

INDEX FOR CONSERVATION TREE/SHRUB GROUPS (CTSGs)

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CONSERVATION TREE/SHRUB GROUPS

INTRODUCTION

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters tree/shrubs may be well or poorly suited because of climate, site and soil characteristics. Considering individual species performance under specified conditions of soil, climate, physiography, and management developed CTSGs, including: weed competition, moisture conservation, spacing, and arrangement.

This information provides guidance for selecting species best suited within each of the ten groups of soils within each vegetative zone. It can also be used for predicting survival, height, growth, species attributes and effectiveness for the purpose of the planting. It can be used to select plants for windbreaks, riparian plantings, recreation and wildlife plantings, ornamental or environmental plantings, reforestation, and critical area plantings.

All soil series mapped in the state have been placed with similar soils into one of the 10 CTSGs. Group 2 soils are further divided into subgroups. In addition, species listed in each CTSG are broken down by vegetative zones (rainfall zones). Refer to the map "Nebraska Vegetative Zones," found in Section I-Maps to determine the proper vegetative zone. Because vegetative zones are rather large, climatic differences within a zone should also be considered when recommending species, i.e. some species adapted to the eastern end of a zone may be inadequately adapted to the western end.

Care must be taken to ensure conditions on individual sites are considered when selecting species suitability and performance. A case by case decision may be necessary to determine which CTSG group is most appropriate when an individual site has different characteristics than the CTSG it is listed in. This can occur because inclusions of other soils, site modifications (leveling, drainage manipulation, etc.), soil pH (calcareous sites), irrigation, soil amendments or other differences.

The expected 20-year tree or shrub height and height/spread at maturity is listed in individual tables by CTSG and vegetative zone. This information should be used to determine the arrangement spacing and placement of tree/shrub plantings, area protected by windbreaks, species components, and effectiveness for the purpose, and other planting design considerations.

Named varieties of plants cooperatively released through the NRCS/USDA Plant Materials Program have been listed in the tables. These varieties have proven superior and should be used when they are available.

Space is provided on the front page of each Windbreak Suitability Group for listing of local soils that are applicable to each group and subgroup. District conservationists shall list individual soil map unit symbols in the appropriate group/subgroup for their field office area.

Conservation Tree/Shrub Groups - Index

List of soils placed in the Conservation Tree/Shrub Group or Subgroup.

Note: All channel phases and all soils on slopes over 17% are in CTSG 10.

<u>Soil</u>	<u>Group or Subgroup</u>
Ackmore2/	2S
Adair	4
Aksarben	3
Albaton 1/	2W
Alcester	3
Alda 1/2/	2S
Alda (saline-alkali)	9
Alice	5
Alliance	3
Almeria	2D
Almeria (wet)	10
Altvan	6
Angora	3
Anselmo (0-9%)	5
Anselmo (9-17%)	7
Aowa	1
Ashollow	8
Ascalon	5
Baltic 1/	2W
Bankard (sl)	5
Bankard (lvfs, lfs)	7
Banks	7
Barney	10
Bayard (0-9%)	5
Bayard (9-17%)	7
Bazile	3
Belfore	3
Benfield	4
Benkelman	3
Betts	8
Blackwood	3
Blake	1
Blanche	6
Blencoe2/	2S
Blendon	5
Blueridge	10

<u>Soil</u>	<u>Group or Subgroup</u>
Blyburg	1
Boel <u>1/</u>	2S
Boelus (lfs)2/	5
Bolent <u>1/</u>	2S
Boone	10
Boyd	4
Bridgeport	3
Bridget	3
Bristow	10
Broadwater	10
Brocksburg	6
Brunswick	7
Buffington	4
Buften	4
Burchard	3
Busher (vfl)	3
Busher (0-9%)	5
Busher (9-17%)	7
Bushman	8
Butler	2W
Calamus	7
Calco <u>1/2/</u>	2S
Campus	6
Canlon	10
Canyon	10
Carr	1
Caruso <u>1/2/</u>	2S
Caruso (saline-alkali)	9
Cass	1
Chappell	6
Chase	2
Cheyenne	6
Clamo	2W
Clarno	3
Colby	8
Colfer	7
Colo 2/	2S
Coly	8
Cooper	1
Cortland	3
Cozad (rare flooding)	1
Corley	2

<u>Soil</u>	<u>Group or Subgroup</u>
Cozad (nonflooded)	3
Cozad (saline-alkali)	9
Craft	1
Craft (alkali)	9
Craft (lvfs)	5
Creighton	3
Crete	4
Crofton	8
Crowther	2D
Cutcomb	10
Dailey (0-6%)	5
Dailey (6-17%)	7
Darr	6
Dawes	4
Deroin	3
Detroit	3
Dickinson	5
Dix	10
Doger	5
Doughboy	1
Dow	3
Duda (0-6%)	5
Duda (6-17%)	7
Dudley	9
Dunday (0-6%)	5
Dunday (7-17%)	7
Dunn	5
Duroc (flooded & 0-1% nonflooded)	1
Duroc (> 1% nonflooded)	3
Dwyer	7
Eckley	10
Edalgo	4
Els 1/2/	2S
Elsmere2/	2S
Eltree	3
Epping	10
Eudora	1
Exline	10
Filbert	2
Filley	5
Fillmore	2W
Fillmore (drained)	2W

<u>Soil</u>	<u>Group or Subgroup</u>
Fonner2/	2S
Fontanelle	10
Forney	2W
Gannett	2D
Gannett (wet)	10
Gates	3
Gavins	10
Gayville	9
Geary	3
Gering <u>1/2/</u>	2S
Gering (alkali)	9
Gibbon <u>1/2/</u>	2S
Gibbon (alkali)	9
Gibbon (saline)	9
Glenburg	1
Glenburg (alkali)	9
Glenburg (saline)	9
Glendive	1
Goshen (flooded)	1
Goshen (nonflooded)	3
Gosper	1
Gothenburg	10
Grable	1
Graybert	3
Grigston	1
Grigston (wet substratum)	1
Gymer	4
Hadar	5
Haigler	9
Hall (rare flooding)	1
Hall (nonflooded)	3
Harney	3
Hastings	3
Haverson	1
Havre	1
Haxtun	5
Haynie	1
Hedville	10
Hemingford	3
Hennings	5
Hersh 0-9%)	5
Hersh (9-17%)	7

<u>Soil</u>	<u>Group or Subgroup</u>
Hobbs	1
Hoffland	2D
Hoffland (very wet)	10
Holder	3
Holdrege	3
Holly Springs <u>1</u> /	2W
Holt	6
Hord (rare flooding)	1
Hord (nonflooded)	3
Humbarger	1
Ida	8
Imlay	10
Inavale (fs,s; hummocky, 6-17%)	7
Inavale (0-6%)	5
Inglewood	5
Interior	10
Ipage (alkali substratum)	9
Ipage (fs,s; 6-17%)	7
Ipage (lfs,ls,fsl, 0-6%)	5
Janise	10
Janise (drained)	9
Jankosh	10
Jansen	6
Janude	1
Jayem (0-9%)	5
Jayem (9-17%)	7
Johnstown	3
Josburg (fsl,sl)	5
Josburg (L,sil)	3
Judson (0-3%)	1
Judson (3-6%)	3
Kadoka	6
Kanorado	4
Keith	3
Kenesaw	3
Kennebec	1
Kenridge	1
Keota	8
Keya	3
Kezan	2W
Kipson	10
Kuma	3

<u>Soil</u>	<u>Group or Subgroup</u>
Kyle	4
Labette	6
Labu	4
Laird	9
Lamo <u>1/2/</u>	2S
Lamo (wet)	2D
Lamoure2/	2S
Lancaster	6
Lanham	4
Las <u>1/2/</u>	2S
Las Animas <u>1/2/</u>	2S
Las Animas (alkali)	9
Laurel	9
Lawet (drained) <u>1/</u>	2D
Lawet (saline-alkali)	9
Lawet (wet)	10
Leisy (fsl, sl)	5
Leisy (L)	3
Leshara2/	2S
Leshara (alkali)	9
Leshara (saline)	9
Lex <u>1/2/</u>	2S
Lex (saline-alkali)	9
Lexsworth	2
Libory	5
Lisco	10
Lockton2/	2S
Lodgepole	2
Longford	3
Loretto (fsl,sl,lfs,ls)	5
Loretto (L)	3
Loup	2D
Loup (wet)	10
Lute	9
Luton	2W
Lynch	4
Mace	6
Malcolm	3
Malmo	4
Manter	5
Mariaville	10
Marlake	10

<u>Soil</u>	<u>Group or Subgroup</u>
Marshall	3
Marshall (terrace)	1
Maskell (0-2%)	1
Maskell (2-6%)	3
Massie	10
Mayberry	4
McCash (0-1%)	1
McCash (1-3%)	3
McConaughy	3
McCook	1
McCook (saline-alkali)	9
McGrew <u>1/2/</u>	2S
McGrew (alkali)	9
McKelvie	7
McPaul	1
Meadin	10
Merrick	1
Minatare	10
Minnequa	3
Mitchell	8
Modale	1
Monona	3
Moody	3
Morrill	3
Moville	1
Muck	10
Muir (0-3%)	1
Muir (3-6%)	3
Munjor	1
Muscotah	2
Napa	9
Napier	3
Newman	5
Nimbro	1
Nishna	2W
Nodaway	1
Nora	3
Norka	3
Norrest	4
Novina2/	2S
Nuckolls	3
Nunn	3

