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on Polar and Marine Research



The Expedition of the Research Vessel "Polarstern"  
to the Antarctic in 2013 (ANT-XXIX/3)

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Edited by  
Julian Gutt  
with contributions of the participants

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Eléaume M, Bohn JM, Roux M, Améziane N (2012) Stalked crinoids (Echinodermata) collected by the R/V Polarstern and Meteor in the south Atlantic and in Antarctica. *Zootaxa*, 3425, 1-22.

Hemery LG, Eléaume M, Roussel V, Améziane N, Gallut C, Steinke D, Cruaud C, Couloux A, Wilson NG (2012). Comprehensive sampling reveals circumpolarity and sympatry in seven mitochondrial lineages of the Southern Ocean crinoid *Promachocrinus kerguelensis* (Echinodermata). *Molecular Ecology*, 21(10), 2502-2518.

### 3.8 Taxocoenoses of amphipod crustaceans

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#### Objectives

This project had four main objectives:

- to document and compare the traits of amphipod taxocoenoses from the North of the Antarctic Peninsula,
- to contribute to the description of morphological and molecular biodiversity of Antarctic amphipods, particularly those of the superfamilies Eusiroidea and Lysianassoidea,
- to contribute to the description of morphological and molecular biodiversity of Antarctic isopod and mysid crustaceans, polynoid polychaetes and bryozoans,
- to provide a new dataset of distributional, ecological and photographic information on Antarctic amphipods.

#### Work at sea

Material has been collected by Rauschert dredge (RD), Agassiz trawl (AGT), rectangular midwater trawl (RMT) and baited traps (ATC). Amphipods, isopods, mysids, bryozoans and polynoid polychaetes were sorted and preserved. Other organisms collected by the authors were dispatched to various colleagues on board. Whenever possible, specimens were identified and photographed and then fixed in 96 % or 100 % ethanol. DNA extractions were carried out for 48 specimens. The scientific experience and the life on board of the authors was presented to the public on a blog: [www.2monthsinantarcticseas.blogspot.com](http://www.2monthsinantarcticseas.blogspot.com).

#### Preliminary results

##### *Crustaceans*

Records of crustaceans identified on board during ANT-XXIX/3 (euphausiids excluded) are presented in Table 3.8.1.

**Tab. 3.8.1:** List of crustacean taxa per station recorded during ANT-XXIX/3. Entries in the table presumably or possibly covering more than one species are preceded by (c). Pelagic species are preceded by (p). Possible and putative undescribed species are followed by (!). Photographed species are indicated by #. The records are presented by areas, W (Weddell Sea), B (Bransfield Strait) and D (Drake Passage) and by station number. Records from the RMT are indicated by \* (they include a



### 3.8 Taxocoenoses of amphipod crustaceans

few benthic species because the net sometimes came close to the bottom or even touched it). Records from the ATC stations are indicated by \*\*.

#### AMPHIPODA

##### AMPELISCIDAE

*Ampelisca bouvieri* #: W; B; 160-3; 162-7; 162-8; 164-4; 164-5; 185-4; 224-3

*Ampelisca* aff. *bouvieri* (!) #: W; 160-3; 162-7

*Ampelisca bransfieldi* #: W; B; D; 118-8; 196-8; 204-2; 217-7; 220-2; 227-1; 227-2; 237-1; 237-3; 240-2; 240-3; 244-2; 244-3; 245-1; 246-3; 247-8; 249-2

*Ampelisca dallenei* #: W; B; D; 160-3; 162-7; 224-2; 224-3; 217-7; 227-1; 227-2; 234-5; 234-6; 237-1; 244-3; 245-1

*Ampelisca richardsoni* #: W; B; D; 116-9; 118-4; 160-3; 160-4; 162-7; 164-4; 185-3; 185-4; 188-5; 198-5; 234-5; 234-6; 240-2; 240-3; 244-3; 246-3

(c) *Ampelisca* spp.: W; B; 162-8; 164-5; 188-4; 193-10; 196-8; 197-6; 199-4; 224-2

*Byblis securiger* #: W; B; D; 116-9; 118-4; 188-2; 188-4; 199-4; 217-6; 217-7; 227-2; 237-3; 246-3; 249-2

##### COROPHIOIDEA (INCLUDING CAPRELLIDS)

*Aeginoides gaussi* #: D; 244-3

*Anonychocheirus richardsoni*: W; 164-4

*Caprellinoides singularis*: W; 116-6

(c) Corophioidea spp. n. det. #: W; B; D; 118-8; 164-5; 193-9; 193-10; 196-8; 197-5; 198-5; 198-6; 204-2; 217-7; 220-1; 227-2; 234-6; 237-1 (2 spp); 244-3; 245-1; 247-8

*Gammaropsis serricra* #: B; 227-1

(c) *Gammaropsis* spp. #: W; B; 164-5; 185-4; 193-10

(c) *Haplocheira* spp. #: W; 160-4; 164-4; 164-5

*Jassa goniamera* #: W; B; 159-4; 185-4; 188-4; 193-9; 196-8

*Jassa thurstoni*: W; 118-8

*Megamphopus* sp. (red eye) #: B; D; 227-1; 240-2; 245-1

*Paragammaropsis prenes* #: W; B; D; 116-9; 199-4; 247-8

Podoceridae sp. (!) #: D; 227-1

*Podocerus septemcarinatus* #: W; B; D; 116-6; 118-4; 196-8; 197-6; 198-6; 217-7; 220-1; 224-2; 227-1; 244-3

