

Results for Terrestrial Communities and Systems*

Modification to Standard Method

The selection and exact spatial arrangement of the target element occurrences was left to the understanding and judgment of the state Heritage Programs, TNC Field Offices, and other partners with guidance offered by the community working group. However, it is noteworthy that this has also allowed states to select for the portfolio occurrences that do not appear to meet established size, condition, or landscape context criteria. The consequence has been that the portfolio contains an excess number of occurrences for some community types, some of which do not meet their minimum viability criteria. Occurrences with questionable viability were also selected for community associations that did not meet their goals, with the understanding that 1) the database records be edited to reflect the new and improved viability information, and 2) certain portfolio sites may need to be removed in the future if the portfolio goal can be met with better, more viable, occurrences. In short, there is a mixed degree of confidence that all the community sites selected should or will remain in the portfolio. An improved process is required to maintain suitably conservative viability standards and a scientifically rigorous portfolio while still allowing states the opportunity to select which occurrences should become a part of the portfolio.

Community classification

In developing the Lower New England – Northern Piedmont Classification (Lundgren et al, 2000) an initial list of approximately 200 vegetation associations was selected as potentially occurring in the ecoregion based on known or suspected ranges of each association. Following review, a number of types were determined not to occur in the ecoregion or were not deemed as recognizable or distinct associations. One addition was described and several new types were proposed for further study. The result was a total of 153 NVC (National Vegetation Classification) associations currently described within this ecoregion with an additional 7 more to be defined with additional classification and inventory in the future. A total of 107 NVC Alliances (broader than association level) were represented: 40% Forests (>60% cover of trees), 14% Woodlands (30-60% tree cover), 12% Shrublands, and 34% Herbaceous types.

The revised National Vegetation Classification associations were not available for the analysis of documented community occurrences in LNE-NP during this stage of the assessment process. Therefore, to coordinate community occurrences across state lines, conduct an assessment of occurrence viability, and set goals, all community occurrences in the database were assigned to one of seventeen ecological groups which are listed in Table 4.

* Anderson, M.G. and S.L. Bernstein (editors). 2003. Results for terrestrial communities and systems . Based on Barbour, H. 2001. Lower New England – Northern Piedmont Ecoregional Conservation Plan; First Iteration. The Nature Conservancy, Conservation Science Support, Northeast & Caribbean Division, Boston, MA.

Table 4. Ecological or community groups in LNE-NP

Bogs and acidic fens
Calcareous fens
Cliff/outcrop
Deciduous or mixed woodland
Floodplain forest and woodland
Marsh and wet meadow
Palustrine forest and woodland
Pond and lake
Ridgetop/rocky summit
River and stream
Sandplains
Serpentine barrens
Terrestrial conifer forest
Terrestrial deciduous forest
Terrestrial mixed forest
Tidal
Other

The combined LNE-NP Heritage databases contain 1381 community element occurrences for LNE-NP. Of these, some were for aquatic communities which were analyzed with another method; some were for cave communities; and others did not include enough data for analysis. Where it was not possible to assign a community occurrence to one of these broad community groups or insufficient data were available for any type of viability analysis, the element occurrence was not used in selecting portfolio sites. A total of 1090 natural community element occurrences were used as the basis for viability analysis and site selection. Of the 153 community associations (representing 107 community alliances) in the LNE-NP ecoregion, about 7% are matrix types, 23% are large patch types, and 70% are small patch types.

Goals and viability assessment

In LNE-NP planning, we set the minimum stratification level for a restricted community at 6 (meaning we wanted some occurrences in each of the six subregions). We set a bare minimum of 5 occurrences per subregion, which totals 30 occurrences for the ecoregion stratified into 6 subregions which we adopted as a reasonable minimum benchmark for the type. From this number we worked backwards to the other types decreasing the numbers and stratification levels for the larger and less restricted community types (Table 6).

