Syntrichia ammonsiana (Pottiaceae), new to South America

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Abstract. *Syntrichia ammonsiana* is newly recorded for South America from Peru. Previously, this species was known only from North America and southern Africa. The principal distinctive characters that separate it from the three nearest species, *S. chisosa*, *S. costesii* and *S. laevipila*, are discussed.

Keywords. Pottiaceae, Peru, South America, *Syntrichia ammonsiana*.

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During a bryological expedition to central and southern Peru during March and April 2005, the second and third authors collected a specimen of *Syntrichia* Brid., which did not match any previously known species of this genus in South America. We identified this specimen as *S. ammonsiana* (H. A. Crum & L. E. Anderson) Ochyra, which was described from West Virginia, U.S.A. (Crum & Anderson 1979), and later reported from North Carolina and Tennessee (Crum & Anderson 1981), South Africa (Magill 1981), Namibia (Russell & Van Rooy 1988) and Lesotho (Hodgetts et al. 1999; Perold & Van Rooy 1993). We have also studied a specimen of this species from Zimbabwe, collected by Vahrmeijer in the Chirinda Forest and determined by S. Perold in 1986, the record of which was never published. *Syntrichia ammonsiana* is described and illustrated by Crum and Anderson (1981) and Magill (1981) and is also illustrated by Zander (1993).

Results

Diagnostic Features. *Syntrichia ammonsiana* (**Fig. 1**) is rather distinct propaguliferous species closely linked to *S. laevipila* Brid., *S. chisosa* (Magill, Delgad. & L. R. Stark) R. H. Zander and *S. costesii* (Thér.) R. H. Zander on the basis of its form of asexual reproduction. The diagnostic character that separates these four species from all other taxa of *Syntrichia* is the presence of leaf-like propagules (brood leaves, *sensu* Newton & Mishler 1994). *Syntrichia ammonsiana* is recognized by spathulate to lingulate leaves, not constricted at the middle (**Fig. 1F**), plane leaf margins, a mucronate or apiculate leaf apex, a costa weakly papillose at back (**Fig. 1D**), unistratose laminae (**Fig. 1E**), undifferentiated leaf margins (**Fig. 1F**), and mid-laminal cells 12.5–20 μm wide (**Fig. 1C**), althought the most peculiar feature are the brood leaves borne in clusters at the tip of the stem and also in the axils of upper leaves on branched stalks (**Fig. 1A, B**).

Syntrichia laevipila is clearly related to *S. ammonsiana*, but differs by constricted leaves with hyaline awns, costa smooth at back, and leaf margins sometimes differentiated (by a border formed of 2–5 rows of thicker-walled and less papillose cells) and recurved to midleaf. In this species the brood leaves are borne at the tip of the stem and also in axils of upper leaves but never on stalks. *Syntrichia chisosa* has bistratose laminae, smaller mid-laminal cells (5–10 μm wide), a costa strongly papillose abaxially, with simple papillae to 12.5 μm high, and brood leaves borne in clusters at the tip of the stem and also in axils of upper leaves on stalks. *Syntrichia costesii* is a Chilean species that can be distinguished from *S. ammonsiana* by its strongly differentiated leaf mar-

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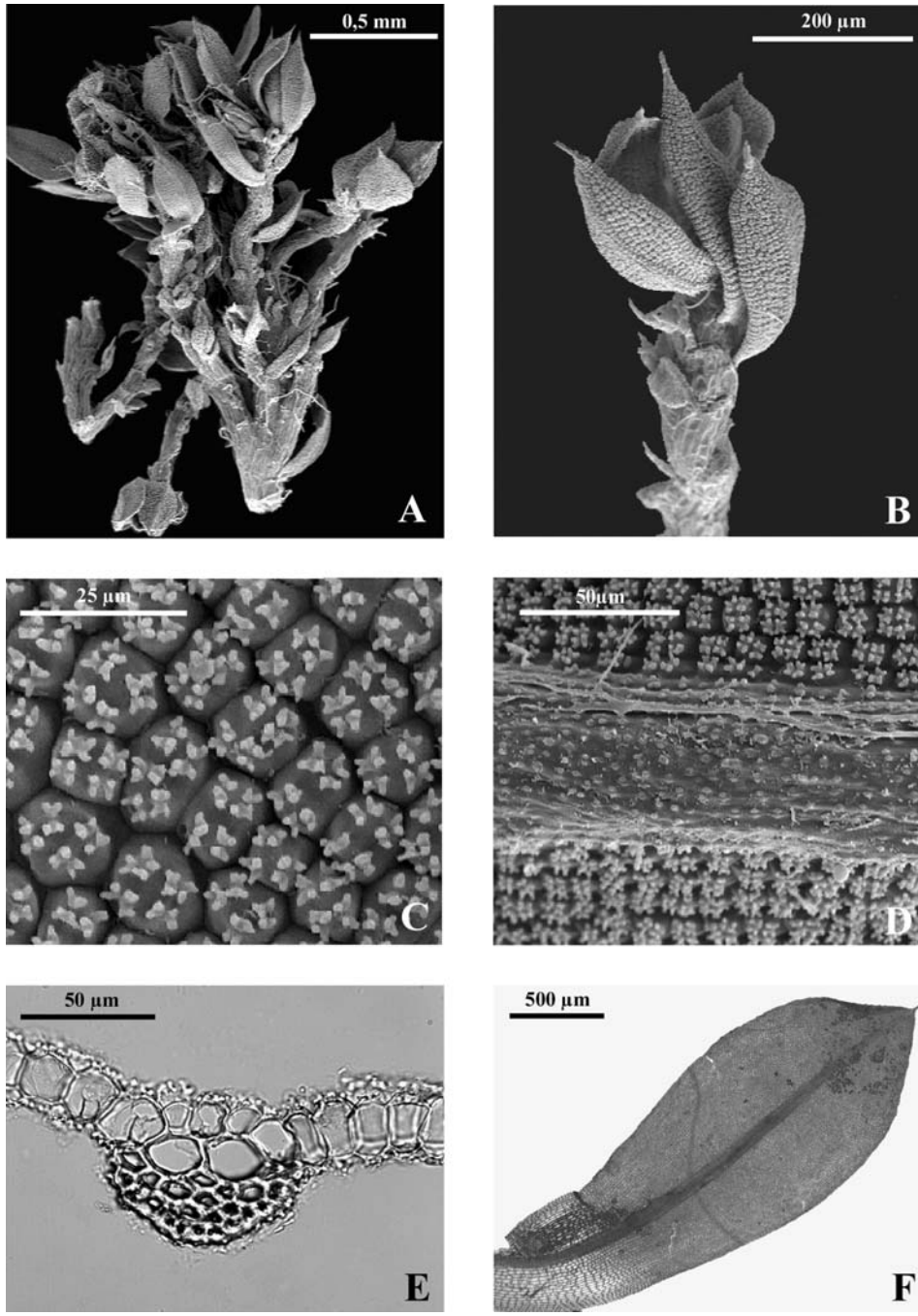

