Addendum to Kevin Ogle Forest Management Plan

Two additional properties were recently purchased by Mr. Ogle of which approximately 17 acres will be added to his original forest management plan.

Description and Analyses of Stand Three:

The total area of stand two is approximately 12 acres

Topography: This stand is characterized by areas of gently sloped, moderately drained loess ridges that feed intermittent and ephemeral streams.

Aspect: A mostly western facing slope with drainage into Quarrel Creek.

Soils: The following soils are found within three of this property; Grantsburg silt loam and Zanesville silt loam. The approximate site index for these soils is between 76 and 90. Please see the attached Custom Soil Resource Report **(Appendix G)** for a soil map and detailed description of soil characteristics.

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Forest Cover Type: Oak/Hickory. The predominant species on the site at the present time are Oak, Hickory, and Red Cedar. Other prominent species include Ash, Elm and Sassafras. No evidence of recent logging was found within this stand.

Stand Age Class: Uneven-aged stand

Invasive Species: This stand contains a small amount of Japanese honeysuckle, multiflora rose, and Autumn Olive. These species make up less than 10% of the total vegetation cover in the understory.

Understory Conditions: Most plots contained some tree regeneration with oak, hickory, ash, and elm being the predominate species regenerating.

The following specific information was obtained from a forest inventory of Stand Three. A species level summary can be found in **Appendix E**.

Size Class:	Pole Size Timber (8.5 – 11.5”)
Average DBH:	10.5 inches
Trees per acre:	228
Basal Area (BA):	82
Volume per acre:	1346 bd/ft
Timber Quality:	Medium
Stocking:	Fully stocked stand containing mostly Oak, Hickory, Ash, Red Cedar and Sassafras in the pole and small sawlog size classes. This stand is approximately 75% stocked at this time.

MANAGEMENT RECOMMENDATIONS FOR STAND THREE

Implement a Forest Stand Improvement (FSI). These actions will help to manipulate the composition of the newly developing forest stand. FSI will be used to reduce undesirable growing stock and manipulate species composition while increasing acorn production, growth rate of timber, wildlife browse, and oak regeneration. The FSI recommendations given for stand one and two can be followed as a guide for stand three also. During the FSI particular attention should be given to the removal of undesirable trees overtopping oak seedling and saplings.

The basal area of this stand is 82 square feet per acre. This BA amount indicates the stand is approximately 75% stocked at this time. Stand three is near the low end of what is considered to be a fully stocked stand and is in need of a FSI primarily to affect species composition and not to reduce the stocking of the overall stand. No more than 20-25 square feet of basal area per acre should be removed in order to ensure the stand remains fully stocked (60% or above). In most areas less than 50 undesirable trees should be removed per acre however this number will be greater in those areas containing a large amount of Red Cedar. When the FSI is initiated Red Cedar should be the primary targeted species followed by Elm, Locust, Maple, and any undesirable growing stock.

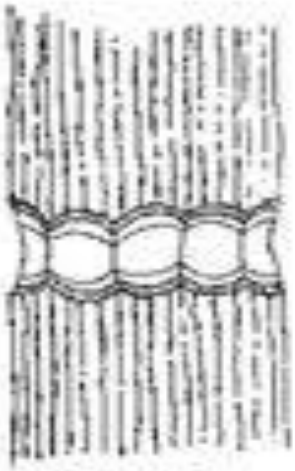

Figure 1

Figure 2

Both stand two and three contain areas consisting of a large number of Red Cedar trees that are crowding the overstory and preventing the growth and establishment of more desirable species. In order to encourage the growth of high quality oak and hickory species these trees should be removed. The large size and number of these Red Cedar trees would make traditional methods of removal difficult. Furthermore, cutting down such a large number of trees in one area would limit access, damage desirable trees (i.e. oak saplings), and the debris would prevent the regeneration of desirable species. In order to alleviate these problems unwanted Red Cedar trees can be killed and left standing. This can be done by using a method call girdling. The process of girdling involves cutting a notch into the bark and wood of a living tree in order to kill it. One of the quickest ways of doing this is by using a chainsaw to make two horizontal girdles about an inch deep and a few inches apart (see figure 2 above).

Description and Analyses of Stand 4:

The total area of stand four is approximately 5 acres.

Topography: Stand four is a moderately sloped, moderately drained loess ridge feeding an intermittent stream.

Aspect: A moderately steep northwestern facing slope with drainage into Quarrel Creek.

Soils: The following soils are found within stand four; Grantsburg silt loam and Zanesville silt loam. The approximate site index for these soils is between 76 and 90. Please see the attached Custom Soil Resource Report **(Appendix G)** for a soil map and detailed description of soil characteristics.

