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Naval Petroleum Reserve No. 4

Alaska

Report No. 27

OSTRACODA FROM WELL, SHOT HOLE, AND OUTCROP SAMPLES IN NAVAL PETROLEUM RESERVE NO. 4

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By

Frederick M. Swain

April 1949

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FOREWORD

By

Ralph L. Miller

The present report by Professor Frederick M. Swain represents the first study of the ostracoda of northern Alaska. It includes important information on the ostracode faunas, and on the age and depositional environment of the ostracode-bearing beds in and near Naval Petroleum Reserve No. 4.

It is not surprising that some of the age determinations based on the ostracoda should be at variance with previous concepts. Discrepancies between different lines of evidence have been common in the stratigraphic and paleontologic studies of northern Alaska, as indeed they are in every new region. Careful evaluation of the relative weights of the different lines of evidence has been necessary before tentative conclusions could be drawn, and the information from the ostracoda now supplies one new source of evidence that must be similarly evaluated.

In some of the discrepancies between the age determinations based on ostracoda and the previous concepts, the weight of the evidence supporting the previous age determination is very considerable. This suggests that the determination based on the ostracodes is in error due either to the inadequacies of the material supplied to Professor Swain, or to the natural limitations of the ostracodes as tools for age determination, especially in a new and unknown region. In other cases the evidence supporting the previously accepted age determination is not so formidable and may be tenuous, so that reevaluation of the old evidence and studies of all possible new evidence including additional ostracode studies are needed.

(R27.1)

OSTRACODA FROM WELL, SHOT HOLE, AND OUTCROP SAMPLES IN NAVAL PETROLEUM RESERVE NO. 4

By

Frederick M. Swain

Introduction

The ostracodes described in this report are from material collected in Naval Petroleum Reserve No. 4, northern Alaska. The samples were obtained from well and seismograph shot holes drilled by Arctic Contractors and United Geophysical Company and from field samples collected by the United States Geological Survey in the period from 1945 to 1948. The earliest samples were processed for microfossils in Washington, but most of the material was prepared in the Fairbanks Laboratory of the Geological Survey.

Number and stratigraphic distribution of species

The ostracodes described in this report represent 67 species that are here assigned ages ranging from the Jurassic to the Quaternary. One-third to one-half of the forms possibly are undescribed species, but most of them exhibit similarities to ostracodes having restricted geological ranges, so that generalizations as to their stratigraphic distribution are permissible. A stratigraphic summary of the species by number, in order of increasing age, is as follows:

Pliocene or Quaternary, probably Pleistocene	8 species.
Pliocene or Quaternary, undifferentiated	38 species.
Middle Tertiary, undifferentiated, possibly of Oligocene and of Miocene age	5 species.
Eocene?, undifferentiated	2 species.
Late Lower Cretaceous or Upper Cretaceous or Paleocene, undifferentiated	1 species.
Cretaceous, undifferentiated	1 species.
Lower Cretaceous or early Upper Cretaceous, possibly of Albian or Cenomanian age	3 species.
Lower Cretaceous, possibly of Albian age	3 species.
Lower Cretaceous, possibly of Neocomian age	3 species.
Lower Cretaceous, undifferentiated	1 species.
Jurassic, undifferentiated	2 species.

Pliocene or younger, probably Pleistocene, all nonmarine

Candona cf. C. candida (Müller).
Candona cf. C. lactea Baird.
Cypris cf. C. prasina Fischer.
Pomatocypris sp. aff. P. fulva Brady.
Cypridopsis sp.
Cytherissa cf. C. lacustris (Sars).
Limnicythere cf. L. sancti-patricii Brady and Robertson.
Limnicythere sp.

