

Oklahoma Natural Heritage Inventory

Plants

Animals

Communities

Areas Registry

Rare and Vulnerable Plant Species of Oklahoma

The US Fish and Wildlife Service maintains a list of plants and animals native to the United States that may warrant future listing as species vulnerable to extinction. Species considered sensitive are candidates for listing as threatened or endangered under the Endangered Species Act. However, despite their rarity, insufficient information exists regarding population stability of and threat(s) to these species.

To facilitate tracking of vulnerable species, we are maintaining this site to provide an overview of such plant species in Oklahoma. Accounts for each species include: description, life history, habitat preference, distribution, causes of decline, recovery needs, field-identification characters, an illustration, and a map of current and historical sites. If you are aware of populations of the species listed below that are not included, or if you know that populations listed have disappeared, you can help by contacting us.



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 - Gulf Pipewort (*Eriocaulon koernickianum*)
 - Twistflower or Goodman Pineoak Jewelflower (*Streptanthus squamiformis*)
 - Arkansas Meadow-Rue (*Thalictrum arkansanum*)
 - Earleaf Foxglove (*Agalinis auriculata*)
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Other Plants

- Waterfall's tapertip Dodder (*Cuscuta attenuata*)
- Hall's Bulrush (*Schoenoplectus hallii*)

Oklahoma Biological Survey, 111 East Chesapeake St, Norman, OK 73019, 405.325.4034 bhoagland@ou.edu



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Amorpha ouachitensis

Ouachita Indigobush



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Status Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

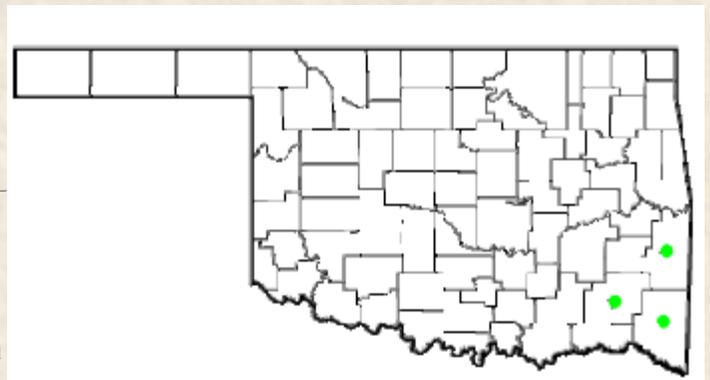
Ouachita indigobush flowers from late April through May. Fruits develop in May and June and persist on the plant throughout winter.

Habitat

Rocky creeks, stream banks, floodplains.

Distribution

Ouachita indigobush is endemic to (that is, found only in) the Ouachita Mountains. It occurs only in west-central Arkansas and the southeastern Oklahoma (Leflore, McCurtain, and Pushmataha counties).



Field Characters

Bastard indigo (*A. fruticosa*) and false indigo (*A. nitens*) occur in southeastern Oklahoma and could be confused with Ouachita indigobush. Bastard indigo may even occur at the same sites as Ouachita Mountain indigo. However, the leaflets of bastard indigo are slightly

smaller than Ouachita indigobush; 5/8 to 1 1/2 inches (1.5-4.0 cm) long and 5/8 to 1 3/16 inches (1.5-3.0 mm) wide for the former. The leaflets of false indigo turn black upon drying unlike those of the Ouachita indigobush.

Causes of Decline

Alteration of streambanks and conversion of wetland areas have adversely affected Ouachita indigobush. Forestry practices, such as clear-cutting and conversion of native forests to pine plantations, may indirectly threaten populations.

Recovery Needs

Areas harboring populations of Ouachita indigobush should be protected from stream alteration or wetland drainage. Additional research into the life history of this plant is crucial.

Description

These shrubs are 3 to 6 feet (1-2 m) tall. Stems are glabrous (=hairless). New growth has hairs with blister like bases. Buds are ovoid to almost round and covered with hairs. Leaves are held out away from the stem, alternate, and once pinnately compound. They are 2 3/4 to 9 inches (7-23 cm) long. Leaflets (=individual "leaves" that constitute a compound leaf) occur in odd numbers with as few as 7 or as many as 17. Each leaflet is pinnately veined with the midnerve (=central vein or rib) extending beyond the apex to forming a small point. Leaflet shape is long- to wide-oval and range in size from 1 to 1 1/2 inches (2.5-4.0 cm) long by 5/8 to 1 inch (1.5-2.5 cm) wide. Inflorescences are unbranched stalks of flowers. Each flower is borne on a short pedicel (=stalk of a single flower), 1/32 to 1/16 inch (1-1.5 mm) long. Flowers are perfect with five, fused sepals and one petal. The calyx is tubular with short lobes that have rounded apices. Petals are purple and small, 3/16 to 5/16 inch (5-7.5 mm) long by about 3/16 inch (4.5-6 mm) wide. Stamens are clasped by the petal. There are 10 stamens which have filaments fused from the base to 60% of their length. Anthers are very short, less than 1/32 inch (0.6 mm) long. One pistil is present. It has a hairless ovary, hairy style, and terminal stigma. Fruits are classified as legumes, even though they do not open at maturity. The upper portion of the fruit is often bent and covered with blister-like glands. They are 1/4 to 11/32 inch (7-9 mm) long by 3/32 to 5/32 inch (3-4 mm) wide. Each fruit contains only one seed. It is dark brown to black and about 3/16 inch (4-5 mm) long by 1/16 inch (2.5-3 mm) wide.

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Asclepias uncialis

Wheel milkweed

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Status Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

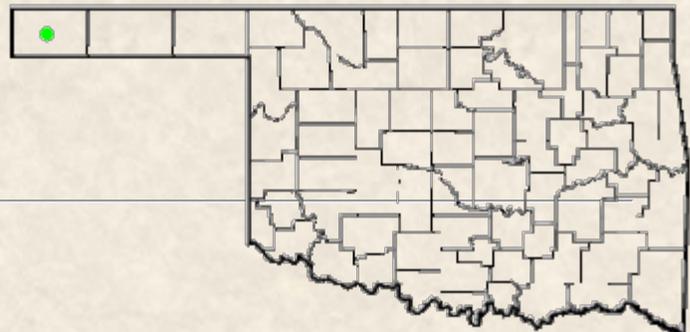
Wheel milkweed flowers from May to June, and possibly longer. Stems may persist until September.

Habitat

Sandy or rocky prairies.

Distribution

Wheel milkweed can be found in Colorado, Oklahoma, Texas, Arizona and New Mexico. A population of wheel milkweed was recently discovered at Black Mesa in Oklahoma (Cimarron County). The historical range of this species in Oklahoma is not currently known.



Field Characters

There are three species of narrow leaved milkweeds in Oklahoma in addition to wheel milkweed: plains milkweed (*A. pumila*), poison milkweed (*A. subverticillata*) and whorled milkweed (*A. verticillata*). Only the ranges of poison and whorled milkweed overlap with wheel milkweed. Wheel milkweed can be discerned from the other milkweed species by the absence of a peduncle in the former. The other three species also have slender needlelike horns, whereas those of wheel milkweed are wide and linear.

Causes of Decline

Dwarf milkweed was collected extensively throughout its range in the nineteenth century. Today, only 17 widely scattered populations are known. The causes of decline are unclear, as are the past and current Oklahoma distributions of wheel milkweed.

Recovery Needs

Not understood at present. Research is currently being conducted at the Nebraska Statewide Arboretum on the life history of wheel milkweed.

Description

These perennial herbs have numerous, slightly hairy, stems that are 9/16 to 2 3/4 inch (1.5-7 cm) in length. Leaves are barely alternate, thus appearing subopposite, to clearly alternate. They are long lance-shaped to ovate lance-shaped and range in size from about 1/16 inch (0.5-3 cm) long by 1/16 to 1/4 inch (2-7 mm) wide. Leaves have either very short (1/32 inches (1 mm) long) or no petioles (= leaf stalk). There is only one inflorescence per plant, rarely more. The inflorescence is composed of 2 to 12 flowers, but 3 or 4 are most common. Pedicels (= stalk of a single flower) are long and narrow, but no peduncle (= stalk of the inflorescence) is present. Flowers are approximately 3/16 inch (4.5-5 mm) long with green to purplish-green sepals and purplish-pink petals. The calyx is composed of five fused sepals with reflexed lobes. Sepals are covered with small hairs and are about 1/16 inch (1.5-2.5 mm) long. Five fused petals with reflexed lobes form the corolla. The petals are hairless and 1/8 inch (3-4 mm) long. A pale rose corona (= petal-like structures forming a "crown" between the corolla and stamens) is present and fused to both the stamens and pistil. Five stamens are present. Filaments have broad outgrowths (= hoods) and linear outgrowths (= horns). Hoods are ovate and approximately 1/32 to 3/32 inch (1.3-1.5 mm) long with a prominent pair of triangular lobes. Horns are tongue-shaped. Anthers are fused to the style. Like other members of the milkweed family, milkweed's pollen grains are aggregated into a waxy mass known as a pollinium. There are two pollinia associated with each anther and they are joined by a threadlike structure called a translator. When butterflies visit milkweed flowers to extract nectar, the translator becomes entangled around their legs. The pollinium is then carried by the butterfly from flower-to-flower. Pistils are made up of two fused stigmas, two fused styles, and two separate ovaries. Fruits are deflexed (= bent downward) or erect follicles. Seeds possess a tuft of hair which facilitates dispersal by the wind.

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Cypripedium kentuckiense

Southern Lady's Slipper



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Status Status is improving. Recent field surveys have increased the number of known populations. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

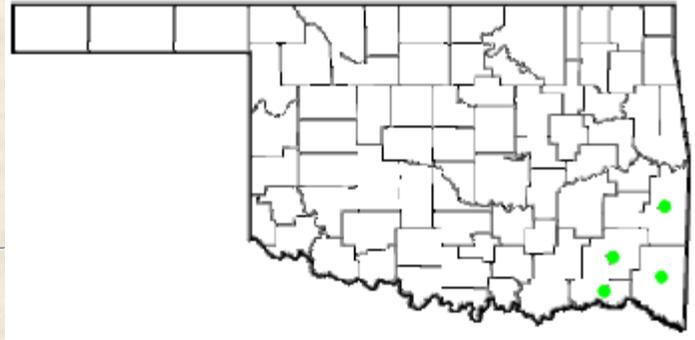
Lady's slipper is a long-lived herbaceous perennial. It flowers from mid-April to late May. Fruits develop in late fall.

Habitat

Mature floodplain forests and the slopes of mesic (relatively dry) ravines.

Distribution

Lady's slipper is found on the Cumberland Plateau of Kentucky and northern Tennessee; the Interior Highlands of Arkansas, Missouri, and Oklahoma; and the Gulf Coastal Plain of Texas, Louisiana, Alabama, and Mississippi. Oklahoma populations are restricted to four southeastern counties: McCurtain, Leflore, Choctaw, and Pushmataha.



Field Characters

There is only one other species of yellow lady's slipper orchid in Oklahoma: the small yellow lady's slipper (*Cypripedium calceolus* var. *parviflorum*). The large flowers of southern lady's slipper readily distinguishes it from small lady's slipper. Also, the small yellow lady's slipper typically is found in bog and wet prairie habitats.

Causes of Decline

Fifty percent of the known populations of southern lady's slipper are now extirpated. A few others could not be verified. The habitat of the southern lady's slipper is threatened by logging, the conversion of natural forests into pine plantations, and reservoir construction (for example, permanent inundation of floodplain forests). All species of lady's slipper are intolerant of human disturbances. Also, orchids are prized by plant collectors, a practice that has endangered several plant species. Unfortunately, very few native orchids survive being transplanted into greenhouse pots or flower gardens.

Recovery Needs

Sites that harbor southern lady's slippers need to be protected from logging and water-table alteration.

Description

lady's slipper grows between 2 and 3 feet (6-9 dm) tall. Stems bear both leaves and flowers. There is usually one stem per plant. Leaves are alternate and range in number from two to nine, five being the most common. They are 5 1/2 to 6 5/16 inches (14-16 cm) long by 2 3/8 to 3 1/8 inches (6-8 cm) long. Leaf blades are oval in shape. Margins taper gradually from the middle of the blade and with a twist at the apex. Venation is parallel with seven highly noticeable veins. A few hairs occur only along the veins. Inflorescences are composed of typically one solitary flower per plant. A bract, 3 1/8 inches (8 cm) long and 1 1/16 inches (2.8 cm) wide, extends from a petiole (=leaf stalk) beneath each flower. Flowers are yellow with maroon stripes on the inside of the lower petals. Flowers are 5 inches (13 cm) across, which is large for a Temperate Zone orchid species. The calyx consists of three sepals. The uppermost sepal, which is the largest of the three, arches over the lower petal of the flower. It measures approximately 2 1/2 inches (6.8 cm) long and 1 1/2 inches (3.2 cm) wide. The lower two sepals are fused into an organ that is positioned below the lower most petal. It is approximately 2 1/2 inches (5.7 cm) long and 3/4 inch (1.3 cm) wide. The corolla is composed of three petals. The lower most petal is the largest (2 inches [5 cm] long by 1 1/2 [3.8 cm] wide). It is inflated to form a pouch (=lip). The other two petals are up to 3 1/8 inches (8 cm) long, and narrow, around 4/16 inch (7 mm) wide and twisted. Stamens and pistils are united in the orchid family to form a column. The column curves down onto the upper most portion of the lip. Two fertile stamens and one nonfunctional stamen are present. The nonfunctional stamen resembles a small petal. The pistil is composed of a terminal stigma and an ovary with three faint lobes. Fruits are a wide capsule that are approximately 3/4 inch (1.3 cm) wide by about 2 1/2 (6.3 cm) long. Seeds are abundant and very small.

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Eriocaulon koernickianum

Dwarf pipewort



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Status In Oklahoma, the number of dwarf pipeworts is declining as a result of fire suppression. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

Dwarf pipewort can be as either an annual or biennial plant. It flowers in mid-May.

Habitat

Dwarf pipewort grows in acid seeps and glades in the sand hillsides in southeastern Oklahoma. It grows on granite outcrops in the Georgia Piedmont region. Populations are widely scattered, but single populations of dwarf pipewort usually have numerous individuals.

Distribution

Populations of dwarf pipewort are scattered along the Piedmont of Georgia, the Ozarks of Arkansas, and the Coastal Plain of Oklahoma and Texas. Dwarf pipewort occurs in three southeastern Oklahoma counties: Atoka, Muskogee, and Pushmataha.



Field Characters

Because of its small size, dwarf pipewort can be difficult to find. It is easiest to locate in flower, when the clusters of white to gray-green betray its presence. Also, the growth of dwarf pipewort is highly dependent upon precipitation. In years of low rainfall, it may not be evident at sites where it was abundant in previous years. Ten-angled pipewort (*E. decangulare*) is the only other species of pipewort in Oklahoma. Unlike dwarf pipewort, it has white flowers and the flowering heads have long hairs.

Causes of Decline

Habitat loss, as a result of wetland draining, is a serious threat to populations of dwarf pipewort. Natural disturbances, such as fire, are also necessary for such a small plant to persist. In the absence of fire, neighboring vegetation will grow taller than dwarf pipewort and shade it out. Fires help to remove competing vegetation.

Recovery Needs

Known populations should be protected from wetland conversion and draining. Natural disturbance regimes should also be reestablished at sites harboring dwarf pipewort.

