

List of Recommended Species for Reed Canarygrass Replacement

Purpose of this Species List

The purpose of this list is to recommend species that have potential to coexist with RCG in situations where the latter is under stress from management practices. Proactive re-vegetation with a diversity of native species should be a component of any RCG abatement project. Research has demonstrated that competition from established native species augments and accelerates RCG control efforts. The efficient community hypothesis (the idea that restoration of hydrology, fire regime, etc. will facilitate passive immigration and reestablishment of native vegetation) generally lacks empirical support because the present landscape is often too fragmented for adequate gene flow between existing natural areas.

Introduction

Reed canarygrass invasions are often associated with disturbances that create bareground areas with high light availability. Management activities that create bareground areas (e.g. tree removal, scrape construction, wetland recontouring, nonselective chemical herbiciding) should be reseeded quickly, as reed canarygrass can rapidly colonize these sites after the disturbance. When reseeding for reed canarygrass abatement, your goal should be to create a closed herbaceous species canopy as quickly as possible, before RCG can become established. Research has shown that a closed herbaceous canopy will filter sunlight, increasing the amount of far-red (FR) light reaching the soil surface. As transmission of far-red light increases (relative to blue light), the percentage of reed canarygrass seeds that germinate decreases. Furthermore, reed canarygrass displays a very low establishment rate and low seedling aggressiveness under light-limited conditions. The ideal endpoint planting, therefore, is one that exhibits a complex, multi-species herbaceous canopy that is vertically, serally (successionally), and phenologically layered. The best way to ensure this is to plant a diverse mixture of morphologically variable species from different functional guilds (e.g., sedges, rushes, cool- and warm-season grasses, and forbs).

Guidelines for Planting

Seeding rates – Seed bareground areas at high rates, 7 to 10 pounds/acre (60 – 100 seeds/ft²) and augment seeding with plugging live plants where feasible after existing reed canary grass propagules have been eliminated. RCG monocultures should also be seeded at this rate after control efforts have significantly weakened RCG resurgence capacity. **Note: do not rely on a one-time treatment to adequately control a reed canarygrass monotype.** Mixed stands can be inter-seeded at a lower rate, 4 to 7 pounds/acre (40 – 60 seeds/ft²), depending on your budget and the density and composition of native species already present. Consider augmenting seedings with live plants (plugs), rhizome fragments (sedges), rooted tubers (emergent plants), or even entire tussocks or sod transplants if a donor site is available. Plugs should also be used in areas prone to erosion where seeds can easily be washed away. When plugging, keep in mind

that browsing, dry weather, and transplant shock can reduce establishment success. You may have to install browsing exclosures around plugs and water them regularly during the first growing season. Dip plugs in rooting hormone immediately prior to planting to improve establishment success.

Timing and Site Preparation – Generally, frost seeding favors establishment of forbs and spring seeding favors establishment of grasses and sedges. Plugs of most species should be planted in spring to take advantage of wet spring weather and to ensure they have one complete growing season to prepare for overwintering (consult with your local seed distributor if you are unsure of when to plug certain species). To sow seed in autumn (frost seeding), one proven method is to burn the site after the first hard frost and broadcast seed onto bare ground. If possible, use a cultipacker to mend the sown seed to the soil surface. Subsequent freezing and thawing of the soil will work the seed to proper depth over the winter. An advantage of frost seeding is that seed does not have to be stratified prior to planting. A disadvantage is that weather conditions that are not conducive to stratification cannot be controlled. For sites that have been recontoured, ask the contractor or agency representative to add microtopographic features into the site. These features will increase potential niche space available to species, increasing site diversity, and promoting canopy complexity. If feasible, also consider installing a passive water control gate to stabilize water levels during plant establishment and to increase long-term management capability.

Adaptive Seeding – Species vary in their germination requirements, and site conditions can vary considerably by year. Consider boosting initial high-density plantings with multiple-year seedings at reduced planting densities. This is a way to hedge your bets against adverse conditions during any single growing season, and will help to recharge the native species seed bank. You may also need to adopt a mosaic planting strategy for sites that are still being actively managed during seedling establishment or if bareground areas persist.

