


# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

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# How, When and Why of Forest Farming

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## SITE ASSESSMENT WORKBOOK

### Contact Information

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<b>Site Location</b>	MacDaniels Nut Grove
<b>Ownership</b>	Cornell Plantations, Natural Areas
<b>Address1</b>	Cornell University
<b>Address2</b>	Palm Road
<b>City</b>	Ithaca
<b>State</b>	New York
<b>Zip</b>	14850
<b>County</b>	Tompkins

# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Contact Information

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<b>USDA-Natural Resource Conservation Service (NRCS)</b>	Field office located at Tompkins County SWCD Office
<b>Soil and Water Conservation District (SWCD)</b>	903 Hanshaw Road, Ithaca, NY 14850 PH: 607-251-2340 EMAIL: WEB: <a href="http://www.tcsxcd.org/links.htm">http://www.tcsxcd.org/links.htm</a>
<b>US Geological Survey (USGS)</b>	Subdistrict Office, Water Resources Division 30 Brown Road, Ithaca, NY 14850-1573 (607) 266-0217 WEB: <a href="http://ny.water.usgs.gov/htmls/pub/nyoffice.html">http://ny.water.usgs.gov/htmls/pub/nyoffice.html</a>
<b>Forest Owners Association</b>	NY Master Forest Owners/Covert Program Gary Goff 108 Fernow Hall, Cornell University PH: 607-255-2824 EMAIL: <a href="mailto:grg3@cornell.edu">grg3@cornell.edu</a> WEB: <a href="http://www.dnr.cornell.edu/ext/mfo/">http://www.dnr.cornell.edu/ext/mfo/</a>
<b>Chamber of Commerce</b>	904 East Shore Drive, Ithaca, NY 14850 PH: 607-273-7080 WEB: <a href="http://www.tompkinschamber.org/">http://www.tompkinschamber.org/</a>
<b>County Clerk (Property deeds)</b>	Aurora R. Valenti 320 North Tioga Street, Ithaca, NY 14850 PH: 607-274-5431 EMAIL: <a href="mailto:avalenti@tompkins-co.org">avalenti@tompkins-co.org</a> WEB: <a href="http://www.tompkins-co.org/cclerk/">http://www.tompkins-co.org/cclerk/</a>
<b>Additional Contacts</b>	South Central NY Agriculture Team Jim Ochterski PH: 607-531-7161 EMAIL: <a href="mailto:jao14@cornell.edu">jao14@cornell.edu</a> WEB: <a href="http://www.cce.cornell.edu/scnyaq/forestfarming/index.htm">http://www.cce.cornell.edu/scnyaq/forestfarming/index.htm</a>

# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Base Map and Supporting Documents

	Map Checklist	Source	Date
<b>A</b>	<b>Base Map<sup>1</sup></b>	<b>Cornell Planning &amp; Ken Mudge</b>	
	<b>Property Map</b>	<b>NA</b>	
<b>B</b>	<b>Road Map</b>	<b>CU Info</b>	
<b>C</b>	<b>Topographic Map</b>	<b>Ithaca East Quad, USGS</b>	
<b>D</b>	<b>NRCS Soil Survey Map</b>	<b>Tompkins County Soil Survey</b>	

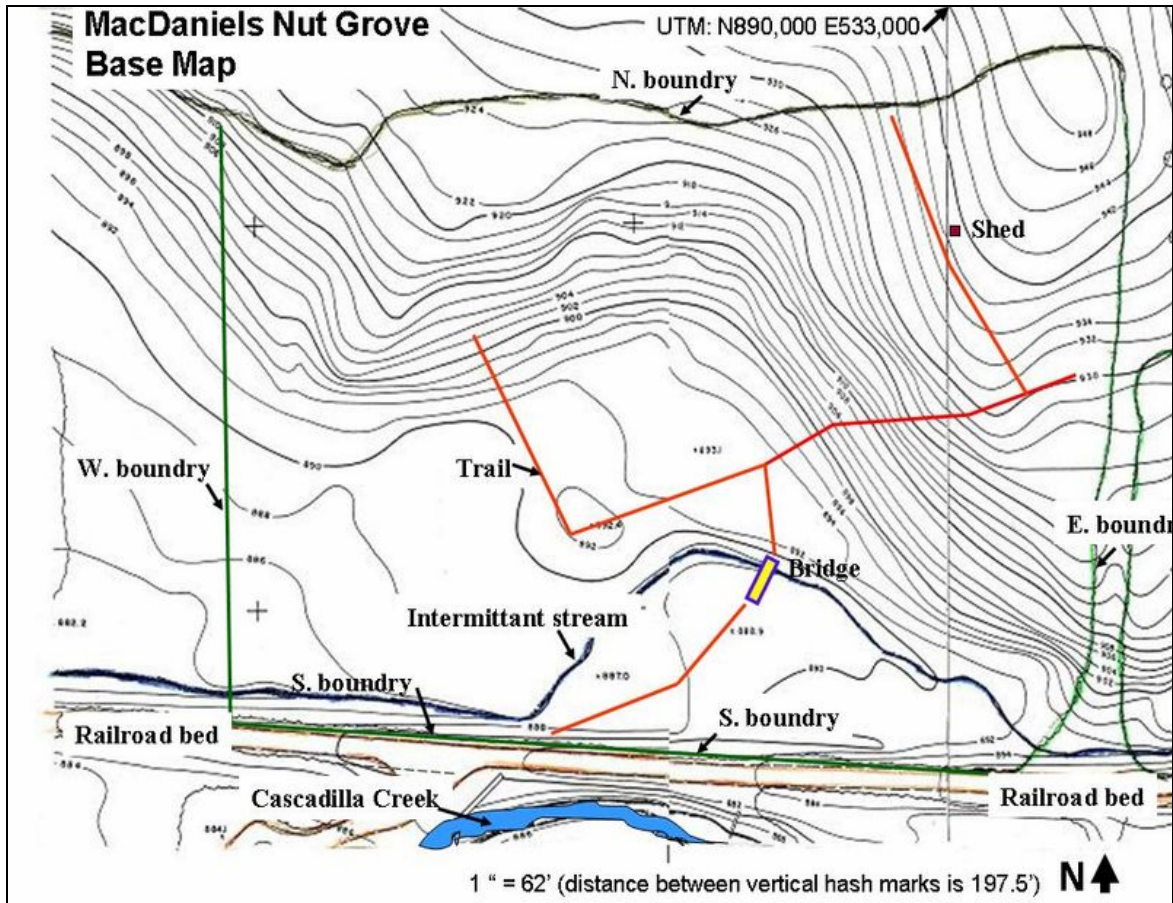
<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

	Photograph Checklist	Source	Date
<b>A</b>	<b>Aerial Photograph</b>		<b>1939 and 1999</b>

