

## CURRICULUM VITAE

David N. Cole

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EDUCATION: 1972. B.A., Geography, University of California, Berkeley. 1977. Ph.D., Geography, University of Oregon

### PROFESSIONAL EXPERIENCE:

1994-present. Research Biologist. USDA Forest Service, Aldo Leopold Wilderness Research Institute. Missoula, MT

1993-1994 Acting Director. USDA Forest Service, Aldo Leopold Wilderness Research Institute. Missoula, MT

1988-1993 Project Leader. Wilderness Management Research Unit, USDA Forest Service, Intermountain Research Station, Missoula, MT.

1987-1993 Research Biologist. Wilderness Management Research Unit, USDA Forest Service, Intermountain Research Station, Missoula, MT.

1982-1987 Research Scientist. Systems for Environmental Management, Missoula, MT.

1978-1982 Research Ecologist. Wilderness Management Research Unit, USDA Forest Service, Intermountain Research Station, Missoula, MT.

1977 Assistant Professor. Department of Geography. California State University, Northridge, CA.

### MAJOR AWARDS AND SELECTED PROFESSIONAL ACTIVITIES

1997 Theodore and Franklin Roosevelt Award for Excellence in Parks & Recreation Research; National Recreation and Parks Association.

1999 Special Recognition for Long-term Research Applications to Wilderness Management: USDA Forest Service, Washington Office.

2002 Director's Award, Natural Resource Research "Scientist of the Year", USDI National Park Service, Washington Office.

Editorial Board: Environmental Management, International Journal of Wilderness

Advisory Board: International Centre for Ecotourism Research; National Outdoor Leadership School, Research Department

## SELECTED PUBLICATIONS:

(Unless otherwise indicated, Dr. Cole was the sole author of all publications.)

1977. Ecosystem dynamics in the coniferous forest of the Willamette Valley, Oregon. *Journal of Biogeography* 4:181-192.

1978. Estimating the susceptibility of wildland vegetation to trailside alteration. *Journal of Applied Ecology* 15:281-286.

1981. Vegetational changes associated with recreational use and fire suppression in the Eagle Cap Wilderness: some management implications. *Biological Conservation* 20:247-270.

1982. Controlling the spread of campsites at popular wilderness destinations. *Journal of Soil and Water Conservation* 37:291-295.

1983. COLE, DAVID N. and RICHARD K. FICHTLER. Campsite impact on three western wilderness areas. *Environmental Management* 7:275-288.

1983. COLE, DAVID N. and BETH RANZ. Temporary campsite closures in the Selway-Bitterroot Wilderness, Montana. *Journal of Forestry* 81:729-732.

1985. STANKEY, GEORGE H., DAVID N. COLE, ROBERT C. LUCAS, MARGARET E. PETERSEN, AND SIDNEY S. FRISSELL. The limits of acceptable change (LAC) system for wilderness planning. USDA Forest Service Research Paper INT-176. 37 p.

1986. Recreational impacts on backcountry campsites in Grand Canyon National Park, Arizona. *Environmental Management* 10:651-659.

1987. Effects of three seasons of experimental trampling on five montane forest communities and a grassland in western Montana, USA. *Biological Conservation* 40:219-244.

1987. HAMMITT, WILLIAM E., and DAVID N. COLE. *Wildland recreation: ecology and management*. John Wiley: New York. 341 p.

1988. COLE, DAVID N., and JEFFREY L. MARION. Recreational impacts in some riparian forests of the eastern United States. *Environmental Management* 12: 99-107.

1988. HAMPTON, BRUCE, and DAVID COLE. *Soft paths: how to enjoy the wilderness without harming it*. Stackpole Books: Harrisburg, PA. 173 p.

1989. Viewpoint: needed research on domestic and recreational livestock in wilderness. *Journal of Range Management*. 42: 84-86.

1989. Recreation ecology: what we know, what geographers can contribute. *Professional Geographer*. 41: 143-148.

1989. Wilderness campsite monitoring methods: a sourcebook. USDA Forest Service General Technical Report INT-259. 57 p.

1989. Low-impact recreational practices for wilderness and backcountry. USDA Forest Service General Technical Report INT-265.

