

# Bull (Spear) Thistle, *Cirsium vulgare* (Savi) Tenore Compositae

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**I. Nomenclature:** A) *Cirsium vulgare* (Savi) Tenore; B) bull thistle; spear thistle; C) Synonyms: *Cirsium lanceolatum* (L.) Scop., non J. Hill; *Cirsium lanceolatum* var. *hypoleucum* DC.

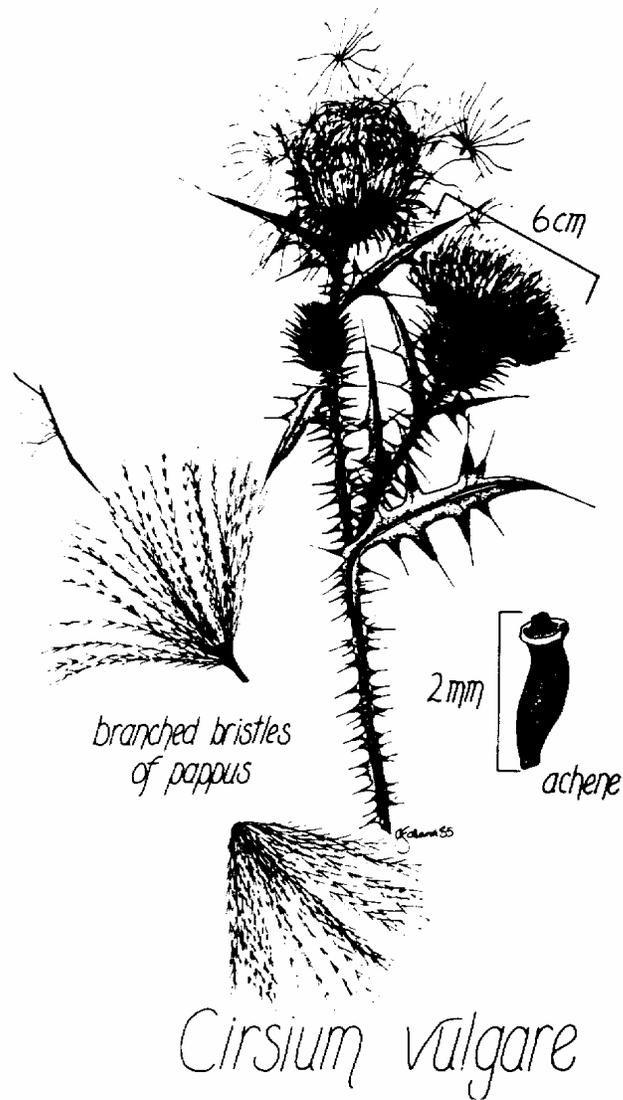


Fig. 1. *Cirsium vulgare*, bull thistle (spear thistle), showing the plumose pappus.

**II. History:** The only history of bull thistle in Pennsylvania dates from at least the late 18th century. By 1836 de Schweinitz claims it to have far surpassed in quantity and dissemination any of the native thistles, yet recognized it as an accidental introduction by way of agricultural seeds. Kummer (1839) lists bull thistle as an element of the Northampton County flora, collected by Wolle and Huebener in 1837. By 1903 (Porter) bull thistle could be found in Lackawanna, Monroe, Northampton, Bucks, Delaware, Chester, Lancaster, Franklin, Huntingdon, and Allegheny counties.

**III. Technical evaluation:** A biennial plant with first year leaves forming a rosette of oblanceolate to elliptic coarsely toothed foliage; **stems:** 50-150 cm, conspicuously spiny-winged by decurrent leaf bases to the next leaf; **vestiture:** copiously spreading-hirsute to sometimes arachnoid; **leaves:** prickly-hairy to scabrous-hispid above, thinly white tomentulose to sometimes green and merely hirsute below, pinnatifid or pinnatiparted; **heads:** usually several (2-3) or solitary, terminal, 20-40 mm wide, purple; **involucre:** ovoid to subglobose; **bracts:** all spine-tipped, lanceolate, acuminate, without any well-developed glutinous dorsal ridge; pappus: many rows of white feathery hairs; **achenes:** 2-4 mm, straw colored with brown or black vertical lines; **seedlings:** **hypocotyl:** at length wrinkled and contracting, bringing the crown to the soil surface; **cotyledons:** 3 x 5.5 to 7.5 x 18 mm, united at the base to form a short swollen tubular sheath; dull, a few minute granules scattered above, pale beneath; true **leaves:** alternate, friable and easily broken into pieces; a covering of minute granules on the pale, transiently webby lower surface; the intervein tissue above with long, thick, papillately based hairs, and on the prominent veins beneath; **leafstalks:** margined, half to nearly encircling the crown at the base; **margins:** unevenly dentate, the larger teeth ending in a column surmounted by a long prickle, smaller dentations tipped with shorter prickles; leaves rolled together loosely in the bud or scarcely rolled up like a cornucopia; more or less enmeshed in cottony hairs; stem not apparent (Kummer 1951); **distribution:** pastures, rubbish heaps, waste places, old fields, clearings, along roadsides throughout our range; a naturalized taxon from Eurasia, having spread to N. Africa, and N. and S. America; **phenology:** June-September, generally in the latter portion of this period (after the end of July).

**IV. Diagnostic characteristics:** A biennial plant forming spiny-leafy rosettes the first year; stems produced the second season. Stems are erect, branched, woolly, with prickly winged margins, very leafy. The purple flower heads are on the ends of branches in clusters of 2 to 3, or solitary; large, showy and never nodding. Bracts under the floral head are stiff, tipped with spreading spines.

