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KEYS TO AID IN THE IDENTIFICATION OF MARINE  
HARPACTICOID COPEPODS

VLIZ (vzw)

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by

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## INTRODUCTION

This Bulletin deals with several important papers, but particularly notable are the revision of the Paramesochridae by Kunz (1981), the discussion of *Oniscopsis* by Becker & Kunz (1981) and the partial revision of *Tisbe* by Volkmann (1979c); all are major contributions to harpacticoid systematics. As in previous Amendment Bulletins (Wells, 1978, 1979, 1981) the page numbers in parentheses are those of the original Keys (Wells, 1976).

**Family Longipediidae**

*Longipedia spinulosa* Itô, 1981 is added to the genus (see p. 12 and Wells, 1981).

**Family Cerviniidae**

1. *Pontostratiotes minor* and *P. fontana*, new species by Dinert (1981), *P. pacificus* and *P. unisetosus*, new species by Itô (1982b), and *P. sixtorum mindanaoensis* Itô, 1982b, all to genus codon in KGG 1 (p. 21).
2. Montagna (1981) redescribes the male of *Cervinia magna*, discovering previously unknown sexual dimorphism. Brotskaya (1963) made *C. magna* the type of her new monotypic genus, *Pseudocervinia*. Montagna believes that this is not justified and proposes that *Pseudocervinia* sink as a synonym of *Cervinia*. As a consequence of Montagna's description —
  - (a) amend the codon for *Pseudocervinia* in KGG 1 (p. 22) to read —  
d/d/u/3:3:3:3:/2:2:2:2 — *Cervinia magna* ♀,
  - (b) note that *C. magna* ♂ has the same codon in KGG 100 (p. 23) as *C. bradyi*.
3. *Cervinia unisetosa* Montagna, 1981 to codon for *C. tenuiseta* in KGG 100 (p. 23).
4. *Expansicervinia glaciera* Montagna, 1981 to the codon for *Cervinia tenuicauda* in KGG 100 (p. 23).
5. *Pontostratiotes robustus* Itô, 1982b requires a new codon in KGG 200 (p. 24) —  
8/?/6:7:7:8/5:5:6:5/>abd.
6. *Tonpostratiotes tenuipedalis* Itô, 1982b requires a new codon in KGG 200 (p. 24) —  
7/5/6:7:7:7/5:5:6:3/>abd.
7. Montagna (1981) synonymizes *Stratiopontotes* with *Ameliotes*. Itô (1982b) disagrees but synonymizes *Ameliotes* with *Herdmaniopsis*.

**Family Ectinosomatidae**

1. *Arenosetella panamensis* and *A. macronychospina*, new species by Mielke (1981b), to genus codon in KGG 1 (p. 28).
2. *Halectinosoma perforatum* Itô, 1981 to codon for *H. canaliculatum* and *H. inhacae* in KGG 100 (p. 29).
3. *Halectinosoma otakoua* and *H. hydrofuge*, new species by Wells, Hicks & Coull (1982), to genus codon in KGG 100 (p. 29).
4. *Noodtiella tabogensis* Mielke, 1981b to codon for *N. hoodensis* in KGG 500 (p. 35).

**Family Harpacticidae**

*Harpacticus alevtinae* Tschislenko, 1977 requires a new codon in KGG 100 (p. 45) — nor/9/1/?/4:5/0:5. Tschislenko does not state if there are modifications to the male P.2-P.4.

### Family Tisbidae

1. *Tisbe japonica* Ho, 1982 and *T. coulli*, *T. ianthina*, *T. longipes* and *T. variana*, all new species by Volkmann, 1979a, to genus codon in KGG 100 (p. 49).
2. Volkmann (1979c) gives a partial revision of *Tisbe*, with keys to the species dealt with. In this revision she —
  - (a) describes seven new species — *T. trisetosa*, *elanitica*, *rampighera*, *perplexa*, *gigantea*, *denticulata* and *maraensis*; all to genus codon in KGG 100 (p. 49).
  - (b) synonymizes *T. wilsoni* with *T. gracilis* and *T. lancii* with *T. holothuriae*,
  - (c) describes *T. inflatiseta* Volkmann, 1979 for the *nomen nudum*, *Tisbe inflatiseta* Fava & Volkman, 1975.
  - (d) removes *T. compacta*, *cluthae*, *elongata* and *racovitzai* to species *incertae sedis* in the genus,
  - (e) resurrects *Bathyidia* for *B. remota* Farran. This genus has the same codon in KGG 100 (p. 49) as *Tisbe*.

