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Short Communication

New reports of *Culbersonia nubila* (Moberg) Essl. from the Tibetan Region, Bolivia, Argentina, Lesotho and South Africa

The monotypic genus *Culbersonia* Essl. was established by Esslinger ('2000'/2001) based on the newly described taxon *C. americana* Essl. One year later, Esslinger (2002) uncovered the synonymy with *Pyxine nubila* Moberg, described by Moberg (1980), and transferred it to the new genus. Up to now *Culbersonia nubila* (Moberg) Essl. was known from a few localities in Peru, Kenya, Ethiopia, Tasmania, Saudi Arabia and the USA (Arizona).

During studies by the first and second authors on the lichen genus *Pyxine* Fr. from the Tibetan region, three specimens of *Culbersonia nubila* from different localities (several hundred kilometres apart) were found. A search for further unpublished material, using the Global Biodiversity Information Facility website (http://www.gbif.org/), yielded additional specimens from South Africa and South America.

Culbersonia nubila is a foliose, sorediate lichen (Figs 1A, 2A, 2B) with a greyish colour (often with a bluish tint), pruinose (Fig. 1B), commonly radially spreading lobes (Figs 1A, 2A), two-celled brown spores (16–20 × 5–9 μm; only two fertile specimens with one apothecium each are hitherto known), and cylindrical to weakly fusiform pycnoconidia (5–6·5 × 1 μm). It was originally placed in the genus *Pyxine* mainly because of the K+ purple reaction of the epithecium, which is supposed to be rather uncommon within the *Physciaceae*. In contrast to all other species of the genus *Pyxine*, *Culbersonia nubila* lacks any acetone-soluble lichen substances, a fact which we have confirmed-by our own TLC investigations. The acetone insoluble bluish-grey cortical pigment with a K+ purple-violet reaction, the mostly pale lower cortex, and the different size and shape of the pycnospores were regarded by Esslinger (2002) to be of sufficient diagnostic value to separate it from the genus *Pyxine*. Rogers (1986) had previously predicted either its segregation into a new genus, or its relocation either into the genus *Physcia* (Schreb.) Michaux or *Physconia* Poelt. Indeed, the superficial appearance of this lichen (Figs 1 and 2) is closer to that of members of *Physconia* or *Phaeophyscia* Moberg (or to a minor degree of *Physcia*) than of *Pyxine,* as had been observed by Moberg (1980) in the original description. Molecular studies may eventually help to establish the true affinities of the taxon.

The collections from Tibet, housed in GZU, represent new reports for the Central Asian region (*fide* Wei 1991; Hu & Chen 2003), whereas the cited collections from Argentina, Bolivia, Lesotho and South Africa are new reports for each of these countries. These records show that *Culbersonia nubila* has a world-wide but very scattered distribution (Fig. 3) and is now known from a few localities on all continents except Antarctica; i.e. North America (Arizona), South America (Peru, Bolivia and Argentina), Africa (Kenya, Ethiopia, Lesotho and South Africa), Australia (Tasmania) and Eurasia (Saudi Arabia and Tibet [Fig. 4]). For previous reports see Moberg (1980), Abu-Zinada *et al.* (1986), Swinscow & Krog (1988), Kantvilas (1991), and Esslinger (2001, 2002). The report in the internet-checklist of the lichens of Thailand (Anonymous 2008) is based on an incorrect determination (K. Boonpragob, curator of RAMK, *in litt.*).

