Extension Bulletin 368

Nature Trails

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WHY A NATURE TRAIL?

A generation or two ago, the majority of young people lived in a rural setting. They were accustomed to open spaces, woodlands, clean water, and an uncrowded environment. This enabled young people to be in daily contact with the out-of-doors. They had excellent opportunities to acquire an understanding of nature and environmental relationships.

Contrast this situation with the average child of today. He lives in an urban environment. His world consists of closely-spaced houses, mobile homes, or an apartment, a patch of manicured grass, automobiles, freeways, noise, congestion. . . . His experience and contact with nature probably involves an occasional romp through the city park, maybe a week at a summer camp, and possibly a weekend or annual two-week vacation trip to visit relatives, go camping, or stay at a lakeside resort. The average child growing up in our urban society today does not have the opportunity to live with, study, and understand the intricate environmental relationships of man, animal, insect, bird, soil, grass, shrubs, and trees.

Yet, people are eager to learn about the out-of-doors, conservation of natural resources, and environmental relationships. This is due to the increased concern over the past few years about the deterioration of our environment. Most people now realize that man must be a better steward of this land if he is to enjoy his high standard of living—or even survive on this earth!

What is a nature trail?

A nature trail—or nature study area—provides an excellent opportunity to teach many things about the out-of-doors. It can be used to explain the ecology of an area, to teach the identification of plants and trees, to interpret and identify wildlife and their living habits, to point out practices that conserve natural resources, to recall an historical event or era, or just to provide a special setting where one might find rest and relaxation away from the hustle of the daily routine.

Unless you are bird watching or waiting for wildlife to appear on some trail or at a water's edge, you generally don't see or learn much by sitting in one spot. Consequently, you should have some convenient and easy passage from one feature or study site to the next. This usually calls for a trail of some kind. Hence, the term "nature trail."

Where are nature trails located?

Throughout Minnesota, an unlimited number of sites on which nature study areas could be incorporated exist. Virtually any tract of woods, grassland, or other relatively undisturbed area contains a wealth of information relating to nature study. These nature study sites or trails could be located in municipal or county parks, school forests, resorts, summer youth camps, or privately-owned campgrounds. Most of these settings are accessible to a large number of people.

At the present time, a number of nature trails and nature study sites are scattered across Minnesota. Most of these are located on school sites, in state parks, and in the Chippewa and Superior National Forests. Others are located at a few youth camps, resorts, and municipal or city parks. A visit to one or more of these areas would be most beneficial if you are thinking of building a trail.

Figure 1. Naturalist explaining plant life to visitor

One of the best ways to study nature is to accompany a naturalist on a field trip into the woods. However, the general public in Minnesota only has this opportunity in about a half dozen of the largest state parks and in some nature center areas near the Twin Cities.

The next best opportunity exists in the use of self-guided nature trails. Here the visitor can take his own time in observing and studying nature. He can go into as much depth of study as he wishes. A self-guided nature trail is relatively inexpensive to build and maintain. It can be put into a variety of sites and terrains, and if properly done, it can provide a pleasant self-educational experience toward a better understanding of our outdoor environment.

This bulletin can provide some guidance to anyone contemplating the construction of a nature

study trail. It would be difficult to write a standard text on the layout and construction of a nature trail because no two sites are alike. This is one of the reasons the study of natural history is so fascinating. However, there are some principles that help create a good learning atmosphere and that apply to most situations. This bulletin will deal with these principles, namely: planning the trail, searching for features to be studied, actual construction, and maintenance of the trail.

PLANNING THE TRAIL

Establish an objective or theme

Before proceeding with the construction of your trail or study area, you should establish an objective for putting the area to use. Will it be a site for studying the identity of area flora?—or will it go deeper into the ecology of the area, attempting to tell why certain plants are now growing there, how they happened to get there, and what changes in plant life will occur in the future? Perhaps you might want to key the area to a theme or story, such as edible plants and fruits, history of logging or homesteading, an early forest fire, Indian lore, aquatic life, geological history, or a combination of the above.

If you have an area that has an abundant wildlife population, it would be fascinating to interpret this resource to visitors. They might never see an animal, but by pointing out tracks, trails, droppings, nests, dens, or browsing areas, visitors could get a vivid picture of how different wildlife species live and survive in the area. The story of man's manipulation of the environment and the changes (good or bad) brought about can be told in many ways, such as changing water levels through dams or drainage, logging and burning of forests, planting new forests, clearing land for agriculture, extraction of minerals, and so forth.