# Map A: Base Map

<http://hosts.cce.cornell.edu/hwwff/content/unit2/images/MNG-BaseMap1.jpg>

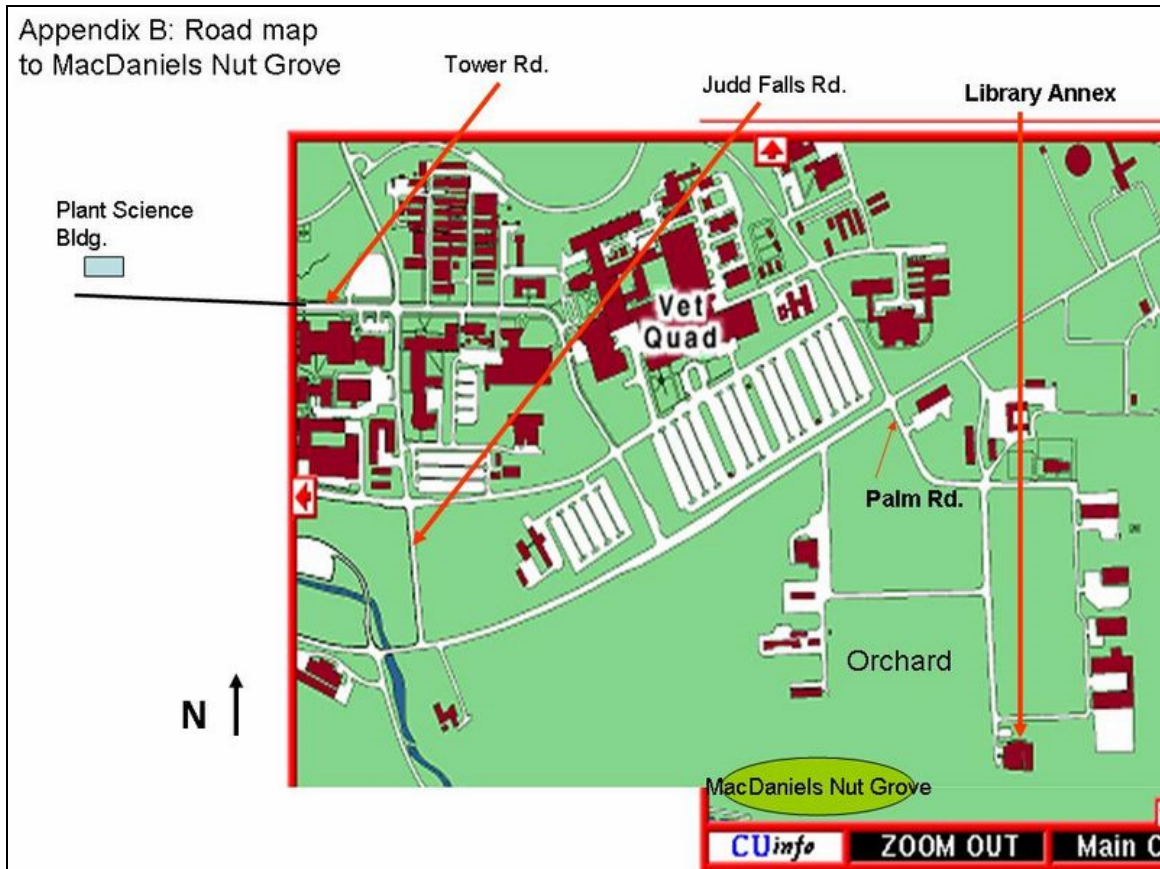
Contour interval = 2'





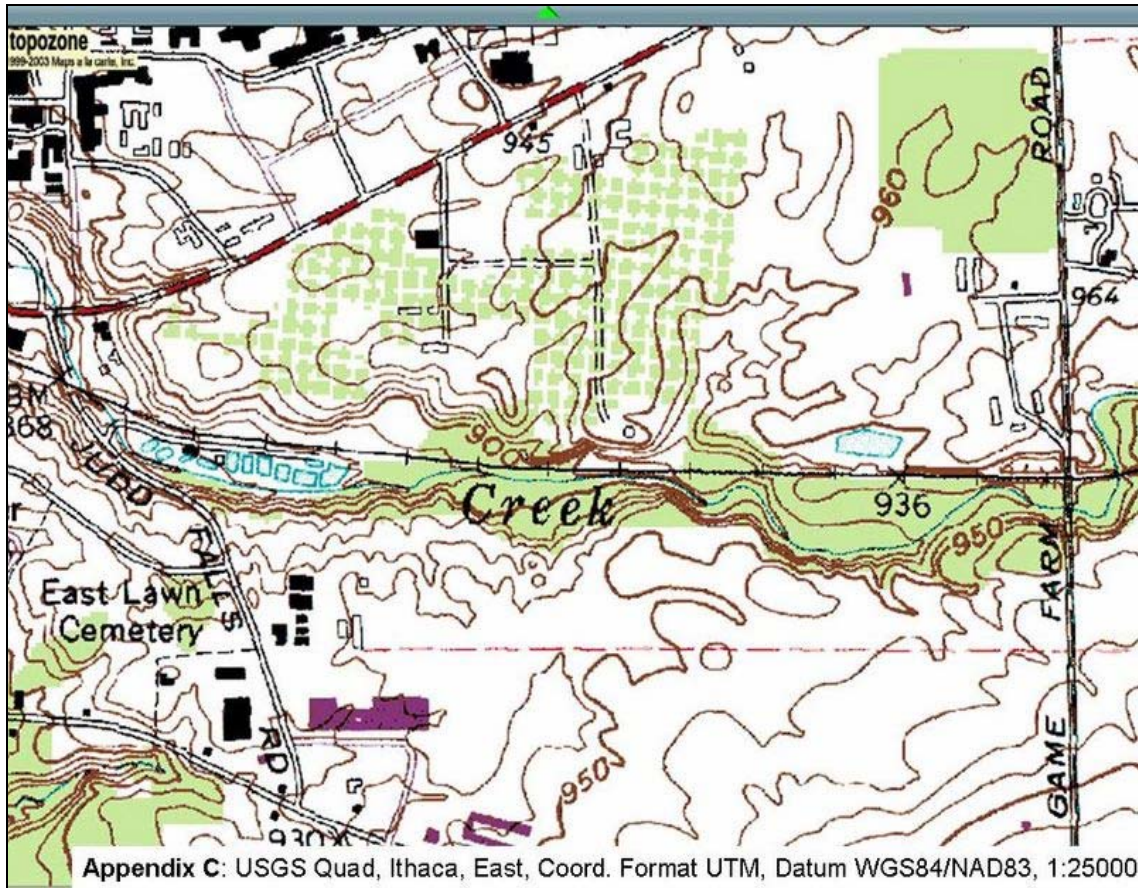
## Map B: Road Map

[http://hosts.cce.cornell.edu/hwwff/content/unit2/images/AppendixB\\_MNGRoadMap.jpg](http://hosts.cce.cornell.edu/hwwff/content/unit2/images/AppendixB_MNGRoadMap.jpg)  
MacDaniels Nut Grove is located South of the Cornell Orchards (on Rt. 366), along Cascadilla Creek and East of University Fish Hatchery.



