

Plant Evaluation Notes

A Performance Appraisal of Hardy Bellflowers

Richard G. Hawke, Plant Evaluation Manager

Blue is a much coveted flower color in the gardening world, and campanulas, or bellflowers, offer a wonderful palette of blue to fulfill a gardener's desire. Their distinctive blossoms come in hues of blue and violet, from the deepest purple to softest gray blue. Furthermore, an array of plant habits, adaptable to a variety of cultural conditions, ensures there is a bellflower for a range of garden uses.

Campanula is a large, multifarious genus in the bellflower family (Campanulaceae), with approximately 300 annual, biennial, and perennial species native to high mountains, meadows, or woodlands in temperate regions of the Northern Hemisphere. *Campanula* species are most commonly called bellflowers, although some are known as harebells or bluebells.

Their flowers are predominately bell-shaped, or campanulate, but can be cup-, bowl-, tubular-bell-, or star-shaped. The five floral lobes may be shallow to deeply cut, thus enhancing the cupped, bell, or starry appearance. Flowers are borne singly or in many-flowered inflorescences, and may be upward-facing or nodding in habit.

Pink and white extend the range of flower colors beyond blue. Bellflowers commonly bloom in late spring and summer and sometimes into autumn.

Bellflowers have characteristically different basal and stem leaves. Basal leaves may be oval, round, lanceolate, or heart-shaped, and are usually larger, long petioled, and often toothed. Basal leaves of some species, such as *Campanula carpatica*, *C. glomerata*, and *C. rotundifolia*, wither during the flowering period. Stem leaves are usually simple, smaller in size, and either short stalked or sessile. Foliar color ranges from light to dark green with several yellow-leaved forms available. Bellflowers offer a rich diversity of plant habits, too—from small, tufted alpine species to statuesque border plants, and from clump formers to rambling spreaders.

Whether grown in full sun or light shade, bellflowers are generally easy to grow and trouble free in well-drained, alkaline soils. Bellflowers do not tolerate soggy soils, although some species such as *Campanula lactiflora*, *C. latifolia*, and *C. takesimana* prefer moist soils. Sodden soils,

especially in winter months, will cause root rot. Fertile soils may encourage too much growth for fast-spreading species such as *C. glomerata*, *C. punctata*, and *C. rapunculoides*. Deadheading is recommended to encourage rebloom, improve plant health, and reduce or eliminate self sowing. Slugs, rabbits, and foliar rust can cause health or cosmetic problems for some species.

There are a variety of garden-worthy bellflowers for borders, meadows, and rock gardens. Tall bellflowers such as *Campanula lactiflora* and 'Kent Belle' are ideal in the middle to back of the border, whether grouped in drifts or paired with other perennials. *Campanula carpatica* and other small-sized bellflowers are great choices for the front of the bed, in rockeries, or as annualized plants in containers. Low-growing creepers such as *C. poscharskyana* and *C. portenschlagiana* make good edging plants along walks or beds, and are especially striking on crannied rock walls. The spreading habits of *C. glomerata*, *C. punctata*, and *C. takesimana* are appropriate as ground covers or for naturalizing but are not well-suited to small or formal gardens. *Campanula lactiflora*, *C. latifolia*, and *C. takesimana* thrive in light shade, making them perfect choices for transition zones between sun and shade.

The Evaluation Study

Between 1998 and 2006, the Chicago Botanic Garden (USDA Hardiness Zone 5b, AHS Plant Heat-Zone 5) evaluated 89 taxa of *Campanula* in full-sun trials. The goal of the comparative trial was to recommend outstanding *Campanula* for northern gardens. Sixty-four taxa completed a minimum four-year trial, with more than half of the taxa being evaluated for six years. Wherever possible, nomenclature follows the recommendations of the Royal Horticultural Society.