Financial Considerations – **Compare prices!** Costs can vary substantially among local nurseries. Plugs, rootstock, rooted tubers, and rhizome fragments are considerably more expensive than seeds. To achieve a high-diversity planting on a budget, design your seed mix with a resource-partitioning model of diversity in mind since most natural communities consist of one dominant species (the matrix species), a few subdominant species and a few species of intermediate abundance, with most species present in rare or uncommon abundance. Try to imitate this natural pattern in your seed design. This approach reduces costs because the matrix and sub-dominant species are relatively inexpensive while the rarefaction species are often the most expensive. Keep in mind that differing germination requirements of individual species and rapid establishment of aggressive native species (e.g. *Panicum virgatum*) can make this goal difficult to achieve in a practical setting. If you are on a tight annual budget, one strategy is to spread out costs with consecutive-year reseedings. However, doing this may lead to increased costs for weed control because less niche space will be partitioned by desirable native species. Egler's Initial Floristic Composition Model [of Plant Succession] predicts that the most diverse endpoint community will be the one with the most native propagules present at the outset (bareground stage). Thus, an ounce of prevention (initial seeding at a high rate) is worth a pound of cure (consecutive years of chemical and mowing costs required to suppress secondary weed outbreaks).

Cool-Season Cover Crops/Companion Crops – Realistically, it will take several years for a native planting to mature to the point of canopy closure. Reed canarygrass and/or other weeds can quickly (re)establish during the interim, particularly if there is off-site impact and propagule influx from adjacent non-treated areas. One way to forestall subsequent infestations (and associated abatement costs) is by planting a rapidly establishing cover crop or companion crop along with your native species mixture. Cover crops are typically annual species (e.g., annual ryegrass (*Lolium multiflorum*), or beggarticks (*Bidens* sp.)) whereas companion crops are short-lived perennials (e.g., Virginia wild rye (*Elymus virginicus*) or Canada wild rye (*Elymus canadensis*)). In theory, cover crops and companion crops reduce competition from weeds while native perennials are establishing. Cover crop seed is available from most native seed nurseries and also from local farm seed suppliers. **When purchasing cover crops from local farm seed dealers, be sure to request certified weed-free seed.** NOTE: do not include cover crop seeding densities when tabulating seeding rates for a planting.

Other Considerations – Sedges of the genera *Carex* and *Scirpus* (now called *Schoenoplectus*, *Bolboschoenus*, *Isolepis*, or *Trichophorum*) can be difficult to establish, particularly at sites with flashy or variable hydrology. Consider using a mix of seeds and plugs of these taxa. Alternatively, some sedge species can be propagated from rhizome fragments. Also, recent research has shown that *Carex* achenes have limited storage life. Sow *Carex* seeds in the same growing season you collect them, or, if ordering seeds from a nursery, inquire about the collection date for the seed lot you are ordering. For sites with variable hydrology, consider planting species that are adapted to grow in more than one hydrologic regime or species with plastic morphological responses to water level variations (e.g. *Polygonum amphibium*) so that RCG cannot take advantage of fluctuating water level disturbances to recolonize a site. When collecting seed, remember to increase your seeding rate (by at least 50%) because site-collected seed typically has lower titer (PLS) than nursery seed. Use of PLS seed in plantings has been shown to make a big difference in germination success of desired endpoint species. If not used immediately, store any seed in a cool, dry location that is not exposed to direct sunlight or extreme temperature fluctuations. Plugs, sprigs, or live plants should be set out as soon as possible. If this is not possible, store in damp peat moss or sand in a cool location away from direct sunlight or follow instructions and recommendations from the supplier. Try to collect or purchase seeds from source populations that are located as close to the planting site as possible. Most seed nurseries keep records of seed genotype and label their seed lots with this information. If your goal is not ecological restoration of a native plant community, contact your local NRCS office for recommendations on pasture mixtures and conservation cover crops.

