park, 1997)
- Vesicularia ferriei* (Cardot & Ther.) Broth. (NIBRMS 107367)
- Vesicularia flaccida* (Sull. et Lesq.) Z.Iwats. (Deguchi *et*

*al.*, 1998; He and Song, 2007)

*Vesicularia montagnei* (Bel.) Broth. (He and Song, 2007)

#### Lembophyllaceae Broth.

*Dolichomitra cymbifolia* (Lindb.) Broth. (Hong and Ando, 1962; Choe and Choi, 1980; He and Song, 2011)

*Dolichomitriopsis diversiformis* (Mitt.) Nog. (NIBRMS 107196; NIBRMS107204; NIBRMS106952) (Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

– *Isothecium diversiforme* (Mitt.) Besch. (Okamura, 1915; Sasaoka, 1933; Kashimura, 1940)

*Tripterocladium coreanum* Sakurai (Sakurai, 1941b; Hwang, 1991)

#### Leskeaceae Schimp.

*Iwatsukiella leucotricha* (Mitt.) W.R.Buck & H.A.Crum (NIBRMS105851) (Choe and Choi, 1980; Park, 1997)

– *Habrodon leucotrichus* (Mitt.) Perss. (Osada, 1958; Hwang, 1991)

– *Habrodon piliferus* Cardot (Sakurai, 1941b)

*Lescuraea mutabilis* (Brid.) Lindb. (Choe and Choi, 1980)

– *Lescuraea striata* (Schwägr.) Bruch & Schimp. (Hong and Ando, 1963)

*Lescuraea saxicola* (Schimp.) Milde (Hwang, 1991)

– *Ishibaea japonica* Broth. & S.Okamura (Saito, 1938)

*Leskeodon maibarae* var. *jejuensis* Y.-J.Yoon, B.C.Tan & B.-Y.Sun (Yoon *et al.*, 2015c)

*Leskea polycarpa* Hedw. (Choe and Choi, 1980; He and Song, 2007; Yim *et al.*, 2013)

*Leskeella nervosa* (Brid.) Loeske (Kim *et al.*, 2019)

*Leskeella pusilla* (Mitt.) Nog. (NIBRMS107439)

*Okamuraea brachydictyon* (Cardot) Nog. (NIBRMS106107; NIBRMS106196) (Osada, 1958; Hong and Ando, 1961; 1962; 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

– *Brachythecium brachydictyon* Cardot (Cardot, 1904; Sasaoka, 1933; Kashimura, 1940)

– *Okamuraea ussuriensis* (Broth.) Broth. (Okamura, 1916; Reimers, 1930; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940)

– *Okamuraea hakoniensis* var. *ussuriensis* (Broth.) Nog. (Osada, 1958; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)

*Okamuraea hakoniensis* (Mitt.) Broth. (NIBRMS107208; NIBRMS105850) (Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b; Yoon *et al.*, 2015c)

*Okamuraea hakoniensis* fo. *multiflagellifera* (S.Oka-

mura) Nog. (Yoon *et al.*, 2015c)

*Orthoamblystegium spuriosubtile* (Broth. & Paris) Kanda & Nog. (NIBRMS107475; NIBRMS107476) (Yim *et al.*, 2013)

– *Orthoamblystegium longinerve* (Cardot) Toyama (Choe and Choi, 1980; Hwang, 1991)

*Pseudoleskea coreana* Sakurai (Uno and Takahasi, 1940; Hong and Ando, 1961; Hwang, 1991)

*Pseudoleskea incurvata* (Hedw.) Loeske

– *Lescuraea incurvata* (Hedw.) E. Lawton (Choe and Choi, 1980; Hwang, 1991)

*Pseudoleskea incurvata* var. *tenuiretis* (Culmann) Podpera

– *Lescuraea incurvata* var. *tenuiretis* (Culm.) E.Lawton (Choe and Choi, 1980)

*Pseudoleskea papillarioides* Müll.Hal. (Sasaoka, 1933; Kashimura, 1941)

*Pseudoleskea patense* (Lindb.) Kindb. (He and Song, 2007)

*Pseudoleskeella catenulata* (Brid. ex Schrad.) Kindb. (Hwang, 1991)

*Pseudoleskeopsis mollicula* Cardot (Cardot, 1913; Hong and Ando, 1963; Choe and Choi, 1980; He and Song, 2011)

*Pseudoleskeopsis zippelii* (Dozy & Molk.) Broth. (NIBRMS107450; NIBRMS107451; NIBRMS105906) (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

– *Pseudoleskea laticuspis* Cardot (Cardot, 1904)

– *Pseudoleskeopsis laticuspis* (Cardot) Broth. (Brotherus, 1907; 1909)

– *Pseudoleskeopsis orbiculata* var. *laticuspis* (Cardot) Thér. (Sasaoka, 1933; Kashimura, 1940)

– *Pseudoleskeopsis decurvata* (Mitt.) Broth. (Uno and Takahasi, 1940; Hong, 1960a)

