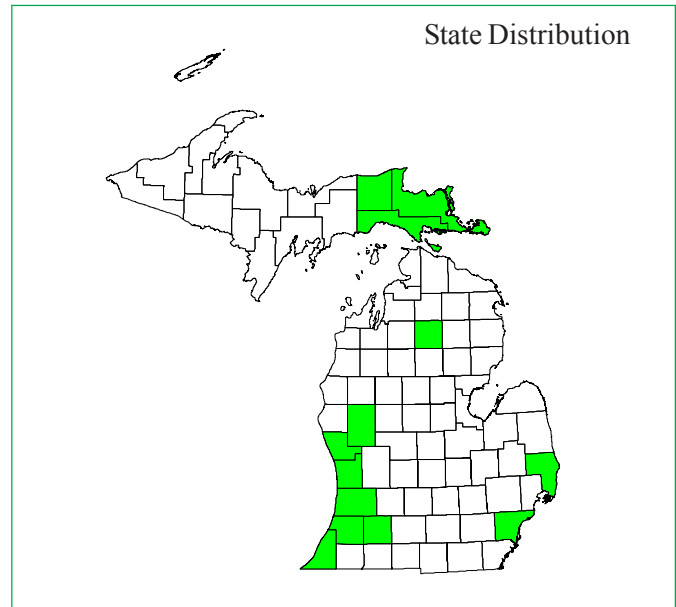


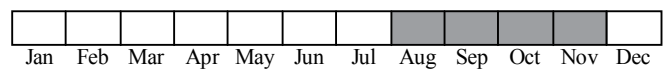
*Lycopodiella subappressa* J.G. Bruce, W.H. Wagner, & J.M. Beitel northern appressed clubmoss



Photo by Michael R. Penskar



Best Survey Period



**Status:** State special concern

**Global and state rank:** G2/S2

**Other common names:** southern appressed clubmoss

**Family:** Lycopodiaceae (club-moss family)

**Synonyms:** This taxon has previously been referred to as *Lycopodium appressum* (Chapman) F.E. Lloyd & L. Underwood (see below.)

**Taxonomy:** The previously used name, *Lycopodium appressum*, actually constituted a complex of two tetraploid species, now referred to as *Lycopodiella subappressa* Bruce, Wagner, & Beitel and *L. margueritae* Bruce, Wagner & Beitel (Bruce et al. 1991.) These taxa are distinct from the true *Lycopodiella appressa* of the southeastern Atlantic Coastal Plain.

**Total range:** Now considered distinct from *Lycopodiella appressa* of the Atlantic Coastal Plain, the full geographic distribution of *L. subappressa* is not known. Specimens of this taxon have been collected from Michigan, and specimens from northeastern Indiana and northern Ohio have been reported.

**State distribution:** Putative occurrences of *Lycopodiella subappressa* are primarily along Lake Michigan in several southwestern counties, although it is

now thought to occur in Crawford, Saginaw, Midland, and Jackson Counties as well. Specimens thought to be this taxon have also been recently collected from St. Clair and from Mackinac, Chippewa, and Luce counties of the eastern Upper Peninsula.

**Recognition:** Michigan's *Lycopodiella subappressa* is a trailing, clone-forming plant characterized by its **relatively tall, upright stems (to about 15 cm) and its appressed (erect and close) leaves on both the upright and horizontal stem leaves, which usually lack marginal teeth.** The upper portion of the unbranched shoots consists of a slender **strobilis** (the terminal cone-like, spore-bearing portion of the upright stem) that is **only slightly thicker (0-2 mm) than the upright stem and comprises 1/5-1/3 of its total length.**

The similar *L. margueritae* (northern prostrate clubmoss) is typically a taller plant (13-17 cm) with spreading horizontal stem leaves that have 3-4 marginal teeth per side. The strobilis is thicker (usually 3-6 mm more than the upright stem,) and larger, comprising 1/3-1/2 of the upright shoots. The common and widespread *L. inundata* (bog clubmoss) which frequently occurs with *L. subappressa* and *L. margueritae*, can be distinguished by its relatively short stature (3.5-6 cm), the widely spreading upright and horizontal stem leaves,



and the large strobilis that comprises the majority of the upright stem.

**Best survey time/phenology:** *Lycopodiella subappressa* is best identified during late summer when the strobili are fully developed. Since it is often found growing near or amongst the more common *L. inundata*, it is advisable to search thoroughly those sites where the latter species are found.

**Habitat:** This species is usually found on moist, acidic (pH 5-6.5), peaty sands in early successional, herb-dominated communities. Early records report it from inland lake shores and interdunal swales along Lake Michigan, but most post-1970 localities lie in shallow excavations or “borrow pits” along old beach ridges near Lake Michigan. (Some of these may represent disturbed coastal plain marsh communities).

*Lycopodiella appressa* frequently occurs and hybridizes with *L. inundata*, a common associate in most sites. Other typical and indicator associates include *L. margueritae*, *Agalinis purpurea* (purple false foxglove), *Drosera intermedia* (narrow-leaved sundew), *Hypericum boreale* (St. Johns-wort), *Euthamia remota* (fragrant goldenrod), *Viola lanceolata* (lance-leaved violet), *Spiraea tomentosa* (steeplebush), *Aristida* species (three-awn grass), *Bulbostylis capillaris* (sedge), *Eleocharis elliptica* (spike-rush), *Juncus acuminatus* (rush), *J. canadensis* (rush), *Panicum clandestinum* (panic-grass), *Rhynchospora capitellata* (beak-rush), and *R. macrostachya* (large beak-rush) (MNFI 1996). On the Atlantic Coastal Plain, “true” appressed bog clubmoss typically inhabits acidic, sandy pond shores, wet meadows, and sphagnum bogs (Beitel 1979).

**Biology:** Unlike several other Michigan clubmosses, the aerial shoots of this species (and *L. inundata*) die back in the fall. The rhizomes overwinter and bear new shoots in the spring, with strobili developing in late summer and persisting through November. The trailing stems usually spread to form extensive clones. This taxon and *L. margueritae* are tetraploids ( $2n=312$ ) unlike all other North American *Lycopodiella* taxa which are diploids ( $2n=156$ ).

**Conservation/management:** The primary threat to this species may be vegetative succession within disturbed habitats and a consequent lack of available colonization sites. It may best be conserved by preserving natural coastal plain marsh habitats and by

maintaining the open character of borrow pit habitats by preventing invasion of woody species. At least four stations lie within interstate rights-of-way and one colony is in a Michigan Nature Association sanctuary. New localities for appressed clubmoss in Michigan also include intermittent wetlands in the eastern Upper Peninsula, where this species is associated with such Atlantic Coastal Plain disjuncts as *Bartonia paniculata* (panicled screw-stem) and *Rhexia virginica* (meadow-beauty).

**Research needs:** The complete geographical distribution of this species needs to be resolved by close examination of putative specimens by qualified taxonomists. Further research on the taxonomy of this species is also needed in order to determine its relationship to the “true” appressed bog clubmoss of the Atlantic Coastal Plain.

**Related abstracts:** Coastal plain marsh, lakeplain wet prairie, meadow-beauty, panicled screw-stem.

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