Guidelines for using this Table to Customize Seed Mixtures

- ✓ Phenology mix (5 early species, 5 mid, 5 late season time of peak productivity)
- ✓ Use a low Graminoid/Forb ratio (1:4 or lower) to maximize canopy closure.
- ✓ Use a minimum of three late successional species.

- ✓ Use a minimum of 15 species (50% early successional, 25% mid successional, and 25% late successional).
- ✓ A complex canopy with mixed height and variable leaf morphology should be implicit in seed designs.
- ✓ Consider cool season and early emerging annual species to accelerate canopy closure and provide competition for seedling RCG.
- ✓ For woody species, employ protective shelters and tall, mature stock. Consider a tree-planting mix that includes evergreens to provide early and late-season shade.

Footnotes

Species ranking: 1 = highly recommended/high importance; 2 = moderate importance; 3 = low importance or importance unknown

Phenology: Early (April – May peak productivity), Mid (June – mid July peak productivity), Late (mid July – September peak productivity).

Trees: Trees should be taller than RCG, 1” minimum dbh is recommended. Use of a weed barrier and deer/rodent protection is also recommended.

Successional Stage: Early (25-50% bare ground, many weedy or short-lived species present), Mid (10-25% bare ground, self seeders common, a few species often dominate), Late (0-10% bare ground, many conservative species are present, plant community is stable with few canopy gaps).

Mesic plant community type:

Deep, well-drained to moderately well-drained soils with moderate permeability and high available water capacity. These are typically mineral soils with no equipment limitations throughout the growing season.

Wet-mesic plant community type:

Deep, somewhat poorly-drained soils with moderately slow permeability and a seasonal high water table to within 1 ft of the surface for part of the growing season. Soils are mineral or shallow organic with moderate equipment limitations during the growing season.

Wet plant community type:

Deep poorly-drained to somewhat poorly-drained soils with slow permeability and a seasonal high water table at or near the surface for much of the growing season. Soils can be mineral or deep organic with severe equipment limitations for most of the growing season.

Address changes/comments to:

Art Kitchen

Committee Chair

Art.Kitchen@FWS.gov

For Further Reading:

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Species that may suppress/compete with reed canary grass in restoration sites:	Common name	Ranking	Growth stage			Pheno-logy	Hydrology	Geographic Area	Comments
			Early	Mid	Late				
Grasses									
<i>Calamagrostis canadensis</i>	Canada blue-joint	1			x	mid	wet/wet mesic	statewide	rhizomatous
<i>Cinna arundinacea</i>	Wood reed	3		x	x	mid	mesic	more common south	semi shade-- may be good in tree planting areas, prefers loam soils
<i>Cinna latifolia</i>	Drooping wood reed	3		x	x	mid	mesic	more common north	semi shade-- may be good in tree planting areas, prefers loam soils
<i>Echinochloa muricata</i>	Coastal barnyardgrass	1	x			mid	wet mesic	statewide	annual; use as cover crop
<i>Echinochloa walteri</i>	American barnyardgrass	1	x			mid	wet mesic	statewide	annual; use as cover crop
<i>Elymus canadensis</i>	Canada wild rye	1	x			early-mid	mesic	more common south	semi shade-- may be good in tree planting areas
<i>Elymus riparius</i>	Riparian wild rye	1	x			early-mid	wet mesic	more common south	semi shade-- may be good in tree planting areas
<i>Elymus virginicus</i>	Virginia wild rye	1	x			early-mid	wet mesic	more common south	semi shade-- may be good in tree planting areas
<i>Glyceria canadensis</i>	Rattlesnake grass	2	x	x		mid	wet/wet mesic	more common north	can be difficult to establish
<i>Glyceria grandis</i>	Reed manna grass	2	x	x		mid	wet/wet mesic	statewide	shorelines, shallow water
<i>Glyceria striata</i>	Fowl manna grass	3	x	x		mid	wet/wet mesic	more common south	shorelines, shallow water
<i>Leersia oryzoides</i>	Rice cut-grass	1	x	x		late	wet	statewide	does well in organic soils
<i>Muhlenbergia glomerata</i>	Wild timothy	1	x	x		early-mid	wet mesic	statewide, less common southwest	may be resistant to grass-specific herbicide, prefers loamy soils
<i>Panicum virgatum</i>	Switch grass	3		x		late	wet mesic/mesic	statewide	bimodal, prefers sandy soils
<i>Poa palustris</i>	Fowl meadow-grass	2	x	x		early	wet mesic	more common south	statewide
<i>Spartina pectinata</i>	Prairie cord grass	1			x	mid	wet mesic/mesic	statewide	Try to use plugs, rhizomatous, prefers mineral soils