– *Pseudoleskeopsis orbiculata* (Mitt.) Broth. (Hong, 1960a; Hong and Ando, 1961)

*Pterigynandrum filiforme* Hedw. (Choe and Choi, 1980; Hwang, 1991)

*Rigodiadelphus robustus* (Lindb.) Nog. (NIBRMS105852) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)

– *Lesquereuxia robusta* Lindb. (Hong and Ando, 1963)

#### Leucodontaceae Schimp.

*Dozya japonica* Sande Lac. (Hwang, 1991)

*Forsstroemia cryphaeoides* Cardot (Choe and Choi, 1980; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

*Forsstroemia japonica* (Besch.) Paris (NIBRMS107207) (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)

*Forsstroemia konoii* (Broth.) Enroth, Fedosov & Ignatov – *Neckera konoii* Broth. (Hong and Ando, 1961; Choe and

Choi, 1980)

*Forsstroemia neckeroidea* Broth. (NIBRMS107213 (dendroidea)) (Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

*Forsstroemia trichomitria* (Hedw.) Lindb. (NIBRMS 107297; NIBRMS106833; NIBRMS106880; NIBRMS106197) (Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; Yim *et al.*, 2013)

*Leucodon atrovirens* Nog. (Akiyama, 1988)

*Leucodon coreensis* Cardot (Cardot, 1904; Brotherus, 1909; Kashimura, 1940; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

*Leucodon exaltatus* Müll.Hal. (Choe and Choi, 1980; Hwang, 1991)

*Leucodon secundus* var. *strictus* (Harv.) H.Akiyama (Akiyama, 1988)

*Leucodon flagelliformis* Müll.Hal. (Kashimura, 1940; Sakurai, 1941b; Park, 1997)

*Leucodon luteus* Besch. (He and Song, 2011)

– *Leucodon dozyoides* Broth. & Paris (Horikawa, 1935a; Kahimura, 1941)

– *Macrosporiella dozyoides* (Broth. & Paris) Nog. (Hong and Ando, 1961; 1962)

*Leucodon nipponicus* Nog. (Akiyama, 1988)

*Leucodon sapporensis* Besch. (Choe and Choi, 1980; Yoon *et al.*, 2011b)

*Leucodon sciuroides* (Hedw.) Schwägr. (Hwang, 1991; Park, 1997)

*Leucodon secundus* (Harv.) Mitt. (Uno and Takahasi, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)

*Pterogoniadelphus pendulus* (Lindb.) Tad.Suzuki & Z.Iwats.

– *Leucodon perdependens* S.Okamura (Okamura, 1916; Nakai, 1917; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940)

– *Leucodontella perdependens* (S.Okamura) Nog. (Osada, 1958; Chung and Uhm, 1961; Hong and Ando, 1961)

– *Leucodon pendulus* Lindb. (Choe and Choi, 1980; Hwang, 1991; Park, 1997)

*Pterogonium coreense* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Suzuki & Iwatsuki, 2012)

– *Pylaisia coreense* (Cardot) Toyama (Toyama, 1938b)

**Comment:** This species was treated as a synonym of *Eurohypnum leptothallum* by Noguchi (1939). However; Suzuki and Iwatsuki (2012) recognized that this species was distinguished by upper laminal cells prorate on the dorsal leaf side from the latter. Thus; this study accepts the concept of Suzuki and Iwatsuki (2012)

#### Meteoriaceae Kindb.

*Meteorium buchananii* (Brid.) Broth. (Choe and Choi, 1980)

*Meteorium buchananii* subsp. *helminthocladulum* (Cardot) Nog.

– *Papillaria helminthocladula* Cardot (Cardot, 1904)

– *Meteorium helminthocladulum* (Cardot) Broth. (Brotherus, 1909; Kashimura, 1940; Sasaoka, 1933; Hong and Ando, 1961; Hwang, 1991)

*Meteorium atroviregatum* Cardot & Ther.

– *Meteorium miquelianum* subsp. *atroviregatum* (Cardot & Ther.) Nog. (Yoon *et al.*, 2011)

*Meteorium subpolytrichum* (Besch.) Broth. (Choe and Choi, 1980; Yoon *et al.*, 2011b)

*Neodictyella flagellifera* (Cardot) Hutteunen & D. Quandt (NIBRMS107189; NIBRMS106138; NIBRMS 106141; NIBRMS106148)

– *Barbella flagellifera* (Cardot) Nog. (Yoon and Sun, 2010)

*Neodictyella pendula* (Sull.) W.R.Buck (NIBRMS 107482)

*Trachycladiella aurea* (Mitt.) M.Menzel (He and Song, 2011)

*Trachypus bicolor* Reinw. & Hornsch. (NIBRMS107 018) (Yoon *et al.*, 2011a)

*Trachypus humilis* Lindb. (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

– *Trachypus humilis* var. *brevifolius* Cardot (Cardot, 1911; Kashimura, 1940; Sasaoka, 1933)

#### Myuriaceae Broth. ex M.Fleisch.

*Eumyurium sinicum* (Mitt.) Nog.

