Cold and Wet Weather Hiking Considered in Depth

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> With the right choice in clothing, gear and attitude, we begin to realize that nature has a beauty and rhythm in all her moods, and a cleansing, purifying aspect to the miracle we call rain.
>
> —Ray Jardine, *Beyond Backpacking: Lightweight Hiking*, page 314

> When you are out in the pouring rain, day after day, your body will get wet, regardless of which miracle textile swathes your exterior. The difference between good and bad rain gear is that the good stuff will postpone the soaking significantly, and both it and you will dry out faster once the skies stop dribbling.
>
> —Dave Getchell, "The Raingear Test," *Backpacker*, September 1995

Central Issues Addressed in This Article

Is it possible to truly enjoy hiking and backpacking in continuously cold and wet weather? If so, what are the best strategies to accomplish this goal? How effective are the specific and sometimes controversial techniques recommended in this article? What are the most important general principles to keep in mind when backpacking in the cold and wet?

Proper Mental Attitude—Philosophical Perspectives

The first step in effectively dealing with cold and wet conditions is to have or to develop the proper mind set—a positive mental attitude about this kind of bizarre activity (i.e., hiking in continuous rainy conditions). In our culture this is not easy. Generally, most people prefer to stay inside and out of the elements most of the time. Only a small percentage of the population work or play outside in bad weather conditions.

From a sociological perspective, our culture encourages us to view being content and comfortable as a prerequisite to happiness. Some even make the

mistake of equating contentment and comfort with happiness. It is often said that our culture, as a whole, has grown too soft and does not deal well with adversity and discomfort, pain and suffering. To deal effectively with cold and wet weather hiking, our cultural conditioning needs to be acknowledged and addressed.

While this cultural conditioning is true for most of us, experienced and dedicated backcountry travelers can develop a mindset that makes extensive travel in wet and cold conditions comfortable, or at least tolerable. Part of this mindset is a decision to carry the proper gear and develop effective skills and techniques to keep bad weather at bay. Another part of this mindset is to acknowledge what types of trips are personally most enjoyable to make sure that the rewards far outweigh the experienced adversities and discomforts. Yet another part of this mindset is developing a philosophy of life that says it is a good thing to be pushed out of our comfort zone. That is when we learn and grow the most.

With few exceptions, every hiker has to deal with discomfort and adversity when traveling extensively in the backcountry. The only real choice is to either deal with it gracefully and effectively without complaining or to greatly reduce our personal happiness by making the experienced pain and adversity our focus. Put another way, one can go the route of dread and avoidance or the route of viewing hiking in the cold and wet as yet another challenge and adventure. Probably the most philosophical attitude (commonly associated with Buddhism) is that we can learn to distance ourselves from pain and suffering, adversity and unhappiness. We can learn to be objective observers where pain and suffering and unhappiness are simply experienced and then let go; they are not accepted as part of our true and essential self. For an in-depth analysis of the topic of discomfort and suffering related to hiking, consider reviewing the article "Maximizing Comfort and Minimizing Discomfort in the Wilderness" on this website**.**

One last point about mental attitude. There is no right or wrong here. Many choose to be fair-weather hikers carefully monitoring weather forecasts before venturing out. If caught out in bad weather, they will hunker down until the storm passes or head for the trailhead. On the other side, some are dedicated four-season hikers, traveling in all kinds of weather. It is a matter of chosen style. As the saying goes, "hike your own hike."

Effective Techniques for Wet and Cold Weather Hiking

There are many books, articles, websites, etc., that deal quite adequately with this topic so a comprehensive treatment will not be attempted in this article. Reading the literature will provide tens if not hundreds of things to do to deal effectively with cold and wet conditions. Some suggestions for wet and cold conditions involve high-tech "performance" garments (e.g., "soft shells"), but much is common sense learned from the school of hard knocks (e.g., do not wear cotton in cold and wet environments). Here is just a sample of some of the interesting suggestions:

- Use a storm shell parka with arms long enough to pull hands up inside the sleeves.

