



STOWE LAND TRUST

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Field Guide to  
Monitoring  
Conserved Lands

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## **A. Stowe Land Trust Conservation and Stewardship Programs**

Since 1987, Stowe Land Trust (SLT) has been working to protect our community's unique natural heritage. As of 2011, SLT has conserved over 3,200 acres of scenic, recreational and productive farm and forest lands for the benefit of the greater Stowe community. There are five properties which SLT holds in fee and the remaining are private or publicly owned lands on which SLT holds conservation easements. SLT works in partnership with willing landowners to achieve their conservation goals by offering a variety of conservation options that permanently protect land from development.

The goal of Stowe Land Trust's stewardship program is to ensure the long-term integrity of SLT lands and conservation easements are managed for the purposes set forth in the easement language or as defined by SLT policies. The volunteer steward program is the cornerstone of the stewardship program. Volunteer stewards regularly visit SLT-protected lands to ensure that the conservation restrictions are being upheld. Owning land and easements has given SLT legal rights to protected lands and with that a responsibility to ensure these rights are protected.

## **B. Conservation Easements 101**

A conservation easement is a legal agreement between a landowner and an eligible organization that restricts the activities that may take place on a property in order to protect the land's conservation values. Each easement's restrictions are tailored to the particular property, to the interests of the individual owner, and to the policies and purposes of the easement holder. All of Stowe Land Trust's conservation easements with the exception of the Mayo Farm are permanent, meaning that the restrictions shall run with the land and will apply to all future owners of land. A conservation easement may be sold, donated, or sold as a bargain sale.

Some of the key components of easement documents include:

- Purposes Statement – clearly states the conservation goals of the easement
- Restrictions and Reserved rights – describes the allowed uses, public access provisions, areas of special protection, reserved rights, and uses prohibited by the easement
- Administrative provisions – establish the ground rules for the perpetual relationship

## **C. Volunteer Steward Program**

Stowe Land Trust currently holds easements on 27 separate parcels and owns 5 properties in fee. In order to meet its obligation to annually monitor conserved lands, SLT has developed a volunteer steward program. Volunteer stewards help build relationships with landowners, allow SLT to discover any problems, provide an opportunity to document changes in the property or its ownership, and is critical for the SLT to meet its legal obligations.

## Monitoring Responsibilities

The volunteer steward program is Stowe Land Trust's "eyes and ears" on the properties conserved by SLT. Stewards are also ambassadors of SLT's stewardship program. Acting in this capacity, a steward may meet and greet landowners and neighbors, providing a friendly face and personal contact that says we want to work together to care for this resource. Volunteer stewards are asked to:

- Visit their conserved property(s) at least once per year, but preferably twice per year – once in the spring and once in the fall.
- Locate the property boundaries, inventory their condition and perform basic boundary maintenance (clearing and flagging).
- Check the status of special features on the property, such as rare plant populations or more intensively used portions of property (trails, picnic areas, etc.)
- Post stewardship signs at necessary locations.
- Observe any changes in land use on the property.
- Watch out for a variety of encroachments and potential violations:
  - Unauthorized timber cutting
  - Construction of trails or roads
  - Motor vehicle use
  - Construction outside development zones
- Solve minor problems by removing fire rings, brushing illegal campsites, picking up trash, etc.
- **Take no enforcement action.** A steward's first response to a problem is information gathering and reporting back to SLT.
- Fill out and send in a monitoring report after each visit. Make notations regarding stewardship actions and observations on map to be submitted with the monitoring report.

## Tips on Talking With Landowners

If possible, try to get in touch with the landowner before you head out for your monitoring visit. Invite them along if they're available. It's always good to have a few questions prepared when you're meeting or talking with the landowner for the first time. Here are a few questions you can ask:

- Are there any obstacles I should be aware of: fences, gates, livestock?
- Have you had any public access problems?
- Have there been any natural alterations to the property: river adjustments, ice storm damage, etc.
- Do you have any plans for new buildings (if permitted) or uses of existing buildings?
- Has there been any change in use of land, e.g. from active agriculture to fallow land?
- Are you renting out any portion of your land, brush-hogging or haying?
- Anticipated change in ownership?

## **Getting Organized**

Monitoring your property requires some advanced preparation. This section describes the steps you should take prior to heading out in the field.

