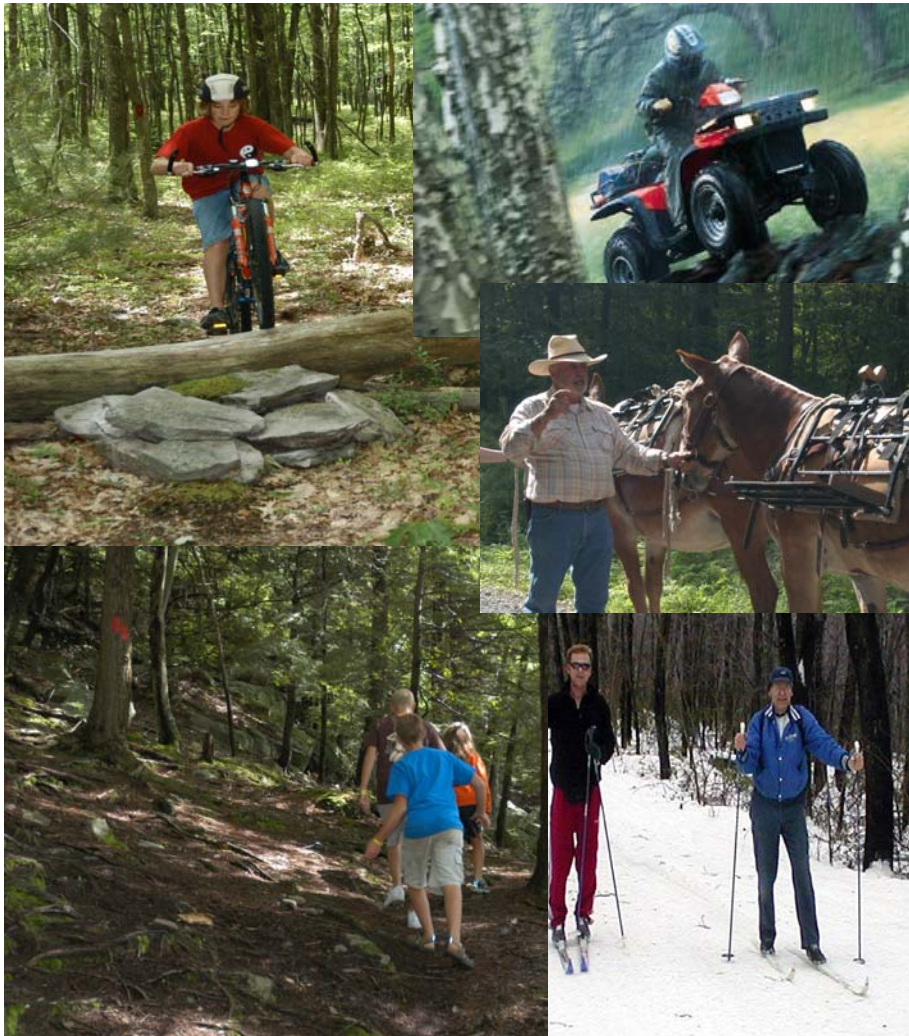


**Pennsylvania Department of Conservation and Natural Resources**

**Guidelines for Marking Recreational Trails**



**July, 2008**

## Non-Motorized Trail Marking Techniques and Theory

*Some of the following material is adapted from Chapter 10 in "Trail Design, Construction, and Maintenance", published by the Appalachian Trail Conservancy.*

### Paint Blazes

The intent of this document is to develop, over time, a consistency in trail marking techniques throughout the Commonwealth's publicly owned lands. Therefore, painted blazes along any given trail should eventually conform to a standard color, shape, and size, namely **painted rectangles six inches in height and two inches in width**. When painted neatly with sharp corners and clean edges, blazes remain visible to hikers at a distance and distinguish themselves from natural occurring marks.

On hiking trails, ***place the blazes on trees at approximate eye height***. Remember, the trail should be marked for the benefit of hikers traveling either way, so place blazes facing in both directions. If you can't find a suitable tree next to the trail, paint blazes on ledges or trail side rocks. Check with appropriate staff before marking objects other than trees. Other options for blazing are available, such as wooden or Carsonite posts (discussed later in this document).

## Frequency

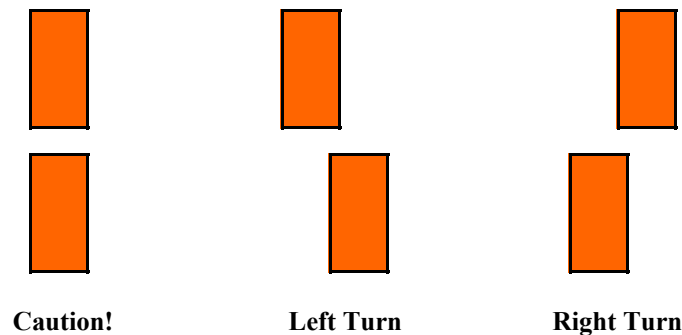
Blazing needs to be continuous, even along roads or unmistakable parts of the footway. Immediately beyond any junction, paint a blaze even if there is a direction sign. Place a second "safety blaze" 50 to 100 feet beyond. Where State Parks and State Forests meet, check that blazes extend into the next section. Eliminate all gaps in marking, and avoid suddenly varying the spacing of blazes (in similar terrain) in a way that confuses hikers.

