
APPENDIX C: Spatial Patterns of Different Community Types

- C1 Matrix Communities**
 - C2 Large Patch Communities**
 - C3 Small Patch Communities**
 - C4 Linear Communities**
 - C5 Examples of Community Types in Different Ecoregions**
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Within an ecoregion, natural terrestrial communities may be categorized into four functional groups on the basis of their current or historical patterns of occurrence, as correlated with the distribution and extent of landscape features and ecological processes. These groups are identified as matrix communities, large patch communities, small patch communities, and linear communities.

C1 Matrix Communities

Communities that form extensive and often contiguous cover may be categorized as matrix (or matrix-forming) community types. Matrix communities occur on the most extensive landforms and typically have wide ecological tolerances. Individual Element occurrences of the matrix type typically range in size from 2000 to 405,000 hectares (approximately 5000 to 1,000,000 acres). In a typical ecoregion, the aggregate of all matrix communities covers, or historically covered, as much as 75-80% of the natural vegetation of the ecoregion. Any matrix occurrence is likely to have large patch and small patch occurrences embedded within it. Matrix community types are often influenced by large-scale processes (*e.g.*, climate, fire), and are important habitat for wide-ranging or large area-dependent fauna, such as large herbivores or birds (*e.g.*, bison, prairie chickens).

C2 Large Patch Communities

Communities that form large areas of interrupted cover may be categorized as large patch community types. Individual EOs of this community type typically range in size from 20 to 2000 hectares (approximately 50 to 5000 acres). Large patch communities are associated with environmental conditions that are more specific than those of matrix communities, and that are less common or less extensive in the landscape. In a typical ecoregion, the aggregate of all large patch communities covers, or historically covered, as much as 20% of the natural vegetation of the ecoregion. Like matrix communities, large patch community types are also influenced by large-scale processes, but these tend to be modified by specific site features that influence the community.

C3 Small Patch Communities

Communities that form small, discrete areas of cover may be categorized as small patch community types. Individual EOs of this community type are typically 20 hectares (approximately 50 acres) or less. Small patch communities occur in very specific ecological settings, such as on specialized landform types or in unusual microhabitats. In a typical ecoregion, the aggregate of all small patch communities covers, or historically covered, only as much as 5% of the natural vegetation of the ecoregion. Small patch community types are characterized by localized, small-

scale ecological processes that can be quite different from the large-scale processes operating in the overall landscape. The specialized conditions of small patch communities, however, are often dependent on the maintenance of ecological processes in the surrounding matrix and large patch communities. In many ecoregions, small patch communities contain a disproportionately large percentage of the total flora, and also support a specific and restricted set of associated fauna (e.g., invertebrates, herpetofauna) dependent on specialized conditions.

C4 Linear Communities

Communities that form as linear strips are often, but not always, ecotonal between terrestrial and aquatic systems. Examples include coastal beach strands, bedrock lakeshores, and narrow riparian communities. Similar to small patch communities, linear communities occur in very specific ecological settings, and the aggregate of all linear communities covers, or historically covered, only a small percentage of the natural vegetation of the ecoregion. They also tend to support a specific and restricted set of associated flora and fauna. Linear communities differ from small patch communities in that both local scale processes and large scale processes, such as lake/ocean currents or riverine flow regimes, strongly influence community structure and function. This characteristic often leaves these communities highly vulnerable to alterations in the surrounding land and waterscape.

C5 Examples of Community Types in Different Ecoregions

The following examples illustrate matrix, large patch, and small patch communities in a diverse set of ecoregions. Note that the scale and pattern of communities designated in these four categories may vary considerably depending on the ecoregion and its scale and distribution of landscapes.

C4.1 Northern Tallgrass Prairie

Matrix:

- *Andropogon gerardii* – *Stipa spartea* – *Sporobolus heterolepis* Herbaceous Vegetation [Northern Mesic Tallgrass Prairie] on glacial lakeplains
- *Schizachyrium scoparium* – *Bouteloua curtipendula* – *Stipa spartea* – (*Pascopyrum smithii*) Hill Herbaceous Vegetation [Little Bluestem – Porcupine Grass Hill Prairie] on ground moraines

Large Patch:

- *Schizachyrium scoparium* – *Bouteloua* spp. – *Stipa spartea* Gravel Herbaceous Vegetation [Northern Little Bluestem Gravel Prairie] found on beach ridges associated with the edges of lakeplains
- *Carex lacustris* Herbaceous Vegetation [Lake Sedge Wet Meadow] and *Scirpus* spp. – *Typha* spp. Mixed Herbs Great Plains Herbaceous Vegetation [Great Plains Bulrush – Cattail Marsh] found in large wet basins of the lakeplain

Small Patch:

- *Carex prairea* – *Scirpus americanus* – *Rhynchospora capillacea* Herbaceous Vegetation [Great Plains Calcareous Fen] found in seeps along the beach ridges
- *Calamagrostis stricta* – *Carex sartwellii* – *Carex praegracilis* – *Plantago eriopoda* Saline Herbaceous Vegetation [Saline Wet Meadow] found in local saline upwellings in the lakeplain

Linear:

- *Fraxinus pennsylvanica* - *Ulmus americana* - (*Celtis occidentalis*, *Tilia americana*) Northern Forest [Northern Ash-Elm-Hackberry Floodplain Forest]

C4.2 Northern Appalachian/Boreal Forest

Matrix:

- *Picea rubens* – *Betula alleghaniensis* Forest [Red Spruce – Yellow Birch Forest]
- *Acer saccharum* – *Betula alleghaniensis* – *Fagus grandifolia* / *Viburnum lantanoides* Forest [Montane Northern Hardwoods Forest]
- *Picea rubens* – *Abies balsamea* – *Sorbus americana* Forest [Montane Spruce Fir Forest]

Large Patch:

- *Picea rubens* – *Abies balsamea* – *Betula papyrifera* Forest [Lowland Spruce Fir Forest]
- *Abies balsamea* – (*Betula cordifolia*) Forest [High Elevation Fir Forest]
- *Picea mariana* / *Pleurozium schreberi* Forest [Upland Black Spruce Forest]
- *Picea mariana* / *Ledum groenlandicum* / *Sphagnum* spp. Forest [Black Spruce / Labrador Tea / Sphagnum species Forest]

Small Patch:

- *Carex* (*interior*, *hystericina*, *flava*) – *Eriophorum alpinum* Herbaceous Vegetation [Northern Appalachian Short Sedge Fen]
- *Tofieldia glutinosa* – *Parnassia glauca* Herbaceous Vegetation [Circumneutral Riverside Seep]
- *Thuja occidentalis* / *Hylocomium splendens* Forest [Circumneutral Northern White Cedar Swamp]

Linear:

- *Polypodium vulgare* Acid Bedrock Cliff Sparse Vegetation [Common Polypody Acid Bedrock Cliff]

C4.3 East Gulf Coastal Plain

Matrix:

- several associations in the *Pinus palustris* Woodland Alliance [Longleaf Pine Woodland Alliance] and the *Pinus palustris* Saturated Woodland Alliance [Longleaf Pine Saturated Woodland Alliance]
- several associations in the *Pinus elliottii* Temperate Saturated Woodland Alliance [South Florida Slash Pine Temperate Saturated Woodland Alliance]

Large Patch:

- several associations in the *Taxodium ascendens* Seasonally Flooded Forest Alliance [Pond-Cypress Seasonally Flooded Forest Alliance]

Small Patch:

- several associations in the *Rhynchospora oligantha* – *Sarracenia* spp. – (*Aristida beyrichiana*, *Ctenium aromaticum*, *Muhlenbergia expansa*) Saturated Herbaceous Alliance [Feather-bristle Beaksedge – Pitcherplant species – (Southern Wiregrass, Toothache Grass, Savanna Hairgrass) Saturated Herbaceous Alliance]

Linear:

- *Cakile constricta* Sparse Vegetation [Gulf Sea-rocket Sparse Vegetation]

C4.4 Chihuahua Desert

Matrix:

- several associations in the *Larrea tridentata* Shrubland Alliance (including *Larrea tridentata* / *Erioneuron pulchellum* Shrubland and *Larrea tridentata* – *Euphorbia antisiphilitica* Shrubland) [Creosotebush Shrublands]

Large Patch:

- several associations in the *Pinus cembroides* Woodland Alliance [Pinyon Woodlands]
- several associations in the *Pinus ponderosa* Woodland Alliance [Ponderosa Pine Woodlands]
- *Atriplex obovata* / *Tidestromia carnosa* Dwarf-shrubland [Gypseous Clay Badlands]

Small Patch:

- several associations in the *Arbutus xalapensis* – *Acer grandidentatum* – *Quercus* spp. Forest Alliance [Xalapa Madrone – Bigtooth Maple – Oak species Forest Alliance]
- *Scirpus americanus* – *Flaveria chlorifolia* – (*Helianthus paradoxus*) Herbaceous Vegetation [Olney Threesquare – Claspig Flaveria – (Puzzle Sunflower) Herbaceous Vegetation]

Linear:

- several associations in the *Salix gooddingii* Temporarily Flooded Woodland Alliance [Goodding Willow Temporarily Flooded Woodland]
- several associations in the *Platanus wrightii* Temporarily Flooded Woodland Alliance [Arizona Sycamore Temporarily Flooded Woodland]
- *Panicum blubosum* - *Lycurus phleoides* Herbaceous Vegetation [Bulb Panic Grass - Common Wolf's-Tail Herbaceous Vegetation], among other herbaceous riparian communities

C4.5 Tropical Florida

Matrix:

- several associations in the *Cladium mariscus* ssp. *jamaicense* Seasonally Flooded Herbaceous Alliance [Sawgrass Marshes], *Muhlenbergia filipes* – *Rhynchospora microcarpa* – *Centella erecta* Herbaceous Vegetation [Muhly Prairie], and various mangrove alliances

Large Patch:

- several associations in the *Pinus elliottii* Tropical Woodland Alliance [Pine Rocklands], *Batis maritima* – *Sarcocornia perennis* Dwarf-shrubland [Batis Flats]

Small Patch:

- several associations in the *Bursera simaruba* – *Coccoloba diversifolia* – *Ocotea coriacea* – *Eugenia axillaris* Forest Alliance [Tropical Hardwood Hammocks], *Schizachyrium rhizomatum* – *Aristida purpurascens* var. *tenuispica* – *Eragrostis spectabilis* Herbaceous Vegetation [Rockland Glade]

Linear:

- several associations in the *Coccoloba uvifera* Shrubland Alliance [Sea Grape Shrubland Alliance] “coastal strand” and foredune communities