

**A STUDY OF THE FAMILY ERICACEAE**

**OF THE DOUGLAS LAKE REGION, MICHIGAN**

**BY**

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A Study of the Family Ericaceae  
of the Douglas Lake Region, Michigan

Introduction

This paper is the result of a study of the Ericaceae of the Douglas Lake Region, Cheboygan and Emmet Counties, Michigan.

The chief purpose of the work was to obtain information concerning as many species of the family in as many areas as possible during the summer session of 1941 at the Biological Station of the University of Michigan.

As the Ericaceae grow principally in acid soils, the Biological Station offers an excellent opportunity for the study of this family since within a radius of ten miles are found twelve or more bog areas in various stages of vegetational development. A general survey of eleven areas in the Douglas Lake Region was made and specimens were collected. The herbarium at the Station and Gray's New Manual of Botany, 7th Edition, were used for identification, arrangement, and nomenclature.

This family contributes many plants of great ornamental value as well as several used both cultivated and in the wild state for their edible fruits. The rhododendrons and

the azaleas are among the most beautiful ornamental plants, although none of them occur naturally in Michigan. Calluna and Kalmia are also highly prized for their beautiful flowers and foliage. The blueberries, huckleberries, and cranberries have great economic value. In Michigan, the generally calcareous soils, or limestone underlying acid soils, prevents the cultivation of cranberries, although wild ones occasionally reach the market. Blueberries are important staple wild crop, however, in the more barren parts of the state.

## Discussion

The Ericaceae are a large group of about 90 genera and 1350 to 1400 species of very wide geographical distribution, especially in the relatively cool climates.

The Ericaceae of the Douglas Lake Region are mostly shrubs or subshrubs, rarely herbs, with simple alternate, opposite or whorled leaves which are usually stiff, leathery and evergreen. The flowers are regular, solitary or in terminal or axillary racemes or panicles. The corolla consists of 4-5 petals either separate or united, attached below a fleshy disc. Stamens are as many or twice as many as the petals or corolla lobes. The filaments are free. The superior or inferior, 3-10 celled, ovary has one style with a headlike stigma.

The grouping of species varies with different authors. In Gray's Manual, the Ericaceae are divided into four subfamilies, as follows: Pyroloideae, Monotropeae, Ericoideae, and Vaccinoideae. These subfamilies are raised to the rank of family by other authors. For example, Britton and Brown's "Illustrated Flora of Northern United States and Canada" recognizes the five following families: Clethraceae, Pyrolaceae, Monotropaceae, Ericaceae, and Vacciniaceae; while in Rydberg's "Flora of the Prairies and Plains of

Central North America" appear the four following families:

Pyrolaceae, Monotropaceae, Ericaceae, and Vacciniaceae.

No matter what rank these groups are given, they are separated on the position of the ovary, whether superior or inferior, and the condition of the corolla, whether polypetalous or gamopetalous.

## KEY TO SPECIES

- 1. Plants white or brown, never green, saprophytic. --2
- 1. Plants green, living independently. --4
- 2. Flowers solitary. Monotropa uniflora
- 2. Flowers clustered. --3
- 3. Petals united into a bell-shaped corolla;  
Plants 3-9 dm. high. Pterospera andromeda
- 3. Petals separate; plants 1-3 dm. high Monotropa hypopitys
- 4. Plants consisting of a rosette of basal leaves  
above which an erect scape bears one or more  
flowers. --5
- 4. Plants woody at least in lower parts, con-  
sisting of leafy branches. --13
- 5. Flowers solitary. Moneses uniflora
- 5. Flowers clustered. --6
- 6. Inflorescence umbel-like. Chimaphila umbellata
- 6. Inflorescence clearly a raceme. (Pyrola) --7
- 7. Style straight. --8
- 7. Style curved downward. --9
- 8. Flower cluster one sided. Pyrola secunda
- 8. Flower cluster not one sided. Pyrola minor

9. Flowers pink or rose color. Pyrola asarifolia
9. Flowers greenish white. --11
10. Veins on upper surface, conspicuously reticulate, silvery white. Pyrola americana
10. Veins inconspicuous not silvery white. --11
11. Leaves thin and dull; calyx lobes ovate. Pyrola chlorantha
11. Leaves thick and dull; calyx lobes acute. Pyrola elliptica
12. Leaves whorled. Chimophila umbellata
12. Leaves not whorled. --13
13. Leaves opposite. (Kalmia) --14
13. Leaves alternate. --15
14. Branches and twigs cylindrical; flower clusters lateral. Kalmia angustifolia
14. Branches and twigs 2-angled; flower cluster terminal. Kalmia Polifolia
15. Plants creeping, often vine-like. --16
15. Plants erect, not obviously vine-like. --20
16. Leaves large, reaching 7 cm. in length. Epigaea repens
16. Leaves small, never reaching more than 1 cm. in length. --17
17. Leaves spatulate; edges not rolled under bearing white hairs. Arctostaphylos uva-ursi
17. Leaves lanceolate or rounded, not spatulate; edges rolled under, not pubescent. --18

