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NAMES AND TYPES OF *HEDYSARUM* L. (FABACEAE) IN NORTH AMERICA

Stanley L. Welsh

**ABSTRACT.**—The names and types of *Hedysarum* L., sensu stricto, for North America are included, along with bibliographic citations, type information and place of deposit of types, and all synonyms. Lectotypes are designated for *Hedysarum auriculatum* Eastw., *H. cornulosum* Greene, *H. marginatum* Greene, *H. pabulare* A. Nels., and *H. truncatum* Eastw.

**Key words:** *Hedysarum*, types, nomenclature.

The following list of names and types in *Hedysarum* L. was prepared preliminary to submittal of a summary revision to the Flora North America Project. The genus *Hedysarum* L. as here interpreted for American taxa extends from the Bering Strait to Newfoundland and Vermont, and from the Polar Sea and the Canadian Arctic Archipelago south through the mountains and plains of western North America to Oklahoma, New Mexico, Arizona, and Nevada. Excluded from this treatment are those taxa originally included in *Hedysarum*, which are now interpreted as belonging to other genera, i.e., to *Desmodium*. The genus in the restricted sense consists of two complexes, i.e., those with leaflets thickened and veins obscured (the *boreale* complex) and those with relatively thin leaflets in which the veins are rather readily apparent (the *alpinum* complex).

The earliest taxon within *Hedysarum alpinum* complex is that by Michaux (1803), who established the trinomial *Hedysarum alpinum americanum* Michx. The *boreale* complex was initiated by Nuttall (1818) with the publication of *H. boreale*.

Taxa in the two complexes demonstrate remarkable morphological and geographical parallelism. Each consists of additional taxa separable generally into two geographical subgroups juxtaposed at or near the 50th parallel of longitude (somewhat north of the Canada-U.S. boundary). North of that parallel lies most of *H. boreale* ssp. *mackenzii* (Richards.) Welsh, and most of *H. alpinum* sensu stricto. To the south occurs *H. occidentale* Greene, most of *H. sulphureum* Rydb., limited extensions of *H. alpinum* L., and most of *H. boreale* ssp. *boreale*. Glacial events during the Pleistocene have been suggested as having separated the subsets, allowing them to achieve the degree of morphological and genetic integrity of the present populations. The present juxtaposition is suggested to have resulted by expansion of the respective entities into areas previously occupied by glaciers.

The rather large number of names involved in the genus is indicative of variation inherent in the various taxa. Flower size, plant size, leaflet size, and pubescence are features variable in both complexes. Apparent correlation of two or more of these features has served as justification for several names. Indeed, when one observes dwarf, large-flowered plants in either complex, there appears to be a compelling need for their recognition. However, much, if not all, of the variation is haphazard, or the attempt at segregation devolves to use of a single characteristic, such as presence or absence of pubescence, which fails also. There are few truly diagnostic characteristics once the two complexes are separated. The taxonomist ultimately must rely on a series of varying features to identify a particular specimen. Fortunately, the taxa are, with some notable exceptions, disjunct from each other. If the disjunction is not apparent from examination of a distribution map, it is often apparent in the field where the plants grow in different habitats. For example, the range of yellow-flowered *H. sulphureum* apparently overlaps that of pink-purple-flowered *H. occidentale* in large part; yet, they seldom occur together, and only an exceptional intermediate is known.

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There are, in spite of gross similarities of the taxa within the respective complexes, few recorded intermediates.

Adding to the difficulties of interpretation of the North American materials is the interrupted circumboreal distribution of *H. alpinum*, a species with several close allies in Siberia. The initial interpretation by Michaux of North American *H. alpinum* as being taxonomically different (*"H. alpinum: americanum"*) from that of the Old World has paraded apparition-like through most subsequent treatments of the genus. Unpublished work by Northstrom (1974) refuted the claim to difference between Siberian and American phases of the species, at least as far as broad categories were concerned. The claim that North American materials constitute a separate entity is likewise refuted by comparison of specimens from Siberia and North America in the present study. Other workers have asserted that large-flowered, low-growing plants of the species are identical with substantial Asian taxa (i.e., *H. hedysarioides* (L.) Schinz & Thellung [*Astragalus hedy-sarioides* L.]). Such claims were investigated by Northstrom (1974), who determined that there is little basis for such assertions. Evidence to support the conspecific nature of the supposed entities is apparent when localities of such supposed taxa in western Alaska are examined and plants with larger flowers are found to occur within populations having small flowers, and that flower size within the species in a broad sense forms a continuum. And, occasional tall specimens within the *alpinum* complex also bear large flowers.

