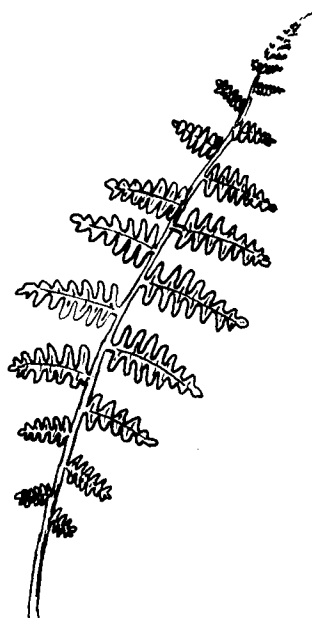


FERNS OF WHIPPLE HILL

by Elspeth Whitney



TAKE A LOOK AT THE FERNS

If you have walked through the Whipple Hill conservation area at almost any time of the year, you have probably noticed many ferns growing in graceful profusion along the trails. These familiar plants are worth a second look - they have many unique and interesting characteristics.

Our ferns go back to the misty beginnings of the Earth - being descendants of ancient fern trees living on earth 350 million years ago. (long before the appearance of flowering plants). They helped form the rich coal deposits of the inner earth. Ferns were the first plants to develop a vascular or conducting system to nourish the plant.

In early Spring, before other plants have awakened, their croziers or fiddleheads arise from last year's remains and uncoil majestically. Thereafter they literally explode into full green plumes and remain lush and green throughout the summer months as they continue to mature. The Fall season finds them turning brown, except for a few hardy varieties (like the Christmas Fern) which remain green all Winter.

Only about 65 of the 10,000 varieties of ferns to be found throughout the world grow in New England. Even so, this area has been called a "fern lover's paradise" due to our beautiful assortment of acid and limeloving ferns. The limited number of species makes it easier for the beginner to find and identify the various varieties.

With the help of this guide, you should be able to identify the 12 species of ferns which grow at Whipple Hill.

PARTS OF A FERN

A principal part of the fern is its leaf or frond. Both sterile and fertile fronds grow side-by-side (but not always at the same time of year). Ferns propagate by root stock and by spores. The spores are tiny one-celled structures produced in the fruitdots or sori. These structures (which are brown at maturity) are normally located on the underside of the fertile fronds. On some ferns however, the spores are produced in specially developed structures independent of the fronds. Various forms of the fruiting bodies are illustrated in Figure 1.

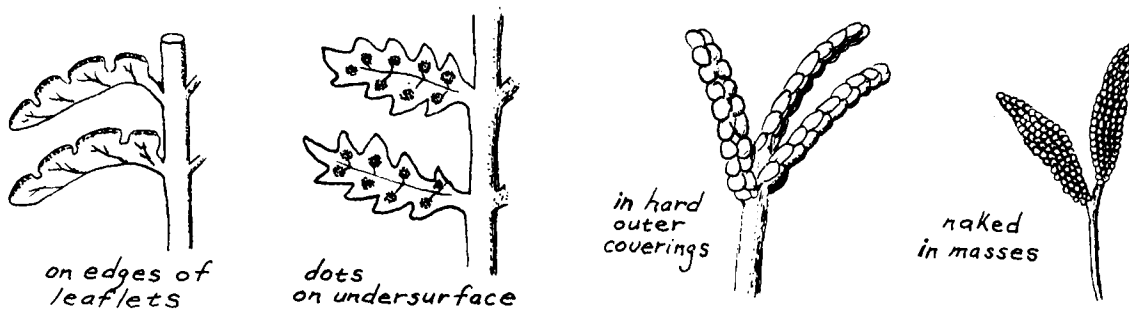


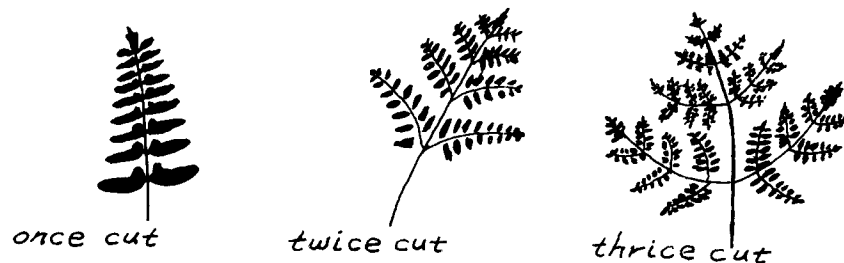
FIGURE 1. Spores are produced in sori (fruitdots) which take several forms.