Eight plants of each taxon were grown in side-by-side plots for easy comparison of ornamental traits and landscape performance. The evaluation site received approximately 10 hours of full sun daily during the growing season and was open-



Jen Van Wagener

Campanula takesimana 'Elizabeth'

Table 1: Plant Traits and Performance Ratings

Overall Rating	<i>Campanula</i>	Flower Color/RHS ¹	Flower Shape	Flower Size	Bloom Period ²	Flower Production ³	Plant Height	Plant Width
★★★★	'Birch Hybrid'	violet blue/90C	bell	¾ in. wide	early Jun-early Jul	heavy	6 in.	22 in.
★★	'Burghaltii'	pale lavender/84D	tubular	2½ in. long	mid Jun-late Jul+	low	24 in.	15 in.
★★★★	'Dwarf Tornado'	deep lavender	bell	1 in. wide	mid Jun-early Aug	heavy	6 in.	20 in.
★★★★	'Glandore'	purple blue/94C	star	1 in. wide	early Jun-early Jul+	moderate	8 in.	30 in.
★★★★	'Kent Belle'	violet blue	bell	2 in. long	mid Jun-mid Aug+	moderate	40 in.	30 in.
★★★★★	'Purple Sensation'	deep purple	bell	3 in. long	early Jun-late Aug+	heavy	27 in.	30 in.
★★★★★	'Samantha'	purple blue	bowl	1¼ in. wide	early Jun-late Aug	heavy	12 in.	20 in.
★★★★★	'Sarastro'	violet blue/86B	tubular	2¾ in. long	early Jun-late Jul+	heavy	22 in.	24 in.
★★★★	'Stevie Ray'	lavender	tubular	2½ in. long	late Jun-mid Sep	moderate	30 in.	24 in.
★★★★	'Van-Houttei'	violet blue/90C	bell	2¼ in. long	early Jun-early Jul+	moderate	18 in.	10 in.
★★★★	<i>alliariifolia</i>	creamy white	bell	1¼ in. wide	late Jun-mid-Aug	low	30 in.	18 in.
★★	<i>carpatica</i>	violet blue/86B	bowl	1¾ in. wide	late Jun-late Aug	low	8 in.	15 in.
★★	<i>carpatica</i> f. <i>alba</i>	white	bowl	1¾ in. wide	late Jun-mid-Sep+	low	10 in.	18 in.
★★	<i>carpatica</i> f. <i>alba</i> 'Weisse Clips'	white	bowl	2 in. wide	late Jun-mid-Sep	low	10 in.	16 in.
★★★★	<i>carpatica</i> 'Blaue Clips'	violet blue/86B	bowl	1¾ in. wide	late Jun-mid Sep	moderate	9 in.	18 in.
★★★★	<i>carpatica</i> 'China Doll'	lavender/85B	bowl	2¼ in. wide	mid Jun-early Sep	moderate	10 in.	24 in.
★★★★	<i>carpatica</i> 'Suzie'	light lavender/85C	bowl	2 in. wide	late Jun-early Sep	moderate	6 in.	24 in.
★★★★	<i>carpatica</i> 'White Uniform'	white	bowl	1¾ in. wide	early Jul-late Sep	moderate	7 in.	22 in.
★★★★★	<i>glomerata</i>	violet/ 89C	bell	¾ in. wide	early Jun-late Jul+	heavy	16 in.	16 in.
★★★★	<i>glomerata</i> var. <i>alba</i> 'Schneekrone'	white	bell	½ in. wide	mid Jun-late Jul	moderate	8 in.	20 in.
★★★★★	<i>glomerata</i> 'Caroline'	lavender/85B	bell	1¼ in. wide	early Jun-early Jul+	heavy	15 in.	18 in.
★★★★★	<i>glomerata</i> 'Joan Elliott'	violet/86A	bell	1½ in. wide	mid May-early Jul+	heavy	21 in.	20 in.
★★★★★	<i>glomerata</i> 'Odessa'	dark purple/83A	bell	1 in. wide	early Jun-early Jul	heavy	24 in.	26 in.
★★★★★	<i>glomerata</i> 'Snow'	white	bell	¾ in. wide	mid Jun-late Jul+	moderate	24 in.	28 in.
★★★★★	<i>glomerata</i> 'Superba'	dark purple/83A	bell	1 in. wide	early Jun-mid Jul+	heavy	28 in.	18 in.
★★★★	<i>lactiflora</i>	pale lavender	bell	1¼ in. wide	mid Jun-late Aug+	moderate	40 in.	25 in.
★★★★	<i>lactiflora</i> 'Loddon Anna'	pink/75B	bell	1¾ in. wide	mid Jun-mid Aug	moderate	32 in.	38 in.
★★★★	<i>lactiflora</i> 'Pouffe'	lavender/85B	bell	1½ in. wide	mid Jun-late Aug	moderate	18 in.	34 in.
★★★★	<i>lactiflora</i> 'Prichard's Variety'	violet blue/90B	bell	1¼ in. wide	mid Jun-mid Aug	moderate	18 in.	30 in.
★★	<i>lactiflora</i> 'Senior'	lavender/85B	bell	1½ in. wide	mid Jun-early Sep	low	16 in.	34 in.
★★★★	<i>lactiflora</i> 'Superba'	violet blue/88A	bell	1½ in. wide	mid Jun-late Aug	moderate	24 in.	36 in.
★★	<i>lactiflora</i> 'WFF'	violet blue/90C	bell	1¼ in. wide	late Jun-mid Aug	low	17 in.	27 in.
