Discussion Paper:

National Parks and Wildlife Service
Cycling Policy Review and
Sustainable Mountain Biking Strategy
Glossary

Armouring: reinforcement of a surface with rock, brick, stone, concrete or other paving material

Berm: a ridge on the outer edge of a track that is higher than the centre of the track

Drop: a constructed or natural feature where the slope drops away steeply

IMBA: International Mountain Bicycling Association, the international peak body for mountain biking with members in 41 countries

LED: light emitting diode, a high efficiency light source

Management trail: a vehicle trail in a reserve that is maintained to facilitate management activities and is not available for general public vehicle use (except for non-motorised vehicles such as bicycles); licensed access to inholdings, apiary sites or similar may be allowed.

Multi-use track: a track that is available for walkers and cyclists which may also be available for other users such as horse-riders


NPWS parks: lands reserved under the National Parks and Wildlife Act 1974 and managed by the NSW National Parks and Wildlife Service and which include national parks, historic sites, state conservation areas, regional parks, karst conservation areas, nature reserves and Aboriginal areas

Plans of management: All NPWS parks are required under the National Parks and Wildlife Act 1974 to have a plan of management. Plans of management provide a vision of the values of the parks, the objectives for management and how those objectives will be met. All operations in NPWS parks must be in accordance with the applicable plan of management.

Policy: a statement of a decision to undertake a set course of action. Government policies interpret and bring into effect legislation and its operations.

Preferred-use track: a track that is clearly marked as being designed for one type of use but that other users are permitted to use

Public access road: provides vehicle access to the general public; public roads which are managed by NPWS are also available for cycling and walking.

Rock garden: a constructed or natural rock feature that is challenging to ride over

Rollover: a constructed or natural feature that can be rolled over on a bike

Singletrack: a narrow track that is only wide enough to accommodate riders in single file

Single-use track: a track that is only available for one type of use

Tenures: in this publication, types of public lands, with park tenures in NSW including NPWS parks, state forests, state parks and Crown land.

Track: tracks are generally used by bushwalkers, pedestrians, horse riders and/or cyclists and are not available for motorised vehicle use

Trail: see Management trail
About this discussion paper

The National Parks and Wildlife Service (NPWS), part of the Department of Environment, Climate Change and Water NSW, is developing a more effective approach to managing mountain biking in national parks and other reserves. This is being done concurrently through a review of the NPWS Cycling Policy and the development of a Sustainable Mountain Bike Strategy. The policy sets rules about how NPWS will meet the objects of the National Parks and Wildlife Act 1974, while the strategy will set priorities for NPWS over the next 5–10 years.

This paper has been prepared to encourage discussion and comment from members of the public to ensure the adoption of the most appropriate and effective approach. It presents the key issues in managing mountain biking in national parks and other reserves and suggests responses to these by recommending certain intents in the policy and actions in the strategy.

Members of the public, whether as individuals or as members of community interest groups and organisations, are invited to comment on this discussion paper. Submissions should be in writing and be as specific as possible. Any comments, no matter how brief, are welcome.

Comments should be received by close of business 19 October 2010 and:

- mailed to Cycling Policy and Mountain Biking Strategy, Department of Environment, Climate Change and Water, PO Box 1967, Hurstville NSW 1481
- emailed to mountain.biking@environment.nsw.gov.au, or
- posted on our online forum at nsw.gov.au/shapeyourstate

All submissions received by the Department of Environment, Climate Change and Water are a matter of public record and available for public inspection on request. Your comments on this discussion paper may contain information that is defined as ‘personal information’ under the state’s Privacy and Personal Information Protection Act 1998. The submission of personal information with your comments is voluntary.
1. Introduction

1.1 Mountain biking in NPWS parks

New South Wales has an extensive system of public lands providing opportunities for public recreation, including parks reserved under the National Parks and Wildlife Act 1974 (NPW Act), state forests and Crown land. Opportunities for recreation are also provided on private land.

Parks reserved under the NPW Act are managed by the NSW National Parks and Wildlife Service (NPWS) and include national parks, historic sites, state conservation areas, regional parks, karst conservation areas, nature reserves and Aboriginal areas. NPWS parks are special and unique places that are reserved to ensure the conservation of natural and cultural values and foster public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation.

In NPWS parks the protection of natural and cultural values is given the highest priority and recreation, enjoyment and education must be compatible with this core role. Well-managed cycling, like walking and scenic driving, enables the public to enjoy and learn about park values.

Within NPWS parks, cycling (including mountain biking) is currently allowed on all public access roads managed by NPWS and on most management trails, subject to specific requirements in the reserve’s plan of management or signage. Mountain biking on narrow tracks that are only wide enough to accommodate riders in single file (known as ‘singletrack’) is currently only allowed in Yellowmundie Regional Park, Livingstone National Park and State Conservation Area, Kosciuszko National Park, and on a trial basis at Glenrock State Conservation Area and Royal National Park.

Illegal cycling in unauthorised areas and creation of unauthorised tracks is common in some NPWS parks, particularly those close to population centres. Walking tracks appropriated for mountain biking and poorly designed user-built tracks are significantly more dangerous for riders than tracks designed specifically for mountain biking and likely to result in conflict with other park visitors. NPWS is unable to provide direction or design to these tracks so they can cause extensive local damage to fragile environments and cultural sites.

1.2 Demand for mountain biking in NSW

Cycling, including mountain biking, is a rapidly growing recreational activity in NSW. The number of people who participated in recreational cycling at least three times per week increased by 35% from 2001 to 2009 in NSW and by 43% from 2001 to 2008 in Sydney. Cycling was one of the most popular recreational activities in NSW national parks in 2008, as popular as camping and other overnight stays (Table 1).

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1 New South Wales Taskforce on Tourism and National Parks Final Report, November 2008
2 Australian Sports Commission Exercise, Recreation and Sport Survey, 2009
Table 1: Most popular activities during visits to NSW national parks in 2008

<table>
<thead>
<tr>
<th>Activity</th>
<th>Visitors who participated (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>54%</td>
</tr>
<tr>
<td>Water-based recreation</td>
<td>17%</td>
</tr>
<tr>
<td>Picnicking and dining</td>
<td>14%</td>
</tr>
<tr>
<td>Touring and sightseeing</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Cycling</strong></td>
<td>4%</td>
</tr>
<tr>
<td>Exercise and sport</td>
<td>4%</td>
</tr>
<tr>
<td>Camping and accommodation</td>
<td>4%</td>
</tr>
<tr>
<td>Snow sports</td>
<td>2%</td>
</tr>
<tr>
<td>Rest and relaxation</td>
<td>2%</td>
</tr>
<tr>
<td>Enjoyment and appreciation of nature</td>
<td>2%</td>
</tr>
<tr>
<td>Driving and motorbiking</td>
<td>2%</td>
</tr>
<tr>
<td>Climbing, caving and canyoning</td>
<td>2%</td>
</tr>
<tr>
<td>Children’s play</td>
<td>2%</td>
</tr>
</tbody>
</table>

In 2008, NSW residents said they had participating in cycling and mountain biking on an unsealed road or track a total of 26 million times in the preceding year. In Greater Sydney, 15% of residents had participated in the past year, while in the Southern Tablelands and South Coast 20% of residents had participated (Table 2).

There is evidence of unmet demand for opportunities for cycling and mountain biking on an unsealed road or track, with between 9% and 30% of residents saying they were interested in participating more frequently but identifying a lack of local opportunities or awareness of local opportunities as the barrier stopping them from doing so (Table 2).

The Western Australian Department of Environment and Conservation (WA DEC) notes that most mountain bike riders beyond novice level seek singletrack experiences. Singletrack is desirable because it allows more intimate experiences of the setting, a better connection between the rider and the environment and relatively high levels of technical challenge at relatively low speeds (thereby reducing actual risk by increasing perceived challenge).4

In NSW, demand for increased opportunities for riding on singletrack is evident in discussions between NPWS and peak and local mountain bike groups and submissions to planning processes. The 2008 NSW Taskforce on Tourism and National Parks received 193 submissions, including 31 submissions supporting cycling and mountain biking on singletrack in national parks.

