**Appendix S1.** Total taxa sampling. Grey cells point out the apomorphy for which that taxon was chosen. \*presence of probably unfunctional gastralia; NEI: not enough information available.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Taxon | Pubis angle (°) | Opisthopubis | Mesopubis | Propubis | Ischium boot | Ischium shorter than pubis | Gastralia  | Uncinate processes  | Herbivoury | Cuirassal ventilation |
| *Marasuchus* |  52 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| *Lesothosaurus* | 145 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Stegosaurus* | 130 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| *Plateosaurus* | 53 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| *Opisthocoelicaudia* | 56 | 0 | 0 | 1 | 0 | 0 | 0\* | 0 | 1 | 0 |
| *Shenzhousaurus* | 55 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| *Haplocheirus* | 55 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| *Patagonykus* | 105 | 0 | 1 | 0 | 0 | 1 | NEI | NEI | 1 | 0 |
| *Shuvuuia* | 120 | 1 | 0 | 0 | 0 | 0 | NEI | NEI | 1 | 0 |
| *Falcarius* | 70 | 0 | 0 | 1 | 1 | 1 | 1 | NEI | 1 | ? |
| *Caudipteryx* | 75 | 0 | 0 | 1 | ?  | 1 | 1 | 1 | 1 | 0 |
| *Austroraptor* | 96 | 0 | 1 | 0 | ? | 1 | 1 | 0 | 0 | 0 |
| *Microraptor* | 135 | 1 | 0 | 0 | ? | 1 | 1 | 1 | 0 | 0 |
| *Sinovenator* | 102 | 0 | 1 | 0 | ? | 1 | 1 | 0 | 0 | 0 |
| *Anchiornis* | 92 | 0 | 1 | 0 | ? | 1 | 1 | 0 | 0 | 0 |
| *Confuciusornis* | 155 | 1 | 0 | 0 | ? | 1 | 0 | 1 | 0 | 0 |