STEWARDSHIP PLAN

LANDOWNER: Some Landowner
5555 20th St.
Anywhere, IA 55555

DATE: 7-23-2002

TELEPHONE: 555-555-5555

COST-SHARE PROGRAM: WHIP

LOCATION: Sec. 36, Ulster Twsp., T91N-R17W, Some County

TOTAL ACRES: 10.3

LANDOWNER'S OBJECTIVES: Improve the quality of the property to increase water quality, wildlife habitat and recreational opportunities.

DESCRIPTION OF AREA

The area covered in this plan is outlined on the attached aerial photo. There are three different soils on this area ranging from somewhat wet to well drained. The north east 3/4 of the property is on Schley and Floyd soils. Both of these soils tend to be a little wet and will somewhat limit the type of tree, shrub and prairie species that can be planted and managed for. The rest of the property is on Racine soil. This soil is very productive and will have few limitations. This soil covers the south end of stand 1 and the west end of stands 3 and 4.

I have broken the area into 4 areas labeled Stand 1-4 on the map and in the plan. Stand 1 is 2.7 acres in size and will be direct seeded to hardwood trees. This area is currently an alfalfa field and grass pasture. Stand 2 covers the main timber portion of the property and is 4.2 acres in size. This area will be seeded to shade tolerant species so that when the large bur oak trees die out a new forest will already be started. Stand 3 is a long narrow shrub planting placed between stand 2 and 4. This are is 0.9 acres in size and is being added for wildlife cover and food. The final stand is located in the south east corner of the property and will be seeded no native grasses and forbs. This is also being done to add some wildlife diversity to the area. Stand 4 is 2.5 acres in size and is currently alfalfa.

STAND 1, 2.7 ACRE
DIRECT SEEDING

Seed has several advantages. The seed can be broadcast, so the area will have a more natural appearance. More trees per acre can be established with seed, so the site will be captured by tree growth sooner. This minimizes the amount of mowing and herbicide that is needed for maintenance.

Seed Collection and Handling

Species like black walnut, white oak, northern red oak, ash and hard maple drop their seed in the fall and should be collected immediately after seed drop.
Walnuts can be sewn with husks on. If they are husked, keep the nuts moist or they will loose their viability. Large piles of green walnuts will heat up. Therefore, keep the piles relatively small to help dissipate any heat.

Here are some considerations for the proper collection of acorns:

- Acorns loose their viability if they become dehydrated. Therefore, collect the acorns soon after they fall off the trees.
- Put the newly collected acorns in bags. One standard feed bag will hold approximately two bushels. Feed bags will allow the seed to breathe and permit excess moisture to drain out.
- Immediately after collection, immerse the acorns in water for 24 hours, then place the soaked acorns in a cool dark place until planting. Soaking the seeds in water rehydrates the seed for better germination.

Ash and maple seed should be <u>air dried</u> (no heat) and stored in a cool place until sewn.

Site Preparation

During August, mow the entire stand to be seeded. You can either leave this grass and alfalfa lay, or bail it, depending on the cost share program you are using. Once the mowed area has greened up, spray the new green growth with 2 quarts per acre Roundup. This will kill the existing vegetation and help with weed control in the future.

In late September you should then plow the area to be seeded. This will insure that the old sod cover is gone and that you have a good seed bed.

The final step is to then disk the area 1-3 times. The area should look like it is ready to be planted to corn.

Seeding Rates

All of the following are species and general rates of green, unclean seed.

Species	Bushels Per Acre
Green Ash, White Ash, Hard Maple	¼ - ½
Red Oak, White Oak, Bur Oak, Shagbark Hickory	3-5
Black Walnut	5

The following is the seeding mix I recommend for your planting:

White ash	¼	bushel per acre
Red oak	2	“
Bur oak	2	”
Black walnut	3	“
Shagbark hickory	2	”

Seeding Steps

The following steps are suggested:

1. Broadcast the walnut, oak, and hickory seed over the entire area. Disk the seed into the ground so that the majority of the seed is buried 1 to 2 inches deep.

