

# Development of the U.S. Leave No Trace Program: An Historical Perspective

Jeffrey L. Marion and Scott E. Reid<sup>1</sup>

January 2001

## Introduction

The goal of the U.S. Leave No Trace educational program is to avoid or minimize impacts to natural area resources and help ensure a positive recreational experience for all visitors. America's public lands are a finite resource whose social and ecological values are linked to the integrity of their natural conditions and processes. Land managers face a perennial struggle in their efforts to achieve an appropriate balance between the competing mandates to preserve natural and cultural resources and provide high quality recreational use. Visitor education designed to instill low impact ethics and skills is a critical management component and is seen as a light-handed approach that can reduce the need for more direct and regulatory forms of management.

*"Wilderness management is 80-90 percent education and information and 10 percent regulation."*  
Max Peterson, former Chief of the U.S. Forest Service, 1985.

*"Education...is a preemptive strike...to teach the American people how to enjoy the wilderness without destroying it. All other methods merely try to repair the damage after it is done. Stronger wilderness education programs would dramatically decrease the need for law enforcement and cleanup."* James Bradley, former staff member, Subcommittee on National Parks and Public Lands, U.S. House of Representatives

This paper describes the historical development of the U.S. Leave No Trace (LNT) educational program. It begins with a review of the need for the program and traces its conception and early development in the 1970's, revitalization in 1990, creation of Leave No Trace, Inc. in 1994, and the current status. The paper concludes with a discussion of the elements that have made it successful and recommendations for the development of similar educational programs.

## The Need

America's recreation lands, including private, local, state and federal holdings, are being used and enjoyed by more and more people. The most dramatic increases in outdoor recreation occurred in the 1960's when hiking, camping and backpacking first became popular. For example, use of National Forest primitive areas and wilderness tripled during the 1960's and public land visitation continues to increase. Recreation visits to the U.S. Forest Service lands have jumped from 4.6 million in 1924 to 900 million in 1999. Similarly, recreation visits to National Park Service areas were 33 million in 1950, increasing more than five-fold to 172 million in 1970, with more modest increases to 258 million in 1990, and 287 million in 1999.

---

<sup>1</sup>Jeff Marion is the Leader of the Cooperative Park Studies Unit, Patuxent Wildlife Research Center, U.S. Geological Survey and a Board Member of Leave No Trace, Inc.  
Scott Reid is Education and Projects Manager, Leave No Trace, Inc.

---

This magnitude of recreation visitation periodically raises the issue in the popular media of whether Americans are “Loving their parks to death.” One hiker venturing off the trail or one group creating a new campsite may seem of little significance, but the combined effects of millions of such instances leave a substantial and cumulative mark on the land. Trampling by foot and horse traffic causes loss of vegetation cover and change in species composition, exposure, compaction, and erosion of soil, damage to trees, campfire scars, litter and improperly disposed human or dog waste (Hammitt and Cole 1998, Leung and Marion 2000). Such changes can also degrade the quality of outdoor experiences because they are most evident along trails and at recreation or camping sites where visitors spend the majority of their time.

The expansion and proliferation of visitor-created campsites and trails also increase the aggregate area of human disturbance and fragment wildlife habitat. Disturbance of wildlife can displace them from critical foraging or nesting habitats while individuals that obtain human food become beggars or nuisance animals that must be relocated or killed (Knight and Temple 1995). Archaeological and cultural resources are also at risk from visitors who climb around to explore ruins or take artifacts like pottery shards as souvenirs. Increasing recreational visitation also causes crowding along trails and at campsites, which diminishes solitude. Incompatible activities or encounters with discourteous visitors can lead to conflicts between groups.

Unfortunately, research has shown that the majority of recreation-associated resource impacts occur with initial or low levels of use. For example, on campsites in the Boundary Waters Canoe Area Wilderness, 95% of the total loss of tree seedlings and 61% of the increase in soil compaction occurred on sites receiving just 12 nights of use/year (Marion and Merriam 1985). Experimental trampling studies have consistently documented curvilinear responses between the amount of trampling and the severity of damage to vegetation and soils (Cole 1993, 1995). Impacts occur rapidly at initial or low use levels but the rate of loss diminishes as maximum change approaches 100 percent. These studies also demonstrate substantial differences in the ability of different vegetation and soil types to resist trampling damage and in their ability to recover from disturbance (Cole 1987, Leung and Marion 2000). Some important implications of these findings are that impacts can be effectively minimized by concentrating recreational traffic on the most resistant surfaces, including rock, sand, bare soil, snow, and grassy groundcovers.

Sustaining outstanding natural resource conditions and recreational opportunities are primary goals for public land managers, most of whom operate under the dual “preservation” and “use” legal mandates. Research has demonstrated that resource degradation is an inevitable consequence of natural area visitation. Similarly, as visitor use expands, so too will visitor encounters, jeopardizing opportunities for solitude. The challenge for managers is to eliminate avoidable impacts and to minimize those impacts that are unavoidable. For example, visitors who substitute camping stoves for campfires avoid a host of resource impacts related to the gathering and burning of firewood. Managers can achieve such ends through regulations, i.e., prohibiting campfires, or through education, i.e., highlighting campfire-related resource impacts and the advantages of using stoves. Effective educational interventions can enhance visitor outdoor ethics, encouraging visitors to modify their own behavior through the adoption of low impact practices. Such indirect approaches preserve visitor freedom from regulations and can also delay or forgo the need to limit visitor use.

