

SUMMARY LIST OF LATE JURASSIC PLANTS, WESTERN INTERIOR U.S. & SW CANADA

Fred Peterson

The following is a list of megaplant fossils recovered from the Upper Jurassic Morrison Formation by various workers and as described in the literature cited.

Compiled from fossil megaplant localities and collection sites evaluated by Fred Peterson.

Does not include plants listed in Ash & Tidwell (1998, Table 1) that are not recorded from the collections.

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**SUMMARY LIST OF LATE JURASSIC MEGAPLANTS
WESTERN INTERIOR U.S. & SW CANADA**

| <u>Plant</u> | <u>Locality No.</u> |
|-------------------------------------|---|
| FUNGAL REMAINS | |
| Wood-rotting fungi | 17 |
| Undetermined gen. & sp. | 19 |
| BRYOPHYTES | |
| <u>Thallites(?) sp.</u> | 14 |
| <u>Marchantites sp.</u> | 101(?) |
| SPENOPHYTES | |
| <u>Equisitum sp.</u> | 14 |
| <u>Equisetum cf E. burchardtii</u> | 17 |
| <u>Equisetum laterale</u> | 101,104 |
| <u>Equisetites lyelli</u> | 212 |
| FERNS AND FERN ALLIES | |
| <u>Hausmannia fisheri</u> | 104 |
| <u>Coniopteris brevifolia</u> | 201,202,203,205,206,207,212,214,216,220,221, 222,224 |
| <u>Coniopteris hymenophylloides</u> | 14,101,102,106 |
| <u>Adiantites montanensis</u> | 102,104 |
| <u>Cladophlebis alberta</u> | 101,104 |
| <u>Cladophlebis heterophylla</u> | 101,104,217,218,224 |
| <u>Cladophlebis virginiensis</u> | 101,102,104,106,107,203,212,213,214,217, 218,220,221,224,251,256 |
| <u>Sphenopteris cordai</u> | 215 |
| <u>Sphenopteris latiloba</u> | 208,218 |
| <u>Ashicaulis wadei</u> | 2,7,10,13 |
| <u>Osmundacaulis lemonii</u> | 2,7,10,13 |
| Unidentified fern rhizomes | 9,15,16 |
| SEED FERNS | |
| Sagenopteris elliptica | 101,102 |

CYCADOPHYTES

| | |
|---|-----------------------------|
| <u>Nilssonia</u> sp. | 253 |
| <u>Nilssonia</u> cf. <u>N. compta</u> | 101,102,103,104,106,107 |
| <u>Nilssonia parvula</u> | 254,256 |
| <u>Nilssonia schauburgensis</u> | 14,214,224 |
| <u>Nilssonia tenuicaulis</u> | 256 |
| <u>Zamites arcticus</u> | 101,102,103,104,106,107,108 |
| <u>Otozamites</u> sp. | 17 |
| <u>Cycadolepis</u> sp. A (of Brown, 1972) | 102 |
| <u>Cycadolepis</u> sp. B (of Brown, 1972) | 101,102 |
| <u>Cycadolepis</u> sp. C (of Brown, 1972) | 101,102 |
| <u>Cycadolepis(?)</u> sp. | 17 |
| <u>Weltrichia(?)</u> sp. | 101 |
| <u>Ptilophyllum arcticum</u> | 203,217 |
| <u>Ptilophyllum (Anomozamites) montanense</u> | 217 |
| <u>Cycadeoidea</u> sp. | 1,7,13, |
| <u>Cycadeoidea wyomingensis</u> | 8 |
| <u>Jensensispermum redmondi</u> | 9,15,16,17, |
| <u>Pterophyllum bellii</u> | 255 |
| Unidentified cycad petioles | 9,15,16, |
| Unidentified cycadeoids | 10,12, |

GINKGOPHYTES

| | |
|--|--------------------|
| <u>Baiera</u> cf. <u>B. furcata</u> | 212 |
| <u>Ginkgoites cascadensis</u> | 101,102,103 |
| <u>Ginkgo pluripartita</u> | 104(?),210,219,224 |
| <u>Ginkgo</u> sp. | 14 |
| <u>Ginkgo huttoni</u> | 252,254 |
| <u>Ginkgo(?)</u> sp. | 17 |
| <u>Czekanowskia</u> sp. | 6,256 |
| <u>Czekanowskia turneri</u> | 11,14,17(?) |
| <u>Czekanowskia</u> cf. <u>C. rigida</u> | 212,221,223,224 |