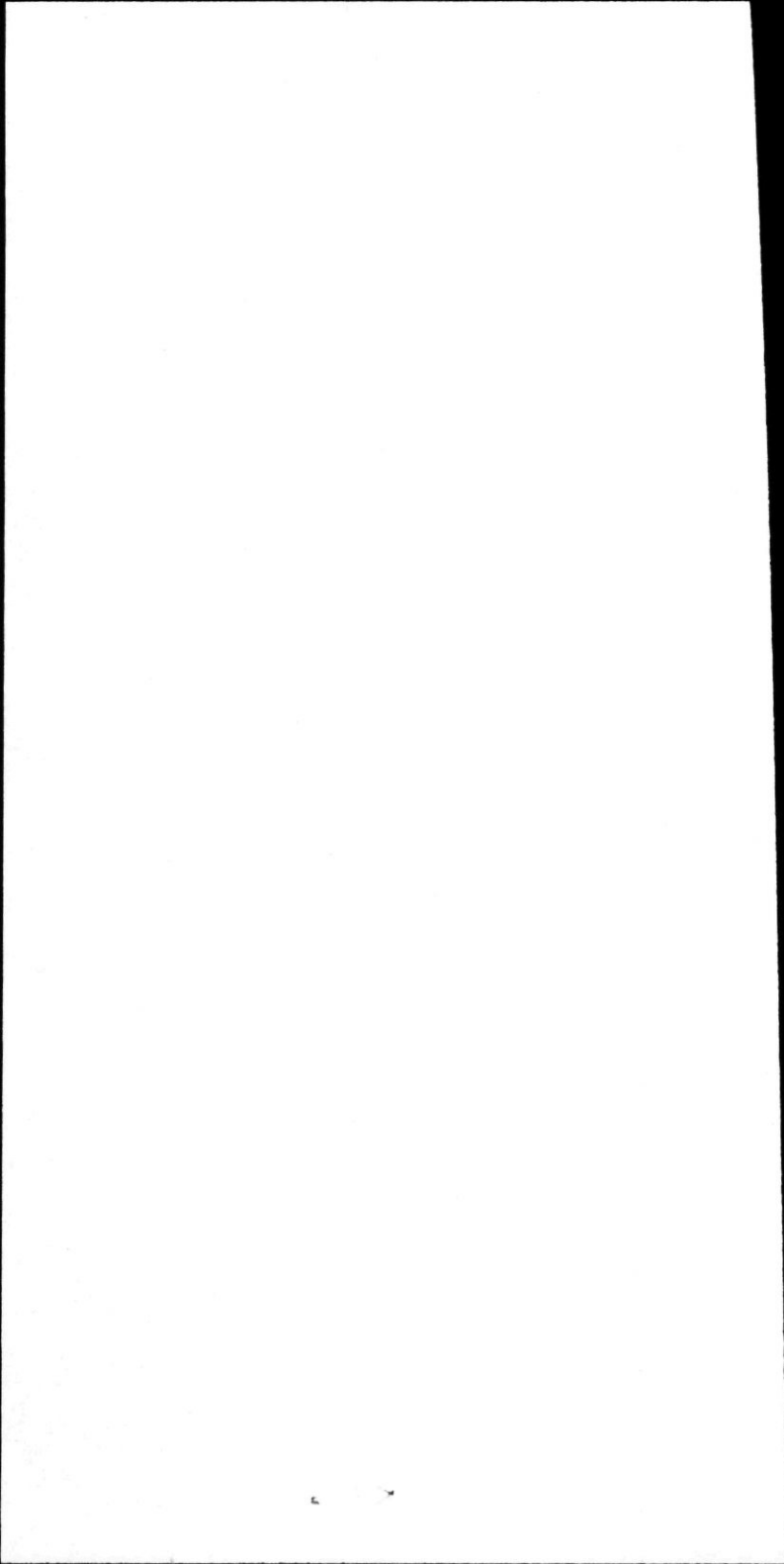
As a consequence of this revision amend note b) to KGG 100 (p. 50) to read — "Care must be taken with these three genera. *Bathyidia* can be separated from most species of *Tisbe* by the form of the P.1 endopod (see Volkmann, 1979c). *Scutellidium* and *Tisbe* can be separated on the respective absence or presence of a seta on the A.2 basis".
3. Volkmann (1979b) revises *Tisbella*. As a consequence —
  - (a) delete *Idyellopsis* and *Zosime* from KGG 1 (p. 48),
  - (b) delete *Tisbella timsae* and *T. pulchella* from KGG 200 (p. 51),
  - (c) describes *T. inflatiseta* Volkmann, 1979 for the *nomen nudum*, *Tisbe inflatiseta* Fava & Volkmann, 1975.
  - (d) insert KGG as follows —
 