Educational programs such as LNT provide a vehicle for promoting awareness of recreation impacts and encouraging visitors to become knowledgeable about how to reduce it. To halt and reverse current trends of recreation-caused resource degradation, visitors must become aware of their responsibility to reduce their impact on the land and to the experiences of other visitors. Low impact ethics and skills need to become a standard code of conduct that promotes the stewardship practices necessary to protect the ecological and social health of recreation lands.

## **Program Conception and Early Development**

As wildland use continued to expand in the 1960's, 70's and 80's, visitors to public lands began to witness the degradation of their favorite trails and campsites. The development of low impact hiking and camping practices occurred incrementally over this time period. The federal agencies, notably the U.S. Forest Service (USFS) but also the Bureau of Land Management (BLM), and the National Park Service (NPS) developed numerous brochures during these years variously called Wilderness Manners, Wilderness Ethics, Minimum Impact Camping, and No-Trace Camping. In the late 60's and early 70's wilderness managers had initially applied regulations to address visitor impact problems but

---

realized a need to develop an educational program to supplement the regulations. In 1979, Jim Bradley, a USFS wilderness specialist in the Pacific Northwest, wrote about the need for an educational approach for managing recreation impacts (Bradley 1979). He noted that a purely regulatory approach is inappropriate because: 1) regulations antagonize the public rather than win their support, 2) most impacts are not from malicious acts, they result from an insensitivity to the consequences of one's actions and from a lack of knowledge regarding appropriate low impact practices, and 3) enforcement of regulations is difficult in wildlands due to their large and remote nature.

USFS wilderness managers developed an educational program in the mid-70's that emphasized personal communication at busy wilderness accesses. Wilderness Information Specialists (WIS's) sought out visitors using a friendly hospitable approach to provide information that included no-trace travel and camping tips. These programs evolved in the early 80's into a more formal "No-Trace" program that relied on a humanistic approach emphasizing the cultivation of new wilderness ethics and more sustainable no-trace travel and camping practices. The success of this program led to interagency coordination and in 1987 the USFS, NPS, and BLM cooperatively developed and distributed a pamphlet titled Leave No Trace Land Ethics.

During this time period a number of books and papers were also written about wildland ethics and minimum impact camping practices. Books include *The Wilderness Handbook* (Petzoldt 1974), the Sierra Club's *Walking Softly in the Wilderness* (Hart 1977), *Backwoods Ethics: Environmental Concerns for Hikers and Campers* (Waterman and Waterman 1979), and *Soft Paths* (Hampton and Cole 1988). These books highlighted the advantages of low-impact camping and actively promoted a 'clean camping' crusade. They also provided 'how to' advice on travel and camping practices that would help recreationists lessen their individual impact. Similarly, the scientific community contributed a number of papers in conference proceedings and journals. For example, Fazio's paper *Information and education techniques to improve minimum impact use knowledge in wilderness areas* in the 1978 *Recreational Impact on Wildlands conference* (Fazio 1979), *Managing campfire impacts in the backcountry* (Cole and Dalle-Molle 1982), *Wilderness campsite selection: What should users be told* (Cole and Benedict 1983), and *Low-impact recreational practices for wilderness and backcountry* (Cole 1989).

## Development of a National Program

A lack of national leadership, funding, and training had limited the effectiveness of early minimum impact educational efforts in the 1970's and 80's, including a pilot educational effort with the Boy Scouts of America and the BLM in the High Uintas Wilderness area in Utah. By 1990 the clear need for visitor education, coupled with increasing knowledge about visitor impacts from research, prompted the USFS to approach the National Outdoor Leadership School (NOLS) to develop hands-on minimum impact training. (This training for land managers would eventually develop into the present day Master Educator course.) The "Leave No Trace" phrase had been designated within the USFS as the name for minimum-impact messages targeted to non-motorized recreational activities. The intent was to promote a single message in the place of various permutations developed over the years.

Also in 1990, the USFS convened a committee to discuss the potential for a national program. The goal in promoting this phrase consistently was to develop the message in much the same way as the successful Smokey Bear (forest fire) and Woodsy Owl (litter) campaigns. The USFS had created a similar national program known as Tread Lightly in 1985 to provide a focus for educational messages geared to motorized visitors ([www.treadlightly.org](http://www.treadlightly.org), 800-966-9900).

The USFS formalized a partnership with NOLS to develop a written LNT educational curriculum for wildland visitors. NOLS agreed to this offer in 1990 and a Memorandum of Understanding (MOU) was signed with the USFS in 1991. NOLS is a non-profit school founded in 1965 "to be the leading source and teacher of wilderness skills and leadership that serve people and the environment." NOLS courses visit remote backcountry and wilderness settings and are generally one to three months in duration. The school has long been a recognized leader in developing and teaching minimum impact hiking and camping practices. This knowledge was compiled and published in the book *Soft Paths* by Bruce Hampton and David Cole in 1987 (revised in 1995). NOLS is based in Lander, Wyoming but has branch schools in many other states and countries.