IDENTIFYING FERNS

To identify a fern note the following:

- 1) Size and shape of frond. Is it large and triangular, or small and tapered at both ends, etc.?
- 2) Cut of the leaf or frond. Is it once, twice, or thrice cut (see Figure 2)?
- 3) Location and appearance of the sori (fruitdots). Are they on the backside of the fertile frond or on a separate structure?
- 4) Growth habits. Is the fern growing in a marshy area? A dry, sunny or rocky area? Do the fronds grow singly or in a circular whorl?

FIGURE 2
Leaf forms are important in identifying ferns.



WHIPPLE HILL CONSERVATION AREA

FERNS TO BE FOUND NEAR WHIPPLE HILL

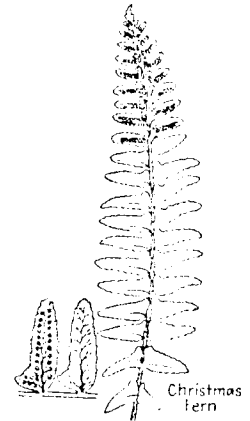
Braken Fern (*Pteridium aquilinum*)

- 1) Very common, coarse, leathery, 2-4 ft. tall, frond triangular and in three parts.
- 2) Thrice cut
- 3) Sori continuous along edges of leaflets which fold over them (difficult to see)
- 4) Grows singly in open or thinly wooded areas; found worldwide and considered to be the weed of the fern family.



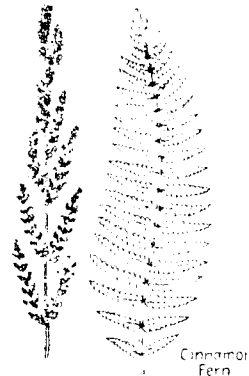
Christmas Fern (*Polystichum arostichoides*)

- 1) Rigid, lustrous, evergreen, 2-3 ft. tall, once picked for Christmas decorations
- 2) Once cut
- 3) Sori reddish brown when ripe, found on upper part of fertile leaf
- 4) Likes rocky, shady, slopes, grows in bouquet-like whorls.



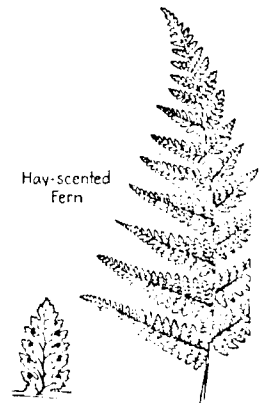
Cinnamon Fern (*Osmunda cinnamomea*)

- 1) Large, graceful, 3-4 ft. high, has wooly tufts where leaflets join the stem
- 2) Twice cut
- 3) Sori are on separate stalks at center of fern cluster, these are cinnamon brown in May/June but soon wither away
- 4) Grows in circular clusters in wet woodlands.



Hay-scented Fern (*Dennstaedtia punctilobula*)

- 1) Soft, yellow-green, lacy, 1½-2½ ft. high; the fine, whitish hairs on the stalk and leaf are gland tipped, giving a hay like fragrance when dried or crushed
- 2) Thrice cut
- 3) Sori tiny, round within cup like structures
- 4) Grows singly in rows from linear rootstock, will grow in woods but usually like open, sunny and rocky areas.



Interrupted Fern (*Osmunda claytoniana*)

- 1) Large, similar to cinnamon but lacks the wooly tufts, and has different fertile fronds, 3-4 ft. tall
- 2) Twice cut
- 3) Fertile fronds have an interrupted, spore-bearing area in center of leafstalk
- 4) One of earliest to appear in Spring, common along roadsides and prefers drier area than cinnamon.

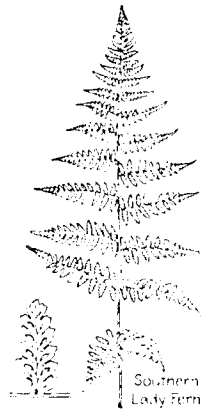


WHIPPLE HILL CONSERVATION AREA

FERNS TO BE FOUND NEAR WHIPPLE HILL (CONTINUED)

Lady Fern (*Athyrium filix-femina*)

- 1) Fairly common, showy, saw toothed, deeply cut, about 2½ ft. tall.
- 2) Thrice cut
- 3) Sori are hooked or horseshoe shaped on the back of fertile fronds
- 4) Prefer semi shaded moist areas and grow in circular whorls. Differs from hayscented by its toothed appearance, lack of stem hairs and circular growth. Rubellum variant has red stem.