2. Broadcast the ash seed and lightly harrow the area. Ash seed should be buried approximately 1/4 inch deep.

3. Roll the entire field with a cultipacker so that all seed is firmly packed in.

Weed Control -

It is important to have good control of the competition for the first 2-3 years of the seeding. The first two growing season are critical as the seed germinates and the seedlings begin to grow. The herbicides to use will depend on what weeds and/or grasses cause you problems.

Preemergent Herbicide -

In the spring before any vegetation begins to grow, broadcast spray the field with Pendulum herbicide. Apply 2 quarts of Pendulum per acre. Pendulum is a preemergent that will inhibit the germination of grasses and some broadleaves. If you have weeds and grasses already growing in the spring, add Roundup to the Pendulum to kill the existing plants. Apply 1 1/2 to 2 quarts of Roundup per acre. Be sure that no seedlings are up when you apply the Roundup, because Roundup will kill the seedlings.

You will need to scout your direct seeding in early June to determine what weed and grass problems are beginning to develop. You will almost always have a grass problem or weed problem, or both.

During early to mid-June, broadcast spray the following -

Grass Control -

Apply 1 pint of Fusilade per acre. Add 1/2 pint of a nonionic surfactant per 25 gallons solution. Apply when the grass is 4 to 6 inches tall.

Broadleaf Control -

Apply 1/2 pint per acre of Transline. Apply when the weeds are 6 to 10 inches tall.

****** If broadleaf weeds become a problem late the first year, mow the area high, so that you are mowing above seedling height.***

Seedling Planting -

Oak acorns are not available every year. There is often a 3-4 year gap between good acorn crops. When there is a light crop of acorns, most of the seed will have acorn weevils which destroy the seed. Also wildlife will tend to eat more of your seed when there is little seed in the woods.

During poor acorn crops, you should plan to plant oak seedlings the following spring to get oak in your planting. Plant approximately 200 seedlings per acre which is a 15 ft. spacing between trees. You can use a tree planting machine or plant the seedlings by hand. Plant good seedling stock which is a minimum of 18-24" tall and 3/8" in caliper.

It is often difficult for the oak seedlings to keep up with some of the other species in a direst seeding. This is due to deer and rabbit pressure, poor weed control and growth rates. To keep an oak component in your planting you will probably have to do some early thinning and maybe some caging around the oak seedlings. I suggest that in year 3 you cage 25 trees per acre and thin the competition around them. At maturity you will only need 50 trees per acre, so if you give 25 trees a good start now; they will be there to make up part of the final forest.

STAND 2, 4.2 ACRE
TIMBER UNDERSTORY SEEDING

In the past this piece of ground was used for pasture and because of this pasturing there are few woody species in the understory. Most of this area is covered by grass. The overstory trees are predominantly bur oak with a few hackberry and black oak. A few of these trees are starting to decline so it is important to try to establish desirable seedlings in the understory now. To grow shade intolerant trees like oak and walnut you would have to be willing to cut down all of the big trees once the new trees were started. This is because these species can not grow in the shade. On the other hand, species like hard maple and ash do fairly well in some shade. Since you do not want to lose the big trees right away, I suggest you seed the understory of this stand with shade tolerant species like hard maple.

You will need to follow the same steps that you did in stand 1, the only difference is the species mix and that you will have to work around the big trees.

The following steps are recommended for Stand 2.

Site Preparation

During August, mow the entire stand to be seeded. You can either leave this grass and alfalfa lay, or bail it, depending on the cost share program you are using. Once the mowed area has greened up, spray the new green growth with 2 quarts per acre Roundup. This will kill the existing vegetation and help with weed control in the future.

In late September you should then plow the area to be seeded. This will insure that the old sod cover is gone and that you have a good seed bed.

The final step is to then disk the area 1-3 times. The area should look like it is ready to be planted to corn.

All of these steps will be difficult with the large trees in the area, but spray and till up as much of the area as you can.

Seeding Rates
The following is the seeding mix I recommend for your planting:

Sugar maple	1	bushel per acre
Green ash	¼	“
Black walnut	3	“

Seeding Steps

The following steps are suggested:

1. Broadcast the walnut, oak, and hickory seed over the entire area. Disk the seed into the ground so that the majority of the seed is buried 1 to 2 inches deep.

