

**WHY MOUNTAIN BIKERS SHOULD HAVE ACCESS TO THE  
BIKING TRAILS WITHIN THE  
WOLFVILLE WATERSHED NATURE PRESERVE**

*Submitted by:*  
**ANNAPOLIS VALLEY MOUNTAIN BIKE ASSOCIATION**

**January 11, 2007**

Dear Nature Trust Committee Members,

Here is a proposal that has been several weeks in the making. I hope that you will give it sincere and thoughtful consideration at your next meeting on January 17, 2007. We hope you will see this proposal in the positive way it is intended and as a great opportunity to help make this Nature Preserve an incredible and inclusive opportunity. Our organization has lots of valuable resources (passion, labour, funding and information) and we are happy to bring them to the table to make this project a success for both recreation and the environment. Unfortunately I will be out of town during the meeting but I would be more than happy to address any questions upon my return on January 19. I look forward to hearing from you.

Sincerely,  
Glenn McMullen  
On behalf of  
Annapolis Valley Mountain Bike Association

This proposal is being submitted on behalf of the recently formed Annapolis Valley Mountain Bike Association (AVMBA) in response to the proposed exclusion of mountain Bikes within the Wolfville Watershed Nature Preserve while allowing most other forms of "low impact" recreation such as hiking, snowshoeing, and cross country skiing.

### ***Annapolis Valley Mountain Bike Association (AVMBA) Background and Philosophy:***

The recently formed **Annapolis Valley Mountain Bike Association (AVMBA)** is a group of dedicated volunteers working to build and maintain sustainable trails for human-powered recreation in the Annapolis Valley and act as a positive voice for Mountain Biking. Our website can be found at [www.AVMBA.com](http://www.AVMBA.com)

The organization is affiliated with the **International Mountain Bike Association ([www.IMBA.com](http://www.IMBA.com))** - a hugely proactive organization which promotes rider education, environmental stewardship, active transportation, trail building and maintenance, advocacy, research and support for outdoor recreation and more.

These are the same goals that our local association espouses and include the following:

- Educating trail users about safe and responsible trail use
- Educating the public about the values and benefits of mountain biking;
- Educating the public about the value of open space and natural resource preservation;
- Promoting appreciation of and care for public lands;
- Building and Maintaining trail systems for public use;
- Encouraging dialogue between trail users and public/private landowners
- Accessing funding opportunities to assist in achieving these goals

Some of the key philosophies we embrace are Leave No trace ([www.Int.org](http://www.Int.org)) and Tread Lightly ([www.treadlightly.org](http://www.treadlightly.org)).

ALL recreational activities have an environmental impact – the goal is to minimize that impact while experiencing and enjoying the outdoors. The philosophies of Tread Lightly, Leave no Trace and the International Mountain Bike Association all help to ensure that Mountain biking and all other recreational activities minimize their environmental footprint.

### ***Potential Misconceptions:***

#### ***1. Trails or recreational activities in a wilderness area are a bad thing.***

It is our group's opinion that a narrow trail through the woods that allows any type of recreationalist to enjoy the wilderness, experience and appreciate the natural landscape and get exercise is a very small sacrifice to the environment in comparison to the rewards that it provides. As you will see in a later section we have many suggestions of ways that will minimize impact for ALL recreational activities.

#### ***2. Mountain Biking has a larger environmental impact than hiking or other recreational forms.***

FALSE – This may be the biggest misconception which has no evidence to back it up which we believe is at the root of the proposed banning of mountain bikes from the Nature Preserve. There is simply no current evidence to support that mountain biking has a larger environmental impact than hiking or other "non-motorized" transportation. In fact, studies that have been done show it to have a similar or in some cases smaller impact than hiking and there are studies that demonstrate equestrian use causes greater environmental impact than both. See attached Appendix A for summaries from several independently researched reports (Full Reports available at IMBA.com). As mentioned earlier, ALL recreational activities have an environmental impact or footprint but we believe (and the scientific evidence backs up our claim) that mountain biking is no more harmful than hiking or any of the other forms of recreation that are being allowed on the Nature Preserve. Our organization is promoting many suggestions as part of this proposal that will ensure that Mountain biking remains low impact within the Nature Preserve and will also help minimize impact from ALL other forms of recreation.

#### ***3. Mountain biking is an extreme sport***

Mountain Biking is clearly being singled out as the only recreational activity that is not being permitted based on a Nature Trust committee that has extremely limited recreational representation. At most 1 "loose" representative in a committee of 15 as per our count. Given that Recreation is a large part of the benefit of securing this land as a nature preserve we would like to see that number increase.

