

Figure S1. Interpretative line drawings of fern-like plants in Figures 2-4 under the same scale. Source of each picture: a: Figure 2a; b: Figure 2b; c: Figure 2e; d: Figure 3a, arrows 1, 2; e: Figure 3b; f: Figure 3c; g: Figure 4a, b (combination of part and counterpart). **Abbreviation:** st: stem; pb: primary branch; sb: secondary branch; fsb: fertile secondary branch; vua: vegetative ultimate appendage; ar: adventitious root; aph: aplebia.

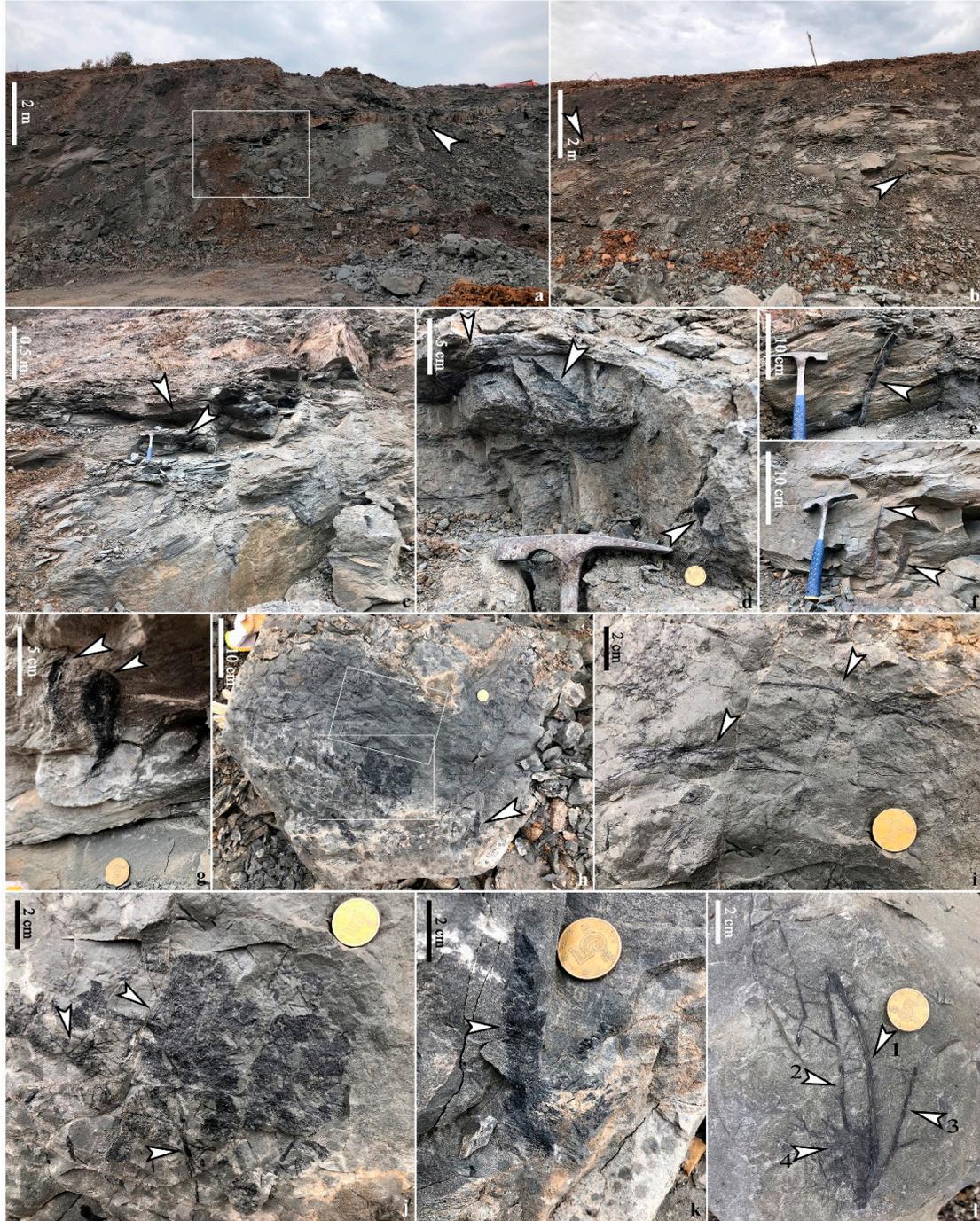


Figure S2. Fern-like plants and associated lycopsid trees from the Yongchuan mine. (a, b) The lowest strata of Leigutai Member in the Yongchuan mine. The rectangular box and arrow in a indicating parts enlarged in c and d, respectively. Arrowed parts in b from left to right enlarged in e, f, respectively. (c) Enlargement of rectangular part in a. The area (lower arrow) near the hammer enlarged in g. (d) Enlargement of arrowed part in a. Two in-situ stems (middle and right arrows) and one horizontally preserved stem (left arrow) of *Guangdedendron micrum*. (e, f) Enlargement the arrowed parts in b, showing *in situ* stems of *Guangdedendron micrum*. (g) Enlargement of arrowed area (lower arrow) in c, indicating strobili (arrows) perpendicular to bedding plane. (h) Fallen block from the arrowed position (upper arrow) in c, showing fern-like plants and strobilus preserved together. The areas in upper and lower rectangles enlarged in i and j, respectively. The arrowed part is enlarged in k. (i, j) Enlarged parts in rectangular

boxes in **h**, indicating fragments of fern-like plants (arrows). (**k**) Arrowed part in **h**, indicating strobilus preserved along the bedding (arrow). (**l**) Fallen block from the position near the hammer in **c**, showing stems of fern-like plants (arrows 1-3) with possible adventitious roots (arrow 4).



Figure S3. Fern-like plants and associated lycopsid trees from the Yongchuan mine. (a, b) Part and counterpart, showing fern-like plants associated with a stem of *Guangdedendron micrum* along a bedding plane. (c) Fern-like plants and stem of *Guangdedendron micrum* along a bedding plane.