

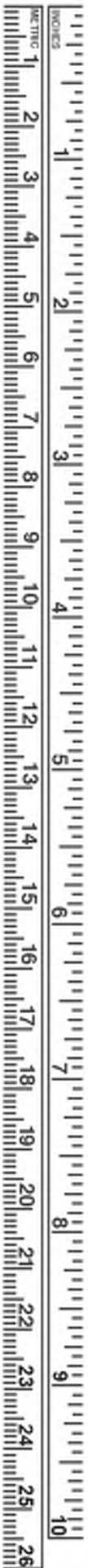


**An Illustrated Guide
to the Wetland Ferns and
Fern Allies of Florida**

John David Tobe

INDEX TO FAMILIES OF FLORIDA WETLAND FERN AND FERN ALLIES

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An Illustrated Guide
to the WETLAND FERNS and
FERN ALLIES
of FLORIDA

John David Tobe, Ph.D.



First Edition

Illustrated and Written by John David Tobe

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Illustrated Guide to the Florida Wetland Ferns and Fern Allies (Pteridophytes)

This is a comprehensive resource for the identification and characterization of wetland ferns and fern allies or pteridophytes in Florida.

Which ferns and fern allies or pteridophytes are included in this illustrated guide?

Florida has a diversity of native and introduced pteridophytes. The majority of pteridophytes are restricted to shady, moist sites. This illustrated guide encompasses the pteridophyte diversity that is specifically adapted to the ecological conditions created by wetlands and habitats adjacent to wetlands. Studies of pteridophyte systematics has expanded our understanding and redefined pteridophyte taxa and resulted in nomenclatural changes (for continued nomenclature updates see Flora of North America www.eFloras.org, Atlas of Florida Plants florida.plantatlas.usf.edu and USDA Plants Database <http://plants.sc.egov.usda>), Wetland status of pteridophytes in Florida is included for both the Florida Department of Environmental Protection (FDEP), Florida Administrative Code (section 62-340.450 F.A.C.) and the US Army Corps of Engineers National Wetland Plant List of the Atlantic and Gulf Coastal Plain (NWPL), 2016 Region Wetland Plant List (<http://wetland-plants.usace.army.mil/>).

The FDEP wetland vegetative index (section 62-340.450 F.A.C.) is not a complete list of all wetland plants and does not include vines, floating and submerged aquatic plants in the vegetative index (they are excluded by law from the vegetative index, however they are often used as hydrologic indicators in the application of section 62-340.500, F.A.C.). Because no wetland plant list is comprehensive, this illustrated guide seeks to address pteridophytes found associated with wetlands that may or may not be found on a particular wetland regulatory list. A designation of not listed (NL) is used when there is no wetland indicator status for the FDEP or the NWPL. Accurate pteridophyte identification, ecological preferences and use of current FDEP and the NWPL wetland fern indicator status, are required in the identification and delineation of wetlands and surface waters in Florida, the Florida Lake Vegetation Index DEP-SOP-003/11 (<https://floridadep.gov/dear/water-quality-standards-program/documents/lake-vegetation-index-primer>) and for understanding the botany and floristics of Florida.

Each species of pteridophyte is physiologically and reproductively adapted to a range of ecological preferences. Some pteridophyte species have very specific adaptations and ecological requirements, which often result in limited ranges. For example, although there are examples of epiphytic plants (including pteridophytes) in Florida not adapted to live in wetland soils, some epiphytes are typically found growing on wetland trees, logs and rocks in wetlands, due to their microenvironmental needs. This ecological preference creates specific and often limited ranges for some taxa. While some species have always been rare due to limited available microclimates and specialized environments, other species are rare and threatened with extinction due to primarily habitat loss/destruction. Anthropocene climate change is a significant factor that will effect Florida's ecosystems and significantly microclimates that are important for fern life histories.

In selected genera all the known Florida pteridophyte taxa are included, even the upland listed taxa. This inclusion of taxa will facilitate identification and differentiation between regulatory listed and non-listed taxa.

Threatened and endangered status are included in species treatments and are referenced in the following: 1) Federal (<http://fws.gov/endangered/>) and 2) State of Florida (<http://freshfromflorida.com>). Globalization, climate change and subsequent movement of non-native species has resulted in profound changes in the ecological trajectories of Florida ecosystems. Introduced pteridophytes has altered natural landscapes by smothering trees (*Lygodium*), changing fire ecology (*Lygodium*), crowding out native species

(*Nephrolepis cordifolia*, *N. falcata*, *N. brownii*), and changing the ecology of surface waters (*Salvinia molesta*). Introduced pteridophytes have also impacted the Florida wetland landscapes, invasive designations as per the Florida Exotic Pest Plant Council, 2017 Invasive Plant Categories (<http://www.fleppc.org>) are included for each species.

The purpose of creating an illustrated guide to the wetland ferns and fern allies of Florida is to include the following:

1. Create a visual guide illustrating the important taxonomic features of the taxa with scaled diagrammatic, color representations for easy identification of wetland ferns and fern allies.
2. Use the current nomenclature or at least the proposed latest systematic changes as per the Flora of North America and the Florida Plant Atlas.
3. Use updated distribution and species accounts.
4. Create a visual key for identifying ferns at the genus level.
5. Identify state and federally listed threatened and endangered species.
6. Describe the pteridophytes that are not included in the 1998 Florida Wetland Plants, An Identification Manual, such as vines, submerged aquatics and many others.

The information included in this illustrated guide can be used for wetland identification and delineation practitioners, ecosystem restoration practitioners (SER.org), invasive exotic plant (FLEPPC.org) and conservation managers, field biologists, educators, students, gardeners, landscape architects/designers and folks interested in the wildflowers and natural history, floristics and biogeography of Florida and North America.

Using this Illustrated Guide

This illustrated guide includes the pteridophytes (ferns and fern allies) found in Florida. These are the spore bearing vascular plants that do not produce woody cones or flowers. In this illustrated guide the ferns and fern allies are arranged alphabetically by plant families. Plant families share evolutionary and taxonomic characteristics and may contain one or more pteridophyte genera. Each plant name or binomial nomenclature, has at least two parts, the generic (genus) designation and the specific (species) name. Sometimes a binomial is followed by a subordinate rank of subspecies, variety and form. These are often used to standardize regional variation in a species or taxon. A taxon is a taxonomic group at any rank such as family, genus, or species.

The introduction summarizes the taxonomic characteristics and includes a diagrammatic life history, useful in the understanding of the life cycle of the fern and fern allies. In addition an artificial key to the ferns and fern allies with illustrations will assist the user in identifying ferns and fern allies to a particular fern family and in some cases, the genus.

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The Natural History of Ferns and Fern Allies

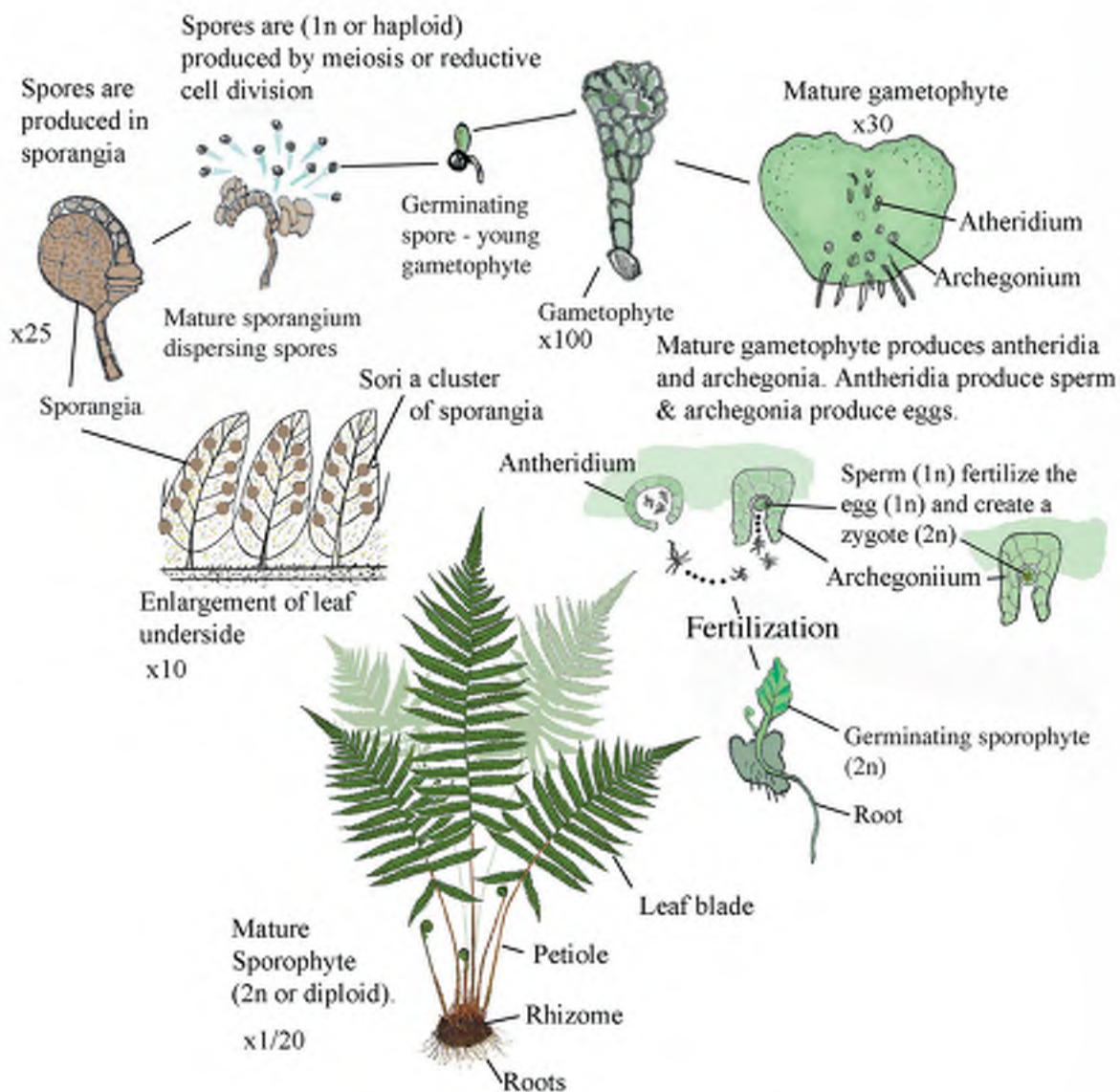
Ferns and fern allies are grouped into the pteridophyta, a division of plants characterized by reproduction by spores within sporangia, stems and leaves with a vascular system and a stem or rhizome with true roots. The root of the plant division name: *pteridophyta* is from the Greek *ptēris* (pteron feather-like in reference to the morphology of pinnatifid fern leaves) and *phyta* or plant. In reference to the pinnate or feather like arrangement of some fern leaves.

Pteridophytes appear in the fossil record during the Devonian, approximately 350 million years ago. Later, the ecosystems created by self assembling conifer and flowering plant taxa during the Cretaceous about 140 million years ago, created a variety of habitats and microclimates in which the modern groups of pteridophytes evolved and diversified.

Pteridophytes do not produce flowers, some such as Lycopodiaceae and Equisetaceae produce spores in a cone-like structure called a strobili. Pteridophytes have evolved to occupy a variety of ecosystems and microenvironments. Most taxa are typically represented by a terrestrial, amphibious, submerged aquatic or free floating sporophyte, the most commonly encountered portion of the life history. The diploid (2n) sporophyte is the dominant phase of the life cycle. Pteridophytes can generally be separated into families, genera and species by characteristics of the plant body such as rhizome, leaf morphology, leaf venation and sporangia of mature sporophytes. Fern allies such as horsetails (Equisetaceae) and clubmosses (Lycopodiaceae) have reduced leaves and thickened stems. Other fern allies such as water clovers (Marsileaceae) have clover-shaped leaves or as exemplified by the quillworts, grass-like leaves (Isoëtaceae).

All pteridophytes have an alternation of generations. The free-living sporophyte produces spores by meiosis or reductive cell division. These haploid (n) spores germinate and grow into a free-living gametophyte. The gametophytes are undifferentiated (lack leaves, stems and roots) and in many fern species they are small, green and delicate. Gametophytes produce gametes (egg and sperm). The eggs are produced in specialized structures called archegonia and the sperm in structures called antheridia. The sperm have flagella and require a film of water to swim to the archegonia and fertilize the egg. Shady, moist microclimates are generally required for gametophyte survival and successful fertilization. Many pteridophytes are found in moist shady sites and wetlands, and this habitat preference is related to their requirement for protection from desiccation during at least part of the life history. After fertilization the egg and sperm become a zygote and this matures into a young sporophyte. The sporophyte generation is perennial and long lived and is often the dominant portion of the life cycle. The fern allies share similar aspects of their life-cycle with ferns.

Life History of a Fern



INTERRUPTED FERN

(Thelypteris interrupta (Willd.) K. Iwats)

Pteridophyte Life History Terminology

Acrostichoid: When the sori completely cover the underside of the fertile pinnae, e.g. *Acrostichum*.

Amphibious: Adapted to live in both aquatic and terrestrial environments.

Anthropocene: The contemporary epoch or geologic age in which human activity is the dominant force impacting the global environment.

Aquatic: Adapted to live and grow in water.

Auricle: An ear-like lobe of pinnae or leaves.

Areole: A space created by the arrangement of two veins. e.g. pinnae veins of *Acrostichum*.

Bipinnate: Leaves with two rows of pinnately compound leaflets.

Biternate: Leaves with two sections of ternately compound leaflets.

Blade: The expanded portion of a leaf, attached to a stipe.

Bryophyte: A non-vascular plant, typically a moss, liverwort or hornwort.

Circinate Vernation: Describes the developmental process in which the younger leaflets are coiled inward toward the growing tip and expand and mature, as the leaf stem or petiole elongates and moves away from the point of leaf initiation or rhizome. The overall effect of this type of growth may create growing leaves that for some portion of their life cycle resemble the neck and the scroll of a fiddle, hence the common name of fiddlehead. See Crozier.

Cone: The aggregation of sporangia at the end of a stem, often congested, e.g. *Equisetum*. Sometimes also called a strobilus.

Corm: A thickened stem, solid or fleshy, above or below ground, at the base of a plant.

Costae (singular costa): The midvein of a fern leaf.

Climate Change: In our current understanding, the anthropocene effects of excessive greenhouse gases changing the global climate creating deleterious environmental conditions at an exceptionally accelerated timescale.

Crozier: Fern leaf in the coiled developmental stage.

Deciduous: Plant parts that are shed, typically within one growing season.

Dichotomous: With equal forking structures, can be applied to stems, roots, hairs, leaves, rhizomes, etc.

Diploid: Organisms with cells containing two sets of chromosomes.

Dimorphic: With leaves of two types, the fertile leaf is morphologically different than the vegetative.

Epiphytic: Growing on another plant, not parasitic.

Evergreen: Foliage remains alive and green for least 2 growing seasons or more.

Excurrent: In some ferns the leaf veins join to form a single, undivided vein or extension, i.e. excurrent vein.

False Indusium: A covering over the sporangia created by the rolled edge of a fern leaf.

Fern Allies: Members of the plant division pteridophyta, plants with a vascular system, leaves, stems and roots, that reproduce by spores from sporangia, do not have flowers or woody cones and have an alternation of generations.

Fertile Leaf: Leaf bearing sporangia.

Fiddlehead: Describes the shape of the developing leaf, resembles the neck of a fiddle.

Gametophyte: In pteridophytes this is the gamete producing (haploid) generation in a lifecycle that has two distinct, free-living generations. The gametes are egg and sperm, these combine to create a zygote which grows into a sporophyte (diploid) generation. Gametophytes tend to be small and easily overlooked. They are typically not the dominant phase of the lifecycle of a pteridophyte.

Glands (Glandular): Describes a structure that secretes chemicals, often attached to hairs. Glands may make a fern leaf blade or petiole feel sticky or impart a distinct color or smell.

Haploid: Organisms with cells containing one set of chromosomes.

Indusia (singular indusium): A flap of tissue that covers the sporangia. See False Indusium.

Leathery: Leaf texture that is flexible, somewhat hard and tough.

Lithophytic: Growing on rocks, in Florida this typically means on exposed limestone.

Megasporangia: The sporangium in which megaspores are produced.

Microsporangia: The sporangium in which microspores are produced.

Monomorphic: Of one kind of leaf. Some ferns have similar fertile and sterile leaves.

Pinnae (singular pinna): The principle or primary division of a fern leaf.

Pinnate: A compound leaf with leaflets arranged on both sides of a rachis or leaf stem.

Pinnatifid: A pinna with lobes, the base of the lobe extends about halfway to the midvein.

Pinnate-pinnatifid: Pinnate with pinnatifid leaflets or pinnae arranged along both sides of the rachis or leaf stem.

Pinnule: The division of a fern leaf in the secondary position. For example, the lobes on the pinna.

Proliferating Roots: Some ferns are able to produce new plantlets from roots. This is a form of asexual or clonal plant reproduction.

Pteridophytes: a division of plants characterized by reproduction by spores within sporangia, stems and leaves with a vascular system and a stem or rhizome with true roots. The root of pteridophyta is from the Greek pteris (pteron feather) and phyta or plant. In reference to the pinnate or feather like arrangement of some fern leaves.

Quadrifoliate: Bearing 4 leaf sections or leaves divided into 4 sections.

Rachis: The axis or leaf stem of a fern leaf.

Revolute: The rolling of a leaf edge.

Rhizome: A horizontal stem, usually underground or along the soil surface.

Ruderal: In reference to habitat, a plant that grows in disturbed sites or waste sites.

Scales: A flattened, dry outgrowth of the epidermis of leaves, stems and rhizomes. Scale shape and color are often diagnostic characters used for fern identification.

Sinus: The indentation between two teeth or lobes on the leaf margin.

Sorus (singular sori): An aggregate or cluster of sporangia.

Sporangia (singular sporangium): structures that produce and house the haploid spores.

Spore: a round, single celled reproductive structure, produced in the sporangia, germinates and grows into the haploid generation called a gametophyte.

Sporocarp: A specialized structure that Ruderal: In reference to habitat, a plant that grows in disturbed sites or waste sites.houses the sporangia. Found in clusters beneath the leaves of *Salvinia* and *Azolla*, also used to describe resistant structures containing sporangia in *Marsilea*.

Sporophore: A stem that bears sporangia, used to describe the fertile or spore-bearing stem of *Botrychium* and *Ophioglossum*. See Trophophore.

Sporophyll: A leaf that produces sporangia. Sporophylles are also called fertile leaves.

Stipe: The petiole of a fern leaf.

Strobilus: A congested structure made up of sporophylles, it is used as synonymous with cone. In pteridophytes treated here, the strobilus describes the terminal sporebearing structure in *Equisetum* and Lycopodiaceae and Selaginellaceae.

Terrestrial: Growing on the land in soil.

Thallus: The undifferentiated tissue of the plant body, lacking a vascular system, leaves, stems and roots.

Tripinnate: Leaves with three orders of pinnately compound leaflets.

Triternate: A compound leaf with three orders of leaflets, see *Botrychium*.

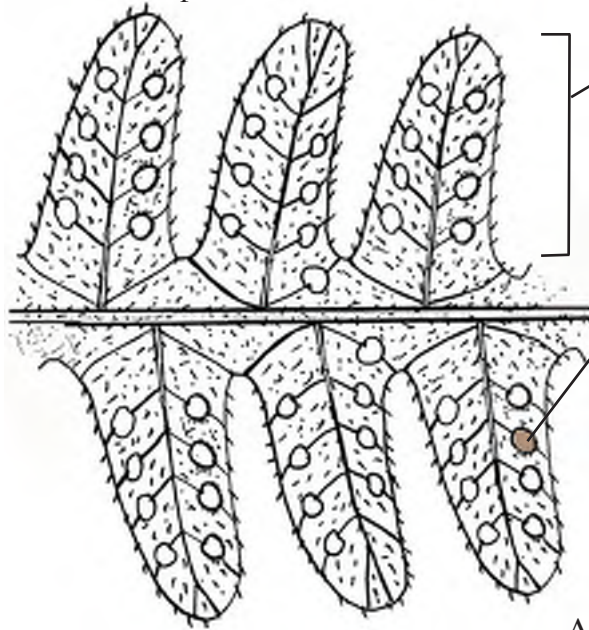
Trophophore: The simple or compound divided, sterile leaves associated with *Botrychium* and *Ophioglossum*. See Sporophore.

Two ranked: With leaflets arranged on either side of a leaf stem or rachis, describes a pinnate leaf arrangement.

Undulate: With wavy margins. Used to describe the leaf margins of ferns.

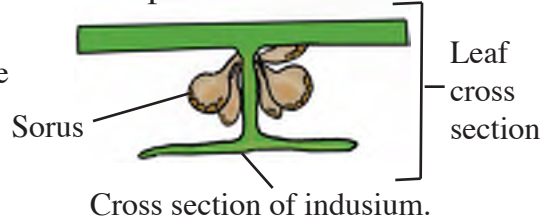
Pteridophyte Structural Terminology

Enlargement of pinna x30



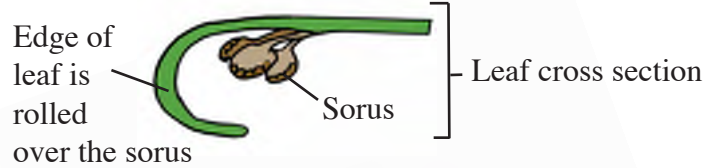
Pinnule

Example of a true indusium

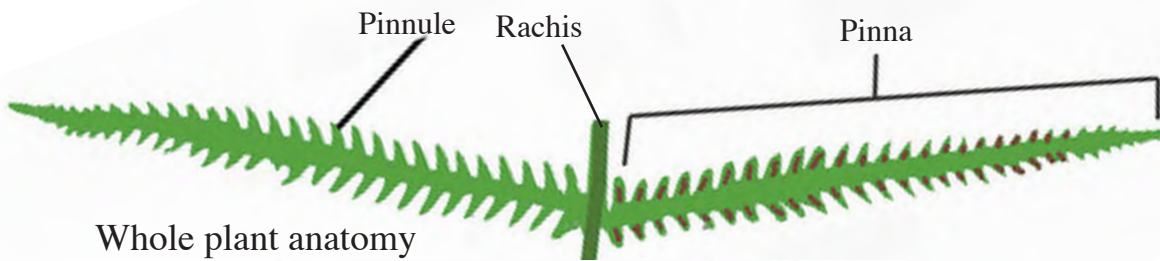


Sorus or a cluster of sporangia appears round when viewed from above, in this example the sorus covered by an indusium or flap of tissue.

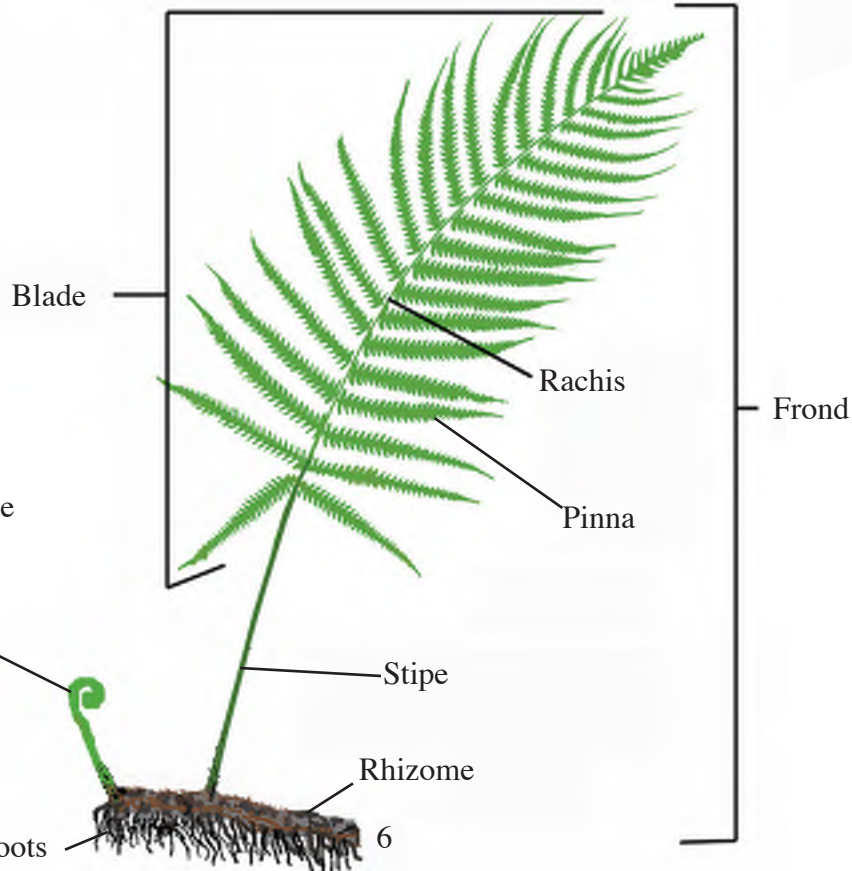
Example of a false indusium



Anatomy of a typical fern leaf



Whole plant anatomy



Crozier or coiled fern frond develops with circinate vernation, at this stage the developing leaf is also known as a fiddlehead.

Fern Leaf Types



Simple



Pinnatifid



Pinnate



Pinnate-Pinnatifid



Bipinnate



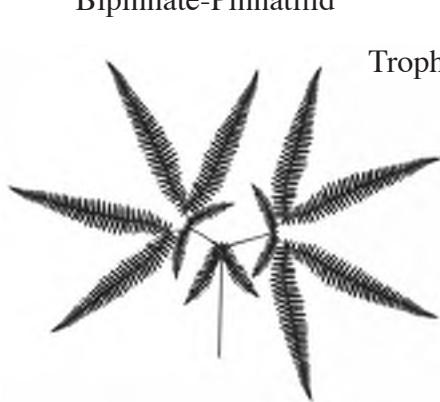
Bipinnate-Pinnatifid



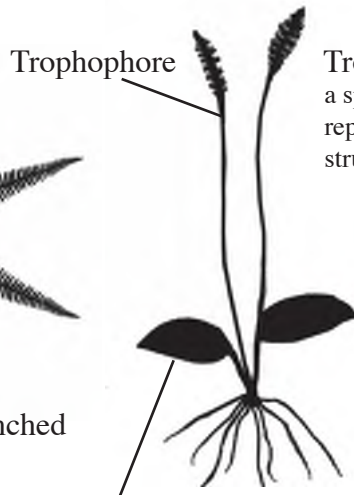
Lower portion of leaf is Pinnate-Pinnatifid, upper portion is Pinnate



A compound leaf with 7 Bipinnate-Pinnatifid sections



Leaves dichotomously branched



Simple sterile/vegetative leaves



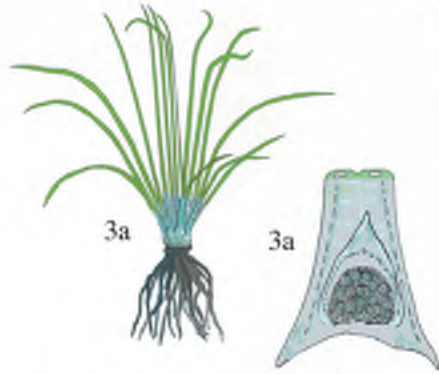
Bitermately compound sterile/vegetative leaves



Quadrifoliate leaves

Illustrated Key to the Families of Wetland Ferns and Fern Allies

1a. Plants with simple, scale-like leaves (or no leaves) on spreading or creeping above ground stems or with grass-like leaves, none of the following plants are free floating aquatics



2a. Plants with grass-like, linear leaves

3a. Leaf base swollen with a single sporangium **ISOETACEAE**

3b. Leaf base not swollen, sporangia on stalked structures with 1-6 segments **SCHIZAEACEAE**

2b. Plants without grass-like leaves, rhizomes creeping or stems under ground

4a. Stems dichotomously branched, scale-like "leaves"; sporangia with 3 lobes **PSILOTACEAE**

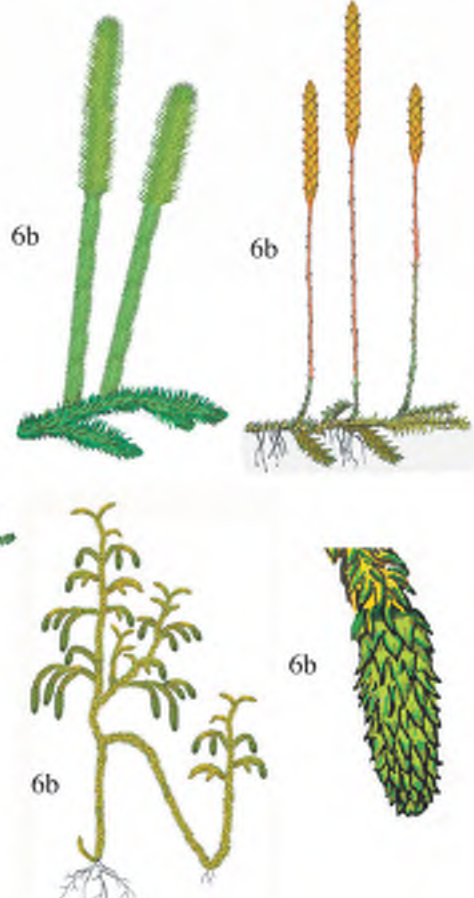
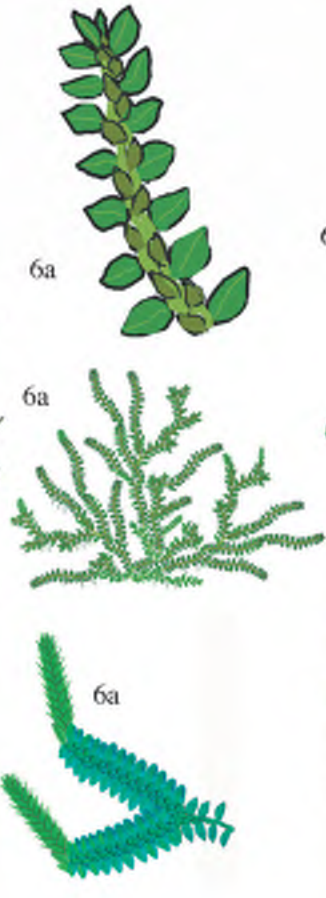
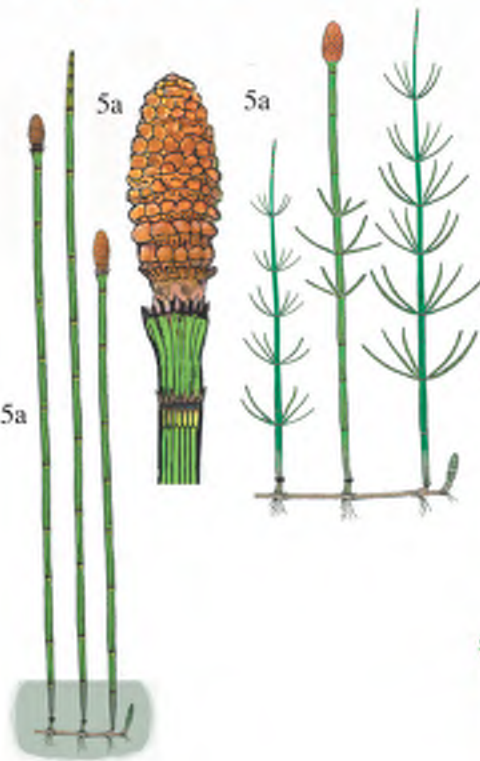
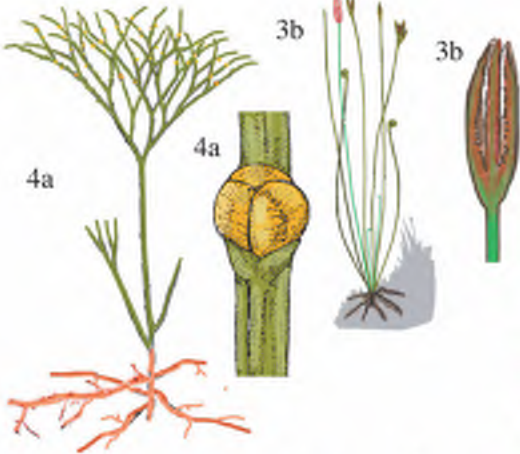
4b. Stems not dichotomously branched

5a. Stems jointed, ridged and rough to the touch, with darker bands of whorled, fused leaves with free triangular tips **EQUISETACEAE**

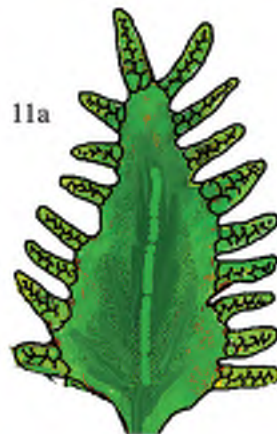
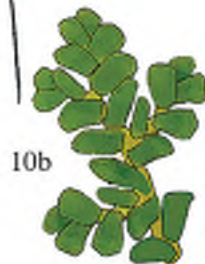
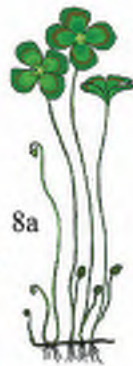
5b. Stems without joints, creeping or erect, with many, small, free, triangular, scale-like leaves, may appear "moss-like"

6a. Sporangia produced in rows creating a four sided strobilus **SELAGINELLACEAE**

6b. Sporangia produced in a spiral arrangement creating a cylindrical strobilus **LYCOPODIACEAE**



Illustrated Key to the Families of Wetland Ferns and Fern Allies



1b. Plants with larger, usually pinnately veined simple to compound leaves, or with 4-foliolate leaves, produced from surface or under ground rhizomes; or plants floating/rooted emergent aquatics with lobed or branched leaves, or simple round or imbricate (scale-like) leaves

7a. Plants terrestrial with 4-foliolate, clover-like leaves or plants floating and/or rooting in soils, especially of receding shoreline

8a. Plants terrestrial with submersed, emergent or floating 4-foliolate leaves **MARSILEACEAE**

8b. Plants generally floating with with lobed or branched leaves, or simple round or imbricate (scale-like) leaves

9a. Plants with lobed to branched leaves **PARKERIACEAE**

9b. Plants with simple round or imbricate, floating leaves

10a. Leaves oval **SALVINIACEAE**

10b. Leaves imbricate and scale-like **AZOLLACEAE**

7b. Plants terrestrial, epiphytic or epipetric, leaf blades simple, lobed to compound

11a. Plants with twining fronds, leaflets or pinnae opposite, all parts of the plant are smooth **LYGODIACEAE**

11b. Plants without twining fronds

12a. Plants with two types of leaves, one type sterile the other type fertile, leaves are dimorphic

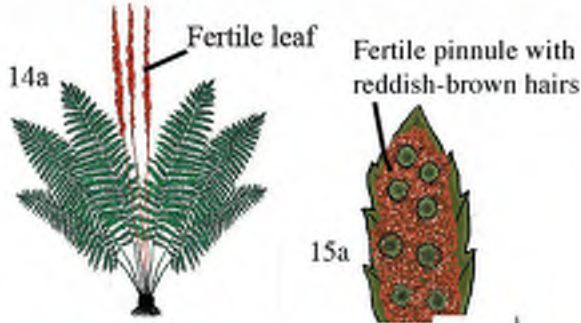
13a. Sterile leaves tripinnate, triangular in outline or simple, round to elliptic; pinnae often toothed or lobed; sterile leaves erect, sporangia capsular and arranged in rows **OPHIOGLOSSACEAE**

Illustrated Key to the Families of Wetland Ferns and Fern Allies



13b. Leaves pinnate or bipinnate
 14a. Sterile leaves pinnate or bipinnate, fertile leaves are either bipinnate with terminal fertile portion or the entire fertile leaf is modified with reddish-brown fertile pinnae
OSMUNDACEAE

14b. Sterile leaves pinnate
 15a. Leaves somewhat leathery, evergreen, pinnae margins minutely serrate or lobed, fertile portion made up of narrow pinnae with undersides covered with dense brown hairs and sporangia or undersides with sparse hairs and round to kidney shaped indusia
DRYOPTERIDACEAE
 (*Polystichum* and *Dryopteris*)



15b. Leaves thin, not evergreen, pinnae margins entire or lobed, sori covered by a flap-like structure
 16a. Sterile leaves with oppositely arranged pinnae; fertile leaves with rows of bead-like sporangia
ASPLENIACEAE
 (*Onoclea sensibilis*)

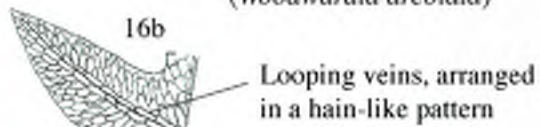
16b. Sterile leaves with alternately arranged pinnae and single row of looping veins arranged in a "chain-like" pattern along the rachis; fertile leaves with elongate sori, arranged alternately (chain-like) on narrowly pinnate leaves
BLECHNACEAE
 (*Woodwardia areolata*)



15a *Polystichum*



16b



16b

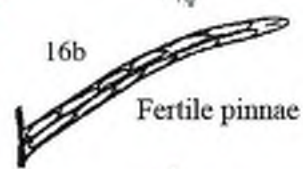
Looping veins, arranged in a chain-like pattern



15a *Dryopteris*



15a



16b

Fertile pinnae



16a



16a

Fertile leaf

Illustrated Key to the Families of Wetland Ferns and Fern Allies

12b. Plants with one type of leaf or fertile and sterile leaves not distinctly different, sporangia produced directly on the leaf blade or in a cup-like structure

17a. Sori produced in cup-like structures along leaf margins

18a. Leaf blade extremely thin, delicate, sporangia in cup-like structure (2-valved involucre) produced at the end of leaf veins
HYMENOPHYLLACEAE
(Trichomanes)

18b. Leaf blade thicker, 2-4 pinnate, up to 1 or more meter long, sporangia in cup-like structures produced in the notches of pinnae lobes
DENNSTAEDTIACEAE
(Dennstaedtia)

17b. Sori not produced in cup-like structures

19a. Plants with dichotomously branched stems and leaves, stems erect and may climb through other vegetation
GLEICHENIACEAE
(Dicranopteris)

19b. Plants without dichotomously branched stems and leaves

20a. Sori appear without indusia

21a. Sori in narrowly oblong single rows along costae or as round clusters

22a. Sori in narrow bands or single rows along costae
BLECHNACEAE
(Blechnum/Telmatoblechnum)

22b. Sori round

23a. Round sori in one or more lines, usually at less than 90 degree angle from the costae
POLYPODIACEAE
(Campyloneuron)

23b. Round sori produced in clusters at the ends of branched pinnae veins
POLYPODIACEAE
(Plecluma)

Illustrated Key to the Families of Wetland Ferns and Fern Allies

21b. Sori appear to cover the entire lower surface of pinnae
 24a. Sori brown to reddish brown **PTERIDACEAE**
 (*Acrostichum*)

24b. Sori packed in a dense layer of mealy whitish material
PTERIDACEAE
 (*Pityrogramma*)

20b. Plants with sori otherwise
 25a. Plants with an indusium or a flap-like structure covering the sporangia, created along the leaf margins
 26a. Leaves thin and delicate, compound and variously branched, leaflets with parallel veins **PTERIDACEAE**
 (*Adiantum*)

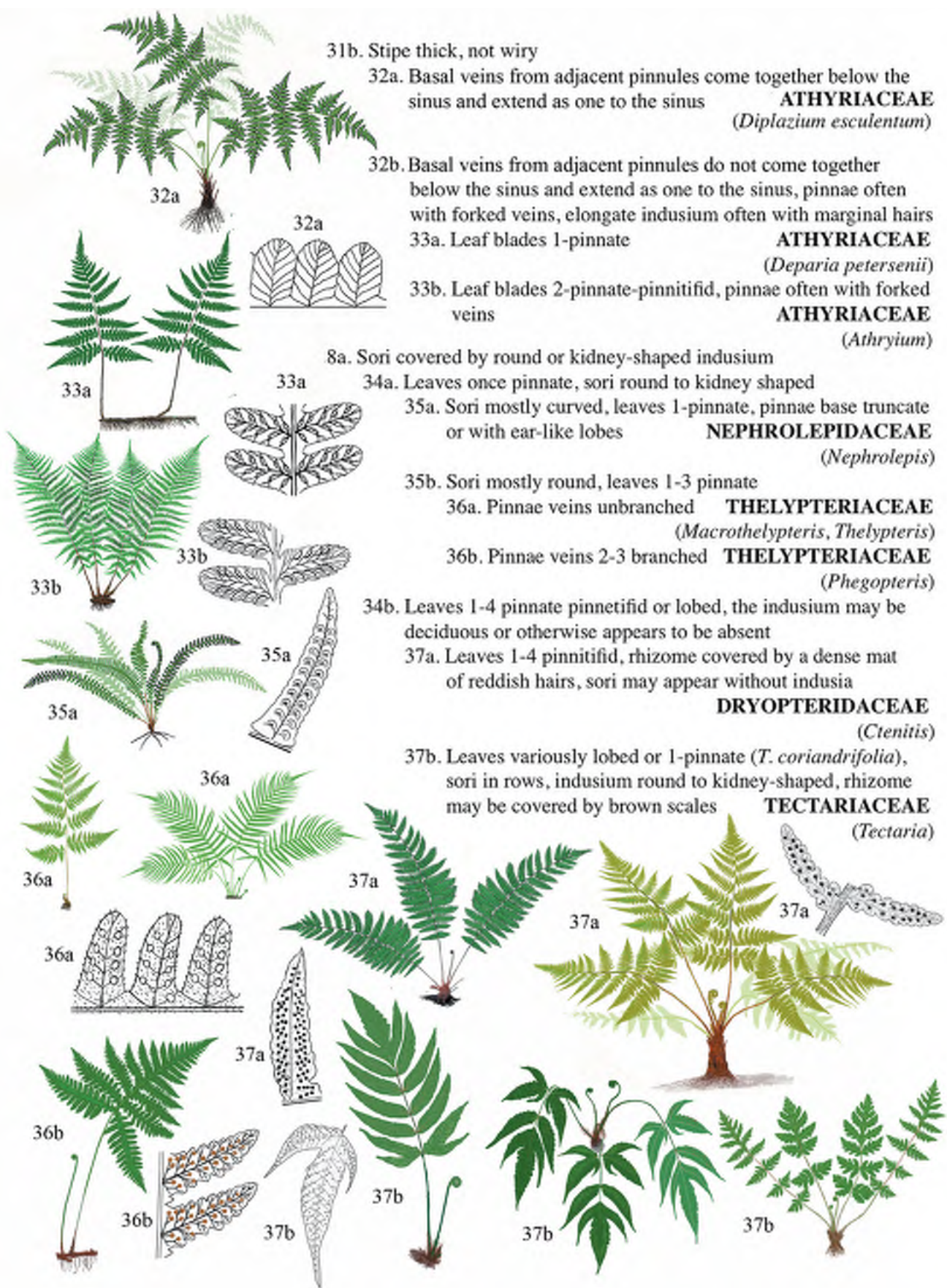
26b. Leaves not thin and delicate, leaflets without parallel veins
 27a. Leaves large and compound with 3-7 parts, overall broadly triangular in outline, up to 1-2 meters wide, leaf stems smooth **PTERIDACEAE**
 (*Pteris*)

27b. Leaves 3-4 pinnate, triangular in outline but not broadly so, leaf stems with prickles
DENNSTAEDTACEAE
 (*Hypolepis*)

25b. Plants with an indusium covering the sporangia, not created by a leaf margin
 28a. Sori covered by elongate indusium
 29a. Veins of leaflets enclosing chain-like spaces along midrib, sori covered by an elongate indusium along leaf veins **BLECHNACEAE**
 (*Woodwardia virginica*)

29b. Veins without chain-like spaces along midrib
 30a. Elongate indusium, attached to pinnae vein on one side
 31a. Stipe thin, blackish and wiry
ATHYRIACEAE
 (*Asplenium*)

Illustrated Key to the Families of Wetland Ferns and Fern Allies



The following fern descriptions are arranged alphabetically by genus.

