SUSTAINABILITY CRITERIA FOR MTB TRAIL PROJECTS

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Abstract
MTB trail projects are often described with the term "sustainability". Unfortunately the use is often unjustifiable. This is most likely caused by misunderstanding the meaning of the concept of sustainability. In our paper, we explain how conservatively designed MTB trail projects differ from those which approach on the bases of current trendy influences that are often interpreted superficially. We also explain why we recommend caution towards such trendy projects. The explanation goes by introducing criteria of the sustainable trails and the three most important trail-planning rules of the established best-practice. From our many years of experience in trail planning and design, we propose several rule of thumb indicators by which to easily assess mountain biking trail projects on the basis of their sustainability.

Key words: trail planning, trail planning rules, best practice

Sustainability of MTB Trail Projects

In the last 10 - 15 years, the number of recreational trails specially designed and built for MTB has been increasing in the Czech Republic. We believe that this phenomenon needs no further introduction, as we assume that interested readers of this paper have already encountered its manifestations.
In this paper we want to focus on the concept of "sustainability" because most of current MTB trail projects use it to describe their qualities. Our analysis of recent trail projects in the Czech Republic shows that trail designers utilize the term because it legitimizes their work to state officials, land managers and the public but operate with a rather simplistic version of it. We believe that time is right to help the wider interested public that comes in contact with such projects in their professional capacity to explain what sustainability of trail projects means and how it influences their quality.
It should be noted that the term "sustainability" is often misused even in environmental and ecological contexts. It was such misuse that probably began to associate the label "sustainable" with "environmental friendliness". The fact that trails are built from natural materials also contributed to this an impression. The habitual misuse of the term "sustainability" in relation to MTB trails is common not only in the Czech Republic but also elsewhere in the world where MTB trails are being built, for example the Great Britain, where the phenomenon originated.
Trail sustainability of course means that trails are built with respect to nature and landscape. However, it also means that trails will not negatively influence other landscape functions, such as forestry or access for other user groups. It also means that the trails will not put excessive burden on public budgets, nor will they put burden on their operators to administer, inspect and maintain them.
The first MTB trail projects both in Britain and the Czech Republic truly sought to implement sustainability. The new trail system and trail destinations quickly gained great popularity, and other projects soon followed. However, the followers did not lose too much time and effort describing their work in their own words. Instead they copied the wording of the originators. As a result, the supposed sustainability began to spread across trail project documentation, promotional texts and websites, creating the impression that all natural surface trails for mountain biking are sustainable.

Conservative vs. Trendy Trail Design

After the first wave of MTB trail projects, which were attempted to achieve harmony with nature and landscapes (we call them "conservative") innovations began to emerge. Some skilled and technically advanced mountain bikers started to demand additional elements of trails to those that source from the natural shape of the terrain - so-called technical trail features (TTFs) jumps, berms, table-tops, steeps, step-downs, step-ups and additional wooden obstacles. Many trail designers are trying to adapt to such demand by starting to create "trendy" trail projects. It even sometimes seems that nobody wants the "conservative" trails anymore.
However, this is far from the truth. The share of ordinary, beginner to medium advanced off-road cyclists is by demographic definition an order of magnitude greater than the share of "core" and "expert" riders. Unlike them however, the majority of mountain bikers seem silent. They do not express

their view on social networks and specialized forums nor do they usually campaign their political representatives for more trails. They act as a silent majority.
We do not want to be misunderstood to advocate against skilled core mountain bikers neither against well-thought-out projects for them. There are projects based on trendy design principles that are based on expertise. Thanks to established mechanisms they successfully cope with increased management and maintenance. However, we consistently point out that:

1. There are substantially fewer core mountain bikers than it may seem judging on the loudness of their opinions. The largest part of the mountain biker public does not voice their opinion and risks to be neglected.
2. Technical trail features incur significant and long-term responsibilities for the operators. They require repeated inspections and frequent maintenance to prevent user injury and legal liability, but also to maintain their functionality and the expected user experience.
3. MTB trails designed for high-speed use and jumping (so called jump-lines) bring potential danger to other visitors to the forest. Unlike formal bike parks, trails in the forest cannot be fenced off. Visitors from other user groups have a legal right of access to them and cannot be prevented from entering.
4. Technical trail features on trails may be perceived by some people as un-aesthetical, unsuitable to forest environment or damaging the landscape.
5. The authorities should allocate resources into trails pragmatically: to try to satisfy the widest possible part of the MTB user group with the least possible amount of resources. They should not be pressured to develop costly and expensive-to-maintain projects for a relatively small group at the expense of the wide general MTB public who seem to prefer "conservative" trails.

A well-thought project based on good practice that is focused on core MTB users needs to address and balance these three components from early stage onwards: the size of the target group, the volume and intensity of maintenance and the impact on other functions of the landscape.

Sustainability Criteria
When considering a project of MTB trails, the initiator, the designer, but also the investor and the future trail manager should responsibly assess how the trail project will meet the basic sustainability criteria listed below. As we explained above, the "sustainability" of trails cannot be seen as an environmental issue alone. If the sustainability criteria are neglected, there is a risk of project failure, economic loss and loss of credibility, in worst cases even liability sanctions.