1990. Ecological impacts of wilderness recreation and their management. In: *Wilderness management, second edition*. J. Hendee, G. Stankey, and R. Lucas. North American Press, Golden, CO: 425-66.

1990. Wilderness management: has it come of age? *Journal of Soil and Water Conservation* 45: 360-364.

1990. Trampling disturbance and recovery of cryptogamic soil crusts in Grand Canyon National Park. *Great Basin Naturalist* 50:321-326.

1991. Changes on trails in the Selway-Bitterroot Wilderness, Montana, 1978-89. USDA Forest Service Res. Pap. INT-450. 5 p.

1992. Modeling wilderness campsites: factors that influence amount of impact. *Environmental Management* 16: 255-264.

1992. COLE, DAVID N., and EDWIN E. KRUMPE. Seven principles of low-impact wilderness recreation use. *Western Wildlands*. 18(1):39-43.
1992. COLE, DAVID N., and SUSAN J. TRULL. Quantifying vegetation response to recreational disturbance in the North Cascades, Washington. *Northwest Science* 66 (3): 229-236.
1993. Minimizing conflict between recreation and nature conservation. In: *Ecology of greenways*, D.S. Smith and P.C. Hellmund, eds. University of Minnesota Press, Minneapolis: 105-122.
1993. Wilderness recreation management: we need more than bandages and toothpaste. *Journal of Forestry* 91: 22-24.
1993. COLE, DAVID N., and NEIL G. BAYFIELD. Recreational trampling of vegetation: standard experimental procedures. *Biological Conservation* 63: 209-215.
1994. Backcountry impact management: lessons from research. *Trends* 31(3):10-14.
1995. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* 32:203-214.
1995. Experimental trampling of vegetation. II. Predictor of resistance and resilience. *Journal of Applied Ecology* 32:215-224.
1995. Disturbance of natural vegetation by camping: experimental applications of low-level stress. *Environmental Management* 19:405-416.
1995. Wilderness management principles: science, logical thinking, or personal opinion. *Trends* 32(1):6-9.
1995. COLE, DAVID N. and PETER B. LANDRES. Indirect effects of recreation on wildlife. In: *Wildlife and recreationists: coexistence through management and research*, R.L. Knight and J.J. Gutzwiller, eds. Island Press, Covelo, CA.
1995. KNIGHT, RICHARD L. and DAVID N. COLE. Wildlife responses to recreationists. In: *Wildlife and recreationists: coexistence through management and research*, R.L. Knight and J.J. Gutzwiller, eds. Island Press, Covelo, CA.
1995. KNIGHT, RICHARD L. and DAVID N. COLE. Factors that influence wildlife responses to recreationists. In: *Wildlife and recreationists: coexistence through management and research*, R.L. Knight and J.J. Gutzwiller, eds. Island Press, Covelo, CA.
1995. COLE, DAVID N., ALAN E. WATSON, and JOSEPH W. ROGGENUCK. Trends in wilderness visitors and visits: Boundary Waters Canoe Area, Shining Rock and Desolation Wildernesses. USDA Forest Service Res. Pap. INT-RP-483. 38 p.
1995. HAMPTON, BRUCE, and DAVID COLE. *Soft Paths*. Second edition. Stackpole Books: Harrisburg, PA.
1996. COLE, DAVID N., and PETER B. LANDRES. Threats to wilderness ecosystems: impacts and research needs. *Ecological Applications* 6:168-184.
1996. Ecological manipulation in wilderness: an emerging management dilemma. *International Journal of Wilderness* 1(3): 15-19.
1996. MARION, JEFFREY L., and DAVID N. COLE. Spatial and temporal variation in soil and vegetation impacts on campsites. *Ecological Applications* 6:520-530.
1996. Wilderness recreation: trends in use, users and impacts. *International Journal of Wilderness* 2(3): 14-18.
1997. COLE, DAVID N., TIMOTHY P. HAMMOND, and STEPHEN F. McCOOL. Information quantity and communication effectiveness: low impact messages on wilderness trailside bulletin boards. *Leisure Sciences* 19: 59-72.