– *Oedocladium sinicum* Mitt. (Cardot, 1904; Brotherus, 1909)

– *Myurium sinicum* (Mitt.) Broth. (Sasaoka, 1933; Kashimura, 1940)

– *Myuriopsis sinica* (Mitt.) Nog. (Choe and Choi, 1980; Hwang, 1991)

#### Neckeraceae Schimp.

*Bissetia lingulata* (Mitt.) Broth. (Uno and Takahasi, 1940; Choe and Choi, 1980; Hwang, 1991)

*Homalia trichomanoides* (Hedw.) Schimp. (NIBRMS 107324) (Nakai, 1917; Sasaoka, 1933; Kashimura, 1940; Chung and Uhm, 1961; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

– *Homalia japonica* Besch. (Choe and Choi, 1980; Hwang, 1991)

*Homaliadelphus targionianus* (Mitt.) Dixon & P. de la Varde (NIBRMS107277) (Choe and Choi, 1980)

*Homaliodendron flabellatum* (Sw.) M. Fleisch. (NIBRMS106744; NIBRMS106853; NIBRMS106862; NIBRMS107096) (Yim *et al.*, 2013)

– *Homaliodendron scalpellifolium* (Mitt.) M.Fleisch. (Hong and Ando, 1962; Choe and Choi, 1980; He and

- Song, 2011)
- Neckera coreana*** Card. (Cardot, 1911; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)
- Neckera fauriei*** Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- Neckera flexiramea*** Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- Neckera goughiana*** Mitt. (NIBRMS107480; NIBRMS107481) (Tanaka *et al.*, 2001)
- Neckera humilis*** Mitt. (NIBRMS107188; NIBRMS106189; NIBRMS105961) (Hong and Ando, 1962; Choe and Choi, 1980; He and Song, 2011; Yim *et al.*, 2013)
- *Neckera humilis* var. *complanatula* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991)
- Neckera pennata*** Hedw. (NIBRMS106781; NIBRMS106119; NIBRMS106129; NIBRMS106140) (Sakurai, 1941b; Osada, 1958; Hong and Ando, 1961; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)
- *Neckera abbreviata* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)
- Neckera pusilla*** Mitt. (Choe and Choi, 1980)
- Neckera yezoana*** Besch. (Other use: *Forsstroemia yezoana* (Besch.) S.Olsson, Enroth & D.Quandt) (NIBRMS107211; NIBRMS106858; NIBRMS106878; NIBRMS107020; NIBRMS107412) (Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- *Neckera yezoana* var. *uematsui* (Broth.) Horik. (Choe and Choi, 1980; Hwang, 1991)
- *Neckera uematsui* Broth. (Brotherus, 1921; Sasaoka, 1933; Kashimura, 1940)
- Neckeropsis nitidula*** (Mitt.) M.Fleisch. (NIBRMS107170; NIBRMS106737; NIBRMS106748; NIBRMS106795; NIBRMS107133; NIBRMS106122; NIBRMS106171; NIBRMS105910) (Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yim *et al.*, 2013)
- Thamnobryum alopecurum*** (Hedw.) Nieuwl. ex Gangulee (Hong and Ando, 1962; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b)
- *Thamnium alopecurum* (Hedw.) Schimp (Cardot, 1904; Sasaoka, 1933; Saito, 1938; Kashimura, 1940; Osada, 1958; Hong and Ando, 1962)
- Thamnobryum coreanum*** (Cardot) Nog. & Z.Iwats. (NIBRMS106137) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; Yoon *et al.*, 2011b)
- *Thamnium coreanum* Cardot (Cardot, 1911; Sasaoka, 1933)
- Thamnobryum plicatulum*** (Sande Lac.) Z.Iwats. (NIBRMS106747; NIBRMS106761; NIBRMS106824; NIBRMS107097; NIBRMS107100; NIBRMS105938) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Thamnium plicatulum* Sande Lac. (Sasaoka, 1933; Kashimura, 1940; Park and Hong, 1959; Hong, 1960a)
- Thamnobryum sandei* var. *coreense*** Cardot (Choe and Choi, 1980)
- *Thamnium sandei* var. *coreense* Cardot (Cardot, 1904; Sasaoka, 1933)
- Thamnobyum sandei* var. *cymbifolium*** (Cardot) Nog. & Z.Iwats. (Choe and Choi, 1980)
- *Thamnium sandei* var. *cymbifolium* Cardot (Uno and Takahasi, 1940; Hong and Ando, 1961)
- Thamnobryum subseriatum*** (Mitt. ex Sande Lac.) B.C. Tan. (NIBRMS107135) (Choe and Choi, 1980; Song, 1987; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Thamnium sandei* Besch. (Nakai, 1917; Sasaoka, 1933; Kashimura, 1940)

