NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO

Founding Chapter Of

THE OHIO NATIVE PLANT SOCIETY

6 Louise Drive
Chagrin Falls, Ohio 44022
(216) 338-6622

On the Fringe

Volume 3 **November/December 1985** **Number 6**

PRESIDENT'S ANNUAL REPORT

Once again we come to the close of a Society year. Looking in retrospect from the cat-bird's seat it all seems to be a blur of activity, sometimes making progress and sometimes running on a treadmill. We did have some marvelous programs and I, for one, learned a great deal. Next year will be just as exciting, and we hope to have the 1986 Program and Field Trip flyer for you at the Annual Dinner.

The only major project for 1985 was the Circle ravine. Much progress was attained there due to a collective effort. Several planting forays were held under the leadership of Larry Giblock, who also gave every Wednesday of his time, as well as the only Saturday he had off each month. Several other of our members were diligent in their attendance, but in terms of a Society effort, we did not hold up our end of the bargain. The Garden Center had a summer employee who did alot of watering of the new plants, and John Michalko produced new fencing and chips for the paths. All in all, the ravine is beginning to look like a real showplace. But this is only a beginning, and much remains to be done. Those who have worked there with regularity have found it to be a lovely and rewarding place to work. We will be asking more of you to commit your time.

Representative Clark, Member of the House Natural Resources Committee in Columbus, is sponsoring the bill to name the Trillium grandiflorum as the State wildflower. This will be in addition to the carnation which is already the State flower. The Trillium was chosen because it is found in all 88 counties, is readily recognizable by the general populace, and because it is not a rare species which might be threatened by bringing it to notice. The process of getting the bill through the House and Senate will take well into the first of the year. We will let you know when it is final.

PRESIDENT'S ANNUAL REPORT - Cont'd

Jim Bissell has been recognized for his achievements once again. This time he has been awarded the Gold Oak Leaf at the Nature Conservancy's national meeting in October. This is the highest award that they can give and is indicative of the esteem in which he is held all over the country. In addition, he has been elected to the National Board of Governors of the Conservancy, and so will have a voice in national policy. We are very proud of you, Jim, and very, very lucky to have you as a member and friend of the Society.

You may be interested to know that our fiery editorial in the September issue of the newsletter got attention in Washington, D.C. Larry Morse, National Staff Botanist with the Conservancy and a member, read the editorial and then passed it on to Faith Baldwin of the National Resources Defense Council. Faith called for more information and promised to swing the Federal authorities into action to try and track down the flowers and the criminals.

The State organization is getting stronger all the time. I attended a meeting in Columbus and they have approximately 100 members signed up. Their leadership is talented and enthusiastic and they will be a great chapter. Cincinnati has added to their title: "Cincinnati Wild Flower Preservation Society, Founded 1916 AND **Southwestern Chapter of the Ohio Native Plant Society**". (My underlining.) We are honored to have them with us. The Wilderness Center chapter is giving us a run for our money in terms of their lecturers, and since they are so close, all of you should try to get to some of their programs. Several who have joined them tell me that it is an outstanding bunch of knowledgeable people. Toledo will begin organizing after the first of the year. And finally, in September I hit the trail to Dayton where we had a most interesting meeting with Marie Aull and Paul Knoop. Mrs. Aull is the donor of Aullwood Farm Nature Center and lives on the grounds, and is one of the most interesting and dynamic ladies I have met in a long time. She led us on a tour of Paul Knoop's outstanding prairie, which all of you must see. I was overwhelmed at the sheer beauty of the true tall-grass prairie and flowers, amongst which was compass-plant. I tell you this because Marie Aull is 89 years old and can outwalk, outthink, and outtalk anybody. She is one of the nicest people around. Paul Knoop, Director of Education, is in the same mold, and has agreed to sponsor the Dayton chapter. With these two behind it, there is no question of its success. From Dayton we travelled to Athens and talked with several people. A dull thud was heard around the state. At present time, no one wants to commit the time and effort to organizing a chapter. I think that given time, they may see what they are missing and someone will come forward to take the leadership.

What it all comes down to is that we are growing. In my contacts with the various chapters, incipient or organized, I have discovered a wealth of talented people and lovely natural areas and developed centers. It is up to you to avail yourself of that which is available. You could fill every weekend, holiday and vacation exploring it all, and the contacts are in place.

The Executive Board meeting in September produced several new projects which will be very useful. Jack Selby is going to chair the development of a "slide herbarium". This will be a collection of slides of individual plants showing the species from general habitat, general view of the plant, to close-up of the parts that make the plant identifiable. The collection will be housed at the Natural History Museum and be available to members all over the state for temporary loan or duplication. As an example, if you wanted to identify a goldenrod, you could compare your specimen with the slides. Members will be asked to contribute slides to this collection.

Tom Yates is chairing a seed collection project which I will ask him to write about in the January newsletter. We will not be collecting endangered species - that is up to the experts - but under Tom's tutelage, seeds that can be used by Holden, shared with other gardens around the state, and perhaps, sold. Other State Societies have this project and it has been very successful.

