**Appendix**

*Annotated list of mosses of Cockburn Island, Antarctica*

(asterisks mark new records for the Cockburn Island)

**\**Bryoerythrophyllum antarcticum* (L.I. Savicz & Smirnova) P. Sollman [Pottiaceae]**

Description and iconography.Sollman (2015)

Habitat and distribution.*Bryoerythrophyllum antarcticum* has been found in diverse environments, from dry to humid, on loamy, sandy, and rocky soils, along meltwater streams, and on lake margins. This species is considered endemic to Antarctica, with a wide distribution on the continent (Sollman 2015). The species is first mentioned on Cockburn Island.

Comments.The speciesis distinguished from others in the genus also present in Antarctica by growing in a compact and low cushion shape (1.0–2.0 cm), having ovate leaves, entire at the apex, and small leafy shoots, arising especially from the upper part of the stems; rhizoids scattered throughout the stem; leaves curved when dry, not crisp. *Bryoerythrophyllum antarcticum* to differs from its congeneric species *B. recurvirostre* because it has a toothed apex, more or less contorted leaves, and the rhizoids are restricted to the basal portion of the stem. Also, *B. antarcticum* is easily confused with *D. brachyphyllus*, but *the former* is larger, with thin walls and loose basal cells and the upper cells densely covered with hollow papillae (Sollman 2015).

Examined material. Antarctica. Cockburn Island, Island Plateau, East side (64°12'11,052"S; 56°50'28,607"O), on soil between volcanic rocks, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5605); ibid., 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5606); ibid., East side (64°12'6,228"S; 56°50'35,016"O), on soil between volcanic rocks, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5609).

***Bryum argenteum* Hedw. [Bryaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.This species grows mainly in open sites in drainage areas and meltwater puddles; it also grows in places protected by rocks or recesses in the ground. Has a cosmopolitan distribution, often associated with disturbed sites. In Antarctica, *B. argenteum* has been reported in both maritime and continental areas (Ochyra *et al*. 2008). On Cockburn Island (coastal and plateau), it has been mentioned before by Lewis Smith (1993) and Ochyra *et al*. (2008).

Comments.*Bryum argenteum* is distinguished from other species of the genus by having small gametophytes, being silvery and julaceous in appearance, and presenting hyaline apical cells (Sharp *et al*. 1994).

Examined material. Antarctica.Cockburn Island, Island Plateau, East side (64°12'6,228"S; 56°50'35,016"O), on soil between volcanic rocks, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5608); ibid., A.C. Cottet-L.P. Dopchiz (BCRU 5609); ibid., East side (64°11'58,2"S; 56°50'31,343"O), on soil between volcanic rocks, 10.II.2022, A.C. Cottet-L.P. Dopchiz (5611); ibid., 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5612); ibid., East side (64°12'16,92"S; 56°50'16,26"O), on soil between volcanic rocks, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5614); ibid., 10.II.2022, A.C. Cottet-L.P. Dopchiz (5615).

***Bryum pseudotriquetrum* (Hedw.) Gaertn., Meyer et Scherb. [Bryaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Bryum pseudotriquetrum* grows in a wide variety of habitats, both exposed and protected. It is a frequent species in places with thaw runoff, growing between rocky mounds. This species is a bipolar moss with intermediate occurrences at high elevations (Ochyra *et al*. 2008). In Antarctica it is considered frequent and widely distributed; on Cockburn Island, it has been previously mentioned as *Bryum algens* Card./*B. pseudotriquetrum* (Lewis Smith 1993).

Comments.This species is characterized by broad, long decurrent leaves, short excurrent costa, small distal lamina cells, and red basal leaves. Under Antarctic climatic conditions, the species exhibits wide phenotypic variations, which is why specimens of this species have been considered like other species (Ochyra *et al*. 2008).

Examined material. Antarctica.Cockburn Island, Island Plateau, East side (64°11'58,2"S; 56°50'31,343"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5610).

**\**Ceratodon purpureus* (Hedw.) Brid. [Ditrichaceae]**

Description and iconography. Ochyra *et al*. (2008)

Habitat and distribution. This species has a wide ecological range and develops both in open and protected places. Is considered a cosmopolitan moss; however, in tropical areas, it is restricted to elevated areas. In Antarctica, the species is, like *B. pseudotriquetrum*, pan-antarctic (Ochyra *et al*. 2008). The species is recorded for the first time from Cockburn Island.