NOLS' involvement in the LNT program marked the beginning of the partnership model that continues to the present day. NOLS was instrumental in working with the USFS to make the program science-based by collecting relevant scientific literature and consulting with scientists in the review

---

and development of low impact hiking and camping skills. NOLS also developed the ethics and experiential training aspects of the LNT program, the capstone of which is a five-day Master Educator course for land managers, outfitters, outdoor educators, and others. The first LNT Masters course was taught to agency staff in the Wind River Mountains of Wyoming in September 1991. NOLS conducted five Masters courses in 1992, including one for non-agency personnel.

*"We have long recognized education as the best strategy for reversing the trend of damage to wilderness and undeveloped areas caused by recreation visitors... Accordingly, the Forest Service developed and has actively sponsored Leave No Trace as our outdoor ethics program for non-motorized users..."* F. Dale Robertson, former Chief of the U.S. Forest Service, letter to regional foresters, April 1992

As land managers learned of the successful educational partnership between the USFS and NOLS, other agencies became interested in participating in the emerging national program. The Bureau of Land Management (BLM) formally joined the partnership in May, 1993, followed by the National Park Service (NPS) and U.S. Fish and Wildlife Service (USFWS) in 1994. A new MOU was signed in 1994 to formalize the LNT program partnership between USFS, NOLS, BLM, NPS and the USFWS. The MOU committed the federal agencies to provide overall steering and direction for the national program, with NOLS supplying curricula, training, and the development and distribution of LNT information. NOLS continued to manage the program by producing and selling brochures, videos, posters, and other educational materials via a toll-free number and a website.

NOLS also worked with the agencies and scientists to develop a Mission Statement, Strategic Goals, and eight LNT Principles (providing a focus for more specific educational practices - see text box). The mission statement called for the development of a nationally recognized minimum impact backcountry educational system that would educate wildland user groups, federal land management agencies and the public through training and educational materials. Strategic goals

focused on the development of high quality, science-based educational materials and courses for selected target regions and recreational activities, and networking to disseminate educational ideas and programs nationwide.

For each target region and activity, NOLS has also developed comprehensive Master's course curricula and a series of LNT Outdoor Skills & Ethics (S&E) booklets. The first 14-page booklet was produced in 1992, complementing and eventually replacing an LNT pamphlet and booklet set created by the USFS in 1992 in cooperation with the BLM, NPS, and the Izaak Walton League. Each year additional S&E volumes have been added to the series, which currently numbers 16. The S&E series are developed through a comprehensive process involving the integration of research findings, backcountry travel and camping expertise from the target region and activities, and consultations with land managers from different agencies in each area. The booklets are written to convey the most effective LNT travel and camping practices while instilling an abiding respect and appreciation for wild places and their inhabitants. The rationale for each practice and the need to temper their application with good judgement is emphasized, along with the need for visitors to assume the responsibility to educate themselves and apply the learned skills.

**Original Principles of Leave No Trace**

- Backcountry Trip Planning and Preparation
- Concentrate Impacts in High Use Areas
- Spread Use and Impact in Pristine Areas
- Avoid Places Where Impact is Just Beginning
- Pack It In, Pack It Out
- Properly Dispose of What You Cannot Pack Out
- Leave What You Find
- Campfire Building in the Backcountry

## **Creation of Leave No Trace, Inc.**

Although NOLS provided successful leadership in guiding development of the interagency LNT program, partnerships with other educational organizations and adequate funding from the outdoor industry remained critical constraints on program growth. Direct federal funding of the LNT program has always been quite limited and is often tied to specific projects. Land management agencies and NOLS recognized a need to involve outdoor product manufacturers, retail stores and other outdoor education organizations in the LNT program. Accordingly, in November 1993, an outdoor recreation

---

summit was convened involving NOLS, the Outdoor Recreation Coalition of America (ORCA), the Sporting Goods Manufacturing Association (SGMA) and other outdoor manufacturing representatives. At the summit, these groups assessed their support of the LNT program's partnership concept and the creation of a non-profit organization.

LNT, Inc. was registered as a 501©(3) non-profit educational program in 1994 and rapidly gained momentum with the support of 24 agency, commercial, and non-profit partners. Fund-raising dominated the organization's agenda during the initial years. Seed money to start LNT, Inc. came from NOLS, SGMA and ORCA. By 1996 the organization had two full-time staff and a budget of \$108,425 supported largely from 35 outdoor recreation manufacturers and retailers. The organization's structure includes a Board of Directors, LNT Partners, and LNT Members. The bylaws established a Board of Directors as the policy-setting arm of the program. The Board numbered eight individuals in 1995, representing the federal agencies (non-voting), NOLS, science, and other non-profit organizations. LNT Partners are corporations and organizations interested in supporting the LNT program through visible participation, sponsorship and support of LNT information dissemination. LNT Members are private individuals who use public lands. Members are asked to ensure that their personal outdoor recreation practices are consistent with LNT skills and ethics and to assist in training others.