We are going to write a brochure for the use of developers who are building "open plan" concept developments. This is when all the homes are clustered on relatively small acreage with the rest of the land left open for general use. It is our contention that it is just as economical and easy for the landscaping to include the use of native trees, shrubs, and flowers that will afford food and shelter to birds and insects such as butterflies, thus replacing that which is lost to the bulldozers. This brochure will be drawn up with the advice of the Garden Center and the Arboretum experts. If we do a satisfactory job, an anonymous donor has pledged printing costs. We plan to have it distributed statewide and it can be an effective use of native plants in landscaping.

Finally, we are entertaining the idea of a bus tour sponsored in part by Bob Faber. The first idea that came up was a trip to the Pine Barrens of New Jersey in time for their annual Spring wildflowers, and a side trip to Cape May for the birders. A second idea would be a June trip to the Dolly Sods and Cranberry Bog areas of West Virginia. Bob's tours include **ALL** expenses, first class motels, top-line meals, and professional guides. Let me know what kind of tour you want and we will pursue the majority opinion.

I hope to see you all at the Annual Dinner at which time we will announce the 1986 Program and Field Trips.

EXPLANATION FOR FOLLOWING ARTICLE

FERNS AND FERN ALLIES OF KENTUCKY by Ray Cranfill

VITTARIACEAE

A family of largely tropical ferns; epiphytes with long filiform to ovate fronds; veins anastomosing to form areoles along rachis; rhizome solenostelic to protostelic with clathrate scales; sori spreading along veins, often sunken in grooves on lamina, exindusiate but paraphysate; gametophyte dissected, ribbon-like and errose, sometimes bearing gemmae along the margin.

Only the genus Vittaria is known from the southeastern United States. The vittarioid ferns are a distinct and natural assemblage. It is believed that this family was derived from the same ancestral stock as the adiantoid and schzaeoid ferns, although the relationship to the other two groups is a distant one.

VITTARIA J. Smith

Large epiphytic ferns; fronds strap-like, leathery, veins meeting and running in two lines parallel to the margin of the frond; sori distributed in two strips, each along a vein, sunken into frond tissue and exindusiate; spores either bilaterial or tetrahedral, gametophytes dissected, ribbon-like, with little "chain-like" gemmae produced at lobe tips, these breaking off and giving rise to new gametophytes where they land. Type species: Vittaria lineata J. Smith, of the neo-tropics.

In the southern Appalachians, a species of Vittaria exists only as a gemmiferous gametophyte. Its correct generic identity was not elucidated until the 1960's (Wagner and Sharp 1963, Farrar 1967), but has been known to bryologists since the 1930's. A recent morphological and physiological study by Farrar (1978) suggests that the gametophyte is not conspecific with V. lineata J. Smith, but may represent a tropical American or a taxon which no longer produces a sporophyte.

ENUMERATION OF SPECIES

1. Vittaria sp. - Appalachian Gametophyte

The Appalachian gametophyte represents one of the most remarkable cases of reduction in vascular plants. Not only is the gametophyte the dominant phase of this organism, but it appears to have lost the ability to produce functional sporophytes entirely. Lacking spores, its sole means of dispersal are the chain-like gemmae it produces on the lobe tips of the prothallus. These break off and are transported to other suitable habitats. Scattered throughout Kentucky, it is restricted to moist, but not dripping sandstone "rock-houses" and crevices in both the eastern and western coal fields. It may be quite thick, forming mats in places tens of square centimeters in extent. The species may be dispersed locally by salamanders, especially the young hatchlings as they seek out territory of their own.

The distribution of the gametophyte in western Kentucky may turn out to be a valuable tool for interpretation of the extent of Mixed Mesophytic Appalachian species prior to the xero-thermic period some 20,000 years ago. This was the epoch of the greatest eastward extension of the prairies (leaving the "Prairie Peninsula" in its wake, as well as related but not identical Kentucky Big Barrens, (Transeau 1935). Widespread extirpation of such species took place except in locally favorable habitats, such as the deep sandstone gorges of the Dripping Springs Escarpment and along the rugged border of the western coal field. Coupled with mosses such as Tetraphis pellucida, Hookeria actifolia (with which the gametophyte is often associated), the Bryoxiphium norvegiaum, (generally in more dripping places), the gametophyte seems to be indicators of just such localities. In Hardin County, such gorges commonly harbor Tsuga canadensis, Ilex opaca, Kalmia latifolia, Carex plantaginea, Viola blanda, Medeola virginiana, Dodecatheon frenchii, Asplenium montanum, A. pinnatifidium, Dryopteris intermedia, and Lycopodium porophilum. In Edmonson County, in the center of the refugium, species such as Magnolia macrophylla, M. tripetala, Betula lutea, Viburnum acerifolium, Thalictrum clavatum, Silene ovata, Trichomanes boschianum, etc., may be added.

All but the Hardin, McCreary, Letcher, Wolfe, and Menifee County collections are after Farrar (pers. comm.). n = ?, West Virginia, Virginia, Tennessee, Ohio, south of glacial boundary. Also in North Carolina, South Carolina, Georgia, and Alabama. The Christian County, Kentucky station represents the western-most station so far discovered.

