Moritz Habitat Management Plan



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Wildlife Biologist



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Executive Summary

The Moritz Property is located in northern Todd County about 6 miles northeast of the city of Eagle Bend, MN. It was bought by Jason and Wendy Moritz in January 2021 primarily to be used as a deer hunting property. A site visit with Kanati Wildlife Consulting LLC was completed on December 21, 2020 to assess existing habitat conditions and suggest future improvements. The property consists of multiple habitat types, approximately including: 17.66 acres of emergent wetland; 18.04 acres of mature mixed oak-maple-basswood hardwood forest; 18.15 acres of mixed grassland, shrubs, and young conifer plantings; 4.58 acres of young apple orchard; 1.88 acres of food plots; and 14.69 acres of cropland.

The previous landowner completed a number of improvements to increase attractiveness for deer, including all the shrub and conifer plantings in addition to creating two food plots and completing a few small ironwood hinge cuts within the woodlands. Overall deer density in this area is high (estimated 30+ deer per square mile), and this property has the potential for high deer harvest along with harvesting mature bucks given additional property improvements.

Initial improvements should include working in and around the mature hardwoods, as this will have the most immediate impact on hunting success. Several small select timber harvests should occur in strategic places to increase the amount of quality bedding cover and drastically increase the amount of available browse. Following timber harvest, food plots should be the next priority to increase the property's holding power for deer. Edge feathering will also begin to direct deer travel to influence deer to move where we want them to go to increase harvest potential.

Following edge feathering, trails can be cut within and leading from bedding areas to food sources to encourage deer travel towards those areas where deer stands will be placed for optimal harvest opportunity. Conifer screens should also be planted as soon as feasible to begin screening access and food plots.

Prairie restoration can also be a project undertaken in the short-term, including site prep and seeding. Shrubs should not be planted into prairie planting until at least year two of the prairie establishment to allow for weed control. Shrub plantings outside of the prairie restoration area can begin at any time.

Finally, the cropland on the north end of the property can be enrolled into the Conservation Reserve Program after they owned the property for one year. They expressed desire to do a direct oak seeding into this area. This would fall under a CP3A – Hardwood Tree Planting. We also suggest incorporating a food plot into this area.

Following is a comprehensive plan to improve habitat, increase deer holding and carrying capacity, and increase harvest opportunities of both antlerless deer and mature bucks on the Moritz Property.

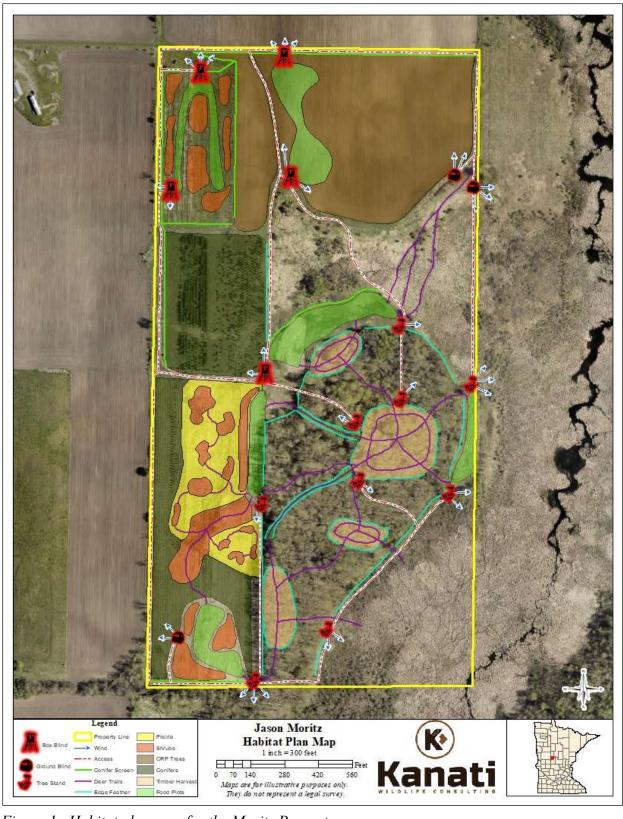


Figure 1. Habitat plan map for the Moritz Property.

