

XIV. STUDIES IN THE GENUS *LACTUCA* IN WESTERN PENNSYLVANIA.

BY O. E. JENNINGS.

(PLATE XXXIII.)

During seventeen years of botanizing in the region of Pittsburgh the writer has been annually impressed with certain peculiar characteristics of some of the species of *Lactuca* occurring here. Various collections and very numerous observations in the field have served to confirm the suspicion that certain of the species, as they occur in this region, possess characteristics in part different from the typical forms of the species as described in current botanical literature. To render the identification of the local forms more exact, and thus to aid in better establishing their geographical limits, the new varieties herein named are proposed.

***Lactuca spicata* variety *aurea* var. nov.**

There grows abundantly in uncultivated grounds and neglected lots and fields throughout Allegheny and adjacent counties a tall *Lactuca* with tawny or sordid pappus, which generally agrees quite well with *Lactuca spicata* (Lamarck) Hitchcock, except that the plant is more robust and the flowers are bright lemon-yellow, often withering to bright orange. Among thousands of the plants observed in various parts of the region all had yellow flowers, with the single exception of a plant with very light-colored flowers, suggesting albinism.

As first described, in Lamarck's *Encyclopédie*, in 1789, *Sonchus spicatus* from South Carolina had purplish flowers ("Les fleurs sont purpurines"),¹ and in DeCandolle's *Prodromus*, in 1838, Section II, under *Agalma* of the genus *Mulgedium*, it was characterized as follows: "*Pappus sordescens. Invol. calyculatum aut calyculato-imbricatum. Cor. cæruleæ aut purpureæ.*" And under this section was

¹ Lamarck, J. B. A. P. M., *Encyclopédie Méthodique, Botanique*, III, 1789, p. 401.

described *Mulgedium leucophæum* "ad margines sylvarum Amer. bor. à Novâ-Angliâ ad Virginiam (Pursh), ad Lacum Huron (Hook.)." ²

In an examination of about twenty descriptions of *Lactuca spicata* as placed by various authors under the genus *Sonchus*, *Mulgedium*, or *Lactuca*, only four references were found giving the color of the flowers as yellow or yellowish. The descriptions in by far the greater number of the manuals and floras of the eastern United States have been drawn very largely from material collected and studied along the eastern coastal regions; this being, of course, especially true of the earlier systematic works, when practically nothing was known of the flora in or beyond the Appalachians. In this connection it is of interest to note that in some of the earlier systematic works where *Lactuca spicata* was known only from the region quite closely adjacent to the Atlantic coast the plant is always described as having blue or white flowers.³ As the species became somewhat better known, and its known range was extended into the interior, a few of the descriptions indicated the flowers as ranging in color from blue to yellow,⁴ while Wood, in his valuable Class-Book, described the flowers only as "yellowish."⁵

A further examination of the evidence furnished by the various "floras" and "manuals" indicates that in the New England States and along a comparatively narrow strip bordering the Atlantic coast the flowers of *Lactuca spicata* are blue to white, while to the southwest and west the flowers become more or less completely yellow. That the line of demarcation between these regions is perhaps quite sharp is not unlikely. In the more recently published Flora of Philadelphia and Vicinity⁶ the flowers are referred to as blue to white, while in Darlington's *Flora Cestricea* we have "Florets pale blue, or ochroleucous." Small and Carter in their Flora of Lancaster County [Pennsylvania] say for *Mulgedium spicatum*: "ligules white, yellowish, or bluish."⁷ From the foregoing and from such facts as the

² De Candolle, A. P., *Prodromus Systematis Naturalis Regni Vegetabilis*, VII, 1838, p. 250.

³ Eaton's Manual, Chapman's Flora, Pursh's Flora, Torrey's Flora, N. Y., etc.

⁴ Noll, H. R., *Flora of Pennsylvania*, 1852; Small, J. K., *Flora of the Southeastern U. S.*; Darlington, Wm., *Flora Cestricea*, 1853.

