***Hypoxylon* sp. AEB 1326 (= PDD 117245). I believe this to be the same unidentified Hypoxylon species (PDD 87872 & PDD 87951) that were collected by Peter Johnston and Ross Beever in 2005.**

Collection date: 20 May 2020

Collection site: Near Wainuiomata – Remutaka Forest Park, lower Five-Mile loop track. This track passes through groves of mature hard beech in the lower reaches of Grace's Stream.

Substrate: Fallen unidentified dead branch, 1–1½ cm in diam. Its bark was somewhat reddish maroon and largely intact.

Collector & identifier: Dan Mahoney

Voucher material: dried herbarium specimen AEB 1326 (= PDD 117245) accompanied by 3 semi-permanent slide mounts [2 Shear's mounting fluid (SMF)/Melzer's reagent and 1 SMF/lacto-Fuchsin]; Dan's Zeiss dissecting scope photos of in-situ stromata (digitized), several Samsung Galaxy A70 smartphone photos and his Olympus BX51 compound scope with DP25 camera digital photos of microscopic detail; Dan's description and comments.

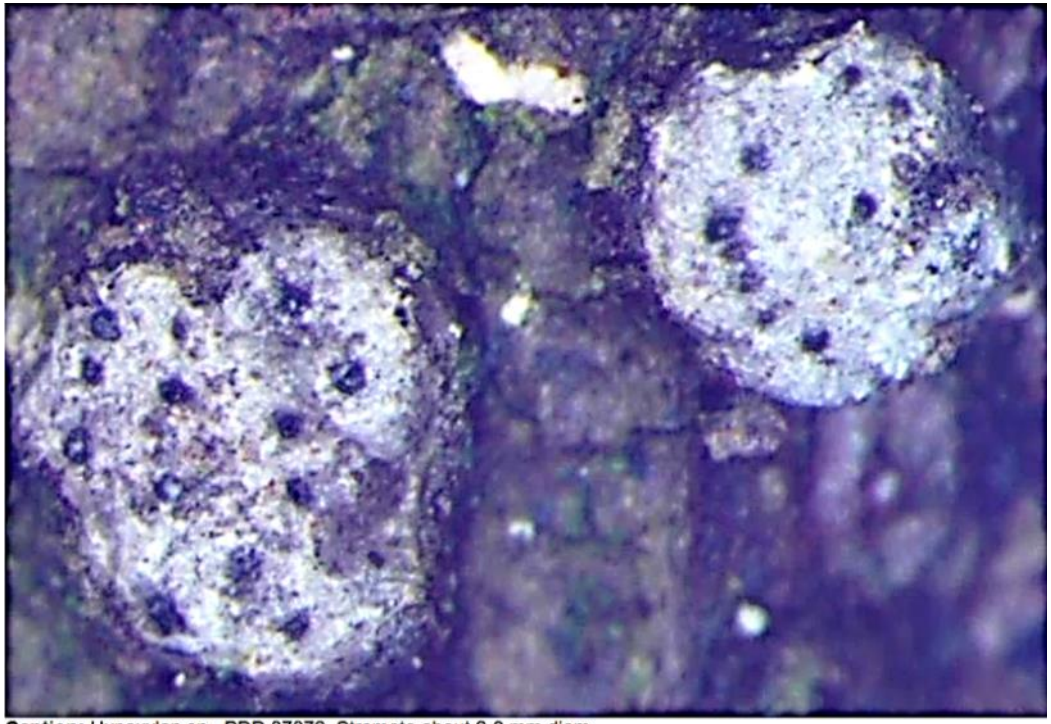
Description: **(most measurements accompany the photos) Stromata** numerous, forming on the dead wood surface immediately below the bark and emerging through the bark as small raised irregularly circular to ellipsoidal 'platforms' within which were few to many perithecia. Stromata separate or fused within a common platform whose thin side and bottom borders were black but whose upper surface was flattened and white to off-white or greyish. **Black globular perithecia** surrounded by off-white to bright-yellow stromatic tissue were almost completely embedded within the stromatic platform. Only their small black ostiolar areas were visible on the flattened platform surface and these were level with, or only slightly raised, above it. Perithecium hymenial squashes were conducted in water, Melzer's, SMF/Melzer's, lacto-Fuchsin & SMF/lacto-Fuchsin. **Paraphyses** were numerous, simple to sparingly branched, septate, longer than the asci and slightly tapered apically. **Asci** numerous, fertile, containing 8 uniseriate slightly overlapping ascospores, with moderately long stipes and apices that did not blue in Melzer's. Further details of the ascus apex or spore discharge were unclear. **Ascospores** smooth, brown to dark brown or blackish, one-celled, ellipsoid-inequilateral (symmetrical to variously plano-convex or cowrie-shell shaped, depending on their rotated view) with a full-length germ slit centrally located in symmetrical views, (10–)11–12(–13) × 6–7(–8.5) µm (n=30). **No anamorph was observed.**

Comments: Next page

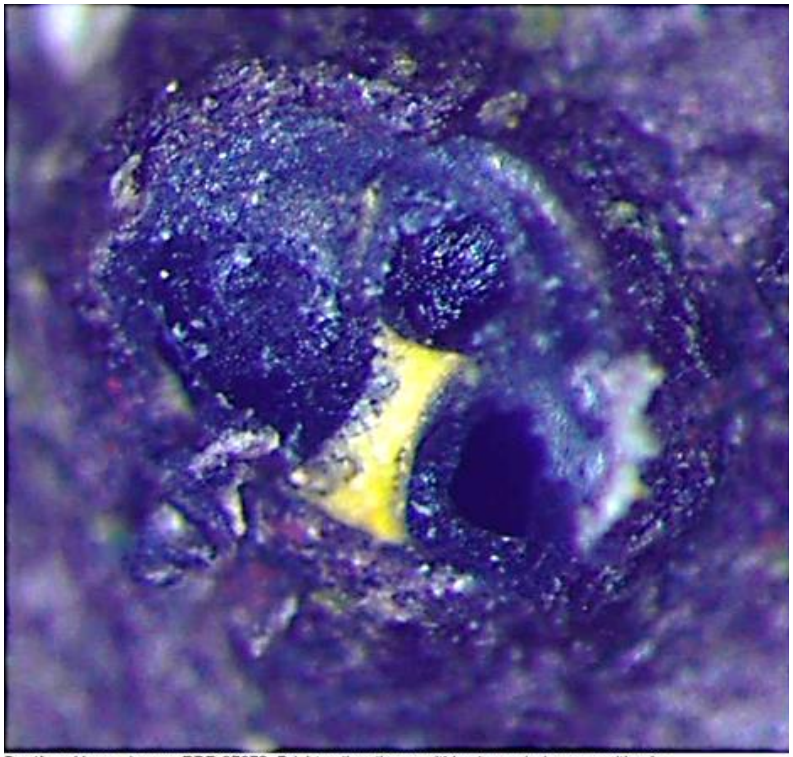
Comments: *Hypoxylon* is a large and complex genus with the majority of its species in warmer climates. Despite New Zealand being barely subtropical at its northern extremity, PDD records at Landcare are numerous with some binomials identified, but nearly 100 listed only as *Hypoxylon* (sp.). Having spent considerable time photographing, measuring and describing the present *Hypoxylon* sp., I still lack the results of any pigment release when their stromata come in contact with a KOH solution or the ascospore perispore dehiscence or indehiscence in 10% KOH. However, the photographs and public note of *Hypoxylon* sp. PDD 87872 provided by Peter Johnston are remarkedly like those I see here. He also reports that *Hypoxylon* sp. PDD 87951 is the same species. His public note and images are reproduced here:

Public Note: Small, erumpent stromata, pale with dark ostioles, bright yellow tissue between perithecia; asci J-; ascospores equilateral, elongate germ slit, about 11.5-12.5 x 6.5-7.5 µm.