Figure 1. *Syntrichia ammonsiana* (from MUB 18392). **A.** Brood leaves on branched stalks. **B.** Detail of brood leaves. **C.** Mid-laminal cells. **D.** Costa at back. **E.** Cross section of the costa in upper third of leaf. **F.** Leaf.

gins, that are occasionally bistratose and recurved to midleaf, and smaller mid-laminal cells (7.5–10 µm wide). Like the previous species, the brood leaves in *S. costesii* are borne in clusters at the tip of the stem and also in axils of upper leaves on stalks.

Distribution and Ecology. *Syntrichia ammonsiana* occurs in eastern United States on rock outcrops, preferring the backwalls and shelves of overhanging cliffs, although colonies of small plants have been located on exposed cliff-faces (Risk 1996)

at 900-1100 m, and in southern Africa on trunks and rocks in forests or grasslands (Magill 1981), usually along wooded streams at waterfalls at 1200–1700 m. The Peruvian plants grew on sheltered rock in a lower montane rain secondary forest at 1760 m.

New World populations show the same morphological characters of the gametophyte as those of African populations, but sporophytes are solely produced in South Africa. According to Crum and Anderson (1981), the leaf margin in *S. ammonsiana* is usually minutely toothed on or near the base of the apiculus, but the species varies widely in this character, and this feature does not appear in African or Peruvian plants.

Syntrichia ammonsiana represents a remarkable addition to the moss flora of Peru. In the preliminary checklist of Menzel (1992) the genus *Syntrichia*, as then understood, consisted of only nine species. Phytogeographically, the record of *S. ammonsiana* from Peru represents an important range extension of this species to South America indicating that the bryoflora of Neotropics is still in need of further studies.

New Locality. PERU. JUNÍN: Pr. Palca, Puente Yanango, *Cano 2084 & Guerra* (MUB 18392).

Additional Specimens Studied. U.S.A. NORTH CAROLINA: Jackson County, Tuckasegee Quad, Black Mountain, Parker Knob, *Risk & Dellinger 8272*, *8273* (TENN); Big Ridge Quad, Cedar Cliff Mt., *Risk 7672* (TENN); Tuckasegee Quad, Shelton Mt., Panther Knob, *Risk 8279* (TENN); Tuckasegee Quad, between Deep Gap and Sheep Mt., *Risk & Dellinger 8269* (TENN); Tuckasegee Quad, Coward Knob, *Risk & Dellinger 8274* (TENN). WEST VIRGINIA. Pocahontas County: Falls of the Hills Creek, *Anderson 21897* (DUKE, holotype; WVA, isotype), *22478* (MICH); Lobelia Quad, Falls of Hills Creek Scenic Area, *Risk 8296* (TENN).

SOUTH AFRICA. MPUMALANGA: Waterval-Boven District, Elandshoek Farm, *Van Rooy & Perold 3851*, *3854*, *3858*, *3861* (MO). NORTHWEST. Magaliesberg, Rustenburg Nature Reserve, *Van Rooy 3736* (MO). NATAL. Oliviershoek Pass, *Magill 6809* (MO).

ZIMBABWE. MANICALAND PROV.: Chirinda Forest, Mt. Selinda, *Vahrmeijer CH 13015* (MO).

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