The LNT Educational Model emphasizes the development and dissemination of effective and accurate LNT skills and ethics. The knowledge and expertise for this model is gleaned from the federal agencies involved in LNT, scientific research, industry, NOLS and other outdoor educators. Core LNT literature includes the Skills & Ethics booklet series and LNT plastic reference tags that list the principles and core statements describing low impact travel and camping practices. Training opportunities include a five-day Master's course, a two-day Trainer course, LNT Workshops, and Public Contacts:

- **Master Educator course** - provides comprehensive coverage of LNT skills, ethics, and teaching practices, including four days of experiential learning in a backcountry setting. Intended for agency staff and outdoor educators who will train others to train the public.
- **Trainer course** - an abbreviated version of the Master's course for individuals who will be training the public directly, including agency staff, youth group leaders, and outdoor adventure program staff.
- **Workshops** - formal but shorter duration LNT instruction, such as an afternoon session for Boy Scouts or an evening campfire presentation.
- **Public contacts** - informal LNT instruction in visitor centers, at trailheads, and in the backcountry.

## Current Status

Since its creation, the national LNT program has grown steadily in staffing, funding, educational materials and national visibility. LNT, Inc. currently has 9 full time staff (see Appendix A), with the continuing strong participation of the federal agencies and partners such as NOLS (4 Outreach Office staff), and the Appalachian Mountain Club (1 Education Office staff), a new training partner in 1999. LNT, Inc.'s budget has grown from \$108, 425 in 1995 to \$630,000 in 2000. The LNT principles, revised twice since the program's creation, now number seven (see text box). Educational materials include a series of 16 Skills & Ethics booklets on environments ranging from Tropical Forests to Deserts and Canyons to the Alaskan Tundra, and for recreational activities as diverse as caving, rock climbing, and backcountry horse use. One booklet, several pamphlets, and a video have been prepared in Spanish for use in Central and South American countries. The program's national visibility and success are addressed in a later section.

The current mission of LNT, Inc. is to promote and inspire responsible outdoor recreation through education, research and partnerships. This mission has evolved from the program's genesis, with its focus on wilderness and backcountry

### Principles of Leave No Trace

Plan Ahead and Prepare  
Travel and Camp on Durable Surfaces  
Dispose of Waste Properly  
Leave What You Find  
Minimize Campfire Impacts  
Respect Wildlife  
Be Considerate of Other Visitors

visitation, to also address recreation use in more accessible 'frontcountry' settings, e.g., car campgrounds, day-use areas, and urban parks. This shift was made to address growing problems with resource and social impacts such as dogs and dog waste management, litter, graffiti, and visitor crowding and conflict in more developed recreation settings. Non-motorized or human-powered recreational activities remain the target audience, however, which complements parallel educational efforts by the Tread Lightly program that address motorized recreational activities.

The current composition of the LNT, Inc. Board of Directors reflects the changing nature of the program. Corporate representatives have now joined the members from the federal agencies, non-profit organizations, and outdoor educators. Past and present representation on the Board of Directors includes: USFS, BLM, NPS, US Geological Survey, NOLS, the Outdoor Recreation Coalition of America, the International Mountain Biking Association, Colorado State Parks, Walt Disney Corporation, Sports Afield Magazine, Boy Scouts of America, Subaru of America, and others.

Current bylaws allow up to 12 voting Board members who may serve for two consecutive three-year terms. The Executive Director of LNT, Inc. is elected by a majority vote of the Board. There are three designated standing committees including an Executive Committee, Advisory Committee and Education Review Committee. Of the three committees, the Executive Committee is comprised totally of Board members while the other two report to the Board, but have non-Board members. The Executive Committee consists of the board officers (Chair, Treasurer, and Secretary) and the Executive Director. The Advisory Committee consists of federal land managers and other members who assist the Corporation and its Board in developing an operating plan for the LNT program and implementing and promoting LNT. The Education Review Committee is comprised of outdoor educators, land managers, and scientists and oversees LNT training efforts, curriculum development, and educational material production.

As a non-profit organization, LNT, Inc. seeks funding from private donors. The majority of LNT, Inc.'s funding is generated from grants and corporate sponsors. Grants are applied for and received throughout each fiscal year. Commercial sponsors are asked to contribute each year based on the company's total annual sales (e.g., a company with sales of \$25-49 million is asked to contribute \$5,000). In return, corporate sponsors are highlighted in LNT newsletters and publicity materials. Sponsors are permitted to use LNT educational materials, the LNT logo and other promotional items. Financial support demonstrates an organization's commitment to preserving the condition of public lands and the quality of recreational experiences to be found there.

Although the financial donations of partners are essential to the LNT program's success, so too are the temporal donations of thousands of volunteers. Individuals who have completed the Master and Trainer courses commonly volunteer their time to present LNT information to interested groups. Targeted audiences include youth groups, retail store employees, guides, and school classes. Federal agency staff also devotes considerable time conveying LNT information to area visitors, user groups, and schools and provides numerous LNT messages in forest and park literature and on trailhead bulletin boards.

The LNT website, managed by NOLS, has become an important conduit for LNT information as the Internet has become more publicly accessible. The website ([www.LNT.org](http://www.LNT.org)) provides current information on courses, educational skills and ethics literature, research, LNT partners, and more. Application forms for LNT courses, scholarships and material donations are also accessible. The content of all LNT materials, including the Skills and Ethics booklets and succinct reference tags, is posted on the website and can be downloaded for printing and distribution. This broad access to all of the LNT educational material underscores the overall intent of the LNT program. Namely, to provide accurate, science-based information for all outdoor recreationists.