Whatever theme or topic you use for your outdoor study area will be determined by the area you have to work with. For example, there are only a limited number of known historical Indian battle or burial grounds. Marsh life can be shown and interpreted in only certain areas. The ancient shores of Lake Agassiz are only discernible in certain spots. The central hardwood forest cannot be studied in northeastern Minnesota, and so on. But, regardless of the area you have to work with, you can be sure it contains some useful evidence that can point out ecological relationships.

Size of the area is not the most critical factor. Some excellent nature study areas are located on only an acre tract, and some fascinating nature trails are less than a quarter mile long. A careful study of any area will reveal a surprising number of "outdoor facts."

Study the natural features

Here's how you start. Walk over your area several times to discover just what treasures it possesses. Try to route the trail near or through as many plant and soil types as possible and still keep the distance between types short. Get other people to explore your area with you. They probably will discover things you overlooked or failed to notice. The expression, "he can't see the forest for the trees," is applicable to many people as they walk through the woods. Once you are well acquainted with your area, you are ready to proceed with the actual layout of your nature study tract.

Nature trails can take many forms. They might vary from such extremes as a hard-surfaced, gently-sloping, wide-curved walk (see photo 1), if you are catering to wheelchair or handicapped clientele, to a more primitive situation where you disturb the surroundings as little as possible, and the trail is a barely-distinguishable footpath. In most cases, you perhaps will plan the development between these two extremes.

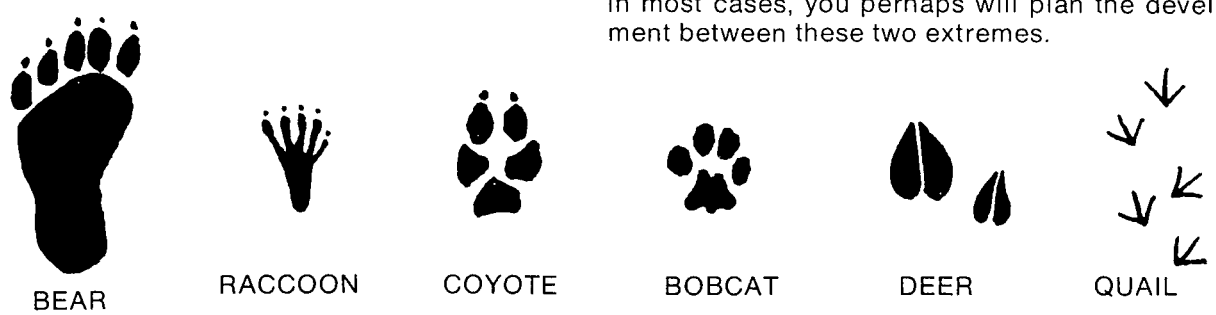

Figure 2. Common animal tracks in Minnesota

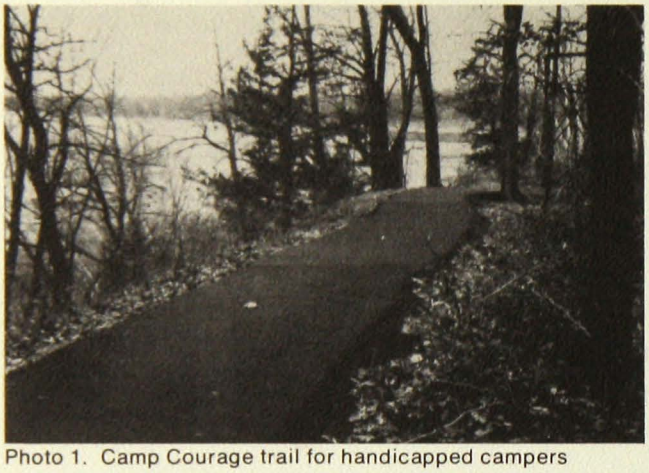

Photo 1. Camp Courage trail for handicapped campers

Trails should not cut through the brush and trees in a straight line from one stopping point to the next. A trail that follows the terrain, goes around obstacles, and disturbs the natural flora as little as possible is aesthetically pleasing and more interesting to travel.

Pattern and length

An attempt usually is made in the planning of most nature or hiking trails to lay them out in a circle loop or figure eight pattern, as shown in figure 3. There are several reasons for doing this. First, most people don't like to backtrack when hiking. Second, there are advantages to starting and ending at the same spot. And, third, the figure eight loop allows those who have limited time,

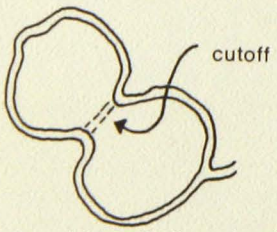

Figure 3. Figure eight trail allows for short and long walks

or for other reasons don't want to or can't walk too far, to take only the closer loop. The loops of the figure eight pattern should not be closed but a clearly marked "cut-off" should be indicated.