KGG 300 — characters

    1. A.1♀  
n = number of segments.
    2. A.2 Exp.  
n = number of segments.
    3. P.2-P.4 Exp.3  
n:n:n = number of setae and/or spines on P.2, P.3 and P.4 respectively.
    4. P.2-P.4 Enp.3  
n:n:n = number of setae and/or spines on P.2, P.3 and P.4 respectively.
    5. P.2-P.4 Enp.2  
n:n:n = number of setae on inner border of P.2, P.3 and P.4 respectively.

#### KGG 300

A.1♀	A.2	P.2-P.4	P.2-P.4	P.2-P.4	
segs.	Exp.	Exp.3	Enp.3	Enp.2	
	segs.	setae	setae	setae	
8	4	7:8:8	5:6:5	2:1:1	<i>Idyellopsis</i>
7(-8?)	3	7:8:8	5:6:5	2:2:1	<i>Tisbella pulchella</i>
7	4	7:8:8	5:6:5	2:2:1	<i>Tisbella<sup>a)</sup></i>
7	3	7:8:8	4:5:4	1:1:1	<i>Zosime<sup>b)</sup></i>
7	3	7:8:8	4:4:4	1:1:1	<i>Z. reyssi</i>
7	3	7:7:7	4:4:4	1:1:1	<i>Zosime<sup>c)</sup></i>
6	3	7:7:7	4:4:4	1:1:1	<i>Zosime<sup>d)</sup></i>
6	3	6:6:6	4:3:3	1:1:1	<i>Z. bathyalis</i>



Erratum:

item 3(c) on page 2 should read:

"add a new codon to KGG 1 (p.48) --

3-4/3:3:3:3/2:3:3:3 ..... KGG 300

- a) *Tisbella timsae*, *rosea* Volkmann, 1979b, *alba* Volkmann, 1979b.
  - b) *Zosime incrassata*, *bathybia*.
  - c) *Zosime valida*, *atlantica*, *paratypica*.
  - d) *Zosime typica*, *major*, *mediterranea*, *gisleni*, *bergensis*, *erythraea*, *paramajor*.
4. As a consequence of Kunz's (1981) revision of the Paramesochridae the following must be deleted from Tisbidae KGG 1 (p.48) —
- (a) codons for the two species of *Tisbisoma*,
  - (b) codon for *Idyanthopsis psammophila*,
  - (c) footnote c).

#### Family Porcellidiidae

Hicks (1982a) redescribes *Porcellidium tristanense* and describes three new species — *P. algoense*, *P. laurencium* and *P. ulvum*.

#### Family Peltidiidae

1. KGG 1 (p. 53): New codons are required for —  
*Altheutha roeae* Hicks, 1982a — 2/3/1:1:1/1:1:1/d:d  
*Eupelte beckleyae* Hicks, 1982a — 2/2/0:0:0/1:1:2/d:d  
*Altheuthellopsis corallina* Humes, 1981b — 1/2/0:0:0/1:1:1/f:f.
2. KGG 100 (p. 55): *Eupelte hexasetta* Hicks, 1982a has 6 setae.
3. *Altheutha langi* a synonym of *A. depressa* according to Hicks (1982a).

