Bouldering: Understanding and Managing Climbing on Small Rock Formations

This paper is intended to provide a knowledge base for understanding and managing bouldering as a unique form of outdoor recreation.

The Access Fund is the only national advocacy organization whose mission keeps climbing areas open and conserves the climbing environment. A 501(c)3 non-profit supporting and representing over 1.6 million climbers nationwide in all forms of climbing—rock climbing, ice climbing, mountaineering, and bouldering—the Access Fund is the largest US climbing organization with over 15,000 members and affiliates.

Since 1990 the Access Fund has advocated for the sustainable practice and management of all forms of climbing. Outdoor climbing activities require a natural environment for a fulfilling climbing experience; therefore, the Access Fund supports — through grassroots activism, scientific study, grant making, and public policy — the conservation of climbing areas and the well-informed management of climbing resources and activities.

Copies of this paper and other information resources are available directly from the Access Fund. Please visit www.accessfund.org, or call 303-545-6772. Questions on bouldering should be directed to the Access Fund's Programs Director, Deanne Buck at x112 or Associate Programs Director, Kristo Torgersen at x105.

Overview

Bouldering is the practice of climbing on small rock formations or boulders that are short enough in height that ropes and gear are not necessary. A route up a boulder is typically referred to as a “boulder problem” or “problem”, and rarely exceeds 15 to 20 feet in height. Surmounting a boulder via a specific side or problem is the general objective of the activity. Some boulder problems are “traverses”, climbing from one end of the boulder to the other. Since bouldering does not utilize ropes, relying on fellow boulderers to act as “spotters” is the common practice. In general, bouldering falls are frequent, but short. Spotters redirect falling climbers away from hazards and towards the safest landing zone. For this reason, most boulderers climb in a group (usually 2-6 people), relying on one another not only for technical climbing advice and positive encouragement, but for safety benefits as well.

Historically, bouldering developed as a means of training for bigger climbing and mountaineering objectives. In the past 30 years, bouldering evolved into a sport unto itself. The emergence of bouldering as an acknowledged, distinguished, and respected form of climbing is the result of several cultural, social, and economical factors. Bouldering’s initial appeal to climbers was the ability to practice extremely difficult and gymnastic climbing movements close to the ground and repeatedly. As a result, bouldering became the avenue for achieving climbing’s most technically difficult accomplishments. This has made bouldering the climbing form of choice for many top climbers and legitimized bouldering as a respectable and distinguished form of climbing.

As bouldering evolved, so have the tools necessary for boulderers to maximize their potential. Specialized shoes, with sticky rubber soles, and gymnastic chalk, for improved hand grip, are used by boulderers to improve performance. Bouldering pioneers invented (and eventually made commercial available) “bouldering pads”, portable cushioned mats used to pad the immediate area around a boulder to provide a soft landing surface if climbers jump or fall off the boulder. These three elements are the essential tools for bouldering.

Bouldering’s growing popularity can be attributed to the low cost of entry, accessibility, progressive athletic potential, community, and mainstream publicity. Because entry into the sport only requires shoes, chalk, and a pad, bouldering has strong appeal to a health-conscious public as an ‘entrance-activity’ form of human-powered recreation. Youth climbing teams and an increase in competitive indoor bouldering events have increased its popularity among children and adolescents, as well. Bouldering’s social aspects of community and camaraderie are fostered in the spotter/climber relationship that has unified the bouldering community and created an expanding sub-culture among many enthusiasts. Finally, a growing market of magazines, companies, products, and events contribute to bouldering’s growing popularity.

The bouldering culture that is growing from these influences is primarily younger and energetic, the majority of whom are in their teens and twenties. Bouldering is not an activity only for the young, but for the "young at heart" as well. The difference being that many older climbers learned to climb on a rope, so today they, unlike the new generation of climbers, don't practice bouldering exclusively. A visit to any nearby bouldering area, however, will reveal the sports appeal all age levels and abilities of the climbing society.