Nature trails will vary in length, depending upon what is to be shown or studied. Unless you will be catering to ardent outdoor hiking enthusiasts, you probably should not make the trail much more than a mile in length. In fact, just as much can usually be learned on a shorter trail. The trail should not require visitors to climb or descend any steep hills. If a steep slope cannot be avoided, it may be necessary to construct some type of steps. Also, avoid wet areas unless you provide some safe and convenient bridging for these spots. Avoid placing the trail near steep cliffs, slippery rocks, or other dangerous places.

Avoid multiple use trails

In planning the trail, you may be tempted to use the trail for other purposes, such as horseback riding, bike riding, or snowmobiling. If the trail is to be used primarily for nature study, you should discourage any use except foot traffic. You will want the area to remain as undisturbed and natural as possible. Trail bikes, snowmobiles, and continual horse traffic possibly will damage vegetation and cause erosion problems. Such traffic also would compete with walking visitors. In the layout of your trail, plan for sharp curves, narrow widths, and other natural obstacles, such as logs across the trail, that will discourage any use other than foot traffic. Care in designing the entrance also might help limit access to foot traffic.

CONSTRUCTING THE TRAIL

Marking the trail

After you have determined the route the trail will take, walk over the trail for the final time before starting construction and tie colored plastic flags to brush and trees along the route. If other people do the actual construction, or if you work on the trail yourself periodically, you will have no trouble finding the actual route of the trail.

Orange, blue, yellow, or red flags show up very distinctly in the woods. Rolls of plastic tape for flags can be purchased from engineering supply stores, some stationery stores, or from most general merchandise mail-order companies. Be sure and remove the flags before the trail is put to use.

Clearing the trail

In most of the wooded areas throughout Minnesota, it probably will be necessary to remove some brush to insure comfortable and safe walking. The path should be cleared to a sufficient width so that no brush touches a person as he walks. There is nothing more irritating or dangerous than having a branch snap back from the person ahead of you on the trail and slap you in the face.

There are several ways to remove brush. The fastest means is with a mechanical brush cutter (see photo 2). However, not too many of these machines are available. Unless you have other uses for them, they would be quite expensive to purchase just to open a nature trail. A light axe, brush hook, brush scythe, or lopping shears (see photo 3), are good tools for cutting brush. Cut

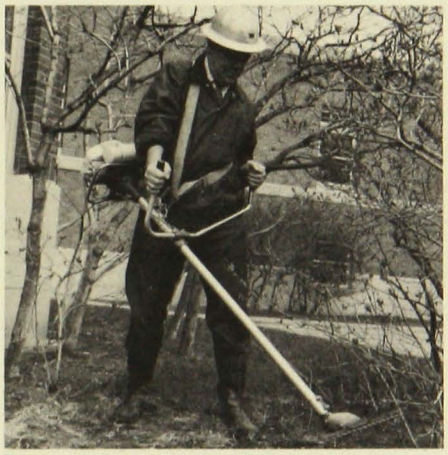

Photo 2. A mechanical brush cutter

brush close to the ground so no one will stumble over the stubs. A grub hoe might be used to dig out brush stubs and roots. This also helps keep the brush from resprouting.

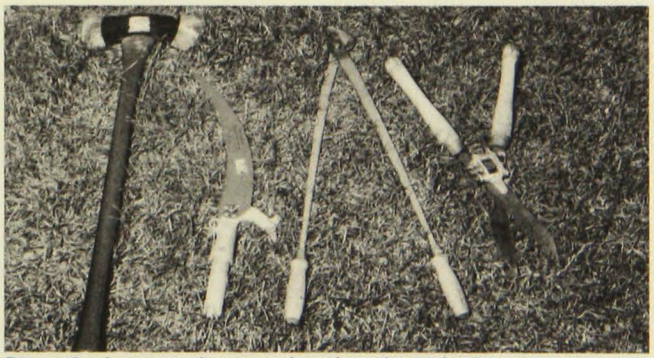

Photo 3. Axe, pruning saw, lopping shear, hedge shear

Remove all over-hanging tree branches that might interfere with a hiker. Prune off branches flush with the tree trunk with either a pruning saw or a lopping shear. Remove fallen trees, logs, and rocks from the path, although it might be possible to detour the trail around these obstacles.