Mature Hardwoods



During the site visit, there were four areas within the mature hardwoods that we determined could benefit from either timber harvest or hinge cutting of subcanopy trees. Following is a detailed plan for managing these areas.

Selective Timber Harvest

The north, central, and south-central patches of timber harvest (Fig. 2) were composed primarily of mature aspen, maple, and basswood with interspersed red and white oaks. These areas are ideal for a timber harvest, which will set back the ecological clock and cause the aspen to begin sucker rooting, creating thickets of both cover and browse. Clear-cut areas provide top-notch bedding areas as well as crucial winter food sources. Resources for timber harvest are listed in Appendix A.

- Clear-cut the three areas identified as suitable for timber harvest in the winter months.
- Leave treetops within clear-cut area to create temporary cover and browse until regeneration begins.
- Keep maintained trails (purple lines) throughout clear-cut areas to encourage deer to travel within the area.
- Leave any existing oak trees in clear-cut areas to provide an additional food source in the fall months.

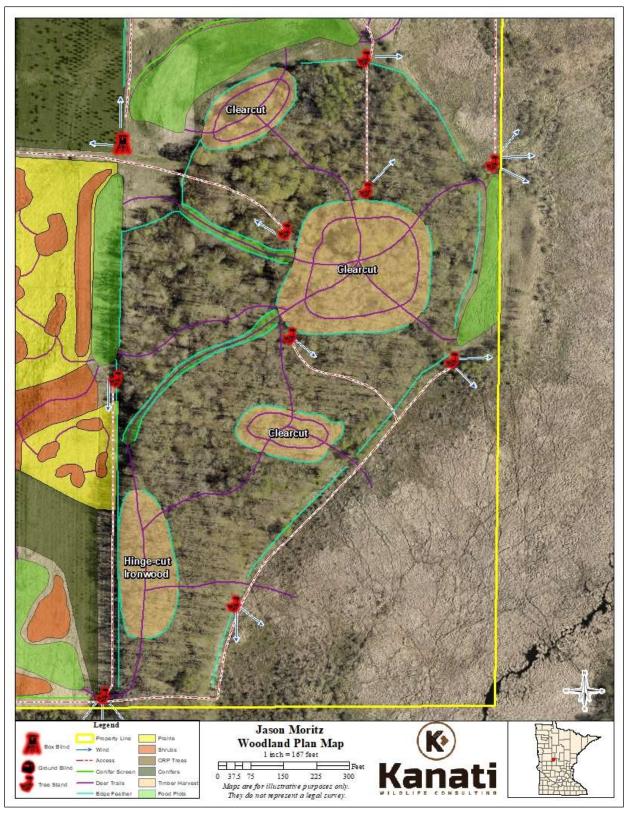


Figure 2. Woodland map depicting timber harvest areas, food plots, created deer trails, and stand locations.

Hinge Cutting

The southwestern portion of the woodland had a high density of young ironwood trees. These could be hinge-cut to create better side cover in addition to reducing canopy cover, which will encourage understory growth.

Steps:

- Hinge-cut all ironwood saplings roughly waist high, while overlaying them with each other.
- Saplings should be cut roughly halfway through, or just enough to push them over by hand.
- Keep maintained trails (purple lines) throughout the hinge-cut area to encourage deer to travel within the area.



Edge Feathering

Edge feathering is a concept that utilizes hinge-cutting to accomplish several things using the same practice:

- 1.) Preventing deer from entering/exiting where it is a disadvantage for hunting.
- 2.) Creating a sense of security within bedding areas and adjacent to food plots.
- 3.) Screening hunter access from the eyes of bedded deer.

The goal of edge feathering is slightly different than hinge-cut bedding areas. With hinge-cut bedding areas, the idea is to thicken the area while keeping it passable to deer to enter and exit. Edge feathering should essentially look like a tornado went through. The idea is to make it extremely challenging for deer to pass through these areas without an extreme amount of effort.