Pliocene or younger, undifferentiated, nonmarine

Candona cf. C. candida (Müller).
Candona sp.
Pomatocypris sp.
Ilyocypris cf. I. bradii Sars.
Limnicythere sp. aff. L. inopinata (Baird)

Pliocene or younger, undifferentiated, marine

Cytherella sp.
Cytheridea sp. aff. C. punctillata Brady.
Cytheridea cf. C. punctillata Brady.
Cytheridea sp. aff. C. papillosa Bosquet.
Haplocytheridea cf. H. sorbyana (Jones)
Haplocytheridea sp. aff. H. milleri (Münster)
Haplocytheridea sp.
Cythere cf. C. globulifera Brady.
Cythere sp. aff. C. concinna Jones, and variety.
Cythere cf. C. Pulchella Brady.
Cythere sp. aff. nodose group of C. concinna Jones.
Cythere sp. aff. C. cicatricosa (Reuss).
Cythere sp. aff. C. robertsoni Brady.
Leguminocythereis cf. L. septentrionalis (Brady).
Leguminocythereis sp. aff. L. septentrionalis (Brady).
Leguminocythereis, n. sp.
Leguminocythereis sp.
Eucythere sp.
Cythereis sp.
Cythereis? sp. aff. C.? mirabilis (Brady).
Cythereis sp. aff. C. angulata (Sars).
Cythereis sp. aff. C. cluthae (Brady, Crosskey, & Robertson).
Cythereis cf. C. rastromarginata (Brady).
Cythereis cf. C. tuberculata (Sars).
Cytheromorpha? sp.
Cytheropteron sp. aff. C. inflatum Brady, Crosskey, & Robertson.
Cytheropteron sp. aff. C. subcircinatum Sars.
Cytheropteron sp. aff. C. hamatum Sars.
Cytheropteron cf. C. pyramidale Brady.
Krithe cf. K. glacialis Brady, Crosskey, and Robertson.
?Loxoconcha sp. (may be older than Pliocene)
?Loxoconcha cf. L. subrhomboidea Edwards (may be older than Pliocene).

Middle Tertiary, undifferentiated, possibly of Oligocene and of Miocene age

Cytheridea sp. aff. C. fissodenta Lienenklaus.
Leguminocythereis cf. L. scrobiculoplicata (Jones).
Cytheropteron cf. C. ovatum Lienenklaus.
Loxoconcha sp.
Loxoconcha cf. L. subrhomboidea Edwards.

Eocene?, undifferentiated

Cythereis? cf. C.? russelli Howe and Garrett
Leguminocythereis sp.

Late Lower Cretaceous or Upper Cretaceous or Paleocene, undifferentiated

Eucythere cf. E. solitaria Triebel.

Cretaceous, undifferentiated

Cytheridea sp.

Lower Cretaceous or early Upper Cretaceous, possibly of Cenomanian or Albian age

Cytheridea cf. C. washitaensis Alexander.
Cytheridea sp.
Cythereis sp. aff. C. burlesonensis Alexander.

Lower Cretaceous, possibly of Albian age

Cytheridea sp. aff. C. washitaensis Alexander.
Platycythereis sp. aff. P. degenerata Triebel.
Cythereis sp. aff. C. mahonae Alexander.

Lower Cretaceous, possibly of Neocomian age

Apatocythere sp. aff. A. ellipsoidea Triebel.
"Cytherella" sp. aff. "C." mantelliana Jones (new genus).
Cythereis sp. aff. C. senckenbergi Triebel.

Jurassic, undifferentiated

Monoceratina sp. aff. M. herburgensis Sylvester-Bradley.
Cytherella? sp.

UMIAT TEST WELLS

Ostracoda

Test No. 1

1490-1500 feet.

Platycythereis sp. aff. P. degenerata Triebel

Age. Probably Lower Cretaceous. P. degenerata occurs in the Albian of Germany, and the writer does not know of the occurrence of similar forms in the Upper Cretaceous.
Environment of deposition. Marine, otherwise indefinite.

1840-1850 feet.

Cythereis? sp. indet.

Age. Indeterminate.

Environment of deposition. Marine, otherwise indefinite.

Test No. 2

1280-1290 feet. (Ditch)

Cytheridea sp.

Age. A Cretaceous type of Cytheridea, otherwise uncertain.
Environment of deposition. Marine, probably neritic.

2610-2620 feet. (Ditch)

Cytheridea sp. indet.