Comments. The gametophytes of *C. purpureus* usually is confused with specimens of the family Pottiaceae. However, this species is distinguished by having strongly recurved or revolute leaf margins, irregularity of the edge towards the apex, absence of papillae, and cells of the apical portion of the lamina sub quadrate to rounded (Ochyra *et al*. 2008).

Examined material.Antarctica. Cockburn Island, Island Plateau, East side (64°12'11,052"S; 56°50'28,607"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5607).

***Didymodon brachyphyllus* (Sull.) R.H. Zander [Pottiaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Didymodon brachyphyllus* grows in both dry and humid habitats, often growing in sheltered sites such as rocky crevices and ledges. This species has a bipolar distribution, considered pan-antarctic. *Didymodon brachyphyllus* has been previously mentioned for Cockburn Island (coastal) by Ochyra *et al*. (2008).

Comments.*Didymodon brachyphyllus* can be confused with small gametophytes of *Bryoerytrophyllum antactici*. However, the former is green to brown, leaves 0.5 to 1.1 mm long, ovate to ovate-lanceolate, and often cuculate at the apex; apical cells never smooth, axillar hairs with brown basal cells and axillar buds, while the latter does not have these features (see above) (Ochyra and Zander 2002).

***Encalypta rhaptocarpa* Schwägr. [Encalyptaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Encalypta rhaptocarpa* is a species with tolerance to exposure conditions such as protection, very frequent near streams, or thaw cracks. This species has a bipolar distribution. In Antarctica, it is more frequent in maritime regions (islands). In Cockburn Island (coastal, plateau and cone) the species has been previously mentioned by Lewis Smith (1993), under its synonym *E. patagonica* Broth., and years later by Ochyra *et al*. (2008).

Comments.If *E. rhaptocarpa* specimens are found with mature sporophytes, identification does not present problems for identification (the most distinctive features of the species are capsules prominently ribbed and with straight ribs). However, when the plant is sterile, it can be confused with *Encalypta procera*; the absence of axillary propagules in *E. rhaptocarpa* allows distinguishing between species (Ochyra *et al*. 2008).

***Hennediella heimii* (Hedw.) R.H. Zander [Pottiaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Hennediella heimii* grows especially near marine areas, it also develops in places without marine influence. It developed both in dry and humid environments as well as in open or protected sites. This species has a strict bipolar distribution. In Antarctica, it is a widely distributed species (Ochyra *et al*. 2008). On Cockburn Island (coast, plateau and cone) the species was mentioned as *Bryum antarcticum* Hook. *f. et* Wils. by Hooker (1847); as *Pottia heimii* (Hedw.) Hamp. by Lewis Smith (1993); and, as *H. heimii* by Ochyra *et al*. (2008).

Comments.*Hennediella heimii* is characterized by having leaves that are more or less toothed or serrated towards the apex, which can be acute or acuminate; leaf margins indistinctly edged and flat; apical lamellar cells densely papillose, upper lamellar cells translucent (Ochyra *et al*. 2008).

**\**Pohlia wilsonii* (Mitt.) Ochyra [Bryaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Pohlia wilsonii* develops in environments from terrestrial to submerged, submerged to amphibian. It is distributed in temperate regions of the south, mainly in Andean areas. In Antarctica, it is rare (Ochyra *et al*. 2008). The species is recorded for the first time from Cockburn Island.

Comments.*Pohlia wilsonii* can be confused with *B. pseudotriquetrum*. However, *P. wilsonii* has leaves oblong-lanceolate to lanceolate, rarely ovate, apex acute to subacute, lamina cells oblong-hexagonal, rectangular to linear-rectangular. While *B. pseudotriquetrum* have long acuminate and oval to elliptic lanceolate leaves, always obtuse apex and short rhomboid to hexagonal lamellar cells (Ochyra *et al*. 2008). In addition, the examined material was found growing on soil between volcanic rocks, in these spaces both circulation and accumulation of water were observed, which coincides with the aquatic or amphibian habit reported for the species.