Description

Dwarf pipeworts are small (approximately 2-4 inches [5-10 cm] tall) and grasslike in appearance. Leaves are in tufts that appear to grow directly out of the ground. They are erect, thin, pale green, hairless (=glabrous) and up to 1 3/8 (3.5 cm) inches long and 1/32 inch (1 mm) wide. Each leaf has three distinct veins. Inflorescences are composed of minute flowers in a tight cluster (=head) at the apex of a stalk (=peduncle). There may be up to 25 peduncles per plant. Each peduncle grows to approximately 4 inches (10 cm) in height. The basal sheath is approximately 1 inch (2.5 cm) tall. Heads are spherical or hemispherical with a few hairs or hairless. Flowers white to gray-green with both a calyx and corolla. Sepals and petals number either two each or three each. Flowers are imperfect (=some flowers have stamens but no pistils, while others may have pistils and no stamens). Both types of flower generally occur on the same plant. There twice as many stamens as petals. Pistils have two or three stigmas, one style, and a one-, two-, or three-celled ovary.

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Streptanthus squamiformis

Goodman Pineoak Jewelflower



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Status Current status is unknown; additional field surveys are needed. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

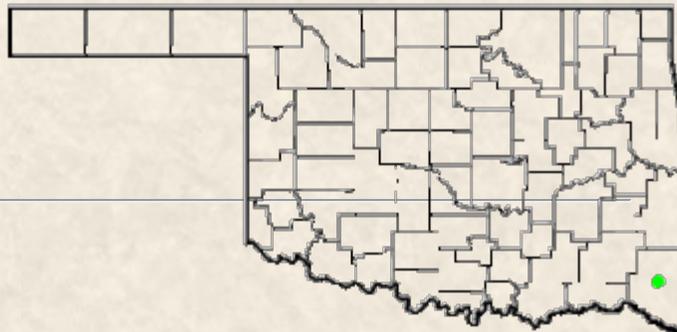
The showy flowers of Goodman pineoak jewelflower bloom from late April to early May. This species sometimes inhabits lightly disturbed areas.

Habitat

Goodman pineoak jewelflower occurs on rocky sites associated with steep slopes and ravines adjacent to small streams. In addition to open areas, Goodman pineoak jewelflower can be found in open woodlands on south- to southwest-facing slopes. Often these sites have been disturbed (i.e., highway rights-of-way, etc.).

Distribution

Goodman pineoak jewelflower is endemic (= restricted to a specific geographic area) to the Ouachita Mountains of southeastern Oklahoma and southwestern Arkansas. In Oklahoma, Goodman pineoak jewelflower is found only in McCurtain County.



Field Characters

There are three species of jewelflower or twistflower in Oklahoma, but only the range of clasping twistflower (*S. maculatus*) overlaps with Goodman pineoak jewelflower. However, clasping twistflower has hairless sepals, whereas the sepals of Goodman pineoak jewelflower have flattened hairs.

Causes of Decline

Goodman pineoak jewelflower is threatened by recreational development and forest clearing.

Recovery Needs

More data are needed in order to formulate recovery recommendations. The extent to which Goodman pineoak jewelflower can tolerate disturbance should be investigated further.

Description

Goodman pineoak jewelflower is an annual plant. It grows up to 3 feet (1 m) in height when in fruit, but is shorter when flowering. The stems arise from a basal rosette and are unbranched to sparingly branched. Leaves are opposite with petioles (= leaf stalks) clasping the stem. They are ovate to oblanceolate and up to 8 inches (20 cm) long with entire (= smooth, not toothed or divided) margins (= edges). The leaves are essentially hairless (= glabrous). Leaves are held in an ascending orientation by a thick petiole. Inflorescences are composed of pedicellate (= stalked) flowers arranged in linear fashion. Inflorescences arise from the stem tips. Flowers have four sepals and four petals. Sepals are purplish-green with flattened hairs. Petals are pink to purplish with a deep inwardly directed V-shaped cut at the apex. They are approximately 1/2 inch (12-14 mm) long and 1/4 inch (6-7 mm) wide. There are four stamens. Pistils are hairless. Fruits are siliques (= dry fruits that split open when ripe) that ascend along the stem. Each silique is twice as long as wide (about 9/16 inch [14.5 mm] long and 1/8 inch [3 mm] wide). Seeds are small and brown with membranous wings.

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Thalictrum arkansanum

Arkansas Meadow-Rue

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Status Status unknown; additional field surveys required to determine current population trends. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

Plants flower from March to April, before the trees have leafed-out fully.

Habitat

Arkansas meadow-rue is found in low, rich woods, edges of swamps, and along streambanks.

Distribution

This species occurs in Choctaw, McCurtain, and Bryan counties in Oklahoma.



Field Characters

There is only one other species of meadow-rue in Oklahoma: the purple meadow-rue (*T. dasycarpum*). Unlike Arkansas meadow-rue, the purple meadow-rue has an erect stem and purplish to whitish flowers. Arkansas meadow-rue has a decumbent stem with yellowish-green flowers. In addition, the leaflets in the purple meadow-rue are thick and rigid, while those in Arkansas meadow-rue are usually thin and somewhat flaccid.

Causes of Decline

Arkansas meadow-rue is adversely affected by clear-cutting and impoundment of streams.

Recovery Needs

Historical records need to be confirmed and extant populations tracked. More data is needed in order to formulate recovery recommendations.

Description

These plants are herbaceous perennials that grow 8 to 16 inches (20-40 cm) tall. Growth is not erect. Stems are decumbent (= growing along ground with only ends turning upward). Roots are brown and fleshy with ribs. Stems are cylindrical and hollow. Leaves are alternate. The lower leaves are twice or thrice pinnately compound becoming progressively less compound along the stem. Leaflets are often lobed or have teeth. Petiole (= leaf stalk) base clasps the stem. Inflorescences are branched. Flowers are usually imperfect (= all male or all female) and on separate plants. Occasionally, a few perfect flowers are present. Flowers are yellowish green in color. The calyx is composed of four to five sepals that look similar to the petals. Sepals fall early in the life of the flower. The sepals of staminate flowers (= male) are ovate to elliptic, approximately 1/16 inch (2-3 mm) long. Pistillate flowers (= female) have ovate sepals, which are about 1/16 (1-1.5 mm) long. Flowers are without petals. Stamens are numerous and tangled together. Filaments are distinct and about 1/16 inch (2-3 mm) long. Anthers are slender with long, narrow points at the apex. They are approximately 1/16 inch (1.9-2.7 mm) long. Pistils range from 4 to 17 in number. The ovary is convex on one side and flattened on the other. There is one stigma. Fruits are achenes with 10 to 12 ribs on the outer surface.

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Agalinis auriculata

Earleaf False-foxglove



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Status Status is unknown; additional field surveys are needed. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

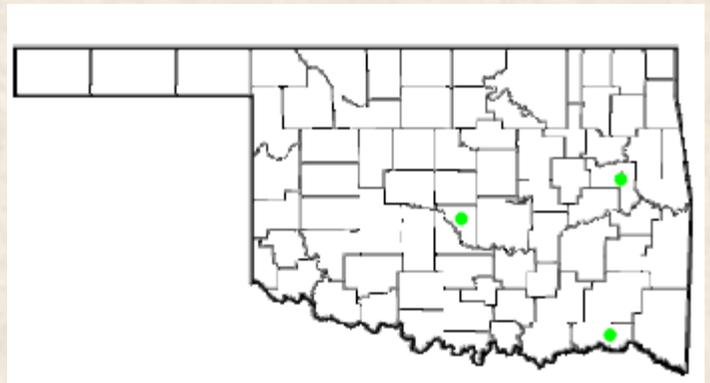
Earleaf false-foxglove is an annual, hemiparasite. Although hemiparasitic plants take water and minerals from other plants, they are not wholly dependent upon the host to survive. Hemiparasites have chlorophyll and produce food (= carbohydrates) by photosynthesis. Earleaf false-foxglove parasitizes several species of grasses, sunflowers (*Helianthus* spp.) and coneflowers (*Echinacea* spp.). Earleaf false-foxglove flowers from late August to early September. Fruits mature in early November. The seeds are dormant when dispersed, but will germinate following a combination of cold stratification, moisture, and sunlight in the spring.

Habitat

Earleaf false-foxglove grows in dry prairies, fallow fields, thickets and the borders of upland forests.