- Use a pack with large external mesh pockets (easy access to rain gear and place to store wet gear).

- Storm shell pants go over gaiters, not inside.

- If not carrying rain pants, fashion a rain skirt from a garbage bag.

- Use a *spray-on* treatment to restore the DWR (Durable Water Resistant) finish to waterproof and breathable fabrics; do not use a *wash-in* type of product because it will likely reduce the breathability of microporous fabrics.

- If your feet will be continuously wet during the day while hiking, rub a hydrophobic lubricant on them in the morning before hiking and at stops during the day.

As mentioned earlier, there are many sources available for comprehensive information on this subject. Here are two highly recommended, in-depth, online articles:

A Lightweight Guide to Backpacking in Sustained, Cold Rain

Gear Suited for Wet, Cold Weather Hiking

Another comprehensive treatment of this subject can be found in Ray Jardine's two books: *Beyond Backpacking: Lightweight Hiking,* pages 305-314 and in his *Trail Life*, pages 240-248.

Unique and Sometimes Controversial Techniques for Hiking in Continuously Wet and Cold Weather

This next section offers a number of unique, and sometimes sophisticated techniques for your consideration. They are often controversial. Hopefully, a few will be new to you and will get you excited about doing some experimentation.

Practice Fast and Efficient Camping Techniques

The longer it takes to set up camp in the rain, the more chance for getting chilled because your body is producing much less heat. With this problem in mind, choose your gear and develop your camping techniques so you can be under shelter sipping a hot drink from the warmth of your sleeping system in ten minutes or less after arriving at your selected camping spot. Achieving this goal will take some practice. Your shelter setup must be quick and easy. Tarp-tents or pyramid shelters fit this quick-and-easy set up criteria (usually no more than 4-6 stakeout points and one pole to thread). Pressurized canister stoves fit this quick-and-easy format. Food that requires only boiling water rather than cooking is the simplest of all. Tanking up with extra water from the trail before camping will save even more time. Obviously, having more than one set of hands will further increase efficiency. Practice becoming a fast and efficient camper for when you really need it.

Go Naked!

Now that I have your attention with this subheading it would be more accurate to say: *wear the least amount of non-absorbent clothing possible* (and little or no absorbent clothing). While hiking in the rain, wear the least you can legally get by with and still stay reasonably warm. Vary your speed proportionate to desired warmth and keep snack food handy so that you do not have to stop to eat. Granted, this technique is of little use as the temperatures drop closer to freezing. If successful in using this minimum clothing technique, there will be little to dry out at the end of the day.

One time when it is usually possible and desirable to truly *go naked* in the rain is getting out to pee in the middle of a stormy night. When finished, crawl

back into your shelter, dry off the best you can, put your dry sleepwear back on and hop back into your bag. The assumption here is that having a wet towel or bandana is better than more items of wet clothing to dry out.

"WEAR THE LEAST AMOUNT OF NON-ABSORBENT CLOTHING POSSIBLE (AND LITTLE OR NO ABSORBENT CLOTHING)."

JIM MORRISON

Even though this article focuses on hiking in cold and wet conditions where it is often not possible to hike in just shorts and a tee, the principle is still the same: keep most of your clothes dry and protected inside your pack. Another principle often accompanies this one: keep your extremities warm. Wear wool socks, gloves or mittens of some sort, arm warmers and a hat to augment your minimal baselayer clothing.

Adding Synthetic Insulation on Top of Rain Gear

Chris Townsend, in his article "Gear Suited For Wet, Cold Weather Hiking," (*backpackinglight.com*, December 9, 2008) makes a controversial suggestion that deserves serious consideration:

> When I stop, I know I'll cool down rapidly, so I close vents and put the insulated jacket on over everything else before I feel cold, even if my rain jacket is wet and it is raining. This is one big advantage of synthetic fills over down. Not having to remove my rain jacket to put on a warm top and then put the rain jacket back on saves time and means I don't lose any heat. I know the synthetic top will dry quickly in camp, so I don't worry about getting it wet. Clothing is packed to be accessible without exposing other gear in the pack to rain. The insulated jacket goes at the top too, packed as loosely as possible to avoid crushing the fill more than necessary.