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3 Annual Visits to PWG Managed Parks in New South Wales – Final Report, 2009, prepared by Roy Morgan Research for the Department of Environment and Climate Change NSW

4 Draft Mountain Bike Management Guidelines, 2006, WA Department of Environment and Conservation
Table 2: Participation in cycling and mountain biking on an unsealed road or track in NSW in 2008

<table>
<thead>
<tr>
<th>Region</th>
<th>Residents who participated in the preceding year (%)</th>
<th>Times residents participated in the preceding year</th>
<th>Residents interested in participating more frequently who said a lack of local opportunities or knowledge stopping them from doing so (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Sydney</td>
<td>15%</td>
<td>10.7 million</td>
<td>18%</td>
</tr>
<tr>
<td>North Coast</td>
<td>17%</td>
<td>4.5 million</td>
<td>24%</td>
</tr>
<tr>
<td>Northern Tablelands</td>
<td>11%</td>
<td>4.5 million</td>
<td>23%</td>
</tr>
<tr>
<td>Southern Tablelands</td>
<td>20%</td>
<td>3.7 million</td>
<td>10%</td>
</tr>
<tr>
<td>South Coast</td>
<td>20%</td>
<td>1.5 million</td>
<td>9%</td>
</tr>
<tr>
<td>Western NSW</td>
<td>17%</td>
<td>1.2 million</td>
<td>30%</td>
</tr>
</tbody>
</table>

1.3 State Plan and NSW Bike Plan

Increased opportunities for cycling and mountain biking in NSW parks addresses key priorities under the NSW State Plan (released in March 2010) and the NSW Bike Plan (May 2010).

The NSW State Plan is a broad statewide strategy that sets priorities and targets for the NSW public sector to deliver government services. The plan sets key priorities in relation to cycling and visits to NSW parks (Table 3). These priorities recognise the importance of cycling for transport and recreation, and the important role of parks in developing a strong sense of community through providing opportunities for the community to engage with the natural environment.

Table 3: Relevant State Plan priorities

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Priority</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better transport and liveable cities</td>
<td>Increase walking and cycling</td>
<td>Increase the mode share of bicycle trips made in the Greater Sydney region, at a local and district level, to 5% by 2016</td>
</tr>
<tr>
<td>Stronger communities</td>
<td>Promote our parks</td>
<td>Increase the number of visits to State Government parks by 20% by 2016</td>
</tr>
</tbody>
</table>

The NSW Bike Plan is a key action under the NSW State Plan. The plan outlines actions to build the popularity of cycling, noting that increasing the number of people riding bikes helps combat congestion in cities and towns, makes healthy physical activity part of everyday life, and reduces the air pollution and climate change impacts of driving. NPWS is identified as a partner for a number of actions (Table 4).

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5 Nature-based outdoor recreation demand and preferences quantitative research findings, 2009, prepared by Ipsos-Eureka Social Research Institute for the Department of Environment, Climate Change and Water NSW
Table 4: NSW Bike Plan actions identifying NPWS as a partner

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create connected cycling networks</td>
<td>Promote cycle access to and through designated NSW national parks and Crown reserves, including the use of sustainable mountain bike tracks</td>
</tr>
<tr>
<td>Grow jobs in cycling</td>
<td>Through the NSW Tourism Industry Plan identify and promote cycle tourism opportunities such as:</td>
</tr>
<tr>
<td></td>
<td>- the NSW Coastline Cycleway</td>
</tr>
<tr>
<td></td>
<td>- regional experiences like food and wine tours and rail-trails</td>
</tr>
<tr>
<td></td>
<td>- mountain biking in the Snowy Mountains and Blue Mountains, and linkages across other national parks and publicly managed lands</td>
</tr>
<tr>
<td>Grow jobs in cycling</td>
<td>Coordinate ‘Ride NSW’ bike tourism opportunities that are:</td>
</tr>
<tr>
<td></td>
<td>- part of an overarching NSW tourism industry plan</td>
</tr>
<tr>
<td></td>
<td>- promoted through a consistent visual identity, including route signage where possible</td>
</tr>
<tr>
<td></td>
<td>- marketed through an online ‘one-stop shop’ of information on cycle tourism products across NSW</td>
</tr>
</tbody>
</table>

1.4 Controlling risks and impacts in NPWS parks

It is imperative that NPWS finds a way to control risks, conflicts and damage caused by mountain biking. Evidence from NSW, interstate and international experience suggests that providing legal opportunities for riding on mountain bike singletrack significantly reduces illegal use and associated risks and impacts.

NPWS is trialling a limited amount of high quality legal singletrack in Glenrock State Conservation Area, which has experienced a rapid expansion of illegal mountain biking and track construction over a 10-year period. By providing authorised singletrack, developing a cycling code of conduct and engaging mountain bike riders through a volunteer group, NPWS expects to reduce the total volume of tracks being used by riders in Glenrock. To date, this approach is proving successful, with a significant decrease in illegal mountain biking activity.

This matches the international and interstate experience, which has demonstrated that legal singletrack reduces the incentive to use and create unauthorised tracks and increases the success of track closures. Five years ago Brisbane City Council provided 12.5 kilometres of legal singletrack at Mt Coot-tha, an urban park in Brisbane. Since the track opened there has been a decrease in the total number of mountain bike tracks at Mt Coot-tha with the closure of illegal tracks, a decrease in the erosion generated by the track network, and an increase in compliance with restrictions on riding on walking trails.

WA DEC has also worked with riders to provide a number of legal singletrack experiences in parks near Perth. Demand for mountain biking experiences continues to outstrip the agency’s ability to supply mountain biking experiences, so there is still illegal use in WA DEC parks. However, this has decreased and many riders are now working with the agency and influencing other riders to comply with restrictions.
1.5 Taking advantage of opportunities for engagement

While mountain biking has had a negative impact in some NPWS parks, well managed cycling experiences provide an opportunity for NPWS to engage a wide audience through enjoyable park experiences. NPWS believes that engaging people through relevant, contemporary park experiences is the best way to foster public appreciation and understanding of nature and cultural heritage and strengthen support for protecting and extending the park system into the future. It also has positive health benefits for riders and the community. Many mountain bike riders are keen outdoor recreation participants who already frequently visit parks to engage in walking, climbing, paddling and canyoning, but some other riders can be introduced to parks through their interest in cycling.

In most regions of NSW, males aged 18 to 44 are more likely to participate in cycling and mountain biking on an unsealed road or track, particularly males 35–44, while females 45–75 are significantly less likely to participate (Table 5).

There is evidence that there will be a shift in the near future towards greater participation by young women, with females 18–24 in many regions of NSW significantly more likely to express interest in participating more frequently in cycling and mountain biking on an unsealed road or track (Table 5). Such a shift is also expected based on the US experience, where there was a 33.9% increase in participation by women between 2002 and 2003.6

Participation in the traditional track-based experience of walking in national parks, by contrast, is highest among females and visitors aged over 50.7

Table 5: Differences in participation and interest in participation in cycling and mountain biking on an unsealed road or track by age and gender8

<table>
<thead>
<tr>
<th>Region</th>
<th>Significantly more likely to participate</th>
<th>Significantly less likely to participate</th>
<th>Significantly more likely to express interest in participating more frequently</th>
<th>Significantly less likely to express interest in participating more frequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Sydney</td>
<td>Males 18–24</td>
<td>Females 45–75</td>
<td>Males 18–44 Females 18–24</td>
<td>Males 45–75 Females 45–75</td>
</tr>
<tr>
<td>North Coast</td>
<td>Males 35–44</td>
<td>Females 45–75</td>
<td>Males 18–24 Females 35–44</td>
<td>Males 45–75 Females 45–75</td>
</tr>
<tr>
<td>Northern Tablelands</td>
<td>Females 45–75</td>
<td>Males 18–34</td>
<td>Females 45–75</td>
<td></td>
</tr>
<tr>
<td>Southern Tablelands</td>
<td>Males 25–44</td>
<td>Females 45–75</td>
<td>Males 18–44 Females 18–24</td>
<td>Males 45–75 Females 45–75</td>
</tr>
<tr>
<td>South Coast</td>
<td>Females 45–75</td>
<td>Males 18–24</td>
<td>Females 18–24</td>
<td>Females 45–75</td>
</tr>
<tr>
<td>Western NSW</td>
<td>Males 35–44</td>
<td></td>
<td></td>
<td>Males 45–75 Females 45–75</td>
</tr>
</tbody>
</table>


7 Annual Visits to PWG Managed Parks in New South Wales – Final Report 2009, prepared by Roy Morgan Research for the Department of Environment and Climate Change NSW

8 Nature-based outdoor recreation demand and preferences quantitative research findings, 2009, prepared by Ipsos-Eureka Social Research Institute for the Department of Environment, Climate Change and Water NSW
Research has shown that physical activity in natural environments can have greater psychological and physiological benefits than physical activity in other settings. Studies have also shown that contact with natural environments can reduce blood pressure, cholesterol and stress levels, improve concentration and productivity, and have a positive effect on outlook of life.⁹,¹⁰

1.6 NPWS role in providing mountain bike experiences

Successful management of mountain biking in NSW requires high quality track networks at selected locations where the landscape is accessible and suitable for mountain biking and there is a strong demand for the activity. The role of NPWS is to provide mountain bike experiences where planning identifies its parks are best suited to provide a track network or section of a network. It is neither necessary nor desirable to provide mountain bike experiences in other NPWS parks.