Distribution

Historically, earleaf false-foxglove is known to have occurred from New Jersey to Minnesota, south to Virginia, Alabama, Tennessee, Arkansas, Oklahoma, and Texas. Today, scattered populations occur in Ohio, Illinois, Tennessee, Alabama, and Oklahoma. In Oklahoma, earleaf false-foxglove was found in Cleveland and Muskogee counties in the 1920s. These populations have not been relocated. It is currently known to occur only in prairie hay meadows bordered by upland woods in Choctaw County.



Field Characters

Earleaf false-foxglove can be distinguished from other species of *Agalinis* in Oklahoma by the prominent ear-like lobes at the leaf base. Although there are several genera in the snapdragon family (Scrophulariaceae), only *Agalinis* has opposite leaves, panicle inflorescences and purplish-pink flowers.

Causes of Decline

Earleaf false-foxglove is threatened by the conversion of native prairie to cropland and the planting of exotic grass species in pastures. Repeated mowing of prairie habitat may also threaten earleaf false-foxglove, particularly if haymeadows are mowed before seed set and dispersal.

Recovery Needs

Haying activities should be limited in areas known to harbor populations of earleaf false-foxglove. At the least, haying should be avoided until plants have set and dispersed seeds.

Prescribed burning will remove leaf litter and woody plants that could inhibit the growth and survival of earleaf false-foxglove. Herbicides use should be avoided in areas where this plant exists.

Description

The earleaf false-foxglove is a hemi-parasitic annual. Mature plants are covered with short, stiff hairs. Stems grow from 6 to 36 inches (15-90 cm) in height. Stems are four-angled and unbranched to slightly branched. Leaves are numerous, opposite, and borne directly on the stem. They are lance-shaped and tend to be a purplish green. Venation is pinnate. Upper leaves have two small outgrowths at the base that resemble ear lobes (= auricles). Inflorescences are unbranched flowering stalks. Flowers are 1 to 2 inches (2.5-5 cm) long and are aggregated together. Small green leaflike bracts occur at the base of each flower. Corollas are purple to magenta often with red spots on the inside. Petals are fused into a bell-shaped tube with five lobes (= limbs). The upper two limbs are slightly longer and over arch the lower three, creating a weakly bilateral shape. The four stamens four are covered with silky hairs. The upper two stamens are shorter than the lower two. Stamens do not extend beyond the corolla. Each flower has one pistil with a long style. Fruits are capsules that split open along several vertical lines. Seeds are small, about 1/16 inch (1.2-1.6 mm) long, ovoid, and numerous. They have a netted texture on the surface.

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Agalinis skinneriana

Skinner's False-foxglove



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Life History

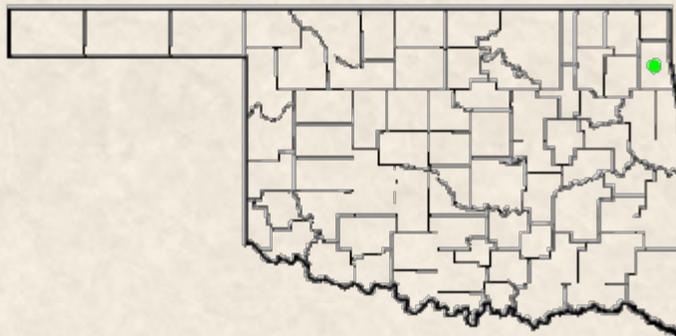
Skinner's false-foxglove is an annual, hemiparasite. Although hemiparasitic plants take water and minerals from other plants, they are not wholly dependent upon the host to survive. Hemiparasites have chlorophyll and produce food (= carbohydrates) by photosynthesis. Skinner's false-foxglove flowers and sets fruit from late July to September.

Habitat

This species is found in dry sandy soils of prairies, open areas, and oak-hickory forests.

Distribution

Skinner's false-foxglove has been historically rare throughout its range, which extends from southwestern Ontario, Canada, to Michigan, Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, Arkansas, and Oklahoma. This area straddles much of the transition between eastern deciduous forest and the tall grass prairie. Only one specimen has been collected in Oklahoma - from Delaware County in the 1929. However, this specimen was destroyed by fire during shipping. No plants have been found in Oklahoma since.



Field Characters

Skinner's false-foxglove can be distinguished from other species of *Agalinis* in Oklahoma by its yellowish-green color and small, subglobose capsules, 3/32 to 3/16 inches (3-5 mm) in diameter. Like the Ear-leafed False-Foxglove, Skinner's False-Foxglove has opposite leaves, paniculate inflorescences and purplish-pink flowers, but its leaves are linear to filiform as opposed to lanceolate, and are not lobed at the base.

Causes of Decline

Skinner's false-foxglove historically has been an enigmatic species. It is difficult to find and often is confused with a related species, Gattinger's false-foxglove (*Agalinis gattingeri*), which is currently considered a synonym. The degree of decline and mechanisms responsible are difficult to ascertain.

Recovery Needs

Since it is uncertain whether there are any populations Skinner's false-foxglove presently in Oklahoma, recovery strategies are unclear.

Description

Skinner's false-foxglove is a hemiparasitic annual. Mature plants are covered with short, stiff hairs. Stems grow from 7.9 to 23.6 inches (20-60 cm) in height. Stems are four-angled and unbranched or shortly branched. Leaves are numerous, opposite, and borne directly on the stem. They are long, narrow, and tend to be a yellowish green in color. Venation is pinnate. Inflorescences are a group of one to eight flowers on unbranched flowering stalks. Flowers are 3/8 to 9/16 inch (1.0-1.5 cm) long with short pedicels (= stalk of a single flower). Bracts (= small green leaflike organs) are at the base of each flower. Corollas are rose to lavender with two yellow lines and red spots inside. The petals are fused into a bell shaped tube with five short lobes. The upper two limbs are slightly longer and over arch the lower three, creating a weakly bilateral shape. The four stamens are covered with silky hairs. The upper two stamens are shorter than the lower two. Stamens do not extend beyond the corolla. Each flower bears one pistil with a long style. Fruits are capsules that split open along several vertical lines. Seeds are small, about 3/64 inch (0.7-0.9 mm) long, triangular and numerous. They have a netted texture on the surface.

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Tradescantia ozarkana

Ozark Spiderwort



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[Causes of Decline](#)

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Status Ozark spiderwort is known to have maintained stable numbers in recent years. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

Ozark spiderwort flowers from late April through May. Populations vary from 200 to 1,000 individuals.

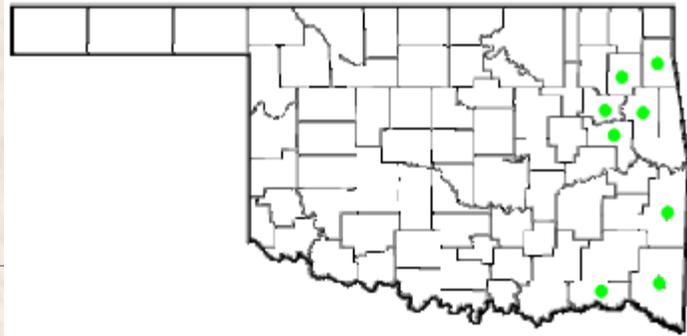
Habitat

Ozark spiderwort grows in deciduous forests on steep, rocky, hillsides and mesic ravines composed of limestone and sandstone.

Distribution

This species is endemic (i. e. found in a very limited geographic range) to the Ozark Mountains of Missouri, Oklahoma, and Arkansas, and to the Ouachita Mountains of western Arkansas and southeastern Oklahoma. Ozark spiderwort has been reported from Cherokee, Choctaw, Delaware, Leflore, Mayes,

McCurtain, and Wagoner counties in Oklahoma.