Peter also cultured PDD 87872 (see ICMP Number 16410)

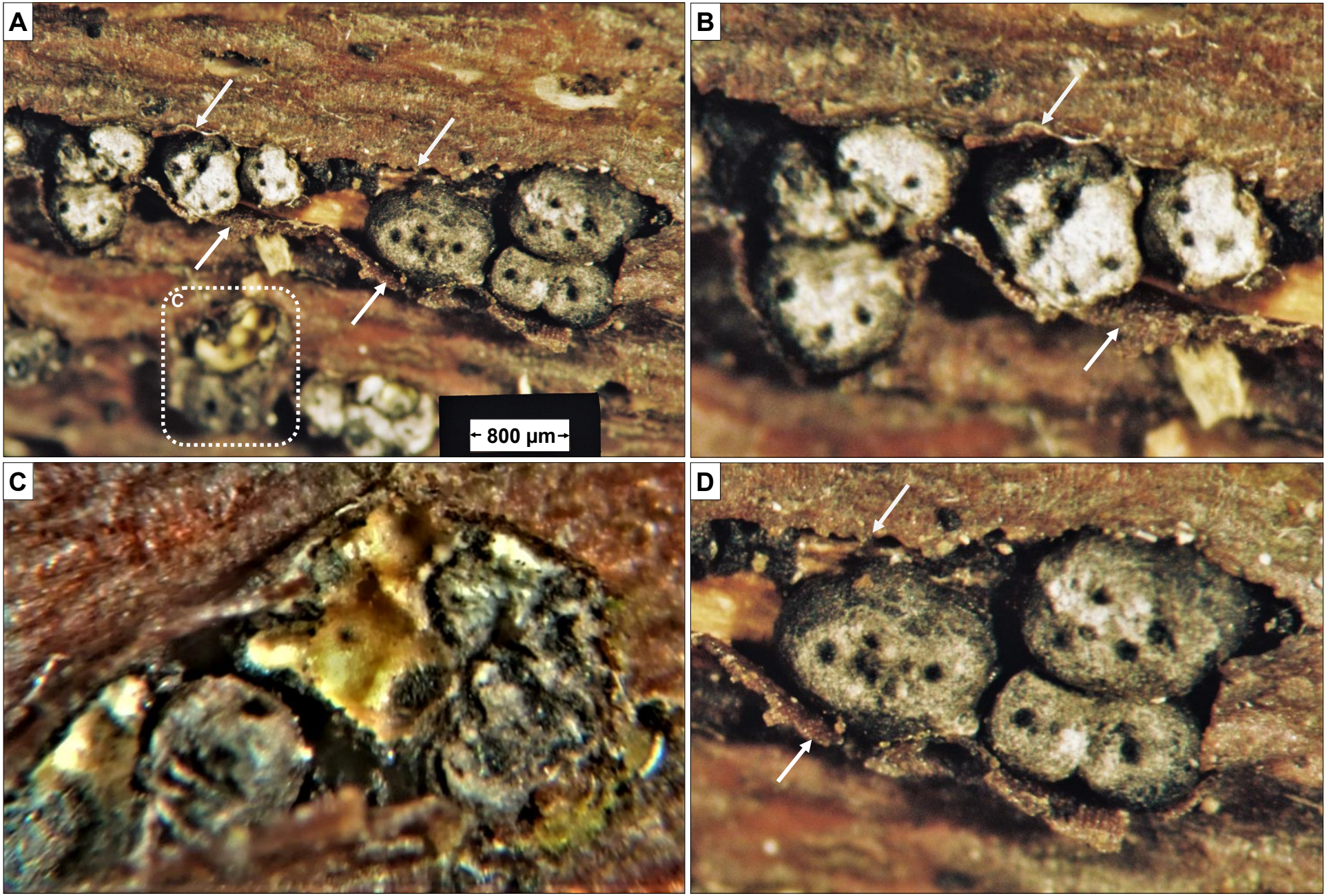


Caption: Hypoxylon sp., PDD 87872. Stromata about 2-3 mm diam.
Owner: Landcare Research
PDD: PDD87872



Caption: Hypoxylon sp. PDD 87872. Bright yellow tissue within stroma between perithecia.
Owner: Landcare Research
PDD: PDD87872

