Control Placement in Adventure Races

Controls/checkpoints are the heart of adventure races. There are many philosophies about the purpose of controls and control placement. This essay articulates some ideas to at least think about when selecting the control locations for an adventure race.

Basics

1) **Control Feature:** Controls should be located on mapped features. If there is no feature there, consider moving the control to one. Sometimes, it is not possible to hang the control exactly on the feature. In this case, an offset control can be used. Offset controls are near to a mapped feature, but located slightly away from it for logistical reasons (no good hanging spot, preventing unwanted tampering). Offset control descriptions should include the bearing and distance to the control from the feature.

2) **Control Value:** All the controls should be worth the same amount. Scoring for an adventure race becomes more difficult if controls are worth differing amounts, so it is best to avoid this. If you do this, it needs to be well thought out as there are many pitfalls that are not immediately obvious. If you want to give more credit to the racers for visiting a particular area, consider putting more than one control there.

3) **Control Status:** In many adventure races, there are mandatory and optional points. Typically, you must get all the mandatory points to remain official, and the team obtaining the most optional points wins with elapsed time being the tie-breaking criterion. For a linear course, this defaults to whoever gets to the finish line first wins, but with optional controls, this is not the case. Optional controls means that whoever gets the most controls wins – regardless of time. This complicates the race. Be careful about using optional controls.

For example, in one expedition adventure race, there was a set of rogaine-style controls in the middle of the race with a cut-off shortly after it. Once through the rogaine, the finishing order was basically decided for all the teams that did not get all the controls in the rogaine. And worse, only one team got them all, so they had already won, not matter how much they slowed down for the rest of the race.

4) **Transition Areas**: A transition areas (TAs) should count as a control. And, more importantly, it should count as a different control (requiring a punch) every time it is visited. This not only helps keep up with the racers, but also gives credit to teams that make it through each stage of the race. Make sure to have distinct controls (or check-in lists, if manned) at the TAs that are visited more than once.

Control Physical Setting

When picking a location for a control, there are three main things to keep in mind: accuracy, safety, and visibility.

Accuracy

Once you have picked a candidate location for a control, visit the site and make sure that the site and the various approaches to it are mapped correctly. If there are major features or objects missing, either add them to the map or pick a different location. Controls should be a sufficient distance from any natural feature/environment which may suffer damage by the competitors such as a fragile habitat, rare flora, or agricultural features (crops).

Course setters often use a GPS to set controls accurately. This can be very helpful, but do not rely solely on the GPS. Use the terrain and the features to verify that the control is in the right location. When in doubt, use the features over the GPS coordinates. GPS values can vary quite a bit depending on the weather conditions, satellites in view, and other factors.

Safety

Above all else, make sure that you pick control locations that are safe. Remember that four (or more) people may possibly have to all be there at once. Try to pick stable ground, lacking in dense vegetation, and without nearby cliffs or loose rocks. Make sure there is no stray barbed wire or other hazards in the immediate vicinity. Think about coming to the control location at night. Are there potentially dangerous objects that racers could injure themselves on?

Scout the nearby area. A nearby parallel feature could also present a hazard to a slightly lost team. For example, there was a control in an AR had the descriptive hint "old mine". It was a perfectly safe collapsed mine open to the air. However, 50 meters away was another old mine shaft that went into the hillside hundreds of feet and was quite dangerous (rotting/missing floor, etc.). When picking your control location, think about the surrounding area as well. In the dark, a team could easily miss the exact spot by 100 meters and find something similar and potentially hazardous.

Visibility

Once you have identified the map feature for a control, where exactly do you hang it? The control should be located so that it is easily visible from the feature described in the control hint (i.e., once a racer finds the hint feature, the control should be visible, or nearly so). Ideally, the control should be hung on a small tree at about **eye-level** (two meters), so it is visible from all directions. Also, pay attention to the footing around the control. The control punch should be within easy reach. In the AR World Championship race in Costa Rica, tides became a problem. A 5-meter tide change would put a control hung at eye-level an additional five meters up in the air, or worse, a few meters under the water.

If possible, make sure there is **reflective tape** on every control. It can be almost impossible to find a control in thick vegetation at night, or in the daytime in a dense fog. Keep in mind that a team that navigates to the control location should not have to hunt very long in order to find it.

