

BIGHORN NATIONAL FOREST

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Final Environmental Impact Statement

for the

Revised Land and Resource Management Plan

List of Preparers

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The following interdisciplinary team members prepared the Bighorn National Forest Final Environmental Impact Statement (FEIS) and Revised Plan. Many other individuals also helped prepare these documents. Without their expertise, ideas, and opinions, writing the FEIS and Revised Plan would not have been possible. The Forest Leadership Team and the Steering Committee reviewed the documents throughout the planning process; they are also listed in this chapter, as are the other contributors.

### **The Interdisciplinary Team**

David Anderson – Data Management Specialist

Education: Bachelor of Science in Forest Management, Texas A&M University, 1988; Master of Science in Quantitative Resource Management, University of Washington, 1992.

Experience: Five years at Georgia-Pacific doing forest planning, growth and yield modeling, timber inventory, database development, and GIS. Four and a half years at Olympic Resource Management doing forest planning, financial modeling, growth and yield modeling, application development, and GIS. Two years as Forest Information Manager on the Bighorn National Forest.

Ruth Beckwith – Landscape Architect

Education: Bachelors of Landscape Architecture. Kansas State University, 1979

Experience: Experience with the Forest Service since 1977 on the Pike-San Isabel National, Rio Grande, White River, and Bighorn National Forests. Work experience in site development and construction, dispersed and developed recreation, scenery management, wilderness, travel management, land exchange, easement acquisition, and special use permits. Licensed Landscape Architect. Forest plan revision core team assignments in scenery, roadless, and wilderness

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### Audie Blevins – Professor

Education: Bachelor of Science in Social Sciences, Trinity University, 1966; Master of Science in Sociology, University of Texas at Austin, 1968; Ph.D. in Sociology, University of Texas at Austin, 1970.

Experience: Thirty-four years at the University of Wyoming working on social assessment for large scale development, studying social and demographic changes in small towns/cities in the Rocky Mountain Region, and social changes, particularly health care delivery, associated with development. Extensive experience in teaching research methods, community, and demography at the University of Wyoming.

### Bernie Bornong – Forest Planner

Education: Bachelor of Science in Forestry, Iowa State University, 1981.

Experience: Twenty-three years experience with the Forest Service on the Idaho Panhandle, Bighorn, Gila, and Black Hills National Forests. Work experience in silviculture and forest ecology, botany, timber sale preparation and contract administration, developed and dispersed recreation, and wilderness.

### Phil Fessler – P.E. Civil Engineering, Transportation

Education: Bachelor of Science in Civil Engineering, South Dakota School of Mines and Technology, 1994.

Experience: Twelve years experience with the Forest Service on the Shoshone and Bighorn National Forests. Work experience includes survey, design, layout, location, and construction of roads, campgrounds, buildings, bridges, trails, water systems, waste water systems, and other forest facilities. Other experience includes performing transportation planning for timber sales, forest planning, and travel management. In addition, experience in general program management including maintenance, planning, and operations for dams, bridges, roads, trails, and radio communication towers.

### Scott Gall – Rangeland Management Specialist

Education: Bachelor of Science in Natural Resources Management, Wildlife Management and Range Management options, University of Nebraska, Lincoln, 1982

Experience: Six years as Range Conservationist with the USDA Soil Conservation Service in conservation planning and program implementation. Sixteen years with the Forest Service, Bighorn National Forest, as a Rangeland Management Specialist (grazing permit administration and allotment planning).

**John Hagenruber – Recreation Planner**

Education: Bachelor of Science in Biological Aspects of Conservation, University of Wisconsin - Madison, 1993. Master of Science in Natural Resource Management Policy and Planning, University of Wisconsin - Stevens Point, 1996. Utah State University Recreation short course, 2002.

Experience: Four years recreation planning experience on two National Forests in Regions 1 and 2. Four years experience with the state of Wisconsin Department of Natural Resources in recreation management and watershed planning. Two years experience with Dane County Planning and Development Department (Madison, Wisconsin) in land use planning and zoning.

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Education: Bachelor of Science in Forestry, University of Wisconsin – Stevens Point, 1993. Masters of Arts in Geography, Western Illinois University, 2000.

Experience: Over eleven years, including experience in community forestry (Peace Corps/Nepal), forest inventory and analysis (both Forest Service and private), urban forestry/city planning (Illinois Department of Natural Resources), GIS editing (Wisconsin Department of Transportation), and NEPA planning (Ottawa and Bighorn National Forests).

**Leslie Horsch – Writer-editor**

Education: Bachelor of Science in Watershed Sciences, Colorado State University, 1983; Master of Science, Watershed Resources, University of Wyoming, 1995.

Experience: Eight years hydrology experience with various entities including the Medicine Bow-Routt National Forests. Seven years writing-editing experience for various Forest Service units including the Bighorn, Medicine Bow-Routt, Pike-San Isabel, and Nebraska National Forests, the Little Missouri National Grasslands, and the Rocky Mountain Regional Office.

**Katherine Jensen – Professor**

Education: Bachelor of Arts degree at Carleton College with a sociology major in 1968; Master of Arts (1974) and Ph.D. (1977) in Educational Policy Studies, University of Wisconsin-Madison.

Experience: Member of the Sociology and Women's Studies Programs at the University of Wyoming since 1978. Extensive research and publication in the fields of women and work, especially women's unpaid labor, women of the American West; women in Third World development, and community organization. Most recently, as a Fulbright scholar, she has been researching women's savings and credit organizations in Nepal.

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### Cheri Jones – Recreation Planner

Education: Bachelor of Science in Outdoor Recreation Resource Management, Iowa State University, 1977. Clemson University Recreation Short Course, 1997

Experience: Four years with Bureau of Land Management in three states. Twenty-four years experience with Forest Service in Regions 1 and 2. Assignments in recreation and wilderness management, land management planning, and special uses.

### Kathy Kennedy – Cartographer

Education: Bachelor of Science in Recreation, West Virginia University, 1986.

Experience: Fifteen years of experience in recreation with the Medicine Bow-Routt National Forests and Thunder Basin National Grassland and the Arapaho-Roosevelt National Forest and Pawnee National Grassland. Two years experience in Cartography with the Bighorn National Forest.

### Rick Laurent - Archaeologist

Education: Bachelor of Arts in Anthropology, University of Wyoming, 1981;  
Master of Arts in American Studies, University of Wyoming, 1996

Experience: Eighteen years of conducting heritage resource management on four Forests in Region 2 of the Forest Service. Four years working for private archaeological consultants performing various aspects of legal requirements for completion of Section 106 of the National Historic Preservation Act. Two years of experience with the Department of Anthropology, University of Wyoming, in conjunction with Section 106 compliance, and two archaeological research projects.

### Galen Roesler – Forest Fire Management Officer

Education: Bachelor of Science in Biology, Black Hills State University, 1973

Experience: Thirty-one years working for the Forest Service on four National Forests in Regions 1, 2, and 6. Work experience includes 2 years of timber sale preparation on the Olympic National Forest; 5 years of timber sale preparation, timber sale contract administration, and fire management on the Kootenai National Forest; 21 years (including seasonal time in the early 1970s) in timber sale preparation, environmental coordination, recreation management, and fire management on the Black Hills National Forest; Fire Management on the Bighorn National Forest since 2002.

### Dan Scaife – Forest Hydrologist

Education: Bachelor of Science in Watershed Management, University of Arizona, 1994; Master of Natural Resources, Utah State University, 2003.

Experience: Field experience in hydrology and fisheries from 1994 – 1998 on the Shoshone National Forest. Worked for Agricultural Research Service in Miami, FL determining soil and water characteristics related to the Everglades Restoration effort. Experience in hydrology and fisheries on the Bighorn NF since 2000, evaluating aquatic habitat and hydrologic conditions across the Forest relative to management activities.

## David “Tex” Taylor

Education: Bachelor of Science in Agricultural Business, Montana State University, 1972; Master of Science in Agricultural Economics, Montana State University, 1973; Ph.D. in Agricultural and Natural Resources Economics, Colorado State University, 1984.

Experience: Twenty-eight years at the University of Wyoming working on economic aspects on natural resource issues in Wyoming, including mineral production, livestock grazing, timber production, and recreation. Much of this work has focused on the economic and fiscal effects of public lands on rural communities in Wyoming. Extensive work with federal land management agencies, state government, and county commissioners.

## Chris Thomas – Forest Silviculturist

Education: Bachelor of Science in Forestry, Michigan Technological University - Houghton, 1979. Tri-Regional Education in Ecology and Silviculture, Northern Arizona, Utah State, Colorado State Universities - 1988. Certified Forester, Society of American Foresters.

Experience in silviculture, timber, and fire since 1977 on the Boise, Freemont, Ottawa, Rio Grande, Black Hills, and Bighorn National Forests. Serves as interdisciplinary team member providing expertise in silviculture, evaluation of vegetative treatments, growth and yield, and modeling.

## Jon Warder – Wildlife Biologist

Education: Bachelor of Science in Natural Resources Management, Minor in Wildlife Biology, Colorado State University, 1991.

Experience: Fifteen years with the Forest Service as a wildlife biologist and technician on four National Forests: Black Hills, Humboldt-Toiyabe, Uinta, and Bighorn.

## **Bighorn National Forest Leadership Team**

Bill Bass – Forest Supervisor

Sandy Marquis – Administrative Officer

Ron Stellingwerf – Renewable Resources Staff (retired)

Bernie Bornong – Planning Staff

Anna Jones-Crabtree – Engineering Staff

Kevin Khung – Recreation Staff

Craig Yancy – Tongue District Ranger

Dave Sisk – District Ranger, Medicine Wheel/Paintrock Ranger District

Mark Booth – District Ranger, Powder River Ranger District

## **Cooperating Agency Contributors**

Sheridan, Johnson, Big Horn, and Washakie Counties.