<u>Soil</u>	<u>Group or Subgroup</u>
Obert	2
Ogalala	3
Olbut	9
Olmitz	3
Omadi	1
Onawa <u>1/2/</u>	2S
Onawet	10
ONeill	6
Onita (nonflooded)	3
Ord <u>1/2/</u>	2S
Orella	10
Ortello (sl, fsl)	5
Ortello (L)	3
Orwet <u>1/</u>	2D
Otero	8
Otoe	4
Ovina <u>1/2/</u>	2S
Overlake	7
Owego2/	2S
Paka (L)	3
Padonia	4
Pahuk	7
Paka (sl,fsl)	5
Parshall	5
Pawnee	4
Penrose	10
Percival <u>1/2/</u>	2S
Pierre	4
Pivot	5
Platte <u>1/2/</u>	2S
Pohocco	3
Ponca	3
Promise	4
Ralton	2
Rauville	2W
Redstoe	6
Ree	3
Reliance	3
Richfield	3
Rokeby	4
Ronson	8
Rosebud	6

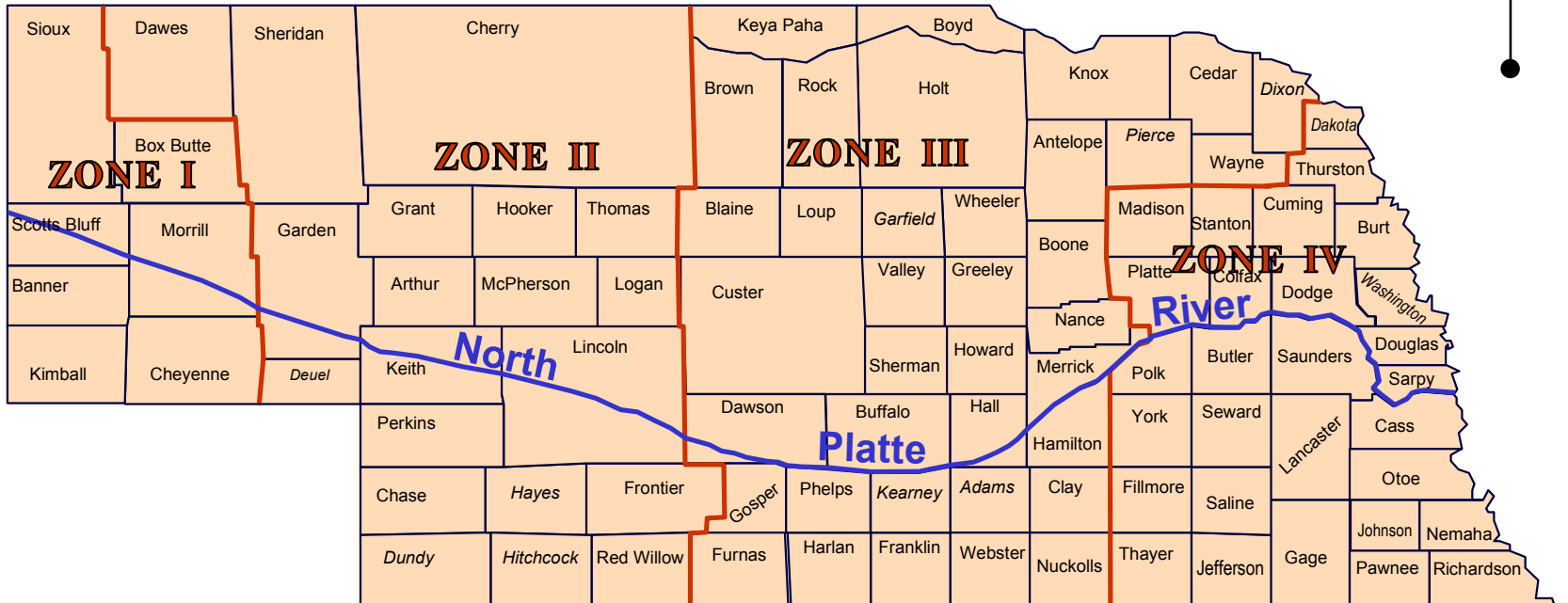
<u>Soil</u>	<u>Group or Subgroup</u>
Roxbury	1
Rusco	1
Salix	1
Salmo	10
Saltillo	10
Saltine	9
Samsil	10
Sanborn	10
Sandose	5
Sansarc	10
Sarben (0-9%)	5
Sarben (9-17%)	7
Sarpy	7
Satanta (L,vfsl)	3
Satanta (fsl)	5
Schamber	10
Scott (drained)	2W
Scott	10
Scoville (lfs)	7
Scoville (fs)	5
Selia	10
Sharpsburg	3
Shelby	3
Shell	1
Shingle	10
Sidney	3
Silver Creek	9
Simeon	10
Sogn	10
Solomon <u>1</u> /	2W
Steinauer	8
Sulco	8
Talmo	10
Tassel	10
Thirtynine	3
Thurman (0-6%)	5
Thurman (6-17%)	7
Tieville	2
Tomek	3
Trent	3
Tripp	3
Tryon	2D

<u>Soil</u>	<u>Group or Subgroup</u>
Tryon (wet)	10
Tuthill (fsl)	5
Uly	3
Ulysses	8
Valent	7
Valentine (lfs,ls; 0-3%)	5
Valentine (s,fs; 0-3%)	7
Valentine (3-17%)	7
Vebar	6
Verdel	4
Vetal	5
Volin	1
Vore	1
Wabash	2W
Wakeen	6
Wann <u>1/2/</u>	2S
Wann (saline-alkali)	9
Wathena	1
Waubonsie	1
Wewela	4
Whitelake	9
Wildhorse	10
Wood River	3
Woodbury <u>2/</u>	2S
Woodly	5
Wymore	4
Yockey <u>1/2/</u>	2S
Yockey (alkali)	9
Yutan	3
Zoe	9
Zook	2W

1/ These soils are calcareous, use only the trees or shrubs marked with (1/).

2/Soils that are drained so that the seasonal high water table is 2 feet or greater are generally placed in CTSG 3 if they are loamy textured; and CTSG 5 if they are sandy textured. Because of variability in texture and the extent of drainage, a case by case decision may be necessary to determine which CTSG group is most appropriate.

NEBRASKA VEGETATIVE ZONES



CONSERVATION TREE/SHRUB GROUP 1

Description:

Soils in this group receive beneficial moisture from favorable landscape positions (flooding, runoff from adjacent land), or they have a seasonal high water table from 3 to 5 feet during the growing season. Soil depth is > 40 inches to a restrictive layer and Available Water Capacity is > 8 inches within the top 5 feet. Some soils undergo frequent to occasional flooding for up to 2 months during the growing season. Soil pH ranges from 5.6-7.8 with a few calcareous soils of pH between 7.8 and 8.4.

Limitations:

These soils generally have few limitations and are some of the best soils for most tree/shrub species. Soils with high pH will have a limited choice of species that are adapted to the site. Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs.

Soils CTSG-1 (List soil map units for your county/field office area)

TABLE 1 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 1

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, Oriental <i>Thuja orientalis</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-25/15	15-20	25-30/15
Baldcypress <i>Taxodium distichum</i>	Not	Recommended	20-25	25-30/20	20-25	30-35/20	20-30	40-50/20
Fir, Douglas <i>Pseudotsuga menziesii</i>	Not	Recommended	Not	Recommended	20-25	30-35/20	25-30	40-50/20
Fir, White <i>Abies concolor</i>	Not	Recommended	20-25	30-45/30	20-25	30-45/25	20-30	40-50/25
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20-30	15-30	30-55/20	20-30	35-50/20	20-35	40-60/20
Pine, Eastern White <i>Pinus strobus</i>	Not	Recommended	25-30	35-40/20	20-25	40-50/20	30-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	30-40/15	15-20	35-45/15	20-30	35-45/15	20-30	35-45/15-20
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	15-25	30-50/15	15-30	30-55/15-20	20-30	35-55/15	20-35	40-60/15-20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i>	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	Not	Recommended	25-30	35-40/20	20-25	40-50/20	30-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	15-20	25-35/20-30	15-20	30-40/20-30	20-25	30-45/20-30	15-20	40-60/25-30
Spruce, Norway <i>Picea abies</i>	Not	Recommended	25-30	30-40/20	25-30	30-45/20	30-35	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	25-30	30-45/20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
DECIDUOUS TREES								
Apricot, Manchurian <i>Prunus armeniaca</i> var. <i>Mandshurica</i>	Not	Recommended	5-10	10-15/10	10-15	10-15/10	10-20	10-20/10

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20	25-35/25	20-25	30-40/30	20-30	35-45/30	25-30	40-50/30-40
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	15-20	30-40	15-20	30-40	15-20	30-40	15-20	30-40
Linden/Basswood, American <i>Tilia americana</i>	20-25	30-40/30	25-30	30-40/30	25-30	35-45/30	30-35	50-70/30-40
Birch, River <i>Betula nigra</i>	Not	Recommended	Not	Recommended	20 (Niobrara)	15 (Valley only)	20	15
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	Not	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cherry, Black <i>Prunus serotina</i>	Not	Recommended	Not	Recommended	15-20	35-40/20	20-30	30-50/20
Cockspur <i>Crataegus crus-galli</i> <u>1/</u>	15-20	15-20/15	15-20	15-20/15	10-15	10-15	15-20	15-20
Cottonwood, Eastern <i>Populus deltoides</i> (recommended cultivars: Might Mo, Noreaster, Ohio Red, Platte) <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	20-30	30-50/20
Cottonwood, Plains <i>Populus deltoides</i> <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	20-30	30-50/20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Crabapple <i>Malus sp.</i> (Recommended cultivars: Radiant, Siberian, Midwest <u>1/</u> , Roselow Sargent)	8-12	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	25-40	25-40/20	25-40	55-60/30
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Washington <i>Crataegus phaenopyrum</i> <u>1/</u>	15-20	15-20/15	15-20	15-20/15	10-15	10-15	15-20	15-20
Hickory, Bitternut <i>Carya cordiformis</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Hophornbeam, Eastern <i>Ostrya virginiana</i>	Not	Recommended	10-15	15-20/10	10-20	20/10	15-20	20-25/10-20
Kentucky Coffeetree <i>Gymnocladus dioica</i>	20-25	30-40/15	25-30	30-40/20	25-30	35-45/20	25-30	45-70/25-30