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Forest Cover Type: Stand four is currently an old field ecosystem containing mostly grasses and small herbaceous plants. The area has been maintained by annual mowing.

Stand Age Class: Once established this stand will be even aged.

Invasive Species: no significant presence of invasive species was noted.

MANAGEMENT RECOMMENDATIONS FOR STAND FOUR

Implement a tree planting to convert stand four from an old field ecosystems to forest. One of the primary goals for this property is to provide high quality food and cover for desirable wildlife. The planting of oak trees within stand four will help to provide food and cover for numerous game and non-game animals. Many species of mammals, birds, reptiles, and insects benefit from the high-protein acorns oak trees produce. In fact more than 100 species of animals within the United States consume acorns including white-tailed deer, squirrels, mice, voles, rabbits, raccoons, opossums, and foxes. Additionally many birds also feed on acorns including wild turkey, bobwhite quail, wood ducks, mallards, woodpeckers, crows, and jays. The Table below shows a list of the recommended growing stock to be used when conducting this tree planting.

Species	Latin Name	Size	Quantity	Spacing
Northern Red Oak	*Querus rubra*	bareroot	1400	10 x 10 foot
White Oak	*Quercus alba*	bareroot	1400	10 x 10 foot

Both Northern Red Oak and White Oak have been selected for the value they provide both economically and for native wildlife. Although these two species have been recommended other species may be substituted depending on the availability of growing stock and the preferences of the landowner. All seedlings will be planted at a 10’ x 10’ spacing which will result in approximately 450 trees being planted per acre. A minimum

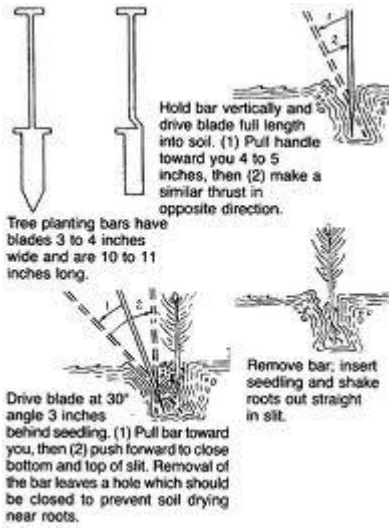
70% survival rate will be the goal to ensure a stocking level of at least 300 trees per acre (TPA) is maintained. In addition to the 5 acre tree planting of stand four an approximate 1.25 acre stand of trees will be planted along the southern edge of a recently acquired agricultural field located south of stand one (see stand map). This group of trees will help to serve as a property boundary once established.

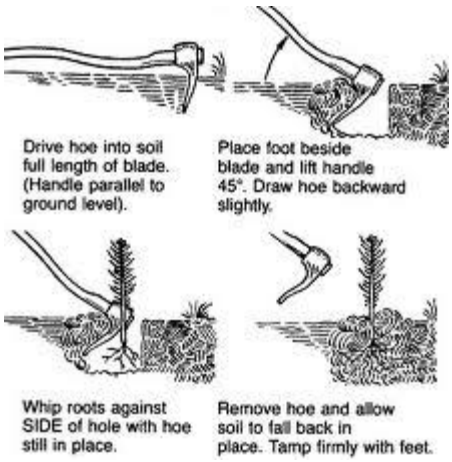
Site Preparation

The first step when planting trees is the preparation of the area to be planted. Small trees just like any other young plant are very susceptible to competing vegetation. In order to ensure the success of the trees being planting competing vegetation needs to be controlled. Competing vegetation consists primarily of pasture grasses and other herbaceous forbs. In order to limit the negative impact of these plants on the young seedlings mowing and herbicide application can be used. The removal of competing vegetation should be conducted preferably in mid to late fall or early spring prior to tree planting. If mowing is not deemed sufficient to control competing species herbicide should be utilized. Prior to planting a non-selective herbicide such as glyphosate can be applied in linear strips approximately four feet in width and ten feet apart from their center. Glyphosate is the preferred herbicide because it is inexpensive and breaks down quickly in the soil so it will not have a negative effect on the young trees being planted. When any chemical is being applied the applicator should read and follow all label instructions.

