St. Aidan's Forest Ecosystems; Forest Ecology and Management   bvb,5-23-10

Introduction: Ecology and Landscape Ecosystems

Ecology is, or should be, the study of ecological systems that are home to organisms at the surface of the Earth. Any single perceptible ecosystem is a topographic unit, a volume of land and air plus organic contents extended areally over a particular part of the Earth's surface for a certain time.

Organisms do not stand on their own; they evolve and exist in the context of ecological systems that confer those properties called life.

What is important today is to change our understanding of the world, to focus on ecosystems rather than on the individual species and organisms that are parts of them. Such changed understanding of surrounding realities will fundamentally affect how we live in our planet Home.   (Stan Rowe, Home Place, 2002)

Forest Ecosystems circa 1800

1. North-facing stream valley in Defiance Moraine

Major tree and shrub species: red ash (Fraxinus pensylvanicum), black maple (Acer nigrum), elms (Ulmus americana, U. rubra), American basswood (Tilia americana). Shrubs: Alternate-leaf dogwood (Cornus alternifolia), American black currant (Ribes americanum), Nannyberry (Viburnum lentago).

2. East- and West-facing moderate to steep slopes

Major species: shagbark hickory (Carya ovata), Oaks (white, Quercus alba; bur, Q. macrocarpa; northern red, Q. rubra; black, Q. velutina on west slope), black maple (Acer nigrum), sugar maple (Acer saccharum), black cherry (Prunus serotina).

Forest History (one possible scenario)

1. Heavily cut circa 1800-1820.
2. Favorable alluvial areas farmed in 1800s if not too wet. Homestead adjacent to Plymouth Rd.
3. Slopes, and areas not in cultivation, heavily logged again circa 1870.
4. Part of area either farmed or grazed until circa 1935, then logged again or in 1945-46. Present overstory trees mostly date from this last logging. Some exceptions.

Soil:

Alluvial soil (silt loam, loam, to sandy loam) in stream floodplain. On E and W slopes, soil horizons developed on clay-loam till (Defiance Moraine). Typical horizon: Oi, deep A, E, Bt, C. Soil reaction, pH: **(1)** alluvial soil, surface 7.5, to 20 cm ca. 7.0. **(2)** soil on slopes: surface, pH 7.5, at ca. 20 cm 7.0; E horizon, 5.0, gradually increasing with depth to 8.0 (calcareous clay-loam till). Excellent soil water and nutrient availability, but seasonally wet in stream floodplain.

Ecosystem management alternatives

1. Let Nature take its course (human hands off)
2. Heart's desire (do what's comfortable and pleasing to you)
3. Woody plant arboretum; collection of many native and unusual alien species
4. Restore to near-natural forest composition (most challenging)

Think about:

1. Deer
2. Home place for animals?
3. The Tidy forest
4. Dead trees
5. Establishing and maintaining cover

Plant list for St. Aidan's Forest

TREES

Acer negundo	box elder
Acer nigrum	black maple
Acer platanoides	Norway maple
Acer rubrum	red maple
Acer saccharum	sugar maple
Acer saccharinum	silver maple
Catalpa speciosa	northern catalpa
Carya ovata	shagbark hickory
Fraxinus americana	white ash
Fraxinus pennsylvanica	red ash
Juglans nigra	black walnut
Morus alba	white mulberry
Prunus serotina	black cherry
Pyrus communis	pear
Quercus alba	white oak
Quercus macrocarpa	bur oak
Quercus rubra	northern red oak
Quercus velutina	black oak
Robinia pseudoacacia	black locust
Thuja occidentalis	northern white-cedar
Tilia americana	American basswood
Ulmus americana	American elm
Ulmus rubra	slippery elm
(Cornus florida?)	flowering dogwood

SHRUBS

Berberis thunbergii	Japanese barberry
Cornus alternifolia	alternate-leaf dogwood
Juniperus communis var. depressa	ground juniper
Lonicera maackii	Maack's honeysuckle
Lonicera tatarica	Tartarian honeysuckle
Ligustrum vulgare	common privet
Parthenocissus quinquefolia	Virginia creeper
Rubus occidentalis	black raspberry
Toxicodendron radicans	poison ivy
Viburnum opulus	European highbush cranberry
Vinca minor	periwinkle

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Notes: