

## **Landscaping your Home on Shifting Sands**

### **Native Plant Recommendations for Minnesota Point Homeowners**

#### **Introduction**

The geologic features known as Minnesota and Wisconsin Points form an eleven-mile-long baymouth bar that lies between Lake Superior and the St. Louis River estuary. What we see today has been shaped over the last several thousand years, primarily by sand sediments carried and deposited by longshore lake currents moving northwest from the sandy shores of northern Wisconsin. Some sediment also has accumulated from the St. Louis River estuary on the bay side. Today the mouth of the St. Louis River is closer to Wisconsin, with Minnesota Point stretching seven miles southeastward.

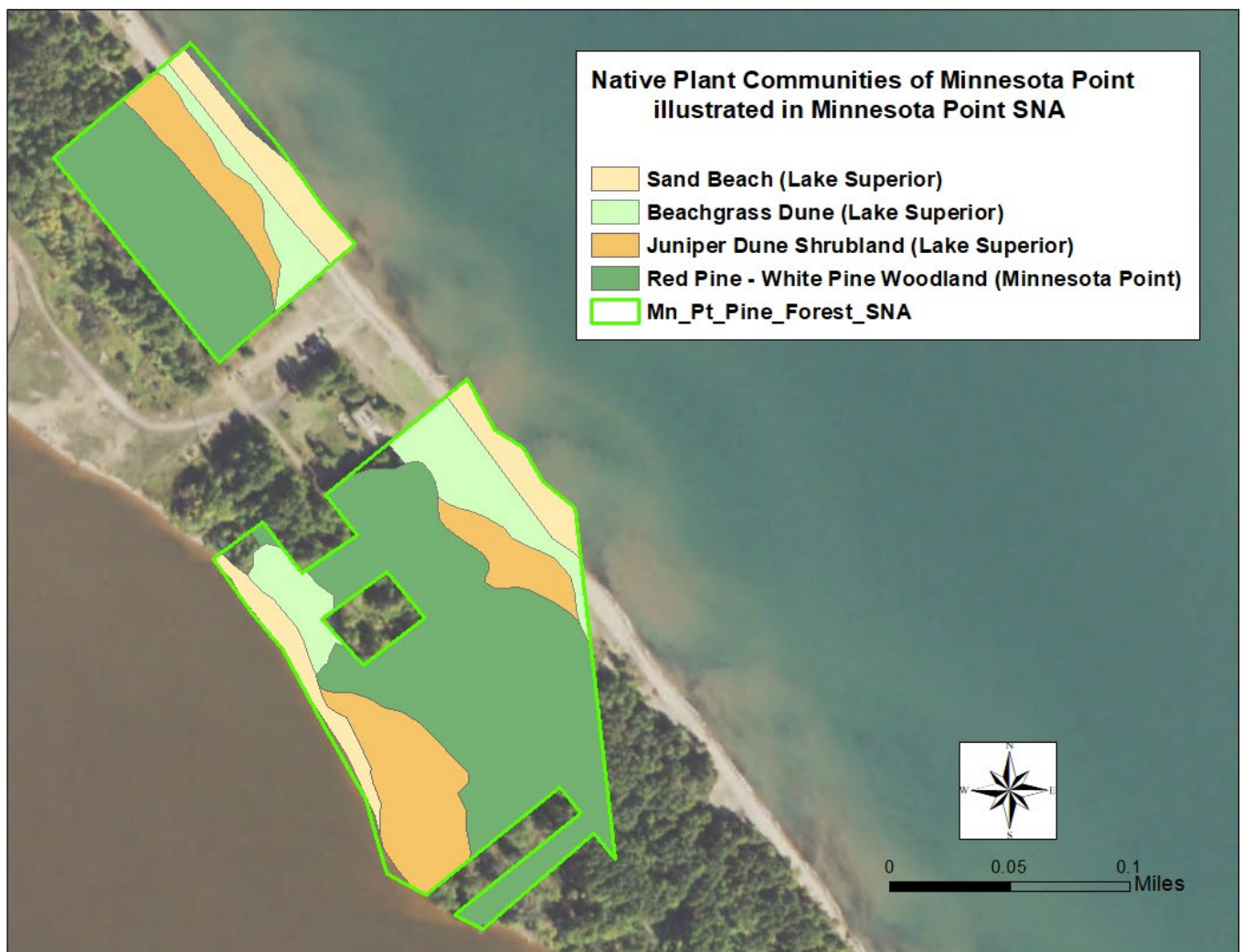
The coastal sand dunes and associated plant communities that have developed through the years on this baymouth bar are found nowhere else in Minnesota. They support plants and animals that are well-adapted to the special conditions, including several species that are state protected. The native plant communities (Sand Beach, Beachgrass Dune, Juniper Dune Shrubland, and Red Pine-White Pine Woodland) are all considered rare and have been assigned the highest statewide conservation status rank of S1, critically imperiled, due to their unique attributes and limited distribution in the state.