Another factor leading to the creation of a large number of synonyms was the early misinterpretation of specimens of *H. alpinum* under the name *H. boreale*. This switching of names, while not uniquely a problem in this genus, became of great importance to those workers who encountered the genus piecemeal and treated the variants as though they had not already been named. It was not helpful, perhaps, that the most ardent authors of western American plant names should be involved with the genus (i.e., Edward L. Greene, Per Axel Rydberg, and Aven Nelson). Greene, as the record indicates, was prone to name the same species several times in this and other genera, not recognizing, or possibly not caring, that he was renaming the same taxon.

Still another trend resulting in the formation of inconsequential names was the well-intentioned effort to provide epithets for specimens differing in insubstantial ways, i.e., the naming of white-flowered or teratological specimens as formae.

The following list is thought to be exhaustive for *Hedysarum* names in North America. Pertinent types have been received on loan through the kindness of curators of herbaria cited with the specimens. Abbreviations for herbaria are those standard ones cited in Index Herbariorum. Type information is presented below in dual format for some taxa, with type information (type locality) as recorded with the protologue cited first and label data of the type specimen (type) cited second where there is a substantial difference in the two accounts.


- Type locality: "Habitat in Siberia" (Linnaeus l.c.).
- Type: Possible lectotype 921.54 LINN (microfiche BRY). 

- = *H. alpinum* L.
- Type locality: "In borealibus Canadæ, et in catamaris montium Alleghanis.
- Type: *Hedys. J. i p. 74-75. Herb. Mx* (isotype NY!).

There is a mounted half herbarium sheet at NY Torrey! bearing a large portion of a stem with a leaf and mature, strigose fruit of *H. boreale* var. *boreale*. This specimen is apparently superfluous (probably having been added later when additional material became available to Dr. Torrey from western American collections), but more pertinent to the present case the sheet also has an attached fragment envelope on which is written the type information noted above. The envelope contains a portion of an inflorescence, a flower, and several immature loment segments. The segments are glabrous, have a definite winged margin, and are identifiable as *H. alpinum* L. It is probable that the specimen from which the fragments were removed is with the Michaux herbarium at P.

Continued recognition of the American materials of *H. alpinum* at any infraspecific rank is fraught with difficulties; there are no diagnostic features known that will allow segregation of the American specimens from the Asiatic ones.
Hedysarum alpinum var. americanum f. albiflorum (Standl.) Fern., Rhodora 35: 275. 1933.
Basionym: H. americanum f. albiflorum Standl.
= H. alpinum L.
The publication by Fernald (1933) recognizes white-flowered plants from Newfoundland.

Hedysarum alpinum var. grandiflorum Rollins, Rhodora 42: 233. 1940.
Type: "Newfoundland, Pistolet Bay, Mossy and turfy cliffs and talus, Anse aux Sauvages, M. L. Fernald, K. M. Wiegand and Bayard Long 28625, August 11, 1925"; holotype G!
Paratype: "Newfoundland, Region of Port a Port Bay, No. 10849. In humus or turf on the limestone table-land, altitude 200–300 m., Table Mountain, M. L. Fernald and H. St. John, July 16 & 17, 1914" (CAN!; BM!).

This name is based on large-flowered (about 16 mm long), low-growing specimens from Newfoundland. There are other similar plants scattered through much of the distribution of H. alpinum in North America, but they are more consistently represented in frigid or other inhospitable arctic or subarctic sites. Even in the type series cited with the protologue there is considerable variation. The paratype cited above differs significantly from the holotype specimen; it is much taller and has flowers of a size intermediate with those of specimens more usual for var. alpinum in a more strict sense. Indeed, the low-growing, larger-flowered phase appears to be a phenotypically recurring recombinant form within a complex exhibiting much variation in flower size and other features. However, size of flower is not always correlated with plant height or flower number. All possible combinations of flower size, flower number, and plant height are represented in the species as a whole. It is possible to write a key that will separate these plants, but it seems that such a key will not then be segregating natural taxa.

