Part II
Prioritization and Implementation

Prioritization and Implementation

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At this point, you are equipped with valuable information about the natural heritage components present in your town. You have explored BioFinder, and you may have followed links to learn about tools you can use to implement your planning efforts. Hopefully, you are now more confident in your knowledge of local natural resources.

However, you are likely left with questions. Of the habitats present, what's most important? When implementing conservation measures, where should your community start? How do you prioritize? In short, what can you do with the inventory information presented in Part I?

Part II of this guide is intended to help your community answer such questions, going from "what's here?" to choosing appropriate implementation strategies. Just as in Part I, our approach to prioritization will focus on the use of maps. Unlike in Part I, we will go beyond ecological features to involve your human community—your most important asset in conservation planning. While we begin with the identification of ecological priorities, the process described in Part II is designed to look holistically at the needs of your town, placing ecological priorities into the context of other human values. By looking at this bigger picture your planning group will be able to choose conservation strategies that are embraced by the community and will effectively protect special places.

The following pages sketch out seven steps for using maps to identify ecological priorities and determine implementation strategies. These seven steps are divided into three sections as outlined in the table below:

Determining the Ecological Context
Step 1. Locate priorities at the landscape scale.
Step 2. Locate priorities at the species and community scale.
Step 3. Identify the components.
Including Community Values
Step 4. Identify areas of high public value.
Step 5. Compare ecological and community values.
Developing and Choosing Options
Step 6. Evaluate status and determine options.
Step 7. Evaluate and choose options.

While this process can be followed entirely using the hard copy of this guide and the associated maps of your town, use of the interactive BioFinder maps online is recommended. Part I took you through the "Inventory" section of BioFinder; now Part II will make use of the "Prioritization" theme. Please see Getting the Most out of the Maps in the introduction to this guide for more information.

We'll begin by identifying locations necessary for maintaining ecological function. With these in mind, we'll add values of the community before finally determining implementation strategies. By the end of this process, you should have a better sense of:

► Which locations are ecologically most important to include in conservation efforts,

► How ecological priorities compare with community values, and

► How to move from identifying priorities to taking action toward conservation.

Good luck!

Determining the Ecological Context

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While the maps in Part I of this guide highlight many ecologically important features, it can be difficult to determine just what to do with that knowledge. Chances are that a good percentage of your town's land area is covered by one feature or another, and protecting all areas highlighted by all inventory maps simply isn't feasible. As a planner, do you focus on habitat for wide-ranging species, or clean water? Vernal pools or rare physical landscapes? Clearly all are ecologically important, but their relative importance can't be compared. They are important for different reasons.

Luckily, there are methods of prioritizing that don't rely on choosing one component instead of another. Rather than focusing on individual landscape elements as we did in Part I, we will now help you identify priority locations. In other words, our approach in this section asks: Which locations in your town are most ecologically essential? In which areas would a substantial change in land use most impact the region's ecological function?

This concept of ecological function requires a holistic view. Instead of isolating components from one another, an ecologically functional landscape requires that features work together and processes are maintained. Safe wildlife road crossings are important only if high-quality habitat remains on either side of the road. A wetland or lake loses value if the stream flowing into it is impaired. When choosing conservation strategies, we must remember that protecting a vernal pool while ignoring the surrounding habitat defeats the purpose, just as impact to one

section of river may affect water quality downstream, regardless of conservation measures implemented there.

To identify the locations most important for ecological function, we examine the ecological setting at two scales: the "landscape scale" and the "species and community scale."

Landscape scale priorities include forest networks, waterways and their floodplains, and significant physical landforms. They include the locations with the highest biodiversity and the areas that connect and protect these locations to provide resilience. They outline the habitat used by most Vermont species and allow for movement as the climate changes. While they cover substantial acreage in many Vermont towns, priorities at this scale focus on pattern, and they are generally compatible as working lands and with recreational activities. They can therefore be managed to accommodate many values of a community. Step 1 outlines these locations.

Step 2 zooms in to identify priorities at the species and community scale. These priorities are also important for maintaining biodiversity, but they tend to be smaller and more specific to a handful of species, so they can be overlooked at the landscape scale. These include the locations where rare plants and animals have been found, wetlands, or habitats like vernal pools or forests rich in wildlife food resources. At this closer scale, human activities are much more likely to interfere with function, and these locations should be handled with greater caution.

In Step 3 the inventory maps of Part I will be used in your planning efforts. Once you have identified priority locations in steps 1 and 2, you can look back at individual components to determine which are present in high-priority locations. Eventually, it is these components that will guide you toward particular conservation strategies.

Step 1: Locate Landscape Priorities

Let's start with the big stuff: the forest networks, the waterways, and the physical landforms that support them. These are the building blocks for nearly all ecological processes. By outlining these, we can effectively paint a picture of the locations most needed to maintain ecological function.

To the right, the map you see is the two-tone backdrop to Map 7. You can also find it in BioFinder, where you can identify which components constitute highlighted areas.

This map shows a network of the most important components included in the following datasets, categorized into "highest priority" and "priority" areas:

- ► Interior Forest Blocks
- ► Physical Landscape Diversity
- ► Connectivity Blocks
- ► Riparian Wildlife Connectivity
- ► Surface Waters and Riparian Areas

Instead of looking at each component individually, we use Step 1 to examine them en masse, identifying the network of lands and waters necessary to maintain Vermont's ecological function. By doing this, we can divide locations into three classes: highest priority, priority, and those that don't contribute significantly to the network. Together, this network encompasses the majority of Vermont species and habitats and provides resilience for a changing climate.

When prioritizing for conservation, consider focusing your strongest efforts on the areas mapped as highest priority on this map. Priority lands can be considered next, and those not mapped as either may be—ecologically—the best locations to focus development efforts. However, we won't get too involved in this now; we'll collect and evaluate possible implementation strategies in Step 5. To learn more about the data and scientific process that went into creating this layer, see Map 7.

HIGHEST PRIORITY   PRIORITY
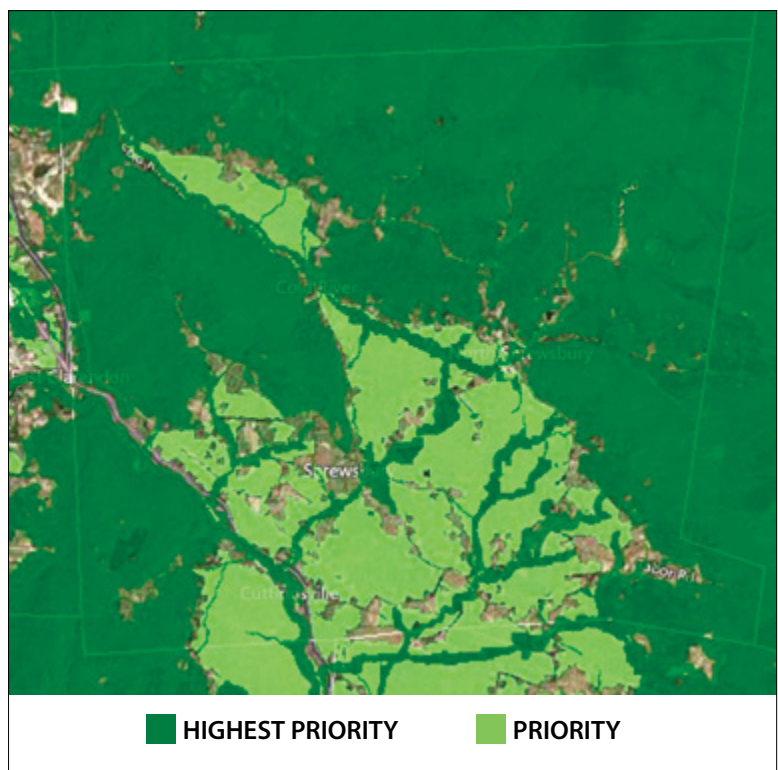
Using BioFinder in Step 1

1. Open the BioFinder map. Make sure the **Prioritization** theme is selected.

2. Double click on your area of interest to zoom in, and continue this process until you can see the entire area at the closest range possible.

3. Make sure that the box next to **Overall Priorities: Vermont Conservation Design** is checked, and also the box next to **Landscape Scale (Components combined)**. **Highest Priority** locations will appear in dark green, and **Priority** locations will appear in light green. Those areas on which you can still see the background aerial photo lack priority and highest priority known ecological components.