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Other Graminoids									
<i>Bolboschoenus fluviatilis</i>	River bulrush	1		x	x	mid	wet/wet mesic	statewide	Rhizomatous, tolerates standing water
<i>Carex annectens</i>	Yellow head fox sedge	1	x	x		early	wet/wet mesic	statewide	
<i>Carex atherodes</i>	Hairy-leaved lake sedge	2			x	early	wet	statewide	use on wetter sites
<i>Carex bebbii</i>	Bebb's oval sedge	2		x	x	early	wet mesic/mesic	statewide	use on drier sites
<i>Carex comosa</i>	Porcupine sedge	2			x	early	wet/wet mesic	statewide	
<i>Carex crinita</i>	Fringed sedge	2		x	x	early	wet mesic	more common north	common generalist
<i>Carex emoryi</i>	Emory's sedge	3			x	early	wet mesic	statewide	
<i>Carex hystericina</i>	Bottlebrush sedge	2		x	x	early	wet/wet mesic	statewide	common generalist
<i>Carex lacustris</i>	Lake sedge	1		x	x	early	wet/wet mesic	statewide	wettest sites, rhizomatous
<i>Carex pellita</i>	Broad-leaved wooly sedge	2		x		early	wet/wet mesic	statewide	rhizomatous, use vegetative plugs
<i>Carex rostrata</i>	Beaked sedge	2			x	early	wet mesic	northern	
<i>Carex scoparia</i>	Broom sedge	2	x	x		early	wet/wet mesic	statewide	common generalist
<i>Carex stipata</i>	Common fox sedge	1	x	x		early	wet/wet mesic	statewide	common generalist
<i>Carex stricta</i>	Tussock sedge	1			x	early	wet/groundwater	statewide	use plugs or very fresh seed; rhizomatous
<i>Carex trichocarpa</i>	Hairy-fruit lake sedge	1			x	early	mesic/wet mesic, wet	southern and north-western WI	rhizomatous, use vegetative plugs
<i>Carex tuckermanii</i>	Tuckerman's sedge	2		x		early	forest	statewide	shade tolerant
<i>Carex utriculata</i>	Common yellow lake sedge	2			x	early	wet/wet mesic	southern	wettest sites, rhizomatous
<i>Carex vulpinoidea</i>	Brown fox sedge	1	x	x		early	wet mesic	statewide	common generalist