Bouldering and the Environment

"We…struggled with the basic question of what is an acceptable compromise between recreation and resource protection. The Access Fund has helped to interface with the climbing community. So far the experience has been very positive and collaborative."

-- Roy Zipp, Natural Resource Specialist, North Cascades National Park

Like all forms of outdoor recreation, bouldering causes impacts to natural resources. The recent increase in bouldering's popularity contributes to the potential for the establishment of new terrain and the rise in user numbers also increases impacts on the climbing environment. The Access Fund strives to educate all those who rock climb about the nature of climbers' impacts as well as techniques to minimize or prevent impacts. Impacts from bouldering activity tend to be concentrated around the rocks themselves. The climbing community has proven receptive to management where there has been thorough outreach during the development of management plans. Conversely, where actions which limit or eliminate bouldering opportunities are undertaken without consulting climbers, with little documentation of impacts, or that only affect climbing, the climbing community may be less cooperative.

Rock Formations

» Chalk

Rock climbers commonly dust their hands with gymnast's "chalk" — magnesium carbonate powder — as a drying agent, to improve grip. Chalk use often leaves a thin layer of white residue on handholds. While the environmental effects of chalk may be minimal (depending on rock type, weather, and other factors), the visual effects may be significant in areas with high visitation.

Magnesium carbonate is chemically basic. On non-porous rock such as granite, gneiss, or quartzite, chalk appears to cause little if any physical effect to the rock resource. The effects of chalk use on rock surfaces, lichens or plants growing out of the rock, or wildlife is not thoroughly understood at this time, but there is no evidence that chalk use causes harm to these or other values in any bouldering area. In the absence of more definitive information about chalk's long-term environmental effects, resource managers may wish to encourage climbers to minimize the use of chalk. It is appropriate to prohibit chalk use within 50 feet of critical resources such as rock art, as has been done at Red Rocks National Conservation Area, a major climbing area near Las Vegas, Nevada.

» Vegetation
Climbers are attracted to the most clean and exposed rock surfaces, generally preferring those that are vertical or overhanging. These rock surfaces are least conducive to supporting vegetation and climbers rarely attempt to climb highly vegetated faces (with the exception of areas like the Pacific Northwest, where the majority of rock resources are covered with moss, lichen or plant growth). Widespread removal of organic material is unusual, as it is generally unnecessary (and undesirable) from the climber's standpoint. Small amounts of lichen, however, grow on many exposed rock surfaces, and boulderers sometimes brush away moss or lichen at the point of key hand and footholds. Even if no intentional "cleaning" is done, simply using hand and foot holds will wear away the vegetation at the points of contact. Often, this process involves rubbing or brushing the hold with the fingers or a small brush (i.e.toothbrush).

» Chipping and Gluing
In some bouldering areas climbers have, in discrete locations, modified the rock to create finger or foot-holds, or used adhesive agents to prevent friable flakes and fractured rock features from breaking off and making a problem easier, more difficult or impossible. The practice of creating or enhancing holds in the rock is known as "chipping"; the practice of reinforcing the stability or strength of loose holds with epoxy is called "gluing." These practices, while very uncommon, are almost universally condemned by climbers. The Access Fund opposes intentional alteration of the rock for the purpose of creating or enhancing holds. We believe such actions degrade the climbing resource and eliminate challenges for future generations of climbers.

Staging Areas
» Soil and Vegetation
Typically, the most concentrated effects of bouldering activity occur on the ground below and directly adjacent to heavily used boulders. Here, in the "landing zone" and "staging area," soils and vegetation can quickly become compressed as climbers walk around below the problems, sit down to put on shoes, socialize, place protective bouldering pads, and fall or jump to the ground. Management responses to mitigate impacts have included site hardening, barriers, exclusion zones, and visitor dispersion to more robust sites through selective publicity, signing, and trail management.