⁵ Wood, A., *Class-Book of Botany*, 1880, etc.

⁶ Keller, I. A., and Brown, S., *Handbook of the Flora of Philadelphia and Vicinity*, 1905.

⁷ Small, J. K., and Carter, J. J., *Flora of Lancaster County*, 1913.

writer has been able to ascertain from his own studies in the field and herbarium the belief has become quite strong that we are dealing here with two distinct forms, whose relationships are probably best indicated as those of species and variety, the latter limited to the interior in its geographical distribution.

The writer has had the privilege of examining the collections of *Lactuca spicata* in the herbaria of the Philadelphia Academy of Natural Sciences, the National Herbarium at Washington, and the Ohio State Herbarium at Columbus, and as far as could be determined from the specimens, just as from the numerous specimens in the Carnegie Museum, the color of the flowers was yellow in all plants collected in or to the west of the Appalachians. The only blue-flowered specimens seen were from the region distinctly to the east of the mountains.

The variety *aurea*, as it occurs in the Pittsburgh region, is:

Biennial, perhaps rarely annual: stems stout, striate, glabrous, green to brownish, often somewhat glaucous, about 1 to 5 meters high, sometimes 2 cm. or more in diameter at the base, erect, strict, unbranched up to the inflorescence; leaves in general outline obovate, acuminate, more or less deeply runcinate-pinnatifid and lobed, more or less sinuately toothed, often doubly so, the leaves reaching a length of 3 dm. or more, the terminal lobe being usually more or less unlobed and equilaterally triangular and comprising one-third to one-half the length of the leaf; below the lamina narrowing to a widely margined petiole and more or less auriculate-clasping base, the leaves usually pubescent on the veins and mid-rib beneath; the inflorescence forming an erect, rather densely spicate panicle, the upper leaves narrowing to lanceolate-acuminate bracts with auriculate-clasping bases; pedicels rather stout, divaricate to ascending, with two to four minute linear-lanceolate bracts; heads numerous, in flower about 1 to 1.5 mm. broad, the involucre 9 to 12 mm. high, oblong-cylindric, the principal bracts of an equal length and from a little shorter to as long as the pappus of the ripe achenes, linear-lanceolate, sub-acute to obtuse, whitish- or scarious-margined, the outer bracts few, much shorter, all glabrous, the ligules yellowish-green or sometimes golden, soon withering; achenes oblong, about 1.5 mm. wide by 4.5 to 5 mm. long, flat, quite curved usually, the middle portion distinctly longitudinally striate, the whole surface rugose with minute short transverse ridges, grayish-

brown, but much mottled with blotches of dark brown, at the apex narrowing to a short, stout beak about 0.5 mm. long, pappus about 5 mm. long, tawny, minutely barbed upwardly. Flowers in September to October, rarely in late August.

In various soils, mostly in moist fertile soils; often an abundant weed in temporarily idle cultivated ground. Specimens have been examined from the following regions: central and western Maryland; central and western Pennsylvania; western and northern West Virginia; and from localities representing practically all portions of Ohio. The color of the flowers, so far as could be determined from the herbarium specimens, was invariably yellowish in all specimens collected in or west of the Appalachians.

The types, one sheet as to rosette-leaves and the other as to flowering stems, flowers, and seeds, are deposited in the Pennsylvania Herbarium of the Carnegie Museum. The types were collected on an idle plot of ground at the corner of Forbes Street and Woodlawn Avenue, Pittsburgh, Pennsylvania, October 2, 1905, by O. E. Jennings and Grace E. Kinzer.

The variety *integrifolia* Gray, as described under *Lactuca leucophæa*, and having "leaves undivided (simulating those of *L. acuminata*, but sessile), or the lowest sinuate-pinnatifid," was founded upon specimens from "Ohio, *Lea*. Canton, Illinois, *Wolf*." The type of Gray's variety *integrifolia* is thus quite likely an entire leaved form of the variety *aurea* and its disposition would best be as follows:

***Lactuca spicata* var. *aurea* forma *integrifolia* (Gray) comb. nov.**

Lactuca leucophæa var. *integrifolia* GRAY, Synoptical Flora of North America, I, Part 2, 1886, p. 444.