Field Characters

Hair placement is one of the key characteristics for identifying Oklahoma species of spiderwort. The sepal margins and ovaries of Ohio spiderwort (*T. ohioensis*) are hairless (= glabrous). But the sepals of Ozark spiderwort may have, and the ovaries do have, glandular hairs. Prairie spiderwort (*T. occidentalis*) has a hairy ovary and sepals, but the ovary is less hairy than Ozark spiderwort. Also, the leaf blades of Ozark spiderwort are wider than the circumference of the sheath, but the leaf blade of prairie spiderwort is narrower than the circumference of the sheath.

Causes of Decline

Residential development, conversion of natural areas to cropland, logging, and impounding of rivers have contributed to the decline of Ozark spiderwort.

Recovery Needs

In areas where the Ozark spiderwort occurs, forested areas should be maintained and herbicide use discouraged.

Description

These plants are herbaceous perennials that are erect or ascend 6 to 20 inches (1.5-5 dm) high. Stems are succulent, hairless or with long soft hairs. Stems contain a transparent sticky sap. Leaves have a distinct sheath and blade. Blades are ovate to linear-lance shaped, slightly succulent, and light green. They are 4 to 11 inches (10-28 cm) long and 3/64 to 3/16 inch (1.5-5 cm) wide. Blade edges often are crinkled. Venation is parallel. Inflorescences are clusters of flowers that arise from different points on a stalk, but ascend to the same height. Flowers are subtended by a bract that is green and ascending. Pedicels (= stalk of a single flower) are covered with small, soft glandular hairs. Flowers have three pale rose-lavender to white petals and three green sepals. Sepals occur with or without glandular hairs. Petals are ovate and 1/2 to 5/8 inch (1.2-1.6 cm) long. Stamens have hairy filaments and yellow anthers. The two anther halves are connected by a broad trapezoidal piece of tissue. Pistils have ovoid ovaries covered by short, stiff, glandular hairs. Fruits are capsules that are approximately 5/16 inch (6-8 mm) long. Seeds are oblong and approximately 2/16 inch (3-4 mm) long.

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Trillium pusillum var. *ozarkanum*

Ozark Wake-Robin



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Status Status unknown; additional field surveys are needed. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

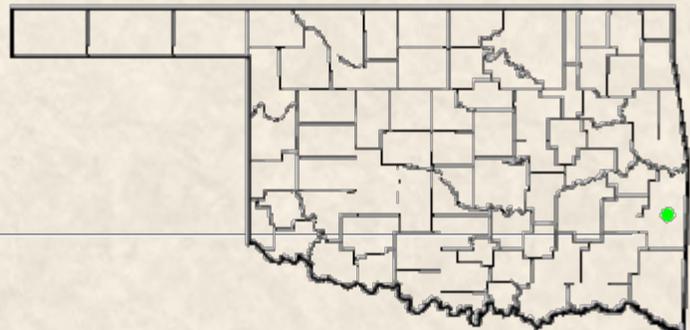
Ozark wake robin is a perennial and blooms from April to early May.

Habitat

Ozark wake robin inhabits cherty soils in oak-hickory and oak-pine woodlands, and acidic soils in the understory of rich mesic forests.

Distribution

This species is found in Kentucky and Tennessee, the Ozark Mountains of northwestern Arkansas and southern Missouri and in the Ouachita Mountains of southwestern Arkansas and southeastern Oklahoma. In Oklahoma, this plant is found only in Leflore County.



Field Characters

the Ozark wake-robin differs from the other representatives of *Trillium* in Oklahoma by its stalked flowers with white to pinkish-white petals that darken to rose-pink as they mature. The other three trilliums found here all have sessile flowers borne at or hardly above the leaves and their flowers range in color from brownish-purple to purple or greenish-yellow.

Causes of Decline

Ozark wake robin is threatened by the loss of habitat as a result of logging, land conversion, and improper use of herbicides.

Recovery Needs

Herbicide use should be avoided in areas where Ozark wake robin occurs. Forested areas should be maintained to provide suitable habitat for this plant.

Description

These perennial plants grow from thick, white, fleshy rhizomes. Leaves develop from one to three erect stems. Stems are fleshy and 7 to 10 inches (18-25 cm) tall. Leaves occur in one whorl of three below the flowers. They are a dull green, 1 to 3 inches (3-8 cm) long, and oblong to lance-shaped. Leaves have distinct net venation with 3 or 5 large veins. The leaves do not have petioles (= leaf stalks) and are attached directly to the scape. The blades are soft textured. Flowers are borne singly on the stem about 11/16 inch (1.8 cm) above the leaves. The three sepals are green on the lower surface and often purplish green on the upper surface. There are three petals. Initially, they are white, changing to pink and finally to deep rose-pink as they mature. Petals are lanceolate in shape and 5/8 to 1 3/8 inches (1.6-3.5 cm) long. Six stamens rise upward from the center of the flower. The one pistil has a obtusely three-angled ovary. Fruits are berries.

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Calamovilfa arcuata

Cumberland sandreed



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Status Field surveys indicate that Cumberland sandreed has maintained stable numbers in recent years, although threats to this species remain. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

Cumberland sandreed has a scattered distribution, and populations are comprised of only a few individuals each. Flowers appear in August and September.

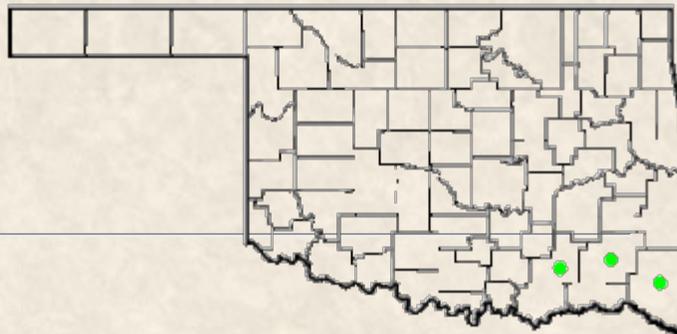
Habitat

Cumberland sandreed grows along open, rocky, seasonally flowing streams. It may be found

either in the rocky stream bed or along the bank among large rocks. Typically, these areas are subject to scouring floods.

Distribution

Cumberland sandreed has been found in only three southeastern Oklahoma counties: Atoka, McCurtain, and Pushmataha. It also known from a single site in Arkansas, on the Cossatot River, and in isolated populations along the Obed River on the Cumberland Plateau of Tennessee.



Field Characters

Cumberland sandreed could be confused with switchgrass (*Panicum virgatum*) or purpletop (*Tridens flavus*), both of which are found in similar habitats. Switchgrass is a larger plant with stiffer panicles and dorsally (= back or lower surface) compressed spikelets. Cumberland sandreed spikelets are ventrally (= front or upper surface) compressed. Switchgrass also has one sterile floret (lemma and palea without stamens and a pistil) and one fertile floret. The switchgrass caryopsis falls from the plant surrounded by the entire spikelet (glumes, lemma and palea). Purpletop can be distinguished from Cumberland sandreed by a denser, drooping, inflorescence. Also, the culms, panicle branches and spikelets of purpletop are covered with a sticky, odorous substance. Purpletop has ventrally compressed spikelets, but differs from Cumberland sandreed by having two glumes and four to eight fertile florets. Caryopses fall from purpletop without the glume, as they do in Cumberland sandreed.

Causes of Decline

The persistence of Cumberland sandreed is dependent upon freely flowing streams. Human activities such as road and dam construction change the water flow and/or the composition of the stream bed, thus adversely impacting Cumberland sandreed populations. Several populations of Cumberland sandreed have been lost to permanent flooding of habitat as a result of reservoir construction. Heavy grazing along stream banks may also result in the decline of Cumberland sandreed populations.

Recovery Needs

Careful management of riparian zones, including forested buffer strips, is an important strategy for protection of this species. Physical alteration of river banks, sand bars, and natural streamflow should be avoided. Logging operations should be confined to areas outside riparian buffer zones. Livestock grazing should also be reduced in areas where Cumberland sandreed grows.