Each community has a different suite of native plants, and somewhat different characteristics that are determined by the amount and type of disturbance the community receives (water and/or wind). Disturbance decreases as we move away from the lake.

- Sand Beach (Lake Superior) – this barren sand beach, with occasional pebble deposits, is exposed to constant wave action and ice scouring from Lake Superior, with less frequent disturbance also experienced on the bay side. Continuing sand erosion and deposition keeps plants from establishing for long.
- Beachgrass Dune (Lake Superior) - adjacent to the sand beach, this community is exposed to full sun and constantly subject to wind. Out of the wave zone, sand accumulates into shifting dune formations that change shape with fluctuating winds. The vegetation in this harsh environment are primarily grasses that catch blowing sand and actively build dunes; deep roots help to stabilize dunes. The most common grass, American beachgrass, plays a critical role in dune stabilization; but it too will migrate with the shifting sands. (See a note of caution about the protected status of this species in the native plant recommendation table.)
- Juniper Dune Shrubland (Lake Superior) - farther inland from the beachgrass dune zone, this community is often behind a dune and some protected from lake winds. Still a dry and exposed

setting, this more stable location allows plants to live longer and grow larger. Here we see a wider variety of grasses and forbs, shrubs, and a few small tree species. Patchy growth shows that this community is still vulnerable to shifting sands and dune migration.

- Red Pine-White Pine Woodland (Minnesota Point) – this is the most stable community, established on dunes that have lacked major wind disturbance for many years. Organic material has accumulated to supplement the sandy soils, supporting a canopy of mature red and white pine over an uneven-aged woodland. This forest community is the most diverse and hosts many grasses, forbs, shrubs, and trees.



## **People on the Point**

Humans have used this sensitive landscape for its entire history, beginning with native tribal cultural activities that include hunting, fishing, and gathering. Following European settlement, Minnesota Point underwent increasing development and today supports shipping canal structures, marinas, public water access, an airport, water source structures, a public beach, and many private homes. These human uses place increasing pressure on the unique plant communities and on the plants and animals they support. Over time, human infrastructure has reduced the natural deposition that creates and sustains the baymouth bar. At the same time, changing lake effects have increased erosion, resulting in the loss of land mass.

Homeowners on Minnesota Point face a challenging landscape. They are all too familiar with the challenges of protecting properties subject to increasing wave erosion from both the lake and bay side, and many experience loss of private land. The dynamic landscape of dune migration and blow-outs through dune faces continually present difficult situations with sand that erodes and accumulates in inconvenient places year after year.

Vegetation can help to stabilize private lands from wind and wave impacts. While not a guarantee of property protection in this dynamic location, plant establishment is an environmentally sound tool available to all. Plants native to the plant communities found on the Point are best suited to survival in this exposed and dry sandy setting. They also have evolved with local insect, bird, and wildlife populations and provide the best reciprocal benefits. For Minnesota Point homeowners interested in landscaping with native plants - here are native plant recommendations and points to consider that can help support your planting projects.

## **Soil Conditions**

The sandy soils of Minnesota Point are very dry and nutrient-poor in most places. Plants native to the dune communities and the dry pine forest are best adapted to these conditions and can survive with lower water and nutrient regimes. Horticultural plant varieties and native plants found in more nutrient-rich landscapes face a harder start and will need additional care to thrive. Even plant species native to Minnesota Point may be difficult to establish initially.