Heavy traffic on and to specific boulders often leads to occurrences of trampling and subsequent erosion. In addition, in order to make the landing safer, climbers at times will move ankle-turning rocks from under the boulder problem. Since the soils directly below and adjacent to boulders often collect run-off and retain moisture better than other areas, they may prove to be critical habitat for certain plants and wildlife. Local climbers can provide useful information, such as locations of particularly popular bouldering areas. Outreach and education have

been used successfully in many climbing areas to minimize such impacts before they become critical.

» Bouldering Pads
Bouldering pads are an important tool for bouldering. Pads positioned on the ground below boulders may reduce erosion by distributing and absorbing the force of bouldering falls. Pads can, however, cause damage to vegetation if they are draped over or leaned against grass, shrubs, bushes or flowers. Management responses to reducing impact include outreach, at trailhead kiosk postings and educational brochures, to place pads only on durable surfaces.

The Approach
» Trails
Many boulders are located off the “beaten path” of designated trail systems. Sometimes called social trails, these paths develop as climbers make repeated visits to climbing-specific destinations that are not serviced by existing trail systems, or move around in predictable ways within a climbing area. Typically, paths develop in two general locations: along the quickest route from a parking area to the bouldering area and between boulders within the climbing site. Paths to the boulders are typically very primitive, often steep, “improved” minimally if at all, and may be subject to erosion. They often initially incorporate game or livestock runs, dry creek beds, or other natural byways through the landscape. Once a trail becomes established, environmental factors will dictate its prominence in the landscape and susceptibility to erosion. These factors include composition of soil, slope aspect and angle, climate, and local vegetation’s resistance and resilience.

If bouldering use is heavy, a web-like network of trails may develop among and between the boulders. This phenomenon is more or less common depending on many environmental factors, most notably the durability of the ground’s surface around boulders.

At some point, if many climbers use an area, some degree of formalization and stabilization of climber paths may become desirable. Some climber paths may be redundant or adversely affect resource or aesthetic values. Such paths can be minimized or in some cases eliminated. Local climbing representatives can provide input on the minimum trail requirements to access bouldering areas and on climber travel between boulders.
Management response may first include carrying out a climber path inventory. Once paths are documented (typically GPS techniques are used), a map may be drawn, and if necessary, a trails plan can be developed that eliminates redundant or unnecessary paths. Some paths may be targeted for stabilization or upgrading to withstand heavier traffic, while others may be closed to protect sensitive resources, and replaced with new, re-routed trails.

On federal land, the question of whether unplanned and unapproved social trails can or should be “improved” or made permanent is guided by the National Environmental Protection Act (NEPA). NEPA does not prohibit social trails; the law requires that any such environmental effect not be allowed to alter the fundamental character or key values of an area without prior planning, and that before such an effect can be improved and made permanent by the oversight agency, it must be analyzed and approved. As the costs of such analysis, both fiscal and administrative, are considerable, federal resource managers are advised to work collaboratively with the local climbing community to determine what management actions may be taken to reduce the significance of this impact without triggering a full-blown NEPA analysis. Such preventative actions may include erosion control; rerouting of climber traffic through other, more durable areas; educational outreach; signs at parking and staging areas; and limited trail closures.

Additional Concerns

» Litter

While litter is not a significant impact at most bouldering areas (and is even less so the further into the backcountry one goes), climbers sometimes leave behind traces of their presence. Climbers are encouraged to practice a “pack in, pack out” policy and to clean up after less considerate visitors. Nevertheless, small items such as fragments of athletic tape (used to protect fingers) or cigarette butts may accumulate at high use areas. Assess the extent and effects of climber litter through field observations by agency staff or volunteers. Education has worked well in many areas to bolster climber commitment to keeping climbing areas litter free, particularly where outreach has focused on persistent small items such as tape fragments. Climbers should also be encouraged to carry small plastic bags with their bouldering gear and to pack out all trash for proper disposal at trailheads, campgrounds, or other facilities.

Organized clean-ups are also widespread at popular climbing areas. There are many examples of climbing groups organizing clean-ups at areas impacted by activities such as illegal dumping. The Access Fund coordinates the national event “Adopt-a-Crag.” This entails climbing groups working with agency units to initiate stewardship projects at a local climbing area, which may include litter removal. In 2005, over 110 events took place across North America.

