



The potential of type species to destabilise the taxonomy of zooxanthellate Scleractinia

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The ongoing demise of zooxanthellate Scleractinia from world-wide environmental deterioration has prompted a very large number of people including aquarists, managers, students, conservationists and scientists to work on reef corals. These people have a right to expect their various endeavors to be based on a nomenclature derived from taxonomic studies rather than human-created rules. Clearly there must be an amalgamation of the two; however a decade-long construction of a website on zooxanthellate Scleractinia has revealed that 15% of all genera, most with a history extending back to the 18th century and involving over 100 species, are vulnerable to name changes that are readily avoidable.

Clearly this matter is one for the International Commission on Zoological Nomenclature (ICZN) to consider. Relevant documentation will take time to assemble and be reviewed especially as the central issue, subsequent designation of type species, is not likely to be confined to Scleractinia. This matter was initially raised by Veron (2013) and has since attracted considerable interest. The genus *Favia* is taken as an example; however the issue is not about a particular genus, it is about the potential for widespread name-changes being made based on nothing more than historical error. Such changes do nothing for taxonomy and less for users of taxonomy. Of the many opinions expressed on this matter there is a divide between those who believe that taxonomy and the nomenclature it creates is a self-contained discipline governed by rules absolved from downstream consequences and those who believe taxonomy is a servant of other disciplines and that nomenclatorial changes should reflect that responsibility. Either way it is clearly better to address this matter before adverse changes are made than try to repair outcomes after they have been.

Destabilising use of type species

Throughout the twentieth century, a central axiom of coral taxonomy was that nomenclatorial changes should only be made if they provide increased certainty. However, of recent years this notion has fallen by the wayside. Some cases are minor, others less so. The value of type species, the species on which genera are based, seems obvious. However in practice, making nomenclatorial changes on issues created by type species are not helpful because these are usually among the earliest described species of a genus and therefore represent a distillation of the sorts of historical artefacts that the ICZN spends so much time and effort rectifying.

A recent case in point is Budd *et al.*'s (2012) replacement of the genus *Favia* Oken, 1815 by the previously unused genus *Dipsastraea* de Blainville, 1830 because the type species, *Madrepora fragum* Esper, 1793 (in Esper, 1797 dated in accordance with Ott, 1975) by the subsequent designation of Verrill (1901), is clearly not a *Favia* as that name is otherwise used. Budd *et al.* were in their rights to make such a change, however there is some history behind this issue. In 1975 the present author raised it with John Wells who kept track of such matters (Wells, 1956). Wells agreed that '*Favia*' *fragum*, which has no surviving holotype and no meaningful description, was more akin to *Dichocoenia* than *Favia* and was not an appropriate selection for the type species of *Favia*. He further commented that TW Vaughan (of Vaughan and Wells 1943) also thought Verrill had made a mistake. Well's advice was to "let sleeping dogs lie" because such problems were widespread in coral taxonomy. In this particular case, all Oken's (1815) genera (including *Favia*, but also *Acropora*, *Galaxea*, *Mussa*, *Mycedium*, *Pectinia* and *Turbinaria*) were initially unavailable (ICZN, 1956) because Oken did not adhere to binomial nomenclature. Even *Acropora*, the best known of all coral genera, was only validated by the ICZN in 1963 and the other genera, except *Turbinaria*, not until 2004. *Turbinaria* still appears to be an unavailable name. The question one may therefore ask is: should an obscure 200-year-old publication, supposedly corrected by a