Water Hazards

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South West Mountain and Moorland Leader Training Scheme Guidance Note August 2011

The South West Mountain and Moorland Leader Training Scheme (SWMMLTS) recognises that rivers/streams present a significant hazard, particularly to young people on remotely supervised expeditions. The notes below are in response to fatal incident enquiries and the lessons that can be learnt from the accumulated evidence.

The aim is to ensure safe practice whilst continuing to promote adventure and independent travel. However this Note does not cover the issues surrounding remote supervision which forms part of the syllabus for Moorland Leaders and which are covered comprehensively within the Mountain Leader Training England (MLTE) Remote Supervision Guidance Notes booklet.

The content must be shared as widely as possible by LA SWMMLTS representatives and specific emphasis be given to water safety and river/stream crossings during all training and assessment courses.

A river/stream is safe to cross if the main consequence of falling in would be no greater than simply getting wet. In all other circumstances avoidance is the key.

SWMMLTS considers it inappropriate to introduce leaders or young people to special techniques for crossing rivers/streams or to support the carrying of additional equipment to assist with crossings.

It is our role to help leaders and young people develop the knowledge and experience in order to make informed and appropriate decisions. Supervision plans for groups must take account of this ability to make a judgement.

Routes should, as far as possible, be planned to avoid river/stream crossings.

Clear instructions must be given to remotely supervised groups on what actions to take if conditions make a river un-crossable e.g. the use of a plan B or escape route. It is about teaching hill walking skills not completion of a planned route at all costs.

Safe travel requires competence and dynamic risk assessment on the part of all participants

Further detail is found in ‘Hillwalking - The official handbook of the Mountain Training walking schemes.’

A Team Manager’s Advice on Crossing Streams and Rivers on Dartmoor

Introduction. During training or on the Ten Tors event you’ll need to cross rivers and streams where there is no bridge if you’re to complete your route. You may only cross where it is safe for the whole team to do so. Fast moving water is very powerful and dangerous – it’s easy to get in, and once in very hard to get out.

River crossings can be dangerous and are no place for false heroics, showing off or horseplay. Avoid wherever possible - don’t plan routes which rely on crossings that may be dangerous. Look for bridges, marked fords or if this isn’t possible, other safer crossing points such as where the river is split by an island. Where the route demands crossings, take advice before starting.

Look at the weather forecast? If rain falls on dry ground, river levels will rise rapidly because hard ground will not absorb rain. If there has been a lot of recent rain, any more rain will run straight into the rivers as the ground won’t soak it up. Consider adjusting your route to make use of more secure crossings than those originally planned?

Crossing safely requires the team leader to make a choice between options, dependent on the conditions on the day and the team members’ individual capabilities.

A safe crossing is likely to be based on one or more of the following options:

Secure firm banks on both sides and a narrow stream allowing a simple step across.

Natural or artificial secure 'stepping stones' – large, fairly flat and not greasy to ensure a secure footing for all. Boulder hopping is likely to be dangerous if anyone falls – it is safer to get wet feet.

A shallow ford through which the water is flowing slowly; the base fairly smooth and the water not above calf depth for the smallest team member.

If in doubt, DON'T CROSS– the alternatives are always safer.

Other Options? If the crossing doesn't fit one of the above options, you must look for another choice, which will usually involve going either up or downstream:

Upstream – if the river has tributaries upstream, it may be easier to cross several of these smaller streams than the main water course which will be somewhat smaller above the flow from the tributaries. The further you go upstream, the smaller the area that the stream drains, thereby reducing the overall flow. However you are also likely to be going into more remote terrain, which may not be sensible in really rough weather, and often boggy headwaters.

Downstream – is there a bridge that you can access? Most are marked on the 1:25,000 map.

Before crossing

Brief the team on what you are planning to do and check that everyone understands.

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Don't not allow your team to split with some crossing where others can't. Ensure the crossing is within the capacity of the least able/confident team member.

Put the less strong/less confident members of the team in the middle of the party, the better to support and encourage them.

Walking poles, if they're available, should be lengthened where necessary and used upstream of the walker, so that the user is somewhat leaning into the flow.

