Character list of Euphausiacea and their coding

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| Character No | Character state | State No | Reference to figure |
|  | **CARAPACE** |  |  |
| 0 | Rostrum, long and acute: absent | 0 |  |
|  | Rostrum, long and acute: present | 1 | 2E |
| 1 | Rostrum short or inconspicuous: absent | 0 |  |
|  | Rostrum short or inconspicuous: present | 1 | 2F |
| 2 | Carapace, frontal margin as a nearly rectangular plate: absent | 0 |  |
|  | Carapace, frontal margin as a nearly rectangular plate: present | 1 |  |
| 3 | Frontal plate bending slightly upward and outward as a narrow flange, appearing to shield slightly the upper part of the eye: absent | 0 |  |
|  | Frontal plate bending slightly upward and outward as a narrow flange, appearing to shield slightly the upper part of the eye: present | 1 |  |
| 4 | Long spiniform process projecting anteriorly from gastric dome: absent | 0 |  |
|  | Long spiniform process projecting anteriorly from gastric dome: present | 1 | 2G |
| 5 | Carapace, postocular tooth: absent | 0 |  |
|  | Carapace, postocular tooth: present | 1 | 2H |
| 6 | Carapace, hepatic tooth: absent | 0 |  |
|  | Carapace, hepatic tooth: present | 1 | 2H |
| 7 | Carapace, two pairs of lateral denticles: absent | 0 |  |
|  | Carapace, two pairs of lateral denticles: present | 1 | 2G,I |
| 8 | Carapace, one pair of lateral denticles: absent | 0 |  |
|  | Carapace, one pair of lateral denticles: present | 1 | 2D |
| 9 | Carapace, one pair of supralateral denticles set above an incision in the lower edge: absent | 0 |  |
|  | Carapace, one pair of supralateral denticles set above an incision in the lower edge: present | 1 |  |
|  | **PLEON** |  |  |
| 10 | Pleonic somites I, pleon acute and projected forward: absent | 0 |  |
|  | Pleonic somites I, pleon acute and projected forward: present | 1 |  |
| 11 | Pleonic somites IV, ventral lobe: absent | 0 |  |
|  | Pleonic somites IV, ventral lobe: present | 1 |  |
| 12 | Pleonic somites III, mid-dorsal spine: absent | 0 |  |
|  | Pleonic somites III, mid-dorsal spine: present | 1 | 2J |
| 13 | Pleonic somites IV, mid-dorsal spine: absent | 0 |  |
|  | Pleonic somites IV, mid-dorsal spine: present | 1 |  |
| 14 | Pleonic somites IV, one posterior tooth on each side: absent | 0 |  |
|  | Pleonic somites IV, one posterior tooth on each side: present | 1 | 2K |
| 15 | Pleonic somites IV, several irregular posterior teeth on each side: absent | 0 |  |
|  | Pleonic somites IV, several irregular posterior teeth on each side: present | 1 | 2J |
| 16 | Pleonic somites IV, additional pair of dorsal teeth: absent | 0 |  |
|  | Pleonic somites IV, additional pair of dorsal teeth: present | 1 |  |
| 17 | Pleonic somites IV, three short rows of integumental pits in depressed grooves which have elevated keel-like borders: absent | 0 |  |
|  | Pleonic somites IV, three short rows of integumental pits in depressed grooves which have elevated keel-like borders: present | 1 | 2L |
| 18 | Pleonic somites V, ventral lobe: absent | 0 |  |
|  | Pleonic somites V, ventral lobe: present | 1 |  |
| 19 | Pleonic somites V, three short rows of integumental pits in depressed grooves which have elevated keel-like borders: absent | 0 | 2L |
|  | Pleonic somites V, three short rows of integumental pits in depressed grooves which have elevated keel-like borders: present | 1 |  |
| 20 | Pleonic somites V, mid-dorsal spine: absent | 0 |  |
|  | Pleonic somites V, mid-dorsal spine: present | 1 |  |
| 21 | Pleonic somites V, one posterior tooth on each side: absent | 0 |  |
|  | Pleonic somites V, one posterior tooth on each side: present | 1 |  |
|  | Pleonic somites V, several irregular posterior teeth on each side: absent | 0 |  |