Examined material.Antarctica. Cockburn Island, Island Plateau, East side (64°12'16,92"S; 56°50'16,26"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5614).

***Schistidium antarctici* (Cardot) L.I. Savicz & Smirnova**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Schistidium antarctici* is a species associated with rocky sites, both dry and wet, and exposed or protected. This species is considered endemic to the Antarctic continent where it is widely distributed, both in continental and insular areas (Ochyra *et al*. 2008). This species has been previously mentioned for Cockburn Island (coastal) by Ochyra *et al*. (2008).

Comments.Sterile plants of this species are distinguished by having closely overlapping leaves in 3-4 rows, the costa is semi terete and tristratose below, the leaf margin is bistratose, and the leaves lack a hyaline basal margin (Ochyra *et al*. 2008).

**\**Schistidium lewis-smithii* Ochyra**

Description and iconography.Ochyra (2003).

Habitat and distribution.It grows on exposed sites between rocks; it is considered endemic to Antarctica, particularly the Shetland Islands (Ochyra *et al*. 2008). In this work, it is mentioned for the first time for Cockburn Island.

Comments.The sterile gametophytes of *S. lewis-smithii* are distinguished from other species of the genus by having widely canaliculated leaves and erect to recurved margins, rounded cells, thick-walled and almost homogeneous throughout the blade, plane-convex costa, not dorsally prominent, and in cross-section it is elliptic to semi terete, 3-4-stratose, with somewhat larger ventral and dorsal epidermal cells and smaller central sub steroid cells. Although many of these characteristics are shared with *Schistidium falcatum*, it is easily distinguished from *S. lewis-smithii* by its leaves that are lanceolate, oblong-lanceolate to strongly second-falcate (Ochyra 2003).

Examined material. Antarctica. Cockburn Island, Island Plateau, East side (64°11'57,804"S; 56°50'20,112"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5613)

***Syntrichia magellanica* (Mont.) R.H. Zander [Pottiaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Syntrichia magellanica* grows in a wide variety of habitats, from dry to moist and from exposed to sheltered. This species is considered Antarctic-subAntarctic, however, it is distributed mainly in the Antarctic biome where it is considered pan-antarctic. It has previously been mentioned for Cockburn Island (coastal and plateau) as *Tortula laevipila* Bruch *et* Schimp. by Lewis Smith (1993) and as *Syntrichia laevipila* Brid. by Ochyra *et al*. (2008).

Comments.This species is distinguished from others of the genus by having an excurrent costa in a long smooth hair, recurved lamina margins without edge, a smooth dorsal surface, and no hydroids in cross-section (Gallego *et al*. 2011).

Examined material.Antarctica. Cockburn Island, Island Plateau, East side (64°12'11,052"S; 56°50'28,607"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5607); ibid., East side (64°12'6,228"S; 56°50'35,016"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (5608); ibid., 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5609); ibid., East side (64°11'58,2"S; 56°50'31,343"O), on soil between volcanic rock, 10.II.2022, A.C. Cottet-L.P. Dopchiz (BCRU 5612)

***Syntrichia sarconeurum* Ochyra & R.H. Zander [Pottiaceae]**

Description and iconography.Ochyra *et al*. (2008)

Habitat and distribution.*Syntrichia sarconeurum* grows in both wet and dry habitats, and exposed and sheltered sites. This species is Pan-Antarctic and is endemic to the continent. On Cockburn Island (coastal), it has been previously mentioned as *Didymodon glacialis* Hook. *f.* *et* Wils., *Sarconeurum glaciale* (C. Muell.) Card. *et* Bryhn by Lewis (1993); and *Didymodon acutus* (Brid.) K. Saito, and *S. sarconeurum* by Ochyra *et al*. (2008).

Comments. *Syntrichia sarcorneurum* is easy distinguished of other Antarctic species, with the exception of two species of the genus *Tortella*. These plants are fleshy and inflated and deciduous leaf apices that form propagules. However, *S. sarconeurum* is distinguished from other closely related species [such as *Tortella fragilis* (Drumm.) Limpr. and *Tortella alpicola* Dixon] by having a single dorsal band of steroids and by gradual differentiation between chlorophyll cells and basal hyaline cells (Ochyra *et al*. 2008).