Planting Recommendations

Trees can be obtained in bare root form from a State of Illinois Nursery. If the recommended tree species are not available they can be replaced by a species with similar characteristics or by one of the other recommended species contained within this plan. Seedlings can be planted during the spring or fall, with the preference in early spring. Deciduous species are best planted in the early spring before bud break in April. This ensures the longest season for root growth and gives the plant a chance to establish feeder roots prior to the moisture demands of the growing season. Trees can be planted by hand or by machine. A correctly planted tree should have the following general characteristics: (1) Planted at about the same depth, or not to exceed one-half inch deeper than it was in the nursery. The root collar can be used for depth judgment. (2) Have the main roots nearly straight and spread out, not doubled, or sharply bent. (3) Have the soil firm around the roots. Leave no air pockets. (4) Have the tree in an upright position, and have it nearly even with the general ground level, not sunk in a hole or raised on a mound. Below are some diagrams outlining the two most common methods of hand planting; the slit-method and the side-hole method.





If it is economically feasible tree shelters should be used especially if deer browsing is a substantial concern. Tree shelters are plastic tubes that fit over the trees. Four feet high tree shelters will protect seedlings until their root system is well established. When shelters are properly installed available moisture and carbon dioxide is increased within the shelter thus increasing growth rates. In fact seedlings planted in shelters usually grow at a rate of two to four times that of their unsheltered counterparts and have a much higher survival rate. Shelters also prevent damage from rabbits and other rodents that may girdle the trunks of the newly planted seedlings. If the cost of installing tree shelters for the entire planting is too high consideration can be given to utilizing them on a portion of the planted seedlings. If the decision is made to install tree shelters make sure the base of the shelter is driven at least three inches into the ground. The tree shelter should then be fastened to a rot-resistant wooden stake placed on the upwind and upstream side of the seedlings.

Care and Maintenance

The most critical period after a tree planting project is the time spent maintaining the trees until they are of adequate size to compete with the other vegetation growing within the site. Inspection and maintenance of any tree planting will be necessary for at least 5 years to ensure establishment of the young seedlings. Deer browse, invasion by exotic plant species and competition by grasses and herbaceous forbs will all need to be monitored and steps taken to decrease their impact on the newly developing forest stand. Since the trees will be planted in a 10’ x 10’ grid pattern a small mower can be utilized to eliminate the majority of the competing vegetation throughout the site. Mowing should take place twice during the growing season. Once before weeds grow higher than 18 inches and again in late summer just before seed production. Mower height should be between 8-12 inches to minimize cutting of slow-growing native plants. In addition to the mowing of vegetation grasses and other herbaceous plants may need to be controlled in the area directly surrounding the new seedlings. This can be accomplished by weed-whacking or by applying an herbicide such as glyphosate to the area. Care will need to be given when utilizing either of these methods to ensure the seedlings are not damaged. Lastly, although some tree mortality is to be expected the overall survival of the planted seedlings will need to be monitored and steps taken to replant any area where the minimum performance standard of 300 TPA is not being met.