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	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Locust, Black <i>Robinia pseudoacacia</i> <u>1/ 2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> Recommended cultivar: Flame	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Maple, Sugar <i>Acer saccharum</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-25	40-50/30
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian <i>Morus alba</i> <i>var. tatarica</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	Not	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	15-20	25-35/20-25	15-25	30-40/20	20-25	35-45/30	25-30	40-60/30-40
Oak, Chinkapin <i>Quercus muhlenbergii</i>	Not	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Oak, English <i>Quercus robur</i>	Not	Recommended	Unknown Hgt	Unknown Hgt/spread	Unknown Hgt	Unknown Hgt/spread	Unknown	Unknown Hgt

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	Unknown		Unknown		Not	Recommended
Oak, Northern Red <i>Quercus rubra</i>	Not	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Oak, Pin <i>Quercus palustris</i>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	Not	Recommended	15-20	30-40/20	15-25	30-45/20	20-30	40-50/20-30
Oak, White <i>Quercus alba</i>	Not	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar: King-red <u>1/</u>	10-20	10-20	15-20	15-20	15-20	15-20	15-20	15-20
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	Not	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pawpaw <i>Asimina Adans.</i> <u>1/</u>	Not	Recommended	10-15	20/10	10-20	10-15/10	15-20	15-20/10-20
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar: McDermand	Not	Recommended	15-20	15-20/15	15-20	15-25/15	20-25	20-25/15
Redbud, Eastern <i>Cercis canadensis</i> <u>1/</u>	Not	Recommended	10-15	20/10	10-20	10-15/10	15-20	15-20/10-20
Walnut, Black <i>Juglans nigra</i>	20-25	25-30/20	20-25	30-40/30	20-25	40-50/30	25-30	40-60/30

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Willow, Black <i>Salix nigra</i> <u>1/</u>	20-25	25-35/20	20-25	30-35/20	25-30	30-35/20	25-30	35-50/20
Willow, Peachleaf <i>Salix amygdaloides</i> <u>1/</u>	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20
Willow, White <i>Salix alba</i> (variety Golden willow var. <i>vitellina</i>) <u>1/</u>	20-30	25-35/20	20-25	30-35/20	25-30	30-35/20	25-30	35-40/20
Sycamore, American <i>Platanus occidentalis</i> <u>1/</u>	Not	Recommended	30	40/50	30-35	40-45/20	35-40	50-70/30-40

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Blackhaw, Nannyberry <i>Viburnum lentago</i> <u>1/</u>	Not Recommended	Not Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia</i> <u>argentea</u> <u>1</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	Not Recommended	Not Recommended	Not Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	6-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	Not Recommended	4-5	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	Not Recommended	5-8	4-8	6-8
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	Not Recommended	Not Recommended	6-12	10-12
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry, <i>Sambucus canadensis</i>	Not Recommended	4-6	4-6	4-8
Euonymus <i>Euonymus alatus</i> (recommended cultivar: Pink Lady Winterberry)	5-10	5-10	8-14	8-14
Hazelnut <i>Corylus americana</i>	Not Recommended	6-8	6-8	6-8
Honeysuckle, Amur <i>Lonicera maackii</i> recommended cultivar: Cling-red <u>3/</u>	Not Recommended	5-8	5-8	5-10
Indigo, False <i>Amorpha fruticosa</i>	Unknown	Unknown	Unknown	Unknown
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i>	5-7	5-7	6-10	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	4-6	Not Recommended	Not Recommended	Not Recommended
Olive, Autumn <i>Elaeagnus umbellata</i> recommended cultivars: Elsberry, Redwing <u>3/</u>	Not Recommended	6-10	8-12	12-14
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	20-25	Not Recommended	Not Recommended	Not Recommended
Sandcherry, Western <i>Prunus besseyi</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	Not Recommended	Not Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6	4-6	4-8

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 2

Description:

Soils in this group have a seasonal high water table from 1.5 to 3 feet during the growing season, or have saturated soils in the top 3 feet up to 3 months in a given year.

Limitations:

The degree and length of wetness, pH and drainage will have an affect on the selection of tree and shrub species for soils in this group.

Soils with a favorable seasonal high water table of 3 feet or greater are generally placed in CTSG 3 if they are loamy textured; and CTSG 5 if they are sandy textured. Soils that have perched water tables and normally are in CTSG 4 are generally placed in CTSG 2. Because of variability in texture, and the extent of drainage, a case by case decision may be necessary to determine which CTSG group is most appropriate.

Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs. Spring planting may be delayed because of wet conditions. Soil blowing is a concern on the sandy soils.

Subgroup CTSG 2D - Drained phases of poorly drained sandy and loamy soils:

(List soil map units for your county/field office area)

Subgroup CTSG 2S - Somewhat poorly drained sandy, silty, and loamy soils:

(List soil map units for your county/field office area)

Subgroup CTSG 2W - Poorly drained clayey and silty soils:

(List soil map units for your county/field office area)

TABLE 2 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 2

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Baldcypress <i>Taxodium distichum</i>	Not	Recommended	20-25	30/20	20-25	30-35/20	20-30	40-50/20

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20	25-35/25	20-25	30-40/30	20-25	35-45/30	25-30	40-50/30-40
Birch, River <i>Betula nigra</i>	Not	Recommended	Not	Recommended	20 (Niobrara)	15 Valley only)	20	15
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Cottonwood, Plains <i>Populus deltoides</i> <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	50-60	70-90/40-50
Cottonwood, Eastern <i>Populus deltoides</i> (recommended cultivars: Might Mo,	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	50-60	70-90/40-50

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Noreaster, Ohio Red, Platte) <u>1/</u>								
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Oak, Pin <i>Quercus palustris</i>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	Not	Recommended	15-20	30-40/20	15-25	30-45/20	25-30	40-50/20-30
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar:King-red <u>1/</u>	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Sycamore, American <i>Platanus occidentalis</i> <u>1/</u>	Not	Recommended	20-30	40-45/20	30-35	40-45/20	35-40	50-70/30-40
Willow, Black <i>Salix nigra</i> <u>1/</u>	20-25	25-35/20	20-25	30-35/20	25-30	30-35/20-25	25-30	40-60/30
Willow, Peachleaf <i>Salix amygdaloides</i> <u>1/</u>	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20-25	20-25	20-30/30
Willow, White <i>Salix alba</i> (Willow, Golden <i>Salix alba</i> var. <i>vitellina</i>) <u>1/</u>	20-25	25-35/20	25-30	30-35/20	25-30	30-35/20	25-30	35-45/20-25

GROUP 2	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	Not Recommended	4-6	4-6	4-8
Indigo, False <i>Amorpha fruticosa</i>	Unknown	Unknown	Unknown	Unknown

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 3

Description:

Soils in this group are well-drained loamy and silty soils with moderate and moderately slow permeability on uplands. These soils have a seasonal high water table of 5 feet during the growing season. Soil depth is > 40 inches deep to a restrictive layer and Available Water Capacity is > 8 inches within the top 5 feet. Some soils undergo frequent to occasional flooding for up to 2 months during the growing season. Soil pH ranges from 5.6-8.4 and as low as 4.5 in a few soils.

Limitations:

CTSG 2 loamy soils that are drained so that the seasonal high water table is 3 feet or greater are generally placed in this group. Because of variability in texture, and the extent of drainage, a case by case decision may be necessary to determine which CTSG is most appropriate for these sites.

Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs on these soils. Water erosion is a concern on the gently sloping to moderately steep areas.

Soils CTSG 3 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 3 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 3

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, Oriental <i>Thuja orientalis</i>	Not	Recommended	Not	Recommended	15-20	20-25/15	15-20	25-30/15
Baldcypress <i>Taxodium distichum</i>	Not	Recommended	Not	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, Douglas <i>Pseudotsuga menziesii</i>	Not	Recommended	Not	Recommended	20-25	30-35/20	25-30	40-50/20
Fir, White <i>Abies concolor</i>	Not	Recommended	20-25 <u>5/</u>	30-45/25	20-25	30-45/25	20-30	40-50/25
Juniper, Rocky Mountain <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Eastern White <i>Pinus strobus</i>	Not	Recommended	25-30 <u>5/</u>	35-40/20	20-25	40-50/20	30-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	30-40/15	15-20	35-45/15	15-30	35-45/15	20-30	40-50/15
Pine, Limber <i>Pinus flexilis</i>	15-25	30-50/15	15-30	30-55/15	20-30	35-55/15	20-35	40-60/15

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Ponderosa <i>Pinus ponderosa</i>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i>	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	Not	Recommended	25-30 <u>5</u>	35-40/20	20-25	40-50/20	30-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	15-20	25-35/20	15-20	30-40/20	15-25	30-45/20-25	20-30	40-60/25
Spruce, Norway <i>Picea abies</i>	Not	Recommended	25-30	30-40/20	25-30	30-45/20	25-30	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	25-30	30-45/20