Successful use of this technique depends upon at least these factors:

- how hard it is raining
- how cold and windy the climate
- length of the planned stop
- the water resistance level of the insulated jacket or parka
- later drying environment (e.g., a warm double-walled tent with great ventilation)
- whether the insulation layer is an integral part of the selected sleeping system.

A modified version of Townsend's technique is wearing a *water resistant* wind shell or soft shell jacket as your outer layer while hiking. An insulation layer can then be added without taking anything off (following Townsend's basic principle). A storm shell layer can then go on top of the other layers, if it is raining hard. This technique is elaborated in the next section.

Wind and Water Resistant Shells to Maintain a Warm, Damp Environment

Instead of wearing waterproof and breathable gear while hiking in the rain, consider instead wearing wind and *water-resistant* shell clothing. To work well in the rain, this outer shell layer must be water resistant enough to slow the ingress of water to a level the base layers below can handle. (Regular renewal of the DWR finish is important). With this arrangement, body heat either pushes back the wetness by drying the outer fabric faster than it can get wet. Or the dead air space provided by the wind shell warms the incoming rain to skin temperature so you remain reasonably comfortable—a wet suit effect. Obviously, the wet suit effect is the least desirable of these two. This wind shell layer also creates a broad surface whereby the moisture vapor can be carried off by the wind, thereby helping to dry both the outer shell and inner base layers. There is, however, a fine line. The shell must be water resistant enough to limit the amount of precipitated moisture coming in, but also breathable enough to allow the body heat to transport body moisture (perspiration) out. Since wind shirts vary greatly with these two criteria it is best to test them out in advance (test for breathability by blowing through the fabric). This concept works in light drizzles only as long as you keep the metabolic furnace working by ingesting carbohydrates. If it is raining harder, the best thing is to put on your waterproof and breathable storm gear over your wind shell layer. As long as some body heat is being produced, drying will occur through these two breathable layers. This technique is unnecessary in relatively warm and dry climates because you will dry off shortly when it quits raining. But remember, the subject of this article is hiking in sustained cold and wet weather.

Using Waterproof and Breathable Shells to "Wear-Dry" Damp Clothing

Even though there has been some improvement over the years in high-tech storm gear (i.e., better breathability and venting), most experienced hikers find them too hot and not breathable enough for heavy exertion. This is especially true when it is raining and the outer surfaces "wet out," further reducing their breathability. However, these waterproof and breathable garments can be of great help in gradually drying out damp clothing layers (damp from perspiration, precipitation or both). If one keeps active around camp while wearing these shells in the rain, damp clothing layers will often be mostly dry by bedtime. If clothing layers are really wet, consider taking them off and wringing them out first before beginning this "wear-dry" process.

Firing up the stove to produce hot drinks and food will raise the metabolism and greatly facilitate this clothes-drying process. If it is cold enough or you are not producing adequate body heat to dry your base layers, take a short hike to warm up. Using waterproof and breathable garments to assist this clothes-drying process is also a good reason to stop and camp early to give this process time to work. If one is wet and cold enough, this "drying out" function can be extended into the shelter and, if needed, into the sleeping bag. Yes, climb in the bag with your storm gear on. If your storm gear is wet when ready to crawl in, dry it off with a towel or bandana.

In summary, hikers backpacking in wet environments should carry waterproof and breathable storm shells (not just waterproof rain shells) when there is a possibility of wet and cold weather, both for storm protection and for drying damp and wet clothes. The DWR finish needs to renewed on a regular basis.