Age. Indeterminate.
Environment of deposition. Marine, probably neritic.

5630-5640 feet. (Ditch)

Cytheridea sp. indet.

Age. Indeterminate. Resembles forms found in the Upper Cretaceous, but it cannot be placed with certainty.
Environment of deposition. Marine, probably neritic.

Teshekpuk Lake Shot Holes

Line 1-43

Shot Point 10.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 11. (200 foot test hole)

10 feet. (Ditch)

Cytheridea cf. C. punctillata (Brady)
Cythereis cf. C. rostroserginata (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

20 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

30 feet. (Ditch)

Cytheridea cf. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 14.

60 feet. (Ditch)

Haplocytheridea cf. H. sorbyana (Jones)
Cytheridea cf. C. punctillata Brady
Cythere cf. C. pulchella Brady
Cythereis sp.
Haplocytheridea sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Teshekpuk Lake Shot Holes

Line 1-48

Shot Point 15.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 20.

70 feet. (Ditch)

Cytheridea cf. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 28.

60 feet. (Ditch)

Pomatocypris? sp.
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 47.

60 feet. (Ditch)

Candona cf. C. candida (Müller)
Ilyocypris cf. I. bradii Sars

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 49.

60 feet. (Ditch)

Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Teshekpuk Lake Shot Holes.

Line 1-48

Shot Point 53.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 59.

60 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 60.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 63.

70 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 76.

70 feet. (Ditch)

Leguminocythereis sp. aff. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Teshekpuk Lake Shot Holes

Line 1-A-48

Shot Point 27A.

60 feet. (Ditch)

Ilyocypris cf. I. bradii Sars
Candona cf. C. lactea Baird
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 27D (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 2-48

Shot Point 8.

70 feet. (Ditch)

Candona sp.

Age. Indeterminate.
Environment of deposition. Fresh water.

Shot Point 12.

70 feet. (Ditch)

Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 16.

80 feet. (Ditch)

Haplocytheridea sp. aff. H. mülleri (Münster)
Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Teshekpuk Lake Shot Holes

Line 2-48

Shot Point 16.

90 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 18.

70 feet. (Ditch)

Krithe cf. K. glacialis Brady, Crosskey, and Robertson

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water, moderate to great depth.

Shot Point 25.

90 feet. (Ditch)

Krithe cf. K. glacialis Brady, Crosskey, and Robertson
Cytheridea cf. C. punctillata Brady
Haplocytheridea sp. aff. H. mülleri (Münster)
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water.

Shot Point 28.

90 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 29.

90 feet. (Ditch)

Cythere sp. aff. C. concinna Jones
Cytheropteron sp. aff. C. hamatum Sars

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 2-48

Shot Point 30.

90 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 33.

90 feet. (Ditch)

Krithe cf. K. glacialis Sars
Haplocytheridea cf. H. sorbyana (Jones)
Haplocytheridea sp. aff. H. mülleri (Münster)
Haplocytheridea? sp.
Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water.

Shot Point 34.

90 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 35.

90 feet. (Ditch)

Cytheropteron sp. aff. C. subcircinatum Sars

Age. Pliocene or younger.
Environment of deposition. Shallow-neritic, cold water.

Shot Point 40.

90 feet. (Ditch)

Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Idne 2-48

Shot Point 47.

90 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 63.

90 feet. (Ditch)

Krithe cf. K. glacialis Brady, Crosskey, and Robertson

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water.

Shot Point 68.

90 feet. (Ditch)

Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 69.

90 feet. (Ditch)

Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 70.

90 feet. (Ditch)

Krithe cf. K. glacialis Brady, Crosskey, and Robertson

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water.

Teshekpuk Lake Shot Holes

Line 2-43

Shot Point 71.

90 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere sp. aff. C. concinna Jones
Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 72.

90 feet. (Ditch)

Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Shot Point 73.

90 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere sp. aff. C. cicatricosa (Reuss)
Leguminocythereis n. sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 84.

90 feet. (Ditch)

Krithe cf. K. glacialis Brady, Crosskey, and Robertson

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water.

