Chapter 9
USER INFORMATION & EDUCATION

I. Trail Ethics and Etiquette

The use of trails by more and more people continues to increase. As numbers increase, there is a greater need for protecting the trails from overuse and abuse, and for showing consideration for other users.

A. Ethics

Encouraging visitors to develop appropriate trail use ethics can be accomplished by signage, printed information, kiosk postings and staff attitudes. The following concepts should be conveyed to all trail users and staff.

1. Leave as little trace of your passing as possible. Pack out all trash and consider picking up the litter you find on the trail. Leave plants and other objects long the trail for others to enjoy. The often used quote or variations on it summarizes this concept of minimal impact: "Take nothing but pictures ... leave with only fond memories."

2. Stay on the trail at all times -- do not take shortcuts or use illegal trails. Do not cut across switchbacks -- this will cause soil erosion and scarring.

3. Don't scare animals -- wild or domestic. Leave gates as you find them, or as marked. Pets must be kept on a leash at all times.

4. Keep the noise level of radios and tape players down when traveling on trails.

B. Multiple Use Trail Etiquette

A knowledge of proper trail etiquette is important for all users, but is essential in multiple use trail situations. Users can be informed and encouraged to employ proper trail etiquette through signage, printed information, kiosk postings and staff attitudes. Refer to **Appendix M** for sample trail etiquette guidelines.

1. General Etiquette

Show courtesy and respect to all trail users. Do not block the trail. Riders stay right and pass left, maintaining a safe and courteous speed -- no racing. Share the trail with all other users and know who should yield to whom. Horseback riders yield to emergency vehicles, hikers yield to horseback riders and emergency vehicles, bicyclists yield to horseback riders, hikers and emergency vehicles.

Vocal signals before passing shows courtesy to those being passed and allows them to move to the right. It may also prevent accidents.

2. Horseback riders

Ride single file on the right when being passed. Horses must be kept 50 feet from picnic and eating areas. Stay on the trail to avoid damaging fragile areas. Do not tie horses to trees or fences -- use picket lines or hitching rails. Scatter manure at tie areas.

Ride at a safe and controlled speed. Always speak when approaching horses. Obey gate closures and regulatory signs. Know your horse's limitations.

3. Bicyclists

Yield right-of-way to horses and hikers. (You may need to walk your bike past them.) Ride single file on the right when being passed. Use vocal signals when passing. Stay on the trail to avoid damaging fragile areas. To reduce trail impact, do not ride on wet trails.
Avoid speeding--control your bicycle at all times. Know your equipment and your ability.

4. Hikers

Walk single file on the right when being passed. Stay on the trail to avoid damaging fragile areas. Give uphill hikers the right of way.

II. Signage

Note that with upcoming changes to ADA and the need for a more universal difficulty rating system, signs and the difficulty rating system presented in this chapter will change after the release of new accessibility regulations due out in 1999-2000. Prior to submitting major sign orders to the Logistic Support Center, contact the Resource Management and Visitor Protection section Director for the current status of new guidelines. Please reference the current Virginia State Parks Sign Manual for specific information on types of signs, installation and mounting procedures.

A. Purpose of Trail Signs

1. Identify the beginning of a route

2. Indicate distances to destinations

3. Reassure travelers that they are on the correct path

4. Mark junctions at roads and other trails

5. Inform users of trail difficulty

6. Warn users of potential hazards

7. Restrict trail use as a means of resource protection

8. Draw attention to points of interest

9. Convey stories or concepts about the park's resources

B. Types of trail signs

1. Trailhead Signs

The point at which users access a trail is called the trailhead. The trail may have more than one trailhead in order to allow different points of access. There may even be primary and secondary trailheads, but they shall all follow specific design criteria and provide certain information. Most importantly, a trailhead should be inviting and visible to someone trying to find it.

a. Primary Trailhead

A primary trailhead, at a minimum, shall have the trail's name, length, blaze color, difficulty rating, and a map of the trail, showing relative location, along with access points, intersections with other trails and major features of interest. The sign may also have general information such as a description, names of friends groups or partners, and if practical a box to hold trail brochures. Some trailhead signs may be mounted in kiosks. It is very important to provide sufficient parking at primary trailheads.

b. Secondary Trailhead

Secondary trailheads most often occur when a trail is accessed from another trail. At a minimum, secondary trailheads shall have the trail's name, length, blaze color, and difficulty. These signs are very similar to trail junction signs.

2. Trail Junction Signs

These signs are located in areas where trails intersect other trails or roadways. Trail junction signs shall indicate direction of travel for each trail and distances to destinations and points of interest.