Drying Damp Clothes Inside One's Sleeping Bag

What about drying clothes in the sleeping bag? For some this is a big no-no. However, consider that many experienced backpackers do this successfully on a regular basis. The key here is to make sure the clothes to be dried are only damp, not wet, and that your body is producing sufficient internal heat for warm sleeping. Do not try this if you are already chilled when hitting the sack. To supplement this process, do the usually recommended things: get some exercise before bed, eat hot food and drink (especially high calorie carbohydrates), prepare a hot water bottle, change into dry socks, add insulation to your bag, etc. Be aware that this drying process will generally add some moisture into the insulation of your sleeping bag so that it will need to be dried out at the first opportunity. If it is not appropriate to start drying damp clothes inside the bag, at least place them under your sleeping bag to start the drying process. If gloves and socks are still damp, wear them under a base layer while hiking the next day to let body heat dry them.

Vapor Barrier Liners

What if you don't have dry clothes for sleeping? To minimize evaporative cooling from your damp or wet clothes, climb into your bag or quilt wearing your waterproof and breathable storm shell layers on over your wet clothes. Second best is to create a vapor barrier by wrapping yourself in a non-

breathable liner (e.g., tarp, garbage bag, poncho, emergency space blanket) and climb into your bag. Your clothes will not dry, but this liner will give you the best chance to stay somewhat warm.

Adequate Hand Protection

Keeping the hands from getting chilled is important, for emergencies or otherwise. Besides basic comfort, you need to be able to use your hands to set up camp, brew hot drinks, build a fire, etc. If not carrying waterproof and breathable gloves or mitts for this purpose, slim plastic newspaper or grocery bags (or grocery store plastic food handling gloves) over lightweight gloves will provide at least vapor barrier protection.

Tarp Camping to Maximize Drying Clothes

Maximum ventilation is necessary to dry things out. Tarps and tarp-tents provide this ventilation. Traditional double-walled tents with poor ventilation (or a combination of high humidity and no wind) make it difficult to dry anything. In fact, a combination of wet clothing and little ventilation could create even worse conditions in two ways: (1) condensation dripping off the tent walls getting bags and clothing wet; (2) sleeping bag insulation getting damp because the moisture generated while sleeping can not escape properly. Having said this, a double walled tent with double vestibules kept open is probably the ideal compromise.

Additional considerations: Tarps have an advantage of often being large enough to accommodate drying lines for wet clothes. Another unique advantage to tarps and floorless tarp-tents is that you can strip off rain-drenched clothing while under cover, wring out the moisture onto the ground, and then put the clothes back on for drying. Getting a partner to help wring out wet clothes is most helpful. Another advantage of tarp-like shelters when pinned down by heavy storms is that they often have more room to move around in than a tent. One obvious disadvantage of tarps and tarp-tents is that they are colder than regular tents, but this can be overcome by wearing more insulating clothing to bed.

Other things being equal (e.g., no fires allowed or worth the effort), the principle for drying wet things in the backcountry is maximum ventilation combined with body heat.

Putting On Warm and Damp Clothes in the Morning

If conditions are such that drying out wet hiking clothes is not feasible or effective, consider putting them in a waterproof stuff sack and using them for a pillow or at the end of your sleeping bag. This will lessen the shock of putting cold and wet clothes back on in the morning. Yes, there is a short period of discomfort when putting on wet clothes, but you will soon be in the same condition as the previous day hiking in the rain—wet and warm. If the rain has mostly quit, you will quickly dry out your clothes just by hiking. An unknown backpacker in Australia summarizes this approach: ". . . they say that it's no use drying your clothes overnight; if it's fine in the morning, they will dry on you soon enough, but if it is raining they will be wet soon enough."

Soft Shells in Cold, Wet Weather

The usual concept of "soft shell" clothing is to wear one layer of clothing (an insulation layer that is highly water and wind resistant) in place of three more traditional layers: base wicking layer, insulating layer and an outer hard shell layer). Soft shells are manufactured in many ways, but a wool or synthetic pile insulating layer is usually part of the garment. The original "soft shells" were a thick pile (usually polyester fleece) bonded with a layer of tightly woven nylon. They were usually worn without a base layer. The inner pile layer was loosely woven with a soft furry surface. To be most effective, the fleece pile must be soft enough to wear against the skin. Since loosely woven fleece pile is one of the best materials for rapidly transporting moisture away from the skin when exercising, one can feel relatively dry even though the soft shell garment is wet. Most synthetic base layers are woven too smooth and fine for the level of wicking that is the hallmark of soft shells. The heavier the rain, the more warmth is needed to assist in the transport.