18. Leaves round, bearing scattered dark hairs,  
especially beneath. Chloogones hispidula
18. Leaves lanceolate, without hairs. --19
19. Leaves acute, whitish beneath; fruit 6-8 mm in  
diameter. Vaccinium oxycoccos
19. Leaves blunt or rounded at tip, pale  
beneath; fruit 10-30 mm in diameter. Vaccinium macrocarpon
20. Leaves only at apex of the stem, with  
strong odor of methyl salicylate  
(winter green) when crushed. Gaultheria procumbens
20. Stems leafy throughout, leaves  
not aromatic. --21
21. Leaves nearly linear, edges strongly  
rolled under. (Andromeda) --22
21. Leaves lanceolate or broader; edges  
less strongly rolled. --23
22. Leaves glaucous beneath, without hairs;  
fruit on erect pedicels. Andromeda polifolia
22. Leaves pubescent beneath; fruit on  
curved pedicels. Andromeda glaucophylla
23. Under surface of leaf covered with  
rusty resinous scales, like fish  
scales. Chamaedaphne calyculata
23. Under surface of leaf lacking  
resinous scales. --24
24. Under surface of leaf covered with  
white or brown wool. Ledum groenlandicum
24. Under surface of leaf without wool  
although sometimes pubescent. --25

25. Both leaf surfaces glabrous, but with scattered honey-colored droplets. Gaylussacia baccata
25. Leaf surfaces without honey-colored droplets. --26
26. Leaves spatulate, fruit red. Arctostaphylos uva-ursi
26. Leaves not spatulate; fruit blue. --27
27. Leaves entire, pubescent. Vaccinium canadense
27. Leaves serrulate with bristles on margin, glabrous. Vaccinium pennsylvanicum

An Annotated List of Ericaceae  
of the Douglas Lake Region

*Andromeda glaucophylla* Link.

This species was not collected during the summer of 1941. However, there are three specimens in the Biological Station herbarium with the following data: "Bryant's, July 10, 1912," M. Robertson; "Marsh near Alanson, Aug. 7, 1921" J. H. Ehlers; and "Border of Vincent Lake, Aug. 2, 1921."

*Andromeda polifolia* L.

Found in open bogs, usually with *Chamaedaphne*. The leaves are linear with a blueish-green color. This specimen was collected in Mud Lake Bog, Cheboygan County. Herbarium specimens have been collected at "O'Neal Lake, July 5, 1932," "Bryant's Bog, July 10, 1912."

*Arctostaphylos uva-ursi* (L) Spreng.

This is a shrubby plant whose stems either trail over the ground or are erect. It is found in dry, sandy, barren places especially with pines. Collected at North Fishtail Bay, and woods just east of the Biological Station, Douglas Lake, Cheboygan County and Cecil Bay, Emmet County. There are Herbarium specimens from "Jack Pines Plains, Indian River, June 9, 1926," J. H. Ehlers (3320); "Beach in front of Ladyville, July 26, 1912," M. Robertson; "South of Burt Lake, Aug. 27, 1920;" all in Cheboygan County.

*Chamaedaphne calyculata* (L) Moench.

This shrub which is found in open bogs is usually the first woody plant to appear at the edge of a bog lake. The leaves have resinous scales on lower surface. Collections were made at Mud Lake Bog, East Lake, Cheboygan County and Little Lake 16, Presque Isle County. Herbarium specimens were collected at "Bryant's Bog, July 18, 1912," Cheboygan County, M. Robertson. "Livingston's Bog, July 19, 1930," J. H. Ehlers.

*Chimaphila umbellata* (L) Nutt.

Commonly found in open woods. The flowers are pink with violet-colored anthers. Specimens were collected in open woods near Bryant's Bog, The Gorge, Grape Vine Point, Cheboygan County. "Sandy Rim of the Gorge, July 29, 1909, Cheboygan County," F. Hooper and F. A. Loew.

*Chiogetes hispidula* (L) Fraud G.

