

***Conservation Assessment***  
***for***  
***Small skullcap (Scutellaria parvula Michx. var. parvula)***



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*This Conservation Assessment was prepared to compile the published and unpublished information on the subject taxon or community; or this document was prepared by another organization and provides information to serve as a Conservation Assessment for the Eastern Region of the Forest Service. It does not represent a management decision by the U.S. Forest Service. Though the best scientific information available was used and subject experts were consulted in preparation of this document, it is expected that new information will arise. In the spirit of continuous learning and adaptive management, if you have information that will assist in conserving the subject taxon, please contact the Eastern Region of the Forest Service - Threatened and Endangered Species Program at 626 East Wisconsin Avenue Milwaukee, Wisconsin 53203.*

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## EXECUTIVE SUMMARY

Small skullcap (*Scutellaria parvula* Michx. var. *parvula*) is an herbaceous perennial in the mint family. It occurs in the eastern and central United States and eastern Canada. It is found in prairies, upland woods, and rock ledges, often on calcareous soil.

*Scutellaria parvula* var. *parvula* has a Global Conservation Status rank of G4T4 and a National rank of N4. It is reported from 27 states. Small skullcap has official protected status in Wisconsin, where it is listed as a state Endangered plant. It is officially listed as extirpated in Indiana. It is a Watch-listed plant in NY.

It is reported for the Mark Twain National Forest in Missouri, the Shawnee National Forest in Illinois, the George Washington National Forest in Virginia, and the Hoosier National Forest in Indiana. The plant is also reported for the Sumter National Forest in South Carolina. It is only considered at risk on the Hoosier National Forest.

There is debate over whether the taxon actually occurs on the Hoosier National Forest. To this end, during the course of research for this report, a specimen collected on the Hoosier was sent out for determination by botanical experts. The specimen was determined to be *Scutellaria parvula* var. *australis*.

Small skullcap is widespread and common in some states and no specific threats to its persistence are known. Additional research may not be needed.

## ACKNOWLEDGEMENTS

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## NOMENCLATURE AND TAXONOMY

*Scutellaria parvula* Michx. var. *parvula*

**Published in:** *Flora Boreali-Americana* 2: 11-12. 1803.

**Common name:** Small skullcap, Little skullcap

**Synonyms:** none

**Infraspecific taxa:**

Two varieties of *S. parvula* in addition to the nominate variety have been recognized:

*Scutellaria parvula* var. *australis* Fassett

Common name: also known as Small Skullcap

*Scutellaria parvula* Michx. var. *missouriensis* (Torr.) Goodman & Lawson

Common name: Leonard's skullcap

**Family:** Lamiaceae, Mint Family

**DESCRIPTION OF SPECIES**

All skullcaps (*Scutellaria* spp.) have opposite leaves with two-lipped flowers with an arched protuberance on the upper helmet-shaped lip and side lobes to the upper lip that may appear as additional lips (W-17).

From Gleason and Cronquist (1991) Radford et al. (1968) and others, *Scutellaria parvula* can be distinguished based on:

**Stems:** with spreading glandular hairs, and often also minutely hairy on the angles, branched near the base, rarely above;

**Leaves:** principal leaves opposite, sessile, ovate to rotund, 10-15 mm, half to three-fourths as wide, pubescent over the whole surface, entire to shallowly serrate, base rounded, truncate to cordate, lateral veins 3-5 on each side of the midvein;

**Racemes:** usually solitary, leafy-bracteate, 3-10 cm long, bracts similar to the leaves, longer than the subtended pedicels and calyces, at least in flower;

**Flowers:** calyx 3 mm long in flower, 6-7 mm in fruit, glandular-hairy; corolla blue to violet, 6-8 mm long.

**Fruit:** a nut, mericarps dark brown, dull, with many rounded tubercles on the sides and a dentate crest on one margin, round, slightly flattened on the sides, 1-1.3 mm long.