(c) *Pseuderichthionius* spp. #: W; D; 116-6; 164-5; 237-3

##### DEXAMINIDAE

(c) *Polycheria* spp.: W; B; 191-1\*; 196-8; 217-7

##### EUSIROIDEA

*Acanthonotozomoides oatesi* #: B; 197-6

*Acanthonotozomopsis pushkini* #: W; B; 164-5; 197-6

*Alexandrella* sp. (!) #: B; 227-2

*Anchiphimedia dorsalis* #: D; 249-2

*Atyloella* cf. *quadridens* #: B; 197-6

*Atylopsis* aff. *fragilis* (!) #: B; D; 227-1; 244-3

*Bathyanoplea schellenbergi* #: B; 217-6; 227-2

*Echiniphimedia echinata* #: W; B; D; 116-9; 197-5; 217-6; 246-3

*Echiniphimedia gabriellae* #: B; 193-8; 193-9

*Echiniphimedia* cplx *hodgsoni* species with slender spine-like projections #: B; 199-4

*Echiniphimedia* cplx *hodgsoni* species with stocky spine-like projections (!) #: W; B; 162-7; 164-4; 197-5; 217-6; 224-3

*Echiniphimedia scotti* #: W; 185-4

*Echiniphimedia waegelei* #: B; 199-4; 217-6

*Epimeria georgiana* #: W; B; D; 116-9; 160-3; 164-4; 185-3; 185-4; 197-5; 204-2; 205-1\*; 224-3; 234-5

*Epimeria grandirostris* #: B; 197-6

*Epimeria inermis* #: B; 224-2; 224-3; 227-2

*Epimeria macrodonta* #: W; B; 185-3; 193-8

*Epimeria* aff. *macrodonta*, blade-shaped dorsal teeth (!) #: W; B; 116-9; 162-7; 164-4; 185-3; 185-4; 193-8

*Epimeria pulchra* red colour morph #: W; 185-3

*Epimeria* aff. *puncticulata* (!) #: W; B; 164-5; 197-6

*Epimeria robustoides* #: B; 196-8; 217-6; 227-2

*Epimeria* aff. *schiaparelli* (!) #: W; B; 118-8; 193-8; 193-9; 196-8

*Epimeria similis* #: B; 193-8; 193-9; 217-6

(p) *Epimeriella macronyx* #: W; D; 182-1\*; 238-1\*

*Epimeriella walkeri* #: W; B; D; 185-4; 188-5; 197-5; 217-7; 234-5

(c) Eusiroidea spp. n. det. #: B; D; 193-10; 196-8; 197-6

*Eusiroides georgiana*: W; D; 164-4; 197-6

*Eusirus antarcticus* ocelot 'form' #: W; B; 116-9; 162-7; 185-3; 185-4; 188-5; 196-8; 197-6; 198-6; 220-1; 224-2; 227-1; 227-2

