

LIGHT FROM A THOUSAND CAMPFIRES

Improving Your Hiking, Backpacking and
Camping Skills

FRED G. BAKER AND HANNAH PAVLIK

Bloomington, IN



Milton Keynes, UK

*AuthorHouse™
1663 Liberty Drive, Suite 200
Bloomington, IN 47403
www.authorhouse.com
Phone: 1-800-839-8640*

*AuthorHouse™ UK Ltd.
500 Avebury Boulevard
Central Milton Keynes, MK9 2BE
www.authorhouse.co.uk
Phone: 08001974150*

This book is a work of non-fiction. Unless otherwise noted, the author and the publisher make no explicit guarantees as to the accuracy of the information contained in this book and in some cases, names of people and places have been altered to protect their privacy.

© 2006 Fred G. Baker and Hannah Pavlik. All rights reserved.

No part of this book may be reproduced, stored in a retrieval system, or transmitted by any means without the written permission of the author.

First published by AuthorHouse 5/22/2006

ISBN: 1-4259-0867-5 (sc)

Library of Congress Control Number: 2006900493

*Printed in the United States of America
Bloomington, Indiana*

This book is printed on acid-free paper.

CONTENTS

FOREWORD	ix
CHAPTER 1 INTRODUCTION.....	1
CHAPTER 2 HIKING BASICS.....	5
2.1 Setting Goals and Selecting Your Route.....	6
2.2 Weather and Time Considerations.....	15
2.2.1 Weather Factors	15
2.2.2 Time Constraints and Planning.....	17
2.3 What to Wear and Take Along	18
2.3.1 The Ten Essentials.....	18
CHAPTER 3 THE ART OF HIKING	27
3.1 How to Walk and Hike.....	28
3.1.1 Stride and Foot Placement	28
3.1.2 Setting the Pace.....	38
3.2 The Physiology of Hiking	41
3.2.1 The Muscles	41
3.2.2 The Heart and Circulatory System	43
3.2.3 The Lungs and Breathing.....	45
3.3 Conditioning – Improving Overall Performance and Endurance	46
CHAPTER 4 CAMPING BASICS.....	53
4.1 Selecting the Campsite and Getting Organized	53
4.2 What You Need At Camp.....	60
4.3 Getting to Camp	71
4.3.1 Backpacking.....	71
4.3.2 Traveling by Car	74
4.3.3 Traveling with an Animal	77
4.3.4 Traveling on Water.....	82
CHAPTER 5 CLOTHING AND EQUIPMENT	87
5.1 Footwear Systems.....	87
5.1.1 Boots.....	88
5.1.2 Socks.....	100
5.2 Jackets and Other Clothing	103

5.3 Backpacks.....	111
5.4 Tents and Shelters	113
5.5 Sleeping Pads and Bags	122
5.6 Water Purification.....	126
5.7 Camping Stoves	129
CHAPTER 6 FINDING YOUR WAY	135
6.1 Using Maps.....	138
6.1.1 Recreation Maps	138
6.1.2 Topographic Maps	141
6.2 Instruments of Navigation	148
6.2.1 Compass	148
6.2.2 Altimeter.....	150
6.2.3 Pedometer	151
6.2.4 Global Positioning System Receivers	151
6.2.5 Celestial Tools.....	156
6.3 Putting It Together	158
6.3.1 Finding Your Location on a Map or in the Landscape	158
6.3.2 Tracking Your Position Along a Trail	162
6.3.3 Tracking Your Position Cross-Country	163
6.3.4 Following a Bearing	164
6.4 What to Do If You Are Lost	170
CHAPTER 7 READING THE WEATHER.....	173
7.1 Weather Systems and Fronts	173
7.2 Clouds and Wind as Indicators of Upcoming Weather	179
7.3 Checking Local Weather Forecasts	186
7.4 Weather Dangers	188
7.4.1 Lightning.....	188
7.4.2 Floods	190
7.4.3 Snowstorms and Avalanches.....	191
7.4.4 Wind Chill and Apparent Temperature.....	196
CHAPTER 8 FIRST AID YOU NEED TO KNOW.....	201
8.1 Cuts, Abrasions, Burns and Blisters	202
8.2 Temperature Control – Heatstroke, Hypothermia and Frostbite.....	205
8.3 Problems At Altitude – Acute Mountain Sickness, Pulmonary and Cerebral Edema	211
8.4 Common Infectious Disorders – Intestinal, Influenza and Other Respiratory Disorders.....	214

8.5 First Aid Supplies.....	219
CHAPTER 9 RESPECTING AND ENJOYING NATURE.....	221
9.1 Adapting to the Environment	223
9.2 Simplifying Your Approach to the Outdoors.....	229
9.3 Observing Nature and Pursuing Hobbies	233
9.4 Sharing the Trail and Open Space	236
GLOSSARY AND ACRONYMS	245
SELECTED MANUFACTURERS AND INFORMATION SOURCES	259
REFERENCES AND ADDITIONAL READING	271
INDEX.....	273