Maybe it is being seen as being an extreme sport but it is nothing of the sort. That is also a judgment call that is not based in reality in our opinion. The trails in the preserve are cross country trails (tight which prevents excess speed). The age range of Mountain Bikers in the local area are from anywhere in the teens up to people that are 50+ with the majority being 30+. We have been on lots of rides and the level of trail etiquette and stewardship has always been top notch with top quality ride leaders. Cleaning litter from other trail users, doing trail maintenance, riding responsibly, educating about proper technique and handling, are commonplace, etc. We are certain that there are always going to be some people in any recreational activity that might not offer that same level of respect by littering, etc. but that takes place among any groups and should not be used as a way to discriminate against mountain bikers. This is why we are proposing several educational related suggestions in our proposal section.

### ***Some Other Thoughts:***

AT present no one is discussing building more trails and the current trails consist of fire roads/access roads, a few Mountain bike trails and some random paths created by walking through the woods to areas such as the dam.

The trails we are talking about ARE ALREADY THERE since we are not talking about expanding the mountain bike trails at present. They are not separate from nature – they are nature.

All the single-track trails (1 person or bike at a time) have been built by bikers for bikers. Our organization encourages you to recognize the huge amount of labour that went in to building and maintaining the current trails. Try to understand the huge disappointment to have those trails that bikers worked so hard on to now be banned from using them.

We believe there are options to keep the mountain bike trails as mountain bike trails which can double as hiking trails but also the opportunity to convert some of the random walking paths into properly designed hiking only trails. And all the large double track roads can be used for potential water supply access by the town, overall public access to trail system, and also double as great cross country skiing, etc. Some other areas might offer only restricted access strictly for preservation such as the hemlock forest.

If current trails have small sections in these areas they can be rerouted (with our volunteer team) around these sensitive areas. There is currently a trail system being worked on near Truro that has large sections of mature Hemlock stands and those portions required a built tread for all trail users under the recommendation of DNR Biologists so even the Hemlock stands could be used by all if properly designed. These and many other potential issues can all be dealt with by our proposed Professional Trail Assessment which will be discussed under our recommendations section in greater detail.

Some additional points that are pertinent with regards to mountain bike single-track which are supported by scientific evidence and studies (See Appendix A):

- Bike tires are a couple of inches wide whereas hikers often walk side by side which tends to create a wider trail. I went for a hike on a mountain bike trail this past weekend in Halifax and I was actually surprised that by the end of it I felt that we tended to walk side by side and also that we tended to be more off trail than when I bike the very same trail.
- Another point that often goes unnoticed is that Mountain Bikers tend to maintain their trails through regular maintenance, removing downfall, litter, rerouting when necessary etc. The particular trails in question have been completely built and maintained by the local biking community.
- Less damage is caused by people using a well designed trail than hiking randomly through the forest.

At the same time it is not our wish to come out against hikers or any other non-motorized recreational activity. We simply wish to note that when the Nature preserve decides to allow one recreational activity or in this particular instance MOST recreational activities but disallow mountain biking without any scientific basis or consultation it forces us to have to go to great lengths to educate that this claim is not based on any scientific evidence but only opinion without support. And we are also the only group that has had to do so. We have included a significant amount of scientific research that supports that mountain biking is comparable to hiking (Appendix A) and we are recommending an inclusive approach with us working together.

For our organization one of the main reasons we choose to live here is the outdoor recreational activities and in particular mountain biking. Trails used for hiking and mountain biking have constantly been dwindling in the local area as industrial and residential development creeps further and further out from town limits and green space is cleared away. Within the town limits there are hiking trails but no access for bicycles other than on the streets. That's why this Nature trust is a great opportunity to bring together ALL recreationalists in a positive way. Without these trails, the opportunities for mountain biking will be severely diminished in the area and that would be very disappointing from a quality of life point of view.

The amount of labour that is involved in Trail repair, maintenance and building is substantial. Some members of our organization recently attended a day long Trail Building workshop and a trail that the group built that was maybe 1-2 minutes to walk took a group of 15-20 volunteers an entire afternoon (4+ hours) so it needs to be recognized that the offer by our group to do trail maintenance and some rerouting if necessary comes with a serious amount of "free" labour. Trail building in typical conditions is estimated to cost \$13,000-\$26,000/mile.

