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American Fern Journal

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Ferns and Fern Allies of Cumberland, Rhode Island

ERNEST J. PALMER

During the war years, while it was difficult to travel far afield, my family and I managed to spend a number of pleasant week-ends at the Diamond Hill State Forest Park in the town of Cumberland, Providence Co., Rhode Island, and while the younger members of the family were amusing themselves with other activities I carried on the project of studying and collecting the local flora. The area that was rather intensively explored on foot lies within a radius of from one and a half to three miles of our central camp at the ski trail shelter near the north end of the high ridge known as Diamond Hill. A few excursions were made beyond this area and a little collecting was done in other parts of the town of Cumberland. Between 800 and 900 species and varieties of vascular plants were found in the Diamond Hill area, and as each trip has added to the list, it seems certain that the number could be considerably increased. The ferns and fern allies number 40, and it is possible that even in this group a few more may eventually be discovered. The assemblage of ferns is a rather large one for so limited an area, and although most of them are common in this part of New England, a few were found that are of considerable interest and the full list may be worth recording.

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The region is one of the most rugged and diverse to be found in the state of Rhode Island, with a rapidly changing alternation of rocky ridges and ledges, dry rocky woods, open bogs, and swampy woods, and with smaller areas of wet open meadow along the streams and of rich woods bordering some of the swamps. A perennial stream, Miscoe Brook or Crystal Brook, flows from Miscoe Lake on the Massachusetts boundary southward along the western base of the Diamond Hill ridge, and several other streams enter the area. Some small shallow ponds that mostly disappear in dry seasons occupy openings in the woods, and larger lakes and reservoirs have been formed by damming up the streams. Most of the area is wooded with a growth of small deciduous trees and with a small percentage of pines and junipers in places. The rock outcrops consist of quartz, granite, and schist, and more locally of quartzite, slate, and conglomerate. Glacially transported deposits of boulders, gravel, and sand, much of it redistributed by the streams, cover much of the surface. The soils are mostly acid, but certain plants found along ledges near the Pawtucket Reservoir and elsewhere seem to indicate that the residual soils may not be entirely deficient in lime.

Some of the ferns are very abundant and the pteridophytes form a larger and more important part of the herbaceous flora than the number of species would indicate. Of the 26 true ferns, 12 may be said to be very common; 6 are fairly abundant; and 8 are uncommon or rare. Among the fern allies *Equisetum arvense, Lycopodium complanatum,* and *L. obscurum* var. *dendroideum* are extremely abundant in many places, while *Equisetum hyemale, E. fluviatile,* and *Lycopodium inundatum* were each collected only at a single station.

OPHIOGLOSSACEAE

BOTRYCHIUM VIRGINIANUM L.

Frequent in a number of localities in rich or moist woods.

BOTRYCHIUM DISSECTUM Spreng.

Rare, in moist rich woods.

BOTRYCHIUM DISSECTUM var. OBLIQUUM (Muhl.) Clute

Growing with the last, and somewhat more abundant.

BOTRYCHIUM MATRICARIAEFOLIUM A. Br.

A colony was found on a moist, rich, partially shaded slope, with a few scattered plants extending into the adjoining wet rocky woods. Several dozen plants were seen at this station.

OSMUNDACEAE

OSMUNDA REGALIS L. var. SPECTABILIS (Willd.) Gray

The Royal Fern is abundant throughout the area in wet or boggy ground.

OSMUNDA CLAYTONIANA L.

Common in open swampy woods and in wet open ground.

OSMUNDA CINNAMOMEA L.

Common in wet ground and on the borders of bogs and ponds.

POLYPODIACEAE

WOODSIA OBTUSA (Spreng.) Torr.

Uncommon, but found at a number of stations on rocky, partially shaded ledges.

CYSTOPTERIS FRAGILIS (L.) Bernh.

The Fragile Fern is usually a calciphile or a plant of rich moist woods where the soil is not distinctly acid, and suitable habitats for it are lacking in most of the area. But a few weak plants were discovered along the base of a moist shaded ledge near the Pawtucket Reservoir, and it was found growing vigorously on the walls of a

cellar at an old house site in the northwest part of the town. Here it had become established in some way and had found a favorable environment in the moist shaded crevices of the rocks with their lime mortar filling.