Shot point 93.

90 feet. (Ditch)

Cythereis cf. C. tuberculata (Sars), group with post-ventral ridge.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, shallow to moderate depth.

Teshekpuk Lake Shot Holes

Line 2-43

Shot Point 98.

90 feet. (Ditch)

Candona cf. C. candida (Müller)
Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Brackish water or mixed fresh and shallow marine.

Shot Point 105.

90 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 108. (200 foot test hole)

20 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

60 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

90 feet. (Ditch)

Haplocytheridea sp. aff. H. mülleri (Münster)
Leguminocythereis n. sp.

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Teshekpuk Lake Shot Holes

Line 2-48

Shot Point 124.

70 feet. (Ditch)

Leguminocythereis sp. aff. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 130.

70 feet. (Ditch)

Haplocytheridea sp., immature

Age. Indeterminate.
Environment of deposition. Probably neritic.

Line 2-A-D-48

Shot Point 40.

80 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 2-B-48

Shot Point 72A.

90 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 3-48

Shot Point 8.

80 feet. (Ditch)

Cytheridea cf. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 9.

80 feet. (Ditch)

Krithe cf. K. glacialis Brady, Crosskey, and Robertson
Haplocytheridea sp.

Age. Pliocene or younger.
Environment of deposition. Neritic to bathyal, cold water.

Shot Point 28A.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Haplocytheridea sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 28D.

60 feet. (Ditch)

Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 31.

60 feet. (Ditch)

Cythereis? sp. aff. C.? mirabilis (Brady)
Cytherella sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Teshekpuk Lake Shot Holes

Mss 3-48

Shot Point 40.

60 feet. (Ditch)

Haplocytheridea sp.

Age. Indeterminate.
Environment of deposition. Probably neritic.

Shot Point 46.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 53.

60 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 54.

60 feet.

Cytheridea sp. aff. C. papillosa Bosquet
Haplocytheridea cf. H. sorbyana (Jones)
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 58.

60 feet. (Ditch)

Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

(R.27.62)

Teshekpuk Lake Shot Holes

Line 3-48.

Shot Point 77C.

80 feet. (Ditch)

Cytheridea sp. aff. C. papillosa Bosquet.

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Shot Point 77F.

80 feet. (Ditch)

Haplocytheridea sp.

Age. Indeterminate.
Environment of deposition. Probably neritic.

Line 4-48.

Shot Point 5.

70 feet. (Ditch)

Cytheridea sp. aff. C. papillosa Bosquet.

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

PARTY 43
FISH CREEK SHOT HOLES

Ostracoda

Line 1-48

Shot Point 1.

80 feet. (Ditch)

Candona sp.
Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Probably mostly marine, neritic, cold water of moderate depth; Candona is nonmarine and suggests a nonmarine intercalation, a specimen washed into the sea, or a caving from the surface.

Shot Point 20.

60 feet. (Ditch)

Leguminocythereis cf. L. septentrionalis (Brady)
Cythereis? sp. aff. C.? mirabilis (Brady)
Leguminocythereis sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 23.

60 feet. (Ditch)

Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Shot Point 43.

60 feet. (Ditch)

Cytheropteron sp. aff. C. pyramidale Brady

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Line 1-46

Shot Point 44.

60 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 49.

60 feet. (Ditch)

Leguminocythereis sp. indet.

Age. Indeterminate.
Environment of deposition. Marine, otherwise uncertain.

Shot Point 68. (200 foot test hole)

70 feet. (Ditch)

Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

80 feet. (Ditch)

Cythere sp. aff. C. robertsoni Brady
Cytheropteron sp. aff. C. inflatum Brady, Crosskey and Robertson

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

90 feet. (Ditch)

Haplocytheridea cf. H. sorbyana (Jones)
Haplocytheridea sp. aff. H. mülleri (Münster)
Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

PARTY 46
IKPIKPUK SHOT HOLES

Ostracoda

Line 6-47

Shot Point 8.