| 22 | Pleonic somites V, several irregular posterior teeth on each side: present | 1 |  |
| 23 | Pleonic somites V, additional pair of dorsal teeth: absent | 0 |  |
|  | Pleonic somites V, additional pair of dorsal teeth: present | 1 |  |
| 24 | Pleonic somite VI short (nearly as long as somite V): absent | 0 |  |
|  | Pleonic somite VI short (nearly as long as somite V): present | 1 |  |
|  | **EYES** |  |  |
| 25 | Eyes: entire | 0 |  |
|  | Eyes: definitely subdivided | 1 | 2MNOPQ |
| 26 | Eyes slightly assymetrical, not completely subdivided: absent | 0 |  |
|  | Eyes slightly assymetrical, not completely subdivided: present | 1 |  |
| 27 | Eye, divided upper part regularly rounded: absent | 0 |  |
|  | Eye, divided upper part regularly rounded: present | 1 | 2M |
| 28 | Eye, divided upper part bent respective to the main axix of eye:  absent | 0 |  |
|  | Eye, divided upper part bent respective to the main axix of eye: present | 1 | 2N |
| 29 | Eye, upper part lentoid: absent | 0 |  |
|  | Eye, upper part lentoid: present | 1 | 2O |
| 30 | Eye, upper part extednded vertically: absent | 0 |  |
|  | Eye, upper part extednded vertically: present | 1 | 2P |
| 31 | Eye, upper part crepe-like: absent | 0 |  |
|  | Eye, upper part crepe-like: present | 1 | 2Q |
| 32 | Eyes, enlarged cristalline cones: absent | 0 |  |
|  | Eyes, enlarged cristalline cones: present | 1 | 2P |
| 33 | Eyes, two or three crystalline cones in the upper part : absent | 0 |  |
|  | Eyes, two or three ommatidia in the upper part : present | 1 |  |
| 34 | Eyes, four to eight ommatidia in the upper part : absent | 0 | 2P |
|  | Eyes, four to eight ommatidia in the upper part : present | 1 |  |
| 35 | Eyes, nine or more ommatidia in the upper part : absent | 0 |  |
|  | Eyes, nine or more ommatidia in the upper part : present | 1 |  |
|  | **ANTENNULE AND ANTENNA** |  |  |
| 36 | AI peduncle sexually dimorphic (2 distal segments much narrower than basal segment): absent | 0 |  |
|  | AI peduncle sexually dimorphic (2 distal segments much narrower than basal segment): present | 1 |  |
| 37 | AI peduncle, flagellum shorthened (<2 tiimes as long as peduncle): absent | 0 |  |
|  | AI peduncle, flagellum shorthened (<2 tiimes as long as peduncle): present | 1 |  |
| 38 | A I, basal segment with distal portion elevated abruptly as a heavy, posteriorly-rounded lobe: absent | 0 |  |
|  | A I, basal segment with distal portion elevated abruptly as a heavy, posteriorly-rounded lobe: present | 1 |  |
| 39 | A I peduncle, lappet: present | 0 | 3A-J |
|  | A I peduncle, lappet: absent | 1 |  |
| 40 | A I, basal segment, pectinate lappet : absent | 0 |  |
|  | A I, basal segment, pectinate lappet : present | 1 | 3A |
| 41 | A I, basal segment, spiniform lappet : absent | 0 |  |
|  | A I, basal segment, spiniform lappet : present | 1 | 3C |
| 42 | A I, basal segment, distally bifid lappet in both sexes: absent | 0 |  |
|  | A I, basal segment, distally bifid lappet in both sexes: present | 1 |  |
| 43 | A I, basal segment, lappet distally bifid in females and simple in males: absent | 0 |  |
|  | A I, basal segment, lappet distally bifid in females and simple in males: absent | 1 |  |
| 44 | A I, basal segment, lappet as a simple rounded projection: absent | 0 |  |
|  | A I, basal segment, lappet as a simple rounded projection: present | 1 |  |
| 45 | A I, basal segment, vertically bent lappet : absent | 0 |  |
|  | A I, basal segment, vertically bent lappet : present | 1 | 3H |
| 46 | A I, lappet raised as a hood over the base of the 2nd segment: absent | 0 |  |
|  | A I, lappet raised as a hood over the base of the 2nd segment: present | 1 |  |
| 47 | A I, basal segment, thick lappet with forward-directed apical tooth: absent | 0 |  |