## ***Recommendations/Proposal (Action Steps)***

### **We recommend that the Nature Preserve Committee**

- 1. Remove the blanket ban on Mountain Bikes from the Nature Preserve**
- 2. Invite a representative from our organization to join the committee** (Bringing bikers to the table as partners and custodians rather than being excluded)
- 3. Allow our organization to organize a full professional Trail Assessment of the Nature Preserve in Late Spring at our own expense.**

### **In return, our Organization commits to the following:**

- 1. Undertake a full professional Trail Assessment in Late Spring at our own expense**
- 2. Our commitment to address any potential "trouble spots" or issues that come out of the trail assessment.** (This could include potentially rerouting trails around certain sensitive areas through the use of advanced trail design and repair techniques.)
- 3. Explore funding from all possible sources to help make the recreational part of this project a huge success (trail assessment, trail maintenance, proper signage, educational sessions on proper trail use, design and etiquette.)** Funding Sources accessible to the local Mountain Bike Association include the NS Department of Health Promotion and Protection, the International Mountain Biking Association, Mountain Equipment Co-op and our own local fundraising efforts.
- 4. Provide a committed group of volunteers to perform trail maintenance**
- 5. Provide workshops on Trail building and maintenance**
- 6. Be environmental stewards for the Nature Preserve by educating mountain Bikers and the general public on responsible trail use**
- 7. Self police the trails and be trained as trail patrol officers through the Nova Scotia Trails Federation.**
- 8. Work with the Nature Preserve committee in a positive way**

Overall our organization has lots of valuable resources including volunteer labour, trail design and maintenance expertise, funding resources and educational resources that we are happy to bring to the table to make this project a success for both recreation and the environment.

### **Our Commitment is to ensure that the trails within the Nature preserve:**

- ◆ Are sustainable and easily maintained
- ◆ Are respectful of the environment and multi-uses

### **More Details about the proposal recommendations:**

#### **1. Trail Assessment Component**

Part of this **Trail Assessment** will include things such as how to resolve any potential issues including but not limited to erosion, trail widening, tread creep, rerouting around sensitive areas if necessary in addition to things such as standard internationally recognized signage, trail design, trail maintenance, etc. This is a large and broad task.

Our Trail Assessment of current trails would involve an experienced group of people who have had some training in Trail Development and Maintenance from the International Mountain Biking Association (IMBA). This would be done with local and regional experts. If costs permit or funding can be secured by our organization and it is preferred by the Nature Preserve, we would also be willing to explore the option of bringing someone in from outside our region with a master trail builder designation (official designation). We have established contact with someone who has led trail crews all across Canada and the United States building low impact and sustainable mountain bike trails and educating people on proper use and maintenance. They deal specifically with erosion and other issues, trail design, trail maintenance, multi use trails, etc. We also have located a person within Nova Scotia who runs Cobequid Trail Consulting who is also very much supportive of this proposal and would be willing to work in this capacity. We would

coordinate either way based on what the Nature Preserve would prefer but we would recommend staying as local as possible as a cost saving measure provided that a great level of service were able to be provided.

## **2. Dealing with any potential issues or “trouble spots” that come from the trail assessment.**

Some suggestions from our organization include assuring that biking (and other recreational activities) are discouraged until after the typically wet spring season is over (usually mid-May). This will ensure that we minimize any potential erosion issues. Typically we would suggest that generally trail conditions are assessed in May by our organization for conditions and then a decision made as to which trails would be opened for use with adequate signage. These would be advertised and communicated to the public through various means including signage at the trail heads and website posting with trail conditions, etc.

We also don't recommend biking (hiking, etc.) during or immediately following heavy rain because of the potential damage. Remember that some of this is simply education - people don't understand this. It's not intentionally done but if we are clear and have proper signage we should be able to minimize any potential impacts.

Trail Design, which has some scientific basis, is often the key to sustainable trails. These things take into account water courses, proper trail drainage, grades, outsloping, trail width, a clearly defined trail and appropriate signage.

The idea is that our organization would agree to address any areas of concern brought up from the trail assessment in addition to any potential future concerns in an open and friendly manner.

The Nature Trust can expect that we will self-police and educate users (bikers and other recreationalists) while out on the trail acting as custodians.

## **6. educating mountain Bikers and the general public on responsible trail use**

Educating riders is an essential part of trail conservation and the reason why we will be organizing educational workshops on riding technique (proper braking etc.) and bike maintenance (tire pressure, etc.)