NPWS will provide mountain bike experiences in places where NPWS parks are best suited to provide these experiences, including places where:

- NPWS is the dominant holder of bushland
- NPWS is able to provide a particularly unique or spectacular experience, or
- a mountain bike experience through one or more other land tenures could be particularly enhanced by providing a link or section through NPWS parks.

Proposed Policy intent

Cycling, including mountain biking, is supported as a healthy way for visitors to enjoy the natural heritage of parks.

Planning, design and management of mountain bike tracks will be guided by:

- minimisation of environmental impacts
- provision of a quality experience for riders to enjoy and appreciate parks
- opportunities and demand for mountain biking across the region, including other land tenures
- minimisation of conflict between park users.

Proposed Strategy recommendations

A small number of world-class mountain bike experiences, some including sections of singletrack, should be provided either partially or wholly in NPWS parks over the next 5–10 years.

The mountain bike experiences would be provided in places where NPWS parks are best suited to provide these experiences, including places where NPWS is a major holder of bushland; NPWS is able to provide a particularly unique or spectacular experience; or a mountain bike experience through other land tenures could be particularly enhanced by providing a link or section through NPWS parks.

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¹⁰ Healthy Parks, Healthy People: The Health Benefits of Contact with Nature in a Park Context – A review of relevant literature, 2008, Deakin University, Melbourne
1.7 Mountain bike styles

Mountain biking can be classified into a number of broad styles:

- cross-country
- all-mountain
- downhill
- free riding
- dirt jumping
- trials.

There is a lot of cross-over between the different styles, and recreational riding is often a combination of several styles. Styles differ in their suitability for different NSW public and private land tenures. Cross-country and all-mountain experiences are the best match with NPWS parks, as they have the least possible infrastructure and environmental management requirements and are particularly suited to fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation.

**Cross-country** riding involves riding point to point or on a circuit and includes both uphill and downhill sections. It includes a broad spectrum of terrain, from management trails to singletrack, and may include technical challenges suiting a wide range of skill levels. Rides can be anywhere from an hour or two up to several days.

**All-mountain** riding is a more technical form of cross-country riding that can include more advanced technical challenges and steeper hill sections.

**Downhill** riding involves a point-to-point ride that is predominantly downhill. Tracks are usually singletrack with technical challenges. Downhill mountain bikes are generally too heavy for serious climbing, so riders usually travel to the start of the descent by car or ski lift, requiring supporting infrastructure. Downhill tracks generally require greater armouring and more frequent maintenance to protect the environment than cross-country tracks as they descend more steeply. They also present a greater risk to participants than cross-country tracks.

**Free riding** involves riding tracks and/or stunts that require more skill and technical features than cross-country. Some free riders prefer riding in stand-alone challenge parks or skills areas, while others prefer technical challenges within cross-country rides. Free riding encompasses a number of other styles such as downhill, north shore (riding on elevated tracks made of interconnecting bridges and logs) and slopestyle (combining stunts and tricks).

**Dirt jumping** involves riding bikes over shaped mounds of dirt or soil to become airborne. Dirt jumpers prefer dedicated jumping areas.

**Trials** riding involves hopping and jumping bikes over obstacles, without touching a foot onto the ground. It can be performed either off-road or in an urban environment.

It is generally accepted worldwide that cross-country and all-mountain riding are the most popular styles of mountain biking. In Tasmania, 80% of riders said they preferred or undertook cross-country or all-mountain riding most often, compared with 28% for downhill, 14% for dirt jumping and free riding, and less than 10% for trials (respondents were allowed to select more than one type). Initial consultation with stakeholders identified all-mountain as the most popular style of mountain biking in northern Sydney.

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All existing legal mountain biking experiences in NPWS parks are cross-country experiences, apart from one downhill experience in Kosciuszko National Park.

**Proposed Policy intent**

Free riding and dirt jumping infrastructure will only be allowed in regional parks and they must meet new sustainability criteria.

All other off-track cycling, including trials riding, will not be allowed in any NPWS park.

**Proposed Strategy recommendations**

Cross-country and all-mountain are recognised as the most appropriate styles of mountain biking in NPWS parks. Cross-country and all-mountain experiences include singletrack and management trails and may include technical challenges suiting a wide range of skill levels.

The priority for NPWS over the next 5–10 years will be to provide cross-country and all-mountain experiences rather than other styles of mountain biking.
2. Planning for mountain biking

2.1 Cross-tenure planning

2.1.1 Partnerships with other land management agencies

Other land management agencies provide a variety of mountain bike experiences. There may be opportunities for other tenures to provide additional mountain bike experiences that will contribute towards reducing illegal use of NPWS parks. NPWS will partner with other land managers to consider such opportunities.

Downhill experiences are provided at Awaba and Ourimbah State Forests and cross-country experiences at Awaba, Ourimbah, Bondi, Tumut and Wingello State Forests. The Land and Property Management Authority provides cross-country experiences on some sections of the Six Foot Track in the Blue Mountains and the Bicentennial Trail from Queensland to Victoria. Many local councils also provide mountain bike experiences.

2.1.2 Providing experiences that cross land tenures

A cross-tenure approach is essential to planning quality mountain bike experiences. In many regions, NPWS cannot provide the required track length or linkages solely within the NPWS estate.

Track length is an important determinant of the quality of a mountain biking experience. Mountain bike riders will cover a greater distance in a set amount of time than walkers. Members of one mountain bike club in northern Sydney said a key feature they were looking for in a track network was enough length to provide a 2–4 hour ride without backtracking frequently over the same track. Studies and consultation in Tasmania indicated local riders were often seeking opportunities for 1–2 hour circuits. Longer tracks also reduce the intensity of use on a given section of track, which helps reduce maintenance requirements.

Linkages to public transport or opportunities to ride to a mountain bike track can improve the accessibility of experiences, especially for younger riders.

Proposed Strategy recommendations

NPWS will develop partnerships with other land managers to plan, design and construct mountain bike experiences.

2.2 Future growth

Regional planning for mountain biking needs to evaluate likely future growth in participation as a result of population growth, new residential developments and continued increases in mountain bike popularity.

12 Hornsby Mountain Bike Trails Desktop Review and Site Inspection Report 2009, prepared by World Trail Pty Ltd for Hornsby Shire Council

13 Sport and Recreation Tasmania 2009, Tasmania Mountain Bike Plan, Department of Economic Development, Tourism and the Arts Tasmania
Growth in mountain biking participation may lead to tracks becoming overcrowded, reducing the quality of a mountain bike experience and increasing the maintenance requirements of the track. For example, regular maintenance is required to ensure the ecological sustainability of tracks in the Manly Dam area due to high usage levels.14

**Proposed Strategy recommendations**
Regional planning will consider likely future growth in participation in mountain biking.

### 2.3 Plans of management

The NPW Act requires a plan of management to be prepared for every gazetted reserve in NSW as soon as practicable. All activities in parks, including mountain biking, must be carried out in accordance with the plan of management.

If regional planning identifies a clear need for new mountain bike experiences in an NPWS park that does not accord with a current plan of management but is considered appropriate, the plan of management would need to be amended. Plans of management are amended by the Minister for the Environment after public notice, community consultation, consideration and advice from the relevant regional advisory committee and the National Parks and Wildlife Advisory Council.

**Proposed Strategy recommendations**
Where a clear need for new mountain bike experiences in an NPWS park is identified and the site has been assessed as suitable, the plan of management should be written or amended to permit mountain bike experiences that meet best practice standards for sustainability.