Lake DeSmet, Sheridan County, Washakie County, South Big Horn County, Shoshone, and Powder River Conservation Districts

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Wyoming Game and Fish Department

Wyoming Department of Transportation

Wyoming Department of Environmental Quality

Wyoming Business Council

State Parks and Cultural Resources

State Geological Survey

Office of State Lands and Investments

State Forestry Division

Wyoming State Planning Coordination Office

## **Other Major Contributors**

Wyoming Natural Diversity Database

Rocky Mountain Region Regional Office Specialists





# Bibliography

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- Adams, S. B., C. A. Frissell, and B. E. Rieman. 2001. Geography of invasion in mountain streams: consequences of headwater lake fish introductions. *Ecosystems*. 4(4): 296-307.
- Agee, J. K. 1993. *Fire ecology of Pacific Northwest forests*. Island Press. Washington DC.
- Alexander, R. R. 1974. *Silviculture of subalpine forests in the central Rocky Mountains: the status of our knowledge*. Research Paper RM-121. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO.: 88.
- Alexander, R. R. 1977. Cutting methods in relation to resource use in central Rocky Mountain spruce-fir forests. *Journal of Forestry*: 395-400.
- Alexander, R. R., and C. B. Edminster. 1977. Uneven-aged management of old-growth spruce-fir forests: Cutting methods and stand structures for the initial entry. Research Paper RM-186. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins Colo: 12.
- Alexander, R. R., and O. Engelby. 1983. *Engelmann spruce - subalpine fir*. Washington, D.C. U.S. Dept. of Agriculture.
- Alexander, R. R. 1985. Diameter and basal area distributions in old-growth spruce-fir stands in Colorado. Res. Note RM-451. Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO: 4.
- Alexander, R. R. 1986. *Silvicultural systems and cutting methods for old growth lodgepole pine forests in the central Rocky Mountains*. General Technical Report. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO.
- Alexander, R. R., G.R. Hoffman, and J.M. Wirsing. 1986. *Forest vegetation of the Bighorn National Forest in southeastern Wyoming: A habitat type classification*. Fort Collins, CO.
- Alexander, R. R. 1987. *Ecology, silviculture, and management of the Engelmann spruce-subalpine fir type in the central and southern Rocky Mountains*. USDA Forest Service. Washington, DC.
- Alexander, R. R. 1988. *Forest vegetation on National Forests in the Rocky Mountain and Intermountain Regions: Habitat types and community Types*. General Technical Report RM-62. Rocky Mountain Forest and Range Experiment Station. Fort Collins, Colorado: 47.
- Allendorf, F. W., and R. F. Leary. 1988. Conservation and distribution of genetic variation in a polytypic species, the cutthroat trout. *Conservation Biology*. 2: 70-184.
- Amman, G. D., M. D. McGregor, D. B. Cahill, and W. H. Klein. 1977. *Guidelines for reducing losses of lodge pole pine to mountain pine beetle in unmanaged stands in the Rocky Mountains*. General Technical Report INT-36. USDA Forest Service, Intermountain Forest and Range Experiment Station. Ogden, UT.
- Anderson, H. E. 1982. *Aids to determining fuel models for estimating fire behavior*. USDA Forest Service. Sheridan, WY.

- Andren, H. 1994. Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat: a review. *Oikos* 71: 355-366.
- Anhold, J. A., and J. N. Long. 1996. Management of lodgepole pine stand density to reduce susceptibility to mountain pine beetle attack. *Western Journal of Applied Forestry* 11(2): 50-53.
- Aplet, G. H., R. D. Laben, and F. W. Smith. 1998. Patterns of community dynamics in Colorado Engelmann spruce-subalpine fir forests. *Ecology* 69(2): 312-319.
- Armstrong, D. M. 1975. Rocky Mountain mammals. University of Colorado. Boulder, CO.
- Arno, S. F., J. H. Scott, and M. G. Hartwell. 1995. Age-class structure of old growth ponderosa pine/Douglas-fir stands and its relationship to fire history. Res. Pap. INT-RP-481. USDA Forest Service, Intermountain Research Station. Ogden, UT: 25.
- Avian Power Line Interaction Committee (APIC). 1996. Suggested practices for raptor protection on power lines: The state of the art in 1996. Edison Electric Institute and the Raptor Research Foundation. Washington, D.C.
- Bailey, R. G. 1994. Ecoregions of the United States. USDA Forest Service. Washington, D.C.
- Baker, W. L. 1994. Landscape structure measurements for watersheds in the Bighorn National Forest using GIS analysis. University of Wyoming. Laramie, WY.
- Baker, W. L., and S. D. J. 1997. Nonequilibrium dynamics between catastrophic disturbances and old-growth forests in ponderosa pine landscapes of the Black Hills. *Conservation Biology* 11(6): 1276-1288.
- Baron, J. S., M. D. Hartman, L. E. Band, and R. B. Lammers. 2000. Sensitivity of a high elevation Rocky Mountain watershed to altered climate and CO<sub>2</sub>. *Water Resources Research*: 89-99.
- Bartos, D. L., W. F. Mueggler, and R. B. Campbell, Jr. 1991. Regeneration of aspen by suckering on burned sites in western Wyoming. INT-448. USDA Forest Service, Intermountain Research Station: 10.
- Bartos, D. L., and R. B. Campbell. 1998. Water depletion and other ecosystem values forfeited when conifer forests displace aspen communities. Proceedings, AWRA specialty conference: rangeland management and water resources. Reno, Nevada and Herdon, VA.
- Bartos, D. L., and R. F. Schmitz. 1998. Characteristics of endemic-level mountain pine beetle populations in south-central Wyoming. Research Paper RMRS-RP-13: 9.
- Bartos, D. L. S., R.F. 2000. Landscape dynamics of aspen and conifer forests. *In: Sustaining aspen in western landscapes. Symposium proceedings.* USDA Forest Service, Rocky Mountain Research Station. Fort Collins, CO.
- Baxter, G. T., and M. D. Stone. 1985. Amphibians and reptiles of Wyoming. Wyoming Game and Fish Department., Cheyenne, WY.
- Baxter, G. T., and M. D. Stone. 1995. Stone fishes of Wyoming. Wyoming Game and Fish Department. 290 pp.
- Beauvais, G. 1997. Mammals in fragmented forests in the Rocky Mountains: Community structure, habitat selection, and individual fitness. University of Wyoming. Laramie.

- Beauvais, G. P. 1997. Mammals in fragmented forests in the Rocky Mountains: Community structure, habitat selection, and individual fitness. Department of Zoology and Physiology, University of Wyoming. Laramie, WY.
- Beauvais, G. 2001. Insular populations of vertebrates in Wyoming. Wyoming Natural Diversity Database. Laramie, WY.
- Beauvais, G. 2001. Personal communication regarding densities of snowshoe hares on the Forest relative to more northern latitudes. Email on file in project record. Bighorn National Forest. Sheridan, WY.
- Beels, P. 1995. Summary of Hunter Mesa and Powder River MAPS station avian monitoring results. Unpublished report. Bighorn National Forest.
- Beetle, A. A. 1956. Range survey in Wyoming's Bighorn Mountains. Wyoming Agricultural Experiment Station Bulletin 341.
- Behnke, R. J. 1979. Monograph of the native trouts of the genus *Salmo* of western North America.
- Behnke, R. J. 1992. Native trout of western North America. American Fisheries Society. Bethesda, Maryland.
- Bessie, W. C., and E. A. Johnson. 1995. The relative importance of fuels and weather on fire behavior in subalpine forests. *Ecology* 76(3): 747-762.
- Betz, C. J., D. B. K. English, and H. K. Cordell. 1999. Outdoor recreation resources, Chapter III. Outdoor recreation in American life.
- Beukema, S. J., and W. A. Kurz. 1998. Vegetation dynamics development tool user's guide. Version 3.0. ESSA Technologies. Vancouver, B.C.
- Blair, N. 1987. The history of wildlife management in Wyoming. Wyoming Game and Fish Department. Cheyenne, WY.
- Blevins, A., and K. Jensen. 2002. Forest Service social assessment for the Medicine Bow National Forest 15-year revision plan. Department of Sociology, University of Wyoming. Laramie, WY.
- Blinn, C., and M. Kilgore. 2001. Riparian management practices in the United States: A summary of state guidelines.
- Boglioli, M. A., K. Hejtmanek, and N. Stroupe. 2003. Historical overview of land use in the Medicine Bow National Forest. On file at the Bighorn National Forest. Sheridan, WY.
- Bolle, A. W. 1997. The Bitterroot revisited. *American forests: Nature, culture, and politics. A university review of the Forest Service*, University Press of Kansas. 163-176 pp.
- Bonney, O. H., and G. Lorraine. 1960. Field book of the Bighorn range. Swallow Press, Inc.
- Bormann, F. H., and G. E. Likens. 1979. Pattern and process in a forested ecosystem. Springer-Verlag. New York, NY.
- Bosworth, D. 2003. We need a new national debate. Address to the 81st Annual Convention of the Izaak Walton League. Pierre, SD.

- Bowker, J. M., D. B. K. English, and H. K. Cordell. 1999. Projections of outdoor recreation participation to 2050 in outdoor recreation in American life: A national assessment of demand and supply trends. Sagamore Publishing. Champaign, IL.
- Boyle, S. A., and F. B. Samson. 1985. Effects of nonconsumptive recreation on wildlife: A review. *Wildlife Society Bulletin Journal* 13(2): 110-116.
- Bradshaw, B. 1997. Goose Creek drainage basin management plan. Wyoming Game and Fish Department. Sheridan Regional Office: 16 pp.
- Bradshaw, B. 2003. Personal communication regarding edits to emphasis species documents for plan revision. On file at the Bighorn National Forest. Sheridan, WY.
- Bramblet, R. G., and R. G. White. 2001. Habitat use and movements of pallid and shovelnose sturgeon in the Yellowstone and Missouri rivers in Montana and North Dakota. *Transactions of the American Fisheries Society* 130: 1006-1025.
- Brown, J. K., and T. E. See. 1981. Downed dead woody fuel and biomass in the northern Rocky Mountains. USDA Forest Service, Intermountain Forest and Range Experiment Station.
- Brown, R. L. 1989. Effect of timber management practices on elk. *In: Symposium, Multi-resource Management of Ponderosa Pine Forests*. Flagstaff, Arizona: 160-164.
- Brown, P. M., W. D. Shepperd, C. C. Brown, S. A. Mata, and D. L. McClain. 1995. Oldest known Engelmann spruce. Res. Note RM-RN-534. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO: 6.
- Brown, P. M., and C. H. Sieg. 1996. Fire prevention in interior ponderosa pine communities of the Black Hills, South Dakota. *International Journal of Wildland Fire* 6(3): 97-105.
- Brown, S. 1997. Forests and climate change: role of forest lands as carbon sinks. *In Forestry for Sustainable Development: Towards the 21st Century: Forest and Tree Resources*. XI World Forestry Congress. Ankara, Turkey.
- Brown, P. M., M. R. Kaufmann, and W. D. Sheperd. 1999. Long-term landscape patterns of past fire events in a montane ponderosa pine forest of central Colorado. *Ecology* 14: 513-532.
- Brown, J. K., E. D. Reinhardt, and K. A. Kramer. 2001. Coarse woody debris and succession in the recovering forest: the management concern. On file at the Bighorn National Forest. Sheridan, WY.
- Brown, T. 2002. Minimizing wildfire risk with grazing. *Rangelands* 24(3).
- Brunson, M. W., and D. K. Reiter. 1996. Effects of ecological information on judgments about scenic impacts of timber harvest. *Journal of Environmental Management* 46: 31-41.
- Buechner, H. K. 1960. The bighorn sheep in the United States: Its past, present and future. *Wildland Monograph* 4: 174.
- Bull, E. L., C. G. Parks, and T. R. Torgersen. 1997. Trees and logs important to wildlife in the Interior Columbia River Basin. USDA Forest Service.
- Bunnell, K. 2003. Draft manuscript on research findings from coyote, packed snow routes, and lynx habitat investigations. Utah State University.