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. <i>Mandshurica</i>	Not	Recommended	5-10	10-15/10	10-15	10-15/10	10-20	10-20/10
Ash, Green <i>Fraxinus pennsylvanica</i>	15-20	25-35/25	15-25	30-40/30	20-30	35-45/30	25-30	40-50/30-40
Aspen, Quaking <i>Populus tremuloides</i>	15-20	30-40	15-20	30-40	15-20	30-40	15-20	30-40
Linden/Basswood, American <i>Tilia americana</i>	15-25	30-40/30	25-30	30-40/30	25-30	35-45/30	25-30	50-70/30-40
Birch, River <i>Betula nigra</i>	Not	Recommended	Not	Recommended	20 (Niobrara)	15 (Valley only)	20	15
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i>	Not	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cherry, Black <i>Prunus serotina</i>	Not	Recommended	Not	Recommended	15-20	35-40/20	20-30	30-50/20
Cockspur <i>Crataegus crus-galli</i> 1/	15-20	15-20/15	15-20	15-20/15	10-15	10-15/15	15-20	15-20/15
Cottonwood, Plains <i>Populus deltoides</i>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	50-60	70-90/40-50

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Cottonwood, Eastern <i>Populus deltoides</i> (recommended cultivars: Might Mo, Noreaster, Ohio Red, Platte)	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	50-60	70-90/40-50
Crabapple <i>Malus sp.</i> (Recommended cultivars: Radiant, Siberian, Midwest, Roselow Sargent)	5-10	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15
Elm, Siberian <i>Ulmus pumila</i>	15-30	15-35/20	15-35	20-40/20	25-40	25-40/20	25-40	55-60/30
Hackberry <i>Celtis occidentalis</i>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Washington <i>Crataegus phaenopyrum</i>	15-20	15-20/15	15-20	15-20/15	10-15	10-15/15	15-20	15-20/15
Hickory, Bitternut <i>Carya cordiformis</i>	Not	Recommended	Not	Recommended	Not	Recommended	5-10	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Hophornbeam, Eastern <i>Ostrya virginiana</i>	Not	Recommended	Not	Recommended	15-20	20/10	15-20	20-25/10-20

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	20-25	30-40/15	20-25	30-40/20	25-30	35-45/20	25-30	45-70/25-30
Locust, Black <i>Robinia pseudoacacia</i> <u>2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> recommended cultivar: Flame	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Maple, Sugar <i>Acer saccharum</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-25	35-45/30
Mulberry, Red <i>Morus rubra</i>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian <i>Morus alba var. tatarica</i>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	Not	Recommended	Not	Recommended	20-25	40-50/30	20-25	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i>	15-20	25-35/15-20	15-25	30-40/20	20-25	35-45/30	25-30	40-60/30-40
Oak, Chinkapin <i>Quercus muhlenbergii</i>	Not	Recommended	Not	Recommended	20-25	40-50/30	25-30	40-60/30-40
Oak, English <i>Quercus robur</i>	Not	Recommended	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Gambel <i>Quercus gambelii</i>	5-10	15-20	Not	Recommended	Not	Recommended	Not	Recommended
Oak, Northern Red <i>Quercus rubra</i>	Not	Recommended	15-20	35-50/25-30	20-25	40-50/30	20-25	40-60/30-40
Oak, Pin <i>Quercus palustris</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	Not	Recommended	15-20	<u>5/</u> 30-40/20	15-25	30-45/20	25-30	40-50/20-30
Oak, White <i>Quercus alba</i>	Not	Recommended	Not	Recommended	20-25	40-50/30	20-25	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar: King-red	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Osage-orange <i>Maclura pomifera</i>	Not	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pawpaw <i>Asimina Adans.</i>	Not	Recommended	10-15	15-20/10	15-20	10-20/10	15-20	15-20/10-20
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar: McDermand	Not	Recommended	15-20	15-20/15	15-20	15-20/15	20-25	20-25/15
Redbud, Eastern <i>Cercis canadensis</i>	Not	Recommended	10-15	15-20/10	15-20	10-20/10	15-20	15-20/10-20

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Sycamore, American <i>Platanus occidentalis</i>	Not	Recommended	20-30	40-45/20	30-35	40-45/20	35-40	50-70/30-40
Walnut, Black <i>Juglans nigra</i>	20-25	25-30/20	20-25	30-40/20	20-25	40-50/20	25-30	40-60/30-35
Willow, Black <i>Salix nigra</i>	20-25	25-35/20	20-25	30-35/20	25-30	30-35/20-25	25-30	40-60/30
Willow, Peachleaf <i>Salix amygdaloides</i>	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20-25	20-25	20-30/30

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Willow, White <i>Salix alba</i> (variety Golden willow <i>var. vitellina</i>)	20-30	25-35/20	25-30	30-35/20	25-30	30-35/20	30-35	35-45/20-25

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Blackhaw, Nannyberry <i>Viburnum lentago</i>	Not Recommended	Not Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia argentea</i>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	Not Recommended	Not Recommended	Not Recommended	8-10
Caragana (Siberian peashrub) <i>Caragana arborescens</i>	6-8	6-8	8-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	Not Recommended	4-5	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	Not Recommended	5-8	4-8	6-8
Chokecherry, Common <i>Prunus virginiana</i>	5-8	6-12	6-12	8-14
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	Not Recommended	Not Recommended	6-12	10-12
Currant, Buffalo <i>Ribes odoratum</i>	3-6	3-6	3-6	3-6

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Currant, Golden <i>Ribes aureum</i>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	Not Recommended	4-6	4-6	4-8
Euonymus <i>Euonymus alatus</i> (recommended cultivar: Pink Ladywinterberry)	6-10	6-10	8-14	8-14
Hazelnut <i>Corylus americana</i>	Not Recommended	6-8	6-8	6-8
Honeysuckle, Amur <i>Lonicera maackii</i> recommended cultivar: Cling-red <u>3/</u>	5-7	5-8	5-8	5-10
Indigo, False <i>Amorpha fruticosa</i>	Not Recommended	Unknown	Unknown	Unknown
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i>	5-6	5-6	5-8	6-10

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Mahogany, Mountain <i>Cercocarpus montana</i>	4-6	Not Recommended	Not Recommended	Not Recommended
Olive, Autumn <i>Elaeagnus umbellata</i> recommended cultivars: Elsberry, Redwing <u>3/</u>	Not Recommended	6-8	8-12	12-14
Plum, American <i>Prunus americana</i>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Saltbush, Fourwing <i>Atriplex canescens</i>	20-25	Not Recommended	Not Recommended	Not Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	Not Recommended	Not Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant	3-5	4-6	4-6	4-8

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 4

Description:

Soils in this group are moderately deep to deep, loamy and clayey soils with slow or very slow permeability on uplands. These soils have a seasonal high water table greater than 5 feet during the growing season. Soil depth is > 20 inches to a restrictive layer and Available Water Capacity is > 5 inches within the top 5 feet. Soil pH ranges from 4.5 to as high as 8.4 on some calcareous soils.

Limitations:

High clay content and drought tolerance have an effect on the selection of tree and shrub species for these soils. Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs. Water erosion is a concern on gently sloping to moderately steep areas.

Soils in this group that have perched water tables are generally appropriate for CTSG 2, because of excessive wetness.

Soils CTSG 4 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 4 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 4

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, Oriental <i>Thuja orientalis</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-25/15	15-20	25-30/15
Baldcypress <i>Taxodium distichum</i>	Not	Recommended	Not	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, Douglas <i>Pseudotsuga menziesii</i>	Not	Recommended	Not	Recommended	20-25	30-35/20	25-30	40-50/20
Fir, White <i>Abies concolor</i>	Not	Recommended	20-25 <u>5/</u>	30-45/25	20-25	30-35/25	20-30	40-50/25
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Eastern White <i>Pinus strobus</i>	Not	Recommended	Not	Recommended	20-25	40-50/20	30-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	25-35/15	15-20	30-40/15	20-30	30-45/15	20-30	40-50/15
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	15-25	30-50/15	15-30	30-55/15	20-30	35-55/15	20-35	40-60/15
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Scotch <i>Pinus sylvestris</i>	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	Not	Recommended	Not	Recommended	20-25	40-50/20	30-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	15-20	25-35/20	15-20	30-40/20	15-25	30-45/20-25	15-30	40-60/25
Spruce, Norway <i>Picea abies</i>	Not	Recommended	25-30	30-40/20	25-30	30-45/20	25-30	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	25-30	30-45/20

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. <i>Mandshurica</i>	Not	Recommended	5-10	10-15/10	10-15	10-15/10	10-20	10-20/10
Ash, Green <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20	25-35/25	15-25	30-40/30	20-30	35-45/30	25-30	40-50/30-40
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-30	15-20	20-30
Linden/Basswood, American <i>Tilia americana</i>	20-25	30-40/30	25-30	30-40/30	25-30	35-45/30	25-30	50-70/30-40
Birch, River <i>Betula nigra</i>	Not	Recommended	Not	Recommended	20 (Niobrara)	15 Valley only)	20	15
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	Not	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cherry, Black <i>Prunus serotina</i>	Not	Recommended	Not	Recommended	15-20	35-40/20	20-30	30-50/20
Cockspur <i>Crataegus crus-galli</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	10-15/15	10-20	10-20/15
Cottonwood, Plains <i>Populus deltoides</i> <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	50-60	70-90/40-50

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Cottonwood, Eastern <i>Populus deltoides</i> (recommended cultivars: Might Mo, Noreaster, Ohio Red, Platte) <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	50-60	70-90/40-50
Crabapple <i>Malus sp</i> (Recommended cultivars: Radiant, Siberian, Midwest, Roselow Sargent) <u>1/</u>	5-10	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	25-40	25-40/20	25-40	55-60/30
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Washington <i>Crataegus phaenopyrum</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	10-15/15	10-20	10-20/15
Hickory, Bitternut <i>Carya cordiformis</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Hophornbeam, Eastern <i>Ostrya virginiana</i>	Not	Recommended	Not	Recommended	10-20	20/10	15-20	20-25/10-20
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	Not	Recommended	Not	Recommended	25-30	35-45/20	25-30	45-70/25-30

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Locust, Black <i>Robinia pseudoacacia</i> <u>1/ 2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> recommended cultivar: Flame	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15
Maple, Sugar <i>Acer saccharum</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-25	35-45/30
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian <i>Morus alba</i> <i>var. tatarica</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	Not	Recommended	Not	Recommended	20-25	40-50/30	20-25	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	15-20	25-35/15-20	20-25	30-40/20	20-25	35-45/30	25-30	40-60/30-40
Oak, Chinkapin <i>Quercus muhlenbergii</i>	Not	Recommended	Not	Recommended	20-25	40-50/30	20-25	40-60/30-40
Oak, English <i>Quercus robur</i>	Not	Recommended	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	Not	Recommended	Not	Recommended	Not	Recommended

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Northern Red <i>Quercus rubra</i>	Not	Recommended	15-20	35-50/25-30	20-25	40-50/30	20-25	40-60/30-40
Oak, Pin <i>Quercus palustris</i>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	Not	Recommended	15-20 <u>5/</u>	30-40/20	15-25	30-45/20	25-30	40-50/20-30
Oak, White <i>Quercus alba</i>	Not	Recommended	Not	Recommended	20-25	40-50/30	20-25	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar: King-red <u>1/</u>	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	Not	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pawpaw <i>Asimina Adans.</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	10-15/10	15-20	15-20/10-20
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar: McDermid	Not	Recommended	15-20	15-20/15	15-20	15-20/15	20-25	20-25/15
Redbud, Eastern <i>Cercis canadensis</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	10-15/10	15-20	15-20/10-20
Sycamore, American <i>Platanus occidentalis</i> <u>1/</u>	Not	Recommended	Not	Recommended	30-35	40-45/20	35-40	50-70/30-40
Walnut, Black <i>Juglans nigra</i>	20-25	25-30/20	20-25	30-40/20	20-25	40-50/20	25-30	40-60/30-35

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Blackhaw, Nannyberry <i>Viburnum lentago</i> <u>1/</u>	Not Recommended	Not Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>1/</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	Not Recommended	Not Recommended	Not Recommended	8-10
Caragana (Siberian Peashrub) (<i>Caragana arborescens</i>) <u>1/</u>	6-8	6-8	8-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	Not Recommended	4-5	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	Not Recommended	5-8	4-8	6-8
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	Not Recommended	Not Recommended	6-12	10-12
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	Not Recommended	4-6	4-6	4-8
Euonymus <i>Euonymus alatus</i> (recommended cultivar: Pink Ladywinterberry)	6-10	6-10	8-14	8-14
Hazelnut <i>Corylus americana</i>	Not Recommended	Not Recommended	6-8	6-8
Honeysuckle, Amur <i>Lonicera maackii</i> Recommended cultivar: Cling-red <u>3/</u>	5-7	5-8	5-8	5-10
Indigo, False <i>Amorpha fruticosa</i>	Not Recommended	Unknown	Unknown	Unknown
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i> <u>1/</u>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	4-6	Not Recommended	Not Recommended	Not Recommended

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Olive, Autumn <i>Elaeagnus umbellata</i> recommended cultivars: Elsberry, Redwing <u>3/</u>	Not Recommended	6-8	8-12	12-14
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Saltbush, Fourwing <i>Atriplex</i> <i>canescens</i> <u>1/</u>	20-25	Not Recommended	Not Recommended	Not Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	Not Recommended	Not Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4
Sumac, Skunkbush <i>Rhus trilobata</i> Recom. cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6	4-6	4-8

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 5

Description:

Soils in this group are loamy and sandy soils. These soils have a seasonal high water table greater than 5 feet during the growing season. Soil depth is > 40 inches to a restrictive layer and Available Water Capacity is 4-8 inches within the top 5 feet. Some soils undergo frequent to occasional flooding for up to 2 months during the growing season. Soil pH ranges from 5.6-8.4 and as low as 4.5 in a few soils.

Limitations:

Competition from grass and weeds and soil blowing are the principal concerns in establishment and management of trees and shrubs on these soils.

Soils CTSG 5 (Slopes dominantly less than 6% but range up to 17%)
(List soil map units for your county/field office area)

TABLE 5 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 5

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, Oriental <i>Thuja orientalis</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-25/15	15-20	25-30/15
Baldcypress <i>Taxodium distichum</i>	Not	Recommended	Not	Recommended	20-25	30-35/20	20-30	40-50/20
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Eastern White <i>Pinus strobus</i>	Not	Recommended	Not	Recommended	25-30	40-50/20	30-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	25-35/15	15-20	30-40/15	15-30	35-40/15	20-30	40-45/15
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	15-25	30-50/15	15-30	30-55/15	20-30	35-55/15	20-35	40-60/15
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i>	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Southwestern White <i>Pinus strobiformis</i>	Not	Recommended	Not	Recommended	25-30	40-50/20	30-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	Not	Recommended	Not	Recommended	20-25	30-45/20-25	20-30	40-60/25
Spruce, Norway <i>Picea abies</i>	Not	Recommended	Not	Recommended	25-30	30-45/20	25-30	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	25-30	30-45/20

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. Mandshurica	Not	Recommended	Not	Recommended	10-15	10-15/10	10-20	10-20/10
Ash, Green <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20	25-35/25	20-25	30-40/30	20-30	35-45/30	25-30	40-50/30-40
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-30	15-20	20-30
Linden/Basswood, American <i>Tilia americana</i>	20-25	30-40/30	25-30	30-40/30	25-30	35-45/30	25-30	40-50/30
Birch, River <i>Betula nigra</i>	Not	Recommended	Not	Recommended	20 (Niobrara)	15 Valley only)	20	15
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	20-25	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	Not	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cockspur <i>Crataegus crus-galli</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	15-20/15	15-20	15-20/15
Crabapple <i>Malus sp.</i> (Recommended cultivars: Radiant, Siberian, Midwest, Roselow Sargent) <u>1/</u>	10-15	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	20-25	20-35/20	20-30	35-45/20	25-40	25-40/20	25-40	55-60/30
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Washington <i>Crataegus phaenopyrum</i> <u>1/</u>	Not	Recommended	10-15	15-20/15	10-15	15-20/15	15-20	15-20/15
Hickory, Bitternut <i>Carya cordiformis</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	Not	Recommended	Not	Recommended	Not	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	Not	Recommended	Not	Recommended	25-30	35-45/20	25-30	45-70/25-30
Locust, Black <i>Robinia pseudoacacia</i> <u>1/ 2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> recommended cultivar: Flame	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Maple, Sugar <i>Acer saccharum</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-25	35-45/30
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian <i>Morus alba var. tatarica</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	15-20	25-35/15-20	20-25	30-40/20	20-25	35-45/30	25-30	40-60/30-40
Oak, English <i>Quercus robur</i>	Not	Recommended	Not	Recommended	Not	Recommended	Unknown	Unknown
Oak, Northern red <i>Quercus rubra</i>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	Not	Recommended	Not	Recommended	15-25	30-45/20	25-30	40-50/20-30

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, White <i>Quercus alba</i>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar: King-red <u>1/</u>	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	Not	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar: McDermand	Not	Recommended	Not	Recommended	15-20	15-20/15	20-25	20-25/15
Sycamore, American <i>Platanus occidentalis</i> <u>1/</u>	Not	Recommended	Not	Recommended	Not	Recommended	25-30	30-40/30-40

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Blackhaw, Nannyberry <i>Viburnum lentago</i> <u>1/</u>	Not Recommended	Not Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>1/</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	Not Recommended	Not Recommended	Not Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	6-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	Not Recommended	Not Recommended	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	Not Recommended	5-8	5-8	5-8
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	Not Recommended	Not Recommended	6-8	6-10
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Dogwood, Gray <i>Cornus racemosa</i>	Not Recommended	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	Not Recommended	4-6	4-6	4-8
Euonymus <i>Euonymus alatus</i> (recommended cultivar: Pink Ladywinterberry)	6-10	6-10	8-14	8-14
Honeysuckle, Amur <i>Lonicera maackii</i> recommended cultivar: Cling-red <u>3/</u>	5-7	5-8	5-8	5-10
Juneberry, (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i> <u>1/</u>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	4-6	Not Recommended	Not Recommended	Not Recommended
Olive, Autumn <i>Elaeagnus umbellata</i> recommended cultivars: Elsberry, Redwing <u>3/</u>	Not Recommended	Not Recommended	8-12	12-14
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	20-25	Not Recommended	Not Recommended	Not Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	Not Recommended	Not Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6	4-6	4-8

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
EVERGREEN SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

1/ Adapted to calcareous soils

2/ While the plant may grow, its severely impacted by insect damage

- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 6

Description:

Soils in this group are well-drained, loamy and silty soils that have sand and gravel or root restrictive features between 20 and 60 inches. These soils have a seasonal high water table greater than 5 feet and Available Water Capacity is > 2 inches within the top 5 feet.

Limitations:

Drought tolerance will have an affect on the selection of tree and shrub species for use on these soils. Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs. Water erosion is a concern on gently sloping to moderately steep areas.

