***Xylaria arbuscula Sacc.* – AEB 1358 (= PDD 120026)**

Collection site: residential bush area, Kelson, Lower Hutt

Collection date: 10 March 2023

Substrate: decaying decorticated wood from a pile of small to median-sized, sawed branch segments

Collector and Identifier: Dan Mahoney

Voucher material: Good herbarium material [AEB 1358 (= PDD 120026)]; various in-situ photos using a Samsung Galaxy A70 smartphone camera, a Zeiss MC80 dissecting microscope and microscopic detail using an Olympus BX51 compound microscope with a DP25 camera; Dan's comments

Comments: This collection fits nicely into the description provided by Rogers & Samuels l986. See a reproduction of that description on the next page. For some excellent online photos I recommend the following in a Google search: Xylaria arbuscula aff. 10 Feb. 2022 Enrique Rubio Domínguez

Records for *Xylaria arbuscula*: 5189 records in Genbank. 480 records in Mycoportal. 25 records in the PDD website.

Rogers J.D. & Samuels G.J. 1986. Ascomycetes of New Zealand 8. Xylaria. N. Z. J. Bot. 24: 615–650.

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8. Xylaria arbuscula Sacc. *Michelia 1*: 249. 1878.

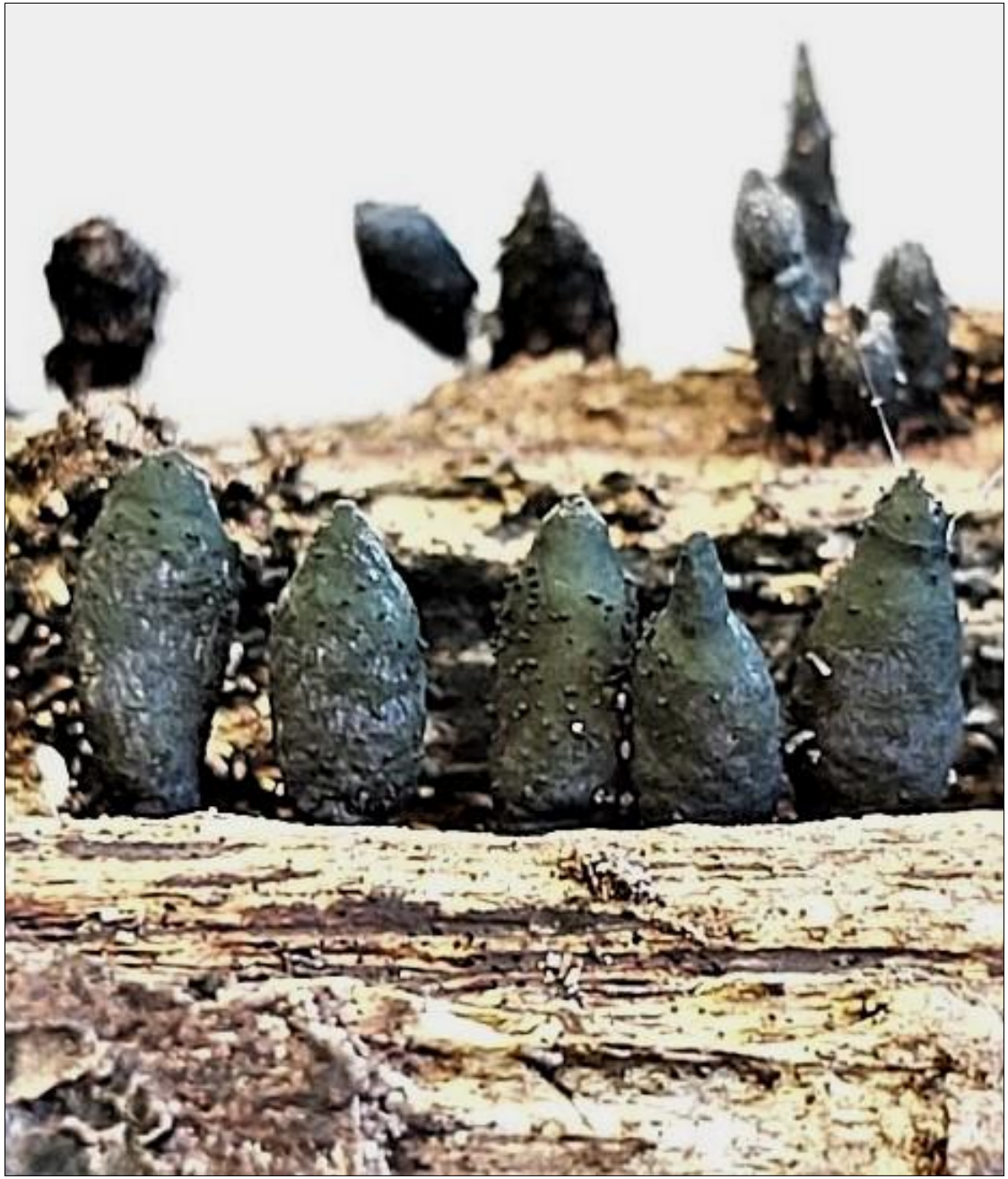
Stromata solitary to gregarious, unbranched or rarely branched near base and then fasciculate, (1-)2-3(-4) cm long; fertile portion lanceolate, circular to elliptic in section, 2-3 mm diam.; stipe to 10 mm long X 1.0-1.5 mm diam., not sharply delimited from fertile portion, slightly wrinkled, glabrous or with fine brown hairs; at first with a cinereous coating on surface of stroma, the cinereous colouration eventually disappearing and then stromal surface becoming black, smooth or slightly wrinkled; **perithecia** completely immersed, 300-400 µm diam., each opening through an inconspicuous papilla; internal tissue of stroma solid, white. **Asci** 150-210 µm total length X 5-9 µm, the sporiferous part 65-100 µm, cylindrical; apical ring J+, cylindrical, 2-3 µm wide X 3-4 µm high; asci 8-spored, ascospores uniseriate with overlapping ends. **Ascospores** (11-)13-16(-19) X (4.0-)5.0-6.0(-7.5) µm, inequilateral with one side flat and one side curved; elliptic in top view; one-celled or with inconspicuous cellular appendage (primary appendage) on one end, transparent brown; slit full length or less than full length and then 7-12 µm long, diagonally inserted, or parallel to long axis of ascospore, straight or broadly sigmoidal.

