

# Guidance for Managing Informal Trails (Draft)

by Jeff Marion, Virginia Tech

The development, deterioration and proliferation of visitor-created informal trails in protected areas can be a vexing management issue for land managers. This guidance is provided to assist managers in evaluating the acceptability of informal trail impacts and selecting the most appropriate and effective management response.

***Problem Definition:*** The first step should be an inventory of the informal trail network within an area of management concern. If GPS devices and expertise is available a simple inventory technique is to conduct a walking GPS survey, provided the terrain and forest canopy permit GPS use. GIS software can input, map and analyze the data, providing a visual display of the informal trail network relative to designated trails, roads and other resource features. Computation of the lineal extent of the informal trail network is also possible. If GPS devices cannot be used then an inventory can be made by hand-sketching informal trails onto large-scale maps with lengths assessed by pacing or a measuring wheel.

Where possible, managers may also wish to consider various options for assessing the condition of the informal trails. Many options, ranging from simple condition class evaluations, to trail width and depth measurements, or detailed assessments of soil and vegetation loss are possible. Guidance for assessing trail conditions may be found in the scientific literature (provide citations). An objective assessment of informal trail conditions can produce quantitative data for indicator variables that can be summarized to characterize current trail conditions, or when replicated, to monitor changes in trail conditions over time. Such data can also be used in formal management decision frameworks such as the Limits of Acceptable Change (LAC) or Visitor Experience and Resource Protection (VERP). These frameworks are used to guide decisions about the acceptability and management of visitor use and impacts.

***Evaluating Impact Acceptability:*** The acceptability of informal trail impacts can be evaluated informally (described here), or formally through a framework such as LAC or VERP. Managers should first consider the zone and management direction for the area(s) where the informal trails are located. Informal trails located in pristine areas where preservation values are paramount are less acceptable than when located in areas that are intensively developed and managed for recreation use. Trails in areas with sensitive cultural and archaeological resources are particularly unacceptable if they threaten such irreplaceable resources.

Environmental factors should be considered. Informal trails located in sensitive or fragile plant/soil types, near rare plants and animals or in critical wildlife habitats are less acceptable than when located in areas that are resistant to trampling damage and lack rare species. Informal trails that directly ascend steep slopes and/or will easily erode are less acceptable than trails with a side-hill design. Informal trails prone to muddiness and widening are less acceptable, as are trails that may contribute soils to water resources.

Use-related factors should also be considered. If the trails result from illegal or inappropriate types of uses then the informal trail impacts are less acceptable than if they are caused by

permitted uses. Is visitor behavior a factor? Impacts that can be easily avoided are less acceptable – such as when three informal trails in close proximity to each other access a location that could be accessed by a single trail. Why is a trail in a particular location and what are the visitors trying to access? Impacts caused by visitors seeking to shortcut a longer, more resistant route are less acceptable, as are impacts caused by visitors who could alternately access their intended destination by staying on resistant durable surfaces (e.g., rocks gravel, sand).

A careful consideration of these and other relevant factors (e.g., visitor safety) can assist managers in making inherently value-laden decisions regarding the acceptability of informal trail impacts. The acceptability of informal trail impacts, in turn, guides decisions about the need for and selection of appropriate and effective management interventions.

***Selection of Management Actions:*** No actions are needed for informal trails found to be acceptable to managers. It should be recognized that recreation access and use is an important mandate for most protected area managers. Some degree of degradation to protected area resources is an inevitable consequence of recreation use, requiring managers to actively balance recreation provision and resource protection mandates. Roads and formal trails can never provide complete access to the locations visitors wish to see, hence, some degree of informal trail development is inevitable and must be tolerated.