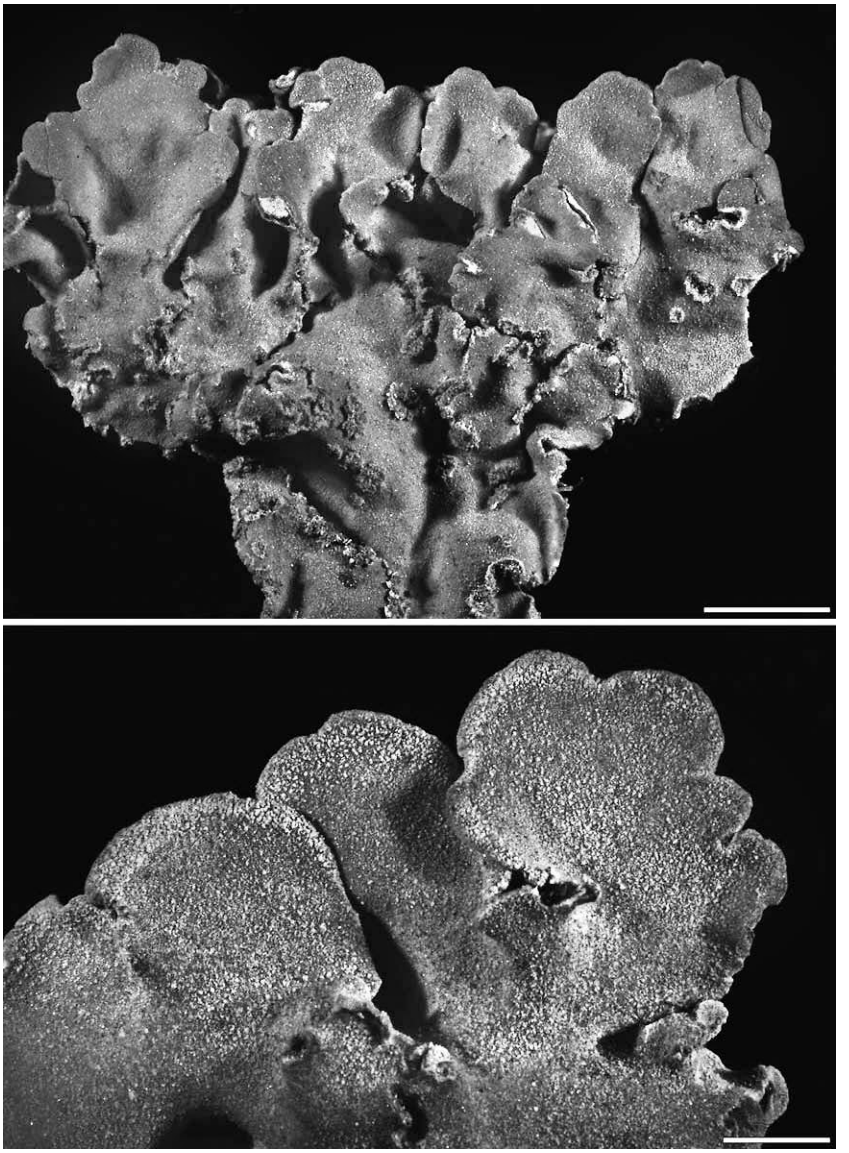

FIG. 1. *Culbersonia nubila* (Tibet, *Obermayer* 04516). A, habit of a sorediate thallus with laminal and marginal soralia; B, pruinose upper surface of lobe tips.

The species has been collected from altitudes ranging from 200 m (Tasmania) to 4450 m (Tibet). The following list is sorted according to increasing altitudes: Tasmania (*c.* 200–400 m), Argentina (*c.* 1100–1300 m), South Africa (*c.* 1500–1700 m), Lesotho (*c.* 1500–1800 m), Ethiopia (*c.* 1800–2000 m), Saudia Arabia (1950 m), Kenya (*c.* 2000 m), Peru (*c.* 2000–2250 m), Arizona (*c.* 3000 m), Bolivia (*c.* 2500–3750 m), Tibet (*c.* 3300–4450 m).

