

Part 2. Paleontology

Chapter 3 Summary of the Fossils in the Ciniza Lake Beds

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The Ciniza Lake Beds contain many fossils including leaves, leafy shoots, stems, spores, pollen, clam shrimps, fish scales, and coprolites. All fossils except the coprolites are preserved as compressions. The coprolites are generally replaced by some mineral. The most abundant fossils are the leaves of the gymnosperm *Dinophyton*, the palynomorphs *Pityosporites* and *Klausipollenites*, and the clam shrimp *Cyzicus*. Many additional forms in the lake beds are represented by just a few specimens and in some cases by only a single specimen. Nevertheless, the uncommon forms are important because they add significant information to our environmental interpretations and reconstruction given in chapter 10.

This part of this volume contains reports by various authors on the fossils in the lake beds and a few in the underlying steeply dipping beds. It includes two chapters on coprolites. One concerns the morphology of coprolites and their recognizable contents. The other deals with lipids contained in coprolites. Although they cannot be related to any particular organism, the coprolites do reflect the life of the area and are thus important to our reconstruction. Also the lipids give us data on the nature of these substances during Late Triassic time.

Fossils are most abundant in the gray-shale portion of the lake beds. They are relatively rare in the layer of green mudstone immediately beneath the gray shale and in the transitional beds at the top of the shale. They are rare to nonexistent in the bed of flat-lying conglomerate below the lake beds and in the overlying variegated mudstone of the Monitor Butte Member. Although fossils occur at all exposures of the lake beds, most of those that have been studied thus far are from the complete sections of the lake beds at locality FW1 in the headwaters of Western Wash and at localities FW5 and FW6 in the middle reaches of Eastern Wash (chap. 1, fig. 9).

The following list gives all the identifiable taxa encountered in the study. All except those marked with an asterisk (*) were found in the Ciniza Lake Beds. Those marked with an asterisk occur only in the steeply dipping beds. The relative abundance of each form is indicated by letters in parentheses as follows: A, abundant; C, common; S, scarce; R, rare. The fossils have been deposited in various collections as noted in each chapter.

Plant Kingdom

Division Arthrophyta

Order Calamitales

**Neocalamites* sp. A (stems, S)

Order Equisitales

Equisetites sp. A (stems, S)

Division uncertain

Enzonalsporites vigens Leschik (spores, S)

Brodipora striata Clarke (spores, R)

Division Pterophyta

Order Filicales

Family Cheiroleuriaceae?

Dictyophyllidites harrisii Couper (spores, S)

Family Zygoteridaceae

Verrucosporites tumulosus Leschik (spores, S)

Verrucosporites sp. (spores, R)

Family Cynepteridaceae

**Cynepteris lasiophora* Ash (leaves, R)

Family Matoniaceae

Phlebopteris smithii (Daugherty) Arnold
(leaves, R)

Family uncertain

Reticulatisporites jenensis (Reinhardt and Schmitz)
(spores, R)

Division Pteridospermophyta

Order Pteridospermales

Family Caytoniaceae

Vitreosporites pallidus (Reissinger) (pollen, R)

Family Corystospermaceae

Alisporites opii Daugherty (pollen, C)

A. gottesfeldi n. sp. (pollen, C)

Division Cycadophyta or Ginkgophyta

Order Uncertain

Cycadopites fragilis Singh (pollen, C)

C. weilandii (Jain) (pollen, R)

Granomonocolpites lusisae Herbst (pollen, S)

Division Cycadophyta

Order Bennettitales

Nilssonopteris ciniza (leaves, C)

**Zamites powelli* Fontaine (leaves, A)

Division Coniferophyta

Order Cordaitales

**Pelourdea poleoensis* (Daugherty) Arnold
(leaves, C)

Order Coniferales

?Family Podocarpaceae

Platysaccus sp. (pollen, S)

Family Pinaceae

Patinasporites densus (Leschik) comb. nov.
(pollen, C)

Pityosporites chinleana (pollen, A)

?Family Araucariaceae

Pagiophyllum readiana n. sp. (leaves, R)

P. zuniana n. sp. (leaves, R)

P. duttonia n. sp. (leaves, R)

P. navajoensis n. sp. (leaves, R)

?Order Coniferales

Minutosaccus schizeatus Mädlar (pollen, C)

Klausipollenites sp. (pollen, A)
Granosaccus sulcatus Mädlar (pollen, C)
Equisetospores chinleana Daugherty (pollen, C)
Order Uncertain
Dinophyton spinosus Ash (leaves and pinwheel
structure, A)
Animal Kingdom
Phylum Arthropoda
Superclass Crustacea
Class Branchipoda
Subclass Diplostraca
Order Conchostraca

Suborder Spinicauda
Superfamily Cyzicioidea
Family Cyzicidea
Cyzicus (Lioestheria) wingatella
n. sp. (A)
Phylum Chordata
Class Osteichthyes
Subclass Sarcopterygii
Superorder Coelacanthini
Order Coelacanthiformes
Family Coelacanthidae
Chinlea sp. (scales, S)