4. To see only the landscape scale priorities, click in any additional checked boxes to turn them "off."
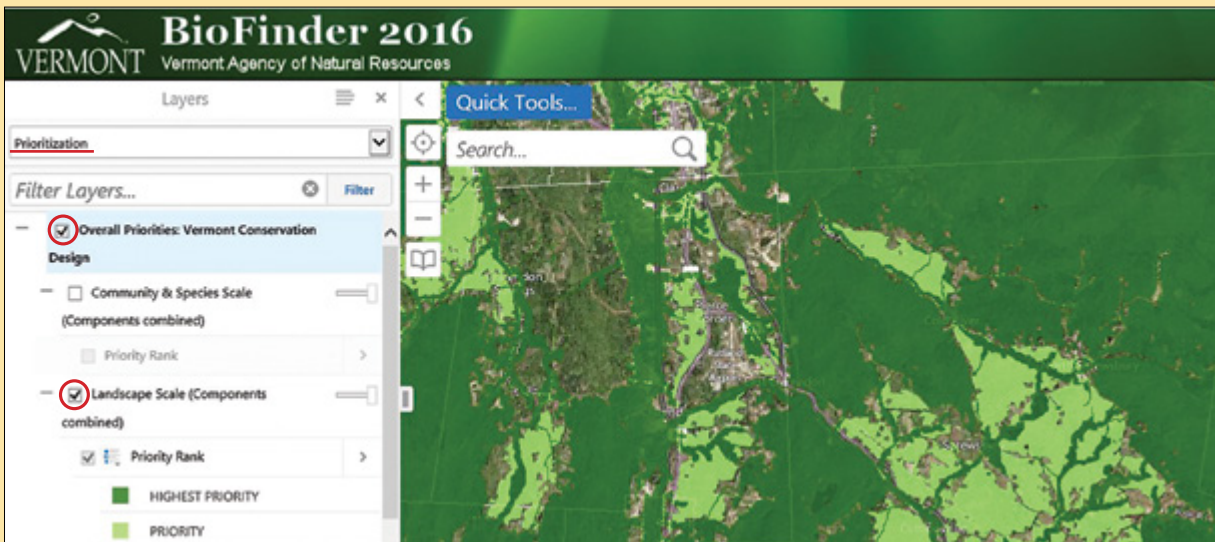
BioFinder has a simple tool to help identify which components are most important at any chosen location within the network. With the map open on your screen, point your cursor at a location of interest. Click once on that location and an Identification Box will pop up.

This box provides information about all map layers that are turned on and mapped in your chosen location. When **Landscape Scale** priorities are turned on, all possible components are listed, with a check indicating presence.

From this box, you can learn more about each component by clicking on the component name. A separate tab will open in your browser with a document describing the component, its ecological importance, and information about how the component was mapped.
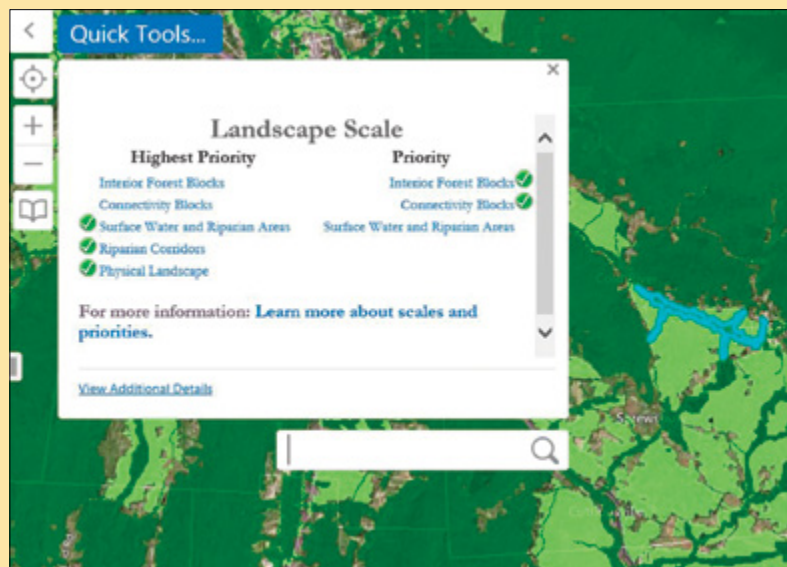
Mapping Landscape Priorities

In many towns, landscape priorities cover broad acreage. Mapped for their ecological importance, these lands also constitute much of Vermont's working and rural landscape.

While large-scale development or intensive human land use can diminish the ecological value of these areas, many human activities and land uses can be compatible, including thoughtful forest management, many forms of recreation, and even some carefully placed development. Generally speaking, strategies seeking to avoid fragmentation and encourage working forests are compatible solutions.

Step 2: Locate Community and Species Priorities

Now, let's zoom in. While landscape priorities give us the network in which most ecological interactions occur, some species or habitats are so small or have such specialized needs that they are worth protecting where they occur, even if they are not located within the landscape network. In Step 2, we add those habitats important to species and communities of conservation concern in Vermont. While often small in area, these locations are equally important for maintaining regional biodiversity and healthy fish and wildlife populations. For example, wildlife crossings are locations where wide-ranging mammal species such as bear, bobcat, and fisher are most likely to traverse roads as they travel to meet daily or seasonal dietary needs or disperse to find mates. If these crossing areas do not remain available, some populations may not persist even where other habitat needs are present.

You can identify these locations, as mapped by Vermont biologists at the state level, using Map 7 or in

BioFinder, where components have been categorized as "Highest Priority" or "Priority." This information is displayed on the printed maps atop the areas identified in Step 1.

The areas mapped at this scale include the following:

► Wildlife Road Crossings
► Vernal Pools
► Wetlands
► Grasslands and Shrublands
► Mast Stands
► Rare Species
► Uncommon Species
► Rare Natural Communities
► Uncommon Natural Communities
► Common Natural Communities[1]

As mentioned in Part I of this guide, these datasets represent what we know is present, but there are certainly omissions. For example, we have not inventoried every parcel in the state for every rare species.

As you examine the locations of resources on this map, pay special attention to where they fall in relation to the landscape scale network in Step 1. When community and species priorities are located within larger blocks of forest or water, they can be used to elevate the priority ranking of that larger block. Many strategies for conserving the larger blocks will then benefit the community and species priorities, too. We'll go into detail on choosing possible strategies in Step 6.

Where community and species priorities are located outside the network identified in Step 1, your community may want to consider separate conservation strategies. Because community and species priorities generally encompass much smaller acreage, they are often more vulnerable. For some, a seemingly minor

Defining Scale

The "**Community Scale**" refers to the scale at which assemblages of plants and animals interact with one another, with their physical environment, and with the natural processes that commonly affect them. For example, a wetland would be included at this scale due to its association with particular physical features, plants, and wildlife that function together as a community.

The "**Species Scale**" includes those habitats necessary for the survival of specific fish, wildlife, and plants. For example, wildlife crossings are locations where wide-ranging mammal species such as bear, bobcat, and fisher are likely to cross roads as they travel to meet their daily or seasonal dietary needs, disperse to find mates, or fulfill other requirements. While small in size relative to community or landscape-scale features such as wetlands or forest blocks, these locations are essential for maintaining biodiversity across the state or region.

change in land use could wipe out an entire patch of habitat—a vernal pool, for example, or a mast stand. And although the components themselves may cover little acreage, the processes altered by a single loss may change food webs, impact disease regimes, or alter migration or dispersal patterns across the ecosystem. Where Community and Species scale priorities fall outside Step 1 priorities, they are therefore generally places to consider focusing more direct conservation measures, due to their sensitivity.

Using BioFinder in Step 2

1. After conducting Step 1, click in the box next to **Community & Species Scale (Components combined)**. Priorities at this scale will appear in blue and purple, on top of the landscape network from Step 1 in green.
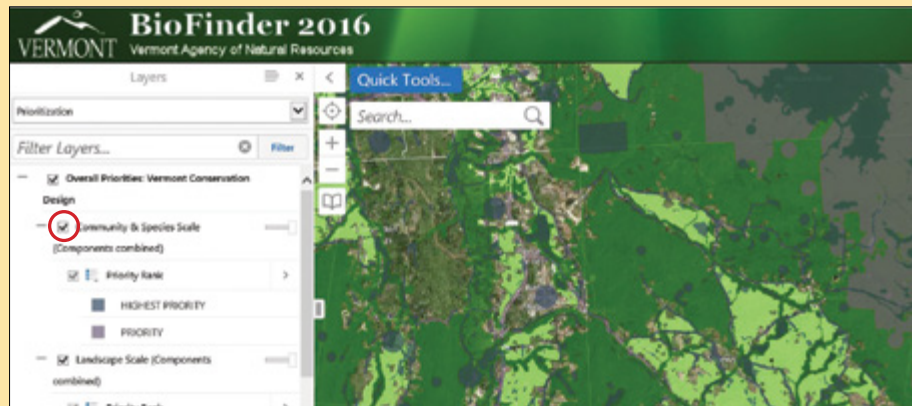
2. Once again, click on a point of interest to learn more. When more than one layer is turned on and found in the selected area, the Identification Box creates a separate "page" of results for each layer. In this example, two layers are present, indicated by the **1 of 2** symbol in the top, right corner of the box. Click on the arrows to move between pages of results.

