

## 49. DATA REPORT: PRELIMINARY REPORT ON THE OSTRACODES OF LEG 122 (EXMOUTH PLATEAU, INDIAN OCEAN)<sup>1</sup>

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### ABSTRACT

The Cenozoic sediments from Holes 762B, 762C, 763A, and 763B yielded about 30 ostracode species. Deep-sea psychrospheric species are present throughout the section. Among the common elements, *Actinocythereis orientalis*, *Bradleya* sp. gr. *johnsoni*, *Bradleya ossa*, *Henryhowella? reticulata* and *Poseidonamicus* sp. 1 are probably the most typical and are all of long stratigraphic range.

### INTRODUCTION

Two of the sites drilled during Leg 122 penetrated Paleocene and/or Eocene sediments and have provided an opportunity to study the evolution of Cenozoic bathyal ostracodes. Sites 762 (Holes 762B and 762C) and 763 (Holes 763A and 763B) are located on the western part of the central Exmouth Plateau, in the Indian Ocean, both at a water depth of about 1360 m. The Exmouth Plateau is separated from the Northwest Shelf of Australia by the Carnarvon Basin and is bounded to the north, west, and south by abyssal plains (Haq, von Rad, O'Connell, et al., 1990). Therefore, the Exmouth Plateau, and particularly its northwestern part, is today and was much of the Cenozoic, sheltered from shelf sediment supply and neritic ostracodes.

### STRATIGRAPHICAL DISTRIBUTION OF OSTRACODES

One-hundred twenty-two samples of 5 cm<sup>3</sup> each, 97 of which are from Site 762, have been studied. Among these samples, about 20 were devoid of ostracodes, the majority providing one through nine valves. About 30 species were identified; these are noted in Tables 1 and 2. Ostracodes are unusual in the Paleocene, relatively common from the Eocene to middle Miocene, and again unusual from upper Miocene to Quaternary. Interpretation of such fluctuations are tenuous because of the small number of samples. The fluctuations may be related to variations in the sedimentation rate linked to variations in surface productivity.

In other respects, specific diversity is wide enough: 14 species for 45 valves in Sample 122-762C-13X-1, 67-69 cm, and 12 species for 50 valves in Sample 122-762B-17H-1, 20-22 cm. This testifies as to the variety of the ecological niche occupied by ostracodes in a bathyal environment. Beyond the *Cytherella*, *Bairdioidea*, and *Krithe*, of which an accurate identification is generally difficult, the most frequent species in the Cenozoic samples of Sites 762 and 763 are *Actinocythereis orientalis orientalis* Guernet (1985) (Pl. 1, Figs. 1-2), *A. orientalis* n.s. sp. (Pl. 1, Figs. 3 and 6), *Bradleya* sp. gr. *johnsoni* Benson, in Benson and Peypouquet (1983) (Pl. 1, Fig. 4), *B. ossa* Whatley, in Whatley et al. (1984) (Pl. 1, Fig. 6), *B. cf. thomasi* Steineck and Yozzo (1988) (Pl. 1, Fig. 5), *Henryhowella? reticulata* (Guernet, 1985) (Pl. 1, Fig. 9), and *Poseidonamicus? sp. 1* (Pl. 1, Fig. 7).

The stratigraphical and geographical range of many of these species is very wide. *A. orientalis orientalis*, originally described in the Eocene of Ninetyeast Ridge (Site 214) and probably present in the South Atlantic Oligocene (cf. *Trachyleberis* sp., pl. 2, fig. 8, in Benson and Peypouquet, 1983), extends from the Paleocene to Miocene on the Exmouth Plateau. The same is true for *H.? reticulata*. *A. orientalis* n.s. sp. is present from the middle Eocene to Quaternary. *Bradleya ossa*, known in the southwest Pacific from the Miocene to Quaternary, appears as early as the middle Eocene at Site 762. Some genera or species have more restricted apparent ranges. *Bradleya thomasi*, reported from the upper Miocene to Holocene in the Pacific, the Mozambique Channel, and the North Atlantic by Steineck and Yozzo (1988), seems to have the same range at the Exmouth Plateau. Nevertheless, if we take into account the small number of ostracodes in each sample, the non-appearance of one species is not necessarily significant and its effective stratigraphical range may be wider than indicated on the charts.