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<i>Scirpus atrovirens</i>	Dark green bulrush	1	x	x		mid	wet/wet mesic	statewide	establishes well from seed
<i>Scirpus cyperinus</i>	Woolgrass	1		x	x	mid	wet/wet mesic	statewide	slow growing, tolerates standing water
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush	2		x	x	mid	wet	statewide	tolerates standing water, prefers silty/clay soils
Forbs									
<i>Angelica atropurpurea</i>	Angelica	3		x		early	wet/groundwater	statewide	monocarpic perennial
<i>Apocynum sibiricum</i>	Clasping dogbane	1	x	x		mid	mesic/wet mesic	statewide	clonal, grows in patches
<i>Asclepias incarnata</i>	Swamp milkweed	1		x		mid	wet mesic	statewide	likes occasional disturbance
<i>Aster firmus</i>	Shiny-leaved aster	1	x	x	x	late	mesic/wet mesic	south and east WI	rhizomatous
<i>Aster lanceolatus</i>	Marsh aster	1		x		late	mesic/wet mesic	statewide	rhizomatous
<i>Aster novae-angliae</i>	New England aster	1		x		late	mesic/wet mesic	south and east WI	establishes well from seed
<i>Aster puniceus</i>	Swamp aster	1	x	x	x	late	wet/wet mesic	statewide	rhizomatous
<i>Bidens cernuus</i>	Nodding bur marigold	1	x			mid	wet mesic	statewide	annual
<i>Bidens frondosa</i>	Common beggars-ticks	1	x			mid	wet mesic	statewide	annual
<i>Hasteola suaveolens</i>	Sweet Indian plantain	2		x	x	mid	mesic/wet mesic	southern WI	spreads from seed
<i>Cicuta maculata</i>	Water hemlock	2		x		mid	wet/wet mesic	statewide	perennial
<i>Eupatorium maculatum</i>	Spotted Joe pye weed	1		x	x	mid	wet/wet mesic	statewide	establishes well from seed
<i>Eupatorium perfoliatum</i>	Common boneset	1		x	x	mid	wet/wet mesic	statewide	establishes well from seed
<i>Euthamia graminifolia</i>	Grass-leaved goldenrod	1		x	x	mid-late	wet mesic/mesic	statewide	rhizomatous
<i>Helenium autumnale</i>	Sneezeweed	1		x	x	mid	wet/wet mesic	statewide	establishes well from seed
<i>Helianthus giganteus</i>	Tall sunflower	1		x	x	late	wet mesic	more common north	important for wildlife, rhizomatous

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<i>Helianthus grosseserratus</i>	Sawtooth sunflower	1		x	x	late	wet/wet mesic	more common southern	may dominate your planting, rhizomatous
<i>Heracleum maximum</i>	Cow parsnip	3		x	x	early	wet mesic/mesic	statewide	semi shade-- may be good in tree planting areas
<i>Hypericum pyramidatum</i>	Giant St.John's wort	2		x	x	mid	wet mesic/mesic	statewide	semi shade or full sun
<i>Impatiens capensis</i>	Jewelweed/touch-me-not	1	x			early	wet/wet mesic	statewide	annual, semi shade or sun
<i>Juncus effusus</i>	Soft rush	1		x		early	wet	statewide	
<i>Lycopus americanus</i>	American water horehound	3	x			mid	wet/wet mesic	statewide	does not persist without disturbance
<i>Mentha arvensis</i>	Wild mint	2	x	x		mid	wet/wet mesic	statewide	establishes well from seed
<i>Mimulus ringens</i>	Monkey flower	3	x			mid	wet mesic/mesic	statewide	establishes well from seed
<i>Monarda fistulosa</i>	Bergamot	1	x	x	x	mid	wet mesic/mesic	statewide	establishes well from seed
<i>Penthorum sedoides</i>	Ditch stonecrop	3	x			mid	wet mesic/mesic	statewide	establishes well from seed
<i>Polygonum amphibium</i>	Water smartweed	2	x	x		mid-late	wet/wet mesic	statewide	comes in on its own, not usually planted
<i>Polygonum pensylvanicum</i>	Pennsylvania knotweed	2	x			mid-late	wet/wet mesic	statewide	annual
<i>Pycnanthemum virginianum</i>	Common mountain mint	2		x	x	mid	wet/wet mesic/mesic	more common south	long-lasting, rhizomatous
<i>Ratibida pinnata</i>	Yellow coneflower	1	x	x		mid	wet mesic/mesic	statewide, not as common north	good self seeder, colorful
<i>Rudbeckia hirta</i>	Black-eyed Susan	1	x			mid	wet mesic/mesic	statewide	establishes well from seed
<i>Rudbeckia laciniata</i>	Cut-leaved coneflower	1	x	x		mid	wet mesic	statewide	may have advantage in light shade
<i>Rudbeckia triloba</i>	Brown-eyed Susan	1	x			mid	wet mesic	east and southeast	establishes well from seed
<i>Rumex orbiculatus</i>	Water dock	2			x	mid	wet/wet mesic	statewide	grows in very wet sites, prefers organic or loamy soils