Now, examine where priorities at the two scales overlap. When community and species scale features fall within the **highest priority** landscape network (in dark green, such as in the image to the right,), conservation of the landscape network in this location is likely to conserve the important species and habitats within it, and additional conservation measures may be unnecessary.
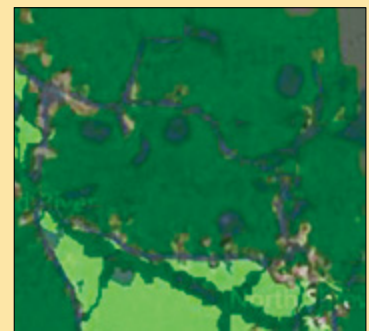
Where community and species scale features fall within a **priority** (light green) landscape block (as in the image on the left), you may want to consider elevating the importance of the entire block to consider it a highest priority area.

Where community and species scale features fall outside the network mapped in Step 1 (pictured on the right), you may want to consider conservation measures that specifically target these resources when you get to Step 6.

Using Local Inventory Data in Step 2

If you have local inventory data, Step 2 is the place to include it. Regardless of the scope of your inventory, we recommend first identifying landscape-scale networks (Step 1), and then using local information to fill in gaps or to evaluate how well Step 1 includes important local features.

With the help of a natural resources professional, your inventory information can be combined with state-level community and species scale data to provide a clear picture of priority local resources.

Step 3: Identify the Components

In Steps 1 and 2, the primary goal was to identify locations of ecological priority within the municipal planning area. Before identifying appropriate conservation strategies, it's now time to determine which resources are present in each important area. We can then use these resources to create a map of ecological priorities that will be more helpful for municipal planning. This is important because conservation strategies are not universally appropriate for all resources. Both riparian areas and mast stands may constitute priority locations, but we wouldn't generally conserve them using the same methods.

To identify components, have BioFinder and/or Part I of this guide handy. If you are comfortable using online technology, using BioFinder for this step is recommended.

Start with landscape priorities, as seen in Step 1. Using BioFinder or by flipping back and forth between the maps in Part 1, which components are most prevalent in the "highest priority" network? Interior forest blocks? Surface water? Important physical landscapes? Does adding "priority" areas contribute additional components? Make a list or chart. Then repeat the process with community and species priorities.

To help you with this process, BioFinder can generate reports quantifying all the components present in a defined area, such as a town.

To access these reports, open the toolbox by clicking the tools symbol in the top, right-hand corner.

Open the **Query** tab, where you can select either a **Landscape Report** or a **Species and Communities Report.**
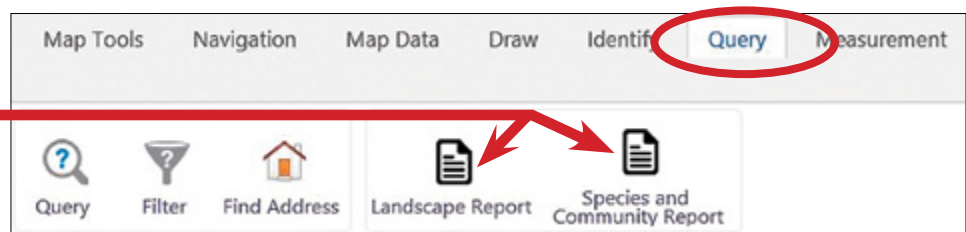
In generating a report you will be given an option to either draw an outline of your area of interest or upload a shapefile. If you already have a digitized map layer that outlines your area of interest (a shapefile), this is the easier option. However, you can also use your cursor to click around the edges of your target area until you have captured the entire area, double-clicking to finish the shape.

You can choose to see the report as a pdf or an excel file. In either case, the report lists all components present in the area outlined, the level of priority, and the acreage covered by each.

In some cases, the acreage covered by different components can give you a sense of where to focus your efforts. For example, if you have substantial acreage in connectivity blocks, you may want to spend some effort thinking of the best ways to avoid fragmentation of and between these blocks. However, there are some components for which acreage is an inappropriate measure of priority. For example, vernal pools are almost never large, and yet they remain an important contributor to biodiversity. Reports can therefore be extremely helpful in simply providing a list of components to look at when considering conservation strategies. Limited attention should be placed on the acreage covered by each, particularly on the Species & Communities Report.

You may find that dividing priority components into broad categories will make your list easier to use. For example, the landscape network in most Vermont towns can be divided into forests and waters. Outside these forests and waters, there may be a few isolated resources located in small patches of forest, agricultural fields, or residential areas. Dividing the landscape into categories may make it easier when identifying conservation strategies in Step 6; a town may use one set of strategies within forest areas, another in waterways, and a third to conserve isolated ecological features.

Once you have created your list of components, review them to be sure you understand what they are and their implications for land use, using Part I of this guide, *Conserving Vermont's Natural Heritage*, or other sources. Take extra care to understand those features
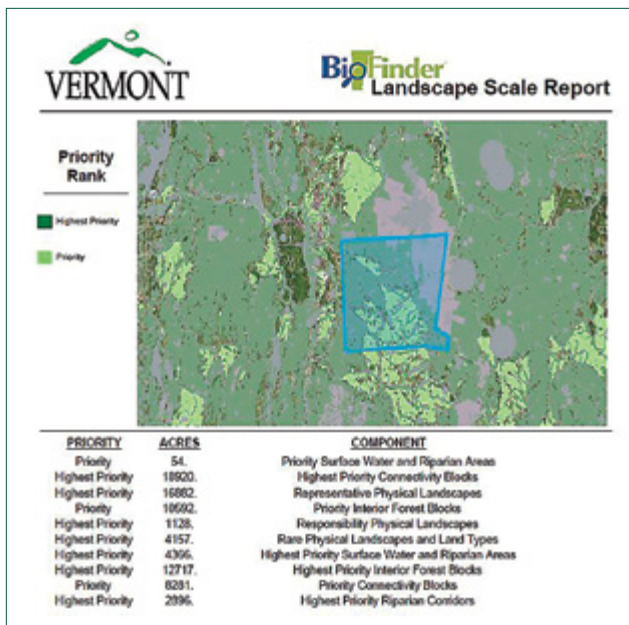
An example of a Landscape Report in a pdf format.

that came up multiple times on your lists or cover large expanses within your community.

Once you fully understand the suite of components at play in your community, it is time to create a map of ecological priorities. For many communities, these maps can be based directly on the state priorities maps, or by incorporating local data into state maps. For some communities, however, it will be important to first refine priorities. For example, the land in some communities is mapped almost entirely as "highest priority" at the landscape scale. In this case, it is important to recognize the crucial role your local lands and waters play in maintaining Vermont's ecological function. However, this information is unlikely to help you in prioritizing local conservation or planning efforts. Other towns contain few or no highest priority features. In either case, there are some locations in your community that play a more critical ecological role than others.

Rare and Uncommon Species Mapping

As you identify important components, you will find that many rare and uncommon species are mapped by a round circle. This circle is not an accurate representation of the land covered by the species; it is merely a dot surrounding the approximate location in which the species was found. When considering conservation strategies, identifying the habitat in which the species occurs will have more merit.

Using BioFinder in Step 3

To see components individually:

1. Un-check the box next to **Overall Priorities**: *Vermont Conservation Design* to turn it off.
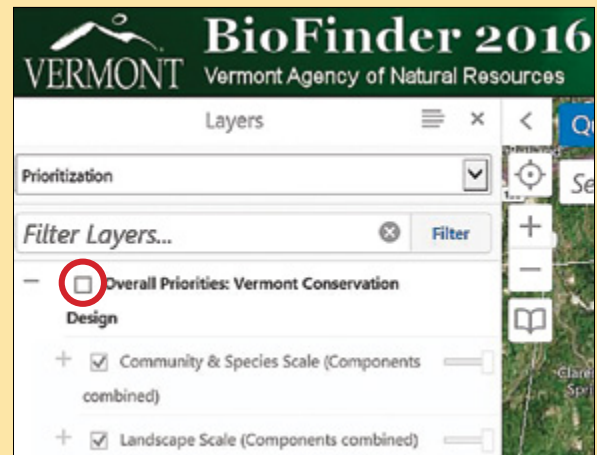
2. Check the boxes next to **Community & Species Scale Components** and/or **Landscape Scale Components**, under **Component Layers**, to turn them on. Be sure the **Component Layers** box is also checked.

