# 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:**