

**NMMNH BULLETIN
MANUSCRIPT REVIEW SHEET**

**Title: ADVANCES IN VERTEBRATE PALEONTOLOGY BASED ON NEW MATERIAL
FROM PETRIFIED FOREST NATIONAL PARK, ARIZONA**

Author(s): William G. Parker, Randall B. Irmis

Reviewer: Spencer G. Lucas

Affiliation of reviewer: NMMNH&S

Please answer each question. Detailed comments may be placed on the manuscript and/or on attached sheet.

1. Do you recommend this paper, both from standpoint of originality and manner of presentation, as worthy of publication (check one):

<input type="checkbox"/> without change	<input type="checkbox"/> not at all
<input type="checkbox"/> with minor changes	<input type="checkbox"/> not without complete
<input checked="" type="checkbox"/> with major changes	rewriting and reorganization

2. Can the article be improved by condensation of:

a. Text:	yes	_____	no	_____
b. Figures:	yes	_____	no	_____
c. Tables:	yes	_____	no	_____

3. If you feel that the article can be improved by condensing the text or altering the figures or tables, please list suggested changes explicitly.

add a figure
(see comments)

4. If you have any other comments on this paper, please list them below, or attach a separate sheet.

see attached

Signature of reviewer: Spencer G. Lucas Date: 4-2-05

REVIEW OF PARKER & IRMIS “ ADVANCES IN VERTEBRATE PALEONTOLOGY...”

Spencer G. Lucas

2 April 2005

GENERAL: This article documents new records of PEFO Triassic vertebrates that are worth publishing. However, it is marred by some questionable reasoning and statements that should be modified prior to publication. Particularly problematic are: identifications based on stratigraphic position, not morphology; inadequate documentation by description and/or illustration of some specimens; an apparent misunderstanding of what makes a taxon a *nomen dubium*; and a failure to develop the conclusions of the article. Numbers on the manuscript correspond to the following suggestions:

1. I can cite a longer list of articles using Chinle Group. Also, what does the term Dockum have to do with PEFO stratigraphic nomenclature? I suggest this all be dropped, and the authors just say they are using the traditional usage, Chinle Formation.
2. The Muttoni et al. work is very controversial, and a 209 age has nothing to do with a “long Norian” (the “long Norian” would go back more than 220 Ma). This text should be dropped as immaterial to this manuscript.
3. Taxonomic judgments should be made by morphology not by stratigraphic position. Furthermore, given that Hunt et al. and you have no problem referring material to *Vancleavea*, how can it be a *nomen dubium*? Obviously the osteoderms are diagnostic of a taxon.
4. Again, identifications should be made based on morphology, not stratigraphic position.
5. This specimen needs to be illustrated, especially since its stratigraphic range is “being extended.”
6. I can't tell from the figure that this is *Desmatosuchus*. Why is it *Desmatosuchus*?
7. Parker 20003 only “demonstrates” that he is a taxonomic splitter. I would say Parker “argues” this.
8. Why is this *Typhothorax coccinarum*? Why is it not *T. antiquum*?
9. As with *Vancleavea*, you seem to have no problem referring material to this taxon, yet claim it is a *nomen dubium*. A taxon is not a *nomen dubium* just because it can't be identified on somebody's cladogram. If material can be referred to the taxon, then there must be something diagnosable about the taxon. Your own referrals support recognition of *Parrishia* and *Vancleavea*, but you then contradict this by saying the taxa are *nomina dubia*. You should be more consistent. If you really think the taxa are *nomina dubia* but want to refer material to them as convenient “trash bins,” say so up front.
10. Cite Heckert and Lucas paper on Chinle dinosaur biostratigraphy here.

PEFO 31162 (Figure 4f) is an anterior caudal paramedian plate of “*Desmatosuchus*” *chamaensis* from the Karen’s Point locality (PFV 75). Parker (2003) ^{argued} demonstrated that “*D.*” *chamaensis* shares almost no characters with *Desmatosuchus*, instead is more closely related to *Paratypothorax*, and represents a distinct genus (Parker, in prep). PEFO 31162 co-occurs with the aetosaur *Typothorax coccinarum* above the Flattops Two Bed of the Petrified Forest Member and represents the first occurrence of this taxon outside of New Mexico. One fragmentary lateral plate (PEFO 34040) (Figure 4g) and UCMP 129829 (Figure 4h), a partial paramedian plate, are also referable to this taxon and were also collected from PFV 75.

⑦

Stagonolepis Agassiz, 1844

Stagonolepis wellesi (Long and Ballew, 1985)

Stagonolepis wellesi was described by Long and Ballew (1985) from the articulated posterior half of a partial skeleton (UMMP 13950) collected by E. C. Case from the Tecovas Formation of Texas (Case, 1932). Charles Camp collected *Stagonolepis* armor from the Placerias Quarry in the early 1930s and a partial carapace (UCMP 27225) from the Blue Hills near St. Johns, Arizona in 1926. Unfortunately none of this material was described until the work of Long and Murry (1995), and except for a dentary fragment and several cervical vertebrae from UCMP 27225, the specimens do not appear to represent portions of the carapace not preserved in the holotype. In 1982 Michael Parrish discovered a partial carapace (UCMP 126844) from the Agate Bridge NW locality (PFV 162), which was figured by Long and Ballew (1985: pl. 5), however