CONIFERS

Logs

| | |
|--------------------------------------|------|
| <u>Araucarioxylon hoodii</u> | 15 |
| <u>Mesembrioxylon carterii</u> | 17 |
| <u>Protocupressinoxylon medlynii</u> | 17 |
| <u>Protopiceoxylon(?) sp.</u> | 12 |
| <u>Protopiceoxylon resiniferous</u> | 5 |
| <u>Xenoxylon moorei</u> | 2,17 |
| <u>Xenoxylon morrisonense</u> | 5,7 |
| Numerous large tree trunks | 1 |
| Unidentified larger wood | 9,10 |

Short shoots

| | |
|--------------------------------|----------------------------|
| <u>Behuninia joannei</u> | 9,15,19 |
| <u>Behuninia provoensis</u> | 1,2,3,4,6,9,15,16,17,18,19 |
| <u>Behuninia bassii</u> | 9,15,19 |
| <u>Behuninia scottii</u> | 9,19 |
| <u>Steinerocaulis sp.</u> | 15 |
| <u>Steinerocaulis radiatus</u> | 2,9,17 |
| Unidentified leafy shoot | 17 |

Leaves (attached to twigs associated w casts of short shoots)

| | |
|------------------------------------|---|
| <u>Pagiophyllum sp.</u> | 9,15,16,101,102,104,105(?),106,107 |
| <u>Cupressinocladus(?) sp.</u> | 9,15,16 |
| <u>Podozamites sp.</u> | 108 |
| <u>Podozamites corbinensis</u> | 204 |
| <u>Podozamites lanceolatus</u> | 101,102,103,104,106,107,202,203,206,207,209, 211,221 |
| <u>Pityophyllum lindstromi</u> | 101,102,103,104,106,107 |
| <u>Pityophyllum nordenskiöldii</u> | 209(cf),217(cf),218(cf),223(cf),224(cf),256 |
| <u>Brachyphyllum sp.</u> | 9,14 spp,15,16 |
| <u>Brachyphyllum sp. A</u> | 17 (of Tidwell, Britt, and Ash, 1998) |
| <u>Brachyphyllum rehtenii</u> | 17 |

Twigs

| | |
|------------------------|------|
| <u>Pityocladus sp.</u> | 101 |
| Unidentified twigs | 9,16 |

Twigs bearing cones and seeds

| | |
|---------------------|---------|
| <u>Elatides sp.</u> | 9 |
| Unidentified seeds | 9,15,16 |

Cones

| | |
|------------------------------|------------|
| <u>Hillostrobos axelrodi</u> | 9,15,16 |
| <u>Sequoia</u> sp. | 9 |
| <u>Conites</u> sp. | 17 |
| Araucarian-like cones | 1 |
| Taxodiaceous cones | 15 |
| Unidentified cones | 9,14,15,16 |

Seedlings

| | |
|----------------------|-------|
| Corn-like structures | 15,19 |
|----------------------|-------|

UNKNOWN AFFINITIES

| | |
|--------------------------------------|-----------------|
| <u>Hermanophyton glismanii</u> | 12,14 |
| <u>Hermanophyton kirkbyorum</u> | 10,12(?) |
| <u>Hermanophyton owensii</u> | 12 |
| <u>Hermanophyton taylorii</u> | 12 |
| Undetermined roots | 101,104 |
| Undetermined small elliptical bodies | 102,103,106,107 |

“YET TO BE PUBLISHED”

The following are “Yet to be published”. Evidently they were determined as present at the indicated localities by Ash & Tidwell (1998) but not published on as of 1998.

Locality

Plant fossil **FP—(Ash & Tidwell (1998))**

CYCADOPHYTE

Ptilophyllum arcticum Somewhere near FP loc's 3,4,5,10-
(7) (Hansen Can-Clay Pt-Thompson Can)
Location inadequate

CONIFERS

| | |
|-------------------------------|--|
| <u>Cupressinocladus</u> spp. | 9-(3) Fremont Junction 16-(4) Mussentuchit Wash 15-(6) Mount Ellen |
| <u>Mesembioxylon obscurum</u> | 8-(18) Freezeout Hills |
| Other taxodiaceous cones | 9-(3) Fremont Junction 15-(6) Mount Ellen |
| 19-(21) Steiner's site | |
| Araucarian-like cones | 1-(5) Cainsville Wash 13-(9) Moab |
| Numerous seeds | 2-(1) Castle Dale-East 9-(3) Fremont Junction 16-(4) Mussentuchit Wash 15-(6) Mount Ellen 18-(20) Scott's site 19-(21) Steiner's site |

PLANT LOCALITIES

Western Interior United States (Utah, Colorado, Wyoming)

- 1 Cainsville Wash, UT
- 2 Castle Dale-East, UT
- 3 Clay Point-1, UT
- 4 Clay Point-2, UT
- 5 Clay Point-3, UT
- 7 Ferro, UT
- 8 Freezeout Hills, WY
- 9 Fremont Junction, UT
- 10 Hansen Creek, UT
- 11 Johnny M Mine, NM
- 12 McElmo Creek-East, CO
- 13 Moab-North, UT
- 14 Montezuma Creek, UT
- 15 Mount Ellen, UT
- 16 Mussentuchit Wash, UT
- 17 Mygatt-Moore Quarry, CO
- 18 Scott's Site, WY
- 19 Steiner's Site, WY
- 20 Yellowcat, UT

Western Interior United States (Montana)

- 101 Belt, MT
- 102 Belt Mine, MT
- 103 Belt Road Cut, MT
- 104 Geyser, MT
- 105 Bozeman-NE, MT
- 106 Lewistown (Castle ck), MT
- 107 Sage Creek Windham-SW), MT
- 108 West Coburn Butte, MT

Canada (Alberta)

- 201 Maple Leaf Mine, Alta
- 202 North Fork Oldman River, Alta
- 203 Byron Creek Mine, Alta
- 204 Moose Mountain, Alta
- 205 Maple Leaf Mine, Alta
- 206 Moose Mountain, Alta
- 207 Maple Leaf Mine, Alta
- 208 York Creek, Alta
- 209 York Creek, Alta
- 210 York Creek, Alta
- 211 Sheep River Canyon, Alta
- 212 Mount Head, Alta
- 213 Mount Head, Alta
- 214 Mount Head, Alta
- 215 Highwood River, Alta
- 216 Castle River, Alta
- 217 Castle River, Alta
- 218 Hell Gate, Alta
- 219 Blairmore-South, Alta
- 220 Hell Gate, Alta
- 221 Blairmore-South, Alta
- 222 Maple Leaf Mine, Alta
- 223 Lyon Creek, Alta
- 224 Lyon Creek, Alta

Canada (British Columbia)

- 251 Spatsizi Park-1, B.C.
- 252 Spatsizi Park-2, B.C.
- 253 Spatsizi Park-3, B.C.
- 254 West of Spatsizi River, B.C.
- 255 Spatsizi Park-4, B.C.
- 256 Summit of BC RR, B.C.

TABLE 1**AGE DISTRIBUTION OF TAXA**

| TAXA | Kimmeridgian | Tithonian |
|--|---------------------|------------------|
| Fungi | | |
| Wood-rotting fungi | X | |
| Undetermined gen. & sp. | X | |
| | | |
| Bryophyta | | |
| <i>Thallites(?)</i> sp. (bryophyte) | X | |
| <i>Marchantites</i> sp. | | |
| | | |
| Sphenophyta | | |
| <i>Equisetum</i> sp. | X | |
| <i>Equisetum</i> cf. <i>E. burchardtii</i> | X | |
| <i>Equisetum laterale</i> | | X |
| <i>Equisetites lyelli</i> | | X |
| | | |
| Filicophyta (Ferns and Fern Allies) | | |
| <i>Ashicaulis wadei</i> (fern) | X | |
| <i>Osmundacaulis lemonii</i> (fern) | X | |
| <i>Otozamites</i> sp. (cycad) | X | |
| <i>Cycadolepis(?)</i> sp. (cycad) | X | |
| <i>Cycadeoidea</i> sp. (cycad) | X | |
| <i>Jensensispermum redmondi</i> (cycad) | X | |
| <i>Ginkgo</i> sp. | X | |
| <i>Czekanowskia turneri</i> (ginkgo) | X | |
| <i>Araucarioxylon hoodii</i> (conifer log) | X | |
| <i>Mesembrioxylon carterii</i> (conifer log) | X | |
| <i>Protocupressinoxylon medlynii</i> (conifer log) | X | |
| <i>Protopiceoxylon resiniferous</i> (conifer log) | X | |

| | | |
|---|---|----|
| Xenoxylon moorei (conifer log) | X | |
| Xenoxylon morrisonense (conifer log) | X | |
| Behuninia joannei (conifer short shoot) | X | |
| Behuninia provoensis (conifer short shoot) | X | |
| Behuninia bassii (conifer short shoot) | X | |
| Behuninia scottii (conifer short shoot) | X | |
| Steineroaulis sp. (conifer short shoot) | X | |
| Steineroaulis radiatus (conifer short shoot) | X | |
| Cupressinocladus(?) sp. (conifer leaf) | X | |
| Brachyphyllum sp. (conifer leaf) | X | |
| Brachyphyllum sp. A (conifer leaf) | X | |
| Brachyphyllum rehtenii (conifer leaf) | X | |
| Elatides sp. (conifer twigs bearing cones) | X | |
| Hillostrobos axelrodi (conifer cone) | X | |
| Sequoia sp. (conifer cone) | X | |
| Conites sp. (conifer cone) | X | |
| Hermanophyton glismanni (unknown affinities) | X | |
| Hermanophyton kirkbyorum (unknown affinities) | X | |
| Hermanophyton owensii (unknown affinities) | X | |
| Hermanophyton taylorii (unknown affinities) | X | |
| | | |
| Coniopteris | X | X* |

| | | |
|-------------------------------------|---|-------|
| hymenophylloides (fern) | | |
| Nilssonia schauburgensis (cycad) | X | X |
| Ptilophyllum arcticum (cycad) | X | X |
| Czekanowskia sp. (ginkgo) | X | X*(?) |
| Pagiophyllum sp. (conifer leaf) | X | X* |

