Supplementary Data to:

Prey choice and cannibalistic behavior in the theropod *Coelophysis*.

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1. Detailed discussion of AMNH FR 7223 (including supplemental figure)
2. Taxomonic assigned of Crocodylomorph histological specimen.
3. Histological methods.

1. Further analysis of non-cannibalism in AMNH FR 7223.

For the cannibal-*Coelophysis* hypothesis to hold, the purported abdominal remains in *Coelophysis bauri* must 1) be *contained* within the region of the digestive tract, and 2) unequivocally belong to a *Coelophysis bauri.*

The putative abdominal remains of AMNH FR 7223 consist of a partially articulated hindlimb (62% the length of AMNH FR 7223) in the anterior abdominal region, an articulated vertebral column ventral to the posterior cervical vertebrae, and various small bone fragments (see image below). The left dorsal ribs (yellow) cover all of

the possible stomach remains laterally, but the right dorsal ribs (green) are deflected posteriorly and do not underlie the possible abdominal remains. This indicates that the abdominal cavity may have ruptured prior to burial. Thus, it cannot be demonstrated that the abdominal remains are contained within the stomach of AMNH FR 7223. This fails criterion 1 listed above.

Likewise, the articulated vertebral column (red) ventral to the cervical vertebrae of AMNH FR 7223 cannot be interpreted as an ingested *Coelophysis*. This vertebral column lacks any diagnostic *Coelophysis* characters and is not located in the abdominal cavity (see image below). Other putative stomach contents include an articulated subadult hindlimb; a difficult bolus to swallow. The anterior position of the hindlimb (and its associated soft tissue) within the pleural cavity leave little room for internal organs. Thus, no evidence exists for unambiguous stomach contents within AMNH FR 7223 and, therefore, does not satisfy the requirements for cannibalism. R. Gay (2002) recently proposed a similar volumetric argument. He did not, however, address questions of postmortem abdominal cavity integrity.

Collectively this evidence demonstrates that AMNH FR 7223 fails to meet the criteria necessary for it to represent cannibalism.

2. Taxomonic assigned of Crocodylomorph histological specimen (GR 215).

This proximal portion of a crocodylomorph femur was collected in 2004 by Alex Downs from the Chinle Formation *Coelophysis* Quarry block C-9-82 reposited at the Ruth Hall Museum of Paleontology at Ghost Ranch Conference Center, Ghost Ranch, New Mexico. This specimen is referable to Crocodylomorpha but not Crocodyliformes

based on the presence of a proximal condylar fold on the anterolateral margin of the femoral head (all crocodylomorphs), a prominent proximolateral tuber anteriorly on the femoral head (absent in Crocodyliformes) as well as equally developed antero- and posteromedial tubera aligned dorsoventrally on the medial articulation surface of the femoral head (absent in Crocodyliformes). It is referenced as cf. *Hesperosuchus* based on the large medially-directed tubera on the femoral head and the absence of distinct M. puboishiofemoralis scars located proximally on the medial surface (*Dromicosuchus* has greatly pronounced scarring). Furthermore, the commonality of this taxon within the *Coelophysis* Quarry and the Chinle Formation deposits supports this comparison.

3. Histological methods.

Transverse histological sections were made through the medial femoral metaphyses of the stomach content, and individual specimens of *C. bauri* and *Hesperosuchus* sp. The specimens were embedded in clear epoxy resin and cut using a Buehler Isomet 1000 slow-speed bone saw with a diamond tipped wafering blade (Buehler LTD. Lake Bluff, IL, USA). The slides were viewed using polarized microscopy (Olympus BX 60; Olympus Optical Co., LTD, Tokyo, Japan). Digital images were made using an Olympus DP 11 digital camera (Olympus Optical Co., LTD, Tokyo, Japan) and inverted using Adobe Photoshop 7.0 (Adobe Systems Inc., San Jose, CA, USA) to enhance the contrast between the vascular canals and osseous tissue. Comparison of these sections with those from other specimens sectioned metaphyseally were not possible because (to our knowledge) they have not been reported in the

literature. (Diaphyseal sections are more commonplace, but these regions were not available for examination from the stomach content specimens from *C. bauri*.) .

Supplemental Figure | The abdominal region of *Coelophysis bauri* (AMNH 7223).

Supplemental Reference

Gay, R.J. 2002 The myth of cannibalism in *Coelophysis bauri*. *J. Vert. Paleontol*. **22**, 57A.


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