### 2.4 Nature reserves and wilderness areas

Mountain biking singletrack will not be provided in nature reserves and wilderness areas as it is inconsistent with the management principles for these areas.

Nature reserves account for 13% of the total area covered by NPWS parks. They protect and conserve areas containing outstanding or representative ecosystems, natural or cultural features, or landscapes or phenomena that provide opportunities for public appreciation and inspiration and sustainable visitor use. Nature reserves differ from national parks, state conservation areas and regional parks in that they do not have a management principle to provide for visitor use. This means that NPWS generally does not provide new visitor facilities, such as cycling tracks.

Wilderness areas account for 30% of the total area covered by NPWS parks. Declared under the *Wilderness Act 1987*, these areas are managed to restore and protect the unmodified state of the area and its plant and animal communities, preserve the capacity of the area to evolve in the absence of significant human interference, and permit opportunities for solitude and appropriate self-reliant recreation.

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14 Warringah Council, *Warringah Regional Multiple-Use Trail Strategy 2007*, Department of Planning NSW
**Proposed Policy intent**

Cycling on tracks is not permissible in wilderness areas and will not be allowed in nature reserves.

Cycling on management trails in nature reserves and wilderness areas is generally not allowed unless permitted under the plan of management. Where a park does not have a plan of management, the NPWS regional manager may approve cycling on management trails if it will not degrade natural heritage or wilderness values.
3. Managing the environment

NPWS parks have special importance as they have been set aside progressively over the last 130 years to protect biodiversity, geological features and landforms, cultural heritage, places of scenic and landscape beauty, and those popular for a wide range of nature-based recreation. The progressive and ongoing development of the park system is part of a long-term commitment to establish a comprehensive, adequate and representative public reserve system. All visitor use must be compatible with the ongoing protection and enhancement of these core values.

3.1 Potential impacts of mountain biking

Potential impacts from mountain biking include disturbance of soils and vegetation, reduced water quality, disturbance of wildlife, and damage to cultural and historical sites and park infrastructure.

Most soil disturbance occurs during the initial construction of a track, but mountain bike tyres can loosen track surfaces, displace soil, and create ruts and berms. Tyres can also compact soils, making revegetation difficult. Similarly, most vegetation disturbance occurs during the initial construction of a track, but mountain biking can crush plants and damage tree roots. Bike tyres can also carry seeds and spores, introducing weeds and soil pathogens such as Phytophthora into new areas. Soil and vegetation disturbance can be exacerbated through track widening where bikes are ridden or walked around worn or muddy sections of the track or technical features that are beyond their skill level.

Displaced soils and nutrients and human waste can reduce water quality, especially on long distance tracks with overnight stays. Disturbance of wildlife by mountain bike riders can interrupt important social and feeding behaviours, reducing the resilience of wildlife communities. Mountain bike tyres can damage cultural sites such as Aboriginal engravings by leaving tyre marks, displacing pebbles onto engravings and causing flaking.

The impacts are far greater on unauthorised tracks than authorised tracks, because they can inadvertently pass through areas with readily erodible soils, threatened plant or wildlife species or communities, important water catchments and sensitive cultural sites. It is therefore vital to plan, design and construct mountain bike tracks to best practice standards to minimise these impacts.  

Environmental assessments are undertaken for all visitor developments in NPWS parks. Prospective mountain bike experiences must be assessed in terms of their potential effect on the conservation, heritage and environmental values of the park and their appropriateness within the surrounding landscape.

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16 Davies C & Newsome D 2009, Mountain Bike Activity in Natural Areas: Impacts, Assessment and Implications for Management: A case study from John Forrest National Park, Western Australia, CRC for Sustainable Tourism Pty Ltd

3.2 Developing new mountain bike experiences

In most cases, new mountain bike experiences should be developed by modifying existing tracks to improve environmental sustainability and the user experience, and reduce risks to mountain bike riders and other users.

Construction of lengthy new tracks in NPWS parks is generally undesirable as it requires removal of vegetation, may lead to the introduction of weeds and soil pathogens into new areas, and can fragment the landscape. Even a narrow track can affect migration of wildlife species. However, sometimes a new track may be required to replace tracks which are badly located or designed.

A long history of use of NPWS parks has bequeathed an extensive network of public access roads, management trails and tracks. As discussed in Section 1, providing mountain bike experiences on management trails alone will not reduce illegal use, as most mountain bike riders seek singletrack. However, walking tracks are not usually sustainable for mountain biking, as they often travel steeply up and down hills or have sharp turns that force riders to brake hard, both of which increase erosion.

Existing tracks need to be modified to provide sustainable mountain bike experiences. This may require some re-routing or widening of the track to improve environmental sustainability, improve the user experience and reduce risks to mountain bike riders and other users.

### Proposed Strategy recommendations

Preference will be given to providing new mountain biking experiences in NPWS parks by improving and modifying existing tracks rather than constructing new tracks. Any need for re-routing or widening of tracks will be considered in the environmental assessment of a prospective mountain bike experience.

3.3 Site suitability

NPWS parks are not uniform across the 6.7 million hectares of land they occupy. Not all parks, or sites within parks, are of the same conservation value or of comparable landscape context. Some parks have significant community value due to their proximity to urban and residential areas and therefore their accessibility for a wide range of recreational activities. These parks may be highly visited, contain facilities and infrastructure, and be significantly influenced by the sights, sounds and presence of people and community. On the other hand, many parks offer significant community value due to the almost complete absence of people and infrastructure. Between these two extremes is a continuum of park settings.

One of the roles of NPWS is to appropriately match recreational activities with park settings. An appropriate recreational activity in one setting may be inappropriate in another.

NPWS is currently preparing statutory assessment criteria and supporting guidelines for sustainable visitor use and tourism in NSW national parks. These will specify the matters to be addressed in assessing the suitability of a site for a proposed activity. They will include whether the activity integrates with the existing site character (the actual physical location of the proposed site) and landscape context (the broader park surroundings) or whether it is compatible with the planned future site character and landscape context.

The statutory assessment criteria and supporting guidelines are both currently in preparation and their final form will depend on progress on amendments to the NPW Act as a result of the Sustainable Tourism Bill. The criteria and guidelines will focus primarily on built structures, but will also have some relevance to mountain biking.
Proposed Strategy recommendations

NPWS will seek to match mountain bike opportunities appropriately across the range of settings within NSW parks. The suitability of a site for a new mountain bike experience will be assessed using relevant parts of the *Sustainability Assessment Criteria for Visitor Use and Tourism in NSW National Parks* to be adopted by the Director General of the Department of Environment, Climate Change and Water and the supporting *Sustainability Guidelines*.

3.4 Principles of track design and location

Mountain bike tracks must be designed and constructed so that water flows are managed and riders and other users are contained on the tracks. This is crucial to reduce erosion, sediment travel, track widening and proliferation, and vegetation damage, and associated maintenance requirements. The International Mountain Biking Association (IMBA) lists 11 principles for designing and locating sustainable mountain bike tracks to allow water to drain off the track and contain users on the track.  

1. Locate the track on a sidehill: It is much easier to drain water away from a track located on a slope than one on flat ground, and it is easier to keep users on the track.

2. Avoid the fall line: Tracks should always climb or descend a slope gradually, rather than travelling directly up or down it. Tracks that travel directly up or down hills (fall-line tracks) create a path for water that erodes soil and creates gullies. Riders may then widen tracks by riding around gullies.

3. Use the ‘half rule’ to guide track alignment: A track’s grade should never exceed half the grade of the sidehill it is located on. Grade is the elevation gained divided by the distance of the segment of the track (expressed as a percentage). A track across a sideslope of 20% should not exceed 10%.

4. Follow the ‘ten percent average’ guideline for sustainable grade: The average track grade is the slope of the track for an entire uphill section. Generally, an average grade of 10% or less is most sustainable.

5. Maximum sustainable grade: Typically, the maximum sustainable track grade is about 15% for a short distance, but it is site-specific and varies with track alignment, use of the half rule, soil type, annual rainfall, vegetation, use of grade reversals, type of users, number of users and level of difficulty.

6. Grade reversals: Most tracks benefit from grade reversals every 6–16 metres. A grade reversal is a spot at which a track drops subtly and rises again, which forces water to drain off the track.