Each treatment includes the following

Family/Genus/Species: These are systematic treatments.

Common Name: A colloquial name of no botanical standing.

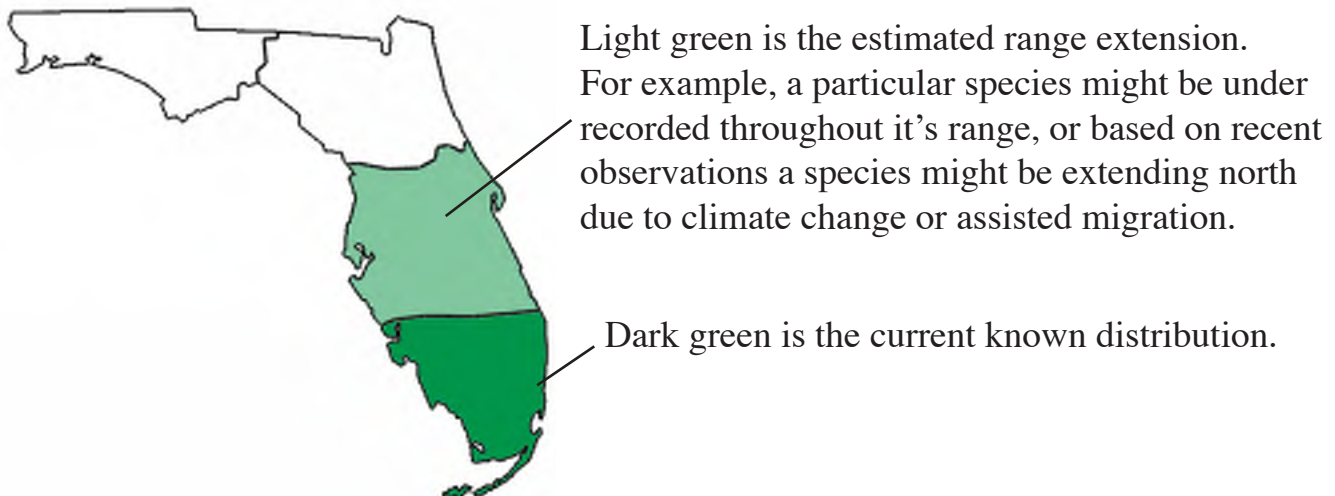
Identification: Description of taxonomic features.

Habitat: The preferred environment for a particular species.

Regulatory Status: Rule based lists created by government entities, *i.e.* state and federal listings based on the rarity of a particular species. Status also includes taxa listed as invasive exotics by the exotic pest plant council.

Range: The geographic distribution of a species.

Range Map - example of color coding below.



Scale of illustrations represents the relationship between the line drawing and the corresponding measurement of the actual plant. For example a drawing at 1/5 scale means the actual plant can be at least 5 times larger than illustrated. The scale is meant to apply to a printed page of approximately 8.5 x 11 inches.

See pages 5-7 for descriptive terminology of the various structures found in pteridophytes.

ASPLENIACEAE

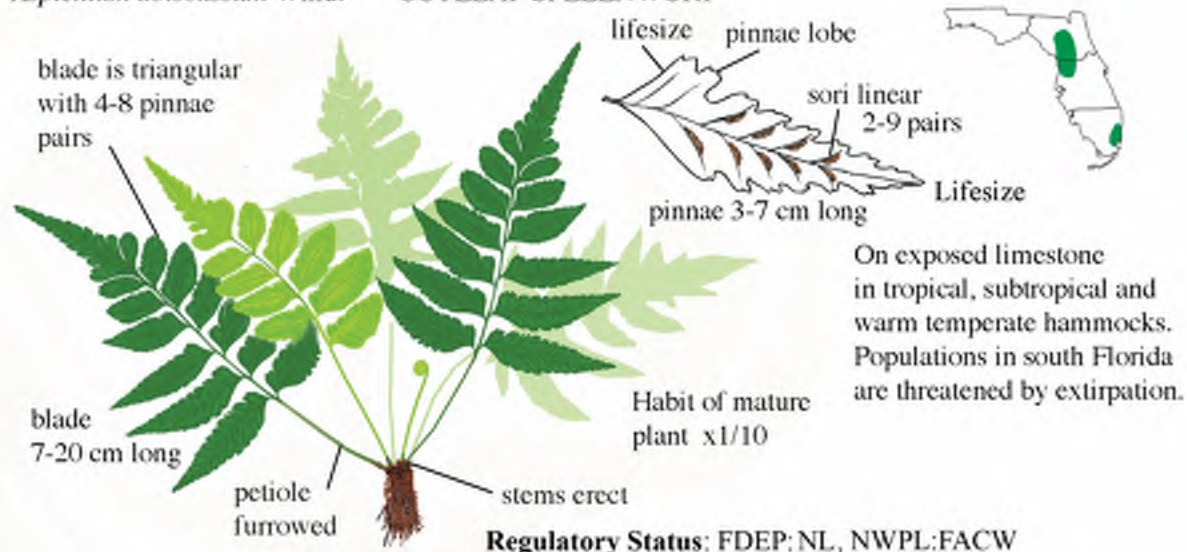
SPLEENWORTS

Asplenium spp.

Identification: Tufted perennials with fibrous, sometimes proliferous roots from a short rhizome, this can be covered with black, brown to reddish brown leaf bases, scales and/or hairs; leaves monomorphic, evergreen or deciduous, linear, oblanceolate simple blade (*A. serratum*), 1-3 pinnate, the once pinnate species generally have leaves gradually reduced toward the apex and the base, pinna are generally oblong, lanceolate or wedge-shaped to divided, those taxa with divided pinna can be variously lobed; pinnae margins entire, crenate to shallowly toothed; sori oblong to linear, generally covered by a translucent to whitish-green indusium; sori brown to reddish brown. The following taxa can be found in Florida.

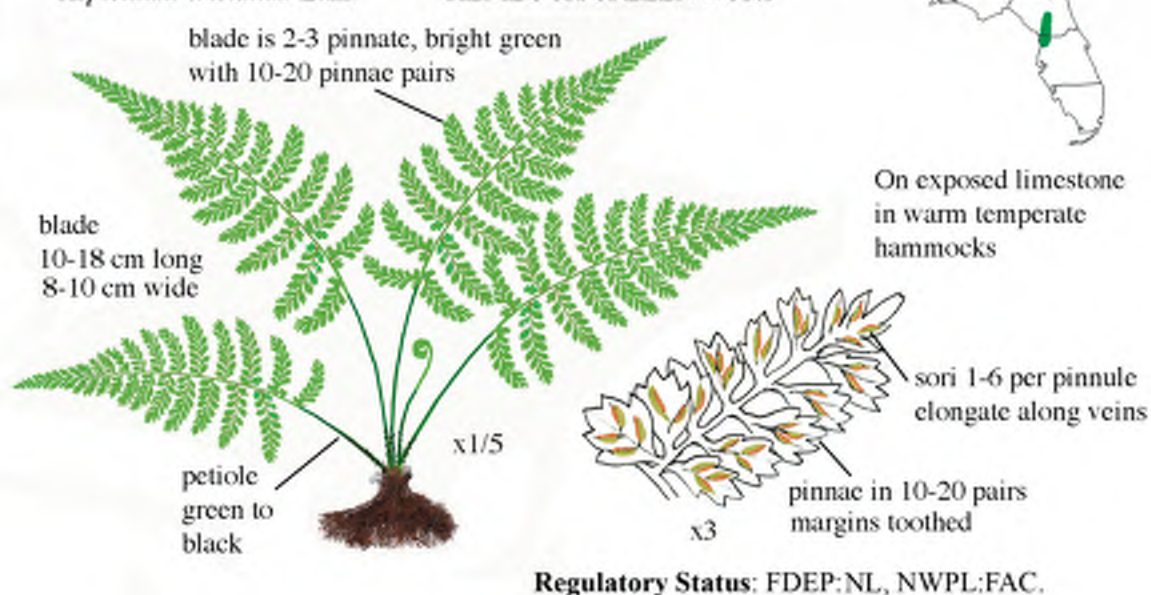
Asplenium abissussum Willd.

CUTLEAF SPLEENWORT



Asplenium cristatum Lam.

HEMLOCK SPLEENWORT

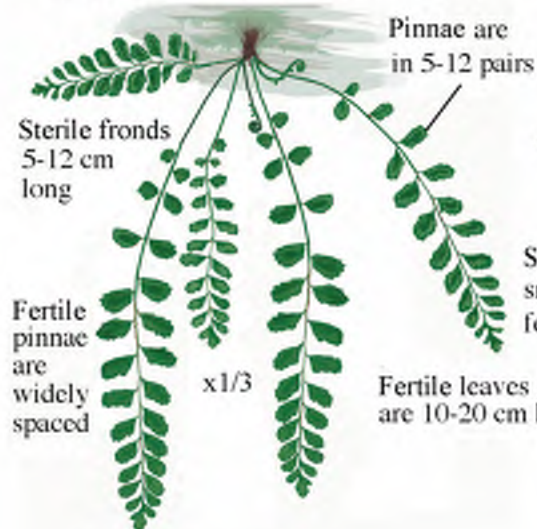


ASPLENIACEAE

Asplenium spp.

Asplenium dentatum L.
(=*Asplenium trichomanes-dentata* L.)

TOOTHED SPLEENWORT



Fertile pinnae note teeth along upper portion

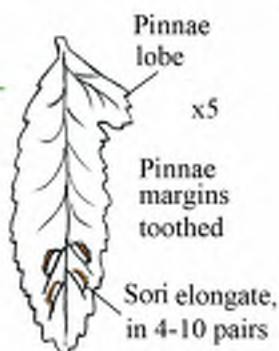
Sterile fronds are smaller and shorter than the fertile fronds

On exposed limestone in tropical and warm temperate hammocks

Regulatory Status: FDEP:NL, NWPL:FACU; Endangered (State).

Asplenium erosum L.
(conspecific with *A. auritum* Swartz)

EARED SPLEENWORT

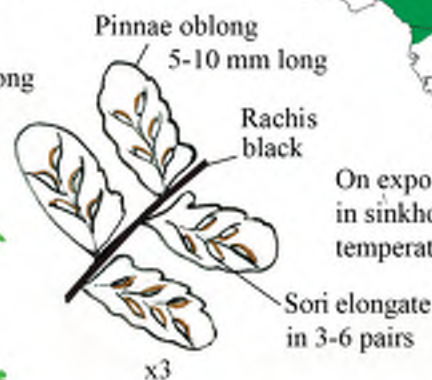
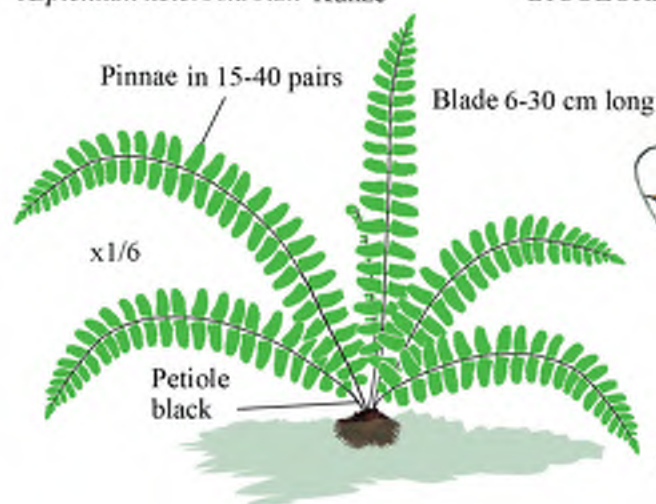


Epiphytic in strand swamps, and warm temperate forests.

Regulatory Status: FDEP:NL, USACE:NL; Endangered (State).

Asplenium heterochroum Kunze

BICOLORED SPLEENWORT



On exposed limestone in sinkholes and warm temperate forests.

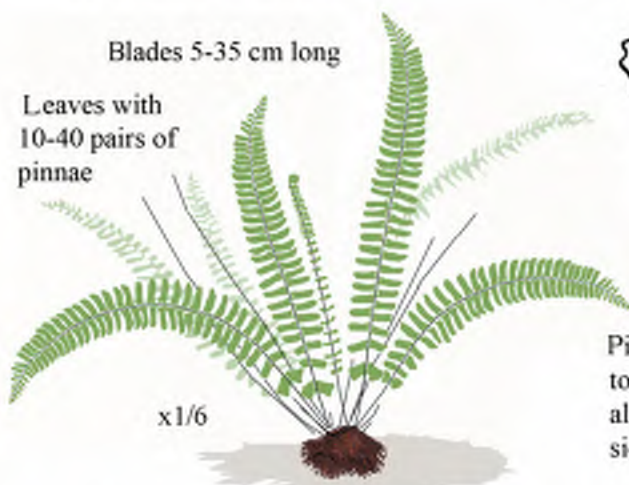
Regulatory Status: FDEP:NL, NWPL:FAC.

Asplenium spp.

ASPLENIACEAE

Asplenium monanthes L.

SINGLE-SORUS SPLEENWORT



Blades 5-35 cm long

Leaves with
10-40 pairs of
pinnae

x1/6



Pinnae asymmetric

x5

Rachis reddish-brown

Oblong
sori 1-3
produced
on one side of
pinnae

Pinnae
toothed
along two
sides

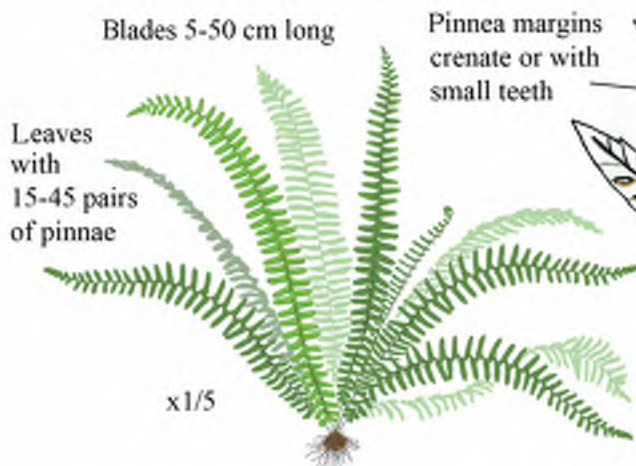


On exposed limestone
in warm temperate
forests

Regulatory Status: FDEP:N/A,
NWPL:NL; Endangered (State).

Asplenium platyneuron (L.) Britton et al.

EBONY SPLEENWORT

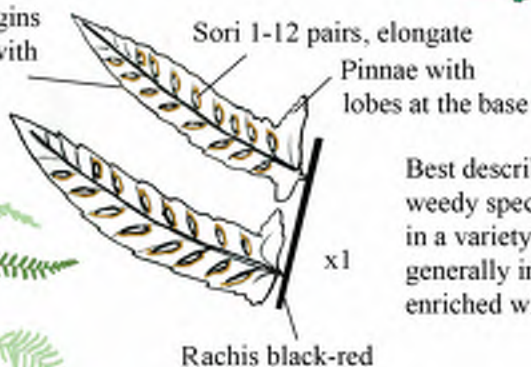


Blades 5-50 cm long

Leaves
with
15-45 pairs
of pinnae

x1/5

Pinnae margins
crenate or with
small teeth



Sori 1-12 pairs, elongate

Pinnae with
lobes at the base

x1

Rachis black-red

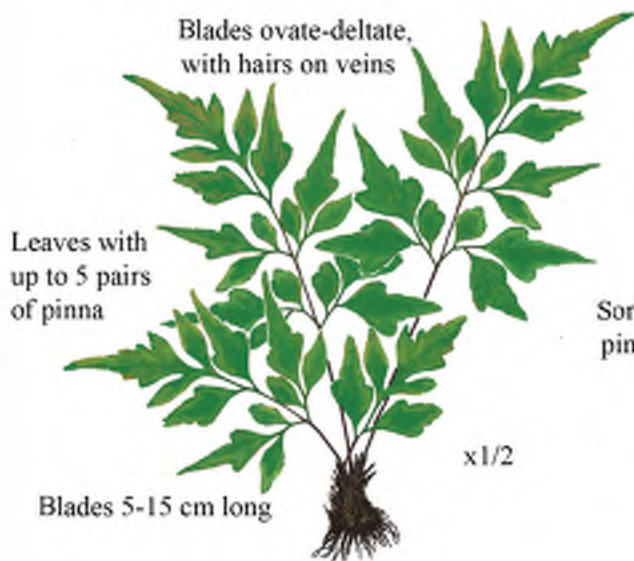


Best described as a
weedy species; found
in a variety of habitats
generally in areas
enriched with lime

Regulatory Status: FDEP:NL, NWPL:FACU.

Asplenium pumilum Sw.

DWARF SPLEENWORT

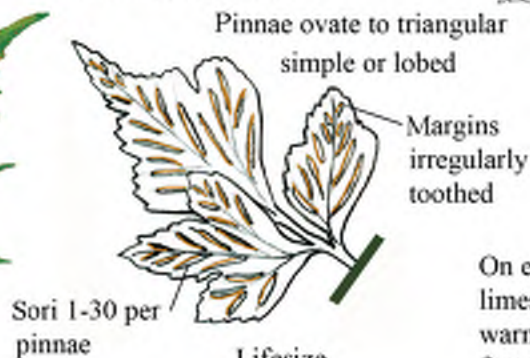


Blades ovate-deltate,
with hairs on veins

Leaves with
up to 5 pairs
of pinna

x1/2

Blades 5-15 cm long



Pinnae ovate to triangular
simple or lobed

Margins
irregularly
toothed

Sori 1-30 per
pinnae

Lifesize



On exposed
limestone in
warm temperate
forests.

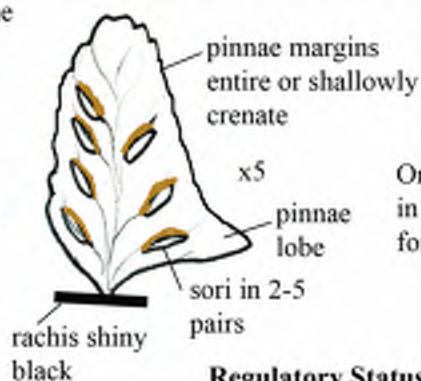
Regulatory Status: FDEP:NL, NWPL:FAC;
Endangered (State).

ASPLENIACEAE

Asplenium spp.

Asplenium resiliens Kuntze

BLACK-STEMMED SPLEENWORT

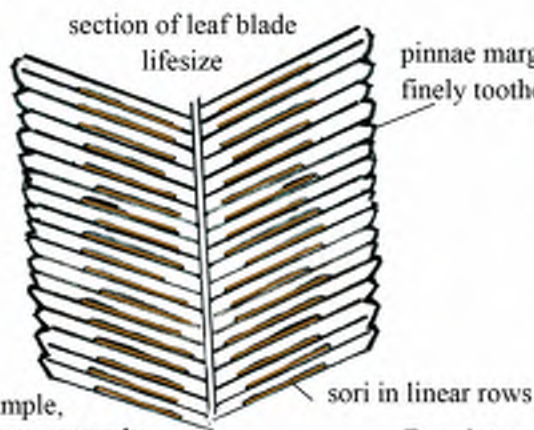
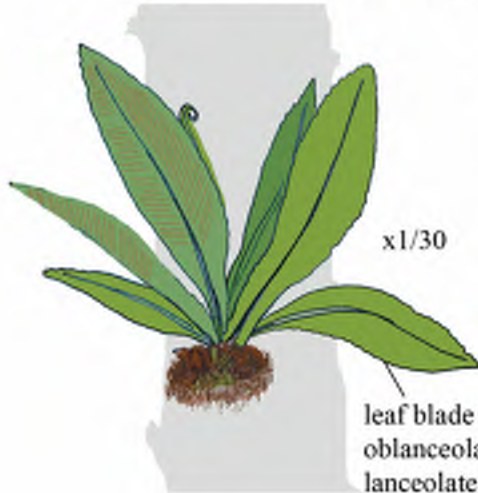


On exposed limestone in warm temperate forests

Regulatory Status: FDEP:NL, NWPL:NL.

Asplenium serratum L.

BIRD'S-NEST SPLEENWORT



An epiphyte in subtropical strand swamps and warm temperate swamps

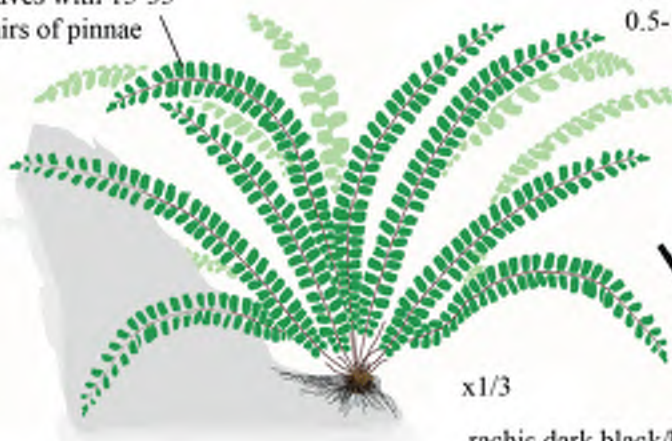
Regulatory Status: FDEP:NL, NWPL:NL; Endangered (State).

Asplenium trichomanes L.

MAIDENHAIR SPLEENWORT

leaves with 15-35 pairs of pinnae

leaves 5-20 cm long; 0.5-1.5 cm wide



On exposed sandstone in warm temperate forest

rachis dark black/brown/red throughout

Regulatory Status: FDEP:NL, NWPL:NL.

Asplenium spp.

ASPLENIACEAE

Asplenium verecundum Chapm. ex Underw.

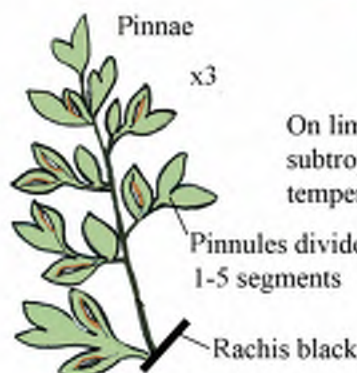
MODEST SPLEENWORT

Leaves with 10-20 pairs of pinnae

Leaves 2-3 pinnate
10-21 cm long x 1-3 cm wide

x1/3

Black narrowly
triangular
scales
at base of leaves



Elongate sori
one per pinnule

Regulatory Status: FDEP:NL,
NWPL:NL; Endangered (State).



On limestone in
subtropical and warm
temperate forests

Asplenium x biscaynianum (D.C.Eaton)A.A.Eaton

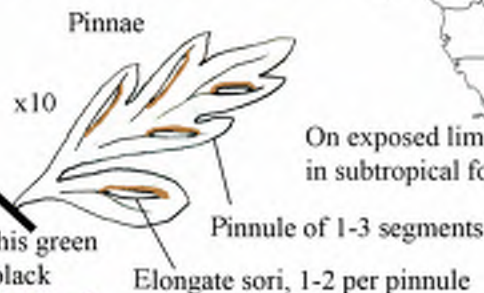
BISCAYNE SPLEENWORT

Leaves with 10-20 pairs
of pinnae

Leaves bipinnate
10-20 cm long
1-3 cm wide

x1/3

Reported to be a cross
between *A. dentatum*
and *A. verecundum*



Regulatory Status: FDEP:NL,
NWPL:NL.



On exposed limestone
in subtropical forests

Asplenium x curtissii Underw.

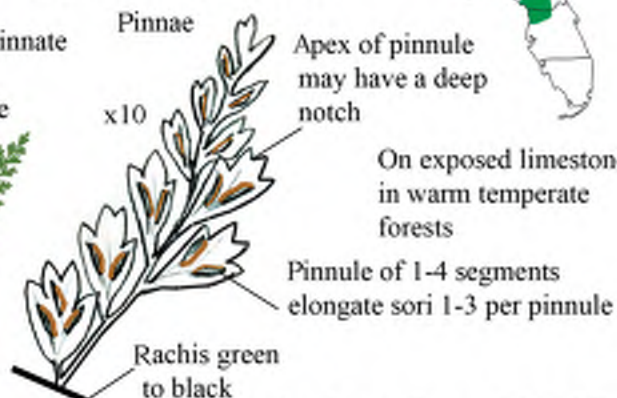
CURTISS' SPLEENWORT

Leaves with 15-20
pairs of pinnae

Leaves bipinnate
10-30 long
5-8 cm wide

x1/3

Reported to be a cross between *A. abscissum* and *A. verecundum*



Regulatory Status: FDEP:NL,
NWPL:NL.



On exposed limestone
in warm temperate
forests

ASPLENIACEAE

Asplenium spp.

Asplenium x heteroresiliens W.H. Wagner

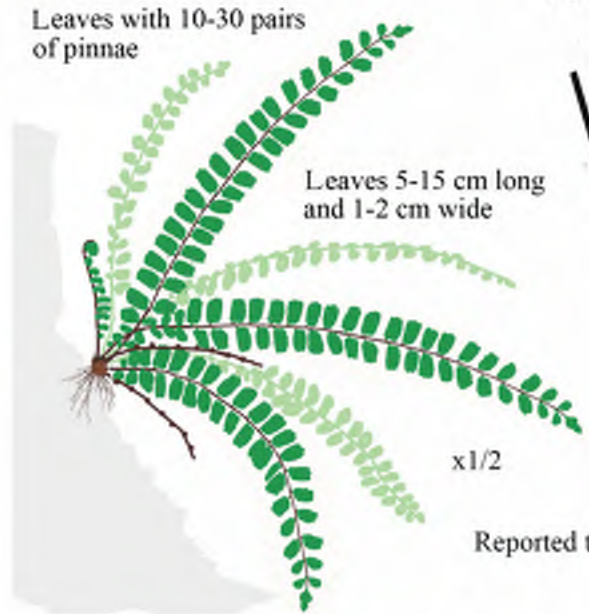
MORZENTI'S SPLEENWORT



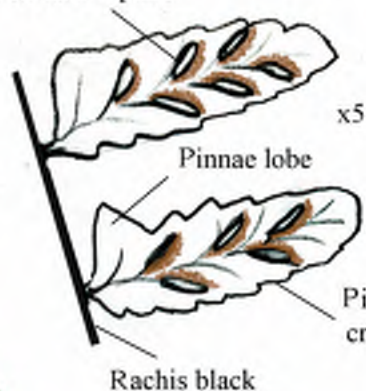
Leaves with 10-30 pairs of pinnae

Sori in 1-5 pairs

Leaves 5-15 cm long and 1-2 cm wide



x1/2



x5

Pinnae lobe

Pinnae margins crenate

Rachis black

On exposed limestone in warm temperate forests

Regulatory Status: FDEP:NL, NWPL:NL.

Reported to be a cross between *A. resiliens* x *A. heterochroum*

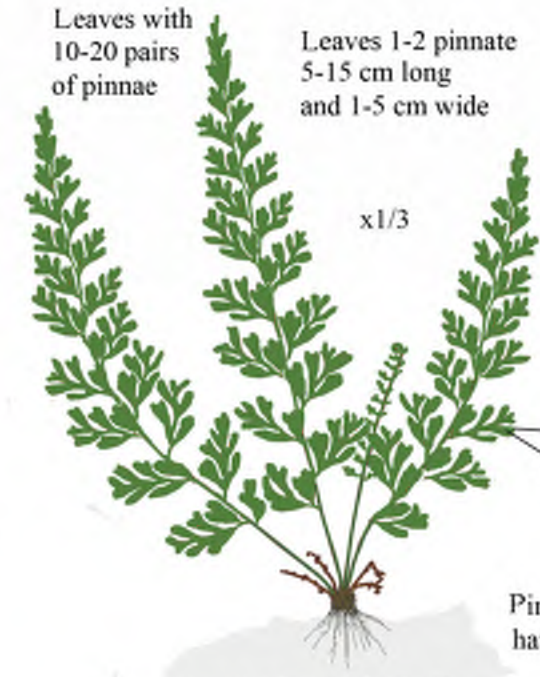
Asplenium x plenum E.P. St. John ex Small

RUFFLED SPLEENWORT



Leaves with 10-20 pairs of pinnae

Leaves 1-2 pinnate 5-15 cm long and 1-5 cm wide

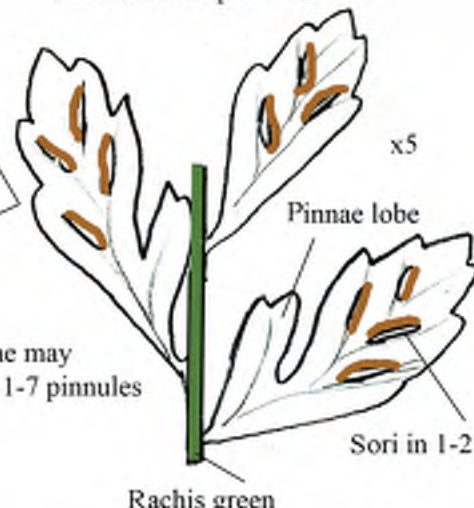


x1/3

Pinnae with 3 pinnules

On exposed limestone in warm temperate forests

Pinnae may have 1-7 pinnules



x5

Pinnae lobe

Sori in 1-2 pairs

Rachis green

Regulatory Status: FDEP:NL, NWPL:NL.

Reported to be a cross between *A. abscissum* x *A. verecundum* backcrossed to *A. abscissum*

ASPLENIACEAE

Onoclea sensibilis L.

SENSITIVE FERN

Identification: Terrestrial fern with long, creeping, reddish brown rhizomes; leaf blades deciduous, of two different kinds, dimorphic, 20 to 100 cm long by 15 to 45 cm wide; leaf stems or stipes are black; sterile leaf blades light green to yellowish green, pinnatifid, with oppositely arranged leaflets or pinnae, 5 to 11 on each side of the winged rachis; pinnae margins entire or shallowly lobed; fertile leaf blades green, changing to dark brown to black when mature, modified leaf blades or fertile pinnules are round, arranged alternately along the rachis, appear in a linear, clustered arrangement; sori covered by the revolute margins of the fertile pinnae segments.

O. sensibilis can be confused with *Woodwardia areolata*, which has alternate leaflets or pinnae with toothed and often wavy margins. *Onoclea* is called sensitive fern is because picked leaves wilt quickly.

Habitat: Marshes, forested wetlands, and floodplains.

Regulatory Status: FDEP: FACW. NPLW:FACW.

Range: Northwest and north-central Florida.



ATHYRIACEAE

Athyrium filix-femina (L.) Roth ex Mert.

SOUTHERN LADY FERN

subsp. *asplenioides* (Michx.) Hultén

Identification: Terrestrial fern to 50-100 cm tall, with deciduous, tufted leaves from a short creeping, dark brown rhizome, covered with large, brown scales; leaves of one type or monomorphic, ovate-lanceolate, narrowly triangular toward the apex, 2-pinnate-pinnatifid; pinnae or leaflets, alternate, oblong-lanceolate to lanceolate, with short toothed margins, base truncate, apex acuminate to rounded, pinnae may have forked veins; stipe or leaf stalk 10-50 cm long, yellow-green to reddish-brown with brown scales around the base, the scales may not persist; sori brown, elongate, curved or straight along the leaflet veins; indusia elongate, curved or straight with marginal hairs, produced along the forked pinnae veins.

Habitat: Found in the shade of swamp margins, stream banks, seepage wetlands, and mesic forests.

Regulatory Status: FDEP:FACW, NWPL:FAC.

Range: North Florida, north to Massachusetts, northwest to Missouri, west to Texas.



ATHYRIACEAE

Deparia petersenii (Kunze) M. Kato

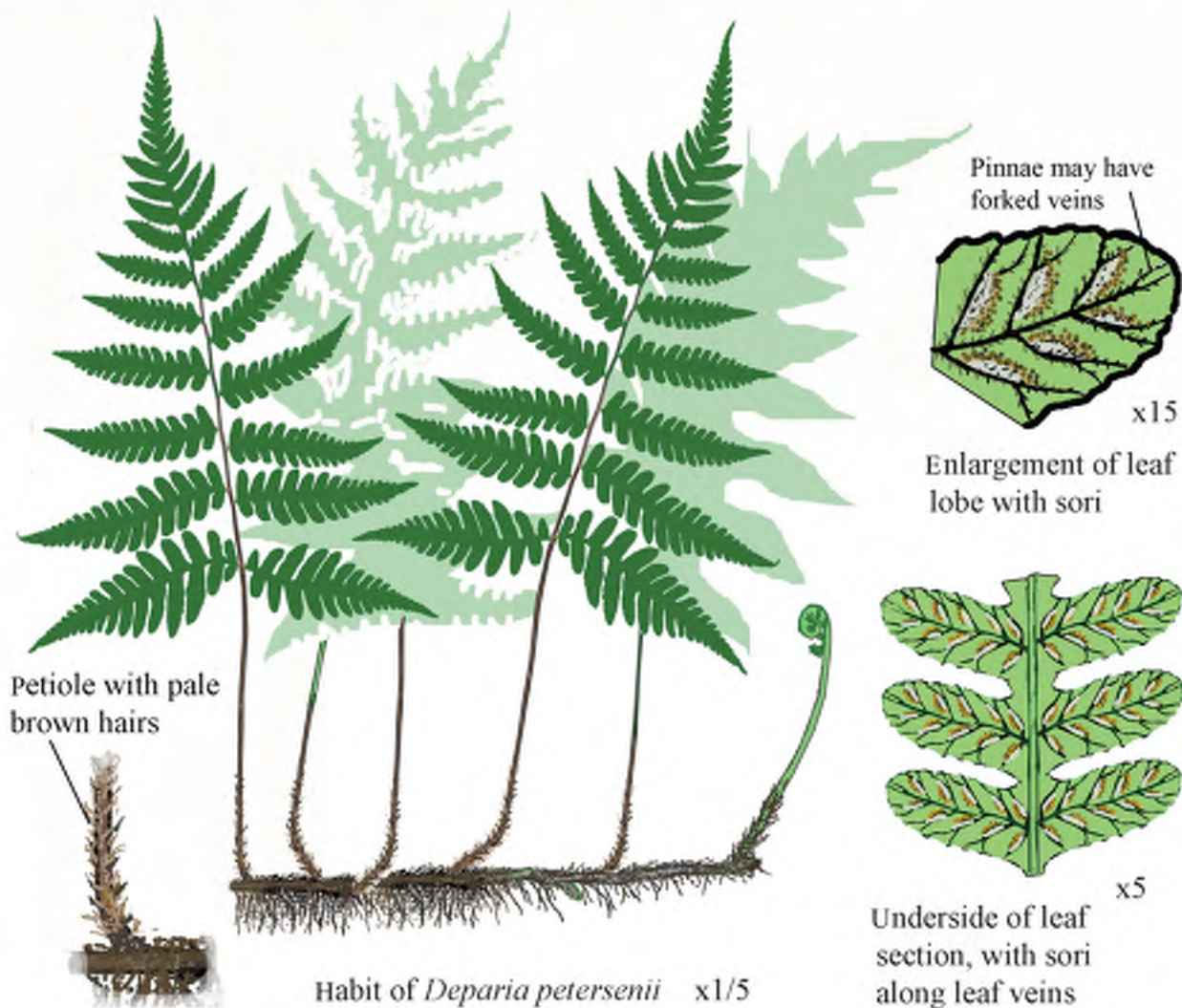
JAPANESE FALSE
SPLEENWORT

Identification: Terrestrial fern from a creeping rhizome, tufted deciduous leaves; leaves ovate-lanceolate with a triangular upper leaf section narrowing to an acuminate apex, pinnate-pinnatifid, 15-50 cm long, 5-25 cm wide, underside of leaf with hairs along veins; petiole 5-25 cm long, dark green, black to dark brown with pale brown scales to 1 mm long; indusium and sori arranged along leaflet veins, the veins can be single or forked; indusium crescent shaped with marginal hairs, and at maturity may appear silvery. In growth habit can be confused with *Thelypteris* spp. especially *T. dentata* which has round sori.

Habitat: Damp soils of seepage slopes and stream banks, floodplains and disturbed areas such as clay banks and ditches.

Regulatory Status: FDEP:NL; NPLW:FACW. FLEPPC Category 1.

Range: Naturalized with a scattered distribution throughout Florida, spreading throughout southeastern North America, naturalized in Georgia, Alabama, Mississippi and Louisiana. Native to eastern Asia, Pacific Islands and Australia.



ATHYRIACEAE

Diplazium esculentum (Retz.) Sw.

