

## Appendix 2

New characters added to dataset:

- (66) Ornamentation of the occlusal surface: (0) smooth; (1) polygonal pits; (2) granular ornamentation; (3) sinuous vermiculae. *Igdabatis* teeth are characteristically ornamented by polygonal pits ornament when unworn (Figs. 2, 3) (Cappetta, 1972, 1987; Prasad & Cappetta, 1993; Soler-Gijón & López-Martínez, 1998; Kriwet *et al.*, 2007). This ornamentation pattern is also observed in other myliobatids in the sample (e.g., *Myliobatis dixonii*, *M. wurnoensis* and *M. striatus*) as well as *Rhombodus*, *Urolophus*, *Manta* and *Mobula* show granulated enameloid (Cappetta, 1987). The sinuous vermiculate ornamentation is characteristic of *Apocopodon* (Cappetta, 1987; Santana *et al.*, 2011). On the other hand, most myliobatiforms bear smooth (unornamented) enameloid, including other species of *Myliobatis*.
- (67) Ornamentation of the lingual bulge: the bulge is smooth (0) or bears vertical folds (1). Vertical folds in the lingual bulge (state 1) are autapomorphic of the genus *Igdabatis*, according with diagnoses of *I. indicus* and *I. sigmodon* (Cappetta, 1972, 1987; Prasad & Cappetta, 1993). Other taxa with lingual bulge show a smooth surface (state 0), as in *Myliobatis* spp. This character was codified as “no applicable” for taxa without a tongue-and-groove articulation (character 54).
- (68) Root blocks shape (in basal view): if the root is polyaulacorhize and laminae are formed by wide or narrow blocks (character 62), these blocks extend from labial to lingual edges of the root (0) or do not cross root longitudinally (1). The state 1 is autapomorphic of *Igdabatis marmii*, which show bulbous laminae not extending from labial to lingual edges, in contrast to wide and narrow blocks present in *Apocopodon*, *Brachyrhizodus*,

*Myliobatis*, *I. indicus* and *I. sigmodon*. This character was codified as “no applicable” for taxa without a polyaulacorhize root (character 60).