2. Broadcast the ash seed and lightly harrow the area. Ash seed should be buried approximately 1/4 inch deep.

3. Roll the entire field with a cultipacker so that all seed is firmly packed in.

Weed Control -

It is important to have good control of the competition for the first 2-3 years of the seeding. The first two growing season are critical as the seed germinates and the seedlings begin to grow. The herbicides to use will depend on what weeds and/or grasses cause you problems.

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In the spring before any vegetation begins to grow, broadcast spray the field with Pendulum herbicide. Apply 2 quarts of Pendulum per acre. Pendulum is a preemergent that will inhibit the germination of grasses and some broadleaves. If you have weeds and grasses already growing in the spring, add Roundup to the Pendulum to kill the existing plants. Apply 1 1/2 to 2 quarts of Roundup per acre. Be sure that no seedlings are up when you apply the Roundup, because Roundup will kill the seedlings.

You will need to scout your direct seeding in early June to determine what weed and grass problems are beginning to develop. You will almost always have a grass problem or weed problem, or both.

During early to mid-June, broadcast spray the following -

Grass Control -

Apply 1 pint of Fusilade per acre. Add 1/2 pint of a nonionic surfactant per 25 gallons solution. Apply when the grass is 4 to 6 inches tall.

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Apply 1/2 pint per acre of Transline. Apply when the weeds are 6 to 10 inches tall.

****** If broadleaf weeds become a problem late the first year, mow the area high, so that you are mowing above seedling height.***

STAND 3, 0.9 ACRE
SHRUB PLANTING

This shrub planting will be approximately 70 feet wide and 550 feet long. This planting is being designed to provide good food and cover for wildlife. The following steps are recommended.

SITE PREPARATION:

This area is also pasture ground and will have to have the grass and weeds around each shrub controlled. I suggest that you spray 2 quarts rep acre Roundup, and 4 quarts per acre Pendulum in a 4 foot wide band in front of the tractor as the seedlings are being planted. Most tree planting contractors are set up to do this with their tree planting equipment. If you plant the seedlings by hand, you should follow the recommendations listed in the maintenance section below.

SPECIES AND SPACING:

Start the first row 20 feet off of the Stand 4 fence line and work north following the row lay out and spacing listed below.

***** Stand 2 border *****	
20 ft. space	
1 row of American plum planted 4 ft. apart in the row	100 shrubs
10 ft. space	
1 row of Elderberry planted 4 ft. apart in the row	100 shrubs
10 ft. space	
1 row of Hazelnut planted 4 ft. apart in the row	100 shrubs
10 ft. space	
1 row of Highbush cranberry planted 4 ft. apart in the row	100 shrubs
20 ft. space	
***** Stand 4 fence line *****	

The trees must be planted within one week of their arrival and no later than May 15th. If the trees can not be planted within one week of their arrival, they should be kept in cold storage at 35 to 38 degrees Fahrenheit. All trees must be planted at the same depth as they were grown in the nursery with all root collars below ground line.

WEED CONTROL:

Competing vegetation must be controlled for a minimum of 5 years. After the trees are planted and before any vegetation emerges, spray a 4 ft. wide circle around each plant with Roundup, and Pendulum herbicides. Apply 2 quarts of Roundup and 4 quarts of Pendulum per acre treated. Roundup can not be sprayed on the trees so you will have to place a bucket or stove pipe over the top of each tree. The shrub rows could be sprayed in bands before the planting is completed if you choose. This would keep you from having to spray around each shrub. The planting should then be mulched.

The best form of weed control is mulching with wood chips. Wood chips cool the soil and will control competition for up to 3 years. Mulch an area 4 ft. in diameter around each tree and 5-6 inches deep. Rake the mulch away from the trunk of the tree so that the trunk does not stay wet.

STAND 4, 2.5 ACRE
PRAIRIE SEEDING

SITE PREPARATION:

During the summer / fall spray the entire area to be seeded to prairie with 2 quarts per acre of Roundup. You should then allow the area to green up, and spray again. This step can be completed 2 or 3 times to ensure a good kill and to reduce the weed seed on the site.