Appendix E

Compartment #	1	Stand #	3	Stand Acres	12

# Sample Plots	5	Basil Area Factor	10

# Sample Trees	41
# Sample Trees AGS	17
# Sample Trees UGS	24

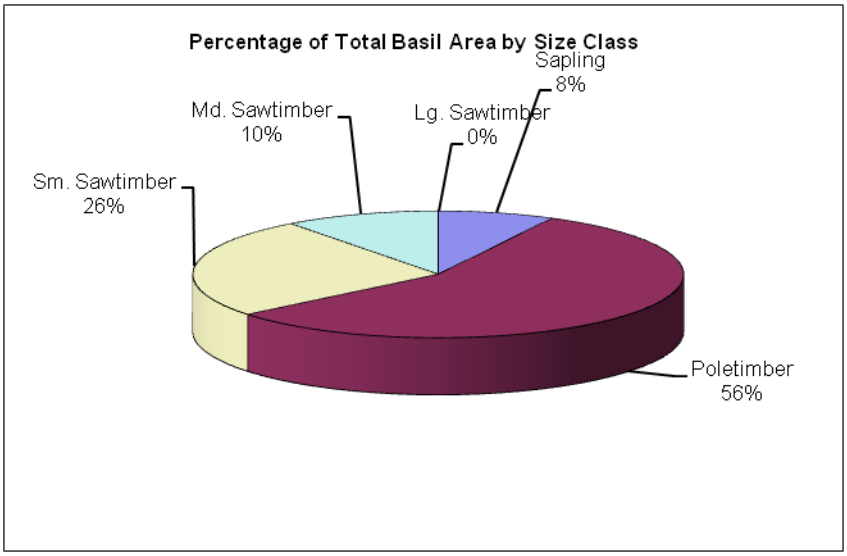
Stand & Stock Table Data							
Species	DBH	Condition	#16' Log	CF	TPA	Vol. Scale	Total vol. bd/ft./ac.
RC	10	U		18.33	3.67	2.61	
RC	8	U		28.65	5.73	-4.46	
RC	8	U		28.65	5.73	-4.46	
SA	6	U		50.93	10.19	-11.19	
RC	7	U		37.42	7.48	-7.86	
RC	6	U		50.93	10.19	-11.19	
RC	8	U		28.65	5.73	-4.46	
RC	10	U		18.33	3.67	2.61	
SAS	4	U		114.59	22.92	-17.58	
RC	9	U		22.64	4.53	-0.97	
RC	6	U		50.93	10.19	-11.19	
PER	8	U		28.65	5.73	-4.46	
BO	6	U		50.93	10.19	-11.19	
HI	19	A	2	5.08	1.02	190.49	193.49
PO	8	A	0.5	28.65	5.73	-0.10	
BO	4	A		114.59	22.92	-17.58	
RC	10	U		18.33	3.67	2.61	
RC	7	U		37.42	7.48	-7.86	
RC	5	U		73.34	14.67	-14.43	
GA	16	U	0.5	7.16	1.43	50.90	72.91
HI	17	A	1	6.34	1.27	88.20	111.91
HI	14	A	1	9.35	1.87	48.99	91.65
RC	8	U		28.65	5.73	-4.46	
RC	9	U		22.64	4.53	-0.97	
HI	14	A	1.5	9.35	1.87	62.24	116.44
AE	6	U		50.93	10.19	-11.19	
HI	12	A	1.5	12.73	2.55	36.82	93.76
AE	7	U		37.42	7.48	-7.86	
HI	10	A	1	18.33	3.67	13.96	
HI	12	A	1	12.73	2.55	29.01	73.87
HI	19	A	1	5.08	1.02	120.51	122.41
HI	13	A	1	10.85	2.17	38.38	83.28
PO	14	A	1	9.35	1.87	48.99	91.65
RC	14	U		9.35	1.87	17.74	33.19
BO	14	A	0.5	9.35	1.87	34.16	63.90
BO	20	U		4.58	0.92	42.94	39.37
BO	10	A	1	18.33	3.67	13.96	
HI	20	A	0.5	4.58	0.92	92.39	84.70
BO	10	U		18.33	3.67	2.61	
HI	12	A	1	12.73	2.55	29.01	73.87

Stock Table bd/ft. by Species / Acre		
Species	Abv.	Total bd/ft.
White Oak	WO	0.0
Red Oak	RO	0.0
Black Oak	BO	103.3
Pin Oak	PO	91.7
Shingle Oak	SO	0.0
Yellow Poplar	YP	0.0
Ash	GA	72.9
Sycamore	Sy	0.0
Sugar Maple	SM	0.0
Silver Maple	SiM	0.0
Red Maple	RM	0.0
Sweet Gum	SG	0.0
Black Walnut	BW	0.0
Pecan	Pec	0.0
Hickory	Hi	1045.4
Persimon	Per	0.0
Sasafrass	Sa	0.0
Dogwood	Dw	0.0
Redbud	Rb	0.0
Black Locust	BL	0.0
Honey Locust	HL	0.0
Bald Cypress	Cy	0.0
Black Cherry	BC	0.0
Black Gum	BG	0.0
American Elm	AE	0.0
Cottonwood	Cw	0.0
Red Cedar	RC	33.2
Red Elm	RE	0.0
Basswood	AB	0.0
Boxelder	Bx	0.0
Hackberry	Hb	0.0
Mulberry	Mu	0.0
White Pine	WP	0.0
Loblolly Pine	LP	0.0
Shortleaf Pine	SP	0.0
American Beech	AB	0.0
Black Willow	Wi	0.0

Total Merchant Vol/Acre	1346.4
Total Merchant Vol/Stand	16157.1

Trees Per Acre Total	228.1
Trees Per Acre by AGS	60.5
Trees Per Acre by UGS	167.6
Trees Per Acre (Sapling)	45.8
Trees Per Acre (Pole)	138.8
Trees Per Acre (Sawtimber)	25.7