- (c) *Eusirus* group *antarcticus/bouvieri* n. det.: B; 199-4  
*Eusirus* cplx *bouvieri* brown 'form' #: W; B; 185-4; 185-4; 188-4; 193-8; 197-5; 217-7  
*Eusirus* cplx *bouvieri* all white 'form' (!) #: W; 185-4  
*Eusirus* cplx *giganteus* non-spotted (all red) (!) #: B; 227-2  
*Eusirus* cplx *giganteus* non-spotted (pale gray back / crimson legs) #: B; 204-2; 220-2  
*Eusirus* cplx *giganteus* spotted (P3-P4 white with red dactylus) (!) #: W; B; 118-4; 196-8; 227-2  
*Eusirus* cplx *giganteus* spotted (P3-P4 striped) (!) #: W; B; 188-4; 196-8; 217-6; 227-2  
(p) *Eusirus laticarpus* pale coloured with golden marks #: W; 147-1\*, 148-1\*; 152-2\*; 154-1\*; 171-2\*  
*Eusirus* cf. *laticarpus* colourless #: D; 234-5  
(p) *Eusirus microps* #: W; B; 148-1\*; 153-1\*; 158-1\*; 164-6\*; 167-1\*; 168-1\*; 171-2\*; 173-2\*; 175-1\*; 176-2\*; 182-1\*; 188-4; 191-1\*  
*Eusirus* cplx *perdentatus* marbled #: W; B; 116-9; 162-7; 185-3; 185-4; 188-4; 193-8; 193-9; 197-5; 199-4; 204-2; 217-6; 224-3  
*Eusirus* cplx *perdentatus* spotted (!) #: W; B; 118-4; 185-3; 185-4; 188-4; 193-8; 193-9; 196-8; 197-5; 197-6; 199-4; 217-6; 217-7; 227-2  
(p) *Eusirus propeperdentatus* #: W; 135-1\*, 146-1\*; 154-1\*; 167-1\*  
*Gnathiphimedia sexdentata* #: W; B; 116-6; 164-4; 185-4; 198-6; 224-2; 227-2  
*Gnathiphimedia* sp. (close to *G. barnardi*) (!) #: W; 185-4  
*Iphimediella acuticoxa* #: B; 197-6  
*Iphimediella cyclogena* #: W; B; 116-9; 185-3; 197-5  
*Iphimediella dominici* #: B; 197-6  
*Iphimediella margueritei* #: B; 197-6  
*Iphimediella rigida* #: W; B; 116-4, 116-9, 118-4; 164-4; 185-3; 193-8; 197-5; 199-4; 217-6; 224-3  
*Iphimediella ruffoi* #: W; 116-9  
*Liouvillea* n. sp. [no dorsal teeth] (!) #: W; B; 116-6; 164-4; 164-5; 197-5; 197-6; 224-2  
*Maxilliphimedia longipes* #: B; 197-5  
*Oradarea tricarinata*: W; 116-6  
*Oradarea tridentata* #: W; 185-4  
*Oradarea* sp. [3 teeth on back but neither *O. tricarinata* nor *O. tridentata*] (!) #: W; 159-3  
(c) *Oradarea* spp: B; 193-10; 197-6; 198-5; 198-6; 198-4\*\* (one specimen); 227-1; 217-7  
*Oradarea walkeri*: W; 185-4  
*Parepimeria crenulata* #: W; B; D; 116-6; 164-4; 185-4; 197-5; 197-6; 198-6; 244-3  
*Parepimeria major* #: W; B; D; 118-8; 162-8; 196-8; 204-2; 217-7; 227-2; 237-1  
*Parepimeria minor* #: B; D; 198-6; 224-2; 234-6; 240-2; 245-1; 247-8  
*Prolaphystius isopodops* #: B; 196-8  
*Prostebbingia gracilis* #: W; B; D; 164-4; 220-1; 220-2; 244-3; 245-1; 249-2  
*Prostebbingia longicornis*: W; 164-5  
*Rhachotropis antarctica* #: W; B; D; 116-9; 118-4, 118-8; 160-4; 164-4; 188-5; 197-6; 198-6; 217-7; 234-6; 240-2; 244-3; 247-8  
*Rhachotropis schellenbergi* #: B; 197-5; 197-6  
*Rhachotropis* sp., body colourless, huge irregular-shaped white eyes (!) #: D; 244-3  
*Schradeira gracilis* #: W; B; 116-6; 164-4; 198-6  
*Stegopanoplea joubini* #: W; B; 116-6; 164-4; 185-4  
HADZIOIDEA  
Melitidae sp. (!) #: B; 217-7  
*Paraceradocus* cplx *gibber* brown and white; back with two white stripes #: W; B; 116-4, 116-9, 118-4; 160-3; 162-7; 164-4; 185-3; 198-5; 224-3  
*Paraceradocus* cplx *gibber* all brown (!) #: B; 204-2; 220-2  
HYPERIOIDEA  
(p) *Cyllopus lucasi* #: 147-1\*, 148-1\*, 152-2\*; 168-1\*; 171-2\*; 175-1\*; 176-2\*; 238-1\*  
(p) *Cyllopus magellanicus* #: 234-2\*; 238-1\*  
(p) *Hyperia macrocephala*: 148-1\*; 168-1\*  
(p) *Hyperiella macronyx* #: 148-1\*; 168-1\*; 175-1\*; 207-2\*; 238-1\*  
(p) *Hyperoche capucinus* #: 147-1\*, 148-1\*; 152-2\*; 168-1\*; 171-2\*; 175-1\*; 234-2\*  
(p) *Primno macropa* #: 148-1\*; 168-1\*; 171-2\*  
(p) *Scina* sp: 147-1\*  
(p) *Themisto gaudichaudii* #: 131-1\*; 148-1\*; 208-2\*; 212-1\*; 234-2\*; 238-1\*  
(p) *Vibilia antarctica* #: 148-1\*; 234-2\*; 238-1\*  
LEUCOTHOIDAE  
*Leucothoe* sp. yellow/orange marks (!) #: W; B; D; 162-7; 162-8; 185-4; 197-5; 217-7; 224-2; 234-5  
*Leucothoe* sp. white (no yellow marks) (!) #: B; 193-1  
(c) *Leucothoe* sp. (colour unrecorded): W; 118-8  
LILJEBORGIOIDEA