Basionym: H. philosocia A. Nels.
= H. alpinum L.

Hedysarum alpinum var. philosocia (A. Nels.) Rollins, Rhodora 42: 224. 1940.
Basionym: H. philosocia A. Nels.
= H. alpinum L.

Basionym: H. alpinum var. americanum Michx.
= H. alpinum L.

= H. alpinum L.

Synonym: H. albiflorum (Macoun) Fedtsch.
Type: “Alaska: Davidson Glacier, July 4, 1929, William S. Cooper & Frances E. Andrews 95 (Herb. Field Mus. No. 598,264, type)”; holotype F!

White-flowered specimens occur sporadically through populations of taxa with generally pink-purple flowers. Their recognition at any taxonomic rank is probably moot, and the publication of the taxon by Standley (1930) is therefore inconsequential.

Basionym: H. mackenzii Richards.
= H. boreale ssp. mackenzii (Richards.) Welsh

= H. alpinum L.
Type: Alaska, Cape Nome, Blaisdell s.n. summer 1900 (lectotype selected here: GHI, isotype US!).

Specimens on which H. auriculatum is based were distributed from the California Academy of Sciences herbarium with collection information recorded on labels of that institution. The only known specimens in contemporary collections are those at GHI and US. The two specimens consist of almost identical branches of H. alpinum, with both flowers and fruit, although that at GHI is designated on the label as a duplicate of the type, which was presumably at CAS prior to the San Francisco earthquake early in this century. Fire resulting from that devastating tragedy destroyed much of the early Academy herbarium.

= H. boreale Nutt. var. boreale

Intended type: "Flora of Colorado. Plants the Gunnison Watershed, Cimarron, June 28. Stems in large clusters 8 in. to 1 1/2 ft. on dry open slopes. Collected in 1901 by C. F. Baker, No. 274" (NDG!).

Evidently the name was never published by E. L. Greene but was cited as a synonym of H. pabulare A. Nelson by Rydberg in his Flora of Colorado. The intended type has three mounted stems showing flowers and maturing fruit; they are strigose both on herbage and on the loment. The plants differ in no material way from a great many specimens from Colorado. Perhaps Greene also realized as much.

Type locality: North Dakota, "around Fort Mandan, on the banks of the Missouri," Nuttall (l.c.).
Type: "Hedysarum boreale—Sources of the Missouri," Nuttall (probably late June) 1811; holotype BM!

The name H. boreale was early transferred to the concept of H. alpinum, and part of the synonymy reflects attempts by various authors to resolve the apparent lack of a name for this wide-ranging and highly variable species. Nuttall (Torrey and Gray 1838) named the species a second time, as H. canescens, based on specimens from along the Snake River in present Idaho taken in 1834. He was in the vicinity of Fort Hall, Idaho, from 14 July to 6 August 1834 (McKelvey 1955: 602). Whether he noted the similarity between earlier- and later-named materials is not known. It seems likely that
he did not have authentic material of the earliernamed taxon at hand for comparison with his collections on the 1834 Wyeth expedition. The type at BM, a solitary flowering stem, is mounted with several flowering stems of *H. alpinum* of unknown collector.

**Hedysarum boreale var. albiflorum** Macoun, Cat. Canad. Pl. 1: 510. 1884. nom. nud.

= *H. sulphureascens* Rydb.

**Syn:** *H. albiflorum* (Macoun) Fedtsch.

**Type locality:** "This form is peculiar to the foothills and drier mountain slopes, and is abundant from the Kananaskis through the Rocky Mountains to the Columbia valley at Donald, Lat. 51°" (Macoun).


There is no description aside from the designation "albiflorum" proposed as an epithet. The only other information provided by Macoun aside from that related with the locality data is the statement: "This fine plant is closely related to *H. boreale,* but is certainly distinct." The name is regarded as a nomen nudum. The collection by Dawson is, nevertheless, an excellent flowering example of *H. sulphureascens,* and the Macoun sheet consists of two plants with both flowers and immature to mature fruits, both also *H. sulphureascens.* The indication by Macoun of relationship of var. *albiflorum* to *H. boreale* reflects the general misapplication by many American botanists of *H. boreale* to the *alpinum* complex in North America, of which *H. sulphureascens* is a portion. Macoun used the number 533 for several collections of *Hedysarum* taken from 1883 to 1885.