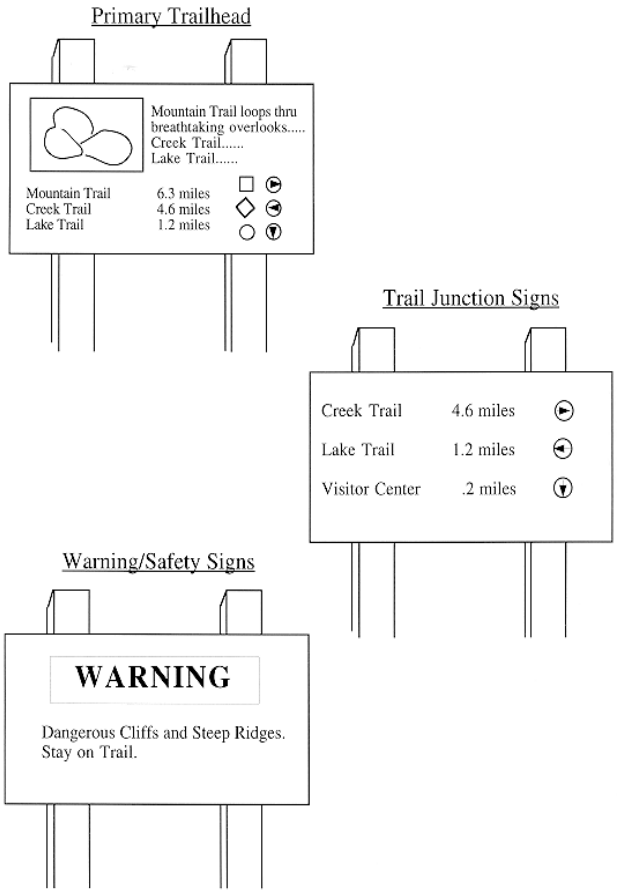
3. Trail Name Signs

These are vertical signs which indicate the name and blaze color of a particular trail.

4. Warning/Safety Signs

These signs warn trail users of potential hazards they may encounter on a trail.

5. Difficulty Rating Signs



Difficulty ratings are indicated on trailhead signs and trail junction signs. These ratings should also be placed on 4 x 4 posts below the vertical trail name signs. The rating system is depicted as follows:

Easiest - green circle
More Difficult - blue square
Most Difficult - black diamond.

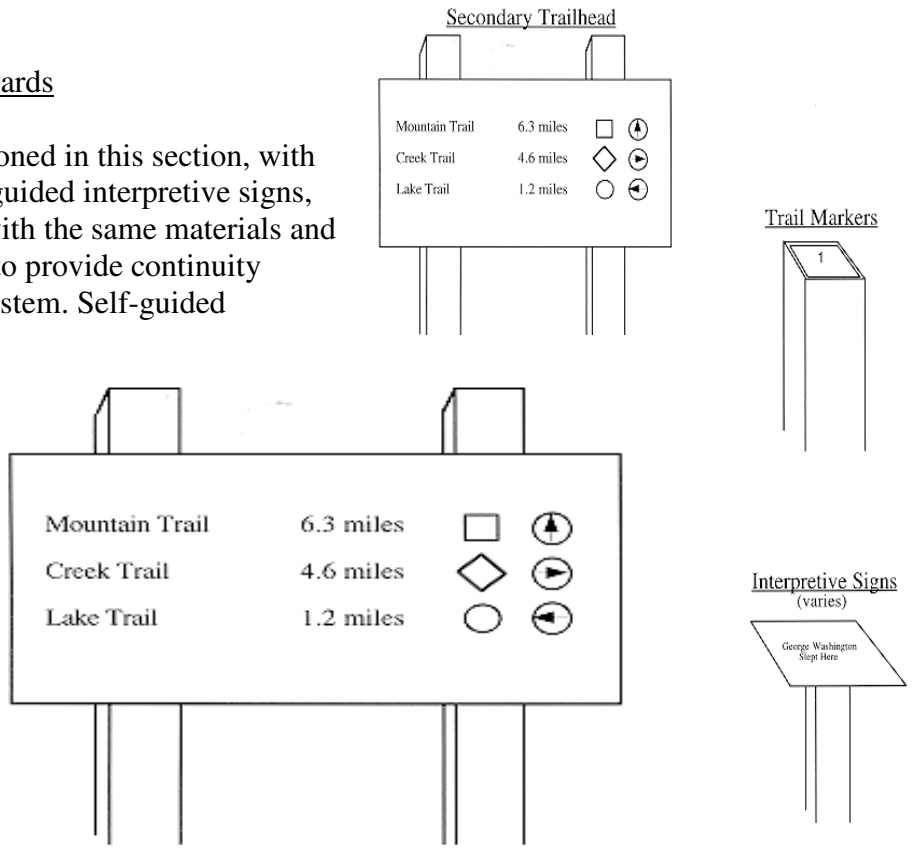
6. Interpretive

Interpretive signs convey a story or concept to the park visitor about the resources he/she is walking through.

7. Trail Markers

Trail markers are small signs with numbers or international symbols which are attached to 6 x 6 posts. Numbered trail markers are most frequently used on self-guided interpretive trails, while international symbols indicate the type of usage permitted on the trail.

Figure 9-1: Types of Signs



C. Construction Standards

All of the signs mentioned in this section, with the exception of self-guided interpretive signs, shall be constructed with the same materials and mounting techniques to provide continuity throughout the trail system. Self-guided interpretive signs will vary due to the area and type of resource that is being interpreted. Signs shall be ordered through the Logistics Support Center.