|  | A I, basal segment, thick lappet with forward-directed apical tooth: present | 1 |  |
| 48 | A I, basal segment, thin, scale-like lappet : absent | 0 |  |
|  | A I, basal segment, thin, scale-like lappet : present | 1 |  |
| 49 | A I, second segment with distal lobe overlying third segment: absent | 0 |  |
|  | A I, second segment with distal lobe overlying third segment: present | 1 |  |
| 50 | A I, second segment with distal lobe reaching middle of third segment: absent | 0 |  |
|  | A I, second segment with distal lobe reaching middle of third segment: present | 1 |  |
| 51 | A I, second segment with distal lobe not reaching middle of third segment: absent | 0 |  |
|  | A I, second segment with distal lobe not reaching middle of third segment: present | 1 |  |
| 52 | A I, one strong dorsomedial tooth on second segment: absent | 0 |  |
|  | A I, one strong dorsomedial tooth on second segment: present | 1 |  |
| 53 | A I, long distolateral tooth on second segment: absent | 0 |  |
|  | A I, long distolateral tooth on second segment: present | 1 |  |
| 54 | A I, short distolateral tooth on second segment: absent | 0 |  |
|  | A I, short distolateral tooth on second segment: present | 1 |  |
| 55 | A I, two short dorsal teeth on second segment: absent | 0 |  |
|  | A I, two short dorsal teeth on second segment: present | 1 |  |
| 56 | A I, two rudimentary dorsal teeth on second segment: absent | 0 |  |
|  | A I, two rudimentary dorsal teeth on second segment: present | 1 |  |
| 57 | A II, elongate scaphocerite (12-15 times as long as wide): absent | 0 |  |
|  | A II, elongate scaphocerite (12-15 times as long as wide): present | 1 |  |
|  | **MANDIBULA** |  |  |
| 58 | Mandibula, palp: absent | 0 |  |
|  | Mandibula, palp: present | 1 |  |
| 59 | Mandibula, short palp (<1,5 times as long as pars incisiva): absent | 0 |  |
|  | Mandibula, short palp (<1,5 times as long as pars incisiva): present | 1 |  |
| 60 | Mandibula, long palp (>1,5 times as long as pars incisiva): absent | 0 |  |
|  | Mandibula, long palp (>1,5 times as long as pars incisiva): present | 1 |  |
|  | **THORACOPODS** |  |  |
| 61 | Th I, terminal segment triangular-shaped, furnished with brush-like bristles on inner lateral margin: absent | 0 |  |
|  | Th I, terminal segment triangular-shaped, furnished with brush-like bristles on inner lateral margin: present | 1 |  |
| 62 | Th I, propodus with one regular row of setae: absent | 0 |  |
|  | Th I, propodus with one regular row of setae: present | 1 |  |
| 63 | Th I, propodus with two regular rows of setae: absent | 0 |  |
|  | Th I, propodus with two regular rows of setae: present | 1 |  |
| 64 | Th I, propodus with inner margin convex: absent | 0 |  |
|  | Th I, propodus with inner margin convex: present | 1 |  |
| 65 | Th I, propodus with inner margin straight: absent | 0 |  |
|  | Th I, propodus with inner margin straight: present | 1 |  |
| 66 | Th I, dactyl with inner margin concave: absent | 0 |  |
|  | Th I, dactyl with inner margin concave: present | 1 |  |
| 67 | Th I, dactyl with inner margin straight: absent | 0 |  |
|  | Th I, dactyl with inner margin straight: present | 1 |  |
| 68 | Th II, grasping structure: absent | 0 |  |
|  | Th II, grasping structure: present | 1 | 3KL |
| 69 | Th II, strong grasping setae along last three terminal segments at least: absent | 0 |  |
|  | Th II, strong grasping setae along last three terminal segments at least: present | 1 | 3K |
| 70 | Th II, strong grasping setae at the apex of the penultimate segment and on the terminal segment: absent | 0 |  |
|  | Th II, strong grasping setae at the apex of the penultimate segment and on the terminal segment: present | 1 | 3L |