» Human Waste Disposal

Improper human waste disposal may lead to contamination of water sources, degradation of scenic values, and undesirable modification of wildlife behavior. Human waste disposal generated by climbers can be managed in the same way as waste from backcountry hikers. Site assessment can identify whether impacts are due to poor disposal methods or long-term cumulative effects, and appropriate management strategies can then be designed. In general, trailhead toilets and other waste-disposal facilities will be used if available. Many climbers are

already aware of minimum-impact waste disposal practices, and this knowledge can be reinforced by education outreach.

Climbers from foreign countries may have different waste-disposal standards. Building awareness and compliance among foreign visitors should be incorporated in outreach programs, for example, by producing education materials in the primary languages of foreign climbers. The best methods for human waste disposal will vary with different environments. For example, snowfields, glaciers, and above tree-line environments will require different practice than at lower elevations.

The Access Fund often works with resource managers on human waste issues, providing sample management approaches used at other climbing areas, promoting best practice for specific environments and locations, and providing cost-share funding for installation of outhouses through its grants program.

» Pets

The presence of pets on public lands, even where legal, can raise issues about impacts to natural resource values or social conflicts. Impacts from dogs may be concentrated in bouldering areas and unleashed animals may present obstruction or safety issues. Impacts may include disturbance to wildlife, ground or vegetation disturbance (digging and chewing vegetation), and cumulative effects from dog feces and urine accumulation. Social impacts may include noise (barking), and behavior of leashed or unleashed animals (fighting, obstruction, distraction) affecting other visitors' enjoyment of the area.

In national parks, pets are only allowed in developed areas such as parking areas or campgrounds, and must be on a leash. On BLM and Forest Service lands with no wilderness designation, no leash is required. State park and local government policies will vary. Where impacts from pets at climbing areas are identified as unacceptable and no regulations exist for the area, special guidelines on pet management may need to be developed. These may include leash or voice- and sight control requirements, or tethering pets away from the base of climbs.

Owners may also be asked to remove their animal's waste from the bouldering area and either bury it away from the area or pack it out. Education strategies should be developed to support the requested management practice. Consider working with local climbing representatives to assist with developing the education message and distributing information through climbing outlets.

» Cultural Resources

In some areas, boulders, alcoves beneath boulders, or spans of rock at the base of cliffs are archeological sites. These sites may have buried or surface artifacts, or be adorned with pictographs and petroglyphs. No visitor, including climbers, should ever disturb an archeological site in any way. In such areas impacts associated with bouldering, particularly

chalk, may need to be regulated more closely than in other areas — it would be inappropriate, for instance, to leave chalk marks on top of or even close to rock art. Some climbing areas on federal lands maintain a 50-foot buffer between rock art and climbing/bouldering routes; this distance has proven sufficient to preserve historic values. At Hueco Tanks State Historical Park in Texas, however, there is no minimum linear distance established between rock art panels and climbing routes. Rather, climbing is simply prohibited directly on, above and adjacent to these panels.

As a rule, climbers feel that the presence of rock art and other historic values enhances the bouldering experience, and want to preserve these values. The climbing community has always maintained as a standard of conduct that rock art and other archeological resources should be seen but not touched. Given the sensitivity of historic resources such as rock art, and the possibility that such resources may not be readily apparent to an untrained eye, it is prudent for resource managers to impose buffer zones between bouldering problems and archeological sites. A modest distance will prevent climbers from feeling that the buffer zone is excessive to achieve the desired management objectives, especially if no standards have been established scientifically.

The National Historic Preservation Act (NHPA) and the National Environmental Policy Act govern management of archeological and cultural resources on federal land. The NHPA's Section 106 requires "consultation" with interested parties prior to any "undertaking" (an "undertaking" is any action, or inaction, by the managing agency or authorized parties that may affect these resources). In all areas with climbing opportunities, including bouldering areas, climbers should be considered a stakeholder interest group and be formally invited to consult whenever the Section 106 process is initiated. If climbers are not allowed to participate in this process, any resulting management action that restricts or eliminates climbing opportunities may be met with resistance from climbers.