Informal trails created by illegal users, trails with poor designs, or trails that threaten sensitive resources should generally be closed and rehabilitated. If visitor access to the area in question is acceptable, then an alternate route needs to be identified by a qualified trail management professional. An existing trail or previously disturbed route is always preferable, though visitors rarely choose the most durable or sustainable routes. Leaving a trail in a poor alignment is only acceptable if management actions (e.g., graveling or installation of steps) will effectively resolve existing problems and sustain future use. In many instances, relocation to an improved alignment will be a more cost-effective and sustainable long-term solution, even though pristine terrain may be impacted. The ability to effectively close and rehabilitate the existing informal trail is also an important consideration. When rerouting trails, assessments by trail design and maintenance staff should precede any further management actions. Important considerations include trail alignment to the slope (always favor side-hill designs over direct-ascent alignments), trail grade (<10-15%), and substrates (rocky soil is less erosive).

Even trails formed by appropriate uses, with good designs, and that do not threaten sensitive resources may need to be closed if their impacts are avoidable. There are numerous options for closing informal trails; generally an incremental approach is followed. Sometimes, merely improving and/or signing a designated trail or preferred informal trail may sufficiently reduce use on unnecessary trails to allow their recovery. Improvements may include vegetation trimming, tread drainage or graveling to create a more usable or visually obvious route. The trail to be closed can be hidden and “disimproved” by raking organic debris such as leaves onto its tread, along with placement of rocks and dead branches. These actions also lesson soil erosion and speed natural recovery. If these actions are ineffective, large rocks can be “ice-berged” (planted deep) at the entrance to informal trails to discourage their use. Logs large enough to deter their removal by visitors can also be placed along the first 10 or more feet of an informal trail.

Trail markings such as paint blazes, cairns and informational signs can be employed to identify the preferred route so that visitors can find and follow it, to ask visitors to remain on designated trails, and/or to mark closed trails. Symbolic or bilingual signs may be needed if visitors cannot read English. Signs that clearly define the appropriate behavior and provide a compelling rationale are more effective than simple “do” and “do not” signs. For example, a sign that says “Please Stay on Designated Trails to Preserve Sensitive Vegetation” can be effective provided visitors can *easily* distinguish between “designated” and “informal” trails. An effective alternative is to conduct rehabilitation work on at least the visible portions of informal trails and place a sign such as “Vegetation Restoration in Progress, Please Stay on Designated Trails.” Where necessary, a sign such as “Walking Off of Designated Trails is Prohibited to Preserve Sensitive Vegetation” has been shown to be more effective – even in the absence of enforcement (provide references).

Tread surfacing with gravel, wood or pavement can help visitors distinguish designated from informal trails. The distinction can also be made by including adequate marking on designated trails and by employing signs or rehabilitation work that clearly identifies the informal trails. Trail borders or barriers of various types can be installed where appropriate, particularly if other alternatives are ineffective. Low trail borders are less obtrusive than high barriers yet provide an obvious visual cue to guide visitor traffic. Higher barriers physically block access to a closed informal trail, including inexpensive nylon string stretched between trees, rope strung through steel stakes with eyelets, log barriers, and various types of fencing. Temporary barriers may be effective in altering visitor distribution patterns and allowing vegetative recovery so that they can be removed. If ineffective, managers may need to install permanent high barriers – though care should be taken to ensure they blend with the natural environment. High fencing that leave no openings are generally the only “near 100%” effective solution.

The effectiveness of implemented actions can be gauged informally by land managers but standardized resources assessments as part of a monitoring program can provide a more objective alternative. Objective monitoring will be needed if any potentially controversial management actions may be needed (e.g., use restrictions or high fencing). In exceptionally high use areas with sensitive resources there is a good probability that such actions will be necessary. For example, a combination of signs and restoration work may be able to keep 95% of visitors on a designated trail but 5% of 2000 visitors/day is 100 visitors/day and that is easily sufficient to create entirely new trails. Resource monitoring of selected indicators and standards of quality are an essential component of LAC and VERP decision frameworks. Monitoring provides feedback for gauging the success of management interventions in keeping conditions within acceptable limits. A documented failure of one intervention can be used to justify the use of a more obtrusive or expensive intervention. More importantly, the data provides an objective evaluation of management’s success in balancing recreation provision and resource protection objectives.