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<i>Silphium perfoliatum</i>	Cup plant	1		x	x	mid-late	wet mesic/mesic	south and west	establishes well from seed, may dominate a planting
<i>Solidago gigantea</i>	Giant goldenrod	1	x	x		late	wet mesic/mesic	statewide	may dominate; rhizomatous
<i>Solidago riddellii</i>	Riddell's goldenrod	3		x		late	wet/wet mesic	more common south	Requires alkaline soils
<i>Stachys palustris</i>	Hedge nettle	2		x	x	mid-late	wet/wet mesic	statewide	
<i>Verbena hastata</i>	Blue vervain	1	x			mid	wet/wet mesic/mesic	statewide	establishes well from seed
<i>Vernonia fasciculata</i>	Ironweed	2		x	x	mid-late	wet mesic/mesic	statewide	slow to establish
Trees/shrubs (rootstock) ended. Need weed barrier, deer and rodent protection for all woody species.)									
<i>Abies balsamea</i>	Balsam fir	1			x	early-mid	wet to mesic	northern	not preferred deer food
<i>Acer rubrum</i>	Red maple	2			x	early-mid	wet mesic/mesic	statewide	Slow-growing, mineral soils
<i>Acer saccharinum</i>	Silver maple	1			x	early-late	flood tolerant	statewide	Fast-growing, weak limbs, mineral soils
<i>Alnus incana subsp.rugosa</i>	Speckled alder	1			x	early-mid	wet/wet mesic	statewide but more common north	
<i>Cephalanthus occidentalis</i>	Buttonbush	2			x	early	wet/wet mesic	more common south	Can grow in shallow water
<i>Cornus amomum</i>	Silky dogwood	1			x	early-mid	wet/wet mesic	statewide	browsed heavily by deer
<i>Cornus racemosa</i>	Grey dogwood	2			x	early-mid	wet mesic/mesic	more common south	somewhat drier sites, mineral soils
<i>Cornus stolonifera</i>	Red-osier dogwood	1			x	early-mid	wet/wetmesic	statewide	browsed heavily by deer
<i>Fraxinus nigra</i>	Black ash	3			x	early-late	wet/wet mesic	more common north	emerald ash borer concern keep <10% of trees planted
<i>Fraxinus pennsylvanica</i>	Green ash	2			x	early-late	wet mesic/mesic	statewide	emerald ash borer concern keep <10% of trees planted
<i>Ilex verticillata</i>	Winterberry	1			x	shade tolerant	wetmesic/mesic	more common north	Good for songbirds, prefers sandy/loamy soils