The climatic features of these locations are consistent with the interpretation that the species requires cool to cold conditions with somewhat low to moderate precipitation. Under such conditions humidities will

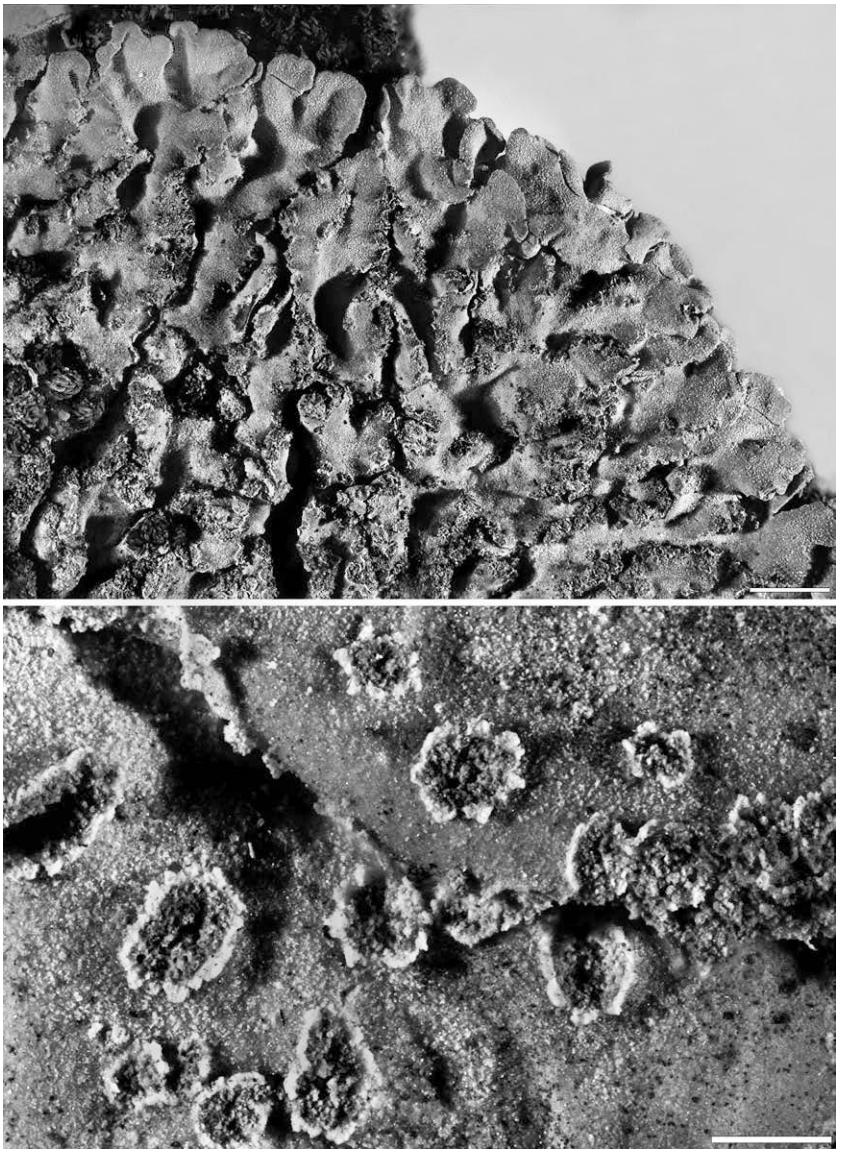

FIG. 2. *Culbersonia nubila*. A, habit of a sorediate thallus with mostly marginal soralia (Argentina, *Nash* 23900); B, crater-like, laminal soralia (Argentina, *Nash* 27635).

be higher than under hot conditions and evaporation less.

The specimens of *Culbersonia nubila* cited below were collected from trees (e.g. *Jacaranda mimosifolia* D. Don., *Populus balsamifera* L., and *Cupressus gigantea* W. C. Cheng & L. K. Fu), from acidic rocks and even from rather compact soil (Nash 23900), which often acts as a substratum for 'usually epilithic' taxa. The occurrence of epilithic and epiphytic specimens was previously reported in the original descriptions of the species and its synonym (Moberg 1980; Esslinger 2001).