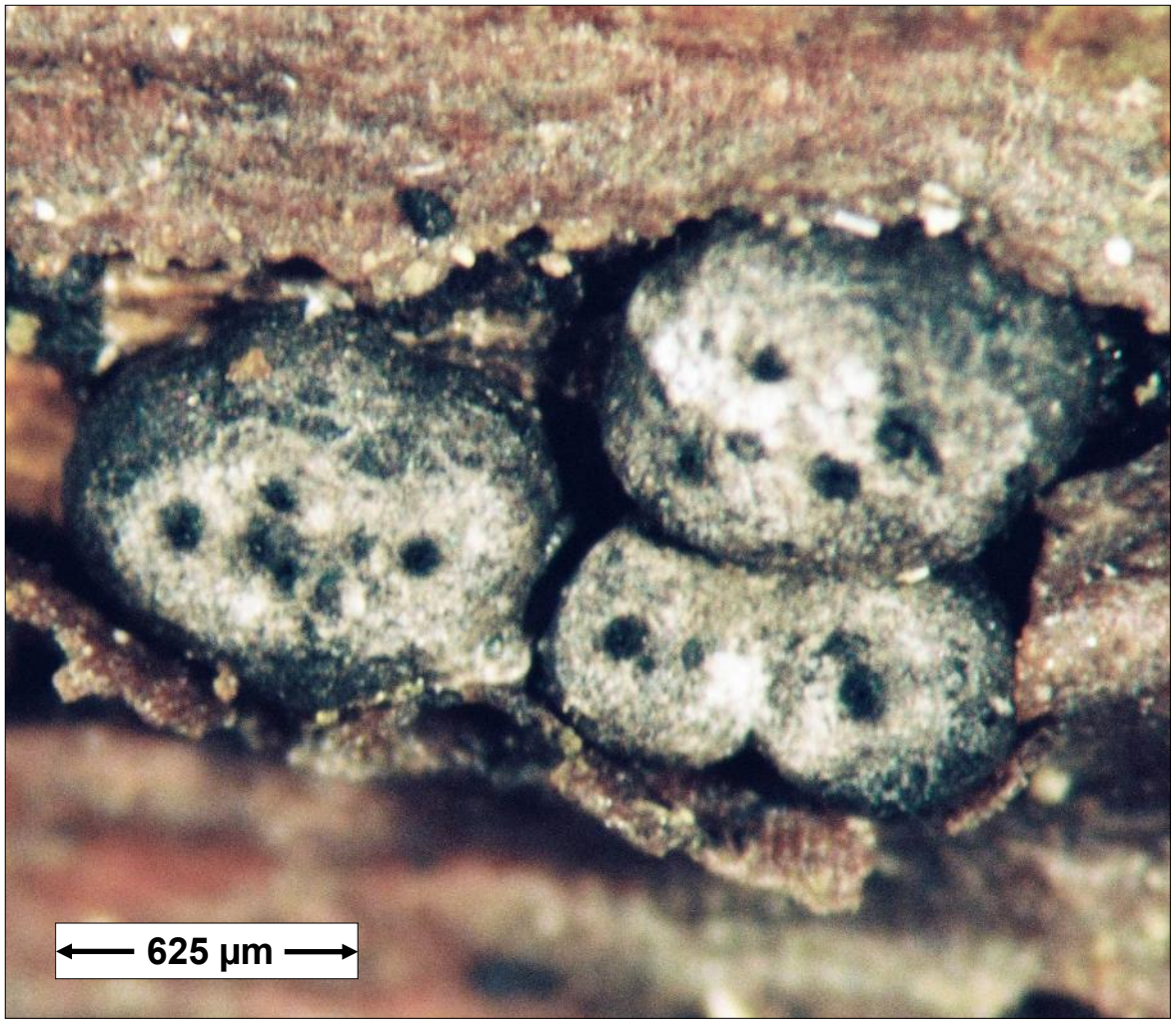
Of additional interest was Peter's identification of the dead twig on which PDD 87951 was found – *Geniostoma ligustrifolium* (a common endemic NZ shrub known as 'Hangehange' or 'Maori privet'). A recent collecting trip in late August 2020 has revealed what appears to be a *Hypoxylon* on dead branches of Hangehange. These were effete but I'll look further during the warmer weather to come.