FOREWORD

The idea for this book came to us when we were sitting around a campfire in the wilderness of Colorado. We had returned from a day of reconnoitering the access to a peak that we wanted to climb, map and compass in hand, and had surprised a mountain goat napping in the sunshine just before lunch. While enjoying the warmth of the fire, we came to the sudden realization that we felt completely content and secure in this environment. No doubt, we thought, this was true because we had carefully planned the trip, packed all our favorite gear, knew more or less where we were going and what to expect. But why was it so easy to leave all our troubles behind, we asked? Because after years of hiking, camping and backpacking, through experience and trial and error, we had worked out a routine that made us feel completely comfortable exploring and enjoying nature. Then, while staring at the flames, we wondered how many fires we had made over the years in numerous places under various conditions and how each one varied slightly from the others. In some way, the campfires represented our net experience in outdoor living. And so the book was born. We would like to share the light from all those campfires with you, hoping that we can pass on the experiences we have learned so that you too can enjoy the outdoors as much as we do.

There are many reasons why we enjoy the outdoors. Fresh air, sunlight, flowers, trees, animals, great views and secret places make it refreshing to be outside. A walk in the park, hiking a trail, camping near a lake, or climbing a mountain — all of these provide a sense of freedom and mobility that we cannot achieve indoors. People have many reasons and activities that lead them outdoors. They may be work, sports, hobbies, a sense of adventure and exploration, or just getting away from everyday life. Table 1 lists just a small sampling of the various activities we can do outdoors (Figure 1-1).



Figure 1-1. Summer backpacking is a great way to enjoy the outdoors

If you are reading this book, you might already have an interest in the outdoors and want to pursue certain activities or hobbies in nature. We will try to foster your interest by providing examples of how you can improve your basic hiking, camping and outdoor living skills. By

teaching you how to walk, hike and camp safely and more efficiently, we hope that you will become more effective in your activities allowing you to enjoy them more. The sharper your outdoor skills are, the more you can accomplish, and therefore, the more predictable and pleasing your outdoor experience will become. This will reduce your worries and let you pursue your interests with increased confidence.

There are several books out on the market that cover specific sports such as skiing and hunting, but few that focus on general outdoor skills and activities. Some books written for select organizations only cover topics associated with a specific goal or type of activity, such as a merit badge or special certification. Many are so specialized that they apply only to specific seasons and geographic areas, or they tell you what equipment to buy but not why you should buy it. Some magazine articles and books present equipment comparisons but do not explain why certain features are important and others are not. Many authors tell you how they do things but not how you can select your own way of doing things or how to decide what equipment to buy.

In this book, we discuss the lost art of hiking and we explain the “how-and-why” of outdoor skills, methods and equipment. We show you how to do things and help you to make informed decisions about how and why you should consider doing them that way. Throughout the book, we try to keep the technical discussion at a reasonable level so that the text is readable.

The first four chapters of the book are reserved for general topics. Basic skills that you need for hiking are presented in Chapter 2. Included are tips on trip planning, setting goals, route selection, and the ten essential items that you should have with you on any hike. In Chapter 3 we introduce you to the art of walking and hiking, methods of efficient walking, exercise physiology and physical conditioning. The essence of camp organization and equipment needs are presented in Chapter 4, as well as common (and some uncommon) means of travel to the campsite.

Table 1. Activities people do outdoors

Adventure/Exploration	Canoeing, caving, four-wheeling, hunting, kayaking, mountain climbing, orienteering, rock climbing, sailing.
Enjoyment/Getting Away	Enjoying nature, sightseeing, vacationing.
Hobbies	Animal watching, astronomy, bird watching, photography, plant collecting, rock collecting.
Sports	Boating, camping, cross-country skiing, downhill skiing, fishing, hiking, horseback riding, hunting, mountain bike riding, running, snowboarding, snowshoeing, swimming.
Work Related	Archaeology, construction, engineering, farming, geology, military, ranching, surveying, tourism, wildlife management.

The next five chapters focus on more specialized subjects. Chapter 5 describes the construction, operation and essential features of outdoor clothing and equipment. Our objective is to teach you what to look for when you are ready to use or purchase pieces of equipment. Chapter 6 provides practical instruction on two essential outdoor skills, navigation and map reading. Chapter 7 explains how weather systems work and how to recognize changes in weather in the field. Chapter 8 introduces some basic First Aid methods for treatment of common outdoor injuries and illnesses. Lists of First Aid kits and supplies for small and large groups are also provided. Finally, Chapter 9 discusses several topics related to improving your enjoyment of the outdoors and sharing nature with other hikers and wildlife.

So why should you read this book? Because we hope that you will find it useful and informative. If you become more proficient in your outdoor activities or learn to enjoy them a little more than you did before seeing this book, then it has been worth your time reading it and our time writing it!

Walking is something that we all do to move about. Hiking is walking with a goal in mind and usually involves travel over some distance. Most people walk somewhere every day of their lives — around the house, to the store, to walk the dog, and so on. Most of these walking activities are not very demanding and we take them for granted. We don't generally have to prepare for short walking events. To prepare for longer walks or hikes, especially if we leave a paved sidewalk or roadway, we have to think about what we wear on our feet, how long we will be out walking, weather conditions and the route we will follow. If our hike takes us on a route that is new to us we might want to take a map with us and periodically check our directions. If it is a long hike, we might have to take food and drink along for lunch, and a raincoat in case the weather changes. The point is that the longer the hike, generally the more planning, time, equipment and skill go into it.

There are several factors that you should consider when you are going for a hike:

- 1) Goal and destination,
- 2) Route,
- 3) Weather,
- 4) How long it will take,
- 5) What to wear,
- 6) What to take along, and
- 7) Contingencies.

These form the basics of hiking because they familiarize us with the art of getting there. Although they are listed in the order in which they are generally considered, they are interdependent and a change in one often influences the others.

2.1 SETTING GOALS AND SELECTING YOUR ROUTE

When we first decide to go for a hike we usually have some goal or destination in mind. It may be to walk to some favorite viewpoint or to look for wildflowers in the woods. It may be to hike along a stream or to reach a mountain top. It may be to get to a specific location or just to walk and enjoy the day. In all of these cases we have a general goal in mind, although a specific destination or location may not be decided on at the outset of the hike. A loosely defined goal may be acceptable for a short hike, but on longer hikes, the goal should be specifically defined at the outset so that you can plan for it and select a preferred route (Figure 2-1).



Figure 2-1. This hiking trail leads to a mountain pass

If you are hiking with other people, it is important to define the goal or destination in commonly understood terms to avoid conflicts during the hike. One person's idea of a short hike might be another's idea of a death march. Someone may want to walk at a fast pace to get exercise and another may want to go slowly to look at wildflowers. One person may want to reach a certain viewpoint and another may not really care to walk very far. All of these preferences should be briefly

discussed before you set out on the hike so that some mutual goals can be established. If this is not done, some people may be disappointed because the resulting hike did not meet their goals and expectations.

It is important that you consider reasonable goals so that you have a good chance of succeeding with them. If it is early in the hiking season and you decide that you want to hike up a difficult trail to the top of a high peak, consider whether this goal is realistic for you this early in the year. You may need to be in better condition to succeed in such a venture and need more training to reach your goal. Also consider what is reasonable to expect given such factors as the weather, time of day, trail conditions and your hiking companions. Perhaps the trail conditions early in the season would make the planned hike very difficult due to deep snow or swollen streams. Under these conditions, some reconnoitering may be required before committing yourself and others to the trip goals.

Another reason to establish your goals at the outset of the hike is that you need to consider what to take with you. If you plan an all-day hike, you need to decide what clothes to wear and what extra items to carry with you. On a very short hike you may not need to be concerned with food and water, but on a long strenuous hike you will want to take water, snacks and maybe a lunch. As already mentioned, you will need to consider the weather and other factors that may potentially affect you during the hike and reduce your chances of success. You will also need to consider whether there is any chance that you may lose your way, in which case maps, compass and other pathfinding aids may be required. Depending on what resources you have available, you may need to reevaluate your goals to suit what is possible.

The upshot of all of this is that you need to establish a realistic goal for your hike, considering a number of factors before you start out to ensure a reasonable chance of success. On short hikes this may seem excessive but it is still worthwhile running through a quick mental checklist to be sure that you don't overlook something that may be important later. In many mountainous areas even a planned two-hour hike may encounter sudden changes in weather. The lack of a raincoat

may turn a short outing into a miserable experience, so take the time to consider your goals and the other topics listed above.

Once a goal has been established, the next step is to select a route that allows you to achieve that goal. This sounds simple enough. If you are in a park or forest with established trails, several trails may provide acceptable routes to a given location. You need only to select a trail and after considering the remaining hiking factors, you can be on your way. In many cases, the route you take to a given point may become a part of your goal. For instance, you may decide to go to a waterfall via a trail along a river and to return by a different trail along a ridge. One goal here would be to see wildflowers in the valley and then get some nice landscape views from the ridge trail. But you may find out that there is still a lot of snow on the valley trail if you are early in the year, and that given your equipment, it may be advantageous to use the ridge route both ways. Or you may decide to proceed with the valley route but take along snowshoes and gaiters to better deal with the snow. If you don't have the right equipment, you may have to revise your choice of route (Figure 2-2).

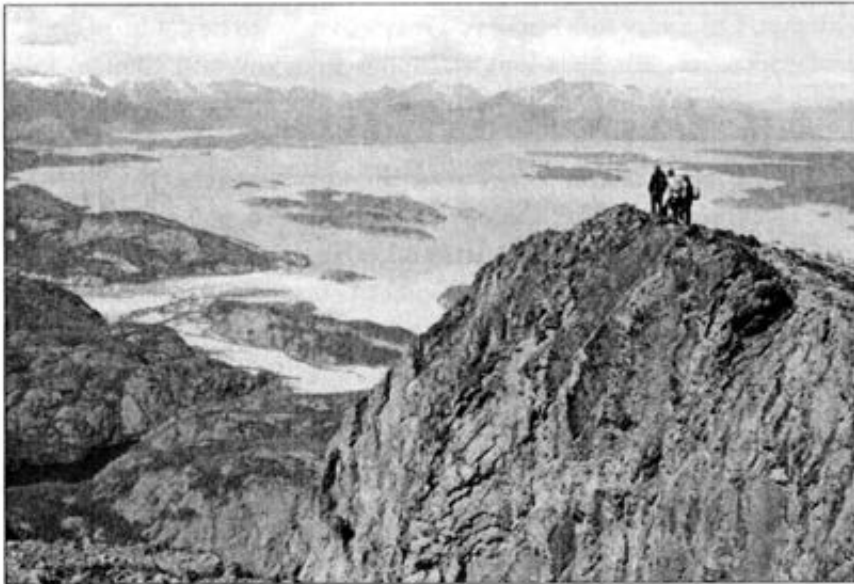


Figure 2-2. The view is usually worth the hike

Many factors influence the choice of route:

- Familiarity with the route,
- Route difficulty or trail conditions,
- Ease of finding and following the route,
- Weather,
- Hazards such as rock fall, steep slope, water, animals, and
- Other goals along the way.

Usually the choice of route is affected to some extent by all of these factors. Having knowledge about a potential route before setting out helps you prepare for the hike with some level of confidence. Therefore, it is worthwhile to review maps, ask people that have been on the route recently, check weather reports, and read available descriptions about the route before making a final decision.

Familiarity with a route or trail eliminates much of the uncertainty about route selection. You may choose a route because you have been that way before, you know how to find it or how difficult it is. This can be a big advantage if you are hiking with others or have a limited amount of time in which to complete your hike. Knowing where the trail begins and being familiar with any branches from the trail can save you time and uncertainty about finding your way. If you are going off-trail through forest or hilly terrain, some prior knowledge about the route gives you more confidence in taking the right turns and avoiding obstacles or hazards such as cliffs, dense vegetation and difficult river crossings. It may also give you a good idea of trail conditions and what to expect in case of bad weather. In addition, familiarity may help you select some intermediate goals such as selecting a nice viewpoint as the location for your lunch break.

It is very important to have some knowledge of the difficulty of the route ahead and of trail conditions. If you are with a group of hikers of mixed abilities, this will help you to select a route that everyone in the group can be comfortable with. Making the potential difficulties of the planned route known ahead of time lets each person know what he or she will encounter, so that they can be prepared for the effort.

an area near Gunnison, Colorado where we planned a horse-packing trip. The person we talked to was able to give us good information about how much water and grazing we could count on for our horses and general information about the pack trail that we were considering. This was very helpful in planning our route and reducing uncertainty about the trip.

A number of guidebooks provide good regional information about popular hiking and camping areas. These books are often available in libraries and general bookstores, but more complete and current selections are frequently found in stores that specialize in outdoor and camping equipment. The best coverage of local areas and trails is usually found in stores in or near the area where you plan to hike or camp. It is worth checking local stores when you are in the area of your



Figure 2-3. The NPS Web site

trip. If you are mostly interested in hiking around your home state, you should check out several likely stores to find out who has a good selection of trail guides, books and maps.

Maps are invaluable for planning hiking and camping trips. Most national and state parks and forests have trail maps available at their local offices and/or information centers. You can download some maps at no cost from Internet Web sites and print them out to carry with you. Topographic maps (maps showing roads, major trails, parking areas, topographic contours and other features) are readily available from a number of sources, such as the US Geological Survey (USGS), Trails Illustrated and a number of other map makers. Topographic maps are usually the most useful because they contain a great deal of information such as steepness of slopes and trails, locations of steep rocky areas, streams, lakes, roads and major trails (Figure 2-4). Some maps have brief trail descriptions printed on them that can be helpful for planning your hike and selecting a suitable route. Many guidebooks include small maps as figures to illustrate the routes being discussed. In many cases, this is all you will need for planning purposes and to take along with you.

Other sources of information for planning your trip include local outing or hiking clubs and guide services. Finding these organizations may require searching the Internet for their Web sites (if they have them) or perusing the local telephone book. Most colleges and universities have some form of outing club that can be helpful. Many larger metropolitan areas also have outing clubs that can provide information or at least direct you to someone who can give you relevant information. In Colorado, for example, we have several chapters of the Colorado Mountain Club throughout the state. This is true of other states as well, especially if there are outdoor recreation areas within those states. Keep an open mind about organizations that might be able to help you. Even though you may be interested in hiking, local four-wheeling and ski clubs may be potential information sources for you. Hunting and fishing guide services often have a detailed knowledge of the areas that they operate in and can also provide you with valuable information. Making one or two phone calls often pays off handily. If

you are going to a mountainous area, the local climbing shop is often the best source of information. Some of these organizations even have regular meetings and slide shows where you can learn more about your area of interest.

Some organizations have established hike rating systems that can help you evaluate the difficulty of hiking routes. Usually these systems take into consideration the length of the route, steepness or elevation gain involved, and overall level of difficulty of the hike. The distance covered by a given route is obviously an important factor for judging how long a hike may take and evaluating whether it is suitable for your hiking goals. The amount of elevation gain along a given route may not be obvious from a simple trail map but can be determined from a topographic map. Elevation gain is important for planning and rating a hike because hiking uphill is more difficult than walking along a level path. Going a mile on the level is much easier than gaining 1,000 feet of elevation over a one-mile trail. Overall difficulty ratings for hiking trails also consider how rough the trail conditions are, such as whether the trail is paved with gravel, consists of a scramble over rocky terrain or whether you have to go off-trail for part of the way. Hiking guidebooks, maps and outing clubs may also provide rating lists for hikes and climbs.

There is no single, unified classification system for hiking (that we are aware of) other than the scale established by the Union Internationale des Associations d'Alpinisme (UIAA) for climbing and mountaineering (see Glossary). This classification system is used to rank the difficulty of mountaineering or climbing routes and its lower categories consider the overall hiking or traveling difficulty of routes. These include: Class I – easy walking or travel over relatively easy terrain or on a trail; Class II – travel off-trail over rough terrain where boots are needed and some bush-whacking or travel over rocky slopes is included. A third point of balance, such as a handhold, may be occasionally needed. This class often involves some scrambling. Class III is the easiest climbing category where you need to use hand placements regularly for upward movement on part of the route. Classes IV and V involve technical climbing and are beyond the scope of this book. It should be noted that

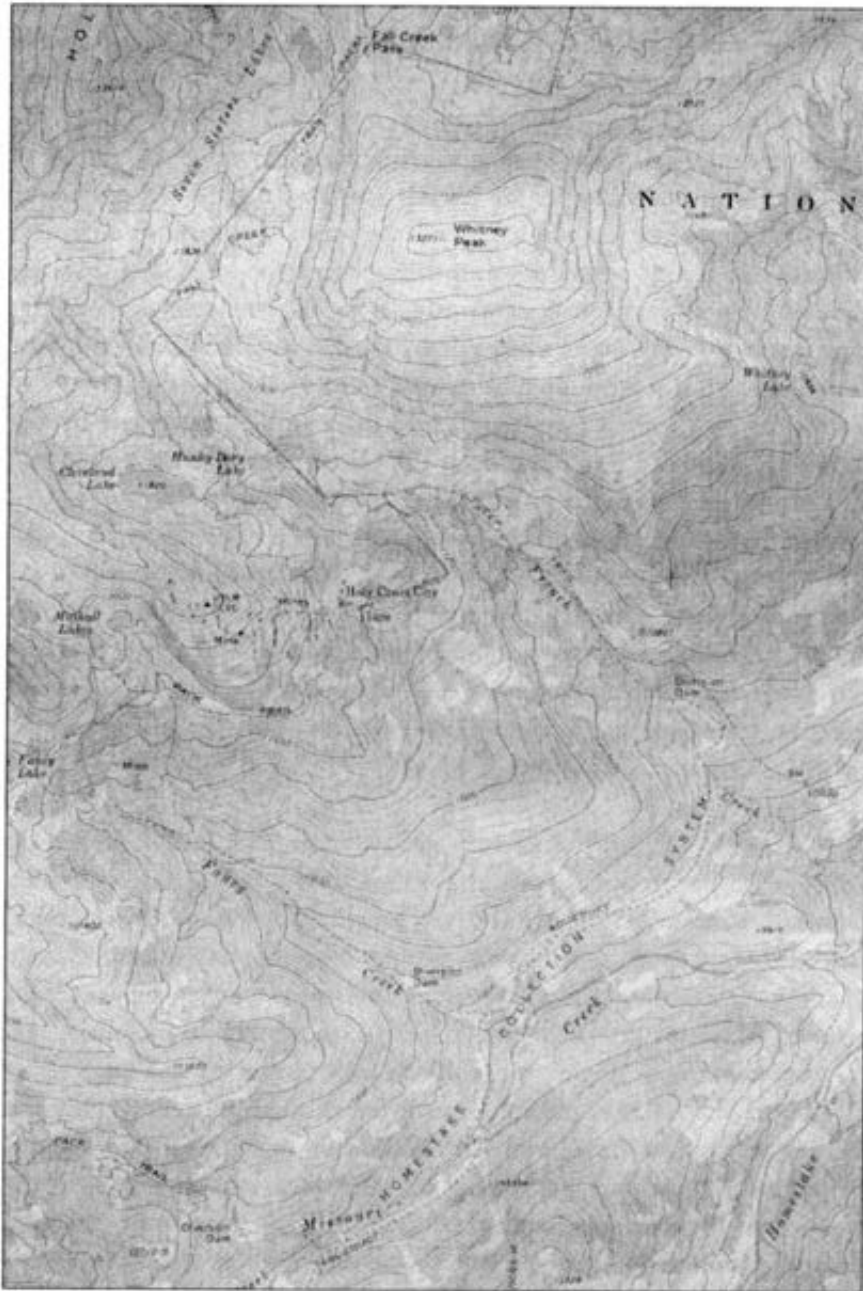


Figure 2-4. A topographic map showing hiking trails

in most climbing classification systems, including that of the UIAA, the rating reflects the most difficult part of the route and usually does not imply that the entire route is of the same difficulty. So a Class IV climb may be mostly Class III difficulty and have only a short distance of Class IV difficulty.

2.2 WEATHER AND TIME CONSIDERATIONS

2.2.1

Weather Factors

Weather conditions at the beginning of your hike and expected weather changes throughout the day greatly influence hike planning, preparation and goals. A fine morning may give way to afternoon showers or even an unexpected storm. In either case, planning and preparation can overcome most potential difficulties. A weather forecast may cause you to reconsider the hike goals or routes to avoid weather risks. Where weather is concerned, you should prepare for a full range of expected conditions and avoid extreme storm and weather events as much as you can.

