“**An Interactive Three Dimensional approach to Anatomical Description – The jaw musculature of the Australian Laughing Kookaburra (*Dacelo novaeguineae*)”**

Dear Editor,

Thank you for your response and to the reviewers for taking the time to read over our manuscript. Their comments were greatly appreciated and we feel that they have added further insight into our article. We have made changes to the manuscript as suggested by the reviewers. Details of these modifications are outlined below.

1. **Reviewer 1: I found some parts of the manuscript is published by the authors in PLoS One-Embedding and Publishing Interactive, 3-Dimensional, Scientific Figures in Portable Document Format (PDF) Files. However, the authors added additional information, so I thought it can be accepted with minor modification.**

The 3D PDF figure model (figure 5) has been published in PLoS One in September 2013 in a paper titled “Embedding and Publishing Interactive, 3-Dimensional, Scientific Figures in Portable Document Format (PDF) Files” by David G. Barnes, Michail Vidiassov, Bernhard Ruthensteiner, Christopher J. Fluke, Michelle R. Quayle and Colin R. McHenry. This article outlines the method of embedding a 3D model into a PDF and shows a variety of examples of working 3D models, one of which is the kookaburra jaw muscle anatomy model which we have submitted to PeerJ. The Plos One article does not describe the anatomy of the jaw muscles of the kingfisher depicted in the model, just the process of creating and embedding the 3D model into a PDF document. Plos One does not retain copyright of published material and there are no issues in using the same image overlapping between the two manuscripts.

1. **Reviewer 1: I am not an expertise in this field, but what I suggest many references are material section are less only Barnes et al., . is given. So, more reference should be added.**

We feel that the number of references cited is appropriate for the methods of this study. The use of CT and segmentation is a standard method for acquiring 3D data from an image stack and a number of commercial software packages are available to do this. We have referenced the software package that we have used. Barnes et al. 2013 was referenced for the method for creating a 3D PDF as this method is unique to embedding a 3D model. Other uses of 3D PDF are cited in the introduction however we did not follow the method of these authors and so they were not included in the materials section. We have cited all relevant literature for the anatomical section of the methods (Baumel 1993; Burton 1984; Elzanowski 1987; Holliday & Witmer 2007; Zusi & Storer 1969; Ghetie et al. 1976).

1. **Reviewer 1: Authors should also clarify why there is requirement of 2D stracture?**

We were unsure as to what this comment was referring to. This article outlines the use of 3D modelling to display anatomy and we do not mention 2D methods other than that 2D illustration used to describe anatomy in the past.

1. **Reviewer 2: Ln 206. The pseudotemporalis is attaching to the laterosphenoid here. “Orbitosphenoid” is somewhat antiquated and there remains a lot of confusion regarding its homologies between reptiles and birds. Also, when there is a clear orbitosphenoid ossification, it is typically on the most medial part of the orbital surface near the optic canal... rather than laterally where this muscle attached. This is all of course challenging in birds which typically lack clear sutures in the braincase. But the laterosphenoid and pseudotemporalis superficialis muscles are basically married to one another throughout archosaur evolution, including non-avian dinosaurs, so I would stick with "laterosphenoid".

The orbitosphenoid process is ok as a structure name (though see above). But this is really cool: basically the zygomatic and orbitosphenoid processes here are bony spurs for the tendon attachments for the respective jaw muscles. Zusi and Livezey 2000 worked all this out (citation below) in galloanseriforms, but no doubt it may apply to kingfishers. I’ve seen similar structures in grebes. So you may want to be careful actually assuming these are homologous with the lower temporal bar (i.e., zygomatic process; which it’s not), or then extensions of the orbitosphenoid bone. My hard copy of this paper has been destroyed, and I’ve failed to get a digital copy of it in the past several days to check the terminology they suggest.

Zusi, Richard L. and Livezey, B. C. 2000. Homology and phylogenetic implications of some enigmatic cranial features in Galliform and Anseriform birds. Annals of Carnegie Museum, 69(3): 157-193.**

We had difficulty determining the correct current term for this structure, generally due to the varying nature of anatomy amongst bird species (many descriptions do not have this bony spur present) and due to the lack of anatomical data on kingfishers. We agree with reviewer 2 that the location of this spur is more lateral than the descriptions of the orbitosphenoid and have changed the name of this spur to “laterosphenoid” in the text and in Figure 3.

1. **Reviewer 2: Ln 219 need space**

Space included.

1. **Reviewer 2: Ln 222 I don’t think maxillopalatine is an appropriate term (there certainly isn’t a bone of this name).**

The term “maxillopalatine” was changed to “anterior-most section of the palatine”.

1. **Reviewer 2: Ln 303. Much of this paragraph isn’t needed. “m.” or “M.” is the abbreviation for “musculus”, so most authors use the latter once and then the abbreviation. Different authors/journals/editors prefer m. vs M. as well as whether or not the names are italicized in the text. There is no “right” way although consistency is of course nice albeit impossible. So...much of this is a non-issue and the paragraph could be removed.**

The paragraph on discrepancies in terminology between previous anatomical literature has been removed but we have kept the section justifying our use of terminology and abbreviation. We hope that future anatomical descriptions will follow a similar use of terminology.

1. **Reviewer 2: Fig 1 caption. Species name needs to be italicized.**

This has been corrected.

We hope that this revised edition of our manuscript complies with the reviewers comments.

Regards,
Michelle Quayle