Furrows Beneath the Forest: Menominee Peoples and Raised Field Agriculture (ca 900 – 1865 AD)

William Gustav Gartner
Department of Geography, UW-Madison
FALCON Conference, November 2014
Waewaenennen!

Menominee Agriculture: A Sustainable Legacy, is only possible through the generous support of the USDA NIFA program; Menominee Tribal Enterprises; the College of the Menominee; the Tribal Historic Preservation Office of the Menominee, members of the Menominee Language and Culture Committee, and Menominee high school and college students too numerous to name individually.
Presentation Outline

I. Prelude
II. Pre-Columbian Agriculture
III. Historic Period Agriculture
IV. Laboratory Analysis of Soils
V. Summary and Significance
“Upon the Menomonee reserve there are thousands of acres of wet and worthless marsh, and of the remainder a large proportion is nothing but sand. … ridges [are] so covered with grubs as to be only fitted for the plough… In addition to the poverty of soil, and the comparatively large amount of labor required to prepare it for farming purposes, the climate is another source of discouragement. … Under these circumstances, it is difficult to conceive of locations more ill-adapted to the support and wants of a people but little acquainted with the arts of civilization, and it needs no argument to show their almost worthlessness as locations designed to encourage Indians to abandon their former modes of life (hunting and gathering), and engage in the cultivation of the soil.”

- Report of the Commissioner of Indian Affairs for the Year 1863: 33-34
Swidden cultivation was, therefore, neither necessary for the maintenance of soil fertility in such settings, nor was it desirable. ... the available evidence, when looked at as a corpus, and in the context of agricultural systems elsewhere, indicates that although native farmers cleared the forest by slashing and burning, they did so for permanent clearance. Cultivation typically involved little, if any, field rotation; perhaps biennial fallowing, but rarely, if ever, regular shifting of fields to new locations.

- Doolittle 2004: 187
The Wolf River Tradition
Subsistence and Settlement
Pre-Columbian Agriculture
Joe Dick Road East
Joe Dick Road East
“Ditching Down” and Annual Additions
Joe Dick Road East
Joe Dick Road West
Joe Dick Road West
Prepared Planting Surfaces and Soil Amendments
Joe Dick Road West

“The Stratigraphy of Shifting Cultivation with Rotational Fallow?”
Joe Dick Road West
“The Stratigraphy of Shifting Cultivation with Rotational Fallow?”
Sepaxticum
Sepaxticum

Land Clearance, Burning, and Soil Preparation for Farming
Sepaxticum
Field Reorganization
Big Eddy West

Big Eddy West Garden Beds

Legend:
- Datum
- Garden Beds
- Garden Beds Present, Not Mapped

mapped limits of garden beds

Wolf River

Rock Outcrop

Marsh

Slope

No beds present

Umatilla Creek

0 10 20 30 40 50m
Big Eddy West
Land Clearance, Burning, and Soil Preparation for Farming
Big Eddy West
Planting Surface Preparation and Refurbishment
Historic Agriculture
Wayka
Historic Agriculture (1852-1865)
Historic Agriculture
The Unpublished Keesing Survey of 1938-1939

Source: Keesing Files, Menominee Nation Archives
So’Man Jim’s House and Garden

Photos by S.A. Barrett, Milwaukee Public Museum 1915-1916; See also Skinner 1921: Plate 10
Laboratory Analysis of Soils

“A Snapshot”
Control Profiles
“Natural Soils”

Udipsamment

Haplorthod
Sampling Soils at Joe Dick Road East

Bulk Soil & Micromorphology Sampling

Isotope Sampling
Joe Dick Road East
Physical and Chemical Analysis

Total Phosphorus
EU4 Planting Surface vs Control Profile Epipedon

Method: ICP-OES
Joe Dick Road East
Micromorphology

Control Profile

Planting Surface

app

axp
Summary and Significance
Agriculture and Menominee Heritage

We Still have Much to Learn from Ancestral Menominee Agriculturalists, the Original Organic and Sustainable Farmers in Northern Wisconsin!
**SUCCESSIONAL SEQUENCE ON OUTWASH SANDS**

- **Anthropogenic Fire**
- **Selective Felling & Planting**
- **Land Clearance**

**HEIGHT IN FEET**
- 50
- 100
- 150

**AGE OF STAND IN YEARS**
- 100
- 200
- 300
- 400
- 500
- 600

**O A**
- **Spodosols**

**Bw**
- **Entisols**

**White Pine**

**Hardwood**

**Hemlock**

**Joe Dick Road East 47 ME 107 Control South Profile 30 July 2013**

**Sepahticum 47 ME 1 Control Unit West Profile NSB 4 E 08 26 Sept 2014**
The Social and Ecological Consequences of Shifting Cultivation

Diversity in Systems of Shifting Cultivation
(At any given time, as well as through time, there is significant variation within and between social groups)

"Slash and Burn"  "Swidden Agroforestry"

Total Clearance  Selective Clearance
Few Crops  Many Crops & Plants
Simple Structure  Complex Structure
Some Soil Amendments  Soil Management
Field Abandonment  Fallow & Rotation Strategies
Short-Term  Long Term
Maximize Yields  Minimize Risk

To What Extent Does the Field Mimic the Forest?
To What Extent are Fields and Forests Extensions of One Another?

After Meggers 1971

Forest  Swidden  Slash & Burn

Land as Home  Land as Object for Production
Waewaenen!

LAND OF THE MENOMINEE