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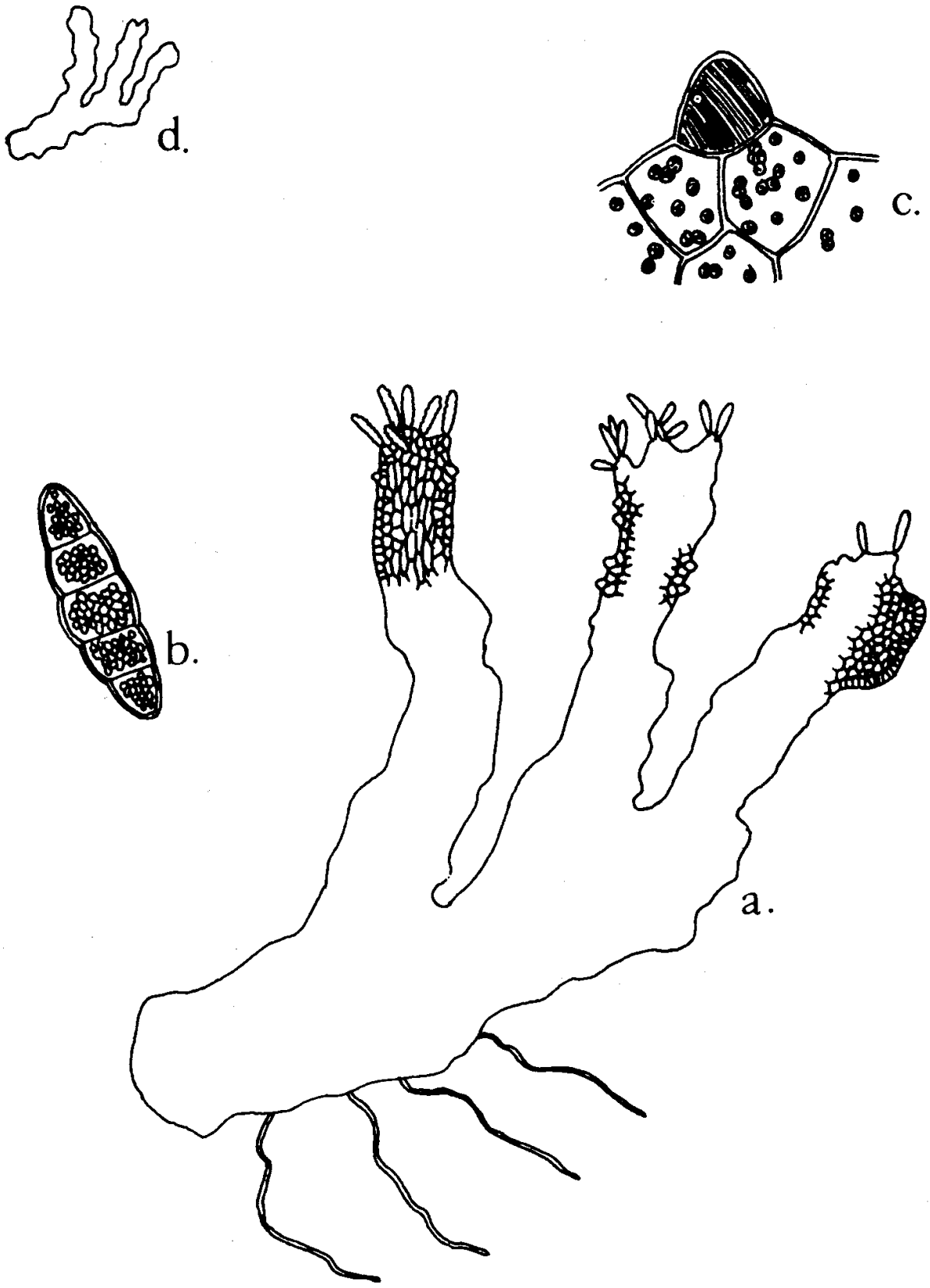

Vittaria sp. a. Habit, 6x. b. Gemma, 4x. c. Closeup of apical cell, lobe of gametophyte, 50x. d. Habit, 1x.

VITTARIA GAMETOPHYTES DISCOVERED IN A NEW PHYSIOGRAPHIC PROVINCE

Allison W. Cusick*

Since their recognition over 20 years ago, knowledge of the distribution and taxonomic affinities of the perennial **Vittaria** gametophytes found in the eastern United States has expanded greatly. Once thought to be extremely rare and local, they now are known to be common in selected habitats over a broad region of the Appalachians. Farrar (1978) summarized the history of this taxon and presented a map of its distribution as then understood. **Vittaria** gametophytes have been discovered in the unglaciated Appalachian Plateau, Blue Ridge, Ridge and Valley, and Upland Piedmont provinces, all uplifted bedrock areas which presumably have been in continuous existence since Tertiary times. Farrar et al. (1983) discussed these recent finds and reported the gametophytes from sites in Ohio and Pennsylvania near the limits of Pleistocene glaciation. This article describes the presence of **Vittaria** gametophytes beyond these limits. This unusual fern now has been discovered on the glaciated Appalachian Plateau nearly 90 km north of the southern limit of Wisconsinan glaciation. This also is the first report of Vittaria gametophytes from the watershed of the Great Lakes.