Two varieties have been described, in addition to the typical variety, and can be distinguished as follows (Gleason and Cronquist 1991; Smith 1994):

*S. parvula* var. *parvula* ---- Lateral veins of the leaf not anastomosing, or very inconspicuously so, lower surface of leaves bearing several to many resin spots and hairs; stem with short, retrorse, eglandular hairs as well as the glandular ones. Quebec and Ontario to Minnesota, south to western Virginia, Alabama, and Texas, more common northward.

*S. parvula* var. *australis* Fassett --- Lateral veins of the leaf arched and anastomosing to form a continuous submarginal vein, lower leaf surfaces with hairs but not resin spots; stem with short, curved-ascending hairs on the angles as well as the glandular ones. Chiefly southern, extending north to West Virginia, and west to southern Indiana, and Kansas.

*Scutellaria parvula* Michx. var. *missouriensis* (Torr.) Goodman & Lawson ---non-glandular stems and calyces and main leaves 2 pairs of lateral veins (Gleason and Cronquist 1991). Gleason and Cronquist (1991) call this taxon *S. leonardii*.

All three taxa have largely overlapping distributions, with var. *missouriensis* ranging further in the west and var. *australis* ranging further to the southwest (W-16).

## **LIFE HISTORY**

Small skullcap is an herbaceous perennial.

### **Reproduction**

Small skullcap flowers from May-July. Both cleistogamous (closed, self-pollinating) and chasmogamous (open, designed for cross-pollination) flowers are produced (Baskin and Baskin 1982). The fruit is a nut.

The species *Scutellaria parvula* produces moniliform (necklace-like, constricted at regular intervals) tubers with swollen internode segments (Fernald 1950). The tubers have nondormant terminal buds, most of which produce shoots in the fall that grow into overwintering rosettes. Tubers decay over the winter. In the spring, plants flower, set seed, and form new tubers (Baskin and Baskin 1982).

### **Ecology**

*Scutellaria parvula* is most abundant in soils 10-20 cm deep in glade habitat in Tennessee (Baskin and Baskin 1982). Baskin and Baskin (1982) describe glade habitat as challenging, with much of the year having saturated soils while the summer months may be so dry they are below the permanent wilting point, thus

the complicated life history. However, habitat referred to as glades in southern Indiana, have thin soils over bedrock that do not become saturated (Steve Olson, pers. com.).

Even though these plants are technically perennial, numbers of plants present in a given year are determined by growing conditions the previous year, given that tubers “are annual in the sense that each tuber gives rise to one plant and then decays” (Baskin and Baskin 1982).

### **Dispersal/Migration**

Most seeds are dormant at maturity in late June, then quickly after-ripen and will germinate in late summer (Baskin and Baskin 1982). Plants over-winter as rosettes. Greenhouse grown plants can flower and set seed in the first year.

### **Obligate Associations**

The species (not specifically the variety *parvula*) is reportedly visited by long- and short-tongued bees, syrphid flies, and skippers. The bees usually seek nectar and sometimes collect pollen. Flies and skippers feed on pollen or suck nectar but are not pollinators (W-9).

## **HABITAT**

### **Range-wide**

Small skullcap is found in prairies, upland woods, and rock ledges (Gleason and Cronquist 1991), often on calcareous soil (Wisconsin DNR 2001). Radford et al. (1968) cite low woods and fields, usually on basic soils, in the southeast.

In Kentucky, it is found infrequently across the state in rocky habitats in dry open forests and barrens (Deborah White, pers. com.). In Louisiana, it is found in a range of habitats from roadsides and lawns to upland piney woods and, occasionally, calcareous prairies (Christopher Reid, pers. com.). Records of *Scutellaria parvula* var. *parvula* in Kansas come from the southeast 1/6 of the state, where it has been collected on rocky limestone prairies and wooded bluffs (Craig Freeman, pers. com.). In Wisconsin, it is found on dolomite blufftop prairies on the edge of the driftless area (Wisconsin Natural Heritage Database 2004). Associates include Little bluestem, Side-oats gramma, Rough blazing-star, Purple prairie clover, Shooting star, Silky Aster and Prairie coreopsis.