### **Step 1 – Gather Information**

Stowe Land Trust maintains a stewardship binder for monitoring visits which contains a copy of the conservation easement, baseline documentation report, maps, photos and past monitoring reports. Stewards should borrow the binder prior to conducting the monitoring visit in order to prepare for the visit. In addition, stewards are encouraged to make photocopies of maps and other important information for use in the field.

### **Baseline Documentation Report**

The baseline documentation report (BDR) is a summary for each property and contains the following useful information:

- Description of the property and directions to the main points of access
- Summary of restricted and permitted uses
- Summary of significant rights held by third parties
- Legal description of the property
- Maps (locator, topo, and survey)
- Photos of various locations around the property

### **Property Maps**

Most BDR's contain several different maps of the conserved property. The combined use of topographic maps, ortho photos, and the survey will facilitate navigating the boundaries and interior of a property.

### **Monitoring Reports**

If you are a new steward or have taken on stewardship of a different property, earlier monitoring reports can provide you with useful information such as good access points, significant areas to pay close attention to etc.

### **Step 2 – Getting Your Bearings Straight**

A bearing explains the direction of some line of travel relative to the direction of north. There are two systems for defining bearings: azimuth and quadrant.

#### **Azimuth**

The azimuth system is the one most people are familiar with. An azimuth bearing is based on a scale which uses the circumference of a circle marked off into 360 increments, commonly known as degrees. Most compasses sold in retail stores are azimuth compasses.

Example: An azimuth direction of travel due west would be given as 270°.

## **Quadrant**

The quadrant system is used in surveys and deeds. This bearings system divides the compass into four quadrants (N,S,E,W) and bearings are given accordingly. Quadrant compasses are special and not usually found in retail sporting goods stores. Not to worry! With a little math you can convert the quadrant bearing to an azimuth bearing which can be followed using your familiar compass (see Appendix A).

Example: A quadrant direction of travel due west would be given as S 90° W.

- All conversions should be done ahead of time because it can be complicated to do in the field. Using a calculator ensures the accuracy of your math!
- Write these new bearings down on your maps for easy reference in the field.

## **Which Way is North?**

The Earth's geographic north pole (true north) is not the same as the magnetic north pole which your compass needle points to. The Earth's magnetic north pole is slightly off from true north, something to do with solid nickel core floating in the molten mantle...but that is another story. Suffice it to say, if the bearing you are following in the field is based on geographic north, but your compass alignment is based on magnetic north, you won't be headed in exactly the same direction! Usually maps will indicate next to the north arrow or in the legend which north the map is referring to. If bearings on the property's survey are given in true north you will need to adjust for magnetic declination by adding 15° (adjustment for Vermont and Massachusetts) to your azimuth bearing.

## **Step 3 – Review the Survey Map**

The survey map, if there is one, is your best guide to the property. The survey map is to a monitor what a good trail map is to a hiker. Survey maps contain special notations used by surveyors to convey details about the property on the ground. These notations can tell you a lot about the property. For instance, they will identify whether you are looking for an iron pin or stone cairn as the corner marker, or the color of the boundary line, or how old the blazes might be. Typical things found on most survey maps:

- Legend, which explains symbols;
- Scale, how big or small things appear on maps relative to what is on the ground;
- Where north is (may show a north arrow) and whether it is based on true north (geographic north) or magnetic north;
- Distances along property boundaries;
- Roads and nearby structures; and
- Who made the map, and when.

## **Common Notations and What They Mean**

**IP** means iron pin. This is usually a metal rod stuck in the ground to mark the corner or end of a boundary leg.

**IP set** means iron pin set. When the surveyor was making this map, he or she put an iron rod

into the ground. It should still be out there now and findable.

**rebar** is the nickname for reinforcing bar, a crinkly surfaced iron rod which you sometimes see being put into the center of structures being made with concrete. It is another way to mark the end of a leg or boundary corner.

**rebar tbs** means rebar to be set. At the time the map was made, someone was planning to go back and put a rebar in the ground. Whether someone did go out later and put the rebar in the ground is uncertain.

**d.h.** means a drill hole - a finger-sized round hole drilled into rock, usually marking one end of a leg along the boundary of the property.