1. Horizontal Signs

The standard size for horizontal signs should be 12 inches x 24 inches, however it may be necessary, due to the length of the text, to make these signs larger. All letters and numbers are 1½ inch uppercase and 1 inch lowercase, with a brown background and white lettering. The blaze color is denoted by a colored circle next to the name of the trail. Arrows indicating the direction of the trail are placed within the blaze circle. Arrows are normally white, but black may be used on very light blazes for visibility purposes. The lettering for warning signs should be a minimum of 2 1/4 inch uppercase and 1 ½ inch lowercase and may warrant a white banner and red letters.

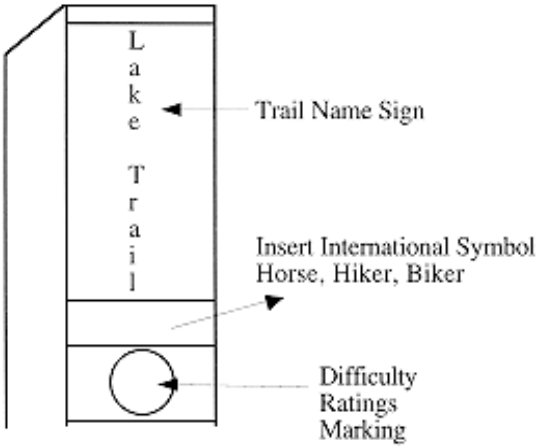
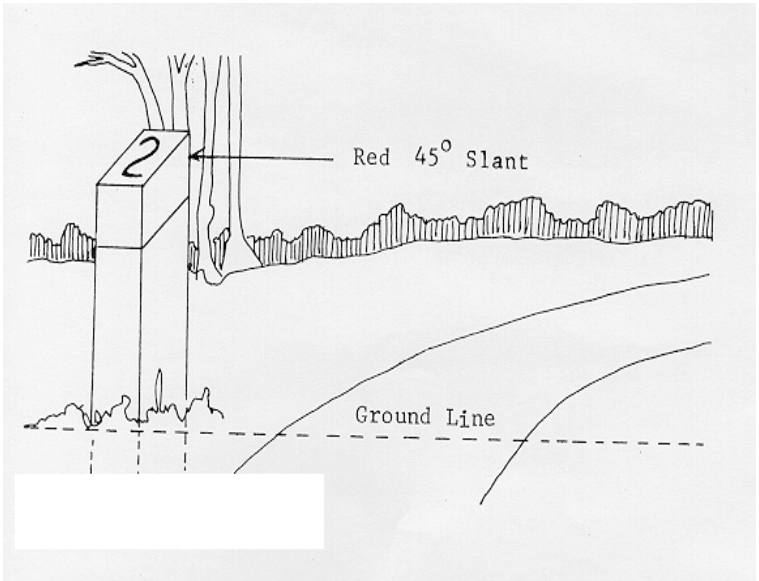


Figure 9-2: Horizontal Sign

2. Vertical Signs

Vertical signs are used for trail names. These signs are 3 ½ x 12 inch, 18 inch, 24 inch, or 36 inch with 1 ½ inch uppercase and 1 inch lowercase letters. The background color varies according to the blaze color for the trail with either white or black letters, depending on the background color.



Vertical *Figure 9-3*: Sign

3. Trail Markers

Signs for trail markers can be mounted on 6 x 6 posts. The markers were designed for use on 6 x

6 rough cut lumber and therefore measure 6 x 6 inches. It may be possible to order other sizes. The background color can be brown or match the blaze color of the trail. The lettering should be white or black, depending on the background color.

III. Blazing

Trail blazes are markers placed periodically along the trail on trees or posts. The purpose of the blaze is to mark the route of the trail when it cannot easily be seen.

Trails shall be blazed using blaze plates or painted blazes.

A. Blaze Specifications

1. All blazes shall be 2 x 6 inches with sharp corners and edges.

2. A different color shall be used to designate each trail in a park.

3. All blazes shall be placed at eye level.

4. Blazes shall be placed in fore and aft directions so they can be utilized regardless of direction of travel.

5. The frequency of blazes is determined by the character of the trail. Blazes should be clearly visible from any point to the next, such that an individual can see from one blaze to the next. However, no more blazes than are needed should be used.

B. Blaze Plates

The preferred method for trail blazes is the use of plastic or metal plates. These plates are nailed directly to trees or fastened to posts along the trail. When plates are nailed to live trees, aluminum nails shall be used to avoid rust and to limit damage to saws if a tree has to be removed at a later date. Nail heads shall be driven no closer than ½ inch from the bark to allow the tree room to grow. The advantage to blaze plates is that there is minimal damage to trees and plates can be easily removed if a trail is re-routed.