VEGETABLE FERN

Identification: Herbaceous perennial with clumped, arching leaves, from a short creeping rhizome; rhizome dark blackish-brown, covered with reddish brown scales; petiole is olive green becoming tan to brown, with a few reddish-brown scales at the base; leaves of one type, monomorphic, bright to dark green, shiny above, pale green below, broad to narrowly triangular in outline, 1-2 pinnate to 2-pinnate pinnatifid, 0.5-1 m long and 30-50 cm wide, pinnae oblong to lanceolate with a truncate base and sometimes elongate lobe (auriculate), margins shallow to deeply toothed, veins are pinnate, basal veins from adjacent pinnules come together below the sinus and extend as one to the sinus; sori elongate, flap-like, produced along pinnule veins, indusia long and narrow.

Habitat: Sometimes cultivated for edible shoots, sometimes naturalized in disturbed sites, mesic forests, wetlands and along streams.

Regulatory Status: FDEP:NL; NWPL:FACW.

Range: Introduced sporadically throughout Florida. Also introduced in scattered locations in southeastern North America. Native to southeast Asia and Africa.



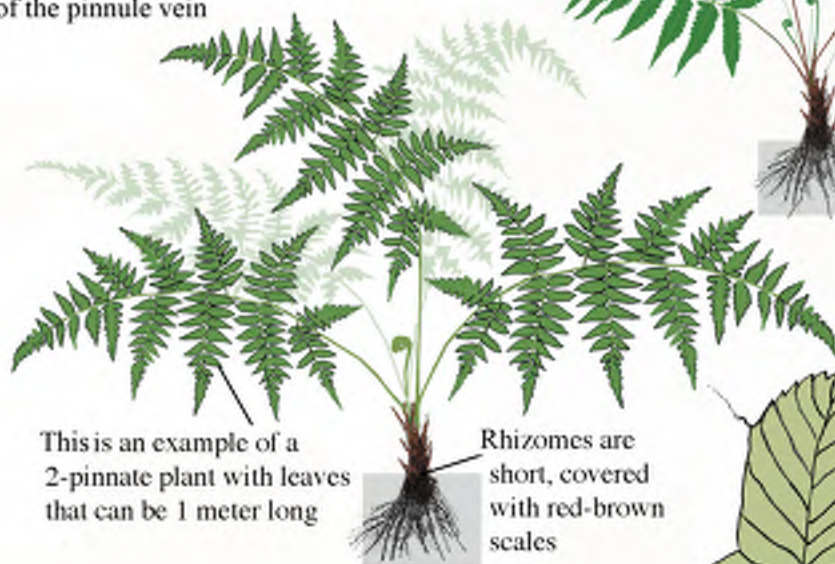
Sori elongate, produced along the pinnule veins



Some sori are produced on either side of the pinnule vein



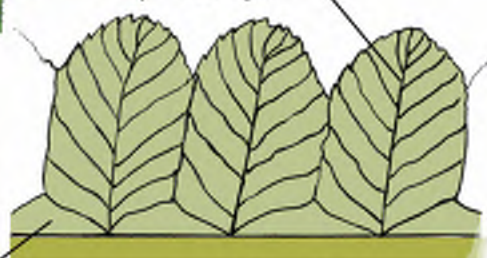
This is an example of a 1-pinnate plant



This is an example of a 2-pinnate plant with leaves that can be 1 meter long

Rhizomes are short, covered with red-brown scales

Pinna veins are pinnately arranged



Enlargement of sterile pinna

Basal veins from adjacent pinnules come together below the sinus and extend as one to the sinus

Azolla spp.

WATERFERN, MOSQUITO FERN

Identification: Aquatic floating plants or stranded in wet soils, perennial where climate allows, very small, two ranked leaves, one rank is submersed the other rank emergent, the very small, oblong to rectangular leaves are alternately arranged, about 1 mm long, distributed along a branched rhizome; plants produce microsporangia and megasporangia; roots grow downward within the water column. Plants can be green, orange-green, brownish-purple to reddish-purple. Superficially resembles *Riccia* and *Ricciocarpus*, aquatic liverworts (bryophytes).

Species Recognition:*Azolla filiculoides* Lam.

AMERICAN WATERFERN

Rhizomes with alternate branches, not pinnate.

Azolla pinnata R. Br.

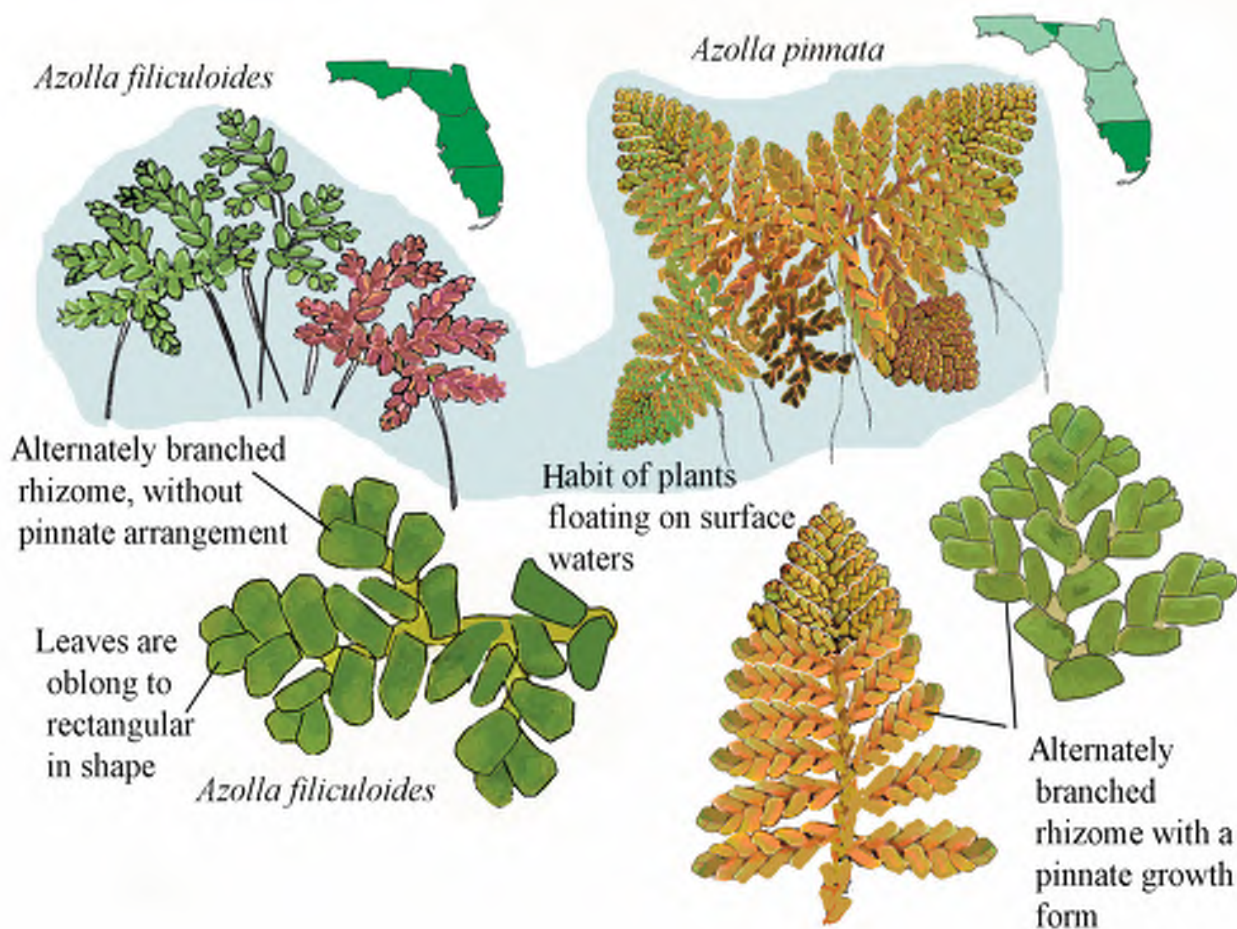
FEATHERED MOSQUITO FERN

Rhizomes produced in an alternate, relatively parallel, pinnate pattern, feather-like.

Habitat: Quiet surface waters of lake, ponds, swamps, streams and artificial water bodies such as ditches and canals. After water recedes, sometimes found stranded in wet soils.

Regulatory Status: Both *A. filiculoides* and *A. pinnata* are recognized as follows: FDEP:NL, NWPL:OBL.

Range: *Azolla filiculoides* found throughout Florida, the southeast, west to Texas, north to South Dakota, east to Maine. The taxonomy is unresolved and future revisions can be expected with this taxon. *Azolla pinnata* is native to the Old World tropics, recently introduced to Florida and North Carolina, found scattered in Florida.



BLECHNACEAE

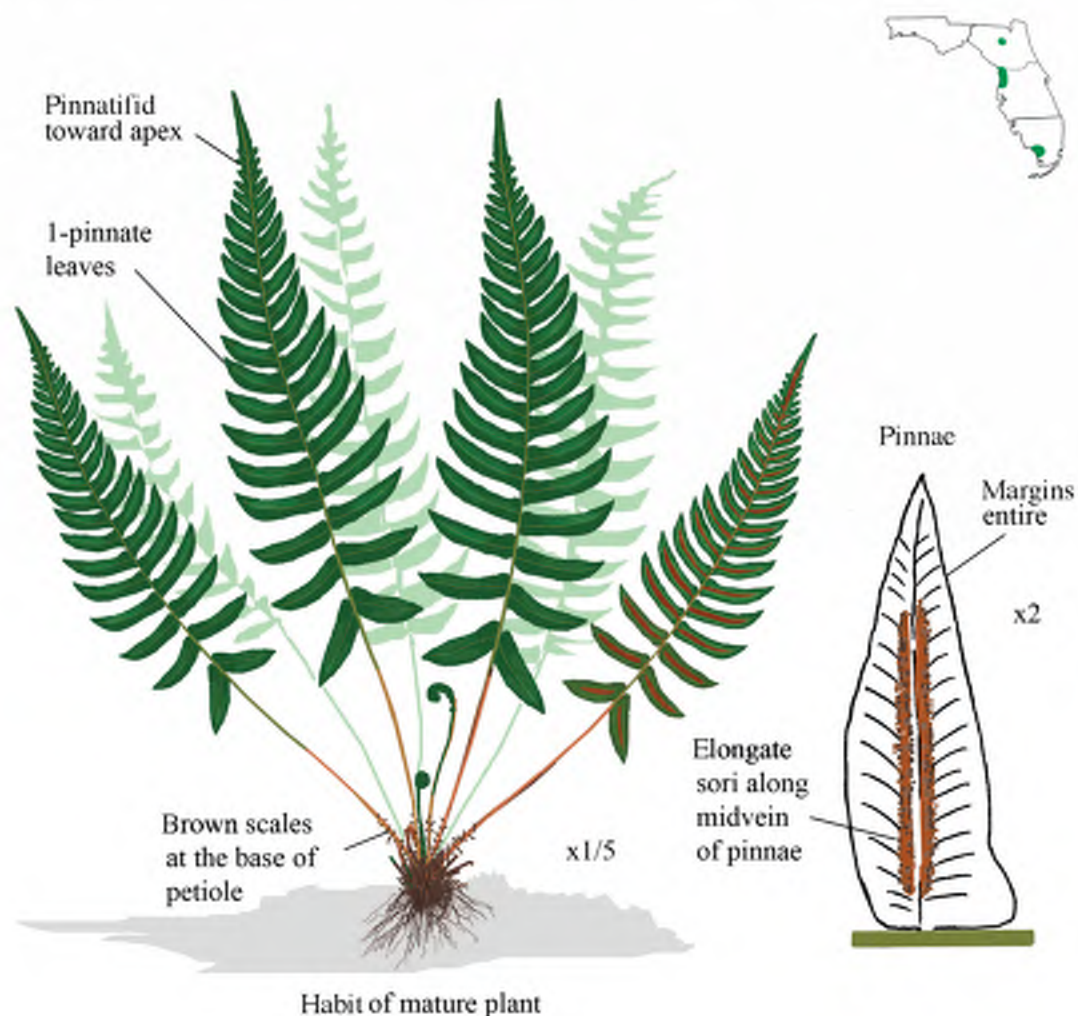
Blechnum occidentale L. var. *minor* Hook. HAMMOCK FERN

Identification: Perennial evergreen with clumped, 1-pinnate leaves from a slender creeping, branched rhizome, leaves of one type, monomorphic; petiole light brown with brown scales at the base; leaf blades broadly lanceolate, 10-30 cm long and 5-15 cm wide; rachis and costae with gland tipped hairs; pinnae narrowly lanceolate, the lowermost curved toward the apex with a short basal lobe, becoming pinnatifid distally; sori elongate, reddish brown on underside along both sides of the pinnae midvein, extending about 2/3 length of the pinnae.

Habitat: Subtropical strand swamps, ravines and hydric hammocks of warm temperate forests over limestone.

Regulatory Status: FDEP:NL; NWPL:FAC. Endangered (State).

Range: In Fakahatchee Strand of southwest Florida and disjunct to karst region of central Florida.



BLECHNACEAE

Telmatoblechnum serrulatum (Richard) Perrie et al.
(=*Blechnum serrulatum* Richard)

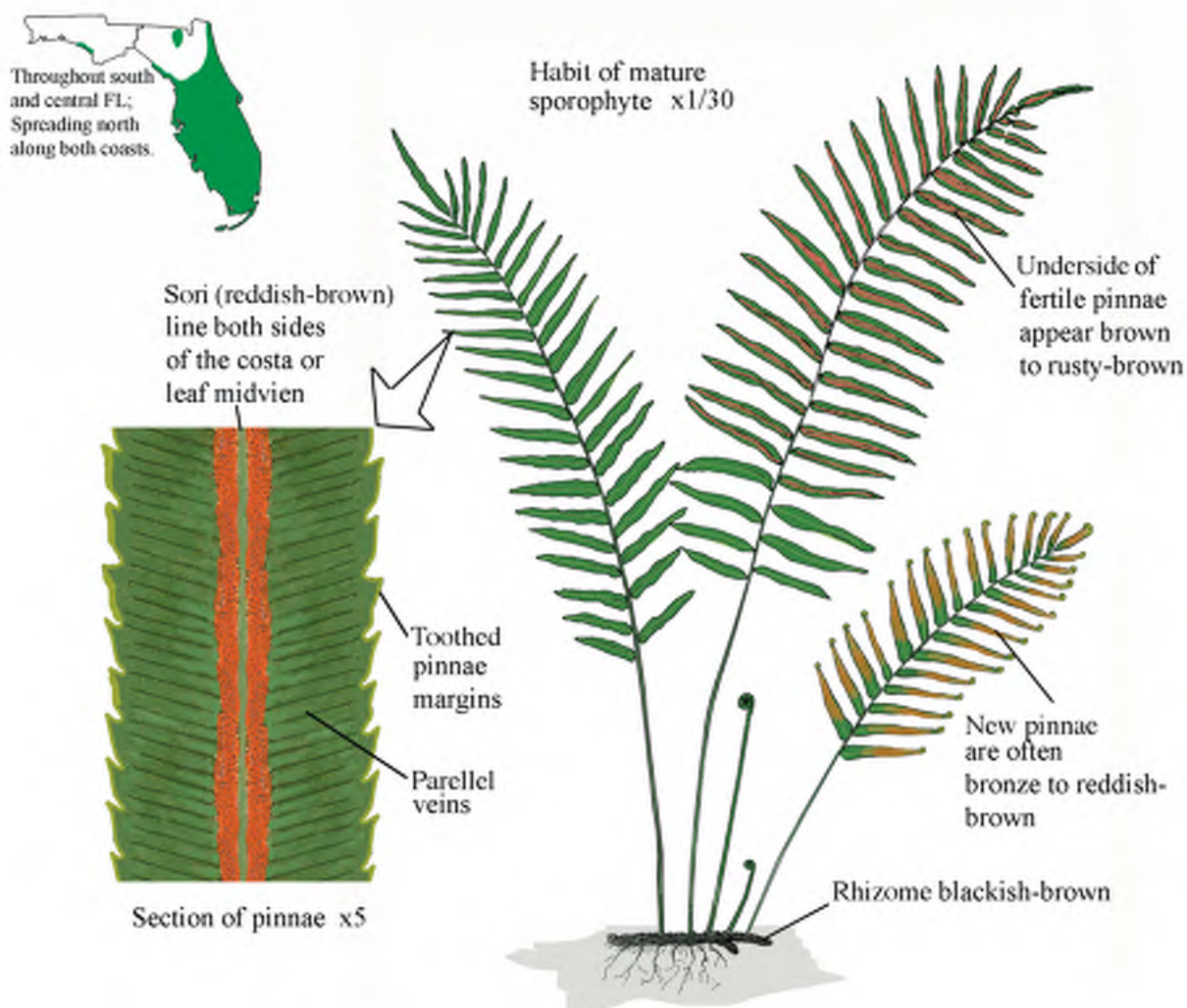
SWAMP FERN

Identification: Evergreen fern, generally with widely spaced leaves from underground rhizomes; rhizomes blackish, 10-30 cm wide; leaf stem or stipe, yellow, gray to brown with basal scales; leaves somewhat leathery with a generalized oblong shape, 10-30 cm wide and 30-70 cm long, pinnate with 5-15 alternate pinnae plus a terminal pinnae and toothed (serrate) margins; distinctive parallel veins extend from the midvein or costa to the pinna margin; although there is only one type of leaf, the fertile pinnae may be narrower and smaller than sterile pinnae; on the underside of fertile pinnae the sori appear as elongate, brown, parallel zones on each side of pinnae costa (midvein), along entire length of fertile pinnae.

Habitat: Terrestrial in moist to wet organic or sandy soils, from forested habitats such as cypress domes, tropical hammocks, wet flatwoods, to full sun wetlands such as marshes, and wet prairies. Tolerates long duration flooding.

Regulatory Status: FDEP:FACW; NWPL:FACW.

Range: Primarily found in south and central Florida, this locally common, subtropical species is spreading north as the climate warms. The dust-like spores of ferns allow for long distance wind dispersal, for example, this species is now currently established in Louisiana. Distribution beyond southeastern North American also includes new world tropical regions.



BLECHNACEAE

Woodwardia areolata (L.) Moore

(=*Anchistea virginica* (Linnaeus) C. Presl, Epimel)

NETTED CHAINFERN

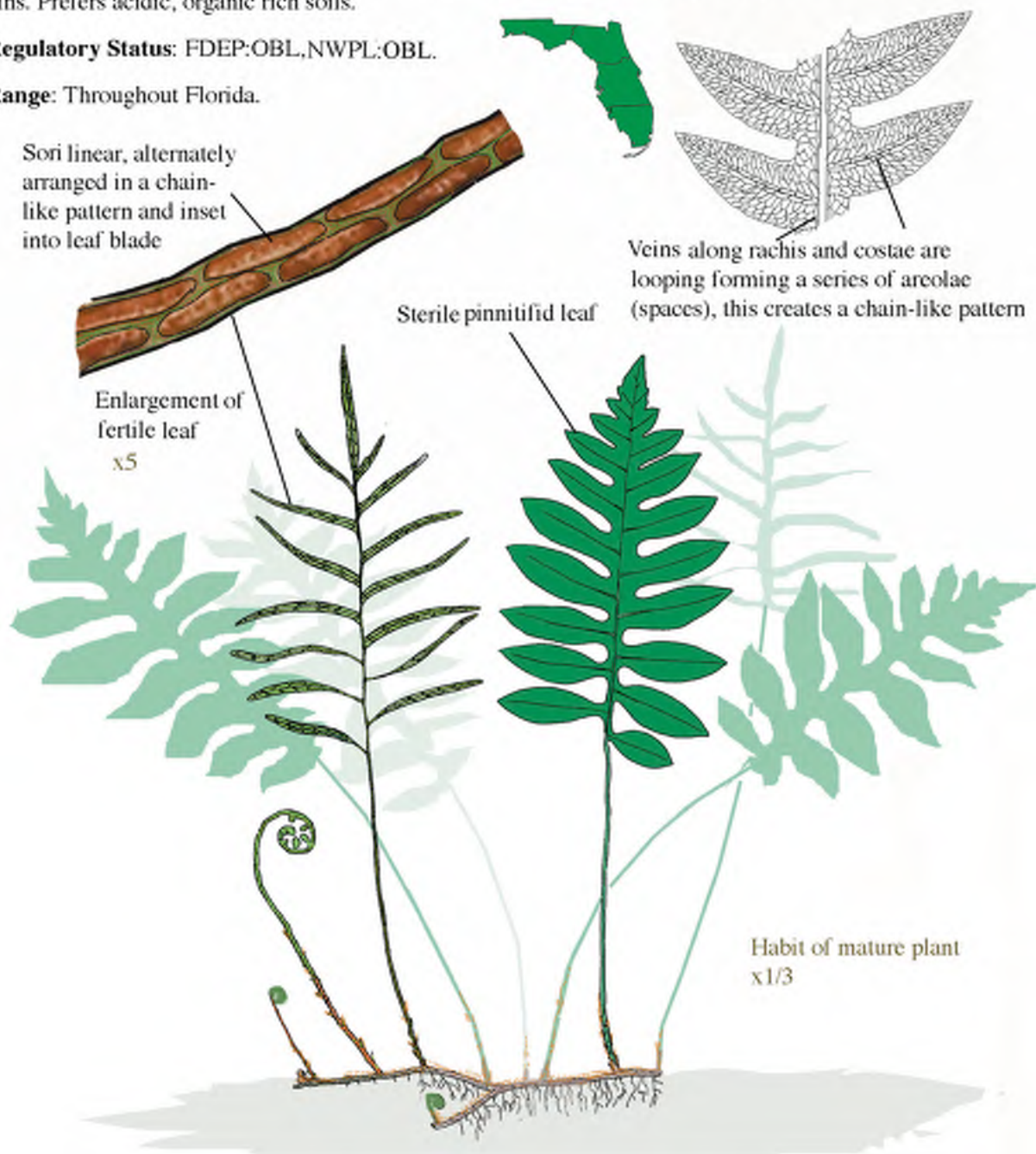
Identification: Terrestrial perennial, deciduous, fern from a long creeping, black-brown rhizome; petioles and rhizome with tan scales; base of petiole reddish-brown; sterile leaves pinnatifid, winged, 30-50 cm long, with 7-12 alternating, lanceolate pinnae, 1-2.7 cm wide, leaf venation is reticulate except for a single row of looping veins arranged in a "chain-like" pattern, blades are smooth, pale green to bronzy-green; fertile pinnae are narrowly pinnate, widely separated and alternately arranged, to 0.5 cm wide; sori linear, alternately arranged in a chain-like pattern and inset into leaf blade.

This species might be confused with *Onoclea sensibilis*, which has a black-green stipe, pinnatifid leaves, nearly opposite pinnae with wavy, entire margins; fertile pinnae in round clusters.

Habitat: A variety of wetlands, swamps, seepage slopes, baygalls, floodplains, pond and stream margins. Prefers acidic, organic rich soils.

Regulatory Status: FDEP:OBL, NWPL:OBL.

Range: Throughout Florida.



BLECHNACEAE

Woodwardia virginica (L.) E. Smith

VIRGINIA CHAINFERN

(=*Lorinseria areolata* (Linnaeus) C. Presl, Epimel.)

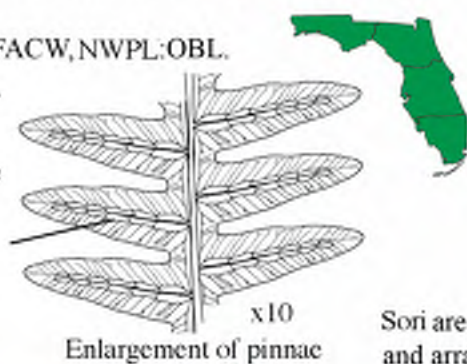
Identification: Terrestrial perennial, fern from a long creeping, black-brown rhizome with dark scales; deciduous, monomorphic, pinnate-pinnatifid leaves, 30-80 cm long, pinnae linear and narrowly lanceolate 10-15 cm long; petiole is black-purple, smooth; pinnae alternately arranged in 10-22 pairs, veins along each side of the medial costae are looping forming a series of areolae (spaces); sori are elongate and linear arranged along costae and branched from costae along veins, these and the areolae create chain-like patterns and structures; pinnae underside with mature sori may appear reddish-brown. This species could be confused with *Osmunda cinnamomea* which has netted venation and no chain-like a leaf venation nor sori. Other ferns such as *Thelypteris* which has round or kidney-shaped indusia and net venation.

Habitat: A variety of acidic soil wetlands, swamps, seepage slopes, wet prairies, hydric pine flatwoods, bogs, lake and pond edges.

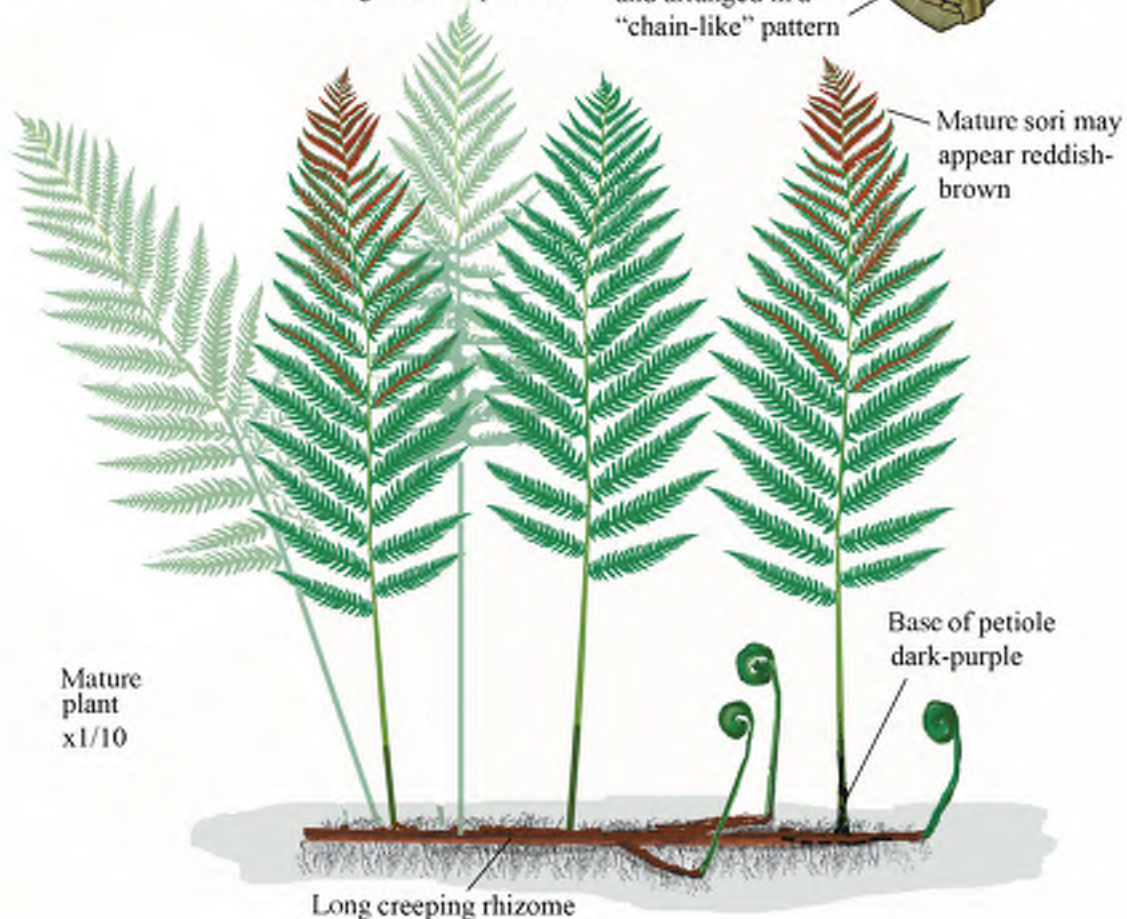
Regulatory Status: FDEP:FACW,NWPL:OBL.

Range: Throughout Florida.

Veins along each side of the medial costae are looping forming a series of areolae (spaces), these create the "chain-like" pattern



Sori are elongate and arranged in a "chain-like" pattern



DENNSTAEDTIACEAE

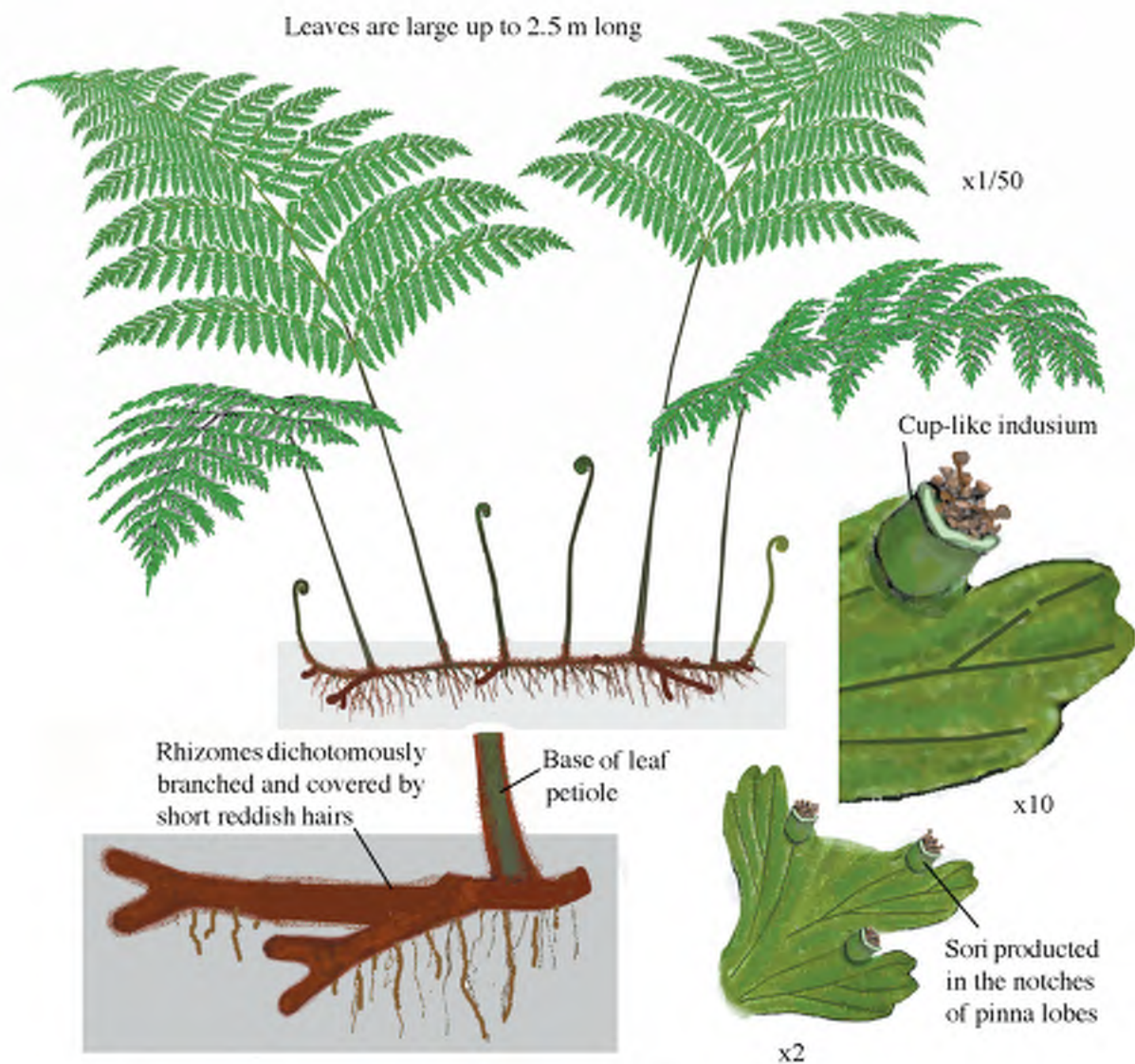
Dennstaedtia bipinnata (Cav.) Maxon BIPINNATE CUPLET FERN

Identification: Herbaceous perennial with large, arching, clustered to separated leaves, arising from a long, underground, creeping rhizome; rhizome is dichotomously branching and covered with short reddish hairs; leaf blades triangular in outline, bright green, shiny, 2-4 pinnate, 1-2.5 m long and 1-1.5 m wide; pinna with 1-9 pairs of lobes, pinnae 2-5 cm long and 1-1.5 cm wide, with toothed (dentate) margins; sori are cup-like, round, open at one end, produced in the notches of pinna lobes; petiole base dark greenish brown to tan, smooth or sparsely hairy and shiny, toward leaf blade, becoming green to olive green, rachis green to pale green.

Habitat: Subtropical hammocks, hydric hammocks and swamps.

Regulatory Status: FDEP:NL; NWPL:OBL Endangered (Florida).

Range: Historically collected in south Florida. Most recent collections were made in Seminole County, Florida. A tropical fern found in the West Indies, Mexico, Central and South America.



DENNSTAEDITACEAE

Hypolepis repens (L.) Presl.

CREeping BRAMBLE FERN

Identification: Terrestrial fern, vine-like with prickly stems, evergreen leaves from long-creeping from rhizomes covered with bristle like hairs; fronds light green, 3-4 pinnate, the large compound leaves can grow 1.5 m long; petiole pale yellowish-brown to green, covered with small prickles, and a distinct groove on top surface; leaf blade is narrowly triangular in outline, pinnules pinnatifid, with lobed margins; a crescent shaped flap of the leaf blade (a false indusium), located along the margin of the leaf sinus, covers the sori.

Habitat: Swamps, hydric hammocks, edges of forested streams, and seepage slopes.

Regulatory Status: FDEP:FACW, NWPL:FACW.

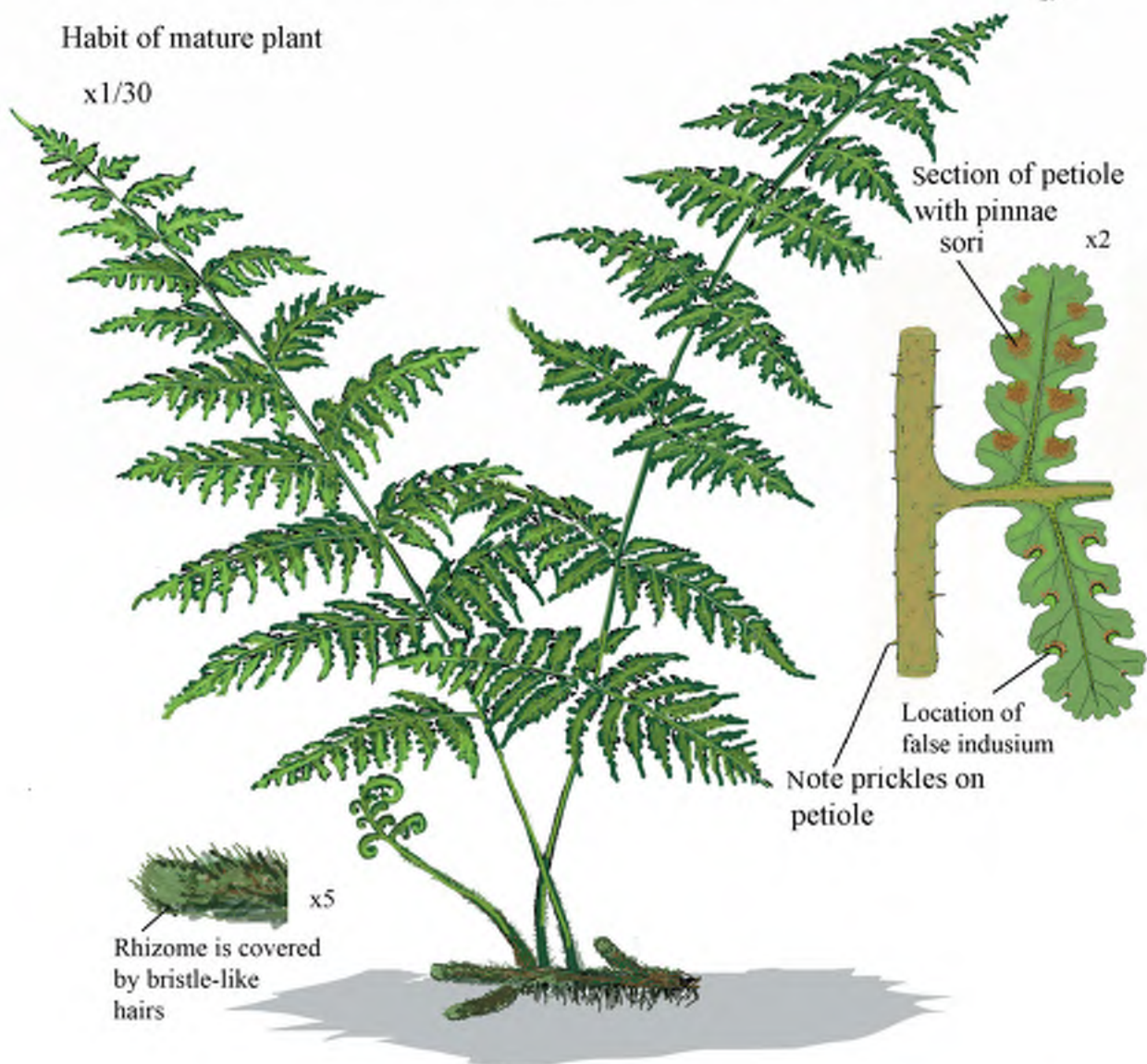
Range: Central Florida with disjunct populations in northeast and south Florida.

Florida *Hypolepis repens* have been described as an endemic species, *H. barringtonii*.



Habit of mature plant

x1/30



DRYOPTERIDACEAE

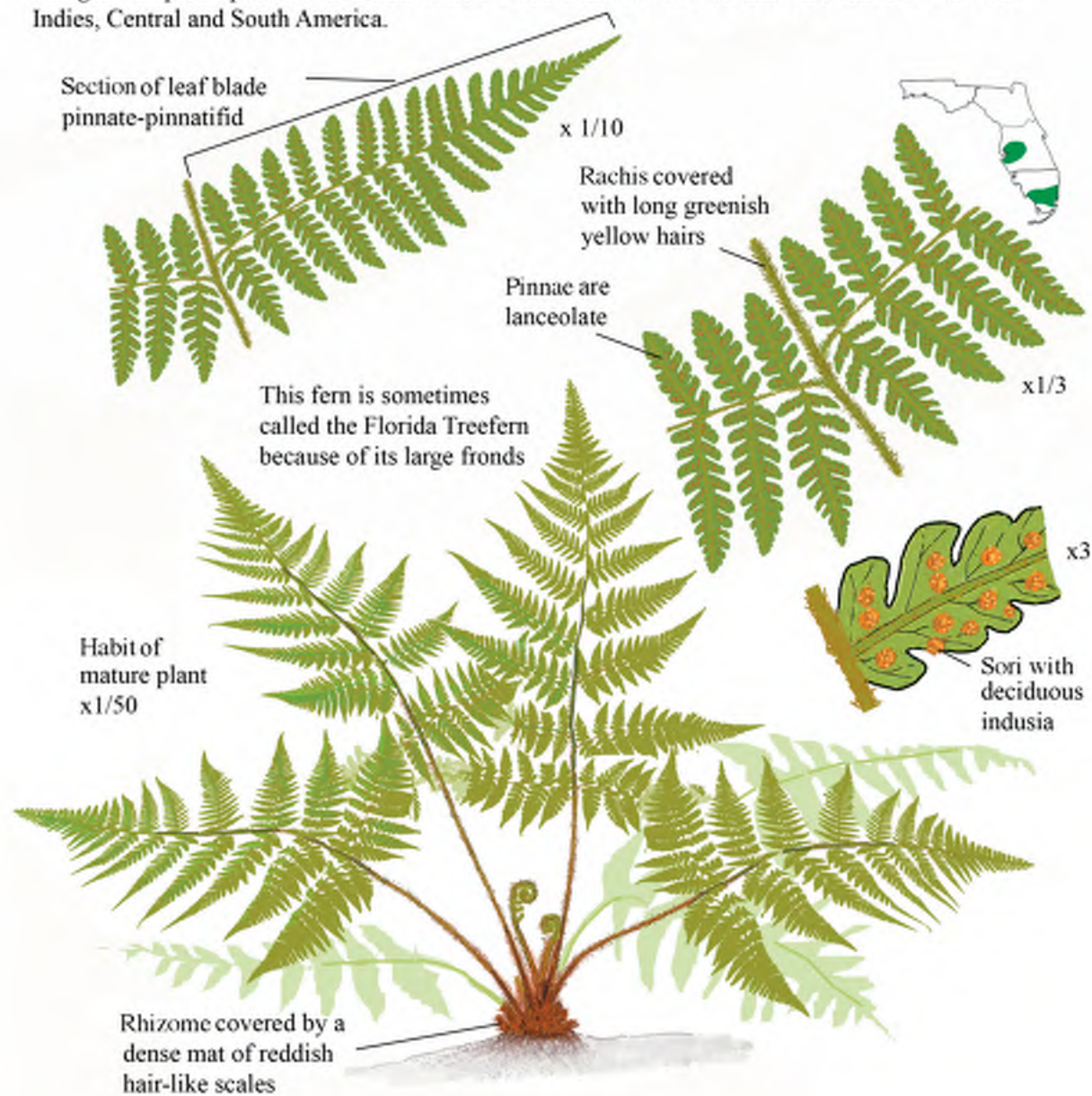
Ctenitis sloanei (Poeppig ex Sprengel) C. V. Morton RED-HAIR COMB FERN

Identification: Terrestrial, perennial, evergreen, clump forming from an angled to erect rhizome; rhizome with persistent leaf bases, stout and obscured by a dense mat of long, hair-like, red-brown scales; leaves of one type, monomorphic, leaf blade triangular in shape, 2-4 pinnate-pinnatifid, 1-1.5 m long; leaf blade is smooth or covered with flattened, yellow, glandular hairs; pinnae are pinnatifid, each segment has 1-6 pairs of veins, margins with hairs or smooth; costa is covered by yellowish hairs; rachis covered with clumps of reddish to tan hairs; sori with indusia, these are shed and sori generally appear without sori; petioles covered with orange-brown, dense, hair like scales.