TABLE 1 (Continued)

| TAXA | Kimmeridgian | Tithonian |
|--|---------------------|------------------|
| Marchantites sp. (bryophyte) | | X* |
| Equisetum laterale (sphenophyte) | | X* |
| Equisetites lyelli (sphenophyte) | | X |
| Hausmannia fisheri (fern) | | X* |
| Coniopteris brevifolia (fern) | | X |
| Adiantites montanensis (fern) | | X* |
| Cladophlebis alberta (fern) | | X* |
| Cladophlebis heterophylla (fern) | | X* |
| Cladophlebis virginiensis (fern) | | X* |
| Sphenopteris cordai (fern) | | X |
| Sphenopteris latiloba (fern) | | X |
| Sagenopteris elliptica (seed fern) | | X* |
| Nilssonsonia sp. (cycad) | | X |
| Nilssonsonia cf. N. compta (cycad) | | X* |
| Nilssonsonia nordenskiöldii (cycad) | | X |
| Nilssonsonia parvula (cycad) | | X |
| Nissonsonia tenuicaulis (cycad) | | X |
| Zamites arcticus (cycad) | | X* |
| Cycadolepis sp. A (of Brown, 1972) (cycad) | | X* |
| Cycadolepis sp. B (of Brown, 1972) (cycad) | | X* |
| Cycadolepis sp. C (of Brown, 1972) (cycad) | | X* |
| Weltrichia(?) sp. (cycad) | | X* |
| Ptilophyllum (Anomozamites) montanense (cycad) | | X |

| | | |
|--|--|----|
| Pterophyllum bellii (cycad) | | X |
| Baiera cf. B. furcata (ginkgo) | | X |
| Ginkgoites cascadenis (ginkgo) | | X* |
| Ginkgo huttoni | | X |
| Ginkgo pluripartita | | X+ |
| Czekanowskia cf. C. rigida (ginkgo) | | X |
| Podozamites sp. (conifer leaf) | | X* |
| Podozamites corbinensis (conifer leaf) | | X |
| Podozamites lanceolatus (conifer leaf) | | X* |
| Pityophyllum lindstromi (conifer leaf) | | X* |
| Pityophyllum nordenskiöldii (conifer leaf) | | X |
| Pityocladus sp. (conifer twig) | | X* |

TABLE 1 (Continued)

| TAXA | Kimmeridgian | Tithonian |
|---|---------------------|------------------|
| UNIDENTIFIED PLANT MATERIAL | | |
| Wood-rotting fungi | X | |
| Unidentified fungi | X | |
| Unidentified fern rhizomes | X | |
| Unidentified cycad petioles | X | |
| Unidentified cycadeoids | X | |
| Numerous large tree trunks (conifers) | X | |
| Unidentified larger wood (conifers) | X | |
| Unidentified leafy shoots (conifers) | X | |
| Unidentified twigs (conifers) | X | |
| Unidentified seeds (conifers) | X | |
| Araucarian-like cones (conifers) | X | |
| Taxodiaceous cones (conifers) | X | |
| Unidentified cones (conifers) | X | |
| Corn-like structures (conifers) | X | |
| Undetermined roots (unknown affinities) | | X* |
| Undetermined small elliptical bodies (unknown affinities) | | X* |

* = Present in Montana

+ = Species questionably identified

(?)=Identified by JTP

TABLE 1—CAPTION

Data from: Arnold (1962); Ash (1994); Ash and Tidwell (1998); Bass (1964); Bell (1956); Brown (1972, 1975); Chandler (1966); Delevoryas (1960); Knechtel (1959); Knowlton (1907); LaPasha (1984, and oral commun., 1998); MacLeod (1991); Medlyn and Tidwell (1975ab, 1979, 1992); Tidwell (1990ab, 1994); Tidwell and Ash (1990); Tidwell, Britt, and Ash (1998); Tidwell and Medlyn (1992, 1993); Tidwell and Rushforth (1970); and Ward (1900a). Does not include plant fossils listed as "Yet to be published" by Ash and Tidwell (1998).

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