Soils CTSG 6: (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 6 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 6

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-15	20-25/20	15-20	20-25/20	15-20	25-35/20	20-25	30-40/20
Pine, Jack <i>Pinus banksiana</i>	10-15	20-25/15	10-15	20-25/15	15-25	25-30/15	15-25	25-30/15
Pine, Scotch <i>Pinus sylvestris</i>	10-15	20-25/15	10-15	20-25/15	15-20	25-30/15	15-20	25-30/15
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	15-25	30-50/15	15-30	30-55/15	20-30	35-55/15	20-35	40-60/15
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20	25-35/25	20-25	30-40/30	20-30	35-45/30	25-30	40-50/30-40
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-30	15-20	20-30
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	30-35/20	15-20	30-35/20
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	25-40	25-40/20	25-40	55-60/30
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	20-25/15	10-15	20-25/20
Mulberry, Russian <i>Morus alba var. tatarica</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	20-25/15	10-15	20-25/20
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	20-25/20	10-15	20-25/20

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar:King-red <u>1/</u>	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	20-30/15	15-20	30-35/20-25
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar:McDermant	Not	Recommended	Not	Recommended	15-20	15-20/15	20-25	20-25/15

GROUP 6	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>1/</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	Not Recommended	Not Recommended	Not Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	6-10	8-10
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	Not Recommended	Not Recommended	Not Recommended	6-8
Dogwood, Redosier <i>Cornus sericea</i>	Not Recommended	Not Recommended	Not Recommended	8-10

GROUP 6	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Honeysuckle, Amur <i>Lonicera maackii</i> recommended cultivar: Cling-red <u>3/</u>	Not Recommended	5-8	5-8	5-10
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i> <u>1/</u>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	Not Recommended	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	4-6	Not Recommended	Not Recommended	Not Recommended
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	Not Recommended	Not Recommended	Not Recommended
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	20-25	Not Recommended	Not Recommended	Not Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4

GROUP 6	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6	4-6	4-8

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 7

Description:

Soils in this group are excessively drained, sandy soils with a depth > 40 inches to a restrictive layer. The Available Water Capacity is as low as 2 inches within the top 5 feet. Soil pH ranges from 5.6-7.8 with a pH as low as 4.5 for coarse loamy soils on 9-17% slopes.

Limitations:

Drought conditions and soil blowing are the principal concerns in establishment and management of trees and shrubs on these soils. Specialized site preparation and specialized planting methods (vegetation between the rows is normally left undisturbed) are needed to establish the trees and shrubs

Soils CTSG 7 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 7 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 7

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Austrian <i>Pinus nigra</i>	Not	Recommended	10-15	20-25/20	10-20	25-35/20	20-25	30-40/20
Pine, Jack <i>Pinus banksiana</i>	10-15	20-25/15	10-15	20-25/15	15-25	25-35/15	15-25	25-30/15
Pine, Limber <i>Pinus flexilis</i>	5-10	15-20/10	5-10	15-20/10	10-15	20-30/20	15-20	25-35/20
Pine, Ponderosa <i>Pinus ponderosa</i>	10-20	30-40/20	10-20	30-45/20	20-30	35-45/20	20-35	35-45/20
Pine, Scotch <i>Pinus sylvestris</i>	Not	Recommended	5-10	20-30/15	10-20	35-45/15	20-30	35-45/20
Redcedar, Eastern <i>Juniperus virginiana</i>	10-20	20-25/15	10-25	20-25/15	10-25	25-35/15-20	15-25	25-35/20

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. <i>Mandshurica</i> <u>5/</u>	Not	Recommended	Not	Recommended	10-15	10-15/10	10-20	10-20/10
Ash, Green <i>Fraxinus pennsylvanica</i> <u>4/</u>	Not	Recommended	10-15	20-25	10-15	20-25	10-15	20-25
Elm, Siberian <i>Ulmus pumila</i> <u>5/</u>	5-20	30-35	15-20	30-35	15-20	30-35	15-20	35-40
Hackberry <i>Celtis occidentalis</i> <u>4/</u>	10-15	25-30	10-15	25-30	10-15	25-30	10-15	30-35
Honeylocust <i>Gleditsia triacanthos</i> <u>4/</u>	Not	Recommended	10-15	20-25	10-15	20-25	25-35	40-50/25-30
Mulberry, Red <i>Morus rubra</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-25	20-25/15
Mulberry, Russian <i>Morus alba</i> var. <i>tatarica</i>	Not	Recommended	Not	Recommended	Not	Recommended	20-25	20-25/15
Oak, Bur <i>Quercus macrocarpa</i> <u>5/</u>	Not	Recommended	Not	Recommended	10-15	25-35/20-30	15-20	30-40
Osage-orange <i>Maclura pomifera</i>	Not	Recommended	Not	Recommended	10-15	20-25/15-20	10-15	30-35/20-25

GROUP 7	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>5/</u>	5-8	10-12	10-12	10-12
Caragana (Siberian Peashrub) (<i>Caragana arborescens</i>) <u>5/</u>	6-8	6-8	8-10	8-10
Chokecherry, Common <i>Prunus virginiana</i> <u>5/</u>	5-8	6-12	6-12	8-14
Currant, Buffalo <i>Ribes odoratum</i> <u>5/</u>	2-4	2-4	2-4	2-4
Currant, Golden <i>Ribes aureum</i> <u>5/</u>	2-4	2-4	4-6	4-6
Plum, American <i>Prunus americana</i> <u>5/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Sandcherry, Western <i>Prunus bessey</i> <u>5/</u>	2-3	2-3	2-4	3-6
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4

GROUP 7	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>5/</u>	3-5	4-6	4-6	4-8

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>5/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 8

Description:

Soils in this group are calcareous at or near the surface (0 to 12 inches) and do not receive beneficial moisture from run-in, flooding or seasonal high water table. Soil depth is > 40 inches to a restrictive layer and Available Water Capacity is > 8 inches within the top 5 feet. Soil pH ranges from 6.5-8.4.

Limitations:

High calcium carbonate content and competition from grass and weeds are the principal concerns in establishment and management of trees and shrubs on these soils. Water erosion is a concern on gently sloping to moderately steep areas.

Soils CTSG 8 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 8 - CONSERVATION TREE AND SHRUB SUITABILITY for GROUP 8

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFERS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	15-25	30-50/15	15-20	30-55/15	20-30	35-55/15	20-35	40-60/15
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-20	30-55/20	20-30	35-55/20	20-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
	HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. Mandshurica	Not	Recommended	Not	Recommended	10-15	10-15/10	10-20	10-20/10
Ash, Green <i>Fraxinus pennsylvanica</i> <u>1/</u>	10-15	20-25/20	10-15	20-25/20	10-15	20-25/20	10-15	25-30/20-25
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	20-30	15-20	20-30
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	Not	Recommended	Not	Recommended	15-20	30-35/20	15-20	30-35/25
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-20	30-35/20	15-20	20-35/20	15-20	25-35/20	15-20	35-40/30
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	10-15	25-30/20	10-15	25-30/20	10-15	25-30/20	10-15	30-35/30
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	Not	Recommended	10-15	20-25/15-20	10-15	20-25/20	25-35	40-50/25-30
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	25-35/30	15-20	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar:King-red <u>1/</u>	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
	HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	Not	Recommended	Not	Recommended	10-15	20-25/15-20	10-15	30-35/20-25

GROUP 8	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Buffaloberry, Silver <i>Shepherdia argentea</i>	5-8	10-12	10-12	10-12
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	8-10	8-10
Chokecherry, Common <i>Prunus virginiana</i>	5-8	6-12	6-12	8-14
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	2-4	2-4	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	4-6	Not Recommended	Not Recommended	Not Recommended
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6c	4-6	4-8

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 9

Description:

Salinity and/or alkalinity affect soils in this group. These soils have a seasonal high water table within 1.5 feet of the surface during the growing season. Soil depth is > 20 inches to a restrictive layer and Available Water Capacity is > 2 inches within the top 5 feet.

Limitations:

Concentrations of salt will severely affect the establishment, vigor and growth of trees and shrubs on these soils. Conifers should not be used on soils with a seasonal high water table within 2 feet of the surface.

Trees and shrubs appear to be growing in Group 9 soils; however, the trees and shrubs are actually limited to the transition zone between the Group 9 soils and the adjacent groups or are restricted to places where the site is slightly higher in elevation (increased depth to seasonal high water table) than the Group 9 soils.

Soils CTSG 9: (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 9 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 9

GROUP 9	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	Not	Recommended	Not	Recommended
Pine, Ponderosa <i>Pinus ponderosa</i>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20

* Do not utilize these species if the site has a seasonal high water table within 2 feet of the surface.