Lastly, all the controls should have redundant **flagging** nearby to indicate the spot in case that the control is vandalized or destroyed by weather. One piece of labeled flagging hung a couple of meters away from the control itself can save a team valuable time looking for a lost/stolen control.

Control Description

Each control should have a description associated with it. The description should indicate the major feature upon which the control is located. This feature should be identifiable on the map. If there is no suitable place, then a bearing and distance should be given from the feature to the control. For example, the control is 75 meters northwest of the road/trail intersection. Or, the control is 100 meters from the bridge at an azimuth of 250 degrees.

If there are known hazards nearby, state them in the description as well ("The control is placed just off a very busy road intersection", "Watch for the loose scree around the control.", etc.). If possible, try to pick control locations to avoid hazardous areas.

Sometimes, the control needs to be slightly hidden to deter public tampering. If applicable, state this in the description as well ("The control is hung low and behind the large boulder to the north of the trail.").

Another aspect of the control description to keep in mind is to be specific. "Waterfall" is ambiguous. "Top/bottom of waterfall" is much better. Also, do not use words like left and right or near. Try to stick to compass bearings and distances in meters.

Control Purpose

The other major aspect of control placement is deals with where they are on the course. Each control should have a purpose for being there. When considering a location for a control, think about why you are putting it there:

> Is it an interesting spot to see (unique feature, scenic, etc.)?
> Is it challenging to navigate to the control?
> Is it physically challenging to get to the control (mountain top, cliff, island)?
> Is there some historic significance to the spot?
> Is it necessary to dictate a route for the racers?

If none of these apply, then perhaps the control does not need to be there.

Some locations are just to force racers to do extra stuff – climb a hill, circumnavigate a lake. Is this appropriate?

Other control locations can force racers to do an out-and-back to obtain the control? This is often boring and the returning lead teams serve as an inadvertent hint/confirmation of teams following them. Try to avoid this situation if possible.

When biking on trail systems or when paddling in rivers, it is more challenging to put the controls a short distance off the linear feature, so that teams have to navigate while biking or paddling. If you want an easier control (for example, to dictate a route choice), then putting the control along the linear feature is fine. If you want to add to the complexity of the course, move controls off of linear features. If it is a biking control, 100-300 meters is a good distance. For a paddling point, it could be 100 meters (so it is not visible from the water) to as much as a kilometer away from the water, so teams have to leave their boats and trek to obtain it.

Checklist

Here is a checklist to use when picking control locations.

1) Is the control in a safe spot? Are there hazards nearby that need to be mapped?

2) What is the purpose of the control (route altering, scenic spot, etc.)?

3) Does it add to the course in some way?

4) Is the control used to force a particular route. If so, is there a better location (or two) to achieve this goal?

5) Is the control on a mapped feature?

6) Is the area immediately around the control accurately represented on the map?

7) Can the control be navigated to in the dark/fog?

8) Is the control in dense vegetation that requires difficult bushwhacking to find it?

9) Does the control create an unnecessary out-and-back situation?

Examples

Point features (trail intersections, creek junctions, hill tops, buildings) make good control locations. Linear features (trails, creeks, re-entrants, spurs, ridges, roads, power lines) can be good places for controls. Area features (hill sides, large fields, broad spurs, flattish knolls) are usually not good places for controls.

The following examples show a good (well-defined) spot for a control in BLACK, a possibly good spot in PURPLE, and a likely poorer (or uninteresting) spot in RED.

Example 1: Racers are travelling along Sour Creek and you would like to put a control along the route. The black circle location is a well-defined feature and likely to be accurately mapped. It does create a slight out-and-back situation if the racers are continuing along the main creek. The purple circle at the creek junction might be a good spot if the creeks are distinct and there are not too many other smaller unmapped creeks in the area. The red circle location could be extremely difficult to pinpoint due to the lack of distinct features there. The curves along the creek would be hard to follow especially if the area is wet/marshy and/or the vegetation is tall.
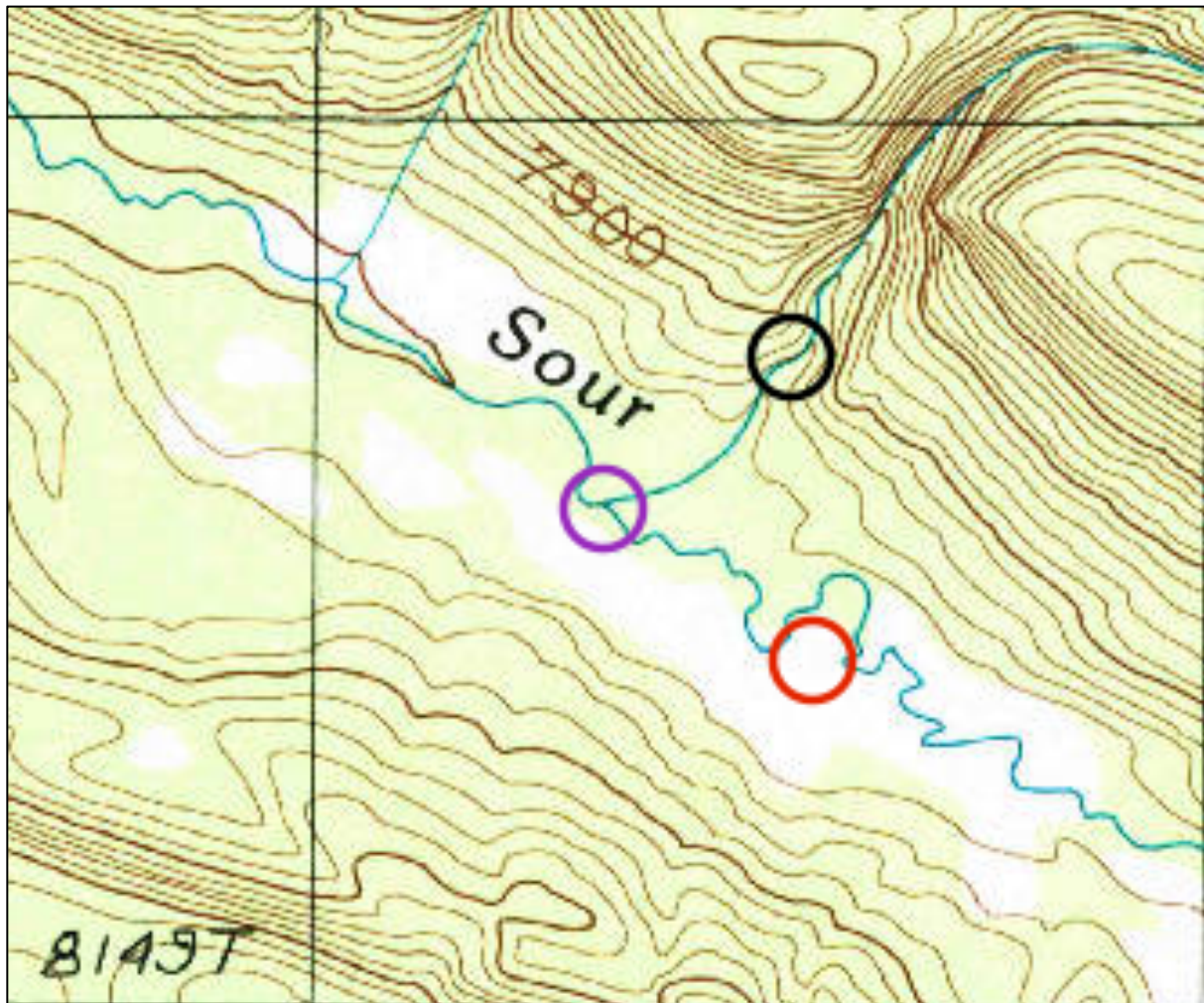