The **Vittaria** gametophytes were found 10 June 1982 on Little Mountain, Geauga and Lake counties, Ohio, on property of the Holden Arboretum, Mentor, Ohio (Fig. 1). Accompanying the author were Brian Parsons and Thomas Yates, field naturalists of the Arboretum, and Robert McCance of the Division of Natural Areas and Preserves, Ohio Department of Natural Resources. To say that we were surprised by this discovery would be an understatement. Only a small collection was made at this time (Cusick 21673, ISC). The author revisited the site on 24 August, searching more thoroughly for gametophytes, and again preparing a voucher (Cusick 22000, OS). Colonies of **Vittaria** were found to occur discontinuously in a linear band over approximately 0.5 km of the slope of Little Mountain. Identity of the gametophytes was verified by Dr. Donald R. Farrar of Iowa State University.

The site of this discovery is an extraordinary area not at all typical of glaciated Ohio and a habitat highly suitable for the growth of **Vittaria**. Little Mountain is at the extreme edge of the glaciated Appalachian Plateau, being one of the localized bedrock exposures that mark the escarpment between the elevated Plateau and the Lake Plains of the Central Interior Lowlands province. The mountain is shaped

*Division of Natural Areas and Preserves, Ohio Department of Natural Resources. Fountain Square. Columbus, Ohio 43224.

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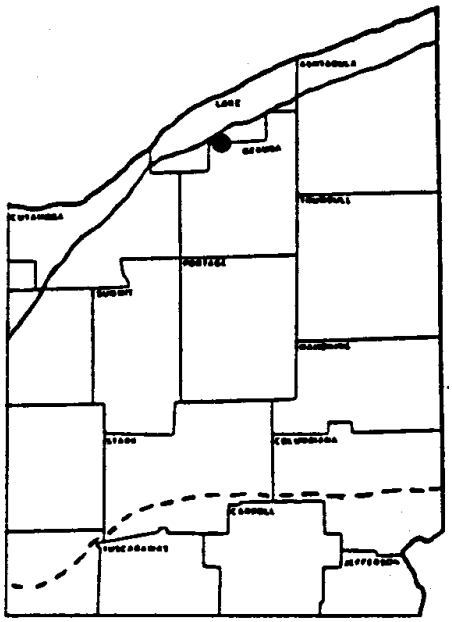

FIG. 1. The northeastern quarter of Ohio. Solid line indicates the northern limit of the glaciated Appalachian Plateau; dashed line, the southern limit of Wisconsinan glaciation. Solid dot is location of Little Mountain.

roughly like a dumbbell, oriented north to south, with knobs at either end. The northern knob rises to 380 m, the southern knob to 386 m. Between these summits is a flattened saddle only slightly lower in elevation. The northern knob lies partly in Concord Township, Lake County, while the bulk of the mountain is in Chardon Township, Geauga County. The shoreline of Lake Erie is only 6.5 km north of the mountain. The approximate mean elevation of the lake at that point is 174 m. Thus, there is a difference in elevation of 206 m between the mountain and Lake Erie (U.S. Geological Survey, 1970).

This dramatic change in elevation between lake and summit has a significant effect on local weather patterns. Winds moving south across Lake Erie pick up moisture which is quickly lost once this escarpment is reached. In the lee of these summits, then, is the locally-famous "snow belt" of northeastern Ohio. This local phenomenon is clearly shown on the snowfall map in Gordon (1969) on which the side of Little Mountain may be seen in the pattern of isopleths. Snowfall in the Little Mountain region averages nearly 3 m yearly, far in excess of Ohio's annual average snowfall of about 1 m.

The summits of Little Mountain and the other elevations at the edge of the glaciated Appalachian Plateau in Ohio are capped by the Sharon Conglomerate formation of the Pottsville group of the Pennsylvania System of sedimentary rocks. Throughout northeastern Ohio, the Sharon Conglomerate is noted for the formation of massive cliff faces, rock shelters, and slump blocks (Rau, 1970). The designation "conglomerate"

is somewhat misleading. Pebble size is extremely variable, ranging from about 1 mm to 5 cm, and occasionally even larger (Heimlich et al., 1970). There may be abrupt lateral gradation in pebble size, a feature strikingly evident on Little Mountain. Coogan et al. (1974) map two prominent belts of Sharon Conglomerate notable for large pebbles, one belt of which terminates at Little Mountain. About 90% of the pebbles are milky quartz, with limonite as the usual cement. Differential weathering of this cement results often in honeycomb patterns in the cliff faces (Heimlich et al., 1970).

At the base of the Sharon formation lies a major disconformity with the Meadville Shale of the Cuyahoga group of Mississippian age sediments. This disconformity is responsible for two phenomena which contribute to the habitat supporting the populations of **Vittaria**, namely, the origination of springs and the formation of slump blocks. The Sharon Conglomerate is highly permeable, whereas the underlying shale is relatively impervious. This disconfomity, then, is marked by a zone of seeps and springs (Heimlich et al., 1970; Rau, 1970). The jointed conglomerate tends to slip along this lubricated shale surface, splitting the rock, which slowly moves downslopes. On Little Mountain this joint-controlled slippage forms a picturesque and complex system of blocks and chasms ranging from 1 to 3 m wide, occasionally narrower, 10 to 15 m deep, and often as long as 50 m (Aronson, 1974).