Material sales and distribution of printed literature has increased steadily since LNT, Inc.'s inception. As of September 2000, materials sales are at an all time high. Year to date, 50,000 Skills and Ethics booklets and 250,000 plastic reference tags have been distributed; over 100,000 people have been formally trained in LNT skills and ethics; and the LNT website has registered more than 100,000 visits. Year to date, an estimated 10.5 million people have received an LNT "impression" (defined as an exposure to a logo, sign, booklet or training). Partnership numbers are also at an all time high, with 239 corporate partners, and four federal agency partners actively involved in the LNT program. In 1999, the Boy Scouts of America developed a patch recognition program for Scouts that complete a standard level of LNT education. Since initiation of the program, over 11,000 patches have been distributed. Statistics and trends such as these provide one measure of the program's success.

---

To-date 1122 individuals have received LNT Master's course training, including staff from the USFS (254), BLM (121), NPS (107), USFWS (4) and from many other organizations such as the Boy Scouts, Girl Scouts, Backcountry Horsemen, Outward Bound, YMCA, and university outdoor educators. Individuals from a number of other countries have also completed the course: Canada, Mexico, Chile, Columbia, Argentina, Venezuela, Brazil, Finland, Holland, Kenya, and Australia.

Another measure of LNT's effectiveness is increased visitor knowledge of LNT skills and ethics and a per-capita reduction in impacts to resource conditions and to the experiences of other visitors. A pilot research effort is currently underway to begin empirical evaluations of the program's effectiveness. An LNT Laboratory Project was initiated in the San Juan Mountains of southwest Colorado in 1999. The goal of this project is to measure the effect of LNT educational efforts on both visitor behavior and recreation site resource conditions. In addition to focusing LNT research on several sites in Colorado, the LNT Laboratory will supplement area LNT training and outreach efforts. Plans are underway to replicate the LNT Laboratory model in a different region of the country beginning in 2002. Limited empirical research on the effectiveness of educational programs has been conducted in the U.S. However, administrators and scientists have highlighted the need for such efforts and methods for their evaluation have been described (Matthews and Riley 1995, Passineau and others 1994).

A variety of diverse educational programs and outreach initiatives continue to expose wildland visitors to LNT skills and ethics. One such effort is the Subaru/LNT Traveling Trainer program. This strategic LNT partnership funds two teams of trained ambassadors to travel the United States educating land managers, retail store staffs, youth groups, outfitters and others in LNT. This high-profile education program effectively brings a convenient, mobile training option to interested parties across the US.

In 1999, the Appalachian Mountain Club (AMC) joined LNT, Inc. as a provider of LNT Master courses. Founded in 1876, the AMC has 84,000 members in the Northeastern U.S. and is the country's oldest and most active conservation and recreation organization. The AMC sponsors a wide range of activities including volunteer-led projects and outings, as well as trail management, public service programs, research, outdoor education, and publications. With the presence of the AMC in the eastern U.S. and NOLS in the west, LNT has educational strongholds in both halves of the country. For individual states nationwide, LNT, Inc. has recently developed a State Coordinator program that allows volunteers to guide LNT efforts within their respective states in exchange for donated material and logistical support. This state-based presence ensures an active network of dedicated educators with local knowledge and contacts to spread the LNT message.

Based on historical donations of time, money and intellectual property, NOLS has owned the copyright to all LNT written materials since their first printing. As the information has gained broader appeal, numerous requests have been made to print all or part of existing LNT materials in a variety of publications. To ensure adequate access to LNT information and appropriate recognition of intellectual property, NOLS and LNT have agreed to share the copyright to the LNT Skills and Ethics series. To ensure consistency of message and copyright recognition, use of copyrighted information for printing, distribution and sale is limited to those individuals and organizations that obtain permission from LNT, Inc. However, all LNT information has been made available for viewing and downloading on the LNT website. The program's goal has always been to make this information accessible and broadly available for distribution and use by the public.

Finally, LNT literature continues to be developed by the scientific community, agencies, and other authors. Three texts on recreation impacts have been written (Hammitt and Cole 1998, Knight and Gutzwiller 1995, Liddle 1997), along with a paper summarizing visitor impact studies in wilderness (Leung and Marion 2000). Doucette and Cole (1993) provided a comprehensive guide to alternative techniques for visitor education and Parker (1995) offers a guide to outdoor ethics-related programs. Agencies contributed to "*Teach Leave No Trace: Activities to teach responsible backcountry skills*" (BLM 1996) and "*Low impact food hoists*" (Vachowski 1994). A number of new books on low impact hiking and camping techniques have been published, including a revision of "*Soft Paths*" (1995), "*The Basic Essentials of Minimizing Impact on the Wilderness*" (Hodgson 1991), "*Wild Country Companion*" (Harmon 1994), "*Leave No Trace: Minimum Impact Outdoor Recreation*" (Harmon 1997), and "*Leave No Trace: A Guide to the New Wilderness Etiquette*" (McGivney 1998).

---



## **The Future**

The partnership triangle between the federal land agencies, NOLS, and LNT, Inc., with its corporate and retail supporters, has been an exceptionally successful model that continues to serve the program well. Future success requires expanded training, literature dissemination, and publicity to reach a greater proportion of the public with consistent educational messages. As agency participation, corporate activities and publicity expand further we expect that visitor awareness of LNT educational skills and ethics will increase. Consistency, repetition, and unified support are critical to the long-term success of the program.