### 3.8 Taxocoenoses of amphipod crustaceans

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- Liljeborgia georgiana* #: W; B; 116-9; 198-5; 199-4  
*Liljeborgia nesiotica* #: W; B; 116-6; 185-4; 197-5; 197-6  
*Liljeborgia polydeuces* #: W; D; 118-8; 234-6; 237-1; 244-3; 245-1
- LYSIANASSOIDEA
- Abyssorhomene charcoti* #: B; D; 198-4\*\*; 221-1\*\*; 247-1\*\*  
*Abyssorhomene* group *scotianensis* (L-shaped eye) (!) #: B; D; 220-1; 247-1\*\*  
*Aristias antarcticus* #: W; B; 116-9; 185-3; 224-2  
(c) *Aristias* spp.: B; 199-4  
*Cheirimedon crenipalmatus* #: W; B; 162-8; 198-5  
(p) *Cyphocaris* cf. *richardi* (!) #: W; 146-1  
(c) *Hippomedon* spp. #: W; B; 164-4; 198-4\*\*; 221-1\*\*  
*Lepidepecreella andeep*: W; 118-4  
*Lepidepecreella ovalis* #: B; 185-4; 193-10  
(c) *Lepidepecreella* spp.: W; B; 118-8; 196-8; 217-7; 220-1; 220-2  
*Lepidepecreoides* sp. (!) #: D; 249-2  
*Lepidepedreoides xenopus*, typical form with basis of P5 posteriorly bluntly angular #: B; 193-10  
*Lepidepecreoides xenopus*, form with a long sharp posterior point on basis of P5 (!) #: B; 197-6  
Lysianassoidea n. det. with large reddish saddle on back #: W; B; 116-6; 164-4; 197-6; 198-5; 217-7  
Lysianassoidea n. det., pink body, eye forming a vertical white stripe #: B; 220-1  
Lysianassoidea n. det., no eye, spur on Ep3 #: D; 237-1  
(c) Lysianassoidea spp. #: W; B; D; 118-4, 118-8; 160-4; 162-7; 164-4; 164-5; 167-1; 188-4; 196-8; 197-5; 220-1; 227-1 (6 spp.); 237-1 (3 spp.); 244-3 (3 spp.)  
*Orchomenella acanthurus* #: W; B; 116-9; 162-7; 185-4; 197-6; 198-6  
*Orchomenella pinguides* #: W; B; D; 118-4; 118-8; 160-3; 164-6\*; 198-5; 198-6; 198-4\*\*; 237-1; 220-1; 220-2; 244-3; 245-1  
*Orchomenella* sp.: B; 164-5  
Orchomenid n. det.: B; 160-4  
Orchomenid n. det. sigmoid and posteriorly angulose carina on urosomite 1: B; 247-1\*\*  
*Orchomenyx macronyx* #: W; 116-9 (inside tunicate)  
*Parschisturella carinata* #: B; 198-4\*\*; 220-1; 227-2  
*Pseudorchomene coatsi* #: B; D; 221-1\*\*; 247-1\*\*  
*Pseudorchomene plebs* #: W; B; D; 164-6\*; 182-1\*; 198-4\*\*; 221-1\*\*; 247-1\*\*  
*Pseudorchomene rossi* #: W; B; D; 164-6\*; 182-1\*; 198-4\*\*; 221-1\*\*; 247-1\*\*  
*Shackletonia* sp. (!) #: D; 234-5; 249-2  
*Tryphosella analogica* #: B; 227-1  
*Tryphosella* group *macropareia* (red and white L-shaped eye) #: B; 198-4\*\*; 217-7; 221-1\*\*  
*Tryphosella* group *macropareia* (pale L-shaped eye) #: B; D; 220-1; 224-2; 227-1; 227-2; 237-1  
*Tryphosella murrayi* #: W; B; 116-9; 118-8; 198-4\*\*; 221-1\*\*  
*Tryphosella* sp., medially constricted white eye: D; 244-3  
*Tryphosella* sp., eye not L-shaped, urosomite 3 carinate and posteriorly concave #: B; 227-1  
(c) *Tryphosella/Uristes* spp.: W; B; 118-8; 197-6  
*Uristes gigas* #: B; 196-8; 197-5; 197-6  
*Waldeckia obesa* #: W; 160-3; 162-7; 164-4
- MELPHIDIPPIDAE
- Melphidippa antarctica* #: W; B; D; 116-6; 118-8; 160-3; 185-4; 188-5; 193-10; 198-6; 217-7; 220-1; 224-2; 237-1; 244-3  
*Melphidippa* sp. (small sp. with shorter legs) (!) #: B; 217-7  
*Melphisubchela prehenda* #: D; 244-3
- OEDICEROTIDAE
- Monoculodes antarcticus*: W; D; 118-8; 240-2  
*Oediceroides calmani* (mottled with brown) #: W; B; D; 116-4; 116-6; 116-9; 118-8; 162-7; 164-5; 198-5; 198-6; 205-1\*; 205-1\*; 224-2; 224-3; 227-2; 234-6; 240-2; 240-3  
*Oediceroides* cf. *calmani* (whitish) #: B; 164-4  
*Oediceroides lahillei* #: W; B; 164-4; 185-4
- (c) Oedicerotidae n. det. #: W; B; D; 118-8; 159-4; 160-4; 164-5; 185-4; 188-4; 188-5; 197-6; 217-7; 234-6; 245-1; 247-8
- PAGETINIDAE
- Pagetina antarctica*: W; 116-6
- PARDALISCIDAE
- Halice* sp.: W; 118-8  
*Nicippe unidentata* #: D; 234-6; 240-2; 244-3; 245-1; 247-8
- PHOXOCEPHALOIDEA

*Heterophoxus videns* #: W; B; 164-4; 197-6

*Paraphoxus latipes* #: W; B; 116-9; 196-8

*Pseudoharpinia antarctica* #: W; B; D; 159-3; 160-4; 162-8; 197-6; 220-1; 234-5; 237-1; 240-3; 244-3; 245-1; 247-8

(c) Phoxocephalidae n. det.: B; D; 217-7; 234-6

#### STEGOCEPHALIDAE

*Andaniotes linearis*: W; 118-8

Stegocephalidae sp., fairly large gray stegocephalid from atrium of *Rosella* sponge #: W; 162-7

(c) Stegocephalidae spp.: B; 193-10; 196-8; 198-5; 199-4; 206-1\*; 224-2

#### STENOTHOIDAE

*Scaphodactylus* aff. *foliodactylus* [the two proximal protrusions of the palm of Gn2 are proximally coalescent] (!): B; 193-10