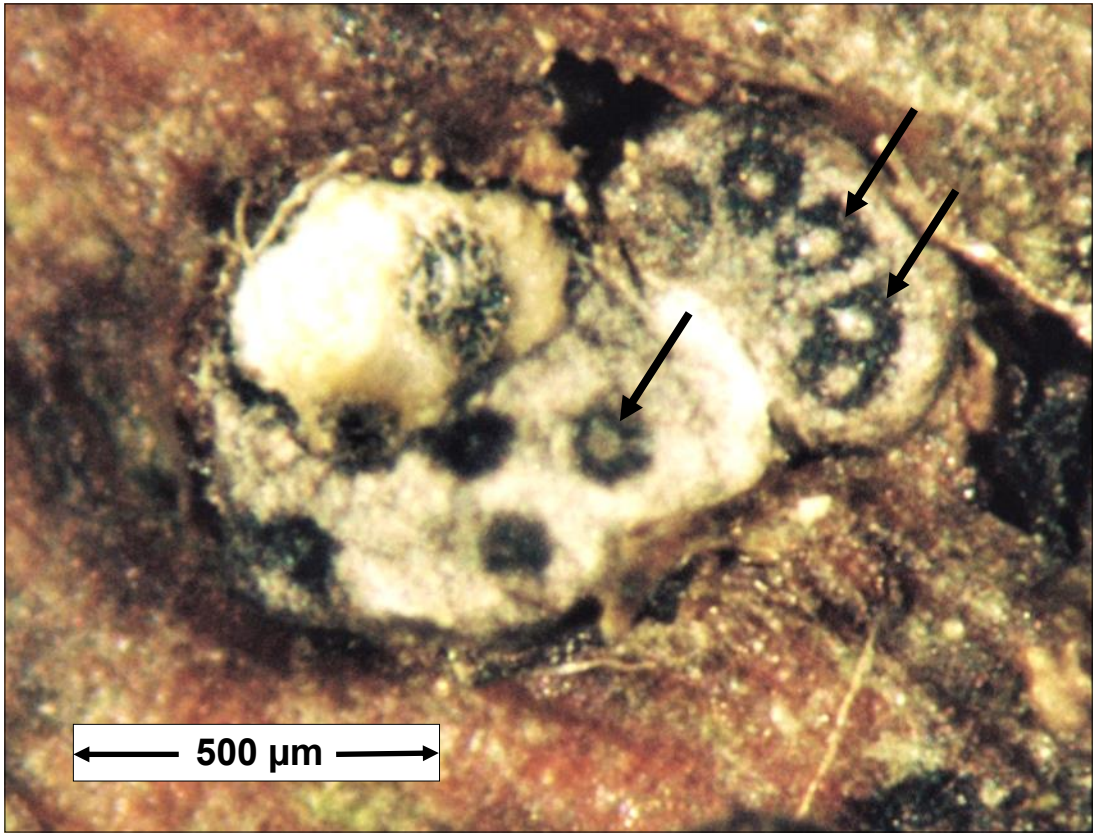
A–D. In-situ stromata emergent through upturned bark (bark arrowed). A,B,D. Zeiss dissecting scope. View 'A' with 'B' & 'D' enlarged from 'A'. Note flattened whitish to darker upper stromatic surfaces and black perithecial apices. C. Smartphone view of dotted area in 'A'. Note yellow interior.