★★	<i>lactiflora</i> 'White Pouffe'	white	bell	1¼ in. wide	late Jun-mid Aug	low	13 in.	26 in.
★★★★	<i>latifolia</i> f. <i>alba</i>	white	bell	1½ in wide	mid Jun-early Jul+	moderate	28 in.	12 in.
★★★★	<i>latifolia</i> var. <i>macrantha</i>	purple	bell	1½ in wide	early Jun-early Jul	moderate	32 in.	18 in.
★★	<i>persicifolia</i> 'Alba Coronata'	white	cup, double	2 in. wide	early Jun-early Aug	moderate	22 in.	12 in.
★★	<i>persicifolia</i> 'Boule de Neige'	white	cup, double	1½ in. wide	mid Jun-early Aug	low	20 in.	12 in.
★★★★	<i>portenschlagiana</i>	violet blue/90C	bell	¾ in. wide	late May-early Jul	moderate	4 in.	12 in.
★★★★★	<i>portenschlagiana</i> 'Resholdt's Variety'	violet blue/86B	bell	¾ in. wide	late May-early Jul+	moderate	4 in.	18 in.
★★★★★	<i>poscharskyana</i>	lavender blue/94C	star	1¼ in. wide	early Jun-early Jul+	heavy	6 in.	18 in.
★★★★★	<i>poscharskyana</i> 'Blue Gown'	purple blue/94B	star	1 in. wide	early Jun-early Jul	moderate	5 in.	10 in.
★★★★★	<i>poscharskyana</i> 'Blue Waterfall'	lavender blue	star	1 in. wide	early Jun-early Sep+	heavy	10 in.	27 in.
★★★★★	<i>poscharskyana</i> 'E.H. Frost'	white	star	1 in. wide	early Jun-mid Jul	moderate	10 in.	24 in.
★★★★★	<i>poscharskyana</i> 'Freye'	dark lavender/92A	star	1 in. wide	early Jun-mid Jul	heavy	8 in.	15 in.
★★★★	<i>poscharskyana</i> 'Stella'	deep violet blue/90A	star	1 in. wide	early Jun-mid Jul+	moderate	6 in.	12 in.
★★	× <i>pulloides</i> 'G. F. Wilson'	dark purple/83A	bell	1 in. wide	late Jun-late Jul	low	6 in.	8 in.
★★★★★	<i>punctata</i>	creamy white	tubular	2 in. long	early Jun-early Aug+	heavy	26 in.	spreading
★★★★★	<i>punctata</i> f. <i>albiflora</i>	creamy white	tubular	2¾ in. long	late Jun-mid Aug+	moderate	26 in.	spreading
★★★★★	<i>punctata</i> f. <i>albiflora</i> 'Nana Alba'	creamy white	tubular	2½ in. long	early Jun-mid Jul	moderate	10 in.	spreading
★★★★★	<i>punctata</i> 'Alina's Double'	pale magenta	tubular, double	1¾ in. long	late Jun-late Aug	moderate	18 in.	spreading
★★★★★	<i>punctata</i> var. <i>hondoensis</i>	light purple/82B	tubular	2 in. long	mid Jun-early Aug	heavy	18 in.	spreading
★★★★★	<i>punctata</i> f. <i>rubriflora</i>	purple violet/81A	tubular	2 in. long	early Jun-mid Jul+	moderate	13 in.	spreading
★★★★★	<i>punctata</i> f. <i>rubriflora</i> 'Bowl of Cherries'	purple red	tubular	2 in. long	late Jun-late Aug+	heavy	19 in.	spreading
★★★★★	<i>punctata</i> f. <i>rubriflora</i> 'Cherry Bells'	purple red/70A	tubular	2½ in. long	late Jun-early Sep	moderate	15 in.	spreading
★★★★★	<i>punctata</i> f. <i>rubriflora</i> 'Vienna Festival'	reddish purple	tubular	2 in. long	early Jun-late Aug	moderate	31 in.	spreading
★★★★★	<i>punctata</i> 'Wedding Bells'	white	tubular, double	1¾ in. long	late Jun-early Aug+	moderate	18 in.	spreading
★★★★★	<i>rapunculoides</i>	violet blue/86B	bell	1¼ in. wide	mid Jun-early Aug+	heavy	26 in.	22 in.
★★★★★	<i>rotundifolia</i>	violet blue/90A	bell	1¾ in. wide	late May-mid Sep	moderate	15 in.	15 in.
★★★★★	<i>rotundifolia</i> 'Olympica'	violet blue/90A	bell	1 in. wide	early Jun-early Oct	moderate	13 in.	13 in.
★★★★★	<i>takesimana</i>	creamy white	tubular	2 in. long	late Jun-mid Aug	moderate	24 in.	36 in.
★★★★★	<i>takesimana</i> 'Beautiful Trust'	white	divided bell	2 in. long	early Jul-mid Aug+	moderate	16 in.	spreading
★★★★★	<i>takesimana</i> 'Elizabeth'	pink	tubular	2¾ in. long	mid Jun-late Jul+	moderate	27 in.	spreading
★★★★	<i>trachelium</i> var. <i>alba</i> 'Alba Flore Pleno'	white	cup, double	1¼ in. wide	late Jun-late Jul+	moderate	14 in.	10 in.
★★★★★	<i>trachelium</i> 'Bernice'	violet blue/86B	cup, double	1½ in. wide	mid Jun-late Jul+	moderate	18 in.	14 in.

