**Comptonia peregrina** (L.) Coult.  
MYRICACEAE

*Synonyms:* *Comptonia asplenifolia* L.  
*Myrica asplenifolia* (L.) Ait.

**General Description.**—Sweet fern is a densely branched, deciduous, rhizomatous shrub that grows 0.5 to 1.5 m tall and 1.2 to 2.5 m wide or more (Dirr 1998, Gleason and Cronquist 1991). Sweet fern is a dioecious or seldom monoecious (Gleason and Cronquist 1991), actinorhizal nitrogen-fixing shrub (Del Tredici 1996, Ziegler and Huser 1963) with fern-like leaves and stems that are aromatic when crushed. Leaves are alternate, oblong-linear, deeply pinnately lobed, stipulate, dark green, pubescent, 5 to 12 cm long, 1 to 1.5 cm wide, with petioles 0.3 to 0.6 cm long (Dirr 1998, Gleason and Cronquist 1991, Hall and others 1976). Stems are green, yellowish, or reddish-brown when young, turning reddish-purple or coppery-brown with age. Buds are globular, minute, solitary, and sessile, with two to four exposed scales (Dirr 1998). The flowers are inconspicuous. Staminate catkins are olive green, cylindrical, clustered (usually three to four) on the tip of the previous year’s wood, 1.5 to 4 cm long, and drooping (Gleason and Cronquist 1991, Hall and others 1976). Pistillate catkins are dark red at the beginning of anthesis, subglobose at maturity, up to 0.7 cm long, with the ovary surrounded by eight persistent bracts (Gleason and Cronquist 1991, Hall and others 1976). The fruit is an ovoid nut, olive-brown, 3 to 5 mm long, enclosed in a burr-like cluster of bracts (Dirr 1998, Gleason and Cronquist 1991). The chromosome number of sweet fern is 2n = 32 (Gleason and Cronquist 1991). Two varieties are recognized: var. *asplenifolia* (L.) Fernald and var. *tomentosa* A.Chev. (Krüssmann 1984, Missouri Botanical Garden 2002).

**Range.**—Sweet fern occurs from Nova Scotia to North Carolina, western South Carolina, and northern Georgia, and west to Saskatchewan, Minnesota, Illinois, and Tennessee (Gleason and Cronquist 1991). *Comptonia peregrina* var. *asplenifolia* occurs only from Long Island, New York, to Virginia (Hall and others 1976). In Canada, sweet fern is found in all three Maritime Provinces, Ontario, and certain parts of Quebec (Hall and others 1976).