#### Family Tegastidae

1. *Tegastes acroporanus* Humes, 1981a and *T. cnidicus* Humes, 1981b to genus codon in KGG 1 (p. 56).
2. *Parategastes coetzeei* Kunz, 1980 to genus codon in KGG 1 (p. 56).
3. Kunz (1980) follows Monard (1935) in raising *Parategastes sphaericus* var. *similis* Sewell, 1924 to full species status. This species is included in the genus codon in KGG 1 (p. 56).

#### Family Parastenheliidae

*Parastenhelia megarostrum* Wells, Hicks & Coull, 1982 is added to the genus (see p. 12); a key to the genus is given.

#### Family Diosaccidae

1. *Amphiascoides golikovi* Tschislenko, 1977 to codon for *A. littoralis* in KGG 1100 (p. 74).
2. *Miscegenus heretaunga* Wells, Hicks & Coull, 1982: Because the A.2 exopod can have two or three segments this new genus and species requires new codons as follows —  
in KGG 110 (p. 74) — <Exp/se/7/5:5/2:5  
in KGG 600 (p. 89) — 5:6:7/0:0:0/2:5/5:5/m.
3. *Robertsonia curtisii* Greenwood & Tucker, 1982 to codon for *R. diademata* and *R. angolensis* in KGG 200 (p. 77).
4. *Stenhelia (D.) latioperculata* Itô, 1981 requires a new codon in KGG 400 (p. 86) — 4/7:8:7/7/d:d/lss.
5. KGG 600 (p. 89): New codons are required for —  
*Amphiascoides koltuni* Tschislenko, 1977 — 5?:6:7/0?:0:0/2:4/5:5/?  
*Diosaccus* aff. *dentatus* Itô, 1982a — 7:8:8/0:0:0/1:4/6?/?
6. *Schizopera elatensis* Kahan & Bar-El, 1982 to genus codon in KGG 800 (p. 93).

**Family Ameiridae**

1. *Parapseudoleptomesochra italica* Pesce & Petkovski, 1980 to codon for *Parapseudoleptomesochra*<sup>d</sup> in KGG 1 (p. 102 as *Nitocrella*, but see Wells, 1978 p. 5).
2. *Praeleptomesochra phreatica* Pesce, 1981 requires a new codon in KGG 1 (p. 101) — 3:3/2:3:3/2:2:2/4/1 — and a note that the existing genus codon now applies only to *P. africana*, *P. pygmaea* and *P. similis*.
3. *Ameira parascotti* Tschislenko, 1977 requires a new codon in KGG 400 (p. 114) — 0:0:0/1:1:1/1:1:1/4:5:5/4:5/?
4. *Nitocrella petkovskii* and *N. paceae*, both new species by Pesce (1980), require new codons in KGG 700 (p. 120) —  
     4:4:5/1:1:1/1:2:1/3:4/? — *N. petkovskii*  
     4:4:6/1:1:1/1:1:1/3:4/? — *N. paceae*.