A small trailing plant found, under Thuja in bogs. The leaves are small and rounded, although pointed at the tip, and have brownish hairs. The fruit is a snowy white berry. This species was collected at Mud Lake, Reese's Bog and Bryant's Bog, Cheboygan County. Herbarium specimens collected in "Bog near Old Saw Mill on Burt Lake, July 25, 1912," M. Robertson. "Stony Soil, Burt Lake, Aug. 1, 1917," J. H. Ehlers (589.)

*Epigaea repens* L.

A trailing plant found in open, dry, sandy or rocky woods. On the petals and under surface of the leaf are long rusty hairs. Collections were made at Reese's Bog (Burt Lake) west of the road and in the Aspens east of The Biological Station, Douglas Lake, Cheboygan County. Herbarium specimens were collected in "The Gorge, July 20, 1912," M. Robertson (636).

*Gaultheria procumbens* L.

The leaves of this short shrub when crushed have the odor of winter green. The bright red berry-like fruit is edible. This species is common in the Aspens and open woods, and seems to be always associated with Pteris. Although it is exceedingly common in our region, a single specimen was collected at the station just west of The Biological Station, Douglas Lake, Cheboygan County. There are Herbarium specimens collected in "Aspen Association, July 20, 1915, Cheboygan County," E. W. B. Chase.

*Gaylussacia baccata* (Wang) C. Koch.

The huckleberry is found in dry, open woods, usually associated with Vaccinium canadensis and Vaccinium pennsylvanicum. The leaves have resinous globules on both surfaces. Which renders the identification simple and rapid. Collections were made at Mud Lake, North Fish-tail Bay, Cheboygan County. There are Herbarium specimens from "Livingston's Bog, July 19, 1930," "Bryant's Bog, Aug. 14, 1912," Cheboygan County.

*Kalmia angustifolium* L.

This species was not collected during the summer of 1941. However, there are three specimens in the Station Herbarium with the following data: (1) "Cedar Swamp U. S. 27 South of Grayling Crawford County, June 23, 1931." J. H. Ehlers (4786); (2) "Bog along Carp Creek, west side, North of Bridge, June 28, 1933," J. H. Ehlers (5254); (3) Riggsville Bog, Cheboygan County, July 2, 1926, J. H. Ehlers (3417)

*Kalmia polifolia* Wang.

This species is found in open bogs associated with Chamaedaphne and Andromeda, and is immediately distinguished from both of them by its opposite leaves, which are glossy on the upper surface and glaucous beneath. The midrib of the leaf usually appears whitish. This species was collected at Mud Lake, Cheboygan County. There are herbarium specimens from "Bryant's Bog, July 18, 1915" E. W. Chase; "Livingston's Bog, July 19, 1930."

*Ledum groenlandicum* Oeder.

Commonly found in swampy woods and wooded bogs. The brown wool on the lower surface of the leaf blade is characteristic. The collections were made in Reese's Bog and Mud Lake, Cheboygan County. Herbarium specimens were collected in "Livingston's Bog, July 19, 1930."

*Moneses uniflora* (L) Gray.

This little plant is always found in Thuja bogs among Sphagnum. It has one fragrant white flower and resembles a Pyrola. Collections of this species were made in Reese's Bog, Cheboygan County. There are herbarium specimens from "Coniferous Woods south of Cross Village, Emmet County, Aug. 10, 1924." J. H. Ehlers (3053)

*Monotropa Hypopitys* L.

A saprophytic plant common in Aspens and Pines which may appear in any woods where vegetative material is decaying. The plants are yellowish-brown. This specimen was collected in Reese's Bog, west of the road. There are herbarium specimens from "Thuja Bog, Burt Lake, Aug. 16, 1916." J. H. Ehlers. "Moist Woods on Burt Lake, Aug. 12, 1909." Cheboygan County, F. A. Loew.

*Pterospera Andromedia* Nutt.

This rusty-reddish plant is a parasite on the roots of pines. The specimen was collected in Wilderness Park, Emmet County. Herbarium specimens were collected on "The Rock Ridges under the Red Pine trees near Big Stone Bay, Aug. 1, 1924." Emmet County. J. H. Ehlers (3024)

*Pyrola asarifolia* Michx.

The leaves are shining and the flowers are pinkish to rose-color, very fragrant. This pyrola is common in the woods and in swampy places. Collections were made in Reese's Bog, the Gorge, and Mud Lake.

*Pyrola asarifolia* Var. *incarnata* (Fisch) Fernald.

This species was not collected during the summer of 1941. However, there are two specimens in the Biological Station Herbarium with the following data: (1) "Sandy Soil, cut over Hardwoods, July 26, 1917," J. H. Ehlers (552) (2) "Reese's Bog, July 2, 1912," Maude Robertson.

*Pyrola americana* Sweet.