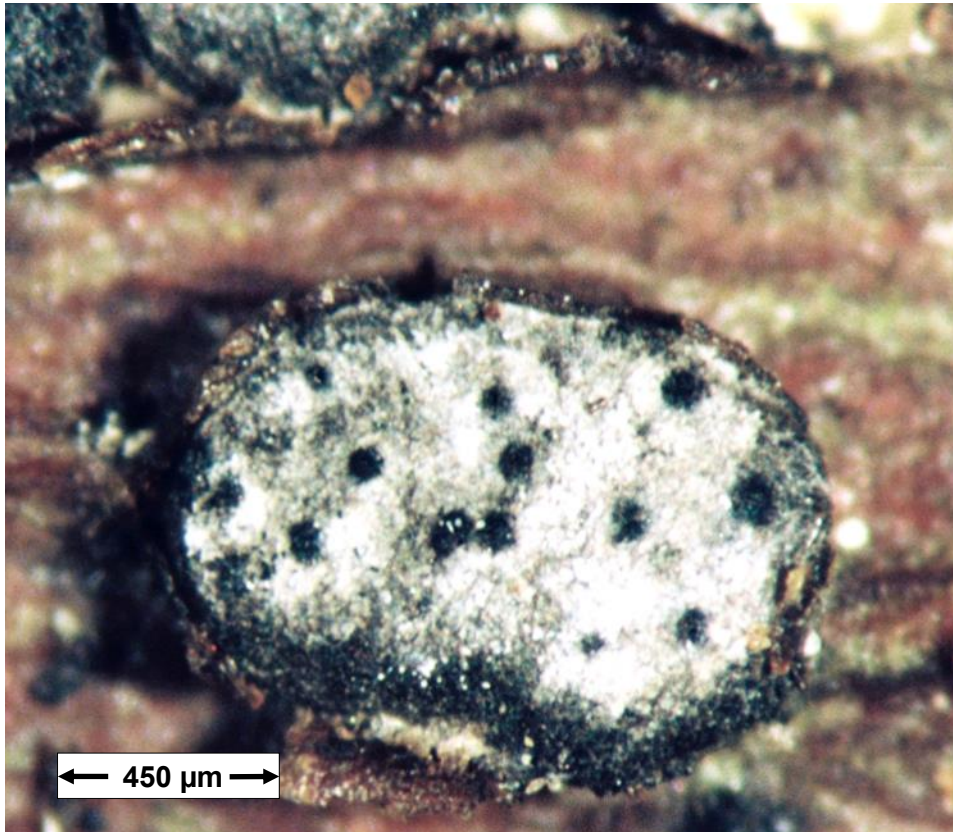
Stromata in-situ viewed with a Samsung Galaxy A70 smartphone through the Zeiss dissecting microscope eyepiece port (smartphone held in place with a Gosky microscope camera adaptor with built-in eyepiece). Tops of the flattened stromata have partially eroded away as have some of the perithecial contents, exposing the yellow interior between the perithecia.

In-situ black-rimmed stromata each containing several perithecia. Only the small circular black uppermost portion of the perithecia are seen barely emergent above the whitish flattened stromata. A rare view of whole blackish globular perithecia is seen where most of the stromatic tissue surrounding them has eroded away (arrowed).