The springs which flow from the disconformity on Little Mountain are exceptional in that they average 8-9°C year-round (Parsons, pers. comm.). This cold temperature allied with the depth and narrowness of the fissures on the mountain permits snow and ice to persist long into the warmer months. The writer noted the remains of ice on 10 June 1982. Even in mid-summer one's breath condenses before one's face while walking through the chasms on the mountainside. The environment within the crevasses of Little Mountain conforms in every particular to the ecological requirements of **Vittaria** as outlined by Farrar (1978, p.4): "a low light intensity of 100 ft-c or less, relatively high humidity, and protection from temperature extremes ... overhanging rock outcrops, dense forest canopy, and nearness to running water."

Floristically, Little Mountain is a part of the White Pine-Hemlock-Northern Hardwoods community (Braun, 1950), a forest association of very limited occurrence in Ohio. The first botanist to visit the mountain may have been John L. Riddell, who collected several species from this "pine-clad, rubblestone knob" (Riddell, 1836, p. 567). Read (1873a, b) listed the major forest trees of the mountain, particularly noting the Hemlock (**Tsuga canadensis** (L.) Carr.) and White Pine (**Pinus strobus** L.) on the northern end of the mountain, the extensive growth of American Chestnut (**Castanea dentata** (Marash.) Borkh.) throughout the summit, and "Rock Oak" (**Quercus prinus** L.) on the southern knob. All these

species are yet extant on the mountain, although the chestnut is represented only by fallen, dead trees and root sprouts. Ferris (1887) presented an extensive list of vascular species for the mountain. While his list contains some obvious inaccuracies, it also provides further evidence that most of the herbaceous and woody species found on Little Mountain in the past still grow there today and that the original vegetation conformed to Braun's concept of the White Pine- Hemlock-Northern Hardwoods community.

In most of its known range, the **Vittaria** gametophyte seems associated with the Mixed Mesophytic forest as defined by Braun (1950). This is the case, for instance, with other known Ohio populations. However, the Warren County, Pennsylvania station (Farrar et al., 1983), like Little Mountain, is within the White Pine-Hemlock-Northern Hardwoods floristic province. The occurrence of **Vittaria** gametophytes probably is more closely related to appropriate physical and geological setting then to floristic province.

Little Mountain was a prominent landmark to the first settlers of northeastern Ohio. As early as 1831, a hotel was built on the mountaintop, and within the following 50 years Little Mountain became a celebrated resort. At least three hotels were built on the summit, together with a complex of summer cottages, gazebos, churches, schoolhouses, and bowling alleys. The largest and best-known of the hotels, the Pinecrest, built in the late 1880's featured a Western Union telegraph line and a post office. The cool springs also induced developers to advertise water cures for "invalids." Guests clambered through the chasms on sweltering summer days, enjoyed the cool breezes through the white pines, and gazed at the dramatic view of Lake Erie from the northern knob. It was fashionable to carve one's name on the conglomerate in the "Devil's Kitchen," as one large grotto was dubbed. Many of these graffiti are still legible today, a sort of permanent guest register. The resort era ended by 1920 and the Pinecrest hotel was torn down in 1941. Little Mountain ceased to be the playground of the public and instead became the private preserve of the Little Mountain Club, an elite group of wealthy Clevelanders (Ahlstrom, 1961; Ferris, 1887). The mountain could then recover from the years of wanton vandalism. The present composition of the vegetation and the beautiful stand of mature White Pine are tributes to the ability of plant communities to survive and recover from severe disturbance. Other than the graffiti on the rocks, now largely cloaked by bryophytes, the most notable evidence of the former resort is the abundance of **Vinca minor** L. on the mountaintop.

Little of the disturbance described above would have had a direct affect on the **Vittaria** population. However, it is difficult to be certain how common or widespread the gametophytes might have been prior to the time of the hotels. Today, the **Vittaria**, although occurring

over a considerable linear area of the mountainside, grows in isolated pockets, often only a few square cm in extent, on the walls of the darkest and narrowest of the crevasses formed in the Sharon Conglomerate. The plants do not form great mats of vegetation covering entire rock faces as described by Farrar (1978) or as observed by the author in the Hocking Hills of southeastern Ohio. An occasional colony of the gametophytes occurs in the cast left by the fall of a particularly large quartz pebble. Most often the plants grow in recesses or narrow clefts formed in zones of finer pebble size. The plants definitely are less frequent in the areas of coarser pebbles.

Since this population of **Vittaria** gametophytes is the first reported from glaciated regions, it is interesting to speculate on the mode of introduction of the species to Little Mountain. In this regard, it must be clearly stated that Little Mountain was not a nunatak. Read (1873b) found granite boulders on the mountaintop and White (1980, 1982) maps thin layers of Hiram Till of Wisconsinan age over even the highest summits of the limits of the Appalachian Plateau in Ohio. Clearly, Little Mountain was not a refugium on which individuals of **Vittaria** could have survived glaciation.