| 71 | Thoracopod II, fourth and fifth segments elongated: absent | 0 |  |
|  | Thoracopod II, fourth and fifth segments elongated: present | 1 | 3K |
| 72 | Thoracopod II, second to fourth segments elongated: absent | 0 |  |
|  | Thoracopod II, second to fourth segments elongated: present | 1 |  |
| 73 | ThP II, strong grasping setae along entire margin of two distal segments: absent | 0 |  |
|  | ThP II, strong grasping setae along entire margin of two distal segments: present | 1 | 3K |
| 74 | ThP II, apical cluster of long spines: absent | 0 |  |
|  | ThP II, apical cluster of long spines: present | 1 | 3L |
| 75 | ThP II, apical cluster of long spines arising only from dactylus: absent | 0 |  |
|  | ThP II, apical cluster of long spines arising only from dactylus: present | 1 |  |
| 76 | ThP II, apical cluster of long spines arising from both dactylus and propodus: absent | 0 |  |
|  | ThP II, apical cluster of long spines arising from both dactylus and propodus: present | 1 | 3L |
| 77 | Th II, slightly expanded, not setose terminal segment: absent | 0 |  |
|  | Th II, slightly expanded, not setose terminal segment: present | 1 |  |
| 78 | Th III, grasping structure: absent | 0 |  |
|  | Th III, grasping structure: present | 1 |  |
| 79 | Th III, bent merus : absent | 0 |  |
|  | Th III, bent merus : present | 1 |  |
| 80 | Th III, dactyl in adult male reduced and bearing a long strong spine: absent | 0 |  |
|  | Th III, dactyl in adult male reduced and bearing a long strong spine: present | 1 |  |
| 81 | ThP III, a tuft of strong grasping setae on broadened propodus and dactyl: absent | 0 |  |
|  | ThP III, a tuft of strong grasping setae on broadened propodus and dactyl: present | 1 |  |
| 82 | ThP III, dactylus elongated and armed at tip with five long serrated spines: absent | 0 |  |
|  | ThP III, dactylus elongated and armed at tip with five long serrated spines: present | 1 |  |
| 83 | Thoracopod III, setae forming a true chela: absent | 0 |  |
|  | Thoracopod III, setae forming a true chela: present | 1 |  |
| 84 | Thoracopod III, setae forming a false chela: absent | 0 |  |
|  | Thoracopod III, setae forming a false chela: present | 1 |  |
| 85 | Thoracopod III, false chela formed of simple curved bristles : absent | 0 |  |
|  | Thoracopod III, false chela formed of simple curved bristles : present | 1 |  |
| 86 | Thoracopod III, false chela formed of finely serrate, curved bristles: absent | 0 |  |
|  | Thoracopod III, false chela formed of finely serrate, curved bristles: present | 1 |  |
| 87 | Thoracopod III, propodus bearing numerous short curved bristles in addition to 3 longer ones: absent | 0 |  |
|  | Thoracopod III, propodus bearing numerous short curved bristles in addition to 3 longer ones: present | 1 |  |
| 88 | Thoracopod VII, endopod in females: absent | 0 |  |
|  | Thoracopod VII, endopod in females: present | 1 |  |
| 89 | Thoracopod VII, endopod in females 5-segmented, short: absent | 0 |  |
|  | Thoracopod VII, endopod in females 5-segmented, short: present | 1 |  |
| 90 | Thoracopod VII, endopod in females 2-segmented: absent | 0 |  |
|  | Thoracopod VII, endopod in females 2-segmented: present | 1 |  |
| 91 | Thoracopod VII, endopod in males: absent | 0 |  |
|  | Thoracopod VII, endopod in males: present | 1 |  |
| 92 | Thoracopod VII, endopod in males 5-segmented, short: absent | 0 |  |
|  | Thoracopod VII, endopod in males 5-segmented, short: present | 1 |  |
| 93 | Thoracopod VII, endopod in males 2-segmented: absent | 0 |  |
|  | Thoracopod VII, endopod in males 2-segmented: present | 1 |  |
| 94 | Thoracopod VII, exopod 2-segmented: absent | 0 |  |
|  | Thoracopod VII, exopod 2-segmented: present | 1 |  |
| 95 | ThP VII, developed exopod similar to that on Th I-VI: absent | 0 |  |