### SUMMARY AND CONCLUSIONS

The Tertiary of Sites 762 (Holes 762B and 762C) and 763 (Holes 763A and 763B) yielded about 30 species of ostracodes, chiefly from the middle Eocene to lower Miocene. The species have large vertical ranges and the bathyal and psychrospheric association *Cytherella*-*Bairdia*-*Actinocythereis*-*Bradleya*-*Poseidonamicus* is constant from the Eocene to Quaternary. It seems that there is a permanence of bathyal physical conditions throughout the Cenozoic on the Exmouth Plateau.

### REFERENCES

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Table 1. Range chart for Cenozoic ostracodes from Site 762 (Holes 762B and 762C).

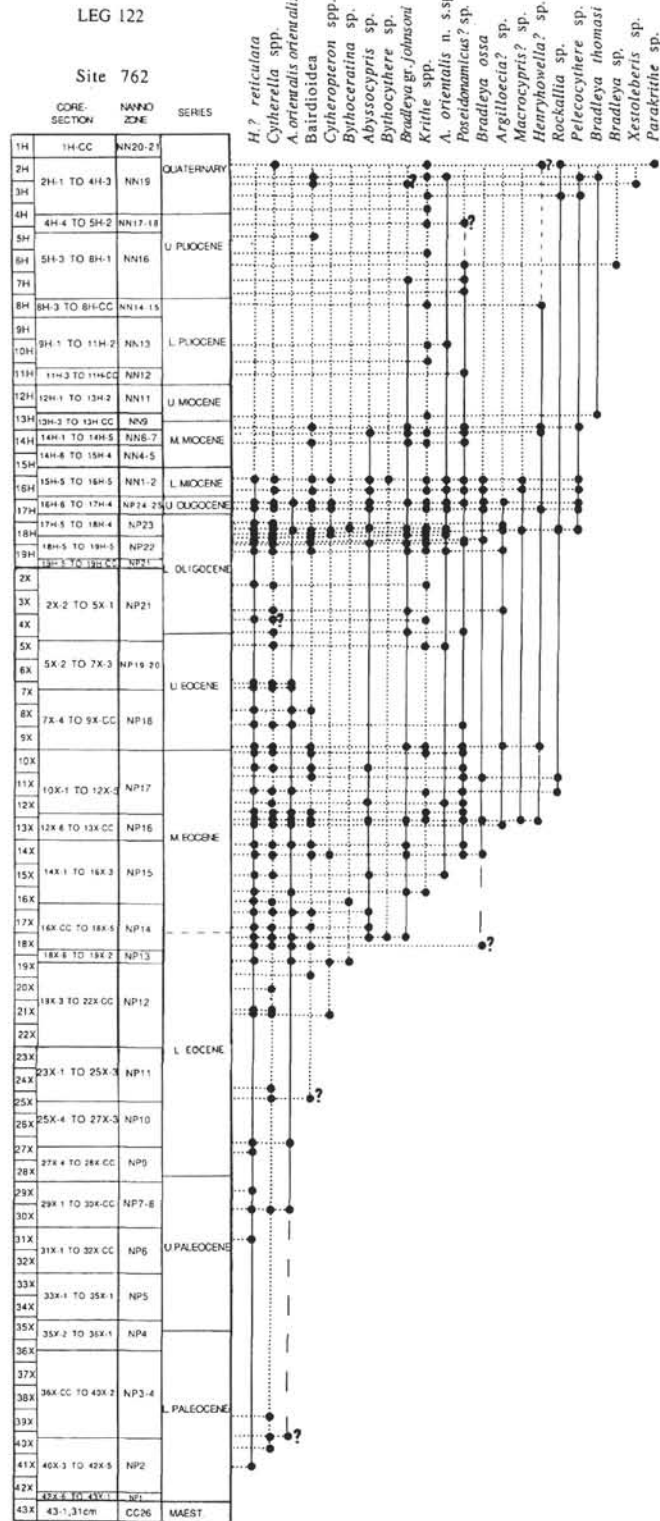
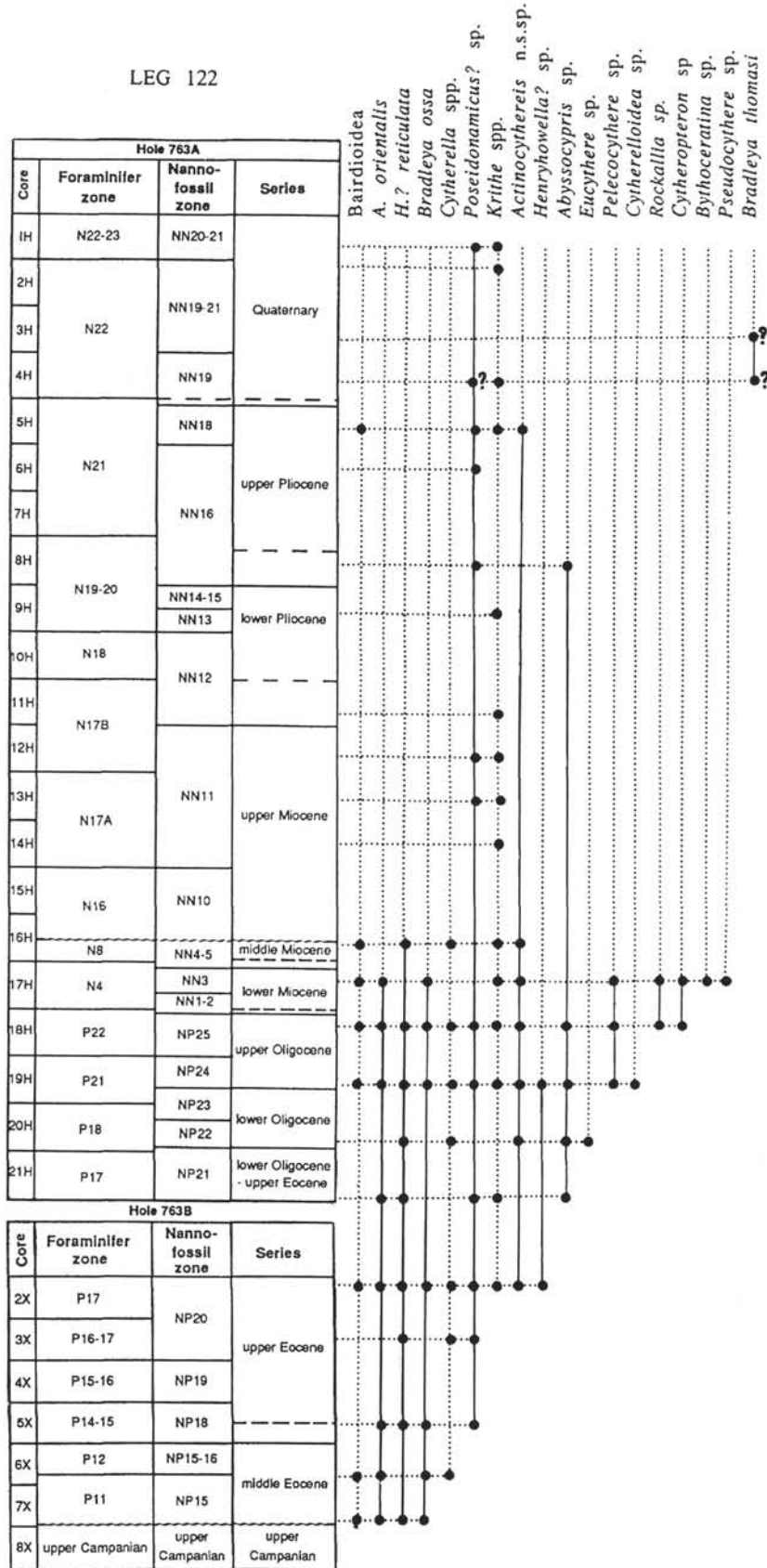