The means of dispersal of this species, even in the heart of its range, is little understood. Although **Vittaria** gametophytes prolifically produce vegetative gemmae, there seems to be no obvious mechanical means for transporting these gemmae across the 90 km gap between Little Mountain and the nearest limit of the Wisconsinan ice. It seems unlikely that the few-celled gemmae could survive wind-borne dispersal over such a distance without fatal desiccation. Also, it is difficult to understand how wind currents can lift these gemmae from the sheltered grottos and canyons in which they occur and convey them into the upper air. A possibility, which seems highly unlikely at least to this writer, is that the plants were introduced by an animal or human visitor who had accidently picked up the gemmae in southeastern Ohio only a short time before.

Both Farrar and this writer have found **Vittaria** gametophytes at the limit of Wisconsinan glaciation in Fairfield County, Ohio, yet have failed to locate the species in similar habitats and on the same rock strata in areas only a few kilometers beyond the glacial boundary in other Ohio counties. Farrar's two western Pennsylvania stations for **Vittaria** gametophytes are located in Lawrence and Warren counties. The Lawrence County site is about 80 km southeast of Little Mountain and is located just north of the Illinoian glacial limit and south of the Wisconsinan boundary. The Warren County population is about 160 km east-northeast of Little Mountain and is directly south of the Illinoian limit. Al present, the Warren County station is the northernmost known occurrence of these gametophytes (Farrar et al., 1983).

It is probably useless to speculate overmuch on the origin of the Little Mountain population of **Vittaria** until other, similar sites on the glaciated Appalachian Plateau of Ohio and nearby states are examined for this species. Appropriate habitats elsewhere in glaciated regions may well harbor populations of this gametophyte. Indeed, the perennial gametophyte of an as yet unknown species of **Trichomanes** has been found on the glaciated Appalachian Plateau from central Ohio to New Hampshire (Farrar et al., 1983; McAlpin et al., 1978). Perhaps this find of **Vittaria** should not come as such a surprise after all.

In glaciated Ohio, suitable habitats are very limited in extent and highly disburbed. If the case of Little Mountain is considered, however, disturbance which may have extirpated other types of vegetation may not have had so severe an effect on **Vittaria**. As of this writing, **Vittaria** gametophytes have not been found elsewhere in glaciated Ohio. But much field work remains to be done before any firm conclusions can be reached as to the true distribution of the gametophytes, either nationally or statewide. This find opens new realms for fern enthusiasts to explore.

The author is indebted to R. Henry Norweb, Jr., Director of the Holden Arboretum, for access to the Arboretum property and for permission to collect vouchers. Brian Parsons and Thomas Yates of the Arboretum staff have provided field assistance as well as access to unpublished data on Little Mountain and its history. The Arboretum and its staff should be congratulated for their commitment to the protection of natural areas. Mr. and Mrs. Hugh Pallister of Willoughby, Ohio, also have provided the author with information on the history of Little Mountain. My special thanks are owed to Dr. Donald R. Farrar of Iowa State University, Ames, Iowa, for verifying the identity of the **Vittaria** gametophytes, for his sharing of data, and for his encouragement. This research was supported by the Division of Natural Areas and Preserves, Ohio Department of Natural Resources.

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PROGRAMS AND FIELD TRIPS:

Saturday, November 16 - 2:00 - 4:00 p.m. Wilderness Nature Center: Hike in Secrist Woods at the Nature Center, a disturbed stand of mature timber.

Saturday, December 14 - 2:00 - 4:00 p.m. Wilderness Nature Center: The first hour will be the first of three sessions on identifying higher plant families, presented by Clinton Hobbs and others. The other two sessions will be in January and February. The second hour will be an illustrated talk on higher fungi of Ohio by C. W. Ellett of the Ohio State University.

Sunday, December 8 - 3:30 p.m. Cincinnati Wild Flower Preservation Society: Hike in Burnet Woods with Vic Soukup. **6:00 p.m.** Pot luck supper; **7:15 p.m.** - "Botanizing in Taiwan and Japan" given by Dr. Victor Soukup of the University of Cincinnati Herbarium.

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The Holden Arboretum has announced a weekend symposium for May 16-17, 1986 called **Plant Conservation Strategies: Options For The Future.** It will be held at Lakeland Community College and is co-sponsored by the Arboretum, Lakeland, and The Center for Plant Conservation. Their letter states: "The crisis of extinction has been well stated by many and great efforts are underway to halt the rampant destruction of habitat and individual plant species. This symposium will address the major national strategies for plant conservation and their regional status and implications. In addition, it will facilitate dialogue between proponents of each strategy and symposium participants so that a concerted effort can be made in this important endeavor."

While still in the planning stage, they have announced the following speakers: Dr. John Fay, Chief Botanist, U.S. Fish & Wildlife Service; Dr. Larry Morse, National Staff Botanist, The Nature Conservancy; Faith Campbell, Research Associate, National Resources Defense Council; and speakers as yet un-named on Habitat Protection and Restoration; Ex-Situ Species Preservation; and Legislation - Action and Opportunities.

