

ALASKA STATE PARKS

TRAIL MANAGEMENT HANDBOOK

MAY 2015

APPENDIX E: TRAIL TERMINOLOGY



Appendix E: Trail Terminology2

Appendix E: Trail Terminology

The following is a list of trail term definitions that are used throughout this handbook. In part, they parallel terminology used by the US Forest Service, the US Fish and Wildlife Service, the National Park Service, and the Bureau of Land Management. An additional glossary of trail terms is available at: www.americantrails.org.

All-Terrain Vehicle (ATV) – See Off-Highway Vehicle (OHV).

Accessible: A term used to describe a site, building, facility, or trail that complies with the Americans with Disabilities Act (ADA) Accessibility Guidelines and can be approached, entered, and used by people experiencing disabilities.

Anchor: An object, usually vertical, such as a tree or stone, which defines the sides of a trail and helps to keep users in the center of the tread. Also an object used to hold another in place.

Backslope: The *backslope* of the trail is the excavated slope above the trail *tread* and below the natural hillside; ideally less than or equal to the natural angle of repose of the excavated material.

Batter: The inward tilt of *retaining walls* or similar structures.

Berm: A small ridge of material accumulated along the outer (critical) edge of the tread from a combination of compaction, erosion, and displacement occurring along the centerline of the tread surface. The Berm is undesirable in that it channels water along the tread surface. It is often slated for removal during maintenance.

Best Trail Management Practices (BTMPs): A series of management components developed to reflect the current “state-of-the-art” practices for effective and efficient trails management.

Bog Bridge: A simple trail structure that consists of treated timber planks resting on sleepers. For areas that gain elevation the *step and run technique* can be used; use spacers to elevate the planking on steeper terrain.

Braided Trail: Problem areas along a trail where multiple parallel paths develop, usually around steep, wet, or otherwise degraded areas.

Bridges: Appropriate for stream large stream crossings that may otherwise be dangerous to ford, or have high peak flows. They can be a complex engineering project or as simple as a log with a hand rail.

Causeway: A type of wetland trail structure that consists of raised tread without drainage ditches. *Stepped turnpike* can be used on steeper slopes by creating steps using rock or log retainers.

Chaps: Chaps are buckled over trousers with a synthetic protective barrier to protect the front of the legs when using a chainsaw. Inside the protective barrier is Kevlar, which unravels within the chain if contact is made.

Check-Dam: A structure to slow down water flow and trap sediment; often used when reclaiming decommissioned trails.

Climbing Turn: A gradual turn that can help a trail climb faster than a straight sustainable grade alone. A short section will be *fall line*.

Clinometer: A tool used to determine grades and slope angles.

Contour: Line of equal elevation on topographic maps.

Control Point: A specific point, area, or feature that is important in trail layout. *Positive control points* are places you want the trail to go to or near (such as trailheads, scenic points, good water crossings, other trails, etc.). *Negative control points* are places you want to stay away from (such as hazards, sensitive habitat, private property, etc.).

Crib Walls: A retaining device used to support the trail tread or *backslope* using stacked and notched logs.

Culvert: A conduit to deliver a small volume water beneath a trail; this can be accomplished with plastic or metal piping or rock structures. Wood is not durable and isn't recommended. See Appendix A: Sheet 12.

De-berm: To remove the berm on the downhill side of the tread during trail maintenance.

Differential GPS (DGPS): A GPS receiver that uses real-time or post-processed corrections to increase accuracy to one meter or less.

Digitizing: Tracing a physical feature from topographical maps or satellite/aerial imagery in ArcMap software to create a GIS layer.

Durable Tread Surface: The tread surface of a trail should be compacted and durable enough to support the managed use and shed water.

Fall Line: The steepest route of descent down a slope. Water flowing down a hillside will travel along the *fall-line*.

Flagstone Paving: A method of *trail armoring* that involves placing large flat stones on mineral soil (organics removed from surface), or a mix of aggregate.

Full Bench Trail: The tread is cut the tread entirely from the hillside from compacted soils, resulting in a stable tread.

Geocell: A honeycombed plastic *geosynthetic* that can be used to hold soils in place when the soils are wet.

Geosynthetics: are man-made materials that help stabilize soils or prevent native soil and the tread surface from mixing.

Geotextiles: (Geotex) A type of *geosynthetic* keep layers from mixing, while allowing water to drain through.

GIS (Geographic Information System): Geography software used in State Parks mapping. ESRI ArcMap is the brand that State Parks uses, although there are others available.

GIS Layer: A file that holds geographic information in GIS. It will usually be a geodatabase (.gdb or .mdb), shapefile (.shp), or raster (often .tif, though many formats exist), although older coverages may be encountered.

Grade Reversals: These are areas at which a climbing trail levels out and then changes direction, dropping subtly a short distance (20-50 feet) before rising again.

Half Rule: Trail grade should not exceed $\frac{1}{2}$ the *sideslope* that the trail traverses; if so, it becomes a *fall-line* trail.

Keystones: Large heavy rocks used as anchors in *trail armoring*.

Kickrail: A wooden sill installed on puncheon's decking to guide walkers' feet.

Knick: five to ten foot semi-circular sections of trail that are shaved down to a 15% outslope; they are added to divert water from a ponded area on a trail.