Description

Herbaceous, perennial plants forming dense colonies from shallow, horizontal, underground stems that may root at the nodes. The plants may reach 4 feet 10 inches (1.5 m) in height. Stems are erect and hairless (= glabrous). Culm (= stem) nodes are ringed with fine hairs. Leaves are clustered near the bottom of the plant imparting a tufted appearance. They are alternate above each other at 180° angles. The leaves of grasses are divided into two parts: the blade (= upper portion that diverges from culm); and the sheath (= lower part that surrounds the culm). The sheath margins of Cumberland are not fused. A short fringe of hairs (= ligules) is

present at the junction of the blade and sheath. Blades are broad at the base and taper to a very fine tip. They are 12 to 34 inches (30-85 cm) long and approximately 1/16 inch (1.5-1.6 mm) wide. Blade margins have sharp downwardly pointing teeth that can easily tear flesh. Inflorescences are erect, spreading series of branches bearing flowers and their associated bracts (= spikelets). Spikelets are reddish purple and composed of four membranous bracts (= modified leaves). These bracts do not end in fine needlelike tips. The lower two bracts are called glumes, the middle one is the lemma, and the upper most the palea. The lemma and palea surround the flower (= fertile floret). Glumes are firm and unequal in length with one prominent rib. Lemmas are shorter than to equal in length with the second glume. They also have one rib with a tuft of hair at the base. Paleas have two ribs and a shallowly two-toothed apex. The palea is shorter than the lemma but similar in texture. Each fertile floret has six stamens and one pistil. The pistil has two feathery stigmas and a single ovary. The fruit is a caryopsis (= dry, one-seeded fruit), which falls enclosed by the lemma and palea but without the glumes.

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Carex fissa

Hammock sedge



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Status It has been recommended that hammock sedge be changed to 3C status. Field surveys have found that this species thrives in roadside ditches and small depressions in pastures. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

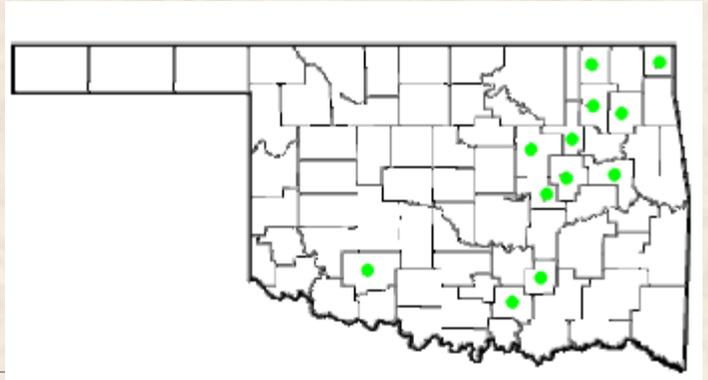
Fissa sedge is a perennial that flowers from April to late May. Seeds ripen and are dispersed from early June to July.

Habitat

Hammock sedge thrives in a variety of habitats. It grows in shallow water along the edges of ponds or lakes and periodically flooded, tallgrass and mixed grass prairies, and mesic post oak forests. Hammock sedge also can grow in disturbed areas with moist soil, such as barrow ditches, seeps, and waste places.

Distribution

Hammock sedge is moderately widespread throughout the eastern half of the Great Plains region. In Oklahoma, the range of fissa sedge includes Coal, Creek, Johnston, Mayes, Muskogee, Nowata, Okfuskee, Okmulgee, Ottawa, Rogers, Tulsa, and Wagoner counties. It has also been found at one site in the Wichita Mountains National Wildlife Refuge in Comanche county. Hammock sedge is locally abundant where it occurs.



Field Characters

Hammock sedge is similar in appearance to fox sedge (*C. triangularis*) and both are found in similar habitats. A needlelike tip at the apex of the bract below the female flower of fox sedge distinguishes it from hammock sedge. In addition, the beak of hammock sedge is shorter than the main body of the perigynium. The beak of fox sedge is longer than perigynium.

Causes of Decline

Factors leading to the decline of hammock sedge are unclear. Although it appears to tolerate disturbances such as flooding, mowing, and grazing, it is unclear how well it tolerates prolonged disturbance.

Recovery Needs

Further research is needed to understand the life history of hammock sedge, particularly its ability to tolerate disturbance. Status surveys of populations in the Wichita Mountains National Wildlife Refuge in Oklahoma, Florida and Kansas need to be conducted.

Description

Plants of this species arise from short, stout, black rootstocks. They grow from 10 to 30 inches (25-75 cm) in height. Stems are of two forms: one bearing leaves (= culms) and one bearing flowers (= scapes). Both are solid and bluntly triangular. Scapes number between 10 and 15. Culms bear four to six leaves. Leaves are three-ranked (= three vertical rows) on the culm, spiraling at 120° one above the other when viewed from overhead. The leaves of sedges are also divided into two parts: blades (= upper portion that diverges from the culm) and sheaths (= lower portion that surrounds the culm). Blades are light green and flat or channeled. They are 4 to 8 inches (10-20 cm) long by 1 3/16 to 2 inches (3-5 cm) wide. Sheaths are thin with a ventral pattern of cross wrinkles. Red spots occur near the mouth of the sheath. Inflorescences are elongated groupings of flowers (= spikes). Male flowers are located above the female flowers on the spike. Flowers are subtended by bracts (= modified leaves) and are light yellowish to brown tinged with green midveins. Bracts vary in width but do not terminate with a needlelike tip. Ovaries are surrounded by a sac called a perigynium. The perigynia are light green to yellowish brown in color. They are about 1/8 inch (3-4.5 mm) long and 1/16 inch (2 mm) wide. Each terminates in a rigid slender point (= beak) that is shorter than the main body

of the perigynium. Fruits are lens-shaped achenes with sharp points at each end. Achenes are about 1/16 inch (2 mm) long and slightly less than 1/16 inch (1.75 mm) wide.

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Carex hyalina

Tissue sedge



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Status Preliminary work indicates this species is fairly common in the Ouachita Mountain region. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

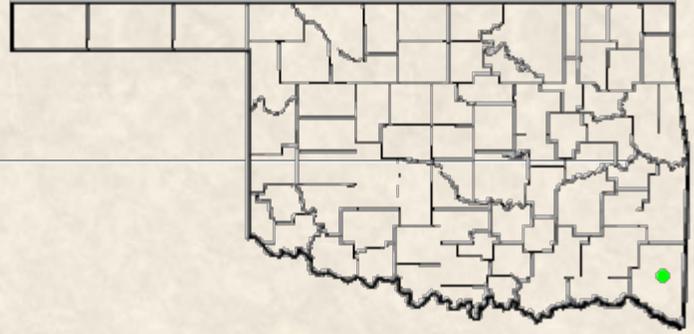
Flowers from April to May.

Habitat

This sedge grows along the margins of forested wetlands and swamps.

Distribution

Tissue sedge can be found on the upper western Gulf Coastal Plain. It has been found in four Texas counties and one county in Arkansas. In Oklahoma, it is known only from McCurtain County.



Field Characters

In Oklahoma, cedar sedge (*C. reniformis*) could be confused with tissue sedge. Unlike the latter, the sheaths of cedar sedge are yellowish-brown. Also, tissue sedge has ovate perigynia with ventral nerves. The perigynia of cedar sedge are kidney-shaped without ventral nerves.

Causes of Decline

Habitat destruction, in the form of wetland draining and timber harvesting, is a major factor in the decline of tissue sedge.

Recovery Needs

Clarification of possible ambiguities in the taxonomy of tissue sedge is needed. More data should be gathered regarding the life history of this species.