**V. Confused taxa:** For a complete analysis of the taxa with which bull thistle might be confused, refer to Hill (1983, 1984). Canada thistle (*Cirsium arvense* (L.) Scop.) and nodding thistle (*Carduus nutans* L.) can be distinguished from bull thistle by the characteristics provided in Table 1.

**VI. Natural History:** A delightful, popular rendition of the natural history of bull thistle is provided by Godfrey (1977). No scientific or systematic studies were revealed by computer search, implying a dearth of scholarly writings on this topic.

**VII. Economic Importance:** A) Beneficial. Bull thistle is home to many creatures. From an ecological perspective it plays an important role in the network of interrelationships between and among plants and animals. Also the achenes are a food source for granivorous birds, especially finches. B) Detrimental. Bull thistle does not persist under cultivation. The short-lived (biennial) life cycle restricts its perniciousness. It can become a problem of pastures, meadows, abandoned land, waste land, and roadsides. Widely established in field and pasture throughout Pennsylvania, it is now found in every county.

**VIII. Control<sup>1</sup>:** fallow land: Banvel Herbicide (dicamba), rate: 0.5-1.0 lb ai (1-2 pt); noncropland: AAtrex 80W, 4L (4LC) or Nine-O (atrazine), rate: 20-40 lb ai (25-50 lb 80W, 20-40 qt 4L (4LC) or 22-44 lb Nine-O); Atratol 90 (atrazine), rate: 20-40 lb ai (22.2-44.4 lb 90)/A; Drexel Atrazine 80, 4L, 5L, or 90 DF, rate: 20-40 lb ai (25-50 lb 80W, 20-40 qt 4L, 16-32 qt 5L, or 22-44 lb 90 DF); Shell Atrazine 80W (atrazine), rate: 20-40 lb ai (25-50 lb 80W); rangeland: Emulsamine E-3 (2,4-D oil soluble amine), rate: 0.375-3.0 lb ai (1-8 pt E-3); broadleaf herbaceous weeds (application by farm-sprayer, high volume): Emulsamine E-3 (2,4-D oil soluble amine), rate: 0.375-3.0 lb ai (1-8 Pt E-3); broadleaf herbaceous weeds (application by aerial or farm-sprayer, low volume): Emulsamine, rate: 0.375-3.0 lb ai (1-8 Pt E-3); Tordon 2K Pellets (picloram), rate: 0.25-8.0 lb ai (12.5-400.0 lb 2K); Weedmaster (dicamba + 2,4-D), rate: 0.25 lb dicamba ai +0.75 lb 2,4-D acid equiv (1 qt Weedmaster); alfalfa: Butyrac Ester (2,4-DB butoxy ethyl ester), rate: 0.5-1.0 lb ai (2-4 pt); Butyrac 200 (2,4-DB dimethylamine), rate: 0.5-1.5 lb ai (1.0-3.0 qt); field corn: Banvel Herbicide (dicamba), rate: 0.5-1.0 lb ai (1.0-2.0 pt); established lawns and turf: Banvel 4-S or Banvel Herbicide (dicamba), rate: 0.5-1.0 lb ai (1.0 - .0 pt).

**Table 1**  
**Characters that can be used to distinguish**  
**several closely related thistles**

	<i>Cirsium arvense</i> Canada thistle	<i>Cirsium vulgare</i> bull thistle spear thistle	<i>Carduus nutans</i> nodding thistle musk thistle
Size	3-9 (20) dm	6-15 (20) dm	5-10 dm
Stem	branched above; un-winged; glabrous (or hairy below)	branched above; spiny-winged	stems singular (solitary) above or occasionally branched; spiny-winged
Leaves	glabrous above; glabrous or white hairy below	prickly-hairy above; cottony below	glabrous, or long-vil-lous chiefly along the main veins beneath
Upper leaves	sessile	semi-decurrent	decurrent
Lower leaves	short petioled	decurrent to the next leaf	decurrent to the next leaf
Heads	solitary or 2-3 in a cluster; erect; 12-25 mm wide	solitary or 2-3 in a terminal cluster; erect; 20-40 mm wide	mostly solitary nodding; 30-50 mm wide
Involucral bracts	several series; inner lanceolate, innocuous; outer ovate, appressed, with a subulate-tip (spine, 0.5-1.0 mm)	uniform; all bracts spine-tipped; spine long and spreading	middle and outer conspicuously broad (2-8 mm wide) with a long, flat spreading or reflexed, spine-pointed tip; inner bracts narrower and softer
Florets	purple (to rose or rarely white)	purple	pink (rarely white)
Pappus	deciduous in a ring; plumose, with lateral branches (featherlike)		simple capillary hairs, never plumose
Seedling	margins of leaves crisped or ruffled, the prickles extending in every direction; stem not apparent or well developed and very prickly	margins of leaves flat, stem never apparent	
	prickles uniform; margins irregularly dentate or lobed dentate, each tooth ending in a strong and sharp prickle	prickles of leaf, on the intervein tissue, upon definitely projecting bases, margins of later leaves very unevenly toothed, irregularly and shallowly lobed; large dentations ending in column surmounted by a long prickle, lesser dentations tipped with shorter prickles	prickles of leaf not upon a base; leaf margins regularly toothed, shorter prickles between the more prominent teeth
Life Cycle	perennial	biennial	biennial
Flowering Time	July-August	late July-August	late June-July

<sup>1</sup> Disclaimer: when trade names are used, no discrimination is intended and no endorsement by either the authors or the affiliate institutions is implied.

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