**tie line** is the distance and direction between two points. The line it creates is an instruction on how to find one point from another point. A tie line is often used to explain how to find the end of a leg consisting of a curvy stretch of road, river bank, or lake, or how to find the corner monument.

**witness** means a point which has been set and/or marked on the ground that helps you find a key point on the boundary. The surveyor might have had a hard time installing an iron pin right on the boundary, perhaps because of rock or water, and so he or she installed a pin as close as possible, typically with a tie line explaining how to get from the witness point to the location on the boundary line.

#### **Step 4 – Plan for Your Trip**

Stowe Land Trust properties vary in size from 4 acres to 1100 acres with varying topography and terrain. It is wise, therefore, to plan your route in advance taking into account the specific features of the property and the priorities for monitoring the property.

##### **1. What will you be looking for?**

- a) Read the questions on the monitoring report form.
- b) Read through and highlight any easement restrictions or reserved rights. Now you have a good idea of what *can and can't* be done to the property, and *by whom*.
- c) Look at any past monitoring report forms for clues about past problems.

##### **2. Where should you go?**

- a) Along the boundary at least once a year.
- b) Most likely places for human activity such as trails, woods roads, parking areas, road or water edges, places with ongoing activities such as timber harvests, etc.
- c) Special conservation features, such as a rare or endangered plant community.
- d) Any locations where problems have happened in the past.

### 3. What route should you take?

- a) Read through the property's legal description while tracing the route on the survey map or topo map. Make sure you are certain at which corner the boundary description starts from. It is not necessarily the one closest to a road! This allows you to visualize the directions of the property description.
- b) Look over the map to plan which way to walk around the property, how to see the places you want to see with the least amount of walking and time, etc.
- c) Plan for an "escape route". Always make sure you know how to easily return to your car in case of an injury or approaching darkness.

### 4. Items never to leave home without

#### Personal

Bug repellent  
Long pants, long sleeved shirt  
Boots  
Blaze orange (in season)  
First aid kit  
Rain gear  
Extra layers  
Water, lunch or snack

#### Monitoring

Fluorescent flagging  
Compass  
Monitoring materials in plastic bag  
Pen or pencil  
Plastic bag for trash  
Camera

## D. The Field Visit

### Step 5 – Following the Property Boundary

Corners are marked on the ground by some kind of monument - an iron pipe, rod, pin or old stone cairn and are referenced by witness trees. Corner monuments are sometimes hard to find - dirt, deterioration or road widening/ rebuilding may obliterate their location. If you can't locate the monument, look for the property's boundary line which is marked by fencelines or most commonly by ax blazes and/or paint on trees along its entire length through the woods. Boundary lines are typically painted in bright colors, such as orange, red, blue or yellow, and are MUCH bigger than a typical 2 X 6 inch trail blaze. Be certain beyond doubt that the corner or line point you are starting from is the one you have identified in the deed description and located on your map.

Theoretically, you could follow a blazed boundary line without a compass. However, sometimes the blazes are far apart or they have faded and are difficult to find. It is recommended that you always set your compass for the bearing you are following. It is also important to keep track of your pace. This lets you know your approximate distance traveled and when you should be approaching a corner monument.

Here are some additional clues that signify elusive boundary lines:

- stone walls (only if shown on map as marking a boundary)
- old wire fences
- change in vegetation (old field, edge of timber cutting area, etc.)



- blazes (old ax wounds partially grown in, possibly with traces of paint)

### **Step 6 – Travel Safely**

- Leave word with someone about where you are going and when you'll be back.
  - If possible, monitor in pairs or small groups.
  - Consider time/weather conditions.
  - Be prepared for the unexpected.
  - If you feel uncomfortable at any time, for any reason, leave the property.
- Be prepared. Safety equipment includes rain gear, first aid kit, sleeping bag or space blanket, whistle, matches, extra food.
- Wear blaze orange in the woods during the fall because of the many different types of game seasons. It is best to stay out of the woods during the main deer hunting season.
- If you come upon what you believe to be an illegal activity, gather information and take pictures. **DO NOT THREATEN OR CONFRONT THE PERSON(S)**. Immediately report your findings to Stowe Land Trust.

### **Step 7 – Observe and Report**

Monitoring is simply an information gathering exercise. You are looking for and reporting anything which may threaten the integrity of the conservation easement.