Habitat: Terrestrial on organic soils and exposed limestone in tropical hammocks and swamps.

Regulatory Status: FDEP:NL, NWPL:NL. Endangered (Florida).

Range: A tropical species with a distribution in south and central Florida. Also found in the West Indies, Central and South America.



DRYOPTERIDACEAE

Ctenitis submarginalis (Langsdorff & Fischer) Ching.

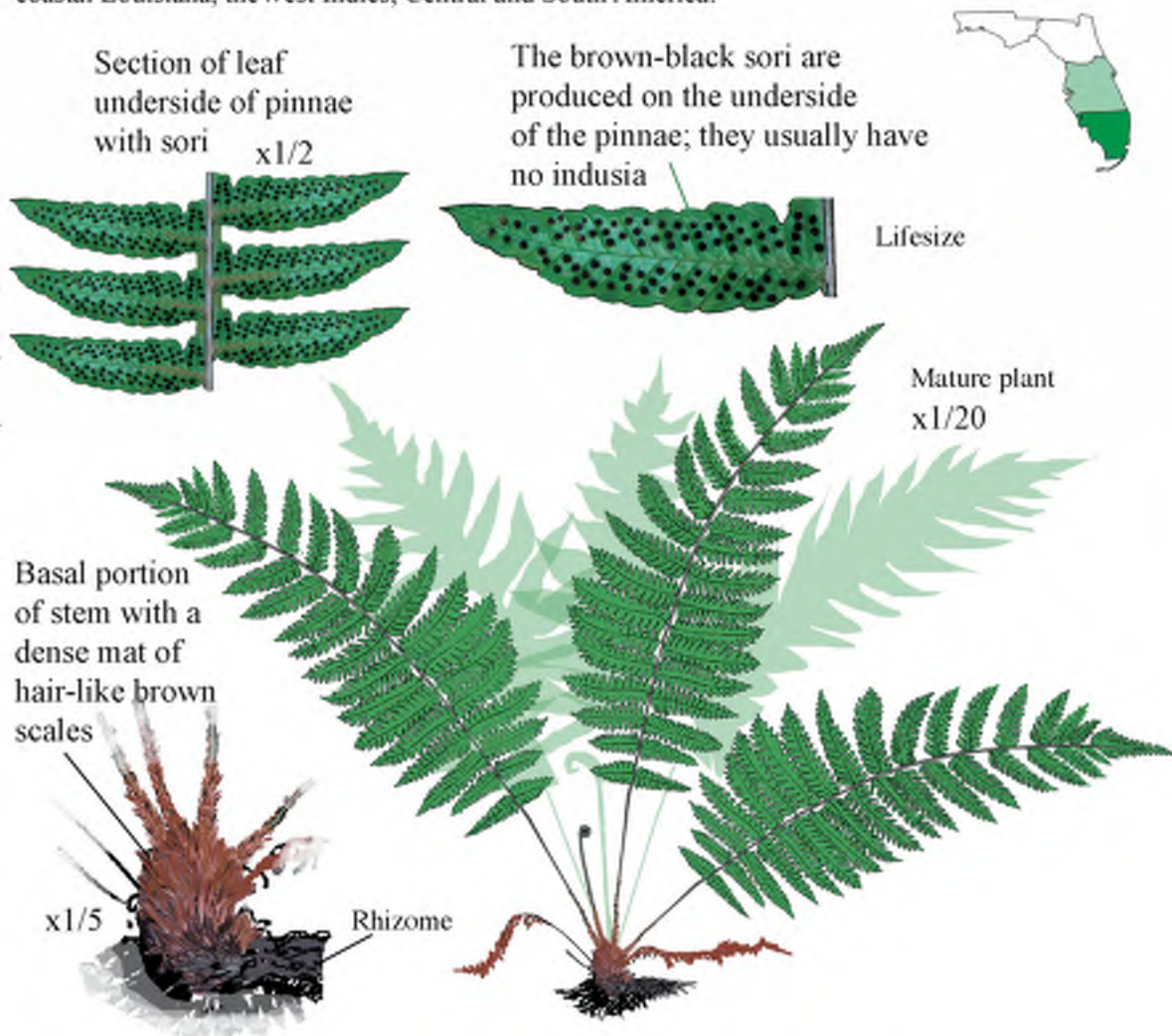
BROWN-HAIR COMB FERN

Identification: Terrestrial, evergreen, clump forming fern from an underground rhizome which is obscured by a dense mat of long, hair-like, brown scales; petiole green to pale brown, basal portion densely covered by the same hair-like brown scales that cover the rhizome; fertile and sterile leaves of one type, monomorphic, oblong with a narrowed triangular apex and a truncate base, once pinnate-pinnatifid, 10-20 cm wide, 50-100 cm long; pinna pubescent or smooth, if pubescent the glandular hairs are pale yellow and most common on the underside of pinnae; sori are round, found on the underside of pinnae between midrib (costa) and margin of pinnae, typically without the quickly shed indusia.

Habitat: Terrestrial in moist soils of swamps, hydric hammocks and disturbed areas, especially those with limestone near the soil surface.

Regulatory Status: FDEP:FACW, NWPL:FACW. Endangered (Florida).

Range: Historically confined to south Florida, spreading north. This species has also been found in coastal Louisiana, the West Indies, Central and South America.



DRYOPTERIDACEAE

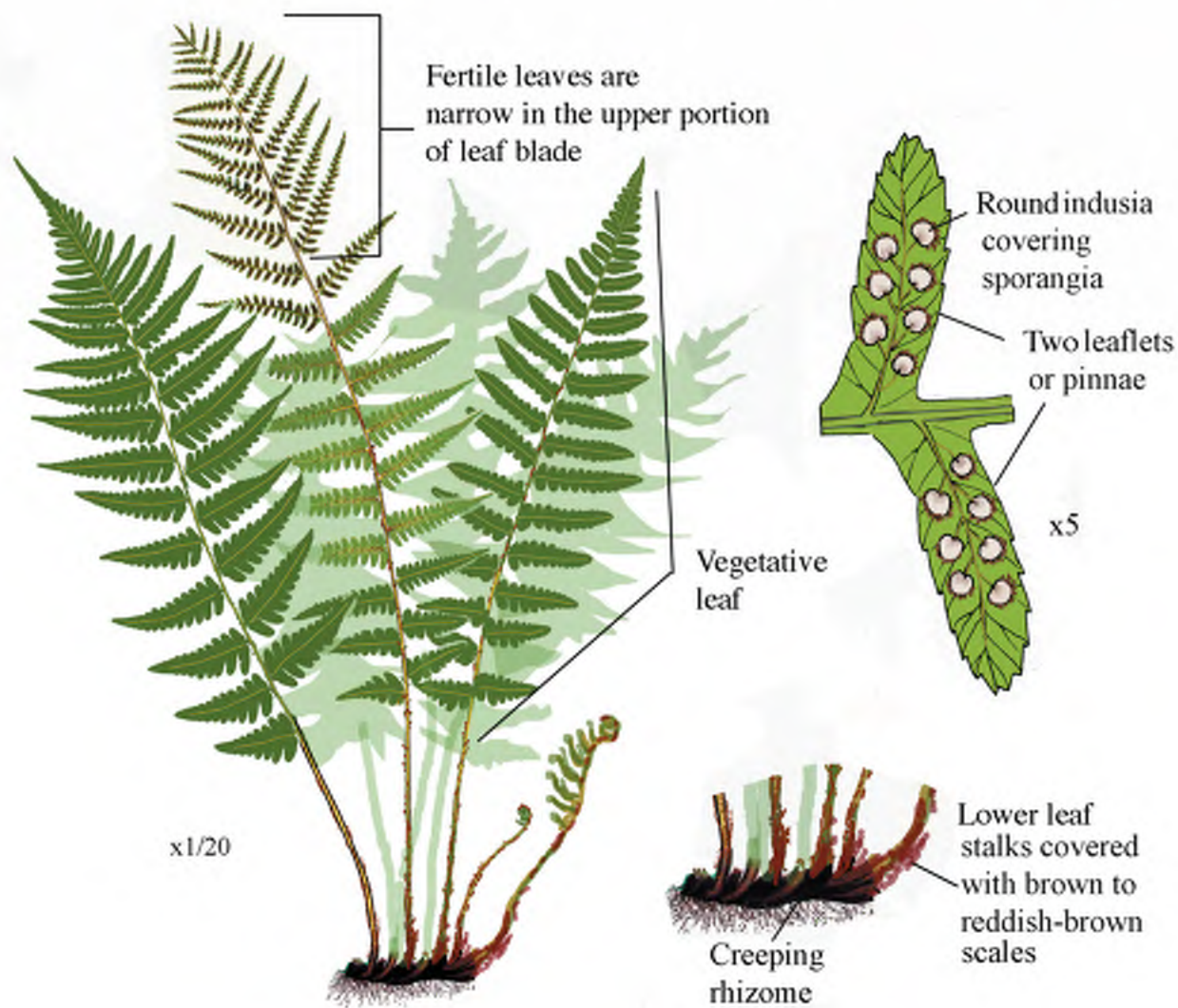
Dryopteris ludoviciana (Kunze) Small SOUTHERN WOOD FERN

Identification: Evergreen fern with leaves in a loose spiral arrangement; rhizome creeping, underground; petiole brown with basal pale brown scales; leaves somewhat leathery, shiny, dark green leaves, generally oblong in outline with a triangular apex, 30-120 cm long and 10-30 wide, pinnate-pinnatifid; leaves with sterile pinnae on the lower portion and narrower fertile pinnae on the upper or distal portion; sori clusters are brown, produced on the underside of narrowed pinnae toward the apex of the leaf; indusia are round to kidney shaped, shiny, located halfway between midrib and margin of each lobe. Can be confused with *Thelypteris* spp., *Ctenitis submarginalis*, *Osmundastrum cinnamomea*, and *Woodwardia virginica*.

Habitat: Moist soils of shady swamp and stream margins, limesinks, hydric hammocks, floodplains, baygalls and forested seepage wetlands.

Regulatory Status: FDEP:FACW, NPLW:FACW

Distribution: Endemic to southeastern North America, this species occurs throughout Florida except the southernmost counties. Also native to the coastal plain from Alabama to North Carolina with isolated populations in Louisiana and Arkansas



DRYOPTERIDACEAE

Polystichum acrostichoides (Michaux) Schott

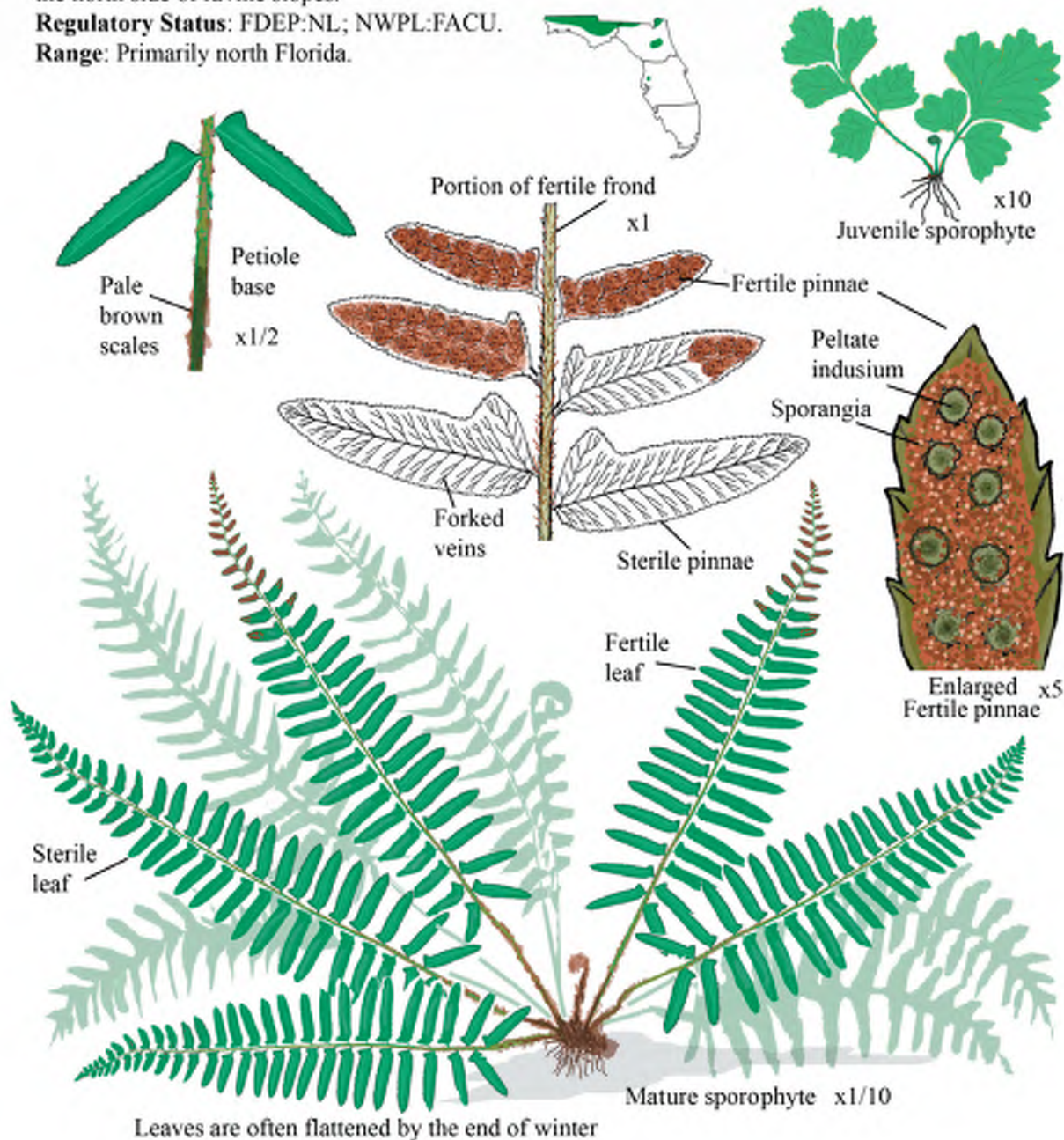
CHRISTMAS FERN

Identification: Terrestrial perennial, evergreen, with arching, dimorphic, heavy textured leaves from a short creeping brown to blackish rhizome; rachis, petiole and rhizome with brown to tan scales; base of petiole blackish-brown, covered by translucent, brown to tan scales; both sterile and fertile leaves 1-pinnate, often dark green; fertile leaves with pinnae narrowing toward the apex, these are covered by brown hairs and sporangia; sterile leaves persist through the winter; leaf blade outline is narrowly triangular to lanceolate, 40-70 cm long, 7-10 cm wide, with 30-60 alternating pinna; pinnae dark green, margins toothed, spine tipped, with basal lobes at the point of attachment to leaf stem, secondary veins are forked; indusia present, peltate; sori round produced in a single row, sporangia brown.

Habitat: Mesic forest, ravines, stream banks. In Florida restricted to cooler microclimates, generally on the north side of ravine slopes.

Regulatory Status: FDEP:NL; NWPL:ACU.

Range: Primarily north Florida.



EQUISETACEAE

Equisetum spp.

HORSETAIL, SCOURING RUSH

Identification: Herbaceous perennials from segmented, underground rhizomes; stems green, round, ridged, segmented and hollow, covered by abrasive silicates, hence the common name "scouring rush"; leaves flattened and fused onto stem sheath, these create a ring of pointed teeth; branches, if present, are segmented and produced in whorls at nodes; terminal strobilus or cone produced on erect stems, composed of whorls of peltate sporophylles; spores of one type, dust-like; gametophytes irregularly shaped, green, thallus with crests and folds, 1-2 mm.

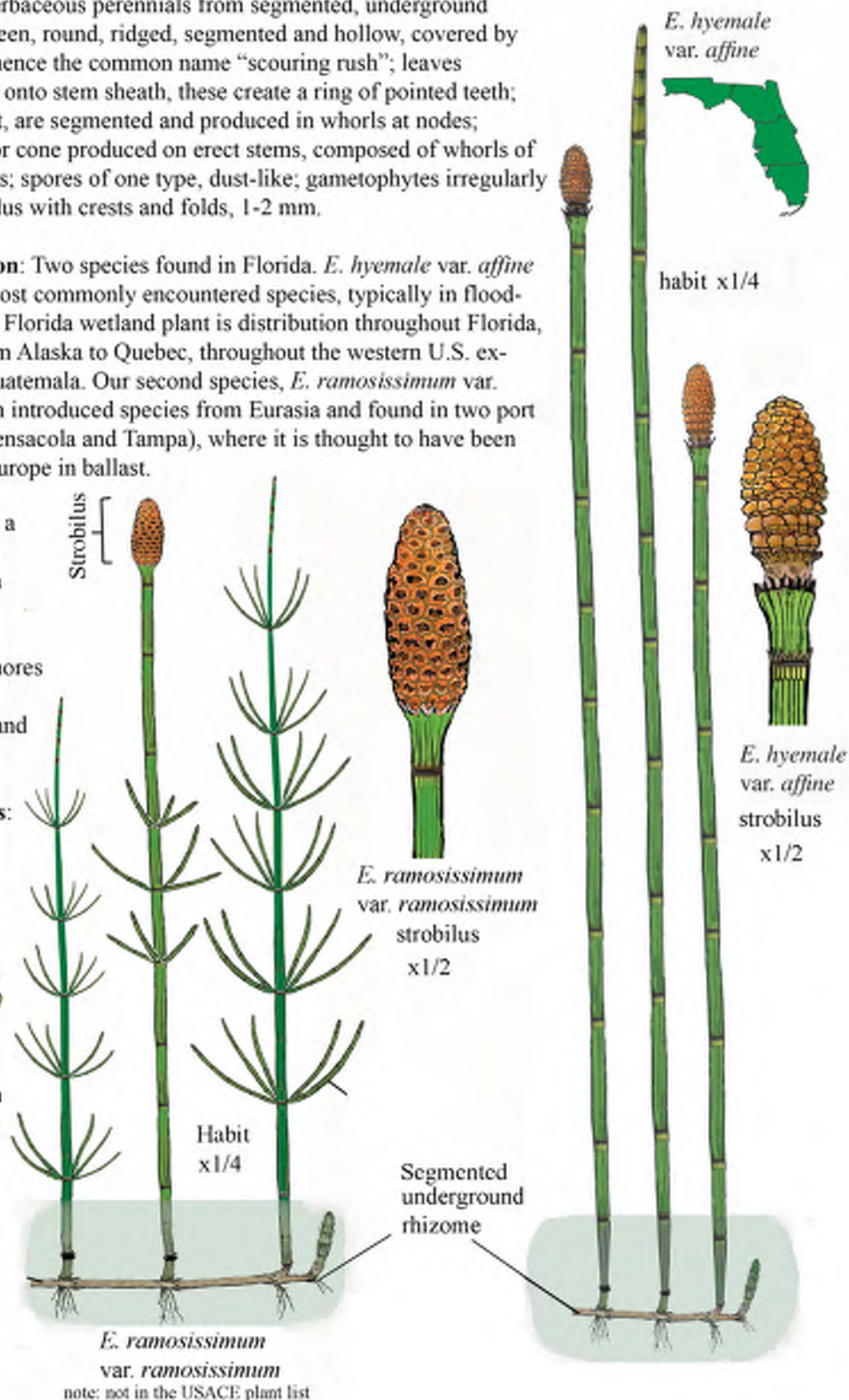
Species Recognition: Two species found in Florida. *E. hyemale* var. *affine* is native and our most commonly encountered species, typically in floodplains. This native Florida wetland plant is distribution throughout Florida, North America from Alaska to Quebec, throughout the western U.S. extending south to Guatemala. Our second species, *E. ramosissimum* var. *ramosissimum* is an introduced species from Eurasia and found in two port cities in Florida (Pensacola and Tampa), where it is thought to have been transported from Europe in ballast.

Habitat: Found in a variety of wetland habitats, in Florida most common in alluvial soils of floodplains, lakeshores and disturbed wetlands, ditches and borrow pits.

Regulatory Status:
FDEP: FACW,
NPLW: OBL.



Stem cross section



E. ramosissimum
var. *ramosissimum*
note: not in the USACE plant list

Dicranopteris flexuosa (Schrader) L. Underwood

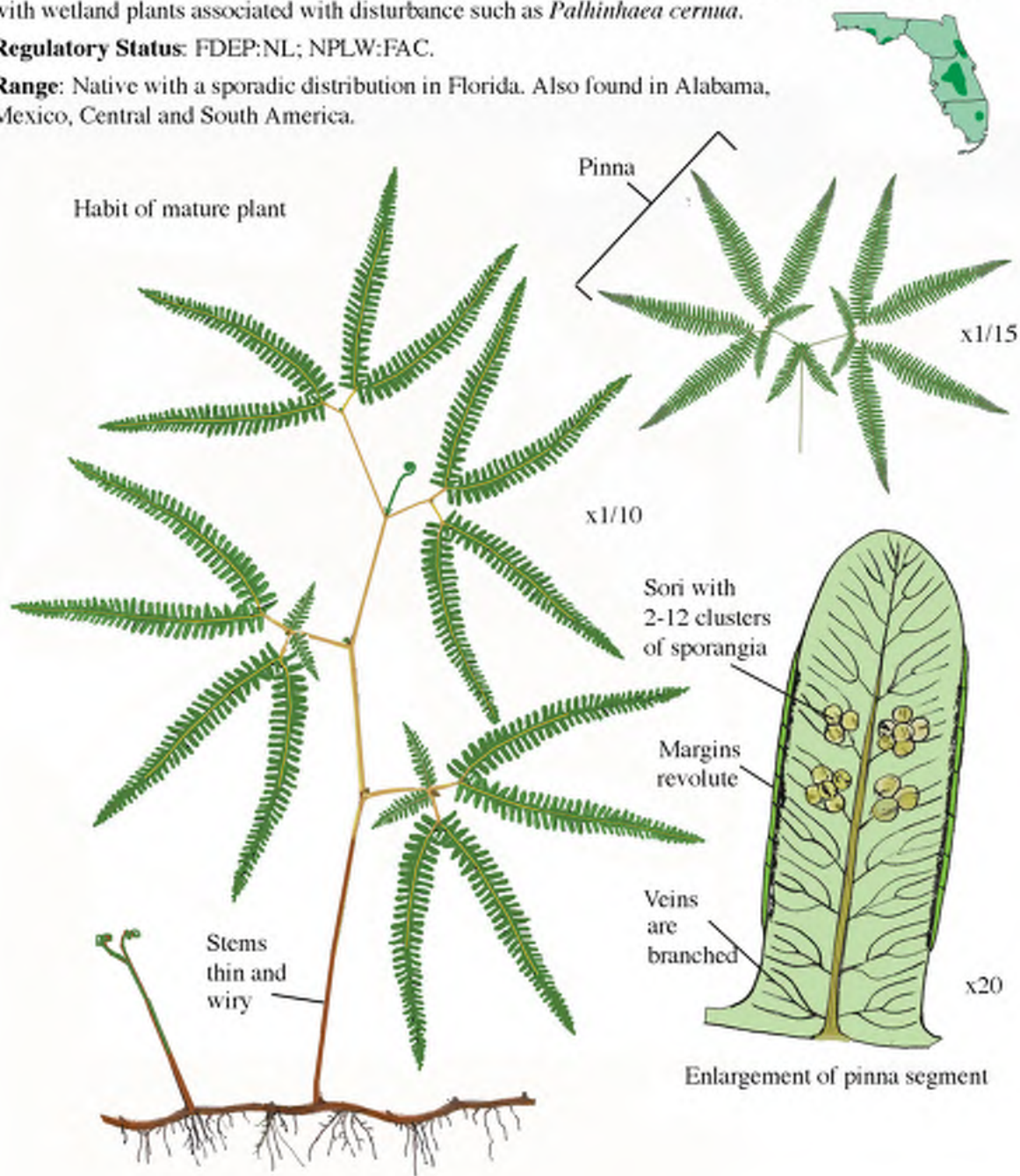
FORKED FERN

Identification: Terrestrial, herbaceous perennial with distinctive dichotomously branching leaf blades on erect, wiry stems that can climb through vegetation; stems from a thin, long creeping, underground rhizome; rhizome is covered with short reddish-brown hairs; leaves produced in pairs on slightly zig-zag stems 0.25-1 m long; leaf blades are leathery, lanceolate, deeply lobed and produced in pairs that are about the same size, the upper surface is smooth and pale green to yellow-green, the lower surface is olive green to whitish-green with a waxy surface; leaf segments revolute, the veins of the segments are branched; sori with 2-12 clusters of sporangia; petiole and stems are green becoming tan to pale reddish-brown, petiole base may have a few persistent hairs.

Habitat: Marshes, seepage wetlands and ditches, especially sandy soils with peat. Typically found with wetland plants associated with disturbance such as *Peltandra cernua*.

Regulatory Status: FDEP:NL; NPLW:FAC.

Range: Native with a sporadic distribution in Florida. Also found in Alabama, Mexico, Central and South America.



HYMENOPHYLLACEAE

Trichomanes spp.

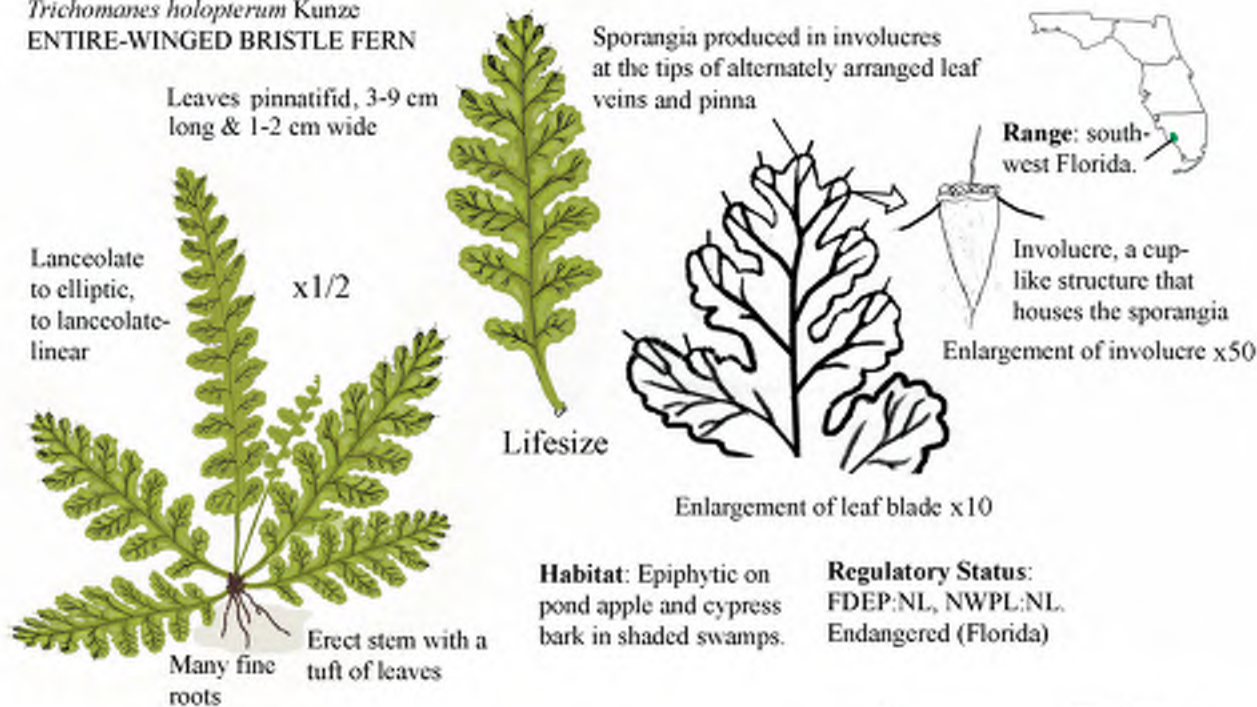
(in part = *Didymoglossum* Desv.)

BRISTLE FERN

Identification: Small, delicate perennial plants growing on rock, tree bark or rarely soil; leaves delicate, thin, produced in clumps (*T. holopterum*) or singly from long creeping rhizomes; leaf blades entire to pinnatifid; rhizomes are thin, wiry and covered in hairs; leaf blades are entire, oval to variously lobed and pinnatifid, smooth, often with a winged petiole; base of petiole with brown hairs; sporangia produced in a cup-like structure (involucre) at the tip of the leaf, there is often an exerted bristle from the involucre. The taxa: *T. krausii*, *T. lineolatum*, *T. petersii* and *T. punctatum* all share a similar growth habit of long creeping rhizomes, no roots, stellate hairs along leaf margins and leaflets with fine parallel veins.

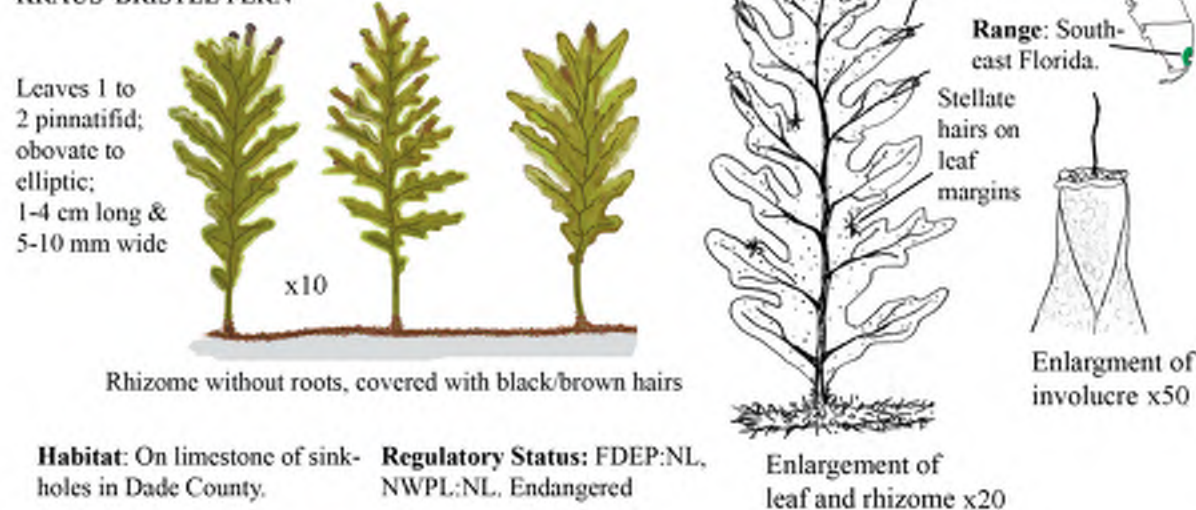
Trichomanes holopterum Kunze

ENTIRE-WINGED BRISTLE FERN



Trichomanes krausii Hook. & Grev.

KRAUS' BRISTLE FERN

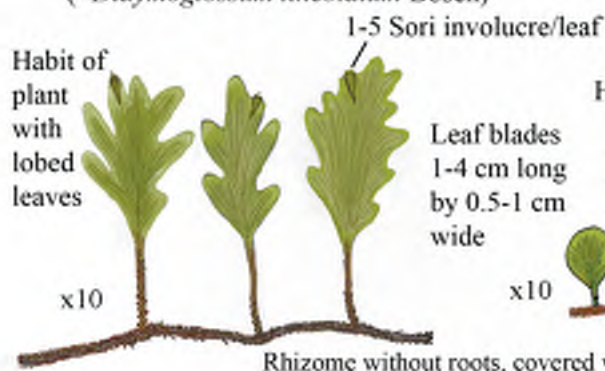


Trichomanes spp.

HYMENOPHYLLACEAE

Trichomanes lineolatum (Bosch) Hooker
(=*Didymoglossum lineolatum* Bosch)

LINED BRISTLE FERN



Habitat: On limestone of sinkholes

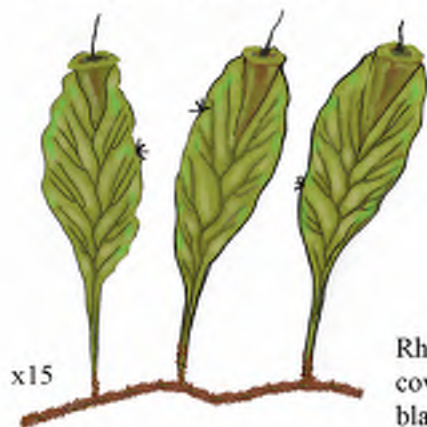


Range: Southeast Florida.

Regulatory Status:
FDEP:N/A,
NWPL:UPLAND.
Endangered (Florida)

Trichomanes petersii A.Gray
(=*Didymoglossum petersii* (A. Gray) Copeland)

DWARF BRISTLE FERN



Leaves oblanceolate 4-9 mm long by 2-7 mm wide

Leaves with forked venation



Habitat: On limestone in sinkholes

Range: Central Florida.

Regulatory Status:
FDEP:N/A, NWPL:FAC.



Trichomanes punctatum Poir. subsp. *floridanum* Wess. Boer
(=*Didymoglossum punctatum* (Poiret) Desvaux subsp. *floridanum* (Wess. Boer) Weakley & Gann)

FLORIDA BRISTLE FERN

1-6 Sori involucre/blade

Simple leaves are ovate to obovate with entire to lobed margins, 4-10 mm long x 2-8 mm wide.



Habitat: On limestone in sinkholes and

Range: Central and southeast Florida

Regulatory Status:
FDEP:N/A, NWPL:FAC.



ISOËTACEAE

QUILLWORT

Isoetes spp.

Identification: Semi-aquatic to aquatic perennial herbs; sporophytes with a short stem or corm, variously lobed, from which spirally arranged, evergreen or deciduous leaves are produced (in Florida *Isoetes* are evergreen); leaves erect or reflexed, narrow and tapered, quill-like, in cross section with four air chambers, pale at the base and green toward the leaf tip; sporangia produced in pocket-like structures at the base of a sporophyll or modified leaf; two types of spores produced, microscopic microspores and larger round, white to brown megaspores; megaspores are important taxonomically and a hand lens is generally required for field identification that includes color and various tubercles, ridges, and crests that may cover the spore surface; plant habitat may also important for identification.

Habitat: Found in a variety of wetlands and surface waters, aquatic species are found submerged in lakes and ponds, amphibious species are found in floodplains of streams and river, in Florida *I. flaccida* is found in tidal floodplains along the Wakulla and St. Marks rivers.

Regulatory Status: FDEP:NL, NPLW: OBL.

Range: *I. flaccida* is found in tidal floodplains along the Wakulla and St. Marks rivers, see maps for other species.

Four species of *Isoetes* are reported from FL.

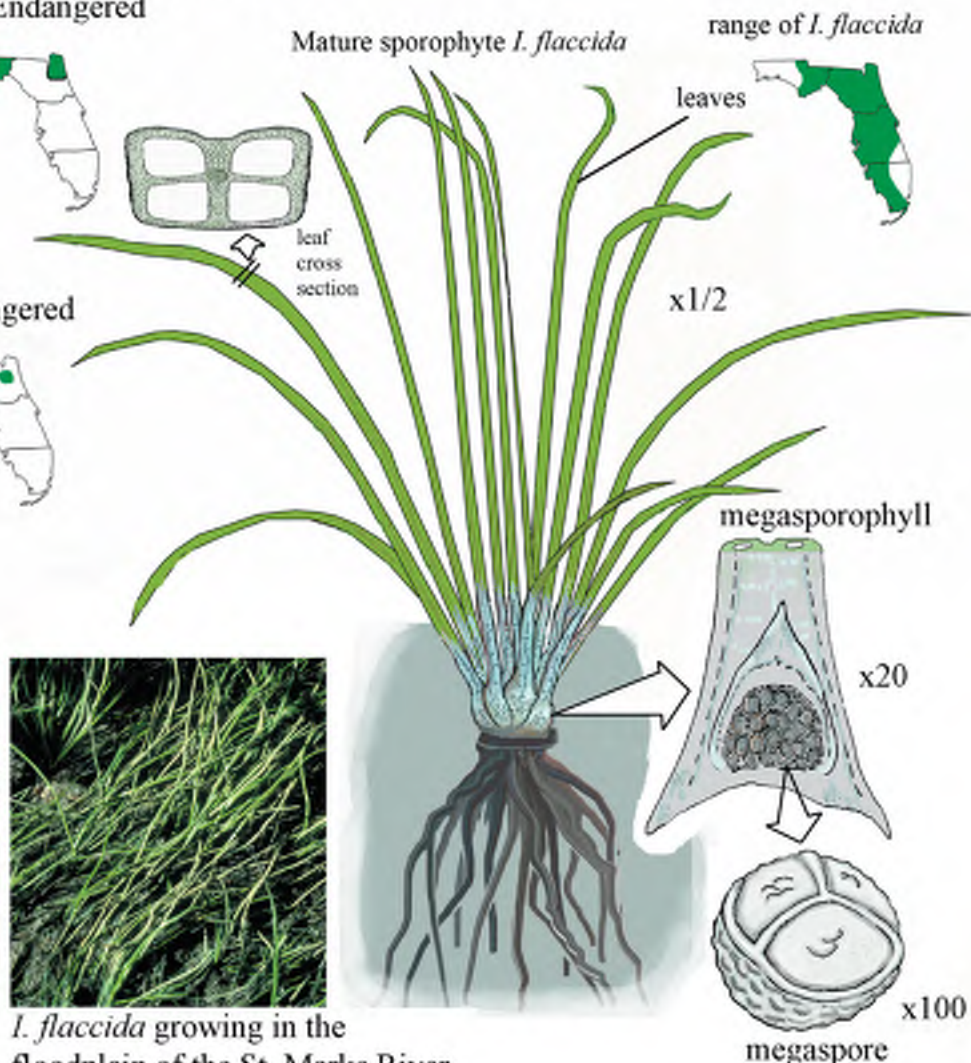
I. appalachiana FL-Endangered



I. boomii FL-Endangered



I. hyemalis



I. flaccida growing in the floodplain of the St. Marks River

LYCOPODIACEAE

Lycopodiella and *Palhinhaea* (syn. *Lycopodium*)

CLUBMOSS

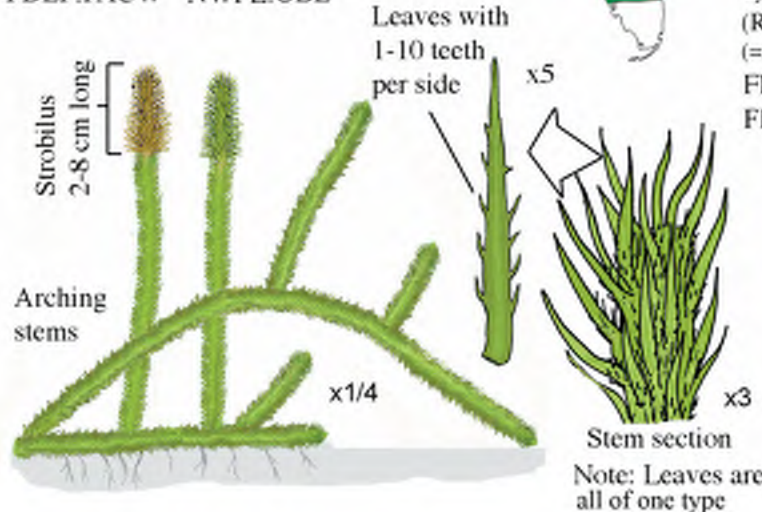
Identification: Terrestrial perennial herbs; sporophytes growing upright or appressed to the substrate, stems growing and rooting on the surface of the soil, spore bearing stems erect 30-100 cm; leaves numerous, small, scale-like, appressed on the soil or spreading from a simple or dichotomously branching stem; sporangia produced on sporophylles, modified leaves that bear pouch-like structures at the base; spores produced in sporangia collectively within a terminal strobilus or cone that is erect or pendulous; spores yellowish to whitish -yellow, dust-like; gametophytes small, green, tubular to pincushion-shaped, found on the soil surface, easily overlooked.