- Burt, W. H., and R. P. Grossenheider. 1976. A field guide to the mammals of North America. Houghton Mifflin Co. NY, NY.
- Bury, R. L. 1978. Impacts of snowmobiles on wildlife. *Trans. N. Amer. Wildl. Nat. Resour. Conf.* 43: 149-156.
- Buskirk, S., S. Forrest, M. Raphael, and H. Harlow. 1989. Winter resting site ecology of marten in the central Rocky Mountains. *Journal of Wildlife Management* 53(1): 191-196.
- Buskirk, S., and L. Ruggiero. 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the Western United States. USDA Forest Service.
- Buskirk, S., S. Forrest, M. Raphael, and H. Harlow. 2001. Conservation assessment for the American marten in the Black Hills National Forest, South Dakota and Wyoming. Prepared for the Rocky Mountain Research Station. University of Wyoming. Laramie, WY. .
- Callaway, R. M., A. Sala, and R. E. Keane. 2000. Succession may maintain high leaf area: sapwood ratios and productivity in old subalpine forests. *Ecosystems* 3(3): 254-268.
- Camp, A. E. 1997. Fire, insects, and pathogens managing risk in late-successional reserves. Diverse forests, abundant opportunities, and evolving realities. Society of American Foresters. Albuquerque, NM. November 9-13, 1996.
- Carter, M., W. Hunter, D. Pashley, J. Bradley, C. Aid, J. Price, and G. Butcher. 1997. Setting landbird conservation priorities for states, provinces, and physiographic areas of North America. Partners in Flight Priority Database Final Report. Colorado Bird Observatory. Brighton, CO.
- Cerovski, A. 2001. Wyoming bird conservation plan. Wyoming Partners in Flight. Wyoming Game and Fish Department. Lander, WY.
- Chadwick, A., T. Bozorth, D. DeFrancesco, and P. L. Hanse. 1999. Evaluating grazing best management practices for protecting water quality in Montana. *Wildland Hydrology. American Water Resources Association:* 335-342.
- Chavez, D. J., and D. McCollum. 2004. Using BAER reports to investigate recreation impacts of fire events. *In Proceedings of the fourth symposium on social aspects and recreation research.* San Francisco State University, San Francisco, CA.
- Christensen, A. G., L. J. Lyon, and J. W. Unsworth. 1993. Elk Management in the northern region: considerations in forest plan updates or revisions. USDA Forest Service.
- Christensen, J. 2002. Environmentalists hail the ranchers: Howdy, pardners! *New York Times.*
- Christy, R. E., and S. D. West. 1993. Biology of bats in Douglas-fir forests. PNW-GTR-308. USDA Forest Service.
- City of Buffalo. 2005. <http://www.buffalowyo.com>.
- City of Greybull. 2005. <http://www.greybull.com>.
- City of Sheridan. 2005. <http://www.sheridnwyoming.org>.
- City of Worland. 2005. <http://www.cityofworland.org>.

- Clark, T. W., and M. R. Stromberg. 1987. Mammals in Wyoming. University of Kansas Museum of Natural History. Lawrence, Kansas.
- Clary, W. P., and W. C. Leininger. 2000. Stubble height as a tool for management of riparian areas. *Journal of Range Management* 53(6): 562-573.
- Clements, C. 1991. Beaver and riparian ecosystems. *Rangelands* 13(6): 277-279.
- Cobell, B. 2001. Final report: Garvin Basin elk study. Unpublished report prepared for the Crow Tribe, U.S. Fish and Wildlife Service, and Wyoming Game and Fish Department. Bozeman, MT.
- Cochran, P. H., and W. G. Dahms. 1998. Lodgepole pine development after early spacing in the Blue Mountains of Oregon. PNW-RP-503. USDA Forest Service, Pacific Northwest Research Station. Portland, OR: 24.
- Cochran, P. H., and W. G. Dahms. 2000. Growth of lodgepole pine thinned to various densities on two sites with differing productivities in central Oregon. PNW-RP-520. USDA Forest Service, Pacific Northwest Research Station. Portland, OR: 59.
- Cody Chamber of Commerce. 2005. <http://www.codychamber.org/>.
- Collins, T. 1993. The role of beaver in riparian habitat management. Wyoming Game and Fish Department, Cheyenne, WY.
- Colorado Division of Wildlife, and USDA Forest Service. 1987. Managing forested lands for wildlife. Denver, Colorado.
- Colorado Division of Wildlife. 1993. Management guidelines for Merriam's wild turkeys. Fort Collins, CO.
- Colorado Division of Wildlife. 1998. Conservation plan and agreement for the management and recovery of the southern Rocky Mountain population of the boreal toad. Fort Collins, CO.
- Colorado Division of Wildlife Boreal Toad Recovery Team. 1998. Conservation plan and agreement for the management and recovery of the southern Rocky Mountain population of the boreal toad. Fort Collins, CO.
- Colorado State University. 2003. *Parnassia kotzebuei* [report on the Internet]. <http://ndis.nrel.colostate.edu/ndis/rareplants/PDSAX0P070.html>. Colorado Rare Plant Field Guide.
- Congressional Sportsmen's Foundation. 2003. Hunter access study executive summary. On file at the Bighorn National Forest. Sheridan, WY.
- Conlin, T. S. S., and R. van den Driessche. 1996. Short-term effects of soil compaction on growth of *Pinus contorta* seedlings. *Canadian Journal of Forest Research* 26: 727-739.
- Connelly, J. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28(4): 967-985.
- Cordell, H. K., and C. Overdevest. 2001. An assessment of demographic trends and the future of natural lands in the United States. *Footprints on the Land*: 205-209.
- Cordell, H. K. 2002. 2002 National survey on recreation and the environment (NSRE). USDA Forest Service, Athens, GA and University of Tennessee, Knoxville, TN. Athens, GA and Knoxville, TN.

- Corn, P. 1994. What we know and don't know about amphibian declines in the west. *In*: Sustainable ecological systems: Implementing an ecological approach to land management. General Tech. Report RM-247. Fort Collins, CO.
- Crampton, L. H., and R. Barclay. 1998. Selection of roosting and foraging habitat by bats in different-aged aspen mixed wood stands. *Conservation Biology* 12(6): 1347-1358.
- Crockett, F. 2004. A brief review of the oil and gas potential on the Bighorn National Forest, Wyoming. On file at the Bighorn National Forest Supervisor's Office. Sheridan, WY: 19 pp.
- Crookston, N. L., and A. R. Stage. 1999. Percent canopy cover and stand structure statistics from the forest vegetation simulator. General Technical Report RMRS-GTR-24.: 11.
- Crouch, G. L. 1986. Aspen regeneration in 6- to 10 -year-old clear-cuts in southwestern Colorado. Research Note RM-467. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO: 4.
- Daniels, T. W., J. A. Helms, and F. S. Baker. 1979. Principles of silviculture. McGraw-Hill, Inc.
- Darton, N. H. 1906. Geology of the Big Horn Mountains. U.S. Geological Survey Report.
- De Vos, A., and H. S. Mosby. 1971. Habitat analysis and evaluation in wildlife management techniques 3rd ed. Ed. Robert H. Giles Jr. Wildlife Techniques Manual Committee, The Wildlife Society. Wash. DC.
- Dean Runyan Associates. 2002. The economic impact of travel on Wyoming: 1997-2001 detailed state and county estimates. Prepared for the State Office of Travel and Tourism, Wyoming Business Council. Portland, OR.
- DeByle, N. V., and e. Robert P. Winokur. 1985. Aspen: ecology and management in the western United States. General Technical Report RM-119. USDA Forest Service, Rocky Mountain Forest Service and Range Experiment Station. Fort Collins, Colo.: 283.
- DeByle, N. V., and J. K. Brown. 1991. Fire as a management tool in western aspen forests. people and the temperate region: A summary of research from United States. Publication 9838. Man and the Biosphere program. U.S. State Department: 28-30.
- Despain, D. G. 1973. Vegetation of the Big Horn Mountains, Wyoming, in relation to substrate and climate. 43.
- DeVos, A., and H. S. Mosby. 1971. Habitat analysis and evaluation in wildlife management techniques. R.H. Giles Jr., editor. The Wildlife Society. Washington, D.C.
- Dillon, G., and D. H. Knight. 2002. An analysis of historic variability for upland vegetation in the Bighorn National Forest, Wyoming. Department of Botany, University of Wyoming. Laramie, WY.
- Dorn, R. D. 2001. Vascular plants of Wyoming. Mountain West Publishing. Cheyenne, WY.
- Dorrance, M. J., P. J. Savage, and D. E. Huff. 1975. Effects of snowmobiles on white-tailed deer. *Journal of Wildlife Management* 39(3): 563-569.
- Doucet, R. 1989. Regeneration silviculture of aspen. *The Forestry Chronicle*: 23-27.
- Downing, H. 1990. Birds of north-central Wyoming and the Bighorn National Forest, Casper, WY.



- Dremann, C. 2003. Sweetgrass (*Hierochloe odorata*) organically grown plants [report on the Internet]. [<http://www.batnet.com/rwc-seed/sweetgrass.html>]: 4.
- Dryer, M. P., and A. J. Sandvol. 1993. Recovery plan for the pallid sturgeon *Scaphirhynchus albus*. U.S. Fish and Wildlife Service. Denver, CO.
- Duff, D. A. 1996. Conservation assessment for inland cutthroat trout status and distribution. USDA Forest Service, Intermountain Region. Ogden, Utah.
- Dunn, J. L. 1999. Field guide to the birds of North America. National Geographic Society.
- Easterly, T. 2001. Personal communication regarding the status and management priorities of bighorn sheep on the Bighorn Mountains. Wyoming Game and Fish Department biologist. Greybull, WY.
- Easterly, T. 2002. Personal communication regarding the status and distribution of grouse and habitat on the Forest. Wyoming Game and Fish Department biologist. Greybull, WY.
- Eastham, A. M., and M. J. Jull. 1999. Factors affecting natural regeneration of *Abies lasiocarpa* and *Picea engelmannii* in a subalpine silviculture systems trial. Canadian Journal of Forest Research 26 29(12): 1847-1855.
- Edaw Inc. 1998. Bighorn National Forest scenic byway corridor management plan - Final report. Bighorn National Forest. Sheridan, WY: 34-37.
- Edgerton, P. J., and J. W. Thomas. 1978. Silvicultural options and habitat values in coniferous forests. R. Graaf, ed. *In*: Proceedings of the workshop on nongame bird habitat management in the coniferous forests of the western United States. General Technical Report PNW-64. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station. Portland, OR.
- Ellis, M., C. D. von Dohlen, J. E. Anderson, and W. H. Romme. No date. Some important factors affecting density of lodgepole pine seedlings following the 1988 Yellowstone fires. On file at the Bighorn National Forest. Sheridan, WY.
- English, D. 2005. National visitor use monitoring data post processing specific to the Bighorn National Forest Southern Research Station, USDA Forest Service.
- Enk, T. A., H. D. Picton, and J. S. Williams. 2001. Factors limiting a bighorn sheep population in Montana following a die-off. Northwest Science 75(3): 280-291.
- Evermann, B. W., and U. O. Cox. 1894. A report upon the fishes of the Missouri River basin. U.S. Fish Commission: 325-429.
- Fahey, T. J. 1983. Nutrient dynamics of aboveground detritus in lodgepole pine ecosystems, southeastern Wyoming. Ecological Monographs 53(1): 51-72.
- Fecske, D., J. Jenks, and V. Smith. 2002. Field evaluation of a habitat-relation model for the American marten. Wildlife Society Bulletin 30(3): 775-782.
- Feller, M. C. 1998. Influence of ecological conditions on Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) germinant survival and initial seedling growth in south-central British Columbia. Forest Ecology and Management 107: 55-69.
- Ferron, J., R. Potvin, and C. Dussalt. 1998. Short-term effects of logging on snowshoe hares in the boreal forest. Canadian Journal of Forest Research 28(9): 1335-1343.

