**S3 Table. Morphological characteristics of philobryid specimens**

|   | *A. nitens* A | *A. nitens* B | *A. nitens* C | *A. nitens* D | *A. nitens* E | *A. nitens* F radials  | *A. nitens* G radials  | *A. limopsoides*  | *L. miliaris* | *L. notorcadensis* | *P. capillata* | *P. crispa* | *P. magellanica* A | *P. magellanica* B | *P. magellanica* C | *P. sublaevis*  | *P. wandelensis* A | *P. wandelensis* B |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Shell outline** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|  circular to obliquely rounded | x | x | x | x | x | x | x | x |  |  |  |  |  |  |  |  |  |   |
|  trapezoidal to subquadrate |  |  |  |  |  |  |  |  | x | x |  |  |  |  |  |  |  |   |
|  pinctadoid |  |  |  |  |  |  |  |  |  |  | x | x |  |  |  |  | x | x |
|  subpyriform |  |  |  |  |  |  |  |  |  |  |  |  | x | x | x | x |  |   |
| **Shell size** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|  > 8 mm |  |  |  |  |  |  |  |  |  |  | x |  | x | x | x | x |  |   |
| **Periostracum** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|  overhanging shell |  |  |  |  |  |  |  |  |  |  |  |  | x | x | x | x |  |   |
|  smooth | x | x | x | x | x | x | x |  | x | x |  |  |  |  |  |  |  |   |
|  interspaced radial hairy ridges |  |  |  |  |  |  |  |  |  |  | x |  | x | x | x | x | x | x |
|  dense hairy ridges |  |  |  |  |  |  |  | x |  |  |  | x |  |  |  |  |  |   |
|  short hairs |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  | x | x |
|  long hairs |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  | x |  |   |
| **Prodissoconch** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|  smooth | x | x | x | x | x | x | x |  | x | x |  |  |  |  |  |  |  |   |
|  5-7 radials |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |   |
|  >10 radials |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  | x | x | x |
|  pitted |  |  |  |  |  |  |  |  |  |  | x |  | x | x | x |  |  |   |
|  commarginals |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |   |
| **Hinge**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
| symmetric |  |  |  |  |  |  |  | x |  | x |  |  |  |  |  |  |  |   |
|  asymmetric, anterior shorter | x | x | x | x | x | x | x |  | x |  | x | x | x | x | x | x | x | x |
|  ligament groove rectangular |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |   |
|  lig. groove symmetric triangular |  |  |  |  |  |  |  |  | x | x |  |  |  |  |  |  |  |   |
|  lig. groove asymmetric triangular | x | x | x | x | x | x | x |  |  |  | x | x | x | x | x | x | x | x |
|  second dentition posterior teeth plate longer | x | x | x | x | x | x | x |  | x |  | x | x | x | x | x | x | x | x |
|  second dentition ant. & post. teeth subequal | x | x | x | x | x | x | x |  | x | x |  |  |  |  |  |  |  |   |
|  sec. dent. ant. centrally longer, post. subequal |  |  |  |  |  |  |  |  |  |  | x | x | x | x | x | x | x | x |
|  second dentition ant. & post. centrally longer |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |   |
|  third dentition present |   |   |   |   |   |   |   | x | x | x |   | x |   |   |   | x | x | x |