## Map C: Topography Map

[http://hosts.cce.cornell.edu/hwwff/content/unit2/images/AppendixC\\_IthacaEastQuad.jpg](http://hosts.cce.cornell.edu/hwwff/content/unit2/images/AppendixC_IthacaEastQuad.jpg)  
USGS Ithaca East Quad (UTM 18 379957E 4699785N (WGS84/NAD83))

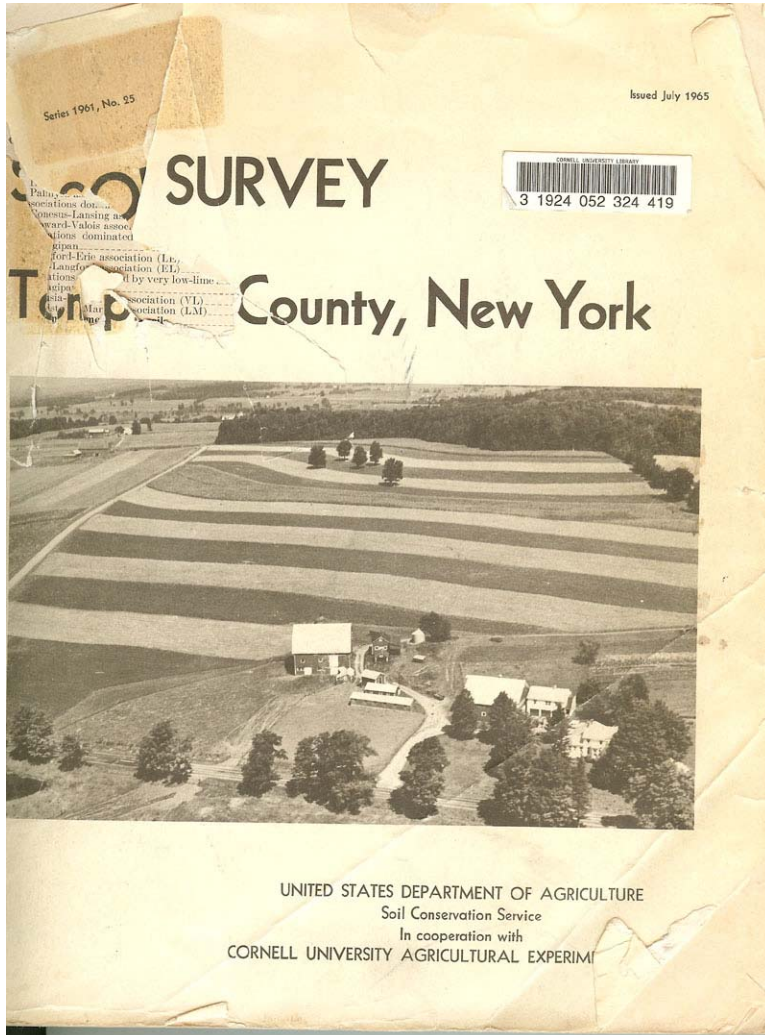


## Map D: Soils Map

Using the resources proved in the Soil Survey Resource Box, track down a copy of the US government official soil survey that applies to your forest farming site. In the case of the MacDaniels Nut Grove at Cornell University:

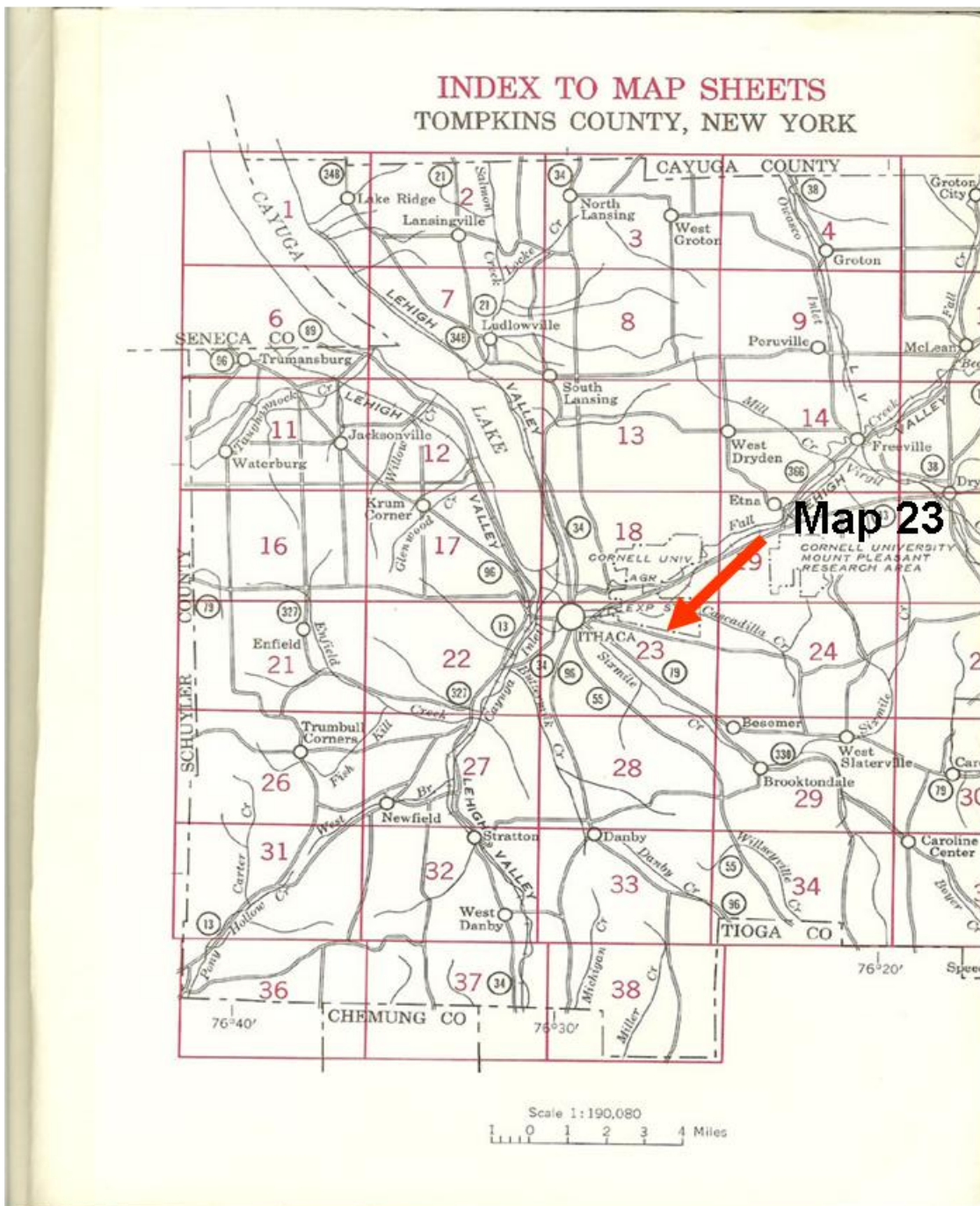
*Soil Survey, Tompkins County, NY, 1965, USDA, Soil Conservation Service*

This is the front cover of the Tompkins County, NY Soil Survey that includes the MacDaniels Nut Grove. Note that it is well used (picture shows it warts and all).