- Fertig, W. 1994. Wyoming rare plant field guide.
- Fertig, W. 1999. Ecological assessment and monitoring program for northern blackberry (*Rubus acaulis*) in Bighorn National Forest, Wyoming. Wyoming Natural Diversity Database. On file at the Bighorn National Forest and Wyoming.
- Fertig, W., G. Beauvais, and G. Jones. 1999. Status of rare vertebrates and plants in the Bighorns landscape, and plant and animal species of special concern. Wyoming Natural Diversity Database. Laramie, WY.
- Fertig, W., and G. Beauvais. 1999. Wyoming plant and animal species of concern. Wyoming Natural Diversity Database. Laramie, Wyoming.
- Fertig, W. 2000. Status review of the Ute ladies' tresses in Wyoming. Wyoming Natural Diversity Database, University of Wyoming. Laramie, WY: 17pp.
- Fertig, W., G. Beauvais, and G. Jones. 2002. Personal communication (email) regarding comments on emphasis species documents for plan revision. On file at the Bighorn National Forest. Sheridan, WY.
- Field, C. B., and I. Y. Fung. 1999. The not-so-big U.S. carbon sink. *Science* 285(5427): 544-545.
- Finney, M. A. 1998. FlamMap Version 1.0. On file at the Bighorn National Forest. Sheridan, WY.
- Fischer, R., and J. Fischenic. 2000. Design recommendations for riparian corridors and vegetated buffer strips. ERDC TN\_EMRRP-SR-24. US Army Engineer and Development Center. Vicksburg, MS.
- Fleming, R. L., T. A. Black, R. S. Adams, and R. J. Stathers. 1998. Silvicultural treatments, microclimatic conditions, and seedling response in southern interior clearcuts. *Canadian Journal of Soil Science* 78: 115-126.
- Fletcher, R. R., D. T. Taylor, B. R. Moline, G. W. Borden, and G. J. Skidgel. 1994. Economic contributions of federal lands within the Big Horn Mountain area. Department of Agricultural Economics, University of Wyoming. Report on file at Bighorn National Forest. Sheridan, WY.
- Fletcher, R. R., and D. T. Taylor. 2000. Southern Medicine Bow National Forest input-output model, Unpublished analysis. Department of Agricultural and Applied Economics, University of Wyoming, Laramie, WY.
- Flint, R. F. 1971. Glacial and quaternary geology. John Wiley & Sons, New York.
- Force, J. E., and G. Fizzell. 1999. How social values have affected forest policy. *Society of American Foresters*: 16-22.
- Franklin, J. F. No date. Old growth and the new forestry. *Restoration Forestry: An international guide to sustainable forestry practices*. On file at the Bighorn National Forest. Sheridan, WY: 102-107.
- Franz, E. H. 2001. Ecology, values, and policy. *Bioscience* 51(6): 469-474.
- Friedel, M. H. 1991. Range condition assessment and the concept of thresholds: A viewpoint by M.H. Friedell. *Journal of Range Management* 44(5).

- Fule, P. Z., J. D. Springer, D. W. Huffman, and W. W. Covington. 2001. Response of a rare endemic, *Penstemon clutei*, to burning and reduced belowground competition. Rocky Mountain Research Station. 139-152.
- Gall, S. 1997. Rangelands resource specialist report for the Clear Creek/Crazy Woman Creek landscape analysis. USDA Forest Service, Bighorn National Forest. Buffalo, WY.
- Garber, C. 1992. A survey for spotted frogs, wood frogs, and boreal toads in Wyoming. Wyoming Natural Diversity database. University of Wyoming. Laramie, WY.
- Gardner, R. H., W. H. Romme, and M. G. Turner. 1999. Predicting forest fire effects at landscape scales. 163-185.
- Ghalambor, C. K., and T. E. Martin. 1998. Red-breasted nuthatch (*Sitta canadensis*). *In: The Birds of North America*. A. Poole and F. Gills. Philadelphia: The Academy of Natural Sciences. The American Ornithologists' Union. Washington D.C.
- Girard, M., D. B. Wheeler, and S. B. Mills. 1997. Classification of riparian communities on the Bighorn National Forest. USDA Forest Service, Rocky Mountain Region.
- Glennon, M. J., W. F. Porter, and C. L. Demers. 2002. An alternative field technique for estimating diversity of small-mammal populations. *Journal of Mammalogy* 83(3): 734-742.
- Glover, D. G. 1977. Genetic variations in pika populations. *Canadian Journal Zoology* 55: 1841-1845.
- Graham, R. T., A. E. Harvey, M. F. Jurgensen, T. B. Jain, J. R. Tonn, and D. S. Page-Dumroese. 1994. Managing coarse woody debris in forests of the Rocky Mountains. INT-RP-477. USDA, Forest Service, Intermountain Research Station. Ogden, UT: 12.
- Graham, R. T., R. L. Rodriguez, K. M. Paulin, R. L. Player, A. P. Heap, and R. Williams. 1999. The northern goshawk in Utah: Habitat assessment and management recommendations. USDA Forest Service. Fort Collins, CO.: 48.
- Grenier, M. 2002. Letter of December 23rd transmitting known sites and bat species occupancy of caves/habitat on the Forest. Wyoming Game and Fish Department. Lander, WY.
- Grenier, M. 2002. Letter of February 28, to Jon Warder from Martin Grenier regarding input to emphasis species selection for plan revision. J. Warder. Wyoming Game and Fish Department. Lander, WY.
- Gresswell, R. E. 1988. Status and management of interior stocks of cutthroat trout. American Fisheries Society Symposium 4.
- Gresswell, R. E. 1995. Yellowstone cutthroat trout. Conservation assessment for inland cutthroat trout. USDA Forest Service, Rocky Mountain Forest and Range Experimental Station. Fort Collins, Colorado: 36-54.
- Guldin, J. M. 1996. The role of uneven-aged silviculture in the context of ecosystem management. *Western Journal of Applied Forestry* 11(1): 4-12.
- Gurney, J. J., R. O. Moore, M. B. Kirkley, M. L. Otter, J. J. Hopps, and T. E. McCandless. 1991. Kimberlites of southern Africa: a review. *In: Magmatism in Extensional Structural Settings - the Phanerozoic African Plate*, Chapter 14. A.B. Kampunzu and R.T. Lubala, editors. Springer-Verlag, Berlin. 495-536.

- Guyon, J. 1998. Aspen ecology, pathology, and management. *In: Proceedings of the Forty-sixth Western International Forest Disease Work Conference*. On file at the Bighorn National Forest, Sheridan, WY.
- Haila, Y. 2002. A conceptual genealogy of fragmentation research: from island biogeography to landscape ecology. *Ecological Applications* 12: 321-334.
- Hann, W. J., and D. L. Bunnell. 2001. Fire and land management planning and implementation across multiple scales. *Int. J. Wildland Fire*: 27.
- Hannon, S. J., C. A. Paszkowski, S. Boutin, J. DeGroot, S. E. MacDonald, M. Wheatley, and B. R. Eaton. 2002. Abundance and species composition of amphibians, small mammals, and songbirds in riparian forest buffer strips of varying widths in the boreal mixed wood of Alberta. *Canadian Journal of Forest Research* 32(10): 1784-1800.
- Hanzel, D. A. 1959. The distribution of the cutthroat trout (*Salmo clarki*) in Montana. *In: Proceedings of the Montana Academy of Sciences* 19: 32-71.
- Hargis, C., J. Bissonette, and D. Turner. 1999. The influence of forest fragmentation and landscape pattern on American martens. *Journal of Applied Ecology* 36(1): 157-172.
- Harris, R. B. 2000. Estimating large snag recruitment needs in regeneration timber harvests. *Western Journal of Applied Forestry* 15(3): 140-146.
- Hausel, W. D. 1998. Diamonds and mantle source rocks in the Wyoming Craton, with a discussion of other U.S. occurrences. *Wyoming State Geological Survey Report of Investigations* 53.
- Hawkins, C. P. 1994. What are riparian ecosystems and why are we worried about them? *In: Riparian Resources: A Symposium on the Disturbances, Management, Economics, and Conflicts Associated with Riparian Ecosystems*. Utah State University, Logan, UT.
- Hawksworth, F. G., and D. W. Johnson. 1989. Biology and management of dwarf mistletoe in lodgepole pine in the Rocky Mountains. General Technical Report RM-169. USDA Forest Service: 38.
- Hayward, G., and J. Verner. 1994. Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment. USDA Forest Service. Ft. Collins, CO.
- Hayward, G. H. 2000. Draft process to evaluate species and population viability in forest planning and plan implementation in the Rocky Mountain Region. USDA Forest Service. Lakewood, CO.: 9.
- Hayward, G. H. 2001. Region 2 Management indicator species selection process and criteria. USDA Forest Service. Lakewood, CO.: 14.
- Heidel, B., and J. Handley. 2002. *Physaria lanata* (Woolly twinpod) conservation assessment. Wyoming Natural Diversity Database [WYNDD]. Laramie, WY.: 23.
- Hejl, S. J. 1992. The importance of landscape patterns to bird diversity: a perspective from the Rocky Mountains. *Northwest Env. Journal* 8: 119-137.
- Helms, J. A. 1998. The dictionary of forestry. Society of American Foresters.
- Henderson, D. M., R. K. Moseley, and A. R. Cholewa. 1990. A new *Agoseris* (*Asteraceae*) from Idaho and Montana. *Systematic Botany* 15(3): 462-465.