Habitat: Wet prairie, seepage wetlands, hydric flatwoods, bogs, edges of ponds, streams, marshes, interdunal swale, ditches and wet areas with acidic, sandy soils.

Regulatory Status: FDEP: FACW, NWPL; OBL/FACW depending on species.
Note all *Lycopodium* are listed as FACW in FDEP Chapter 62-340.450, F.A.C.

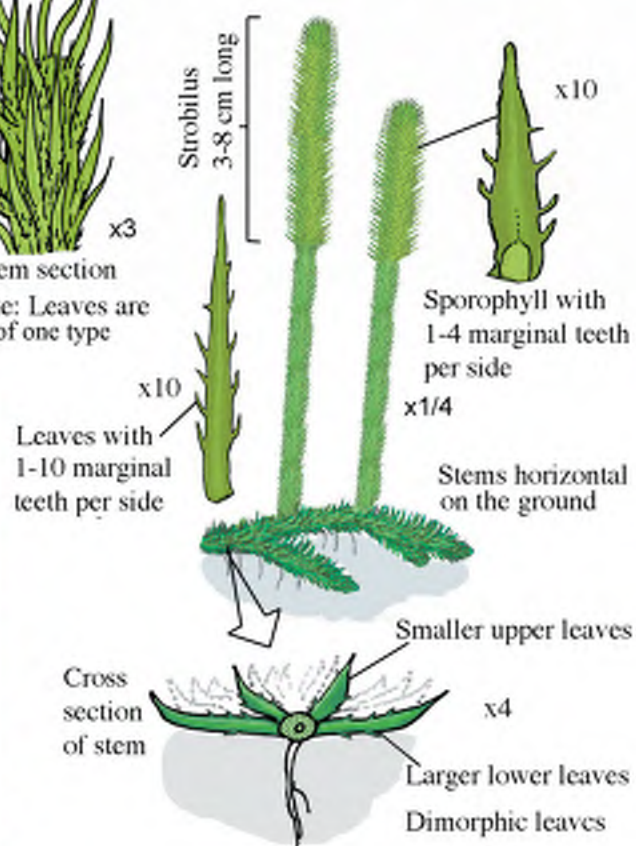
Lycopodiella alopecuroides (L.) Cranfill
(=*Lycopodium alopecuroides* L.)

FOXTAIL CLUBMOSS
FDEP:FACW NWPL:OBL



Lycopodiella prostrata

(R.M. Harper) Cranfill
(=*Lycopodium prostratum* Cranfill)
FEATHER-STEM CLUBMOSS
FDEP:FACW NWPL:OBL



Mature strobilus
lifesize



Erect stems bearing
developing strobili x 1/4

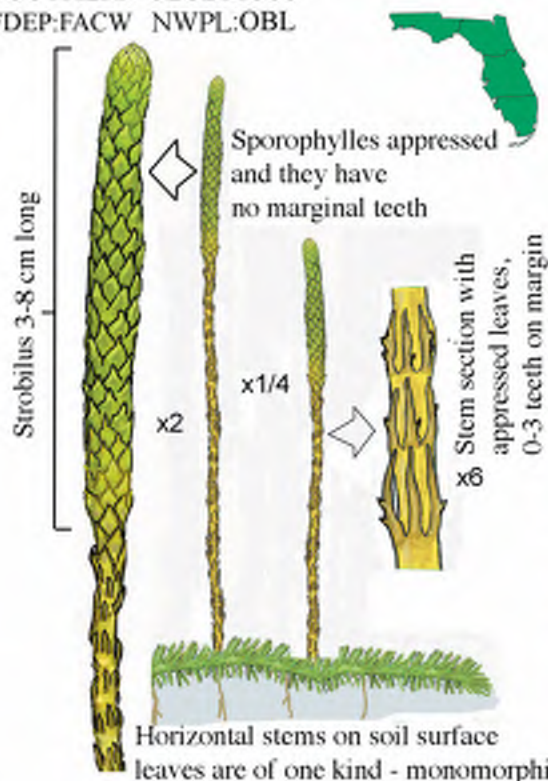
LYCOPODIACEAE

Lycopodiella and *Palhinhaea* (syn. *Lycopodium*)

Lycopodiella appressa (Chapman) Cranfill
(=*Lycopodium inundatum* L. var. *appressum* Chapman)

SOUTHERN CLUBMOSS

FDEP:FACW NWPL:OBL



Palhinhaea cernua (L.) Vasconcellos and Franco
(=*Lycopodium cernuum* L. NODDING CLUBMOSS)

FDEP:FACW NWPL:FACW



Habit of mature sporophyte X1/10

CLUBMOSS

Lycopodiella caroliniana (L.) Pic. Serm.

(=*Lycopodium carolinianum* L.)

SLENDER CLUBMOSS

FDEP:FACW NWPL:OBL



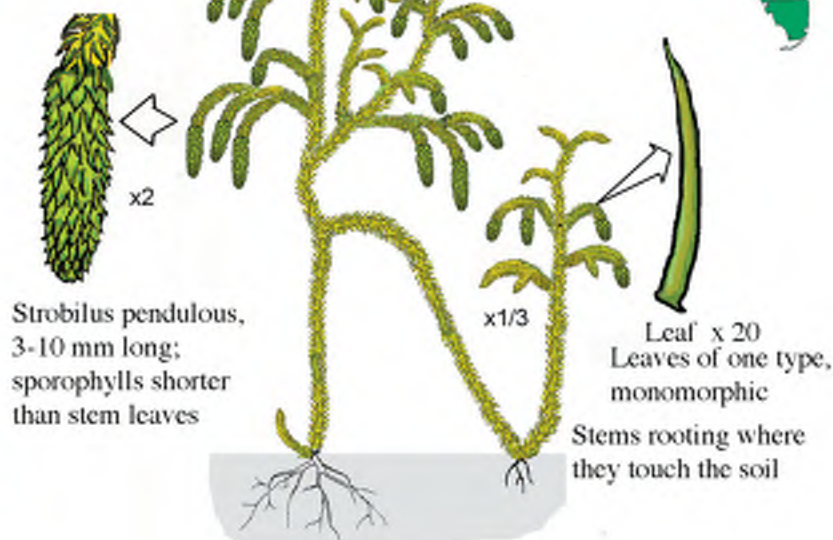
Mature strobili x1/3



Habit of stems lifiesize



Habit of mature sporophyte
stems dichotomously branching



LYGODIACEAE

Lygodium japonica (Thunb.) Sw.

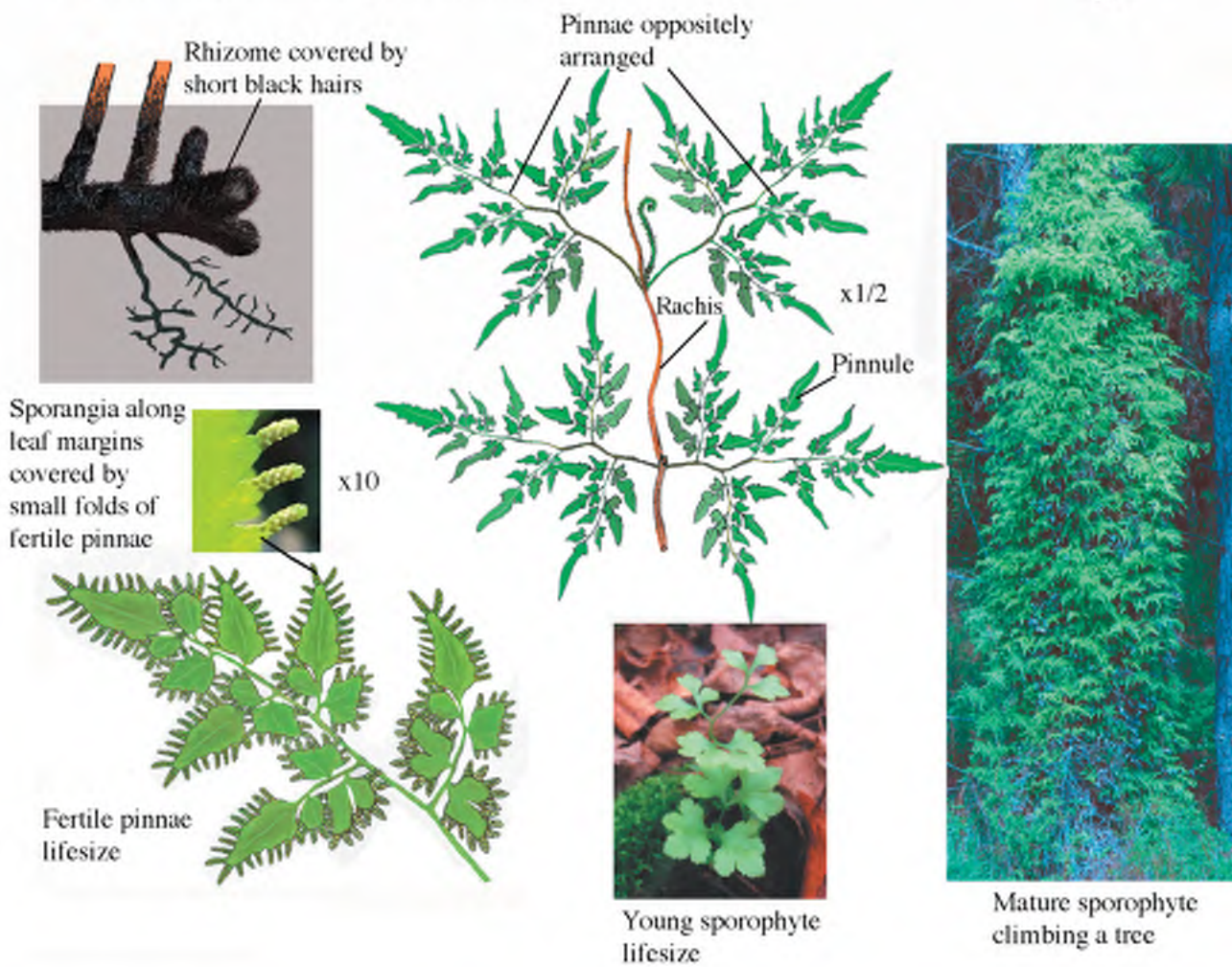
JAPANESE CLIMBING FERN

Identification: Terrestrial, climbing and twining vine, evergreen (in Florida) perennial, also forms mats over low growing vegetation; rhizome is buried, 1-2 cm deep, and covered with short blackish hairs, new leaves produced sequentially along creeping rhizome; leaves are unusual because they continue to grow up to 10 or more meters long, the rachis branches alternately and is green, tan to brown and wiry, this holds paired pinnae or leaves, often pendulous, irregularly triangular in outline, 2-3 compound and divided, 10-20 cm long, 10-15 cm wide, pinnules or compound leaflets are variable in shape, mostly lanceolate, often toothed, 0.5-1 cm wide and 1-2.5 cm long; sterile and fertile pinnae, 3-8 mm long and 1-2 mm wide; sporangia covered by small folds creating a herring-bone pattern. As with most of the ferns, this species produces easily dispersed, dust-like spores.

Habitat: Ruderal in disturbed sites, most common in the cultural landscape, often along the margins of forested wetlands, stream banks, roadsides. Especially common in disturbed soils that have been enriched with limestone and concrete, i.e. circumneutral soils.

Regulatory Status: FDEP:NL, NWPL: FAC. Listed as a FLEPPC Category I.

Range: North and central Florida, throughout SE North America and moving north. Native to subtropical and temperate southeast Asia.



LYGODIACEAE

Lygodium microphyllum (Cav.) R. Brown

OLD WORLD CLIMBING

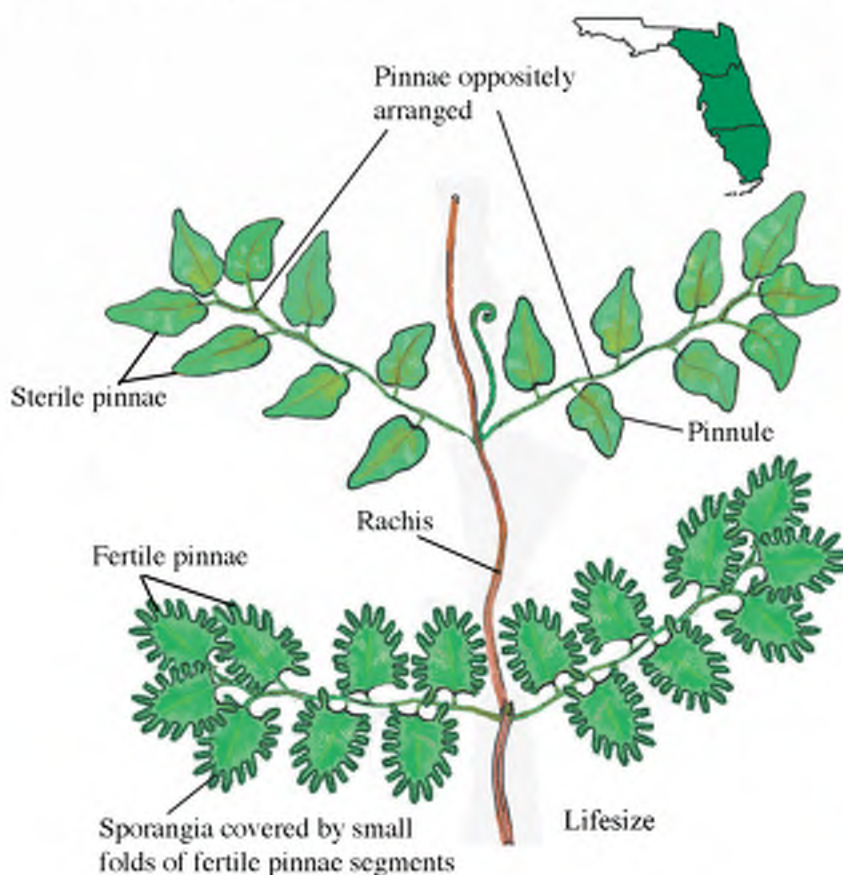
Description: Terrestrial, climbing and twining vine, evergreen perennial, also forms mats over low growing vegetation; rhizome is buried, 1-2 cm deep, and covered with short blackish hairs, new leaves produced sequentially along creeping rhizome; leaves are unusual because they continue to grow up to 30 meters long, climbing by twining; rachis, green to brown, alternately branching, holds paired, somewhat oblong, once compound pinnae or leaves; each pinnule or leaflet is arrow-shaped, pointed or rounded, rarely toothed or lobed with entire margins; underside of pinnae are pale green and smooth; sterile and fertile pinnae are similar in overall leaf shape, fertile pinnae with reduced fertile lobes, 3-5 mm long and 1-2 mm wide, produced along pinnule margins; sporangia covered by small folds creating a herring-bone pattern; produces dust-like spores that are widely dispersed.

Recognition: Vine climbing high into canopy, creating dense curtains of layered foliage, smothering native plants or creeping along ground forming dense mats.

Habitat: In swamps, canals and ditch banks, roadsides and disturbed sites with wet soils.

Regulatory Status: FDEP:NL. NWPL: FACW. Listed as a FLEPPC Category I.

Range: South, central and northeast Florida, moving north in Florida. Native to tropical Africa, se Asia, south Pacific islands and Australia.

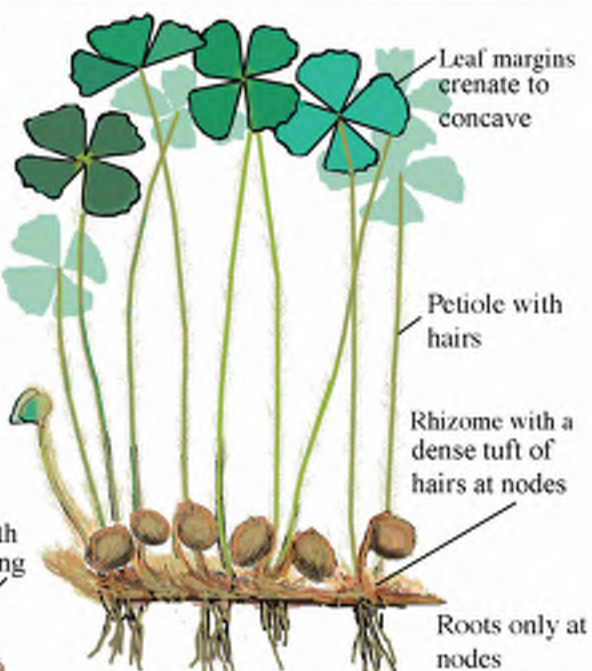


Mature sporophyte climbing a tree in south Florida.

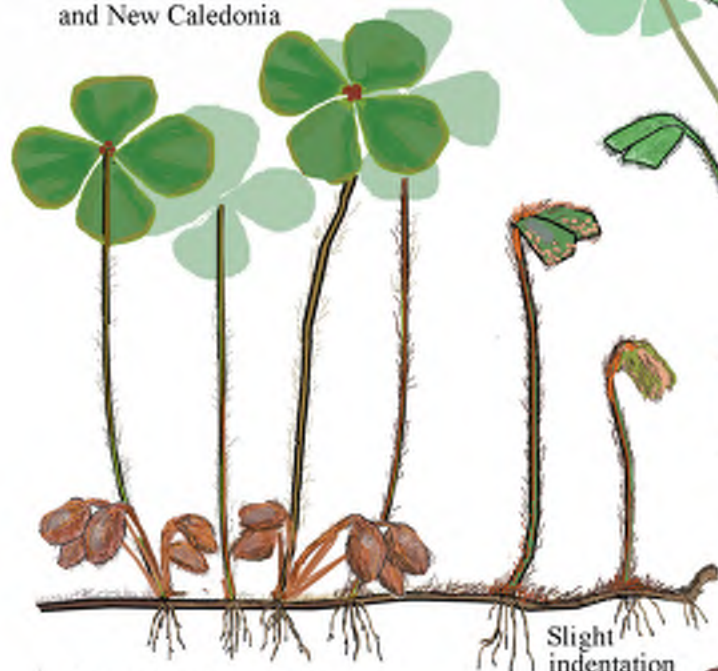
MARSILEACEAE



Marsilea mutica Mett.
NARDOO
Native: Australia
and New Caledonia



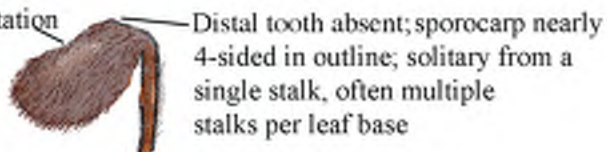
Marsilea oligospora Goodding
PACIFIC WATER-CLOVER
Native: Western North America



Marsilea hirsuta R.Br.
BRISTLY WATER-CLOVER
Native: Australia



Marsilea macropoda Engelm. ex
A. Braun
BIG-FOOT WATER-CLOVER
Native: Texas and Mexico



NEPHROLEPIDACEAE

(formerly placed in the DRYOPTERIDACEAE)

Nephrolepis species

SWORD FERN, BOSTON FERN

Identification: Terrestrial, epiphytic and on limestone; evergreen ferns with a tuft of leaf blades; leaves monomorphic, ascending to erect, narrowly pinnate to longer and linear-lanceolate, pinnae oblong to narrowly triangular, often with basal lobes at the point of attachment to leaf stem; petioles green to dark brown with reddish to brown scales, sori brown, round, kidney, or horse-shoe shaped.

Species Recognition:

N. biserrata (Swartz) Schott.

GIANT SWORD FERN

Native. Leaves 2 m long x 30 cm wide, hairy or smooth; leaf stem densely hairy; pinnae narrowly deltate to elliptic-lanceolate, shiny, up to 20 cm long, base is auriculate to truncate; sori with circular to horse-shoe shaped indusia that appear peltate, generally have a very narrow sinus; petiole with brown, spreading to loosely appressed scales, sometimes with pale margins.

N. brownii (Desv.) Hovenkamp & Miyam.

ASIAN SWORD FERN

(=*N. multiflora* (Roxb.) Jarrett ex Morton)

Non-native. Leaves 2 m long x 10 cm wide, pinnae narrowly deltate and often slightly curved (falcate) toward the tip of the frond, up to 12 cm long, base is slightly lobed to truncate; petiole with dark brown, appressed scales, with pale margins.

N. cordifolia (L.) Presl.

TUBEROUS SWORD FERN

Non-native. Leaves 100 cm long x 8 cm wide, pinnae are flat, do not curve upward, less than 5 cm long, with basal lobes; kidney-shaped indusia with a broad sinus; petioles with brown scales, leaf stem scales are bicolored, pale brown with darker brown base; brown to blackish rhizomes are covered with brown scales, these may produce tubers.

N. exaltata (L.) Schott.

BOSTON FERN

Native. Resembles *N. cordifolia*; leaves 150 cm long x 10 cm wide, pinnae curve upward, less than 5 cm long, with basal lobes; kidney-shaped indusia with a broad sinus; petioles with brown scales, leaf stem scales are brown; brown to blackish rhizomes are covered with brown scales, rhizomes never have tubers. Can be epiphytic.

N. falcata (Cav.) C. Chr.

FISHTAIL SWORD FERN

Non-native. Leaves 1.5 m long x 25 cm wide, smooth; leaf stem smooth, green, becoming brown at the base; pinnae narrowly deltate to elliptic-lanceolate, dichotomous with 2-3 divisions at the apex, pinnae outline with 4-8 ultimate lobes, not all pinnae divided; undivided pinnae often slightly curved (falcate) toward the tip of the frond shiny, up to 15 cm long, base is truncate to rounded; sori with circular to horse-shoe shaped indusia that appear peltate; petiole with brown, spreading to loosely appressed scales, sometimes with pale margins.

N. x averyi Nauman

AVERY'S SWORD FERN

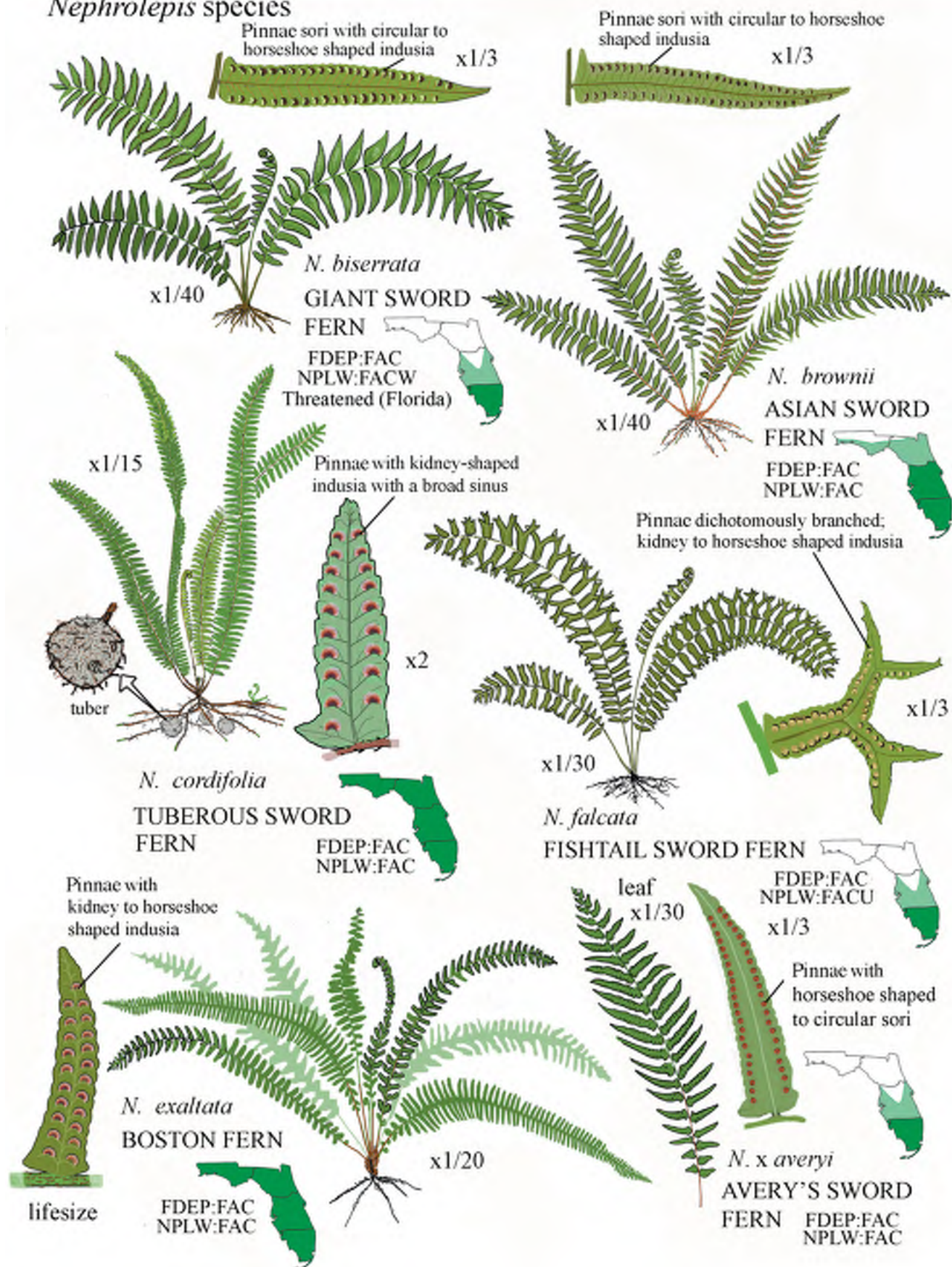
A naturally occurring hybrid between *N. biserrata* and *N. exaltata*. Displays characteristics between the two parents. Pinnae with horseshoe shaped to circular indusia.

Regulatory Status: All *Nephrolepis* spp. FDEP:FAC, All *Nephrolepis* in Florida are NPLW:FAC, except for *N. biserrata* FACW and *N. falcata* FACU. *N. cordifolia* and *N. brownii* are listed as a FLEPPC Category I. *N. biserrata* Threatened (Florida).

Habitat: Swamps, hydric hammocks, pinelands, disturbed wetland and upland habitats, and limestone outcrops; some species and selections are commonly used as a groundcover in landscaping.

NEPHROLEPIDACEAE

Nephrolepis species



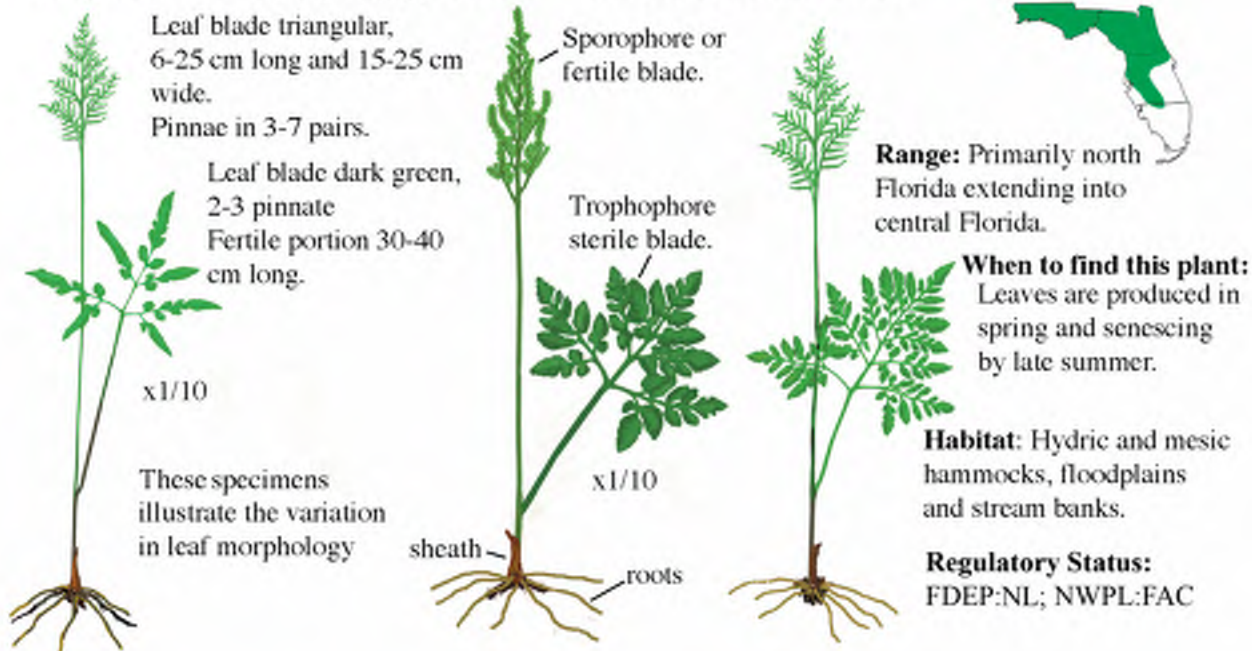
OPHIOGLOSSACEAE

Botrychium spp.

MOONWORT; GRAPE-FERN

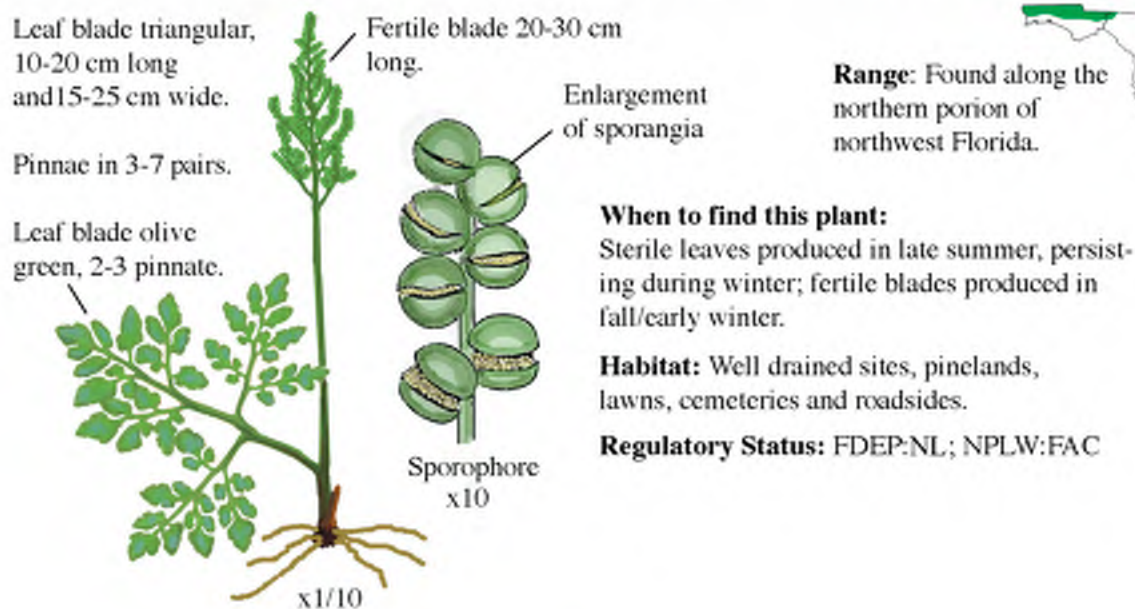
Identification: Terrestrial herbaceous perennial fern from single, upright stem with fleshy radiating roots; the unique morphology of the leaf includes a sterile trophophore and a fertile sporophore; sterile leaf blades are 1-3 pinnate, triangular or deltoid, the pinnae are spreading, fan-like, lacking root hairs, variously lobed; pinnae veins are free; fertile portion is erect with sporangial structures in a linear, clustered arrangement. The following species occur in Florida.

Botrychium biternatum (Savigny) Underw. SOUTHERN GRAPE-FERN



Botrychium jenmanii Underw.

ALABAMA MOONWORT; JENMAN'S GRAPE-FERN



Botrychium lunarioides (Michx.) Sw.

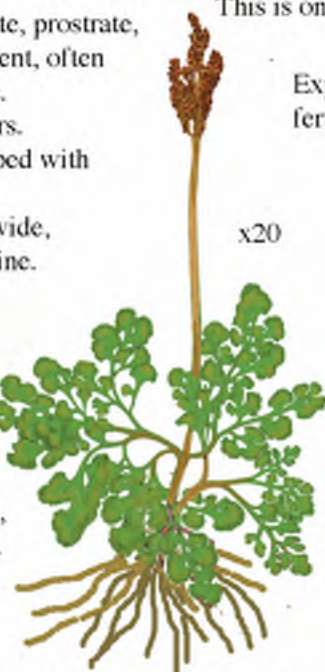
WINTER MOONWORT

This is one of the smallest of the Florida *Botrychium* species.

Leaves 2-3 pinnate, prostrate, somewhat succulent, often produced in pairs. Pinnae in 2-5 pairs. Pinnules fan-shaped with toothed margins. Blades 5-12 cm wide, reniforme in outline.

Trophophore or sterile frond

Small plants, 1-10 cm tall.



Expanded fertile frond

Sporophore or fertile frond 2-pinnate

When to find this plant:

Leaves produced in Fall, senescing by Spring.

Leaf blades not sessile, produced from base of plant.

Range: North Florida.

Habitat: Well drained soils of lawns, cemeteries, and roadsides.

Regulatory Status: FDEP:NL, NWPL:NL.



Botrychium virginianum (L.) Sw. (=*Botrypus virginianus* (L.) Michx.)

RATTLESNAKE FERN

This is the largest of the Florida *Botrychium* species.

Sporophore or fertile frond 2-pinnate



Leaves 3-4 pinnate, erect. Pinnae in 5-12 pairs, deeply lobed. Blades 20-30 cm wide, triangular in outline, sessile.

Plants, 30-70 cm tall.

Fertile frond attached at the base of sterile leaf.

When to find this plant:

Leaves produced in late winter/early spring, senescing by late summer.

Habitat: Mesophytic, warm temperate forests.

Range: North Florida extending into central Florida.

Regulatory Status: FDEP:NL; NWPL:ACU



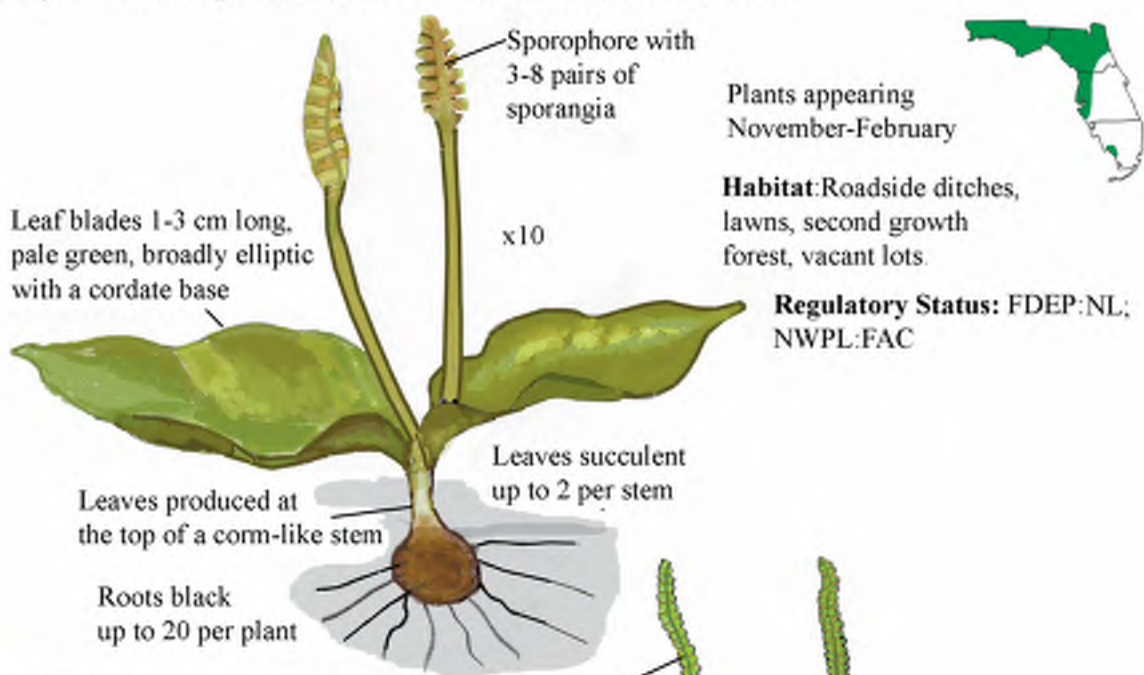
OPHIOGLOSSACEAE

Ophioglossum spp.

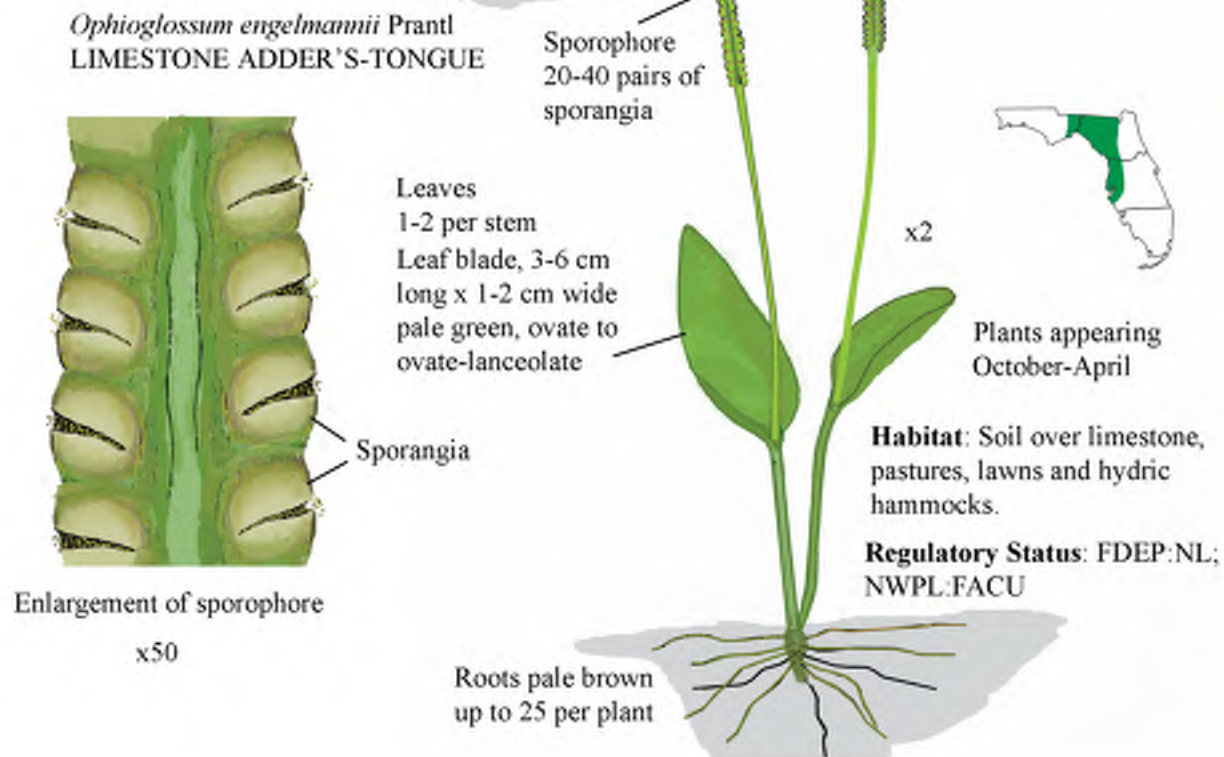
ADDER'S-TONGUE

Identification: Deciduous, herbaceous, perennial from a short rhizome, roots are relatively few, more or less straight; the sterile leaves or trophophores are succulent, blades with reticulate venation, are flattened or curled, oval, obovate, lanceolate, elliptic, strap-like, palmate, 2-9+lobed; terrestrial taxa with distinct petioles; entire plant is smooth; the fertile portion of the plant is modified into a stalked, sporangia bearing, cylindrical sporophore, erect and often extending above the leaves.