Other countries have also begun adopting or adapting the LNT program or have developed their own educational counterparts. For example, NOLS staff have worked with managers and organizations in Mexico and other Central and South American countries to initiate 'No Deje Rastro' (Leave No Trace) programs. Many of the educational materials have been translated into Spanish and a number of LNT Master's courses in Spanish have been offered.

This paper traced the development of the LNT educational program in the U.S. and offers some insights into what factors have contributed to the program's expansion and success. Such information may assist other countries in developing their own programs or initiating ties and adaptations of the U.S. LNT model.

---



## Literature Cited

- Bradley, J.A. 1979. A human approach to reducing wildland impacts. In Ittner, R., Potter, D.R., Agee, J.K. and Anschell, S. (eds). *Proceedings: Recreational Impact on Wildlands*. Portland, OR, USDA Forest Service, Pacific Northwest Region, 222-226.
- Bureau of Land Management. 1996. *Teach Leave No Trace: Activities to teach responsible backcountry skills*. Salt Lake City, UT, USDI, Bureau of Land Management, Utah State Office.
- Cole, D.N. 1993. *Trampling Effects on Mountain Vegetation in Washington, Colorado, New Hampshire, and North Carolina*. Research Paper INT-464. Ogden, UT, USDA Forest Service, Intermountain Research Station.
- Cole, D.N. 1987. Research on soil and vegetation in wilderness: A state-of-knowledge review. In Lucas, R.C. (compiler) *Proceedings: National Wilderness Research Conference - Issues, State-of-Knowledge, Future Directions*, General Technical Report INT-220. Ogden, UT, USDA Forest Service, Intermountain Research Station, 135-177.
- Cole, D.N. 1989. *Low-impact recreational practices for wilderness and backcountry*. General Technical Report INT-265. Ogden, UT, USDA, Forest Service, Intermountain Forest and Range Experiment Station.
- Cole, D.N. 1995. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology*, 32, 203-214.
- Cole, D.N. and Benedict, J. 1983. Wilderness campsite selection: What should users be told. *Park Science*, 5-7.
- Cole, D.N. and Dalle-Molle, J.. 1982. *Managing campfire impacts in the backcountry*. Research Paper INT-135, Ogden, UT, USDA, Forest Service, Intermountain Forest and Range Experiment Station.
- Cole, D.N. and Staff, National Outdoor Leadership School. 1986. *NOLS conservation practices*. Lander, WY, National Outdoor Leadership School.
- Doucette, J.E. & Cole, D.N. (1993). Wilderness visitor education: Information about alternative techniques. *USDA Forest Service, Intermountain Forest and Range Experiment Station, General Technical Report INT-295*, Ogden, Utah.
- Fazio, James R. Information and education techniques to improve minimum impact use knowledge in wilderness areas. In Ittner, R., Potter, D.R., Agee, J.K. and Anschell, S. (eds). *Proceedings: Recreational Impact on Wildlands*. Portland, OR, USDA Forest Service, Pacific Northwest Region, 227-233.
- Hammitt, W.E. and Cole, D. N. 1998. *Wildland Recreation: Ecology and Management*. New York, NY: John Wiley.
- Hampton, B. and Cole, D.N. 1988. *Soft Paths*. Harrisburg, PA, Stackpole Books.
- Hampton, B. and Cole, D.N. 1995. *Soft Paths*. Harrisburg, PA, Stackpole Books.
- Harmon, W. 1994. *Wild Country Companion*. Helena, MT., Falcon Publishing Co.
- Harmon, W. 1997. *Leave No Trace: Minimum Impact Outdoor Recreation*. Helena, MT, Falcon Publishing Co.
- Hodgson, M. 1991. *The Basic Essentials of Minimizing Impact on the Wilderness*. Merrillville, IN, ICS Books, Inc.
- Hart, J. 1977. *Walking Softly in the Wilderness*. San Francisco, CA, Sierra Club Books.
- Knight, R.L. and Gutzwiller, K.J. (eds). 1995. *Wildlife and Recreationists: Coexistence through management and research*. Washington, D.C., Island Press.
- Knight, R.L. and Temple, S.A. 1995. Origin of wildlife responses to recreationists. In Knight, R.L. and Gutzwiller, K.J. (eds) *Wildlife and Recreationists: Coexistence through management and research*. Washington, D.C., Island Press, 81-91.