In soft shells removing moisture and breathability (i.e., wicking) are more important than being waterproof. However, the ideal is to have an outer layer that is highly wind and water-resistant while being highly breathable. The mechanics of soft shells used in cold and wet weather are basically the same as the "wet suit" philosophy detailed in a previous section (but with one layer rather than two or three).

The down side of soft shells is that they often are too hot if one is exercising heavily in cool rather than cold weather (with around 40 degrees being a good dividing line). They also tend to be on the heavy and bulky side (although a

full range of garments using the soft shell concept are available). The upside of soft shells is not having to stop to add or subtract layers. As such they are clearly an advantage for technical mountaineers in colder alpine zones when it is inconvenient to stop for clothing changes. A good compromise for cold and wet weather, using the soft shell concept, is a mid-weight fleece shirt next to the skin with a light windbreaker on top.

Wet Feet and Wet Socks

The principle in this section is to do what is necessary to maintain relatively warm feet even when they are continuously wet. As long as your footwear is comfortable and fits properly, walking for several days with wet feet should not be a serious problem as long as your feet get good and dry for a period of time (overnight?) before getting them wet again. To facilitate this, always maintain at least one pair of dry sleeping socks. If you are having trouble drying your socks at night, consider slipping them over water bottles filled with hot water. This hot water in your sleeping bag tactic will also assist in drying other damp clothes and keeping you warm. Also, consider applying a hydrophobic lubricant to your feet a couple of times during the day while hiking, if they will be continuously wet.

Cold and Wet Feet Strategies

Three additional strategies can be used when feet start to get cold while wet weather hiking in rain or snow. One is to wear waterproof and breathable socks, partly to keep moisture out, but also to keep warmth in. (Waterproof and breathable liners in shoes or boots will function the same way.) A second is to wear neoprene booties like divers wear for the “wet-suit” effect. A lightweight “vapor barrier” alternative is to wear plastic bags between two layers of socks. Finally, wear tall gaiters to keep the lower legs warm.

Boots versus Trail Shoes

Even though it is often claimed that boots will keep one’s feet dry in wet weather, especially if lined with waterproof and breathable material, there is another side to this tactic. This claim about dry feet is true if the precipitation coming down or the wet and muddy trails are just occasional. In continuously wet and muddy conditions, boots will eventually get wet on the inside. Boots will also get damp inside from the perspiration trapped by the waterproof and

breathable liners (which seldom breathe enough for those who perspire heavily). Wet boots are extremely difficult to dry out in the field. Trail shoes not lined with waterproof and breathable material will dry rapidly once the trail conditions and weather dries out. The choice of boots or trail shoes (or some other type of footwear) is a matter of both personal preference and the conditions to be encountered in the backcountry. Seriously consider unlined trail shoes (supplemented by waterproof and breathable socks?) if you are likely to encounter continuously wet conditions.

Umbrella and Shell Combinations

In less exposed environments (e.g., thick forest), a breathable DWR-impregnated wind jacket (parka) combined with an umbrella provide a good combination for comfortable wilderness travel in the rain. Wind jackets can shed light rain and provide some insulation value in cold weather. Adding a 5-8 ounce hiking umbrella is a more cost and weight effective option than a full-on storm suit and is much more breathable than a poncho. In heavier rains, supplement the umbrella with a waterproof storm shell (yes, they should still be carried in most rainy environments). The combination of umbrella, leaving the hood off one's head and keeping the jacket completely unzipped means greatly increased ventilation. This combination not only provides more comfort but one is less likely to get overheated and damp from sweat. This dual protection arrangement will also allow "wear-drying" of already damp or wet clothing. Umbrellas obviously don't do well in wind driven rainstorms, but if that happens it might be time to stop, put up a shelter and hunker down for a while.