- Hermann, R. K., and D. P. Lavender. 1990. *Pseudotsuga menziesii* (Mirb.) Franco Douglas-fir. USDA, Washington, DC.
- Hill, C., W. Sutherland, and L. Tierney. 1976. Caves of Wyoming. Geological Survey Bulletin 59. Geological Survey of Wyoming.
- Hillis, J. M., M. J. Thompson, J. E. Canfield, L. J. Lyon, C. L. Marcum, P. M. Dolan, and D. W. McCleerey. 1991. Defining elk security: The Hillis paradigm. *In*: Proceedings of a symposium on elk vulnerability. Montana State University. Bozeman, MT.
- Hinnant, R. T. 1994. What is an animal-unit? A time to conform. *Rangelands* 16(1): 33-35.
- Hoffman, G. R., and R. R. Alexander. 1976. Forest vegetation of the Bighorn Mountains, Wyoming: a habitat type classification. RM-170. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO.
- Holthausen, R. 2002. White paper on managing for species viability, Draft July 2002. USDA Forest Service. Washington, D.C.: 37.
- Hoover, R. L., and D. Willis. 1987. Managing forested lands for wildlife. R. Hoover and D. Willis. Colorado Division of Wildlife and USDA Forest Service, Rocky Mountain Region. Denver, CO.
- Houghton, R. A., J. L. Hackler, and K. T. Lawrence. 1999. The U.S. Carbon Budget: contributions from land-use change. *Science* 285(5427): 574-578.
- Howard, J. L. 2003. U.S. timber production, trade, consumption, and price statistics 1965-1999. Research Paper FPL-RP-595. USDA Forest Service. Washington, D.C.
- Howe, G. E. 1989. Genetic effects of even-aged and uneven-aged silviculture. *In* The 1989 National Silviculture Workshop. Petersburg, Alaska.
- Howe, G. E. 1996. Genetics service visit. On file at the Bighorn National Forest. Sheridan, WY.
- Huber, A. G. 2002. Mountain lady's slipper (*Cypripedium montanum*) establishment from seeds in forest openings. *Native Plants Journal*. University of Idaho Press. Moscow, ID.
- Hughes, L. G. 1997. A GIS-based evaluation of the Big Horn Mountains for reintroduction of Rocky Mountain bighorn sheep. Draft master's thesis. Department of Zoology and Physiology, University of Wyoming. Laramie, WY: 98.
- Humphrey, A. 2001. Bighorns landscape conservation plan. The Wyoming Chapter of the Nature Conservancy. Lander, WY: 38.
- Hunter, M. B. 1996. Fundamentals of conservation biology. Blackwell Science. Cambridge, MA.
- Huntington, M. H., and J. D. Echeverria, editors. 1991. Outstanding rivers list - second edition. American Rivers.
- Idaho Fish and Game. 2003. *Botrychium crenulatum*  
<http://www2.state.id.us/fishgame/info/cdc/plant.htm>. Idaho's Rare Plants [Internet].
- Ingelfinger, F. 2001. The effects of natural gas development on sagebrush steppe passerines in Sublette County, Wyoming. University of Wyoming. Laramie, Wyoming.

- Jack, J. 1900. Forest and grazing conditions in the Bighorn Forest Reserve Wyoming. On file in the project record. Bighorn National Forest. Sheridan, WY. Bighorn National Forest. Buffalo, WY. .
- Jacobi, W. R., E. F. Kelly, C. A. Troendle, P. A. Angwin, and C. A. Wettstein. 1993. Site and environmental relationships of aspen regeneration failure. *In: Western international forest disease work conference.*
- Jakubos, B., and W. H. Romme. 1993. Invasion of subalpine meadows by lodgepole pine in Yellowstone National Park, Wyoming, U.S.A. 25(4): 382-390.
- Jeffery, D. W. 1987. Soil-plant relations. Timber Press, Portland, OR.
- Jellison, B. 1997. Evaluating elk security areas in the Bighorn Mountains. Wyoming Game and Fish Department. Sheridan, WY.
- Jellison, B. 1997. Elk habitat effectiveness on the Bighorn Mountains. Wyoming Game and Fish Department. Sheridan, WY.
- Jellison, B. 2003. Personal communication regarding beaver transplant program in the Sheridan region. Sheridan, WY.
- Jennings, S. B., N. D. Brown, and D. Sheil. 1999. Assessing forest canopies and understory illumination: Canopy closure, canopy cover and other measures. *Forestry* 72(1): 59-73.
- Jensen, E. 2002. *Botrychium ascendens* survey in the Big Horn Mountains. Bighorn National Forest. Greybull, WY.
- Jones, A. G. 1984. Typification of *Aster jessicae* Piper and reinstatement of *A. mollis* Rydberg (*Asteraceae*). *Madrono* 31(2): 113 - 122.
- Jones, G. 1992. A preliminary classification of riparian vegetation types of the Bighorn Range and the Sierra Madre. On file at the Bighorn National Forest. Sheridan, WY.
- Jordan, G. 2003. Personal communication regarding downstream effects from Forest management to any threatened or endangered aquatic species in the Yellowstone River system. Conversation documented in administrative record. Bighorn National Forest. Sheridan, WY. Sheridan, WY.
- Jordan, G. 2004. Personal communication regarding downstream effects from Forest management to any threatened or endangered aquatic species in the Yellowstone River system. Conversation documented in administrative record. Bighorn National Forest. Sheridan, WY.
- Joslin, G. and H. Youmans. 1999. Effects of recreation on Rocky Mountain wildlife: A review for Montana. Committee of Effects of Recreation on Wildlife, Montana Chapter of the Wildlife Society.
- Kappler, C. J. 1904. Indian affairs: laws and treaties. <http://digital.library.okstate.edu/kappler>.
- Kasworm, W. T. M. 1990. Road and trail influences on grizzly bears and black bears in northwest Montana. *In: Int. Conf Bear Res. and Management, Volume 8.*
- Kaufmann, M. R., and R. K. Watkins. 1990. Characteristics of high and low vigor lodgepole pine trees in old-growth stands. *In: Tree Physiology* 7

- Kaufmann, M. R., W. H. Moir, and W. W. Covington. 1992. Old-growth forests: what do we know about their ecology and management in the Southwest and Rocky Mountain Regions? *In: Old Growth Forests in the Southwest and Rocky Mountain Regions. Proceedings of a Workshop.* Ft. Collins, CO. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station.
- Kaufmann, M. R. 1995. To live fast or not: Growth, vigor and longevity of old growth ponderosa pine and lodgepole pine trees. *In: Tree Physiology.* 16
- Kaufmann, M. R., C. M. Regan, and P. M. Brown. 2000. Heterogeneity in ponderosa pine/Douglas-fir forests: Age and size structure in unlogged and logged landscapes of central Colorado. *Canadian Journal of Forest Research* 30(5): 698-711.
- Kay, C. E. 1997. Is aspen doomed? *Journal of Forestry* 95(5).
- Keading, L. 2001. Yellowstone cutthroat trout will not be considered for listing under the Endangered Species Act. USFW news release. On file at the Bighorn National Forest. Sheridan, WY.
- Keegan, C. E., T. A. Morgan, and T. P. Spoelma. 2005. Timber processing and capacity in the Bighorn National Forest and nearby areas. Bureau of Business and Economic Research, University of Montana. Missoula, MT.
- Keinath, D. 2001. Personal communication (email) regarding input to emphasis species documents for plan revision. On file at the Bighorn National Forest. Sheridan, WY.
- Kennedy, P., D. Stahlecker, and G. Rinker. 1993. Responsiveness of nesting northern goshawks to taped broadcasts of 3 conspecific calls. *Journal of Wildlife Management* 57(2): 249-257.
- Kennedy, J. J., and T. M. Quigley. 1998. Evolution of USDA Forest Service organizational culture and adaptation issues in embracing an ecosystem management paradigm. *Landscape and Urban Planning* 40(1-3): 113-122.
- Kennedy, P. L. 2003. Northern goshawk: A technical conservation assessment. Rocky Mountain Research Station Project. USDA Forest Service. Lakewood, CO.
- King, C. L. 1992. History of wildlife in the Bighorn Basin of Wyoming. Pioneer Printing, Cheyenne, WY.
- Klaus, M. 2002. A predictive model for American marten habitat in the Bighorn Mountains. Sheridan College. On file at the Bighorn National Forest. Sheridan, WY.
- Klaus, M. 2003. Water vole: A technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Lakewood, CO: 77.
- Klaus, M. 2003. The status, habitat, and response to grazing of water vole populations in the Big Horn Mountains of Wyoming. *Arctic, Antarctic, and Alpine Research* 35(1): 100-109.
- Knapp, R. A., P. S. Corn, and D. E. Schindler. 2001. The introduction of nonnative fish into wilderness lakes: good intentions, conflicting mandates, and unintended consequences. *Ecosystems* 4(4): 275-278.
- Knecht, D. 2001. Pers. comm. Management of *Cypripedium montanum* on the Okanogan and Wenatchee National Forests.

- Knight, D. H. 1994. Mountains and plains, the ecology of Wyoming landscapes. Yale University Press.
- Knight, R. L., and K. J. Gutzwiller. 1995. Wildlife and recreationists. Coexistence through management and research. Island Press. Washington, D.C.
- Knight, R. L. 2000. Forest fragmentation in the Southern Rocky Mountains. University Press of Colorado. Boulder, CO.
- Knight, D., and C. Meyers. 2003. Historic range of variability of the forested resources on the Bighorn National Forest. University of Wyoming. Laramie, WY.
- Kocis, S., D. English, S. Zarnoch, R. Arnold, and L. Warren. 2002. National visitor use monitoring results, Bighorn National Forest. On file at the Bighorn National Forest. Sheridan, WY.
- Kolb, A., and T. Spribille. 2001. Population and habitat characteristics of rare moonworts (*Botrychium* subg. *Botrychium*) in Summit County, Colorado. Dillon Ranger District White River National Forest.
- Kruse, C. G. 1998. Influence of non-native trout and geomorphology on distributions of indigenous trout in the Yellowstone River drainage of WY. Ph.D Dissertation. University of Wyoming. Laramie, WY.
- Kruse, C. G., W. A. Hubert, and F. J. Rahel. 2000. Status of Yellowstone cutthroat trout in Wyoming waters. *North American Journal of Fisheries Management* 20: 693-705.
- Kufeld, R. C. 1973a. Foods eaten by the Rocky Mountain elk. *Journal of Range Management* 22(6): 106-113.
- Kufeld, R. C., O.C.Wallmo, and C. Feddema. 1973b. Foods eaten by Rocky Mountain mule deer.
- Kurz, W., S. Beukema, J. Merzenich, M. Arbaugh and S. Schilling. 1999. Long range modeling of stochastic disturbances and management treatments using VDDT and TELSA. Society of American Foresters Convention. Bethesda, MD.
- Lacey, J. R., C.B. Marlow, and J.R. Lane,. 1989. Influence of spotted knapweed (*Centaurea maculosa*) on surface runoff and sediment yield. *Weed Technology* 3: 627-631.
- Landres, P., and S. Meyer. 2000. National wilderness preservation system database: Key attributes and trends, 1964 through 1999. General Technical Report RMRS-GTR-18- Revised Edition. 98.
- Langowski, P. 2002. Fuels, fire, and fire ecology for the southern Rockies lynx amendment. D. Report. USDA Forest Service.
- Lavertu, D. and Y. B. Mauffette. 1994. Effects of stand age and litter removal on the regeneration of *Populus tremuloides*. *Journal of Vegetation Science* 5: 561-568.
- Laycock, W. A. 1989. Secondary succession and range condition criteria: introduction to the problem. *Secondary succession and the evaluation of rangeland condition*. W. K. Lauenroth and W. A. Laycock, editors. Westview Press. Boulder, CO.
- Leonard, D. L. 2001. Three-toed woodpecker. *In: The Birds of North America*, No. 588. The Birds of North America, Inc. Philadelphia, PA.