|  | ThP VII, developed exopod similar to that on Th I-VI: present | 1 |  |
| 96 | Thoracopod VII, reduced exopod, shorter than that on Th I-VI: absent | 0 |  |
|  | Thoracopod VII, reduced exopod, shorter than that on Th I-VI: present | 1 |  |
| 97 | Thoracopod VII, rudimentary undivided exopod: absent | 0 |  |
|  | Thoracopod VII, rudimentary undivided exopod: present | 1 |  |
| 98 | Thoracopod VII, rudimentary undivided exopod: absent | 0 |  |
|  | Thoracopod VII, rudimentary undivided exopod: present | 1 |  |
| 99 | Thoracopod VIII, endopod in female rudimentary: absent | 0 |  |
|  | Thoracopod VIII, endopod in female rudimentary: present | 1 |  |
| 100 | Thoracopod VIII, endopod in male rudimentary: absent | 0 |  |
|  | Thoracopod VIII, endopod in male rudimentary: present | 1 |  |
| 101 | Thoracopod VIII, developed exopod similar to that on thoracopods I-VII: absent | 0 |  |
|  | Thoracopod VIII, developed exopod similar to that on thoracopods I-VII: present | 1 |  |
| 102 | Thoracopod VIII, reduced exopod, shorter than that on thoracopods I-VII: absent | 0 |  |
|  | Thoracopod VIII, reduced exopod, shorter than that on thoracopods I-VII: present | 1 |  |
| 103 | Thoracopod VIII, rudimentary undivided exopod: absent | 0 |  |
|  | Thoracopod VIII, rudimentary undivided exopod: present | 1 |  |
|  | **UROPODS** |  |  |
| 104 | Uropod, exopod 2-segmented: absent | 0 |  |
|  | Uropod, exopod 2-segmented: present | 1 |  |
|  | **PHOTOPHORES** |  |  |
| 105 | Photophores, well-developed both at the furcilia and at the adult stage: absent | 0 |  |
|  | Photophores, well-developed both at the furcilia and at the adult stage: present | 1 |  |
| 106 | Photophores, well-developed at the furcilia and greatly reduced/absent at the adult stage: absent | 0 |  |
|  | Photophores, well-developed at the furcilia and greatly reduced/absent at the adult stage: present | 1 |  |
| 107 | Photophores, only five organs: absent | 0 |  |
|  | Photophores, only five organs: present | 1 |  |
| 108 | Photophores, ten organs: absent | 0 |  |
|  | Photophores, ten organs: present | 1 |  |
|  | **PETASMA** |  |  |
| 109 | First pleopod, basipod with 1–6 genital spines in male: absent | 0 |  |
|  | First pleopod, basipod with 1–6 genital spines in male: present | 1 |  |
| 110 | Petasma: absent | 0 |  |
|  | Petasma: present | 1 |  |
| 111 | Petasma, fused lobi internus and medialis: absent | 0 |  |
|  | Petasma, fused lobi internus and medialis: present | 1 | 4E |
| 112 | Petasma, lobi internus and medialis separate: absent | 0 |  |
|  | Petasma, lobi internus and medialis separate: present | 1 | 4C |
| 113 | Petasma, lobus medialis short (less than lobus internus): absent | 0 |  |
|  | Petasma, lobus medialis short (less than lobus internus): present | 1 | 4B |
| 114 | Petasma, lobus medialis rudimentary: absent | 0 |  |
|  | Petasma, lobus medialis rudimentary: present | 1 | 4B |
| 115 | Petasma, conic bumps at the base of lobus medialis: absent | 0 |  |
|  | Petasma, conic bumps at the base of lobus medialis: present | 1 | 4J |
| 116 | Petasma, a single conic bump at the base of lobus medialis: absent | 0 |  |
|  | Petasma, a single conic bump at the base of lobus medialis: present | 1 | 4J |
| 117 | Petasma, two conic bumps at the base of lobus medialis: absent | 0 |  |
|  | Petasma, two conic bumps at the base of lobus medialis: present | 1 |  |
| 118 | Petasma, well-developed processus lateralis: absent | 0 |  |
|  | Petasma, well-developed processus lateralis: present | 1 | 4B-F |
| 119 | Petasma, rudimentary processus lateralis: absent | 0 |  |
|  | Petasma, rudimentary processus lateralis: present | 1 |  |
| 120 | Petasma, processus lateralis located in the middle of lobus medialis: absent | 0 |  |