#### Plagiotheciaceae M.Fleisch.

- Isopterygiopsis muelleriana*** (Schimp.) Z.Iwats. (NIBRMS106854; NIBRMS106900)
- Plagiothecium cavifolium*** (Brid.) Z. Iwats. (NIBRMS107314) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011)
- *Plagiothecium roeseanum* var. *julaceum* Cardot (Osada, 1958)
- Plagiothecium denticulatum*** (Hedw.) Schimp. (Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)
- Plagiothecium depressum*** (Brid.) Spruce (Osada, 1958)
- Plagiothecium euryphyllum*** (Cardot & Thér.) Z.Iwats. (NIBRMS105920; NIBRMS106039; NIBRMS106040) (Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2011; Yim *et al.*, 2013)
- Plagiothecium laetum*** Schimp. (Hwang, 1991)
- *Plagiothecium curvifolium* Schlieph. ex Limpr. (Deguchi *et al.*, 1998)
- Plagiothecium neckeroidium*** Schimp. (Nakai, 1917; Kashimura, 1940; Choe and Choi, 1980; Song, 1987; Hwang, 1991)
- Plagiothecium nemorale*** (Mitt.) A.Jaeger. (NIBRMS107174; NIBRMS107308; NIBRMS106733; NIBRMS106746; NIBRMS106783; NIBRMS106843; NIBRMS107070; NIBRMS106116; NIBRMS106139; NIBRMS106146) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Plagiothecium sylvaticum* var. *latifolium* Cardot (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940)
- Plagiothecium piliferum*** (Sw.) Schimp. (Hwang, 1991)
- Plagiothecium platyphyllum*** Mönk. (Hwang, 1991)

*Plagiothecium succulentum* (Wilson) Lindb. (Hwang, 1991)

*Plagiothecium sylvaticum* (Brid.) Schimp. (Uno and Takahasi, 1940; He and Song, 2011)

– *Plagiothecium silvaticum* Bruch & Schimp. (Reimers, 1930; Sasaoka, 1933; Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Chung and Uhm, 1961; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Song, 1987)

#### Pterobryaceae Kindb.

*Pterobryon arbuscula* Mitt. (Hong and Ando, 1962; Choe and Choi, 1980; He and Song, 2011)

#### Sematophyllaceae Broth.

*Acanthocladium integrifolium* var. *brevifolium* Thér. & Dixon (Sasaoka, 1933)

*Brotherella coreana* Sakurai (other use: *Pylaisiadelpha coreana* (Sakurai) W.R.Buck) (Sakurai, 1949; Choe and Choi, 1980)

*Brotherella fauriei* (Besch. ex Cardot) Broth. (other use: *Pylaisiadelpha fauriei* (Besch. ex Cardot) W.R.Buck) (NIBRMS106818; NIBRMS106118) (Hwang, 1991; He and Song, 2011)

*Brotherella henonii* (Duby.) Fleisch. (other use: *Pylaisiadelpha henonii* (Duby.) W.R.Buck) (NIBRMS107167; NIBRMS106682; NIBRMS106683) (Saito, 1938; Kashimura, 1940; Osada, 1958; Choe and Choi, 1980; Hwang, 1991)

*Brotherella recurvans* (Michx.) M.Fleisch. (other use: *Pylaisiadelpha recurvans* (Michx.) W.R.Buck) (Chung and Uhm, 1961; Choe and Choi, 1980)

*Brotherella yokohamae* (Broth.) Broth. (other use: *Pylaisiadelpha yokohamae* (Broth.) W.R.Buck) (Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011)

– *Clastobryella tsunodae* (Broth. & Yasuda) Broth. (Hong and Ando, 1963)

– *Clastobryella kusatsuensis* (Besch.) Z.Iwats. (Choe and Choi, 1980)

– *Pylaisiadelpha yokohamae* (Broth.) W.R.Buck (Yim *et al.*, 2013)

*Brotherella tenuirostris* (Bruch & Scimp. ex Sull.) Broth. (other use: *Pylaisiadelpha tenuirostris* (Bruch & Schimp. ex Sull.) W.R.Buck) (NIBRMS107145; NIBRMS107296; NIBRMS107160; NIBRMS106720; NIBRMS106721; NIBRMS107062; NIBRMS106212; NIBRMS106205) (Yoon *et al.*, 2011b; Yoon *et al.*, 2015b)

*Pylaisiadelpha tristoviridis* (Broth.) Afonina; H.Tsubota & Ignatova (NIBRMS107225; NIBRMS107227; NIBRMS105831) (Yoon *et al.*, 2011b)

RMS105831) (Yoon *et al.*, 2011b)

– *Hypnum rhynchothecium* Müll.Hal. ex Ihsiba (Sasaoka, 1933)

– *Hypnum tristo-viride* (Broth.) Paris (Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

– *Hypnum tristo-viride* var. *brevisetum* Ando (Hong and Ando, 1961; 1963)

*Sematophyllum phoeniceum* (Müll.Hal.) M.Fleisch. (Yoon *et al.*, 2015c)

*Sematophyllum subhumile* (Müll.Hal.) M.Fleisch. (NIBRMS106777; NIBRMS106822; NIBRMS106946; NIBRMS107134; NIBRMS106169; NIBRMS105928) (Yim *et al.*, 2013)

