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## A NEW OXYTROPE OF THE MINNESOTA-ONTARIO BORDER

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(Plate 745)

IN late July, 1938, Mr. Merrill J. Hendrickson discovered some small plants of a strange looking oxytrope growing on a high hill near South Fowl Lake, Cook County, Minnesota. Mr. Hendrickson was at the time engaged with Mr. G. W. Burns in making a botanical survey for us of the eastern end of the Minnesota-Ontario border.<sup>1</sup> This original find was very fragmentary. Only a single fruiting specimen was discovered, and that was post-mature. It was at once seen that the plant was new to Minnesota, and that it belonged to the group of oxytropes with viscid-glandular inflorescences. It was tentatively identified as *Oxytropis hudsonica* (Greene) Fernald, though it was recognized as considerably more luxuriant than northern specimens of that species.

In the summer of 1939 attempts to find more material of this interesting plant failed completely. Dr. J. W. Moore and the senior author spent several days searching promising looking cliffs of the region in the intervals between a series of torrential thunder storms, but while it later appeared that we had been within a few hundred yards of an abundant growth of the plant we saw no trace of it.

<sup>1</sup> This survey, and other expeditions to the same rather inaccessible region have been rendered possible by grants-in-aid from the Graduate School of the University of Minnesota.



In June, 1940, an expedition consisting of the authors and Mr. Burns repaired to the Fowl Lakes. We met the same weather as before, but after a near shipwreck, and a gale that marooned us for thirty-six hours on an island with an intensely uninteresting flora, we finally reached the south end of the lake and climbed the hill that Mr. Burns indicated as the one where the fragments were collected in 1938. Here, on steep, north-facing slate cliffs that rose two hundred feet above the wooded talus at their base, we found great quantities of our plant in full blossom and early fruit. The previous year Moore and Butters had ascended the same hill only two or three hundred yards farther east, and had seen no trace of it. About the same distance to the west a break in the cliffs led to a more westerly exposure and the plant stopped abruptly. Two days later a second station was located about two miles distant on a similar cliff just east of North Fowl Lake and consequently in Thunder Bay District, Ontario. The plant here was less abundant than at the first station and a little farther advanced. At the time no other differences were noted, but a detailed examination of these specimens has shown that they are slightly different from the Minnesota specimens, particularly in the form of the stipules. Several other cliffs on both sides of the Fowl Lakes were examined carefully but no further stations were discovered, and in the course of several years' botanical exploration in the region no trace of the plant has been seen except at these two very limited stations, so it is certainly extremely local in its occurrence.

While we had tentatively identified the fragments collected in 1938 as *Oxytropis hudsonica*, a study of the abundant material obtained in 1940 soon convinced us that we were dealing with an unknown species, which we are naming *Oxytropis ixodes*<sup>1</sup>.

**OXYTROPIS ixodes** sp. nov. TAB. 745. Subacaulis e caudice multicipiti ramis 2-10 mm. crassis 2-10 (18) cm. longis partibus junioribus stipulis petiolisque marcescentibus vestitis senioribus nudis; stipuli membranacei subglutinosi albidii venis viridulis setoso-ciliati et hirsuti pilis albidis (ei marcescentes anni proximi nigrescentes sed setis albidis persistentibus) partibus connatis ad petiolum forte adnatis partibus liberis uninerviis deltoideo-ovatis caudato-acuminatis appendiculo herbaceo 5-20 mm. longo

<sup>1</sup> Gr. ἱξώδης, sticky, clammy, from ἱξός, mistletoe, an exact equivalent of the latin word, *viscidus*.



1 mm. lato; folia (6) 8–16 (20) cm. longa foliolis 31–51 bijugis anguste lanceolatis vel lineari-lanceolatis acutiusculis (3) 7–17 (23) mm. longis 2–3 mm. latis tenuibus margine revoluta superficie sparse strigoso-villosa et glandulis parvis sessilibus viscida; scapi 15–20 cm. alti foliis aequales vel ea vix superantes sparse strigoso-villosi pilis albidis ca. 1 mm. longis etiam superne hirsuti pilis nigris brevioribus paulum viscidi; spicae dense 6–20 floriferae ad anthesin primam 1.5–3 cm. longae subcapitatae demum longiores (5–6 cm.) laxioresque bracteis lineari-lanceolatis 7–15 mm. longis ca. 2 mm. latis saepe calyces florum superantibus ciliatis sparse villosis pilis albidis nigrisque nonnihil viscidis sparse verrucosis; calyx cylindraceo-companulatus hirsutus pilis albidis et nigris commixtis tubo 5–6 mm. longo dentibus herbaceis nonnihil viscido-verrucosis eis anterioribus lineari-lanceolatis 3–4 mm. longis ca. 0.75 mm. latis, eis posterioribus paulum brevioribus angustissime deltoideis, corolla saturate rubro-violacea<sup>1</sup> petalis ad basin pallidioribus luteolis, vexillo ca. 15 mm. longo 4–5 mm. lato; legumen tenuiter chartaceum oblongo-ellipsoideale in latere ventrali profunde sulcatum subbiloculatum corpore 13–15 mm. longo 5 mm. lato abrupte et acute acuminatum rostello 4–5 mm. longo nigro-strigosum viscidum glandulis minimis sessilibus vix verrucosum.

