

A DOZEN SHRUBS OF STREAMSIDES AND WETLANDS

The following notes provide a provisional summary of information on 12 species that deserve special attention for use in restoration in riparian zones and wetlands. These are species typical of habitat classes A and B in the lists above. Several other shrubs of less flooded land are suitable for slightly higher ground; see especially habitat classes C and D.

The “technical notes” and maps are taken from the Atlas of Vascular Plants in Kentucky, which provides further explanation of abbreviations and literature cited: [http://bluegrasswoodland.com/uploads/ Atlas-Introduction___Explanation.pdf](http://bluegrasswoodland.com/uploads/Atlas-Introduction___Explanation.pdf).

Amorpha fruticosa, Eastern Indigo-bush

Potential for Local Use in Restoration

As a native plant in the Bluegrass region, this large shrub is largely restricted to banks of the Ohio River and Kentucky River. It has yet to be found along the lower Licking River but may well occur there.

Indigo-bush is easy to grow from seed, and, once established, the large sprouting rootstocks of this species are highly tenacious. It is well-suited to steep banks where forceful flooding is frequent. It can also do well on slopes around stagnant ponds, but does not typically grow in truly hydric soils. Herbivory by beaver and other mammals may become significant at some sites. The species is widely available from nurseries, but generally not from local provenances. Plantings are currently being established in Lexington from banks of the Ohio River and Kentucky River. It will be interesting to compare these with other accessions, cultivars and segregates of this complex species.

Technical Notes [from Atlas]

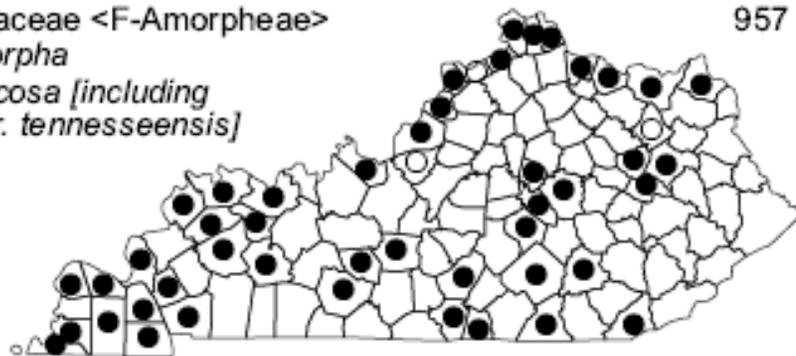
Broadly defined, *Amorpha fruticosa* is widespread across temperate North America. In Ky. it is generally restricted to the banks of rivers and sloughs with some degree of opening. Uncertain records mapped here as open dots may result from plantings; details of contexts are sometimes missing from colls. Beyond its native habitat, the species was already “common in cultivation” a century ago (Gm), and it is still being widely planted. It is much used on old mines and similar sites where soil stabilization is needed. It is also promoted for the attractive flowers, which draw many pollinators (including hummingbirds). However, the seeds are probably toxic due to rotenoid content. [*Panicum virgatum* has a somewhat similar cultivated history.]

Segregates of *fruticosa* have not been recognized in recent treatments but deserve further study (Sm, F, St). Most colls. from Ky. have relatively numerous and narrow leaflets, more or less matching the southern var. *tennesseensis* (Shuttl. ex Kuntze) Palmer. Some of the colls. from MCRE and PULA (KY) match var. *fruticosa*, which is widely reported but perhaps centered in eastern and northern states. See also notes on *A. croceolanata* and *A. nitens*, which are closely related species that have often been confused with *fruticosa*.

Fabaceae <F-Amorpheae>

Amorpha
fruticosa [including
var. *tennesseensis*]

957



Cephalanthus occidentalis, Button-bush

Potential for Local Use in Restoration

This large shrub is generally the woody species with most tolerance of saturated soils in mid-temperate regions of eastern North America. It is often dominant on hydric soils in a zone around stagnant ponds, between deeper water with floating aquatics and less hydric soils with more trees. It also occurs more sporadically along banks of larger streams and rivers, especially pooled areas above riffles. Button-bush is probably dispersed by waterfowl, and it often appears in artificially ponded sites far from natural wetlands. In addition to being useful for general restoration of wetlands, the flowers are attractive to butterflies and other pollinators, including hummingbirds.

Plants are widely grown for restoration and available from nurseries. Concerns about provenance may be less acute than some other wetland species, since virtually no distinct variants are recognized. However, comparative trials are needed. Roundstone Seed Inc. (Bonnieville, Kentucky) does sell much seed from western Kentucky. Local accessions from the Bluegrass region are also being grown, and the amount of variation across the state will eventually be determined.

Browsing of buttonbush by herbivores may be generally rare to absent, but little research has been done. There are few reports of browsing by deer, and poisoning of cattle has been documented. Toxic indole alkaloids and triterpenoid glycosides have been found in plants. It is likely that large herbivores formerly frequented ponds for mud and water, and that buttonbush evolved deterrence to being eaten.

Technical Notes [from Atlas]

Cephalanthus occidentalis is a widespread shrub in wetlands of eastern North America and Central America. It is among the most flood-tolerant woody species of eastern states, with a remarkable ability to increase shoot/root ratio when flooded, rivaling all trees except perhaps *Taxodium* (e.g. McCarron et al. 1998). Records mapped here include var. *pubescens* Raf., which has been collected from JEFF (DHL) and probably elsewhere. That taxon has not been recognized in most recent treatments (W).

Rubiaceae <Naucleae>
Cephalanthus
occidentalis

1376



Cornus amomum, Eastern Silky Dogwood

Potential for Local Use in Restoration

This is a large shrub that spreads much from underground roots. Within the Bluegrass region, eastern silky dogwood (*amomum*) is widely scattered in margins of stream-pools, swampy open woods and old fields. Along rocky-banks of larger streams and rivers, western silky dogwood (*obliqua*) is much more common. The two species are closely related, with different ranges, although overlapping. For distinguishing characteristics, see notes under *obliqua*. Both species have attractive deep blue fruits.

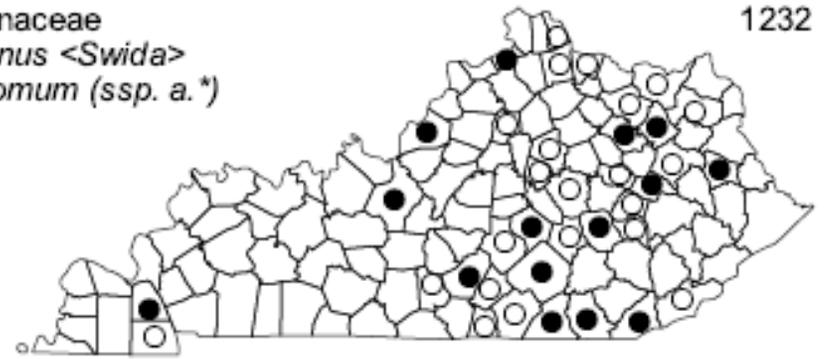
Eastern silky dogwood is easily grown from seed, rooted divisions or even live stakes. The species appears to have been much used already for various environmental and horticultural plantings in the Bluegrass region. However, it has often been confused with western silky dogwood, both being marketed under the name “silky dogwood.” Both deserve roles in local restoration, but we need deeper understanding of their ecological differences. Comparative trials would be useful at the UK Arboretum or elsewhere.

Technical Notes [from Atlas]

Cornus amomum occurs mostly in Appalachian regions, from Ala. to Me., with limited western extensions into the lower Ohio and Mississippi Valleys and into the southern Great Lakes region (K). It typically occurs on more or less hydric, medium acid soils along slowly moving streams, river pools, sloughs and ponds. There has been much confusion with *obliqua*; see notes under that name. These two taxa appears to intergrade locally (Z.E. Murrell in W), and some authors have combined them as varieties or subspecies (e.g. J, Y). Although native ranges and habitats are somewhat distinct, both taxa are well-dispersed by birds and can sometimes be found in atypical habitats. Compared to other eastern species of *Swida* (= *Cornus* subgenus *Kraniopsis*), both *amomum* and *obliqua* have longitudinally splitting bark (versus irregularly platy), relatively dark brown pith (versus white to pale brown), leaves with a moderate number of lateral veins (usually 4-6 per side), and seeds strongly ridged. Hybrids with other species are not well documented.