More information will be available after the first of the year and we will keep you apprised. Mark your calendars now.

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AS REPORTED BY THE HOUSE AGRICULTURE AND NATURAL RESOURCES COMMITTEE
116th General Assembly Regular Session 1985-86 H.B. No. 76

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A BILL - Enact section 927.682 of the Revised Code to prohibit the sales, offering for sale, and planting of purple loosestrife plants and seed.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF OHIO:

Section 1. That section 927.682 of the Revised Code be enacted to read as follows:

Sec. 927.682. NO PERSONAL AND NO POLITICAL SUBDIVISION, AGENCY, DEPARTMENT, OR INSTRUMENTALITY OF THE STATE SHALL, SELL OFFER FOR SALE, OR PLANT PURPLE LOOSESTRIFE (LYTHRUM SALICARIA) PLANTS OR SEED IN THIS STATE WITHOUT A PERMIT ISSUED BY THE DIRECTOR OF AGRICULTURE. THE DIRECTOR MAY ISSUE PERMITS TO PLANT PURPLE LOOSESTRIFE FOR USE IN CONTROLLED EXPERIMENTS.

The case for an against Lythrum salicaria, commonly known as Purple Loosestrife.

PROS: Ornamental, herbal, nectar for bees

CONS: 1a) Effects on native wetlands

- crowds out all other species in wetlands - reducing habitat for rare native species;
- reduces diversity of life forms that can thrive in a given wetland;
- results in loss of food species and habitat for waterfowl;
- results in habitat loss for several other wetland vertebrates (well documented in the literature) such as the bog turtle:

b) Effects on agriculture

- results in declining productivity of wet pastures and hay meadows;
- results in loss of productivity in cultivated rice fields.

2. Extraordinary reproductive capability

- produces up to 1000 seeds per plant;

- seeds highly viable (up to 92% viability after 20 months submergence);
- seeds readily dispersible by wind, can float great distances before submergence, and dispersed readily by animals;
- seeds remain viable for several years;
- reproduce viable seed within 8-10 weeks of germination;
- reproduces from fragments of cut stems, muskrat or mechanical clippings.

3. Long lived perennial, that tolerates extremely variable environmental conditions.

4. Extraordinarily difficult to eradicate.

5. Hundreds of thousands of dollars required to eradicate it from unwanted areas.

6. Millions of dollars of wetlands purchased by wildlife organizations to preserve favorable habitat for aquatic species may be rendered useless to these because of loosestrife invasion.

Purple loosestrife (Lythrum salicaria), an introduced perennial plant from Europe, is rapidly spreading throughout Ohio's landscape. Once established, the plant is extremely hardy. Its adaptability to a wide range of conditions, extraordinary reproductive capacity and prolific growth rate give it a competitive advantage over our native moist soil plants. Consequently, many of our natural wetland areas (once having a wide variety of plants) are now dominated by purple loosestrife, and other wetland areas are being threatened by its invasion. The loss of plant diversity in a marsh is eventually followed by a decrease in the type and numbers of wildlife using these areas. Because of its significant adverse impact on our valuable wetland areas, the purple loosestrife problem in Ohio demands our immediate attention.

There is legislation currently being introduced in the Ohio Senate which bans the sale of purple loosestrife in this state. If you love Ohio's native wetland plants, please support this legislation. Send your letter of endorsement for H.B. No. 76 to the Chairman of the Ohio Senate Agricultural Committee, Senator Ben Gaeth, (R), State House, Columbus, Ohio 43216.

NOTICE ON NEWSLETTER SUBSCRIPTION FOR STATE MEMBERS

With members around the state transferring their membership from the Northeast Chapter to their local chapters, it should be noted that they will cease to receive the newsletter. Therefore, in order to continue to receive the newsletter, subscriptions are available at the rate of $7.50 per year. Send check made payable to: Native Plant Society, 6 Louise Drive, Chagrin Falls, Ohio 44022.

PLACES TO GO

One of our articles last month was on the Oak Openings. It is a 3,650 acre Preserve of the Toledo MetroParks, and is truly a nature lover's paradise. Lying completely within a geologic area known as the Oak Openings Sandbelt, the park offers an unusually large number of habitats in a relatively small area. This situation results in large varieties of plant and animal life including many rare wildflowers. Within the park's boundaries, Ohio's only "living" or moving sand dunes are preserved.

Close to Oak Openings is Secor MetroPark. This area has plant and animal life typical of both heavy clay and light sandy soil. A 200 acre arboretum stands next to 400 acres preserved as woodland and meadow. There is also an excellent planted prairie at Secor.

Secor Nature Center is on Central Avenue about three miles west of Route 475. Oak Openings is about two miles south of I-80 on State Route 295. This is a nice day trip.

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This office is in personal communication with Lady Bird Johnson, founder of the National Wildflower Research Center. I quote: "We are indeed workers in the same vineyard and I send cheers and warmest wishes to you and all your members." She has offered to send us, for a meeting, her slide show for the NWRC with her voice over on narration. In addition, we have invited her to preside at the 1986 Annual Dinner, but because of her age she is reluctant to accept at this point. More on that later. She has done so much on the national scene towards preservation and beautification, and we are fortunate to have her support.