*Sematophyllum subpinnatum* (Brid.) E.Britton (NIBRMS105926) (Yoon *et al.*, 2015c)

*Taxithelium parvulum* (Broth. & Paris) Broth. (Brotherus, 1909)

#### Taxiphyllaceae Ignatov

*Filibryum ogatae* (Broth. & Yasuda) W.Kim & T.Yamag. (NIBRMS106798; NIBRMS106802; NIBRMS106094; NIBRMS105937) (Kim and Yamaguchi, 2017)

*Hondaella caperata* (Mitt.) B.C.Tan & Z.Iwats. (He and Song, 2011)

– *Campylodontium gracile* Cardot (Cardot, 1913)

– *Hondaella brachytheciella* (Broth. & Paris) Ando (Ando, 1961; Choe and Choi, 1980; Hwang, 1991)

*Taxiphyllum alternans* (Cardot) Z.Iwats. (Choe and Choi, 1980; Hwang, 1991)

– *Isopterygium alternans* Cardot (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kashimura, 1940)

– *Isopterygium alternans* var. *puteanum* Cardot (Cardot, 1912; Sasaoka, 1933; Kashimura, 1940)

*Taxiphyllum aomoriense* (Besch.) Z.Iwats. (NIBRMS106825; NIBRMS106864; NIBRMS107130; NIBRMS105970) (Choe and Choi, 1980; Song, 1987; Hwang, 1991; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

– *Hypnum platycladum* Cardot (Cardot, 1904)

– *Plagiothecium platycladum* (Cardot) Broth. (Brotherus, 1909)

– *Breidleria platyclada* (Cardot) Ihsiba (Kashimura, 1940)

– *Plagiothecium aomoriense* Besch. (Osada, 1958; Hong, 1960a; Hong and Ando, 1961; 1963)

*Taxiphyllum cuspidifolium* (Cardot) Z.Iwats. (NIBRMS106351; NIBRMS106353; NIBRMS106354; NIBRMS106168; NIBRMS106356)

*Taxiphyllum deplanatum* (Bruch & Schimp. ex Sull.) M.Fleisch. (NIBRMS107466-b; NIBRMS107467)

*Taxiphyllum giraldii* (Müll.Hal.) M.Fleisch. (Hwang, 1991; Park, 1997)

*Taxiphyllum taxiphylloides* (Ando & Higuchi) Higuchi (NIBRMS107369)

– *Gollania taxiphylloides* Ando & Higuchi (Tanaka *et*

*al.*, 2001)

***Taxiphyllum taxirameum*** (Mitt.) M.Fleisch. (NIBRMS 107348; NIBRMS107354; NIBRMS106123) (Osada, 1958; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

#### **Theliaceae** M.Fleisch.

***Fauriella tenuis*** (Mitt.) Cardot (NIBRMS107214; NIBRMS107226; NIBRMS106776; NIBRMS107046; NIBRMS105872) (Reimers, 1930; Kashimura, 1940; Ando, 1961; Hong, 1960a; Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b)

- *Trichosteleum subtile* Cardot (Cardot, 1904)

- *Taxithelium subtile* (Cardot) Broth. (Brotherus, 1909; Kashimura, 1940)

***Myurella tenerrima*** (Brid.) Lindb. (Yoon *et al.*, 2011a)

***Myurella sibirica*** (Müll.Hal.) Reimers (Kim *et al.*, 2019)

#### **Thuidiaceae** Schimp.

***Abietinella abietina*** (Hedw.) M.Fleisch. (Sakurai, 1941b; Osada, 1958; Choe and Choi, 1980; Song, 1987; Hwang, 1991; Park, 1997)

- *Thuidium abietinum* (Hedw.) Schimp (Saito, 1938)

***Actinothuidium hookeri*** (Mitt.) Broth. (Hwang, 1991)

***Boulaya mittenii*** (Broth.) Cardot (NIBRMS107155; NIBRMS107200; NIBRMS107220; NIBRMS106956; NIBRMS107076; NIBRMS105853) (Okamura, 1915; Nakai, 1917; Sasaoka, 1933; Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Chung and Uhm, 1961; Hong and Ando, 1961; 1962; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)

***Bryonoguchia molkenboeri*** (Sande Lac.) Z.Iwats. & Inoue (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b)

- *Tetracladium molkenboeri* (Sande Lac.) Broth. (Osada, 1958)

***Claopodium aciculum*** (Broth.) Broth. (NIBRMS107442) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

- *Claopodium assurgens* var. *brevifolium* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940)

- *Claopodium viridulum* Cardot (Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963)

***Claopodium assurgens*** (Sull. & Lesq.) Cardot (Cardot, 1911; Sasaoka, 1933; Horikawa, 1935c; Kashimura, 1940; Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

- *Claopodium asperrimum* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963)

***Claopodium gracillimum*** (Cardot & Thér.) Nog. (NIBRMS107427)

***Claopodium nervosum* var. *septentrionale*** (Cardot) Ihsiba (NIBRMS107320) (Sasaoka, 1933; Hong and Ando, 1963)

- *Claopodium prionophyllum* var. *septentrionale* Cardot (Cardot, 1911; Kashimura, 1940)

