

# SUCCESSION

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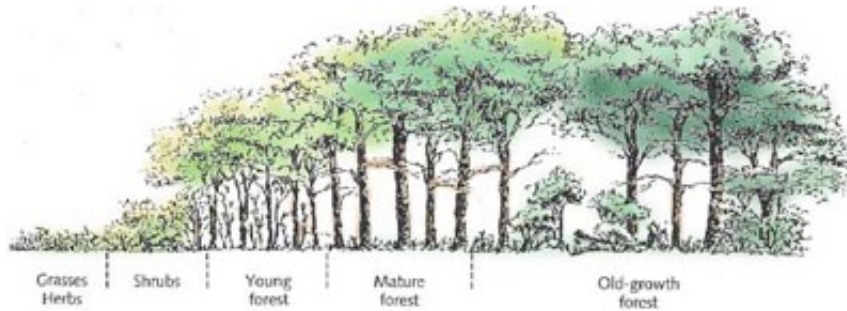


Illustration by James F. Thorne.

Succession [L. *Succedere*, to follow after] is the orderly change in species composition in an area after a disturbance (often natural but sometimes human-caused as in the case of Nine Mile Run) which results in a more or less constant group of species that constitutes the climax community.

1. Changes that occur during succession:
  - a. Soil building.
  - b. Changes in the physical environment (light, moisture).
  - c. New species of plants displace existing plants because their seedlings are more able to become established in the changed environment than the seedlings of existing species.
  - d. Eventually a climax community that is more or less stable will become established and have the ability to reproduce itself.
  - e. Disturbances will start the process of succession again.
2. Rate and "success" of succession
  - a. Presence of soil (an issue on slag):
    - a. Primary succession starts with little or no soil present.
    - b. Secondary succession starts after a disturbance of a previously vegetated area where the soil is left intact (or with the addition of soil amendments).
  - b. Ability to retain water (an issue on slag):
    - a. Depends on disturbed soil quantities.
    - b. Increases with buildup of decaying vegetative matter.
    - c. Can be amended with super-absorbents and organics.
  - c. Mineral availability (an issue on slag):
    - a. Depends on disturbed soil qualities.
    - b. Can be amended with minerals and organics.
  - d. Suitability of plants for the soil and environment:
    - a. From existing underground plant roots.
    - b. Existing seeds left in the soil and seeds of nearby plants.

## Existing Succession of Shrubs and Young Forest on Slag Slope on Nine Mile Run

### Trees

Box-elder	( <i>Acer negundo</i> )	native
Tree-of-heaven	( <i>Ailanthus altissima</i> )	introduced
Catalpa	( <i>Catalpa sp.</i> )	introduced
Ash	( <i>Fraxinus sp.</i> )	native

White Mulberry	( <i>Morus alba</i> )	invasive
Red Mulberry	( <i>Morus rubra</i> )	native
Large-toothed aspen	( <i>Populus grandidentata</i> )	native
Quaking aspen	( <i>Populus tremuloides</i> )	native
Balm-of-Gilead	( <i>Populus balsamifera</i> )	introduced
Sycamore	( <i>Platanus occidentalis</i> )	native
Staghorn Sumac	( <i>Rhus typhina</i> )	native
Black Locust	( <i>Robinia pseudoacacia</i> )	native
Elms	( <i>Ulmus sp.</i> )	native

### Shrubs

Butterfly Bush	( <i>Buddleja</i> )	introduced
Forsythia		introduced
Wild Hydrangea	( <i>Hydrangea arborescens</i> )	native
Privet	( <i>Ligustrum vulgare</i> )	invasive
Honeysuckle family	( <i>Lonicera sp.</i> )	mostly introduced
European Buckthorn	( <i>Rhamnus cathartica</i> )	introduced.
Bristly Locust	( <i>Robinia hispida</i> )	introduced

### Annuals and Perennials

Boneset	( <i>Eupatorium sp.</i> )	native
Foxtail Barley	( <i>Hordeum jubatum</i> )	
Butter-and-Eggs	( <i>Linaria vulgaris</i> )	introduced
Sweet Clover	( <i>Melilotus sp.</i> )	introduced
Japanese Knotweed	( <i>Polygonum cuspidatum</i> )	invasive
Bouncing Bet	( <i>Saponaria officinalis</i> )	introduced
Goldenrod	( <i>Solidago sp.</i> )	native
Poison Ivy	( <i>Toxicodendron radicans</i> )	native
Common Mullein	( <i>Verbascum thapsus</i> )	introduced

### Vines

Japanese Honeysuckle	( <i>Lonicera japonica</i> )	invasive
Virginia Creeper	( <i>Parthenocissus quinquefolia</i> )	native
Multiflora Rose	( <i>Rosa multiflora</i> )	invasive
Blackberry	( <i>Rubus allegheniensis</i> )	native

Raspberry	( <i>Rubus occidentalis</i> )	native
Grapes	( <i>Vitis sp.</i> )	some native but invasive



There are many aspens (*Populus sp.*) on the slag heaps.

Photo by Bob Bingham



Species of introduced honeysuckle (*Lonicera spp.*) are common at Nine Mile Run.





Staghorn sumac (*Rhus typhina*) typically grows along roads and in old fields, habitats similar to the slag at Nine Mile Run.



The tree-of-heaven (*Ailanthus altissima*) is a common weedy tree in urban areas.



Black locust (*Robinia pseudoacacia*) commonly grows on slopes along Pennsylvania roads and in similar habitats at Nine Mile Run.