



COMMUNICATING SCIENCE SERIES

CRYPTOZOOLOGY: SCIENCE OR PSEUDOSCIENCE?

Tuesday, 12th July 2011

The Meeting Rooms, The Zoological Society of London, Regent's Park, London NW1 4RY

Chair: Henry Gee, Senior Editor, *Nature*

Are there species remaining to be described? Investigating the role of curve fitting and the technical appraisal of gray literature in scientific cryptozoology

Dr Michael A. Woodley

Curve fitting to cumulative species inventories indicates that a number of animal classes defined both physically (i.e. based on size) and biologically (i.e. based on phylogenetic affinity) have not reached their predicted asymptotes. The implication of this is that there are novel taxa in these classes still to be discovered and described. The role of cryptozoology will be discussed in the context of how, as a targeted research methodology, it may be able to help in refining the search for novel taxa. This will be discussed in the context of the need to technically appraise the large gray literature associated with the field. The 'long-necked seal' hypothesis, which has been posited to account for sightings of unknown long-necked marine animals, will be used as a case study.

Further reading

Naish, D. (2001). Sea serpents, seals and coelacanths: An attempt at a holistic approach to the identity of large aquatic cryptids. *Fortean Studies* **7**: 75-94.

Paxton, C. G. M. (1998). A cumulative species description curve for large open water marine animals. *Journal of the Marine Biology Association UK* **78**: 1389-1391.

Woodley, M. A., Naish, D. & Shanahan, H. P. (2008). How many extant pinniped species remain to be described? *Historical Biology* **20**: 225-235.

Woodley, M. A., Naish, D. & McCormick, C. A. (In press). A baby sea-serpent no more: Reinterpreting Hagelund's juvenile 'cadborosaur' report. *Journal of Scientific Exploration*.

Woodley, M. A. (2011). Introducing aequivotaxa: A new classificatory system for cryptozoology. *Kraken: Archives of Cryptozoology* **3**: 63-85.

The Plural of "Anecdote" Can Be "Data"

Dr Charles Paxton, University of St Andrews

In this talk, I analyze reported distance and creature size historical sea monster sightings, and ask what can this tell us about what was actually seen.

Sea monsters and the 'Prehistoric Survivor Paradigm'

Dr Darren Naish, University of Portsmouth

Numerous 'sea monster' sightings made throughout history suggest the presence of as-yet-undiscovered large marine animals. Recent discoveries of new whale, shark and ray species show that the possible existence of such creatures is not ridiculous. Some researchers have long suggested that these entities might not only be real but might also represent the descendants of groups otherwise known only as fossils. Long-necked plesiosaurs are among the most popular of these alleged 'prehistoric survivors'. The fossil record seemingly demonstrates extinction of these groups, but the long (alleged) ghost lineage of coelacanths has led to the popular idea that plesiosaurs and other marine megavertebrates might have survived to the present without leaving a fossil record. This has been termed the 'prehistoric survivor paradigm' (or PSP). A new look at the theory and data behind the PSP forms the focus of this talk. Modern 'sea monster' accounts do not describe animals that much resemble the fossil animals they have been likened to, the idea that such groups might have persisted without leaving a fossil record is untenable, and the idea that 'sea monster' witnesses might have observed modern-day plesiosaurs is simply far less likely than the possibility that other kinds of creatures were observed. Coelacanths are 'red herrings': everything about their evolutionary history is fundamentally different from that of groups such as plesiosaurs. Whether 'sea monsters' exist or not, it is misleading to imply that we have enough information to identify or classify them.