7. Outslope: Most tracks should be built with a 5% outslope. An outslope is a tilt on the downhill or outer edge of the track, which encourages water to sheet across and off the track in a gentle manner instead of funnelling down the track’s centre.

8. Adapt track design to soil texture: Uniform soils dominated by one particle type (such as sand) are most sensitive. A mix of different types of soil particles drains well and holds together. The presence of rock and gravel can improve a soil’s ability to withstand erosion.

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9. Minimise user-caused soil displacement: Soil displacement by users can be reduced by three tactics: consistent flow, insloped turns and armouring. Consistent flow avoids abrupt and inconsistent turns that make riders brake hard or skid. Insloped turns (or bermed turns) improve track flow and reduce skidding. They must be carefully designed to drain water and withstand user impacts. Armouring involves hardening the surface with gravel, rocks, synthetic materials or wooden boardwalks. It can be used to elevate the track tread, especially in soft or wet terrain, or to armour the track against user-caused erosion.

10. Prevent creation of unauthorised tracks: Unauthorised track creation can be reduced by having a stable and predictable surface and providing a high quality experience that meets riders’ needs. (Management of the experience will be discussed further in Section 4.)

11. Maintenance: Track maintenance, as well as track design, should focus on allowing water to drain off the track and containing users on the track.


### Proposed Policy intent

All new cycling tracks must meet best practice sustainable track standards for design, construction and maintenance to minimise impacts on the environment and other park users and optimise the experience for the user.

NPWS will review and set track design standards. IMBA track standards will be used as draft NPWS standards while NPWS is confirming its own standards.

### 3.5 Track design and construction skills

NPWS staff have considerable skills in the design and construction of walking tracks. Some staff have specific skills in the design and construction of mountain bike tracks. Other staff may like to build their skills in this area.

Several Australian consultancies offer specialised services in mountain bike track design and construction. Training packages and sessions are available.

### Proposed Strategy recommendations

NPWS staff involved in mountain bike track design, construction and maintenance will be encouraged to undertake training to build their skills.

NPWS staff will be encouraged to engage experts in mountain bike track design, construction and maintenance to improve the environmental sustainability of tracks and/or the quality of the experience.

### 3.6 Partnerships with mountain bike riders

For effective environmental management a best practice ethos among mountain bike riders and high levels of compliance with environmental requirements are essential. Partnerships are crucial to achieve this outcome.

Providing legal opportunities for mountain bike riding on singletrack will only be successful in controlling the risks, conflicts and damage caused by illegal mountain biking if mountain
bike riders abstain from using and creating illegal tracks. Additionally, the sustainability and safety of mountain bike experiences will often rely on riders complying with environmental requirements. Such requirements might include washing down bikes to avoid the spread of weeds and soil pathogens, dismounting and carrying bikes in certain areas, travelling slowly and warning other users of their presence, remaining on the track at all times and only riding on designated mountain bike tracks. In many cases, mountain bike riders will be more successful than park staff in encouraging other mountain bikers to abstain from using illegal tracks and comply with environmental requirements. Mountain bike riders are more likely to be present and take advice from peers than that from authority figures. At Mt Coot-tha in Brisbane riders have been very successful in ensuring their fellow riders comply with restrictions.

Compliance with environmental requirements may be more successful if a code of conduct is developed in agreement with user groups and heavily promoted on the NPWS website and on signs at track heads. IMBA has developed ‘Rules of the Trail’ that are recognised around the world as the standard code of conduct for mountain bike riders (see Appendix II). These rules or a modified version of them may be appropriate for NPWS parks.

Other advantages of partnerships with riders are discussed in Section 5.

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### Proposed Policy intent

Partnerships between DECCW and user groups are encouraged as a way of promoting park values to the community. User groups should be involved in planning, design, construction and maintenance of cycling tracks where practicable.

NPWS regional managers may enter into memorandums of understanding with user groups on the use and maintenance of local cycling tracks.

### Proposed Strategy recommendations

User groups should be involved in developing an agreed code of conduct. The code of conduct should be heavily promoted.

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### 3.7 Wet weather

Mountain bike riding remains popular even in wet weather. Wet tracks are more susceptible to erosion than dry tracks. Where possible, mountain bike tracks and maintenance regimes should be designed to allow wet weather riding. However, tracks in areas with readily erodible soils may need to be closed in wet weather.

The amount of damage caused by mountain bike riding on wet tracks depends on the type of soils, design of the track and the maintenance regime. Well-designed mountain bike tracks, potentially including armouring of sensitive areas, and regular maintenance can reduce the impact of riding on wet tracks and allow tracks in certain soil types to be ridden sustainably in wet weather. In more readily erodible soil types, tracks may need to be closed in wet weather.

Wet weather closures of mountain bike tracks have proved difficult to enforce. Manly Dam in northern Sydney has found up to 50 people riding on their mountain bike track during wet weather closures. Some riders may always ignore wet weather closures, while others may ignore them due to a lack of understanding of the reasoning behind them. Riders have speculated that Manly Dam rangers deliberately close the track when it is likely to be busy to reduce use, rather than because the track is wet. Wet weather closures may be more successful if a set of criteria for closures is developed in agreement with user groups. Methods for notifying riders of closures should also be agreed to.
**Proposed Strategy recommendations**

The environmental assessment of a prospective mountain bike experience should consider the impact of wet weather and any likely problems with compliance with wet weather closures.

Where possible, mountain bike tracks and maintenance regimes should be designed to allow wet weather riding. Where wet weather closures are required, user groups will be consulted to develop an agreed set of criteria for the closures and agreed methods for notifying riders of closures.

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**3.8 Night riding**

High-powered LED light systems are now available that allow mountain bike riding at night. Night riding is popular with riders who work during the day and riders training to compete in 24-hour endurance events. Noise and lights from night riding may disturb park neighbours and wildlife. The environmental impacts of night riding are poorly understood.

**Proposed Strategy recommendations**

The potential impacts from night riding on park neighbours will be considered when assessing the suitability of a site for a new mountain bike experience.

Research should be conducted as a high priority to investigate the environmental impacts of night riding, particularly on wildlife. NPWS will work with user groups to use the research findings to determine the most appropriate approach to manage night riding in NPWS parks.

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**3.9 Events**

NPWS parks already host many mountain bike events, including adventure races and large orienteering events. Appropriately designed mountain bike facilities may attract interest from event organisers. Mountain bike events can attract large numbers of riders and visitors.

Mountain bike events held in NPWS parks can raise the park profile, provide revenue for NPWS and benefit local economies. The Thredbo Australian Open of Mountain Biking in March 2007 attracted 389 mountain bike riders plus an additional 1200 visitors who stayed for an average of 5.4 nights in the area. The Highland Fling mountain bike event attracts 1500 riders to the Southern Highlands of NSW. The Netti MTB Enduro event generates approximately $1.5 million for the South Coast region of NSW.

However, mountain bike events have the potential to cause environmental damage because of the high numbers of riders, high speeds and littering by riders and visitors. NPWS permits many large events in NPWS parks, including Oxfam Trailwalker, adventure races and large orienteering events. Prospective mountain bike events will be assessed in the same way as these events to ensure they are appropriately matched to park settings and conservation values protected.

**Proposed Policy intent**

Prospective mountain bike events will be subject to environmental assessment to ensure they meet high sustainability standards, protect conservation values and are appropriately matched to park settings.
4. Managing the experience

Providing a high quality experience that meets riders’ needs is important in ensuring mountain bike infrastructure and facilities are used into the future and justify the investment of resources in tracks. High quality experiences also reduce the incentive for mountain bike riders to modify tracks or create unauthorised tracks.

4.1 Providing a diversity of world-class experiences

This section lists some features that contribute towards providing a high quality experience. The appropriate features will differ depending on the style of ride being provided.

4.1.1 Tourism linkages and accessibility

Visitors, especially international visitors, will be more likely to travel to mountain bike experiences that are easy to get to. The NSW Taskforce on Tourism and National Parks recommended focusing the development, marketing and promotion of tourism experiences on areas within 2–3 hours drive from the Sydney CBD or major domestic and international airports. These areas are considered to have the strongest potential for the development of nature tourism products.

NSW residents who participated in cycling or mountain biking on an unsealed road or track in the past year, or were interested in participating, identified good road conditions and accessibility as one of the key features of the location that they would want if they were going to participate in a park or reserve (Table 6).