1997. Recreation management priorities are misplaced: allocate more resources to low-use wilderness. *International Journal of Wilderness* 3(4):4-8.

1997. McEWEN, DOUGLAS and DAVID N. COLE. Campsite impact in wilderness areas. *Parks & Recreation* 3(2): 24-32.

1997 COLE, DAVID N., and GEORGE H. STANKEY. Historical development of limits of acceptable change: conceptual clarifications and possible extensions. In: McCool, Stephen, F. and David N. Cole, comp. *Proceedings--Limits of acceptable change and related planning processes: progress and future directions*. USDA Forest Service Gen. Tech. Rep. INT-GTR-371: 5-9.

1997. COLE, DAVID N., and STEPHEN F. MCCOOL. The limits of acceptable change process: modifications and clarifications. In: McCool, Stephen, F. and David N. Cole, comp. *Proceedings--Limits of acceptable change and related planning processes: progress and future directions*. USDA Forest Service Gen. Tech. Rep. INT-GTR-371: 61-68.

1998. Written appeals for attention to low-impact messages on wilderness trailside bulletin boards: experimental evaluations of effectiveness. *Journal of Park and Recreation Administration* 16: 65-79.

1998. COLE, D.N. and D.R. SPILDIE. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* 53: 61-71.

1998. DELUCA, T.H., W.A. PATTERSON IV, W.A. FREIMUND, and D.N. COLE. Influence of llamas, horses, and hikers on soil erosion from established recreation trails in western Montana. *Environmental Management* 22: 255-262.

1999. STEWART, WILLIAM P. and DAVID N. COLE. In search of situational effects in outdoor recreation: different methods, different results. *Leisure Sciences* 21:269-286.

2000. Paradox of the primeval: ecological restoration in wilderness. *Ecological Restoration* 18:77-86.

2000. Natural, wild, uncrowded or free: which of these should wilderness be? *International Journal of Wilderness* 6(2):5-8.

2000. ZABINSKI, CATHERINE, TODD WOJTOWICZ, and DAVID COLE. The effects of recreation disturbance on subalpine seed banks in the Rocky Mountains of Montana. *Canadian Journal of Botany* 78:577-582.

2001. Management dilemmas that will shape wilderness in the 21<sup>st</sup> century. *Journal of Forestry* 99(1): 4-8.

2001. STEWART, WILLIAM P., and DAVID N. COLE. Number of encounters and experience quality in Grand Canyon backcountry: negative and weak relationships. *Journal of Leisure Research* 33:106-120.

2001. Managing campsite impacts on wild rivers: are there lessons for wilderness managers? *International Journal of Wilderness* 6(3): 12-16. Refereed.

2001. FREIMUND, WAYNE A. and DAVID N. COLE (comps.). Visitor use density and wilderness experience: proceedings. USDA Forest Service Proceedings RMRS-P-20.

2001. Visitor use density and wilderness experiences: a historical review of research. In Freimund, Wayne A. and David N. Cole (comps.). 2001. Visitor use density and wilderness experience: proceedings. USDA Forest Service Proceedings RMRS-P-20: 11-20.

