Preserving historic trails

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Trails leading through rugged terrain and exceptional scenery are typically built and maintained with simple tools and extensive hand labour, and may be exceptional, highly-crafted works of stone and wood. Effective management and maintenance of these trails requires an understanding of their history and construction methods. Using the methodology of a ‘Cultural Landscape Report’ a forthcoming publication applies this approach to the treatment of historic trails. Recent research and planning work at Acadia National Park in Maine has culminated in a US$13 million endowment for rehabilitation of the hiking trail system. Treatment and maintenance guidelines are applied to the rehabilitation of Acadia’s historic trails. Similarly, trail preservation projects underway in other National Parks recognize the importance of historic features and construction techniques, as well as the challenges faced by increased use and natural resource protection.

Trails as landscapes: methodology for a cultural landscape report

When the U.S. National Park Service (NPS) was established in 1916, the emphasis was clearly on protection of natural and scenic values. An expanded mission now incorporates cultural landscape values and requires a multi-faceted approach. Broadly defined, a cultural landscape is a geographic area, including both cultural and natural resources, associated with a historic event, activity, or person. Trails, by the nature of their human design, construction, and use, are components of the cultural landscape, yet closely associated with their natural and scenic surroundings.1 NPS has developed a methodology for the recognition and protect of cultural landscapes as described in A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.2 Published with the guide are a series of technical references, collectively known as ‘Landscape Lines’, on specific types of landscape characteristics.3 This paper focuses on a ‘Landscape Line’ in progress for the treatment of historic trails, which face issues such as,

- need for recognition and documentation
- potential for loss due to neglect, heavy use, or misguided improvements
- demand for new types of uses
- limited management and maintenance staff or
- limited funds and potential cost savings by using new techniques and materials.

With an awareness of these issues, the Cultural Landscape Report methodology includes four major components: research, existing conditions documentation, analysis, and treatment issues and recommendations.

Research

Research places trail development within broader trends and events in regional history, while trail-specific research clarifies the route’s purpose with respect to its origin, destination, and use. For trails that are highly crafted, key elements include drainage systems, tread construction, and the slope or grade of the trail. Sources for historical information on trails include maps, trail guides, hiking club annual reports, journals, maintenance logs, paintings, photographs, newspaper articles, and oral histories. In some cases, trail archeology reveals prehistoric or historic use or construction methods. Aspects to research include:

- Designers and builders of the trail, design intent, width, grade, origin, route or alignment, destination, views, natural features, cultural sites
- Adherence to local, regional, or national design standards
- Materials used and sources, local or imported
- Tools and equipment used for construction and maintenance, crew size, and professional skills of builders
- Types and extent of built features such as drainage systems, steps, retaining walls, ladders, railings, tread materials, and bridges
- Location and frequency of repairs for trail sections or rationale for trail closures and reroutes
- Successes and failures of maintenance solutions, particularly in high use areas
- Changes in origin, destination, tread materials, width, or use
- Maps or other documents that locate features difficult to find in the field, such as closed trails, drainage systems above the trail, closed culverts, iron work, or retaining walls that may be obscured or in poor condition

Existing conditions

A geographical survey and field assessment verifies the condition of extant landscape characteristics and features associated with each trail. Ideally, a Geographical Information System and Global Positioning System (GIS and GPS) can produce digital maps and a spatially linked database. Information can be manipulated to illustrate past periods of development, existing conditions, as well as proposed future management actions. Contemporary photographs paired with historic photographs taken from the same vantage point can show the extent of erosion, change in trail width, or change in surrounding views. A video of a remote trail can record the condition, character, and location of trail features. For highly crafted features, sketches, measured sections, and plans are useful for subsequent phases of analysis and treatment. Types of trail features include:

- Guidance: fences, safety rails, signs, blazes, caimns, plaques
- Drainage: culverts, side drains, water bars, water dips
- Retaining Structures: coping stones, walls, chocks, iron pins
- Crossings: bridges, causeways, stepping stones, bogwalks
- Steps, Rungs, and Ladders: set-behind, slab-laid, cribbing, foot and hand rungs, ladders
- Tread: gravel, soil, ledge, stone pavement, concrete, bituminous
- Associated Structures: benches, shelters, towers, restrooms, parking lots, assembly areas
- Associated Cultural Features: archeological or historic sites
- Associated Natural Features: water features, views, vegetation, wildlife, geological formations
Analysis

Many trails are historically significant and listed on the National Register of Historic Places. Seven aspects of integrity can evaluate the degree to which a trail retains its historical appearance (see table). A trail may be closed or no longer maintained, yet retain its historic integrity. However, if the origin, destination, or trail corridor is substantially altered, integrity may be lost or only a portion of a trail may be significant. For example, along designated National Historic Trails in the United States, only specific sites and trail segments are listed on the National Register. Studying the resource holistically is important, such as an integrated circulation system of roads, bridle paths, trails and associated developed areas within a protected area. Through a detailed evaluation of the historic and current condition, key physical characteristics and features are identified that contribute to the significance of the trail.