Please take the time to review some of the Appendix information (key points appear in blue). The information from the various scientific studies are independent and full copies can be found at the International Mountain Bike Association website ([www.imba.com](http://www.imba.com)) along with many resources for land managers. Appendix II includes the “rules of the trail” that we abide by and promote. We think this proposal provides a viable alternative to the current recommended course of action and that it effectively serves the interests of environmental stewardship and the riding public. We hope our proposal and all the positive things we can bring to this project's success will be very carefully considered and look forward to your response.

Sincerely  
Glenn McMullen  
On behalf of the  
Annapolis Valley Mountain Bike Association  
[www.avmba.com](http://www.avmba.com)

# Appendix A

## ***BOTTOM LINE:***

***NO scientific studies show that mountain bikers cause more wear to trails than other users***

## Natural Resource Impacts of Mountain Biking

### **A summary of scientific studies that compare mountain biking to other forms of trail travel**

*By Gary Sprung, International Mountain Bicycling Association*

In recent years, hiking and environmental groups have often lobbied to ban mountain bikes from trails on the grounds that mountain bikes damage the environment. Some land managers have closed trails to bicycling because of alleged, excessive resource damage.

Do mountain bikers truly cause more impact on natural resources than other trail users?

Very little research has attempted to answer this question, but the empirical studies thus far do not support the notion that bikes cause more natural resource impact. What science does demonstrate is that all forms of outdoor recreation - including bicycling, hiking, running, horseback riding, fishing, hunting, bird watching, and off-highway-vehicle travel - cause impacts to the environment.

Social scientists have conducted surveys to study the feelings, perceptions, and attitudes of cyclists, hikers, equestrians and motorized trail users. This information, along with anecdotal evidence and media reports, show that trail users sometimes do not get along. User conflict is fairly well understood and demonstrably real.

People involved in user conflict sometimes simply state their preferences and ask decision-makers to take action. In a democracy, the allocation of trails based on users' differing interests is a normal, appropriate course of action by land managers. *But when people make unsubstantiated allegations regarding natural resource damage to justify prioritization of their type of trail use, land managers should be wary.*

To make rational, non-arbitrary, less political decisions regarding which groups are allowed on particular routes, managers need scientific studies that compare the impacts of the various user groups. Objective information that is independent of conflicting human desires can form a basis for sound policy decisions. Better understanding of the differing impacts of the various recreation forms can guide political debate and public policy. This document looks at differences in three main categories: physical impacts to trails or facilities, vegetation damage, and effects on wildlife.

In each case, several studies have examined the topic, but only a handful have compared the effects of bicyclists with other trail users.

***No scientific studies show that mountain bikers cause more wear to trails than other users.***

Trails deteriorate over time. To what extent do bicyclists cause this, and how does that compare with the impacts of other trail users? Many people have hypothesized based on ideas involving the characteristics of tires versus shoes, skidding, area and pressure of impact, and other factors. But as of 2003, only two empirical studies have scientifically compared the erosion impacts of bicycling with other forms of trail travel.

#### ***Wilson and Seney: Hooves and feet erode more than wheels***

In 1994, John Wilson and Joseph Seney of Montana State University published "Erosional Impacts of Hikers, Horses, Motorcycles and Off-Road Bicycles on Mountain Trails in Montana." (12) The study tracked 100 passages by each of the four groups over control plots on two trails in national forests. For some of the passages, the researchers pre-wetted the trail with a fixed quantity of water using a rainfall simulator. The researchers measured sediment runoff, which correlates with erosion.

***Wilson and Seney found no statistically significant difference between measured bicycling and hiking effects.*** They did find that horses caused the most erosion of the trails, and that motorcycles traveling up wetted trails caused significant impact. They also concluded, "Horses and hikers (hooves and feet) make more sediment available than wheels (motorcycles and off-road bicycles) on prewetted trails and that horses make more sediment available on dry plots as well." Wilson and Seney suggested that precipitation will cause erosion even without human travel and this factor may significantly outweigh the effects of travel. *Trail design, construction, and maintenance may be much more important factors in controlling erosion.*

### **Chiu and Kriwoken: No significant difference between hiking and biking trail wear**

In a study whose publication in *Annals of Leisure Research* is pending, two researchers at the University of Tasmania, Australia, conducted an experiment on an abandoned fire road to compare track ("track" is the term for trail in Australia) impacts from hiking and bicycling. For the study "Managing Recreational Mountain Biking in Wellington Park, Tasmania, Australia," (2) the authors had hikers and bicyclists pass test plots 400 times each, and measured the surface profile of the track before, during and after the passes. They compared flat and steep and wet and dry conditions. Chiu and Kriwoken found no significant difference in the trail wear caused by the two user groups. They did find significant impact from skidding tires, and they did find that impacts on wet trails were greater than on dry for both types of use.