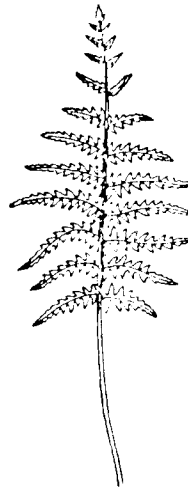
Marginal Fern (*Dryopteris marginalis*)

- 1) Leathery, dark green, evergreen, grows in whorls, has golden brown scales on stem, 1-2½ ft.
- 2) Twice cut and blunt tipped
- 3) Sori on back of fertile fronds and at the very edge or margins of the sub-leaflets
- 4) Like rocky, wooded areas and are often found along stone walls.



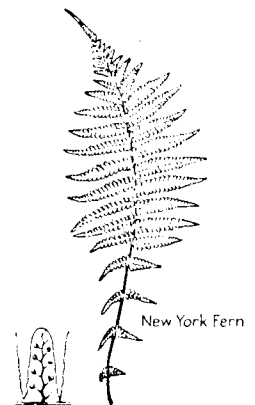
Marsh Fern (*Thelypteris palustris*)

- 1) Delicate gray green, rather small, 1-2 ft., stalk is longer than blade, black at base
- 2) Twice cut with smooth roundish edges
- 3) Fertile fronds appear in late summer and are withered looking due to edges of fronds curling back over sori
- 4) Like moist or muddy soil and grow singly.



New York Fern (*Thelypteris noveboracensis*)

- 1) Small, delicate, yellow green, 1-2 ft., tapers at both ends
- 2) Twice cut with smooth edges
- 3) Sori on back of fertile fronds, are tiny, rounded, and near edges
- 4) Likes sunlit woodlands and grows singly or in tufts of 2 or 3.



Polypody Fern (*Polypodium vulgare*)

- 1) Small, dark green, evergreen, 4-12 inches
- 2) Leaf cut almost to stem
- 3) Sori large, round, reddish brown, on back and upper end of fertile fronds
- 4) Likes moist, shaded locations, often in masses on old logs or on boulders.

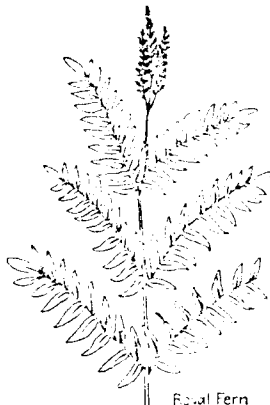


WHIPPLE HILL CONSERVATION AREA

FERNS TO BE FOUND NEAR WHIPPLE HILL (CONTINUED)

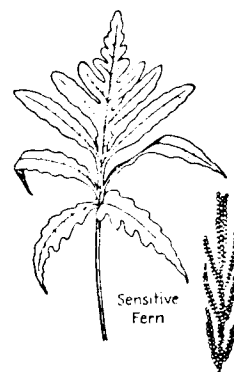
Royal Fern (*Osmunda regalis*)

- 1) Usually 2-3 ft. but grows to 6 ft., crowned by a flower-like fertile leaflet
- 2) Twice cut with leaflets widely spaced and similar to a locust tree
- 3) Sori at top of fertile fronds
- 4) Need wet soil - along streams or ponds



Sensitive Fern (*Onoclea sensibilis*)

- 1) Leaf light green, broadly triangular with wavy edges, 2-3 ft., common, sensitive to the frost
- 2) Once cut
- 3) Fertile fronds different, like beaded sticks, these beadlike structures remain standing in the winter
- 4) Prefers damp places in the sun or shade.



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- Wiley, Farida A., Ferns of Northeastern U.S.

Note: Town regulations prohibit the removal of plants from Town conservation land. They must be left to grow where they are for others to enjoy.

Preparation of this guide was sponsored by Citizens for Lexington Conservation, Inc., a non-profit citizen's organization concerned with issues of environmental quality in the Town of Lexington. For information on other publications, write C.L.C. Inc., P.O. Box 521, Lexington, Ma. 02173