HABITAT: On bark and decorticated wood of angiosperms and gymnosperms but not found in *Nothofagus* forests.

DISTRIBUTION: (number of specimens examined in parentheses). NORTH ISLAND: Northland (5), Auckland (13), Wanganui (1), Wellington (3). SOUTH ISLAND: Nelson (1), Southland (1).

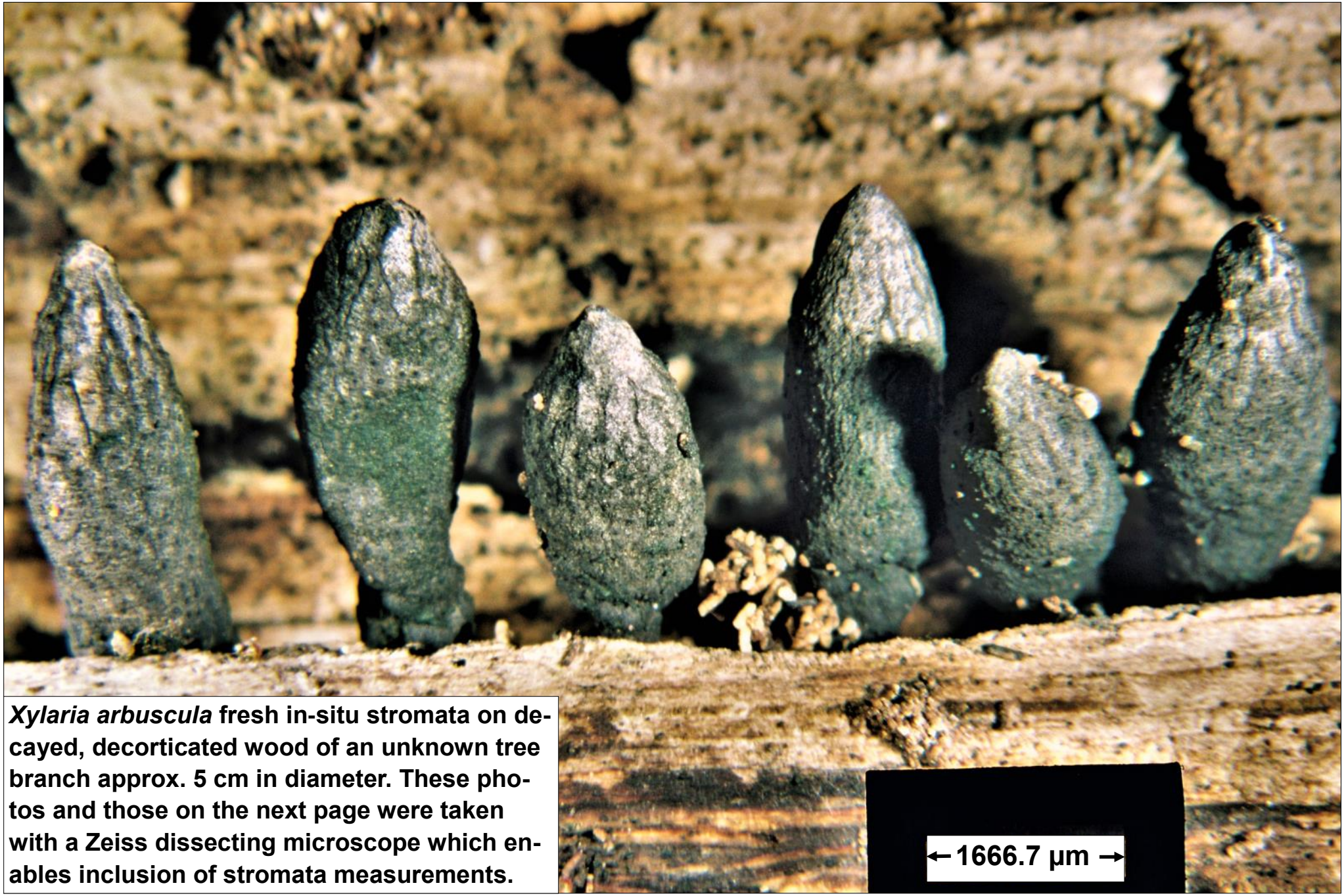
NOTES: *Xylaria arbuscula* was originally described from a greenhouse in Italy and has since been reported from various parts of the world. Dennis (1956) has listed probable synonyms and, later (Dennis 1961) accepted it as *Xylosphaera mellisii* (Berk.) Dennis [= *Xylaria mellisii* (Berk.) Cooke]. Because of the probability that several taxa will eventually be recognised, we accept the better known name until additional studies can be done. Miller's description (1942) of *X. arbuscula* from Africa generally embraces our concept of the species. *Xylaria arbuscula* from New Zealand is characterised by a thin, cinereous coating overlying the dark underlying stroma. This coat often disappears almost completely from older specimens. The ascospore germ slit is usually broadly sigmoidal, laterally inserted, and less than the full length of the ascospore. Ascospores sometimes bear a very inconspicuous cellular (primary) appendage on one end. The frequency of appendaged ascospores varies from collection to collection. Stromata from North America, South America and Europe usually show a more conspicuous cinereous or light tan outer layer which dehisces by shredding or peeling; ascospore germ slits are usually less than the full length of the ascospore and, in some cases, ascospores bear an inconspicuous cellular appendage (J. D. Rogers unpublished).

Xylaria arbuscula **fresh in-situ stromata on decayed, decorticated wood of an unknown tree branch approx. 5 cm in diameter. These photos and those on the next page were taken with a Samsung Galaxy A70 smartphone camera. Photos left to right above & continued on the next page represent increasing magnifications of the stromata shown here.**