### **Crockett: Minimal change from repeated bicycle passage**

In 1986 the Santa Clara County Parks and Recreation Department of northern California studied the erosional effects of bicycling on the Edwards Field Trail. Forty-five cyclists made a total of 495 passes over 12 transects. Measurements were taken before and after the passes. Trail width both increased and decreased at various plots, and the same was true of the cross-sectional area of the transect, which is a measurement of the amount of soil in that spot. The researcher, Christopher S. Crockett, observed minimal change in the visual trail characteristics in most cases. The data led the county parks department to open trails to mountain biking.

### **No scientific studies indicate that bicycling causes more degradation of plants than hiking.**

Trails are places primarily devoid of vegetation, so for trail use in the center of existing paths, impacts to vegetation are not a concern. This issue is relevant with regard to widening of trails and travel off of established trails.

### **Thurston and Reader: Hiking and bicycling trample vegetation at equal rates**

Again, only one study has compared bicycling with other recreation with regard to the damage to vegetation caused by trampling. Eden Thurston and Richard Reader of the University of Guelph, Ontario, published in 2001, "Impacts of Experimentally Applied Mountain Biking and Hiking on Vegetation and Soil of a Deciduous Forest." (10) The authors set up two identical lanes of travel over natural vegetation in a deciduous forest. They measured plant stem density, species richness, and soil exposure before, during and after the 500 passages in each lane by hikers and bicyclists. Results: "Three principal findings emerged from this study. First, impacts on vegetation and soil increased with biking and hiking activity. Second, the impacts of biking and hiking measured here were not significantly different. Third, impacts did not extend beyond 30cm of the trail centerline." (Thurston and Reader, 2001, p.405)

## **Conclusion**

Mountain biking, like other recreation activities, does impact the environment. On this point, there is little argument. But with regard to the non-human environment, people often debate whether or not mountain bikes cause more damage to trails, vegetation, and wildlife than other forms of recreation such as hiking and horseback riding.

A body of empirical, scientific studies now indicates that **mountain biking is no more damaging than other forms of recreation, including hiking**. Thus, managers who prohibit bicycle use (while allowing hiking or equestrian use) based on impacts to trails, soils, wildlife, or vegetation are acting without sound, scientific backing.

In contrast, if a manager prohibits one user group on the basis of providing a particular type of experience for another group, the evidence provided by social studies may or may not justify that decision. The wisdom of prohibiting particular user groups in order to satisfy the desires of other groups is a matter for politics rather than science.

## **References**

Bjorkman, Alan, "Off Road Bicycle and Hiking Trail User Interactions: A Report to the Wisconsin Natural Resources Board," Wisconsin Department of Natural Resources: Bureau of Research, (1996)

Chiu, Luke and Kriwoken, Lorne, "Managing Recreational Mountain Biking in Wellington Park, Tasmania, Australia," *Annals of Leisure Research*, (in press)

Crockett, Christopher S., "Survey of Ecological Impact Considerations Related to Mountain Bicycle Use on the Edwards Field Trail at Joseph D. Grant County Park, 1986, Santa Clara County (CA) Parks Dept. (1986)

Thurston, Eden and Reader, Richard J., "Impacts of Experimentally Applied Mountain Biking and Hiking on Vegetation and Soil of a Deciduous Forest," *Environmental Management*, (2001), 27(3):397-409.

Weesner, Meg, in Cactus Forest Trail Environmental Assessment, Saguaro National Park, Arizona, National Park Service 2003

Wilson, John P. and Seney, Joseph P., "Erosional Impacts of Hikers, Horses, Motorcycles and Off-Road Bicycles on Mountain Trails in Montana," *Mountain Research and Development*, (1994), 47(1):77-88.

## More Support Documentation from other studies

Some trails may have been closed and permits for organized events denied based on the perception that mountain biking causes significant ecological impacts, and that those impacts are more substantial than impacts from other activities.