GROUP 9	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green <i>Fraxinus pennsylvanica</i>	15-20	25-35/25	20-25	30-40/30	20-30	35-45/30	25-30	40-50/30-40
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Cottonwood, Plains <i>Populus deltoides</i>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	Not	Recommended
Cottonwood, Eastern <i>Populus deltoides</i> (recommended cultivars: Might Mo, Noreaster, Ohio Red, Platte)	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	Not	Recommended
Elm, Siberian <i>Ulmus pumila</i>	15-30	15-35/20	15-35	20-40/20	25-40	25-40/20	25-40	55-60/30
Willow, Black <i>Salix nigra</i>	20-25	30-35/20-30	20-25	30-35/20-30	25-30	30-35/20-30	25-30	30-35/20-30
Willow, Peachleaf <i>Salix amygdaloides</i>	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
Willow, White <i>Salix alba</i> (variety golden willow var. vitellina)	20-25	30-35/20-30	20-25	30-35/20-30	25-30	30-35/20-30	25-30	30-35/20-30

GROUP 9	ZONE I		ZONE II		ZONE III		ZONE IV	
	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Olive, Russian <i>Elaeagnus angustifolia</i> Recommended cultivar: King-red	10-20	10-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15

GROUP 9	ZONE I	ZONE II	ZONE III	ZONE IV
SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Buffaloberry, Silver <i>Shepherdia argentea</i>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	Not Recommended	Not Recommended	Not Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i>	6-8	6-8	8-10	8-10
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Saltbush, Fourwing <i>Atriplex canescens</i>	10-15	Not Recommended	Not Recommended	Not Recommended
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant	3-5	4-6	4-6	4-8

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ Not winter hardy in the northern part of zones I, II, III, however not a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

Section II – WINDBREAK INTERPRETATIONS

CONSERVATION TREE/SHRUB GROUP 10

Description:

Soils in this group have one or more limiting characteristics such as soil depth, texture, drainage, channeled phases, available water capacity, slope or salts which severely limit planting, species selection, survival or growth of trees and shrubs.

Limitations:

Soils in this group are usually not recommended for tree/shrub planting practices such as windbreaks or wildlife and recreation plantings. However, onsite investigations may reveal that tree and shrub plantings can be made with special treatments (hand planting, scalp planting, specialized site preparation, drainage, or other specialized treatments). The selection of species must be tailored to the climate, soil, and site conditions. Specialized treatments and conditions required must be documented on the planting plan.

All soils on slopes 17 percent or greater, soils that are generally too wet, too shallow, or have other severely restrictive conditions, fall into group 10. Where an onsite investigation reveals that a planting can be made on a soil mapping unit in group 10, species should be selected from the windbreak suitability group that the soil would most likely fall into. Local knowledge of adapted species should also be taken into account.

For example, for a shallow soil over bedrock, trees or shrubs would be selected from group 6 or from group 2 for wet sites.

Soils WSG 10: (Includes soils on slopes of greater than 17%)

TABLE 10 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 10

GROUP 10	ZONE I	ZONE II	ZONE III	ZONE IV
Species can not be listed because soils in this group have one or more characteristics such as soil depth, texture, drainage, channeled phases, available water capacity, slope or salts which severely limit planting, species selection, survival or growth of trees and shrubs.				

**Table 11 - List of Attributes by Species
for Conservation Tree/Shrub Plantings in Nebraska**

Conifers	Native by Vegetative Zone N = Not Native	Shade Tolerance ¹	Flooding Tolerance ²	Wildlife Value ³			Windbreak Density ⁴		Wood Products ⁵	Root Suckering ⁶ N = No Y = Yes	Other Possible Attributes or Concerns ⁷
				Use Groups	Function	Rating	Summer	Winter			
Arborvitae, Oriental (<i>Thuja orientalis</i>)	N	L	L	SB	C	L	H	H		N	Winter hardiness questionable in Vegetative Zone 3, seed source important
Baldcypress (<i>Taxodium distichum</i>)	N	L	H	SB	C	L	M	L		N	Loses needles in fall, winter hardiness questionable in Vegetative Zone 3, rust fall color
Fir, Douglas (<i>Pseudotsuga menziesii</i>)	N	M	L	SB GB	B	L	H	H	C	N	Seed source important, delicate
Fir, White (<i>Abies concolor</i>)	N	H	L	SB GB	B	L	H	H	C	N	Seed source important; delicate
Juniper, Rocky Mountain (<i>Juniperus scopulorum</i>)	I, II	M	L	SB GB	B	H	H	H	C,S	N	Cercospora a problem in eastern Nebraska, only female plants produce seeds
Pine, Austrian (<i>Pinus nigra</i>)	N	L	L	SB	C	L	M	M	C	N	Dothistroma and tip blight
Pine, Eastern white (<i>Pinus strobus</i>)	N	M	M	SB	C	L	M	M	C,L	N	Needs protection from winds, avoid use in outside rows
Pine, Southwestern White <i>Pinus strobiformis</i>	N	M	M	SB	C	L	M	M	C,L	N	Needs protection from winds, avoid use in outside rows

Conifers	Native by Vegetative Zone N = Not Native	Shade Tolerance ¹	Flooding Tolerance ²	Wildlife Value ³			Windbreak Density ⁴		Wood Products ⁵	Root Suckering ⁶ N = No Y = Yes	Other Possible Attributes or Concerns ⁷
				Use Groups	Function	Rating	Summer	Winter			
Pine, Jack (<i>Pinus banksiana</i>)	N	L	L	SB	C	L	M	M		N	
Pine, Limber (<i>Pinus flexilis</i>)	I	L	L	SM SB	B	M	M	M		N	Slow growing
Pine, Ponderosa (<i>Pinus ponderosa</i>)	I, II, III	L	L	SB LM	B	H	M	M	C,L,P,F,B	N	Tip blight, Zimmerman moth
Pine, Scotch (<i>Pinus sylvestris</i>)	N	L	L	SB	C	L	M	M	C	N	Most used pine for Christmas trees
Redcedar, Eastern (<i>Juniperus virginiana</i>)	I, II, III, IV	M	M	SB GB	B	H	H	H	P,S,L	N	Cercospora can be a problem, only female plants produce seeds, potentially invasive in pastures
Spruce, Black Hills (<i>Picea glauca densata</i>)	N	H	L	SB	C	L	H	H		N	Small cones
Spruce, Colorado Blue (<i>Picea pungens</i>)	N	M	L	SB	C	M	H	H	C	N	Color range from green to blue
Spruce, Norway (<i>Picea abies</i>)	N	M	L	SB	C	L	H	H		N	Long, banana shaped cones
Spruce, White (<i>Picea glauca</i>)	N	H	L	SB	C	L	H	H		N	

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Deciduous Trees	Native by Vegetative Zone N = Not Native	Shade Tolerance ¹	Flooding Tolerance ²	Wildlife Value ³			Windbreak Density ⁴		Wood Products ⁵	Root Suckering ⁶ N = No Y = Yes	Other Possible Attributes or Concerns ⁷
				Use Groups	Function	Rating	Summer	Winter			
Apricot, Manchurian (<i>Prunus armeniaca</i>)	N	L	L	SM SB	F	M	M	L	E2	N	Songbirds attracted to fruit
Ash, Green (<i>Fraxinus pennsylvanica</i>)	I, II, III, IV	M	H	SM SB	B	H	M	L	F,L	N	Ash borers
Aspen, Quaking (<i>Populus tremuloides</i>)	I, II	L	L	GB LM	B	H	M	L		Y	
Linden/ Basswood, American (<i>Tilia americana</i>)	III, IV	H	M	SB MB	B	M	M	L	L	N	Protected sites, carving wood
Birch, Paper (<i>Betula papyrifera</i>)	II	L	L	GB LM	B	H	M	L		N	
Birch, River (<i>Betula nigra</i>)	N	M	M	SB GB	F	L	M	L		Y	For Zone III, only plant along the Niobrara Valley
Boxelder (<i>Acer negundo</i>)	I, II, III, IV	L	H	SM SB	B	H	L	L		N	Short-lived, cavity formation. Hardy on poor sites
Catalpa, Northern (<i>Catalpa speciosa</i>)	IV	L	M	MB SB	F	M	M	L	F	N	Large leaves, white flowers, long seed pods
Cherry, Black (<i>Prunus serotina</i>)	IV	L	L	SB SM	B	H	L	L	L,E2	N	Short-lived, leaves and twigs may be toxic

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				Use Groups	Function	Rating	Summer	Winter			
Cottonwood, Eastern (<i>Populus deltoides</i>) (recommended cultivars: Mighty Mo, Nor'easter, Ohio Red, Platte)	I, II, III, IV	L	H	SM SB	B	H	M	L	B,L,S	N	Nebraska State tree, susceptible to Cytospora Canker on uplands
Cottonwood, Plains (<i>Populus deltoides</i>)	I, II, III, IV	L	H	SM SB	B	H	M	L	B,L,S	N	
Crabapple (<i>Malus sp.</i>) (recommended cultivars: Radiant, Siberian, Midwest, Roselow, Sargent)	N	L	L	SB SM	B	H	M	L		N	Resistant to fire blight, showy blossoms
Elm, Siberian (<i>Ulmus pumila</i>)	N	M	L	SB	B	L	L	L	F,L	N	Invasive by seeding
Elm, American (<i>Ulmus americana</i>)	I, II, III, IV	M	M	SB	B	L	M	L	F, L	N	Not recommended because of Dutch Elm Disease
Hackberry (<i>Celtis occidentalis</i>)	I, II, III, IV	H	M	SB SM	B	H	M	L	F,L	N	Susceptible to herbicide drift
Hawthorn, Washington (<i>Crataegus phaenopyrum</i>)	N	L	M	SB SM	B	H	M	L		N	Possibly thorny, possible rust problems
Hickory, Bitternut (<i>Carya cordiformis</i>)	III, IV	M	M	SM SB	B	H	L	L	F	N	Slow growing
Hickory, Shagbark (<i>Carya ovata</i>)	IV	M	L	SM SB	B	H	L	L	L,E,F	N	Extremely slow growing

