

Plant Evaluation Notes

An Evaluation Study of Hardy Amsonia

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Horticulturists and landscape designers often talk about the merits of shrubs and trees that provide multiple seasons of interest in the landscape, but it is uncommon to have that description attributed to herbaceous perennial plants. One of these exceptional perennials is *Amsonia*, or bluestar, with early-season blue flowers, handsome summer foliage, a sturdy habit and golden-yellow autumn color. The addition of low maintenance and disease and insect resistance make bluestars first-rate garden plants.

Amsonia, a temperate member of the predominantly tropical dogbane family (Apocynaceae), is related to common periwinkle (*Vinca minor*) and frangipani (*Plumeria rubra*). There are about 20 species of *Amsonia* native to North America, Europe and Asia, although only three or four species are commonly cultivated. Many cultivated species are listed as winter-hardy in USDA Zones 6 to 9, but *Amsonia tabernaemontana* and *Amsonia illustris*, which are native to more northerly regions, are listed as hardy to Zone 5.

Bluestars are herbaceous perennials

with woody crowns that slowly increase in size but are not invasive. Sturdy, upright stems form rounded to vase-shaped shrub-like habits. The dark green leaves, which are linear-lanceolate to ovate in outline, are arranged alternately to whorled on stems that contain a milky latex sap. Blue, star-shaped flowers are produced in loose terminal cymes or clusters in late spring to early summer. The fruits are paired cylindrical pods borne either upright or pendant within the leaves on the upper ends of the stems. Some degree of yellow autumn foliage color is typical of bluestars in the late season.

Bluestars are found growing naturally in a variety of landscapes, including limestone ledges (*Amsonia ciliata*), damp grassy slopes and riverbanks (*Amsonia tabernaemontana*) or gravel bars in prairie streams (*Amsonia illustris*). In the garden, bluestars prefer partial shade to full sun in moist soils, although *Amsonia ciliata* and *Amsonia hubrichtii* tolerate drier sites. Plants should be watered during dry periods and mulched to conserve moisture. Bluestars grown in full sun will have increased

flower production and more compact habits. Plants that become loose or open, especially when grown in too much shade, can be cut back to 10 inches after flowering to encourage shorter, sturdier stems. The slow-growing bluestars do not require division for at least 10 years.

Bluestars can be planted as specimens or en masse in perennial borders, mixed shrub borders or naturalistic gardens. *Amsonia tabernaemontana* and *Amsonia illustris* are well placed near ponds, streams and waterfalls, while *Amsonia ciliata* and *Amsonia hubrichtii* are good accents in drier sites at the tops of stone walls or on gentle slopes. The blue flowers complement most colors in the early summer garden; the shrubby habits provide structure throughout the season; and the golden-yellow leaves shine in the late autumn landscape.

The Evaluation Project

The Chicago Botanic Garden (USDA Hardiness Zone 5b, AHS Plant Heat-Zone 5) conducted an evaluation study of 11 taxa of *Amsonia* from 1994 to 1999. At the outset of the study, only *Amsonia tabernaemontana* and *Amsonia tabernaemontana* var. *salicifolia* were commonly grown in the local area. Cultural adaptability and winter hardiness were important evaluation criteria because species occur naturally in diverse environments and some species are cited as hardy in warmer climate zones only. In addition, each taxon was evaluated for floral display, habit display, and disease and pest resistance.

Three plants of each taxon were planted in a site that received full sun for the majority of the day. Mature trees near the test site provided shade for all plants until midmorning and for the westernmost plants in the late afternoon. All plants were sheltered from wind by the wooden fences that surrounded the garden. The



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Amsonia tabernaemontana

clay-loam soil was well-drained, with a pH of 7.5. Maintenance practices were kept to a minimum to simulate home garden culture. Overhead sprinklers provided water as needed, and no fertilizer was applied. Mulch consisting of shredded leaves and wood chips was placed on the soil around the plants for water conservation and weed suppression.

Observations

Floral, foliar and habit traits were observed and compared for each bluestar from spring of 1994 through autumn of 1999. Information was collected on flower color, size, coverage and bloom period; plant size, habit and foliar quality; disease and pest resistance; cultural adaptability to the local environment; and winter hardiness. Plant traits and evaluation specifics for nine of the 11 taxa are shown in Table 1; the summary rating is based on flower production, habit quality, plant health and winter injury. Because *Amsonia ludoviciana* and *Amsonia rigida* were not correctly named, they were excluded from the final summary. *Amsonia* 'Blue Ice' was received as 'WFF Select', and according to Tony Avent of Plant Delights Nursery, was renamed by White Flower Farm in November 2000. The nomenclature of *Amsonia montana* is indeterminate; hence, it is often cited as a distinct species or a variety of *Amsonia tabernaemontana*.