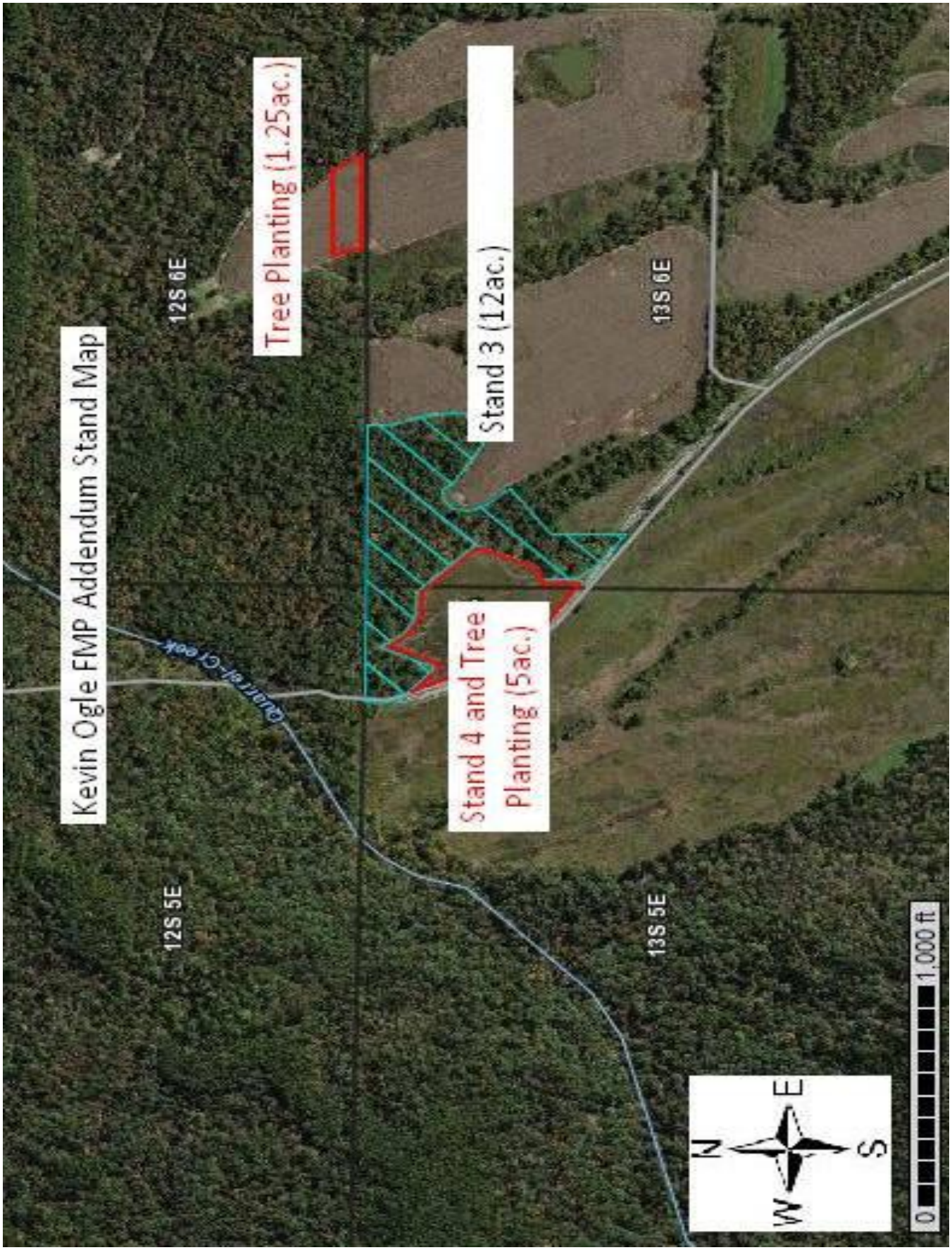
Size Class & Condition	BA/Acre / Condition	BA Percent / Condition
Sapling AGS	2	2%
Sapling UGS	4	5%
Poletimber AGS	6	7%
Poletimber UGS	38	46%
Sm.Sawtimber AGS	16	20%
Sm.Sawtimber UGS	4	5%
Med.Sawtimber AGS	6	7%
Med.Sawtimber UGS	2	2%
Lg. Sawtimber AGS	0	
Lg. Sawtimber UGS	0	
All Sawtimber AGS	22	27%
All Sawtimber UGS	6	7%



Size Class	Total BA/Acre	Total BA Percent
Sapling	6	7%
Poletimber	44	54%
Sm. Sawtimber	20	24%
Md. Sawtimber	8	10%
Lg. Sawtimber	0	
All Sawtimber	28	34%

Basil Area per Acre (Total)	82.0
Basil Area per Acre (AGS)	34.0
Basil Area per Acre (UGS)	48.0

Appendix F


Kevin Ogle FMP Addendum Stand Map
Tree Planting (1.25ac.)
Stand 3 (12ac.)
Stand 4 and Tree Planting (5ac.)
12S 6E
13S 6E
12S 5E
13S 5E
Quarrel-Creek
N
E
S
W
0
1,000 ft

Appendix G