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				Use Groups	Function	Rating	Summer	Winter			
Honeylocust (<i>Gleditsia triacanthos</i>)	III, IV	L	M	LM SM	F	M	L	L	F,L	Y	Nitrogen fixing legume, possible thorns, possibly invasive in pastures
Hophornbeam, Eastern (<i>Ostrya virginiana</i>)	III, IV	H	L	SM SB	B	H	M	L	F	N	Small tree with very dense wood. Does well in shady conditions.
Kentucky Coffeetree (<i>Gymnocladus dioica</i>)	III, IV	L	L	SB	C	L	L	L		N	Nitrogen fixing legume, possible toxicity of seeds to humans
Locust, Black (<i>Robinia pseudoacacia</i>)	N	L	L	SM LM	F	H	L	L	P,F	Y	Nitrogen fixing legume, locust borer severe problem, bark and seeds may be toxic
Maple, Amur (<i>Acer ginnala</i>) (recommended cultivar: Flame)	N	M	M	SB	C	H	M	L		N	Beautiful autumn color; preferred by deer
Maple, Silver (<i>Acer saccharinum</i>)	III, IV	L	H	SM SB	B	M	M	L	B,F	N	Narrow crotch angles may produce multiple stems, susceptible to wind breakage
Maple, Sugar (<i>Acer saccharum</i>)	N	M	M	SM SB	B	M	M	L	F,L	N	Orange/red fall color, winter hardiness questionable in Vegetative Zone 3

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				Use Groups	Function	Rating	Summer	Winter			
Mulberry, Red (<i>Morus rubra</i>)	IV	H	L	SB SM	B	H	M	L	E,E2,F,P	N	Only female plants produce seeds
Mulberry, Russian (<i>Morus alba var. tatarica</i>)	N	H	L	SB SM	B	M	M	L	E,E2	N	Only female plants produce seeds
Oak, Black (<i>Quercus velutina</i>)	IV	M	L	GB SB	B	H	M	L	F	N	
Oak, Bur (<i>Quercus macrocarpa</i>)	I, II, III, IV	M	L	SM GB	B	H	M	L	F,L	N	Drought tolerant
Oak, Chinkapin (<i>Quercus muhlenbergii</i>)	IV	L	L	GB	B	H	M	L	F	N	Acorns are sometimes edible
Oak, English <i>Quercus robur</i>	IV	M	L	GB SB	B	H	M	L	F,L	N	
Oak, Gambel (<i>Quercus gambelii</i>)	I	L	L	SM GB	B	L	M	L		N	Slow growth, irregular mast production western application
Oak, Northern Red (<i>Quercus rubra</i>)	IV	M	L	GB SB	B	H	M	L	F,L	N	Red autumn color
Oak, Pin (<i>Quercus palustris</i>)	N	L	H	SM LM	B	L	M	L	F	N	Iron chlorosis is problem on uplands
Oak, Swamp White (<i>Quercus bicolor</i>)	N	M	H	SM GB	B	H	M	L	F	N	Possible chlorosis problem with high pH

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				Use Groups	Function	Rating	Summer	Winter			
Oak, White (<i>Quercus alba</i>)	IV	M	L	GB SB	B	H	M	L	F	N	
Olive, Russian (<i>Elaeagnus angustifolia</i>) (recommended cultivar: King-red)	N	L	H	SB	F	L	L	L		N	Invasive along streams in pastures; susceptible to canker; 20 year life span
Osage-orange (<i>Maclura pomifera</i>)	N	L	M	SB GB	B	M	M	L	P,F	N	Winter hardiness questionable; invasive into pastures
Pawpaw (<i>Asimina Adans.</i>)	IV	H	L	SM SB	F	L	M	L		N	Recommended only in SE NE, Potential medicinal use, fruit can be consumed by humans
Pear, Harbin (<i>Pyrus ussuriensis</i>) (recommended cultivar: McDermand)	N	L	L	SM SB	B	L	M	L	E2	N	
Redbud, Eastern (<i>Cercis canadensis</i>)	IV	H	L	SB MB	F	H	L	L		N	Winter hardiness questionable, seed source important, 2,4-D herbicide susceptible; beautiful spring flowers
Sycamore, American (<i>Platanus occidentalis</i>)	IV	L	H	SB	C	L	M	L	B,L	N	Anthraxnose, disease potential problem
Walnut, Black (<i>Juglans nigra</i>)	III, IV	L	L	SM SB	F	H	M	L	L,F,E	N	Susceptible to broadleaf herbicides

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				Use Groups	Function	Rating	Summer	Winter			
Willow, Black (<i>Salix nigra</i>)	III, IV	L	H	SB GB	F	H	M	L	B	N	Cytospora canker on upland sites
Willow, Golden (<i>Salix alba var. vitellina</i>)	N	L	H	SB SM	B	L	M	L		N	Cytospora canker on upland sites
Willow, Peach Leaf (<i>Salix amygdaloides</i>)	I, II, III, IV	L	H	SB GB	F	H	M	L		N	
Willow, White (<i>Salix alba</i>)	N	L	H	SB	B	L	M	L		N	Cytospora canker on upland sites

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Shrubs	Native by Vegetative Zone N = Not Native	Shade Tolerance ¹	Flooding Tolerance ²	Wildlife Value ³			Windbreak Density ⁴		Wood Products ⁵	Root Suckering ⁶ N = No Y = Yes	Other Possible Attributes or Concerns ⁷
				Use Groups	Function	Rating	Summer	Winter			
Blackhaw, Nannyberry (<i>Viburnum lentago</i>)	N	L	M	SB SM	B	H	H	M		N	
Buffaloberry, Silver (<i>Shepherdia argentea</i>)	I, II, III	L	L	SB SM	B	H	M	L	E1,E2	Y	
Buttonbush (<i>Cephalanthus</i>)	IV	L	M	SB	B	L	H	M		Y	Recommended only in SE NE
Cherry, Nanking (<i>Prunus tomentosa</i>)	N	L	L	SB SM	B	M	M	L	E1,E2	N	Short-lived <10 years
Chokeberry, Black (<i>Aronia melanocarpa</i>)	N	L	L	SB LM	B	H	M	L		Y	
Chokecherry, Common (<i>Prunus virginiana</i>)	I, II, III, IV	M	L	SB SM	B	H	H	M	E1,E2	Y	Red fall color, large dark fruit
Cotoneaster, Peking (<i>Cotoneaster acutifolia</i>)	N	L	M	MB SB	B	M	H	M		N	Fire blight possible problem
Cranberry, Highbush (<i>Viburnum trilobum</i>)	N	M	M	SB	B	M	M	L	E2	N	Bright red berries
Currant, Buffalo (<i>Ribes odoratum</i>)	I, II, III, IV	M	L	SB SM	F	L	H	M	E1, E2	Y	

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				Use Groups	Function	Rating	Summer	Winter			
Currant, Golden (<i>Ribes aureum</i>)	N	M	L	SB SM	F	L	H	M		Y	
Dogwood, Gray (<i>Cornus racemosa</i>)	III, IV	M	H	SB	B	H	H	M		Y	
Dogwood, Redosier (<i>Cornus sericea</i>)	N	M	H	SB	B	H	M	L		Y	Red stems in winter
Elderberry (<i>Sambucus canadensis</i>)	III, IV	L	H	MB SB	F	M	H	M	E1,E2	Y	Root sprouts readily, leaves and stems may be toxic
Euonymus (<i>Euonymus bungeanus</i>) (recommended cultivar: Pink Ladywinterberry)	N	M	M	SB	B	L	M	L		N	
Hazelnut (<i>Corylus americana</i>)	IV	M	L	SB SM	B	H	L	L	E	Y	Susceptible to canker
Honeysuckle, Amur (<i>Lonicera maackii</i>) (recommended cultivar: Cling-red)	N	H	L	MB SB	B	M	H	M		N	Possible aphid problems, fruit may be toxic to humans
Indigo, False <i>Amorpha fruticosa</i>	II, III, IV	L	M	SB	C	L	L	L			Native along Riparian areas
Juneberry/ Serviceberry, Saskatoon (<i>Amelanchier alnifolia</i>)	N	H	M	SB LM	B	H	M	L	E1,E2	N	

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Juniper, Prostrate (<i>Juniperus communis</i>)	I, II	M	L	SM SB	B	M	H	H		N	Evergreen. Certain varieties get bagworms, cercospora, availability is questionable
Lilac (<i>Syringa vulgaris</i>)	N	L	L	SB MB	B	M	H	M		N	Powdery mildew a potential problem
Olive, Autumn (<i>Elaeagnus umbellata</i>) (recommended cultivars: Elsberry, Redwing)	N	L	L	SB	F	L	M	L		N	Winter injury; susceptible to canker; nitrogen fixing legume
Peashrub, Siberian (caragana) (<i>Caragana aborescens</i>)	N	L	L	SB	F	L	H	M		N	Highly desirable by deer, rabbits, grasshoppers
Plum, American (<i>Prunus americana</i>)	I, II, III, IV	L	L	GB SB	B	H	H	M	E,E2	Y	
Rose, Hansen (<i>Rosa sp.</i>)	N	L	L	SB MB	B	H	L	L		Y	
Saltbush, Fourwing (<i>Atriplex canescens</i>)	I	L	L	SM LM	B	H	M	M		N	Limit use to high pH and alkaline soils /Seeds are persistent
Sandcherry, Western (<i>Prunus besseyi</i>)	I, II, III	L	L	SB SM	F	M	M	L	E1,E2	Y	
Snowberry, Common (<i>Symphoricarpos albus</i>)	III, IV	M	M	GB SB	B	H	H	M		Y	Potentially invasive in rangeland

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Snowberry, Western (<i>Symphoricarpos occidentalis</i>)	I, II, III, IV	M	M	GB SB	B	H	H	M		Y	Potentially invasive in rangeland
Sumac, Skunkbush (<i>Rhus trilobata</i>) (recommended cultivars: Big horn, Konza fragrant)	I, II, III, IV	L	L	SM SB	B	M	H	M		N	Good fall red color

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