The first step in incorporating weather conditions into a hike is to obtain a weather forecast and evaluate conditions for yourself. The weather report broadcast over television or radio is adequate for general planning purposes and may warn of approaching weather fronts and storms. However, this information should be supplemented with more local information provided in local newspapers or posted in local offices of Federal or state agencies (NPS, USFS, BLM, etc.). The US National Weather Service (NWS) issues forecasts for specific regions, and often on a county-by-county basis for most of the United States (Figure 2-5). Similar detailed forecasts are available for portions for Canada, Mexico and most of Europe. Weather satellite photos are good indicators of cloud cover activity and movement of fronts into an area and they supplement the forecasts well. Many television stations post weather maps, satellite photos and multiday forecasts on their Internet Web sites and often have a link to the NWS Web site. When planning your hike, remember to supplement the information gleaned from these

sources with your own observations to be sure that the weather forecast makes sense and to interpret how it may apply to the area where you plan to hike.

After learning what type of weather to expect on your hike, the next step is to prepare for the anticipated weather conditions by taking along appropriate rain gear, clothing and other essentials. This includes the clothing that you will start out wearing at the beginning of the hike and extra clothes that may be needed based on the expected conditions. If a sunny summer day is forecast, light trail shoes may be appropriate, but if rain or snow is expected, then leather hiking boots may be advisable. Other clothing and gear taken along should be suitable for hiking under the expected conditions.

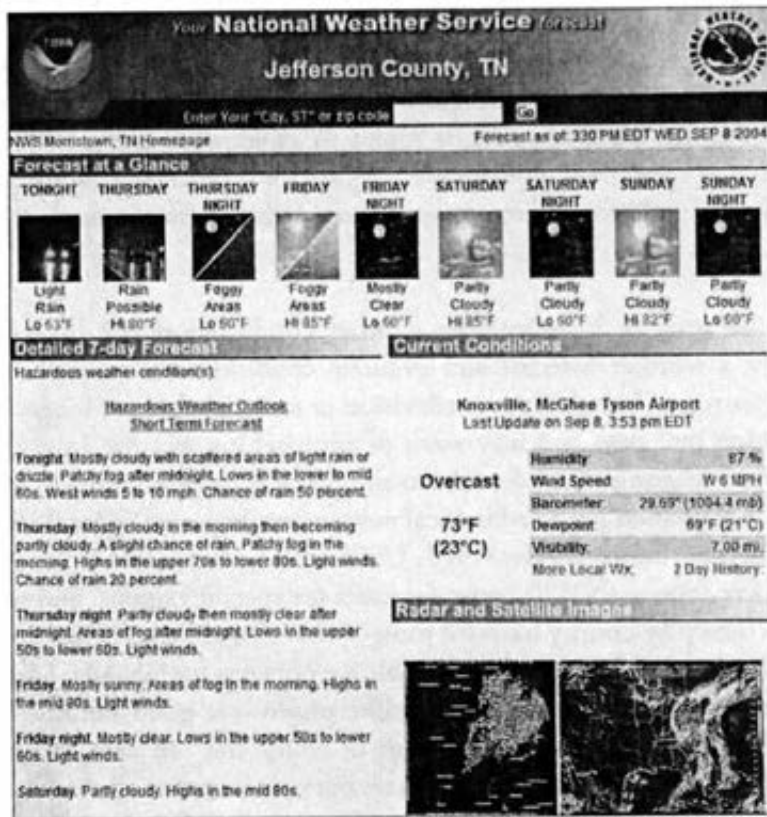


Figure 2-5. The NWS Web site

If storms or other significant changes in weather are forecast, then the hike should be reevaluated to ensure that the planned goals and routes are still feasible. A hike along an exposed ridge in the afternoon when thunderstorm activity is forecast may prove to be dangerous due to lightning strikes and strong winds. An alternate route or earlier starting time can be substituted to reduce risks. In some cases, the hike itself may have to be postponed due to severe weather. Weather considerations are especially important if you are leading a group of mixed hiking experience and ability.

2.2.2

Time Constraints and Planning

Time constraints often limit what can be achieved on a day hike. By its nature, a day hike is generally six to 12 hours long and faces limitations due to available daylight. Only so much can be done in the time available. Therefore, realistic goals must be set for the hike, those that consider the distance, elevation and difficulty of the route and time needed for activities at the planned destination. Consideration must also be given to the capabilities of fellow hikers and their level of conditioning if it is early in the hiking season. The three-hour hike that you took to the lake last fall may take four or five hours on your first outing in the spring.

Plan ahead to accommodate the hiking time, rest stops, sightseeing, lunch breaks, activities at the destination of the hike and extra time for contingencies. The length of time needed to reach a given point depends on the hiking speed of your group of hikers. That speed is generally based on the sustainable hiking speed of the slowest member of the group. So even though you may be able to cruise up to the lake in three hours alone, if the slowest member of the group takes five hours, that is the hiking time you should plan for. Allow time for short breaks every hour or so and a lunch break at midday at the lake. Plan some time at the lake to enjoy being there and for sightseeing en route. If your estimate allows five hours to hike in including short breaks, two hours at the lake for lunch and general enjoyment, and five hours on the return hike; you are looking at a 12-hour day. This does not include

a contingency for a sprained ankle, thunderstorm or other unexpected delay. If there is inclement weather coming, you have an airplane flight to catch or nightfall comes early, you should plan to start early so that you can finish the hike in daylight.

