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Hill skills: river crossings

Posted by An excerpt from Hillwalking on 05/03/2005



In times of heavy rainfall, swollen streams can provide a formidable problem for the mountain walker. And crossing them can present hazards far more serious than just wet feet.

Avoidance is the key – careful planning of a trip and good observation should almost eliminate the chances of a difficult crossing. However, local flooding is not always predictable and occasionally a wet crossing is necessary, particularly in remote parts of Scotland. Fast moving water can be powerful and difficult to exit from. The water will be cold and the river bed slippery and awkward. Downstream obstacles such as trees, waterfalls and boulder chokes may prove killers if anybody is swept away. Mountaineering equipment is not designed with swift water in mind and will generally hinder rather than help. And if things go wrong during a stream or river crossing there can be many potentially serious problems to deal with, such as a split party, communication difficulties, immersion hypothermia, loss of equipment, injury etc.

Choosing a site

If no alternatives exist, then you'll have to cross. But site choice requires careful consideration of both the crossing point and downstream, where any swimmers will be swept. The ideal site will have slow flowing, shallow water. A narrow watercourse reduces the time spent in the water and keeps communication more practicable. A smooth, level streambed allows ease of footing and holds no hidden surprises. Low banks allow ease of access and egress. Unfortunately, the above criteria are often mutually exclusive, e.g. water accelerates through a narrow passage. However, even from a distance, potentially suitable sites may be identified. River bends should generally be avoided as water is channelled around the outside, causing erosion. The banks are often undercut and the cross-section of the river is uneven, with shallow, slow water flowing through the inside of the bend, and fast deep water accelerating around the outside.

Stay alert for downstream features. Trees, logs or debris jammed across the river can be very dangerous, especially if branches and twigs act as a strainer, trapping a swimmer below the water surface. Even when there are no obstructions other hazards may exist such as an accelerating series of drops leading into a dangerous waterfall.

Preparation

In a group situation all roles must be clearly understood by the party, and the co-coordinator should find a quiet place to brief the group. Even in informal situations, someone should assume this role to prevent misunderstanding. Then, prior to crossing clothing may be adjusted: Rucksack straps should be loosened, chest and hip belts undone. If someone does slip, the pack will protect the spine and if a swim results, a well-packed rucksack with poly bags inside will float. Boots should normally be worn with socks. Wet socks

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Since the clocks go back this weekend, suddenly the Sunday evening sunset will arrive significantly earlier. It's easy to be caught out. So to help, let's shine a light on some steps you should take to avoid being unexpectedly out in the dark on the hills.

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are inconvenient but not life threatening.
Loose trousers will hinder movement. Gaiters help tuck everything away.

Crossing techniques

All crossings carry an element of risk. Foot entrapment is one of the greatest dangers - if somebody falls backwards with a foot jammed between two boulders, water pressure can pull the head under and hold it down. The feet should generally point upstream and be placed carefully and firmly. If someone is swept downstream, the safest swimming method is to keep the feet up and downstream in order to protect the body. Other members should go downstream to help, the aim is for the rescuer to avoid getting wet. Ideally, a pole is offered for the swimmer to grab, trying to catch the swimmer directly involves greater risk.

Single person

It may be possible to cross one at a time; having the advantage that only one person is put at risk at any one time. But the solo walker lacks any back up and their only support is a stick or pole. You should face upstream, whilst leaning on the poles. The technique is to move one point at a time, maintaining one foot downstream of the other – a kind of shuffle step – and moving along sideways or diagonally like a crab. Presenting a low profile to the force of the water is important to reduce the build up of pressure.

Group crossings

Most groups will use techniques involving mutual support. However, the more in the water at one time, the greater the potential number to be swept away at once!



Line astern

The key to wading is to try and present as small a surface area to the current as possible. In this method, the leading person is supported by the people behind, who try to push downward on the shoulders or hips. This significantly reduces the likelihood of the leader's feet being washed from under them. The eddy created by the leading person

protects other members.



The group wedge

This technique requires the biggest and strongest people at the apex of the wedge, where they make a very effective eddy behind them. The rest of the group are protected from the main force of the current and can cross in relative ease. At least three people are needed. Any group method requires an appointed leader to co-ordinate movement. In a

formal leadership situation, it may be appropriate for the leader to accompany each group. However, if the leader is unhappy about making a solo return this method is inappropriate. A dry run is a good precaution, ensuring that everyone understands the procedure.

Using a rope

The use of a rope should only be considered as a last resort, because it can provide a very effective way of drowning someone if used inappropriately. Research into methods of dealing with safety in swift moving water has demonstrated that the security offered by a rope is often illusory. However, there are times when the easiest crossing point is situated above serious terrain and it is vital to avoid the potential for people being swept downstream. There are two common methods; the Open V and Downstream diagonal. These are beyond the scope of this piece.

Do you have to cross?

- The decision to cross where such hazards exist is serious. The risks will probably be too high and alternatives will always be safer:
- A change of route? Is the crossing essential? There's usually an alternative if you walk far enough.
- A bridge? Always worth considering, even if it is a long walk.
- Wait! Mountain streams rise and drop quickly. It may be worth waiting, particularly if camping equipment is available.



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- When considering alternatives, look at the map for other possibilities; bridges, braiding where the river divides into shallower channels, narrow tributaries, easier gradients (slower water), and lakes (the inflow and outflow will probably be slower).

EXPERT Q&A

Don't rely on your friends down the pub - ask the experts what they think. This issue the walking expert is Mal Creasey. Described as "the voice of god" by Trail magazine, there's nothing about the hills that he doesn't know. Mal works as Development Officer for Mountain Leader Training England.

Q. I'm a keen scrambler and have done several of the classic ridges. Now I'm looking to explore further - would I need to wear a helmet?

A. Well the short answer in my book is rope on, helmet on, and that has generally been accepted over the years. I am assuming that by the 'classic ridges' you are referring to the likes of Crib Goch, the North Ridge of Tryfan and Striding edge, and are looking to go beyond those on to grade 2 or 3 routes as per the 'Scrambling' guidebooks. That is where the use of ropes, and therefore helmets may be prudent. Personally, I do not think helmets are necessary, or desirable on routes that have been recognized as such long before helmets have been around.

Q. I can't fit my whole map into my pocket, and see that many people these days carry laminated cut up maps. But how do I decide what section to take with me? I don't want to walk of the edge.

A. Unfortunately many manufacturers fail to recognize that one of the basic needs of a mountaineering jacket is a decent quality map pocket. Maps have been around for generations and although there are numerous choices these days they are essentially the same size when it comes to packing them in a pocket. One alternative is to keep them in the lid of the sack and frankly that is a non-starter as the same problem frequently arises. The correct place for a map is in your pocket, you certainly don't want to be stopping to take the sack off every time you want to look at it. My advice would be not to cut them down too small and limit this to doing 'north and south' sections rather than trimming down to individual ranges of hills such as the Glyders/Carneddau etc. As a back up a full sized map could be carried in the sack, just in case. One final thought - the removal of the card front and back of the OS maps will cut down drastically on bulk.

Q. I've always carried a survival bag, but now I've started walking with a group of friends. Should we get a group shelter instead?

A. This is a common question now as group shelters are becoming much more acceptable. As an instructor of many years standing I have always advocated the group shelter and this has always been one of the first things to go into the sac, for my money the weight for warmth issues far outweigh all other arguments. But if the group became separated, problems could occur. Maybe there is a case for everyone to be responsible for their own safety, and decide what weight they're willing to bear for it.

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