3. Click the + next to each category to display a list of individual components that can be turned on or off.
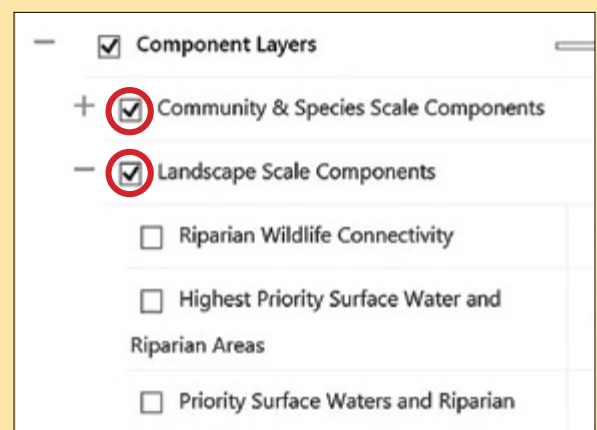
4. Explore!

In these cases, one way to further prioritize is to place a higher priority on locations with many overlapping components. You can think of these as hotspots—places in which many important ecological components co-occur. Wetlands are important. Interior forests are important. Rare physical features are important. Locations in which all of these important components are present may have even higher ecological value than those with just one component. If you find that the basic prioritization of Steps 1 and 2 did not provide you with as much variation as you would like, you can place the highest priority on these hotspots of overlap. They can also be terrific starting places around which to focus efforts or rally community support.

If you choose to re-prioritize, it is important to remember that this step focuses only on ecological prioritization. Human values will be incorporated in Steps 4 and 5. For some communities, it may tempting to eliminate some areas from the priorities map based on a value judgment of what is most important. We encourage you to resist this temptation, ensuring that your determination of which features to include is based on a scientific process.

Priorities:
Lands and Waters with Many Functions

Many highest priority areas are important not only ecologically but also for forestry, recreation, scenery, rural enterprises, and many other human uses. When mapping landscape scale priorities, keep in mind that conservation of these areas can include diverse strategies, both non-regulatory and regulatory, and can often support these human land uses in addition to ecological values.

We'll discuss these strategies in Step 6. Some towns may find it appropriate to include high percentages of their land area in these highest priority areas, but conserve them with a low regulatory standard or a non-regulatory strategy.

Before completing Step 3, you should have a map that outlines the ecological priorities within your community.

At this point, it is time to involve your community as you decide how to move forward.

Need Help?

The Community Wildlife Program at Vermont Fish & Wildlife Department may be available to provide technical assistance to your community as you undertake this process. For more information please visit:

vtfishandwildlife.com/ get-involved/partner- in-conservation/ community-wildlife- program

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Using BioFinder to Print a Map

1. Open the **Map Tools** tab, inside the **Toolbox**.
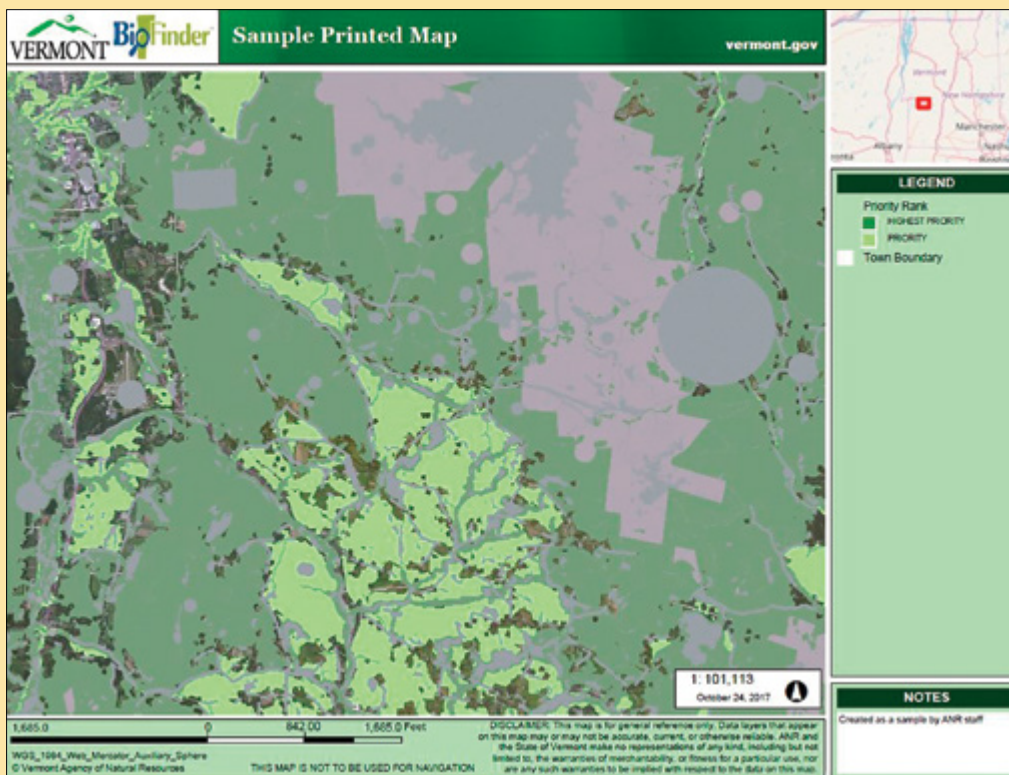
2. Select **Print**.

3. Fill out the form that appears in the left panel. Click **Print.**

4. Your map will be generated, and a link will be provided.

Additional Mapping Options: BioFinder includes many additional tools that can help you select your own priorities and create your own maps. See links for tips and tutorials from the BioFinder Home Page, or seek technical assistance from Vermont Fish & Wildlife Department's **Community Wildlife Program** to learn more.

Including Community Values

Determining the Ecological Context

Step 1. Locate priorities at the landscape scale.

Step 2. Locate priorities at the species and community scale.

Step 3. Identify the components.

Including Community Values

Step 4. Identify areas of high public value.

Step 5. Compare ecological and community values.

Developing and Choosing Options

Step 6. Evaluate status and determine options.

Step 7. Evaluate options and choose strategies.

For many communities, the biggest challenge to protecting natural resources is finding consensus among citizens. As mentioned in the introduction to this guide, most Vermonters support the protection of the state's wildlife and other natural resources; discrepancies are more often about the methods for achieving this vision rather than the vision itself. If measures to protect our natural heritage are to be successful, it is therefore crucial to involve the community throughout the planning process, listening to and understanding the values and concerns of citizens while also ensuring that the community understands the resources and implementation measures discussed.

In natural resources planning, disagreement about methods sometimes stems from a feeling that citizens must choose between supporting natural resources or other values, such as economic development, transportation, or maintaining a working landscape. As you begin your natural resources planning process, it is important to emphasize that much of the time, this is not actually a choice that needs to be made. Protection of important ecological resources can often be done while supporting other values, and sometimes conservation can even enhance these other values. When addressed together, wildlife habitat, working forests, recreation, and scenic beauty can be complimentary values occurring within the same geographic area. Keeping in mind the information you collected in Steps 1 through 3, the goal of this section is to provide you with ideas for incorporating the values and goals of citizens into your natural resources

In your planning, we suggest involving your community and, in particular, any landowners who might be impacted by the information you are collecting as much as possible throughout the process. As you learn about local natural resources, make the information easily available and encourage residents to join in your meetings. Ask for residents' opinions frequently and be sure to integrate their feedback into your work.

planning efforts. Then you can design strategies that reflect both the ecological realities of the landscape and your community's values.

Community involvement, which usually includes education, is an essential piece of this. Natural resources planning efforts are less likely to be successful if a community does not fully understand where the ecological risks and benefits are and, more importantly, why it matters to them and the place they call home. However, public participation needs to be about more than just education; equally important is a process by which citizens can share ideas, needs, and opinions with one another and provide input into planning efforts. While the best tools for instigating communication may vary from one community to the next, you might consider:

- ► Surveys
- ► Interviews
- ► Coffee talks
- ► Suggestion boards in public places
- ► Community values mapping (described below)
- ► Conversations, however formal or informal (including online forums)

You'll need to decide on the best strategy or strategies for your community. Remember that some individuals may be more directly impacted by your decisions than others. Engagement with the entire community is important; we recommend specifically directing outreach to landowners affected by any proposed conservation or regulatory changes.