According to Troy Weldy, Botanist with the Department of Environment and Conservation (pers. com.), most New York populations are located in the St.

Lawrence River Valley on limestone pavement barrens, scoured limestone bedrock adjacent to the river, or in calcareous clays. There are some large populations on the cliffs of the Niagara River gorge, also a calcareous rock formation. While the sites are usually calcareous, the habitat of these sites varies to include successional old fields, shallow marshes, pavement barrens, gravel and sands along lakeshores and river banks, cliff communities, exposed rocks in openings of post-grazed cedar glades, and talus slopes.

### **National Forests**

Where Small skullcap is found on the Shawnee National Forest in Illinois, it grows in rocky woods, fields, open gravelly knolls, and limestone barrens (Iverson et al. 2002),

### **Site Specific**

One locality on the Hoosier National Forest is listed in the Indiana Natural Heritage Database (2002). This is in the Shawnee Hills on the Tell City Unit in the Deer Creek watershed in Perry County, observed in 1993. However, Mike Homoya (pers. com.), Botanist with the Division of Nature Preserves, Indiana Department of Natural Resources, feels the plant is extirpated in the state and that the plant seen on the Hoosier National Forest is not *S. parvula* var. *parvula*. A voucher specimen collected at the site in 1993 was determined during the course of research for this report to be *S. parvula* var. *australis*. A 2002 survey for rare plants on the Forest by (Hedge et al. 2002) found *S. parvula* var. *australis* on barrens but does not mention *S. parvula* var. *parvula*.

## **DISTRIBUTION AND ABUNDANCE**

### **Range-wide Distribution**

Small skullcap occurs in the eastern and central United States and eastern Canada. It is found from Quebec and Ontario to Minnesota, south to western Virginia, Alabama, and Texas (Gleason and Cronquist 1991). It is more common northward. There are four occurrences in Virginia (W-19). It is infrequent in Kentucky (Wharton and Barbour 1971). It “appears to be genuinely rare” in Kansas (Craig Freeman, pers. com.), but is “widespread” in Louisiana

(Christopher Reid, pers. com.). Of ten total known occurrences in Wisconsin, only three are extant (Wisconsin Natural Heritage Database 2004).

### **National Forest Distribution**

It is reported for the Mark Twain National Forest in Missouri, the Shawnee National Forest in Illinois, the George Washington National Forest in Virginia, and the Hoosier National Forest in Indiana. It is only considered at risk on the Hoosier National Forest.

One locality on the Hoosier National Forest is listed in the Indiana Natural Heritage Database (2002). This is in the Shawnee Hills on the Tell City Unit in the Deer Creek watershed in Perry County. However, Mike Homoya (pers. com.) feels the plant is extirpated in the state and that the plant seen on the Hoosier National Forest is not *S. parvula* var. *parvula*. A voucher specimen collected at the site in 1993 was determined during the course of research for this report to be *S. parvula* var. *australis*. A 2002 survey for rare plants on the Forest by (Hedge et al. 2002) found *S. parvula* var. *australis* on barrens but does not mention *S. parvula* var. *parvula*.

The single questionable record on the Hoosier National Forest is the only recent record of the plant in Indiana. The Indiana Natural Heritage Database (2002) has only three other records, all historical. A 1929 occurrence in Franklin County (resurveyed in 2002, not seen), a 1930 occurrence in Cass County and a 1933 occurrence in Allen County (resurveyed in 1980, not seen). Suitable habitat is reported to still exist at the Allen County site in 1980.

### **RANGE WIDE STATUS**

*Scutellaria parvula* var. *parvula* has a Global Conservation Status rank of G4T4 (W-8). The G4 indicates the taxon is apparently secure. The T4 indicates that the infraspecific taxon *S. scutellaria* var. *parvula* is also apparently secure.