Overall ratings: ★★★★★ excellent, ★★★★ good, ★★★ fair, ★★ poor.

¹RHS color designation (R.H.S. Colour Chart, The Royal Horticultural Society, London).

²Bloom Period: (+) indicates sporadic or remontant bloom after initial bloom period ended.

³Flower production ratings: heavy 70-100%; moderate 40-70%; low <40%.



Carol Freeman

Campanula glomerata 'Caroline'

Richard Hawke

Campanula lactiflora 'Loddon Anna'

ly exposed to wind in all directions. The clay-loam soil was amended with composted leaves and had a pH of 7.4 throughout the evaluation term. The site was normally well drained, but at times the soil retained excessive moisture for short periods in summer and winter.

Maintenance practices were kept to a minimum to simulate home garden culture, thereby allowing plants to thrive or fail under natural conditions. Water was provided as needed and mulch consisting of shredded leaves and wood chips helped with water conservation and weed suppression. Moreover, plants were not fertilized, winter mulched, or chemically treated for insect or disease problems.

Performance Report

The comprehensive evaluation of *Campanula* spp. included data collection on ornamental traits such as bloom period, flower color and size, habit quality, height and width, and weediness or invasive potential; cultural or environmental health issues related to soil, drainage, or climate; disease and pest problems; and winter survivability. *Campanula* 'Sarastro' received a five-star excellent rating, the highest possible ranking, with an additional 31 taxa getting four-star good ratings. Top-rated bellflowers exhibited superior flower production while sustaining good health and habit quality for the duration of the trial. Plant traits and final ratings for taxa that completed the four-year trial are shown in Table 1.

Twenty-five taxa were unrated because they did not finish the trial (see Table 2).

However, half of these taxa were retested at least once, with several having a third or fourth trial. The lack of success in establishing and/or overwintering taxa with multiple accessions indicated that these taxa are probably not the best choices for local gardens. No final assessment was made regarding taxa that were not retested.

Sixteen species of *Campanula* were represented in the trial. The performance of a species and its cultivars tended to be comparable; that is, if the species did well or did poorly, then the cultivars performed similarly. For example, the cultivars of *C. glomerata*, *C. poscharskyana*, *C. punctata*, *C. rotundifolia*, and *C. takesimana* received good ratings on average, whereas cultivars of *C. latifolia*, *C. latiloba*, and *C. persicifolia* commonly rated poorly or did not complete the trial. Hybrid cultivars are described with their related bellflowers and are designated in **boldface**.

