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## NOTES ON LYCOPODIUM INUNDATUM AND ITS ALLIES IN THE WESTERN HEMISPHERE

### I. A NEW VARIETY OF LYCOPODIUM INUNDATUM

RICHARD J. EATON

SEVERAL years ago, the writer discovered in Concord a small colony of a *Lycopodium* which closely resembled *L. alopecuroides* L. Growing compactly in the midst of an unusually profuse stand of *L. inundatum* and var. *Bigelovii*, it contrasted conspicuously with its more orthodox neighbors. Particularly noticeable were the stout, tall (14–17 cm.) fertile branches, terminated by large strobiles (nearly 2 cm. thick) with long-attenuate, horizontally spreading sporophylls. The spreading-ascending leaves of the peduncle were notably longer and more crowded than the distant, sub-appressed peduncle-leaves of typical var. *Bigelovii* growing near by. The leaves of the sterile branches, both in arrangement and size, were similar to those of typical *L. inundatum*, but more conspicuously denticulate, the teeth in some instances occurring well beyond the middle of the leaves. There was no suggestion of that hairy aspect of the sterile stems which is so characteristic of *L. alopecuroides* from the southern coastal plain where the latter species reaches its most distinctive development.

A more critical examination of the Concord plant reveals sporophyll characters which at once establish its close relationship to *L. inundatum*. Sporophylls dissected from the middle portion of a strobile are 8–9 mm. long, tapering gradually to an attenuate point from a base 1.5 mm. wide, and bear from 4–6 bristle-like teeth more or less clustered above the spore-case, but not extending beyond the middle



of the bract. In typical *L. alopecuroides*, the sporophylls are narrower at the base (0.75–1.25 mm. wide) and are beset with 6–10 (or sometimes more) bristle-like teeth rather evenly distributed from the base upwards beyond the middle, occasionally extending more than three-fourths the entire length of the bract.

Thinking the Concord plant to be perhaps a transient sport or an ecological form of *L. inundatum* with which it is so closely associated, I have kept the station under close observation for the past three years. The colony, consisting of perhaps a half dozen plants when first discovered, shows a marked tendency to increase. Last fall (1930) it covered an area of nearly a square meter and contained several dozen well-matured and characteristic specimens. Obviously, we are confronted with a self-perpetuating form with such distinctive characters as to deserve varietal rank. It is here proposed as

*LYCOPodium inundatum* L., var. **robustum**, var. nov., formae typicae simile, sed omnibus partibus robustius; caulibus sterilibus 0.5–2 dm. longis (aliquando longioribus) arcuantibus diametro 2 mm.; foliis 5–6 mm. longis sursum curvatis aliquando radialibus saepe supra medium denticulatis; pedunculis diametro 2–2.5 mm. foliosis, foliis multis patenti-adscendentibus 6–8 mm. longis; strobilis maturis sporophyllis ad libram patentibus inclusis 1.4–1.7 cm. latis, 5–7 cm. longis; sporophyllis 7–9 mm. longis e basi latiuscula circa 1.5 mm. lata gradatim attenuatis 4–6 dentibus setisve marginalibus totis inter sporangium et sporophylli mediam partem approximatis onustis.

Similar to the typical form but much larger in every dimension. Sterile stems 0.5–2 dm. long (occasionally longer), arching, 2 mm. in diameter. Leaves 5–6 mm. long, curved upward, sometimes radial, denticulate (frequently above the middle). Peduncles 2–2.5 mm. in diameter, leafy; peduncle-leaves numerous, spreading-ascending, 6–8 mm. long. Mature strobiles, including the *horizontally* spreading sporophylls, 1.4–1.7 cm. wide and 5–7 cm. long. Sporophylls 7–9 mm. long, attenuate, gradually tapering from a rather broad base about 1.5 mm. wide, beset with 4–6 marginal teeth or bristles clustered between the spore-case and the middle of the bract.—Massachusetts to New Jersey, chiefly along the coastal plain.

A detailed study of local collections of the *L. inundatum-alopecuroides* group in the Gray Herbarium, and in the herbaria of the New York Botanical Garden, Brooklyn Botanic Garden and New England Botanical Club suggests that typical *L. alopecuroides* has yet to be discovered on the mainland north of New Jersey. In particular, it appears that the following specimens, now passing as this species, should be referred to *L. inundatum* var. *robustum*:



Barnstable, Mass.	<i>M. L. Fernald</i> ,	No. 8381	31 July, 1913	N.E.B.C.
"	"	15851	7 Oct., 1917	"
"	<i>Fernald &amp; Long</i> ,	15939	4 Sept., 1918	"
Milford, Conn.	<i>E. H. Eames</i>	5860	13 Oct., 1907	Gray
Tom's River, N. J.	<i>L. H. Lighthipe</i>		1 Sept., 1890	N.Y.B.G.
Shark's River, N. J.	<i>H. Edwards</i>		Aug., 1886	"

In addition, the following sheets likewise should be so designated:—

Sheffield, Mass.	<i>R. Hoffman</i>	25 Sept., 1899	N.E.B.C.
Concord, Mass	<i>R. J. Eaton</i>	15 Sept., 1928	"
"	"	28 Sept., 1930 (TYPE)	"

Occasional collections from Long Island and Nantucket appear to be somewhat depauperate specimens of genuine *L. alopecuroides*, as for instance:—

Babylon, L. I.	<i>W. N. Clute</i>	No. 360	8-9 Sept., 1898	N.Y.B.G.
"	"		20 July, 1899	Herb. L. Griscom
Nantucket, Mass.	<i>L. L. Dame</i>		Aug., 1886	N.E.B.C.
"	<i>J. R. Churchill</i>		7 Sept., 1909	"

As an example of the confusing status of the group in New Jersey, a specimen collected by *P. Wilson* at Tom's River, New Jersey, 9 September, 1915 (New York Botanical Garden), corresponds in every detail with the best material from the southern coastal plain, whereas a plant collected as *L. alopecuroides* by Wilson at the same locality eight days earlier shows leaf- and sporophyll-characters of *L. inundatum* var. *robustum*.

In general, there are no clearly defined lines of demarcation separating *L. inundatum* and the two varieties, one from another. Apparently the variety *robustum* in its typical development is an uncommon plant. Many extreme forms of the species and variety *Bigelovii* approach it in one or more particulars, but usually resolve into their true categories, on balance, as it were.

BOSTON, MASSACHUSETTS.

## NEW PLANTS FROM OREGON

L. F. HENDERSON

*JUNIPERUS CALIFORNICA*, var. **Siskiyouensis**, var. nova. Differt a forma typica foliis minoribus, subtus albis; amentis masculis minoribus, antheris circa 14; strobilis globoso-oblongis, minoribus; testa valde indurata; cotyledonibus 5-6.—Summit of the Siskiyou Mountains, near Highway, Jackson County, April 23, 1930. My no. 12483.



Eaton, Richard J. 1931. "Notes on Lycopodium inundatum and its allies in the western hemisphere." *Rhodora* 33, 201–203.

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