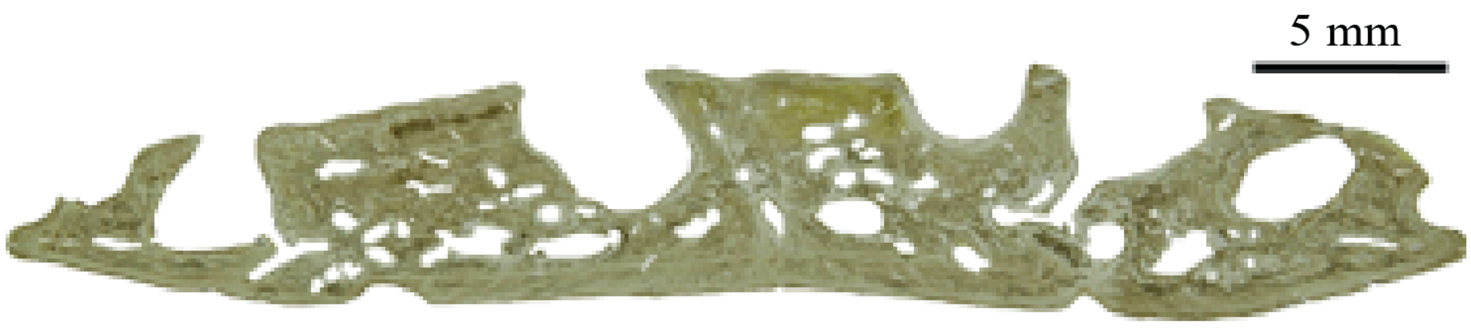
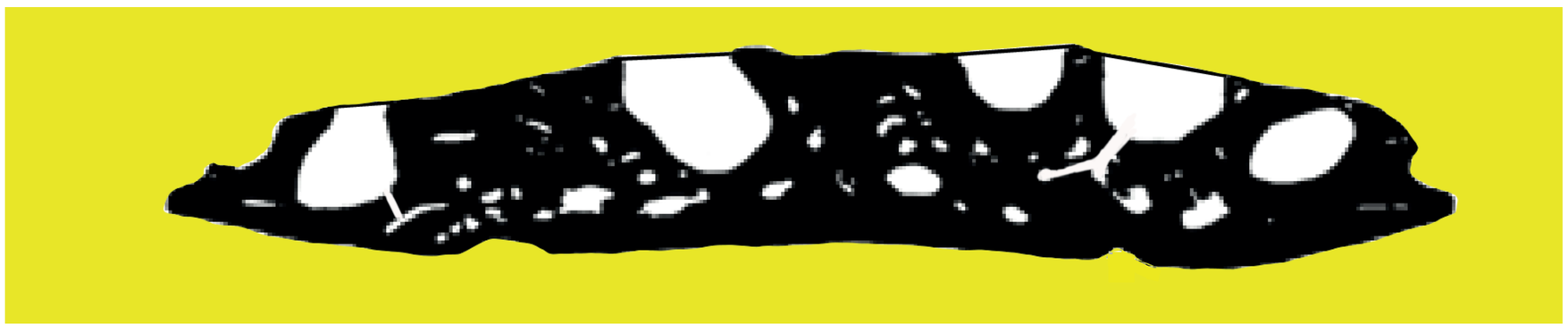
Supplementary file 3: The data acquisition method

1. Snapshot of a transversal cross section from a post-cranial dermal bone of interest (*Diplocynodon* sp. osteoderm; IPB R144/1)



2. Binarisation of the image on Adobe Photoshop CC 2015:
- Selection of the cross-sectional bone area
- Copy of the selected surface via layer
- Fill in the exported layer with black color

3. Closing of the bone apical ornamentation opening pits with a virtual black line of one pixel

4. Exportation of the picture in TIFF format

5. Opening the exported image with Bone Profiler (version 4.5.8):
- In the “options” tab: adjust the tresholded image so the yellow area indicates only the surface which is out of the section so that it will not be considered in the further area computation.
- In the “slide” tab: click on the “complete bone” icon
- Adjust all centers to the center of the bone section
- Click on: “estimate compactness”
- In the “model” tab, select the option “scaled logistic model” and click on “draw”
- Read the “observed compactness” in the bottom window