One of the biggest challenges in managing historic sites is educating the public about historic values without necessarily informing visitors of the exact locations of specific resources. This is especially true if some resources have been identified as sacred to indigenous peoples. If such resources exist in an area used by climbers, their existence should be made clear through outreach and educational avenues, without disclosing the specific location of such resources. Where such resources are so sensitive that any human intrusion may threaten their preservation, area closures may be required but should apply to all visitors equally, not just climbers.

Management Considerations

Management response to the effects of bouldering activity will depend on many factors, including the mission of the agency or field unit, and staffing or budgetary resources. Each natural area is unique, requiring land managers to exercise broad discretion in managing recreational activities. This discretion is encoded in law and policy directives. If legislation such as the National Environmental Policy Act of 1969 (NEPA) is applicable to the area where a change in management approach is being proposed, then a formal use plan will be prepared which will present a range of management alternatives or responses. Other legislation such as the Endangered Species Act, 1973; the National Historic Preservation Act, 1966; the Native American Graves Protection and Repatriation Act, 1990; or other forms of state or special designation may also affect the management approach.

The U.S. Park system is an invaluable resource for many outdoor pursuits, and climbers sincerely understand the wonderful privilege that is granted by being able to climb the boulders, crags, and cliffs that dot the landscape.

Parks & Recreation, July 2005

Beyond the requirements of law, hard rules are seldom possible, but one useful document that can give direction on developing a management response is NPS-77 Natural Resources Management Guidelines (U.S. Department of the Interior, 1999) especially Chapter 3, “Backcountry Recreation Management.” These guidelines outline a management scheme where action is implemented on a graduated scale, from indirect measures such as education and outreach, to direct measures such as area restrictions and closures. In general, recommended actions are the minimum necessary to protect resources. Bouldering activity, as with any use of a natural area, creates impact. It may be useful to consider impact in terms of a threshold, and differentiate acceptable or inconsequential effects on the resource from detrimental impact or impairment. The specific threshold between effects and impairment will depend upon complex factors including the mission of the agency and the status of the area. Degree of impact will be weighed with considerations such as the significance of resource values within the contextual environment, and high-quality occurrences of resource values or important populations.

Managers can expect above-average concern for the environment from participants in climbing activity. Research by Indiana University, Department of Recreation and Park Administration (Ewert, personal communication 2000) has shown that participants in “adventure recreation” (including climbing, paragliding, and spelunking) have above average awareness about environmental concerns and minimum-impact practices. These groups, which are relatively easily identified by their activity and equipment, respond well to targeted education, outreach and voluntary restrictions on use. Opportunities for outreach include guidebooks, outdoor retail stores, climbing gyms, guide services, magazines, and local climbing groups. Climbers, especially younger climbers, have an extensive network of Internet sites devoted to their activity, and this fact can be put to great use by resource managers (the BLM has already done so to support education/outreach in the popular bouldering locations around Bishop, California:

www.ca.blm.gov/bishop). Bouldering websites are receptive to postings from resource managers, and these sites can be a very efficient and cost-effective method for reaching this user group.

The hallmarks of successful management of bouldering are open communication between resource managers and climbers, and proactive management responses that rely principally on education and outreach to achieve objectives. Management planning for areas with bouldering opportunities should include consideration of the views and priorities of climbers. When climbers feel that they have been included in the decision-making process, they are more likely to comply with restrictions, and to help enforce those restrictions among their peers. In virtually all areas where bouldering is practiced, the activity has been found to be compatible with other land uses and values. When bouldering is determined through objective analysis to conflict with other resource values it is the goal of the Access Fund to help determine what can be done to reduce or eliminate problems, and to support management actions and programs that actually solve the problems they are intended to address. Many bouldering areas have enjoyed largely unrestricted access for decades, yet have experienced minimal environmental impacts and few management problems.