**Family Paramesochridae**

1. Becker & Kunz (1981) transfer *Oniscopsis* to family Tetragonicipitidae; as a consequence —  
     (a) delete codons to *O. robinsoni* (p. 124) and *O. pauliani* (p. 125) in KGG 1,  
     (b) character 5 in KGG 1 is now redundant.
2. Kunz (1981) describes several new taxa —  
     (a) *Diarthrodella secunda pacifica* to species codon in KGG 1 (p. 124),  
     (b) *Paramesochra acutata hawaiiensis* requires a new codon in KGG 100 (p. 126) — 4/4:4:2/0:0:0/1:3/0:3,  
     (c) *Kliopsyllus insularis* requires a new codon in KGG 200 (p. 127) — 4:4:2/1:1:1/2:3/1:4,  
     (d) *Kliopsyllus debilis* to codon for *K. enalius* in KGG 200 (p. 127),  
     (e) *Kliopsyllus californicus* to codon for *Kliopsyllus*<sup>c</sup> in KGG 200 (p. 127),  
     (f) *Kliopsyllus spiniger ornatus* to species codon in KGG 200 (p. 127).
3. Kunz (1981) revises the family. As a consequence changes to KGG 1 (p. 124) are necessary to accommodate —  
     (a) the reduction of *Paraleptopsyllus* to a subgenus of *Leptopsyllus*, and *Intermedopsyllus* to a subgenus of *Scottopsyllus*,  
     (b) the placement of *Kliopsyllus runtzi*, *K. abyssalis* and *K. gigas* in *Wellsopsyllus*, a new subgenus of *Scottopsyllus*,  
     (c) Kunz's formal proposal that *Idyanthopsis psammophila* be transferred to *Diarthrodella*,  
     (d) the transfer of *Tisbisoma* to this family; add a new codon — 2-3:3:3/3/3/5/8/nf.
4. *Paramesochra borealis* Geddes, 1981a requires a new codon in KGG 100 (p. 126) — 4/4:4:2/0:1:1/2:3/2:4.
5. Amend the codons in KGG 100 (p. 126) for these species to read —  
     4/4:4:2/0:0:1/2:4/0:2 *Paramesochra longicaudata*  
     4/4:4:2/0:0:1/2:3/0:3 *P. helgolandica*  
     4/4:3:2/0:0:0/1:3/0:3 *P. acutata* s.str.
6. Amend the codon in KGG 300 (p. 129) for *Apodopsyllus camptus* to read — 1/5/0:4/0:4. On further examination it is clear to me that the "inner seta" of the P.5 basendopod is only a remnant of the inner lobe.

**Family Tetragonicipitidae**

1. Three new species of *Phyllopodopsyllus* by Kitazima (1981) need to be added to KGG 1 (p. 131) —  
     (a) *P. simplex*: female to codon for *P. danielae*; male to codon for *P. bahamaensis* and *P. opisthoceratus*♀.

- (b) *P. punctatus*: female to codon for *P. mossmani* and *P. laspalmensis*; male to codon for *P. paramossmani*♂.
- (c) *P. setouchensis*: female to codon for *P. bermudae* et. al.; male requires a new codon — a/2vr/2/3:3:2/5:6:6.
2. *Phyllopoposyllus borutzkyi*: Codon in KGG 1 (p. 132) refers to female only; add a new codon for the male — a/2wd/2/3:2:2/4:4:6.
3. Add a new codon to KGG 1 (p. 133) — a/a/2/2-3:1:1/3:2:1 — *Oniscopsis*.

#### Family Canthocamptidae

- In KGG 100 (p. 138) amend the codon for *Mesochra paranaensis* to read — 6/3/7:7:7/5:5/5:5/?

#### Family Cylindropsyllidae

1. *Boreopontia heipi* Willems, 1981 to codon for *Arenopontia australis* in KGG 1 (p. 141).
2. *Syrticola flandricus* Willems & Claeys, 1982 requires a new codon in KGG 1 (p. 141) — s/2:na/f/1:1:1/p.
3. Geddes (1981a) redescribes the female of *Leptastacus rostratus* (the male remains unknown). As a consequence amend the species codon in KGG 300 (p. 144) to read — p/2/0:0:1/3:4:5/1:1:0/1:2:2.
4. Geddes (1981a) raises *Leptastacus rostratus taurica* to species status; it has the same codon in KGG 300 (p. 144) as *L. rostratus*.