|  | Petasma, processus lateralis located in the middle of lobus medialis: present | 1 | 4CDJ |
| 121 | Petasma, processus lateralis locatied at the base of lobus medialis: absent | 0 |  |
|  | Petasma, processus lateralis locatied at the base of lobus medialis: present | 1 | 4BE |
| 122 | Petasma, processus lateralis not reaching the end of lobus medialis: absent | 0 |  |
|  | Petasma, processus lateralis not reaching the end of lobus medialis: present | 1 | 4E |
| 123 | Petasma, processus lateralis reaching the end of lobus medialis: absent | 0 |  |
|  | Petasma, processus lateralis reaching the end of lobus medialis: present | 1 | 4D |
| 124 | Petasma, processus lateralis overreaching the end of lobus medialis: absent | 0 |  |
|  | Petasma, processus lateralis overreaching the end of lobus medialis: present | 1 | 4C |
| 125 | Petasma, processus lateralis, tooth on the distal end: absent | 0 |  |
|  | Petasma, processus lateralis, tooth on the distal end: present | 1 | 4H |
| 126 | Petasma, processus lateralis dentate/dissected at the distal end: absent | 0 |  |
|  | Petasma, processus lateralis dentate/dissected at the distal end: present | 1 |  |
| 127 | Petasma, rudimentary lobus internus: absent | 0 |  |
|  | Petasma, rudimentary lobus internus: present | 1 | 4A |
| 128 | Petasma, rhomboid lobus internus: absent | 0 |  |
|  | Petasma, rhomboid lobus internus: present | 1 | 4B |
| 129 | Petasma, lobus internus with serrated outer margin: absent | 0 |  |
|  | Petasma, lobus internus with serrated outer margin: present | 1 |  |
| 130 | Petasma, a single processus additionalis: absent | 0 | 4H |
|  | Petasma, a single processus additionalis: present | 1 |  |
| 131 | Petasma, two processi additionali: absent | 0 |  |
|  | Petasma, two processi additionali: present | 1 |  |
| 132 | Petasma, three processi additionali: absent | 0 |  |
|  | Petasma, three processi additionali: present | 1 |  |
| 133 | Petasma, four processi additionali: absent | 0 |  |
|  | Petasma, four processi additionali: present | 1 |  |
| 134 | Petasma, processus terminalis: absent | 0 |  |
|  | Petasma, processus terminalis: present | 1 | 4E-J |
| 135 | Petasma, processus terminalis with membraneous extensions: absent | 0 |  |
|  | Petasma, processus terminalis with membraneous extensions: present | 1 |  |
| 136 | Petasma, processus terminalis medially narrowing: absent | 0 |  |
|  | Petasma, processus terminalis medially narrowing: present | 1 | 4B |
| 137 | Petasma, tapering processus terminalis: absent | 0 |  |
|  | Petasma, tapering processus terminalis: present | 1 | 4E |
| 138 | Petasma, apically expanded processus terminalis: absent | 0 |  |
|  | Petasma, apically expanded processus terminalis: present | 1 |  |
| 139 | Petasma, processus terminalis bearing 2-5 big distal teeth: absent | 0 |  |
|  | Petasma, processus terminalis bearing 2-5 big distal teeth: present | 1 |  |
| 140 | Petasma, processus terminalis bearing numerous small terminal teeth: absent | 0 |  |
|  | Petasma, processus terminalis bearing numerous small terminal teeth: present | 1 | 4E |
| 141 | Petasma, processus terminalis bearing numerous small teeth along the outer edge: absent | 0 |  |
|  | Petasma, processus terminalis bearing numerous small teeth along the outer edge: present | 1 | 4F |
| 142 | Petasma, processus terminalis with flattened and paddle-like tip: absent | 0 |  |
|  | Petasma, processus terminalis with flattened and paddle-like tip: present | 1 | 4G |
| 143 | Petasma, processus terminalis with additional processus: absent | 0 |  |
|  | Petasma, processus terminalis with additional processus: present | 1 | 4I |
| 144 | Petasma, processus terminalis, basal part with well-developed heel-like extension: absent | 0 |  |