30-40 feet. (Ditch)

Candona cf. C. latea Baird
Pomatocypris sp. aff. P. fulva Brady
Cytherissa cf. C. lacustris (Sars)
Limnicythere sp.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 18.

60-70 feet. (Ditch)

Candona cf. lactea Baird

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 28.

60-70 feet. (Ditch)

Limnicythere cf. L. sancti-patricii Brady and Robertson

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, lakes or slow-moving streams.

Line 7-47

Shot Point 3.

60-70 feet. (Ditch)

Candona cf. C. candida (Müller)
Candona cf. C. lactea Baird

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Ikpikpuk Shot Holes

Line S-47

Shot Point 10.

40-45 feet. (Ditch)

Candona cf. C. lactea Baird
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

45-50 feet. (Ditch)

Candona cf. C. candida (Müller)
Candona cf. C. lactea Baird

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 11.

40-50 feet. (Ditch)

Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 12.

50-60 feet. (Ditch)

Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 15.

45-50 feet. (Ditch)

Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Line 8-47

Shot Point 16.

25-30 feet. (Ditch)

Candona cf. C. lactea Baird
Pomatocypris sp. aff. P. fulva (Brady)
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Line 9-47.

Shot Point 1.

30-50 feet. (Ditch)

Candona cf. C. lactea Baird.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 3.

60-70 feet.

Candona cf. C. lactea Baird.
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 11.

0-10 feet.

Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 21.

40-50 feet. (Ditch)

Pomatocypris sp. aff. P. fulva (Brady)
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Ikpikpuk Shot Holes

Line 10-47.

Shot Point 8.

45-50 feet. (Ditch)

Cladoceran?
Candona cf. C. candida (Müller)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 20.

0-10 feet. (Ditch)

Candona cf. C. candida (Müller)
Cypris cf. C. prasina Fischer.
Pomatocypris sp. aff. P. fulva Brady.
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 22.

40-50 feet. (Ditch)

Candona cf. C. lactea Baird.
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 31.

40-50 feet. (Ditch)

Candona cf. C. candida (Müller)
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water,

Shot Point 32.

45-50 feet. (Ditch)

Candona cf. C. lactea Baird.
Cytherissa cf. C. lacustric (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Line 11-47.

Shot Point 1.

40-50 feet. (Ditch)

Candona cf. C. candida (Müller)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 2.

40-50 feet. (Ditch)

Candona cf. C. candida (Müller)
Candona cf. C. lactea Baird.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

Shot Point 24.

40-50 feet. (Ditch)

Candona cf. C. candida (Müller)
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Line 12-47.

Shot Point 5.

30-40 feet. (Ditch)

Candona cf. C. candida (Müller)
Cypris cf. C. prasina Fischer.
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 7.

30-40 feet. (Ditch)

Candona sp.
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Ikpikpuk Shot Holes.

Line 12-47

Shot Point 8.

50-70 feet. (Ditch)

Candona sp.
Candona cf. C. candida (Müller)
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 9.

50-70 feet. (Ditch)

Candona cf. C. candida (Müller)
Candona cf. C. lactea Baird
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 14.

70-80 feet. (Ditch)

Candona cf. C. candida (Müller)
Candona cf. C. lactea Baird.
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Line 13-47.

Shot Point 5.

30-40 feet. (Ditch)

Pomatocypris sp. aff. P. fulva (Brady)
Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 9.

30-40 feet. (Ditch)

Candona cf. C. lactea Baird.
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water, either lakes or streams.

(R.27.44)

Ikpikpuk Shot Holes

Line 14-47.

Shot Point 10.

30-50 feet.

Candona cf. C. lactea Baird.
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.
Limnicythere sp.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Line 15-47.

Shot Point 14.

40-50 feet.

Candona cf. C. candida (Müller)
Cypridopsis? sp.
Cytherissa cf. C. lacustris (Sars)
Limnicythere sp.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point 16.

30-40 feet.

Candona cf. C. lactea Baird.
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh water either lake or streams.

Line 16-47.

Shot Point 6.

40-50 feet.

Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

(R.27.46)

Ikpikpuk Shot Holes

Line 16-47

Shot Point 13.

30-40 feet.

Candona cf. C. candida (Müller)
Candona cf. C. lactea Baird.
Pomatocypris sp. aff. P. fulva (Brady)
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Reconnaissance Holes.

Shot Point R-7.

50-60 feet. (Ditch)

Candona cf. C. lactea Baird.
Cytherissa cf. C. lacustris (Sars)
Limnicythere cf. L. sancti-patricii Brady and Robertson.

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

Shot Point R-10.

70-80 feet. (Ditch)

Cytherissa cf. C. lacustris (Sars)

Age. Pliocene or younger, probably Pleistocene.
Environment of deposition. Fresh, standing water.

PARTY 46
SHOT HOLES

Ostracoda

Line 8-48

Shot Point 10.

70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 12.

70 feet. (Ditch)

Cythere sp. aff. C. robertsoni Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 20.

70 feet. (Ditch)

Cythereis cf. C. cluthae (Brady, Crosskey, and Robertson)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 23.

70 feet. (Ditch)

Cythereis cf. C. tuberculata Sars, group with post-ventral ridge

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

(R.27.67)

Party 46 Shot Holes

Line 8-48.

Shot Point 28.

70 feet. (Ditch)

Leguminocythereis, n. sp.

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Line 10-48

Shot Point 7.

70 feet. (Ditch)

Haplocytheridea, n. sp.

Age. Indeterminate.
Environment of deposition. Probably neritic.

Shot Point 10.

70 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 31.

70 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere sp. aff. C. robertsoni Brady
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 12-48

Shot Point 11.

70 feet. (Ditch)

Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Party 46 Shot Holes

Line 14-48

Shot Point 8.

70 feet. (Ditch)

Haplocytheridea sp. aff. H. mülleri (Münster)

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Line 16-48

Shot Point 54.

100 feet. (Ditch)

Cytheridea sp. aff. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Loxoconcha sp., resembles middle Tertiary forms such as
L. subrhomboidea Edwards of the uppermost Miocene.

Age. Possibly, but doubtfully Miocene.
Environment of deposition. Probably neritic.

PARTY 47 SHOT HOLES

Ostracoda

Line 1-48

Shot Point 1.

(Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Cythere sp. aff. C. concinna Jones
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 2-48

Shot Point 2.

(Ditch)

Cytheridea cf. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 3-48

Shot Point 1.

(Ditch)

Haplocytheridea cf. H. sorbyana (Jones)
Cythere sp. aff. C. concinna Jones
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Party 47 Shot Holes

Line 4-48

Shot Point 2.

(Ditch)

Leguminocythereis cf. L. septentrionalis (Brady)
Leguminocythereis, n. sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 14-48

Shot Point 9.

30 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 11.

30 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 17.

30 feet. (Ditch)

Cythere sp. aff. C. concinna Jones
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 22.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 14-48.

Shot Point 23.

(Ditch)

Cytheridea cf. C. punctillata Brady
Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 16-48

Shot Point 4.

70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 5.

70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 6.

70 feet. (Ditch)

Cytheridea cf. C. punctillata Brady
Cythere sp. aff. C. concinna Jones
Leguminocythereis sp. aff. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 7.

70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Party 47 Shot Holes

Line 16-48

Shot Point 8

70 feet. (Ditch)

Cythereis? sp. aff. C.? mirabilis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, probably moderate depth.

Line 17-48

Shot Point 52.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 53.

(Ditch)

Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 18-48

Shot Point 1.

(Ditch)

Leguminocythereis sp. aff. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic.

Shot Point 3.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

(R.27.72)

Party 47 Shot Holes

Line 18-48

Shot Point 4.

(Ditch)

Cythere sp. aff. C. concinna Jones, immature

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 13.

(Ditch)

Cythereis sp.

Age. Indeterminate.
Environment of deposition. Probably neritic.

Shot Point 14.