- Hinge-cut (light blue lines; Fig. 2) the edges of bedding areas for at least 10 feet outward from the bedding area, leaving strategic spots open for manufactured trails (purple lines).
- Hinge-cut the edges of food plots along the woodland areas (at least 10 feet wide).
- Hinge-cut the edges of the woodland where it would be a disadvantage for deer to exit the woods, leaving gaps for manufactured trails near deer stands.

Transition Plots

Two areas were identified on the west side of the large, central clear-cut that would be ideal for transitional food plots. Essentially, these can be used as long, narrow food plots that work to facilitate deer travel between bedding areas and out to larger food plots.

Steps:

- Clear the area with a chainsaw and/or brush mower roughly 10 yards wide.
- Make sure the ground is clear of debris. Light tillage may be needed to create a proper seedbed.
- Seed with a clover mix at roughly 9 lbs/acre in late summer. Utilize cereal rye as a cover crop at a rate of 50 lbs/acre.
- Edge feather along the sides of the transition plots. This serves to direct deer traffic as well as increase sunlight to the transition plots.



Travel corridors can be created within bedding areas, between bedding areas, and from bedding areas to food sources to concentrate deer activity. This will allow a much more precise hunting strategy based on concentrated deer movement rather than somewhat random movement.

- Clear trails at least 5-10 feet wide (purple lines; Fig. 2) to facilitate deer travel.
- Hinge-cut the edges of the trails, tipping hinged trees outwards from the trail.
- Trails can be mowed with a brush mower in mid- to late-summer each year to keep them passable for deer.



Prairie Restoration



The Moritz's expressed interest in doing a prairie restoration on a large chunk of the open grassland area on the west side of the property where previous conifer plantings had not been successful. Currently, the area is a mix of reed canary grass and brome. Following is a guide to a successful prairie restoration. Resources for prairie restoration can be found in Appendix B.

Site Preparation and Seeding

This is the most critical step to a successful prairie restoration. By ensuring a good, prepared seedbed, the odds of a successful prairie restoration increase drastically.

- Mow the area in early spring.
- When vegetation reaches 4-6 inches in height, spray with glyphosate (late May).
- Utilize tillage to break up the existing sod layer. Multiple tillage passes will likely be required. Prepare seedbed so that it is level and firm (early June).
- When vegetation reaches 4-6 inches in height, apply a second round of glyphosate (late June).
- Lightly till area and make sure the seedbed is again level and firm (early July).
- When vegetation reaches 4-6 inches in height, apply a third round of glyphosate (late July/early August).
- Utilizing a no-till drill or broadcast seeder, plant the prairie restoration in late fall after the soil temperature is below 50 degrees (seed mix can be found in Appendix C).

Initial Management

During the first growing season of a prairie restoration, it is critical to stay on top of weed control. Typically, the site should be mowed at least three times to ensure annual weeds do not gain a foothold. The first mowing will usually be in early May. The second mowing will typically occur in late June or early July. The third mowing usually occurs in early- to mid-August.

Second-Year Management

A single mowing in early May of the second growing season is beneficial to eliminate coolseason weeds. This also gives the warm-season grasses a boost to reach maximum height. During the second year, shrubs should also be planted in pockets within the prairie restoration area (see Shrub Planting section for guidance).

Long-Term Management

Prairies evolved with a frequent disturbance regime. To maintain maximum height and thickness of the stand, the prairie restoration should be mowed approximately every three years, leaving the shrub pockets untouched. Alternatively, the prairie restoration could be burned every three years provided burn breaks were mowed around the shrub pockets. Each year, a trail should be mowed between shrub pockets to encourage deer travel among areas of cover within the restoration area.

Shrub Plantings



During the site visit, several areas were identified that would be ideal spots to plant pockets of shrubs to increase the density of cover and also increase the amount of edge cover that deer can utilize. An area just west of the hardwoods had a thick swath of shrubs already growing. These should be allowed to propagate, as they are nearly tall enough to begin providing deer with beneficial cover in addition to browse. Following is a guide to species selection and shrub planting. Resources for purchasing and planting shrubs can be found in Appendix D.

