

Supporting Information

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SI Materials and Methods

The dataset of Varricchio et al. (1) was used to document the relative clutch size of *Massospondylus* in the context of other archosaurs. Categorical data presented in Varricchio et al. was also used to grossly assess the possible parental care system adopted by *Massospondylus* and other nontheropod dinosaurs based on regression relationships between body mass and clutch mass relationships and their four parental care types. The nests described here indicate that Varricchio et al. (1) poorly estimated the clutch size of *Massospondylus*, which they based on the incomplete original clutch of only 8 eggs described by Kitching (2). These more complete nests of eggs indicate that typically a clutch consists of at least 34 eggs. In addition, our studies of the skeletal material of *Massospondylus* from the Elliot Formation also indicate the body mass estimated for this taxon may be on the low end, as it is estimated on the basis of small, probably juvenile individuals of this taxon (3). We recalculated these metrics as outlined below:

Body mass estimation. Varricchio et al. (1) estimated the body mass of *Massospondylus* at 107 kg using the method of Henderson (4). It is unclear what specimen, if any, was used to derive this estimate. Although this is generally consistent with a similar volumetric estimate of 93 kg provided by Paul (5), on the basis of QG 1159 (6), this is small compared with most *Massospondylus* skeletons. Histological analysis of *Massospondylus* growth series

indicates that all of the individuals sampled by Chinsamy (3) may not be fully grown. We therefore estimated the body mass of *Massospondylus* using an average-sized individual similar to QG 1159 (BP/1/5421) and the largest individual (BP/1/4934), and the femur circumference–body mass regressions (bipedal formula) of Anderson et al. (7). These body mass estimates (BP/1/4934, estimated femur circumference = 209 mm, 345 kg; BP/1/5421, femur circumference = 144 mm, 125 kg) were used to provide a range of possible body mass values for *Massospondylus* in the dataset of Varricchio et al. (1).

Egg volume and clutch volume estimation. Egg volume for *Massospondylus* was estimated by taking the average of the maximum diameters of the 10 most complete eggs in the most completely preserved clutch, BP/1/6229, and was calculated using the equation of a sphere. The most complete nest (Fig. 2) contains a minimum of 34 eggs, collected together in a tight cluster. The volume of each egg is ~180 mL, and the total volume of the clutch is estimated at 6,010 mL.

Clutch volume estimates for *Megaloolithus siruguei* in Varricchio et al. (1) was calculated using a clutch size of ~9 eggs. Clutch size for *M. siruguei* has been recalculated on the basis of new work (8), suggesting clutch size in this sauropod is between 20 and 28 eggs, with an estimated typical clutch size of 25 eggs. The volume of a clutch is therefore estimated at 4,488 mL multiplied by 25, which equals 112,200 mL.

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3. Chinsamy A (1993) Bone histology and growth trajectory of the prosauropod dinosaur *Massospondylus carinatus* Owen. *Mod Geol* 18:319–329.
4. Henderson DM (1999) Estimating the masses and centers of mass of extinct animals by 3-D mathematical slicing. *Palaeobiology* 15:88–106.
5. Paul G (1997) *Dinofest International*, eds Wolberg DL, Stump E, Rosenberg GD (Academy of Natural Sciences, Arizona State University, Tempe, AZ), pp 39–45.
6. Cooper MR (1981) The prosauropod dinosaur *Massospondylus carinatus* Owen from Zimbabwe: Its biology, mode of life and phylogenetic significance. *Occ Pap Natl Mus Monum Rhodesia, Ser B* 6:689–840.
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