<table>
<thead>
<tr>
<th>Aspect of Integrity</th>
<th>Retains Integrity</th>
<th>Does Not Retain Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Continued use of historic route, or an abandoned route that is still present</td>
<td>Substantial reroutes and obliterated historic route</td>
</tr>
<tr>
<td>Design</td>
<td>Evidence of design style or design standards from period of significance</td>
<td>Redesign, realignment, or obliteration of design from period of significance</td>
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<tr>
<td>Setting</td>
<td>Setting (open, wooded, undeveloped, etc.) or views from period of significance</td>
<td>Loss of trail corridor setting, important sites, destinations, or views due to subsequent development</td>
</tr>
<tr>
<td>Materials</td>
<td>Tread, crossings, and drainage features that date to period of significance or are replaced with same materials</td>
<td>Loss or replacement of materials from period of significance</td>
</tr>
<tr>
<td>Workmanship</td>
<td>Features, such as walls and steps, that date to period of significance</td>
<td>Loss of constructed features from period of significance</td>
</tr>
<tr>
<td>Feeling</td>
<td>Presence of a trail corridor or setting, views, and materials from period of significance</td>
<td>Dramatic change in use, setting, views, or destinations</td>
</tr>
<tr>
<td>Association</td>
<td>Physical evidence of associated sites, uses or cultural traditions</td>
<td>Loss of associated sites, uses, or cultural traditions</td>
</tr>
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Treatment

After documenting the trail's historical development, determining its significance, and evaluating its integrity, a treatment approach is chosen for long-term management and maintenance. The development of a treatment plan is a collaborative process, involving managers, field staff, and associated communities and organizations. Goals for treatment are defined and alternatives are developed. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes identifies four types of treatment: preservation, rehabilitation, restoration, and reconstruction. When selecting a treatment alternative, issues considered for trails include: safety and accessibility; signs; natural resource management; trail corridor protection; multiple users; traditional use patterns and archeological resources; associated structures; interface with other circulation systems, reroutes, and parallel routes; vandalism; opening abandoned trails; vegetation and viewsshed management; drainage and water features; small scale features, walls and steps; surface materials and resource extraction.

The treatment plan conveys three levels of information: overall treatment philosophy and principles, guidelines for types of features common to many trails, and specific guidelines for individual trails or trail segments. Since many features are rustic and assembled with local wood and stone, specifications may be phrased as parameters, e.g., bridge railings consist of logs between 4 and 6 inches in diameter or stone steps are between 16 and 24 inches wide. Pairing historic and contemporary photographs and diagrams can illustrate compatible yet distinguishable differences in construction style, explain underlying construction techniques, or where to add concealed features for durability, such as perforated pipe, iron pins, or underground stone check bars. Many aspects of trail documentation and treatment are labour-intensive, underscoring the need to build a project team. The next section describes successful implementation of this team approach.

Case study: Acadia National Park

Acadia National Park is located along the coast of Maine on Mount Desert Island. The park covers 47,000 acres and contains over 100 miles (160 km) of marked, maintained trails. Beautifully constructed in the late 1800s and early 1900s, the heavily used trails were falling apart due to erosion and limited maintenance. The park knew that the trail system was old and special, but its history had only been partially documented. With the assistance park staff and local citizens, the Olmsted Center staff conducted exhaustive primary research.

Trail system history

Research revealed four historic trail systems overlaid on the island. The first network, predating the 1600s, was the Native American carry paths used to transport canoes inland to hunting and fishing areas. Typically, these straight, narrow routes connected lakes and streams, and were unmarked to discourage use by others. These unconstructed routes became overgrown or were widened during later periods. European settlers developed the second trail system when they cut cart paths and logging trails across the island. Most of
these routes are now roads. Island tourism led to the third trail system in the late 1800s and early 1900s. Summer visitors spent one or two months in large hotels or 'cottages'. Beginning in 1890, these preservation-minded tourists formed 'Village Improvement Societies' in four of the villages to enhance the livability and aesthetic qualities of the island. Each society had a path committee to map, mark, and maintain walking paths from the villages to the mountains. They loved to build paths and constructed over 250 miles (400 km) of trails, including commemorative trails for deceased family members, which were endowed with construction and maintenance funds. Path committee members also promoted the idea of a National Park to protect the island's scenic areas from private development. Ironically, community involvement in path marking and maintenance diminished with the arrival of the federal government when the park was established in 1916. The fourth trail system evolved during the Great Depression of the 1930s, prior to World War II. Hundreds of young men, employed through the Civilian Conservation Corps (CCC), built roads, picnic areas, and trails within the federally designated park area. The park did not maintain the many village trails that led outside of the parkland, resulting in the abandonment of over 100 miles of trails.

Community Involvement

Of the three million visitors that come to the park each year, most use the marked trails within park boundaries. However, many of the abandoned trails are still evident and used by local residents. In the mid-1990s, the park's non-profit support group, Friends of Acadia, initiated a fundraising campaign entitled 'Acadia Trails Forever', which highlighted reopening abandoned trails. The first initiative was to work with community members to reopen the village connectors into the mountains. The largest initiative was to establish an endowment, for the rehabilitation of the island's trails system. Although the campaign initially focused on opening abandoned trails, concerns about the poor condition of existing trails and maintenance needs shifted the emphasis to rehabilitation of the island's most popular trails. A tremendously successful campaign, now a US$13 million endowment (about AUD$23 million), makes Acadia trails the first endowed NPS trail system. A lead gift of US$5 million was matched with many smaller donations from US$10 on up. The federal government also contributed funds through its Fee Demonstration Program, where park admission fees are spent on park improvements rather than placed in a central fund. Additional contributions were received to rehabilitate trails to meet accessibility codes. People who live around, or visit, the park love and actively use the trail system; they appreciate the history of the trail and were eager to contribute to its long-term care.

Treatment and maintenance guidelines

In addition to a history for the trail system, the project team developed, 'Treatment and Maintenance Guidelines'. While the topics addressed are similar to those in generic trail maintenance manuals, the techniques are specific to the park's historic trails, including bridge styles, stone and step construction methods, ironwork, and signs. Working together, the historical landscape architects from the Olmsted Center defined the guidelines format, contributed historical narrative, and compiled the document, while the park's trails crew prepared the specification and diagrams in the winter.
months. This collaborative approach produced excellent and practical guidelines and aided crew leaders in directing seasonal workers and volunteers.

Historic trail work across the country

To gain advice on the Acadia project, the park, Friends of Acadia, and Olmsted Center organized a conference on preserving historic trails and invited trails professionals from across the country, as well as local community members. Proceedings from the conference highlight the Acadia project as well as other trail preservation projects. For example, at Rainier National Park in Washington State, the trails foreman developed a site-specific trail maintenance guide to preserve the 1930s CCC rustic style of construction, particularly for the park’s many unique wooden bridges. At Big Bend National Park in Texas, a group led by the Dry Stone Conservancy rebuilt long sections of a dry-laid stone wall that had been built by the CCC in the 1930s and subsequently collapsed. The exterior face of the rough, rustic wall was rebuilt, however the interior backfill was tightly laid to improve the structural strength of the wall. At Tsankawi, a unit of Bandelier National Monument, the park worked with the affiliated Native American Pueblo tribe to identify sacred sites within a highly visited area. The existing system of poorly defined paths allowed tourists to roam over sacred sites. The park installed stone steps to stabilize heavily eroded historic trails and installed a new system of clearly defined and hardened paths, educational viewpoints, signs, and vegetation barriers to direct and educate park visitors.

Conclusion

In conclusion there is much work to be done to preserve historic trails and associated sites. Using a well-defined methodology, such as a Cultural Landscape Report, can streamline this work. Documenting the history of the trail system is an important first step to garnering community and financial support. Raising enough funds to establish an endowment for trail maintenance ensures long-term viability. Involvement of communities, traditional landowners, trail users, and maintenance crews is essential. The development of treatment and maintenance guidelines requires a team approach and ensures that the character, workmanship, and materials for trail construction are preserved.

Endnotes

1 Historic trails, built or in use during a significant event or period, have associated heritage themes such as indigenous use, commerce, communications, community planning and development, conservation, recreation, landscape architecture, military, religion, or transportation. Steven Elkinton, "CRM and the National Trail System," CRM (Cultural Resource Management), 20:1. Washington, DC: US Department of the Interior, National Park Service, Cultural Resources, 1997.
5 Landscape characteristics defined in A Guide to Cultural Landscape Reports: Contents, Process, and Techniques, include: natural systems and features, spatial organization, land use, cultural traditions, cluster arrangement, circulation, topography, vegetation, buildings and structures, views and vistas, constructed water features, small-scale features, and archeological sites.
7 www.nps.gov/acad
8 www.nps.gov/ark/oclp.htm Established in 1992, the Olmsted Center strengthens the capacity of parks to manage cultural landscapes as part of our national heritage and works in partnership with national parks, universities, government agencies, and private non-profit organizations. The Olmsted Center offers expertise in horticulture, landscape architecture, and history. Based at the Frederick Law Olmsted National Historic Site, the Olmsted Center perpetuates the tradition of Olmsted’s lifelong commitment to people, parks, and public spaces.
12 For trail planning, construction, and maintenance manuals, see http://forestry.lib.umn.edu/bib/trs.php and www.wcrats.org.