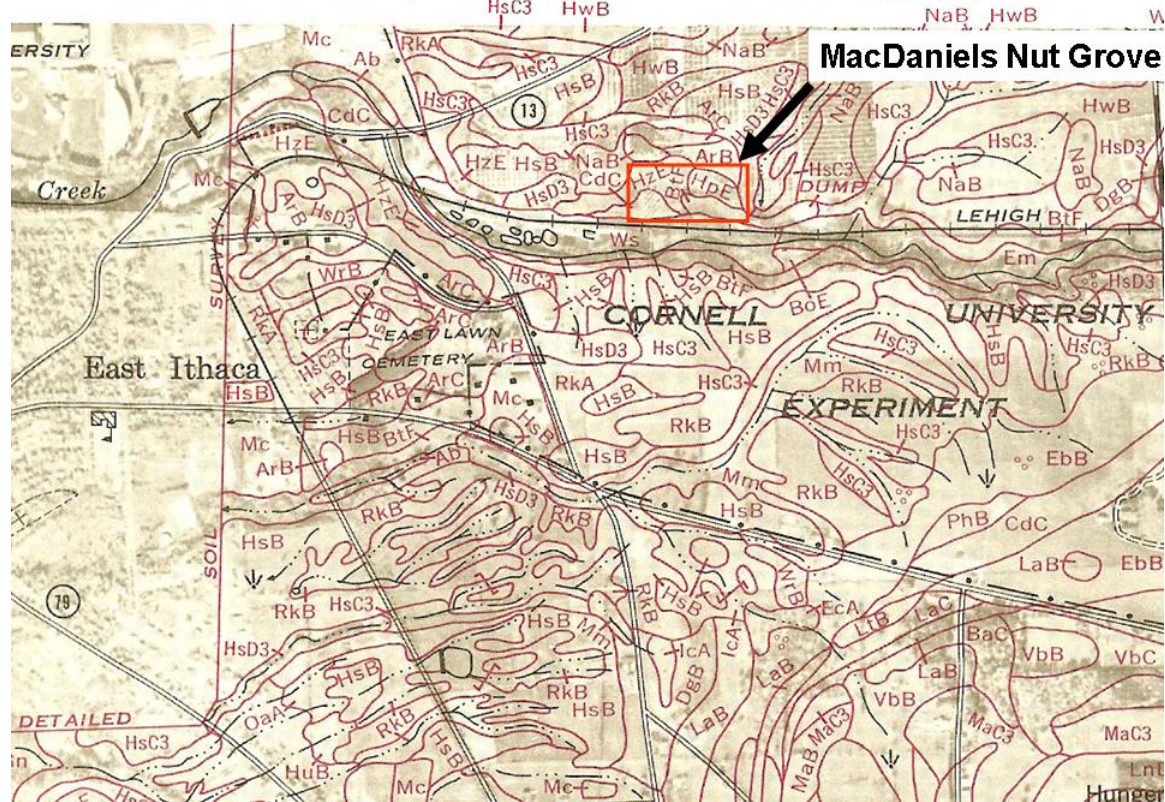
Use the Index Map to locate the Sheet (aerial photo with designated soil types) that applies to your site. MNG is located within Map



23.

Use your familiarity with roads, creeks, etc. to locate your site on the soil map/aerial photo (Sheet 23 for MNG), and note the abbreviation(s) for the soil type(s) that apply to your site. MNG includes BtF (primarily), HpE, and HzE

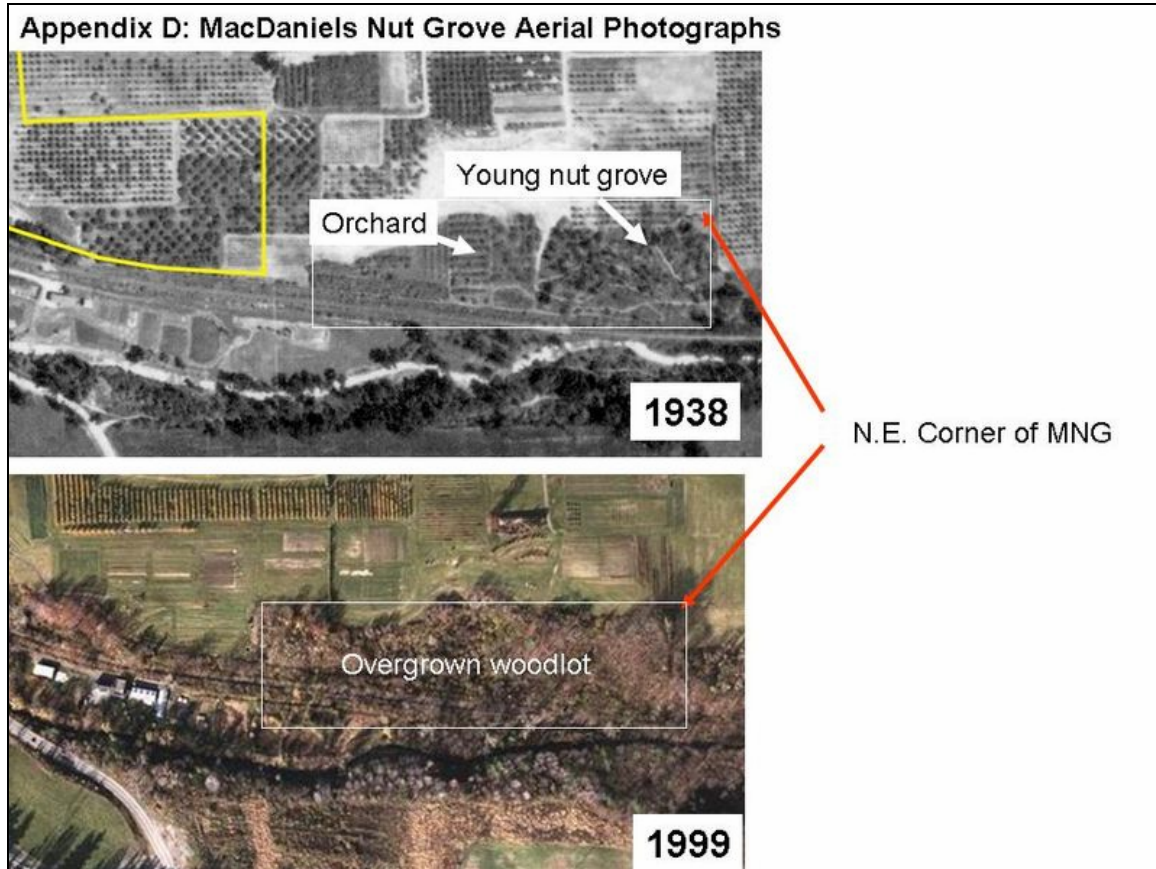
TOMPKINS COUNTY, NEW YORK — SHEET NUMBER 23





## Photograph A

[http://hosts.cce.cornell.edu/hwwff/content/unit2/images/AppendixD\\_AerialPhotos.jpg](http://hosts.cce.cornell.edu/hwwff/content/unit2/images/AppendixD_AerialPhotos.jpg)  
Land use change from 1939 [apple orchard (west half of MNG) / young nut tree variety trial (east half of MNG)], to 1999 [abandoned woodlot].  
Current MNG restoration and development began in 2001.