**Ecology.**—Sweet fern prefers well-drained, dry, acid, sandy or gravely soils with full exposure to the sun (Del Tredici 1996, Schwintzer 1989, Snyder 1993). These sites include dry piney woods, exposed mountain slopes, abandoned pastures, barrens, highway embankments, gravel pits, weathered mine tailings, and cut-over forested land (Del Tredici 1996). Sweet fern is shade intolerant, adaptable to infertile soils, fixes nitrogen in a symbiotic association with *Frankia*, a filamentous bacterium (actinomycete) (Callaham and others 1978), has cluster roots that aid in phosphorus uptake (Hurd and Schwintzer 1997), and is a pioneer colonizer of sites disturbed by fire, logging, clear-cutting, and road construction (Del Tredici 1996, Lynham and others 1998, Snyder 1993). Sweet fern is drought and salt tolerant. Sweet fern colonizes areas via lateral roots that form endogenous root buds from which shoot sprouts are readily formed (Louis and Torrey 1991). The shrub is a serious weed problem in the commercial lowbush blueberry fields in Canada and New England (Hall and others 1976, Snyder 1993). The nymphs of the Saratoga spittlebug (*Aphrophora saratogensis* Fitch.) feed on sweet fern but do not cause serious damage (Johnson and Lyon 1991). Sweet fern is susceptible to attack by *Botryosphaeria dothidea* (Moug.:Fr.) Ces. and DeNot. (causing dieback) and *Gymnosporangium ellisii* (Berk.) Ellis.
Reproduction.—Sweet fern flowers are small, inconspicuous, wind-pollinated, and shed large amounts of pollen (Hall and others 1976). In the United States the shrub blossoms in April or early May with fruit maturation by fall. In Canada, sweet fern blossoms mid-May to mid-June with fruit maturation from July through September (Hall and others 1976). Hall and others (1976) determined the mean number of staminate catkins per shoot based on 42 shoots to be 6.43 ± 0.48 (SE) and for the pistillate catkins 0.60 ± 0.01 (SE). The fruit of sweet fern is borne in a bur-like cluster of bracts containing on average 5.52 ± 0.43 (SE) nuts per bur (Hall and others 1976). The pericarp is composed of a thin, fleshy outer layer and a hard, thick inner layer (Del Tredici and Torrey 1976). Seeds do not germinate readily but can remain viable (for as long as 70 years) buried in the soil (Del Tredici 1977). Sweet fern seeds are in deep primary dormancy when they are shed from the plant and become incorporated into the soil (Dow and Schwintzer 1999). They enter seasonal cycles of secondary dormancy over time in which dormancy is induced during the summer. The seeds are then released from this dormancy by chilling during the winter. However, most buried seeds still require exposure to strong daily temperature fluctuations before they germinate (Dow and Schwintzer 1999). Strong temperature fluctuations indicate that shade cover has been removed, which stimulates the seeds to germinate in an open situation favorable for seedling establishment. Fresh seed will germinate (80 percent) after scarification and treatment with 500 mg/l gibberellic acid (GA3) for 24 hours (Del Tredici and Torrey 1976). Sweet fern propagates itself vegetatively via lateral roots that form endogenous root buds from which shoot sprouts are readily formed (Louis and Torrey 1991). These sprouts can spread extensively over large areas forming thickets. Juvenile stems (7.6 cm or less in length) root when treated with 3 g/l indole-3-butyric acid and placed under mist (Dirr 1998). Root pieces (10 cm long x 0.2 cm wide, or 5 cm x 1.3 cm) dug in late winter or early spring, placed horizontally at a depth of 1.3 cm in a mixture of fine sand and sphagnum peat, will develop shoots and additional roots (Dirr 1998). Sweet fern can be grown in containers and successfully transplanted (Dirr 1998). Micropropagation of sweet fern has been achieved by the induction of root buds in excised root culture (Louis and Torrey 1991).

Growth and Management.—Sweet fern is a slow to medium growing shrub that develops a broad, flat-topped to rounded habit as it spreads and colonizes (Dirr 1998). It is hardy in zones two to six (USDA Plant Hardiness) and is sexually mature in 2 to 3 years (Snyder 1993). Burning and disking following logging will stimulate the growth of sweet fern (Snyder 1993). Sweet fern is used for erosion control, low maintenance plantings along highway embankments, and as naturalistic plantings under power company rights-of-way (Del Tredici 1996, Snyder 1993). Sweet fern can become weedy in pastures, old fields, and open woods, but can be controlled with herbicides, such as dicamba, 2,4-D, and glyphosate (Hall and others 1976, Heyd and others 1987, Snyder 1993).

Benefits.—Sweet fern is planted as a landscape plant because of its fern-like, aromatic foliage and stems. Because it fixes nitrogen, sweet fern is useful for rehabilitation of disturbed sites. Sweet fern has limited use as a food source and cover for wildlife. The fruits are consumed by flickers, moose and deer browse sweet fern, and prairie chickens and sharp-tailed grouse use it for nesting cover (Snyder 1993). The leaves can be used for potpourri and tea (Stokes 1981). The chemical betulin occurs in the leaves, root, and stem of sweet fern, and its biological activities have been described (Duke 1996).

References


Dirr, M.A. 1998. Manual of woody landscape plants, Their identification, ornamental characteristics,


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