Planting Specifications

With the goal of creating dense bedding and browsing cover, shrubs should be planted approximately 8-12 feet apart. Shrubs tend to grow out more than up, so while they may look sparse initially, they will fill in nicely over time.

Shrub plantings in the southwest corner of the property and in the old apple orchard could begin at any time. Typically, shrubs should be planted in early May. Shrubs in the prairie restoration area should not be planted until at least a year after the prairie restoration is installed. Prairie restorations need at least one full year of intensive mowing management for a successful restoration. During the second growing season, shrubs could be planted in the prairie restoration.

Species Selection

Following is a list of suggested species that should grow well based on climate, soils, and locality:

- Red-osier dogwood
- Gray dogwood

- Hazelnut
- American plum
- Common chokecherry

The benefit of these species is that, in addition to excellent deer cover, each is also an excellent source of browse (or mast in the case of plum and chokecherry). Deer will gravitate to these areas, and they are an excellent way to supplement both cover and food on the property. We recommend mixing and matching species within individual planting blocks for maximum diversity and attractiveness to deer.

Food Plots



Food plots are a key piece to keeping deer on the property for as much time as possible. While there is a large agricultural component on nearby lands, having a solid network of food plots will allow deer to bed on the Moritz property and also spend the last hour of daylight in the food plots on their way to big ag in the evening. Following is a guide to effective food plots for feeding deer and hunting success.

Food Plot Locations

By locating food plots nearby and adjacent to areas where deer will bed, it stacks the odds of these being the first place a deer goes upon leaving its bed in the evening. This allows for an effective hunting strategy of being close to bedding without educating deer while hunting along a feature that is known to attract deer.

By surrounding the woodland area with food, it would be difficult for a deer to leave this area without visiting a food plot. In addition, creating food plots in the old apple orchard and in the future CRP area will also encourage deer that may someday bed in those areas to spend more time on the Moritz property before leaving for ag fields.

Food Plot Shape

Typically, the more contour we can give to food plots, the more secure deer will feel using them. It also forces bucks to spend more time searching for estrous does on the property versus a large, square 5-acre food plot that a buck could visually inspect in a short time. The other thing adding contour does is creating multiple stand/blind locations on the same food plot, which allows them to be hunted on different winds.

Food Plot Species Selection

Given the high deer density in this area, we do not recommend attempting soybeans or corn for food plots. These crops would likely be decimated before bow season even begins, rendering them useless for deer. We recommend utilizing a "cocktail plot" approach, combining multiple species in a single food plot for maximum attractiveness to deer throughout the hunting season. In addition to having better drawing power than corn or beans, they also produce drastically more forage than corn or beans. Following are the species and planting rates we recommend:

Cocktail Plot Species/Rates:

- Purple top turnip or Daikon radish (2-4 lbs/acre)
- Winter wheat or cereal rye (40 lbs/acre)
- Austrian winter peas (20 lbs/acre)
- Frosty Berseem clover (5-7 lbs/acre)
- Forage soybeans (20 lbs/acre)

Including these species at these rates will attract deer through the entire deer season. It also minimizes the risk of food plot failure by diversifying the plot.

Planting Strategy

The key to success with these plots is site preparation. Completing a soil test and applying soil amendments at recommended rates can greatly boost productivity. A cocktail plot needs a firm, level seedbed to be planted into for optimal seed germination. Cocktail plots are best served by broadcasting. With the multiple seed sizes, broadcasting is an easier method of planting than drilling. The plot should then be cultipacked or lightly dragged for best seed-to-soil contact. Planting dates should be no sooner than mid-July, but no later than early-August. For maximum germination and overall success, try timing planting just before a high percentage of precipitation.