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Land Use Worksheet

Resources	
<b>Online</b>	
<b>Print</b>	MacDaniels Notebooks Cornell Planning
<b>Human Resources</b>	Ken Mudge Horticulture, Cornell University

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Zone	Historical Land Use
1	
2	
3	
4	

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
<b>Map A</b>	Base Map
<b>Photo A</b>	Aerial Photos, 1939 and 1999



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Land Use Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Zone	Current Land Use	Obstructions
<b>1</b>	<ul style="list-style-type: none"> <li>▪ Overstory dominated by Black Walnut</li> <li>▪ Pawpaws</li> <li>▪ 2 Cultivars of raspberry: Bristol Black Raspberry and Purple Royalty. Surrounded by temporary deer exclosures constructed with steel posts.</li> <li>▪ Fire pit</li> <li>▪ Stairway entry to site on South Border</li> <li>▪ Kiosk</li> </ul>	<ul style="list-style-type: none"> <li>▪ Honeysuckle</li> <li>▪ Brush piles</li> <li>▪ Garlic mustard</li> <li>▪ Black walnut roots</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>▪ Mushrooms: Shiitake and Oyster log production</li> <li>▪ Elderberry</li> <li>▪ Juneberry</li> <li>▪ Black Walnut</li> </ul>	<ul style="list-style-type: none"> <li>▪ Honeysuckle</li> <li>▪ Brush piles</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>▪ Hickory</li> <li>▪ Small Fruits Shade Trial: Blueberry, Honeyberry, Chokeberry, Gooseberry, and Currant planted in three different deer exclosures of high, medium, or low light.</li> <li>▪ Botanicals in raised beds: Ginseng</li> <li>▪ Ornamentals in raised beds: Maidenhair fern, Chinese ground orchid,</li> <li>▪ Western entrance to site from Dilmun Hill Student Organic Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Deer exclosures</li> <li>▪ Honeysuckle</li> <li>▪ Privet</li> <li>▪ Buckthorn</li> <li>▪ Encroaching Multiflora rose</li> </ul>
<b>4</b>	<ul style="list-style-type: none"> <li>▪ Tool shed</li> <li>▪ Hickory</li> <li>▪ Japanese Walnut on North boundary</li> <li>▪ Few Chinese Chestnut</li> <li>▪ Minor fruits planting surrounded by temporary deer exclosure: Cornelian Cherry Dogwood, Juneberry, Gooseberry, Currant, Beech Plum, and few Hickory sp.</li> <li>▪ Main public access entry to site, on East border</li> <li>Borders Cornell Orchard South gate</li> </ul>	<ul style="list-style-type: none"> <li>▪ Honeysuckle</li> <li>▪ Brush piles</li> <li>▪ Compacted mound of soil at East entrance</li> </ul>

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
<b>Map A</b>	Base Map



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Climate Worksheet

<b>Resources</b>	
<b>Online</b>	<a href="http://www.nrcc.cornell.edu/climate/Climate_summary.html">http://www.nrcc.cornell.edu/climate/Climate_summary.html</a>
<b>Print</b>	
<b>Human Resources</b>	

	Historical Summaries												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
<b>Minimum Temperature(°F)</b>	19	24.3	27.9	46.1									
<b>Number of Cloudy Days</b>													
<b>Relative Humidity</b>													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Precipitation</b>	3.71	2.07	2.65	4.74									

# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK


### Climate Worksheet

Resources	
<b>Online</b>	<a href="http://www.cce.cornell.edu/programs/hort/gardening/weather/index.html">http://www.cce.cornell.edu/programs/hort/gardening/weather/index.html</a> <a href="http://www.usna.usda.gov/Hardzone/ushzmap.html">http://www.usna.usda.gov/Hardzone/ushzmap.html</a>
<b>Print</b>	
<b>Human Resources</b>	

Regional Climatic Data	
<b>Average Number of Frost Free Days (Length of growing season)</b>	143-163 days
<b>Average Date of Last Spring Freeze</b>	April30-May10
<b>Average Date of First Fall Freeze</b>	Sep30-Oct10
<b>USDA Plant Hardiness Zone</b>	5b

Growing Degree Days						
Current Year to Date	Average	Last Five Years (year: GDD)				
		2000	2001	2002	2003	2004
2579	2026.4	1939	2157	2141	1899	2181





# How, When and Why of Forest Farming

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## SITE ASSESSMENT WORKBOOK

### Climate Worksheet

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**Additional Climate  
NOTES:**

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# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Microclimate Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Map Location	Slope (%)	Aspect	Exposure	Frost Pocket	Canopy Cover (%)
<b>Zone 1</b>					
<b>Point 1</b>	>2%	NW-facing			20%
<b>Point 2</b>	6%	N			40%
<b>Zone 2</b>					
<b>Point 1</b>	>2%	NA			40-80%
<b>Point 2</b>	>2%	NA			50%
<b>Point 3</b>	>2%	NA			50-75%
<b>Zone 3</b>					
<b>Point 1</b>		E/SE			30-80%
<b>Point 2</b>		S		Downslope on margin with Zone 2	70-90%
<b>Zone 4</b>					
<b>Point 1</b>	5%	SE			50-70%
<b>Point 2</b>	9%	SE			10-90%
<b>Point 3</b>	6%	SE			30-95%

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
<b>Map A</b>	Base Map



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Soils Worksheet

Resources	
<b>Online</b>	<a href="http://soils.usda.gov/survey/printed_surveys/">http://soils.usda.gov/survey/printed_surveys/</a>
<b>Print</b>	Tompkins Country Soil Survey
<b>Human Resources</b>	NRCS Field Office

Make additional copies to include all soil units. Indicate location on Base Map<sup>1</sup>

NRCS / SCS Soil Survey			
County	Tompkins		
Map Symbol	Base Map Zones	Soil Type (Map Unit)	Description
<b>BtF</b>	Zone	Bath, Valois, & Lansing	35-60% slope, deep, well-drained loams of gentle-steep slopes and uplands, medium texture, slightly acidic
<b>HpE</b>	Zone		
<b>HzE</b>	Zone		

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
<b>Map A</b>	Base Map
<b>Map D</b>	Soil Survey Map
<b>Soils A</b>	Map Unit Descriptions



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Soils Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

<b>Nutrient Analysis</b>			
<b>Map Location</b>	<b>pH</b>	<b>Organic Matter</b>	<b>Mineral Analysis</b>
<b>Zone 1</b>			
<b>Composite Sample</b>	7.2	7.9%	
<b>Zone 2</b>			
<b>Sample 1</b>	4.5	8.5%	
<b>Sample 2</b>	6.5	8.2%	
<b>Zone 3</b>			
<b>Composite Sample</b>	5.2	5.1%	
<b>Zone 4</b>			
<b>Composite Sample</b>	4.9	6.2%	

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

<b>Insert</b>	<b>Reference Page</b>
<b>Map A</b>	Base Map
<b>Soils B</b>	Soil Nutrient Analysis Results

# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Soils Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Physical Properties					
Map Location	Depth	Texture	Moisture	Drainage	Compaction
<b>Zone 1</b>					
<b>Composite Sample</b>		Clay loam	2.2%	Poorly drained; prone to fooding	
<b>Zone 2</b>					
<b>Sample 1</b>	Deep, >8"	Silty clay loam	2.3%	Poorly drained; prone to fooding	
<b>Sample 2</b>	Deep, >18"	Stratified silty clay loam and sandy loam	3.6%	Poorly drained; Perched water table	
<b>Zone 3</b>					
<b>Composite Sample</b>	12"	Silty clay loam	1.7%	Overland flow, infiltration poor	
<b>Zone 4</b>					
<b>Composite Sample</b>	8-10"	Silty loam	2.6%		

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
<b>Map A</b>	Base Map
<b>Soils B</b>	Soil Nutrient Analysis Results

# Soils A

Find the full name of the soil type(s) that apply to your site, from the list at the front of the map section. For example, BtF refers to the “Bath Valois and Lansing series, 35 to 60% slope”, which corresponds to the steep south and southeast-facing hill sides at MNG that are apparent from the steep contours shown on the MNG Base Map.