Campanula alliariifolia (spurred bellflower) received an overall fair rating based on low flower production and consistently floppy stems each year. Health was generally good and no winter injury was observed. Basal leaves were slow to regenerate after shearing in late summer, and seedlings were noted within the plot in 2002 only.

Campanula carpatica (Carpathian harebell) was represented in the trial by eight cultivars, including two that did not complete the trial. Despite generally good health and good habit quality, *C. carpatica*, *C. carpatica* f. *alba*, and *C. carpatica* f. *alba* 'Weisse Clips' ('White Clips') rated poorly due to low flower production and heavy

plant losses in multiple winters. 'Blau Clips' ('Blue Clips'), 'China Doll', 'Suzie', and 'White Uniform' had similar winter losses but received three-star fair ratings for slightly improved flower production. Plant losses in winter were attributed to the moisture-retentive soils of the test site. 'Blue Uniform' and 'Silberschale' did not finish the trial; however, 'Silberschale' was tested twice with no winter survival observed in either year. The upturned broadly bowl-shaped flowers of 'Samantha' were similar to *C. carpatica*, but its flowers were purple blue, paling to almost white at the center. 'Samantha' was more floriferous than *C. carpatica* cultivars and had good health with a tightly mounded habit.

Three attempts were made to grow yellow-leaved *Campanula garganica* 'Dickson's Gold' (Gargano bellflower). Unfortunately, on each occasion the plants lacked vigor after planting, were commonly damaged by sunscald, and eventually died during winter.

The positive attributes of *Campanula glomerata* (clustered bellflower) included moderate to heavy flower production, strong habits, good health, and little or no winter injury. However, a fast-growing nature was obvious in the second spring, with rhizomes filling the plots by the third or fourth year. The rhizomatous habit was considered weedy or potentially invasive, but none of the cultivars was as aggressively spreading as many *C. punctata* cultivars.

Table 2: Unrated taxa not completing four-year trial

<i>C. carpatica</i> 'Blue Uniform' (1)
<i>C. carpatica</i> 'Silberschale' (2)
<i>C. garganica</i> 'Dickson's Gold' (3)
<i>C. lactiflora</i> 'Alba' (1)
<i>C. latifolia</i> (2)
<i>C. latifolia</i> 'Brantwood' (1)
<i>C. latifolia</i> 'Gloaming' (1)
<i>C. latiloba</i> 'Alba' (1)
<i>C. latiloba</i> 'Hidcote Amethyst' (2)
<i>C. latiloba</i> 'Highcliffe Variety' (1)
<i>C. latiloba</i> 'Percy Piper' (1)
<i>C. persicifolia</i> var. <i>alba</i> (2)
<i>C. persicifolia</i> 'Chettle Charm' (3)
<i>C. persicifolia</i> 'Gardenia' (2)
<i>C. persicifolia</i> 'Gawen' (2)
<i>C. persicifolia</i> 'Grandiflora Alba' (3)
<i>C. persicifolia</i> 'Grandiflora Caerulea' (3)
<i>C. persicifolia</i> 'Moerheimii' (1)
<i>C. persicifolia</i> 'Pride of Exmouth' (4)
<i>C. persicifolia</i> 'Telham Beauty' (2)
<i>C. persicifolia</i> 'Victoria' (2)
<i>C. persicifolia</i> 'Worham Belle' (1)
<i>C. persicifolia</i> 'Yellow Leaf' (1)
<i>C. portenschlagiana</i> 'Aurea' (1)
<i>C. rotundifolia</i> var. <i>alba</i> (1)

(#) signifies number of times a taxon was tested

'Snow' was noticeably slower spreading than the other cultivars. 'Caroline' had the most upright, rigid stems all summer; whereas 'Joan Elliott', 'Odessa', and 'Snow' exhibited sprawling habits after flowering. Regardless of stem rigidity, clustered bellflowers should be deadheaded or sheared after flowering; all cultivars rebounded quickly after shearing in August. Only the species and 'Schneekrone' ('Crown of Snow') lost plants in one winter. 'Dwarf Tornado' was reminiscent of *C. glomerata* but smaller in size with deep lavender flowers.

