# HISTORIC TRAIL DISCOVERY
# AND
# RESEARCH METHODOLOGY

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## Introduction

This brief monograph addresses the methodology I have developed for finding historic trails and wagon roads. Trying to describe a process that has been developed using science, inference, and intuition is difficult because it involves so many variables and perturbations. It is similar to a basketball coach writing a monograph on the process of coaching during a game. Some people question if it is even possible to develop such a methodology, but finding actual old worn trail tread is the proof that it works. In this monograph, the word 'trail' means the erosion trace of an historic trail or historic wagon road.

Trails and roads are transportation routes that people use to get from one point to another in the most practical way possible. The main criteria for trail location choices have always been directionality, water, food, shelter, safety, ease of travel, and availability. These are the same criteria that have been used by all travelers for uncounted millennia.

## Major Criteria for Trail Location

**Directionality** A traveler is interested in getting from "point-A" to "point-B" in the most effective way possible. Thus, trails have a directionality characteristic. This means the trail connects the points in the shortest practical distance, given obstacles and availability constraints. The trail may meander but it tries to keep close to a direct path.

**Water** Essential for all life, a trail must pass by water sources frequently enough to serve the needs of people and livestock. Most of the time, a water source every 3-15 miles is acceptable although we know distances of 40-70 miles are a difficult reality for some trails..

**Food** Also essential for life, the area traversed by a trail must provide plant and animal food sources adequate for livestock and people.

**Shelter** Shelter from adverse weather is highly desirable but often scarce. Caves, cliffs, and tree-branch shelters can serve the purpose –when available. People often transport their shelter with them as they travel. For aboriginal people and early fir trappers, it was often animal hides. In modern times, it is the nylon tent and/or warm rain gear.

**Safety** For aboriginal people, this was a key element in the location of trails. Safety from enemies, dangerous animals, cliffs, steep hillsides, etc, were paramount.

**Ease of Travel** If a trail is well located for ease of travel, energy requirements, and food requirements; 'wear and tear' and stress and trauma are reduced. It is a plus if a trail can be located on reasonable slopes/ grades.

**Availability** A good trail is available during most months of the year. The location must take into account snow, rain, tree dead-fall, and flooding streams and rivers.

## Trail, Road, and Highway Construction, Induced Erosion Characteristics

A knowledge of the historical progression of trail-use helps greatly with the discovery of true trails. For example, a trail route such as the Ice Age Trail from Canada to the southern United States was traveled thousands of years ago by people on foot and with whatever domesticated animals (most often dogs) they had available. These migration routes can be estimated by campsites but any trail erosion trace has long disappeared due to erosion from rain, snow melt, fire runoff, etc.

In the Pacific Northwest, trails were worn by human foot traffic and dogs before the arrival of the horse – about 1730. Lewis & Clark followed well-worn Indian trails for most of their journey across the mountains (excepting Lost Trail Pass. As horse herds increased their number, pack horses replaced the dog travois, especially in brushy, mountainous, timbered areas. The increased use of pack horses also increased the depth and braid of existing trails. It is the horse trail erosion tread that we find in the mountains today.

Wagon roads replaced horse trails in some locations but, for the most part, the wagon roads were separate because (with notable exceptions) they required a route that was less steep; and gentle hillside slopes. Constructed wagon roads such as the Lander Road of the Oregon-California Trail and the Lewiston & Virginia City Wagon Road (Bird Truax Trail) in north-central Idaho, were surveyed to an acceptable wagon road grade.

The era of mechanized road construction and western agriculture brought about the destruction of the fundamental nature of the historic horse trail. Single-lane dirt roads covered over some of the trails and were followed by paved roads. Travelers of modern paved roads are usually unaware that they are driving over what was once a major Indian Trail, less than two centuries ago. One interesting use for old trails was to turn them into ditches for agriculture and mining. Sometimes they were located in the right place and had a slope that accommodated use as a water ditch.

The construction characteristics and erosion characteristics of a trail give powerful clues as to its origin. Constructed trails and wagon roads can be quite different from trails pioneered by aboriginal people and emigrants. Erosion trails by horses and horse travois are significantly different from erosion trails caused by wagons.

## Trail Use Identification

One of the most difficult tasks in historic trail discovery and documentation is to determine its origin, era of use, and type of use. A trail can come into use by many different means. Science and art must both be used to properly identify them. Here are some trail types.
-ANIMALS; Horses, Cattle, Sheep, Buffalo, Elk, Moose, Deer, etc.
-HUMAN FOOT TRAFFIC; hiking, camping, hunting, etc.
-CONSTRUCTED TRAILS; Silver and Gold Mining, hunting, National Forests, National Parks, Recreation, Federal and State Government.

Indian Trails (Horse Trails) For the most part, these trails travel as directly as possible between two points, even when they have to go through difficult terrain. They tend to stay on ridges and other high points and almost never travel in the brush and windfall bottoms of rivers and creeks. They also tend, when possible, to be located in the most sunny areas of travel. This makes the trail usable earlier in the spring and later in the fall. For example, the trail will be located near the crown of the ridge but on the sunniest edge of it. These main trails do not 'dip and dive' off a ridge to access each water source or meadow of horse feed. The main trail stays on the ridge and travelers access these places with a side trail. This is the most energy efficient way of travel and energy efficiency was, and still is, very important. They will avoid locations that may expose them to enemy ambush. One significant feature of Indian trails in steep areas is the nature of the trail switchbacks. The trail is serpentine steeply up the hill and the switchbacks are only 3-5 time the length of a horse (30-50 feet). When a trail has long, shallow switchbacks, it is not an Indian trail.