In some cases, there may even be opportunities for community involvement in natural resource inventories or other data collection efforts, and there are success stories of this throughout the state. For example, the Salisbury Conservation Commission developed a volunteer program to map wildlife road crossings. In some cases, citizens can join established volunteer efforts to learn more about their local landscape, such as Vermont's Vernal Pool Mapping Project.[2]

Whatever the technique, think creatively about ways to involve your community prior to asking for their vote on a regulatory implementation measure. As you involve them, also learn about their values, remembering that participation is about engagement. What does your community care about? Ecological conservation efforts generally work only when they are supported alongside diverse community values. No matter what your goals may be for your area's natural resources, it is worth spending the effort to get to know your community.

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Combining Science and Community Involvement

The *Community Heart and Soul Guide*, by the Orton Family Foundation, outlines an approach to planning that includes the community in the entire process. Their approach is designed for use in small or rural communities and may work well in many Vermont towns. When combined with real, scientific data in your planning process, this approach can be a powerful tool for natural resources planning. The guide is available as a free download at www.orton.org/heart-soul.

The Vermont Agency of Natural Resources offers an educational course that blends the approach of *Community Heart and Soul* with sound science. Learn more about the course, entitled *Caring for Natural Resources—Taking Action in Your Community*, through Vermont Fish & Wildlife Department's Community Wildlife Program.

Step 4: Identify Areas of High Community Value

Whatever your method for assessing your community's values, the next step is to compare your ecological priority maps with the values of your community. This will be easiest if you can capture the values of your community geographically, identifying where values are located on a map. Because there is no precise method for delineating the boundaries of a human value, these mapping efforts are not intended to be exact representations. By their very nature, they can show only rough estimates of human value. Even so, visualizing community values, however vaguely, can be an important filter when conducting natural resources planning efforts.

Mapping Community Values

While you could try to place results of surveys, interviews, suggestion boards, or conversations onto a map, community values mapping is a tool that has been used by numerous towns across Vermont to geographically capture the places most valued by local citizens. While some alterations may be necessary to best match the needs of your community, the basic procedure is as follows:

First, organizers invite community members to a public forum and divide participants into small groups. Each group is given a map of the local area and a set of colored markers. Participants are then asked a single question: "What do you love about this place?"

Community members use markers to outline locations of personal value on the maps. Within each group, participants are asked to categorize and color-code the values they map. Categories could include, for example:

- ► Scenic areas
- ► Ecologically important areas
- ► Economically important areas
- ► Working lands (agriculture, forestry, and so on)
- ► Recreational places
- ► Hunting and fishing
- ► Historic and community resources
- ► Anything else—there is no limit to the possible values included!

At the end of the activity, organizers are left with a series of maps, marked up with a community's special places. These maps can then be digitized, one value group at a time. Once all

value groups are digitized, they can be overlaid onto a single map that allows for comparisons of locations representing many values and those representing few.

This map is helpful in identifying locations of diverse value to a community. Areas of substantial overlap tend to be places of common ground; people love them for many different reasons. For planning purposes, you may find these to be areas of consensus

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Using BioFinder in Step 4

While BioFinder is intended for mapping ecological resources, the program has tools that allow users to draw their own map layers, which you may want to use in Step 4.

For example, if you document locations of community value on paper maps, you can use BioFinder to digitize your findings.

Open BioFinder and go to the default **Prioritization** theme. Zoom to your location of interest. Turn off all layers, or use just basemap data that will help you locate landmarks.

Open the toolbar by pressing the symbol in the top, right corner.

Select the **Draw** menu, and then choose a tool. Click on the screen to begin drawing.
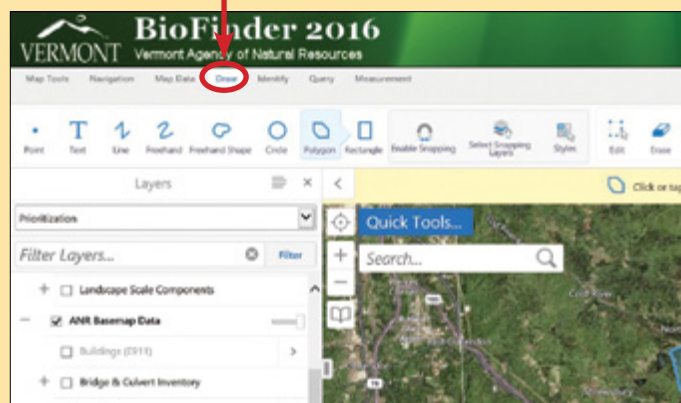
If you need to edit or erase errors, find those tools on the toolbar. When you are finished drawing, click **Export Drawings** to save your work. You can import your file back into BioFinder, share it with other people, or import it into a desktop mapping application.

Please note that BioFinder's drawing tools are not intended to provide precise boundaries.

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or opportunity; people are likely to support efforts that maintain the present-day integrity of the place.

It is worth keeping in mind that when using data from community values mapping, or any data reflecting a community's stated values, the community doesn't necessarily have all the information needed to make informed decisions. For example, rare plants are unlikely to come up in community values mapping, even though biologists know how important they are for maintaining biological diversity. Even a citizen who specifically values biodiversity is unlikely to outline all local rare plant habitat during a community values mapping event.

Before finalizing your priority maps, you may therefore want to consider areas in which science could further inform the community about issues that aren't already at the forefront. These maps can be useful for planning efforts, but they are just as important in determining a community's level of knowledge of their own ecological landscape. Similarly, the values of a community may change after educational efforts take place or simply as demographics change over time.

At its core, however, this activity is about capturing a community's story. Before deciding on actions aimed at protecting particular places, values mapping captures both the "where?" and the "why?" Where are our community's special places? Why do we care about them? Why would we miss these places if they were to disappear? These questions provide the justification for what you end up doing.

If you would like to map your community's values but don't think a public forum will be successful in your town, there is room for flexibility in the approach. For example, you could mail out a survey with a simple, attached map and ask citizens to send responses by mail. Be creative! Whatever the data collection method, mapping the values of your community can be a useful tool when it comes time to evaluate strategies, since you will have a much more secure vision of what is special to your community.

Collect Other Map Information to Represent Community Values

The method above is a technique for geographically capturing a community's values and goals, but you can also use a less direct method by identifying topics of value
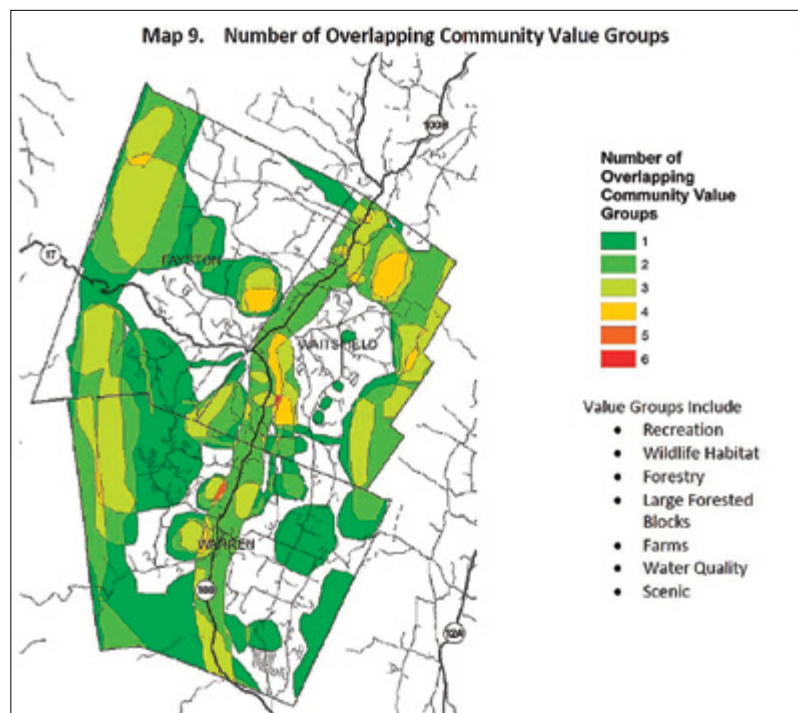

This map, from a Community Values Mapping session in the Mad River Valley, shows the number of community values groups identified in each location across the region.

to citizens and then, where possible, finding maps that represent the values.