Leadoff Ditch: Drainage structure to draw water away from a trail.

Managed Use: The modes of travel that are actively managed and appropriate, considering the design and management of the trail (i.e. biking, snowmobiling, hiking, etc.).

Maximum Sustainable Grade: This is the defined maximum tread grade that can be constructed along the trail. This is typically restricted to runs of less than 50 feet, and no more than 5% of total length of the trail.

Outslope: This is the downhill tilt of the trail. As the trail contours across a hillside, the downhill or outer edge of the tread should tilt slightly downhill and away from the uphill trail edge. Under typical circumstances, this *outslope* should be less than 5%.

Partial Bench Trail: In Partial Bench construction, only part of the tread is created by digging into the hillside; the rest of the tread surface is created from compacted excavated soil. This method is not recommended because the outer tread will not be as durable as the inner tread. It may be necessary when encountering some obstacles.

Puncheon: A raised wetland trail structure that uses *sleepers* (simple foundation for trail structures using planking) *stringers* and wood planks to elevate decking above wet soils.

Punji Stick: sharp stick coming out of the ground or from a tree that can be hazardous to trail users.

Raised Tread Construction: A construction method that can be used to stack tread above wet ground. Large rocks are placed into mineral soil, a layer of smaller rocks is placed above, and capped with aggregate.

Retaining Wall: A structure made of rock to help support tread. These are often used to support *turning platforms* of *switchbacks*, and *partial-bench construction*.

Rolling Contour Trail: A Rolling Contour Trail encourages water to flow off of trail tread by gently traversing a hillside and incorporating *grade reversals* and *outslope* into their design.

Rolling Grade Dip: A *rolling grade dip* uses the soil from a *knick* to build a ramp on the downhill side of the *knick*

Scarification: Churning compacted soil to allow vegetation to grow; often done when reclaiming decommissioned trails.

Sleeper: Log or timber used as a foundation for *bridges* and *puncheon*; wood planking or stringers rest on *sleepers*.

Stone Pitching: The process of skillfully placing stones on end into the ground, carefully aligning rock joints. This makes a durable trail surface.

Stream Ford: An armored crossing that uses large stones to increase the durability of a stream crossing and its entrances.

Stringer: Structural support for a *bridge* that spans the width of the stream.

Sustainable Trail: A “sustainable trail” is defined as a trail that conforms to its terrain and environment, is capable of handling its intended use without serious resource degradation, requires minimal maintenance, and focuses on maximizing the user experience. This involves the use of integrated water control, curvilinear layout, grade control and full bench construction.

Switchback: Switchbacks allow a trail to climb steeper than a Climbing Turn will allow. Switchbacks avoid fall line sections by constructing *turning platforms*. A sharp turn in the tread alignment used to gain elevation on steep side slopes (typically required on slopes above 22%). Switchbacks are a highly technical trail structure and should be avoided in favor of *climbing turns* (for slopes less than 22%) when possible.

“Three-Cuts” Method: Using this method of pruning is encouraged to keep bark from peeling off of a tree when its branch is removed. First cut from the bottom several inches from the bark collar to remove the bulk of the branch. Next, cut from the bottom just outside of the branch’s bark collar. Finish cutting through the branch from the top.

Trail Armoring: Reinforcement of a tread surface with a resilient material such as rock, stone, or concrete.

Trail Class: The prescribed scale of trail development, representing the intended design and management standards of the trail. Trails can be *class 1* (minimal/undeveloped) through *class 5* (fully developed trail).

Trail Layout Marking: Staking or flagging the location on the ground after designing a trail. *Center line method:* Pin flags are placed in the center of the trail tread. A defining line is cut through the organic layer half the tread width on the uphill side to aid in trail construction. *Uphill edge method:* Flags mark the uphill edge of the tread. A line is cut through the organic layer on the lower boundary of the tread. *Downhill (critical) edge method:* The downhill edge is marked with pin flags. A line is cut through the organic layer on the upper boundary of the tread.

Trail Management Objectives (TMOs): A document written to help manage a trail, influencing how individual trails will be developed, used, and maintained. A properly written TMO can be used to identify the types of use that will occur on a trail, how much use it is expected to receive, and how much maintenance will be required once it is built. Specifically, TMOs document *designed use*, *managed use*, and *design parameters* for both planned and existing trails. For existing trails, TMOs can be an effective tool to determine if a trail is being properly managed or if it is meeting intended standards or objectives.

Trail Profile: A graphical representation of elevation gain and loss over the course of a trail.

Trail Type: A fundamental trail category that indicates the predominant trail surface or trail foundation, and the general mode of travel the trail accommodates. The Trail Type can be *terra* (standard), *snow*, or *water*.

Tread: The top layer of a trail; the surface that people walk/ride on.

Turning Platform: A platform constructed for a *switchback*.

Turnpike: A type of wetland trail structure that consists of raised tread and drainage ditches on each side. *Stepped turnpike* can be used on steeper slopes by creating steps using rock or log retainers.

Waterbar: An abrupt raised feature on a trail designed to drain water off of the trail tread. Avoid using them, because they require maintenance, people often walk around them, and they easily fill with sediment.