Ophioglossum crotalophoroides Walt. BULBOUS ADDER'S-TONGUE



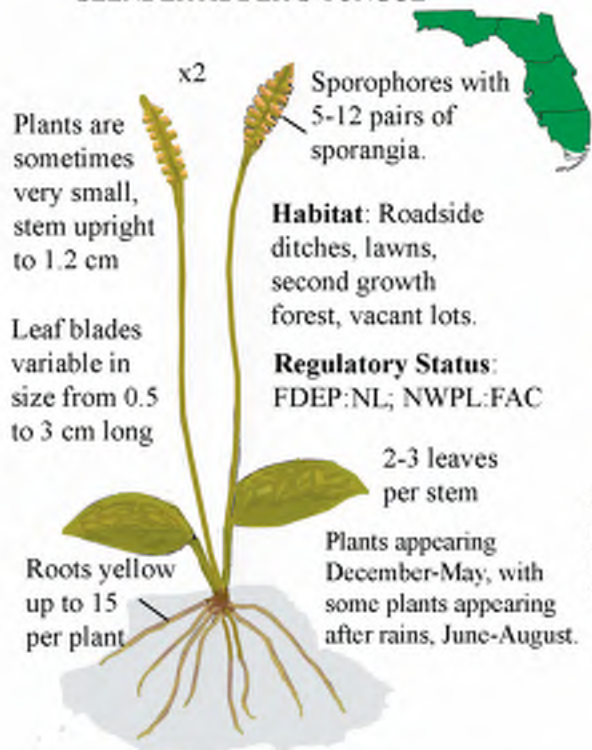
Ophioglossum engelmannii Prantl LIMESTONE ADDER'S-TONGUE



OPHIOGLOSSACEAE

Ophioglossum spp.

Ophioglossum nudicaule L.
SLENDER ADDER'S-TONGUE



Plants are sometimes very small, stem upright to 1.2 cm

Leaf blades variable in size from 0.5 to 3 cm long

Sporophores with 5-12 pairs of sporangia.

Habitat: Roadside ditches, lawns, second growth forest, vacant lots.

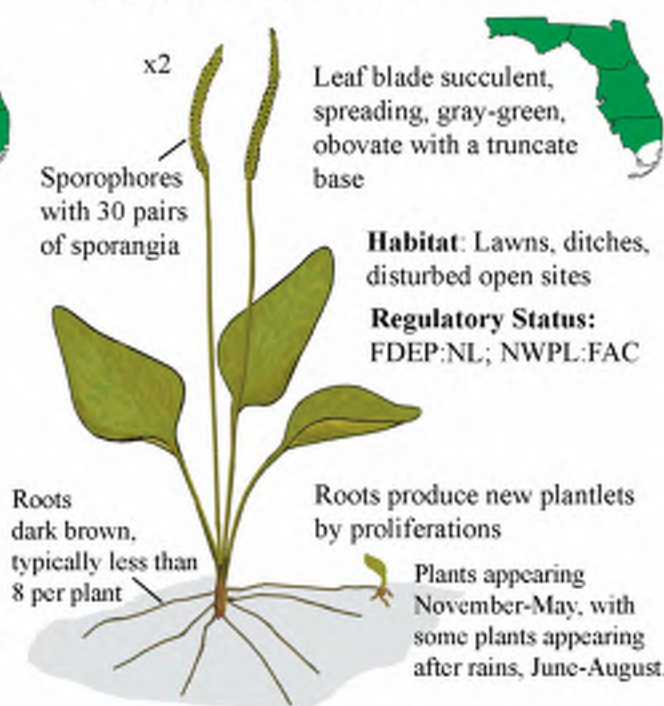
Regulatory Status: FDEP:NL; NWPL:FAC

2-3 leaves per stem

Plants appearing December-May, with some plants appearing after rains, June-August.

Roots yellow up to 15 per plant

Ophioglossum petiolatum Hook.
LONG-STEM ADDER'S-TONGUE



Leaf blade succulent, spreading, gray-green, obovate with a truncate base

Habitat: Lawns, ditches, disturbed open sites

Regulatory Status: FDEP:NL; NWPL:FAC

Sporophores with 30 pairs of sporangia

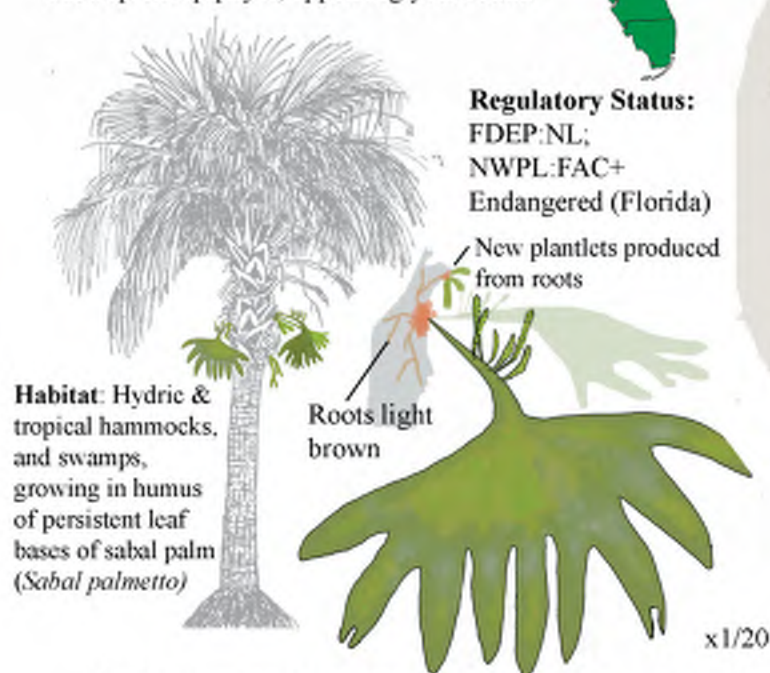
Roots dark brown, typically less than 8 per plant

Roots produce new plantlets by proliferations

Plants appearing November-May, with some plants appearing after rains, June-August.

Ophioglossum palmatum L. HAND FERN
(= *Cheiroglossa palmatum* (L.) Presl.)

Subtropical epiphyte, appearing year round



Habitat: Hydric & tropical hammocks, and swamps, growing in humus of persistent leaf bases of sabal palm (*Sabal palmetto*)

Regulatory Status: FDEP:NL; NWPL:FAC+ Endangered (Florida)

New plantlets produced from roots

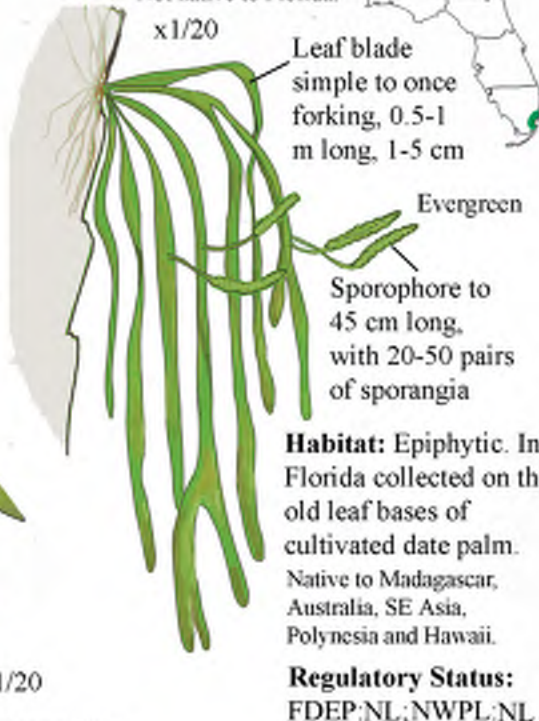
Roots light brown

x1/20

Leaf blades variously lobed or unlobed, evergreen, leathery, 40 cm long x 30 cm wide; rhizome covered with pinkish-brown to tan hairs; trophophore 3-9 cm long with 10-40 pairs of sporangia, this is produced along margins and at base of leaves.

Ophioglossum pendulum L.
(= *Ophioderma pendulum* (L.) C. Presl.)
OLD WORLD ADDER'S-TONGUE

Not native to Florida.



Leaf blade simple to once forking, 0.5-1 m long, 1-5 cm

Evergreen

Sporophore to 45 cm long, with 20-50 pairs of sporangia

Habitat: Epiphytic. In Florida collected on the old leaf bases of cultivated date palm. Native to Madagascar, Australia, SE Asia, Polynesia and Hawaii.

Regulatory Status: FDEP:NL; NWPL:NL

OSMUNDACEAE

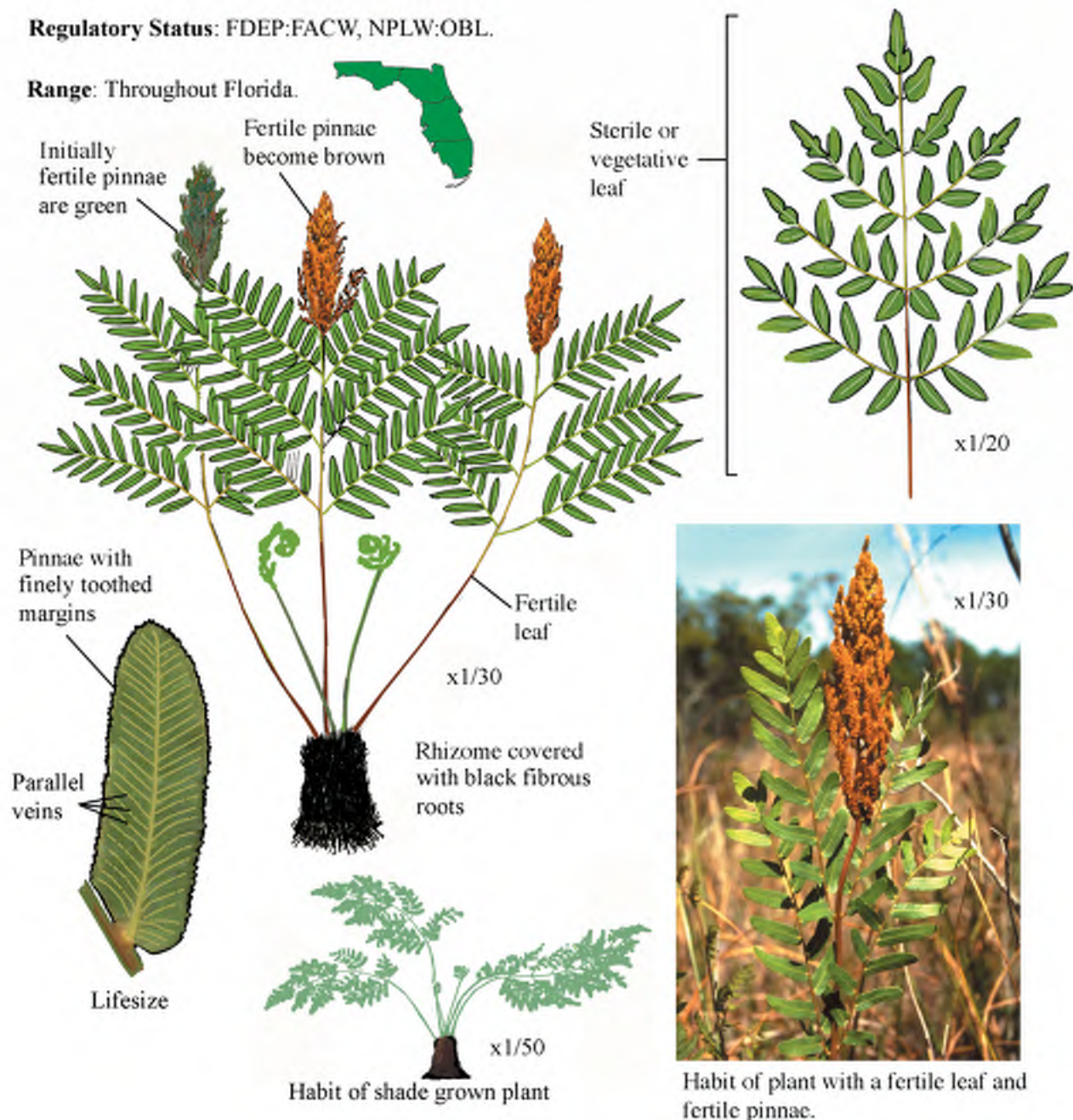
Osmunda regalis var. *spectabilis* (Willdenow) A. Gray ROYAL FERN
(= *O. regalis* Willdenow)

Identification: Terrestrial fern with erect to lax fronds, arising from a rhizome covered in black fibrous roots; leaves are deciduous and of two types, sterile leaves are bipinnately compound with a broadly ovate outline, up to 1 m long; leaflets or pinnae alternate, lanceolate to oblong with rounded bases, parallel veins and finely toothed margins, to 5 cm long, petioles short; fertile leaves with two types of leaves, the sterile green pinnae are produced on the bottom portion of the leaf and the fertile pinnae are clustered into very reduced, cone-shaped structures on the upper portion of leaf; the fertile pinnae are green, turning reddish brown and finally brown at maturity; sporangia release dust-like spores.

Habitat: Found in swamps, hydric hammocks, floodplains, bogs, baygalls and seepage slopes. Tolerates flooding.

Regulatory Status: FDEP:FACW, NPLW:OBL.

Range: Throughout Florida.



OSMUNDACEAE

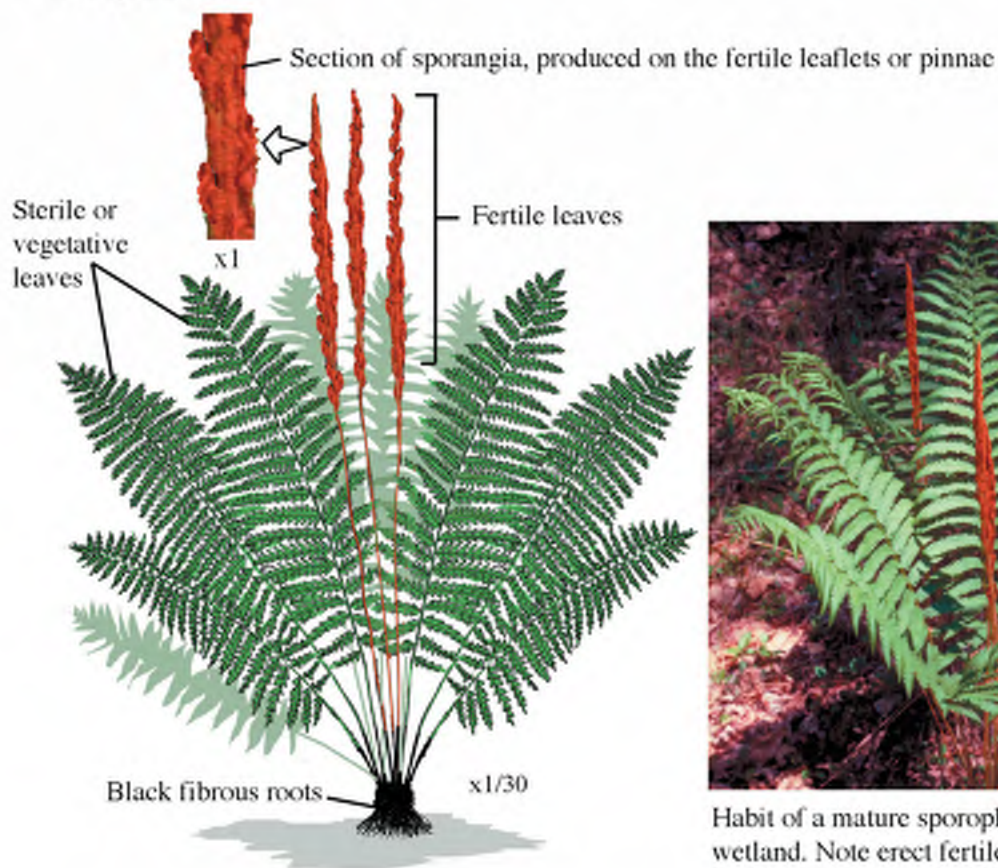
Osmundastrum cinnamomeum (L.) C. Presl. CINNAMON FERN
(=*Osmunda cinnamomae* L.)

Identification: Terrestrial fern, with spirally arranged, deciduous, leaves arising from a mat of black fibrous roots; leaves are deciduous and of two types, sterile leaves are green, broad, pinnate-pinnatifid fronds, tapering to the apex, 1.5 m long, 30 cm wide, petiole covered with reddish woolly hairs, becoming smooth; leaflets of sterile leaves, green, alternate, tapering towards tip, pinnately divided, lobes rounded, with dichotomous veins extending to the leaf margin; two types of leaves produced, dimorphic, fertile leaves are globose, initially green, crowded into dense, non-expanded pinnae, these bear sporangia; stem and leaves covered with reddish brown woolly hairs, fertile leaf at maturity becoming brown and shedding dust-like spores; gametophytes are small green and flattened with an elongated shape, easily over looked, generally found growing in moist, hydric soils with a high organic content.

Habitat: Found in a variety of forested wetlands, bottomlands, floodplains, hydric hammocks, swamps, bay-galls, seepage slopes and wet pine flatwoods.

Regulatory Status: FDEP:FACW, NPLW:FACW.

Range: Common throughout Florida, uncommon in the extreme southern tip of the peninsula.



Habit of a mature sporophyte, growing in a seepage wetland. Note erect fertile leaves in the center of a rosette of sterile/vegetative leaves.

PARKERIACEAE

Ceratopteris spp.

WATERSPRITE, WATER HORN FERN

Identification: Aquatic, semi-aquatic or terrestrial perennial herbs, rooted in wet soils or floating in freshwater habitats; two types of leaves produced, dimorphic; all leaves produced with a coiled development or fiddleheads; sterile leaves are variably shaped from lanceolate to broadly triangular, lobed with 1-3 pinnae, sometimes with cordate leaf base, leaf margins may be undulate with small plantlets along the margins; leaf petioles may be thin and winged or inflated; fertile leaves erect with many fine branched segments, these curve upwards; sporangia are found between rolled leaf margins.

Species Recognition:

C. pteridoides (Hooker) Hieronymus WATER HORN FERN

Sterile leaves lanceolate and unlobed to triangulate and lobed in outline, 3 or 5 lobes, margins undulate, may have plantlets along margins.

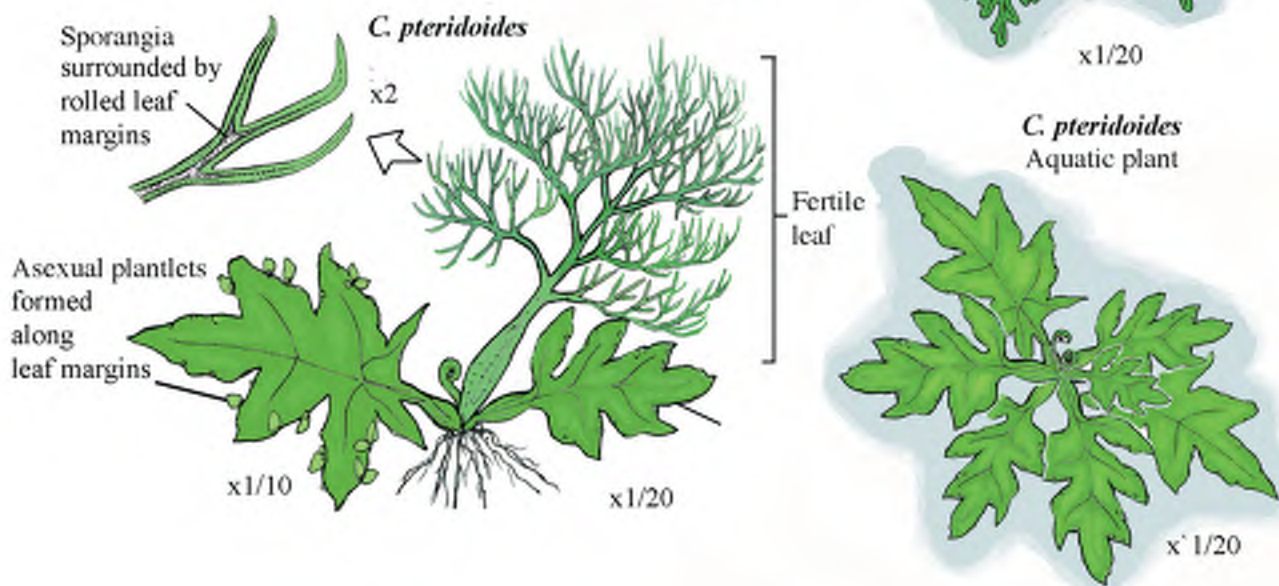
C. thalictroides (L.) Brongniart WATERSPRITE

Sterile leaves ovate to triangulate in outline, divided into segments, 2-3 pinnae, may have plantlets along the leaf margins.

Habitat: Found aquatic or semi-aquatic in a variety of freshwater surface waters and disturbed sites, ditches, canals, ponds, lakes, swamps, marshes.

Regulatory Status: FDEP:NL, NWPL:OBL.

Range: Primarily found in the warmer parts of south and central Florida, moving north with climate change.



POLYPODIACEAE

Campyloneuron spp.

Identification: Epiphytic or epipetric on limestone, herbaceous perennials with a tuft of long, strap-like leaves from short to long creeping rhizomes. Rhizomes covered with long, reddish-brown to brown scales. Only one type of leaf, monomorphic. Leaf blade simple, linear to lanceolate to narrow elliptic, with entire margins. Margins may be slightly revolute, flat or wavy. Midrib extends the length of simple leaves. Primary veins extend in a parallel arrangement from the midrib. Sori without indusium, produced in 1-10 rows between the midrib and the leaf margin. The following taxa have been recorded in Florida.

Campyloneuron angustifolium (Sw.) Fée

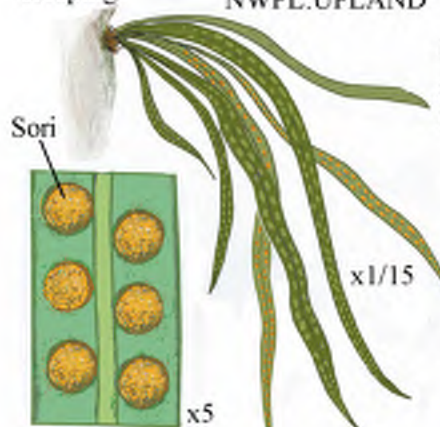
NARROW STRAP FERN

Rhizome short
creeping

Regulatory Status: FDEP:N/A,
NWPL:UPLAND Endangered (Florida)

Blade yellowish to dark
green. 30-60 cm x
0.5-1.5 cm

Range: *C. angustifolium* &
C. costatum are found on wetland
trees in Fakahatchee Swamp in
Collier County, Florida. Plants
reported from SE FL have been
extirpated.



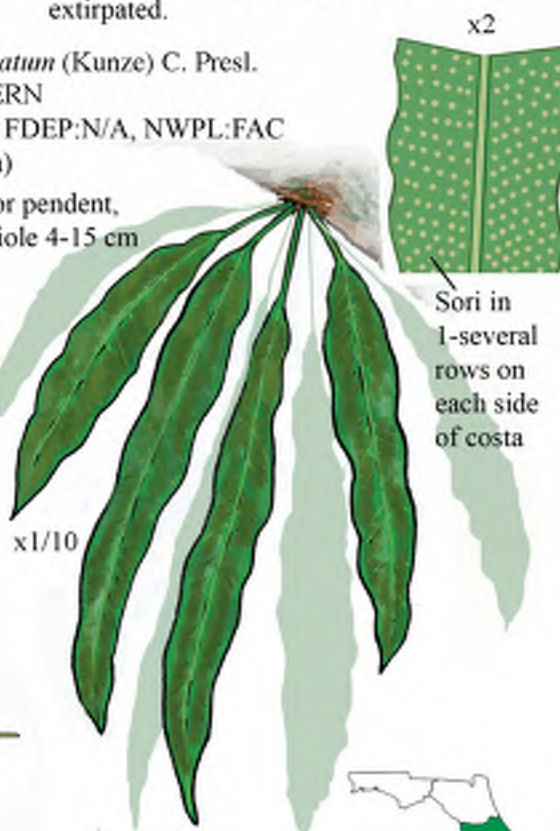
Primary veins obscure,
margins not undulate, sori
in 1-2 rows on each side
of the costa

Campyloneuron costatum (Kunze) C. Presl.
TAILED STRAP FERN

Regulatory Status: FDEP:N/A, NWPL:FAC
Endangered (Florida)

Leaves few, arching or pendent,
stiff and leathery, petiole 4-15 cm

Blades dark green,
narrow elliptic to
narrow oblanceolate,
20-40 cm long x 3-6
cm wide, primary
veins obscure,
margins undulate



Sori in
1-several
rows on
each side
of costa

Campyloneuron phyllitidis (L.) C. Presl.

LONG STRAP FERN

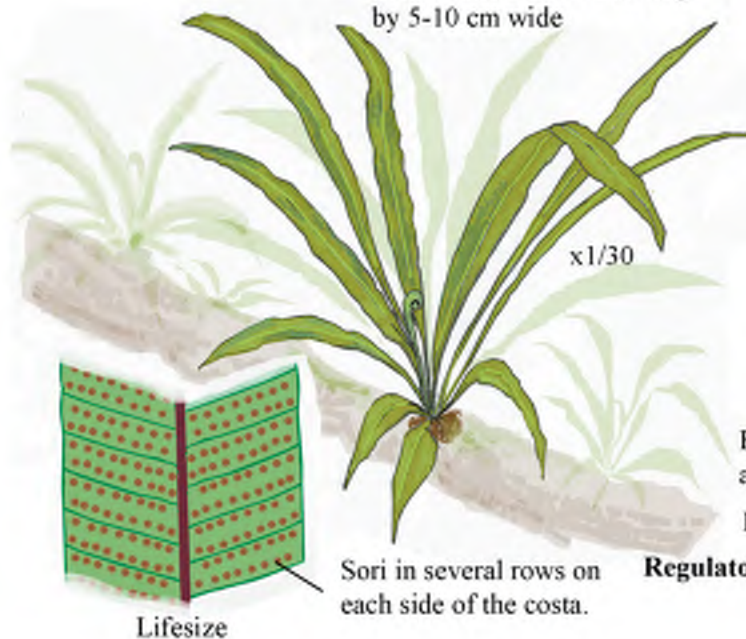
Leaf blades 20-130 cm long
by 5-10 cm wide

Leaves form a rosette, erect to
arching, primary veins straight,
conspicuous; blades yellow-green,
leathery, margins no undulate.

Epiphytic, primarily in swamps; small plants
are sometimes found on walls of sinkholes.

Range: South and central Florida.

Regulatory Status: FDEP:N/A, NWPL:UPLAND



Sori in several rows on
each side of the costa.

Lifesize

POLYPODIACEAE

Pecluma spp.

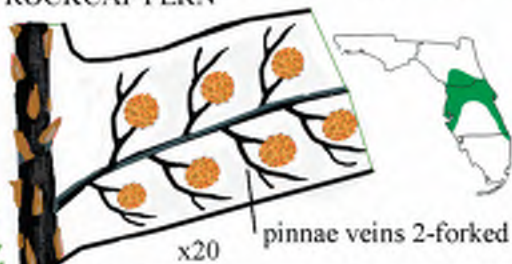
ROCKCAP FERNS, POLYPODY FERNS

Identification: Terrestrial, epiphytic to epipetric, evergreen fern, with tufted leaves; perennials from short creeping rhizomes; rhizomes covered with black, brown to reddish-brown hair-like scales; leaves pinnatifid, lanceolate in outline, erect, pendent to arching, to 70 (-90) cm long, to 30 cm wide; pinnae linear with 1-3 (4) forked veins, sinus extends to the rachis; rachis brown to blackish and often pubescent; petiole brown, reddish-brown to black, with black to brown scales; sori round, terminal on pinnae veins, no indusia; plantlets arising from proliferating roots in *P. dispersa*.

Habit of *Pecluma dispersa*
x1/3

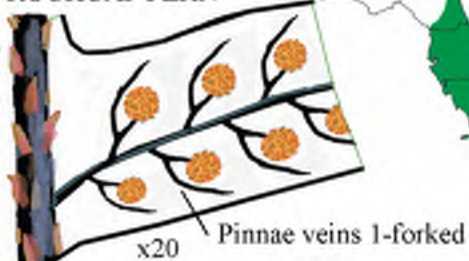


Pecluma dispersa (A.M.Evans)M.G.Price
WIDESPREAD POLYPODY; WIDESPREAD
ROCKCAP FERN



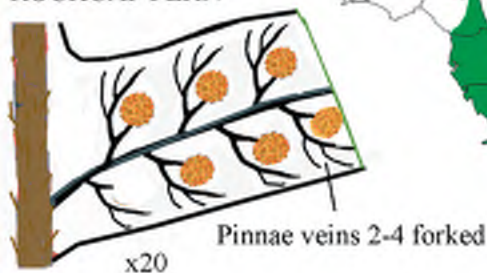
Habitat: Limestone outcrops in hydric and tropical hammocks, occasionally epiphytic.
Regulatory Status: FDEP:NL; NWPL:NL
Endangered (Florida)

Pecluma plumula (Humb. & Bonpl. ex Willd.)
M.G.Price
PLUMED POLYPODY; PLUMED
ROCKCAP FERN



Habitat: Epiphytic or on limestone, hydric hammocks and floodplains.
Regulatory Status: FDEP:NL; NWPL:NL
Endangered (Florida)

Pecluma ptilota (Kunze)M.G.Price var.
bourgeauana (E.Fourn.)A.R.Sm.
SWAMP PLUME POLYPODY; PALMLEAF
ROCKCAP FERN



Pecluma ptilota

Habitat: Epiphytic or on limestone, sinkholes, mesic and wet hammocks, floodplains.
Regulatory Status: FDEP:NL; NWPL:FAC
Endangered (Florida)

PSILOTACEAE

Psilotum nudum (L.) P. Beauv.

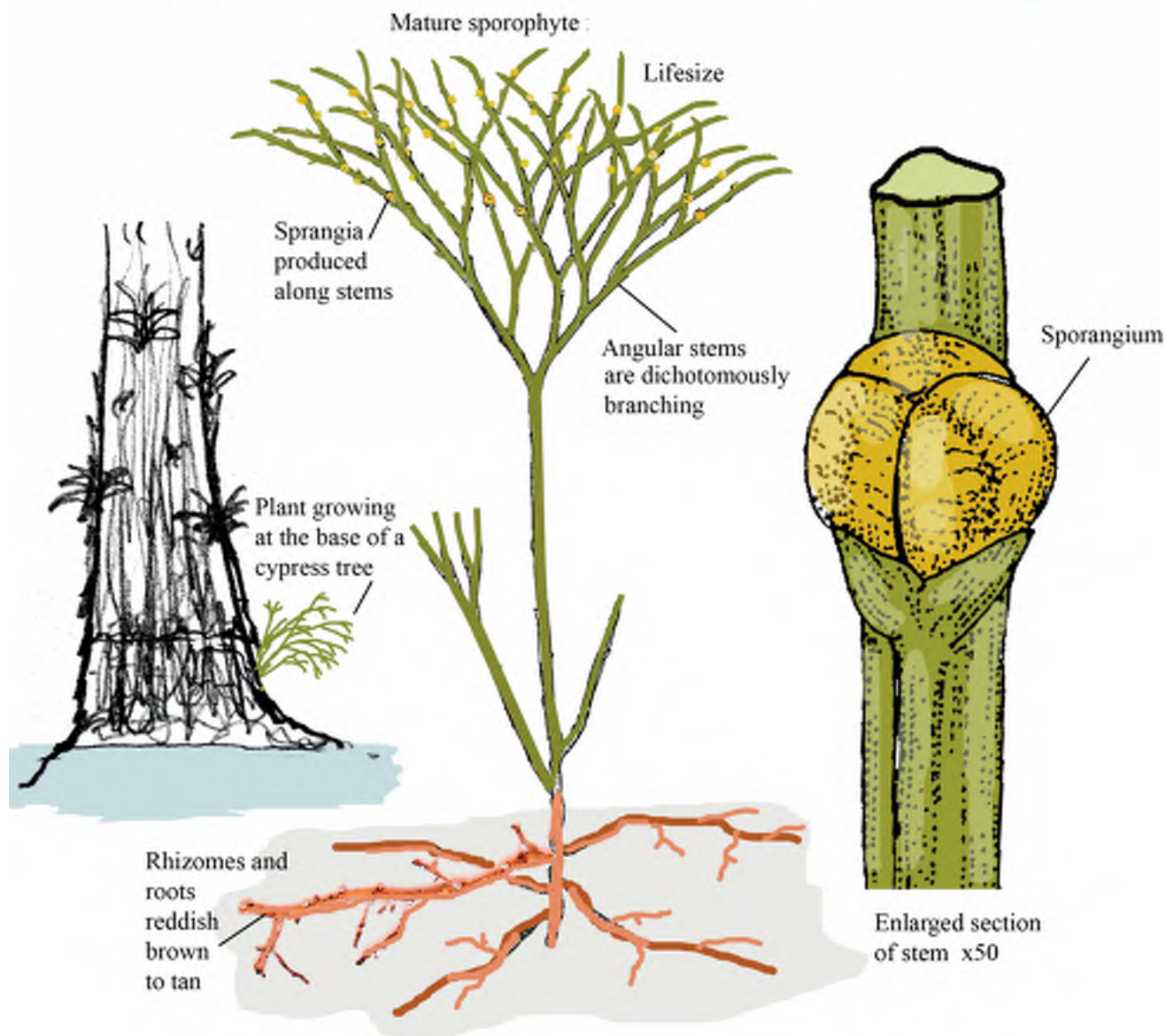
WHISK-FERN

Identification: Epiphytic and terrestrial evergreen, stems leafless, smooth, green, erect 20-50 cm tall, dichotomously branching with ultimate branches erect or pendulous; stems angular, 2-4 mm wide, with small, triangular projections or appendages on ridges of angled stems; sporangia obscurely three-lobed, yellowish at maturity, produced alternately along stems; rhizomes somewhat succulent, brown to yellowish-brown to reddish brown, without fine rootlets.

Habitat: Hydric hammock, tropical hammock, swamps, floodplains, disturbed sites; associated with Sabal palm hummocks and the base of cypress trees, decaying stumps and humus filled cavities. Although associated with wetlands this plant typically grows above the ordinary high water line.

Regulatory Status: FDEP:NL; NWPL:FAC.

Range: Throughout Florida, native to south and central Florida, escaping from cultivation in north Florida and along the southeastern, outer coastal plain of North America. Spreading north with warming climate.



Acrostichum spp.

LEATHER FERN

Identification: Terrestrial evergreen fern to 4 m tall from large woody rhizomes; leaves pinnate, 1-4 m long, with 20-30(-60) pinnae, each is 7-30 cm long by 2-5 cm wide; oblong to lanceolate, coarse, leathery with netted venation and smooth margins; leaf stems or stipes shallowly grooved on either top or bottom surface; sporangia are brown to reddish-brown, covering entire lower surface of pinnae, fertile pinnae occurring toward the apex or along the entire leaf.

Species Recognition

A. aureum L.

GOLDEN LEATHER FERN

To 2 m tall; leaves with less than 20 pairs of pinnae, these are arranged so as not overlapping; the undersides of the fertile pinnae are covered by brown to reddish-brown sporangia, fertile pinnae occur on the distal 3-5 pinnae pairs; costa areoles are longer than broad.

A. danaeifolium Langsdorf & Fischer. GIANT LEATHER FERN

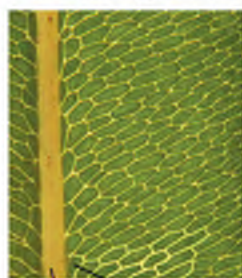
To 4 m tall; leaves with 20-30 pairs of closely spaced and overlapping pinnae; the undersides of the fertile pinnae are covered by brown to reddish-brown sporangia, fertile pinnae occur on the distal two-thirds or entire leaf; the leaf-midvein or costae has leaf veins which when joined create an enclosed space or areole, the areoles are generally broad, being less than three times longer than wide.

Habitat: Both species are found in freshwater, brackish, and salt marshes, mangrove swamps, edges of ponds and canals, and sinkhole margins in shaded hammocks.

Regulatory Status: FDEP:OBL, NWPL:OBL. *A. aureum*: Threatened (Florida).

Range: *A. danaeifolium* is found widely distributed both coastally and inland throughout peninsular Florida. *A. aureum* is often associated with mangroves primarily in southwestern coastal counties, from Tampa Bay south.

Section of pinnae
A. danaeifolium



x5



Throughout south and central FL; Spreading north along both coasts.

Areole are narrow along costae or leaf mid-vein

A. aureum



x5



Primarily along the coast in s and c FL; Spreading north along both coasts.

Areole are broad along costae or leaf mid-vein

Brown sporangia are found on the underside of the pinnae on the upper portion of leaf in *A. danaeifolium*.

Brown sporangia on underside of pinnae

x1/3

Developing leaf or "fiddlehead"

x1/50

Old leaves

Large, woody rhizome

Acrostichum danaeifolium

PTERIDACEAE

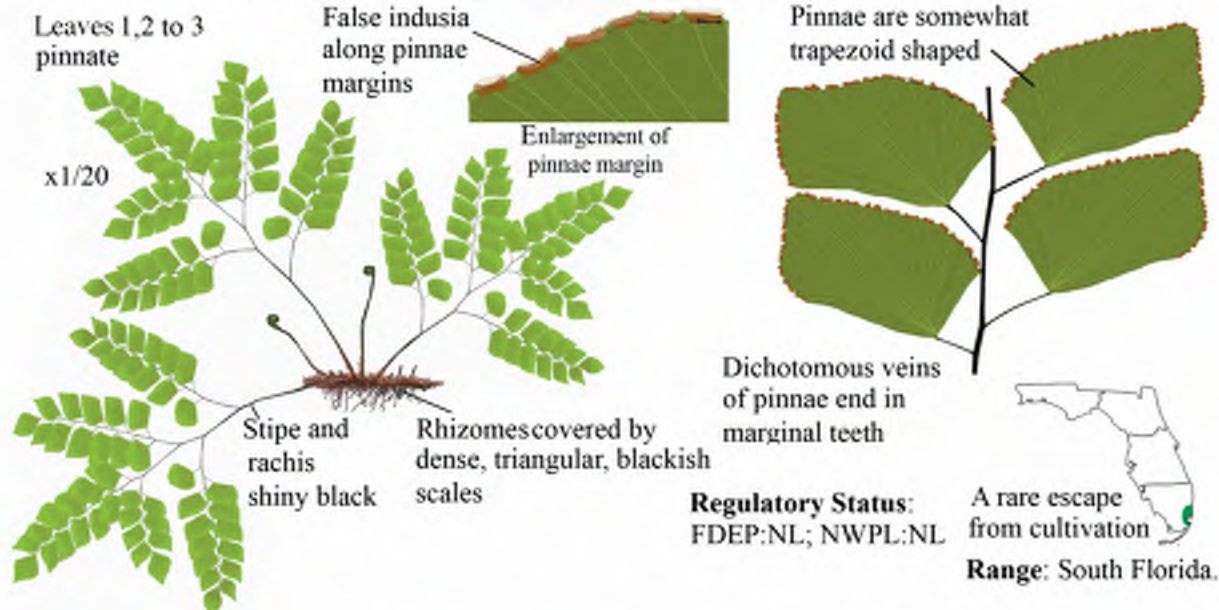
Adiantum spp.