MAN HAS NATURE ON THE BRINK by Ron Haybron

I just completed a list of some of the species of trees, birds and animals to be found in our woods. I counted 15 types of trees, 15 or more species of birds and 10 large vertebrates, including raccoons, and three varieties of squirrels. If I were to inventory insects, worms and small plants, the number of organisms to be found in this one-acre plot would be much higher.

E.O. Wilson, the curator in entomology at Harvard's Museum of Comparative Zoology, writes about a species, "It is a unique population of organisms, the terminus of a lineage that split off from the closely related species thousands or even millions of years ago. It has been hammered and shaped into its present form by mutations and natural selection, during which certain genetic combinations survived and reproduced."

The amount of genetic information stored by complex creatures such as vertebrates is enormous. The orginary house mouse has, in each of its cells, four strings of DNA, each bearing about 100,000 genes. Translated into text, this information would fill all the editions of Encyclopedia Britannica published since 1768. Scientists have formally identified and named about 1.7 million species--440,000 are plants, 47,000 are vertebrates and more than 750,000 are insects, with the remainder an assortment of invertebrates and microorganisms.

But the true number of organisms living in the world is unknown, and certainly much larger than the official total. Some estimates put just the number of insect species at 30 million. Of these huge numbers, most live in the tropical rain forests which gird the Earth's midsection, where scientists have barely begun the task of identifying and describing all the living things.

These forests cover 10% of the world's land surface and harbor more than half of all the species. In prehistoric times, their total area has been estimated at five million square miles. At present, that figure has been reduced to 3½ million, and forests are being cleared at the rate of 25,000 square miles a year, an area the size of West Virginia.

The biological diversity exhibited by these forests makes my yard a desert by comparison. In one 25-acre portion of the rain forest in Borneo, 700 species of trees were identified; there are only about that many kinds of trees in all of North America. On one hectare (2.5 acres) of forest in the Amazon River basin were found 258 species of butterflies, with a projected 500 actually present.

This brisk rate at which the tropical forests are being cleared is

due to burgeoning human populations and the expansion of agriculture. Since 1950, the world population has doubled, with 85 million added in the last year alone--two thirds of them in the tropics. By 2000, the United Nations predicts, a 60% increase in food production will be needed and that will mean more forests will vanish.

And as the forest vanish, so will species. A biogeographer's rule of thumb is that when a habitat area is reduced to 10% of the original, half the species present will be unable to survive long-term. Quoting Harvard's Wilson again, "...thousands of species are being extinguished each year before they've even received a scientific name."

For scientists, the loss is first an erasure of an irreplaceable store of evolutionary information. Increasingly, we view the biological world as a vast, continuous tapestry. But lose too much and the overall pattern may never be discerned.

And there is a utilitarian reason for being concerned about so many species being driven into extinction due to loss of habitat--their potential usefulness.

For example, in all of history, 7,000 kinds of plants have been collected or cultivated for food. Of this number, 20 species currently provide 90% of the world's food. Wheat, maize and rice account for half of the total. This puts our food supply at risk to some species-specific blight, such as the disease which wiped out elm trees in America a generation ago.

The tropical forests contain tens of thousands of species of plants that are edible and could be developed to supply food. Other plants yield pharmeceuticals, all kinds of lumber and fibers and excellent, endlessly renewable substitutes for petroleum. In addition, the vast numbers of insects, known and unknown, surely contain candidates which could serve as pollinators, controls for weeds and predators of insect pests.

Human activities have produced a rate of extinction which is about 400 times that of our recent geologic past, and the pace is rapidly increasing. If nothing halts this progression, the accompanying reduction of biological diversity will rival that of the great waves of extinction which periodically sweep the globe. In short, we may be the worst thing that has happened to the world since the extinction of the dinosaurs.

This article was reprinted from the Plain Dealer, October 15, 1985.

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Dr. Peter Raven, Director of Missouri Botanical Gardens, will be our Annual Dinner speaker December 1986. He is the world's expert on extinction of species.

NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO

Founding Chapter Of

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Memberships are **DUE FOR RENEWAL** on January 1, 1986. Please continue to support your Society and renew at the **highest** possible category. Those of you who send us Sustaining and Patron memberships are enabling us to go on with our worthwhile projects. An active membership just about pays for the newsletter costs. However, economics aside, we need **EACH** of your memberships, and each year we get stronger and better. The 1986 Program and Field Trips schedule will be well worthwhile.

Please enroll me as a member of the NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO.

☐ ACTIVE.....$ 7.50
☐ FAMILY $15.00
☐ SUSTAINING ...$25.00
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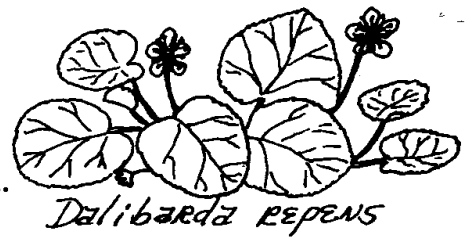

Membership runs from January through December and is not pro-rated.

Make checks payable to: NATIVE PLANT SOCIETY
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