Several comments on flowers, foliage and winter hardiness apply to the growth traits and performance of all the bluestars. Flowers were produced in loose terminal

cymes in May and June. The light blue flowers faded to pale lavender or almost white as the air temperature increased. Plants did not produce flowers the first season in the ground, but production gradually increased each successive year. A second flush of stem growth at the terminals began about seven to 10 days before flowering was complete, and the new leaves obscured the remaining flowers. Consequently, the cylindrical seedpods ripened within the foliage, up to 8 inches below the ends of the stems, and were deemed not ornamental.

Foliage was clean and healthy on all taxa throughout the growing season. Plant health and habit were unaffected by diseases, insects or animals. Some degree of yellow autumn color was observed on all taxa, although some species were more ornamental than others. Autumn color generally developed in October and November and was reliable up to a hard frost; stems quickly wilted after several successive days of freezing temperatures and eventually turned a straw color that remained ornamental into the early winter months. Autumn foliage color, like flower production, improved as the plants got older. The bluestars were adaptable to the mostly full sun conditions of the test site. The high pH of 7.5 did not adversely affect the majority of plants, but *Amsonia ciliata* and *Amsonia montana* had moderate to severe chlorosis in more than one year. No winter injury was noted during the evaluation period despite the fact that several species are listed as hardy to Zone 6 or warmer.

Amsonia tabernaemontana var. *salicifolia* and *Amsonia illustris* received the highest overall rating based on heavy flower production, superior habit and good health. *Amsonia tabernaemontana* var. *salicifolia* had high flower production, between 80% and 100% coverage in all years. Pale blue flowers were produced in large clusters up to 5 inches long and 3 inches wide. The dark green, willow-like leaves remained healthy all season and turned yellow in the autumn. A robust vase-shaped habit was evident by the second season, when plants reached 44 inches tall and 60 inches wide. The centers of the plants opened slightly by late summer, but stems remained erect.

Amsonia illustris was similar to *Amsonia tabernaemontana* in habit, but its pale blue flowers were borne in smaller flower clusters up to 3 inches long and wide. The seedpods were produced within the upper foliage but were pendant rather than upward-facing like the other bluestars. The glossy, dark green leaves were healthy all season, and autumn color was usually a fair yellow mixed with green. Stems remained upright all summer, creating an attractive vase-shaped plant.

Reduced flower production was the reason for the slightly lower ratings for *Amsonia hubrichtii* and *Amsonia tabernaemontana*. All other traits were equal in quality to *Amsonia tabernaemontana* var. *salicifolia* and *Amsonia illustris*. The pale blue flowers of *Amsonia hubrichtii* were borne in loose

Table 1: Plant Characteristics and Performance Summary Ratings

Overall Rating	<i>Amsonia</i>	Bloom Period	Flower Color	Flower Size	Flower Coverage	Plant Height	Plant Width
★★★★★	'Blue Ice'	early June-late June	deep blue	5/8 in.	40-60%	20 in.	36 in.
★★★★	<i>ciliata</i>	mid June-early July	pale blue	5/8 in.	20-40%	36 in.	36 in.
★★★	<i>ciliata</i> var. <i>texana</i>	early June-late June	pale blue	1/2 in.	40-60%	32 in.	28 in.
★★★★	<i>elliptica</i>	late May-late June	lavender-blue	3/4 in.	40-60%	30 in.	30 in.
★★★★★	<i>hubrichtii</i>	early June-early July	pale blue	3/4 in.	60-80%	44 in.	50 in.
★★★★★	<i>illustris</i>	early June-early July	pale blue	3/4 in.	80-100%	48 in.	60 in.
★★★	<i>montana</i>	late May-late June	pale blue	1/2-3/4 in.	40-60%	28 in.	36 in.
★★★★★	<i>tabernaemontana</i>	early June-early July	pale blue	1 in.	60-80%	50 in.	54 in.
★★★★★	<i>tabernaemontana</i> var. <i>salicifolia</i>	early June-early July	pale blue	3/4-1 in.	80-100%	48 in.	55 in.

Overall ratings: ★★★★★ excellent; ★★★★ good; ★★★ fair; ★★ poor; half-star ratings are included in table.



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Amsonia hubrichtii - fall color

terminal clusters up to 5 inches long and 3 inches wide. Flower production was low in 1995 and 1996, but increased significantly by 1997. The soft, needle-like leaves were crowded on the slender stems, giving an overall feathery texture to the plants. An excellent yellow to golden-yellow autumn color was observed in most years. The plant form was exceptional with mostly upright stems and a broad habit.