Avoid depressions and wet areas if possible. However, you may want your trail to cross or skirt a bog or marsh because there are many interesting things to observe in these environments. It then may be necessary to haul in some fill, make a "catwalk," or bridge such areas. Two logs or railroad ties laid side by side across a small stream or wet depression make an interesting bridge, particularly for children.

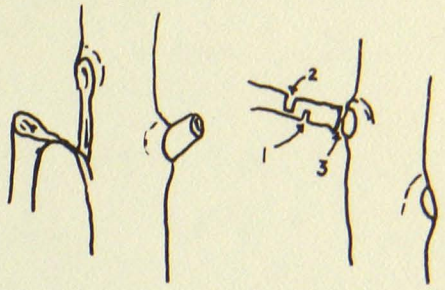

Figure 4. Bark tears if limb weight isn't lightened by initial cuts

Surfacing the trail

A 3- to 6-inch layer of sawdust or shavings adds to the comfort of a walking trail. Wood chips from utility or tree service companies also might be used. Such a covering also helps to prevent sprouting brush and other vegetation. You won't get damp feet, even on the wettest days, if you walk on a path covered with woodchips or shavings. Over a long trail, however, the time and labor involved in spreading a covering may make this luxury prohibitive.

In certain heavy soils and in wet areas, it may be necessary to add gravel to parts of the trail. In most cases, after a year or two of foot travel, a natural trail will become easily distinguishable and comfortable to walk on.

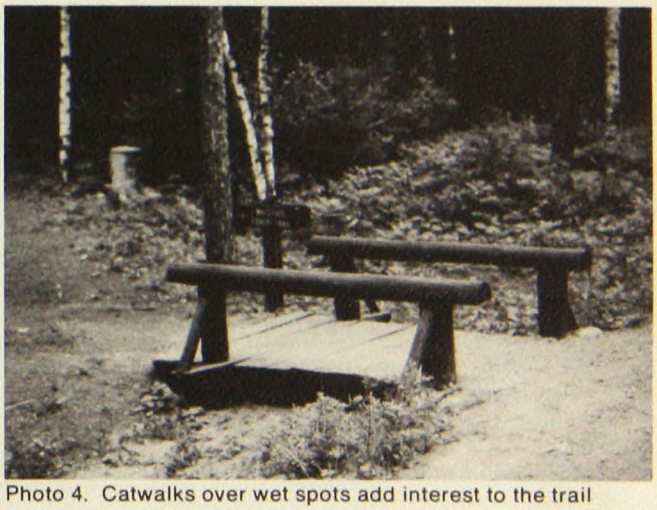

Photo 4. Catwalks over wet spots add interest to the trail

Added features

Somewhere along the trail, provide a bench or two where people might sit to rest, enjoy an outstanding view, snap pictures, or watch for birds and other animals. Something simple, crude, or rustic is very appropriate for a nature trail. The seat may be simply a log set into position, or a split log bench, such as that shown in photo 5.

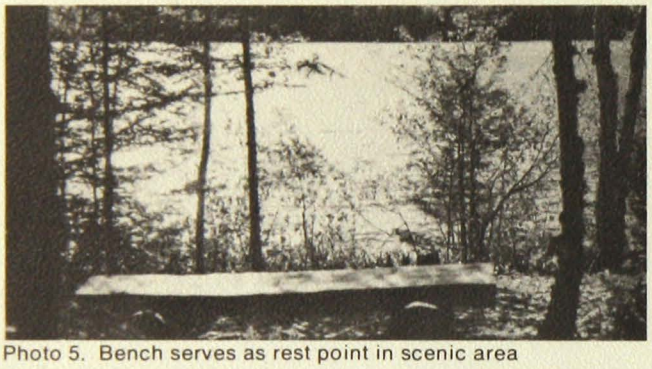

Photo 5. Bench serves as rest point in scenic area

If restrooms are not conveniently located near the beginning of the trail, it may be necessary to build an acceptable facility. However, restrooms will require constant maintenance and upkeep and are subject to vandalism.

INTERPRETATION OF NATURE TRAIL FEATURES

Two methods for interpreting features you want to point out on your nature trail or study area are trail pamphlets and trail signposts. The method you use will be determined by your individual situation.