As a group, *Campanula lactiflora* (milky bellflower) and its cultivars did not excel in the trial. Moderate-to-low flower production, variable plant habits, and plant losses in multiple winters reduced the final ratings to fair or poor; only 'Alba' died in the first winter and was not retested. 'Pouffe', 'White Pouffe', and *C. lactiflora* were consistently healthy with upright habits; whereas, 'Loddon Anna', 'Prichard's Variety', 'Senior', 'Superba', and 'WFF' were relaxed to floppy during and after flowering. Deadheading or shearing is recommended to rejuvenate plants and improve the late-season display. With the exception of 'Loddon Anna', plants were quick to regenerate basal leaves after shearing. Over the course of the evaluation, a mix of lavender-, blue-, and pink-flowered plants were noted in the plot of *C. lactiflora*. Seedlings were also observed growing with 'WFF' in the third year. 'Loddon



Campanula 'Sarastro'

Anna' had noticeably fragrant flowers; the flowers of 'Pouffe' and 'Senior' were similar in color; and 'White Pouffe' occasionally had very pale lavender flowers instead of white.

The disappointing performance of *Campanula latifolia* (great bellflower) and its cultivars was comparable to milky bellflower. Severe crown injury or plant losses in four out of six winters contributed to lower overall ratings. Most plants of *C. latifolia* died in the first winter and all remaining plants died in the second winter; all plants of 'Brantwood' and 'Gloaming' died during the first winter but were not retested. On the positive side, *C. latifolia* f. *alba* and *C. latifolia* var. *macrantha* finished



Campanula rapunculoides

the trial while exhibiting good health and moderate flower production.

Campanula latiloba (delphinium bellflower) is a synonym of *C. persicifolia* ssp. *sessiliflora*, and the common name was coined by Dr. Allan Armitage because the flowers remind him of delphiniums. Unfortunately, the notable qualities of this species were not observed because the plants did not grow well in the trial. In fact, 'Alba' and 'Percy Piper' died during the first summer and were not retriaged; and 'Hidcote Amethyst' was triaged two times but never survived a winter. 'Highcliffe Variety' did not bloom in its two years in the trial, and all plants died during the second winter. *Campanula latiloba* was not well adapted to the moisture-retentive soil of the test garden.

Campanula persicifolia (peachleaf bellflower) was represented by 14 cultivars, more than any other species, and it was the least successful group in the trial. Only 'Alba Coronata' and 'Boule de Neige' survived the full evaluation term but received poor overall ratings due to significant plant losses in two of the four winters. Many cultivars were replaced more than once in the trial and several cultivars were tested three or four times. 'Chettle Charm' was the most vigorous cultivar during each of the three summers it was grown; however, none of the three accessions ever survived a winter. Some plants of *C. persicifolia* var. *alba*, 'Gardenia', 'Gawen', and 'Telham Beauty' survived two growing seasons but subsequently died during the second winter. Only 'Moerheimii' survived the first winter without plant losses or crown dam-

Table 3: Weather Summary for 1998-2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Lowest temperature °F (°C)	-1(-18)	-16(-26)	-9(-23)	-4(-20)	-5(-21)	-5(-21)	-9(-23)	-2(-19)	-8(-22)
Highest temperature °F (°C)	98(37)	104(40)	94(34)	98(37)	101(38)	98(37)	93(34)	100(38)	100(38)
Number of days below 0°F (-18°C)	2	8	9	2	1	4	10	2	2
Number of days above 90°F (32°C)	19	16	8	19	30	15	5	24	15
Highest temperature date	6/25	7/31	8/31	6/29	7/21	8/22	6/6	6/24	7/31
Length of growing season days ^a	169	175	177	171	146	150	155	158	143
Last frost date	4/28	4/19	4/12	4/19	5/21	5/4	5/3	5/4	5/7
First frost date	10/14	10/20	10/7	10/7	10/14	10/1	10/5	10/23	10/12
Annual rainfall in inches (cm) ^b	35.3 (89.7)	36.5 (92.7)	43.5 (110.5)	44.3 (112.5)	33.6 (85.3)	31.7 (80.5)	35.5 (90.2)	24.4 (61.9)	42.5 (107.9)
Annual snowfall in inches (cm) ^c	19.0 (48.3)	41.9 (106.4)	56.5 (143.5)	10.9 (27.7)	37.6 (95.5)	15.6 (39.6)	27.2 (69.1)	44.4 (112.7)	23.4 (59.4)

^aAverage length of growing season is 158 days.