Table 2. Range chart for Cenozoic ostracodes from Site 763 (Holes 763A and 763B).

LEG 122



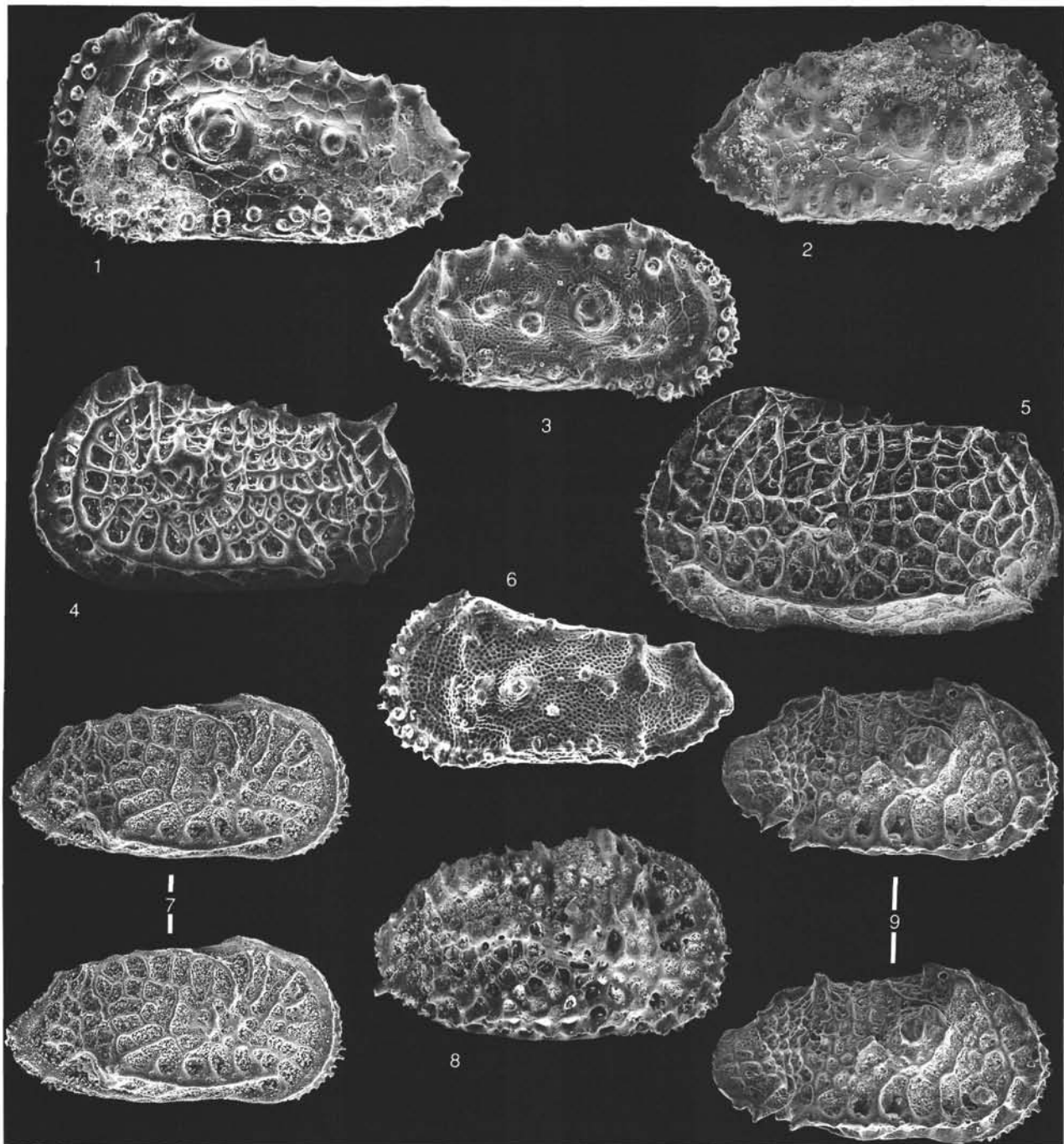


Plate 1. Cenozoic ostracodes of Leg 122. 1, 2. *Actinocythereis orientalis orientalis*; left valve, male (1), and right valve, female (2);  $\times 62$ ; Samples 122-762B-18H-3, 10–12 cm (1) and 122-762C-30X-1, 132–134 cm (2). 3, 6. *A. orientalis* n.s. sp.; right valve (3) and left valve (6);  $\times 60$ ; Samples 122-762B-16H-2, 74–76 cm (3), and 122-762B-18H-2, 10–12 cm (6). 4. *Bradleya* sp. gr. *johnsoni*; left valve, male;  $\times 75$ ; Sample 122-762C-9X-CC. 5. *Bradleya* cf. *thomasi*; left valve;  $\times 60$ ; Sample 122-762B-2H-5, 67–69 cm. 7. *Poseidonamicus* sp. 1; right valve, male;  $\times 60$ ; Sample 122-762B-16H-2, 76–78 cm. 8. *Henryhowella?* *reticulata*; right valve;  $\times 62$ ; Sample 122-762C-12X-5, 88–89 cm. 9. *Bradleya ossa*, right valve;  $\times 60$ ; Sample 122-762B-16H-2, 74–76 cm.