[Note: Go to this article for more information about using umbrellas while hiking: Umbrellas As Standard Backpacking Gear.]

Head Down to Lower Elevations

When conditions continue to deteriorate and party members are having a hard time drying out, it is time to head to a lower elevation and build a good fire. Do this before hypothermia begins to cloud one's judgment about the severity of the conditions.

Reader Participation: Experimenting Wet Weather Strategies

First, go back and mark through those strategies in the previous section ("Unique Strategies") you believe to be totally indefensible. *Second*, add notes about additional strategies not listed above with which you would like to research and experiment. *Third*, circle a few strategies (both listed and added) with which you would like to experiment in the near future.

Recognizing and Dealing with Symptoms of Hypothermia

The most dangerous part of hiking in cold and wet environments is the ever-present threat of hypothermia, even when temperatures are above freezing. The obvious signs include the following behaviors: stumbling, bumbling, grumbling and tumbling (to use a common phrasing). It is good to use a buddy system to detect hypothermia since mental deterioration is one of the symptoms. If hiking by oneself, a good test is hand dexterity: touch each finger to your thumb. If having trouble, stop and deal with the problem. Besides extra layers or changing out of wet clothes, the best thing is to keep ingesting calories and drinking lots of liquids to generate more body heat. Keeping food and drink handy while hiking is essential. For more information on this subject, review "Understanding and Preventing Hypothermia" on this website.

Backpacking in Wet and Cold Weather—Basic Principles

A person can get away with a lot when they are within a few miles of the trailhead, but what about longer multi-day trips in the wilderness where you will be hiking in continuous wet and cold weather? With this scenario in mind, consider the following principles.

— Learn through experience and a positive attitude that you can be reasonably comfortable hiking in continuous wet and cold weather; experiment a lot to develop your confidence.

— In wet and cold weather, plan on being always damp, if not plain wet, while traveling (from either perspiration or precipitation or both); expect to be dry only after camp is set up. If the sun comes out—celebrate!

— Each of us has a different level of cold tolerance which usually lowers with age. The lower the tolerance, the more the need for a working knowledge of

the numerous techniques by which inclement weather can be dealt with effectively.

— Regarding other members of the party, know their tolerance for bad weather and their level of preparation for it.

— Clothing and insulation by themselves do not produce heat—bodies do; keep the body furnace stoked with hot drinks and lots of carbos.

— It is much easier to stay warm than it is to rewarm a body that has become chilled; keep your core warm.

— Body heat is generated and maintained in four primary ways in the wilderness: exercise, being in good physical condition to avoid getting overtired, consuming food rich in calories, and drinking lots of liquid to maximize blood circulation.

— Stop midday under shelter from the precipitation to rest and stoke the body fires.

— Use body heat as the primary tool to dry out damp clothing, especially before heading to bed; have a buddy help with wringing out wet clothes before attempting this body drying method.

— Religiously practice the principles of layering, adding and subtracting layers as needed to stay warm even while wet.

— Get lots of sleep in a warm and dry sleeping environment; use the principle of layering in your sleeping system to maintain comfortable temperatures.

— Hunker down if you get really wet and chilled; seriously consider going to lower elevations and using a big fire to get everybody dry and warm.

— Have a “Plan B” in mind in case you have to bail out or camp short of your destination because of inclement weather.

— Carry sufficient protection from the elements that is one “level” harsher than forecasted conditions; call that a safety margin.

— The best way to deal with wet and cold weather is to avoid it; do a close analysis of weather patterns and forecasts before trips; develop a flexible frontcountry schedule in order to hike during the best predicted weather.

— If caught out in bad weather, learn to have fun and embrace the challenge; develop your skills and a positive attitude to go along with them.

The above principles and strategies indicate that this is a many faceted subject. They illustrate my best understanding. How do they fit with yours?