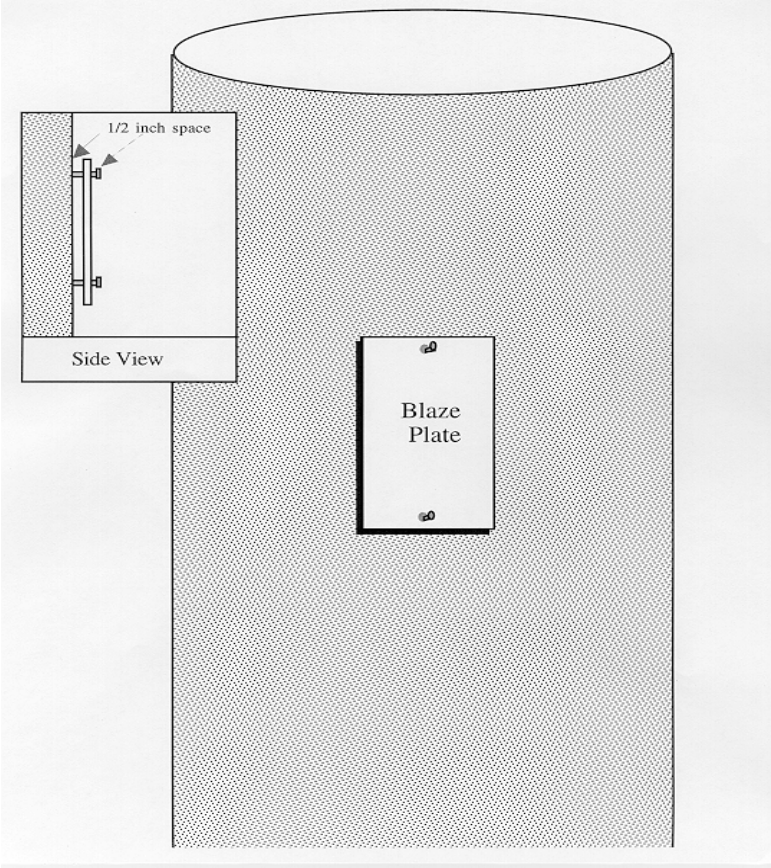


Figure 9-5: Blaze Plate

C. Painted Blazes

Blazes can also be painted directly onto trees or posts. When painting blazes on trees, lightly scrape rough-barked trees with a hardwood scraper or draw-knife, taking care not to cut into the tree's cambium layer. When marking thin-barked trees; such as pine, beech or birch; use a wire brush to prepare the area to be painted. Once the barked is scraped, use a one-inch brush to apply the paint thickly and evenly into the blaze area. A template must be used to ensure uniformity of all blaze marks. Spray paint shall not be used and painted blazes shall not be applied to rocks.

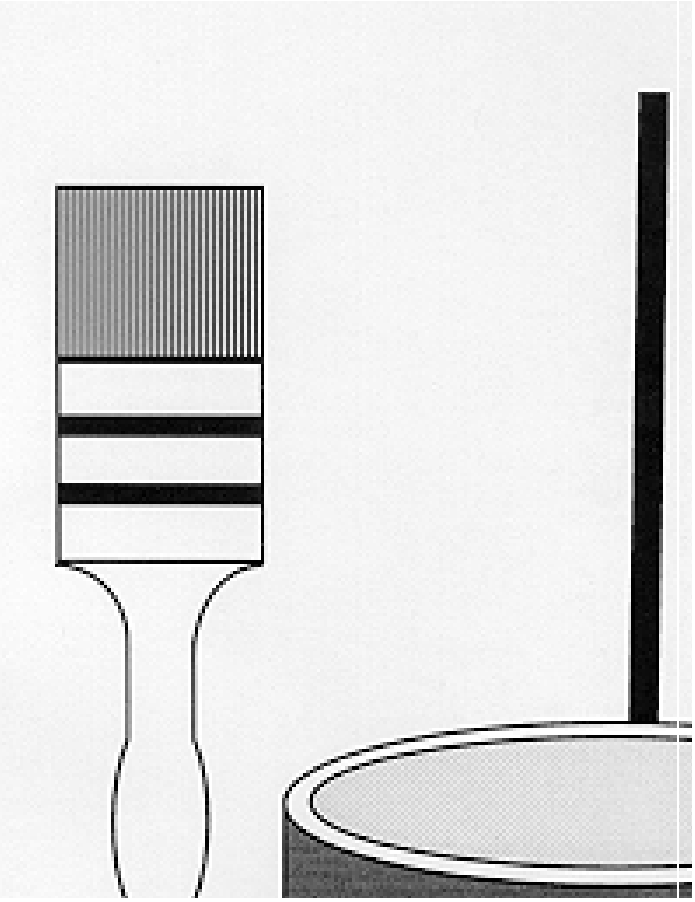


Figure 9-6: Painted Blazes

D. Synthetic Posts

Synthetic posts, such as those available from Carsonite, International, can be used wherever a wooden post might be used. These posts are light-weight, flexible, very durable and can be easily marked with decals or paint. There are a number of advantages of using the synthetic flexible sign support posts and/or marker posts, and a variety of methods for installation and use. Presented in this section as a way to blaze a trail, the Carsonite markers can also be used as trail directional signs. The posts can withstand multiple high speed impacts and have proven to be a good way to mark mountain bike trails.

IV. Rating

Virginia State Park trails shall utilize a standard trail difficulty rating system. Many trail users visit more than one park, and a consistent system increases the acceptance and understanding of

the system. Additionally, many other organizations and agencies employ a similar system.