In many mountainous areas, it is advisable to begin your hike very early in the morning. This is necessary due to weather considerations as mountain weather often leads to afternoon rain or snowstorms. It is not unusual to begin a hike at daylight or earlier if a long hike is expected or a large elevation gain is planned.

2.3 WHAT TO WEAR AND TAKE ALONG

A hiker needs to be prepared for events and conditions that can occur during the hike. You can do this by good planning, preparation and carrying the right clothing and equipment for the trip. This means being in a position to deal with weather and trail condition changes, injury, thirst, hunger, misdirection and delay. In general, most of these contingencies can be overcome with proper knowledge, clothing and equipment.

2.3.1 The Ten Essentials

There are ten essential items that all hikers should take along on any hike. These are practical things that are needed throughout the day and in case of an emergency (Figure 2-6). They include:

- 1) Map,
- 2) Compass,
- 3) Flashlight or head lamp,
- 4) Extra water and food,
- 5) Extra clothing,
- 6) Sunglasses,
- 7) First Aid kit,
- 8) Pocket knife,
- 9) Matches, and
- 10) Fire starting materials.

This particular list closely follows the essentials recommended in the book "Mountaineering: The Freedom of the Hills" by the Seattle Mountaineers (Graydon, 1997). Different organizations have somewhat different "Top Ten" lists, but include most of the same items listed above. From a true survival point of view, drinking water and extra clothing are probably the most essential of all these items. Avoiding hypothermia in cold weather is an immediate need and one cannot go without water for more than a few days. Implied in the list is a backpack or buttpack to carry the ten essential items in.



Figure 2-6. The ten essentials

The map and compass are essential tools for finding one's way and keeping on course. Whether you are on a prepared trail or rough track, it is possible to go off course and become disoriented. The map and compass will usually get you back on track if you know how to use them and have paid attention to where you have come from.

If there is any possibility that your hike may keep you out after dark, then a light source should be taken along. In most cases, a small flashlight will be sufficient for following a prepared trail after dark. A wider and more powerful beam will help when you are moving along a

rough track or going cross-country. A headlamp will free up your hands and automatically point the light to where you are looking. Carry extra batteries, especially if your light source drains your batteries in less than three hours. If you are planning to hike at night or start an alpine ascent before dawn, be sure that you have enough batteries and a spare lamp or light bulb. Know where the batteries and bulb are in your pack because you will probably be in the dark when you need them.

HIKING IN TRINIDAD

We once spent a dark night waiting for dawn in a rain forest on the island of Trinidad when our only flashlight went dead during a night hike. We did not want to continue along the trail in the dark because of the wild animals we might encounter and possibly confront and also because we could not see well. Wild pigs, poisonous snakes, scorpions and other animals were known to frequent that particular trail and it was better to let them find us and go around us than for us to inadvertently bump into them. We always carry backup batteries or an extra light to avoid such situations now.

Water and food should be carried on all but the shortest hikes because they are necessary to sustain your energy levels, not to mention you might need them in an emergency. In hot weather, your need for water is especially high to replace losses due to perspiration and respiration. The body requires two or more quarts of water per day when resting and up to five quarts per day when working hard at high elevations or in dry air. Without water, heatstroke, exhaustion and lethargy can quickly set in. In some areas, replacement water can be found in streams or ponds but frequently surface water needs to be treated before you can safely drink it. A good rule of thumb is to carry at least one quart of water for a half-day hike on a warm day and two quarts for a full day's hike. On hot days, carry at least 50 percent more water.

Extra food should be carried even on short hikes. For a day hike, carry a lunch and/or several snacks to keep your energy levels up (Figure 2-7). When working steadily the body needs nourishment to keep going. Dried fruits, nuts, candy bars, hard candy and fresh fruit make great

snacks. There is no need to overeat — a simple sandwich is adequate for lunch. In general, several small snacks during the day keep energy levels on a more even keel. Don't wait until you are completely dead on your feet before eating something and drink some water with each snack or meal. Experiment with different snacks until you identify foods that you enjoy on the trail.



Figure 2-7. A typical lunch and snacks

The clothing that you wear on a hike depends on the weather, elevation, length of hike, and your personal preference. In general, you should start the hike wearing what seems to be the most comfortable combination of clothing layers. As the hike progresses, you may need to add or shed clothing as conditions change. Conditions may change in response to the weather, elevation gain or because you are overheating or cooling down. The key is to carry several layers of clothing with you so that you

can add or subtract layers as needed. The extra clothing goes in your backpack or buttpack, or in some cases, it can be carried in the pockets of your jacket.