Its National Conservation Status rank is correspondingly N4 (W-8), indicating the taxon is apparently secure in the United States. It is a Regional Forester Sensitive species on the Hoosier National Forest in the USDA Forest Service Region 9.

Subnational rankings in the United States have 21 states with Small skullcap as SR (reported from the state, but without persuasive documentation that would provide a basis for either accepting or rejecting the species). It is ranked S? in Kentucky and South

Carolina (not enough information available to assess at this time, more field studies and/or specimen identification is needed). A complete detailed list by state is in the appendix.

Virginia and Wisconsin rank the taxon S1, indicating it is extremely rare; typically 5 or fewer known occurrences in the state, or only a few remaining individuals; may be especially vulnerable to extirpation. It is ranked S3 (rare to uncommon; typically 21 to 50 known occurrences; S3 ranked species are not yet susceptible to becoming extirpated in the state but may be if additional populations are destroyed) in New York. In general, states track information on plants with ranking of S2 and above, with some also tracking S3 and S4 plants.

*Scutellaria parvula* is represented by all 3 varieties in Kansas: var. *australis*, var. *missouriensis*, and var. *parvula*. The species is S5 in Kansas. “If we assigned ranks to the varieties, the former two are S4 and var. *parvula* is S1” (Craig Freeman, pers. com.). It is rare enough that it could be tracked, but they usually do not put too much effort into tracking infraspecific taxa, especially when the species is represented by two or more of them in the state and where at least one of them is relatively common.

Small skullcap has official protected status in Wisconsin, where it is listed as a state Endangered plant. It is officially listed as extirpated in Indiana.

It is a Watch-listed plant in NY (Troy Weldy, pers. com). The Watch List presents plants that are being tracked because they are on the cusp of becoming more rare. Things that are on the NY Watch List are found at a minimum of 20 sites but typically no more than 50 sites. Species on this list may be in a negative or positive population trend. “For *Scutellaria parvula* var. *parvula*, we think the trend is positive although the increase in the number of populations may be due to survey effort. This was moved from our active list to Watch List in 1995.” (Troy Weldy, pers. com.)

## **POPULATION BIOLOGY AND VIABILITY**

Based on population size and habitat quality, of four sites described in New York (New York Natural Heritage Database 2004), one was rated to have excellent estimated viability, one good, one good or fair, and one fair or poor. One occurrence in Virginia has population numbers reported. In the 1990’s this site had more than 1,000 plants. Populations of this size are likely to have high viability.

## **POTENTIAL THREATS**

### **Present or Threatened Risks to Habitat**

In Kansas, habitat destruction and fragmentation (Craig Freeman, pers. com.). Wisconsin Natural Heritage Database (2004) records report woody brush encroachment as a threat at one locality.

### **Over utilization**

No information found.

### **Disease or Predation**

No information found.

### **Inadequacy of Existing Regulatory Mechanisms**

No information found.

### **Other Natural or Human Factors**

Element Occurrence records in Virginia do not list site-specific threats. Mining for limestone, dolostone, etc. may be a general threat (John Townsend, pers. com.).

## **SUMMARY OF LAND OWNERSHIP & EXISTING HABITAT PROTECTION**

Only four states track Small skullcap:

New York has 5 occurrences, all deemed extant in 1988, 1989 or 1990 (New York Natural Heritage Database 2004). One was reported to be on a protected site.

South Carolina has 22 occurrences, most last observed in the 1980's. Two are reportedly on Forest Service Land, one in Saluda County, one on the Sumter National Forest in Edgefield County. A third is protected on the Great Pee Dee River Heritage Preserve. The others are of unknown ownership (South Carolina Natural Heritage Database 2004).