4.1.2 Tourism services

Experts in mountain bike track design and construction have noted that mountain bike tourism destinations are successful when broader tourism infrastructure is available in the surrounding area.19

Long distance mountain bike experiences require overnight accommodation options. The Munda Biddi Trail in Western Australia has cycle-friendly campsites every 35–40 kilometres between towns, with composting toilets, water tanks, picnic tables, undercover bike storage facilities, sleeping quarters and cleared tent sites. The trail attracts over 25,000 visitors each year from all over the world, injecting an estimated $13 million into the economy of south-west Western Australia.

4.1.3 Loops and connections

Rides, particularly short rides, are often more interesting if riders do not need to return the same way they came. The need to return the same way can be avoided by providing experiences on tracks that form a loop to return the rider to their start point, or tracks that start and finish at public transport connections in different places.

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19 Hornsby Mountain Bike Trails Desktop Review and Site Inspection Report 2009, prepared by World Trail Pty Ltd for Hornsby Shire Council
Table 6: Desired features of the location for participating in cycling and mountain biking on an unsealed road or track\(^{20}\)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Greater Sydney</th>
<th>North Coast</th>
<th>Northern Tablelands</th>
<th>Southern Tablelands</th>
<th>South Coast</th>
<th>Western NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenery/views (e.g. waterfalls)</td>
<td>14%</td>
<td>7%</td>
<td>5%</td>
<td>9%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Completely unspoilt surroundings</td>
<td>12%</td>
<td>11%</td>
<td>17%</td>
<td>7%</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Flora/native trees, plants and flowers</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
<td>2%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Good road conditions/ accessibility</td>
<td>6%</td>
<td>2%</td>
<td>10%</td>
<td>7%</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Access to emergency services</td>
<td>4%</td>
<td>2%</td>
<td>7%</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean, well-maintained environment</td>
<td>3%</td>
<td></td>
<td>5%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety (general)</td>
<td>3%</td>
<td>7%</td>
<td>2%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fauna/native animals</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td>2%</td>
<td></td>
<td>11%</td>
</tr>
<tr>
<td>Swimming areas</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees</td>
<td>1%</td>
<td>3%</td>
<td>2%</td>
<td>5%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Garden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leafy background</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visitors’ centre</td>
<td>2%</td>
<td></td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historic heritage sites</td>
<td></td>
<td></td>
<td></td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public transport</td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Mobile phone coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>Aboriginal heritage sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.4 Attractive natural or cultural features

There is evidence that mountain bikers will travel considerable distances for exceptional riding experiences.\(^{21}\) IMBA promotes ‘IMBA Epic Rides’ that attract riders from all over the world. Spectacular landscape features are a key criteria for selection as an Epic Ride.

\(^{20}\) Nature-based outdoor recreation demand and preferences quantitative research findings, 2009, prepared by Ipsos-Eureka Social Research Institute for the Department of Environment, Climate Change and Water NSW

\(^{21}\) Sport and Recreation Tasmania 2009, *Tasmania Mountain Bike Plan*, Department of Economic Development, Tourism and the Arts Tasmania
New Zealand, which has successfully made natural attractions its key drawcard for international visitors, attracts cyclists from around the world, particularly the United Kingdom, Australia, United States, Germany and the Netherlands. In 2008, 2% of international tourists to New Zealand participated in cycling, spending significantly more on average during their visit ($3895) than all international nature-based tourists ($3040) and all international tourists ($2662).  

NSW residents who participated in cycling or mountain biking on an unsealed road or track in the past year, or were interested in participating, identified natural features such as scenery, views, unspoilt surroundings and flora as the key features of the location that they would want if they were going to participate in a park or reserve (Table 6).

4.1.5 Technical track features

NSW residents who participated in cycling or mountain biking on an unsealed road or track in the past year, or were interested in participating, identified features of the track such as cleared paths and boardwalks, limited facilities, signage and a challenging terrain with obstacles and jumps as key features of the experience that they would want if they were going to participate in a park or reserve (Table 7).

Technical track features such as bridges, rock gardens, drops, rollovers and berms provide fun and challenge for riders. Provision of sufficiently challenging technical track features reduces the incentive for riders to create their own track features by leaving the track or modifying the track. Technical track features are discussed further in Section 4.2.

4.1.6 Basic facilities

NSW residents who participated in cycling or mountain biking on an unsealed road or track in the past year, or were interested in participating, identified basic facilities such as water, taps and toilets as key features of the experience that they would want if they were going to ride in a park (Table 7).

4.1.7 Interpretation

Interpretation communicates park values through thematic messages and media, which enhances the visitor’s experience of a park. The messages can target specific user group attitudes and behaviours with positive messages explaining the environmental impacts of these attitudes and behaviours and the personal relevance of the significant park values. This fosters a stronger awareness and understanding of significant park values within the user group.

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22 Tourist Activity – Cycle Tourism, September 2009, Ministry of Tourism, New Zealand
23 Tourist Activity – Nature-based Tourism, August 2009, Ministry of Tourism, New Zealand
Table 7: Desired features of the experience for participating in cycling and mountain biking on an unsealed road or track

<table>
<thead>
<tr>
<th>Feature</th>
<th>Greater Sydney</th>
<th>North Coast</th>
<th>Northern Tablelands</th>
<th>Southern Tablelands</th>
<th>South Coast</th>
<th>Western NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleared paths or trails through the bush (unsealed)</td>
<td>22%</td>
<td>30%</td>
<td>41%</td>
<td>35%</td>
<td>32%</td>
<td>23%</td>
</tr>
<tr>
<td>Sealed paths or boardwalks</td>
<td>21%</td>
<td>22%</td>
<td>24%</td>
<td>28%</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>No additional facilities</td>
<td>14%</td>
<td>13%</td>
<td>10%</td>
<td>12%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>Signage</td>
<td>10%</td>
<td>17%</td>
<td>10%</td>
<td>7%</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>Variety of terrain/interesting/challenging terrain/obstacles/jumps etc.</td>
<td>9%</td>
<td>11%</td>
<td>10%</td>
<td>2%</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>Water/taps</td>
<td>8%</td>
<td>4%</td>
<td>2%</td>
<td>5%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Toilets</td>
<td>8%</td>
<td>9%</td>
<td>3%</td>
<td>5%</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Separate wide paths away from traffic/cycles</td>
<td>5%</td>
<td>2%</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brochures or maps/online info/promotion</td>
<td>3%</td>
<td>4%</td>
<td>7%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructors/coaches/training</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lookouts</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>1%</td>
<td>2%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolation/infrequent to no contact with other people</td>
<td>1%</td>
<td></td>
<td>2%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guided tours/audio guides</td>
<td>1%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cafes or restaurants</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shops or kiosks</td>
<td>1%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest areas/seats/picnic tables</td>
<td>1%</td>
<td>7%</td>
<td>7%</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment hire/access to equipment</td>
<td>4%</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not too crowded</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Ranger/management presence</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand rails/fence</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garbage bins</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>

24 Nature-based outdoor recreation demand and preferences quantitative research findings, 2009, prepared by Ipsos-Eureka Social Research Institute for the Department of Environment, Climate Change and Water NSW
Proposed Strategy recommendations

The following key experience features will be considered in managing mountain biking experiences:

- tourism linkages and accessibility
- tourism services
- loops and connections
- attractive natural or cultural features
- technical track features
- basic facilities
- interpretation.

4.2 Designing technical track features

As discussed in Section 4.1.5, technical track features provide fun and challenge for riders and reduce the incentive for them to create their own track features. Technical track features require expert design to manage risk.

Sufficient information should be provided to allow riders to make informed decisions about their ability to undertake a technical track. User access points need to be controlled so a rider cannot accidentally enter a technical track. Signage and classification systems, as described in Section 4.3.2, are essential but may not be sufficient for highly technical tracks. The start of the track should also involve navigating a technical track feature that involves the highest level of skill required on the track. This is known as a filter. If a rider does not have the skill to navigate the filter, they know they do not have the skill required to complete the track.

