

A research agenda for adventure racing events that take place in natural settings and protected areas

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This paper refers to adventure racing which occurs in protected areas and research questions arising from this. Adventure racing generally comprises a combination of outdoor activities such as rogaining/orienteering, mountain biking, running, abseiling, rock climbing and canoe (white water) racing. Adventure races typically extend over long distances and take place over a number of days. Participants are usually required to master a range of – outdoor activities and also manage the transport of food, water and equipment. Contestants are at risk of illness and injury as they compete in unfamiliar and isolated areas and may be required to perform with minimal sleep in multiple day events (see Kay and Laberge, 2002). Adventure racing is well established in New Zealand, USA, Australia, Morocco, Argentina, Borneo, and Fiji. Events that take place in these countries range in size and sometimes involve thousands of people including support crew, spectators and organizers, sometimes media and film crews and are an increasingly profitable commercial enterprise.

Newsome and Lacroix (2011) and Newsome et al. (2011), in their recent study of adventure racing and mountain biking events in Australia, have demonstrated that adventure racing is increasing in popularity. Their work also demonstrates that these events frequently involve the use of areas reserved for nature conservation. Following on, event organizers are increasingly targeting areas reserved for nature conservation and (presumably because of perceived social and economic benefits) protected area managers are granting the approval for these events.

Whilst there is a dearth of research on specific impacts there is plenty of information about the impacts of related or component activities. Newsome et al. (2011) document the potential impacts arising from a plethora of action based activities, such as running, mountain biking and field camping, biophysical effects include soil erosion, soil compaction, addition of nutrients and microbes including from human waste, creation of informal/social trails, exposure of roots, rocks and substrate and increased muddiness of wet and compacted trail segments (eg. Buckley, 2004; Turton, 2005; Mende and Newsome, 2006; Randall and Newsome, 2008; Pickering et al., 2010a). Potential damage to vegetation arising from trampling includes a reduction in height, cover and diversity of vegetation, loss of species sensitive to trampling and increase in species resistant to trampling including weeds (Turton, 2005; Mende and Newsome, 2006; Randall and Newsome, 2008; Hill and Pickering, 2009; Pickering and Growcock, 2009).

The biophysical impacts of adventure racing will vary with the type(s) of activity involved, when and where the race occurs, the number of people involved and the behavior of organisers, participants and spectators. Where compliance with codes of conduct/minimum impact codes is

limited, such as in the case of deposition of human waste, littering and in the creation of short cuts or when spectators move off trails, damage is more likely (Turton, 2005; Bridle et al., 2007; Littlefair and Buckley, 2008; Growcock and Pickering, 2011). Events that take place during wet conditions are likely to result in increased soil erosion and damage (eg Liddle, 1997). The severity of impacts from adventure racing will vary depending on where they are held. Unfortunately, impacts of adventure racing are likely to be greater in Australia than those in Europe and North America because of Australia's unique evolutionary history, fragile soils and sensitive vegetation (Newsome et al., 2002; Pickering et al., 2010a). For example, the potential spread of pathogens, such as fungal spores and water moulds on clothing, shoes and tyres is a particular problem in Australia (Buckley et al., 2004; Turton, 2005; Pickering and Hill, 2007).

A key question is the acceptability of any impacts that arise as a result of an adventure/sporting event that takes place in a protected area. There are a range of frameworks for decision making that might help to determine acceptability, Limits of Acceptable Change (LAC) is one of these (Stankey et al. 1985). This is not the place to interrogate individual frameworks, rather we wish to open up broad questions about how acceptability might be determined. As an approach to deciding upon the acceptability of impacts an LAC framework might be employed to assist in decision making in regard to how much activity might be allowed and what actions are required. With respect to biophysical effects, indicators could include: the occurrence of litter, damage to vegetation, soil erosion, trail degradation, development of informal trails (trails not sanctioned by management) and disturbance to wildlife. One problem will lie in deciding the scale and spatial extent of indicator measurement. If events are confined to trails to what extent does measurement of off-trail impacts need to be considered? It might also be prudent to monitor adjacent trail condition if large numbers of spectators are involved with the event.

Some events will/might have a cross-country component that would pose additional challenges in monitoring biophysical condition. In such cases it may be necessary to collect baseline data and place permanently marked quadrats that are designed to measure damage to soils and trampling of vegetation. If it is a dispersed activity as in the case of regaining/orienteering it may be necessary to have a very large sample area in order to detect potential damage.

Beyond the question of measuring impacts and determining the limits of acceptable change, research must be undertaken into the management of these events. Adventure-racing events are a global phenomenon. Although the environmental, social and cultural settings for the adventure-racing events differ across place, there is value

in understanding how adventure-racing events have been approached and managed elsewhere as this information can be used to inform local approaches and practices. Yet there is a lack of information about how the management of adventure racing events in protected areas is being approached, and what the strengths and limitations of various approaches are.

To this end (and to the benefit of all those who are faced with the challenge of managing events in protected areas) we are currently undertaking an investigation into the how adventure-racing events are being managed around the world. We are paying particular attention to the policy and legislative frameworks in place, how these have changed over time to address the advent of these activities, and

the various challenges of managing adventure racing events in protected areas. We are interested in collecting any information about the nature and scale of events in different locations, the processes by which event organizers have to apply for permission in different areas, what criteria protected area managers take into account when deciding whether or not to grant permission for an event, and whether monitoring programs are put in place as part of an environmental management plan for the events?

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