Note that with upcoming changes to ADA and the need for a more universal difficulty rating system, signs and the difficulty rating system presented in this chapter will change after the release of new accessibility regulations due out in 1999-2000. Prior to submitting major sign orders to the Logistic Support Center, contact the Resource Management and Visitor Protection section Director for the current status of new guidelines.

A. Color Code

1. Each trail will be assigned a color and symbol as it relates to difficulty.

2. All blazes, signage and information referencing the trail will have the color as an identifying characteristic.

3. Colors and symbols are:

a. Green/Circle.....Easiest

b. Blue/Square.....More Difficult

c. Black/Diamond.....Most Difficult.

B. Assessment

1. Easiest or beginner (Green/Circle)

a. Trail is of short length (½ mile to 1 mile)

b. Grades are kept to short distances (less than 100 feet), and are of minimal grade (less than 10 percent).

c. Trails can be easily accomplished and completed without risk of injury or undue fatigue to all users including elderly, and people with physical or mental disabilities.

2. More Difficult (Blue/Square)

a. Trails can range in length from one to five miles.

b. Grade lengths and steepness is varied. At least 60 percent of the length is relatively flat.

c. Trails can be accomplished by most relatively healthy persons with minimum risk of injury and minor fatigue.

3. Most Difficult (Black/Diamond)

a. Trail length is greater than five miles

b. Over 70 percent of the trail is on some sort of grade.

c. Experienced hikers only, or groups of 3 to 5 people recommended. There is a real risk of overexertion or injury to those not conditioned.

V. Mapping

Each park shall have two varieties of maps; one available to the visitors for trail use and the other for use as a management and planning tool.

A. Basic User Maps

Trail maps for visitors should be available at the park office, visitor center, contact station, and/or information kiosks. These maps shall contain trail locations, lengths, types, and levels of difficulty for each trail within the park. These maps shall also display the locations within the park that may be a point of interest to the visitor; such as a location that offers assistance or educational, interpretive, and recreational opportunities to the visitor (i.e., roads, parking areas, park office, visitor center, restrooms, picnic areas, etc.). An example of a trail map for visitors is in **Appendix I.**

1. Visitor use maps shall be to scale and have contours and/or other points of reference to help in their accuracy.

2. Trail markers displaying mileage on the trail shall be located on the visitor trail maps.

3. The visitor use map can be developed through coordination with PCO.

B. Management and Planning Maps

The management and planning maps shall display existing trail locations and the locations of environmental resources that may cause maintenance concerns (i.e., soils with erosion problems, archaeological or historic resources, wetlands, RTE's etc.). An example of a management/planning map is in **Appendix J**.

1. These maps will not only serve as an effective tool in trail management and assessing trail conditions, but will also be an integral resource in assessing corridors where trails may be considered in the future.

2. Topographical maps from the USGS shall be used as base maps, which are to scale and display such important features as elevation and topography. The management and planning maps can be obtained from Resource Management Plans or with the assistance of the District Resource Specialists or Environmental Program Analyst.

3. In the future, GPS units will be available for field evaluation and inspection processes. The trail can be walked and points where maintenance needs exist can be programmed into the unit. This information can later be displayed on a map and kept in a database via a Global Information System (GIS) or similar mapping program.

References:

Appalachian Trail Conference (1998). Basic Trail Maintenance Curriculum. Harpers Ferry, W.VA.

Arkansas Department of Parks and Tourism. Arkansas Trail System - Maintenance Manual. Little Rock, Ark.

Eastin, Ken . (1991). So You Want To Build A Trail?. Arkansas Department of Parks and Tourism. Little Rock, Ark.

Birkby, Robert C. (1996) Lightly on the Land. The Mountaineers Publishing. Seattle, Washington.

US Department of Agriculture - US Forest Service. (1997). Trail Construction and Maintenance Notebook Missoula, MT.

Virginia Department of Conservation and Recreation - Division of State Parks. (1977). Construction and Maintenance of Trails. Richmond, VA.

Chapter 10
SPECIALTY TRAILS

I. Self-guided Interpretive Trails

Each park shall have at least one self-guided interpretive trail.

A. Definition of Self-guided Trails

Self-guided trails are short trails which interpret the natural or cultural history of a site through printed messages or audio devices. Such trails can be used to educate the visitor about the resource they are visiting and the management goals of the agency. The benefit of these trails is that they are available to people everyday and at all hours.

B. Need for Self-guided Trails

The self-guided trail is often one of the most used of all interpretive services. This is especially true where staff is limited or where visitation is sporadic, making conducted programs impractical.

C. Types of Self-guided trails

Self-guided trails have traditionally been interpreted through the printed message -- signs or brochures keyed to numbered posts. Another method of self-guided interpretation has been with audio devices such as cassette tape systems, FM transmissions and infrared and digital sound playback units. These are more expensive than the printed methods, and they require a great deal more maintenance.