Normally, you should change blazing frequency naturally with changes in trail terrain, forest cover, or the clarity of the footpath. *When the trail is conspicuous*, place one blaze for every five minutes of hiking time, or about six per mile in each direction (800 to 1000 feet apart). Where you run into hard-to-follow sections, often in transitions between field, forest, balds, and other environments, blaze more frequently.

Be careful not to over blaze. Too many single and double blazes can mar the primitive character of the trail. This is a special concern in wild and natural areas, where blazing should remain minimal, or six per mile. *Elsewhere, you should place blazes so that no more than one is visible in either direction.* In other words, except near trail junctions, keep blazes at least 150 feet apart. You may degrade the primitive trail experience by blazing too often.

## Double Blazes

Remember, a double blaze means "caution" or "heads up". Place a double blaze 25 to 50 feet before abrupt turns and highway or trail junctions. Remove painted arrows, or slanted blazes, and replace them with standard double blazes. Double blazes should be placed one over the other, and about one to two inches apart. Where the double blazes are alerting a trail user to a turn, the top blaze, tree size permitting, can be offset in the direction that the trail will turn.

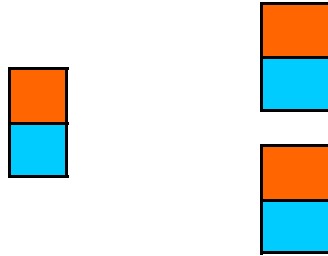


As with the single blaze, place the blazes sparingly. They are unnecessary at most turns in the trail, and they become unsightly and meaningless with frequent use. Only use double blazes where absolutely necessary for the safety of trail users. On switchbacks, for example, use only single blazes, but paint them near the switchback corner, one above the corner and one below. If needed, pile brush, logs, or rocks at the corner to define the footpath and guide hikers around the turn.

Even in the rare instances where the route remains ambiguous even with blazes, avoid the urge to paint an arrow to direct the trail hiker. The extra, nonstandard paint may hurt the trail's primitive character, detract from the trail users' sense of exploration, or set a precedent for painted arrows. Try to use small directional signs, posts, or cairns, instead.

## When Two Differently Marked Trails Share the Same Path

Sometimes two or more trails briefly share the same path or corridor. When blazing in these areas, avoid confusing over-blazing and consider combining different blaze colors into one blaze:



## Keeping Blazing Primitive

### Blaze Less-

- Along well-defined footpath
- Along highly constructed trail in dense vegetation (mountain laurel or rhododendron)
- Along sharp ridgelines

### Blaze More-

- At turns, both on and off roads
- Along obscure footpath
- In open forests
- In open areas (balds, boulder fields, alpine zones)

## Placement

Paint blazes on trees that will easily be seen by trail users. **Look down the trail to find a tree that will catch hikers' attention in all seasons.** If the tree is far enough away, and within one to three feet of the right side of the footpath, you've found your next blaze tree. Try to make sure that leafy summer growth or branches weighted with snow or rain will not later hide the blaze. Clear any interfering growth with lopping shears or hand pruners, if permitted by the state park or forest district manager.

Bear in mind a couple of other pointers: When you are choosing a blaze tree, remember that one well-placed blaze is better than several that are poorly placed or partly hidden. Most importantly, avoid defacing trees and rocks that form distinctive and pleasing elements of the scenery.

## Surface Preparation

Apply paint to as smooth and dry a surface as possible, preferably during fair weather above 50° Fahrenheit. On trees with thick, rough bark, such as oak and ash, smooth the surface by scraping with firm strokes of a hardwood floor scraper, also known as a paint and varnish scraper. Never cut through the bark and into the cambium; such a wound will cause the tree to bleed, the blaze to run, and injury to the tree.

On other trees, smooth the bark by simply rubbing with a wad of steel wool, a nylon dish pad, or a canvas-gloved hand to remove dirt, lichen, and loose bark. Only scrape if absolutely necessary. If you scrape conifers, such as white pine or balsam fir, they will bleed. White birch and black cherry will fray. Beech and red maple already have smooth bark that you can paint without scraping.

On rocks, minimally clear lichens, moss and other debris with a stiff wire brush. The surface must be clean and dry or the paint will not adhere.