- Leung, Y.F. and Marion, J.L. 2000. Recreation impacts and management in wilderness: A state-of-knowledge review. In Cole, D.N., McCool, S.F., Borrie, W.T., O'Loughlin, J., (comps), *Proceedings: Wilderness Science in a Time of Change*. Vol. 5, Proceedings RMRS-P-15-Vol-5. Ogden, UT, USDA Forest Service, Rocky Mountain Research Station.
- Liddle, M. 1997. *Recreation Ecology: The Ecological Impact of Outdoor Recreation and Ecotourism*. London, Chapman & Hall.
- Marion, J.L. and Merriam, L.C. 1985. *Recreational impacts on well-established campsites in the Boundary Waters Canoe Area Wilderness*. Station Technical Bulletin AD-SB-2502. St. Paul, MN, University of Minnesota, Agricultural Experiment Station.
- Matthews, B.E. and Riley, C.K. 1995. *Teaching and evaluating outdoor ethics education programs*. Vienna, VA, National Wildlife Federation, Educational Outreach Department.
- McGivney, A. 1998. *Leave No Trace: A Guide to the New Wilderness Etiquette*. Seattle, WA, The Mountaineers.
- Parker, M. 1995. *Promoting responsible behavior: A resource guide to outdoor ethics-related programs*. Gaithersburg, MD, Izaak Walton League of America.
- Passineau, J., Roggenbuck, J.W. and Stubbs, C.J. 1994. Wilderness education in the United States: Do we teach low-impact knowledge, behavior, or a wilderness ethic? In Hendee, J.C. and Martin, V.G. (eds), *International wilderness allocation, management, and research*. Fort Collins, CO, International Wilderness Leadership (WILD) Foundation, 276-83.
- Petzoldt, P. 1974. *The Wilderness Handbook*. New York, W.W. Norton & Company
- Vachowski, B. 1994. *Low impact food hoists*. Missoula, MT, USDA, Forest Service. Technology & Development Program.
- Waterman, L. and Waterman, G. 1979. *Backwoods Ethics: Environmental Concerns for Hikers and Campers*. Boston, MA, Stone Wall Press.

## Appendix A

Current **Leave No Trace, Inc.** Staff members include:

**Dana Watts**, Executive Director. Oversees finances, strategic planning and staff management.

**Stephanie Gilchrist**, Marketing and Fundraising Director. Directs fundraising, grant writing and corporate relations.

**Scott Reid**, Education and Projects Manager. Oversees educational initiatives, course scheduling, research initiatives and the Frontcountry program.

**Amy Mentuck**, Program Manager. Directs the Subaru Traveling Trainer program.

**Kristen Sauer**, Communications and Retail Program Coordinator. Oversees communications, the Tracker newsletter, and the retail sponsorship program.

**Jennifer Tucker and Chad DuChateau**, Traveling Trainers, Team East.

**Stephen and Susann Paige**, Traveling Trainers, Team West.

Current **National Outdoor Leadership School** Outreach Department Staff members (devoted, in part, to Leave No Trace efforts) include:

**Eleanor Huffines**, Outreach Manager. Directs Leave No Trace, public policy and research programs within NOLS.

**Susan Benepe**, Outreach Program Coordinator. Manages Master Educator course scheduling, logistics and communications.

**Tami Pokorny**, Outreach Curriculum Manager. Oversees revision process of the Skills and Ethics booklets and the production of the Master Network newsletter.

**Sharon Kehoe**, Research Associate. Manages the Leave No Trace website ([www.LNT.org](http://www.LNT.org)).

Current **Appalachian Mountain Club** Staff members devoted to the Leave No Trace program include:

**Dara Houdek**, Leave No Trace Coordinator. Directs Leave No Trace efforts for the AMC in the northeastern US.

**Kevin 'Hawk' Metheny**, Shelters Field Supervisor. Contributes to AMC's Leave No Trace role in an educational capacity by developing educational information and instructing Master courses.

---

## Appendix B

The Leave No Trace program has undoubtedly benefited from the persistence, ingenuity and devotion of numerous individuals who understand the need for such an educational effort. Inevitably, a list of individuals who have contributed to a program as diverse as Leave No Trace will never be exhaustive. Nonetheless, we have made an attempt to recognize those individuals that devoted appreciable time, energy and wisdom to the development of the Leave No Trace program. For those listed, we thank you for your role in educating visitors to public lands. We apologize to those we have unwittingly omitted. We thank you all for your efforts to maintain the beauty and pristine nature of the world's wildlands.

Special thanks to:

- Tom Alt**, U.S. Forest Service. Developed early pilot education program for users in Montana's Beartooth- Absaroka Wilderness.
- Rich Brame**, National Outdoor Leadership School. Directed early LNT efforts at NOLS and helped create the Master course and general LNT curriculum. Instructed first LNT Master Educator course.
- Susan Brame**, National Outdoor Leadership School. Responsible for writing several of the Skills and Ethics booklets and the curriculum for the Master Educator Courses. Instructed first LNT Master Educator course and established the Master Network Newsletter.
- Sandy Briggs**, Sporting Goods Manufacturers of America. Convened outdoor industry leaders in support of the LNT effort. Provided seed money to start Leave No Trace, Inc.
- Bill Brookes**, Bureau of Land Management, Boy Scouts of America. Initiated efforts to integrate LNT message into the Boy Scouts of America. Originally proposed the Scouting LNT Awareness Award.
- Dave Bates**, Boy Scouts of America. Guided development of LNT education, training, and materials in the Boy Scouts.
- David Cole**, U.S. Forest Service. Reviewed and suggested modifications to LNT practices based on recreation ecology knowledge. Provided scientific credibility to LNT practices. Co-authored *Soft Paths*.
- Keith Corrigan**, Bureau of Land Management. Spearheaded early support for the Leave No Trace Program in the federal agencies (BLM specifically).
- Bob Cron**, U.S. Forest Service. Spearheaded early support for the LNT program in the federal agencies (USFS specifically). Responsible for the budgeting of a National Coordinator within the USFS.
- Don Ford**, National Outdoor Leadership School. Served as chairperson of the LNT Board.
- Don Gale**, Boy Scouts of America. Helped spread the LNT message through the Boy Scouts of America. Co-authored many materials to assist with LNT training.
- John Gans**, National Outdoor Leadership School. Assisted the development of LNT, Inc. and the transfer of the program from NOLS.
- Hal Hallett**, Bureau of Land Management. Supported the role of the federal agencies in the LNT program. Served on federal steering committee for LNT, Inc.
- Bruce Hampton**, National Outdoor Leadership School. Co-authored *Soft Paths*. Worked to develop the LNT program at NOLS.
- Eleanor Huffines**, National Outdoor Leadership School. Worked as Outreach Manager for NOLS, taking the Master course effort to a broader audience. Authored Alaskan Tundra Skills and Ethics booklet.
- Stew Jacobson**, Bureau of Land Management. Spearheaded early efforts to integrate LNT messages in federal agencies. Provided many years of service as the National LNT Coordinator for the BLM. Currently serving on the LNT Board of Directors.
- Jim Landmann**, LNT, Inc. Emphasized concept of promoting LNT in the outdoor industry. Served as the first Executive Director for the non-profit organization.
- Drew Leemon**, National Outdoor Leadership School. Helped develop the first Master Educator Course.
- Jeff Marion**, U.S. Geological Survey. Applied recreation ecology knowledge in review of LNT practices to provide scientific credibility to the LNT program. Coordinated peer-review and
-