SYMBOL	NAME
Ab	Alluvial land
ArB	Arkport fine sandy loam, 2 to 6 percent slopes
ArC	Arkport fine sandy loam, 6 to 12 percent slopes
BaB	Bath channery silt loam, 2 to 5 percent slopes
BaC	Bath channery silt loam, 5 to 15 percent slopes
BaC3	Bath channery silt loam, 5 to 15 percent slopes, eroded
BaD	Bath channery silt loam, 15 to 25 percent slopes
BgC	Bath and Valois gravelly silt loams, 5 to 15 percent slopes
BgC3	Bath and Valois gravelly silt loams, 5 to 15 percent slopes, eroded
BgD	Bath and Valois gravelly silt loams, 15 to 25 percent slopes
BoE	Bath and Valois soils, 25 to 35 percent slopes
BtF	Bath, Valois, and Lansing soils, 35 to 60 percent slopes
BvA	Braceville gravelly silt loam, 0 to 5 percent slopes
Ca	Canandaigua and Lamson soils
CdA	Chenango gravelly loam, 0 to 5 percent slopes
CdC	Chenango gravelly loam, 5 to 15 percent slopes
CdD	Chenango gravelly loam, 15 to 25 percent slopes
CIA	Conesus gravelly silt loam, 0 to 3 percent slopes
CIB	Conesus gravelly silt loam, 3 to 8 percent slopes
CIB3	Conesus gravelly silt loam, 3 to 8 percent slopes, eroded
CnB	Chenango gravelly loam, fan, 0 to 5 percent slopes
DgB	Darien gravelly silt loam, 2 to 8 percent slopes
EbB	Erie channery silt loam, 3 to 8 percent slopes
EbB3	Erie channery silt loam, 3 to 8 percent slopes, eroded
EbC	Erie channery silt loam, 8 to 15 percent slopes
EbC3	Erie channery silt loam, 8 to 15 percent slopes, eroded
EcA	Ellery, Chippewa, and Alden soils, 0 to 8 percent slopes
Em	Eel silt loam
EriA	Erie-Ellery channery silt loams, 0 to 3 percent slopes
FdB	Fredon silt loam, 0 to 5 percent slopes
Fm	Fresh water marsh
Gn	Genesee silt loam
Ha	Halsey silt loam
Hc	Halsey mucky silt loam
HdA	Howard gravelly loam, 0 to 5 percent slopes
HdC	Howard gravelly loam, 5 to 15 percent simple slopes
HdCK	Howard gravelly loam, 5 to 15 percent complex slopes
HdD	Howard gravelly loam, 15 to 25 percent slopes
Hk	Holly and Papakating soils
HmB	Honeoye gravelly silt loam, 2 to 8 percent slopes
HmC	Honeoye gravelly silt loam, 8 to 15 percent slopes
HmC3	Honeoye gravelly silt loam, 8 to 15 percent slopes, eroded
HpE	Howard and Palmyra soils, 25 to 35 percent slopes
HpF	Howard and Palmyra soils, 35 to 60 percent slopes
HrC	Howard-Valois gravelly loams, 5 to 15 percent slopes
HrD	Howard-Valois gravelly loams, 15 to 25 percent slopes
HsB	Hudson silty clay loam, 2 to 6 percent slopes
HsC3	Hudson silty clay loam, 6 to 12 percent slopes, eroded
HsD3	Hudson silty clay loam, 12 to 20 percent slopes, eroded
HuB	Hudson-Cayuga silt loams, 2 to 6 percent slopes
HuB3	Hudson-Cayuga silt loams, 2 to 6 percent slopes, eroded
HuC3	Hudson-Cayuga silt loams, 5 to 12 percent slopes, eroded
HuD	Hudson-Cayuga silt loams, 12 to 20 percent slopes
HwB	Hudson and Collamer silt loams, 2 to 6 percent slopes
HxE	Hudson and Dunkirk soils, 20 to 45 percent slopes
IcA	Illion silty clay loam, 0 to 2 percent slopes
IcB	Illion silty clay loam, 2 to 6 percent slopes

Find the description(s) of the soil type(s) that apply to your site in the text portion of your SCS Soil Survey. "BtF" is the predominant soil type at MNG. The silty-loam character of this soil type and the underlying clay layer is in agreement with the soil pit we dug on the site, and the results of our own soil texture analysis (ribbon test).

BaB	Bath channery silt loam, 2 to 5 percent slopes.	Bath soils: 1½ to 2½ feet of moderately permeable channery silt loam; underlain by a slowly permeable, very dense, hard, very channery silt loam fragipan that rests on compact, dense, very channery silt loam till dominated by siltstone, sandstone, and shale; well drained; on gentle to steep slopes in the uplands. Depth to bedrock is generally more than 6 feet but is only 4 feet in a few places.	25	0 to 30 30 to 48
BaC	Bath channery silt loam, 5 to 15 percent slopes.			
BaC3	Bath channery silt loam, 5 to 15 percent slopes, eroded.			
BaD	Bath channery silt loam, 15 to 25 percent slopes.			
BgC	Bath and Valois gravelly silt loams, 5 to 15 percent slopes.	Valois soils: 1½ to 2 feet of moderately permeable gravelly or channery loam or silt loam; underlain by moderately to slowly permeable, slightly firm to friable gravelly or channery silt loam or loam that is slightly sticky, contains more clay than the upper or lower layers, and extends to a depth of 3 to 3½ feet. This is underlain by firm to friable, gravelly or channery loam glacial till that is predominantly siltstone and sandstone but contains some limestone, and that commonly has been waterworked and provides poorly sorted granular material. Well drained; on gentle to steep slopes of glacial moraines and on lower slopes of valley sides.	25	0 to 24 24 to 49
BgC3	Bath and Valois gravelly silt loams, 5 to 15 percent slopes, eroded.			
BgD	Bath and Valois gravelly silt loams, 15 to 25 percent slopes.			
BoE	Bath and Valois soils, 25 to 35 percent slopes.			
BtF	Bath, Valois, and Lansing soils, 35 to 60 percent slopes.			
		Lansing soils: 2 to 3 feet of permeable gravelly silt loam to silty clay loam; underlain by very firm, dense, slowly permeable, gravelly silt loam or loam glacial till dominated by shale, siltstone, and limestone; well drained; on steep areas in the uplands.	20	0 to 17 17 to 32  32 to 48+

Finally, check information about woodland suitability class for the soil type(s) that apply to your site. The BtF soil at MNG, listed in Group 10 is described as “fair” in potential productivity, moderate in erosion hazard. Native species “red oak, sugar maple, with ash, white pine” are not a particularly accurate description of the dominant tree species on the MNG today, partially due to the fact that the site was cleared in the 1920s and replanted to hickories and other nut trees.