Description

Tissue sedge grows from thick, branching, black-fibrous rhizomes. Stems (= culms) are triangular and solid. They are 10 to 24 inches (2.5-5 dm) long and about 0.04 inches (1 mm) wide. Leaves are three-ranked (= three vertical rows) on the culm, spiraling at 120° one over the other when viewed from above. The leaves of sedges are divided into two parts: blades (= upper portion that diverges from the culm) and sheaths (= lower portion that surrounds the culm). Blades are flat, stiff and light green. They are 0.04 to 0.08 inches (1 to 2 mm) broad and 3 1/4 to 6 inches (8 to 15 cm) long. Blade margins (= edges) are rough, especially toward the apex. Blades are absent from the plants lower leaves, but both sheaths and blades are present on the upper leaves. The lower sheaths are dark brown and tear into fibrous strips with age. Upper sheaths are white and have a tissue-paper appearance. Inflorescences are elongated groupings of flowers (= spikes). There are two to four spikes per scape (= stem bearing flowers). Female flowers are placed above the male flowers on the spike. Flowers are surrounded first by a series of scales (= small, dry, membranous appendages) that, in turn, are surrounded by a series of bracts (= modified leaves). The bracts and scales are similar in shape but differ in color; bracts are pale green and scales are white with a green midrib. The perigynia (= sacs surrounding the ovary) are white green and winged. Fruits are lense-shaped achenes.

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Carex latebracteata

Waterfall's sedge



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Status Current status is unknown; additional field surveys are needed. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

Populations of Waterfall's sedge vary in size from few to approximately 100 individuals. This species flowers from April to May.

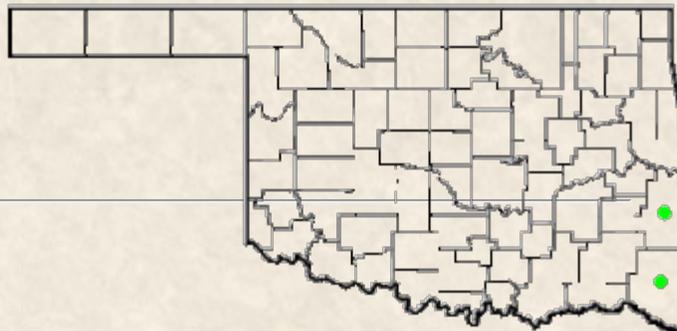
Habitat

Waterfall's sedge grows on mesic slopes with shale parent material. Soils typically are sandy

loams with a layer of leaf litter. Mature oak-pine forests with a sparse understory are the usual habitat for this species.

Distribution

Waterfall's sedge is endemic (= restricted to a specific geographic area) to the Ouachita Mountains of southeastern Oklahoma (Leflore and McCurtain counties) and southwestern Arkansas (Garland, Howard, Polk, and Montgomery counties).



Field Characters

The following characteristics can be used to distinguish Waterfall's sedge from other

Oklahoma sedges: pedunculate spikes, three stigmas, round to triangular achenes, scales fused around the base of male flowers, and perigynia longer than the scales. In Oklahoma, James' sedge (*C. jamesii*) could be confused with Waterfall's sedge. However, the perigynia of female flowers are concealed by the scales in James's sedge.

Causes of Decline

The decline of Waterfall's sedge is a result of habitat loss due to clear-cutting and the conversion of oak-pine forests to pine plantations.

Recovery Needs

Further research is needed to understand the life history of Waterfall's sedge. Sites that harbor Waterfall's sedge should be protected from clear-cutting and forest conversion.

Description

Waterfall's sedge is a caespitose (= grows in dense clumps) perennial. Stems (= culms) are triangular, solid, and may reach 12 inches (30 cm) in height. Leaves are strap-shaped and up to 3/4 inch (1 cm) wide. Leaves of sedges are divided into two parts: blades (= upper portion that diverges from the culm) and sheaths (= lower portion that surrounds the culm). Leaf blades are light yellow to green and arch upward from the base. Inflorescences are elongate grouping of flowers (= spikes). There is one spike per culm. Each spike is borne on a peduncle (= flower bearing stalk) and subtended by a bract (= modified leaf) that is longer than the spike. Male flowers are located above female flowers on the spike. Flowers are surrounded first by a series of scales (= small, dry, membranous appendages) that are, in turn, surrounded by a series of bracts (= modified leaves). There are two to three papery white scales subtending each female flower. Scales are 1/2 to 1/3 the length of the perigynium (= sac enclosing the ovary). The scales are subtended by five bracts, which become progressively smaller from the lowest to the uppermost bract. The perigynia are also white. Three brown stigmas are present. Scales are fused to the base of male flowers. Fruits are achenes that are round to triangular in cross section.

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Castanea pumila var. *ozarkensis*

Ozark Chinquapin



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Status Ozark chinquapin is in decline due to chestnut blight, a fungal disease which kills trees before they mature. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

Ozark chinquapin grows in small populations of 15 to 25 individuals, generally stump sprouts less than 16 feet (5 m) tall. Stump sprouts grow from larger trees that were killed by chestnut blight. Ozark chinquapin flowers from late May to June. Nuts mature from June to September. Leaves turn yellow in the autumn.

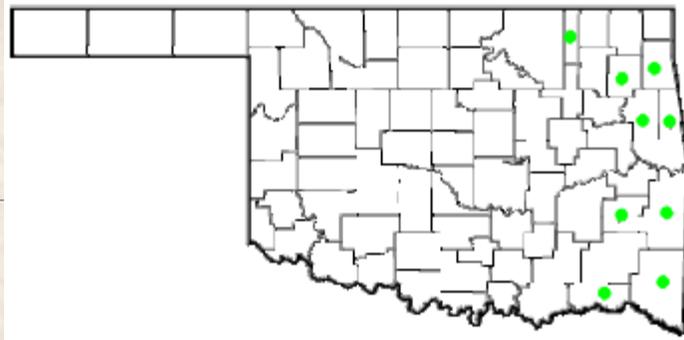
Habitat

Ozark chinquapin is found in oak-pine and oak-hickory forests on relatively dry, acid soils on ridge tops and upper slopes adjacent to ravines.

Distribution

Ozark chinquapin is endemic to the Ozark Plateau region of Oklahoma, Arkansas, and

Missouri at 500 to 2800 feet (150-850 m). In Oklahoma, populations are scattered in Choctaw, Delaware, Mayes, Adair, Cherokee, Leflore, Latimer, and McCurtain counties.



Field Characters

Ozark chinquapin might be mistaken for chinquapin oak (*Q. muhlenbergii*). Unlike Ozark chinquapin, chinquapin oak has bluish-green leaves, teeth on the leaves are more rounded, buds are clustered at the apex of the stem, and of course oaks produce non-spiny acorns. Chinquapin oak also occurs on sandy, basic soils. Allegheny chinquapin (*C. pumila* var. *pumila*) has smaller leaves (2.4 to 6.3 inches [6-16 cm] long) with shallower teeth (less than 1/10 inch [2.5 mm] long), and smaller involucre (less than 1 inch [2.5 cm] in diameter). Allegheny chinquapin grows in sandy soil and is most common on the Oklahoma Coastal Plain. It is rare in the Ozark Plateau.

Causes of Decline

The main threat to Ozark chinquapin is chestnut blight, a disease caused by the fungus *Endothia parasitica*. Chestnut blight was originally from east Asia. It appeared in New York City in 1904 and quickly spread throughout North America, decimating the American chestnut (*C. dentata*) by 1940. The fungus destroys the inner bark and growing tissue of the trunk. New stems sprout from dead stumps and live for several years until reinfected.

Recovery Needs

Despite ongoing research, no treatment has been found for chestnut blight. Until a treatment has been developed, protection is problematic. At present it appears that maintaining forest stands inhabited by Ozark chinquapin and not cutting or spray individual trees would be sufficient.