SEED MIXES:

When planting native prairie, there are many different options to consider. You can stay very basic and plant a few grasses or you can get very diverse and plant many different kinds of grasses and forbs. This all depends on how deep your pocket book is. Native prairie plantings can be very expensive and it is hard for most people to plant an extravagant seed mix. I would suggest that you start small and add to the planting over the years as you desire, and your pocket book allows.

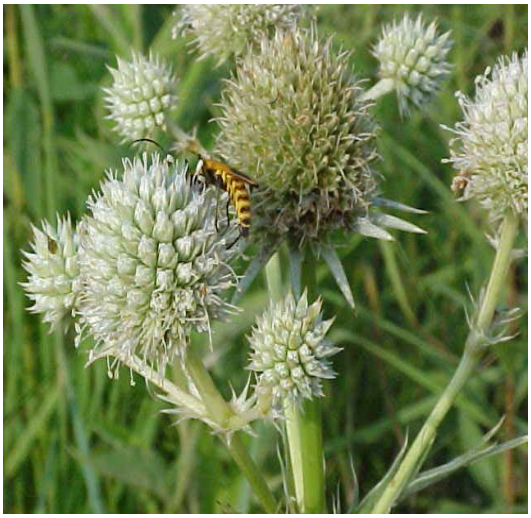
One comment that you will hear over and over when talking about planting prairie, is that local ecotype seed should be used when ever possible. There are many different opinions on what local ecotype seed is, and I am not sure there will be an answer anytime soon. My suggestion is that you talk to your seed dealer and try to find seed as close to your area as possible. It may not always be possible to find a source of local seed, but it is important that you try.

Using local ecotype seed may be very beneficial to you. As native prairie plantings become more popular, the demand on seed is going to be very high. In the future you may have the opportunity to sell seed from your planting and using local ecotype seed should make your product more desirable.

As mentioned above the soils on this site are fairly productive and should accommodate most wet to mesic (not too wet and not too dry) seed mixes. There are a few different options when choosing a seed mix for your property. Many seed nurseries offer standard starter mixes that you could choose from or you could develop a starter mix of your own. This decision will probable depend on cost. A typical seed mix runs from 10 to 15 pounds per acre or 35 to 40 seeds per square foot.

The following is the starter mix that I recommend.

Grasses:	Big bluestem	2 pounds per acre
	Indian grass	2 “
	Little bluestem	
3.5	“	
	Canada wild rye	1.0 “
	Sideoats gram	1.5 “
Forbs:	Black-eyed Susan	0.25 “
	Purple prairie clover	0.25 “
	Purple coneflower	0.25 “
	Compass plant	0.25 “
	Rattlesnake master	0.25 “
	Butterfly milkweed	0.25 “
	Leadplant	0.25 “
	Ox-eye sunflower	0.25 “
	Prairie blazingstar	0.25 “
	Yellow coneflower	0.25 “
	Total	12.5 pounds



As I mentioned this is a basic mix that should provide a lot of color throughout the year. Most of the species I have listed are fairly forgiving and easy to start. This mix will run about $500 per acre for the seed alone. If this cost is too much, you may want to scale back some of the more expensive species or find an alternative mix.

One other option is to check with your county Pheasant Forever (PF) chapter to see what type of seed mixes and programs they offer. Some counties will provide you with a seed mix at little or no cost to help promote habitat development. This varies between counties but is worth looking into.

If you choose to use a PF or other seed mix, make sure to find out what is in it. Some of these mixes use non-native and in some cases very aggressive species that can take over. It is important to find out what you are getting before you put it in the ground.

PLANTING:

After the ground has been sprayed and killed with Roundup, no-till drill the seed into the planting area. This can be done from late May to the end of June.

Many county conservation boards have no-till drills that they lend or rent out for you to do the planting. Another option is to hire a contractor to plant the site. You may also want to check with the county PF chapter to see what they offer. Demand is very high on no-till drills so you will want to have a drill lined up well in advance.