Cornaceae
Cornus <*Swida*>
amomum (ssp. a. *)

1232



Cornus drummondii, Roughleaf Dogwood

Potential for Local Use in Restoration

This is a useful large shrub on uplands and well-drained streambanks. It is the native species most similar to the invasive alien bush honeysuckle, *Lonicera maackii*. It sends up root-sprouting suckers that form a thicket around the original planting. Stems develop a maroon color. Foliage is typically dense, and turns purplish in fall. It has attractive clusters of small white flowers in May-June. The fruits are mostly white, but often turn partly blue to various degrees during the ripening in August-September.

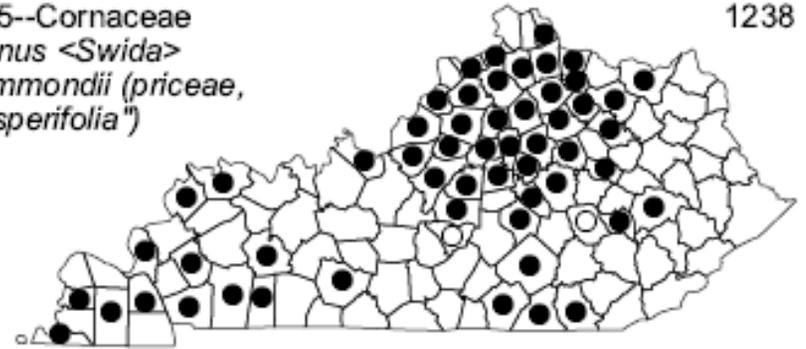
After some persuasion, Ky. Division of Forestry now grows this species for public use. It is easy to grow from seed and to dig divisions from well-established plants. It forms moderately deep root systems that can tolerate considerable damage during transplanting, but if damage is severe the above-ground material should be cut back in proportion. Once material is established in pots or otherwise planted, little care is needed, except for initial mulching or other weed control, since the species is relatively drought tolerant.

Technical Notes [from Atlas]

Cornus drummondii is a distinctive species that is widespread on base-rich soils from midwestern regions to the Gulf Coastal Plain. In Ky. it is concentrated in the Bluegrass region, on calcareous uplands of the Mississippian Plateaus, and along some western river bottoms. Unlike related species in the state (in subgenus *Swida*), *drummondii* is less able to proliferate in damp soils, though patches often occur along well-drained streambanks. Compared to those species, cuttings root much less readily without application of hormones (R. McNiel, pers. comm.). Variation across the range of habitats deserves further study, but may be considerable. Introgression can be expected with *obliqua*, *stricta* and other species (Y, W). *C. drummondii* can be confused with *stricta*, especially based on leaves from the shade, but it tends to be more pubescent. It has distinctly longer hairs on lower leaf surfaces (mostly 0.5-0.7 mm versus 0.2-0.4 mm). These hairs are mostly spreading to erect (versus appressed to curled-up). Pith is generally brownish (versus white).

0755--Cornaceae
Cornus <*Swida*>
drummondii (*priceae*,
"asperifolia")

1238



Cornus obliqua, Western Silky Dogwood

Also known as *C. amomum* ssp. *obliqua* or var. *shuetzeana*.

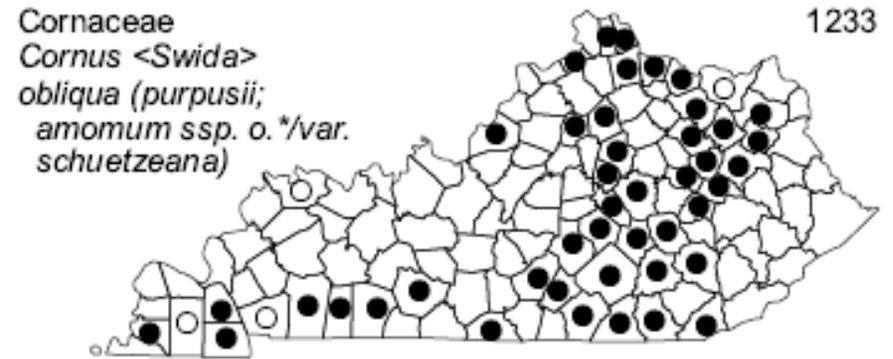
Potential for Local Use in Restoration

This is a prolific shrub along banks of larger streams, especially on gravel, cobble or rock outcrops in full sun. Western silky dogwood has much potential for revegetation on banks of larger streams, especially where open conditions prevail in some farmed or urban settings. However, it is generally absent in the wild from deeper silty or clayey soils, especially outside riparian zones and in deeper shade. Within the central Bluegrass, native plants are largely restricted to rocky banks of the Kentucky River and its larger tributaries.