Trail pamphlets

The first method consists of furnishing each individual or small group that uses the area with a printed brochure or pamphlet. These can be handed out in the resort, camp, or school office, or placed in a weatherproof box or container at the beginning of the trail. Pamphlets should be dated. This is important when tree ages are given and helps explain changes taking place in the plant community. Numbers on posts or stakes along the trail correspond to numbered, written messages in the pamphlet. Treat posts with a preservative. Rout or burn the numbers into the posts. Metal or plastic numbers may fall off or be stolen or broken.

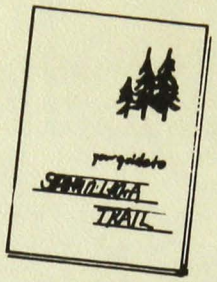

Figure 5. Trail guides allow visitors to guide themselves

There are some decided advantages to using this instruction method. First, it eliminates the time-consuming job of erecting printed signs at each station. Second, you can go into more detailed descriptions or explanations in a printed brochure than on a signpost. Third, it is initially cheaper and does not require the maintenance that a sign system does. And fourth, if the pamphlet is attractively done, it provides a good source for further study and is a souvenir of the area.

The printed pamphlet system also has disadvantages. Careless discarding of the pamphlets, usually near the end of the trail, causes some serious littering problems. In an unattended site, vandalism and destruction of pamphlets may occur. Systematic checking also is necessary to see that the supply of pamphlets is not exhausted.

Trail signposts

The second instruction method consists of a printed message on a signpost at each stopping place. This is the method most frequently used on national forest, state park, and many national park nature trails. Most of the resorts in Minnesota that have constructed nature trails also have used this method.

The interpretative message may simply be a written text on a piece of tagboard tacked to a stake stuck in the ground. However, a more perm-

Figure 6. Signposts denote points of interest

anent sign system usually is used. The U.S. Forest Service has done a considerable amount of research to find a weatherproof paper that will last for several seasons. They now use a special grade of vinyl paper (.010 ivory opaque matte vinyl). This will last for several seasons before it needs replacing. It is not expensive, but generally it cannot be purchased locally. The authors have found only one source for this paper: The Transilwrap Company, 2615 North Paulina Street, Chicago, Illinois 60614.

The message is printed on this paper with India or permanent-type ink. Use a number 2 or 3 drawing penpoint or a number 4 drawing fountain pen; these are available in most book and stationery stores. A lettering guide gives a more professional appearance. It may be necessary to etch the paper to get the ink to stick. This is done by dampening a cloth with lighter or cleaning fluid and rubbing it over the surface of the paper before you apply the ink. After the ink has dried, spray the entire paper surface with two or more coats of clear plastic. This will help waterproof it. The paper can then be tacked or stapled to a signpost, as shown in figure 6. To prolong the life of the paper, remove it from the signpost in the fall and replace it again in the spring.

Don't tack the signs to trees! Use sturdy posts. Buy treated posts or treat them yourself with a penta preservative. Set the posts well into the ground so they cannot be pulled out or pushed over easily. Mount the signs on the posts at a convenient height so children can read the message. The signs can be mounted to the posts with rust-resistant lag bolts, long wood screws, or nails.

When printing a text, keep it simple. Remember, there probably will be more youngsters than adults reading the message. If you are using the sign system, do not make the text any longer than 50 words. If you are using the brochure or pamphlet method, your text can be longer.

In the layout of your trail, attempt to space the stopping places some distance apart and try to put more stations toward the beginning of the trail. Most people's attention begins to wane after they have been on the trail for awhile.

Marking the entrance

The trail entrance should be identified by an attractive sign. Use a provocative or interesting name for your trail to arouse people's curiosity and anticipation. Either the entrance sign or a smaller sign adjacent to it should contain some information about the trail, such as a simple map, what one will expect to see, how long the trail is, and how long it will take to walk it.

Photo 6. Entrance sign should attract attention, arouse curiosity

Considerable thought should go into the type of design and construction of this sign. Some kind of routed wood sign fits best in a natural setting. Do not use any gaudy-colored paints. Stain the wood a natural color or use earth-tone paints. The entrance sign possibly may be the most expensive single item you incorporate into your trail, because you may have to seek the services of a professional sign maker or painter.

Assistance in interpretation

You may need some assistance in locating and identifying points of interest along your trail. You can get qualified advice from such people as biology teachers, foresters, park naturalists, wildlife specialists, county extension agents, district soil conservationists, and horticulturists (such service may not, however, be a part of their regular duties so you may have to pay them). Either have your consultant suggest a text for each point of interest or take notes of his comments.

As you identify trees, shrubs, or flowers, it might be well to include the scientific name with the common name. Although the scientific name means nothing to many people, there will be some who will be looking for this kind of information.