WEED CONTROL AND MAINTENANCE:

Once the area has been planted, you will want to keep the weed pressure down**.** This can be done through mowing and/or burning. The first year you should keep the area mowed to a height of 4 to 6 inches. This will help keep the weed pressure down and allow your forbs to get started. The following year, keep the area to a height of 6 to 12 inches. The third year and on you will want to mow or burn in March. This does not have to be done each year but will be beneficial if done every three to five years depending on weed pressure and prairie health. If you wish to have a successful prairie planting, it is very important that you keep an eye on your planting and follow through with yearly maintenance.

Prairie planting comments-

1: When planting native grasses under the CRP Program, there are seed per acre and species quotas that have to be met. You will have to get any seed mix you choose approved by your local NRCS office.

2: When choosing seed mixes, try to use local ecotype seed. This may benefit you financially in the long run through the sale of seed.

3: Find out what is in your seed mix before you plant it. You do not want to plant an aggressive non native species that will take over your planting.

4: Prairie establishment is not a one time and your done thing. You will have to follow through with continued maintenance to ensure a high quality seeding.

5: It is better to start small and build your prairie seeding, than to not starting at all. If cost is a major factor, start small and add to the planting seeding over the years

GENERAL COMMENTS:

Cost Share Programs-

WHIP- Tree planting and timber stand improvement will qualify for cost sharing assistance under the WHIP (Wildlife Habitat Incentive Program) program. You must apply for cost sharing at the NRCS office. The program will cover up to 75% of the costs, not to exceed $375 per acre for tree planting and $75 per acre for timber stand improvement work. You must receive approval for the project before starting any of the work.

Once your project is completed, you must submit a record of all your bills to the NRCS office. You must follow the plan. Any changes in the plan must be approved by me or you may not receive cost sharing.

You will be asked to sign a 10 year maintenance agreement which states that you will maintain the practice for 10 years. This means you will maintain the area in trees and not convert the property to some other use.

Submitted by

District Forester

ADDITIONAL MANAGEMENT CONSIDERATIONS

Historical/Cultural -

Historical and cultural sites such as old home sites or old cemeteries are a look into the past and can give insight to past management of your land. These areas should be identified so that you can protect them with management activities.

Recreation & Aesthetics -

Woodland management can decrease the short term recreational and aesthetic values of your property. Harvesting large trees will leave tops on the area and remove large trees that may have more value to you to look at. Timber stand improvement work that removes undesirable trees will allow more sunlight to reach the ground. Increased sunlight to the ground results in more weeds and brushy species for 5-10 years until young trees grow up and shade out the brush. Identify areas on your property that you value highly for recreation and natural beauty. You can manage these areas specifically for these values. Buffers of woodland can be left around critical areas and you can plant seedlings to create buffers and screens to reduce the visual impact of areas you are managing intensively.

Water Quality/Wetlands -

Woodlands and tree plantings greatly improve water quality. Trees reduce erosion and filter silt and chemicals from the water entering the streams. It is wise to maintain a good tree buffer along your streams and plant trees in areas that will help reduce soil erosion and improve water quality. Trees can be harvested in buffers along rivers and streams, but it should be a selective harvest that maintains good tree cover.

Wetlands are excellent filtering systems that are important to maintaining good water quality. Wetlands also provide good habitat for a variety of wildlife species. If possible, do not route roads through wetlands and maintain a good buffer of trees and grasses around the wetland area.

Native Prairies/ Savannas -

Native prairies are a mixture of native grasses and forbs (wild flowers). The major grasses are big bluestem, little bluestem, Indian grass, and sideoats grama. Common forbs are bee balm, black-eyed Susan, gray headed coneflower, hoary vervain, New England aster, partridge pea, and purple cone flower. Native prairies provide excellent wildlife habitat for game and non game species. The tall grasses will stand up throughout the winter and provide winter protection. Native prairies are also very attractive and will give you different colors throughout the year as the different species of flowers bloom.

Consider establishing native prairie on your property to add diversity. There also may be small prairie remnants in undisturbed areas. These can often be improved by removing the woody species and burning periodically.