|  | Petasma, processus terminalis, basal part with well-developed heel-like extension: present | 1 |  |
| 145 | Petasma, processus terminalis, basal part with rudimentary heel-like extension: absent | 0 |  |
|  | Petasma, processus terminalis, basal part with rudimentary heel-like extension: present | 1 | 4H |
| 146 | Petasma, processus terminalis with thin and elongated heel-like extension: absent | 0 |  |
|  | Petasma, processus terminalis with thin and elongated heel-like extension: present | 1 | 4I |
| 147 | Petasma, processus terminalis with robust heel-like extension: absent | 0 |  |
|  | Petasma, processus terminalis with robust heel-like extension: present | 1 |  |
| 148 | Petasma, processus spinosus: absent | 0 |  |
|  | Petasma, processus spinosus: present | 1 |  |
| 149 | Petasma, processus spinosus thin and strongly curved: absent | 0 |  |
|  | Petasma, processus spinosus thin and strongly curved: present | 1 | 4D |
| 150 | Petasma, processus proximalis: absent | 0 |  |
|  | Petasma, processus proximalis: present | 1 |  |
| 151 | Petasma, robust processus proximalis: absent | 0 |  |
|  | Petasma, robust processus proximalis: present | 1 | 4E |
| 152 | Petasma, slender processus proximalis: absent | 0 |  |
|  | Petasma, slender processus proximalis: present | 1 | 4D |
| 153 | Petasma, processus proximalis tapering: absent | 0 |  |
|  | Petasma, processus proximalis tapering: present | 1 | 4O |
| 154 | Petasma, processus proximalis apically subcilindrical: absent | 0 |  |
|  | Petasma, processus proximalis apically subcilindrical: present | 1 |  |
| 155 | Petasma, processus proximalis apically expanded: absent | 0 |  |
|  | Petasma, processus proximalis apically expanded: present | 1 |  |
| 156 | Petasma, processus proximalis, a plate-like extension at the base: absent | 0 |  |
|  | Petasma, processus proximalis, a plate-like extension at the base: present | 1 | 4J |
| 157 | Petasma, processus proximalis, bilobed plate: absent | 0 |  |
|  | Petasma, processus proximalis, bilobed plate: present | 1 | 4HMN |
| 158 | Petasma, processus proximalis, serration on tip: absent | 0 |  |
|  | Petasma, processus proximalis, serration on tip: present | 1 | 4K |
| 159 | Petasma, processus proximalis, smooth margin of bilobed plate: absent | 0 |  |
|  | Petasma, processus proximalis, smooth margin of bilobed plate: present | 1 | 4H |
| 160 | Petasma, processus proximalis, a single small tooth on margin of bilobed plate: absent | 0 |  |
|  | Petasma, processus proximalis, a single small tooth on margin of bilobed plate: present | 1 | 4M |
| 161 | Petasma, processus proximalis, serrated margin of bilobed plate: absent | 0 |  |
|  | Petasma, processus proximalis, serrated margin of bilobed plate: present | 1 | 4N |
| 162 | Petasma, processus proximalis, a tooth-like outer distal angle: absent | 0 |  |
|  | Petasma, processus proximalis, a tooth-like outer distal angle: present | 1 | 4O |
| 163 | Petasma, processus proximalis, additional spine at the distal end: absent | 0 |  |
|  | Petasma, processus proximalis, additional spine at the distal end: present | 1 | 4P |
| 164 | Petasma, rectangularly bent processus proximalis: absent | 0 |  |
|  | Petasma, rectangularly bent processus proximalis: present | 1 |  |
| 165 | Petasma, smoothly curved processus proximalis: absent | 0 |  |
|  | Petasma, smoothly curved processus proximalis: present | 1 | 4H |
| 166 | Petasma, processus proximalis, terminal hook: absent | 0 |  |
|  | Petasma, processus proximalis, terminal hook: present | 1 | 4I |
| 167 | Petasma, processus proximalis, a lobe in the basal part: absent | 0 |  |
|  | Petasma, processus proximalis, a lobe in the basal part: present | 1 |  |