Example 2: In this example, racers are traveling north up and over a broad hill. The red circle placement is practically a featureless hillside and likely not a good place for a control, unless there is some notable feature there (a field, an distinctive rock formation, or similar). The purple circle is better if all the knobs are distinct. The black circle is probably the most unique location and might even provide a scenic view.
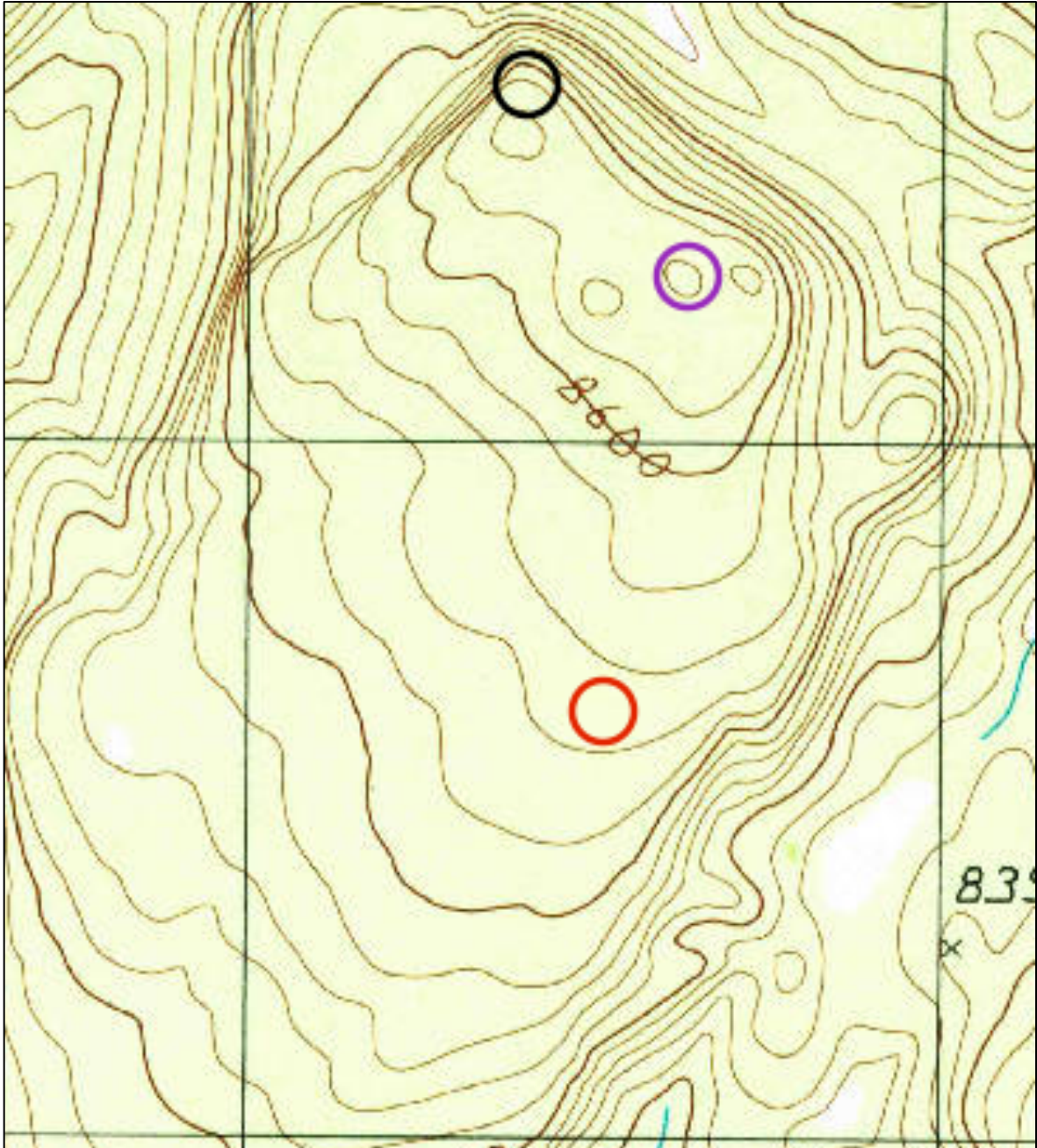
Example 3: If racers are traveling along the marked trail, then a control right on the trail requires almost no navigation to find. (the red circle). If you really do just want the racers to stay on the trail, then putting the control at the red circle is fine. However, if you want the racers to do some navigating, then putting the control off