## **Painting Technique**

Before you head out on the trail, take a moment to consider which of several blazing techniques to use. Some people prefer using a stencil. They apply the paint with a brush or spray can. Sometimes, they trace the blazes outline through the stencil with a felt-tip marker and then fill in the rectangle with a paint brush. Others use a two-by six stamp, made from a sponge, and simply press the blaze to a tree (spare sponges may be needed). Still others simply use a straightedge. But most people blaze free-hand, gauging the size of each blaze with a cardboard template.

The object, in any case, is to master a technique that you can perform neatly and consistently, leaving standard size blazes. **Always avoid blemishing trees or rocks with pudgy blotches or swollen, oversized rectangles. Be careful to avoid dripping paint on trees, rocks, and leaves.**

You'll save yourself a lot of trouble if you avoid blazing light-colored trees, such as white birch, light gray birch, or young poplar. Where you must blaze such a tree, paint the blaze as usual, and then frame it with a narrow line of natural-colored dark paint, to make the blaze stand out.

To ensure your blazes are durable, always stir the paint vigorously for ten minutes at the start of the day. Whip all pigment on the bottom of the can into suspension. Along the trail, remix the paint regularly.

Even when you prepare the paint and the surface properly, you'll have to repaint blazes on a regular schedule. Tree growth splits blazes, dirt dims them, animals scratch them, and trees themselves fall. In most circumstances, a blaze will last only three to five years, depending on the surface, type of paint, and weather. For example, on black cherry trees, paint usually drops off in a year or two.

Plan to renew blazes every two years. For blazes that are still in good condition, repaint after scraping the surface lightly to remove paint flakes and dust. For faded, widened, or split blazes, repaint after scraping the surface as if for a new blaze. Paint over any part of the old blaze still showing with neutralizing paint as close to the color of the surrounding surface as possible. Use brown paint in conifer forests, light grayish-green in hardwoods.

## **Blaze Obliteration**

Sometimes you'll have to eliminate blazes because they are sloppy, too frequent, and/or in the wrong places. Or more often, because they may threaten to lead hikers down an old trail following a trail relocation. In the later situation, you should obliterate all former blazes, end to end.

To obliterate blazes, scrape off as much of the old paint as possible, using care not to damage the tree. Lightly cover any remaining paint with neutralizing paint. Use mixes of brown, green and gray to match the background. On rocks, apply the paint carefully, and sparingly; otherwise, it may merely make a conspicuous mark of another color. Spray paint makes good neutralizer because it can be layered and feathered to obscure the old blaze.

## **Equipment and Supplies**

Use a scraper with a 1 1/2 inch blade and a six-inch handle. Buy high-quality paint, gloss exterior house paint, or boundary-marking ink. Latex paints are easy to apply, thin with water, dry quickly, and are less harmful to the environment. Oils are thicker, dry slower, and require thinner for clean-up. If you choose oils, buy the brand with the most pigment (white) compared to vehicle (oil): 65 percent pigment is most durable. Boundary ink, which comes thick and dries quickly, can be specially ordered.

Use a plastic squeeze bottle to apply just enough paint to the brush for each blaze. The bottles, old cat-soup and mayonnaise containers work well, keep the paint fresh and cut down on spills and drips. Carry only a small can of neutralizing paint, sufficient for a day of blazing. To match different tree species, bring several colors to mix in the field.

Bring several one-inch brushes for the white paint and one two-inch brush for the neutralizing paint. Note that nylon bristles work poorly in oil-based paint. Two small cans with plastic tops work well as receptacles for the brushes. Cut a hole in the plastic top for the brush handle for a secure method of carrying paint.

## Misc. Motorized and Non-Motorized Trail Markers/Signs

### Wooden and Carsonite Posts

Brown painted wooden 4x4 posts routed with white lettering, or brown fiberglass “Carsonite” posts with pop-riveted plastic signs or appropriate stickers are a good alternative to traditional trail signs installed on wooden posts. On motorized trails, they may be placed at confusing intersections and offer directional or junction identification information. Numbered intersection posts can correspond to numbered intersections on a trail map, etc.






### Traditional Wooden Distance or Directional Signs

Appropriately placed traditional routed wooden signs that give directional or distance information are a welcome and appreciated addition to backcountry trail systems. Places named on these signs should be well known landmarks and junctions that can be found on maps or corresponding trail guides. Avoid using vague or “local” place names on distance or directional signage. Small signs pointing to drinking water, vistas, campsites, etc. are also appropriate on backcountry trails.



### Suggested Paint Colors

The following list refers to the paint colors described in this document. This list provides uniformity when selecting paint colors to use while **blazing** trails. Each color includes the Pantone Color ID Number so that consistency is maintained *when purchasing paint from various manufacturers* (no need to purchase “Pantone” brand paint). **High quality enamel or latex paint is recommended** (enamel may damage thin barked trees).

This paint color is...	...	Red	PMS 485 2X	
	...	Orange	PMS 165 2X	
	...	Yellow	PMS 102	
	...	Blue	PMS 300	
	...	White		
	...	Brown	PMS 161	