**Appendix 4.** New characters added to the matrix of Kimura (2013).

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| --- | --- | --- | --- |
| Number | Feature | Ancestral state | Derived state(s) |
| 34 | Number of roots of M1 | Three (0) | Four (1) |
| 35 | Number of roots of M2 | Three (0) | Four (1) |
| 36 | Posterolophid of m1-2 | Not continuous (0) | Continuous to buccal edge of entoconid (1) |
| 37 | Paracone spur of M1-2 | Absent (0) | Present (1) |
| 38 | Mesoloph of M1-2 | Short (0) | Medium (1) or Long (2) |
| 39 | Anterior spur of hypoconulid of m2 | Absent (0) | Present (1) |
| 40 | Metaloph of M2 | Meets hypocone (0) | Meets anterior arm of hypocone (1) |
| 41 | Cusps of upper molars | Opposite (0) | Alternate (1) |
| 42 | Posteroloph of M1 | Not reaching the metacone (0) | Reaching the metacone (1) |
| 43 | Mesoloph of M3 | Short (0) | Long (1) |
| 44 | Outline of M2 | Square (0) | Rectangular (1) |
| 45 | Mesolophid of m1 | Extends from the mesoconid (0) | Extends from the point of inflexion in the orientation of the ectolophid (1) |
| 46 | Connection between anteromedial cusp and posterior ridge of P4 | Absent (0) | Present (1) |