Found in rich moist places such as Thuja woods. The leaves are thick and shining with whitish-silvery veins on the upper surface. The flowers are very fragrant. This species was collected at North Fishtail Bay, Cheboygan County. Herbarium specimens were collected from "Beech-Maple Association, Carp Creek Gorge, July 9, 1920," Cheboygan County, J. H. Ehlers (989)

*Pyrola chlorantha* Sw.

This species was not collected during the summer of 1941. Several specimens are in the Biological Station Herbarium with the following data: (1) "Dry Woods near Cecil Bay, July 24, 1920" Emmet County, J. H. Ehlers; (1048) (2) "The Gorge, July 12, 1912," Cheboygan County, M. Robertson; (3) "Open Woods near Cardwood Point, Sec. 21," Benton Twp. Cheboygan County, J. H. Ehlers (5620) (4) "Coniferous Woods Big Stone Bay, July 29, 1922." J. H. Ehlers (2140) (5) "Dry Woods near Cecil Bay, July 24, 1920," Emmet County, J. H. Ehlers (1048)

*Pyrola elliptica* Nutt.

This species which has definitely elliptical leaves was collected in the dry woods near Bryant's Bog and North Fishtail Bay, Cheboygan County. Herbarium specimens were collected in "Beach-Maple Woods, Northeast of North Fishtail Bay, July 29, 1912," M. Robertson; "Grape Vine Point, July 15, 1912," Cheboygan County, M. Robertson; "Reese's Bog, July 16, 1925" Cheboygan County, Ethel B. Finster; "Dry Woods near Lancaster Lake, July 10, 1912," Cheboygan County, M. Robertson.

*Pyrola minor* L.

This species has been reported from the Upper Peninsula of Michigan but has not yet been collected in the Douglas Lake Region. However, it will undoubtedly turn up here, eventually, and a special report should be made for it.

*Pyrola secunda* L.

This species is common growing at the edges of mossy bogs. The one-sided flower cluster is characteristic of this species as are the mucronate leaves. Collections were made in Reese's Bog, and Bryant's Bog, Cheboygan County. Herbarium specimens were collected at "Grape Vine Point, Douglas Lake, July 7, 1928," Cheboygan County, M. Robertson; "East Point Bog, North Fishtail Bay, Aug. 7, 1912," Maude Robertson.

*Pyrola secunda* Var. *obtusata*.

This plant has only 3-8 flowers in a raceme. The leaves are more rounded and smaller than in *Pyrola secunda*. Specimens were collected in Reese's Bog, Cheboygan County. Herbarium specimens from "East Point Bog, North Fishtail Bay, Aug. 7, 1912," Cheboygan County. M. Robertson.

*Vaccinium canadense* Kalm.

Common on both lowlands and barren uplands of this region. The leaves and branchlets are pubescent. Collected in Mud Lake Bog, and on "The Hill" at the Biological Station, Cheboygan County. Herbarium specimens were collected in "Aspen Association, Aug. 3, 1912," M. Robertson; "Dry Sandy Soil near Douglas Lake, June 24, 1918," J. H. Ehlers. The above areas were in Cheboygan County.

**Vaccinium pennsylvanicum Lam.**

The leaves are not pubescent with serrulate bristled margins. Collections were made in Mud Lake Bog, North Fishtail Bay, and on "The Hill" back of "Manville," Biological Station, Cheboygan County. Herbarium specimens from "The Shore of South Fishtail Bay, Aug. 2, 1912," M. Robertson; "Aspen Association, June 20, 1927," J. H. Ehlers (315)

**Vaccinium oxycoccos L.**

A trailing plant with small pointed leaves which are glaucous beneath and slightly rolled under at the edges. It is characteristic of Sphagnum Bogs. Collections were made at Cecil Bay, Emmet County, and at Mud Lake Bog, Cheboygan County. Herbarium specimens were collected at "Reese's Bog, July 2, 1912," M. Robertson. "Sphagnum Bog 5 miles North of Douglas Lake, Aug. 3, 1909," F. A. Loew; "Bryant's Bog, July 18, 1912," Cheboygan County, M. Robertson.

**Vaccinium Macrocarpon Ait.**

This plant is similar to Vaccinium oxycoccos in growth form, except that the leaves are blunt at the tip. It is always associated with Sphagnum. This species was collected near Malone Lake, Emmet County and at Little Lake 16, Presque Isle County. It was also seen growing in Chippewa County in Northeastern upper Peninsula. There are herbarium specimens from "Bog near Cecil Bay, Aug. 19, 1916," Emmet County, J. H. Ehlers. "Border of Penny Lake, Aug. 16, 1935," Cheboygan County.