***Claopodium pellucinerve*** (Mitt.) Best (Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007)

- *Claopodium pugionifolium* (Broth. & Paris) Broth. (Saito, 1938)

- *Claopodium subpiliferum* (Lindb. & Arnell) Broth. (Osada, 1958; Hong, 1960a; 1960b)

- *Claopodium piliferum* Broth. (Choe and Choi, 1980)

***Claopodium prionophyllum*** (Müll.Hal.) Broth. (Cardot, 1911; Kashimura, 1940; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)

- *Claopodium nervosum* M.Fleisch. (Sasaoka, 1933)

***Echinophyllum sachalinense*** (Lindb.) T.J.O'Brien

- *Tetracladium osadae* Sakurai (Sakurai, 1941b)

- *Helodium sachalinense* (Lindb.) Broth. (Osada, 1958; Choe and Choi, 1980; Hwang, 1991; Park, 1997)

***Haplocladium angustifolium*** (Hampe & Müll.Hal.) Broth. (Other use: ***Bryohaplocladium angustifolium*** (Hampe & Müll.Hal.) R. Watan. & Z. Iwats.)

(NIBRMS107168; NIBRMS107177; NIBRMS107191; NIBRMS107257; NIBRMS107128; NIBRMS107132; NIBRMS106106; NIBRMS106127; NIBRMS106161; NIBRMS106166) (Choe and Choi, 1980; Hwang, 1991; Park, 1997; Deguchi *et al.*, 1998; He and Song, 2007; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

- *Thuidium macropilum* (Müll.Hal. ex Broth.) Paris (Cardot, 1904)

- *Haplocladium macropilum* Müll.Hal. ex Broth. (Thériot, 1930; Kashimura, 1940)

- *Haplocladium subulaceum* var. *macropilum* (Müll.Hal. ex Broth.) Thér. (Osada, 1958)

- *Haplocladium subulatum* Cardot (Hong, 1960a)

***Haplocladium discolor*** (Broth. & Paris) Broth. (Hwang, 1991)

***Haplocladium incurvum*** Broth. (Uno and Takahasi, 1940; Choe and Choi, 1980; Hwang, 1991)

***Haplocladium gracile*** (Schimp.) Müll.Hal.

- *Thuidium gracile* Schimp. (Cardot, 1904)

***Haplocladium microphyllum*** (Hedw.) Broth. (NIBRMS107316; NIBRMS106174; NIBRMS105873) (Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Choe and Choi, 1980; Hwang, 1991; Park, 1997; Yoon *et al.*, 2011b; Yim *et al.*, 2013)

- *Thuidium capillatum* (Mitt.) A.Jaeger (Cardot, 1904)

- *Haplocladium capillatum* (Mitt.) Broth. (Reimers, 1930; Sasaoka, 1933; Hong, 1960a)

- *Haplocladium latifolium* (Sande Lac.) Broth. (Reimers, 1930; Kashimura, 1940)