- Little, R. L., and D. L. Peterson. 1994. Regeneration of subalpine fir (*Abies lasiocarpa*) following fire: effects of climate and other factors. *Canadian Journal of Forest Research* 24: 934-944.
- Long, J. N., and F. W. Smith. 1984. Relation between size and density in developing stands: A description and possible mechanisms. *Forest Ecology and Management* 7: 191-206.
- Lotan, J. E. 1967. Cone serotiny of lodgepole pine near West Yellowstone, Montana. *Forest Science* 13(1): 55-59.
- Lotan, J. E. 1968. Cone serotiny of lodgepole pine Near Island Park, Idaho. Research Paper INT-52. USDA, Forest Service. Intermountain Research Station. Ogden, UT: 6.
- Lotan, J. E. 1974. Cone serotiny-fire relationships in lodge pole pine. *Tall Timbers Fire Ecology Conference Proceedings* 14: 267-278.
- Lotan, J. E., J. K. Brown, and L. F. Neuenschwander. 1985. Role of fire in lodgepole pine forests. *In: Lodgepole pine - the species and its management. Proceedings of a symposium.* Spokane, WA. May 8-10; Vancouver, BC., May 14-16.
- Lovell Chamber of Commerce. 2005. <http://www.lovellchamber.com>.
- Lowery, D. P. 1982. The dead softwood timber resource and its utilization in the West. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, UT.
- Luce, B., A. Cerovski, B. Oakleaf, J. Priday, and L. Van Fleet. 1999. Atlas of birds, mammals, reptiles, and amphibians in Wyoming. Wyoming Game and Fish Department. Lander, WY.: 195.
- Lyon, L. J., and A. G. Christensen. 1977. Attrition of lodgepole pine snags on the Sleeping Child burn, Montana, Research Note INT-219. USDA Forest Service, Intermountain Forest and Range Experiment Station. Fort Collins, CO: 4.
- Lyon, J. L., and J. E. Canfield. 1991. Habitat selections by Rocky Mountain Elk under hunting season stress. *Elk Vulnerability Symposium.* MSU. Bozeman, MT.
- Lyon, L. J. a. A. G. C. 1992. A partial glossary of elk management terms. USDA Forest Service.
- Lyon, L. J., and M. G. Burcham. 1998. Tracking elk hunters with the global positioning system. USDA Forest Service. Ogden, UT.
- MacCrimmon, H. R. 1971. World distribution of rainbow trout (*Salmo gairdneri*). *Journal of the Research Board of Canada* 28: 663-704.
- MacCrimmon, H. R., and J. S. Campbell. 1971. World distribution of brook trout (*Salvelinus fontinalis*). *Journal of the Research Board of Canada* 26: 1699-1725.
- Magoun, A., and J. Copeland. 1998. Characteristics of wolverine reproductive den sites. *Journal of Wildlife Management* 62(4): 1313-1320.
- Malloy, J. 2000 - 2003. Hair-snare survey results for the Bighorn National Forest. University of Montana. Missoula, MT. Unpublished report on file at the Bighorn National Forest. Sheridan, WY.

- Marland, G., and B. Schlamadinger. 1997. Forests for carbon sequestration or fossil fuel substitution? The XI World Forestry Congress: A Sensitivity Analysis. Forestry for Sustainable Development: Towards the 21st Century: Forest and Tree Resources. October 13-22. Ankara, Turkey.
- Martin, K., T. Schommer, and V. Coggins. 1996. Literature review regarding the compatibility between bighorn and domestic sheep. Biennial Symposium Northern Wild Sheep and Goat Council Proceedings 10: 72-77.
- Martin, J. W. 1998. Sage sparrow. *In* The Birds of North America, No. 326. The Birds of North America, Inc. Philadelphia, PA.
- Martin, W. E., B. Wise, H., and D. J. Shields. 1999. Stakeholder objectives for public lands: rankings of forest management alternatives. *Journal of Environmental Management* 58(1): 21-32.
- Maser, C. 1994. Sustainable forestry: Philosophy, science, and economics. St. Lucie Press. Delray Beach, FL.
- May, B. E. and others. 1998. Yellowstone cutthroat trout conservation program within the state of Montana. Report for Montana Fish, Wildlife, and Parks state of Montana. USDA, Forest Service, Intermountain Region. Ogden, Utah.
- McDowell, B. 1996. Little Bighorn River drainage basin management plan. Wyoming Game and Fish Department, Sheridan Regional Office. Sheridan, WY: 19.
- McGarigal, K., and B. J. Marks. 1995. FRAGSTATS: Spatial pattern analysis program for quantifying landscape structure. USDA Forest Service, Pacific Northwest Research Station. Portland, OR.
- McGurk, B. J., and D. R. Fong. 1995. Equivalent roaded area as a measure of cumulative effect of logging. *Environmental Management* 19(4): 609-621.
- McIver, J. D., and L. Starr. 2000. Environmental effects of postfire logging: Literature review and annotated bibliography. USDA Forest Service, Pacific Northwest Research Station. Portland, OR: 72 pages.
- McJannet, C. L., S. G. Aiken, M. J. Dallwitz, L. J. Gillespie, and L. L. Consaul. 1997. *Saxifragaceae* of the Canadian Arctic archipelago: Descriptions, illustrations, identification, and information retrieval. <http://www.mun.ca/biology/delta/arcticf/>.
- McKelvey, K., J. Claar, G. McDaniel, and G. Hanvey. 1999. National lynx detection protocol. USDA Forest Service. Missoula, MT.
- McKinstry, M., P. Caffrey, and S.H. Anderson. 2000. The importance of beavers to duck populations in Wyoming. Proceedings, AWRA's 2000 summer specialty conference: Riparian Ecology and Management in Multi-land Use Watersheds. Portland Oregon: 95-100.
- McLellan, B. N., and D. M. Shackleton. 1989. Immediate reactions of grizzly bears to human activities. *Wildlife Society Bulletin* 17(3): 269-274.
- McManus, C., R. Coupal, and D. Taylor. 2001. 2000-2001 Wyoming snowmobile survey. Wyoming State Trails Program. Prepared for the Wyoming Department of State Parks and Historic Sites.

- McMillin, J. D., K. K. Allen, and D. F. Long. 2001. Evaluation of western balsam bark beetle flight periodicity on the Bighorn National Forest, Wyoming. USDA Forest Service, Rocky Mountain Region Golden, Colorado: p.14.
- Meehan, W. R. 1991. Influences of forest and rangeland management. American Fisheries Society, Special Publication 19. Bethesda, Maryland.
- Mehl, M. 1992. Old-growth descriptions for the major forest cover types in the Rocky Mountain Region. *In*: Proceedings of a workshop: Old-growth forests in the Southwest and Rocky Mountain Regions. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO.
- Merrill, E. 1997. Forest fragmentation and bird diversity in the Bighorn National Forest of Wyoming. University of Wisconsin. Stevens Point, Wisconsin.
- Merritt, J. F., and J. M. Merritt. 1978. Population ecology and energy relationships of red-backed voles in a Colorado subalpine forest. *Journal of Mammalogy* 59(3): 576-598.
- Meyer, C. B., and D.H. Knight. 2001. Draft historic variability for upland vegetation in the Bighorn National Forest. University of Wyoming. Laramie, WY.
- Meyer, C. B., and D. H. Knight. 2001. Historic variability for upland vegetation in the Bighorn National Forest, Wyoming. Bighorn National Forest. Sheridan, WY.
- Michael Clayton & Associates. 1992. Western regional corridor study. Prepared for Western Utility Group. On file at the Bighorn National Forest. Sheridan, WY.
- Mielke, J. L. 1950. Rate of deterioration of beetle-killed Engelmann spruce. *Journal of Forestry* 48(12): 882-888.
- Minnesota IMPLAN Group Inc. 2005. [www.implan.com](http://www.implan.com).
- Minshall, G. W., C. T. Robinson, and T. V. Royer. 1998. Stream ecosystem responses to the 1988 wildfires. *Yellowstone Science*: 15-22.
- Mitchell J.E., R. L. Knight, and R. J. Camp. 2002. Landscape attributes of subdivided ranches. *Rangelands* 4(1).
- Mitton, J. B., and M. C. Grant. 1996. Genetic variation and natural history of quaking aspen. *BioScience* 46: 25-31.
- Mni Sose Intertribal Water Rights Coalition Inc. 2003. <http://www.mnisose.org/profiles/>.
- Moline, B., R. Fletcher, D. Taylor, G. Fink, F. Henderson, and L. Bourret. 1994. Contribution of federal lands to Wyoming range livestock production, 1992. University of Wyoming, Cooperative Extension Service and the Wyoming Department of Agriculture. Laramie, WY.
- Moll, J. E. 1996. A guide for road closure and obliteration in the Forest Service. USDA Forest Service. San Dimas Technology and Development Center.
- Moody, D. S., D. Hammer, M. Bruscano, D. Bjornlie, R. Grogan, and B. Debolt. 2002. Wyoming grizzly bear management plan. Wyoming Game and Fish Department. Cheyenne, WY.
- Morey & Associates Inc. 1999. Report on the economic impact of the travel industry in Wyoming - 1998. Wyoming Business Council, Division of Tourism. Cheyenne, Wyoming.

- Morgan, T. A., T. P. Spoelma, C. E. Keegan, III, A. L. Chase, and M. T. Thompson. 2005. Wyoming's forest products industry and timber harvest, 2000. RMRS-RB-5. USDA Forest Service, Rocky Mountain Research Station. Fort Collins, CO.
- Morrison, M. L., B. G. Marcot, and R. W. Mannan. 1992. Wildlife-habitat relationships. University of Wisconsin Press: 84.
- Mueggler, W. F. 1987. Status of aspen woodlands in the West. *In*: Proceedings of the Western Raptor Management Symposium and Workshop. Boise, Idaho.
- Mueggler, W. F. 1994. Sixty years of change in tree numbers and basal area in central Utah aspen stands. USDA Forest Service, Intermountain Research Station. Ogden, UT: 11.
- Muir, P. S., and J. E. Lotan. 1985. Serotiny and life history of *Pinus contorta* var. *latifolia*. Canadian Journal of Botany 63: 8.
- Murray, R. A. 1980. Multiple use in the Big Horns: The story of Bighorn National Forest. *In*: Narrative History & Notes. Sheridan, WY.
- National Archives Records Administration. 2001. Special areas; roadless area conservation; Final Rule. Federal Register, Friday Part VI, Department of Agriculture, Forest Service, 36 CFR Part 294,. Washington, D.C.
- National Fire Protection Association. 1991. Protection of life and property from wildfire. On file at the Bighorn National Forest. Sheridan, WY.
- National Interagency Fire Center. 1994. Intermediate wildland fire behavior. S-290. Boise, ID.
- NatureServe Explorer. 2003. <http://www.natureserve.org/explorer>. Arlington, Virginia: An online encyclopedia of life. Version 1.6.
- Neighbours, M. L., and D. Culver. 1990. 1989 Floristic survey of Preacher Rock Bog, Bighorn National Forest, Wyoming. B. N. F. Report prepared for the Tongue Ranger District, by the Wyoming Natural Diversity Database. On file at the Bighorn National Forest. Sheridan, WY.
- Neighbours, M. L. 1998. Bighorn National Forest: Known occurrences of animals and plants - threatened, endangered, forest sensitive and otherwise of concern and occurrences of communities. Wyoming Natural Diversity Database.
- Nelson, B. E., and R. L. Hartman. 1984. Flora of the Big Horn Mountains, Checklist. University of Wyoming Rocky Mountain Herbarium. Laramie, WY
- Nesser, J. A. 1986. Soil survey of Bighorn National Forest, Wyoming. . USDA Forest Service and Soil Conservation Service.
- Nesser, J. A. 1992. Watershed condition survey on the Bighorn National Forest. Sheridan, WY.
- New Mexico Rare Plant Technical Council. 1999. New Mexico rare plants. <http://nmrareplants.unm.edu>.
- Noble, D. L., and W. D. Shepperd. 1973. Gray-headed juncos important in first season mortality of Engelmann spruce. Journal of Forestry 71(12): 3.
- Noble, D. L. No date. *Juniperous scopulorum* Sarg. Rocky Mountain juniper. *In*: Silvics of North America. USDA Forest Service. Washington D.C.