Using Existing Map Data

The Natural Resources Atlas contains numerous map layers that represent topics of interest to communities. You can also import these maps into BioFinder, using the **Layer Catalogue** tool. For example, you might look at:

► Trails
► Water quality data
► Flood hazard areas
► Agricultural soils
► Drinking and groundwater information
► Waste management information
► Erosion hazard data
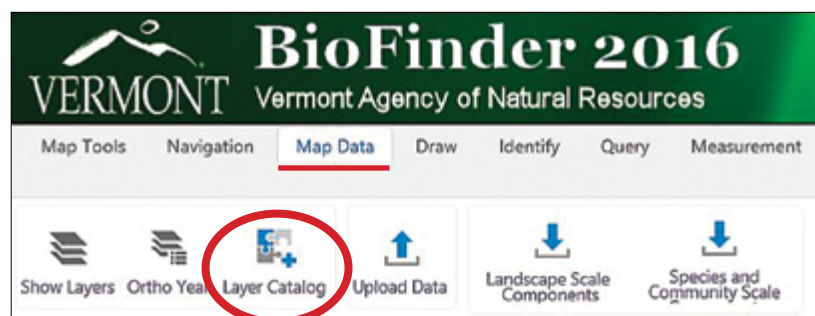
This is only a small sample of the many layers that your community could examine, but these maps can be terrific filters to aid in putting community goals and values on a map using existing data.

Other Considerations

You may also want to consider mapping the following—or other values—although you won't likely find existing, state-level map data available.

- ► Farms
- ► Working forests
- ► Historic areas
- ► Views or scenic areas

Once you have collected information about the values of your community members, create a map that allows you visualize where these special places are located. While you may not be able to draw exact boundary lines for many values, capturing even a rough picture of the geographic distribution of values can be a powerful prioritization tool.

Step 5: Compare Ecological and Community Values

At this point, you have two prioritization maps: one features ecological priorities, and the other highlights the values of your community. It's time to put these together to create a single map.

A skilled cartographer can use a professional mapping program—or BioFinder or the Natural Resources Atlas—to do this digitally. However, you can create a rough approximation by drawing on a paper map of your town. Such a map can still help you decide where to place your efforts, even if you can't use it for some implementation measures.

Start by outlining the areas of consensus, including those locations that came out as priorities on both ecological and community values maps. When later choosing implementation strategies in Steps 6 and 7, these may be the first places to focus your conservation efforts, because everyone agrees: these places are special. In these locations, protection of the area's present ecological values will likely also protect community values.

You can think of these areas of overlap as representing locations with potential allies—user groups that value a place for a particular reason. These reasons may be diverse: mountain biking, hunting, bird watching, walking, for scenic values, for economic potential through forestry, and so on. Users may support conservation efforts, so long as the strategies used maintain ecological function and these other values.

As you identify areas of overlap between your maps, think about the community values represented. Are the community values and ecological priorities compatible with one another? If so, consider involving user groups in the conservation planning process.

In some cases, overlapping values could also represent potential conflict. For example, a forest used by hunters and mountain bikers at the same time might be dangerous. Any action steps involving these lands may need to involve additional discussion or even conflict resolution, which could be as easy as awareness or a slight change in land management.
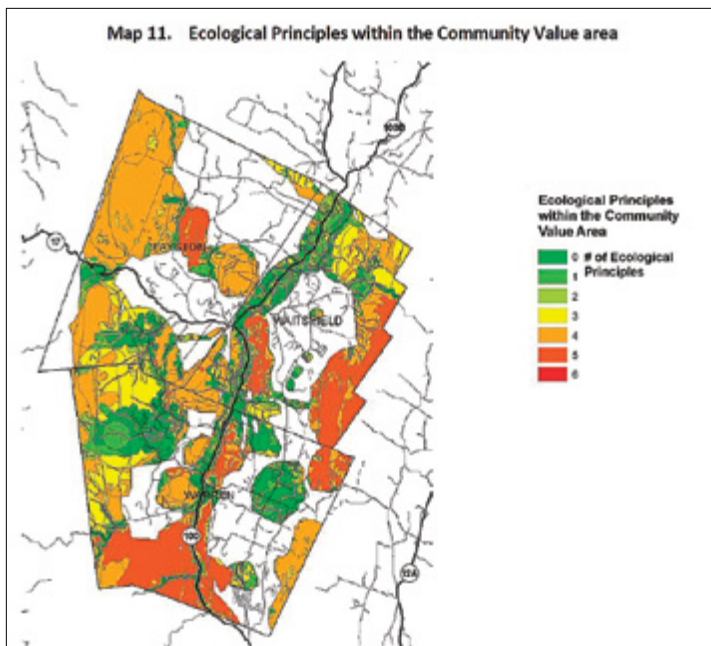
Next, outline any areas that are of high community value that don't appear on ecological priority maps. For these, identify the ecological components present just as we did in Step 3 and consider whether these components contribute to the place's special value to citizens. For example, if a popular bike trail is next to the water, protecting the quality of that water may enhance the resource for community enjoyment. Even if you decide to protect these community priorities

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Using BioFinder in Step 5

If you were able to digitize your maps of community values in Step 4, you can simply import them into BioFinder to compare. To import, go to the **Map Data** toolbar, and select **Upload Data.**
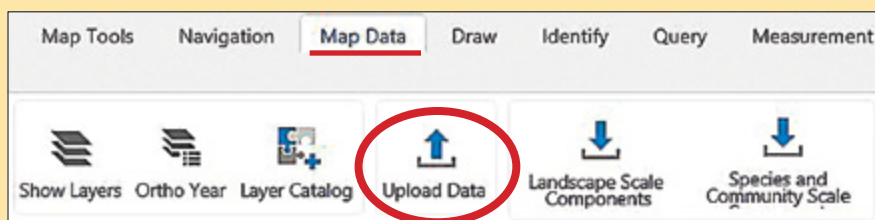
Find your file, name it, and give it a symbol. Then turn on **Landscape Scale** and **Species and Community Scale** priorities—or upload whatever ecological priority maps your community has developed—and compare!

Map 11. Ecological Principles within the Community Value area

Ecological Principles within the Community Value Area

0 # of Ecological Principles
1
2
3
4
5
6

On this map, community values identified within the Mad River Valley have been combined with ecological priorities. All colored areas were identified as having community values, and the map also maintains the region's ecological prioritization scheme. While the ecological prioritization method displayed is somewhat different than the one described in this guide, the method of combining community and ecological values can be the same.

through methods not based on their underlying natural resources, it is beneficial to recognize the value of these places during the planning process.

Now look at those locations identified as having priority or highest priority ecological values but that did not appear on your community values mapping efforts. These locations fall into several categories, so they are worth carefully examining. When high values don't align, it may mean that your community will have tougher choices. Measures to protect ecologically important places may be a more difficult sell in the community.

However, you may decide that some of these ecological features are still worthy of the highest level of protection. Rare species, as mentioned earlier, rarely appear on community values maps, even in communities in which citizens place high value on the protection of rare species. In many cases, these resources are so small or specific that people don't even know they exist.

You may also decide that these are places to focus education or outreach efforts before making decisions about implementation measures. In the example above, it may be that the community is unaware of the ecological feature or its important ecological function,

and that education would increase the community's value of the resource.

It could also be that these locations simply aren't starting places for conservation strategies in your community, regardless of ecological importance. If this is your decision, however, remember that these locations have been highlighted as priorities in state and regional efforts to map the lands necessary to maintain ecological function. Loss of ecological function at the landscape scale doesn't occur in a vacuum; it can have direct effects on other places and ecological systems that a community does value. Also, the community may not realize how something they value (such as wildlife, clean water, or the local economy) is affected if another feature (like forest blocks) are impacted.

When you complete Step 5, you should have a map that highlights the places of combined ecological and community value in your community. Like the other maps in this section, you may decide to break these locations into "highest priority" and "priority," or you can be creative and come up with another option that works for your community.

The town of Charlotte considers the following as **Areas of High Public Value**, combining ecologically important areas with locations representing other community values:

1. Land in active agricultural use.
2. Primary (prime & statewide) agricultural soils.
3. Steep slopes (equal to or in excess of 15%).
4. Flood hazard areas.
5. Surface waters, wetlands and associated setback and buffer areas.
6. Shoreland setback and buffer areas.
7. Special natural areas.
8. Wildlife habitat.
9. Water supply source protection areas (SPAs).
10. Historic districts, sites and structures
11. Scenic views and vistas.
12. Conserved land on adjacent parcels.

Developing and Choosing Options

Determining the Ecological Context
Step 1. Locate priorities at the landscape scale.
Step 2. Locate priorities at the species and community scale.
Step 3. Identify the components.
Including Community Values
Step 4. Identify areas of high public value.
Step 5. Compare ecological and community values.
Developing and Choosing Options
Step 6. Evaluate status and determine options.
Step 7. Evaluate options and choose strategies.

A t this point, you should have a clear geographic idea of the locations of high value to your community, based on both ecological and community values. Now you can think critically about how to best strategize for the protection of some places, and perhaps the development of others, based on real data.

Step 6: Evaluate Status and Determine Options

Before choosing strategies, you'll need to take stock of what you have. You've identified locations of high community value. Now, look at the current protection status of these locations.