Soil amendments, moderate fertilization, and extra water will help during establishment. Natural amendments such as topsoil, peat moss, leaves, and grass clippings bolster sandy soils and help retain nutrients and moisture. Natural mulch (wood chips, coconut husks, pine bark, weed-free straw) reduce evaporation of soil moisture and act as a barrier for weed seeds. Please make sure these are placed out of reach of any wave action, to avoid adding organic material to the waters of Lake Superior. Moderate fertilization will help plants in sandy soils that do not contain organic nutrients. But avoid over-fertilization, as these soils drain quickly and can carry excess nutrients to the lake and bay side waters. Providing adequate water is the most important during the plant establishment period. As plants become stable over time, fewer supplements should be necessary. Woody shrubs, trees, and native

grasses have the best chance of eventually extending deep roots into the water table and are good long-term sand stabilizers.

### **What NOT to Plant**

Please be vigilant about the species you select for planting. Some horticultural varieties have the potential to spread into dune communities and displace native plants. Especially vulnerable to displacement are the state-threatened American beach grass (*Ammophilla breviligulata*) and beach heather (*Hudsonia tomentosa*). One example of an escaped plant is baby's breath (*Gypsophila paniculata*), a common garden ornamental that is becoming invasive on Minnesota Point dunes. While appropriate for gardens in other locations, it should not be planted on Minnesota Point.

Be vigilant at newly disturbed areas and construction sites, where first colonizer weed species (knapweeds, thistles, hawkweeds) may establish and spread into the dunes. In addition to opportunistic weed species, some naturalized ornamentals have become problematic statewide. On Minnesota Point we need to guard against establishment and spread of ornamental honeysuckles (*Lonicera bella*, *L. morrowii*, and *L. tartarica*) and Siberian peashrub (*Caragana arborescens*). The Minnesota Dept. of Agriculture maintains a list of state prohibited noxious weeds that includes weeds and problematic escaped ornamentals (<https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list>).

### **Where to Buy Native Plants**

Many of the native plants listed here are available at local and regional native plant nurseries. The DNR maintains a list of native plant suppliers and landscapers. The list for northeastern Minnesota is available on the public website at: <https://www.dnr.state.mn.us/gardens/nativeplants/suppliers.html>.

Many native plant landscape nurseries create their own seed mixes or carry standard state seed mixes that are recommended for restoration and homeowner projects. MnDOT maintains an approved vendor list for all state seed mixes, available at: <https://www.dot.state.mn.us/environment/erosion/vegetation.html>.

### **About Plant Collection**

You should not collect native species for re-planting on personal property without the written permission of the landowner of the collection site. We do not encourage this practice from Minnesota Point plant communities, as all face tough nutrient and water conditions; over-harvesting could have more of an impact here on native populations than in other locations.

## Be Aware of Property Lines

Please be aware of your property lines when planting on the lake side. The City of Duluth owns much of the land between homes and the public beach. Unless given permission by the City, please keep plantings within your property boundary. St. Louis County has an interactive online map that shows property lines quite well. While not to be used for legal purposes, it can be a useful tool for deciding the limits of your planting area. The St. Louis County Land Explorer can be accessed here:

<https://gis.stlouiscountymn.gov/landexplorer/>.

Some properties are very close to the Ordinary High Water Line (OHWL), the line beyond which federal and/or state public waters permits may be required for any work. In some cases, this line is located above the top of the dune face and into dune vegetation. Plantings below the OHWL do not require a public waters permit. However, be aware that these are the areas that are most vulnerable to erosion by wave action. Additional activities associated with vegetation enhancement and property improvement (such as moving sand or installing structures) do require a permit. For more information, see [https://www.dnr.state.mn.us/waters/watermgmt\\_section/pwpermits/requirements.html](https://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/requirements.html).

If you need an OHWL or permit determination, please contact a DNR hydrologist, see list available at: [https://files.dnr.state.mn.us/waters/area\\_hydros.pdf](https://files.dnr.state.mn.us/waters/area_hydros.pdf).

## Habitat Suitability

It will be helpful to be aware of your planting location in relation to the four native plant communities found in natural areas on the Point. They each have different common plants (with some overlap) that are primarily determined by the amount of disturbance the community receives. We encourage you to consider which of these communities is the best fit for your planting location, and to pair the native plants from the following tables with the most appropriate location. For example, locations with active sand movement should avoid planting pine woodland species that require great stability. This will also help prevent the migration of species best suited for one community into another, which can fragment or even convert natural community delineations.

## Tables of Recommended Native Plants

Common names are used frequently but can differ between users. Botanical names are helpful for identifying species accurately and consistently. Both are given in the tables.