When identifying trees, shrubs, or flowers, do not put up a sign with the name only. Reading names can become very boring. Tell some interesting fact about the plant, answering such questions as: What is it used for? Is it edible? Is it poisonous? Why is it growing where it is? How does it fit into plant succession?

Your local library is an excellent source for identification of plant and animal life, geology,

Figure 7. Say something about each plant or item you identify

history, campcraft, and conservation. The references listed at the end of this publication also can be helpful to you.

MAINTENANCE OF THE TRAIL

The woodlands, grasslands, bogs, and marshes are dynamic, changing communities. Certain insects thrive, die, and are replaced with new generations or new species. Bird life and small animals come and go. Trees and shrubs die or are blown down and new ones take their place. Water levels change with the seasons and with the amount of rainfall and snow. It is amazing to observe the changes that occur in any given area over a span of just a few years.

Periodic maintenance

Because of these changes, it is necessary to frequently examine the area for new features that have appeared or old ones that have disappeared. Each year you will probably have to add a new sign or two and remove a few. Add trail surface materials before they are needed. The best time is just before snow in fall.

After a storm and every spring after the snow disappears, you probably will find some trees or dead snags fallen across the trail. These, of course, have to be removed.

A trail that has been created recently through brush and trees will require some periodic maintenance to control resprouting brush and other herbaceous ground cover. In some cases, it might be possible to periodically mow the trail with a heavy-duty, sickle-type or gyro mower. A more satisfactory means of controlling plant growth in the trail is to spray it with a soil sterilant or a selective brush-killing chemical. Extreme caution should be used when applying these chemicals. Do not treat the whole trail with a mist blower or other mechanical-type sprayer! Instead, a careful spot treatment with an ordinary garden sprayer will give very satisfactory control. A spot treatment only where needed will not kill desirable vegetation or leave unsightly dead leaves along the trail.

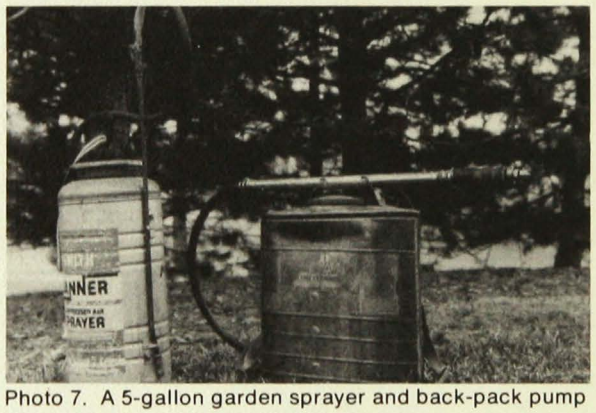

Photo 7. A 5-gallon garden sprayer and back-pack pump

You will find that your trail signs need periodic replacement either because of weathering or vandalism. Regular supervision and corrective maintenance of trails are essential or deterioriation will take place at an alarming rate. If periodic maintenance is started when the trail is relatively new and then kept up on a regular basis, this task will not be overwhelming.

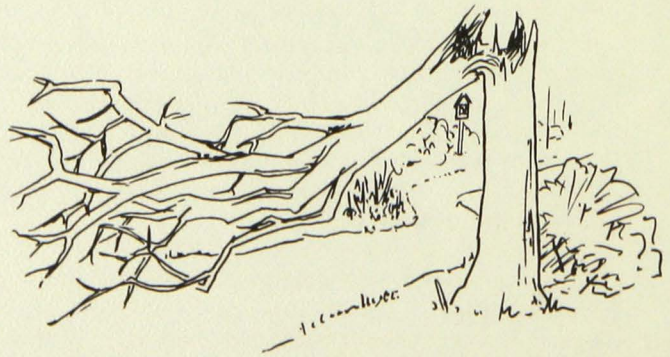

Figure 8. Examine your trail and periodically clear the path

Features may be added

After the trail has been established and used for a time, you may want to add some features that are not present. These could include such things as bird feeders, birdhouses, wood duck nests, salt licks, or additional plantings of flowers, shrubs, or trees. When adding any man-made features, make them as inconspicuous as possible. Try to blend them into the natural surroundings. When adding any plantings, try to place them in a natural setting. Do not add any exotics or ornamentals that would not be native to the area.