D. Trail Purpose

The purpose of a self-guided trails is educational and traditionally has targeted hikers. The opportunity for self-guided trails for equestrians and bicyclists should not be overlooked, nor should accessible or aquatic trail opportunities be dismissed. In all cases, trails with a self-guided feature are used by visitors who may not be focused on the interpretive effort (signs or brochure), and can interfere with interested users enjoyment of the trail. Language should be incorporated into the trailhead sign or trail information, alerting all users to the nature of the trail, and encouraging courteous use to insure maximum enjoyment by all users. (An example is: a designated stop on a self-guided multiple use trail encourages visitors to listen for certain woodland birds or frogs from a nearby pond; while the visitor is quietly listening a group of noisy bicyclists pass, or a group of joggers chatting pass by--the sensory experience is ruined for the moment. User education efforts might minimize this type of occurrence.)

E. General Rules for Self-guided Trails

1. A self-guided trail shall be a loop trail if at all possible. Other layouts could be a double loop/figure eight, a combination of loops, or a linear trail (which requires people to go and return on the same trail). Though the linear trail is the least desirable layout, it may be necessary because of the lay of the land. Visitors are usually in a strange environment, and need to be guided safely over the trail and back to the starting point without retracing their steps; loops accomplish this.

2. Trails shall be located near areas of high concentration of visitor use, if possible. This could include campgrounds, visitor centers, lodges or environmental education centers. Be sure there is adequate parking available. Avoid locating trails in areas that could be dangerous or that are ecologically sensitive. Such areas include steep cliffs, near deep or fast-moving water, near poisonous plants or anywhere people -- especially children -- could get injured.

3. Consider the topography of the trail. It should be as level as possible for use by the greatest number of visitors. ADA specifications shall also be taken into consideration.

4. The ideal length for a self-guided trail is about half a mile long. It can be longer, but where possible, it should not exceed one mile. The length of time to walk the trail should be no longer than 45 minutes when walked at a leisurely pace -- a half hour is preferable. That way, interest is kept high and fatigue does not set in.

5. Be sure the trail follows the most pleasing visual route (curves in the trail that make it more interesting, attractive vistas or interesting features that are not included in the sites to be interpreted).

6. Look for potential problems (steep areas, rough spots such as rocks or tree roots that visitors could trip on) and reroute around these if possible. Check for places where the trail loops back on itself -- or encounters other traffic -- that may intrude on the sense of solitude.

7. Look for potential maintenance problems, such as low areas that may remain wet, or sections where erosion could become a problem. Rerouting around such areas is easier and less expensive than building boardwalks, steps and bridges. Decide what facilities will be needed, such as viewing platforms, wildlife observation structures, boardwalks, bridges, steps, water run-off bars, etc. Keep in mind that the trail should be designed so it protects fragile areas and promotes visitor safety.

Once the above have been decided, the location of the trail should be finalized. Reference Chapter 4 (New Trail Construction: Planning and Design) of this manual. At this point, the location and type of interpretive media (signs or brochures) should be decided.

F. Construction of Self-guided Trails

See the standards for basic hiking trails in Chapter 6, or for accessible trails in Chapter 7.

G. Interpretive Planning

In planning a self-guided trail, you need to begin by developing the interpretive goals and objectives: what is it that should be interpreted? Familiarize yourself thoroughly with the trail in all weather conditions and every season. An inventory shall be made and mapped of all significant features to be interpreted. A topographic map can help in planning interpretive sites and avoiding sensitive areas and hazards.

Features to interpret could include concepts about natural features or processes, geological processes, cultural or historic events, or sensory features. Sensory features are those features that are visually and perceptually different from the rest of the trail. This could be unique areas where sounds (for example, running water or singing birds), sights (attractive vistas, animal tracks) or even temperature differences (in deep woods or near water) are consistently obvious. From these features, the main interpretive theme and sub-themes can be developed.

1. Develop an interpretive theme. An interpretive theme is not a topic. A topic is one word or phrase, whereas a theme must be a complete sentence, with a subject, verb and object. The theme should be based on the major resources of the site which lent themselves to being tied together to form a story or concept, and the relation between these features and the major park/site interpretive theme (if there is one). To develop a theme, ask what messages you want people to take home with them. You can use the statement: "After completing this self-guided tour, I'd like people to know/understand/appreciate that...". When you have answered this, you should have a theme and the potential stops on the tour will become obvious.

2. Develop a "thematic map." Once you have decided on a theme or themes, you can select the stops for the trail. All the stops should support the theme—it's not necessary or desirable to interpret everything along the trail. Some things should be left for the visitor to discover.

3. Using the map you made of all the interpretive sites, decide the stops you will use to support the theme, keeping in mind the optimal number of stops is about 15. Write a title for each stop, making each title as interesting as possible.

4. As this point, you can develop your final conceptual plan using the thematic map. At the top of the map, write the theme of the trail, and each stop's title where it is located along the trail. Check to be sure that each stop supports the trail theme. The next step is to field check the map by walking the proposed route, and to be sure the sequence you have chosen is adequate.

5. Prepare a mock-up of each stop. Sketch each stop as you envision what it will look like. For an interpretive brochure, do a sketch of both sides of the layout, including how it will be folded. For interpretive signs, make a sketch of each sign including the text and suggested graphics. Circulate these drafts to the Interpretive Programs Manager, Visitor Services Specialist, Public Relations Specialist and other appropriate individuals for comments and approval.