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<i>Larix laricina</i>	Tamarack	3			x	early-late	wet/wet mesic	more common north	sensitive to flooding, does well in organic soils
<i>Physocarpus opulifolius</i>	Common ninebark	1			x	mid-late	wet mesic/mesic	more common south	somewhat drier sites, mineral soils
<i>Picea glauca</i>	White spruce	1			x	late	wet mesic	northern	not preferred deer food
<i>Picea mariana</i>	Black spruce	1			x	late	wet/wet mesic	northern	not preferred deer food, prefers acidic soils
<i>Pinus strobus</i>	White pine	2			x	late	wet mesic-mesic	statewide, more common north	Protect from deer browse, somewhat drier sites
<i>Populus balsamifera</i>	Balsam poplar	1			x	early-mid	wet/wet mesic	northern	
<i>Populus deltoides</i>	Cottonwood	1			x	early-mid	flood tolerant	statewide	invasive to uplands
<i>Populus grandidentata</i>	Bigtooth aspen	1			x	early-mid	wet mesic/mesic	statewide	somewhat drier sites, invasive to uplands
<i>Populus tremuloides</i>	Quaking aspen	2			x	early-mid	wet mesic/mesic	statewide	invasive to uplands
<i>Quercus bicolor</i>	Swamp white oak	1			x	late	wet mesic/mesic	southern	somewhat flood tolerant (short duration flooding)
<i>Rhamnus alnifolia</i>	Native buckthorn	2			x	mid	wet/wet mesic	Door County, north	Prefers mineral soils with high ph
<i>Ribes americanum</i>	Black currant	2			x	early-mid	wet/wet mesic	statewide	shade tolerant shrub
<i>Salix nigra</i>	Black willow tree	1			x	early-mid	wet/wet mesic	statewide	
<i>Salix sp. (Bebb's, discolor, exigua)</i>	Willows (Bebb's, pussy, sandbar)	1			x	early-mid	wet/wet mesic	statewide	shrub potentially invasive
<i>Sambucus canadensis</i>	Elderberry	1			x	mid	wet/wet mesic	statewide	good wildlife shrub, good in organic soils
<i>Spiraea alba/tomentosa</i>	Meadowsweet/steepleshrub	2			x	mid	wet/wet mesic	statewide but more common north	common in fens/groundwater wetlands, bogs
<i>Viburnum lentago</i>	Nannyberry	1			x	mid	wet mesic/mesic	more common south	clonal
<i>Viburnum opulus subsp. trilobum</i>	High bush cranberry	2			x	mid	wet mesic/mesic	statewide	shade tolerant shrub, mineral soils

Species that may suppress/compete with reed canary grass in restoration sites: Example Mixes

Wet Meadow 1	Wet Meadow 2	Sedge Meadow	Low Forest
<i>Asclepias incarnata</i>	<i>Asclepias incarnata</i>	<i>Asclepias incarnata</i>	<i>Acer saccharinum</i>
<i>Aster puniceus</i>	<i>Bidens cernua</i>	<i>Aster firmus</i>	<i>Calamagrostis canadensis</i>
<i>Bidens frondosa</i>	<i>Calamagrostis canadensis</i>	<i>Bolboschoenus fluviatilis</i>	<i>Carex comosa</i>
<i>Calamagrostis canadensis</i>	<i>Carex stricta</i>	<i>Calamagrostis canadensis</i>	<i>Carex lacustris</i>
<i>Carex scoparia</i>	<i>Carex vulpinoidea</i>	<i>Carex comosa</i>	<i>Cinna arundinacea</i>
<i>Carex stipata</i>	<i>Cicuta maculata</i>	<i>Carex lacustris</i>	<i>Cinna latifolia</i>
<i>Cicuta maculata</i>	<i>Echinochloa muricata</i>	<i>Carex stricta</i>	<i>Cornus stolonifera</i>
<i>Elymus canadensis</i>	<i>Elymus virginicus</i>	<i>Carex vulpinoidea</i>	<i>Elymus virginicus</i>
<i>Eupatorium maculatum</i>	<i>Eupatorium perfoliatum</i>	<i>Elymus virginicus</i>	<i>Eupatorium maculatum</i>
<i>Helianthus giganteus</i>	<i>Glyceria grandis</i>	<i>Eupatorium maculatum</i>	<i>Fraxinus nigra</i>
<i>Leerzia oryzoides</i>	<i>Helenium autumnale</i>	<i>Impatiens capensis</i>	<i>Muhlenbergia mexicana</i>
<i>Rudbeckia hirta</i>	<i>Monarda fistulosa</i>	<i>Juncus effusus</i>	<i>Populus tremuloides</i>
<i>Scirpus cyperinus</i>	<i>Ratibida pinnata</i>	<i>Pycnanthemum virginianum</i>	<i>Rudbeckia laciniata</i>
<i>Solidago gigantea</i>	<i>Scirpus atrovirens</i>	<i>Rudbeckia laciniata</i>	<i>Scirpus cyperinus</i>
<i>Spartina pectinata</i>	<i>Verbena hastata</i>	<i>Scirpus cyperinus</i>	<i>Viburnum lentago</i>