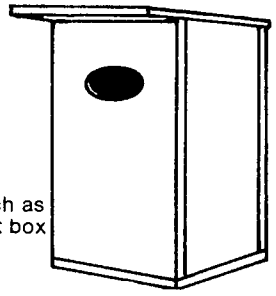

Figure 9. Add features, such as a wood duck nest box

TRAIL LABELS AND TEXTS

The following are examples of the kinds of texts you might use on your nature trail signs or leaflets. They have been taken from existing nature trails located at state parks, youth camps, and resorts in Minnesota. The shorter messages would be adaptable for trail signs, and the longer ones would be suitable for leaflets or pamphlets.

Note that they are all brief, concise, and easy to read.

Prayer of the woods

(This particular text was first used in the Portuguese forest reserves more than 1,000 years ago. It is used in nature trails throughout the world, and is a classic example of an inspirational message. Placed near the beginning of a trail, it helps to discourage vandalism, whets the curiosity, and "sets the mood" for a walk with nature.)

I am the heat of your hearth on the cold winter nights, the friendly shade screening you from the summer sun, and my fruits are refreshing draughts quenching your thirst as you journey on.

I am the beam that holds your house, the board of your table, the bed on which you lie, and the timber that builds your boat.

I am the handle of your hoe, the door of your homestead, the wood of your cradle, the shell of your coffin.

I am the bread of kindness and the floor of beauty. Ye who pass by, listen to my prayer: harm me not.

Old logging camp

Looking closely over the ground, you will note the outlines of five building foundations. This was an Alger Smith logging camp. It housed about 50 men and 30 horses, and was in use for three to five winters between 1900 and 1910. At that time, this area contained a dense stand of large white pine trees. Note the change that has occurred in the past 70 years. The forest is now composed of a mixture of aspen, birch, balsam fir, and white spruce.

Indian mounds

Note the five mounds off to the right of the trail. These were built by an unknown tribe of Indians hundreds of years ago. They were not burial mounds, but apparently were some sort of ceremonial mounds. Their significance and meaning probably will remain a mystery forever.

Old portage trail

If you look closely, you will see an indented path crossing the trail and climbing the hill to your left. Now grown over with brush and trees, it was not always so. This is the old portage trail between Beaver and Otter Lakes, and once echoed to the shuffle of mocassined feet as Indians and trappers carried their canoes and supplies across this trail. This was a well-traveled route between the Mississippi and the waters that flow toward Lake Superior.

Abandoned beaver dam

To the right of the trail you will note a raised portion of earth that separates the bog from the lower land to the left. This is an old beaver dam that has not been in use for probably a hundred years. The beavers either abandoned it or were trapped out by some early trapper. However, the old dam still holds back some water and has changed the entire character of the area behind it. Through years of holding back a small stream, the area has changed from an upland hardwood forest to a typical bog of spruce, sphagnum moss, and Labrador-tea.

Soil profile

This soil profile tells you something about how nature builds the soil. The top layer consists of fallen leaves and twigs. The next layer shows previous years' leaves and twigs that have decomposed to form a dark humus soil. Underneath that lies a gray layer of soluble minerals and humus that has leached down from above. The bottom layer of reddish-colored material is the "parent material" of sand and gravel that originally was deposited here by glacial action thousands of years ago.

"Browse line"

Look across the bay and note the distinct horizontal line at the bottom of the green crown of trees. This was caused by deer standing on the ice and reaching up to eat the boughs. These are white cedar trees that are the favorite food of deer during winter.

Plant succession

This opening used to be an old field, but note the changes occurring around the edges. Raspberry bushes, shrub species, and young tree seedlings are starting to grow in from the forest edge. Gradually the grass will give way to brush and tree species. Twenty-five years from now you will probably never know that a field once existed here.

Somebody's house

See the hole in the trunk of the upper part of this dying tree. At various times, this has served as a resting or nesting spot for owls, squirrels, songbirds, and raccoons. Known as a "den tree," this tree will never be cut but will be left standing to provide a home for wildlife.

Back to the soil

This old decaying log was once a forest giant, but was felled in its old age by a severe windstorm. Insects and wood rotting fungi have helped to convert this log to humus. Note that moss is forming over the surface, and even some small seedlings are starting to sprout on it. Eventually, all that will remain will be a spot of humus under the new crop of trees.

Soil making

Read the story of soil-making shown on this granite rock. On top, you see a crust-like lichen hugs the bare rock. This produces an acid that gradually eats into the rock and forms enough soil so the pale green, leafy lichen can grow (about 4 feet above the ground). In time there is enough soil for moss to grow (near the bottom of the rock).