Some of the specimens of *L. spicata* var. *aurea* collected in the Pittsburgh region show quite evident tendencies toward the entire-leaved form, and in the State Herbarium at Columbus, Ohio, there is a specimen collected in Holmes County, Ohio (Kellerman), and another collected in Defiance County, Ohio (Fullmer), in central and northwestern Ohio, respectively, that are clearly typical of forma *integrifolia*.

Lactuca canadensis var. *spinulosa* var. nov.

The form of wild lettuce which becomes so abundant in neglected upland meadows in the Pittsburgh district appears not to be the same as that which has long passed as *Lactuca canadensis*. As Linnæus characterized it, at least under the synonymy which he quoted (*Species Plantarum* II, p. 796), *Lactuca canadensis* does not have spinulose midribs, and in the keys and descriptions in the current manuals of today it is usually characterized as distinctly glabrous and with beak and achene of equal length. Gray, however (*Synoptical Flora of North America*, 1886, p. 442), says "Midrib naked or rarely some sparse bristles," and he there mentions also that the achene is "rather longer than the beak," a characteristic of the plant as it occurs in western Pennsylvania, but hardly in accordance with the treatment given it in most of the current manuals.

A typical specimen collected by the writer, July 21, 1918, in a neglected hill-top meadow about one mile north of Glenshaw, Allegheny County, Pennsylvania, altitude about thirteen hundred and twenty feet above the sea, may be described as the type of the new variety:

***Lactuca canadensis* variety *spinulosa* var. nov.**

Stem erect, rigid, but moderately slender, smooth, tinged and speckled with purple, rather densely leafy, abundantly branching above into an open panicle of broadly oblong outline. Leaves about 10–15 cm. long, about two-fifths as wide, pale beneath, sagittate-clasping, the lower narrowed into winged petioles, the upper sessile, all more or less runcinately pinnatifid and somewhat spinose-dentate, the terminal lobe elongated, most of the lobes broadening above the base and acuminate, the lower side of the midrib, especially in the basal leaves, furnished with rather weak spinose hairs. Heads numerous, the involucre 10–12 mm. high, the lower short bracts purplish, the inner long ones scarious-margined; the flowers about 14–17 in number, light yellow; the achenes about 3 mm. long, oblong-oval, brown to blackish, transversely rugulose, thin, the margin about two-thirds as wide as the body of the achene, the beak slender and about 2 mm. long, the pappus soft and shining white, about 6 mm. long.

In richer and moister soil the plant may become at least twice as

large as the specimen described, but such specimens are not common, the larger plants of rich shaded and moist slopes being in the Pittsburgh region almost invariably the entirely glabrous and more robust *Lactuca canadensis* instead of the variety *spinulosa*. The variety is the common weed of the hay fields in this region, while the species itself is the rarer plant of woodlands and thickets.

EXPLANATION OF PLATE XXXIII.

FIG. A. Rosette-leaves of *Lactuca spicata* var. *aurea*. One-fourth natural size.

FIG. B. Stem and leaves of *L. spicata* var. *aurea*. One-fourth natural size.

FIG. C. Branch of inflorescence of same plant. One-fourth natural size.