Identification: Clumping perennials with short to long rhizomes, scales on rhizomes black to yellow-brown; leaves of one type, monomorphic; leaf blades 1-9 pinnate; pinnae round, trapezoid, wedge-shaped to oblong, usually toothed, texture often thin and papery; petiole and rachis wiry and brown to black; false indusia along margins of pinnae. The following taxa have been recorded in Florida.

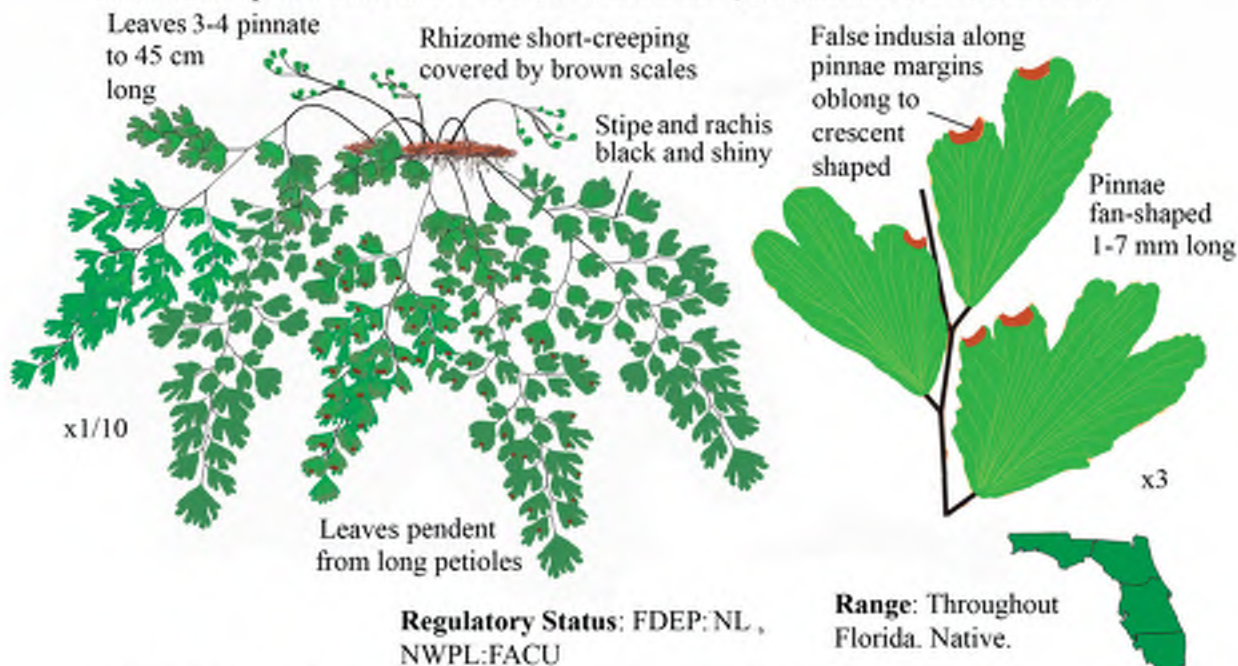
MAIDENHAIR FERN

Note: Some *Adiantum* spp. are best described as associated with wetlands, i.e. streams, rivers, springs and sinkholes.

Adiantum anceps Maxon & C.V. Morton DOUBLE-EDGE MAIDENHAIR



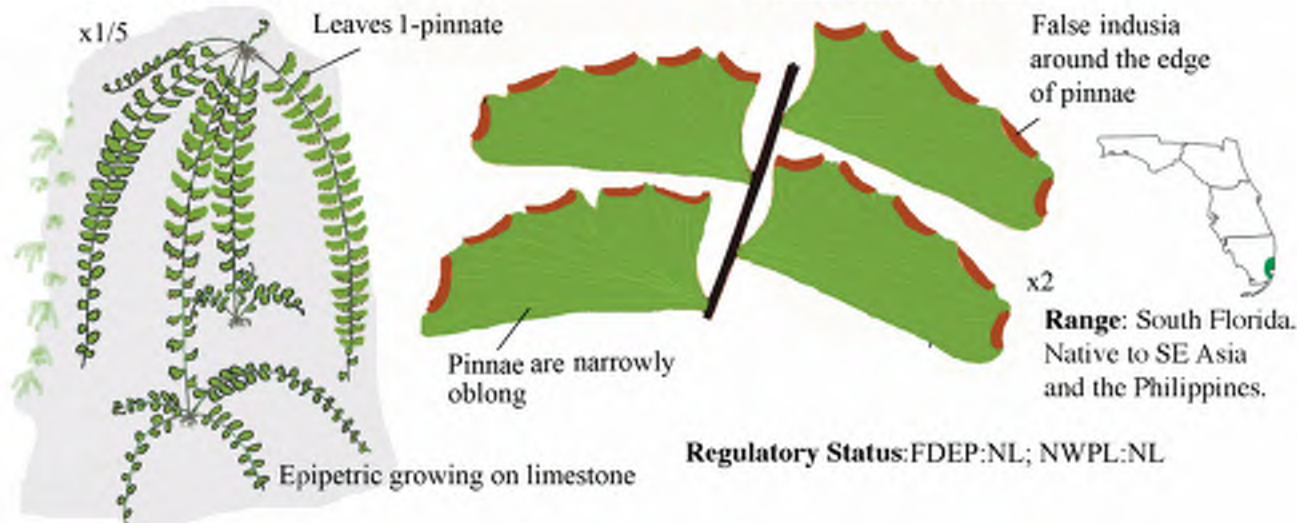
Adiantum capillus-veneris L. VENUS'-HAIR FERN; SOUTHERN MAIDENHAIR



Found on limestone walls of sinkholes, caves, ledges near rivers and streams, and on exposed limestone in shade of forests

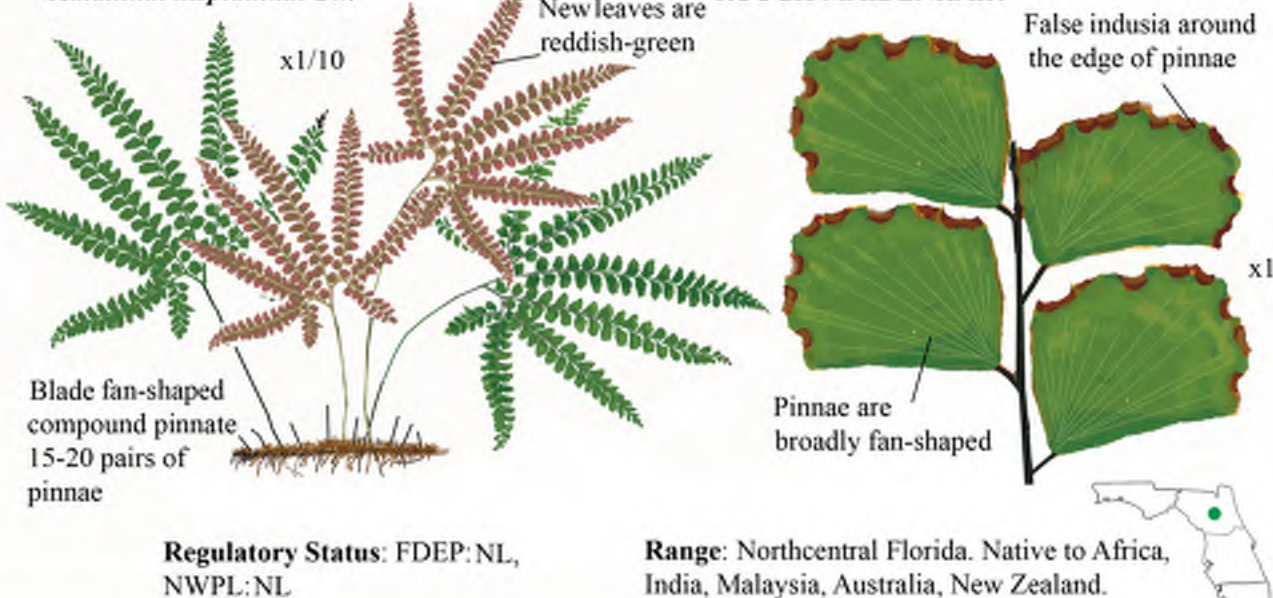
Adiantum caudatum L.

TAILED MAIDENHAIR



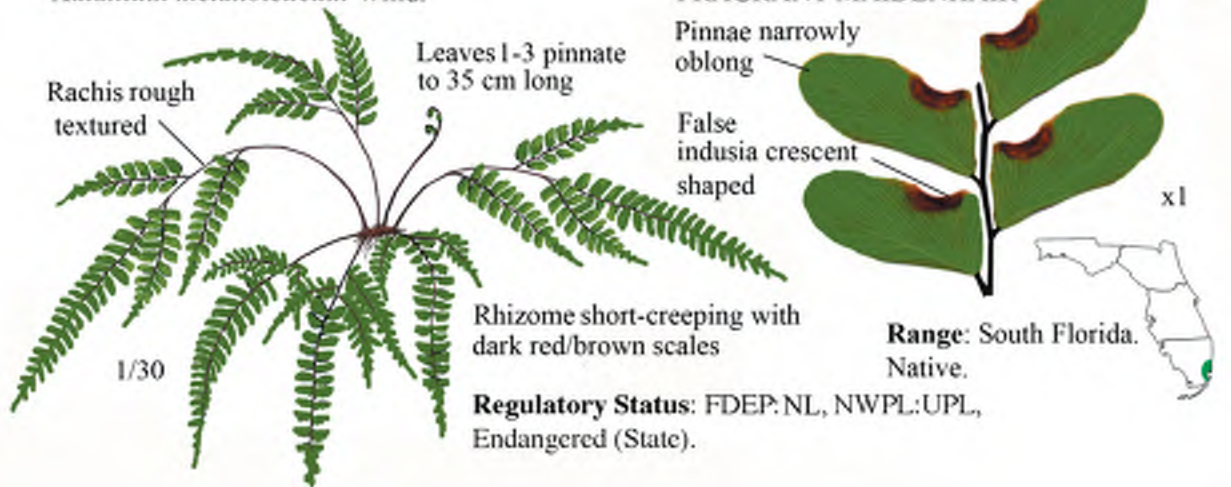
Adiantum hispidulum Sw.

ROUGH MAIDENHAIR



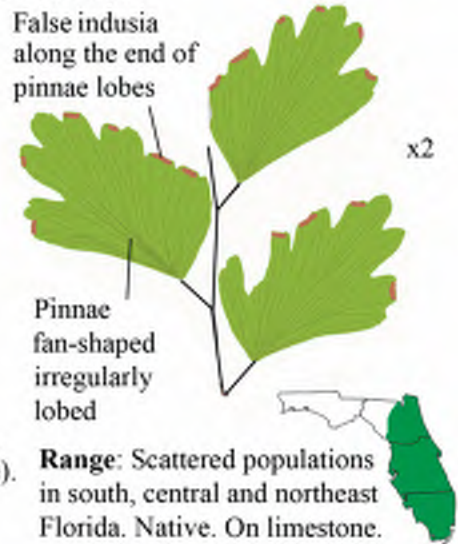
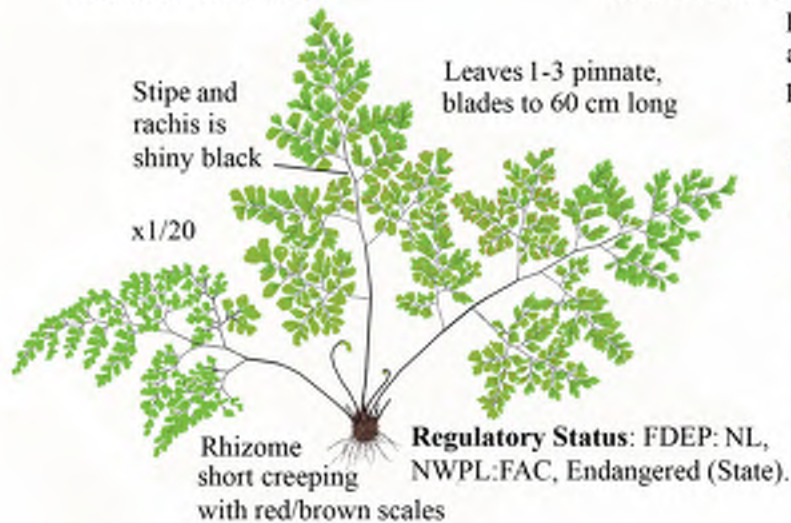
Adiantum melanoleucum Willd.

FRAGRANT MAIDENHAIR



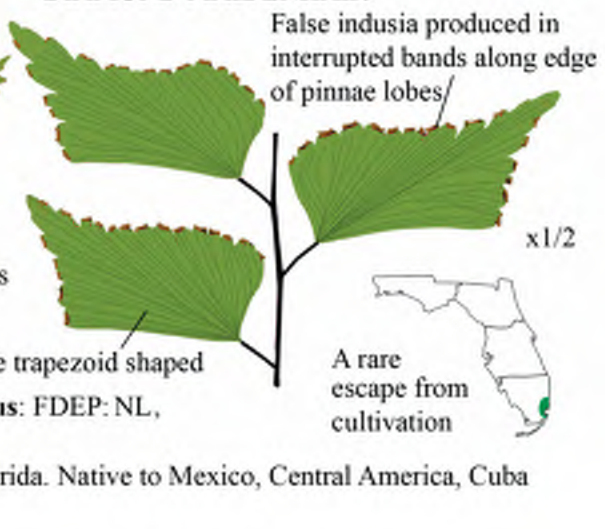
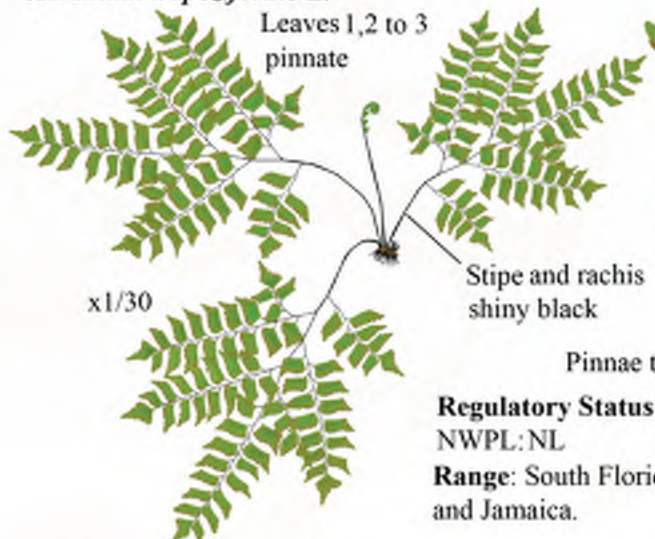
Adiantum tenerum Sw.

BRITTLE MAIDENHAIR



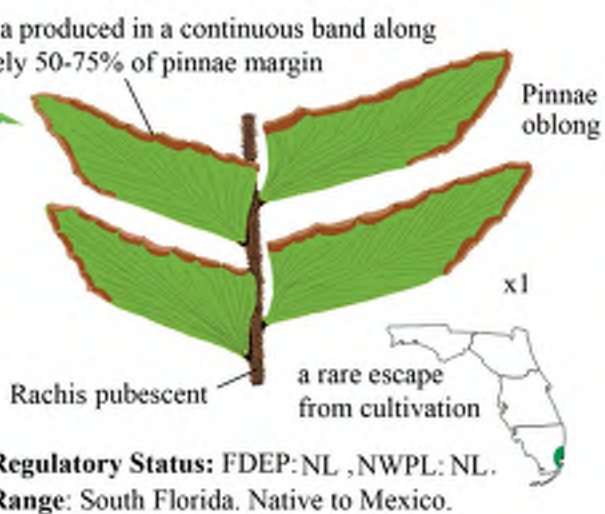
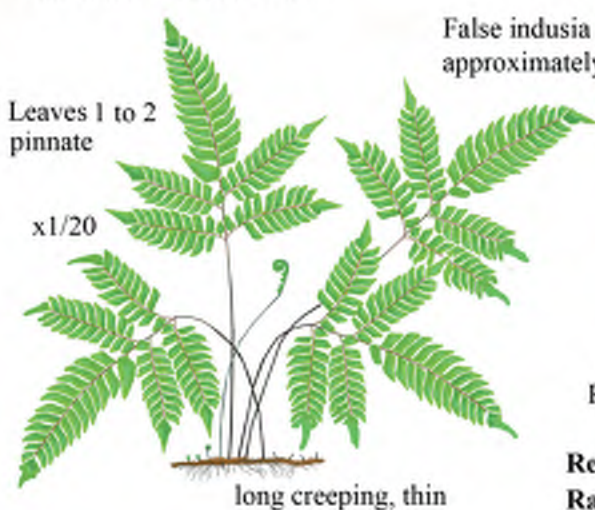
Adiantum trapeziforme L.

DIAMOND MAIDENHAIR



Adiantum villosum Willd.

WOOLY MAIDENHAIR

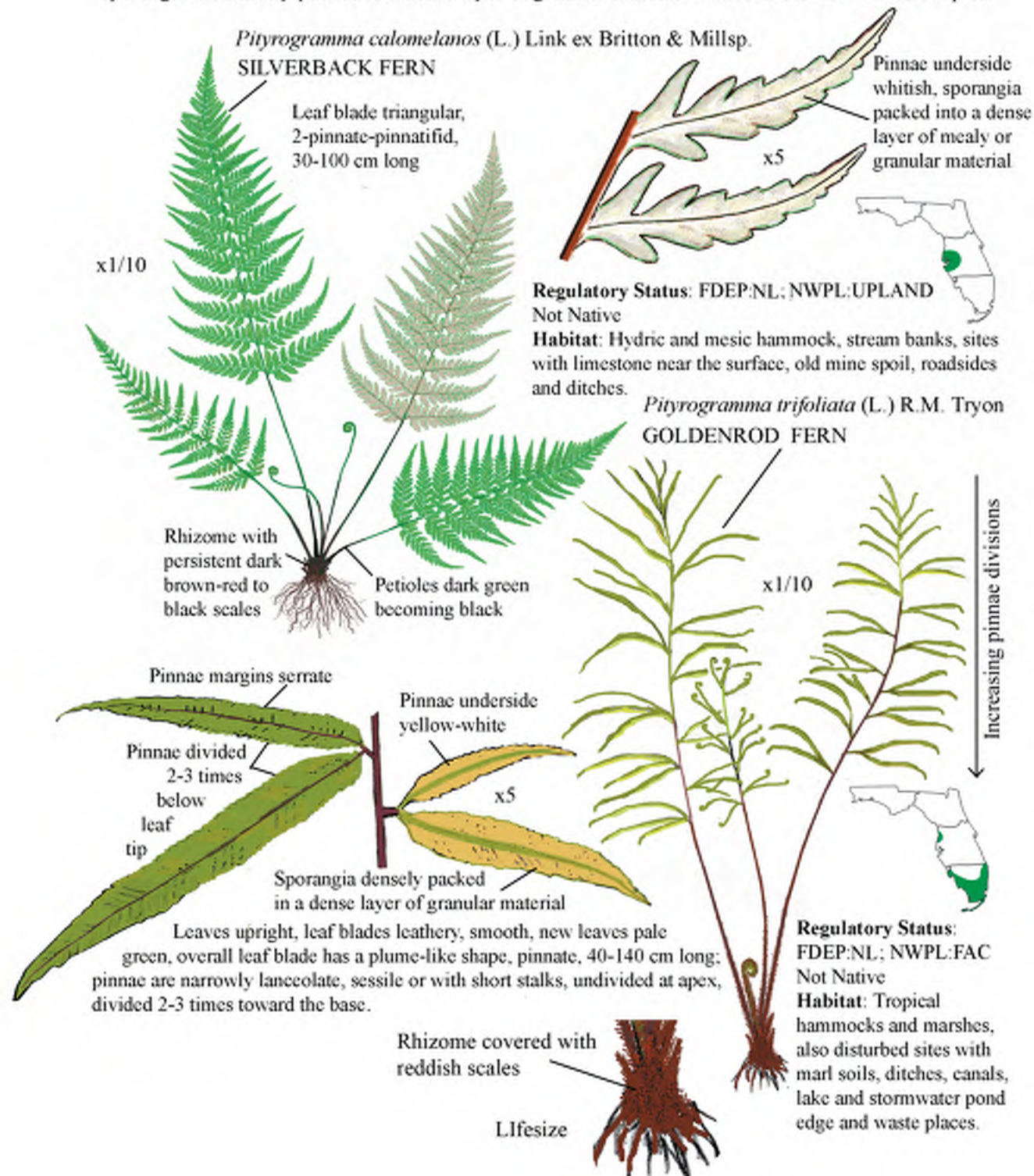


PTERIDACEAE

Pityrogramma spp.

SILVERBACK FERN

Identification: Terrestrial, herbaceous, tufted fern with upright to arching leaves, from short rhizome covered with persistent dark brown-red to dark brownish-black scales and petioles; petioles dark green becoming black to reddish-brown; leaf blades are leathery, smooth, pinnate to 2-pinnate-pinnatifid; pinnae upper surface is smooth, green, underside is mealy, whitish to grayish-white; sporangia are densely packed in a dense layer of granular material. Native to the New World Tropics.



PTERIDACEAE

Pteris tripartite (Swartz.) Presl.

GIANT BRAKE FERN

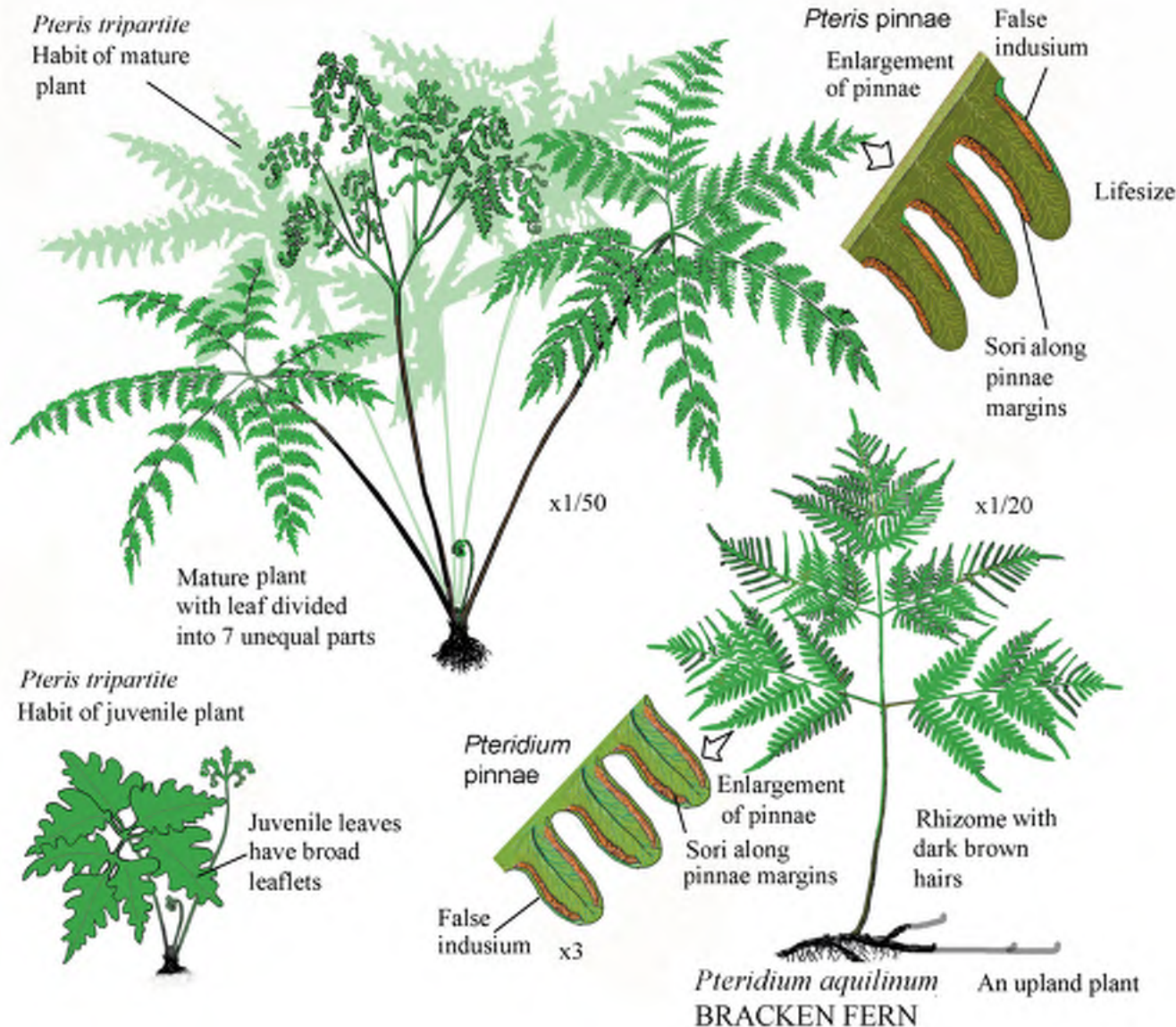
Identification: Terrestrial perennial fern with large complex leaves, from thick, short creeping rhizomes, covered by dense, pale brown scales; large compound, evergreen leaves, broadly triangular, 1-2 m long, up to 1-2 m wide, spreading into 3-7 parts, mature plants with up to 7 triangular/oblong, pinnate-pinnatifid leaflets; stipe or leaf petiole with 2-3 grooves, pale brown to reddish-brown, with pale brown hairs around the base, becoming smooth; sori appear as a narrow brown zone along the pinnae or leaf margins and covered by a continuous folding of the leaf margin, a false indusium. Both bracken fern (*Pteridium aquilinum*) and giant brake fern have large leaves divided into at least three parts and both have false indusia. Bracken fern is a common in uplands.

Habitat: Swamps, floodplains and disturbed wet soils. Generally found on circumneutral soils.

Regulatory Status: FDEP:FACW, NWPL:FACW.

Range: South and central Florida, excluding the Florida keys.

Native to tropical Asia and introduced throughout the new world tropics.



Salvinia minima Baker*Salvinia molesta* D.S. Mitch.

WATER SPANGLES

GIANT SALVINIA

Identification: Aquatic perennial, free floating fern with simple, pubescent, circular to oblong, green, olive green to reddish-green, spreading, paired leaves from pubescent stems, a third root-like appendage spreads into the water column beneath; leaves can be flat or folded upright and sometimes crowded, with a round to notched apex and round to cordate base; upper leaf surface is covered with rows of tufted hairs, tufts consist of four hairs; lower leaf surface covered with rows of long, thin, reddish-brown hairs; the root-like leaf is 5-8 cm long, these dangle beneath plants, with several radiating roots from a single pendent stalk, these are covered very fine reddish to dark brown hairs; sorocarps are produced in a single row on dangling stalks. *S. minima* has round to oblong leaves 1-1.5 cm long, stalked leaf hairs not joined at the tip. *S. molesta* has oblong leaves 1 to 2.3 cm long, stalked leaf hairs joined at the tip. There are approximately 500 species of *Salvinia*, some are popular in the aquarium trade and new species introductions can be expected in our flora.

Habitat: All *Salvinia* species are floating plants of surface waters of ponds, lakes, ditches, canals and slow moving rivers.

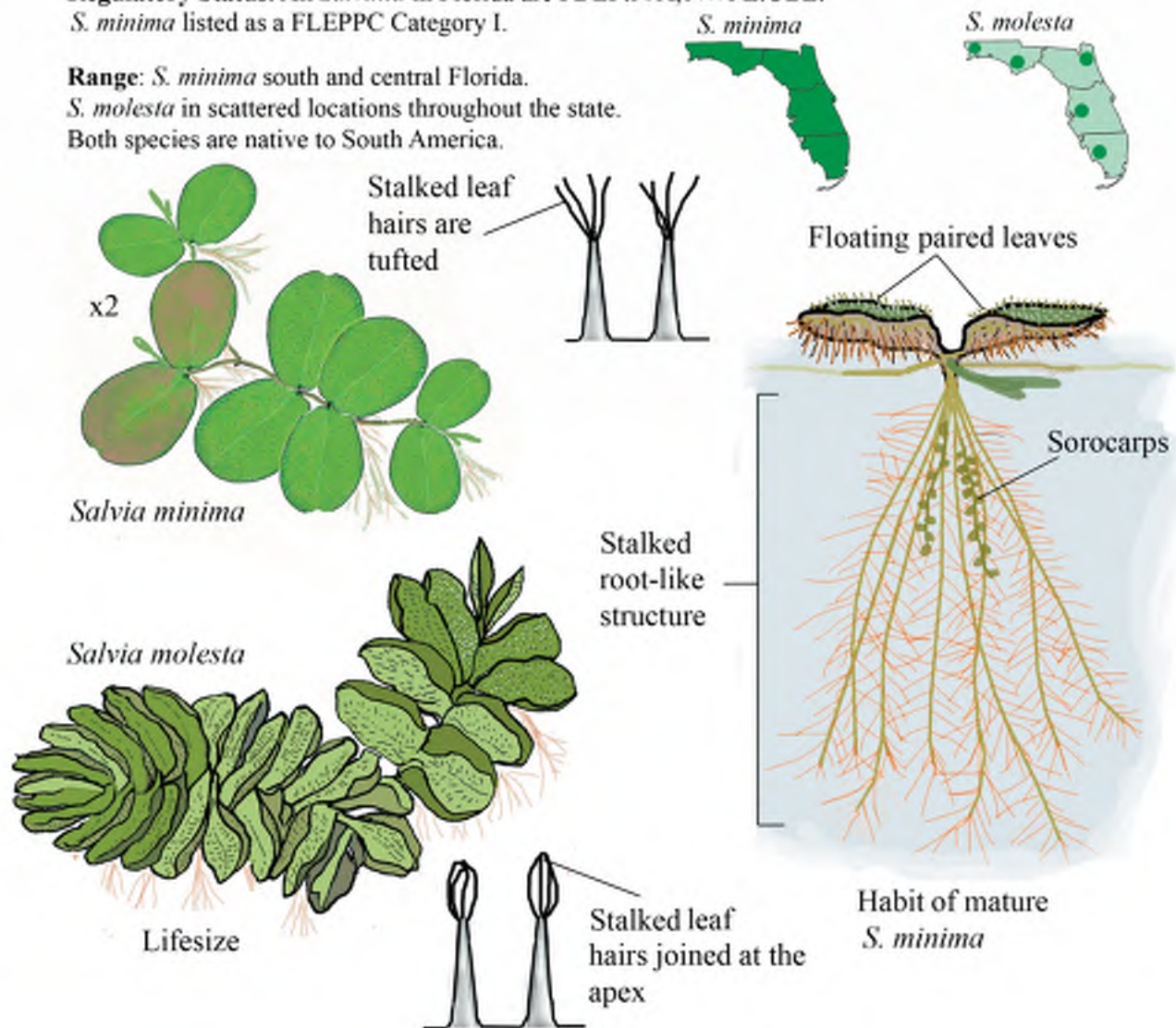
Regulatory Status: All *Salvinia* in Florida are FDEP:N/A, NWPL:OBL.

S. minima listed as a FLEPPC Category I.

Range: *S. minima* south and central Florida.

S. molesta in scattered locations throughout the state.

Both species are native to South America.



SCHIZAEACEAE

Actinostachys pennula (Swartz) Hooker RAY SPIKED FERN

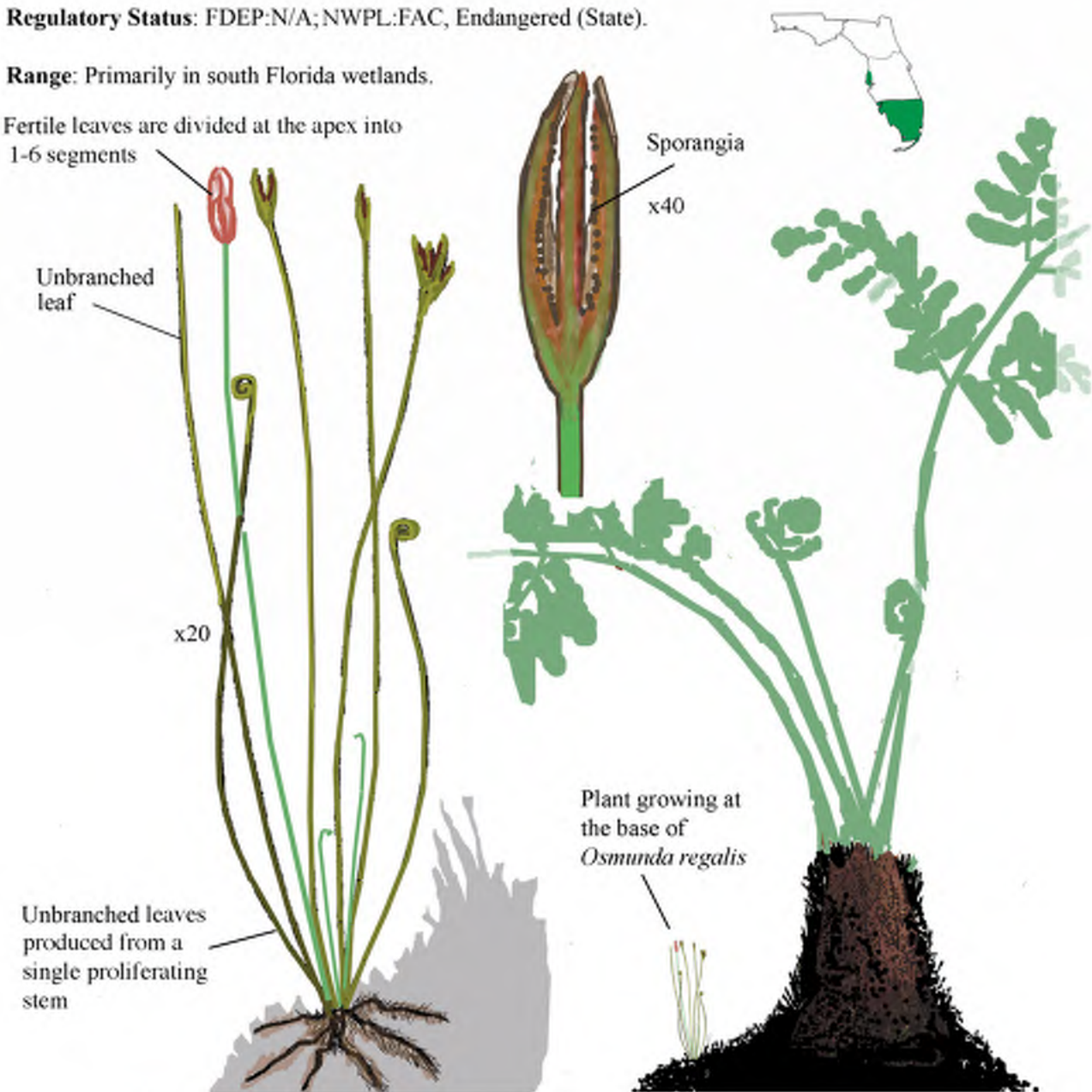
Identification: Easily overlooked, small tufted perennial fern with dark roots covered with hairs and upright stems 5-10 cm long; leaves are unbranched produced from a single proliferating stem, green with red-brown base; fertile leaves are divided at the apex into 1-6 segments, the sporangia are produced in 2-4 rows along one site of the segments.

Habitat: Subtropical swamps and hammocks, growing in the humus of rotting logs and at the base of *Osmunda regalis* stems.

Regulatory Status: FDEP:N/A; NWPL:FAC, Endangered (State).

Range: Primarily in south Florida wetlands.

Fertile leaves are divided at the apex into 1-6 segments



Habit of mature plant growing in the root mat of *Osmunda* (ROYAL FERN)

SELAGINELLACEAE

Selaginella apoda (L.) Spring

MEADOW SPIKE-MOSS

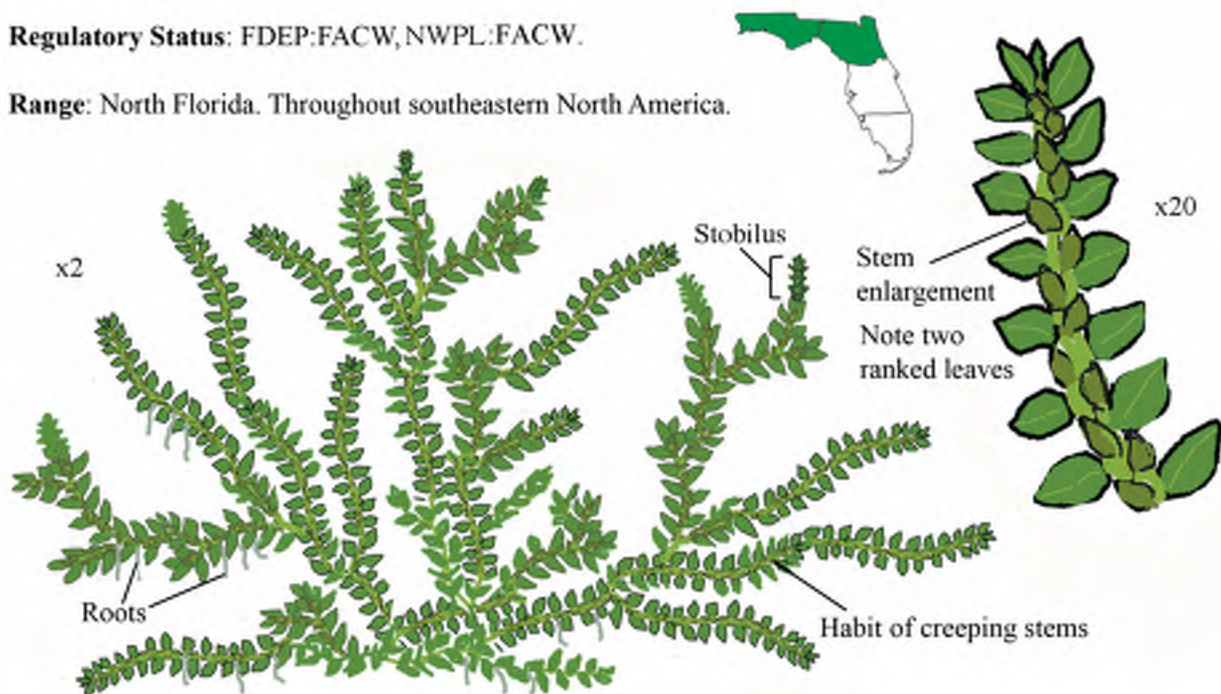
(two varieties sometimes recognized in Florida, var. *apoda* and var. *ludoviciana* (A.Braun) B.F.Hansen & Wunderlin)

Identification: Terrestrial, mat forming perennial with leafy stems; leaves alternate produced in two ranks, triangular, 1 mm wide and 1-3 mm long; small strobili, 1-2 cm long and up to 5 mm wide, produced along stems; two types of spores produced, megaspores are pale yellow, produced in megasporophylles on base of strobili, microspores are reddish-brown, produced in microsporophylles toward the apex of the strobili.

Habitat: Found in a variety of shaded wetlands, seepage wetlands, swamps, floodplains, stream banks and pond margins.

Regulatory Status: FDEP:FACW, NWPL:FACW.

Range: North Florida. Throughout southeastern North America.



Habit of *S. apoda* growing in a seepage wetland.

