Trifolium stoloniferum Muhl. *ex* A. Eaton

Running Buffalo Clover

ODNR Natural Heritage Program

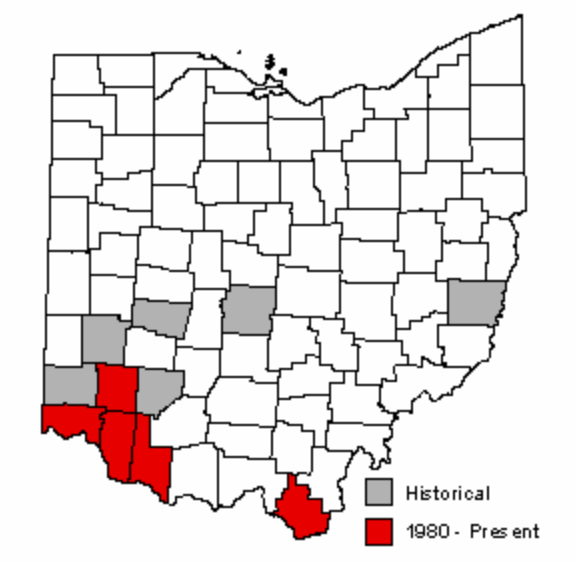
Family: Fabaceae

Synonyms: None

Description: Stoloniferous perennial; leaves long-petioled rising from ground level from a central crown or stolons except for short-petioled, opposite pair subtending the flower head; leaves of runners have 1-2 cm long ovate-lanceolate stipules; flower heads 9-12 mm round with white corolla, often with pink-purple veins.

Flowering: May - June
Fruiting: June - July

Similar Species: *Trifolium stoloniferum* is similar to the common white clover (*T. repens*) and the rare buffalo clover (*T. reflexum*), both of which grow in similar habitats. These three species can be distinguished as follows: *T. stoloniferum* -- stoloniferous, flowering stems unbranched, with a pair of leaves in upper portion; *T. repens* --stoloniferous, flowering stems naked, arising directly from the rhizome; *T. reflexum* --not stoloniferous, flowering stems leafy and often branched. Brooks (1983b) provides a chart outlining the differences between these species.



Total Range: USA: IN, KY, MO, OH, WV

Ohio Range: Belmont, Butler, Brown, Clark, Clermont, Clinton, Franklin, Hamilton, Lawrence, Montgomery and Warren counties.

Ohio Status: www.ohiodnr.com/dnap

Habitats: Mesic habitats with partial to filtered sunlight including woodlands and mowed lawns (U.S. Fish & Wildlife Service 2007).

Threats: Habitat destruction, habitat succession leading to severe shading and competition with non-native invasive plants are the most serious threats. A lack of disturbance or too much disturbance may also be a concern. The amount of disturbance necessary to maintain a population is yet to be determined. This species once relied on bison to provide the right balance of periodic disturbance, soil enrichment, seed dispersal and seed

scarification to maintain itself (U.S. Fish & Wildlife Service 2007). It is unknown whether these requirements can be fulfilled sufficiently enough to maintain running buffalo clover populations in Ohio.

Conservation Potential: There are many unknown factors relating to the success of this species. More information needs to be gathered regarding the dependence of this species on disturbance and its reproductive requirements. With the loss of bison in Ohio's landscape, other undulates may not be promoting adequate seed germination and dispersal. Existing populations must be managed to prevent succession and maintain filtered sunlight.

Inventory Guidelines: Collecting is discouraged; the identification can be determined from photos; note stoloniferous habit.

Comments: Running buffalo clover apparently was locally common in southwestern Ohio before 1900. It is uncertain if the number of herbarium specimens only reflects the level of activity among Cincinnati botanists. After having been presumed extirpated, the species has been found to still be locally common in parts of southwest Ohio.

The largest populations occur in West Virginia with one site totaling over 100,000 root crowns (NatureServe 2007). Kentucky has the most populations with 71 occurrences and Ohio is third with 12 (NatureServe 2007).

In Ohio, several populations have dropped significantly in numbers within the last few years. Recent surveys have failed to find any plants at the only site in Warren County. Roberts & Cooperrider (1982) list this species from Sandusky County. This record is based upon a misidentified specimen of *Trifolium repens* (OS). Furlow (1991) reports it from Lake County but there is no specimen to verify the account.

Selected References:

Bartgis, R.L. 1985. Rediscovery of *Trifolium stoloniferum* Muhl. ex A. Eaton. Rhodora 87: 425-429.

Brooks, R.E. 1983a. Neotypification of *Trifolium stoloniferum* Muhl. ex A. Eat. (Fabaceae). Taxon 32: 454-455.

Brooks, R.E. 1983b. *Trifolium stoloniferum*, running buffalo clover: description, distribution and current status. Rhodora 85: 343-354.

Campbell, J.J., M. Evans, M.E. Medley, and N.L. Taylor. 1988. Buffalo clovers in Kentucky (*Trifolium stoloniferum* and *T. reflexum*): historical records, presettlement environment, rediscovery, endangered status, cultivation and chromosome number. Rhodora 90(864): 399-418.

Crawford, D.J., E.J. Esselman and J.L. Windus. 1995 and 1996. Genetic variation in running buffalo (*Trifolium stoloniferum* Muhl. ex A. Eaton) using random amplified polymorphic

DNA (RAPD): year one and two of a two year study. Final reports submitted to U.S. Fish and Wildlife, Fort Snelling, MN.

Cusick, A.W. 1989. *Trifolium stoloniferum* (Fabaceae) in Ohio: history, habitats, decline and rediscovery. SIDA 13(4): 467-480.

Furlow, J.J. 1991. The vascular flora of Ohio, Vol. 2, Part 1, Dicotyldeonae: Sauraceae through Fabaceae. Checklist and distribution maps. Copy given by the author to the Ohio Division of Natural Areas and Preserves.

Hattenbach, M.J. 1996. Edaphic relations of an endangered plant, *Trifolium stoloniferum* Muhl. ex A. Eaton. A master's thesis presented to The Ohio State University.

Gleason, H.A., and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada. New York Botanical Garden, Bronx, New York. 910 pp.

Hickey, R.J., M.A. Vincent and S.I. Guttman. 1991. Genetic variation in running buffalo clover (*Trifolium stoloniferum*, Fabaceae). Conservation Biology 5(3): 309-316.

Homoya, M.A., J.R. Aldrich, E.M. Jacquart. 1989. The rediscovery of the globally endangered clover, *Trifolium stoloniferum*, in Indiana. Rhodora 91(866): 207-212.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 21, 2007).

Roberts, M.L. and T.S. Cooperrider, 1982. Dicotyledons. In: Cooperrider, T.S. (ed.). Endangered and threatened plants of Ohio. Ohio Biol. Surv. Biol. Notes No. 16: 48-84.

U.S. Fish and Wildlife Service. 2007. Running buffalo clover (*Trifolium stoloniferum*) recovery plan: first revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 76 pp.

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Last Updated: Nov/2007