TABLE 9.—*Suitability of the soils for woodland—Continued*

Woodland groups	Estimated ratings for—					Native species priority
	Potential productivity	Plant competition	Equipment limitations	Erosion hazard	Windthrow hazard	
Group 7. Well-drained, medium-textured and moderately coarse textured, medium acid to slightly acid soils. 35 to 60 percent slopes: Howard and Palmyra (HpF).	Fair to good.	Slight.....	Severe.....	Moderate....	Slight.....	Red oak, sugar maple, black cherry, white ash.
Group 8. Moderately well drained, medium-textured, acid soils that have a fragipan. 8a—2 to 15 percent slopes: Braceville (BvA); Langford (LaB, LaB3, LaC, LaC3); Mardin (MaB, MaC, MaC3). 8b—15 to 25 percent slopes: Mardin and Langford (MfD).	Fair.....	Moderate....	Slight.....	Slight.....	Slight.....	Sugar maple, white ash, basswood, black cherry, red oak.
Group 9. Somewhat poorly drained, medium-textured, acid soils that have a fragipan. 9a—0 to 15 percent slopes: Erie (EbB, EbC); Red Hook (RhA); Volusia (VbB, VbC). 9b—3 to 15 percent slopes, eroded: Erie (EbB3, EbC3); Volusia (VbB3, VbC3). 9c—15 to 25 percent slopes: Volusia and Erie (VrD).	Fair.....	Moderate....	Slight.....	Slight.....	Moderate to severe.	Sugar maple, oak, hemlock.
	Poor.....	Slight.....	Slight.....	Moderate....	Moderate to severe.	Sugar maple, oak, hemlock.
	Fair to poor..	Moderate to slight.	Moderate....	Moderate....	Moderate to severe.	Sugar maple, oak, hemlock.
Group 10. Well-drained, medium-textured, medium acid to slightly acid soils. Bath soils have a fragipan. 35 to 60 percent slopes: Bath, Valois, and Lansing (BtF).	Fair.....	Slight.....	Moderate to severe.	Moderate to severe.	Slight.....	Red oak, sugar maple, white ash, white pine.



**Soils B**

	10/13/ 2005													
	<b>MOIST</b>	<b>P_NA OAC</b>	<b>K_NA OAC</b>	<b>MG_NA OAC</b>	<b>CA_NA OAC</b>	<b>FE_NA OAC</b>	<b>AL_NA OAC</b>	<b>MN_NA OAC</b>	<b>ZN_NA OAC</b>	<b>CU_NA OAC</b>	<b>PH_H 20</b>	<b>H_E XA</b>	<b>OM_ LOI</b>	<b>NO3_NA OAC</b>
	<b>%</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>	<b>mg/Kg</b>			<b>%</b>	<b>mg/Kg</b>
Zone 1	2.1882	8.5996	122.61 67	270.793 4	3228.08 85	0.8541	7.0611	22.6103	2.9496	4.6897	7.18	5.59 16	7.877 5	5.4059
Zone 3	1.631	1.7372	95.865 3	113.896 3	784.757 8	49.4107	95.9121	36.2771	0.832	0.0366	5.29	14.3 547	5.061 9	-5.2325
Zone 4	1.5775	2.6174	97.999 5	86.7701	623.074 7	41.4311	109.135 2	28.5106	0.8378	0	4.93	16.7 033	6.197 2	-5.2036
Zone 2	2.2599	2.1851	84.790 7	57.5481	348.464 7	121.024 7	241.918 1	19.2782	1.4747	0.2388	4.49	26.1 836	8.474 6	-5.9703
Zone 2 slump	3.5823	6.0946	105.66 23	339.634 4	2757.59 81	10.7936	23.4947	22.3977	0.7496	4.3759	6.53	9.70 77	8.196 7	-6.0946



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Vegetation Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Tree & Shrub Inventory					
Map Location	Latin Name	Common Name	Number	Size (height in ft)	Condition
<b>Zone 1</b>					
<b>Point 1</b>	<i>Juglans nigra</i>	Black Walnut	1	63'	Poor, split
	<i>Asimina triloba</i>	Pawpaw	1	3'	Healthy
<b>Point 2</b>	<i>Tilia Americana</i>	Basswood	5	~50'	Poor, girdled
	<i>Asimina triloba</i>	Pawpaw	3	3'	Healthy
	<i>Lonicera</i> sp.	Honeysuckle	6	2'	Thriving
	<i>Sambucus nigra</i>	Elderberry	1	2'	Almost dead
<b>Point 3</b>					
<b>Zone 2</b>					
<b>Point 1</b>	<i>Acer saccharum</i>	Sugar Maple	1	>50	Healthy
	<i>Quercus alba</i>	White Oak	1	<20	Suckering
	<i>Quercus rubra</i>	Red Oak	1	>50	Multi-stemmed
	<i>Carya ovata</i>	Shagbark	1	20-50	Healthy
	<i>Carya laciniosa</i>	Hickory	2	20-50	Poor, leaning
	<i>Carya glabra</i>	Shellbark	1	>50	Healthy 75%
		Hickory			Healthy, grafted
	Pignut Hickory				
<b>Point 2</b>	<i>Carya ovata</i> x. <i>Carya illinoensis</i>	Hican	1	<20	Grafted, no leaves
	<i>Juglans nigra</i>	Black Walnut	1	>50	Fair
<b>Point 3</b>	<i>Quercus alba</i>	White Oak	1	<20	Healthy
	<i>Juglans nigra</i>	Black Walnut	2	>50	Healthy, crowded
	<i>Ulmus rubra</i>	Slippery Elm	1	20	Poor, bent
	<i>Carya ovata</i>	Shagbark	1	>50	Healthy, crowded
	<i>Carya cordiformis</i>	Hickory	1	20-50	Healthy, crowded
		Bitternut			Healthy, crowded
	Hickory				

# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Vegetation Worksheet

Zone 3					
<b>Point 1</b>	<i>Prunis serotina</i>		2	20-50	dead
	<i>Prunis serotina</i>		2	20-50	poor
	<i>Fraxinus americana</i>		1	<20	healthy
	<i>Carya ovata</i>		2	>50	healthy
	<i>Carya ovata</i>		2	>50	healthy
	<i>Ulmus rubra</i>		1	20-50	healthy
	<i>Quercus alba</i>		1	<20	healthy
	<i>Quercus rubra</i>		1	>50	healthy
<b>Point 2</b>	<i>Carya ovata</i>		1	>50	healthy
	<i>Quercus rubra</i>		3	20-50	healthy
	<i>Quercus rubra</i>		3	>50	healthy
	<i>Quercus rubra</i>		3	>50	healthy
	<i>Acer saccharum</i>		1	20-50	healthy
	<i>Prunis serotina</i>		1	>50	healthy
	<i>Acer rubrum</i>		1	20-50	healthy
<b>Point 3</b>					
Zone 4					
<b>Point 1</b>	Black Cherry		3	1 < 20', 2 20'-50'	good
	Shagbark		2	50'	good
	Hickory		3	> 50'	good
	Pignut Hickory		1	2 < 20', 1 > 50'	good
	White Oak			< 20'	
<b>Point 2</b>	Bigtooth Aspen		1	> 50'	near dead
	Sugar Maple		1	> 50'	good
	Chinese Chestnut		1	20 - 50'	dead and live stems
	Chestnut		2	> 50'	poor and fair
	Black Cherry				
<b>Point 3</b>	Black Cherry		3	< 20'	poor
	Japanese Walnut		2	> 50'	good; leaf parasites
	Walnut		1	> 50'	parasites
	Pignut Hickory		1	> 50'	great
	Choke Cherry		1	< 20'	fair