Plants are recommended for either the lake side or the bay side properties. Lake side conditions will be higher above the water table, drier, and subject to more frequent winds and shifting sands. Bay side conditions are closer to the water, often wetter, and may have more nutrients available from established lawns and garden spaces. Additionally, the lake side is divided into two sections - dune communities and pine woodland. This can help determine the optimal planting location.

**Table 1: Native Grasses and Sedges**

Common name	Botanical name	Lake Side		Bay Side
		Beachgrass Dune and Dune Shrubland	Pine Woodland	
<b>Grasses</b>				
American beachgrass* (state-protected)	<i>Ammophila breviligulata</i> ssp. <i>breviligulata</i>	X		X
Fringed brome	<i>Bromus ciliatus</i>		X	
Canada bluejoint	<i>Calamagrostis canadensis</i>			X
Poverty oats	<i>Danthonia spicata</i>	X		
Hairy panic grass	<i>Dichanthelium acuminatum</i>	X		
Canada wild rye	<i>Elymus canadensis</i>	X		
Slender wheatgrass	<i>Elymus trachycaulus</i>	X		
Rattlesnake manna grass	<i>Glyceria canadensis</i>			X
Rough-leaved rice grass	<i>Oryzopsis asperifolia</i>		X	
Mountain rice grass	<i>Piptatherum pungens</i>	X		
Canada bluegrass	<i>Poa compressa</i>	X		
False melic grass	<i>Schizachne purpurascens</i>	X		
Prairie cordgrass	<i>Spartina pectinata</i>			X
Sand dropseed	<i>Sporobolus cryptandrus</i>	X		
<b>Sedges</b>				
Water sedge	<i>Carex aquatilis</i>			X
Greater bladder sedge	<i>Carex intumescens</i>			X
Graceful sedge	<i>Carex gracillima</i>			X
Lake sedge	<i>Carex lacustris</i>			X
Tussock sedge	<i>Carex stricta</i>			X
Pointed broom sedge	<i>Carex scoparia</i>			X
Shaved sedge	<i>Carex tonsa</i>	X		
Umbel sedge	<i>Carex umbellata</i>	X		
Schweinitz's nut sedge	<i>Cyperus schweinitzii</i>	X		
Wool rush	<i>Scirpus cyperinus</i>			X

\*American beachgrass, known as the 'dune builder,' is often the best plant to stabilize sand and increase sand deposition. However, it is a state-protected species in Minnesota. Existing plants should be protected, and any impacts require a DNR permit.

**Table 2: Native Forbs**

Common name	Botanical name	Lake Side		Bay Side
		Beachgrass Dune and Dune Shrubland	Pine Woodland	
Common yarrow	<i>Achillea millifolium</i>	X		
Pearly everlasting	<i>Anaphalis margaritacea</i>	X		
Field Pussy toes	<i>Antennaria neglecta</i>	X		
Swamp milkweed	<i>Asclepias incarnata</i>			X
Common milkweed	<i>Asclepias syriaca</i>	X		X
Field sagewort	<i>Artemisia campestris</i>	X		
Woodland horsetail	<i>Equisetum sylvaticum</i>		X	
Large-leaved aster	<i>Eurybia macrophylla</i>		X	
Grass-leaved goldenrod	<i>Euthamia graminifolia</i>			X
Wild strawberry	<i>Fragaria virginiana</i>	X	X	
Blue flag iris	<i>Iris versicolor</i>			X
Beach pea	<i>Lathyrus maritimus</i>	X		
Twinflower	<i>Linnea borealis</i>		X	
Starflower	<i>Lysimachia borealis</i>		X	
Canada mayflower	<i>Maianthemum canadense</i>		X	
Starry false Solomon's seal	<i>Maianthemum stellata</i>	X		
Evening primrose	<i>Oenothera biennis</i>	X		
Coast jointweed	<i>Polygonella articulata</i>	X		
Pink-flowered pyrola	<i>Pyrola asarifolia</i>		X	
Shinleaf	<i>Pyrola elliptica</i>		X	
Dwarf raspberry	<i>Rubus pubescens</i>		X	
Three-toothed cinquefoil	<i>Sibbaldiopsis tridentata</i>	X	X	
Tall goldenrod	<i>Solidago altissima</i>	X		
Canada goldenrod	<i>Solidago canadensis</i>	X		
Giant goldenrod	<i>Solidago gigantea</i>			X
Grey goldenrod	<i>Solidago nemoralis</i>	X		

## Seed Mixes

The sandy soils of Minnesota Point do not naturally support herbaceous plants in abundance, as they are dry, droughty, and poor in nutrients. Establishing plants from seed may be challenging. However, regional seed mixes of grasses, sedges, and forbs may be appropriate for backyard plantings on the bay side, if provided with the necessary water and soil amendments. It may be more difficult to establish

plants from seed on the lake side, where dune conditions are more developed and shifting sands are common.