(c) Stenothoidae spp. #: W; B; D; 185-4; 193-10; 198-5; 217-7; 220-1; 234-6; 245-1; 247-8

*Torometopa elephantis*: W; 162-8

*Torometopa* sp.: W; 118-4

#### SYNOPIIDAE

Synopiidae sp. (!) #: D; 244-3

*Syrrhoe nodulosa* #: W; B; 116-6; 118-8; 164-5; 188-5; 193-10; 197-5; 197-6; 198-6; 217-7; 224-2; 227-2

*Syrrhoe psychrophila* #: D; 240-2

*Syrrhoites anaticauda* #: B; 197-6

*Tiron antarcticus* #: B; 193-10; 198-6; 217-7; 224-2

#### CIRRIPEDIA

*Bathylasma corolliforme* #: B; 185-4; 188-4; 188-5

(c) Scalpellidae n. det. #: W; B; D; 160-4 (on stalk of pedunculate tunicate); 188-5 (on large pycnogonid); 217-7; 247-8 (on polychaete tubes)

#### CUMACEA (identifications by Ute Mühlenhardt-Siegel)

*Campylaspis maculata*: W; 116-6; 164-5; 185-4

*Cyclaspis gigas*: W; 116-6; 118-8; 164-5

*Diastylis* cf. *anderssoni*: W; 185-4; 188-5

*Diastylis* cf. *corniculata*: W; 164-5; 185-4

*Diastylopsis* cf. *goekei*: W; 160-4; 185-4; 188-5

*Eudorella* cf. *gracilior*: W; 160-4; 164-5

*Holostylis helleri* Type A: B; 193-10

*Holostylis helleri* Type C: W; 162-8; 164-5

*Leptostylis* cf. *antipa*: B; 193-10

*Leucon* sp.: D; 240-2

*Paralamprops* cf. *asper*: W; 118-8

*Vaunthompsonia inermis*: W; 185-4

*Vaunthompsonia meridionalis*: W; 160-4

#### DECAPODA

*Chorismus antarcticus* #: W; B; 116-4; 118-4; 160-3; 164-4; 185-3; 188-4; 193-8; 196-8; 197-4; 199-4; 217-6; 217-7; 227-2

*Notocrangon antarcticus* #: W; B; 118-4; 159-3; 162-7; 188-4; 193-8; 196-8; 204-2; 217-6; 227-2

#### ISOPODA

*Aega* cf. *koltuni* #: W; B; 116-4; 164-4; 197-5; 198-5; 199-4

Anthuridae sp.: B; 217-6

(c) Arcturidae/Antarcturidae spp. #: W; B; D; 116-4; 160-3; 164-4; 185-3; 185-4; 188-4; 188-5; 193-10; 196-8; 197-5; 197-6; 198-5; 199-4; 217-6; 217-7; 237-3 (on *Gersenia* sp.)

*Arcturides scutata*: D; 237-3

(c) *Aselotta* spp.: B; 188-4; 196-8; 198-6; 217-7; 227-2

*Ceratoserolis meridionalis* #: D; 244-2

(c) *Ceratoserolis* cplx *trilobitoides* #: W; B; D; 118-4; 159-3; 162-7; 188-4; 188-5; 193-8; 193-9; 196-8; 234-5; 237-3; 240-3; 244-2; 244-3; 246-3; 249-2

(c) *Glyptonotus* spp. #: W; B; 162-7; 164-4; 185-3; 199-4; 217-6; 227-2

Idoteidae n. det. (small sp. with a lot of nodular projections) #: W; 164-4

(c) *Natatolana* spp. #: W; B; D; 118-4; 164-4; 198-4\*\*; 204-2; 217-6; 217-7; 220-2; 221-1\*\*; 224-3; 227-2; 234-5; 240-3; 244-2; 244-3; 245-1; 246-3; 247-1\*\*; 247-8

*Serolis bouvieri* #: W; B; 118-4; 160-3; 162-7; 164-4; 185-4; 197-6

Serolidae sp. 1 #: W; 164-5

### 3.8 Taxocoenoses of amphipod crustaceans

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Serolidae sp. 2: B; 205-1\*  
Serolidae sp. 3 #: D; 240-2  
*Storhyngura* sp. #: B; 218-8

#### LEPTOSTRACA

(c) Nebaliacea spp. #: B; 160-4; 162-8; 198-6; 217-7

#### MYSIDACEA

(c) *Antarctomysis* spp. (!) #: W; B; D; 116-4; 118-4; 159-3; 160-3; 162-7; 188-4; 193-8; 193-9; 197-5; 198-5; 199-4; 217-6; 224-3; 240-3  
(c) Mysidacea spp. #: W; D; 159-4; 160-4; 198-6; 217-7; 227-1

#### OSTRACODA

Ostracoda sp., large discoid species with bright red eggs #: B; 217-7

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#### *Taxonomical observations*

More than 150 species of amphipods were collected, of which 26 are considered as putative or possible undescribed species. The total number of species (and undescribed species) is however certainly higher, as identification on board was not always possible. Colour photographs are presented herein for some of those potential undescribed species (Figs 3.8.1 - 3.8.3): a very unusual Podoceridae with huge first antennae (Fig. 3.8.1A), a snow-white *Alexandrella* species (Fig. 3.8.1B), a common *Liouvillea* species without dorsal teeth (Fig. 3.8.1C), a large *Lepedepecreoides* species with an especially strong dorsal crest and a distinctive shape of the coxa of pereopod 5 (Fig. 3.8.1F), a *Shackletonia* species with a tooth on the basis of pereopod 5 (Fig. 3.8.1G), a Melitidae with long uropods 3 of unclear generic position (Fig. 3.8.1H), a colourless *Rhachotropis* species with huge white eyes and very slender legs (Fig. 3.8.1I), and a similarly coloured Synopiidae of unclear generic affinities (Fig. 3.8.1J).