of the trail (the purple/black circles) requires that they pay more attention as they travel down the trail. The black circle is a well-defined feature. The purple circle could be tricky at night or if the river bank has changed since the map was created.
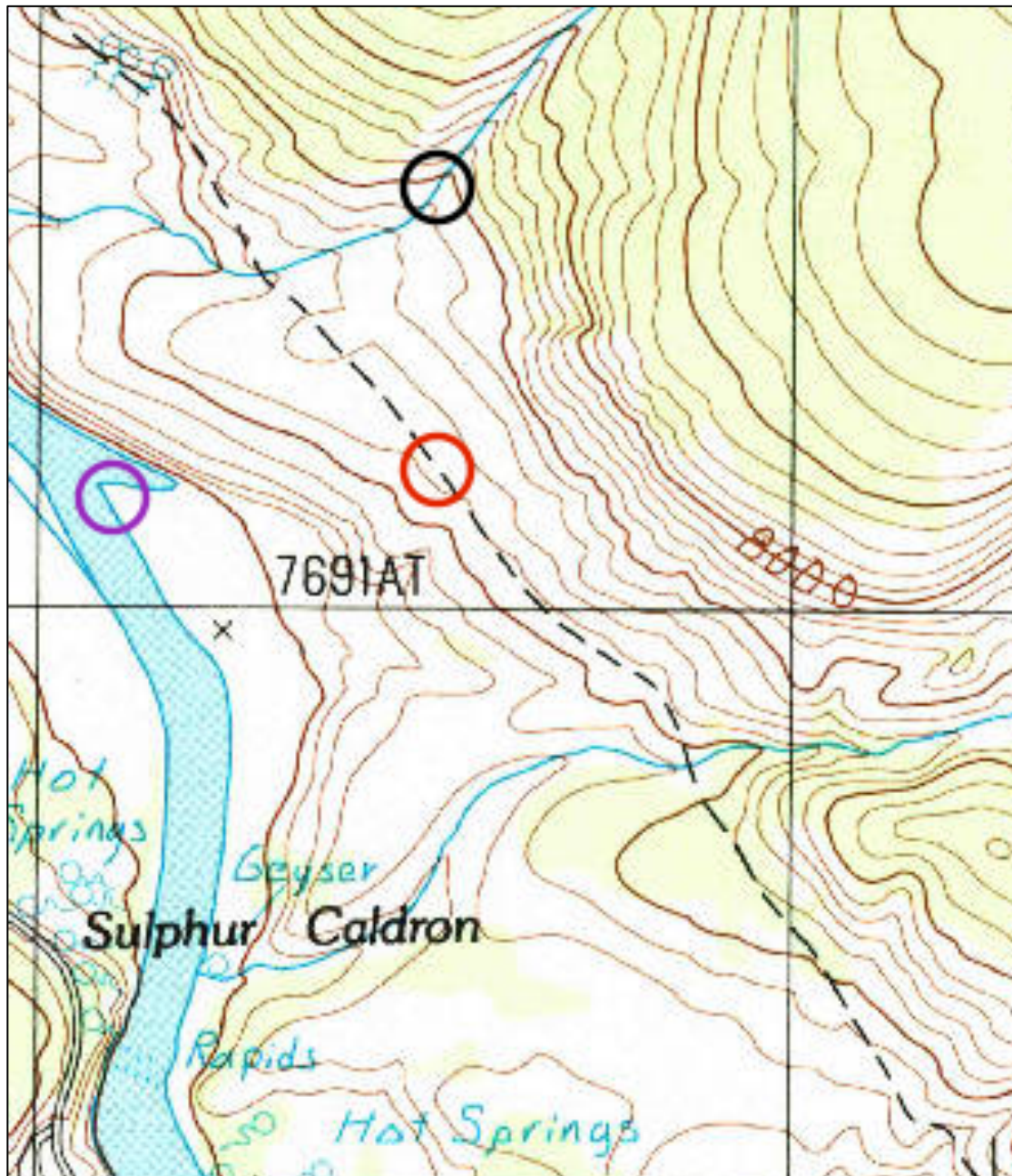
Example 4: This map depicts the flattish end of a river/stream valley. The black circle provides a distinct feature that could be easily found. The purple circle location would be a bit harder and might provide some more competent navigation to reach. The red circle location is perhaps lacking in a distinct feature and could result in an undesirable situation, where teams are close to the control, but cannot locate it because the topography is lacking distinct features.