H. Interpretive stops

The number of stops can vary from as few as 12 to as many as 30. In order to keep visitor interest high, it is better to have fewer stops, rather than too many. A rough guideline would be to have no more than 15 stops -- and fewer if possible. The majority of stops should be in the first half of the trail, when visitor interest is still high.

I. Interpretive signs

A good self-guided trail should consist of an *introduction,* a body consisting of the *stops* along the trail and a *conclusion.* The introductory sign (used for both signed trails and trails with a brochure and posts) should welcome the visitor and orient them to the theme of the trail. It should also tell the length of the trail and how long it will take to complete it at a leisurely pace. The text should be brief (50 words or less) and easy to read. A map of the trail and any graphics and/or photographs that are interesting and relevant shall be included, as well as the DCR logo.

The *stops* shall have titles that grab the reader's attention -- in some instances, this will be all that they read. Each stop shall have the following components: it should *focus* the audience's attention on the feature being interpreted, it should *explain* what is significant or important to notice about the feature and it should *connect* the explanation to the theme of the tour.

The *conclusion* (the last sign) is always the final stop on a self-guided trail. It shall -- once again -- reinforce the theme, by showing one last time the relationship between the stops that were made and the main message they were designed to get across to the audience. Some conclusions briefly summarize what was seen and done during the tour, and then conclude by telling how it is related to the theme. Conclusions should be short and specific, and should end by giving simple directions back to the starting point (even if it seems obvious). Finally, thank the visitors for coming and invite them to return.

J. Self-guided Trail Brochures

The same process and points listed for interpretive signs apply for developing an interpretive brochure. The main difference is that instead of having signs at the stops (there should be an introductory sign, however), you would have a map of the trail and the same text and graphics and/or photographs in the brochure. The conclusion should be the last paragraph in the brochure, and (as stated above) should reinforce the theme, give directions to the starting point and thank the visitors for coming.

Remember that first impressions are important, so the cover design on a brochure should be both attractive and provoke interest so that people will want to read it. An attractive layout will also strongly influence whether a person will pick up the brochure.

Tips for writing interpretively:

Keep the text short. If a sign is over 50 words long, it probably won't be read. A brochure should

have paragraphs that are short (about 50 words each), and the text should be broken up with subtitles and graphics. Be sure to include enough "white space" to give a clean, uncluttered appearance. For both signs and brochures, emphasize graphics (photographs and line drawings) as much as possible. Write short sentences that are less than 20 words each. Use simple, active verbs and always choose the shortest word possible. Avoid jargon and technical terms. Encourage audience involvement whenever possible by asking questions or having the visitor look for or do something. Write at a sixth grade vocabulary level. Be sure to make the text interpretive, by provoking the visitor's interest and curiosity, relating to their life and experience, and revealing the story being interpreted.

References:

Birkby, Robert C. Student Conservation Association. (1996). Lightly on the Land--The SCA Trailbuilding and Maintenance Manual. The Mountaineers.

Knudson, Douglas M., Ted T. Cable & Larry Beck. (1995). Interpretation of Cultural and Natural Resources. Venture Publishing, Inc

Ham, Sam H. (1992). Environmental Interpretation. North American Press.

Trapp, Suzanne, Michael Gross & Ron Zimmerman. (1994). Signs, Trails & Wayside Exhibits. UW-SP Foundation Press, Inc. (University of Wisconsin)

Veverka, John A.) (1994). Interpretive Master Planning. Falcon Press Publishing.

Ververka, John A. Alberta Provincial Parks, Education and Interpretation Section. Interpretive Trails Manual. Edmonton, Alberta: Alberta Provincial Parks.

II. Water-based Trails

A water trail is a recreational water route on a lake, river, bay or ocean. Water trails can be established to accommodate day or overnight trips, and the length of the trail depends on the waterway itself (ease or difficulty of travel) and the land surrounding the trail.

In planning water trails, take into consideration the attractiveness of the area and the safety of the water, as well as protecting ecologically fragile areas. Early in the planning, decide the type of craft that will be most appropriate for the site, keeping in mind the park's and DCR's mission. The distances covered may vary depending on the water body: whitewater (river), or flatwater (lakes, tidal creeks, or bay), and the type of activity (fishing, boating). Most float fisherman will not want to float more than 5 miles per day, however, canoeists who are not fishing may cover up to 15 miles in a day.

A. Day Use Water Trails

Water trails for day use should be relatively short. For example, lake trails should be between 1

to 2 miles. River trails should not exceed 5 or 6 miles in length. A trail should have a beginning and an end, both of which can be marked by a buoy, or sign. Lake or open water trails can use buoys to mark the corridor or general route to be followed.

B. Overnight Water Trails

Overnight water trails should be about 15 miles in length, and campgrounds--either primitive or developed--need to be established at the halfway point. Camping sites should be located on high ground well above the high water line. Primitive sites can range from open, level ground for tents, to fire rings, picnic tables and pit (or rudimentary) toilets. Developed campsites consist of at least a picnic table, fireplace and toilet, and require regular maintenance.