SELAGINELLACEAE

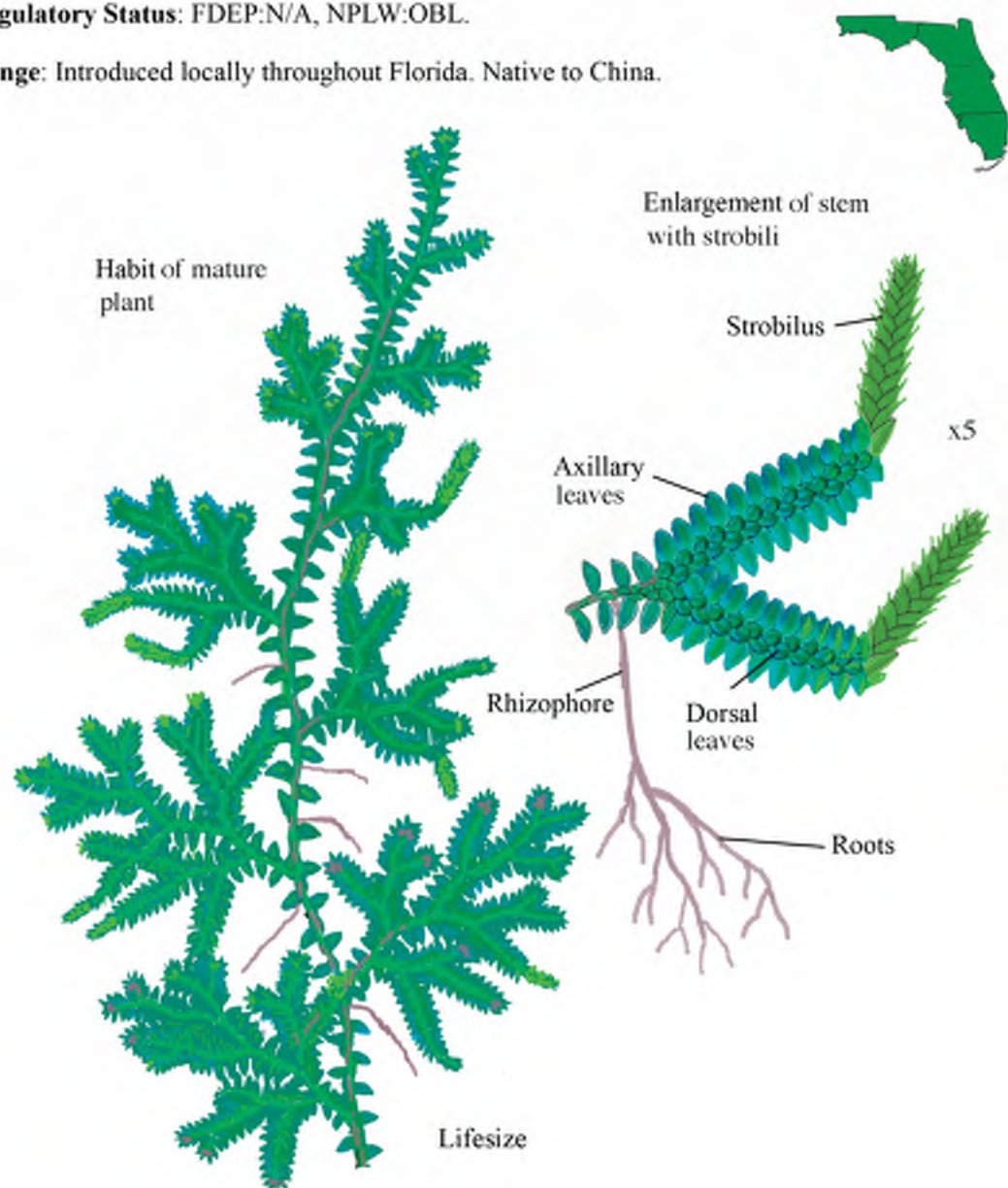
Selaginella uncinata (Desv. ex Poir.) Spring PEACOCK SPIKE-MOSS

Identification: Terrestrial, mat forming perennial with leafy, decumbent, long creeping stems; main stems are pinnately branched; root like rhizophores are branched and produced along the underside of the main stems; leaves alternate produced in two ranks, axillary and dorsal leaves; some axillary leaves are separated, other axillary leaves overlap the stem, axillary leaves are triangular, they can be green, reddish-green, turquoise and blue-, margins transparent, 1-3.5 mm long and 1-2 mm wide; dorsal leaves are ovate, overlapping (imbricate) or separate, about 1/3 the size of axillary leaves and are usually blue-green; strobili are terminal, upright, green 0.5-1.5 cm long; sporophylles monomorphic, narrowly triangular with acuminate to aristate apices; sporangia pale yellow to brown.

Habitat: Found in mesic forest, forested cultural landscapes, seepage slopes and forested wetlands.

Regulatory Status: FDEP:N/A, NPLW:OBL.

Range: Introduced locally throughout Florida. Native to China.



TECTARIACEAE

Tectaria species

HALBERD FERNS

Identification: Perennials evergreens with a tuft of leaves from a short creeping stem, generally found on exposed limestone; leaves of one type, variously shaped from pinnate pinnatifid to triangular with lobes, leaflets or pinnae are lanceolate to broadly triangular with entire or lobed margins, leaflet base truncate to rounded; petioles short; sori in rows on the underside of leaflets, brown to reddish-brown, indusium round to kidney-shaped.

T. amesiana A.A. Eaton: a hybrid between *T. coriandrifolia* and *T. fimbriata*, plants variable, best described as more similar in morphology to the *T. fimbriata* parent.

T. coriandrifolia (Sw.) Underw.: leaves pinnate-pinnatifid (the only native *Tectaria* in Florida with this type of leaf), 5-12 long and 3-10 cm long, petiole pubescent, shorter than the leaf blade, leaves may produce plantlets in leaf axils; indusia kidney-shaped.

T. fimbriata (Willd.) Proctor & Lourteig: leaves 5-7 cm wide and 5-10 cm long, broadly to narrowly triangular in overall shape, may be once pinnate or a single triangular leaf with shallow to deep lobed margins; petioles pale brown with darker brown scales at the base, up to three times as long as leaf blade; indusium peltate, sori round.

T. heracleifolia (Willd.) Underw.: leaves 20-40 cm wide and 10-40 cm long, terminal leaf is split into 3 deep lobes, basal most leaflet is split into 2 deep lobes, 1-2 pairs of leaflets between the terminal and basal pair, leaflet bases truncate; petiole pale brown, up to twice as long as leaf blade, base with brown scales; indusia peltate, sori round.

T. incisa Cav.: leaves 20-50 cm wide and 50-100 cm long, terminal leaf is split into 3 deep lobes, basal most leaflet is split into 2 deep lobes, 3-6 pairs of leaflets between the terminal and basal pair, leaflet base oblique; petiole pale to dark brown to reddish-brown, as long as leaf blade, base with brown scales; indusia kidney-shaped.

Habitat: Limestone and lime rich soils near caves, ledges and sinkholes, tropical hammocks with surface limestone, disturbed sites with exposed limestone.

Regulatory Status:

T. coriandrifolia: FDEP:N/A, NWPL:OBL.

T. fimbriata: FDEP:N/A, NWPL:FACW; Endangered (Florida).

T. heracleifolia: FDEP:N/A, NWPL:FACU; Threatened (Florida).

T. amesiana: FDEP:N/A, NWPL:OBL.

T. incisa: FDEP:N/A, NWPL:FACW; FLEPPC Category I.

Range: All *Tectaria* described above are native to Florida except for *T. incisa*, which is reportedly an introduced species. The Florida range of *Tectaria* is dictated by presence of surface limestone and suitable habitat. A range map is presented next to each illustrated species on this and the next page.



Tectaria amesiana
AMES' HALBERD FERN
USACE:OBL



Found on exposed
limestone in se FL

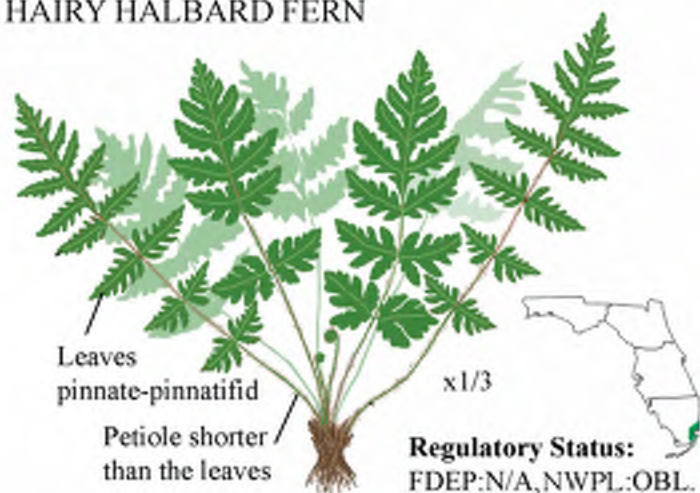
This plant is a hybrid between *T. coriandrifolia* and *T. fimbriata*, it is similar in appearance to *T. fimbriata*.

Regulatory Status: FDEP:N/A, NWPL:OBL.

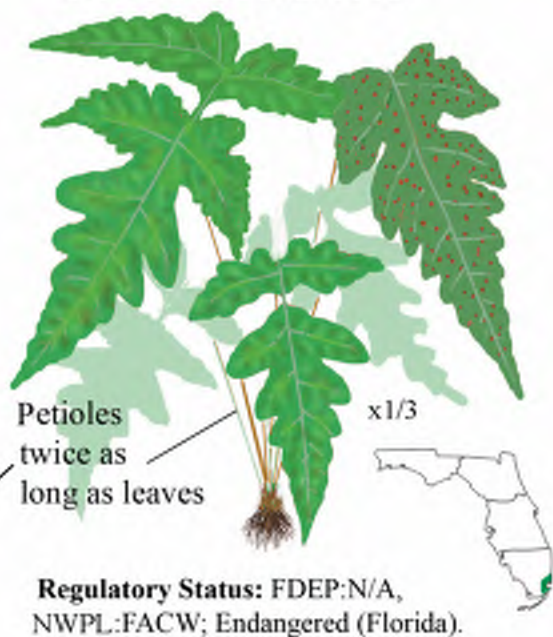
TECTARIACEAE

Tectaria species

Tectaria coriandrifolia
HAIRY HALBERD FERN



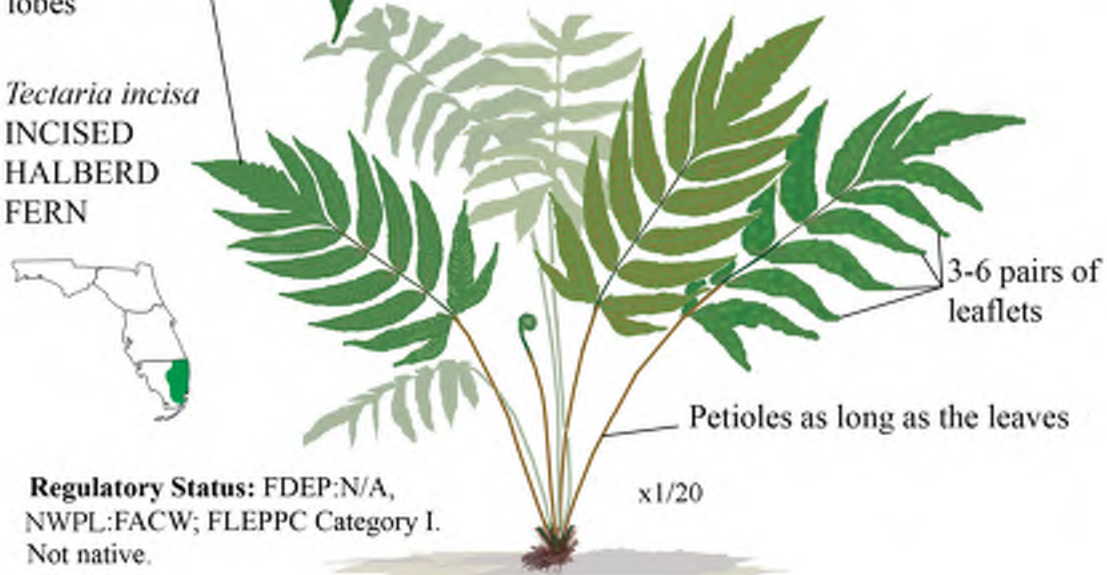
Tectaria fimbriata
LEAST HALBERD FERN



Tectaria heracleifolia
BROAD HALBERD FERN

Regulatory Status: FDEP:N/A, NWPL:FACU; Threatened (Florida).

Tectaria incisa
INCISED HALBERD FERN



THELYPTERIDACEAE

Macrothelypteris torresiana (Gaudich.) Ching
(=*Thelypteris torresiana* (Gaudichaud-Beaupré) Alston)

MARIANA MAIDEN
FERN

Identification: Terrestrial herbaceous fern with large, monomorphic leaves and long petioles (to 70 cm), from a short rhizome; leaf blades broadly triangular, 1.5 m long and 70 cm wide, compound, often with over 20 triangular pinnae; pinnules are oblong, with smooth to toothed (pinnatifid) margins; the main veins on the underside of the leaves are hairy; sori are pale brown, round and obscure the small indusia, they are produced in rows between the main pinnae vein, on the underside of pinnae. This plants with its large compound leaves and arching habit could be confused with *Hypolepis repens*, which can be identified by the position of the sori in the sinus of pinnae.

Regulatory Status: FDEP: FACW note: this species was considered taxonomically a *Thelypteris* (FACW) at the time of the 1993 FDEP wetland rule making; NPLW: OBL.

Habitat: A potentially large fern found on the edges of swamps, streams, ditches and a variety of disturbed wetlands and sometimes mesic uplands. Prefers circumneutral soil, locally common in heavy textured soils near limestone and concrete in the cultural landscape.

Range: Throughout Florida, spreading north with warming climate throughout southeastern North America. Native to the tropical regions of Africa and Asia.



THELYPTERIDACEAE

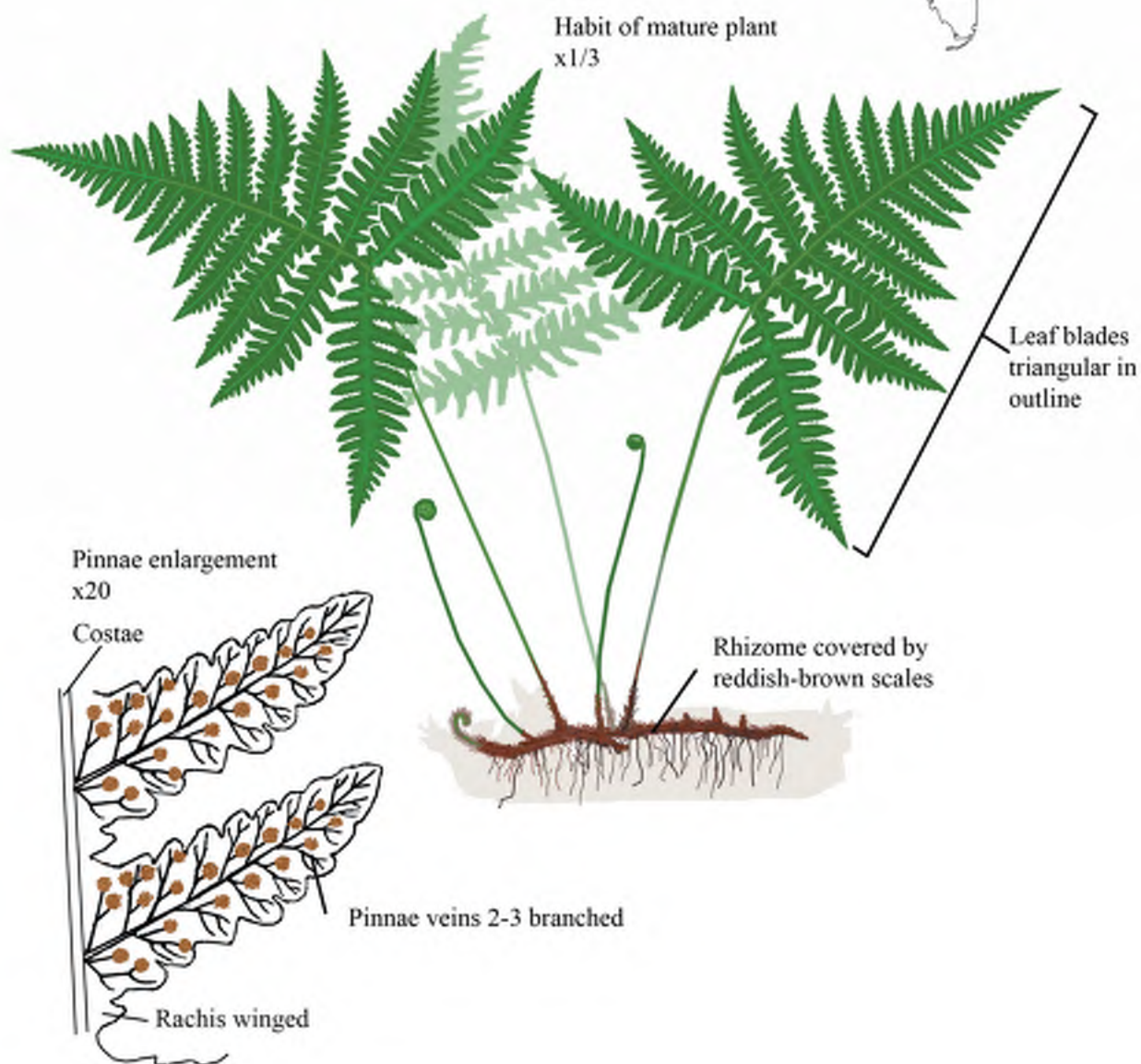
Phegopteris hexagonoptera (Michx.) Fée BROAD BEECH FERN SOUTHERN BEECH FERN

Identification: Terrestrial, leaf blades of one type, monomorphic, deciduous, loosely clustered and/or widely separated, from a long creeping rhizome; rhizome covered by reddish-brown scales; base of petiole dark reddish-brown becoming green toward leaf blade, often with dark reddish-brown scales at the base; leaf blades broadly triangular in outline, 20-30 cm long and 15-25 cm wide, smooth, green to pale green, the blades are 2-3 pinnatifid, pinnae lobed; pinnae veins 2-3 branched; rachis winged; sori round without indusia.

Habitat: Mesic hardwood forests, usually north facing, often on soils over limestone, near spring runs, sinkholes, and marl soils in ravines.

Regulatory Status: FDEP:NL; NWPL:FACU.

Range: North Florida.



THELYPTERACEAE

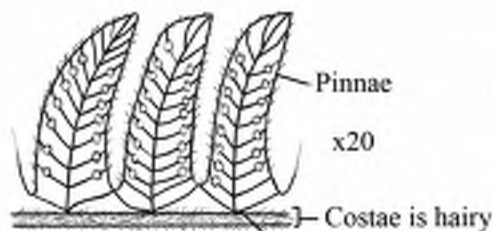
Thelypteris spp. SHIELD FERN, MAIDEN FERN, MARSH FERN

(includes *Amauropelta*, *Amblovenatum*, *Christella*, *Cyclosorus*, *Goniopteris*, and *Meniscium*)

Identification: Terrestrial, perennial ferns, typically with one type of leaf, essentially monomorphic, evergreen and deciduous, once pinnate to pinnate-pinnatifid, lance-shaped in outline with pinnae gradually reduced toward the apex and the base so as to appear tapered or truncate at the base, fronds 30-100+ cm long, tufted from short or long creeping rhizomes; pinnae variously lobed, toothed or entire, petioles green, purple-green, straw-colored to dark brown, sometimes with scales at the base; sori round, and covered with round to kidney-shaped indusia or without indusia. The following taxa have been found in Florida.

T. augescens (Link) Munz & I.M. Johnst. ABRUPT-TIP MAIDEN FERN

(=*Christella augescens* (Link) Pichi Sermolli)



Basal veins from adjacent pinnules come together below the sinus, pinnae may have revolute margins

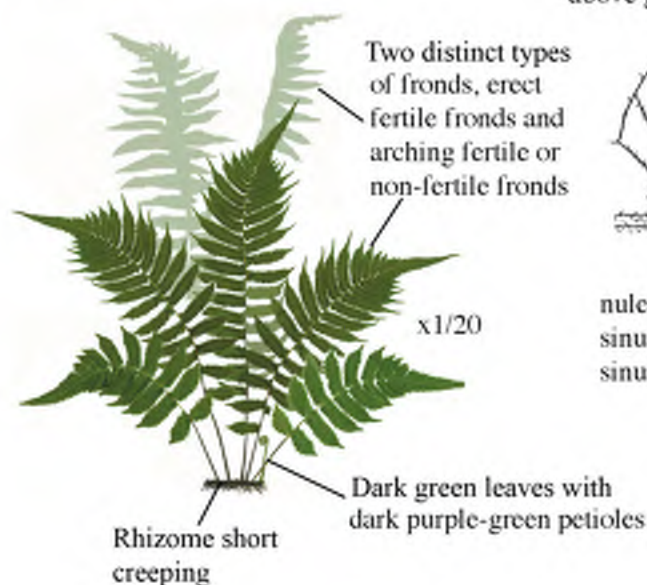


Found on exposed limestone in tropical hammocks in south Florida.

Regulatory Status: FDEP: FACW, NWPL: N/A, Threatened (Florida).

T. dentata (Forsk.) E. P. St. John

(=*Christella dentata* (Forsskal))



DOWNY SHIELD FERN

above ground parts of plant are hairy



veins from adjacent pinnules come together below the sinus and extend as one to the sinus



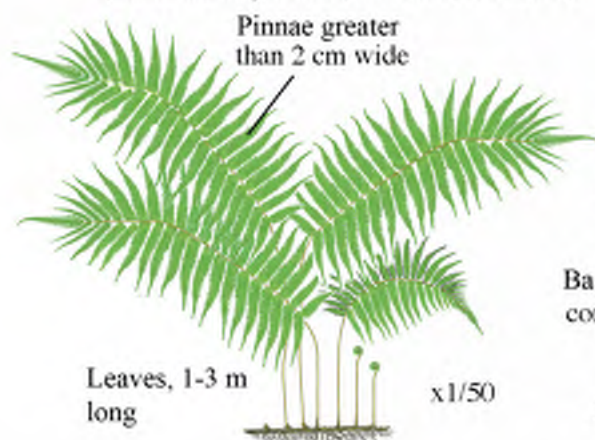
An introduced exotic found throughout Florida in natural and ruderal sites.

Regulatory Status: FDEP: FACW, NWPL: FACW.

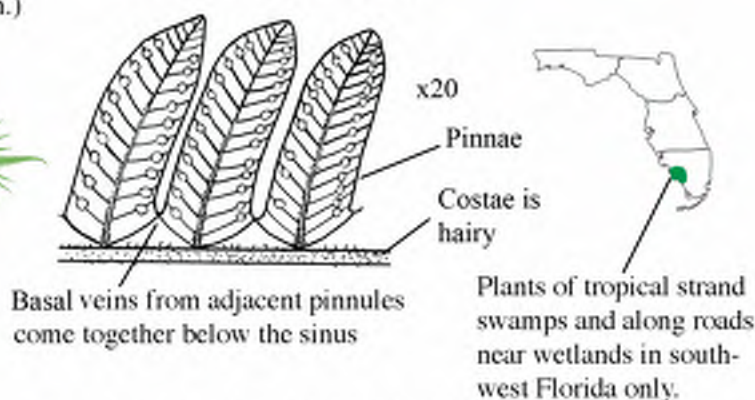
THELYPTERACEAE

Thelypteris spp.

T. grandis A.R. Sm.
(=*Christella grandis* (A.R.Sm.) A.R.Sm.)



STATELY MAIDEN FERN

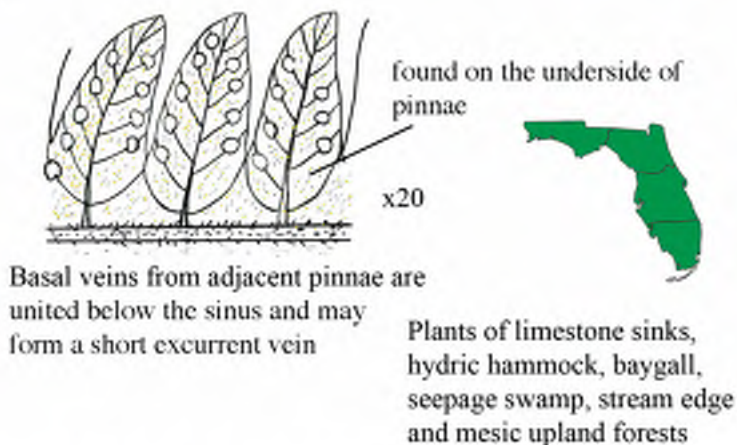


Regulatory Status: FDEP: FACW, NWPL: N/A; Endangered (Florida).

T. hispidula var. *versicolor* (R. P. St. John) Leninger
(=*Christella hispidula* (Decne.) Holttum)

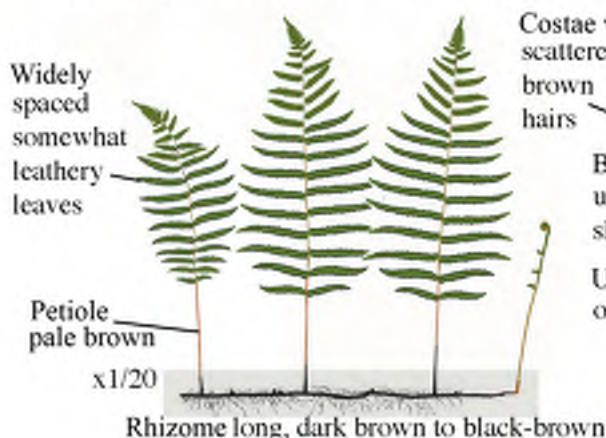


HAIRY MAIDEN FERN

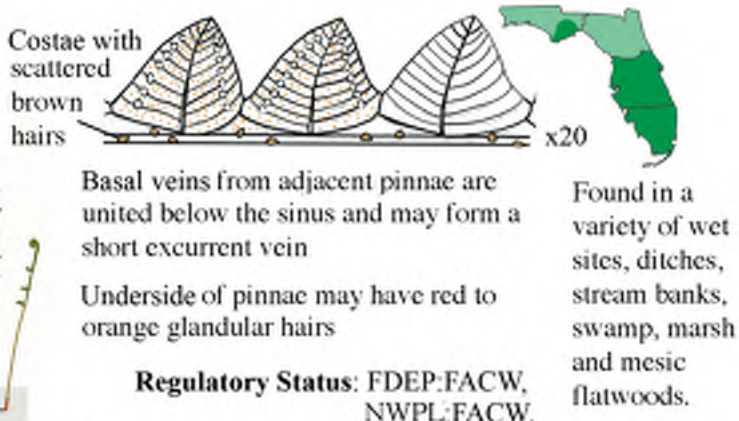


Regulatory Status: FDEP: FACW, NWPL: FACU-

T. interrupta (Willd.) K. Iwats
(=*Cyclospor interruptus* (Willd.) H. Ito)



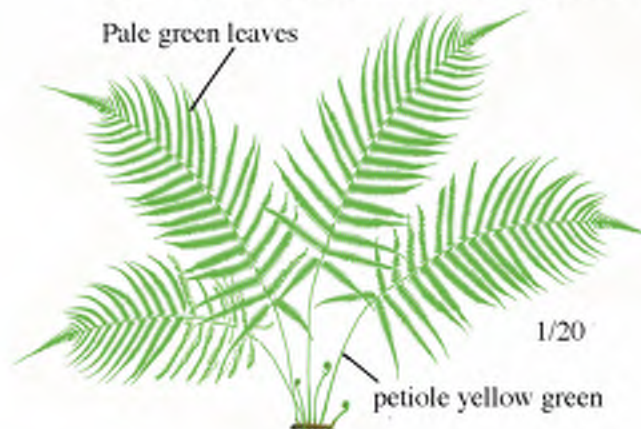
INTERRUPTED FERN



Regulatory Status: FDEP: FACW, NWPL: FACW.

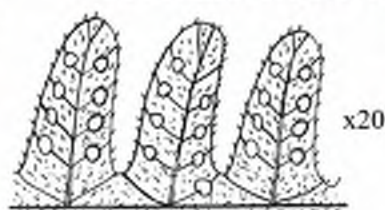
Thelypteris spp.

T. kunthii (Desv.) Morton
(=*Christella normalis* (C. Christensen) Holttum)



THELYPTERIACEAE

SOUTHERN SHIELD FERN

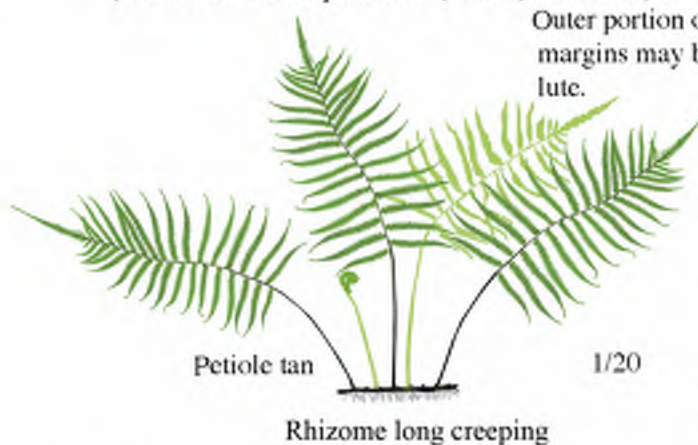


Veins from adjacent pinnae are not united below the sinus, underside of pinnae and costae are typically hairy.

Regulatory Status: FDEP: FACW, NWPL: FACW.

Found in a variety of wetland and upland forest types, especially those with circumneutral soils, also on exposed limestone.

T. opulenta (Kaulf.) Fosberg
(=*Amblovenatum opulentum* (Kaulf.) J.P. Roux)



JEWELLED MAIDEN FERN



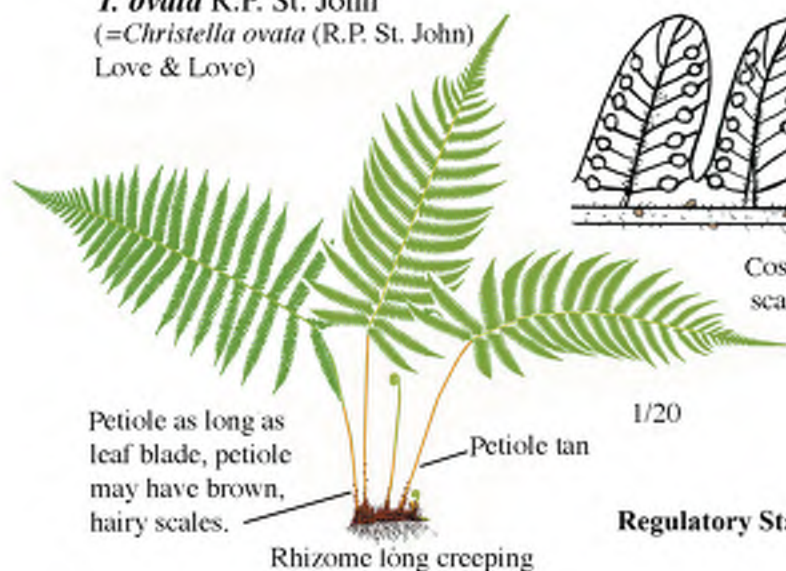
Basal veins from adjacent pinnules are joined at the sinus.

Yellow gland tipped hairs on underside of pinnae and costae

Regulatory Status: FDEP: FACW, NWPL: N/A; FLEPPC Category I.



T. ovata R.P. St. John
(=*Christella ovata* (R.P. St. John) Love & Love)



OVATE MARSH FERN



Costae may have a few tan scales

Found throughout Florida on limestone, ledges and sinks, hydric hammocks, swamps, mesic uplands.

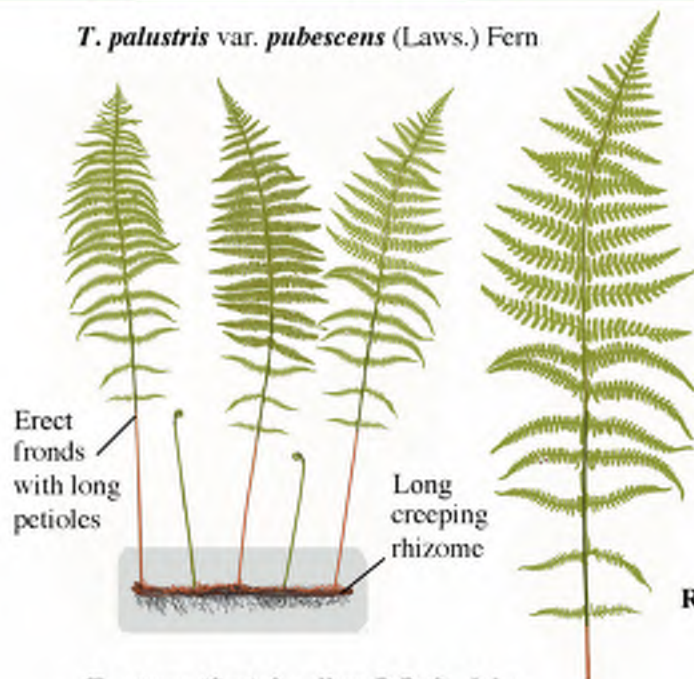
Regulatory Status: FDEP: FACW, NWPL: FACW.



THELYPTERACEAE

Thelypteris spp.

T. palustris var. *pubescens* (Laws.) Fern



MARSH FERN



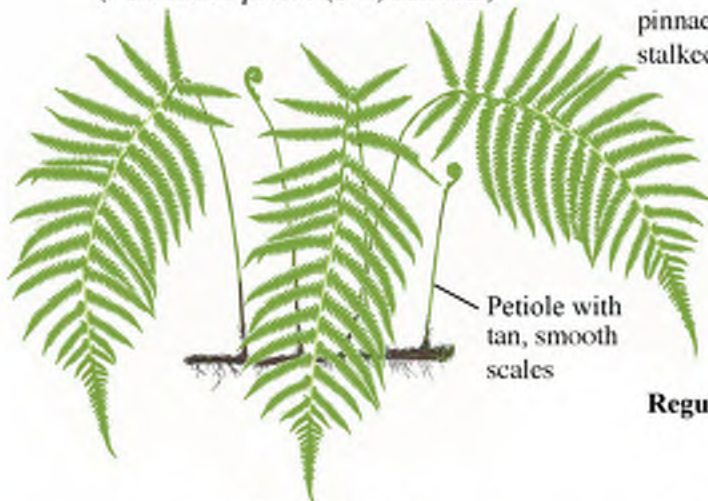
Pinnae with veins extending to the margin above the sinus, these may be forked or not

Found in a variety of wetlands, marsh, seepage slope, bog, floodplain and swamps.



Regulatory Status: FDEP:FACW, NWPL:OBL.

T. patens (Sw.) Small ex R.P. St. John
(=*Christella patens* (Sw.) Holttum)



GRID-SCALE MAIDEN FERN



Veins from adjacent pinnae are either united below the sinus or extending to the margin above the sinus

Found on limestone in southeast Florida.



Regulatory Status: FDEP:FACW, NWPL:FACU;
Endangered (Florida).

T. reptans (Gmelin) Morton
(=*Goniopteris reptans* (Gmelin) Presl.)



CREeping STAR-HAIR FERN

Evergreen ferns with star-shaped or forked hairs, arching leaves with wiry petioles

Leaves may produce plantlets at the leaf tip



Found on exposed limestone, sinks, and ledges.



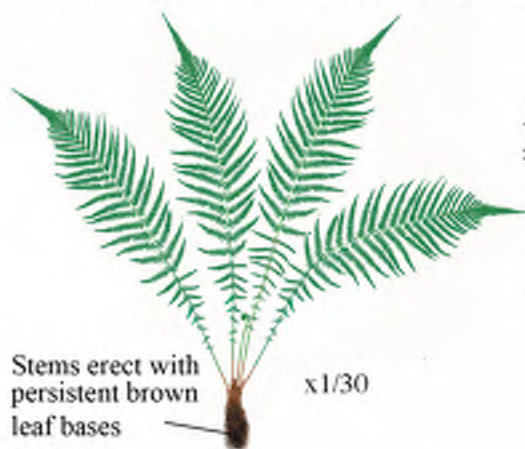
Regulatory Status: FDEP:FACW,
NWPL:N/A;
Endangered (Florida).

Thelypteris spp.

THELYPTERIACEAE

T. resinifera (Desv.) Proctor
(=*Amauropelta resinifera* (Desv.) Pich. Serm.)

GLANDULAR MAIDEN FERN



Pinnae with veins extending to the margin above the sinus, underside of pinnae and costae covered by a dense layer of sessile reddish glands

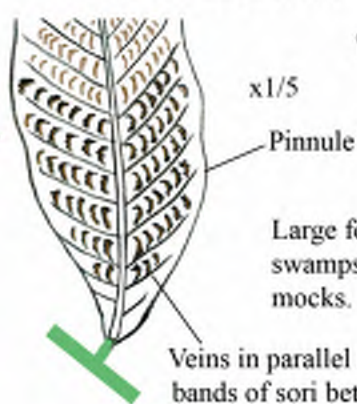


Found on floodplains and seepage slopes.

Regulatory Status: FDEP:FACW, NWPL:FACW.

T. reticulata (L.) Proctor
(=*Meniscium reticulatum* (L.) Swartz)

LATTICE-VEIN FERN



Large ferns of floodplains, swamps and hydric hammocks.

Regulatory Status: FDEP:FACW, NWPL:FACW; Endangered (Florida).

T. sancta (L.) Ching
(=*Amauropelta sancta* (L.) Pich. Serm.)

CARIBBEAN MAIDEN FERN



Found on exposed limestone in south-east Florida.

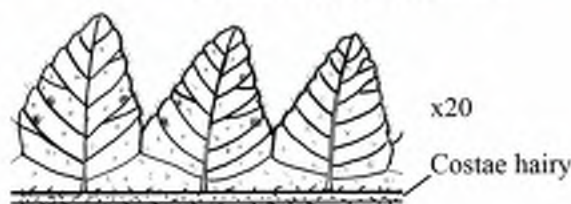
Regulatory Status: FDEP:FACW, NWPL:FAC.

THELYPTERIACEAE

Thelypteris spp.

T. sclerophylla (Poepig ex Spreng) Morton
(=*Goniopteris sclerophylla* (Poep. Ex Spreng.) Wherry)

STIFF STAR-HAIR FERN



Basal veins from adjacent pinnae are united below the sinus and may form a short excurrent vein

On limestone of tropical hammocks in south Florida.

Regulatory Status: FDEP:FACW, NWPL:UPL; Endangered (Florida).

T. serrata (Cav.) Alston
(=*Meniscium serratum* Cav.)

TOOTHED LATTICE-VEIN FERN



Pinnae margins toothed



Veins in parallel lines with bands of sori between them

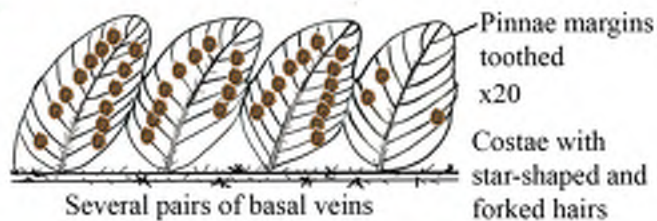
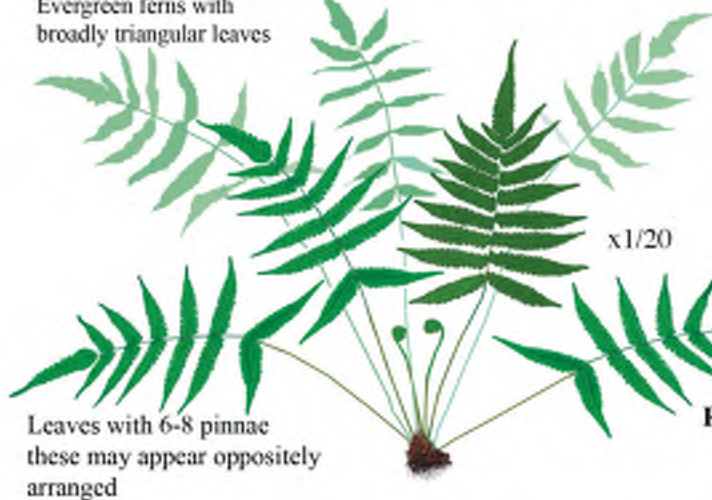
Large ferns of floodplains, swamps and hydric hammocks

Regulatory Status: FDEP:FACW, NWPL: FACW; Endangered (Florida).

T. tetragona (Swartz) Small
(=*Goniopteris tetragona* (Swartz) C. Presl)

FREE-TIP STAR-HAIR FERN

Evergreen ferns with broadly triangular leaves



Several pairs of basal veins united below the sinus, creating an excurrent vein to the sinus.

Found on exposed limestone.

Regulatory Status: FDEP: FACW, NWPL:N/A.

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Osmunda regalis

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