Virginia has 4 populations (1 not seen since 1946, however), with perhaps three on public land (the George Washington National Forest in one case and our Natural Area Preserves in the other two). Last observation dates for a couple are in the mid-1970's. The Forest Service population is in one of their special interest areas (John Townsend, pers. com.).

Wisconsin has 10 occurrences for Small skullcap in their Natural Heritage Database (Craig Anderson, pers. com.). Seven are considered historical. Ownership of current sites is not known.

## **SUMMARY OF EXISTING MANAGEMENT ACTIVITIES**

Queries to agency personnel did not locate any management activities.

## **PAST AND CURRENT CONSERVATION ACTIVITIES**

None were identified.

## **RESEARCH AND MONITORING**

Queries to agency personnel did not locate any monitoring of this plant.

### **Existing Surveys, Monitoring, and Research**

None were identified.

### **Survey Protocol**

None were identified.

### **Research Priorities**

With regard to the taxon on the Hoosier National Forest, a priority is to determine if the plant in fact occurs on the Forest. It is listed as extirpated in the state. To this end, a specimen collected on the Hoosier was sent out for determination to George Yatskievych, author of the Flora of Missouri and a botanist with experience identifying skullcaps. A specimen of *S. parvula* var. *australis* collected on the Forest was also sent for comparison. He found “the two *Scutellaria* specimens appear to be the same thing, even though they differ slightly in degree of pubescence. Both have the shorter hairs on the stem angles ascending, relatively anastomosing marginal vein endings and relatively sparse sessile glands on the leaf undersurface. I make them both out to be *Scutellaria australis* (Fassett) Epling or *Scutellaria parvula* Michx. var. *australis* Fassett (depending on whose taxonomy you follow). Neither one appears to correspond to *S. parvula* in the strict sense (var. *parvula*)” (George Yatskievych, pers. com.).

This identification was confirmed by Mike Homoya, Botanist with the Division of Nature Preserves, Indiana Department of Natural Resources.

The plant is widespread and common in some states and no specific threats to its persistence are known. Additional research may not be needed.

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## APPENDIX

State Conservation Status ranks (W-8).

Alabama	SR	Missouri	SR
Arkansas	SR	New York	S3
Georgia	SR	Ohio	SR
Illinois	SR	Oklahoma	SR
Indiana	SX	Pennsylvania	SR
Iowa	SR	South Carolina	SR
Kansas	SR	Tennessee	SR
Kentucky	S?	Texas	SR
Louisiana	SR	Utah	SR
Maine	SR	Vermont	SR
Maryland	SR	Virginia	S1
Michigan	SR	West Virginia	SR
Minnesota	SR	Wisconsin	S1
Mississippi	SR		

Ontario	S4	Quebec	SR
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S1: Extremely rare; typically 5 or fewer known occurrences in the state, or only a few remaining individuals may be especially vulnerable to extirpation.

S2: Very rare; typically between 6 and 20 known occurrences; may be susceptible to becoming extirpated.

S3: Rare to uncommon; typically 21 to 50 known occurrences; S3 ranked species are not yet susceptible to becoming extirpated in the state but may be if additional populations are destroyed.

S4: Common; apparently secure under present conditions; typically 51 or more known occurrences, but may be fewer with many large populations; usually not susceptible to immediate threats.

S5: Very common; demonstrably secure under present conditions.

SX: Species has been determined or presumed to be extirpated. All historical occurrences have been searched, or all known sites have been destroyed and a thorough search of potential habitat has been completed.

SR: Reported from the state, but without persuasive documentation that would provide a basis for either accepting or rejecting the species.

S?: Not enough information available to assess at this time, more field studies and/or specimen identification is needed.

SH: Possibly extirpated (historical); occurred historically and there is some expectation that it may be rediscovered. Its presence may not have been verified in the past 20 years.

SU: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

HYB: Unranked because it represents an interspecific hybrid, not a species.

## LIST OF CONTACTS

### Information Requests

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### **Review Requests**

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