**Hedysarum boreale var. cinerascens** (Rydb.) Rollins, Rhodora 42: 234. 1940.

**Basionym:** *H. cinerascens* Rydb. et *H. canescens* Nutt. in seq.

= *H. boreale* Nutt. var. *boreale*

**Hedysarum boreale var. cinerascens f. album** Boivin, Naturaliste Canad. 94: 630. 1967.

= *H. boreale* Nutt. var. *boreale*

**Type locality:** Nevada, Elko County, Thorpe Creek, E of Lamoile, 25 July 1928, H. H. Price 108 (holotype photo BM!).

**Hedysarum boreale f. proliferum** (Dore) Boivin, Naturaliste Canad. 94: 630. 1967.

= *H. boreale* ssp. *mackenzii* (Richards.) Welsh

**Type:** Nevada, Elko County, Thorpe Creek, E of Lamoile, 25 July 1928, H. H. Price 108 (holotype photo BM!).

**Hedysarum boreale var. utahense** (Rydb.) Rollins, Rhodora 42: 235. 1940.

= *H. boreale* Nutt. var. *boreale*

**Hedysarum canescens** Nutt., in Torr. & Gray, Fl. N. Amer. 1: 357. 1838. Not *H. canescens* L.

= *H. cinerascens* Rydb.; *H. boreale* var. *cinerascens* (Rydb.) Rollins

= *H. boreale* Nutt. var. *boreale*

**Type locality:** Idaho, "Plains of the Rocky Mountains, particularly near Lewis's River," Nuttall (l.c.)

**Type:** "Hedysarum *canescens.* H. mackenzii Hook. R. Mts. Lewis (Snake) R." Nuttall s.n. (probably in July) 1834 (holotype PH!; isotypes GH!, BM!, 2 sheets?).

The specimen at PH (which is mounted on a sheet with two other superfluous collections) bears the date "July 12," with the incorrect year date 1833 obviously added later. Nuttall was with the Wyeth Expedition in 1834, and on 12 July was a short distance east of where Fort Hall would be constructed subsequently. Despite the existence of the earlier-named *H. boreale,* with which *H. canescens* is synonymous, this name or its substitu­tes would be featured prominently in 19th-century accounts of the genus in the American West. There are two of Nuttall's specimens on the sheet at GH, each provided with a label—both with flowers and both representing the same taxon. The label information consists of the following: "Hedysarum *canescens.* H. mackenzii? R. Mts.,“ and "Hedysarum *canescens* R. Mts.” Since no additional locality...
information or date accompanies the labels, the status as exact duplicates is unknown. It seems likely that both were included within the concept of H. canescens by Nuttall, and both can be regarded as isotypes. There is a second possible isotype of H. canescens at BM, "Hedysarum mackenzii? Fort Hall, Prairie, common. Aug." It lacks the * usual for Nuttall's labels, and his name is not in evidence, but the handwriting appears to be his.

**Hedysarum canescens** Greene, Pittonia 3: 212. 1897. = H. boreale Nutt. var. boreale

Type locality: "Common in clayey soil about the mouth of the Canon of the Arkansas, in southern Colorado" (Greene 1c.).

Type: Colorado, Fremont Co., "Plants of Colorado, Canon City, 8 Sept. 1896, Edw. L. Greene" (lectotype here designated: NDG!, 2 islectotypes also NDG!).

While no specimens were cited with the original description, the three specimens so named in Greene's handwriting at NDG are most certainly type material. All bear the same date and locality information. The specimen bearing the "Greeneanum Herbarium" number 35686 is here chosen as lectotype; the others, 35687 and 35688, are considered islectotypes. The lectotype has both flowers and fruit; the other two are in fruit and flower (with immature fruit), respectively. All have strigose herbage and loments. Usual flowering time for the species is April to late July. Is it possible that the species flowered again following late summer rains at Cannon City in September 1896?


= H. boreale Nutt. var. boreale

Basionym: H. canescens Nutt.

**Hedysarum flavescens** Coulter & Fisher, Bot. Gaz. 18: 300. 1893, non Regel & Schmalz.

Basionym of: H. sulphurescens Rydb.

Type: Montana, near Helena, May 1892, P. D. Kelsey s.n. (holotype F!).