- *Haplocladium papillariaceum* Müll.Hal. (Reimers, 1930; Kashimura, 1940; Hwang, 1991)
- Haplocladium perparaphyllum*** R.Watan. (Other use: ***Bryohaplocladium perparaphyllum*** (R. Watan.) R. Watan. & Z.Iwats.) (Choe and Choi, 1980; Hwang, 1991)
- Haplocladium strictulum*** (Cardot) Reimers (Other use: ***Bryohaplocladium strictulum*** (Cardot) R.Watan. & Z.Iwats.) (Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)
- *Thuidium strictulum* Cardot (Cardot, 1904; Brotherus, 1909)
- *Thuidiopsis strictula* (Cardot) Broth. (Sasaoka, 1933; Kashimura, 1940)
- Haplocladium subulaceum*** (Mitt.) Broth. (Park and Hong, 1959)
- Helodium blandowii*** (F.Weber & D.Mohr) Warnst. (Hwang, 1991; Park, 1997)
- Heterocladium angustifolium*** (Dixon) R.Watan. (Hwang, 1991)
- Heterocladium capillaceum*** Broth. ex Ihsiba (NIBRMS 107384)
- Hylocomiopsis ovicarpa*** (Besch.) Cardot (NIBRMS 106029; NIBRMS106030) (Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Song, 1987; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)
- Miyabea fruticella*** (Mitt.) Broth. (NIBRMS107202) (Uno and Takahasi, 1940; Park and Hong, 1959; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991; Park, 1997; He and Song, 2011; Yoon *et al.*, 2011b)
- *Miyabea thuidioides* Broth. (Uno and Takahasi, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)
- Miyabea rotundifolia*** Cardot (Cardot, 1909; Okamura, 1915; Reimers, 1930; Sasaoka, 1933; Uno and Takahasi, 1940; Kashimura, 1940; Hong and Ando, 1961; Choe and Choi, 1980; Hwang, 1991)
- Pelekium microphyllum*** (Schwägr.) T.J.Kop. & Touw
- *Haplohymenium microphyllum* Schwägr. (Brotherus, 1909; Kashimura, 1940)
- Pelekium minutulum*** (Hedw.) Touw
- *Thuidium minutulum* (Hedw.) Schimp. (Park, 1997)
- Pelekium pygmaeum*** (Schimp.) Touw (NIBRMS107437; NIBRMS105908)
- *Thuidium pygmaeum* Schimp. (Choe and Choi, 1980; Hwang, 1991)
- Pelekium versicolor*** (Müll.Hal.) Touw (NIBRMS106752; NIBRMS106759; NIBRMS106832; NIBRMS107022; NIBRMS106343) (He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Thuidium micropteris* Besch. (Osada, 1958)
- *Thuidium bipinnatum* Mitt. (Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991)
- Rauia fujisana*** (Paris) Reimers (Hong and Ando, 1963; Choe and Choi, 1980; Deguchi *et al.*, 1998; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)
- *Rauia bandaiensis* (Broth. & Paris) Broth. (Brotherus, 1909; Reimers, 1930; Sasaoka, 1933; Kashimura, 1940)
- Thuidium assimile*** (Mitt.) A.Jaeger
- *Thuidium viridiforme* Cardot (Hong and Ando, 1961)
- *Thuidium philibertii* Limpr. (Hwang, 1991)
- Thuidium cymbifolium*** (Dozy & Molke.) Dozy & Molke. (NIBRMS107341; NIBRMS105939; NIBRMS106031; NIBRMS106032; NIBRMS106033) (Choe and Choi, 1980; Hwang, 1991; He and Song, 2011)
- *Thuidium japonium* Dozy & Molke. ex Sande Lac. (Sasaoka, 1933; Saito, 1938; Kashimura, 1940)
- *Thuidium subpynothallum* Cardot (Sasaoka, 1933; Kashimura, 1940)
- Thuidium delicatulum*** (Hedw.) Schimp. (NIBRMS 106036) (Hong, 1960a; Hwang, 1991; He and Song, 2011; Yoon *et al.*, 2011b)
- *Thuidium uliginosum* Cardot (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1963)
- *Thuidium viride* Mitt. (Uno and Takahasi, 1940; Hong and Ando, 1961)
- *Thuidium recognitum* var. *delicatulum* (Hedw.) Warnst. (Choe and Choi, 1980)
- Thuidium kanedae*** Sakurai (NIBRMS106867; NIBRMS 106964; NIBRMS107044; NIBRMS106115; NIBRMS105846; NIBRMS106689) (Hong and Ando, 1963; Choe and Choi, 1980; Hwang, 1991; Deguchi *et al.*, 1998; He and Song, 2007; 2011; Yoon *et al.*, 2011b; Yim *et al.*, 2013)
- *Thuidium unoi* Sakurai (Sakuria, 1943)
- *Thuidium toyamae* Nog. (Hong, 1960a; 1960b; Chung and Uhm, 1961; Hong and Ando, 1961)
- Thuidium pristocalyx*** (Müll.Hal.) A.Jaeger (NIBRMS 105867) (He and Song, 2011; Yoon *et al.*, 2011b)
- *Thuidium glaucinum* (Mitt.) Bosch & Sande Lac. (Reimers, 1930; Sasaoka, 1933; Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Hong and Ando, 1961; 1963; Choe and Choi, 1980; Hwang, 1991)
- Thuidium pynothallum*** (Müll.Hal.) Paris (Hwang, 1991; Park, 1997)
- Thuidium recognitum*** (Hedw.) Lindb. (Saito, 1938; Uno and Takahasi, 1940; Kashimura, 1940; Osada, 1958; Park and Hong, 1959; Hong, 1960a; Chung and Uhm, 1961; Hong and Ando, 1961; Hwang, 1991)
- Thuidium subglaucinum*** Cardot (NIBRMS106179; NIBRMS106192; NIBRMS105843) (Cardot, 1911; Sasaoka, 1933; Kashimura, 1940; Hong and Ando, 1962; Choe and Choi, 1980; Hwang, 1991; He and Song, 2011; Yim *et al.*, 2013)
- Thuidium submicropteris*** Cardot (NIBRMS107495) (Cardot, 1904; Brotherus, 1909; Sasaoka, 1933; Kas-

himura, 1940; Choe and Choi, 1980; Hwang, 1991; Yoon *et al.*, 2011b)

***Thuidium tamariscinum*** (Hedw.) Schimp. (Choe and Choi, 1980; Hwang, 1991)

#### Excluded species

***Brachythecium populeum* var. *longisetum*** Schimp.

This species was first recorded by Park and Choi (2007). However, as a reference, *Cirriphyllum crassinervium* recorded by Hwang (1991) is not a synonym of *B. populeum* var. *longisetum*. Thus, *B. populeum* var. *longisetum* is excluded due to taxonomic error and unclear source.