Examination of living animals shows that the colour picture of a '*Gnathiphimedia sexdentata*' specimen given by Coleman (2007: plate 4 Figure c) was actually based on *Iphimediella ruffoi*. Photographs of correctly identified specimens of both species are presented herein: Fig. 3.8.1D for *G. sexdentata* and Fig. 3.8.1E for *I. ruffoi*.

The *Cyphocaris* specimen collected during ANT-XXIX/3 belongs to the form from the Southern Ocean usually identified as *C. richardi*. However, in this form, the tip of the basis of its pereopod 5 is acutely and narrowly triangular with only two small teeth, both on the posterior margin, whilst in the holotype of *C. richardi* as illustrated by Chevreux (1905), it is apically rounded and deeply serrate. The real identity of Antarctic '*Cyphocaris richardi*' has yet to be established.

Examination of the material of *Echiniphimedia hodgsoni* collected during the cruise confirms previous observations of the authors, suggesting that two species are actually confused under that name: a form with robust spiniform projections and a form with slender projections. These two forms are illustrated side by side for the first time (Figs 3.8.2A-B and 3.8.2C-D).

Specimens agreeing perfectly with the original illustrations of *Epimeria macrodonta* given by Walker (1907, pl. 8, Figure 14) were recorded (Fig. 3.8.2E). Aside from them, a form similar but with broader teeth was also observed (Fig. 3.8.2F). The morphological characters are completely constant and the two forms also exhibit conspicuous differences in their colour patterns. The broad-toothed form, which is here referred as *Epimeria* aff. *macrodonta*, is considered to be an undescribed



species.

Specimens agreeing perfectly with the descriptions of *Epimeria similis* given by Chevreux (1913) and Lörz et al. (2007) (Fig. 3.8.2G) were recorded. Aside from them, a similar but distinct form was also observed (Fig. 3.8.2H) It has no posterior bump on the second segment of pereion and it has longer teeth on article 3 of the antennular peduncle. This form is actually closer to *E. schiaparelli*, which is endemic to the Ross Sea (Lörz et al., 2007). It differs from the latter by the dorsal tooth of its pleonite 3, which is broader. The present form is referred as *E. aff. schiaparelli*.

COI sequences segregates *Eusirus perdentatus* in two separate clades (Verheye, 2011). Scarce photographic data suggested that these two clades correspond to two colour morphs: the so-called marbled and spotted forms. Extensive material of the two-colour morphs of *E. perdentatus* were collected during ANT-XXIX/3 (Fig. 3.8.3A-B), confirming the absence of intermediates between them. Furthermore, it appears that the spotted form was more abundant at greater depths and that it reaches a slightly larger size than the marbled form. These data support the idea that the two colour morphs are actually different species.

Analysis of COI sequences also indicates the occurrence of separate clades within the related species *Eusirus giganteus* (see Verheye, 2011). Relationships between genetic lineages and colour morphs of *E. giganteus* s.l. are still imperfectly understood and will require more in depth study. All specimens collected during ANT-XXIX/3 could be separated in two major chromatic groups: a non-spotted group with crimson legs (Fig. 3.8.3C) and a spotted group with less pigmented legs, of which at least some are striped (Fig. 3.8.3D), suggesting the existence of at least two separate species within *E. giganteus* s.l. Small variations within these two groups were also observed but their significance is still unclear. It was observed that the maximum of abundance of *E. giganteus* s.l. is deeper than that of *E. perdentatus* s.l., and that amongst *E. giganteus* s.l., the non-spotted forms were usually found the deepest.

If the key of Andres (1984) is followed, all the *Paraceradocus* collected during ANT-XXIX/3 are keyed out as *P. gibber*. However two distinct colour morphs were observed: a brown and white form found at the shallower stations (Figs 3.8.3E-F) and an all brown form (Figs 3.8.3G-H) found at the two deepest stations (204-2 and 220-2). No intermediate colour patterns were observed in the extensive material examined on board (at stn 224-3 more than 40 specimens were observed). It is not ruled out that these two colour morphs belong to separate species, of which one would be undescribed. Further morphological and genetic studies are necessary to settle the issue.

