



# Part Four

## A Guide to the Natural Communities of Vermont

**Uplands**



**Wetlands**



# Community Classification and Its Limitations

The classification presented in this book represents the work of numerous people. It draws on a large body of field data gathered by scientists, mostly over the past 20 years, including species lists, ecological descriptions, and quantitative data from natural communities throughout the state. Other sources of information that were used in developing the classification include descriptions of natural communities in the published literature, work by ecologists in neighboring states, and the collective knowledge of a number of ecologists, foresters, and biologists.

The classification system offered in this book is only one of many possible ways to classify Vermont's natural communities, and we recognize its limitations.

First, Vermont's forested communities are young and have a history of major human disturbance. We have very few places where we can study how our upland and wetland forests function and which plants grow in which soils under entirely natural conditions. Of necessity, we have had to rely on younger forests to develop the classification. Many open upland communities, as well as open wetlands, have disturbance histories that may be hard to detect.

Second, this is a classification of *natural* communities, or mid- to late-successional communities, so it is hard to apply it to early-successional forests, and disturbed wetlands and uplands, which are all common in Vermont. You will need to look at the several layers of clues suggested in the "How to Identify a Natural Community" to determine the most probable community type.

Finally, the classification is generalized to apply throughout Vermont, a place of great variation. Some of the variation is discussed in the community profiles, but there is much we have yet to discover. Meanwhile, you will surely refine the classification to meet local needs and deal with local variations.

## How to Use This Guide

This guide is designed to help you identify any natural community you are in. The eighty natural community types are organized into two large groups of forty, Upland Natural Communities (brown) and Wetland Natural Communities (green). See page 79. Each of these categories is split again based on vegetation structure (forested or open), and then there is one more split based on species composition and landscape setting until there are 14 smaller groups of related communities.

Each of these 14 groups is represented by a symbol, and each group contains two or more specific natural community types that share characteristics like water regime, vegetation structure, dominant vegetation, and/or climate.

To identify a specific natural community, start at the highest level (on the left on page 79) and go to the more specific by following the color codes and icons through the book. There are "How to Identify" sections that will help you decide at each level.



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## How to Identify Upland and Wetland Natural Communities

The following steps guide you through the process of identifying a natural community. At first, you will want to review them each time you come to a new natural community that you want to identify. As you become familiar with this guide and Vermont's natural communities, you will find that these steps become second nature.

1. Be sure that the area you are studying is a natural community, that is, a place where mostly natural processes prevail and where human influences are minimal or took place so long ago that the community has recovered to a mostly natural condition.
2. Choose an area that is more or less uniform in terms of topography, geology, soils, hydrology, and vegetation. Study that area well: walk around within it, look at aerial photographs if you have them, and ask questions of people who know the place well. Decide where your study area begins and ends, and determine what things make it different from neighboring communities. This is the most difficult step of all, so take plenty of time with it. You may want to make a preliminary map of all the natural communities within a larger area first. Part Three contains some practical advice on mapping.
3. Consider the climate of the area. Reading Parts One and Two will help with this, and local climate records can provide more detailed information. What is the elevation? What biophysical region is it in? Is it an especially cold area because it is in a valley? Is it especially warm because it is on a southwest facing slope? Is it especially foggy because it is on a mountaintop where cloud cover is frequent?
4. Consider the landscape position of the community. Is it on a ridgetop or on a sideslope or in a valley? Is the slope steep or gentle? Which direction does the community face?
5. Look for evidence of past human use of the community that may have changed it in some way. Old stone walls, cellar holes, and drainage ditches can point to past human alterations, and local residents and historians can often provide helpful information.
6. Look for evidence of natural disturbances to the community. Flooding, windthrow, and landslides are examples of things that can influence soils and vegetation.
7. Is there water in the community? If there is, does it stand on the surface in pools or does it remain below the surface, saturating the soil? How long does the soil stay wet – the entire growing season, or just part of it? Look for evidence of seasonal flooding, such as water marks on trees or shrubs. Ask local residents about the flooding regime of the area.
8. Look at the substrate. Is it wet or dry? Is it an organic soil, like peat or muck, or is it a mineral soil? If it is a mineral soil, is there evidence of soil saturation? Look for grey soil and color mottling (grey soil with rust-colored spots) as evidences of soil saturation or fluctuating water levels. If the soil is completely organic or shows evidence of prolonged saturation, it is a wetland soil. If there is no soil, as on ridgetops and cliffs where bedrock is at the surface, or if the soil shows no evidence of wet conditions, then it is an upland soil. The best way to study soils is to dig a soil pit, but studying county soil surveys can be very helpful as a first step in understanding local soil conditions.

9. Study the structure of the vegetation. Is the area dominated by trees, aside from temporary openings caused by treefall or similar disturbances? Do the canopies of the trees cover at least 25 percent of the area when it is viewed from above, or are they more scattered? If the area does not have tree cover of more than 25 percent, what is the dominant vegetation? Is it shrubs? Herbaceous plants? Mosses and lichens?
10. Study the plants themselves. Are the most abundant plants wetland species, like cattails or silver maple, or are they upland species like red oak and beech? If you are in doubt, refer to one of the guides to wetland plants listed in the bibliography.
11. Use the key following to decide which general kind of community it is — an upland or wetland — and then go to the page indicated to learn more.



## **Upland Natural Communities**

• **Water** moves through the area in surface streams or by percolating through the soil to the *water table*. Occasionally water may accumulate in small pools for short periods, but overall the area is not wet. It may be flooded for short periods in the spring or during storms, but flooding does not last for long periods.

• **Soils** are moist to dry, not saturated for a significant part of the growing season. They are not *gleyed* or *mottled*. Surface layers may be highly organic, especially in cooler climates or where bedrock is close to the surface.

• **Plants** are mostly typical of upland communities, rather than wetlands (it may be necessary to study a list of wetland indicator plants to determine this).

Read “Upland Natural Communities” beginning on page 82, and then go to the “How to Identify” key on page 83.



## **Wetland Natural Communities**

• **Water** remains in the area for a significant part of the growing season, keeping soils saturated to very moist. Water may be deep, as in deepwater marshes, or may be present below the soil surface most of the time, as in bogs and fens. In some cases, as in rivershore and lakeshore communities, the length of flooding is enough to make the area a wetland, though soils may seem well drained during parts of the growing season.

• **Soils** are very moist to saturated for a significant part of the growing season. If they are mineral soils, they are either gleyed (grey in color) or mottled with rust-colored spots. Soils may have deep, saturated organic layers, as in peatlands.

• **Plants** are mostly typical of wetland communities, rather than uplands (it may be necessary to study a list of wetland indicator plants to determine this).

Read “Wetland Natural Communities” beginning on page 237, and then go to the “How to Identify” key on page 243.