

The Ohio Naturalist,

PUBLISHED BY

The Biological Club of the Ohio State University.

Volume V.

MARCH, 1905.

No. 5.

TABLE OF CONTENTS

WACKER—Ecological Notes on Ohio Pteridophytes.....	295
FLORY—Key to the Ohio Maples in the Winter Condition	297
SCHAFFNER—The Classification of Plants, I.....	298
SCHAFFNER—Lycopodium porophilum in Ohio	301
SCHAFFNER—The Struggle for Life on a Certain Sandbar.....	302
RIDDLE—Notes on the Morphology of Philotria	304
TILLMAN—Ohio Plants with Tendrils.....	305
SCHAFFNER—Key to Ohio Walnuts Based on Twig Characters.....	307
SURFACE—Meeting of the Biological Club.....	308

ECOLOGICAL NOTES ON OHIO PTERIDOPHYTES.

ALMA H. WACKER.

Of the one hundred and nineteen Pteridophytes which Britton has listed for the Northeastern United States and of the two hundred and seventy-two recorded by Underwood for North America north of Mexico, at least sixty have been found in Ohio. This number includes the ferns, horsetails, Lycopods, Selaginellas and Azolla.

When looking for Pteridophytes it is well to remember that they grow under widely diverse conditions; from exposed rocks and sandy soil, meadows and rich woods to swamps and standing water.

Besides the reproduction by spores other means of propagation are present in most species. Rhizone propagation is one of the most common means. The rhizomes or underground stems may be upright as in *Ophioglossum*, or horizontal as in most of the ordinary ferns. They may be smooth or scaly, branched or unbranched; or they may be found creeping upon the ground and sending roots into the earth as in some of the Lycopods.

In some species vegetative propagation by special gemmæ or brood-buds is present as in *Filix bulbifera*, while in *Lycopodium lucidulum* there are peculiar modified buds. These drop to the ground and give rise to new plants.

A few ferns have leaf propagation; the tip of the leaf takes root and develops a new plant. This occurs in *Camptosorus rhizophyllus*, *Asplenium pinnatifidum*, *A. platyneuron*, and *A. ebenoides*. There is another kind of propagation which may be

mentioned here. *Nephrolepis exaltata*, a cultivated species, sends out runners, which often take root at the end and thus form a new plant.

Only two of our Pteridophytes are annuals, *Selaginella apus* and *Azolla caroliniana*. The rest are perennial; of these a large number are evergreen, the aerial portion persisting and remaining green throughout the winter. The following list includes the Pteridophytes which belong to the evergreen class:

<i>Polypodium vulgare</i> .	<i>Dryopteris spinulosa</i> <i>intermedia</i>
<i>polypodioides</i> .	" " <i>dilatata</i> .
<i>Pellaea atropurpurea</i> .	<i>Woodsia obtusa</i> .
<i>Asplenium pinnatifidum</i> .	<i>Equisetum robustum</i> .
" <i>ebenoides</i> .	" <i>hyemale</i> .
" <i>platyneuron</i> .	" <i>lævigatum</i> .
" <i>trichomanes</i> .	" <i>variegatum</i> .
" <i>ruta-muraria</i> .	" <i>scirpoides</i> .
" <i>montanum</i> .	<i>Lycopodium lucidulum</i> .
<i>Camptosorus rhizophyllus</i> .	" <i>inundatum</i> .
<i>Polystichum acrostichoides</i> .	" <i>obscurum</i> .
<i>Dryopteris cristata</i> .	" <i>annotinum</i> .
" <i>clintoniana</i> .	" <i>clavatum</i> .
" <i>marginalis</i> .	" <i>complanatum</i> ...
" <i>spinulosa</i> .	<i>Selaginella rupestris</i> .

Classifying the Ohio Pteridophytes according to habitat, we have the following list:

1. Those growing in wet marshes or swamps with or without abundant shade.

<i>Botrychium matricariæfolium</i> .	<i>Woodwardia virginica</i> .
" <i>lanceolatum</i> .	<i>Dryopteris noveboracensis</i> .
<i>Osmunda cinnamomea</i> .	" <i>cristata</i> .
" <i>regalis</i> .	" <i>spinulosa intermedia</i> .
" <i>claytoniana</i> .	" " <i>dilatata</i> .

2. Those growing on the ground in rich woods and thickets more or less moist:

<i>Ophioglossum vulgatum</i> .	<i>Phegopteris phegopteris</i> .
<i>Botrychium matricariæfolium</i> .	" <i>hexagonoptera</i> .
" <i>lanceolatum</i> .	" <i>dryopteris</i> .
<i>Adiantum pedatum</i> .	<i>Filix fragilis</i> .
<i>Asplenium platyneuron</i> .	<i>Woodsia obtusa</i> .
<i>Athyrium thelypteris</i> .	<i>Equisetum scirpoides</i> .
" <i>filix-fœmina</i> .	<i>Lycopodium lucidulum</i> .
<i>Dryopteris noveboracensis</i> .	" <i>obscurum</i> .
" <i>goldieana</i> .	" <i>annotinum</i> .
" <i>marginalis</i> .	" <i>clavatum</i> .
" <i>spinulosa</i> .	" <i>complanatum</i> .

3. Those growing in moist rocky ravines or rocky places are:

<i>Botrychium virginianum</i> .	<i>Dryopteris marginalis</i> .
<i>Woodsia obtusa</i> .	<i>Asplenium angustifolium</i> .
<i>Filix bulbifera</i> .	<i>Phegopteris phegopteris</i> .
" <i>fragilis</i> .	" <i>dryopteris</i> .

4. Those found on rocks either limestone or sandstone are:

Polypodium vulgare.	Asplenium montanum.
“ polypodioides.	“ parvulum.
Pellaea atropurpurea.	Camptosorus rhizophyllus.
Asplenium pinnatifidum.	Filix bulbifera.
“ ebenoides.	Woodsia ilvensis.
“ trichomanes.	Selaginella rupestris.
“ ruta-muraria.	

5. A very few may be found growing in sandy soil. Among these we find:

Equisetum arvense.	Equisetum sylvaticum.
“ pratense.	

6. The following are found growing under varying conditions in many localities:

Botrychium obliquum.	Dennstædtia punctilobula.
“ dissectum.	Dryopteris thelypteris.
“ lunaria.	Polystichum acrostichoides.
“ virginianum.	Asplenium angustifolium.
Onoclea sensibilis.	Pteridium aquilinum.
Matteucia struthiopteris.	

7. In addition to what has been mentioned above, *Osmunda regalis* is occasionally found in standing water, and *Azolla caroliniana* floating on still water.