Amsonia tabernaemontana produced its pale blue flowers in the largest clusters of all—6 inches long and 4 inches wide. In the early years of the trial, the flower petals were strongly reflexed, giving the inflorescences a frilly, somewhat distorted appearance; petals were not reflexed in 1998 and 1999. Flower color quickly faded from blue to whitish-blue as temperatures warmed up in June. The dark green leaves were not affected by insects, diseases or chlorosis and changed to a medium yellow color in October. The plant habit was vase-shaped with most stems upright until the end of summer. Relaxed stems and open centers were observed in September and October.

Amsonia 'Blue Ice' was unique because it had the darkest blue buds and flowers and the broadest flower petals. Conversely, the flower clusters were among the smallest at 2 inches long and 2½ inches wide. The dark green leaves were healthy all season and similar in size and shape to *Amsonia tabernaemontana* and *Amsonia elliptica*. The dense, bushy habit was occasionally open by late summer during the first three years, but not in the later years. A weak

yellow-green autumn color was observed in most years.

Amsonia elliptica had foliar and habit characteristics similar to those of 'Blue Ice', but the flowers were not as deep blue. The lavender-blue flowers were produced in loose, rounded clusters 2 inches long and 3 inches wide. Lower flower production of 40% to 60% coverage and a fair plant habit reduced the overall rating. Plants had compact habits early in the season but became open and slightly sprawling by late summer. Healthy, dark green leaves turned yellow beginning in October.

The remaining bluestars received lower ratings due to reduced flower production, inferior habits or severe chlorosis. *Amsonia ciliata* had the lowest flower production of less than 40% coverage. The pale blue flowers were borne in small clusters up to 3 inches long and 2 inches wide. Its flowers were the latest to open in mid-June and with higher air temperatures exhibited the most dramatic color change to almost white. The narrow, linear leaves were similar to those of *Amsonia hubrichtii* and also turned an excellent golden-yellow color in October. The habit was distinctly upright and vase-shaped, and not as broadly rounded as that of *Amsonia hubrichtii*. Stems were leaning to lodged by late summer in some years. Moderately severe chlorosis was observed in all years beginning in June or July. Each year the plants' vigor improved by mid-August and outgrew the chlorosis.

The plants of *Amsonia ciliata* var. *texana* were grown in the shadow of a

maple tree and received more shade than any of the other bluestars. Consequently, the plants were not as full or robust, and the stems leaned toward the light. Plants were in good health throughout the evaluation period, but the habit was consistently open with naked lower stems. Although the plants were similar to *Amsonia ciliata* in most traits, the pale blue flowers opened earlier in June and were more abundantly produced. A fair yellow autumn color was noted each year.

Amsonia montana was similar to *Amsonia tabernaemontana* in most traits but was about half the size. It also differed in having pale blue flowers with bluntly rounded petal tips rather than pointed apices like most of the other bluestars. One of the smallest plants overall, *Amsonia montana* had a good rounded habit until August when the outer stems began to flop. Foliar chlorosis was the main reason for the lowest rating in the study. Moderate chlorosis was observed in 1995 and 1996 but was noted as severe beginning in early June from 1997 to 1999. Yellow autumn color was observed in 1995 and 1996 but was indistinguishable from the chlorosis in subsequent years.

Summary

The bluestars proved to be hardy, low-maintenance perennials giving three seasons of interest in the garden. Clusters of pale blue flowers topped the upright stems in May and June. The star-shaped flowers were effective for a couple of weeks before new stem growth covered up the remaining flowers. Although most taxa did not produce flowers in large quantities, *Amsonia tabernaemontana* var. *salicifolia* and *Amsonia illustris* had exceptional floral displays.

The leaves and habits of bluestars were unaffected by diseases, insects or animals. Foliage remained ornamental all summer and eventually turned yellow in the autumn. Autumn color was variable by taxa and by year, but usually developed fully in October and November and was reliable up to frost. Unfortunately, significant foliar chlorosis was observed on plants of *Amsonia ciliata* and *Amsonia montana* in most years. The shrub-like habits of the bluestars developed gradually and reached



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Amsonia 'Blue Ice'

full size by the third year after planting. Upright stems and broad habits typified the bluestars, but relaxed stems were occasionally noted. Cold hardiness was not an issue, and all bluestars in the trial were winter-hardy in USDA Zone 5.

Amsonia tabernaemontana var. *salicifolia* and *Amsonia illustris* received excellent ratings because of high flower production, superior habit, good health and winter hardiness. The majority of the bluestars received good to fair overall ratings. Only *Amsonia montana* had a poor rating because of moderate to severe foliar chlorosis in all years.

All of the bluestars possess strong



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Amsonia elliptica

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Amsonia illustris

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