The species is already much planted for various environmental and horticultural purposes, but usually outside its natural habitat. There has been much confusion with eastern silky dogwood (*amomum*), both being marketed under the name “silky dogwood.” There are virtually no nurseries that distinguish these two species, or that use the name “*obliqua*” in their documentation. (Further confusion comes from the name, *C. sericea*, meaning ‘silky’—which is a synonym of the more northern species, *C. stolonifera*.) It would be useful for comparative trials to be observed over several years, in order to gauge the relative success of each species under different conditions.

Technical Notes [from Atlas]

Cornus obliqua is a largely midwestern species which generally occurs in Ky. on rocky river banks and cobble bars with rheophytic vegetation. In addition, *obliqua* has been widely planted (as “silky dogwood”) along smaller streams and uplands for supposed restoration or other “landscaping” projects. There may be local intergradation with *amomum* (see notes under that name). Occasional hybrids have also been suspected elsewhere with *drummondii* or *racemosa* (Y), but these are not documented in Ky. *C. obliqua* differs from *amomum* in its leaves, which usually have whitish “coronulate” papillae around hair bases on lower surfaces (at least in drier sunny sites), strictly appressed rigid hairs (versus appressed rigid plus erect curling), and cuneate bases (versus rounded to truncate). Also, leaves typically have narrower shape (l/w ca. 2.5-4 versus 2-3), and less reddish coloration.



Cornus stricta, Swamp Dogwood

Also known as *C. foemina*.

Potential for Local Use in Restoration

This is rare within the central Bluegrass, being known only from a few better remnants of wetland vegetation. The species is here at the northern edge of its range, but there could be increasing interest in its use due to global warming. Swamp dogwood is one of the most flood-tolerant shrubs further south, although not usually growing in more persistently ponded sites where buttonbush is dominant. There has been confusion with gray dogwood (*C. racemosa*), which is a closely related northern species. These two plants are combined by some authors as subspecies of *foemina*.

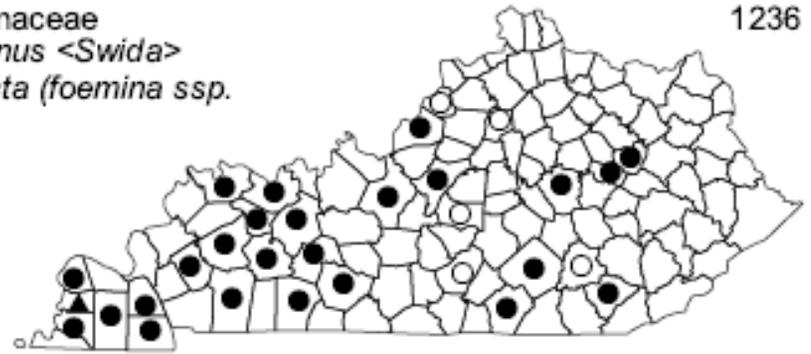
The species is not available for commercial sales in Kentucky, and it may not be much grown anywhere. The state's Division of Forestry did distribute gray dogwood for many years (grown from a Missouri provenance), but that species is rare in Kentucky. It should not be generally used for restoration of native vegetation across the state. Swamp dogwood can be easily propagated from seed or cuttings, but initial trials suggest that it may be relatively slow growing.

Technical Notes [from Atlas]

Cornus stricta is a southeastern species that is close to the more northern *racemosa*, but colls. can be clearly distinguished in almost all cases; see F and Z.E. Murrell & A.S. Weakley (W). *C. racemosa* differs in its rhizomatous habit (versus clumped or with decumbent rooting), stems with white to pale brown pith (versus just white), the surface gray (versus reddish or brown) with protruding lenticels and becoming verrucose (versus bark swelling between lenticels), more elongate cymes with bright red pedicels, and white fruits (versus bluish). The *stricta* group (with *racemosa* and *drummondii*) may be generally distinct from the *amomum* group (with *obliqua*, *stolonifera* and *rugosa*), but clear differences are not well established (Y, W). The *stricta* group tends to have leaves with relatively few veins (usually 3-5 per side versus 4-9), relatively prolonged acuminate apices, and often minute whitish papillae on lower surfaces.