#### *Comparison between the Weddell Sea, Bransfield Strait and Drake Passage*

Three areas near the tip of the Antarctic Peninsula were sampled with a standardized approach and an equivalent sampling effort: the Weddell Sea, the Bransfield Strait and the Drake Passage. While diverse substrates and biocenoses were observed in the Weddell Sea and Bransfield Strait stations (especially in the latter), Drake Passage stations only consisted of monotonous mud bottoms with very little epifauna, without decapods and without the isopod *Glyptonotus*, but with a lot of ophiurids and locally with a lot of tubicolous polychaetes. These biocenotic differences probably explain the significant differences observed in

### 3.8 Taxocoenoses of amphipod crustaceans

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the composition of the amphipod fauna of the three areas. Of the 137 benthic amphipod species recorded, 79 were found in the Weddell area (24 found nowhere else), 99 in the Bransfield Strait area (39 found nowhere else) and 41 in the Drake Passage area (12 found nowhere else). Only 18 species were found in the three areas, suggesting a scarcity of opportunistic species around the Antarctic Peninsula and reflecting the predominance of rare species in the area. While the Drake Passage area exhibits a comparatively low amphipod diversity (for example with almost no *Eusirus*), this fauna has its own unique composition. Five of the eleven species found only in the Drake Passage area are potentially undescribed: *Lepedepecreoides* sp., Podoceridae sp., *Rhachotropis* sp., *Shackletonia* sp. and Synopiidae sp. Furthermore, *Nicippe unidentata*, which was known by only two previous records was found in no less than five of the Drake Passage stations.

#### Data management

Amphipods will be studied by C. d'Udekem d'Acoz, C. Havermans, M. Verheye (RBINS) and deposited at RBINS; isopods and mysids by C. Held (AWI) and deposited at Zoological Museum of Hamburg; bryozoans by H. De Blauwe (external collaborator at RBINS) and deposited at RBINS; polychaetes by R. Barnich (FS, Frankfurt a.M.) and deposited in the same institute. Data repository of biogeographic data to be processed by A. Van de Putte (RBINS): ANTABIF database ([www.biodiversity.aq](http://www.biodiversity.aq)).

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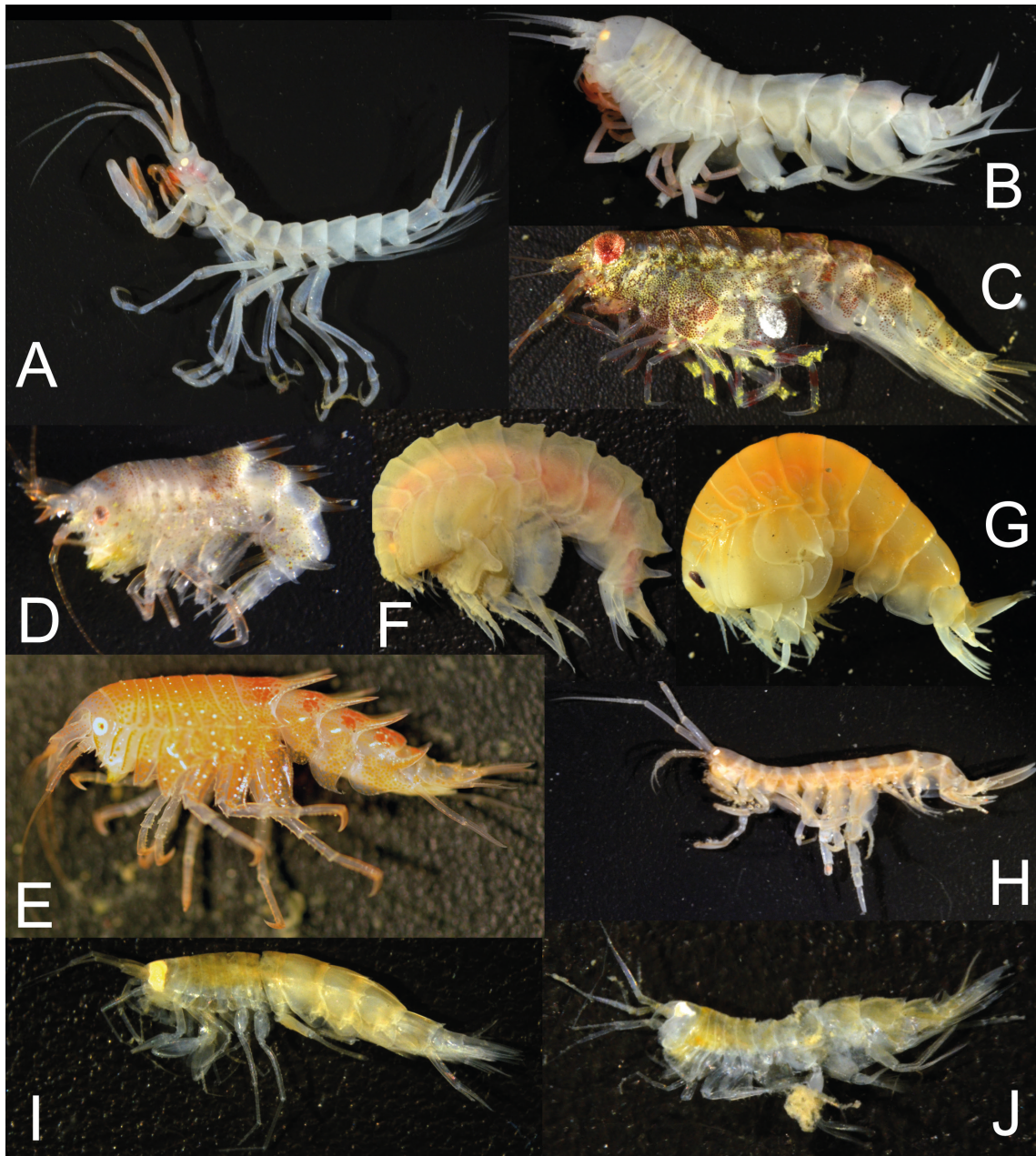