revisions of the LNT principles and practices over many years as Chair of the LNT Education Review Committee and member of the Board of Directors.

**Jim Miller**, U.S. Forest Service. Worked to enhance and administer USFS support for the LNT program. Currently serving on the LNT Board of Directors.

**Henry Nichols**, U.S. Department of Agriculture. Assisted with the development of minimum impact camping techniques in the 1960's.

**Paul Petzoldt**, National Outdoor Leadership School. Founded National Outdoor Leadership School. Pioneered the concept of minimum impact camping and traveling.

**Jim Ratz**, National Outdoor Leadership School. Oversaw the partnership between the U.S. Forest Service and the National Outdoor Leadership School. Provided vision for the LNT program in its transfer for NOLS to LNT, Inc., the non-profit. Served as Chairperson for the LNT Board of Directors.

**Marit Sawyer**, National Outdoor Leadership School. Helped develop LNT curriculum- from the Skills and Ethics booklets to the Master Network newsletter.

**Dave Secunda**, Planet Outdoors (formerly of the Outdoor Recreation Coalition of America). Convened outdoor industry leaders in support of the LNT effort. Provided seed money to start LNT, Inc. Served as Chairperson of LNT Board of Directors.

**Roger Semler**, National Park Service. Spearheaded early efforts to integrate the LNT message in federal agencies. Provided many years of service as the National LNT Coordinator for the NPS. Served on the LNT Board of Directors.

**Del Smith**, Eagle Crag Ventures (formerly with the National Outdoor Leadership School). Advocated the creation and signing of the first comprehensive MOU with LNT and the federal agencies. Assisted with the early development of the LNT program, Master's course and with educational practices and materials for desert and canyon environments.

**Ralph Swain**, U.S. Forest Service. Acted as first National LNT Coordinator for the USFS. Assisted in the development of educational curricula and participated in the LNT Educational Review Committee. Attended first Master Educator course.

**Bill Thompson**, U.S. Forest Service. Facilitated the LNT partnership between the USFS and NOLS. Responsible for the expansion of LNT from a regional USFS program to a national initiative.

**Dana Watts**, LNT, Inc. Current Executive Director of the non-profit organization. Instrumental in broadening support of the LNT program in the outdoor industry. Oversaw staff expansion from one to nine.

Also:

**Thousands of LNT Master Educators and Trainers.** Each individual effort made to educate visitors to public lands has helped the LNT program grow nationally and internationally. These individuals continue to carry the workload of educating the masses about the LNT program.

---



" an anthology of essays by historians and scholars who trace the origin and development of the operational level of warfare, the critical link between strategy and tactics." - - Fore., John S. Brown, Brigadier General, USA (Ret.) Chief of Military History. " a unique study in the field of military history This study deals only with land warfare and is designed to show the doctrinal development and application of operational art in modern history. " - - Pref. by the editors, p. v. Includes bibliographical references and index. Operational art's origin / Bruc Development of the United States Leave No Trace programme: A historical perspective. OCLC: 48893953. 'Papers read at the 9th Scottish Natural Heritage Conference.' For online discussion of this topic, click the URL given.Â This paper describes the historical development of the U.S. Leave No Trace (LNT) educational program. It begins with a review of the need for the program and traces it's conception and early development in the 1970`s, revitalization in 1991, creation of Leave No Trace, Inc., and the current status. The paper concludes with a discussion of the program's elements that have made it successful and recommendations for the development of similar educational programs. Additional publication details. Publication type. This paper describes the historical development of the U.S. Leave No Trace (LNT) educational program. It begins with a review of the need for the program and traces it's conception and early development in the 1970's, revitalization in 1990, creation of Leave No Trace, Inc. in 1994, and the current status. The paper concludes with a discussion of the elements that have made it successful and recommendations for the development of similar educational programs. The Need.Â We have long recognized education as the best strategy for reversing the trend of damage to wilderness and undeveloped areas caused by recreation visitors Accordingly, the Forest Service developed and has actively sponsored Leave No Trace as our outdoor ethics program for non-motorized users...â€