

NEW COMBINATIONS IN
NEARCTIC ENDEMIC *EUPHRASIA* (OROBANCHACEAE)

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ABSTRACT

Evolution of locally unique species has been important in Nearctic *Euphrasia*. Fifty percent of *Euphrasia* species in the flora of North America are considered endemic. Revision of taxonomic status of infraspecific units of endemic species was carried out while preparing the treatment for the Flora of North America. Two new combinations and changes in rank are proposed here: ***Euphrasia oakesii*** Wettst. var. ***williamsii*** (B.L. Rob.) Gussarova, comb. & stat. nov. and ***Euphrasia farlowii*** (B.L. Rob.) Gussarova, comb. & stat. nov.

RESUMEN

La evolución de especies locales únicas ha sido importante en la neártica *Euphrasia*. El cincuenta por ciento de las especies de *Euphrasia* en la flora de Norte América se consideran endémicas. La revisión del estatus taxonómico de unidades infraspecificas de especies endémicas se llevó a cabo mientras se preparaba el tratamiento para la Flora of North America. Se proponen aquí dos combinaciones nuevas y cambios de rango: ***Euphrasia oakesii*** Wettst. var. ***williamsii*** (B.L. Rob.) Gussarova, comb. & stat. nov. y ***Euphrasia farlowii*** (B.L. Rob.) Gussarova, comb. & stat. nov.

Nearctic and Palearctic *Euphrasia* species comprise green, parasitic plants occurring chiefly in mountain and boreal to arctic regions. The genus is characterized by high phenotypic plasticity, polyploidy, recurrent hybridization, with mixed selfing and outcrossing; it constitutes a taxonomically critical group where a complex of overlapping morphological characters is used for delimiting species (Sell & Yeo 1970; Yeo 1978).

Half of *Euphrasia* species recorded in the flora of North America are considered endemic. Robinson (1901) described three new North American endemics: *Euphrasia williamsii* B.L. Rob., *E. randii* B.L. Rob., and *E. randii* var. *farlowii* B.L. Rob. Both species were considered closely related to *E. oakesii* Wettst., a dwarf alpine plant of Mount Washington, New Hampshire. *Euphrasia williamsii* was described from the eastern slopes of Mount Washington, while *E. oakesii* was from the western. While summarizing material from eastern Canada and Newfoundland, Fernald (1933) wrote, "It may eventually seem wiser to treat the group as one species,"- but he also continues, "with localized varieties differing in color of corolla and pubescence, parallel with variations of *E. purpurea*" (= *E. randii*). Fernald's view is followed here based on additional diagnostic characters: acute leaf teeth apices and acute sinuses between teeth in *E. williamsii* as compared to leaf teeth and sinuses between teeth rounded in *E. oakesii*.

Euphrasia oakesii Wettst. var. ***oakesii***. **Leaves:** teeth apices obtuse, sinuses between teeth rounded. **Bracts** adaxially suffused with purple especially near margins. **Corollas** purple or lilac with darker lines. **Flowering** summer. Open gravelly or rocky places; 0–1500 m; Nfld. and Labr., Que.; Maine.

The two varieties of *Euphrasia oakesii* can be distinguished using the following key:

1. Corollas purple or lilac with darker lines; bracts adaxially suffused with purple especially near margins; leaf teeth apices obtuse, sinuses between teeth rounded _____ ***Euphrasia oakesii*** var. ***oakesii***
1. Corollas brownish purple; bracts green or adaxially slightly bronze tinged; leaf teeth apices acute, sinuses between teeth acute _____ ***Euphrasia oakesii*** var. ***williamsii***

The following combination is made:

Euphrasia oakesii Wettst. var. ***williamsii*** (B.L. Rob.) Gussarova, comb. & stat. nov. BASIONYM: *Euphrasia williamsii* B.L. Rob., *Rhodora* 3:272. 1901. TYPE: U.S.A. NEW HAMPSHIRE: stony ground and crevices or rock on the "Alpine Garden," Mt.

Washington, 8 May 1901, E.F. Williams, B.L. Robinson as Pl. Exsicc. *Grayanae* no. 60 (LECTOTYPE (Sell & Yeo 1970, p. 204): GH, GH00078375! [JSTOR image]).

Leaves: teeth apices acute, sinuses between teeth acute. **Bracts** green or adaxially slightly bronze tinged. **Corollas** brownish purple. **Flowering** summer. Open gravelly or rocky places; 0–1500 m; Nfld. and Labr., Que.; Maine, N.H.

While *E. oakesii* was described as an alpine species, the original material of *E. randii*, including *E. randii* var. *farlowii*, came from coastal Maine (Robinson 1901). My examination of herbarium specimens from CAN, DAO, F, GH, MICH, and MT revealed that *E. randii* var. *farlowii* differs from *E. randii* var. *randii* by its compact growth with condensed (versus elongated) cauline internodes and a tendency to grow on calcareous soils versus non-calcareous soils. I propose to elevate var. *farlowii* to the rank of species:

Euphrasia farlowii (B.L. Rob.) Gussarova, comb. & stat. nov. BASIONYM: *Euphrasia randii* B.L. Rob. var. *farlowii* B.L. Rob., *Rhodora* 3:274. 1901, *Euphrasia purpurea* Reeks ex Fernald & Wiegand var. *farlowii* (B.L. Rob.) Fernald & Wiegand. TYPE: U.S.A. MAINE. Dog Island, Eastport, W.G. Farlow s.n. (HOLOTYPE: GH, GH00078372! [JSTOR image]).

Stems simple or branched, to 9(–12) cm; branches 1–3 pairs, ascending, from basal cauline nodes; cauline internode lengths 1–2 times subtending leaves. Leaves: blade orbiculate to triangular-ovate or oval, 2–4(–6) mm, margins crenate to incised-crenate, teeth 1–4 pairs, apices obtuse to subacute. Inflorescences sparsely spicate, beginning at node 4–6, internode lengths 1–1.5 times bracts; bracts green or suffused with purple, as broad as leaves, ovate or oval, length not more than 2 times width, 2–4 mm, base round, surfaces coarsely and densely hirsute with short-eglandular hairs, teeth 3–5 pairs, as long as wide, apices obtuse to acute, sinuses between teeth acute. Flowers: calyx lobes straight, apex acute; corolla white or cream, rarely purple, adaxial lip lilac or purple, 2.5–4.5 mm, lips ± equal. Capsules oval to oblong or obovate, 2.5–4 mm, apex retuse to emarginate.

Flowering mid summer–fall. Dry, grassy habitats on sandstone or limestone barrens, rocks, ledges, sand beaches; 0–300 m; N.B., Nfld. and Labr. (Nfld.), N.S., Ont., P.E.I.; Maine.

Euphrasia farlowii differs from *E. randii* by its compact growth with condensed (versus elongated) cauline internodes and tendency to grow on calcareous soils versus non-calcareous soils.

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