We have adopted the sustainability criteria from our mentor, the Welsh trail designer Dafydd Davis, and adapted them by years of experience working in developing trails in the Czech Republic:
- Trails should only have a modest, consensus-based impact on pre-existing land use.
- Trails should not require an excessive volume and intensity of management, administration and supervision.
- Trails should not require an excessive volume and intensity of follow-up maintenance.
- Trails should benefit the location and not reduce its value. All that in relation to the landscape, communities, environment, cultural heritage and nature conservation.

It is worth noting that point 3 in particular is often underestimated by trail proponents. They often focus great efforts into obtaining a permit and subsequently into the construction of the trails. However they often fail to appreciate that an implementation of the trails creates a long-term financial and labour commitment to their maintenance. The more intensive and elabore the technical trail features (berms, jumps, and wooden constructions) placed into the trail are, the more demanding and more necessary the maintenance is (to ensure the desired user experience, and to provide for consistent conditions that prevent accidents and protect from legal liability).
This is the most persistent reason why we call for caution towards the current trend of implementing TTF heavy trails in the open countryside. For the same reasons we are strong proponents of a more conservative approach to trails.

Best Practice
The visual appearance of conservative trails may give the impression that they are very simple structures and that their design does not require any qualifications. The current fallacy is that it is enough to be a good MTB rider to be able to design MTB trails. But designing trails is not just about being able to imagine a bike flowing through the terrain. It is a craft. Experience and strict adherence

to established design principles are at least as important. These principles are relatively few and simple, but are based on both natural laws and cumulative experience of many previous trail builders. They were established primarily to protect the trails from the destructive effects of erosion and to sustain (sic!) their functionality through long term and / or intensive use.

The construction principles for trails are not standardized or prescribed by industrial norms in the Czech Republic. In the Czech and foreign literature they are referred to as "best practice". In Czech context, they are known mainly from the publications of the US trail advocation organization IMBA (and our translations to Czech). The most important principles that a designer of nature-friendly trails must adhere to in order for trail to withstand the pressures of natural forces and long term use are the following:

1. The 10% rule - the average trail grade should not exceed 10% (and absolute short distance grade should not exceed twice the value of the average grade).
2. The half rule - the average trail grade should not exceed half of the grade of the fall line.
3. The mineral soil rule - the thread and the body of the trail should consist of mineral material (either local mineral soil in full bench cut or imported quarry stone) only. No organic material should be left or used.

It is worth noting that not all trail designers who refer to good practice and IMBA standards in both the permit documentation and their promotional materials actually follow them. If they would, their projects would simply look quite different. If a designer diligently follows the principles of good practice, (s)he by nature of the field arrives at a more conservative design.

How to Recognize Quality MTB Trail Projects (A Cookbook)

Nature conservation officers and forest management personnel are not experienced enough to recognize a quality MTB trail project. That is quite understandable, because trail design is still a relatively young discipline that is not yet sufficiently covered by both domestic and European higher education. However we believe that, as in many other disciplines, it is possible to apply Pareto's 80/20 principle to the field. To be able to differentiate among the projects officials do not need to master the discipline of trail design, they just need to focus on a few basic indicators:

1. Designed average grade. The average grade of the trail should not exceed 10%. iIt is safer to keep even lower values. The average grade of the trail can be easily, quickly checked. All that is needed is a line design drawn on a contour map and a calculator. Even a cursory check is very telling of any trail project.
2. Trail construction solutions. Does the project account for mineral construction layers, or does it declare that the trail ridden-in or raked into organic matter? Trails based on organic soil, currently sometimes referred to as "enduro", have a short durability.
3. Technical trail features (berms, jumps and wooden structures). What status will they have after construction? Will they be part of the forest or will they be taken out from designated forest land? What rules will apply to them? Will they comply with the Czech Forest Law (which is preferred) or will they require a special Code of Practice to be issued? How will their subsequent administration, revision and maintenance be ensured?
4. Consultation process. What stakeholders does the project envisage to consult in the preparatory phase? Are the initiators and designers ready to consult with the forester?
5. Trail management upon completion. How is the management and maintenance of trails solved? Who will be responsible for the trails?
6. References. We recommend that you check provided references by direct contact to the referred party. Were the projects implemented or did they remain only on paper? How do the implemented projects work in the long run? Were the implemented projects volunteer-run or investment projects?

Souhrn

V našem příspěvku jsme vysvětlili, jak rozumět termínu “udržitelnost” ve vztahu ke stezkám. Udržitelnost zde nemá pouze environmentální podtext, v úvahu je nutné brát také ekonomické a sociální souvislosti. Popsali jsme, že současné trendy v projektování stezek mají kvůli snahám o popularitu u zdatnějších terénních cyklistů tendenci se odklánět od důrazu na udržitelnost a stavět obtížné stezky s překážkami. Skupina zdatnějších terénních cyklistů je však relativně malá, ačkoli je hlasitá a iniciativní. Hlas řádově větší skupiny - běžně zdatných rekreačních terénních cyklistů, kterým vyhovují “konzervativně” budované stezky, prakticky není slyšet. Přes to, že se většina domácích projektantů stezek ohání “udržitelností” a “dobrou praxí”, domníváme se, že to jsou spíše jen

proklamace ve vztahu k úřadům a veřejnosti. Zmíněná kritéria udržitelnosti a zásady dobré praxe v příspěvku dále představujeme, a navrhujeme několik základních ukazatelů, podle kterých úřady, správci a vlastníci pozemků či političtí zastupitelé snadno rozpoznají, zda autor předloženého záměru stezek rozumí svému řemeslu či nikoliv.

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