Conifer Screens

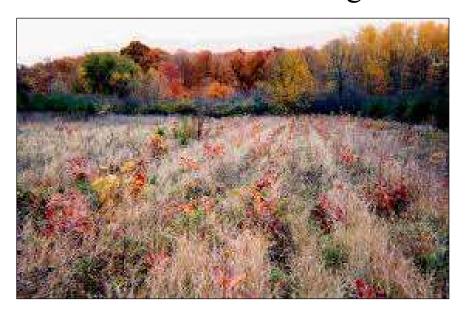


Utilizing conifer screens is a fantastic way to screen access routes from the eyes of deer. These can be crucial in reducing the risk of educating deer while hunting. An additional benefit of utilizing conifer screens is giving deer a greater sense of security near food plots. Following is a guide to successfully establishing conifer screens. Resources for purchasing and planting conifers can be found in Appendix D.

Conifer Screen Planting

A minimum of two rows is recommended for an adequate visual screen. Three rows can provide insurance against tree mortality creating gaps in the screen. Trees should be planted in early May, with spacing between trees roughly 10-12 feet, and spacing between rows 12-15 feet. To create the ideal screen, trees between rows should be "offset," so that as trees grow, the screen will have value sooner than if rows were planted perfectly parallel to each other between rows. The best species for conifer screens are white spruce, Black Hills spruce, or black spruce. These do not self-prune like many other conifers and will retain visual screen benefit for the longest time relative to other conifers.

CRP Direct Seeding



After owning the property for at least 12 months, the Moritz's would be eligible to enroll the cropland into the Conservation Reserve Program (CRP). They would also prefer to do an oak direct seeding on this area based on a friend's experience doing the same. The CRP practice that would allow an oak direct seeding would be a CP3A – Hardwood Tree Planting. This is currently a practice available under a General CRP signup, which typically occurs in mid-winter and requires a competitive application process to be accepted.

Food plots are allowed in certain CRP practices, including the CP3A, provided the food plot is no more than 10% of the size of the field. We recommend creating a food plot within this area to provide additional hunting opportunity.

Another recommendation would be to do a spring prairie seeding as a "temporary cover" under CRP to ensure that there is quality native habitat while the oaks are growing. By seeding in spring and mowing several times over the summer, following with a dormant direct seeding, the Moritz's could have the best of both habitat types by having diverse native prairie cover and, eventually, a thicket of oak saplings.

To enroll the land in CRP, contact the Todd County Farm Service Agency office along with the Todd County Soil & Water Conservation District. Resources for purchasing seed, oaks, and seeding can be found in Appendices B–D.

Conclusion

Ultimately, the effectiveness of this habitat management plan will hinge on the hunting strategy employed. Wind direction needs to be the number one consideration when hunting a stand, no matter the time of year. The most successful hunting strategy will revolve around primarily hunting the lowest impact stands and educating the fewest number of deer. As the rut draws nearer, it can pay to get slightly more aggressive and begin encroaching towards bedding areas once bucks fully begin seeking and chasing does, typically after October 25th.

The one caveat to a careful hunting approach is if trail cam images suggest otherwise. If a mature buck is showing himself in a huntable location multiple times a week during daylight, we recommend taking a chance on him. Buck patterns change relatively fast over the course of the fall, and where he shows up during daylight in late September is unlikely to be the same as where he shows up during daylight in late October.

Finally, does should be harvested according to rough trail cam estimates. Ideally, the doe-to-buck ratio would be 2:1 or 1.5:1. If during the hunting season antlerless deer sightings outweigh adult buck sightings by a 4:1 ratio, then the property likely needs some antlerless deer harvest. It is best to use judgement based on trail cams and hunter observation, as these will be the best metrics available for the Moritz family.

By coupling the habitat management suggestions in this plan with a strategic hunting strategy, this property could experience a large degree of hunting success both in terms of quantity and quality of deer harvested.

Appendix A: Logging Vendors

Nathan Bettis

28336 County Rd. 26 Browerville, MN 56438 Phone: (320) 630-0342

Bill Madsen

17725 Carter Ln. Little Falls, MN 56345 Phone: (320) 630-1998

Hennen Enterprises, LLC

24031 133rd Street Pierz, MN 56364 Phone: (320) 468-2212

N & S Logging

705 4th Avenue Little Falls, MN 56345

Phone: N/A

Nelson Logging LLC

9418 N Highway 238 Little Falls, MN 56345 Phone: (320) 632-1618 **Osvold Logging LLC**

18989 263rd Street Fort Ripley, MN 56449 Phone: (320) 630-7793

Zajac Logging LLC

9526 410th Avenue Hillman, MN 56338 Phone: (320) 355-2522

Edin Logging Inc.

