



Common Name: TAYLOR'S FILMY FERN

Scientific Name: *Hymenophyllum tayloriae* Farrar & Raine

Other Commonly Used Names: gorge filmy fern

Previously Used Scientific Names: none

Family: Hymenophyllaceae (filmy fern)

Rarity Ranks: G1G2/S1

State Legal Status: Special Concern

Federal Legal Status: none

Federal Wetland Status: none

Description: Fern forming dense mats of delicate plants that occur in two forms: gametophytes (sex cell-producing) and sporophytes (spore-producing). **Gametophytes** consist of glossy, green, flat, ribbon-like branches up to ½ inch (1 cm) long and less than 1/16 inch (1 mm) wide, one-cell thick and translucent, with rounded tips; edges often have dark brown cells and thin, root-like **rhizoids**. **Sporophytes** are rarely seen; they resemble gametophyte branches but with a thickened midrib and yellow, star-like hairs on the edges and the midrib (not on the flat surfaces); sporophyte leaves are dwarfed and never mature or become fertile.

Similar Species: Taylor's filmy fern resembles and often grows with liverworts that differ in that they are more than one cell thick, not filmy, and usually have a midrib and notched tips. Gametophytes of Appalachian shoestring fern (*Vittaria appalachiana*) are leafier, not ribbon-like, and have thread-like gemmae that are only one cell wide (see drawing inset).

Related Rare Species: Two other species of filmy fern (*Trichomanes boschianum* and *T. petersii*) are Special Concern in Georgia. Their sporophytes, though filmy and one cell thick, have small, leaf-like fronds with visible veins. Their gametophytes are thread-like, not flattened, and seldom seen.

Habitat: Grottoes, small caves (rockhouses), and moist (not wet) ledges near waterfalls. Grows in schist, sandstone, or other porous, non-calcareous rock that can supply a constant source of moisture.

Life History: Like all ferns, Taylor's filmy fern's life cycle consists of two phases. The gametophyte phase consists of tiny, ground-hugging plants that produce egg and sperm which unite to produce a larger, leafy plant called the sporophyte. The sporophyte phase consists of a plant that, in most ferns, produces spores which develop into gametophytes, thus completing the cycle. Almost all Taylor's filmy fern populations consist solely of gametophyte plants, narrow ribbons that are only one cell thick; these rarely produce egg and sperm and instead reproduce vegetatively by forming tiny, paddle-shaped branches (gemmae) that break off the parent plant. Sporophytes have been seen in only one location (in Alabama).

Survey Recommendations: Plants are evergreen and visible all year, although they may shrivel during dry periods.

Range: Georgia, Alabama, South Carolina, North Carolina, and Tennessee.

Threats: Logging and other clearing near waterfalls, alteration of streams by damming, disturbance by climbers and hikers.

Georgia Conservation Status: Two populations are known, both in the Chattahoochee National Forest.

Conservation and Management Recommendations: Avoid logging, which alters light, moisture, and temperature, near waterfalls and grottoes. Prevent damming of streams and rivers. Direct climbers and hikers away from populations.

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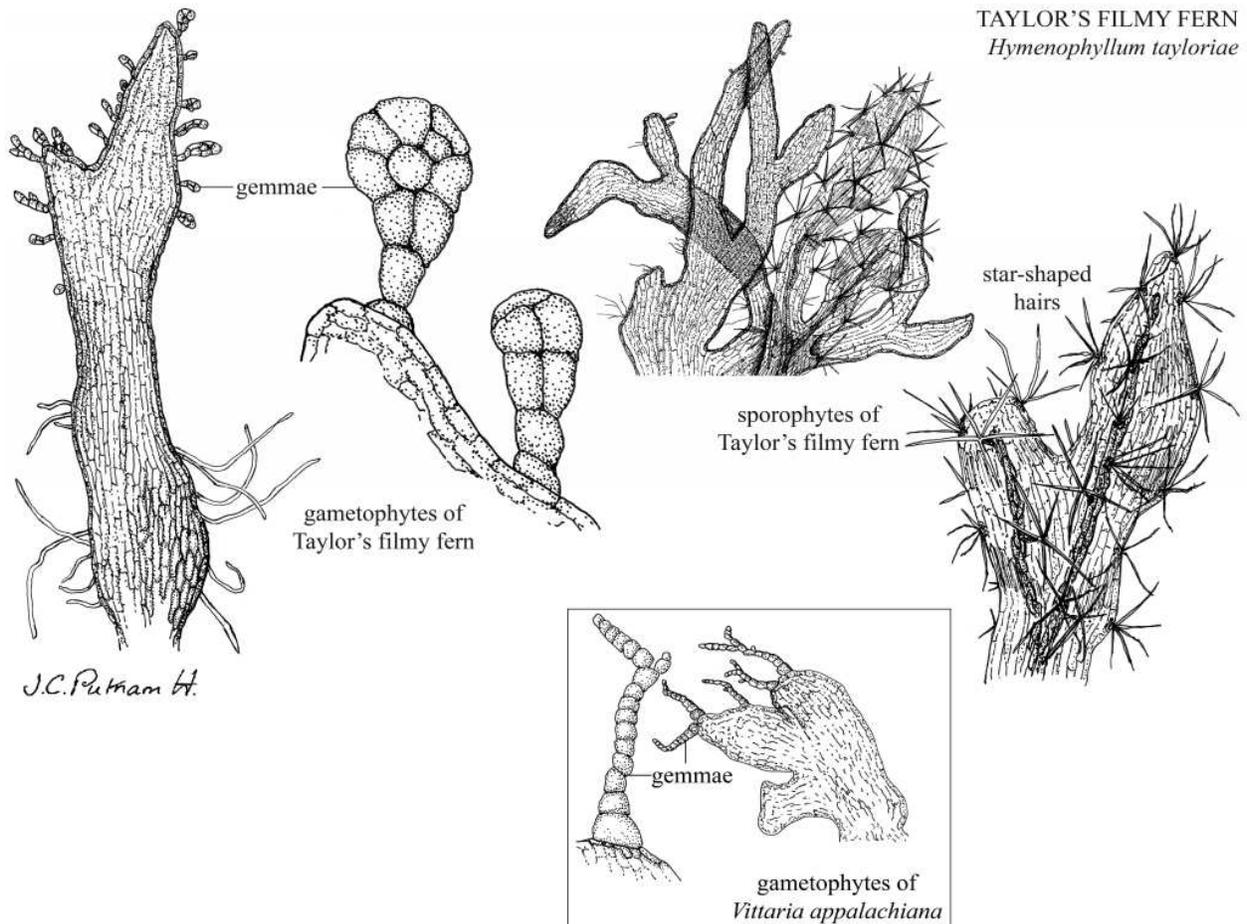
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L. Chafin, Mar. 2007: original account

K. Owers, Feb. 2010: added pictures





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Gametophyte mat



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Gametophytes and sporophytes