^bAverage rainfall is 35.8 inches (90.9 cm).

^cAverage snowfall is 38.1 inches (96.8 cm).

Data collected at Chicago Botanic Garden weather station.

Latitude: 41°51'N. Longitude: 87°37'W. Altitude: 578.74 ft. (176.4 m).

Jen Van Wagoner

Jenny Lee



Carol Freeman

Campanula punctata 'Alina's Double'

Carol Freeman

Campanula 'Stevie Ray'

age, but died during the second summer. Much like *C. latiloba*, root rot due to excessive soil moisture caused the decline in health or outright plant death during summer and winter months.

Plants of *Campanula portenschlagiana* (Dalmatian bellflower) were floriferous and healthy in summer but plant losses were recorded each winter. 'Resholdt's Variety' performed similarly to the species except that no winter losses occurred. Yellow-leaved 'Aurea' steadily declined and eventually died during the first summer and was not retested. Dalmatian bellflower requires excellent drainage to grow well; the periodically wet soils of the test site resulted in repeated winter losses. 'Birch Hybrid' (*C. portenschlagiana* and *C. poscharskyana*) had upward-facing, bell-shaped flowers and a compact spreading habit. Plants of 'Birch Hybrid' were healthy and floriferous each summer but losses were noted in four of the six trial winters.

The cultivars of *Campanula poscharskyana* (Serbian bellflower) were among the best in the trial. Except for 'Stella', they all received good ratings for floriferousness, good habit quality, and winter hardiness. Mounded habits with trailing stems were typical but open crowns were sometimes observed in late summer. 'Blue Waterfall' and 'Freye' lost two plants each in one winter only, and plants of 'Stella' were killed in three of the four winters. Although known to self sow freely, no seedlings were observed during the evaluation period. Deadheading or shearing is suggested to keep plants ornamental after flowering. The similarity of 'Glandore'

(probably a hybrid of *C. poscharskyana* and *C. garganica*) to Serbian bellflower included upturned, star-shaped flowers and a low, prostrate habit. The final rating of fair was based on lower flower production and significant plant losses in one winter.

Campanula \times *pulloides*, an interspecific hybrid between *C. pulla* and *C. carpatica* var. *turbinata*, was represented in the trial by 'G.F. Wilson'. Despite good health and a compact, tufted habit, the dark purple flowers were sparsely produced, and crown injury was noted in two winters. The lack of vigor was due in part to competition from the constantly encroaching rhizomes of the adjacent *C. punctata*.

The flowers of *Campanula punctata* (spotted bellflower) are usually creamy white with crimson freckles within the floral tubes, but some newer selections come in shades of purple red. The final ratings for *C. punctata* and its cultivars are based on exceptional flower production, good health, and winter hardiness. Like *C. glomerata*, spotted bellflower had a vigorously spreading habit that can be considered weedy or potentially invasive. Its rhizomatous nature was observed the first summer and most plots were densely filled in by June of the second year. *Campanula punctata* and 'Wedding Bells' were particularly robust, doubling the size of their plots by the third summer. Deadheading is recommended to keep spotted bellflower looking tidy over its long bloom period, and to decrease seedlings, which were evident in most plots by the end of the evaluation period. Spotted bellflower is often confused with *C. takesimana* but its heart-shaped

leaves are hairy rather than glossy.

Top-rated 'Sarastro' received the highest marks for its compact habit, profusion of violet blue, tubular flowers, and winter hardiness. 'Sarastro' was similar to 'Kent Belle' in flower but had shorter stems and pubescent leaves. 'Sarastro' is a cross between *Campanula punctata* and *C. trachelium* but has a nonspreading habit. The following hybrids between *C. punctata* and *C. latifolia* combine tubular flowers with the blue color range of *C. latifolia*. 'Burgaltii' received a poor rating due to low flower production and significant winter losses. 'Stevie Ray' suffered with foliar chlorosis each year, and 'Van-Houttei' had an inferior habit at times due to floppy stems when flowering. These cultivars had similar foliar traits to spotted bellflower but were nonspreading.