Technical track features should be designed by experts. Fall zones should be incorporated, so if a rider falls off on a technical track feature they will not land on sharp sticks or rocks. Technical track features may include a number of track options, or lines, so riders can choose the level of difficulty they ride. For example, a technical track feature may have a C line that goes around the technical feature, a B line that involves a rollover and an A line that involves a drop. In this case, the C line should be the most obvious line for riders to take. Lines that go around technical track features avoid track widening caused by riders walking around the feature.
4.3 Communications

4.3.1 Making use of existing infrastructure

To ensure the best possible use is made of existing infrastructure, NPWS should promote existing mountain bike experiences, including management trail experiences. Mountain biking is generally allowed on management trails. Some of these trails provide high quality mountain biking experiences, such as those that provide long distance experiences through spectacular scenery. Many, however, are uninteresting or unsuitable for mountain bike riding: they might travel through a vegetation monoculture without interesting views or end points or be dangerous for riders because they drop steeply and speeds are uncontrolled. NPWS needs to provide information to help riders identify suitable and meaningful experiences.

The NPWS Kanangra area office in the Blue Mountains has identified four loop rides on management trails that include interesting natural features such as waterfalls. Brochures have been developed with descriptions and maps of the rides and directional signage installed on the management trails. This has allowed the creation of meaningful mountain biking experiences from existing infrastructure.

### Proposed Strategy recommendations

Meaningful experiences that can be provided within existing infrastructure should be identified and information developed to communicate these experiences to mountain bike riders.

4.3.2 Communicating the difficulty of the experience

A classification system for communicating the difficulty of mountain bike experiences to riders is important to allow riders to judge whether a particular track or track feature is within their skill range. The IMBA Australia Trail Difficulty Rating System is recognised by mountain bike riders internationally and has been adopted by Tasmania, South Australia and Western Australia.

### Proposed Policy intent

The IMBA Australia Trail Difficulty Rating System will be adopted by NPWS as the classification system for mountain bike tracks. The classification system will be integrated as far as possible with other classification systems in use in parks, such as walking.
4.4 Managing experiences for other park users

4.4.1 Potential displacement of other uses

Initial consultation with stakeholders identified concerns that mountain biking may be incompatible with some other uses such as bird-watching and may lead to displacement of those uses. It is essential that regional planning considers other uses of the park.

Proposed Policy intent
Where a clear need for new mountain bike experiences in a region is identified but another use may be displaced by this, the following should be considered in making a decision:

- the level of participation in the other use
- the supply of other opportunities for the other use in the park or nearby area
- the importance or uniqueness of the location for the other use
- the opportunities for providing the mountain biking experience elsewhere in the park or nearby area
- measures available to manage any conflicts.

4.4.2 Conflicts between mountain bike riders and other users

Conflicts between users can be divided into two categories: those arising from one user having a general objection to another type of user; and direct conflicts arising from meetings on tracks.

At Mt Coot-tha in Brisbane, general opposition to mountain biking from walkers has led to walkers persistently vandalising mountain bike track signs. Users who have objections to other types of users generally perceive the other users as having very different motives, which international research indicates is not usually the case.25 As mentioned in Section 1, many NSW mountain bikers are keen outdoor recreation participants who frequently visit parks to engage in other activities such as walking, climbing, paddling and canyoning, so their motivations for engaging in outdoor recreation are the same as those of other users.

General conflicts can be overcome by strategies that build understanding between mountain bike riders and other users, such as volunteer days that bring all user groups together to work on a track.

Direct conflicts can be managed through track design or separation of track users. There are three types of tracks: multi-use tracks; preferred-use tracks; and single-use tracks. Multi-use tracks allow walkers and mountain bikers on the same track and may allow other users as well. Single-use tracks allow only one type of user. Preferred-use tracks are marked as preferred for one use but other users are not excluded: for example, a track may be marked as mountain biking preferred but walkers are not excluded from the track.

Direct conflicts on multi-use tracks can be managed by establishing a one-way direction system so that mountain bike riders travel in one direction and walkers travel in the opposite direction, ensuring adequate sightlines on corners and designing the track to control the riders’ speeds. Direct conflicts can also be managed through communications that warn users

the track is multi-use and advise them of the appropriate response when meeting other users: for example, cyclists must give way to walkers and walkers should keep left.

Single-use tracks solve direct conflicts by separating track users. However, other users may object to being excluded from tracks. Preferred-use tracks can solve this problem by not excluding other users but making it clear the track is designed for a specific use, such as either walking or mountain biking.

**Proposed Policy intent**

Existing walking tracks may be designated multi-use to allow cycling and mountain biking, but works should be done to ensure the track meets best practice sustainable track standards to minimise environmental impact. Cyclists must give way to walkers on multi-use tracks.

Preferred-use tracks are permitted but must be adequately signposted to protect the safety of other users.

Multi-use tracks are preferred to avoid track proliferation, but multi-use can sometimes lead to safety risks. Tracks or short detours may be designated single-use (for cyclists only) where it is necessary to separate cyclists and other users for safety reasons.

Cyclists may be required to dismount or take other safety measures in certain areas to ensure safety for all track users and/or reduce environmental impact.
5. Resourcing

5.1 Funding

The initial development and long-term maintenance costs must be considered for all prospective mountain bike experiences. NPWS will implement priority projects as resources allow. NPWS will seek partnerships to resource implementation of the projects and may also consider a user-pays model.

There are many opportunities for NPWS to partner with other groups to provide mountain bike experiences. Other government agencies have an interest in outdoor recreation experiences, including other land management agencies, NSW Sport and Recreation, State and Regional Development and Tourism, and Department of Health. Areas of the private sector that will benefit from mountain bike experiences include mountain bike equipment suppliers, mountain bike tour operators, accommodation and food service providers, and event managers. Community groups will also benefit, including mountain bike riders and clubs, national cycling bodies and regional tourism organisations.

Effective partnerships will involve contributions from both sides. Mountain biking is a legitimate recreation activity in NPWS parks and it is therefore appropriate for NPWS to contribute resources towards priority projects. Resource requirements for mountain biking experiences should be viewed within the context of the annual NPWS spend of an estimated $70 million on visitor facilities and infrastructure, including more than 2000 walking tracks, 700 picnic sites, 420 lookouts and 450 campgrounds.

Where a clear need for new mountain bike experiences in a region is identified but resources cannot be sourced through partnerships, NPWS may need to implement a user-pays model. This is a less desirable option as it will require compliance measures.

Proposed Strategy recommendations
NPWS will implement priority projects as resources allow.

NPWS will seek funding for implementation through cross-government, public-private and public-community partnerships. Where necessary, NPWS may consider a user-pays system. Any likely problems with compliance will be considered when assessing a prospective mountain bike experience with a user-pays system.

5.2 Volunteers

Partnerships provide more than funding. Volunteers help with track construction, closure of illegal tracks, track maintenance and track monitoring. Involving a variety of users reduces the resource burden and helps to resolve ideological conflicts among user groups (as discussed in Section 4).

A number of mountain bike experiences around Australia have successfully engaged volunteers to reduce the resource burden of track construction and maintenance. At the You Yangs Regional Park in Victoria, 80% of track construction and maintenance is done by volunteers. At Mt Coot-tha in Brisbane volunteers attend three working bees a month, which ensures maintenance of the track. Key local riders manage the volunteer program. Volunteers have also assisted with the construction of the more remote Munda Biddi Trail in Western Australia.
It is important not to underestimate the amount of work required to manage volunteer groups. At Glenrock State Conservation Area volunteers are very motivated to be self-managing, but first they need to be trained and certified and captains identified to manage the groups. Relying on volunteers carries a risk that volunteer groups may fail or lose interest over time. Experience at Royal National Park, Glenrock State Conservation Area and interstate suggests that mountain bike riders are highly motivated volunteers who are willing to complete significant amounts of work. A factor that contributes to group failure is NPWS staff turnover.

**Proposed Strategy recommendations**

NPWS will work with volunteers to reduce the resource burden of mountain bike experiences. Risk management strategies should be identified to manage mountain bike experiences if volunteer groups fail.
6. Proposed priority projects

As discussed in Section 1, the role of NPWS is to provide a small number of world-class mountain bike experiences where planning identifies NPWS parks as best suited to provide these experiences. This section lists proposed priority projects for feasibility and environmental assessments if resources allow.