Table 6. Minimum conservation benchmarks for communities as a function of patch size and restrictedness

		Patch Size	
	Minimum stratification level	Large Patch:	Small Patch:
Restricted	6	24	30
Limited	3	12	15
Widespread	2	8	10
Peripheral	1	4	5

For patch communities, we ranked the **condition** of each occurrence based on a combination of data available in the element occurrence record, usually summarized as an EO rank, and from expert and state chapter interviews. We used the assumption that if the occurrence were contained in a block less than 1000 acres, there was reason to be skeptical of its long-term persistence. Additionally, we assumed that if the occurrence fell within a selected matrix site, its landscape condition was probably good. Table 5 shows the viability ranking grid used to evaluate community viability in LNE-NP.

Table 5. LNE-NP viability ranking grid

Landscape context	Condition/Rank	Size: Large Patch	Size: Small patch	Viability estimate
1	A, AB, B, ?, E	>100	>0	Yes
1	BC,C			Maybe
2	A,AB,B,?,E	>100	>0	Yes
2	BC,C			Maybe
3	A,AB,B,?,E,	>100	>25	Yes
3	BC,C			No
4	A,AB,B,?,E	>100	>50	Maybe
4	BC,C			No
ANY	D			No

Summary of Results

Of the original 1381 EORs reviewed in the database, 585 were selected for the portfolio. The portfolio status of these sites include 229 occurrences that were selected as 10-year Action Sites, 82 that were selected as TNC Lead Sites, and the remaining 204 were designated as Partner Lead sites. One community group, cliff and outcrop communities, met and exceeded its goal by 220%. No other community group met its ecoregional goal (Table 7). Appendix 3 contains the following lists and tables:

- Table: Viable Community Occurrences Grouped by Subregion
- Table: Community Associations arranged by group type, subregion, and subsection with distribution and goals

Table 7. Progress towards goals for large and small patch community groups

Community Group	No. of Associations (community types)	Goal for Community Group*	Total No. of Occurrences in the Portfolio	Percentage of Goal Achieved
Bogs and acidic fens	6	65	56	86
Calcareous fens	11	260	23	9
Cliff/outcrops	1	30	66	220
Dec. of mixed woodlands	3	34	21	62
Floodplain forest and woodland	10	146	16	11
Marsh and meadow	4	40	8	20
Palustrine Forest and woodland	33	384	47	12
Pond and lake	6	75	18	24
Ridgetop/rocky summit	11	97	28	29
River and stream	7	110	20	18
Sandplain	7	162	4	3
Serpentine barrens	2	54	3	6
Terrest. Conifer forest	7	37	10	27
Terrest. Decid. Forest	18	132	71	54
Terrest. Mixed forest	8	81	2	3
Tidal	8	65	40	62

* These goals represent the rarity and distribution goal for each association type multiplied by the number of associations in the community group.

From these data there are several clear trends that reflect the composition of the Heritage databases, the current state of the national classification, and their effect on achieving goals and conservation success in LNE-NP. Some general observations include:

- The inventory efforts of the Heritage Programs have been focused primarily on rare and small patch communities. There are abundance of occurrences for bogs, fens, and white cedar swamps, but few documented occurrences of palustrine and upland forests. TNC and Heritage Programs need to inventory and identify high quality occurrences of more common community types as these data are lacking.
- Many occurrences were eliminated during analysis because they were not considered viable or their viability was in question. 60% of the 1090 occurrences were not selected for the portfolio. Of these, 324 are classed as “maybe viable” and might be accepted into the portfolio pending additional information. The majority of occurrences (226) are for community associations underrepresented in the portfolio.
- Goals were set based on patch size and distribution. The goal for a small patch, restricted community was 30 for the whole ecoregion. Some of the rarest communities are well below their goal because there are in fact few occurrences for these communities. New goals should be set for these targets during the 2nd iteration.

- The National Vegetation Classification is well developed in some areas and only roughly sketched out in other areas. For example, there are 11 types of calcareous fens in the classification, but only 7 types of rivers and streams. There are 33 palustrine forests and woodlands, but only 4 marsh and meadow types.