ONOCLEA SENSIBILIS L.

Very common in open swampy ground and in wet woods.

DRYOPTERIS HEXAGONOPTERA (Michx.) C. Chr.

Rather uncommon in rich woods, but colonies were found at several widely scattered stations.

DRYOPTERIS THELYPTERIS (L.) Gray var. PUBESCENS (Laws.) A. R. Prince

Very common in swamps and in wet open woods.

DRYOPTERIS NOVEBORACENSIS (L.) Gray

Very common in moist or rich woods.

DRYOPTERIS MARGINALIS (L.) Gray

Common along rocky ledges and in clefts, especially in quartz outcrops on Diamond Hill.

DRYOPTERIS CRISTATA (L.) Gray

Rather uncommon but generally distributed in open swampy ground.

DRYOPTERIS SPINULOSA (O. F. Muell.) Watt

Rarer and sparingly found in clefts and along ledges of wooded cliffs.

DRYOPTERIS SPINULOSA var. INTERMEDIA (Muhl.) Underw.

With the typical variety. Rare.

POLYSTICHUM ACROSTICHOIDES (Michx.) Schott

Not common, but found in a number of places in rich rocky woods and on moist banks.

DENNSTEADTIA PUNCTILOBULA (Michx.) Moore

One of the commonest ferns on moderately dry ledges and in open woods, usually in the zone between the dry rocky uplands and the swamps or wet woods.

ATHYRIUM ANGUSTUM (Willd.) Presl var. RUBELLUM (Gilb.) Butters

Common in rich or moist rocky woods.

ATHYRIUM ANGUSTUM var. ELATIUS (Link) Butters

In similar situations to the last, but less common.

ASPLENIUM PLATYNEURON (L.) Oakes

The Ebony Spleenwort was not seen on the quartz outcrops of Diamond Hill, but it is not rare elsewhere along old walls and on ledges of the granite areas.

ASPLENIUM TRICHOMANES L.

Rare and local. A few plants were found at one station near the base of a moist shaded ledge.

ADIANTUM PEDATUM L.

Found sparingly in a few places in rich or moist woods.

PTERIDIUM LATIUSCULUM (Desv.) Hieronymus

Abundant throughout in dry open woods. It is found in the dryest situations of any fern of the region, except perhaps a few of the rock ferns.

POLYPODIUM VIRGINIANUM L.

Often very abundant and in large colonies on rocky slopes and ledges, and especially in the quartz outcrops of Diamond Hill.

EQUISETACEAE

EQUISETUM ARVENSE L.

Common in many places, usually on open banks or in moderately dry open ground.

EQUISETUM PALUSTRE L.

Locally abundant in rocky swampy woods.

EQUISETUM FLUVIATILE L.

A large colony was found growing in open ground on the margin of shallow pools in an old gravel pit.

EQUISETUM SYLVATICUM L.

Locally abundant in wet or moist ground in a few localities.

EQUISETUM HYEMALE L.

Found only in one locality, along the edge of a rocky brook near the head of the Pawtucket Reservoir.

LYCOPODIACEAE

LYCOPODIUM LUCIDULUM Michx.

Not common, but found among rocks in rich or wet open woods.

LYCOPODIUM CLAVATUM L.

Several extensive colonies were found in moist rich woods.

LYCOPODIUM INUNDATUM L.

Apparently rare; found only at one station, on the muddy margin of shallow pools in an abandoned granite quarry.

LYCOPODIUM OBSCURUM L. var. DENDROIDEUM (Michx.) D. C. Eaton

Very common in dry open woods throughout the area.

LYCOPODIUM COMPLANATUM L.

Common and in large colonies in rather dry woods and thickets.

SELAGINELLACEAE

SELAGINELLA APODA (L.) Fern.

Uncommon in moist or wet woods.

ISOËTACEAE

ISOËTES RIPARIA Engelm. var. CANADENSIS Engelm.

In wet sand and gravel of old gravel pit, where submerged in wet times.

ISOËTES ECHINOSPORA Dur.

In mud along the margin of pools and ponds.

ISOËTES ENGELMANNI A. Br.

Partially submerged or on the muddy margin of pools, in an old gravel pit.