2001. Day users in wilderness: how different are they? USDA Forest Service Research Paper RMRS-RP-31. 29 p.

2001. MCCOOL, STEPHEN F. and DAVID N. COLE. Thinking and acting regionally: toward better decisions about appropriate conditions, standards, and restrictions on recreation use. *George Wright Forum* 18(3): 85-98.
2002. ZABINSKI, CATHERINE A., THOMAS H. DELUCA, DAVID N. COLE and OCTOBER MOYNAHAN. Restoration of highly impacted subalpine campsites in the Eagle Cap Wilderness, Oregon. *Restoration Ecology*. 10: 275-281.
2002. COLE, DAVID N. and WILLIAM P. STEWART. Variability of user-based evaluative standards for backcountry encounters. *Leisure Sciences*. 24:313-324.
2003. COLE, DAVID N. and CHRISTOPHER A. MONZ. Trampling disturbance of high-elevation vegetation, Wind River Mountains, Wyoming, U.S.A. *Arctic, Antarctic, and Alpine Research*. 34 (4): 365-376.
2003. STEWART, WILLIAM P. and DAVID N. COLE. On the prescriptive utility of visitor survey results: a rejoinder to Manning. *Journal of Leisure Research*. 35:119-127.
2003. HAMPTON, BRUCE, and DAVID N. COLE. *Soft paths: how to enjoy the wilderness without harming it*. Third edition. Stackpole Books: Harrisburg, PA.
2003. Agency policy and the resolution of wilderness stewardship dilemmas. *George Wright Forum* 20: 26-33.
2003. PARSONS, DAVID J. and DAVID N. COLE. The challenge of wilderness stewardship. *George Wright Forum* 20:22-25.
2003. COLE, DAVID N. and CHRISTOPHER A. MONZ. Impacts of camping on vegetation: response and recovery following acute and chronic disturbance. *Environmental Management* 32: 693-705.
2004. COLE, DAVID N. and CHRISTOPHER A. MONZ. Spatial patterns of recreational impact on experimental campsites. *Journal of Environmental Management* 70:73-84.
2004. COLE, DAVID N. and TERRY C. DANIEL. The science of visitor management in parks and protected areas: from verbal reports to simulation models. *Journal for Nature Conservation* 11(4): 269-277.
2004. COLE, DAVID N., JAN W. VAN WAGTENDONK, MITCHEL P. McCLARAN, PEGGY E. MOORE and NEIL K. McDOUGALD. 2004. Response of mountain meadows to grazing by horses and mules: Yosemite National Park, California. *Journal of Range Management* 57: 153-160.
2004. Impacts of hiking and camping on soils and vegetation: a review. In: Buckley, Ralf (ed.) *Environmental impacts of ecotourism*. CAB International: Wallingford UK: 41-60.
2004. NEWSOME, DAVID, DAVID COLE and JEFFREY MARION. Environmental impacts associated with recreational horse riding. In: Buckley, Ralf (ed.) *Environmental impacts of ecotourism*. CAB International: Wallingford UK: 61-82.
2004. Environmental impacts of outdoor recreation in wildlands. In: Manfredo, M.; Vaske, J., Field, D, Brown, P. and Bruyere, B. (eds). *Society and resource management: a summary of knowledge*. Modern Litho: Jefferson City, MO: 107-116.
2004. Monitoring and management of recreation in protected areas: the contributions and limitations of science. In: *The second international conference on monitoring and management of visitor flows in recreational and protected areas*. Finnish Forest Research Institute: 9-16.
2005. GUTZWILLER, KEVIN J. and DAVID N. COLE. Assessment and management

of wildland recreational disturbance. In Clait E. Braun (ed.) *Wildlife Management Techniques Manual*, sixth edition. The Wildlife Society, Bethesda, Maryland: 779-796.

2004. Wilderness experiences; what should we be managing for? *International Journal of Wilderness* 10(3): 25-27.

2005. Symbolic values of wilderness: the overlooked values that make wilderness unique. *International Journal of Wilderness* 11(2): 23-27, 10.

2005. COLE, DAVID, ROBERT MANNING and DAVID LIME . 2005. Addressing visitor capacity of parks and rivers. *Parks & Recreation* March 2005: 8-10.

2005. Simulation of recreation use: current status, case studies and future directions. USDA Forest Service General Technical Report RMRS-GTR-143. 75 p.

2005. Monitoring to protect the character of individual wildernesses. In Celedonio Aguirre-Bravo et al. (eds.). *Monitoring science and technology symposium: unifying knowledge for sustainability in the western hemisphere*. USDA Forest Service Proceedings RMRS-P-37CD.

2006. COLE, DAVID N. and TROY E. HALL. Wilderness zoning: should we purposely manage to different standards? In: Harmon, D., ed. *People, places, and parks: Proceedings of the 2005 George Wright Society conference on parks, protected areas, and cultural sites*. George Wright Society, Hancock, MI: 33-38.

2006. COLE, DAVID N. and DAVID R. SPILDIE. Restoration of plant cover in subalpine forests disturbed by camping: success of transplanting. *Natural Areas Journal* 26: 168-178.

2006. Visitor and recreation impact monitoring: is it lost in the gulf between science and management? *The George Wright Forum* 23(2): 11-16.