Description

Shrubs or small trees with rounded, yellow-green canopies. Mature trees are 25 to 30 feet (7.6-9.1 m) high and have a crown spread of up to 20 feet (6.1 m). Trunks can reach two feet (60 cm) in diameter. Because of the chestnut blight, most plants are stump sprouts that are less than 15 feet (4.6 m) high and only 4- inch diameter (10.2 cm) trunks. Bark is gray-brown to light gray and smooth on young branches, but becoming furrowed into flat ridges or plates. Buds are dark brown, lightly hairy; and solitary at the apex of the twig. Leaves are deciduous, simple, alternate, sharp-coarsely toothed; they are narrowly oblong or elliptic. They are 5 to 8 inches (13-20 cm) long and 1 1/2 to 3 inches (5-8 cm) wide. The single primary vein has many straight parallel lateral veins. Lateral veins terminate in bristles at the tips of the teeth on the leaf margin. Leaf apices are acutely or abruptly angled. The upper surfaces of leaves are yellow-green and hairless. The under surfaces are paler and glabrous (= hairless) to slightly or densely hairy. The hairs are fine and straight or stellate (= starlike). Leaf petioles (= leaf stalks) are approximately 1/4 inch (8-12 mm) long and glabrous. Flowers are small yellowish, foul-smelling, imperfect (= flower has either all stamens or pistils), and without petals. Flowers are densely clustered into a spike known as a catkin. Catkins are 2 to 8 inches (5.1-20.3 mm) long and slender. They develop in the leaf axils near the end of a branch and are semi-erect to spreading. Each catkin will have either exclusively staminate (= male) flowers or staminate flowers with inconspicuous pistillate (= female) flowers near the base. Catkins with pistillate flowers are

closest to the tip of the branch. Staminate flowers have 10 to 20 stamens. Female flowers have one pistil and are surrounded by spiny scales. Fruits are spiny, round, and produced in small clusters (= burs). They are 1 1/2 inches (2.5-3.8 cm) in diameter and covered with slender, hairy, 1/2 inch (1.3 cm) long spines. Burs split into two to six segments, releasing a solitary, dull-brown, roundish, edible nut.

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Cuscuta attenuata

Waterfall's tapertip dodder



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Status Recent survey work indicates this species has a larger range than originally thought. However, additional field surveys are needed to determine current population trends. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status.

Life History

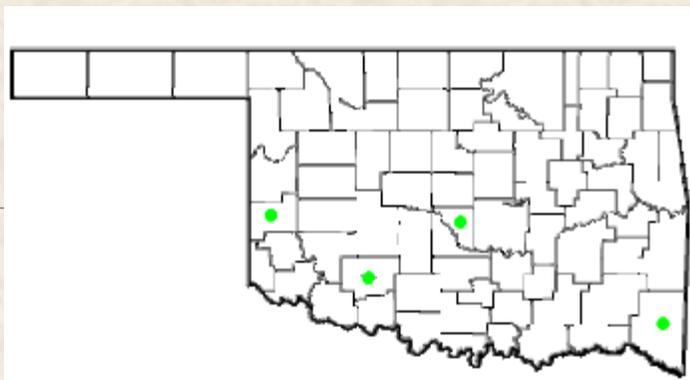
Waterfall's tapertip dodder parasitizes sumpweed (*Iva annua*) almost exclusively. One record does exist of it parasitizing **Aster** species. The seeds of Waterfall's tapertip dodder germinate in May. Plants flower in late summer.

Habitat

The host plant, sumpweed, establishes large populations on mudflats, floodplains, and disturbed areas. Sumpweed is found throughout the eastern one-half of the United States.

Distribution

Waterfall's tapertip dodder is known only from four locations in Oklahoma (one each in McCurtain, Beckham, Cleveland, and Comanche counties). There are five known sites in Texas, and one in Kansas.



Field Characters

Dodder species cannot be identified until mature flowers develop. There are 10 species of dodder in Oklahoma, but Waterfall's tapertip dodder can be distinguished from the others by its short pedicels, tapering calyx lobes, and globular fruits.

Causes of Decline

Waterfall's tapertip dodder is highly susceptible to land use changes. Alteration of sites could easily eliminate populations. Potential threats include channelization of streams, herbicides, and conversion of land to pasture. At the present time, land management at the site where this species was discovered has resulted in persistence of the population.

Recovery Needs

Populations of Waterfall's tapertip dodder can persist at sites suitable for sumpweed. If populations of the host plant are maintained, Waterfall's tapertip dodder will be partially protected.

Description

Waterfall's tapertip dodder is a parasitic, herbaceous annual. They are leafless and do not have roots anchoring them into the ground. Instead, a padlike modified root (= haustorium) penetrates the tissue of the host plant. Stems are yellowish-orange wrapping and looping between hosts plants. The resulting appearance resembles a tangled mass of twine. Inflorescences are dense clusters of flowers. Flowers are small, white and borne on short pedicels (= stalk of a single flower) are about 1/16 inch (0.5-2.0 mm) long. Calyx is formed of five fused sepals with slender tapering lobes and is approximately 1/32 inch (1 mm) long. Corollas consist of five petals which are also fused. Petal lobes taper and curl outward. Petals are less than 1/16 inch (3 mm) long. There are five stamens which extend out of the flower above the petals. The pistil is composed of two separate styles arising from a spherical two celled ovary. Fruits are globular, yellow-brown capsules that open irregularly. Seed are small, brown, and hairless.

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Schoenoplectus hallii

Hall's bulrush

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Status Status is unknown; additional field surveys are needed. Previously, the species was a Category 2 (58 FR 188; September 30, 1993), but currently has no Federal status. Taxonomic note: until recently, this species was called ***Scirpus hallii***.

Life History

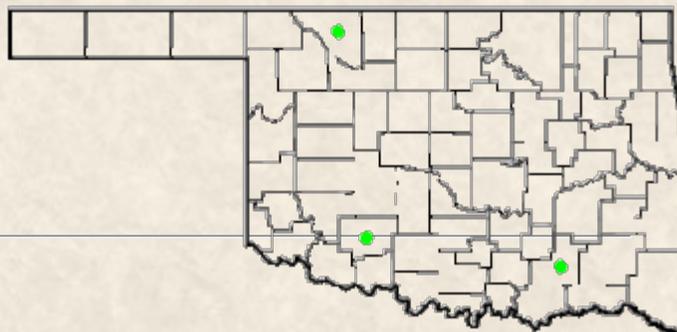
Hall's bulrush can be found in wet areas throughout the spring and summer, though more commonly in the summer.

Habitat

Sandy soils of the Gulf Coastal Plain and prairie wetlands.

Distribution

The distribution of Hall's bulrush includes Alabama, Georgia, Iowa, Illinois, Indiana, Kansas, Kentucky, Maryland, Mississippi, Missouri, Nebraska, Oklahoma, South Carolina, Texas, and Wisconsin. Hall's bulrush has been found in Atoka, Comanche, and Woods counties in Oklahoma.



Field Characters

In Oklahoma, mountain bulrush (***Scirpus saximontanus***) is very similar in appearance to Hall's bulrush. However, mountain bulrush has a three-cleft stigma, an ovary flattened on three sides, and an achene that is trigonous (=

triangular). Both species can be differentiated from the other bulrushes in Oklahoma by the following characters: tufted annual growth habit, a lower bract that looks like part of the culm, and horizontal lines or wrinkles on the ovary.

Causes of Decline

The factors leading to the decline of Hall's bulrush are not understood. Like most wetland plants, the loss of wetland habitat is a potentially serious threat.

Recovery Needs

More data are needed in order to formulate recovery recommendations.

Description

These plants are tufted annuals with slender round culms (= stems). Culms grow up to 15 3/4 inches (40 cm) tall. Leaves are few in number and clustered near the base of the culm. Leaves typically form a tube around the culm. Only a small portion of the leaf expands to form a blade. Inflorescences are rounded clusters of two to eight flowering groups (= spikelets) subtended by several bracts. The lower most bract is 1 3/16 to 4 inches (3-10 cm) long and appears to be a continuation of the culm. The other bracts are shorter and less conspicuous. They are ovate, taper to a tip at the apex and possess a distinct midrib. Bracts are greenish-brown turning to a wheat color with age. Flowers number 15 to 36 per spikelet. The calyx and corolla are highly modified into bristles, which are variable in shape and number, or even lacking. Either two or three stamens are present. There is one pistil with a two-cleft style (= split into two linear parts). The ovary is flattened on one side and hemispherical on the other. The surface is hairless with horizontal lines or wrinkles. Fruits are black achenes that are up to 3/32 inch (1.5 mm) long.

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