6.1 Proposed projects to develop or upgrade mountain bike experiences

<table>
<thead>
<tr>
<th>Location: Northern Sydney</th>
<th>Experience</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>New experiences</td>
<td>NPWS is a dominant holder of bushland</td>
<td></td>
</tr>
<tr>
<td>Combined singletrack and</td>
<td>Great potential for cross-tenure trails</td>
<td></td>
</tr>
<tr>
<td>management trail riding</td>
<td>Within northern Sydney suburbs</td>
<td></td>
</tr>
<tr>
<td>Technical features catering to a variety of skill levels</td>
<td>High demand and pressure for singletrack mountain biking experiences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variety of sites with attractive natural features</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local mountain bike community willing to provide support</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location: Royal National Park</th>
<th>Experience</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade existing trial experience</td>
<td>NPWS is a dominant holder of bushland</td>
<td></td>
</tr>
<tr>
<td>Combined singletrack and management trail riding</td>
<td>Within Sutherland Shire suburbs</td>
<td></td>
</tr>
<tr>
<td>Technical features catering to a variety of skill levels</td>
<td>High demand and pressure for singletrack mountain biking experiences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unique landscape</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Easy access via car, bike or public transport and bike</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carparking available</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location: Glenrock State Conservation Area</th>
<th>Experience</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade existing trial experience</td>
<td>NPWS is a dominant holder of bushland</td>
<td></td>
</tr>
<tr>
<td>Combined singletrack and management trail riding</td>
<td>Within Newcastle suburbs</td>
<td></td>
</tr>
<tr>
<td>Technical features catering to a variety of skill levels</td>
<td>Demand for singletrack mountain bike experiences and long history of use by local community</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attractive natural features</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local mountain bike community willing to provide support</td>
<td></td>
</tr>
</tbody>
</table>
### Location: Blue Mountains

<table>
<thead>
<tr>
<th>Experience</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>New experience linking with existing experiences</td>
<td>NPWS can provide a particularly unique and spectacular experience</td>
</tr>
<tr>
<td>Showcasing the unique and spectacular landscape</td>
<td>NPWS is a dominant holder of bushland</td>
</tr>
<tr>
<td>Easy management trail riding</td>
<td>Services are available in the surrounding community, including food, accommodation and tour operators with an interest in leading mountain biking tours</td>
</tr>
<tr>
<td>Lengths and exit points catering to riders seeking rides from a few hours to single and multi-day rides</td>
<td>1–3 hours drive from Sydney CBD</td>
</tr>
<tr>
<td></td>
<td>Close to urban centre</td>
</tr>
</tbody>
</table>

### Location: Kosciuszko National Park

<table>
<thead>
<tr>
<th>Experience</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>New experience linking with existing experiences</td>
<td>NPWS can provide a particularly unique and spectacular experience</td>
</tr>
<tr>
<td>Showcasing the unique and spectacular landscape</td>
<td>NPWS is a dominant holder of bushland</td>
</tr>
<tr>
<td>Easy management trail riding</td>
<td>Services in surrounding community, including food, accommodation, cycle tour operators and bike hire available</td>
</tr>
<tr>
<td>Lengths and exit points catering to riders seeking rides from a few hours to single and multi-day rides</td>
<td>Resorts within Kosciuszko are installing downhill mountain biking tracks to attract riders</td>
</tr>
<tr>
<td></td>
<td>2–3 hours drive from Canberra airport</td>
</tr>
</tbody>
</table>

### 6.2 Other proposed priority projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Location</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop information to communicate the most meaningful mountain bike experiences to riders (e.g. management trails with the most interesting natural and cultural features)</td>
<td>Regions where there is demand for mountain biking and existing opportunities that are not well communicated</td>
<td>NPWS needs to provide information to help riders identify suitable and meaningful experiences, particularly on management trails</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Will help ensure the best possible use is being made of existing infrastructure</td>
</tr>
<tr>
<td>Research impacts of night riding on wildlife</td>
<td>TBC</td>
<td>Night riding is increasing in popularity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Degree of impact of night riding on wildlife currently unknown</td>
</tr>
<tr>
<td>Evaluate effectiveness of Mountain Biking Strategy</td>
<td>All</td>
<td>Evaluate the effectiveness of the Strategy recommendations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify any changes that need to be made</td>
</tr>
</tbody>
</table>
### Project Location Justification

<table>
<thead>
<tr>
<th>Project</th>
<th>Location</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify opportunities to collaborate with other land managers to promote cycle tourism and encourage provision of mountain bike experiences on other land tenures</td>
<td>All</td>
<td>Identifying and promoting cycle tourism opportunities is an action under the NSW Bike Plan (e.g. Central NSW, Murray Riverina Regions, Northern Rivers Region) Encouraging provision of mountain bike experiences on other land tenures can help address high demand and pressure for singletrack mountain bike experiences in areas where NPWS parks are not best suited to provide these experiences (e.g. Illawarra Area)</td>
</tr>
</tbody>
</table>
# Appendix I: Consultation

<table>
<thead>
<tr>
<th>Consultation</th>
<th>Date/Time</th>
<th>Location</th>
<th>Who was invited</th>
<th>Reason for consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Mountain Bike Workshop</td>
<td>15 October 2009 9am – 5pm</td>
<td>NPWS Office Hurstville</td>
<td>Staff from across NPWS, including field, policy, tourism, legal and operations sections</td>
<td>Preliminary workshop on the review of the Cycling Policy and development of the Events Policy and Sustainable Mountain Biking Strategy</td>
</tr>
<tr>
<td>NPWS North Sydney Cycling and Mountain Bike Workshop</td>
<td>26 October 2009 9am – 3pm</td>
<td>Lane Cove National Park</td>
<td>Dee Why Mountain Bike Club, Manly-Warringah Mountain Bike Club, Hornsby Shire Mountain Biking Alliance, Northern Beaches Mountain Biking Group, Turramurra Off Road Cyclists, Mountain Bike Australia, IMBA Australia, World Trail, NPWS</td>
<td>Preliminary workshop on mountain biking in northern Sydney and the development of the Sustainable Mountain Biking Strategy</td>
</tr>
<tr>
<td>Consultation</td>
<td>Date/Time</td>
<td>Location</td>
<td>Who was invited?</td>
<td>Reason for consultation</td>
</tr>
<tr>
<td>----------------------------------</td>
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<td>---------------------</td>
<td>------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Informal Mountain Bike Roundtable</td>
<td>23 March 2010</td>
<td>NPWS Office Hurstville</td>
<td>NPWS staff with high involvement in mountain bike management</td>
<td>Roundtable to shape the discussion paper for external consultation on the Cycling Policy and Sustainable Mountain Biking Strategy</td>
</tr>
<tr>
<td>Informal Mountain Bike Roundtable</td>
<td>26 March 2010</td>
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</tr>
</tbody>
</table>
Appendix II: IMBA rules of the trail

1. Ride on open trails only
Respect trail and road closures (ask if uncertain); avoid trespassing on private land; obtain permits or other authorisation as may be required. The way you ride will influence trail management decisions and policies.

2. Leave no trace
Be sensitive to the dirt beneath you. Recognise different types of soils and trail construction; practise low-impact cycling. Wet and muddy trails are more vulnerable to damage. When the trailbed is soft, consider other riding options. This also means staying on existing trails and not creating new ones. Don’t cut switchbacks. Be sure to pack out at least as much as you pack in.

3. Control your bicycle!
Inattention for even a second can cause problems. Obey all bicycle speed regulations and recommendations.

4. Always yield trail
Let your fellow trail users know you’re coming. A friendly greeting or bell is considerate and works well; don’t startle others. Show your respect when passing by slowing to a walking pace or even stopping. Anticipate other trail users around corners or in blind spots. Yielding means slow down, establish communication, be prepared to stop if necessary and pass safely.

5. Never scare animals
All animals are startled by an unannounced approach, a sudden movement, or a loud noise. This can be dangerous for you, others and the animals. Give animals extra room and time to adjust to you. When passing horses, use special care and follow directions from the horseback riders (ask if uncertain). Disturbing wildlife is a serious offence. Leave gates as you found them or as marked.

6. Plan ahead
Know your equipment, your ability, and the area in which you are riding – and prepare accordingly. Be self-sufficient at all times, keep your equipment in good repair, and carry necessary supplies for changes in weather or other conditions. A well-executed trip is a satisfaction to you and not a burden to others. Always wear a helmet and appropriate safety gear. Keep trails open by setting a good example of environmentally sound and socially responsible off-road cycling.