Cornaceae
Cornus <*Swida*>
stricta (*foemina* ssp.
f.*)

1236



Rosa palustris, Swamp Rose

Potential for Local Use in Restoration

This is a bushy rose that spreads with underground runners. It occurs in swampy sites across the state, especially open woods and edges. The species is curiously uncommon within the Bluegrass region, where it is restricted to a few of the better remaining wetlands. Plants prosper here in cultivation, so the soil does not appear to be a major problem, but more acid or less fertile conditions are prevalent elsewhere where it grows. It is also possible that intensive browsing by herbivores, including livestock, has eliminated the species from much of the region. Although thorns offer some protection, most roses are highly palatable and can be reduced by browsing. Young shoots are remarkably red, perhaps a warning to herbivores (or mimicking poke).

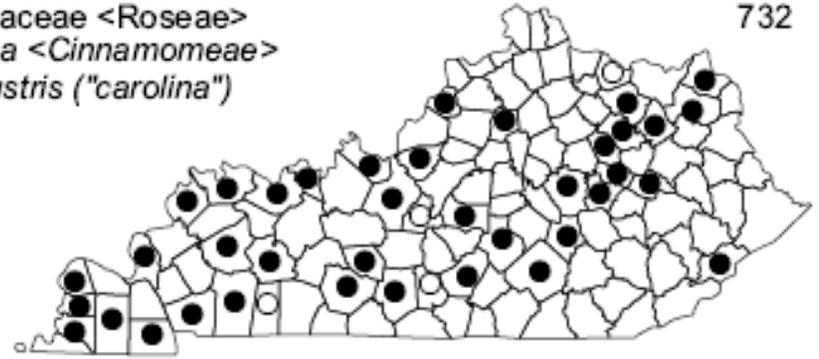
Although easily grown from rooted divisions, swamp rose is not widely available from nurseries. Buyers should be aware that an increasingly popular cultivar known as “var. *scandens*” is not a wild type, but of hybrid origin; that plant tends to climb and it has doubled flowers. Further trials are needed with local material, as are being initiated in Lexington. The UK Arboretum has some large clumps (originally collected by JC from Pulaski Co.). Such plants can become a problem in gardens, but they may be ideal for keeping people out of a wetland, if that is desired!

Technical Notes [from Atlas]

Rosa palustris is a diploid that is widespread on wet lowlands across most of eastern North America, but concentrated on somewhat acid (or oligotrophic) soils. It is uncommon to absent west of the Mississippi Rv. and on the Gulf Coastal Plain (K). In Ky. it is largely absent from the Bluegrass region. *R. palustris* differs from *carolina* in its stouter, often hooked, infrastipular stipules (suggesting *virginiana*), its stipules with a longer adnate (“caniculate”) portion, and its leaves with more numerous, finer serration (F). The related southwestern species, *R. foliolosa* Nutt. ex. Torr. & Gray, has more numerous, elongated leaflets, and may be expected in w. Tenn and w. Ky. (W; FNA in prep.). BA’s report of the more northern species, *R. blanda* Ait., was based on a misidentified coll. of *palustris* from EDMO (KY).

Rosaceae <Roseae>
Rosa <Cinnamomeae>
palustris (“carolina”)

732



Rosa setigera, Prairie Rose

Also known as wild climbing rose.

Potential for Local Use in Restoration

This is a scrambling shrub that can form 'mounds' in the open, or more diffuse growth along wooded edges, where long climbing stems that get as much as 15 feet high into the lower branches of trees. It appears most suited to edges, especially on banks along roads, streams or ponds. Prairie rose tolerates a wide range of hydrology, from subxeric to subhydric conditions, often growing in soil as wet as the swamp rose. But the species is generally associated with fertile base-rich soil, and common in the Bluegrass region, unlike swamp rose.