- Northstar Economics Inc. 2005. A strategic economic development plan for the Town of Saratoga, Wyoming. Prepared for the Town of Saratoga, Wyoming. Madison, WI.
- Noss, R., G. Wuerthner, K. Vance-Borland, and C. Carroll. 2001. A biological conservation assessment for the Utah-Wyoming Rocky Mountains ecoregion. The Nature Conservancy.
- Not available. 2004. Antelope Butte Ski Area will remain closed this winter. Casper Star-Tribune. Casper, WY.
- Nyland, R. D. 1998. Patterns of lodgepole pine regeneration following the 1988 Yellowstone fires. *Forest Ecology and Management* 111(1): 23-33.
- Oakleaf, B. 2002. Personal communication (email) regarding monitoring possibilities for marten and other carnivores on the Bighorn. Lander, WY.
- Olson, R., and W. Hubert. 1994. Beaver: water resources and riparian habitat manager. University of Wyoming. Laramie, WY.
- Osterwald, D. B.
- Osterwald, F. W., D. B. Osterwald, J. S. Long, Jr., and W. H. Wilson. 1966. Mineral resources of Wyoming. *Geological Survey of Wyoming Bulletin* 50: 287 pp.
- Paige, C., and S. Ritter. 1999. Birds in a sagebrush sea: managing sagebrush habitats for bird communities. *Partners In Flight*, Western Working Group. Boise, ID.
- Parks, C. G., and E. Bull. 1997. American marten use of rust and dwarf mistletoe brooms in Northeastern Oregon. *Western Journal of Applied Forestry* 12(4): 131-133.
- Pavlick, L. E., and J. Looman. 1984. Taxonomy and nomenclature of rough fescues, *Festuca altaica*, *F. campestris* (*F. scabrella* var. major), and *F. hallii*, in Canada and the adjacent part of the United States. *Canadian Journal of Botany* 62: 1739-1749.
- Payne, N. F. 1984. Population dynamics of beaver in North America. *Acta Zoologica Fennica*: 172:263.
- Pearce, D. 2005. The self-sufficiency standard for Wyoming. Wider opportunities for women. Washington, D.C.
- Perala, D. A. 1995. Quaking aspen productivity recovers after repeated prescribed fire. USDA Forest Service, North Central Forest Experiment Station. St. Paul, MN: 11.
- Perault, D. R., and M. V. Lomolino. 2000. Corridors and mammal community structure across a fragmented, old-growth forest landscape. *Ecological Monographs* 70(3): 401-422.
- Perkins, M. J., and L. D. Lentsch. 1998. Conservation agreement and strategy for spotted frog in the State of Utah. Utah Division of Wildlife Resources Publication. Salt Lake City, UT.
- Perrier, G. K. 1996. Viewpoint: The animal unit as an ecological concept. *Rangelands* 18(1).
- Perryman, B. L., and W.A. Laycock. 2000. Fire history of the Rochelle Hills, Thunder Basin National Grasslands. *Journal of Range Management* 53: 660-665.
- Pierson, E. D. 1999. Species conservation assessment and strategy for Townsend's big-eared bat. Idaho Conservation Effort, Idaho Department of Fish and Game. Boise, Idaho.
- Pilliod, D. S., and C. R. Peterson. 2001. Local and landscape effects of introduced trout on amphibians in historically fishless watersheds. *Ecosystems* 4(4): 322-333.

- Plants for a Future. 2003. *Hierochloe odorata* [report on the Internet].  
[http://www.ibiblio.org/pfaf/cgi-bin/arr\\_html?Hierochloe+odorata](http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Hierochloe+odorata).
- Poiani, K., and B. Richter. 1999. Functional landscapes and the conservation of biodiversity. The Nature Conservancy. Arlington, VA.
- Powell, J., R. E. Compton, A. M. Foster, R. E. Jackson, R. R. Murry, F. A. Negri, G. C. Roberts, C. C. Smith, T. Tescher, and R. C. Walters. 2001. Why livestock should graze public lands. University of Wyoming. Laramie, WY.
- Power, T. M. 2002. Protected landscapes and economic prosperity: a 21st century economic vision for North Dakota. On file at the Bighorn National Forest Supervisor's Office.
- Friday, J., and B. Luce. 1996. Inventory of bats and bat habitat associated with caves and mines in Wyoming - Completion Report. Endangered and nongame bird and mammal investigations Annual Completion Report. Wyoming Game and Fish Department. Lander, WY.
- Friday, J., T. Laurion, and B. Oakleaf. 1998. Water vole survey on the Shoshone National Forest Completion Report. *In*: Threatened, Endangered, and Nongame Bird and Mammal Investigations. Wyoming Game and Fish Department. Cheyenne, WY: 156-160.
- Friday, J., and B. Luce. 1999. Inventory of bats and bat habitat in Wyoming - Completion report. *In* Threatened, endangered, and nongame bird and mammal investigations annual completion report. Wyoming Game and Fish Department. Lander, WY.
- Random Lengths. 2005. Big book 2005: The buyers and sellers directory of the forest products industry, Eugene, OR.
- Random Lengths. 2005. Random Lengths top producers survey, released Oct 22, 2004. [www.randomlengths.com](http://www.randomlengths.com). Eugene, OR.
- Raphael, M. G. 1989. Habitat associations of small mammals in a subalpine forest, southeastern Wyoming. USDA Forest Service. Ft. Collins, CO: 359-367.
- Raphael, M., and P. Bisson. 2003. Arise, amphibians: stream buffers affect more than fish. (53): 6.
- Reaser, J. K. 2000. Demographic analysis of the Columbia spotted frog (*Rana luteiventris*): Case study in spatio-temporal variation. Canadian Journal of Zoology 78: 1158-1167.
- Regan, C. 2003. Draft terrestrial ecosystem assessment for the Bighorn National Forest. USDA Forest Service. Lakewood, CO.
- Rey, M. 2002. Federally owned rangelands: are there grounds for common ground? *In*: 67th North American Wildlife and Natural Resources Conference. Dallas, TX.
- Rey, E. No Date. A case for moonlight forays - Moonworts in North America. Boise National Forest.
- Reynolds, R. 1992. Management recommendations for the northern goshawk in the southwestern United States. USDA Forest Service. Ft. Collins, CO.
- Ribe, R. G. 1989. The aesthetics of forestry: what has empirical preference research taught us? Environmental Management 13(1): 55-74.

- Rideout, D. B., and H. Hessein. 2000. Wyoming timber market analysis: the new western timber economy. On file at the Bighorn National Forest. Sheridan, WY. Sheridan, WY.
- Rideout, D., and H. Hessein. 2003. The dynamic Wyoming timber economy. *Western Journal of Applied Forestry* 18(4): 233-237.
- Rimbey, N., R. Smathers, and C. W. Gray. 2000. Cow-calf - 500 cow summer on federal and state range, winter feeding necessary. University of Idaho, College of Agriculture, Cooperative Extension System, EBB-CC4-00.
- Robichaud, P. R. 1999. Fire effects on infiltration rates after prescribed fire in northern Rocky Mountain forests, USA. *Journal of Hydrology* 231-232(1-4.): 220-229.
- Roche', C. T. 1999. Squarrose Knapweed. Biology and management of noxious rangeland weeds. Oregon State University Press. Coravallis, Oregon: 362-371.
- Rocky Mountain Bird Observatory. 2003. Monitoring Wyoming's birds: 2002 final report and data. Brighton, CO.
- Romme, W. H., and D. H. Knight. 1981. Fire frequency and subalpine forest succession along a topographic gradient in Wyoming. *Ecology* 62(2): 319-326.
- Romme, W. H. 1982. Fires and landscape diversity in subalpine forests of Yellowstone National Park. *Ecological Monographs* 52:199-221.
- Romme, W. H. 1997. A rare episode of sexual reproduction in aspen (*Populus Tremuloides Michx.*) following the 1988 Yellowstone fires. *Natural Areas Journal* 17((1)): 17-25.
- Romme, W. H. 2002. Range of natural variability in subalpine landscape structure on the Bighorn National Forest, Wyoming: A hypothesis. Colorado State University. Fort Collins, CO.
- Romme, W. H. No date. Fire frequency in subalpine forests of Yellowstone National Park: 27-30.
- Root, T. 2001. Personal communication with Jon Warder regarding status and management of wolves and grizzly bear on the Bighorn National Forest. Cody, WY.
- Rotenberry, J. T. 1999. Brewer's sparrow. *In: The Birds of North America*, No. 390. The Birds of North America, Inc. Philadelphia, PA.
- Rothermel, R. C. 1983. How to predict the spread and intensity of forest and range fires, Boise, ID.
- Rowland, M. M. 2000. Elk distribution and modeling in relation to roads. *Journal of Wildlife Management* 64(3): 672-684.
- Ruediger, B. 2000. Canada lynx conservation assessment and strategy. #R1-00-53. <http://www.fs.fed.us/r1/planning/lynx/reports/lcas.pdf>. USDA Forest Service. Missoula, MT: 142.
- Ruggiero, L. F. 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine. USDA Forest Service. Fort Collins, CO.
- Ruggiero, L., D. Pearson, and S. Henry. 1998. Characteristics of American marten den sites in Wyoming. *Journal of Wildlife Management* 62(2): 663-673.