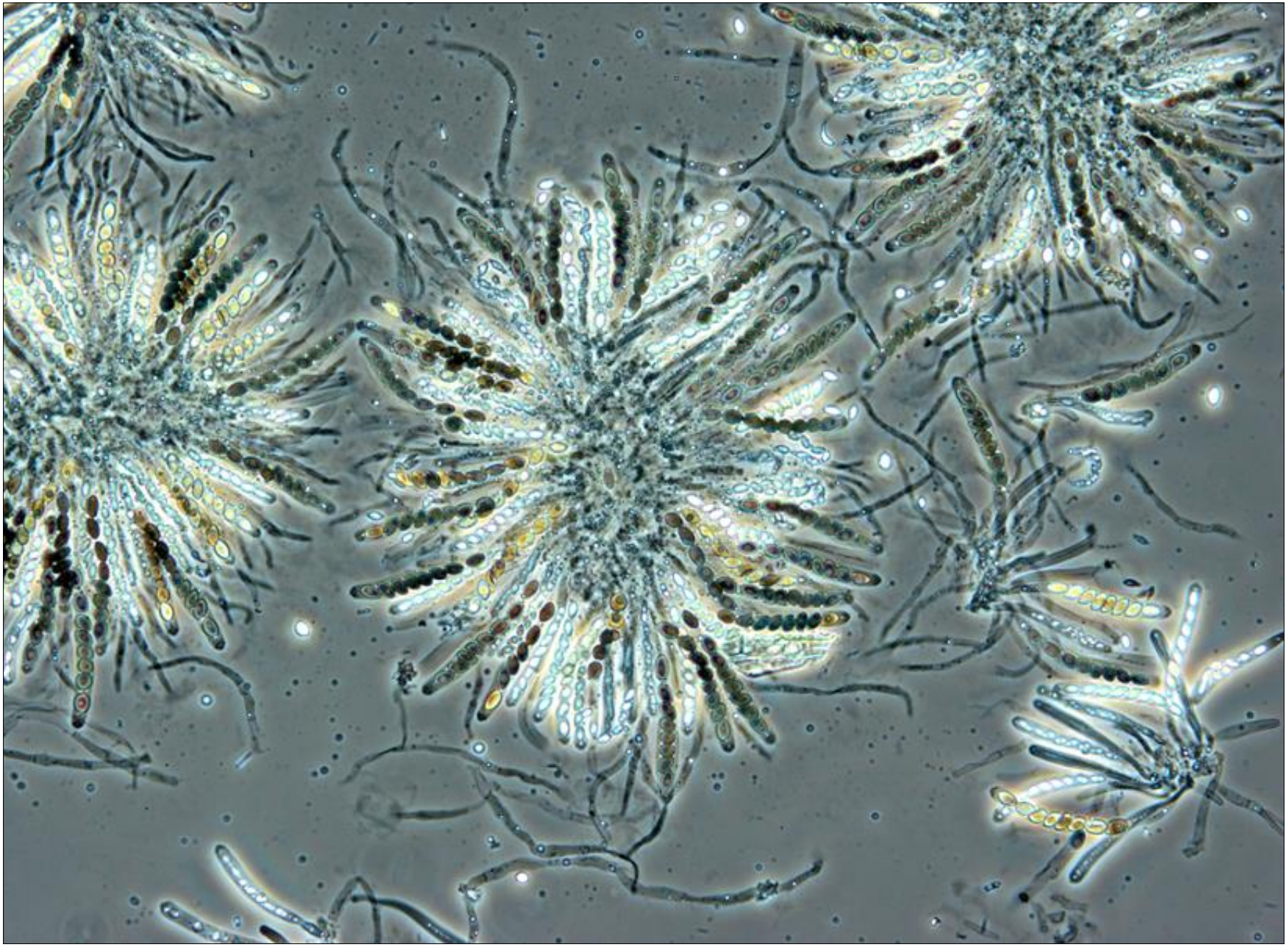


Both photos. Stromata emerging through the bark from the underlying dead wood. Perithecial ostioles most apparent in the right photo (solid white arrows). Note also the shape of a perithecium still covered with stroma tissue (dashed white arrow). Left photo: Zeiss dissecting scope. Right photo: Samsung Galaxy A70 smartphone.