Loosen rucksack shoulder straps, undo chest and hip belts, remove any map cases and stow securely inside rucksacks–the rucksack should float if the kit has been packed in dry bags.

Keep boots on to ensure a secure footing; wet socks are inconvenient but not life threatening.

Loose trousers will hamper movement – gaiters will tuck everything away.

Crossing.

Face upstream, lower profile and lean forward.

Use mutual support; line astern or group wedge formation.

No river crossing can be made safer by throwing rucksacks - don't do it.

Conclusion. Whilst older, more experienced, teams are usually able to handle crossings that are a little more difficult than those which are viable for younger teams, no team on Ten Tors or Ten Tors Training should attempt any crossing which falls outside the scope of the guidance above.

Pools, Mires, Marshes, Heads and Bogs

Dartmoor's water hazards aren't limited to brooks, streams, and rivers; many other wet experiences await the unwary. Largely these fall within the descriptions listed above, but don't be misled, the terms aren't a simple gradation from wettest to driest. The Challenge spans usually dry ground to glutinous peat. For simplicity, the text below, uses 'bog' as a generic term.

Some will be blanket bogs which are mainly draped across Dartmoor's higher, rainiest hills. Others will be in valley bottoms or at the heads of streams; some have patches of open water, others not, with some of the more surprising being 'quakers' - smaller slime and water filled hollows with a floating layer of apparently solid vegetation which undulates alarmingly when stepped upon, wetting the unwary should they break the 'crust'. Featherbeds or basin mires, are similar but somewhat larger, showing from as apparently flat grassy valley bottoms. Others will be as large as Raybarrow Pool, Taw Marsh, Fox Tor Mire or Aune Head and are best bypassed; teams keeping clear of the RBNAs in the centre of North Dartmoor earn a well-deserved bonus as they'll bypass large areas of blanket bog in so doing.

Whilst, practical experience of threading one's way across bogs via patches of load bearing ground is critical and best acquired by following and observing an experienced 'bog trotter', it's possible to offer some generalisations about how best to negotiate bogs.

Route plan to avoid known bogs – the location and expanse of the bogs tends to be more clearly marked on the Harvey 1:40,000 Dartmoor map than the OS OL 28 map; bear in mind that mapping the boundaries of bogs is imprecise at best and their extent is affected by recent rainfall or its absence.

If a place has pool, mire, marsh, head or bog in its name, question why you're thinking of walking through it - if in doubt, DON'T – invariably, there is a more pleasant, energy efficient alternative.

Blanket bogs are usually carpeted with cotton grass in summer.

Clumps of willow trees usually indicate wet, waterlogged ground.

Patches of open water imply waterlogged ground and associated bogs

An area of apparently flattish bright green Sphagnum moss is a likely indicator of a 'quaker' or a 'featherbed' mire.

Heather and bracken growing beside boggy ground implies drier terrain.

Follow the tussocks of grass - 'ponies go where the tussocks grow' - indicating that it's load-bearing ground and offers a potential route across, or out of, the bog.

A walking stick or pole helps to gauge depth and softness

Be wary when walking across blanket bogs, especially near streams, or runoff gullies, often hidden by heather or may be snow, and capable of causing serious harm.

Areas of eroded blanket bog comprising numerous peat hags interspersed with areas of water or deep slimy peat are particularly trying and best bypassed – there may be a 'peat pass' , originally cut in the late 19th century to enable the hunt to pass between different river catchments - check the map.

'Bog trotting' or 'bog hopping' are apt descriptions of bog crossing technique as you need to keep moving from tussock to tussock, as there's an element of 'he who hesitates is … likely to get wetter feet'.

Walk in single file if crossing a bog, led by the heaviest experienced walker; if the ground will take their weight, it will take that of the other members of the team if they're careful to place their feet on the load-bearing ground.

Make sure that the smaller/less confident members of the team are kept in the middle of the team, the lead walker takes steps everyone can manage and you're all in talking distance of one another.

Watch your bearing when bog hopping – it's all too easy to lose direction when zigzagging across a bog, especially in mist. Take a fix on a series of intermediate points before starting and/or aim for an obvious feature beyond the bog.

Remember 'If your first step is up to your ankle and the next is up to your knee, your next step should be backwards'.