Determining just what measures can accomplish management goals without needlessly reducing, or affecting the quality of, recreational opportunities requires a solid knowledge of the way bouldering is practiced in a specific management area. Both this knowledge, and good relations with the user group, are informed greatly by the assignment of a specific liaison to handle bouldering-related issues. Ideally, this liaison will have some climbing experience, although this is not essential. What is important is that climbers perceive the liaison as willing to listen and learn about their activity, and more importantly, that he/she consider bouldering to be a valid and worthwhile activity.

The Access Fund

The Access Fund is a national, 501(c)3 non-profit organization dedicated to keeping climbing areas open and conserving the climbing environment. The Access Fund is the largest climbers' group in America, with over 10,000 members. To accomplish its mission, the Access Fund encourages an ethic of personal responsibility, self-regulation, and minimum impact practices among climbers; works closely with local climbers, land managers, environmental organizations, and other interest groups to manage and preserve climbing areas throughout the United States; sponsors grassroots climber activism and resource stewardship; develops and distributes climber education materials; acquires and manages land; and provides funding for conservation and impact-mitigation projects, and for scientific research relevant to the climbing environment.

Utilizing the Resources of the Access Fund

Information

Access Fund staff can provide advice on subjects such as organizing stewardship projects, liability, agency and climbing representative contacts and education and outreach strategies. Samples of outreach material can be provided on request. Staff also field general inquiries on access from the climbing public and provide updates to queries on climbing access arrangements.

Publications

The following publications are available from the Access Fund website: www.accessfund.org:

- Climbing and Natural Resources Management – An Annotated Bibliography.
- Supplement to Climbing and Natural Resources Management.
- Risk Management for Climbing.
- Raptors and Climbers: Guidance for Managing Technical Climbing to Protect Raptor Nest Sites.

Education and Outreach

» Text

Access Fund staff and/or local climber contacts supplied by the AF can assist agencies in producing technically correct wording and presentation of text compatible with current usage and information in climbing guides.

» Logo

The Access Fund can supply a logo for signage.

» Distribution

Local climber contact supplied by the AF can provide advice on distribution outlets and display points for education materials.

» Website

The Access Fund website (www.accessfund.org) provides information about special access issues, wildlife and conservation issues, news updates, upcoming events and projects, and local contacts. For example the website lists U.S. locations with seasonal raptor and other wildlife climbing restrictions, climbing and resource management publications, and federal and state public lands planning initiatives.

» E-News

Monthly email news sent to individuals who subscribe through the Access Fund website, provides access information and updates, including details of agency planning initiatives and management plans, and upcoming events.

» Vertical Times
The membership newsletter, produced six times per year covers climbing access and conservation issues.

» Membership Guidebook
The membership handbook, sent out to all new members, provides general access information about climbing on federal and state owned public lands, and how to work with land managers on access issues.

Regional Contacts
The Access Fund supports a national network of volunteers and works closely with local climber organizations. Regional climbing representatives can provide input on climbing management issues and assist with the production of climber education materials. They can also have a key role in the development of a climbing management plan and are usually available to provide input on local management issues. The Access Fund website lists current contacts and affiliate organizations. In addition, the Access Fund can help provide other local contacts (e.g. individuals from climbing gyms, guide services, retail stores, etc.)

Project Support
» Grants Program
The Access Fund provides funding for access and conservation projects. Project funding categories include education, mitigation, research, facilities (toilets, trails, signs, information kiosks, etc.), and land acquisition. See website for details and to download a copy of the grant guidelines.

» Special Events / Stewardship Projects
The Access Fund supports projects such as conservation work days and clean-up events by assisting with publicity and donations of climbing equipment and other prizes. The Access Fund also sponsors a national program called Adopt-a-Crag – refer to the website for more information about this event.

The Access Fund
PO Box 17010
Boulder, CO 80308
303/545-6772
www.accessfund.org