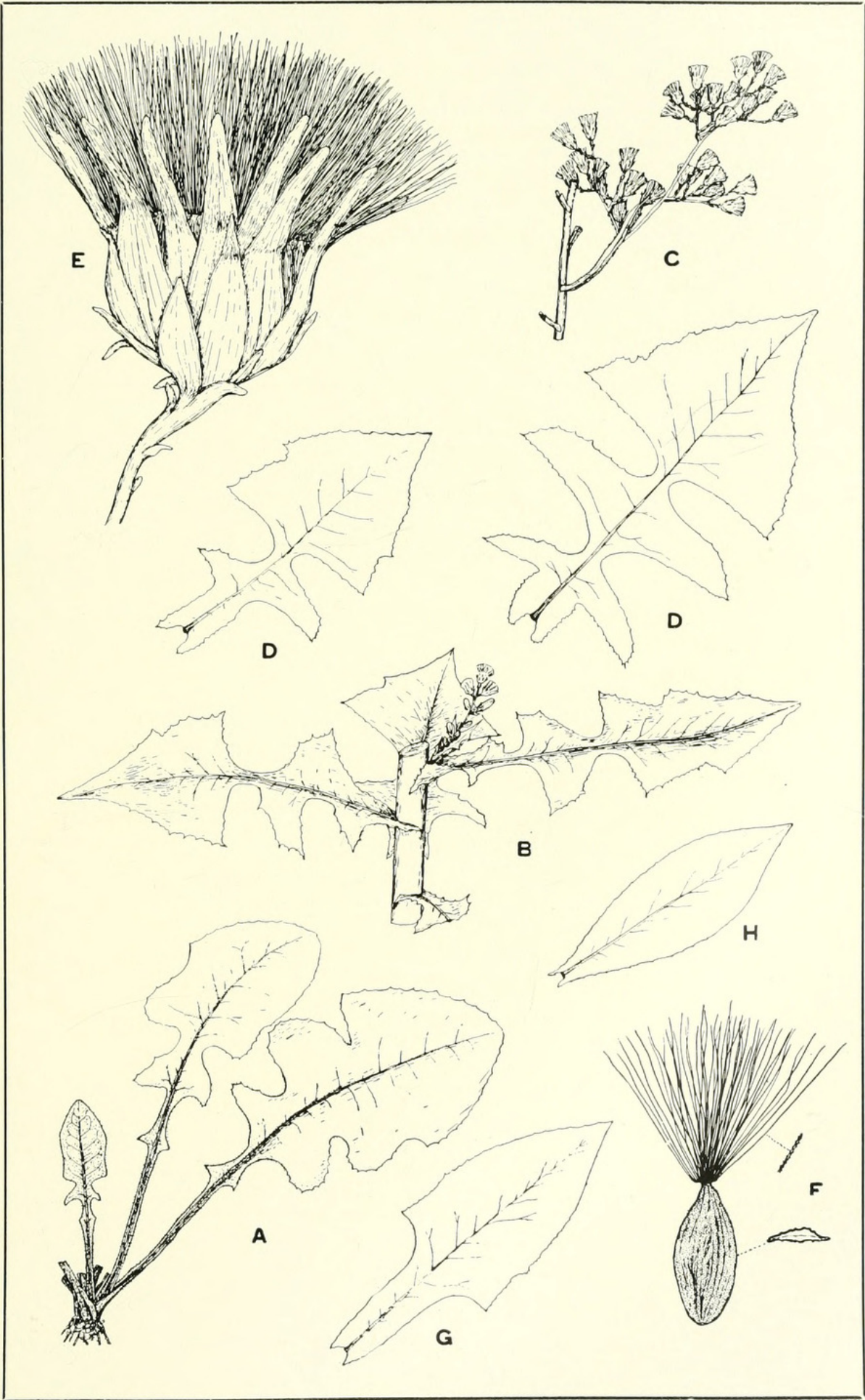
FIG. D. Stem-leaves from lower part of stem of a smaller plant than was drawn in fig. B. One-fourth natural size.

FIG. E. Head of *L. spicata* var. *aurea* with ripe achenes. Three and one-half times natural size.

FIG. F. Ripe achene from head in fig. E, drawn at same scale.

FIGS. G AND H. Stem-leaves from plants of *L. spicata* var. *aurea* forma *integrifolia*. One-fourth natural size.

(All figures were drawn from specimens collected in Pittsburgh, Pennsylvania, Oct. 2, 1905, by O. E. Jennings and Grace E. Kinzer.)





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