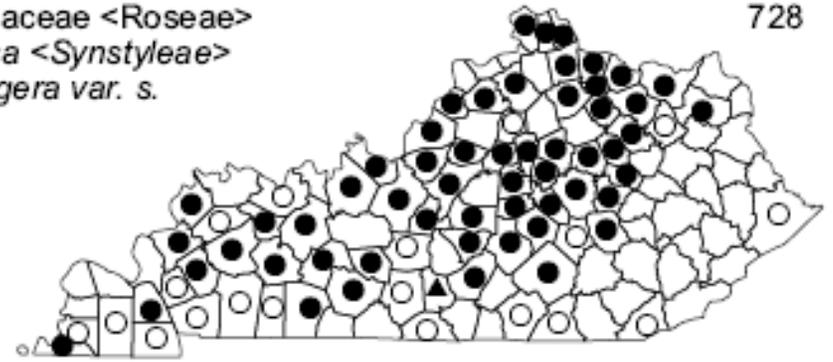
Although easily grown, prairie rose is not generally available from local nurseries. Several large mounds have been grown at the UK Arboretum along Alumni Drive, where they are spectacular in early summer. Further accessions are now being established in Lexington. The native roses deserve much more ornamental use, though they flower for a relatively short period (for a few weeks in June or July). Their deep pink flowers are simple and straightforward, in contrast to the rather overwhelming exuberance of the common cultivars. Unfortunately, the exotic multiflora rose is now far more common than native roses. It is a shame that USDA used to promote that pesky exotic for hedging and 'erosion-control' instead of the natives.

Technical Notes [from Atlas]

Rosa setigera is a diploid that is widespread across much of eastern North America, but perhaps somewhat adventive in southeastern states (W). It appears to have a wide hydrological tolerance, occurring in dry thickets to swampy woodlands. However, it is rare or absent in some hilly areas with less fertile soils, as in the Appalachian hills of Ky. and Tenn. (Ch). Open dots indicate the reliable published records of the species but not det. to variety. *R. setigera* is the only species of rose that is known to be dioecious, albeit in a cryptic fashion (Kemp et al. 1993). Var. *tomentosa* Torr. & Gray is a hairy-leaved segregate, which is centered in the midwest but overlaps much with typical *setigera* on the modern landscape (Lewis 1958). It has not been recognized in most recent treatments (Cr, W).

Rosaceae <Roseae>
Rosa <Synstyleae>
setigera var. s.

728



Salix caroliniana, Southeastern Willow

Also known as Carolina Willow or Coastal Plain Willow.

Potential for Local Use in Restoration

This is a potentially large shrub with thick tenacious rootstocks that are adapted to growing in open, scoured riparian sites. Plants are generally beaten down by forceful floods. Within the central Bluegrass, southeastern willow is known only from low rocky 'boulder-bars' and banks of the Kentucky River or its larger tributaries. It is also expected along the Licking River. There may be a role for plantings along banks of smaller streams in some urban contexts, especially where rooting is restricted to small gaps or crevices between rock or concrete. Plants are attractive horticultural subjects, with yellowish to reddish or purplish branches, glossy upper leaf surfaces and whitish lower surfaces.

There are no commercial sources for sales of southeastern willow in Kentucky, and almost none are advertised anywhere. It is important to develop local sources, because the species, as currently understood, covers a wide range of climates and habitats. Further south, plants become larger (up to 30 feet tall) and can become dominant along some coastal waterways; these may well form a distinct genetic population. A few plants have been recently established in Lexington, to be the basis for further trials.

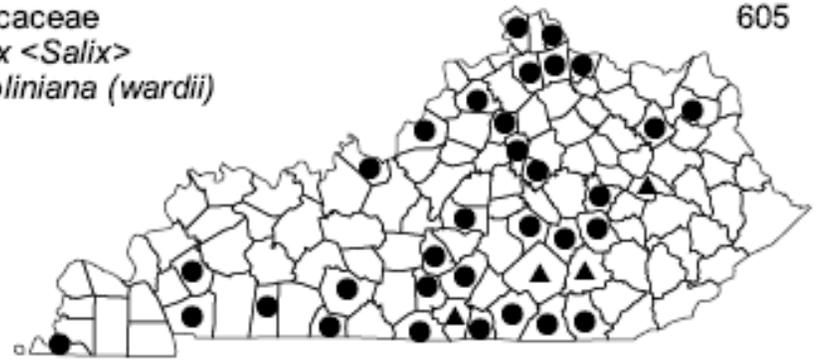
Technical Notes [from Atlas]

Salix caroliniana is a southeastern riparian willow that occurs mostly on the western side of the Appalachians and Interior Low Plateaus, in the Ozark-Ouachita region, and on the south Atlantic Coastal Plain (FNA 7, K). In Ky. *caroliniana* is widespread on rocky banks or cobble-bars along larger streams and rivers, but it is generally absent along smaller streams, where replaced by *sericea* or *eriocephala*.