ARNOLD ARBORETUM

UPDATED NOMENCLATURE

The nomenclature used in this article is listed in **bolded** type.
The current nomenclature is beneath it, indented and in *italics*.

Adiantum pedatum L.
Adiantum pedatum L.
Asplenium platyneuron (L.) Oakes
Asplenium platyneuron (Linnaeus) Britton, Sterns & Poggenburg,
Asplenium Trichomanes L.
Asplenium trichomanes L.
Athyrium angustum (Willd.) Presl var. rubellum (Gilb.) Butters
Athyrium filix-femina (L.) Roth ex Mert.
var. angustum (Willd.) G.Lawson
Athyrium angustum var. elatius (Link) Butters
Athyrium filix-femina (L.) Roth ex Mert.
var. angustum (Willd.) G.Lawson
Botrychium dissectum Spreng.
Botrychium dissectum Spreng.
Botrychium dissectum var. obliquum (Muhl.) Clute
Botrychium dissectum Spreng
Botrychium matricariaefolium A. Br.
Botrychium matricariifolium (Döll) A. Braun ex W. D. J. Koch,
Syn. Deut. Schweiz. Fl.,
Botrychium virginianum L.
Botrychium virginianum L. Swartz, J. Bot. (Schrader).
Cystopteris fragilis (L.) Bernh.
Cystopteris fragilis (L.) Bernh.
Dennsteadtia punctilobula (Michx.) Moore
Dennstaedtia punctilobula (Michx.) T. Moore
Dryopteris cristata (L.) Gray
Dryopteris cristata (L.) A.Gray
Dryopteris hexagonoptera (Michx.) C. Chr.
Phegopteris hexagonoptera (Michx.) Fée
Dryopteris marginalis (L.) Gray
Dryopteris marginalis (L.) A.Gray
Dryopteris noveboracensis (L.) Gray
Thelypteris noveboracensis (L.) Nieuwl
Dryopteris spinulosa var. intermedia (Muhl.) Underw.
Dryopteris intermedia (Muhl. ex Willd.) A.Gray
Dryopteris spinulosa (O. F. Muell.) Watt
Dryopteris carthusiana (Vill.) H.P.Fuchs
Dryopteris thelypteris (L.) Gray var. pubescens (Laws.) A. R. Prince
Thelypteris palustris Schott var. pubescens (Lawson) Fernald

Equisetum arvense L.
Equisetum arvense L.
Equisetum fluviatile L.
Equisetum fluviatile L.
Equisetum hyemale L.
Equisetum hyemale L.
Equisetum palustre L.
Equisetum palustre L.
Equisetum sylvaticum L.
Equisetum sylvaticum L.
Isoëtes echinospora Dur.
Isoetes tenella Léman
Isoëtes engelmanni A. Br.
Isoëtes engelmanni A. Br.
Isoëtes riparia Engelm. var. canadensis Engelm.
Isoetes riparia Engelm. ex A. Braun var. riparia
Lycopodium clavatum L.
Lycopodium clavatum L.
Lycopodium complanatum L.
Lycopodium complanatum L.
Lycopodium inundatum L.
Lycopodiella inundata (L.) Holub
Lycopodium lucidulum Michx.
Huperzia lucidula (Michx.) Trevis
Lycopodium obscurum L. var. dendroideum (Michx.) D. C. Eaton
Lycopodium dendroideum Michx.
Onoclea sensibilis L.
Onoclea sensibilis L.
Osmunda cinnamomea L.
Osmunda cinnamomea L.
Osmunda claytoniana L.
Osmunda claytoniana L.
Osmunda regalis L. var. spectabilis (Willd.) Gray
Osmunda regalis L. var. spectabilis (Willd.) Gray
Polypodium virginianum L.
Polypodium virginianum L.
Polystichum acrostichoides (Michx.) Schott
Polystichum acrostichoides (Michx.) Schott
Pteridium latiusculum (Desv.) Hieronymus
Pteridium aquilinum (L.) Kuhn
var. latiusculum (Desv.) Underw. ex A. Heller
Selaginella apoda (L.) Fern.
Selaginella apoda (L.) Spring
Woodsia obtusa (Spreng.) Torr.
Woodsia obtusa (Spreng.) Torr.