Cattle Trails Cattle create grazing trails and patterns on hillsides where there may be a horse trail. This can create a difficult separation problem unless a vantage point can be gained where the weaving cattle pattern can be distinguished from the 'straight-line' horse trail. Cattle also produce a radial pattern of trails around a water source or salt block. Historic horse trails do not. Cattle were often driven on historic trails and create erosion patterns that are difficult to distinguish from horse trails. In the mountains, cattle to do a lot of single-file traveling, just has saddle horses do. I employ a variety of methods to eliminate cattle trails. Heavy cattle grazing over decades can obliterate a major historic trail.

Sheep Trails A stock driveway used by sheep can be 20 or more feet wide and a very well beaten path. It often looks more like a road than a trail. It does not have the deep erosion patterns created by horses and cattle. Historic trails can be rapidly destroyed by sheep because they graze the plants so close to the ground that significant erosion is created.

National Forest Trails These trails were originally designed for horse and foot traffic but now may have mountain bike, motorcycle, or ATV traffic. Many of these trails were converted Indian trails with reroutes and longer switchbacks constructed where needed. Over the last 100 years, the historic nature of the original Indian trail has been lost. Forest trails were constructed, or modified, to create a more shallow grade and reduce erosion. Maps of these trails exist back to at least 1911 which helps separate them from Indian trails. Forest trails have a 'constructed' look about them that is different from pioneered trails.

National Park Trails These trails, for the most part, are constructed for tourist hiking and are of recent vintage. My research work up to this time has not included areas of National Parks.

Mining Trails Gold and silver miners originally used the Indian trails for explorations and travel so some historic trails have been greatly impacted by mining activity. This is especially true for the Southern Nez Perces Trail in north-central Idaho. As mines were established and travel route changes were needed, the miners would abandon some sections of the

Indian trail and construct their own trails. They had different needs and objectives. Because miners and Indians traveled the same way with horses and mules, distinguishing the two can be a challenge. In these areas, it is helpful to have old journals and knowledge of various mine locations to separate them out.

Hunting Trails In high-traffic hunting areas, hunters often develop trails from camping areas to water sources and meadows. These are often horse trails and, depending on their age, may be difficult to distinguish from historical trails. Fortunately, they can be distinguished by the way they link camping areas with known water sources and hunting meadows. On the Lolo Trail corridor in Idaho, they are usually less than five miles in length and most are less than two miles in length. They also tend to connect with National Forest trails so a good trail map is essential to separate the two. Additionally, maintained National Forest trails are brushed out to specific standards which can distinguish them from hunting trails, which tend to have brush.

Livestock Driveways These were large trails used to drive cattle and sheep from winter pastures to summer pastures and from pastures to railheads. They were characterized by wide beaten paths and the directionality associated with pastures and railheads.

Wagon Roads In frangible soil types, old wagon roads tend to have a central swale created by the horse hooves and often, there are no discernable wagon wheel ruts. Where very rocky soil and hard surfaces exist, the wheel ruts are easily discernable.

## Historical Documentation of Trails

Historical documentation of western trails is often available in the form of government maps, fur trader maps, explorer and pioneer journals, and history books. Original sources are essential for the best research quality. Second, or third-hand information can be degraded in quality caused by editing, bias, gross error and general lack of accurate knowledge. Even high-quality journals like those produced by Lewis & Clark and the Corps of Discovery can be interpreted in different ways and subject to editorial changes.

I rely mostly on original explorer journals and their maps as well as the Government Land Office Plat Surveys. Of course, both have occasional errors but their first-hand accounts usually produce good information to locate the erosion traces.

## Original Research Independence

The hallmark of my research has been to use only original documents dating, as near as possible, to the original dates of use of a trail or wagon road. This avoids the bias of using previous research. This is especially true for derivative books. After I apply my research methods and have determined trail and road locations as accurately as possible, I will then compare previous research results with my own. Most of the time they do not influence my results but, occasionally, I discover new information or an error in my research which I correct.

Anecdotal information and published oral histories have frequently proven to be

inaccurate to the point where I place little confidence in them. In nearly all cases, the information has been passed down over a 100+ year span between the original source and today's generation.

## Trail Dating and Route Evolution

Whenever reporting on trail research, it is essential to assign a correct date as to the location of the trail – at that time. The location of some portions of a trail will usually evolve over time and the reader and future researchers need to know the date that applies to whatever trail documentation is being provided. It is ideal if, when creating a map, each branch of the trail can be labeled with an applicable date. This evolution was never more abundantly clear than in the evolution of the various California and Oregon immigrant trails. There are literally hundreds of both major and minor branches in that trail system.

## Ground Truthing

Hiking and finding the erosion trace of an old trail, and documenting it with a precision GPS, is the best way to insure high-quality research on an historic trail. Satellite, aerial, and ground photos can be very helpful and may produce good results in some cases, but they are no substitute for ground truthing. Various types of old maps can be used for approximation but accuracy is poor by modern standards. The original plat surveys by the Government Land Office (GLO), now called the Bureau of Land Management (BLM), offer good accuracy, but only on section line intersections with trails. The GLO maps can be quite inaccurate within section interiors. It is best to get the information directly from the hand-written survey notes.

## Experience, Intuition, and Dumb Luck

There is no amount of written information that is an adequate substitute for experience, inference, and intuition, when it comes to finding old trails. Trail location is so dependent on use, topography, vegetation, water, and other factors that there are unique aspects to each trail. Much trial and error is involved until this experience is gained. Last, but not least, is the element of 'dumb luck.' It happens when you are hiking along and literally stumble into the erosion trace of an old trail where you never expected it to be.

## Revision and Additional Information

I will try to revise this document at new experiences point to new directions in research. I hope this information will be valuable to later generations of trail researchers.

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