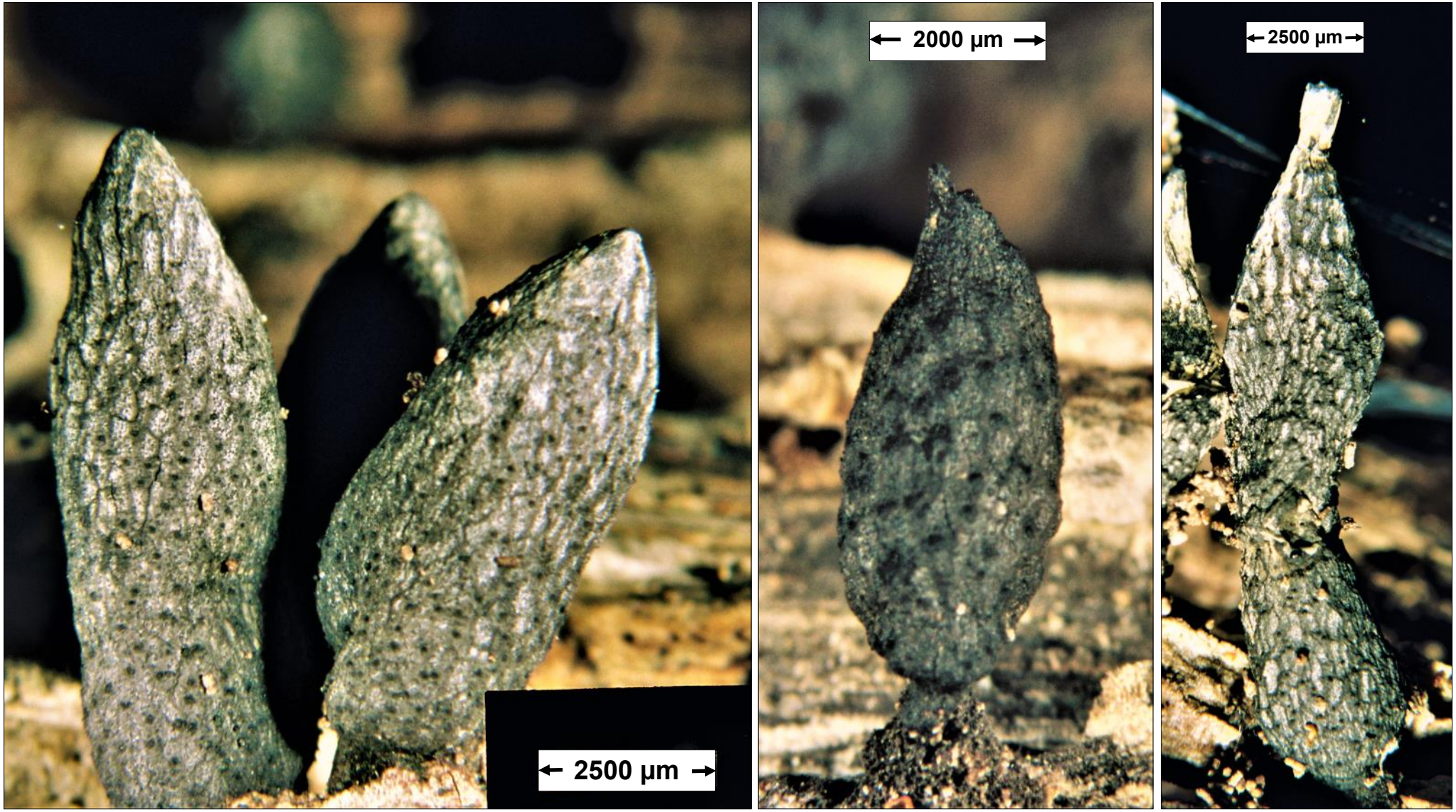


Xylaria arbuscula. **A continuation of fresh in-situ stromata photos described on the previous page.**

Xylaria arbuscula stroma **photographed with a Samsung smartphone. Stroma sliced vertically while still in place among the other stromata on the decayed wood. Note the apiculate apex, the white middle tissue and especially the globular black perithecia that line the periphery.**