Recognizing Conservation

Do any of your priority locations occur on permanently conserved land? To check, compare your map of combined ecological and community values with the protected lands depicted on Map 1, the Conservation Basemap, in Part I of this guide. Remember that a conservation easement limits development but may or may not provide guidelines for management or protection of specific resources.

Are there federal, state, or regional regulations/ programs already in place that will protect the resource? If so, how do the goals of these programs line up with what your community would like to achieve? Significant wetlands, for example, are subject to the

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Vermont Wetlands Rules, which regulate certain uses and activities, but some towns may want to achieve somewhat different goals for local wetlands. For more information about individual ecological components, see Part I of this guide.

Next, review your **t**own or regional plan and bylaws. Do these currently offer protection for your priority resources? If so, are you satisfied with the level and type of protection offered?

For some resources, it may be helpful to check whether properties located within priority areas are enrolled in the Use Value Appraisal Program (Current Use).[3] This program is one of Vermont's premiere conservation programs and enables private landowners to maintain their property in productive forest rather than subdividing and developing it, thus contributing to Vermont's forest products and working land economies as well as providing all the other benefits to the public and the environment associated with forests. County foresters with the Vermont Department of Forests, Parks and Recreation are a great source of information about this program. These lands can be seen on Map 1 of the Inventory Theme in BioFinder.

If any of your priority locations are already well protected, your planning efforts in these areas can be minimal, allowing you to focus your energy elsewhere.

Visualizing Change

You may also find it helpful to think about the level of risk faced by priority resources. In Vermont, development generally occurs gradually. In rural areas, it may be on the scale of only a few parcels per town per year, a pace that appears slow but that can have substantial effects over time. Of course, slow growth doesn't mean that your planning work is unimportant. Some would argue that it is precisely because development takes place so slowly in Vermont that every choice matters and contributes to the overall landscape we end up with.

Resources for Implementation

Because the focus of this guide is on mapping natural heritage features, the detail included in the remainder of this guide is limited. The entire implementation process is described briefly to enable planners to take the information included in Part I's inventory maps and effectively implement conservation strategies.

The same process is described in detail in a course periodically offered by Vermont's Agency of Natural Resources, entitled *Caring for Natural Resources—Taking Action in Your Community*. In addition, you may want to supplement this section with other resources or create your own strategies. For example, the Vermont Agency of Commerce and Community Development's *Planning Manual* can aid you in creating an effective municipal plan that follows state statutes. As mentioned earlier, *Community Strategies for Vermont's Forests and Wildlife* and *Conserving Vermont's Natural Heritage* may also be helpful.

One way to visualize future growth from routine development is to create a build-out model. This advanced computer mapping technique (which requires the aid of a skilled cartographer) is used to envision different development scenarios. A basic build-out model asks, "Based on current zoning, how many new units could be built in your town?" You can also use this method to test proposed regulations to see what the resulting maximum development would look like on a map. You can learn more about build-out models in *Community Strategies for Vermont's Forests and Wildlife*, on page 13.

Buildout can be used to compare the impact of different regulatory proposals. If we added a 50-foot buffer to all streams in town, how many fewer units could be built compared to current zoning?

Using BioFinder in Step 6

While you will certainly want to use more resources than just BioFinder for this step, BioFinder does have some useful datasets that might help. For example, conserved lands are located in the **Inventory** theme, under Map 1. Lands enrolled in **Use Value Appraisal (Current Use)** can be found in the same place.

Fayston Maximum Buildout
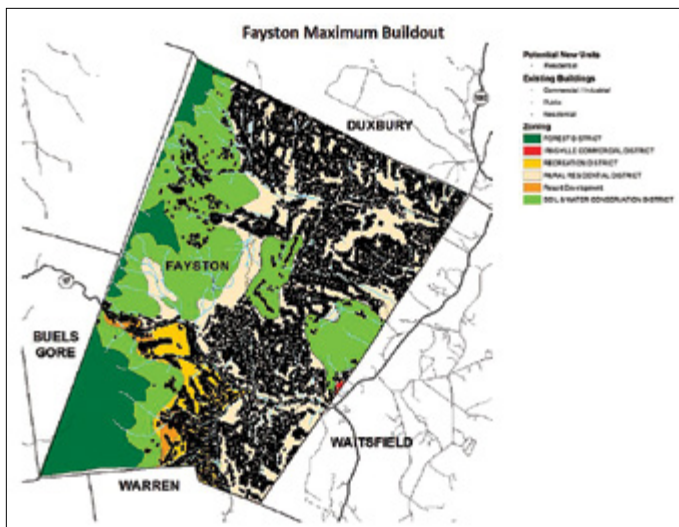
This build-out model of Fayston is from the 2011 Communities, Forest, and Wildlife Project in the Mad River Valley. It shows a 50-year maximum buildout scenario based on current zoning.

What about a 200-foot buffer? Scenarios could include anything from natural resources extraction to the development of energy structures, expansion of industrial activities to global issues like climate change.

For each scenario, evaluate (if possible) potential impacts to the areas of combined ecological and community value. What acreage could be lost to development? As you begin this discussion, keep in mind that some potential threats to areas of high value may be assets to other community or ecological goals. Where this is the case, your community may need to make tough choices between conflicting values. Regardless, recognizing the potential threat to areas of value is the first step toward making informed decisions.

The goal here is to double check your priorities. Highly valued places with existing protections may become lower priorities for action than those places that are unprotected and face high development pressure. You may want to take some time to re-assess your priorities.

At this point, you are ready to develop strategies to protect your special places!

Brainstorm

It's now time to brainstorm action steps you could take to maintain the values of priority areas.

Start with the places that have now emerged as highest priority for conservation. Compare these with your list of ecological components from Step 3. Does your list of components still represent the areas of highest priority?

For each component, create a list of both regulatory and non-regulatory actions that would maintain the values of these lands and waters. To help you with this step, the chart in Appendix A matches possible conservation strategies with ecological components. Part I of this guide has additional information on each component. Of course, these charts are not comprehensive; you may have additional ideas! At this point, consider everything.

Mirroring Step 3, strategies can be divided by scale. First, consider strategies that will protect landscape scale patterns such as maintaining large networks of forest habitat and waterways. Because landscape-scale components cover substantial acreage, these same lands are often used as working forests, recreational areas, scenic vistas, and for other forms human enjoyment. Therefore, the most effective strategies often consider both human and ecological values of this land.

Next, list strategies that will conserve those resources excluded from the landscape patterns above. For example, a vernal pool located in a small patch of forest may not be included in the forest network you considered above, but it remains an important resource. Such community and species–scale elements are generally more ecologically sensitive, and successful strategies often involve encouraging intensive human activities in other locations.

If you have not already done so, we now suggest reading through *Community Strategies for Vermont's Forests and Wildlife* for more information about tools used to protect priority natural resources. The Vermont Agency of Commerce and Community Development's Planning Manual[4] has information on more general planning strategies and statutes that are not specific to natural resources.

The Community Planning Toolbox

On the Vermont Natural Resources Council website, the **Community Planning Toolbox** provides information about planning, implementation tools, and case studies from within Vermont. Learn more at: vnrc.org/resources/community-planning-toolbox.

Step 7: Evaluate and Choose Options

After brainstorming possible strategies you could use to maintain the values of priority places, it is time to evaluate your list and choose those options that best match your community's needs, values, and ecological context. Most likely, you will end up choosing not a single solution but a package that works together to address identified needs—even if you take on only one strategy at a time. Below, we offer considerations as you put together this package.

Addressing Needs and Realities

As you begin the evaluation process, the first step is to think carefully about exactly what each option would involve. We recommend maintaining a worksheet in which you document the following. For each potential strategy,

- ► How well does it protect or enhance the natural resource needs you have identified?
- ► How well does it support community values?
- ► How much effort will it take to complete?
- ► How much will it cost?
- ► Are people needed to implement the strategy? If so, are these people available?

Thinking carefully about this information will help you identify which options are realistic in your community. You also want to be sure that the options you choose do, in fact, help the ecological and/or community needs you are trying to address.

The Importance of Communication

Remember to involve your community throughout this process; don't wait until you have chosen a strategy to communicate your efforts with citizens!

Finding Common Ground

In the previous steps, you identified first ecological priorities, then community priorities, eventually combining these into a single map of areas with high public value. As you evaluate strategies, consider options that satisfy diverse interests simultaneously. For example, strategies aimed at maintaining working forests are often effective at conserving forest wildlife habitat, too. Similarly, riparian areas are important not only for the conservation of wildlife habitat but also for water quality and flood resilience. A single conservation strategy could effectively protect multiple values.

Make a Plan

Once you have evaluated your range of options, it is time to choose those that seem most appropriate for your community and turn your decisions into a plan of action.