It is unfortunate that the epithet flavescens was occupied; it fits well the description of flower color in this taxon. Many of the Kelsey collections are in the U.S. National Museum (Eliens 1985), but the type of H. flavescens is at F, where Coulter's herbarium is deposited.

**Hedysarum gremiale** Rollins, Rhodora 42: 230. 1940. = H. boreale var. gremiale (Rollins) Northstrom & Welsh

Type: Utah, Uintah County, "ca 14 mi W. of Vernal, 16 June 1937," R. C. Rollins 1733 (holotype GH!, isotypes BM!, US!, CAS!, UTC!, MONTU!, PHI!, FL!).

This taxon stands on the feature of lateral spines on the loment segments; it is otherwise indistinguishable from plants of var. boreale by which it is surrounded (Northstrom and Welsh 1970).


= H. occidentale Greene

Type: "Mountain woods near head waters of Jocko River, Montana,—flowers purple, W. M. Canby 93, July 15, 1883" (holotype NY!).

The type specimen consists of a folded plant some 75 cm tall bearing leaves and flowers, and a stem fragment bearing immature fruit. Mature flowers are about 16 mm long, on the short side of the variation in H. occidentale, but the fruit, even though immature, is of the size and form of that species.

**Hedysarum leucanthum** (Greene) Greene, Pittonia 3: 213. 1897.

Basionym: H. mackenzii var. leucanthum Greene

= H. boreale ssp. mackenzii (Richards) Welsh


= H. boreale ssp. mackenzii (Richardson) Welsh


Evidently Dr. William Jackson Hooker sent representative material obtained by John Richardson, botanist with the Franklin expedition, to the Philadelphia Academy and to John Torrey and Asa Gray. Collections from the Franklin expedition demonstrate the variability represented in a rather large set of specimens, each matched by modern collections of the taxon. The second sheet cited at GH is doubly mounted with a mere fragment presumed to have come from the Franklin expedition in the lower portion and a second fragmentary collection by Burke (apparently a phase of H. boreale) from the Rocky Mountains. The latter material is not a portion of the type of H. mackenzii.

**Hedysarum mackenzii** var. fraseri Boivin, Canad. Field-Nat. 65: 20. 1951.

= H. boreale Nutt. var. boreale

Type locality: Canada: "Saskatchewan: W. P. Fraser, Langham, river valley, June 12 and 26, 1938" (l.c.)

Type: "Hedysarum Mackenzii Richards. River valley, Langham, Sask., W.B.F.[raser.], June 12 & 26, 1938" (holotype DAO!).

Boivin (l.c.) cites the revisionary treatment of Rollins (1940) as indicating that H. mackenzii var. mackenzii has flowers 18–21 mm long, but with
some 16–20 mm. Prairie plants from Saskatchewan and Alberta, however, have flowers 13–15 mm long. These latter plants are the basis of his var. fraseri. The type of var. fraseri represents *H. boreale ssp. boreale var. boreale*, which is present along the plains and foot slope of the Rocky Mountains, and has flowers of the size indicated for the variety.

**Hedysarum mackenzii** var. *leucanthum* Greene, Pittonia 2: 294. 1892.

**Basionym of:** *H. leucanthum* (Greene) Greene

*H. boreale ssp. mackenzii* (Richards.) Welsh

**Type locality:** "On the Porcupine River, northern Alaska, Mr. J. J. Turner" (Greene Lc.).

**Type:** "Plants of Alaska, collected on the Porcupine River, 1891, Mr. J. Turner" (holotype NDG!).

Greene (1892) notes that this is "far more than an albino state of *H. Mackenzii*; perhaps identical with some asiatic species; but the plants were just coming into flower when gathered, in that there is no trace of the loment." He later (1897) elevated it to species rank. However, except for white flowers, which occur with some frequency in the species, the plant differs in no respect from numerous other plants from the arctic range of the taxon generally.


**Basionym of:** *H. boreale var. mackenzii* f. *pabulare* (Boivin) Boivin

*H. boreale ssp. mackenzii* (Richards.) Welsh

**Type:** "Yukon Territory: J. W. Abbott 17a, Fine Creek, sandy land, June 7, 1946" (holotype DAO!).

The collection consists of five flowering stems of *H. boreale ssp. mackenzii*, all with white flowers. The condition of white flowers is occasional throughout the subspecies and hardly worthy of taxonomic consideration.