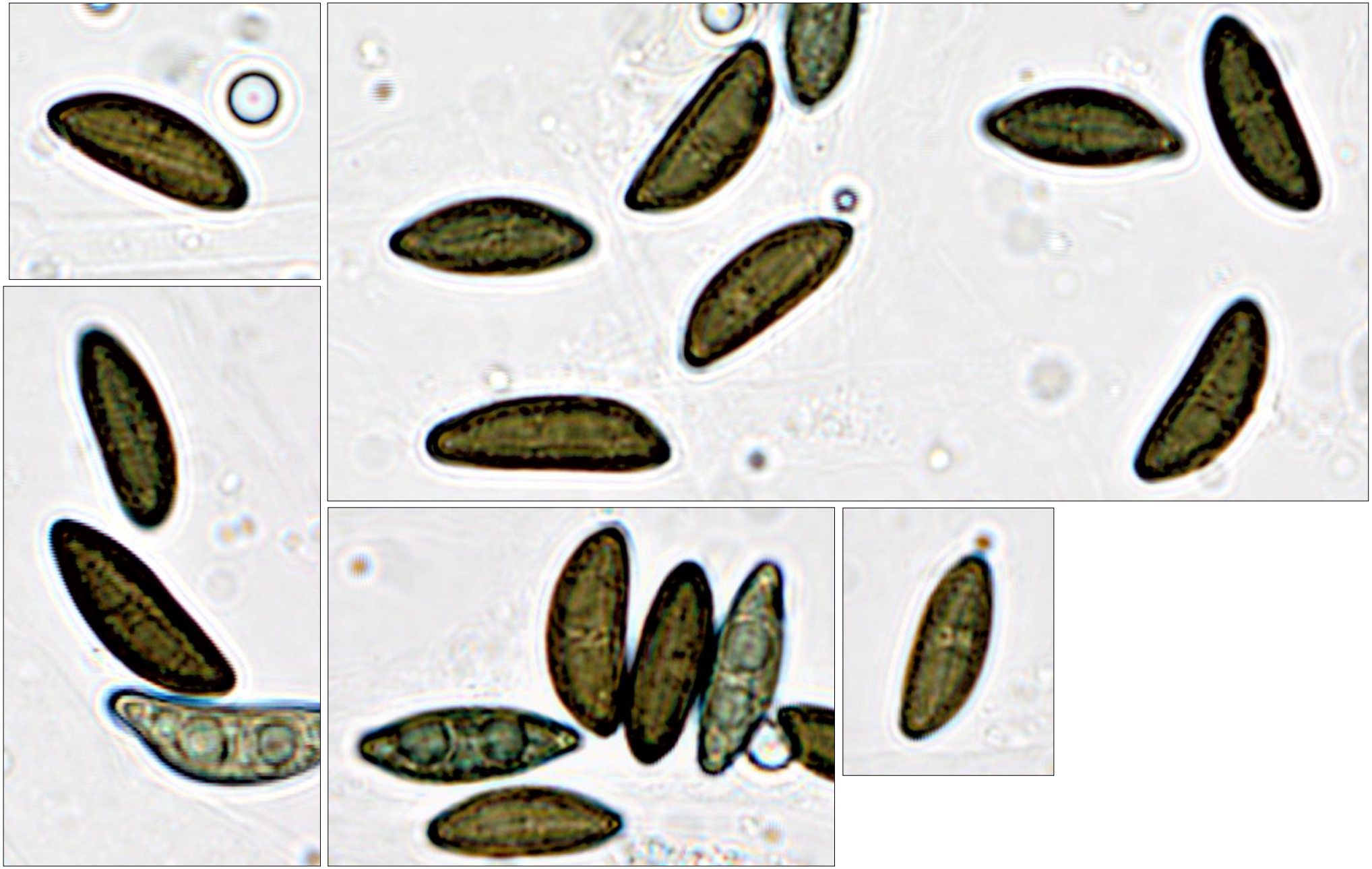


Xylaria arbuscula **fresh in-situ stromata on decayed, decorticated wood of an unknown tree branch approx. 5 cm in diameter. These photos and those on the next page were taken with a Zeiss dissecting microscope which enables inclusion of stromata measurements.**

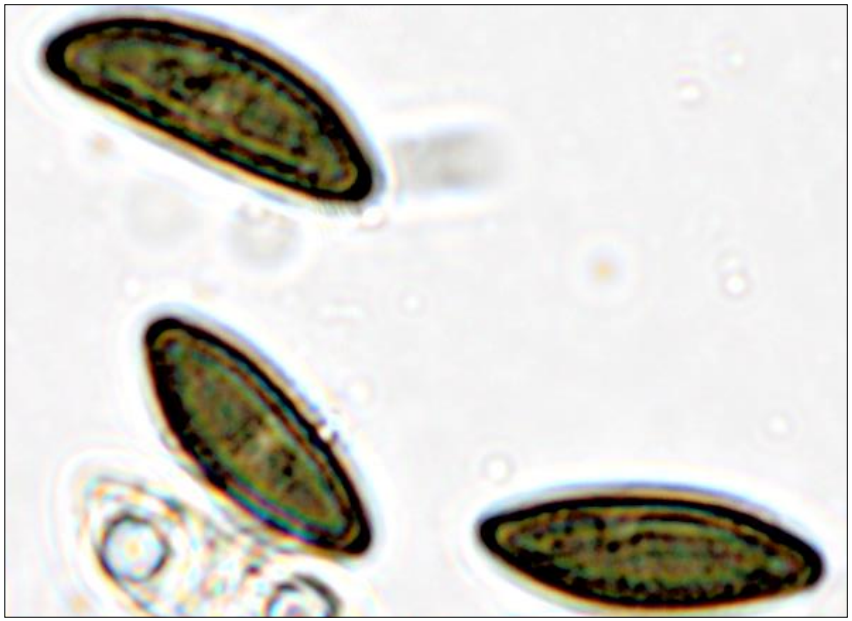


Xylaria arbuscula. **A continuation of fresh in-situ stromata photos described on the previous page.**

***Xylaria arbuscula*. All photos the same ascus. Water+Aniline blue lactic acid mount, whole ascus 155 µm long, ascospore portion 95 µm. Left 2 photos phase, X40 objective & X100 obj. resp.; right photo brightfield, X100 obj. Note overlapping uniseriate spore arrangement, spore shapes, faint germ slits and large centrally located deBary bubble.**



***Xylaria arbuscula* ascospores. These photos and those on the next page were all taken in water mounts using the X100 objective and brightfield microscopy. Note the ascospore shapes, coloration and longitudinal germ slits.**



Xylaria arbuscula. **A continuation of ascospore photos described on the previous page.**