Specimens examined. **Argentina:** *Prov. San Luis*: 17 km SW of El Toma along route 20, 1100 m alt.,

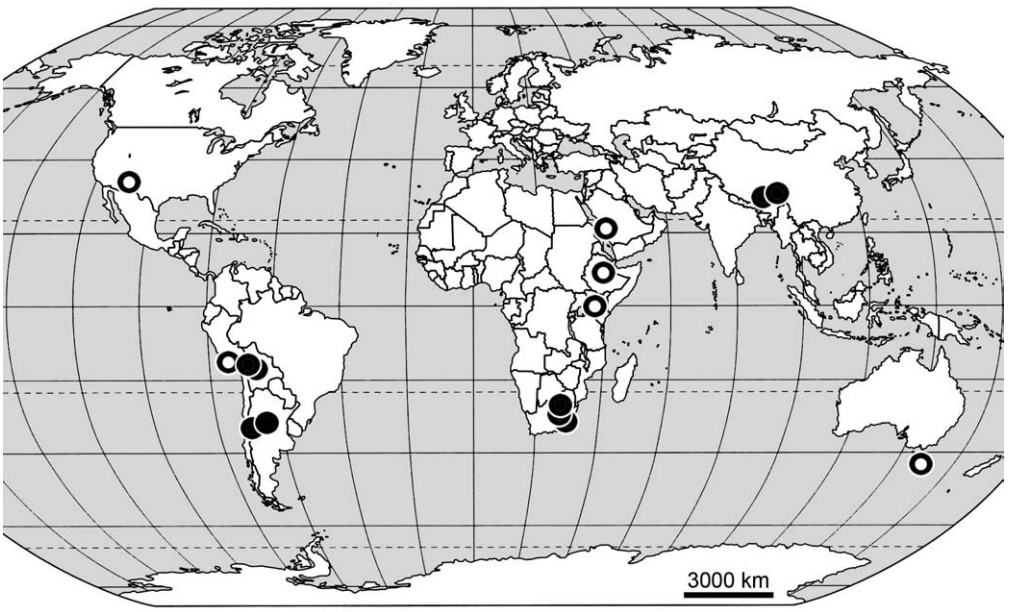

FIG. 3. World distribution of *Culbersonia nubila*. Records from literature (○), new records (●).

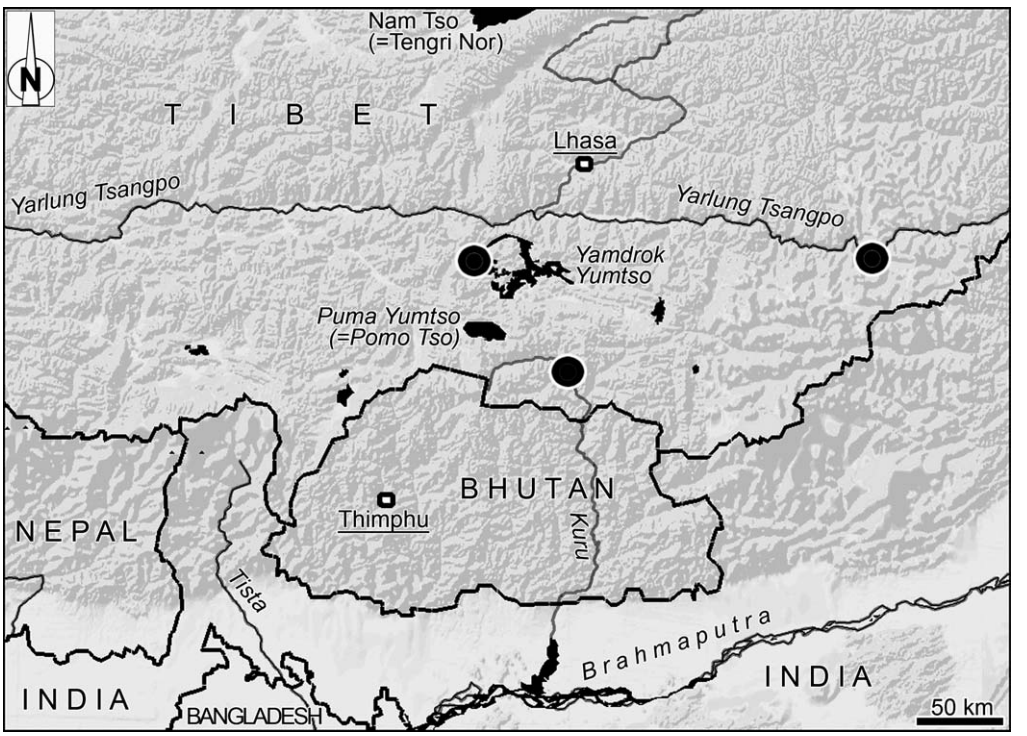

FIG. 4. Localities (●) of *Culbersonia nubila* in Tibet.