(Ditch)

Haplocytheridea cf. H. sorbyana (Jones)
Loxoconcha cf. L. subrhomboidea Edwards

Age. Possibly older than Pliocene. L. subrhomboidea is characteristic of the upper part of the Miocene.
Environment of deposition. Probably neritic.

Line 19-48

Shot Point 2.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 6.

(Ditch)

Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Party 47 Shot Holes

Line 19-48.

Shot Point 8.

(Ditch)

Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 12.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 15.

(Ditch)

Cythere sp. aff. C. concinna Jones
Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 16.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 20-48

Shot Point 2.

(Ditch)

Cythere sp. aff. C. concinna Jones
Cythere sp. aff. C. cicatricosa (Reuss)
Leguminocythereis sp. aff. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Party 47 Shot Holes

Line 20-48.

Shot Point 4.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 5.

(Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 6.

(Ditch)

Haplocytheridea cf. H. sorbyana (Jones)
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 7.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere cf. C. pulchella Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 8.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Hemicythere sp. aff. H. kerguelensis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Party 47 Shot Holes.

Line 20-48.

Shot Point 9.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 11.

(Ditch)

Cythere sp. aff. C. robertsoni Brady
Cytheropteron cf. C. subcircinatum Sars

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, shallow to moderate depth.

Line 21-48

Shot Point 1.

(Ditch)

Haplocytheridea cf. H. sorbyana (Jones)
Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 2.

(Ditch)

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana(Jones)
Cythere sp.
Leguminocythereis cf. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 21-48.

Shot Point 3.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 5.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Shot Point 6.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady
Haplocytheridea? sp.
Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 15.

(Ditch)

Haplocytheridea sp.

Age. Indeterminate.
Environment of deposition. Probably neritic.

Line 22-48

Shot Point 2.

(Ditch)

Cytheridea sp. aff. C. punctillata Brady
Cythere sp. aff. C. concinna Jones
Cythere sp. aff. C. cicatricosa (Reuss)
Cythereis? sp. aff. C.? mirabilis (Brady)
Leguminocythereis, n. sp.

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

(8.27.77)

Party 47 Shot Holes

Line 23-48

Shot Point 9.

50-70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Shot Point 10.

50-70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

Line 24-48

Shot Point 7.

65 feet. (Ditch)

Cythere sp. aff. C. cicatricosa (Reuss)
Leguminocythereis sp. aff. L. septentrionalis (Brady)
Leguminocythereis, n. sp.

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

Shot Point 8.

65 feet. (Ditch)

Leguminocythereis sp. aff. L. septentrionalis (Brady)

Age. Pliocene or younger.
Environment of deposition. Neritic.

Shot Point 11.

65 feet. (Ditch)

Cythere sp. aff. C. cicatricosa (Reuss)

Age. Pliocene or younger.
Environment of deposition. Probably neritic.

(R.27.78)

Party 47 Shot Holes

Line 24-48.

Shot Point 72.

50-70 feet. (Ditch)

Cythere sp. aff. C. concinna Jones

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.

(R.27.82)

FIELD SAMPLES

Ostracoda

47ADt359, Lower Prince Creek.

Cythereis? sp.

Age. Probably Cretaceous; looks older than Upper Cretaceous.
Environment of deposition. Marine, otherwise uncertain.

47AWb460, Schraders Bluff.

Cythereis sp. aff. C. mahonae Alexander (Albian) or
C. bonnemai Triebel (Albian).

Age. Probably Lower Cretaceous, Albian (?).
Environment of deposition. Marine, otherwise uncertain.

47ASt39, Lower Colville River.

Cytheridea cf. C. washitaensis Alexander

Age. Albian or Cenomanian. C. washitaensis is particularly characteristic of the Washita group of the Gulf region.
Environment of deposition. Marine, otherwise uncertain.

48APa29, Cape Simpson.

Cytheridea cf. C. punctillata Brady
Haplocytheridea cf. H. sorbyana (Jones)
Cythere sp. aff. C. concinna Jones
Leguminocythereis sp. aff. L. septentrionalis Brady

Age. Pliocene or younger.
Environment of deposition. Neritic, cold water, moderate depth.