Native species are always preferred, as they are adapted for survival and the most beneficial for local insect populations. Appropriate seed mixes will have a "northeast" regional reference, denoting that the species can be found and have been sourced in the northeast part of the state. Many of the species in these mixes will not be native to Minnesota Point but can be appropriate for yard plantings. Look for seed mix names such as Shoreline, Wet meadow, and Riparian for the bay side; try Upland meadow or Woodland Edge mixes for the lake side.

**Table 3: Native Shrubs**

Common name	Botanical name	Lake Side		Bay Side
		Beachgrass Dune and Dune Shrubland	Pine Woodland	
Speckled alder	<i>Alnus incana subsp. rugosa</i>			X
Bearberry	<i>Arctostaphylos uva-ursi</i>		X	
Red osier dogwood	<i>Cornus sericea</i>			X
Round-leaved dogwood	<i>Cornus rugosa</i>		X	
Fireberry hawthorn	<i>Crataegus chrysocarpa</i>		X	
Bush honeysuckle	<i>Diervilla lonicera</i>		X	
Common juniper	<i>Juniperus communis var. depressa</i>	X		
Sweet gale	<i>Myrica gale</i>			X
Sand cherry	<i>Prunus pumila</i>	X		
Wild black currant	<i>Ribes americanum</i>			X
Northern gooseberry	<i>Ribes oxycanthoides</i>	X		
Prickly gooseberry	<i>Ribes cynosbati</i>			X
Prickly wild rose	<i>Rosa acicularis</i>	X	X	
Smooth wild rose	<i>Rosa blanda</i>	X	X	
Red raspberry	<i>Rubus idaeus</i>		X	
Bebb's willow	<i>Salix bebbiana</i>			X
Pussy willow	<i>Salix discolor</i>			X
Sandbar willow	<i>Salix interior</i>			X
Shining willow	<i>Salix lucida</i>			X
Slender-leaved willow	<i>Salix petiolaris</i>			X
Red-berried elder	<i>Sambucus racemosa</i>		X	X

Common name	Botanical name	Lake Side		Bay Side
Meadowsweet	<i>Spirea alba</i>			X
Lowbush blueberry	<i>Vaccinium angustifolium</i>		X	
Velvet-leaved blueberry	<i>Vaccinium myrtilloides</i>		X	
American highbush cranberry	<i>Viburnum opulus var. americanum</i>			X

**Table 4: Native Trees**

Common name	Botanical name	Lake Side		Bay Side
		**Dune Shrubland	Pine Woodland	
Red maple	<i>Acer rubrum</i>	(X)	X	X
Mountain maple	<i>Acer spicatum</i>		X	X
Mountain serviceberry	<i>Amelanchier bartramiana</i>		X	X
Inland juneberry	<i>Amelanchier interior</i>		X	X
Smooth serviceberry	<i>Amelanchier intermedia</i>		X	X
Smooth serviceberry	<i>Amelanchier laevis</i>		X	X
Round-leaved serviceberry	<i>Amelanchier sanguinea</i>		X	X
Creeping juneberry	<i>Amelanchier spicata</i>		X	X
Paper birch	<i>Betula papyrifera</i>	(X)	X	X
Jack pine	<i>Pinus banksiana</i>	(X)	X	
Red pine	<i>Pinus resinosa</i>	(X)	X	
White pine	<i>Pinus strobus</i>	(X)	X	X
Pin cherry	<i>Prunus pensylvanica</i>	X	X	X
Chokecherry	<i>Prunus virginiana</i>		X	X
American mountain ash	<i>Sorbus americana</i>		X	X
Showy mountain ash	<i>Sorbus decora</i>		X	X

\*\*Some of these tree species can be found along the edge of dune shrubland (not open dunes), where the community is more stable and transitioning toward forest.

## References

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