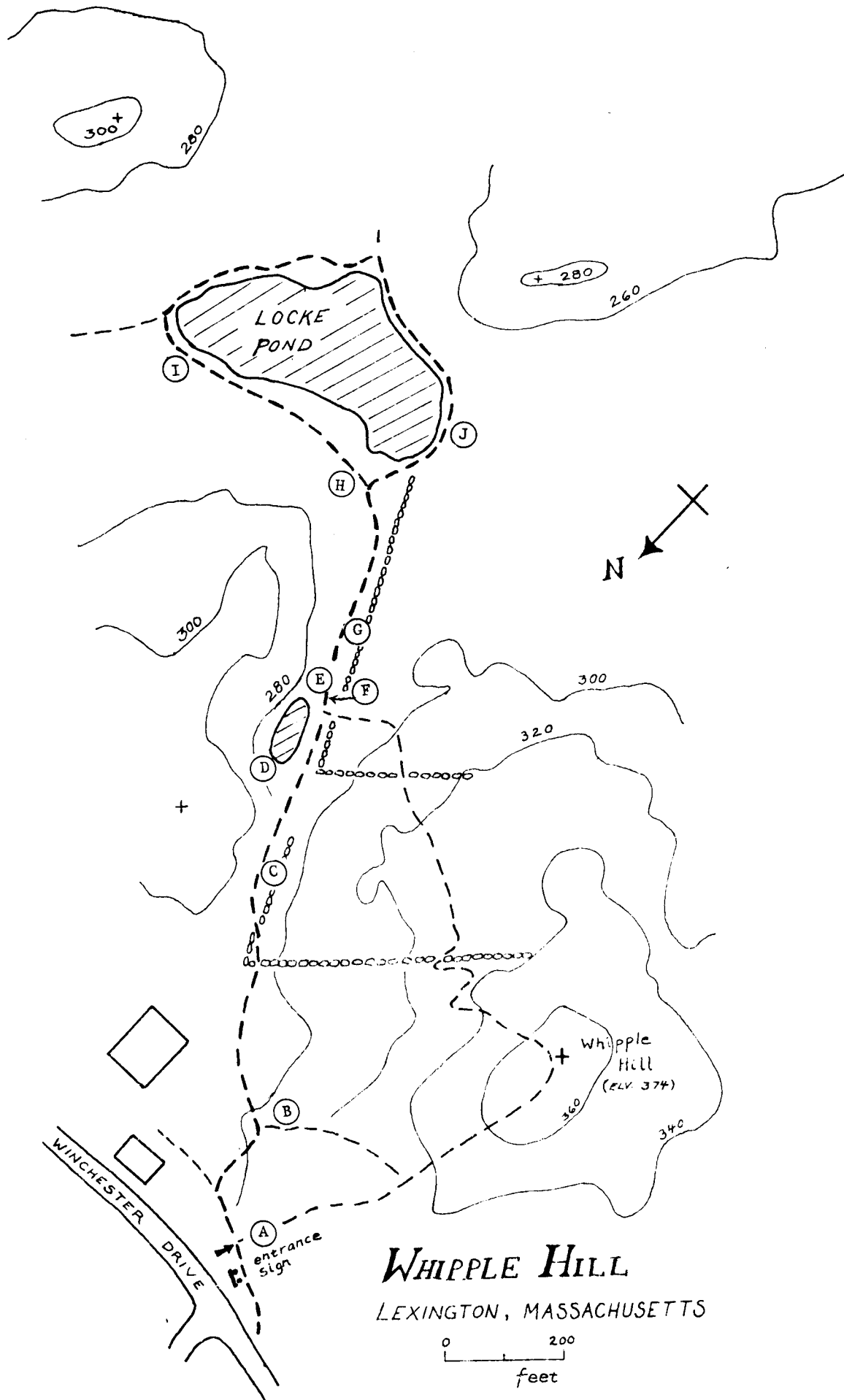
FERN CHECKLIST

SPECIES CUTS SORI LOCATION DATE FOUND WHERE FOUND NOTES

Christmas	1	frond undersurface		
Polypody	1	frond undersurface		
Sensitive	1	separate fronds		
Cinnamon	2	separate fronds		
Interrupted	2	structures on leafstalk		
Marsh	2	frond undersurface		
Marginal	2	frond undersurface		
New York	2	frond undersurface		
Royal	2	structures at top of leafstalk		
Hayscented	3	frond undersurface		
Bracken	3	frond undersurface		
Lady	3	frond undersurface		

FERN LOCATIONS KEYED TO MAP

<u>LOCATION</u>	<u>FERNS</u>
A Near Entrance	Bracken
B Where Path Forks	Interrupted Cinnamon New York
C On Bank After Wall	Bracken Hayscented Interrupted New York
D Near End of Small Pond	Royal Hayscented Cinnamon New York Interrupted Bracken Lady
E Far End of Small Pond	Lady Hayscented Royal Cinnamon Marsh Sensitive New York
F Right of Path Near Tree	Marginal
G Right of Tree Down Path	Christmas
H Side of Locke Pond	New York Sensitive Royal Marsh Cinnamon
I Far End of Locke Pond	New York Sensitive Lady (red-stemmed) Cinnamon Royal Interrupted
J West Side of Locke Pond	Cinnamon Marsh Royal Interrupted New York
	Sensitive Hayscented Lady



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