Cook County, MINNESOTA: slate cliffs of high hill  $\frac{1}{2}$  mi. west of the outlet of South Fowl Lake, *G. W. Burns and M. J. Hendrickson* 327, July 27, 1938; *F. K. Butters, E. C. Abbe and G. W. Burns* 611, June 29, 1940 (TYPE in Minnesota herbarium).

It obviously belongs to the rather small group of viscid-glandular species that embraces *O. gaspensis* Fern. & Kelsey and *O. hudsonica* of northeastern North America, *O. viscida* Nutt. and *O. viscidula* (Rydb.) Tidestrom of the Rocky Mountain region and about five Old World species. The glands in *O. ixodes* are somewhat smaller and less verrucose than in the other species, but they can readily be seen with a lens; the whole plant is distinctly viscid when fresh, and stains the drying paper yellow. From *O. viscidula* of the northern Rocky Mountains, which is probably its nearest relative, it differs in its usually longer and more numerous leaflets, longer and narrower sepals, slightly longer and proportionally broader petals, and more deeply sulcate legume. In *O. ixodes* the standard of the flower is 5.5–6.5

<sup>1</sup> The color of the fresh flowers is a deep, rich purple which is a close match for the darkest and most purple of our common "blue" violets. In drying the color blues considerably. A curious *post mortem* character appears on boiling the dried flowers. All the color is quickly extracted except in two spots on the keel where it is much more persistent. These spots are in exactly the same position as the natural blue spots that occur on the keel of *O. gaspensis*.



mm. wide when flattened out, and obcordate, or at least definitely retuse at the apex, in *O. viscidula* about 5 mm. wide, obovate and rounded at the apex. In *O. ixodes* the keel ends in a very short, stubby, rugulose mucro only 0.4 mm. long, which is bent downward; the mucro of *O. viscidula* is a little longer, straight, smooth, and tapering. The legume of *O. ixodes* is papery, somewhat depressed, and very deeply grooved on the ventral surface, that of *O. viscidula* is a little firmer, nearly terete, and only slightly grooved.

From *O. hudsonica*, with which it was at first confused, it differs in its much more luxuriant growth; its more numerous and thinner, narrowly lanceolate leaflets; its inflorescence which soon stretches out to a length of 5–6 cm., while that of *O. hudsonica* is capitate even in fruit; its linear-lanceolate sepals 3–4 mm. long (those of *O. hudsonica* are deltoid and about one-half as long); and in the legume, which is stouter, more abruptly beaked and very obscurely veiny, while that of *O. hudsonica* is conspicuously veiny within.

All of the Minnesota material differs from all of the related species except *O. gaspensis* in the very long, caudate appendages of the stipules, but the small amount of material collected in Ontario is much less distinct in this respect, and also has shorter leaflets. In its flowers and fruits it agrees entirely with the Minnesota plant. It seems best to treat it as a form of *O. ixodes*.<sup>1</sup>

The discovery of *Oxytropis ixodes* adds another very interesting case to the already rather numerous list of species, or groups of closely related species, which are found in the Lake Superior region, the northern Rocky Mountains, and often also in the regions about the Gulf of St. Lawrence and Hudson Bay. In this particular case the isolation has evidently been long enough for each of the groups to develop a set of specific characters of its own.

#### UNIVERSITY OF MINNESOTA.

<sup>1</sup> *OXYTROPIS IXODES* forma **ecaudata** forma nov., decedet ex *O. ixodi* typica in partibus liberis stipularum 2–4 mm. longis, acuminatis vix caudatis, foliolis brevioribus 3–10 mm. longis.

Thunder Bay district, ONTARIO: North-facing cliff on the east side of North Fowl Lake on the Minnesota-Ontario border, *Butters, Abbe and Burns* 682, July 1, 1940.



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