As with all recreation resource use, mountain biking has a footprint. However, the results indicate that *specific impacts to mountain bike trails, with in particular, are similar or smaller than impacts to hiking or multiple-use trails, and appreciably smaller than impacts to equestrian or off-highway vehicle trails.*

University of Guelph botanists in Ontario passed hikers and mountain bikes up to 500 times over undisturbed plots. They were unable to identify a significant difference between the two uses concerning decreased vegetation density and diversity and increased soil exposure.

When properly managed, mountain biking is an appropriate and ecologically sustainable use for recreational trails

In 2003, authors of the National Survey on Recreation and the Environment estimated that 45.2 million people, or close to 21% of the American public, mountain biked on backcountry roads, trails, or cross country at least once in the twelve months prior to the survey. Perhaps this is not surprising, as the survey identified general bicycling as the second most popular recreational activity on land in the United States.

Drawn by the significant individual benefits of exercise, technical challenge, the outdoor experience and bonding with friends and family, Americans embraced the sport with vigor. As well as individual and social benefits, *there are significant environmental and economic benefits associated with the sport.*

Cyclists are attracted by the primeval beauty of wild country and want to continue to experience what they love. Interest in trail development has helped to preserve many natural areas, benefiting the environment and stimulating local and regional economies.

Faced with a practical need to deal with existing social and potential ecological challenges, public land managers used a variety of strategies, from spatial or temporal zoning, to strict regulations and often total trail closure to mountain biking. Some of these more restrictive management decisions, if not supported by empirical evidence, could be construed as being inequitable among different users of the resource.

However, if public land managers lack reliable scientific explanations of ecological impacts on trails, they will frequently rely on the "precautionary principle"; that is, impose regulations which restrict use based on their own intuition, public opinion, the views of anti-use lobbyists, or available studies which do not meet scientific criteria, with the mistaken justification that this protects the resource.

With respect to trails, initial design and construction cause the greatest ecological impact to recreation resources. However, trail construction is generally considered to be socially acceptable, as the benefits to the individual and to the community are viewed to be greater than the environmental costs.

*From existing studies, it appeared that the scale of ecological impacts credited to mountain biking were comparable to those of hiking, and less than those of either equestrian or motorized trail use.*

From the Bureau of Land Management, National Park Service, and USDA Forest Service:

Two major questions related to recreation activities that recreation ecologists wrestle with are: what are the impacts of the activity on the resource base, and how significant are these impacts to the health of the land? We know that outdoor recreation activities have signature impacts. For example, all of our fieldwork shows that day hikers, by and large, are "wanderers" who spread impacts along the trail. They are prone to social trailing, improper sanitary waste disposal, and littering. By comparison, backpackers tend to be "destination" users, who move along the trail toward their campsite where their impacts are concentrated. Typical campsite impacts from backpackers include barren core development, campfire impacts, social trailing around the site, and vegetative impacts to trees, shrubs, and grasses. Our most recent research found mountain bikers to be "destination" users. Once on the trail, mountain bikers tend to have few impacts beyond the footprint of the trail itself.

*There was no clear indication in the results of the study that mountain biking was any more damaging to the resource base than other trail activities. In some cases, it could be argued that mountain biking was less impacting than other recreational trail uses, for example, equestrian, ATV/OHV and day user trails.*

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### **A Successful Partnership Example - Flume Trail – Lake Tahoe**

In dealing with these popular trails, park managers have taken a different approach to mountain biking management: they have focused on the preferences of their trail users. The feedback received has led to trails engineered with mountain biking in mind. These trails are maintained and patrolled by volunteer mountain bikers. Also, management strategies such as zoning (providing separate trails in congested areas for each major recreation group), alternating days for different recreation groups and educational efforts have been adopted to minimize conflict and ecological impacts.

One management option that can quickly be implemented to mitigate ecological impacts is proper trail construction. This has been shown in several studies to be the principal factor in protecting trails and preventing erosion. Trails designed specifically with the unique ecological impacts of mountain biking in mind are critical. Temporal zoning and alternate trail development have helped combat overuse and conflict.

Another initiative has sought to standardize and adequately sign trailheads and provide trail users with the information that they might need for any hike or ride, such as trail distance, difficulty, views and facilities.

## Appendix II - Rules of the Trail

The following are a few examples of what are referred to by mountain bikers as Rules of the Trail - rules recognized around the world as the standard code of conduct for mountain bikers. IMBA's mission is to promote mountain bicycling that is **environmentally sound and socially responsible**.

### **Leave No Trace.**

Be sensitive to the dirt beneath you. Recognize different types of soils and trail construction; practice **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.

### **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.

### **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).