Fig. 3.8.1: A, *Podoceridae* sp., (227-1); B, *Alexandrella* sp. (227-2); C, *Liouvillea* sp. (224-2); D, *Gnathiphimedia sexdentata* (198-6); E, *Ipimediella ruffoi* (116-9); F, *Lepedepecreoides* sp. (249-2); G, *Shackletonia* sp. (249-2); H, *Melitidae* sp. (217-7); I, *Rhachotropis* sp. (244-3); J, *Synopiidae* sp. (244-3)



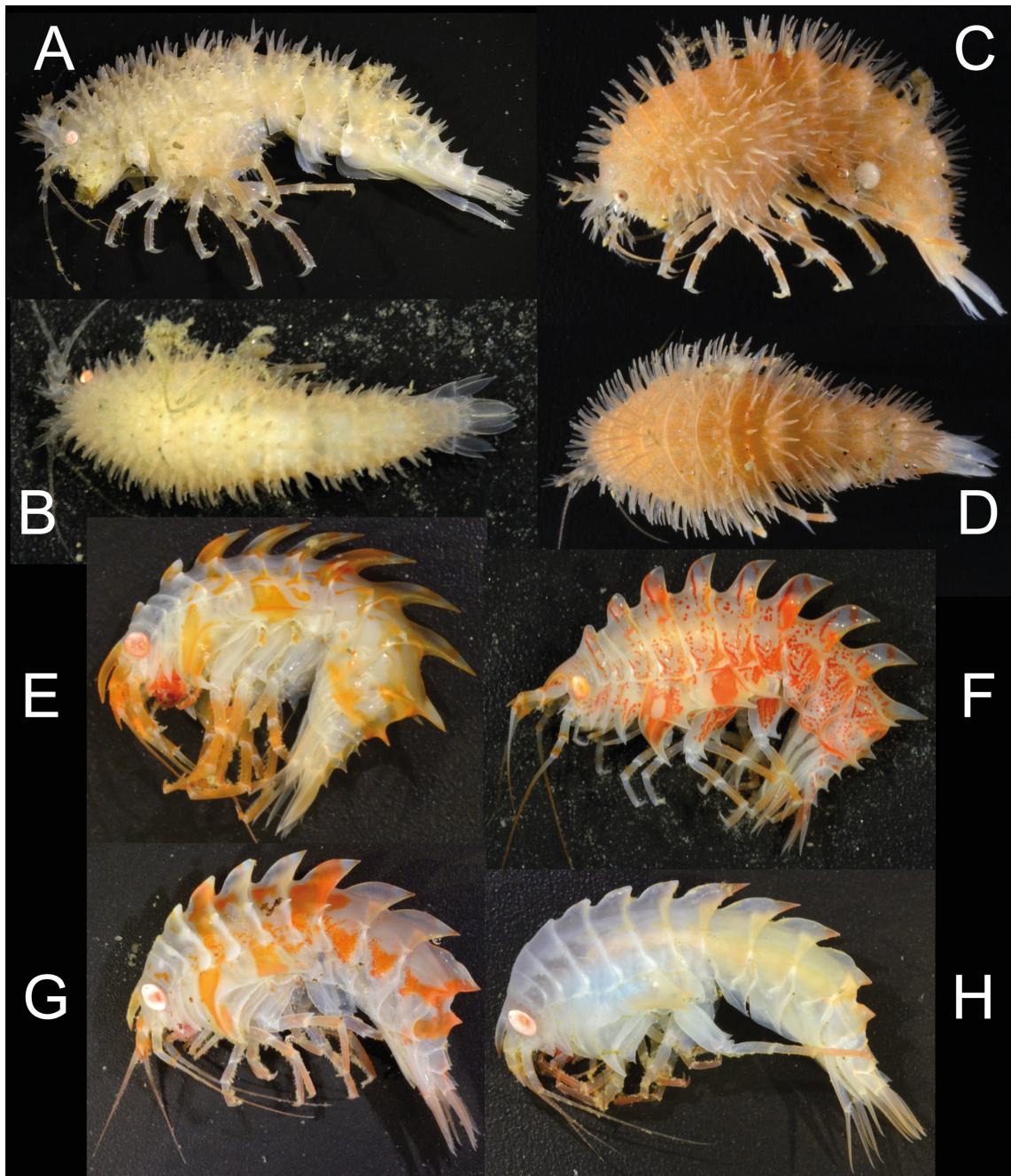


Fig. 3.8.2: A, *Echiniphimedia cplx hodgsoni*, form with robust projections (197-5); B, *idem* (162-7); C-D, *Echiniphimedia cplx hodgsoni*, form with slender projections (199-4); E, *Epimeria macrodonta* (193-8); F, *Epimeria aff. macrodonta* (162-7); G, *Epimeria similis* (217-6); H, *Epimeria aff. schiaparelli* (193-8)





Fig. 3.8.3: A, *Eusirus cplx perdentatus* marbled (188-4); B, *Eusirus cplx perdentatus* spotted (196-8); *Eusirus cplx giganteus* non spotted (gray back / crimson legs) (204-2); *Eusirus cplx giganteus* spotted (P3-P4 striped) (217-6); E-F, *Paraceradocus cplx gibber* brown and white (224-3); G-H *Paraceradocus cplx gibber* all brown (220-2)