This species has the most strongly glaucous lower leaf surfaces among native willows of Ky., but see also notes under *eriocephala*, which can be confused based on this character; glaucousness varies much in both species. *S. caroliniana* often lacks distinctly brittle branches, as found in *nigra*. Clear hybrids with *nigra* appear to be widespread in Atlantic states, but have not been documented in the Ohio Valley (Argus 1986).

Salicaceae
Salix <*Salix*>
caroliniana (*wardii*)

605



Salix eriocephala, Midwestern Willow

Also known as *S. missouriensis* or Missouri River Willow; here combined with *S. rigida* (a shorter willow of midwestern regions); often confused with *S. cordata* (a sand-dune willow of northeastern regions).

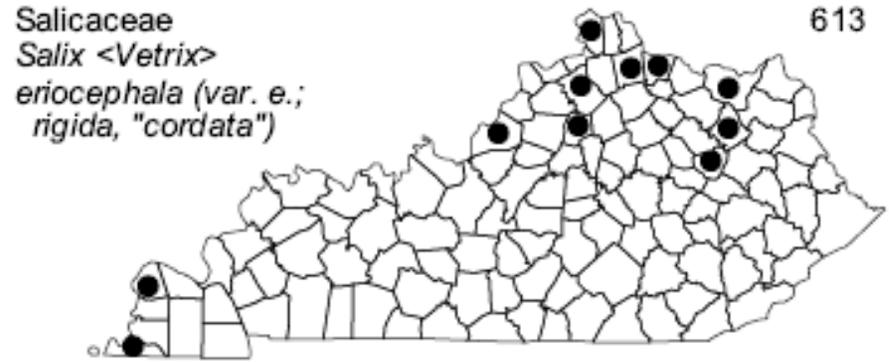
Potential for Local Use in Restoration

This is a small to large shrub in scoured riparian habitats, usually no more than 5-10 feet tall. Its maximum potential size remains uncertain in Kentucky. Within the central Bluegrass, it is known only from banks of lower Benson Creek, west of Frankfort. Further exploration is needed to document populations and to get material for propagation. The species is not available from nurseries, and local trials are needed.

Technical Notes [from Atlas]

In its broad definition, *Salix eriocephala* is a widespread variable, frequently hybridizing species of northeastern and midwestern regions, plus a large disjunct population centered in Ala. (Dorn 1995; FNA 8, W). It is known from several types of habitat, segregates may occur, and nomenclature has been confused. Most plants in eastern U.S.A. and adjacent Canada are referable to var. *eriocephala*, including *S. rigida* (Muhl.) Andersson (but not including *S. cordata* Muhl. non Michx.). In Ky. it mostly occurs on cobble bars along medium-sized streambanks, especially streams lined with loose calcareous rocks in the northern Bluegrass region. It is locally common along Benson Cr. (FRAN) and Fork Lick Cr. (PEND). At Benson Cr. there may be hybrids with *interior*, *caroliniana* and *nigra*.

S. eriocephala is closely related to *sericea* and occasional hybrids are known, as exemplified by a coll. from MENI (DHL see Argus 1986); see notes on diagnostic characters in FNA 7. However, their habitats do not usually overlap in Ky. Leaves of *eriocephala* are similar to those of *caroliniana* in their generally glaucous lower surfaces, but tend to have longer petioles (ca. 5-14 mm versus 3-7 mm), which lack distinct glandular processes at summit (as often present in sections *Protitea* and *Salix*). Stipules tend to be more developed, semi-ovate to subreniform and acutish (versus broadly reniform and obtuse). Large leaves on vigorous non-flowering shoots are often distinctly cordate. Also, buds and twigs are distinctly reddish (versus more yellowish).



Salix interior, Sand-bar Willow

Often combined with *S. exigua*, a close western relative.