**Basionym of:** *H. boreale var. mackenzii* f. *pabulare* (Boivin) Boivin

*H. boreale ssp. mackenzii* (Richards.) Welsh

**Type:** "Plants of Colorado, Near Cimarron, Colorado, collected by the writer, 30 Aug. 1896; also near Pagosa Springs, Colo., 26 July 1899, C. F. Baker" (Greene Lc.).

**Type:** Colorado, "Plants of Colorado, Near Cimarron, 30 Aug. 1896, Edw. L. Greene" (lectotype NDG!, here chosen); "Plants of Southern Colorado, Pagosa Springs, 26 July 1899, C. F. Baker" (syntypes NDG!, NY!, RMI, CH!, PI!)

The lectotype collected by Greene is in fruit; syntypes at NDG and NY have both flowering and fruiting branches. In both the loment articles are markedly winged and strigose; herbage is strigose also (see Greene 1900).


**Basionym of:** *H. boreale var. proligerum* (Dore) Boivin

*H. boreale ssp. mackenzii* (Richards.) Welsh

**Type:** "Plants of Alaska. A single clump in shallow soil over broken rock (growing beside common petaliferous plant, cf. 4983). North Side of Tanana River, Mile 277, Richardson Highway, 64°10'N, 145°52'W, W. J. Cody & T. J. M. Webster 4984, June 3, 1951" (holotype DAO!).

This name is based (Dore 1959) on a teratological specimen of *H. boreale ssp. mackenzii*, a recurring variant induced by a pathogen, likely a smut-fungus. Teratology occurs in several if not all boreal legumes native to Alaska. In certain of those instances the inflorescence typically elongates, flowers become erect on attenuated pedicels, petals are deformed, and the ovary is typically exerted from the flower. In some specimens at least the ovary is filled with black spores. The type specimen of *f. proliferum* exhibits another variant than that typically encountered. The inflorescence is shortened and modified flower buds are in tight clusters. Whether elongate or compact, specimens on which such aberrations are based are not taxa, and the need to name them is therefore moot.

**Hedysarum marginatum** Greene, Pittonia, 4: 138. 1900.

**Basionym of:** *H. macquenzii* var. *marginatum* = *H. occidentale* Greene

**Type locality:** "Mountains above Cimarron, southern Colorado, collected by the writer, 30 Aug. 1896; also near Pagosa Springs, Colo., 26 July 1899, C. F. Baker" (Greene Lc.).

**Type:** Colorado, "Plants of Colorado, Near Cimarron, 30 Aug. 1896, Edw. L. Greene" (lectotype NDG!, here chosen); "Plants of Southern Colorado, Pagosa Springs, 26 July 1899, C. F. Baker" (syntypes NDG!, NY!, RMI, CH!, PI!)

Greene (1896) provides a description and a short note: "Plant like *H. boreale* when in flower, though with broader leaflets and widely different fruit." A second sheet from the Olympic Mountains at NDG!, Piper 2227 (August 1895), has the epithet "occidentale" in Greene's hand, but it was not cited by him. It is much better material than the type. For a long time the name *H. boreale* was included within the concept of *H. alpinum*. It is likely that Greene was under a similar misconception. The general aspect of *H. occidentale* (i.e., conspicuously veined leaflets and large loment with prominently reticulate venation), which occurs from Vancouver Island, British Columbia, and the Olympic Peninsula, Washington, disjunctly eastward to northern and eastern Idaho, western Montana, western Wyoming, northeastern Utah, and montane southern Colorado, is that of *H. alpinum*; and it differs generally in the manner indicated by Greene.

The most distinctive feature separating most, if not all, specimens of *H. occidentale* from *H.
alpinum is the much larger, rather conspicuously wing-margined loment segments. Flowers are generally larger, often much larger. However, plants from the Absaroka Range of northwestern Wyoming approach H. alpinum in occasionally having small flowers, but when collected at maturity, the fruit is that of H. occidentale. Additional collections might demonstrate that H. alpinum per se is indeed in the Absarokas. Large-flowered plants of H. alpinum, mainly of frigid sites in the arctic, approach the size of flowers of some H. occidentale specimens, but the fruit there is that of H. alpinum. H. occidentale has loments very similar to those of the closely allied H. sulphurensis.