Layering is a well-accepted concept in outdoor clothing. The underlying principle is that you need a graduation in the amount of insulation on your body at any given time, and the more combinations or choices you have, the better. Instead of wearing one or two garments that provide all the insulation you need but often make you feel either too hot or too cold, you should wear several lighter garments to use in combination. Instead of one heavy coat, carry a light outer shirt, light sweater and windproof shell jacket. With a heavy coat you may feel cold with it off and overheat with it on. With layers you have several combinations to choose from. You can wear one or all of these layers depending on how cold it is and how much heat and perspiration you generate. You should choose the layers so that they can be easily added or subtracted. For example, when hiking up a steep slope, you are working hard and generate a lot of heat. A light polypropylene or polyester shirt may be all you need in summer, but when you stop to rest, you may need to don a wind jacket to keep from cooling off too much in a windy situation. After you begin hiking again you will generate heat and can remove the jacket to stay comfortable.

Selecting the right combination of layers of clothing requires some forethought and experience to get it right. Usually you have more flexibility during a hike to change your upper body garments than those on your lower body. This is because it takes more time and effort to change your pants or long underwear on cool days. Zip-off convertible pants that allow you to change from long pants to shorts are a great help in this regard because you can convert from one to the other relatively easily. The same is true for full-zip rain and wind pants that can be pulled on or off without removing one's boots. However, it is not so easy to change in and out of long underwear. There are a number of combinations of cotton, polypropylene, nylon, synthetic fleece, Capilene[®] and wool available for inner and outer shirts and pullovers. Vests and insulated jackets can be made from any of these materials as well as from down and other bulkier synthetic fibers.

Because down compresses easily and therefore loses its insulating loft, it should usually be used as an outer layer or just beneath the wind- and water-resistant outer shell.

The boots and socks that you take along on your hike should be chosen on the basis of fit and function. Although you can expect to wear your boots all day, plan on having to change your socks if your feet get wet from sweat, soggy ground, snow or open water. It is highly advisable to carry extra dry socks if your feet sweat a lot or if you expect to get your feet wet along the trail. We recommend that hikers wear two pairs of socks: an inner "liner" sock and an outer heavier sock. The liner can be made from polypropylene, wool or silk. Its role is to wick moisture away from the skin to the outer sock. The outer sock is the primary insulating layer and also serves as a cushion for the foot. In general, wool is the best material for cool-weather outer socks because it provides good insulation even when wet. Wearing two sock layers reduces the stress placed on the skin of the foot and helps reduce the formation of blisters. A single sock layer can be worn for short hikes in light shoes or boots, but two layers should be worn in heavier boots and for long hikes.

A hat may be the most useful piece of clothing that you carry with you on a hike. It can keep sun off your face and neck to prevent sunburn and it can insulate your head to reduce overheating on hot days. It can also keep your head warm on cold and windy days and your head dry during a rainstorm. A cotton baseball cap is a good all-around cover for the head, especially in summer. In hot weather, a broad-brimmed hat will also cover your neck to avoid that "red-neck" look from sunburn. On a cold day, a knit cap, especially a heavy wool stocking cap provides good insulation. Pile and fleece hats can also be worn but some of these don't breathe well enough to let moisture out and as a result can get soaked from sweat. Finally, a jacket with a hood is a must for providing an extra layer of warmth and keeping your head and neck dry in wet weather.

Your hat is the most important article of clothing for providing body temperature control. Fully a third of your body's heat loss occurs

from your head and neck on a cold day. Wearing a good wool cap can dramatically reduce heat loss, allowing the rest of your body to keep warm. An old saying goes like this: "If your feet feel cold, put on your hat!" Conversely, keep your head shaded on hot sunny days to help cool off your entire body.

Good quality sunglasses protect the eyes from brightness, glare and blowing dust and grit. Protection of the eyes is self-evident. Severe headaches can result from eyestrain caused by exposure to very bright sunlight and glare over several hours. On snow, the intense reflected light can completely incapacitate a hiker for days during which any exposure to light is searingly painful. Wind blown dust can get into unprotected eyes creating discomfort, and in some cases, significant eye damage. Sunglasses can also protect your eyes from unseen tree branches and other potentially damaging obstacles.

A simple First Aid kit is a necessity for any hike. At a minimum, your kit should contain Band-Aid or equivalent bandages, gauze, adhesive tape, blister-repair materials and sunscreen. Some people also include mosquito repellent.

A pocket knife serves many useful purposes on a hike and can be an important tool in an emergency. The knife can either be a folding knife or an ordinary hunting knife — the primary requirement being that it has one or two, strong, sharp blades to be used for cutting. Swiss Army knives and their equivalent may have a lot of additional "gizmos" but many of these features are of limited value on a hike, although tweezers can be handy at times.

Finally, matches and fire starting materials are useful for starting a fire when needed. The matches should be the strike-anywhere type and should be stored in a waterproof container. Starting materials can be dry paper, wood shavings, cotton wool, extra toilet paper or other dry, easily ignitable material that can get larger kindling burning. Many people carry an inexpensive cigarette lighter with them for this purpose. It is a good idea to carry both matches and a lighter as a backup.

Nearly any small backpack, rucksack or buttpack is suitable for carrying the ten essentials with you on a short hike of up to one day's length (Figure 2-8). If you plan to carry more than 10 or 12 pounds of weight on a regular basis, then it is worth investing in a good quality backpack that is comfortable to wear for long periods.



Figure 2-8. A buttpack is a good alternative for short day hikes