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
Map A	Base Map

# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Vegetation Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Understory Inventory					
Map Location	Common Name	Latin Name	Number	% Cover	Size
<b>Zone 1</b>					
<b>Point 1</b>	<i>Geum macrophyllum</i>		1	1	4"
	<i>Rubus</i> sp.		2	1	4"
	<i>Rumex obtusifolius</i>		2	1	3"
	<i>Rosa</i> sp.		1	1	5"
	<i>Taraxacum officinale</i> <i>Cornus</i> sp.				
<b>Point 2</b>	<i>Geum macrophyllum</i>		50	10	4"
	<i>Sedum</i> sp.		6	2	3"
	<i>Alliaria petiolata</i>		100-150	40	2-6"
	Asteraceae		20	5	2"
	<i>Taraxacum officinale</i>		2	2	0.5"
	<i>Cirsium arvense</i>		1	1	0.5"
	<i>Carya</i> sp. (seedling)		1	1	6"
	<i>Trifolium</i> sp.		15	5	1.5"
<b>Zone 2</b>					
<b>Point 1</b>	<i>Polytrichum</i> sp.?	Hair cap moss		1%	1"x1"
		Moss #2 (inch worm shape)	13	10%	12"x24"
	<i>Sorghum halepense</i> ?	Johnson Grass	appx. 10/sq. ft.	25%	6"x6"
	<i>Carex</i> sp.	Sedge #1	1	<1%	2"
	<i>Carex</i> sp.	Sedge #2	appx. 20	<1%	2"-6"
	<i>Geum canadense</i>	Rough Avens	1	<1%	6"
	<i>Alliaria petiolata</i>	Garlic Mustard	1	<1%	8"
	<i>Hypericum perforatum</i>	St. Johnswort	1	<1%	12"
	<i>Solidago</i> sp.	Goldenrod	1	<1%	8"
	<i>Sambucus nigra</i>	Elderberry			
	<i>Juglans nigra</i>	Black Walnut			
<b>Point 2</b>		Moss #2 (inch worm shape)		<1%	1/4"-1/5"
		Grass #1		90%	6"-3'
	<i>Sorghum halepense</i> ?	Johnson Grass	1	25%	1"-6"
	<i>Aster divaricatus</i> ?	Aster		<1%	2-3'
	<i>Solidago</i> sp.	Goldenrod		20%	2-3'
	<i>Impatiens capensis</i>	Jewelweed	3	50%	6"-2'
	<i>Lonicera</i> sp.	Honeysuckle		2%	6"-2'
<b>Point 3</b>	<i>Rubus</i> sp.	Raspberry	4	20%	1'-3'



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK Vegetation Worksheet

Make additional copies to include all zones. Indicate location on Base Map<sup>1</sup>.

Zone 3					
Point 1					
Point 2					
Point 3					
Zone 4					
Point 1	<i>Ribes cynosbati</i>	Currant	1	<1	~2.5 ft
	<i>Ligustrum spp.</i>	Privet	1 + 30 little	25	~4 ft, <6 in.
	<i>Carya ovata</i>	Shagbark hickory	1	?	~1 ft.
		Garlic mustard	104	~10	<4 in.
	<i>Lonicera tatarica</i>	Tartarian honeysuckle	9	15	<1 ft.
	<i>Acer saccharinum</i>	Sugar maple	1	<1	<6 in.
	<i>Rhamnus spp.</i>	Buckthorn	1	<1	~2 ft.
	<i>Amelanchier spp.</i>	Juneberries	3	<1	~2 ft.
Point 2	<i>Aster spp (macrophyllus?)</i>		150	80	15-20 in.
		Privet	8	10	2-4ft.
		Cinquefoil	10	5	2-6in.
		Avens spp.	10	5	3-8in.
		Populus spp.	1	<1	4ft
		White Ash	1	<1	2ft
	<i>Fraxinus americana</i>	Dwarf Juniper	1	<1	4.5 in.
Point 3	Wood Sorrel		2	2	7" tall
	Burdock		10	12	4" tall
	Dandelion		11	13	5" long
	Garlic Mustard		30	37	leaves
	Honeysuckle		12	15	4" tall
	Tartarica		7	9	6" tall
	Goldenrod		10	12	4" tall 8" tall

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
Map A	Base Map



# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Assessment Map

<b>Assessment Map Checklist</b>		
<input checked="" type="checkbox"/>	<b>Map Component</b>	<b>Reference Page</b>
	<b>Base Map<sup>1</sup></b>	<b>A</b>
<b>Land Use</b>		
	<b>Historic Land Use</b>	
	<b>Current Land Use</b>	
<b>Climate</b>		
	<b>Microclimate data</b>	
<b>Soils</b>		
	<b>Soil Map Unit</b>	
	<b>Nutrient Analysis</b>	
	<b>Physical Soil Properties</b>	
<b>Vegetation</b>		
	<b>Tree Inventory</b>	
	<b>Non-Tree Inventory</b>	


<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

<b>Insert</b>	<b>Reference Page</b>
<b>Map A</b>	Base Map









# How, When and Why of Forest Farming

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## SITE ASSESSMENT WORKBOOK

### Crops Worksheet

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Make additional copies to include all crop choices.

#### Crop Pricing and Vendor Comparison

Potential Crops	Source of Material	Cost / Unit	Shipping Policies & Fees







# How, When and Why of Forest Farming

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## SITE ASSESSMENT WORKBOOK

### Crops Worksheet

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<b>Resources</b>	
<b>Online</b>	
<b>Print</b>	
<b>Human Resources</b>	

<b>Insert</b>	<b>Reference Page</b>
<b>Map A</b>	Base Map
<b>Assess A</b>	Site Assessment Map
<b>Crop A</b>	Crop Selection Matrix
<b>Crop B</b>	Crop Fact Sheets
<b>Crop C</b>	Catalogs





# How, When and Why of Forest Farming

## SITE ASSESSMENT WORKBOOK

### Forest Farm Plan

Farm Plan Checklist		
<input checked="" type="checkbox"/>	Plan Component	Reference Page
	Base Map <sup>1</sup>	A
	Assessment Map	
<b>Crops</b>		
	Crop Selection	
	Crop Pricing	
	Crop Budget	
	Marketing	

<sup>1</sup> Keep a master copy of the Base Map. Make any changes to paper or digital copies.

Insert	Reference Page
Map A	Base Map
Assess A	Site Assessment Map