**Hedysarum occidentale** Greene var. **canone** Welsh, Great Basin Nat. 38: 314. 1978.

Type: Utah, Carbon County, "ca 14 mi due ENE of Helper, Soldier Creek, 30 June 1977, Welsh & Taylor 15256" (holotype BRY; isotype at NY).

The syndrome of characters associated with this taxon is shared individually elsewhere within the species as a whole. However, specimens from Duchesne, Carbon, and Emery counties, Utah, and Gunnison County, Colorado, are recognizable by their large, thick, ovate to lanceolate, yellow-green leaflets, and large pale flowers. Plants are known from rather xeric sites in pinyon-juniper and mountain brush communities, whereas plants of the type variety are mainly of more mesic sites. Although the taxon is segregated on weak diagnostic features, it seems to be at least a trend worthy of taxonomic recognition. It has long been known in collections.


= **H. boreale** Nutt. var. **boreale**

Type: Wyoming, Wind River, Dubois, A. Nelson 732, 1894 (lectotype here designated RM).

This name is based on several Wyoming, Colorado, and Utah syntypes: i.e., M. E. Jones 5592, Soldier Summit, Utah, in 1894, POM?, BM!, FI!, Snake River, Wyoming, A. Nelson 3496, 19 August 1899 RM!, Wyoming, Natrona Co., Bates Creek, L. N. Goodding 201, 5 July 1901, RM!, FI!


= **H. boreale** Nutt. var. **boreale**

Type: Wyoming, Teton County, along the Snake River, 31 July 1892, L. O. Williams 975 (holotype RM; isototypes GH!, CAS).


Basionym: **H. alpinum** var. **philoscia** (A. Nels.) Rollins; **H. alpinum** ssp. **philoscia** (A. Nels.) Love & Love

= **H. alpinum** L.

Type: Wyoming, Albany County, Head of Crow Creek, Larraine Mountains, 1896, A. Nelson 2034; holotype RM!

Material from the Black Hills of South Dakota and from southeastern Wyoming is morphologically similar and has been recognized as belonging to a taxon that survived south of the major glacial events of the Pleistocene. The main diagnostic criterion is, however, loment pubescence. That feature is inconsistent within the southern material and often is present in plants far beyond its supposed range (which has been plotted to include plants as far north as the 50th parallel). Recognition of plants at any taxonomic rank is, therefore, problematical.

**Hedysarum roezliannum** Prunl., Ind. Sem. Hort. Wricel. 8: 1573.

= **H. boreale** Nutt. var. **boreale**

I have been unable to find any reference to this taxon aside from its citation by Rollins (1940).


Basionym: **H. flavescens** Coult. & Fisher, not Regel & Schmalz.

Yellow to yellowish flowers easily distinguish this entity, which shares the peculiar loment features of **H. occidentale**. The species ranges from the southern British Columbia-Alberta Rockies south through north central Washington, northern Idaho, western Montana, and northwestern Wyoming.


= **H. alpinum** L.

Type: Alaska, Nome, Dr. F. E. Blaisdell s.n. summer 1900 (lectotype NY! here designated; isoolectotype GH!).

Type material is low, about 2–2.5 dm tall, has mature flowers about 12 mm long, and has fruit the size and conformation of **H. alpinum**. It is identical for all practical purposes with material named by Eastwood simultaneously as **H. auriculatum** and taken at the same place and time by the same collector in 1900.


= **H. occidentale** Greene

Type: Wyoming, "In draws of the foothills, Evanston, A. Nelson 7196, 14 June 1900" (holotype RM; isototypes RM!, NY!, GH!).

Type sheets uniformly bear thick, lanceolate to lance-ovate leaflets similar to var. **canone**, but with flowers of typical **H. alpinum**. Plants from southeastern Wyoming are not uniformly of the **uintahense** type, but vary from one population to another, with most being similar to traditional **H. occidentale**.


= **H. boreale** Nutt. var. **boreale**

Type: Utah, Salt Lake County, "vicinity of Salt Lake City, Utah," Leonard 55, 26 May 1883 (holotype NY!).

The type consists of two complete stems and a fragmentary branch; it is typical of the material.
growing through much of Utah and elsewhere in the West.

REFERENCES


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