Potential for Local Use in Restoration

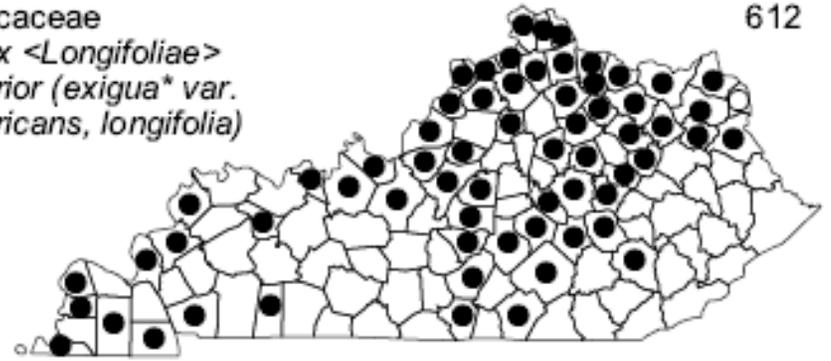
This extensively colonial shrub or small tree is common along more open, unstable low banks of larger streams and rivers of the Bluegrass region. Sand-bar willow has also spread frequently into small artificial ponds and ditches on uplands, where it can dominate and produce much sustainable biomass. It is generally absent from more shady or abrupt banks which lack the loose substrate that allow it to form clonal patches. Plants are easily propagated by live stakes, and already much used in restoration. There is, however, much variation in growth-form and leaves across the range of this species, especially if combined with the western segregate, *exigua*. More research and planting trials are needed with various accessions. It has much potential for use in “rain-gardens” or other temporary retention basins.

Technical Notes [from Atlas]

There has been unsettled nomenclature within section *Longifoliae*, which is a largely western group that has the following characters: deciduous pistillate bracts, leaves that have stomata on both surfaces, relatively elongated shape and remote serrations; and usually extensive clonal root-sprouts (FNA 7). Plants in Ky. have sometimes been treated as the eastern segregate of a more widespread species: *S. exigua* Nutt. var. *sericans* (Nees) Nesom. Hybrids can be expected with other species, including *eriocephala*; such plants are largely sterile but potentially vigorous (FNA 7). Some relatively short shrubby plants along smaller rocky streams in the Bluegrass region (with colls. from CAMP, HARR, FAYE, FRAN, JEFF, NICH, OWEN and elsewhere) have leaves that tend to be smaller (mostly 5-10 mm wide versus 7-12 mm), more persistently sericeous, and deeper bluish-green. These plants form less open clonal patches, and they root much less readily from cuttings, compared to interior. They have been referred to as var. *wheeleri* Rowlee, but that largely midwestern taxon has not been generally recognized (F, Argus 1986, FNA 7). Schaffner (1914) applied the name *wheeleri* to plants on drier sand dunes in northern Ohio, but noted there was gradation into typical plans on wetter sites. Further investigation is needed.

Salicaceae
Salix <*Longifoliae*>
interior (*exigua** var.
sericans, *longifolia*)

612



Salix nigra, Black Willow

Potential for Local Use in Restoration

This shrub-like tree is common on wet ground across the state. It is most abundant on semi-permanently saturated or ponded sites, but can also occur along slow-moving streams. It is not, however, typical of more forcefully flooded riparian zones, and it does not tolerate shade in deeper woods. Root-systems are dense but shallow, and stems often become decumbent, increasing clonal spread, especially where there is frequent silting.

The species is easily propagated from cuttings, which root within a few days to weeks. Twigs easily break off and can be collected in large numbers within a few minutes (but they do not ‘snap’ off like the Eurasian Crack-willow—*Salix fragilis*). Although black willow is not a standard species for planting in urban contexts, it deserves more attention for damp sites here. Instead, there has been much use of large Eurasian willows for many decades: *alba*, *babylonica*, *fragilis* and their variants or hybrids. The white willow (*alba*) has become an abundant invasive species across northeastern states and adjacent Canada, and it may be increasing in Kentucky.

Technical Notes [from Atlas]

Salix nigra is an arborescent willow that is widespread across temperate North America. In addition to its original swampy habitats, *nigra* has become common around artificial impoundments, along roadside ditches, and similar places. Its twigs easily break off, which can lead to local clonal spread. Based on Argus (1986; FNA 7), relatively “brittle branches” tend to be a character of section *Humboldtiana* (in subgenus *Protitea*) and section *Salix* (in subgenus *Salix*). Species that are especially (“very”) brittle include *nigra*, *floridana* and *fragilis*.

The North American subgenus *Protitea* (including *nigra*) differs from the Eurasian subgenus *Salix* (including *fragilis*) in the following characters: buds with acute apex (versus obtuse) and overlapping (versus fused) scales; leaves with stomata only on lower surfaces (versus both); male flowers with 3 or more stamens (versus 2); and pistillate bracts usually deciduous after flowering (versus persistent).

Salicaceae
Salix <*Salix*>
nigra

604

