



A Show of Character—a further response to Wiley et al.*

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Wiley et al. (2011) begin their critique of our paper (Mooi & Gill, 2010) with an assertion: “we need to make it clear that the foundation of their arguments rests not on scientific rigor, but rather on opinions about the re-classification of fishes using molecular data. This bias is the reason that they only targeted researchers who proposed changes in the higher-level taxonomy of fishes using phylogenetic hypotheses based on DNA sequence data (Miya *et al.* 2007, Smith & Craig 2007, Thacker 2009). In criticizing these studies, they do not suggest any alternative relationships or provide any counter evidence to the proposed relationships.” And on page 8, they apparently read our thoughts (aside from the title, none of the words in quotations was written by us in that context) and concluded: “Mooi & Gill entitled their paper “A crisis in fish systematics” because they long for the days when “real” ichthyologists found “meaningful” characters and “true” relationships.” Finally (p. 9), they contend that “Mooi & Gill’s various studies are usually focused on Johnson & Patterson’s (1993: 555) “disparate twigs of the [percomorph] tree,” whereas the explicit studies they criticize are large-scale and taxon rich datasets that have not otherwise been analyzed in Percomorpha.”

The implications are that we are old-fashioned stick-in-the-muds that do not want to see change in traditional classifications. Moreover, they imply that our research experience is limited in scope to minor taxa, and, as a result, we do not understand complex issues (such as homoplasy) associated with the bigger picture. In short, the uninformed reader would be given the impression that our paper was self-serving and that we were perhaps not really qualified to address these issues.

However, Wiley *et al.*’s (2011) accusation of an ulterior motive stands in contrast to the following statement from our paper (Mooi & Gill 2010: 27): “We briefly examine how fish systematics has reached this point and explore the consequences of recent practices by presenting examples from work on percomorphs and gobioids, groups with which we are most familiar. This might give the appearance that we are aiming our comments at only a few practitioners when they are, in fact, only illustrative of systematics approaches that are widespread and of general concern.” We had hoped that this statement would have been satisfactory to move on to the issues that we were really concerned about. However, it seems that we need to set the record straight, so we therefore offer this contribution in partial response to Wiley *et al.* (2011); direct discussion on the real issues beyond Mooi & Gill (2010) is offered in Mooi *et al.* (2011) and in Mooi & Gill (2011).

“Twigs”

The observation that our work is primarily associated with the twigs at the top of the percomorph tree is true enough, but we have at times dipped into the bush beneath. Our published character surveys span approximately one half of fishes; indeed one paper (Mooi & Gill 1995), in covering over 300 species in over 150 acanthomorph families, stands as one of the broadest surveys of a given character system in fish systematics. Our routine unpublished character surveys are even more widespread, and our literature-based surveys span all fishes (Gill & Mooi