Sanitation can be a problem, particularly for primitive or remote sites. Portable toilets should be used and be under contract with a service company to clean frequently. The service contract should also include removal of the toilets during flood conditions, and replacement when the water recedes. Problems can occur with trespass onto private lands when ample public toilets are not available.

Campsites that are accessible by water only will not be as heavily used and will generally require less maintenance and patrolling. Be sure the sign marking the campsite is easily visible from the water, especially if it is moving water. If the camping area is not on managed public land, be sure that emergency and administrative access is provided for, while preventing public vehicular or land-based access. This is most easily accomplished through a gated road.

Locate campsites where there is a gentle slope if possible, in order to encourage drainage while allowing for level tenting. Avoid hollows or flat areas that may flood. Clear the area as little as possible to maintain privacy between sites, and check for any protected plants or animals that might be disturbed.

C. Water Trail Information

A trail guide for a water trail can be as simple as a folded piece of paper with a map and rules, a description of the route and campsites and any hazards that may be encountered, or it can be as detailed as a brochure or large map with information on low-impact camping, stewardship, safety and interpretation of the history and resources of the trail.

References:

Getchell, David R., Sr. (1995). Modern Water Trails. a guide to Establishing and Maintaining Recreational Waterways on Fresh and Salt Water. Appleton, ME: North American Water Trails Conference.

III. Nordic or Cross-Country Ski Trails

Cross-country or nordic skiing is rapidly becoming one of the most popular winter sports. It is an activity that has minimal adverse impact on the natural resources. Because it is dependent on sufficient snow, it is limited to certain areas in Virginia. However, when conditions are right, much of Virginia can support cross-country skiing.

Most hiking or multiple use trails are ideal for cross-country skiing during winter months. With minimal preparation and maintenance, a multiple use trail can easily become a cross-country ski trail. Six inches of snow on the trail can provide excellent cross-country skiing without damaging the trail or ski equipment.

A. Cross-country Ski Trail Requirements

Cross-country ski trails should have a minimum of 4 miles of trail, with a short loop of 1 ½ to 2 miles for beginners. A designated ski trail should be a one way loop and should be at least 4 feet wide. A two-way trail should be at least 7 feet wide. Brush and debris should be cleared at least 2 feet on each side of the tread, and head clearance should be at least 7 feet above the average snow level. A minimum of five parking spaces per mile should be provided.

The best trail tread material is grass because it prevents erosion and does not damage skis. Wood chips do not absorb heat like bare ground and do not damage skis, but can become matted over time and wash in heavy rains. Gravel can damage skis and bare ground absorbs heat from the sun causing bare spots.

In areas where cross-country skiing is popular, trails are generally groomed during the snow season. This creates a consistently packed snow surface, enabling the skier to move more easily.

B. Cross-country Ski Trail Layout

1. Provide scenic views and include natural and historic features without negatively impacting them.

2. Avoid south-facing slopes where exposure to the sun can result in bare spots.

3. Avoid sharp turns on downhill slopes, and provide space at the bottom on downhill runs for the skier to slow down.

4. Trails on steeper hills should be wide enough to prevent congestion.

5. Drainage is important when designing trails. Use culverts, water bars and erosion mats to prevent erosion of the trial and keep water from washing across it.

6. Avoid roads and low, wet areas.

C. Signage

Refer to the section of this manual on Trail Signage in Chapter 8. Signs developed and in place for hiking should suffice for cross-country skiing, unless the amount of winter ski traffic requires special signage. Signs should clearly direct skiers around the trail and direct them back to the beginning point. Signs (or a trail brochure) should include trail length and degree of difficulty. "You are here" maps should be provided at all trail junctions or in a trail map.

1. Trail ratings

Trails in the Virginia State Park system follow the difficulty rating outlined in Chapter 8. This parallels ratings developed for cross-country skiing, except for the specific trail grade parameters. Again, unless trails are developed specifically for cross-country skiing or the volume of use dictates special winter skiing signage, the signage in place for hiking trails should suffice. The United States Ski Association, The USFS and the National Ski Touring Operators Association have adopted standardized signs rating trails:

Easiest: a green circle with a smooth wavy white line. The downhill portions of the trail are short and less than 10 percent in grade. All major obstacles have been cleared. Trail length is short, approximately 1 to 3 miles.

More Difficult: a blue square with larger amplitude wave. Downhill grades are as steep as 25 percent. Turns may be fairly sharp with run-outs provided where needed for skiers who overshoot a turn. Uphill portions may be over 25 percent grade and the trail up to 6 miles.

Most Difficult: A black diamond with jagged white line. Slopes up to 40 percent. Run-outs are provided wherever needed. Unlimited trail length.

D. Trail Etiquette

Trail etiquette requires that trail users hiking on snow should avoid stepping on the cross-country ski tracks. A simple brochure could be developed for winter trail users, with a statement on winter trail etiquette. It should also include a map of designated cross-country trails, trail closings and difficulty rating, and safety information.

References:

Rasmussen, Paul F., Gary R. Clay & Stuart H. Spitzner. Cross-country Ski Trails--A Guide to Their Design and Management. Northeastern Illinois Planning Commission.