Your action plan could include the following:

1. **Action Steps:** What strategies do you propose implementing? Again, this probably isn't a single solution but a collection of strategies that work together to achieve your goals.

2. **Rationale:** What needs do these actions satisfy? Why did you choose this group of options over others? What community values are supported by your chosen solutions?

3. **Assign a Leader or Leadership Team:** Who will head up your efforts? The Planning Commission? The Conservation Commission? A watershed association? For each strategy, you can assign a point person and list supporters.

4. **Tasks:** Lay out the specific tasks associated with your chosen strategies.

5. **Timeline:** Identify a likely timeframe for each task

and for the overall project. (Keep in mind that the overall project may take a long time—and that's okay!)

6. **Milestones:** Will there be key accomplishments that you can celebrate along the way?

7. **Resources:** Are there existing financial resources you can put toward the project? People who will be involved? Other resources?

As you get started, you also need to think about funding. Do you already have the needed finances for your project? If not, you might consider:

► Municipal Planning Grants[5]
► Local conservation funds
► Fundraisers (letters to individual donors, public events, etc.)
► Collaboration with a partner with related goals (a land trust, private landowner, foundation, etc.)
► Other grants

For many communities, creating an action plan is not an easy process. However, if you have gone through the rigorous prioritization process above, your decisions will be based on data, and you will be able to provide a solid rationale for your decisions. In the end, you may not be able to accomplish everything that has been set on the table, and there may be places in which you have to choose from among divergent priorities. However, making these tough decisions by taking into account a diversity of information and perspectives is what will give your plan a strong foundation.

Good luck!

Regional Planning Commissions

Throughout your process, don't forget that your Regional Planning Commission can be a valuable resource! Regional Planning Commissions assist individual member municipalities with their planning processes and work cooperatively to address regional challenges. They also work with non-profits, state and federal agencies, businesses, and others to implement programs or projects to address local and regional needs. See the Vermont Association of Regional Planning Commissions (www.vapda.org) for additional information.

Need Help?

The process outlined above was developed by the Vermont Fish & Wildlife Department's Community Wildlife Program, and we're happy to provide additional guidance:

► Contact the Community Wildlife Program, Vermont Fish & Wildlife Department. See www.vtfishandwildlife.com/get-involved/partner-in-conservation/community-wildlife-program for more information about the program.

For aid with the development or implementation of planning-related work, Vermont Natural Resources Council may be able to provide assistance. For more information, visit:
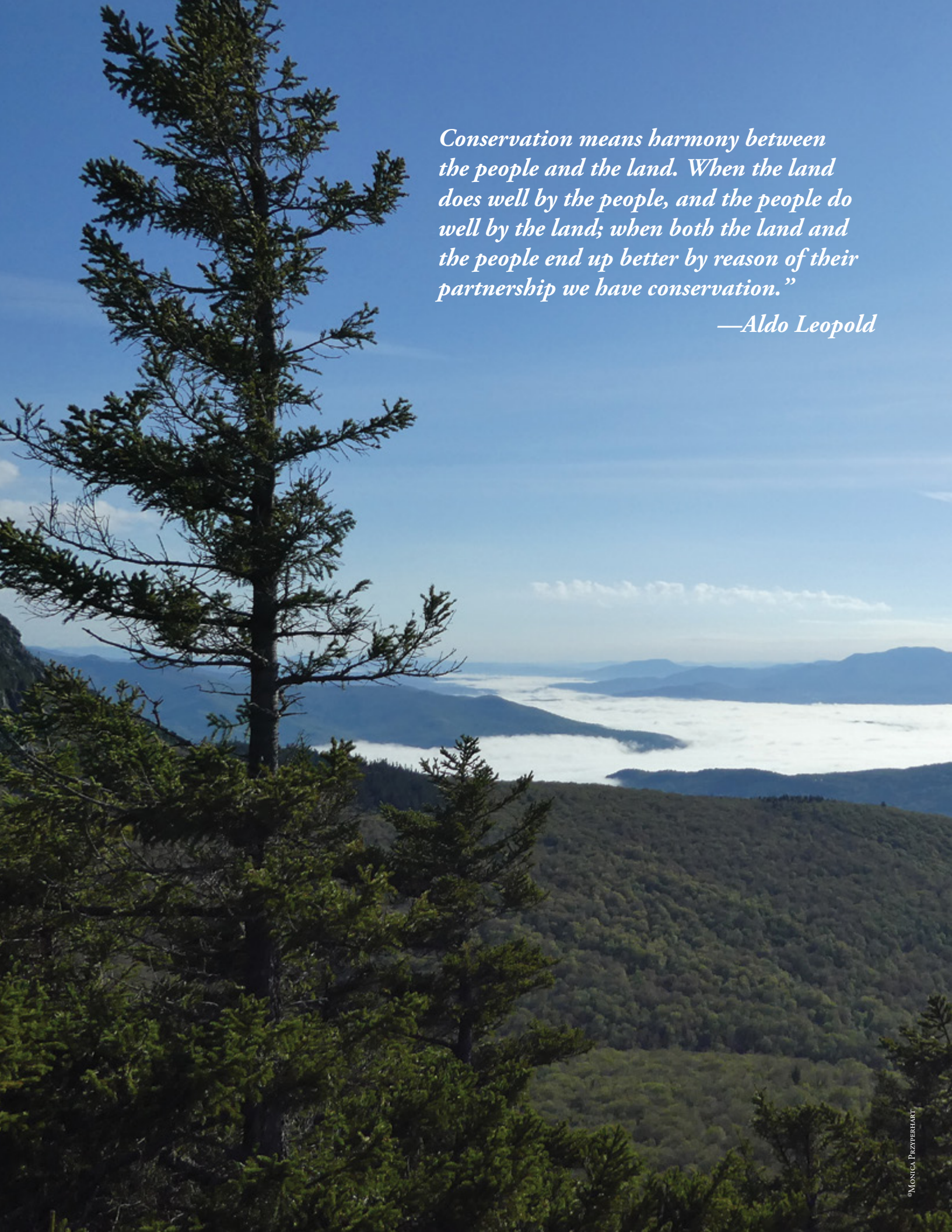
► Forests and Wildlife Program: vnrc.org/programs/forests-wildlife/
► Sustainable Communities Program: vnrc.org/programs/sustainable-communities/

For technical assistance related to planning and regulatory tools, the Regional Planning Commissions are a valuable resource.

► See www.vapda.org for a list of contact information for all of Vermont's Regional Planning and Development Agencies.

Conservation Success Stories

See what other towns have done! The Association of Vermont Conservation Commissions has compiled an online archive of activities completed by Vermont towns that achieve a variety of conservation-related goals. The archive details accomplishments, challenges and keys to success for each project, along with contact information for those involved. Find these stories at vtconservation.com/view-stories

Conservation means harmony between the people and the land. When the land does well by the people, and the people do well by the land; when both the land and the people end up better by reason of their partnership we have conservation."

—Aldo Leopold

Mapping Vermont's Natural Heritage

This is one chapter of a larger publication called *Mapping Vermont's Natural Heritage: A Mapping and Conservation Guide for Municipal and Regional Planners in Vermont.* Please visit https://anr.vermont.gov/node/986 for additional information or to see the entire guide.
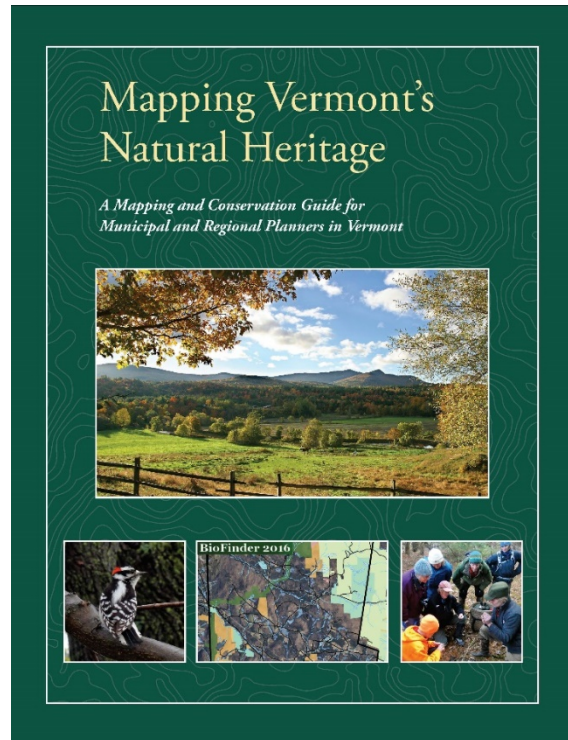
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