Campanula rapunculoides was another aggressively spreading bellflower. Heavy flower production, strong stems, and winter hardiness were good attributes; however, the rhizomatous habit may be too vigorous for most gardens. Shoots of *C. rapunculoides* were persistent in the test garden for five years after the trial ended, and seedlings were observed in multiple locations within the test garden during and following the trial period.

Campanula rotundifolia (harebell, bluebell) and 'Olympica' were floriferous with strong habits and plant losses noted in one winter only. *Campanula rotundifolia* var. *alba* grew well in one season but died in winter and was not retested. The basal leaves of harebell withered before flowering began, and it should be deadheaded after flowering to improve health and the ornamental display.

Campanula takesimana was similar in appearance to *C. punctata* except that it had glossy, glabrous bright green leaves. Like spotted bellflower, the insides of its creamy white, tubular bells were freckled with red spots or were sometimes flushed pink. 'Beautiful Trust' and 'Elizabeth' had different floral traits than typical of the species. 'Beautiful Trust' featured white flowers with a split corolla comprised of straplike petals rather than the normal fused tube. Incised leaves added to its feathery texture. Pink-flowered 'Elizabeth', sometimes considered a hybrid between *C. takesimana* and *C. punctata*, had brighter green leaves than *C. takesimana*. *Campanula takesimana* had a rhizomatous habit but it did not form a



Jenny Lee

Campanula takesimana

Richard Hawke

Campanula carpatica 'Blaue Clips'

Richard Hawke

Campanula poscharskyana 'Blue Waterfall'

thick carpet of leaves like *C. punctata*. The older crowns tended to die out in winter, leaving the younger perimeter shoots that eventually formed a loose mass by the end of summer. 'Elizabeth' was more vigorously spreading and less open in appearance than the species. 'Kent Belle', a hybrid between *C. takesimana* and *C. latifolia*, had glossy, heart-shaped leaves and violet blue flowers reminiscent of 'Sarastro'. Unfortunately, 'Kent Belle' was prone to floppiness; staking is recommended to ensure the best floral display. 'Purple Sensation' was similar to 'Kent Belle' but with a bushier, compact habit. It produced an abundance of dark purple bells each summer and did not have any winter injury. 'Purple Sensation' was not as prone to floppiness, but flopped stems were occasionally observed.

Campanula trachelium (nettle-leaved bellflower) was represented in the trial by 'Alba Flore Pleno' and 'Bernice', both strong stemmed and double flowered. Although both cultivars had moderate foliar rust in one or more years, 'Alba Flore Pleno' also had problems with foliar chlorosis. Health was usually good until chlorosis developed in July each year. 'Bernice' was not troubled by chlorosis and remained healthier throughout the summer. Dead-heading is recommended to improve the ornamental display after flowering.

Summary

At the conclusion of the trial, one half of the bellflowers exhibited good health and vigor, thus demonstrating their adaptability to the edaphic and environmental conditions of the test site. Among the 32 top-rated bellflowers was 'Sarastro', which received a five-star excellent rating. The overall best species for vigor, floriferousness, and hardiness were *Campanula glomerata*, *C. poscharskyana*, *C. punctata*, *C. rotundifolia*, and *C. takesimana*; and their cultivars tended to perform equally as well. These taxa thrived in the test garden and were not adversely affected by occasionally wet soils.

Unfortunately, a number of taxa did not flourish and were not successfully established in the trial. Despite a generally well-drained soil, periodic soggy conditions were not conducive to good growth or long-term establishment of some species. It was almost impossible to grow or overwinter cultivars of *Campanula persicifolia*. Successive trials of *C. persicifolia* and many other taxa confirmed that these plants were not adaptable to the cultural conditions provided. In addition, high ratings notwithstanding, *C. glomerata*, *C. punctata*, *C. rapunculoides*, and *C. takesimana* are cautiously recommended because of their wide-spreading, rhizomatous habits.

Bellflowers are versatile garden plants with charming flowers in desirable shades

of blue and violet. When chosen with careful thought to climate and site conditions, perennial bellflowers offer gardeners a variety of plant habits for a range of garden settings. Whether in borders, meadows, or rockeries, bellflowers flaunt their distinctive bells for many weeks in spring and summer.

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