33°15′S, 65°55′W, on tree, 1989, *Nash* 27635 (ASU), conf. *Moberg* 1996; La Aguadita, 1 km E of Papagayos, thorn forest area, 32°42′S, 64°58′W, on tree, 1989, *Nash* 27657 (ASU) , conf. *Moberg* 1996. *Prov. Mendoza*: Partido de Lujan, 1 km W of Cacheuta along route 7, 33°02′S, 69°07′W, on soil, 1985, *Nash* 23900 (ASU), conf. *Moberg* 1996. —**Bolivia:** *Cochabamba*: Prov. Cercado: Cochabamba City, 2500 m alt., 17°28.2′S, 66°08.6′W, on *Jacaranda mimosifolia*, 2006, *Canazas* MC-75 (B); *ibid.*, *Canazas* MC-86 (B). *La Paz*: Prov. Murillo: Laguna de Cota-Cota (calle 31), sector frente a la puerta principal, 3750 m alt., 16°32.4′S, 68°04.0′W, on *Populus balsamifera*, 2002, *Canseco* 121 (B). —**China:** [Tibet]: *Prov. Xizang*: Himalaya Range, 175–180 km S of Lhasa, between Lhohzag and Lhakhang Dzong, Kuru River Valley, 28°15′N, 91°00′E, 3380 m alt., boulders next to a sloping river bank of Kuru River, on rocks, 1994, *Obermayer* 04516 (GZU); Himalaya Range, 100 km SSW of Lhasa, 10 km E of Nargazê, shore of Yamzho Yumco (=Yamdrok Tso), 29°02′N, 090°26′E, 4450 m alt., SSE-exposed arid slope with *Juniperus* trees, on rocks, 1994, *Obermayer* 04907 (GZU); Himalaya Range, 230 km ESE of Lhasa, Tsangpo Valley, 15 km ESE of the village Xang Xian (=Namshan), 29°00′N, 93°13′E, 3300–3400 m alt., canyon of a tributary to the Tsangpo with *Cupressus gigantea*, on dead *Cupressus gigantea*, 1994, *Obermayer* 05415 (GZU).—**Lesotho:** ['Basutoland']: *Distr. Maseru*: Roma, [*c.* 1700 m alt., 29°27′S, 27°42′E, on tree], 1962, *Kofler* 210143 (LD); *ibid.*, Caledon River, [*c.* 1500–1700 m alt., 29°26′S, 27°25′E, on tree], 9 viii 1962, *Kofler* s.n. (LD); *ibid.*, Morija, [ca 1700–1800 m alt., 29°38′S, 027°31′E, on tree], 22 ix 1962, *Kofler* s.n. (LD). *Distr. Quthing*: Masitise near Quthing, trunk of *Azedarac*, in front of Reverend Ellenberger's cave, [*c.* 1500 m alt., 30°24′S, 27°39′E, on tree], 1963, *Kofler* 3118 (LD; specimen with one apothecium !).—**South Africa:** *Prov. Cape*: Distr. Matatiele, Porter's Hook, on trees at the waterfall in narrow small valley, [*c.* 1500 m alt., 30°21′S, 28°49′E, on tree], 14 x 1929, *Höeg* s.n. (TRH). *Prov. Gauteng* ['Transvaal']: in savannah on hill side sloping forwards the Klipriviersberg, S of Johannesburg, [*c.* 1700 m alt., 26°17′S, 27°59′E, on tree], 31 vii 1929, *Höeg* s.n. (LD, TRH).

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