Deer browse

Note the tips of the branches of these red-osier dogwoods. it looks like the tips have been pulled off. Dogwood is one of the favorite foods of the white-tailed deer, and they have nipped off the tender branch tips. You will notice that you only see dogwood in forest openings or where it can get ample sunlight. Therefore, there is little deer browse found in the dense, shaded forest.

Quiet . . . men at work!

The ants in this anthill are some of the busiest creatures in the insect kingdom, and they have a high social order. Some are guards, some are workers, some are queens, and some gather food. Please do not disturb them; they do not want to be distracted from their busy tasks.

The marsh

From this point, you can sit and observe the teeming life in our pond and marsh. There are frogs, lizards, snails, and minnows in the shallow water along the shore. You may see a muskrat swimming to his house across the bay. Several kinds of shore birds inhabit the area. Also note the many red-winged blackbirds. Usually a pair or two of mallards and wood ducks nest here. Deer, fox, raccoons, and other animals frequently visit the pond for a refreshing dip or drink. Look for their tracks in the mud.

The soil cycle

Hail to the soil beneath!
To you this tree I bequeath.
Take it as part of your own,
Give it your earthy tone.
And by its death and decay
In its place, some future day,
Give us a new plant array.

Good manners

Never let it be said to thy shame that this place was more beautiful 'ere you came.

Spring fever

Rarest mood of all the year!
Aimless, idle and content—
Sky and wave and atmosphere
wholly indolent.

James Whitcomb Riley

Turtle

The turtle lives 'twixt plated decks
Which practically conceal its sex.
I think it clever of the turtle
In such a fix to be so fertile.

Ogden Nash

Insect heaven

Happy are the cicadas' lives
For they all have voiceless wives.

Widow maker

Look above your head and note the dead tree leaning against the live tree. The early Minnesota lumberjacks (woodcutters) called these leaning trees "widow makers." Can you guess why?

Sapsucker at work

Note the small holes evenly spaced in a pattern-like fashion up in this tree. These are holes drilled by the sapsucker, a small woodpecker-like bird, so he can drink the sap that flows from the holes and eat the insects that get stuck in the sap.

Conks on aspen

Note the hoof-like growth on the trunk of this aspen. These are the fruiting bodies of white trunk rot. The presence of these growths (or conks) tells us that some of the wood inside this tree is rotten.

Peeled birch tree

Many years ago, some thoughtless person peeled this birch tree, and you will note it never recovered from this wound. Although trees don't always die from having their bark peeled, they remain permanently unsightly.

Nature in the raw

These two trees are the same age, but the smaller one died because it was starved of water, soil nutrients, and sunlight by the larger adjoining tree. "Survival of the fittest" is the law of nature, whether it be plant or animal life.

Poison ivy *Rhus toxicodendron*

An old saying goes, "leaves of three—let it be." Here is a good place to learn what it looks like. Notice that the leaves have different shapes, but there are always three.

Leatherwood *Dirca palustris*

This is an interesting shrub that was used widely by the Indians years ago. The bark was used for roping or lashing material and for weaving baskets and other utensils. The yellow flowers appear in the early spring before the leaves open up.

Mountain ash *Sorbus americana*

One of the most colorful of all our forest trees, the mountain ash has beautiful clumps of white flowers in the spring that turn into reddish-orange berries in the fall. The berries are the favorite food of many songbirds. This tree is native to northeastern Minnesota.

Quaking aspen *Populus tremuloides (Popple)*

This is one of the most plentiful trees of our north country. Note how the leaves tremble or quake in the slightest breeze. An old saying goes, "aspen leaves are like women's tongues—they are never still."

Red pine *Pinus resinosa (Norway pine)*

The red pine is Minnesota's state tree. It can be identified by its reddish-colored bark and long, straight needles that grow in groups of two. The wood is used for posts, poles, and lumber.

Black walnut *Juglans nigra*

The black walnut grows in the rich bottom lands and moist, fertile soils of southern Minnesota. The wood has a beautiful grain and is very valuable. It is used in making furniture, plywood, and gunstocks.

Tamarack *Larix laricina*

The only conifer that loses its needles in the fall, the tamarack is usually found growing in swamps. It is very susceptible to attacks by the larch sawfly. The wood is hard, dense, and brittle and is used for posts, poles, lumber, and kraft paper.

Sugar maple *Acer saccharum*

The sugar maple usually grows in rich, fertile soils. The sweet sap that flows heavily in the early spring is tapped and made into maple syrup and candy. The leaves turn to brilliant shades of red, orange, and yellow in the fall. The wood is hard and strong and is used for furniture, flooring, and fuelwood.

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