#### Family Cletodidae

1. Thistle (1980) describes two new species of *Enhydrosoma*, reviews the genus, comments on several species and provides a key; as a consequence —
- (a) *Enhydrosoma franklini* Thistle, 1980: Because segments 1-2 of P.2-P.4 exopod are fused together this species has the same codon in KGG 1 (p. 155) as *Enhydrosomella*, but the line of fusion is obvious and *E. franklini* cannot be confused with any species of *Enhydrosomella*,
- (b) *Enhydrosoma woodini* Thistle, 1980 requires a new codon in KGG 500 (p. 165) — 2:3/a/d:3:2/d:2:2/♀,
- (c) amendments to several codons in KGG 500 (p. 165) are required —
- 2:3/a/d:3:4/d:2-3:4/s — *E. curticauda*  
 2:2-3/a/d:3:5/d:2-3:5/m — *E. curvirostre*  
 2:2-3/a/d:3:4-5/d:2:2/♀ — *E. propinquum*  
 2:3/a/d:3:4/d:3:4/m-s — *E. sarsi*
2. *Heteropsyllus pseudonunni* Coull & Palmer, 1980 to codon for *H. confluens* in KGG 1 (p. 158).
3. New codons are required in KGG 1 (p. 154) for two new monotypic genera described by Apostolov (1980) —
- 3:2/3:3:3/2:2/5:5:6/3:3 — *Pontocletodes ponticus*  
 2:1/3:3:3/2:2/5:6:6/4:4 — *Miroslavia longicauda*
4. *Enhydrosoma variabile* Wells, Hicks & Coull, 1982 requires a new codon in KGG 500 (p. 165) — 2:3/a/d:2:3-4/d:2:2/s.

#### Family Laophontidae

1. *Heterolaophonte serratula* Mielke, 1981a requires new codons —
- in KGG 1-♀♀ (p. 172) — 3:3:2/2:2:1/5:6/2/7  
 in KGG 1-♂♂ (p. 188) — 3:3:2/2:1/5b/2/2.
2. *Stygolaophonte arenophila*: Amend the codon in KGG 1-♀♀ (p. 173) to read — 3:3:2/2:2:1/4:2/2/7.

3. *Esola longicauda galapagoensis* Mielke, 1981a: As the outer seta of ♀P.5 Benp. is very reduced and spinule-like it would be advisable to add a new codon in KGG 1-♀♀ (p. 172) — 3:3:3/2:2:2/2(3?):6/2/6. Note also that the species codon in KGG 900-♀♀ refers only to the nominate subspecies. The male of this new subspecies keys out with the species codon in KGG 600-♂♂ (p. 195).
4. *Afroloaophonte schmidtii* Mielke, 1981a requires new codons —  
in KGG 1-♀♀ (p. 172) — 1:3:3/0:1:1/4:4/1/5  
in KGG 1-♂♂ (p. 188) — 1:3:3/0:1s/0:3/1/2.
5. *Klieonychocamptoides arganoi* Cottarelli & Mura, 1980 and *K. itoi* Mielke, 1981a both require the same new codons —  
in KGG 1-♀♀ (p. 172) — 1:1:1/0:0:0/3:4/1/6  
in KGG 1-♂♂ (p. 188) — 1:1:1/0:0/7b/1/1.
6. *Klieonychocamptoides remanei*: Amend codon in KGG 1-♀♀ (p. 172) to read — 1:1:1/0:0/3:4/1/7.
7. *Mexicolaophonte arganoi* Cottarelli, 1977 requires new codons —  
in KGG 1-♀♀ (p. 172) — 2:2:2/0:2:2/5:5/1/6  
in KGG 1-♂♂ (p. 188) — 2s:1s:2/0:1/0:4/1/2.
8. Geddes (1982) redescribes *Laophontina dubia*; amend present codons to read —  
KGG 1-♀♀ (p. 172) — 2s:1:3/0:0:1/4:5/1/6  
KGG 1-♂♂ (p. 188) — 2s:1:3/0:1/0:3/1/0.
9. Mielke (1981a) describes *Galapalaophonte pacifica* n.gen., n.sp. but later (1982) synonymizes the species with *Laophontina triarticulata*. As a consequence amend the codon in KGG 1-♀♀ (p. 172) to read — 1s-2s:3:3/2:2:1/4:5/1/6.
10. *Paralaophonte aenigmaticum* Wells, Hicks & Coull, 1982: Male to codon for *Arenolaophonte stygia* in KGG 1-♂♂ (p. 190). Variability in the P.5♀ causes this species to  
(a) key out to *Esola rosei* in KGG 1-♀♀ (p. 173),  
(b) require a new codon in KGG 500-♀♀ (p. 179)  
— 6:5-6:4/1:1:1/0:0/4:5:3/0:0:0.
11. *Quinquelaophonte* Wells, Hicks & Coull, 1982 is erected for the *quinespinosa*-group of *Heterolaophonte*. As a consequence name changes are required to *Heterolaophonte* in KGG 1400-♀♀ (p. 183) and KGG 1800-♀♀ (p. 185), and to *H. parasigmoides*, *H. quinespinosa*, *H. capillata*, *H. longifurcata* and *H. wellsii* in footnotes h and i of KGG 1-♂♂ (p. 191).
12. *Quinquelaophonte candelabrum* Wells, Hicks & Coull, 1982 requires new codons  
in KGG 1-♀♀ (p. 172) — 3:3:3/2:2:2/5:5/2/5  
in KGG 1-♂♂ (p. 188) — 3:3:3/2:2/4b/2/2.
13. Wells, Hicks & Coull (1982) give keys to *Paralaophonte* and *Quinquelaophonte*.
14. *Loureiophonte isabelensis* Mielke, 1981a requires new codons —  
in KGG 100-♀♀ (p. 177) — 5:5:4/1:1:0/0:0/3:3:2/0:0:na  
in KGG 1-♂♂ (p. 188) — 3:3:3/2:1/1:5/2/2.  
The present genus codon in KGG 1-♂♂ now applies only to *L. catharinensis* and *L. paranaensis*.
15. *Echinolaophonte tetracheir* Mielke: Female to codon for *E. horrida* and *E. brevispinosa* in KGG 300-♀♀ (p. 177). Male requires a new codon in KGG 200-♂♂ (p. 193) — 6:7:6/1:1:1/3:4:3/0:0/a.
16. *Paralaophonte panamensis* Mielke, 1982 requires new codons —  
in KGG 500-♀♀ (p. 179) — 6:7:6/1:1:1/0:0/4:6:4/0:0:0  
in KGG 1200-♂♂ (p. 197) — 6:5:5/1:1:1/4:4:4/0:0/p.
17. *Paralaophonte innae* Tschislenko, 1977 requires new codons —  
in KGG 600-♀♀ (p. 179) — 6:7:7/0:0/4:5:4/0:0:0  
in KGG 600-♂♂ (p. 195) — 6:7:7/1:1:1/4:5:4/0:0/a.