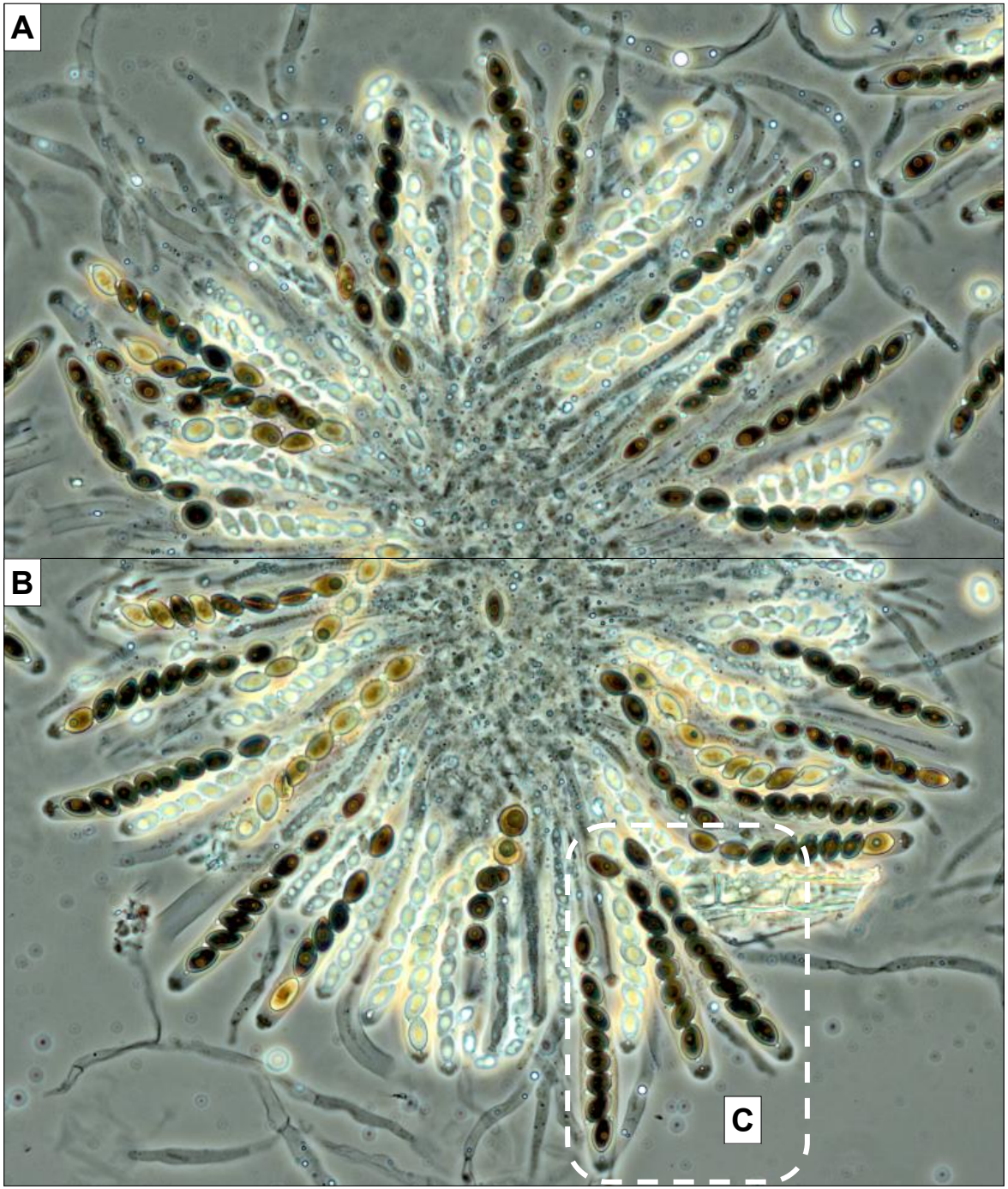




All photos of in-situ stromata emerging from dead wood – top 2 photos with mostly wood surrounding them and bottom photo showing mostly bark with wood seen only to the right and left of the stroma. I cut the top off the stromata in the upper left photo and saw unexplained 'beading' in the perithecial walls (arrowed). More work is required.



Hymenial squash in water/Melzer's reagent, X20 objective, phase microscopy. The central spread of asci and paraphyses was photographed also under the X40 & X100 obj. See these for greater detail on the next page.



Photos of the central spread of asci and paraphyses from the previous page. A,B. Upper & lower halves, X40 obj. C. Photographed under the X100 obj. Note its placement in photo 'B' (the white-dashed rectangle).

A–G. Asci and ascospores. All photos from hymenial squashes mounted in Melzer's reagent (A,B & E–G) or SMF/Melzer's reagent (C,D) using the X40 objective and phase microscopy. Note ascospore arrangements in the asci, ascospore shapes (symmetrical in some views, inequilateral in others) and whole-length straight germ slits centrally located in the symmetrical views (arrowed). E–G. Ascospores shown are 12.5–13 × 7.5–8.5 µm. Three of the four spores are reminiscent of a cowrie shell in side view.