

# A fossilised humerus of a lovebird tells little of the Pleistocene habitat of *Australopithecus robustus*

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Stidham<sup>1</sup>, having described a fossil lovebird, genus *Agapornis*, from Kromdraai B, in a set of breccia deposits in the Bloubank River Valley, approximately 2 km from Sterkfontein in Gauteng, South Africa, inferred 'a wide variety of wooded and forested habitats'. He also inferred the fossilised lovebird was a 'diminutive' member of the genus on the basis of the length of its humerus.

Stidham's<sup>1</sup> data are based on measurements of a humerus of the extinct lovebird and comparisons made with measurements of a few specimens of all but one of the extant species. The humerus of the extinct lovebird is smaller than that of the extant species (although numerical analysis is clearly impossible). However, the measurements given for the humerus of *A. canus* (the smallest extant species, in terms of body mass), are larger than those for the humerus of *A. roseicollis*, the largest extant species.<sup>2</sup> This finding poses the question, 'Is there a significant correlation between linear measurements of the humerus and body mass?' It might be that the length of the humerus is a function of the type of flight, which varies with habitat. The extant species with the shortest humerus, *A. lilanae*, is an (open) Mopane woodland species<sup>2</sup> (Mzumara T 2010, personal communication, October 20). *Agapornis taranta*, the most woodland-adapted or forest-adapted extant species for which Stidham<sup>1</sup> had data (as *A. swinderianus* material was unavailable), has one of the longest humeri. Therefore, although the extinct species was small it may not have been unusually diminutive. Inferring a woodland forest habitat for the extinct species of lovebird, and hence also for *Australopithecus robustus*, requires, at least, further substantiation.

The four extant south-eastern species (clade) of *Agapornis* are predominantly granivorous or even graminivorous and not frugivorous,<sup>3</sup> in contrast with the north-western species.<sup>2</sup> Geographically, the fossil species is closest to the south-eastern species (clade), and one might argue that it is taxonomically closer to the derived clade. In which case it would likely have had a white eye-ring, been monochromic and social, and most likely have been graminivorous, feeding on the seeds of grasses.<sup>4</sup> Alternatively, if the small size of *A. canus* and the fossil infer close affinity, one would have to argue that a small ancestor colonised the south-east, in parallel and competition with the white eye-ring clade, or that a descendent of *A. canus* recolonised Africa from Madagascar.<sup>4</sup> Either argument would be difficult to envisage, let alone substantiate.

The most parsimonious interpretation is that the fossil species was a small granivore, or, more likely, a graminivore. This interpretation contradicts Stidham's<sup>1</sup> argument of a woodland or forest habitat, unless the birds moved long distances to feed, which is unlikely.<sup>3</sup> Stidham<sup>1</sup> inferred, from the presence of the lovebird in association with the *Australopithecus robustus* remains at the excavation site, that the habitat there was a wooded or forested valley during the Pleistocene. This conclusion is not indicated from the inferred trophic niche of the fossil lovebird.<sup>2</sup> However, although lovebirds do not migrate, they do move locally, most often in search of water or food,<sup>3</sup> but also in search of a cavity in a tree as a nesting site. Today's southerly distributed lovebirds usually nest in the cavities of trees in Mopane or Acacia woodland (or commensally with sociable weavers, *Philetairus socius*) but not in forest tree species. The presence of a lovebird humerus at the excavation site at Kromdraai B therefore, unfortunately, tells us little of the habitat in which *Australopithecus robustus* lived during the Pleistocene.

## References

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