***Brotherella robustula*** Sakurai

This species was first recorded by Park and Choi (2007) and was referred from Hwang (1991). However, Hwang (1991) reported as *Brotherella roseana*. That species is not described in any articles. Furthermore, *B. robustula* was treated as a synonym of *B. henonii* by Iwatsuki (1991).

***Hygrohypnum duriusculum*** (De Not.) D.W.Jamieson

Corley *et al.* (1981) recognized *Hygrohypnum dilatatum* as a synonym of *H. duriusculum*. In contrast, Iwatsuki (1991) recognized *H. dilatatum* as a synonym of *H. molle*. Park and Choi (2007) cited the paper of Corley *et al.* (1981), whereas this study cited the paper of Iwatsuki (1991).

***Hygrohypnum subeugyrium*** (Renauld & Cardot) Broth.

Park and Choi (2007) recognized *H. purpurascens* as a synonym of *Hygrohypnum subeugyrium*. As it is based on the dissertation of Jamieson (1976), the taxonomic treatment is not validly published. Therefore, *H. purpurascens* is accepted as the correct name.

***Hypnum subimponens*** Lesq.

This species was first added to the list of bryophytes of Korea by Park and Choi (2007). However, the scientific name is not accepted due to taxonomic problem. Therefore, *H. subimponens* subsp. *ulophyllum* has been accepted as the correct name.

***Lescuraea longinervis*** (Cardot) Nog.

This species was originally recorded by Hong & Ando (1963) by citing specimens collected in Mt. Halla. Unfortunately, the cited specimens are not able to be re-examined. Later, this species has not been reported by any researchers. It is possible to estimate that it would be *Schwetschkea longinervis*. Then, *S. longinervis* was treated as a synonym of *Orthoamblystegium spurio-subtile* by Noguchi (1982).

***Polytrichastrum ohioense*** (Renauld & Cardot) G.L.Sm.

According to Park and Choi (2007), the reference for *Polytrichastrum ohioense* was based on *Polytrichum decipiense* that had been recorded by Hwang (1991). However, *P. decipiense* is a synonym of *P. pallidisetum*, causing error. Thus, *P. ohioense* is excluded.

***Scopelophila ligulata*** (Spruce) Spruce

Park and Choi (2007) treated *Scopelophila ligulate* as a

synonym of *Hyophila amblyphylla*, which Cardot (1907) announced as a new species collected from Pyongyang in North Korea. As taxonomic reviews or evidence has not been available. Therefore, this study doesn't accept the taxonomic treatment by Park and Choi (2007).

***Sematophyllum subhumile* subsp. *japonicum*** (Broth.) Seki

This species was first recorded by Park and Choi (2007). However, specimens or references were not present. Moreover, it was treated as a synonym of *S. subhumile* by Tan and Jia (1999). Therefore, it is excluded.

***Ulota curvifolia*** (Wahlenb.) Sw.

Hwang (1991) recorded a species, *Orthotrichum striatum*. Later, Park and Choi (2007) recognized this species as a synonym of *Ulota curvifolia*. However, this study doesn't accept their taxonomic treatment. It's because Park and Choi (2007) did not present a taxonomic revision or reason for their taxonomic treatment.

The following, these species were first recorded to the list of Bryophytes of Korea by Park and Choi (2007) or NIBR (2012) with no references like literatures or specimens. Still, it is not actually recorded and specimens have not been known. Therefore, they are excluded.

***Archidium ohioense*** Scimp. ex Müll.Hal.

***Bryoerythrophyllum tenerrimum*** (Broth.) P.C.Chen

***Bryum atrovirens*** Brid.

***Campyliadelphus elodes*** (Lindb.) Kanda

***Chaetomitriopsis glaucocarpa*** (Reinw. ex Schwägr.) M. Fleisch.

***Dicranodontium uncinatum*** (Harv.) A.Jaeger.

***Dicranum groenlandicum*** Brid.

***Didymodon asperifolius*** (Mitt.) H.A.Crum, Steere & L.E.Anderson

***Didymodon ferrugineus*** (Schmp. ex Besch.) M.O.Hill

***Fissidens minutulus*** Sull.

***Fissidens perdecurrens*** Besch.

***Grimmia brachydictyon*** (Cardot) Deguchi

***Homaliadelphus targionianus* var. *rotundatus*** Nog.

***Hygrohypnum subeugyrium* var. *japonicum*** Cardot

***Lopidium nazeense*** (Thér.) Broth.

***Meteorium buchananii* var. *cuspidatum*** (S.Okamura) Nog.

***Plagiomnium succulentum*** (Mitt.) T.J.Kop.

***Pleuridium julaceum*** Besch.

***Pohlia filum*** (Schimp.) Mårtensson

***Racomitrium brachypodium*** (Besch.) Cardot

***Racomitrium canescens* subsp. *latifolium*** (Lange & C.E.O. Jensen) Frisvoll

***Racomitrium canescens* var. *tortuloides*** Pilous

***Rhabdoweisia striata*** Lindb.

***Weissia controversa* var. *minutissima*** (Paris) Wijk & Margad.



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