Reader Participation: *Enjoyment* of Wet and Cold Weather Hiking

First, add any principles and guidelines you think are missing from the above list (and modify any that need it). *Second*, circle 5 or 6 you think are most important to assist you in actually enjoying hiking in the cold and wet.

Author's Wet and Cold Weather Hiking Gear System

Even though knowledge and skill and experience are most important in dealing with inclement weather, carefully selected gear plays an important role. Here is my carefully selected gear list that I take backpacking when anticipating cold and wet weather:

- Umbrella with 35-40" diameter to protect head, upper body and pack
- Collapsible trekking poles strapping one onto pack to not interfere with deployed umbrella
- Waterproof and breathable full-zip rain parka (unzip when using umbrella)
- Waterproof and breathable hat to protect glasses and keep parka hood off face when not using my umbrella (e.g., too windy)
- Waterproof rain chaps or skirt to cover lower legs
- Water-resistant wind shell with hood
- Water-resistant soft shell pants
- Waterproof and breathable mitts (shells) with light wool or poly liners (or if

going ultralight a pair of ultralight plastic newspaper bags or grocery store food handling gloves over lightweight gloves)

- Mid-weight polyester fleece shirt or baselayer to maintain warmth and wickability even when wet
- Large garbage compactor bag to protect everything in pack; 2nd layer of protection for extra clothing
- Pair of highly breathable and non-waterproof trail shoes
- Pair of plastic bread bags to fit between two light pairs of trail socks (or waterproof and breathable socks)
- Small sit pad stored inside pack to have a dry place to sit at rest stops
- Dry baselayers for sleeping plus a pair of warm sleeping socks always kept dry
- Stove, chemical hand warmers and fire starting kit for supplemental heat.

The above 15 items are integral parts to a complete wet and cold weather system. These parts provide many options depending upon the severity of the weather. A complete system would also include adequate shelter and sleeping gear. This kit, while not the lightest, is essential for me to *enjoy* hiking in the wet and cold. For trips where I will likely be traveling in snow or freezing temperatures I add extra insulation and waterproof/breathable boots and gaiters.

Additional Issues for Reflection

1. Is Merino wool warmer than synthetic base layers when very damp or wet? Or does it just feel less clammy? Are wool/synthetic hybrids a good compromise?
2. Synthetic fabrics are often preferred in wet weather because they absorb less water, readily transport moisture from the body, transfer less heat from the body, and dry more quickly. Do combination polyester and wool garments outperform straight wool or straight polyester garments?
3. How important is it to use a warm, synthetically insulated sleeping bag or quilt (as opposed to down) in cold and wet weather? Is it possible to keep down clothing and bags reasonably dry in cold and wet weather?

4. Should one attempt to dry damp clothes in the sleeping bag? Does drying clothes in a sleeping bag take significantly more warmth and energy than usual for given temperatures?
5. Which of the following activities significantly increase the moisture content of *sleeping bag insulation* and are to be avoided in cold and wet conditions? Tightly enclosed tent with sleeping bodies where ventilation is poor? Cooking inside a mostly enclosed tent? Bringing wet gear inside? Drying damp clothes in one's sleeping bag? Sleeping with head inside the sleeping bag?
6. How important is it to have a separate set of sleepwear? What about the strategy of wearing dry clothes to bed and putting on damp clothes to hike in the next morning?
7. Are waterproof *and breathable* outer shell garments essential for backpacking in continuously wet and cold weather? If so, what are the most effective waterproof and breathable fabrics? Which are of greatest value—price and performance and weight wise?
8. Is there a place for waterproof, but not breathable, storm shells? Can these types of shells be made to work in continuously wet and cold weather backpacking situations (as opposed to day trips)?
9. Which is the most effective head protection in the rain, all else being equal? An umbrella? A wide brimmed rain hat with a waterproof jacket? A hooded waterproof parka with a billed cap? Other?
10. Are there any unique or radical techniques you would like to experiment with when hiking in wet and cold weather?