18. *Paralaophonte pacifica galapagoensis* Mielke, 1981a to species codons in KGG 700-♀♀ (p. 180) and KGG 1100-♂♂ (p. 197).
19. *Paralaophonte problematica* Mielke, 1981a: Male to codon for *Paralaophonte*<sup>a</sup> in KGG 1100-♂♂ (p. 197). Female requires a new codon in KGG 700-♀♀ (p. 180) — 6:7:7/1:1:1/0:0/0/4:5:4/0:0:0.
20. *Laophonte galapagoensis* Mielke, 1981a: Male to codon for *Paronychocamptus*<sup>e</sup> in KGG 1-♂♂ (p. 189). Female requires a new codon in KGG 1200-♀♀ (p. 182) — 6:7:7/1:1:1/0:0/0/4:6:4/0:0:1.
21. KGG 1600-♂♂ (p. 184): Delete the last codon in this KGG. The codon 6:7:7/1:1:1/0:1:1/7:6:6/1:1:1 now leads to *Pseudocletopsyllus spiniger* and four species of *Cletopsyllus* (*bacescui*, *secundus*, *sakagamii* and *brattstroemi* Geddes, 1981b). Male of *C. brattstroemi* to genus codon in KGG 1-♂♂ (p. 190).
22. *Laophontina* sp.♂ Mielke, 1982 requires a new codon in KGG 1-♂♂ (p. 188) — 1:2:3/0:2/0:5/1/2.
23. Hicks (1982b) describes the true male of *Laophonte danversae*. As a consequence
  - (a) add a new codon to KGG 1-♂♂ (p. 188) — 3:3:3/2:2/2:5/3/2,
  - (b) delete the codon for this species in KGG 1500-♂♂ (p. 198).

#### Family Ancorabolidae

*Paralaophontodes exopoditus* Mielke, 1981a requires a new codon in KGG 1 (p. 202) — 2:2/0:0/4-5/5:5/na:na. Note that the existing genus codon now applies only to *P. echinatus* and *P. robustus*.

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