16568 235th Avenue Staples, MN 56479 Phone: (218) 445-5200

Haverinen Brothers Logging

10097 350th Street Menahga, MN 56464 Phone: (218) 844-4287

Hodgden Logging, Inc.

38114 Twin Lakes Road Menahga, MN 56464 Phone: (218) 564-5081

Jeffrev Hillukka

960 9th Street East Menahga, MN 56464 Phone: (218) 252-3951

Appendix B: Prairie Restoration Resources

Seed Vendors:

Agassiz Seed & Supply

445 7th Street NW West Fargo, ND 58078 Phone: (701) 282-8118

Millborn Seeds

1335 Western Ave Brookings, SD 57006 Contact: Jason Tronbak Phone: (1-888) 498-7333 www.millbornseeds.com

Minnesota Habitat Management

15399 SW Amelia Road Glenwood, MN 56334 Contact: Jason Tank Phone: (320) 424-2673

Email: jtank@mnhabitat.com

www.mnhabitat.com

Minnesota Native Landscapes Inc.

8740 77th Street NE Otsego, MN 55362 Phone: (763) 295-0010 Email: <u>info@mnlcorp.com</u> www.mnnativelandscapes.com

Prairie Moon Nursery

32115 Prairie Lane Winona, MN 55987 Phone: (507) 452-1632 www.prairiemoon.com

Shooting Star Native Seeds

3274 490th Street Montevideo, MN 56265 Contact: Dennis Pederson

Phone: (320) 905-9403

www.shootingstarnativeseed.com

Seeding/Implementation Vendors:

Kanati Wildlife Consulting LLC

33599 Poverty Point Drive Avon, MN 56310

Contact: Nate Hylla Phone: (320) 250-3252

Email: KanatiWildlife@Gmail.com

www.kanatiwildlife.com

Minnesota Habitat Management

15399 SW Amelia Road Glenwood, MN 56334 Contact: Jason Tank Phone: (320) 424-2673

Email: jtank@mnhabitat.com

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8740 77th Street NE Otsego, MN 55362 Phone: (763) 295-0010 Email: <u>info@mnlcorp.com</u> www.mnnativelandscapes.com

Natural Resource Services

PO Box 544

Cambridge, MN 55008 Contact: Steve Mueller Phone: (320) 423-7498

Email: steve@naturalresourceservice.com

www.naturalresourceservice.com

Appendix C: Prairie Seed Mix

Se	eeding Plan		(NA)	
Landowner:	Jason Moritz		N	
Designed by:	Ryan Rothstein		/	4
Date:	1/20/2021	i R	CITE	ITI
Acres:		WIL	DLIFE CONS	ULTING
C/S-1	C-i	Comment Name	DICUL- /A	DIC III-
Grasses/Seages	Scientific Name Andropogon gerardii	Common Name Big Bluestem	PLS Lbs/Acre 0.53	2.41
2	Bouteloua gracilis	Blue Grama	0.17	0.75
3	Sorgastrum nutans	Indiangrass	0.30	1.35
4	Schizachryrium scoparium	Little Bluestem	0.17	0.75
5	Sporobolus compositus	Rough Dropseed	0.10	0.45
6	Bouteloua curtipendula	Sideoats Grama	0.67	3.01
7	Panicum virgatum	Switchgrass	0.07	0.30
8	Elymus canadensis	Canada Wildrye	0.30	1.35
9	Agropyron caninum	Slender Wheatgrass	0.37	1.65
		Subtotal	2.67	12.03
Forbs/Legumes	Scientific Name	Common Name	PLS Oz/Acre	PLS Lbs
1	Achillea millefolium	Yarrow	0.64	0.18
2	Agastache foeniculum	Anise Hyssop	0.08	0.02
3	Amorpha canescens	Leadplant	0.32	0.09
4	Asclepias syriaca	Common Milkweed	0.72	0.20
5	Astragalus canadensis	Canada Milkvetch	0.40	0.11
6	Cassia fasticulata	Partridge Pea	2.00	0.56
7	Coreopsis lanceolata	Lance-leaved Coreopsis	1.36	0.38
8	Desmodium canadense	Canada Tick Trefoil	0.48	0.14
9	Echinacea pallida var. angustifolia	Purple Coneflower, Narrow Leaved	0.24	0.07
10	Helenium autumnale	Sneezeweed	0.16	0.05
11	Helianthus maximiliani	Maximillian Sunflower	1.12	0.32
12	Heliopsis helianthoides	Common Ox-eye	0.48	0.14
13	Liatris pycnostachya	Tall Blazingstar	0.40	0.11
14	Lobelia siphilitica	Great Blue Lobelia	0.08	0.02
15	Monarda fistulosa	Wild Bergamot	0.32	0.02
16	Oenothera biennis	Evening Primrose	1.36	0.03
17	Penstemon digitalis	Foxglove Beardtongue	0.08	0.38
18	Petalostemum candidum	White Prairie Clover	0.40	0.02
19		Purple Prairie Clover	3.20	0.11
20	Petalostemum purpurum Potentilla arguta	Prairie Cinquefoil	0.48	0.90
21 22	Pycnanthemum virginianum Ratibida columnifera	Mountain Mint Long -headed Coneflower	0.08	0.02
			1.20	0.34
23	Ratibida pinnata	Yellow Coneflower	0.16	0.05
24	Rudbeckia hirta	Black-eyed Susan	1.20	0.34
25	Silphium perfoliatum	Cup Plant	0.20	0.06
26	Solidago rigida	Stiff Goldenrod	0.16	0.05
27	Symphyotrichum laeva	Smooth Aster	0.16	0.05
28	Symphyotrichum novae-angliae	New England Aster	0.08	0.02
29	Verbena hastata	Blue Vervain	0.56	0.16
30	Verbena stricta	Hoary Vervain	0.16	0.05
31	Veronia fasticulata	Ironweed	0.24	0.07
32	Veronicastrum virginicum	Culvers Root	0.08	0.02
33	Zizia aurea	Golden Alexanders Subtotal	0.40 19.00	0.11 5.36

Appendix D: Tree and Shrub Resources

Tree/Shrub Vendors:

Bork Tree Farms

44966 State Highway 48 Hinckley, MN 55307 Phone: (1-800) 752-9182 www.borktreefarms.com

DNR - Badoura Nursery

PO Box 117

Akeley, MN 56433 Phone: (218) 652-2385

www.dnr.state.mn.us/forestry/nurseries

Minnesota Habitat Management

15399 SW Amelia Road Glenwood, MN 56334 Contact: Jason Tank Phone: (320) 424-2673

Email: jtank@mnhabitat.com

www.mnhabitat.com

Prairie Moon Nursery

32115 Prairie Lane Winona, MN 55987 Phone: (507) 452-1632 www.prairiemoon.com

Schumacher's Nursery & Berry Farm

Inc.

37806 910th Street Heron Lake, MN 56137 Phone: (507) 793-2288

www.schumachersnursery.com

Todd County SWCD

215 1st Avenue S

Suite 104

Long Prairie, MN 56347 Contact: Sarah Katterhagen Phone: (320) 732-2644

Email: sarah.katterhagen@co.todd.mn.us

Tree/Shrub Planting Vendors:

Kanati Wildlife Consulting LLC

33599 Poverty Point Drive

Avon, MN 56310 Contact: Nate Hylla Phone: (320) 250-3252

Email: KanatiWildlife@Gmail.com

www.kanatiwildlife.com

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Natural Resource Services

PO Box 544

Cambridge, MN 55008 Contact: Steve Mueller Phone: (320) 423-7498

Email: steve@naturalresourceservice.com

www.naturalresourceservice.com

Tree/Shrub Planter Rental:

DNR Forestry – Little Falls

Contact: Walker Wearne (320) 616-2450 x246