On the ground, what to look for:

- Parking area cleanliness
- Trail conditions (ruts, erosion, obstacles)
- Camping/fires
- Vandalism/Dumping
- New roads or worn tire paths
- Piles of saw logs, slash or stumps
- New culverts or piping
- Piles of dirt or fresh ditches
- Faded boundary blazes
- Evidence of illegal uses of property (may include ATV's, mtn bikes, horses etc.)

## **E. Violations, Encroachments and Problems**

If you happen to discover an activity that appears to be a violation, please remember, your role as a volunteer steward is to observe and report. Especially in cases where an activity is ongoing, please do not:

- Attempt to enforce easement terms or property laws
- Interpret an easement for the landowner or neighbor
- Give permission for activities requested by landowners or third parties
- Attempt to settle boundary disputes

**If you think you have found a violation:**

- 1) Do your best to determine if the suspected violation is occurring on the conserved property.
- 2) Take notes on the activity and location. Take photos if you feel comfortable doing so.
- 3) Contact Stowe Land Trust. Any ongoing trespass or suspected violation should be reported to SLT immediately.

**F. Completing the Form**

Assuming that there are no immediate issues to deal with, your next step is to complete the form and return it and the stewardship binder to Stowe Land Trust. Please include any photos, maps or other information you feel should be part of the report.

**Thank you for being a volunteer steward!**

## Appendix A – Quadrant to Azimuth Bearing Conversion Table

Compasses bought at your local sporting goods store are usually **azimuth** compasses. They allow you to chart your direction of travel based on the angle it makes with magnetic north. Geometry tells us that this means the line of travel can be described in terms of 360 degrees of a circle, with magnetic north being 0 and 360.

Survey maps and deeds use quadrant bearings to describe the line of direction. Quadrant bearings are described using either the north (N) or south (S) pole as the reference point. To this initial starting reference direction, the bearings then describe an angle of X degrees to east (E) or west (W) up to a maximum of 90 degrees. Since quadrant bearings need to be precise for legal documents, degrees are further subdivided into minutes and seconds, ending up with a complex bearing that looks like this: S 32° 45' 10" E.

Since most compasses are based on the azimuth system, you need to use a simple formula to convert bearings for use in the field.

<b>Quadrant Bearing</b>	<b>Conversion Factor</b>
N x° (degrees) E	$0^\circ + x^\circ = \text{azimuth bearing}$
S x° E	$180^\circ - x^\circ = \text{azimuth bearing}$
S x° W	$180^\circ + x^\circ = \text{azimuth bearing}$
N x° W	$360^\circ - x^\circ = \text{azimuth bearing}$

Examples:	N 36° E = 36°	(0 + 36)
	S 40° E = 140°	(180 – 40)
	S 89° W = 269°	(180 + 89)
	N 15° W = 345°	(360 – 15)

## Appendix B – The Boundary

### Some Terms

- A **blazed line** refers to a boundary that has been ax-blazed before it was painted. Only a surveyor should ax blaze a line.
- A line which has only been painted (not ax-blazed) is referred to as a **painted line**.
- Blazed lines last longer, but still need to be repainted every **5-7 years**.
- Blazes are approximately **3" x 6"** vertical rectangles.

### Reading the line

- A **blaze** is always on the side of the tree nearest the boundary line.
- **Trees** that fall on the **boundary line** are blazed on each side of the tree, where the line enters and exits the tree.
- **Trees** within **1 to 3 feet** of the line have two blazes turned a quarter and facing the line.
- **Trees** farther away than **3 feet** of the line have one blaze facing the line.

### Blazes and Paint

- Check notes on survey map for existence and color of blazing.
- Only a licensed surveyor, or someone under his/her direct supervision can blaze a tree for the first time.
- **Witness points** are designated by the official surveyor to help locate the monument. Trees are the most common witness points. Large rocks, telephone poles, and other permanent objects are also used.
- **Witness trees** are blazed with a small scar, generally low to the ground. These often have a nail and metal flasher in them as well.
- Recent surveys have **triple blazed** witness trees at corner monuments indicating a direction change.
- Hang **flagging** over or near each corner found to assist the next monitor. If you put flagging around a tree trunk, use the surveyor's convention of hanging the tails and knot on the side of the tree that faces the boundary line.