- Ruggiero, L. F. 1999. Ecology and conservation of lynx in the United States. RMRS-GTR-30. [http://www.fs.fed.us/rm/pubs/rmrs\\_gtr30.html](http://www.fs.fed.us/rm/pubs/rmrs_gtr30.html). USDA Forest Service. Fort Collins, CO.
- Rumble, M. A., B. L. Dykstra, and L. D. Flake. 2000. Species-area relations of song birds in the Black Hills, South Dakota. *Intermountain Journal of Sciences* 6(1.): 33-48.
- Rutherford, W. H. 1964. The beaver in Colorado: its biology, ecology, management, and economics. Game Research Division, Colorado Department of Game and Fish. Denver, CO.
- R-Y Timber Inc. 2005. <http://www.rytimber.com>.
- Sawyer, H. H. 1997. Evaluation of a summer elk model and sexual segregation of elk in the Bighorn Mountains, Wyoming. Master's thesis. University of Wyoming. Laramie, WY.
- Scarnecchia, D. L., and E. P. Bergersen. 1987. Trout production and standing crop in Colorado's small streams, as related to environmental features. *North American Journal of Fisheries Management* 7: 315-330.
- Schmidt, E. W. 2004. Comment letter to USDA Forest Service on Bighorn DEIS. On file at the Bighorn National Forest. Sheridan, WY.
- Schmidt, E. W. 2004. Testimony before the Senate Committee on Small Business and Entrepreneurship. Cody, WY. On file at the Bighorn National Forest. Sheridan, WY.
- Schoettle, A. W., and S. G. Rochelle. 2000. Morphological variation of *Pinus Flexilis* (*Pinaceae*), a bird-dispersed pine, across a range of elevations. *American Journal of Botany* 87(12): 1797-1806.
- Schommer, T., and M. Woolever. 2001. A process for finding management solutions to the incompatibility between domestic and bighorn sheep. USDA Forest Service Rocky Mountain Region. Lakewood, CO.
- Schwarz, C. F., E. C. Thor, and G. H. Elsner. 1976. Wildland planning glossary. USDA Forest Service, Pacific Southwest Forest and Range Experiment Station. Albany, CA.
- Scott, J. H., and E. D. Reinhardt. 2001. Assessing crown fire potential by linking models of surface and crown fire behavior. USDA Forest Service.
- Seevers, J., and F. Lang. 1998. Management recommendations for mountain lady's-slipper (*Cypripedium montanum Douglas ex Lindley*). 2.0.
- Sessions, J., K. N. Johnson, J. F. Franklin, and J. T. Gabriel. 1999. Achieving sustainable forest structures on fire-prone landscapes while pursuing multiple goals. *In: Spatial modeling of forest landscape change: Approaches and applications*: 210-255.
- Shafer, C. L. 1995. Values and shortcomings of small reserves. *BioScience* 45(2): 80-88.
- Shaw, J. D. 2001. Silvicultural systems for maintenance of structure in a forest landscape. Ph.D Dissertation. Utah State University. Logan, UT.
- Sheley, R., and J. Stivers. 1999. Whitetop. *In: Biology and management of noxious rangeland weeds*, Corvallis, Oregon: 401-407.
- Shepperd, W. D. 1986. Silviculture of aspen forests. USDA Forest Service



- Shepperd, W. D. 1990. Initial growth, development, and clonal dynamics of regenerated aspen in the Rocky Mountains. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO: 8.
- Shepperd, W. D. 1996. Response of aspen root suckers to regeneration methods and post-harvest. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO: 8.
- Shepperd, W. D., D. L. Bartos, and S. A. Mata. 2000. Above- and below-ground effects of aspen clonal regeneration and succession to conifers. *Canadian Journal of Forest Research* 34(5): 739-745.
- Shields, D. J., I. M. Martin, W. E. Martin, and M. A. Haefele. 2002. Survey results of the American public's values, objectives, beliefs, and attitudes regarding forests and grasslands: A technical document supporting the 2000 USDA Forest Service RPA Assessment. RMRS-GTR-95. USDA Forest Service, Rocky Mountain Research Station. Fort Collins, CO: 111.
- Shiozawa, D. K., and R. P. Evans. 2000. The genetic status of cutthroat trout from Pumpkin/Mann Creek and Lodge Grass Creek in the Little Bighorn River basin, of the Bighorn National Forest, Wyoming: Final report. Department of Zoology, Brigham Young University. Provo, Utah: 12.
- Shiozawa, D. K., and R. P. Evans. 2001. The genetic status of cutthroat trout from North Beaver Creek and Trout Creek in the Bighorn National Forest, Wyoming: Final report. Department of Zoology, Brigham Young University. Provo, Utah: 5.
- Shullery, P., and J. D. Varley. 1994. Fires and fish, the fate of Yellowstone waters since 1988. *Trout* 35(2): 16-23.
- Smith, D. M. 1986. *The Practice of Silviculture*. John Wiley & Sons, Inc.
- Smith, F. W. 1987. Elk hiding and thermal cover guidelines in the context of lodgepole pine stand density. *Western Journal of Applied Forestry* 2(1): 6-10.
- Smith, T. S., J. T. Flinders, and D. S. Winn. 1991. A habitat evaluation procedure for Rocky Mountain bighorn sheep in the intermountain west. *Great Basin Naturalist* 51: 205-225.
- Smith, R. S., and M. L. Neighbours. 1999. Bighorn National Forest: Known occurrences of animals and plants - threatened, endangered, forest sensitive and otherwise of concern and occurrences of communities. Wyoming Natural Diversity Database.
- Smith-Thomas, H. 1994. History of public lands grazing. *Rangelands* 16(6): 250-255.
- Soltis, D. E. 1991. A revision of *Sullivantia* (*Saxifragaceae*). *Brittonia* 43(1): 27-53.
- Sonoran Institute. 2005. Population, employment, poverty and demographics from the 2000 U.S. Census: Buffalo city, Wyoming. Bozeman, MT.
- Sonoran Institute. 2005. Population, employment, poverty and demographics from the 2000 U.S. Census: Lovell town, Wyoming. Bozeman, MT.
- Sonoran Institute. 2005. Population, employment, poverty and demographics from the 2000 U.S. Census: Greybull town, Wyoming. Bozeman, MT.

- Sonoran Institute. 2005. Population, employment, poverty and demographics from the 2000 U.S. Census: Sheridan city, Wyoming. Bozeman, MT.
- Sonoran Institute. 2005. Population, employment, poverty and demographics from the 2000 U.S. Census: Worland city, Wyoming. Bozeman, MT.
- Spahr, R., L. Armstrong, D. Atwood, and M. Rath. 1991. Threatened, endangered, and sensitive species of the Intermountain Region. USDA Forest Service. Ogden, UT.
- Spelter, H., and T. McKeever. 2001. Profile 2001: Softwood sawmills in the United States and Canada. Research Paper FPL-RP-594. USDA Forest Service, Forest Products Laboratory. Madison, WI.
- Spencer, D. R. 2004. Comment letter to USDA Forest Service on Bighorn DEIS. Sheridan, WY.
- Spies, T. 1997. Creating a forest for the 21<sup>st</sup> century: The science of ecosystem management. Island Press, Washington, D.C.
- Spribille, T. 1998. Personal telephone conversation.
- Spurr, S. H., and B. V. Barnes. 1980. Forest Ecology. John Wiley & Sons, Inc.
- Squires, J., and L. F. Ruggiero. 1996. Nest-site preference of northern goshawks in south-central Wyoming. *Journal of Wildlife Management* 60(1): 170-177.
- Squires, J., and L. F. Ruggiero. 2000. Food habits of northern goshawks nesting in south-central Wyoming. *Wilson Bulletin* 112(4): 536-539.
- Starch, K. E. 1981. The Minerals Industry of Wyoming: U.S. Bureau of Mines Minerals Yearbook: 12 p.
- Stark, M. 2002. Park County upset at timber sale decision. *Billings Gazette*. Billings, MT.
- State of Wyoming. 2002. Social assessment of the four-county area. On file at the Bighorn National Forest. Sheridan, WY.
- State of Wyoming Housing Database Partnership. 2005. County population data for Big Horn, Johnson, Sheridan and Washakie Counties. On file at the Bighorn National Forest. Sheridan, WY.
- Stebbins, R. 1985. Peterson Field Guides.
- Steeger, C., and C. L. Hitchcock. 1998. Influence of forest structure and diseases on nest site selection by red-breasted nuthatches. *Journal of Wildlife Management* 62(4): 1349-1358.
- Stewart, B. 1995. Tongue River basin (excluding Goose Creek drainage) management plan. Wyoming Game and Fish Department, Sheridan Regional Office. Sheridan, WY: 14.
- Stichert, N. D. 2000. Distribution and abundance of salmonids in the Little Bighorn River drainage, Wyoming. Department of Renewable Resources, University of Wyoming. Laramie, WY: 96.
- Stichert, N. D. 2001. Factors influencing distributions of salmonids in the Little Bighorn River drainage, Wyoming. *Intermountain Journal of Sciences* 7: 22-33.
- Strong, J. 1994. ASQ environmental effects, Chapter 4. On file at the Bighorn National Forest. Sheridan, WY.

- Strong, J. 1997. ClearCreek and Crazy Woman Creek landscape analysis. Recreation section. On file at the Bighorn National Forest. Sheridan, WY. Sheridan, WY.
- Stynes, D. J., and E. M. White. 2005. Spending profiles of National Forest visitors, NVUM four year report. Prepared under joint venture agreement between USDA Forest Service and Michigan State University. Washington, D.C. and East Lansing, MI.
- Sullivan, T. P., D. S. Sullivan, and M. F. Lindoren. 2001. Stand structure and small mammals in young lodgepole pine forest: 10-Year Results After Thinning. *Ecological Applications*. 11(4): 1151-1173.
- Swain, R. 2003. Briefing on geocaching. USDA Forest Service - Region Two.
- Swanson, F. J., and J. F. Franklin. 1992. New forestry principles from ecosystem analysis of Pacific Northwest forests. *Ecological Applications* 2(3): 262-274.
- Swanston, D. N. 1991. Natural processes. *In* Influences of forest and rangeland management. American Fisheries Society, Special Publication 19. W.R. Meehan, editor. Bethesda, Maryland.
- Tardiff, S. E. and J. A. Standford. 1998. Grizzly bear digging: effects on subalpine meadow plants in relation to mineral nitrogen availability. *Ecology* 79(7): 2219-2228.
- Taylor, D. T., R. R. Fletcher, and T. Clabaugh. 1990. Tourism in the Bighorns: A profile of visitors, attractions, and economic impact. Final report to the Bighorn Mountains Coalition. Bighorn National Forest. Sheridan, WY.
- Taylor, D. T., R. R. Fletcher, and G. J. Skidgel. 1995. 1993-95 Wyoming snowmobile assessment. Final report to the Wyoming Department of Commerce, Division of State Parks and Historical Sites. Department of Agricultural Economics, College of Agriculture, University of Wyoming. Laramie, WY.
- Taylor, D. T. 2001. Personal communication regarding confidential survey of sawmill operations in the Medicine Bow Area. Department of Agricultural and Applied Economics, University of Wyoming. Laramie, WY.
- Taylor, D. 2004. Socio-economic profile of Sheridan County. Prepared for Bighorn Mountain County Coalition. Department of Agricultural and Applied Economics, University of Wyoming. Laramie, WY.
- Taylor, D. 2004. Socio-economic profile of Big Horn County. Prepared for Bighorn Mountain County Coalition. Department of Agricultural and Applied Economics, University of Wyoming. Laramie, WY.
- Taylor, D. 2005. Socio-economic profile of Johnson County. Prepared for Bighorn Mountain County Coalition. Department of Agricultural and Applied Economics, University of Wyoming. Laramie, WY.
- Taylor, D. 2005. Socio-economic profile of Washakie County. Prepared for Bighorn Mountain County Coalition. Department of Agricultural and Applied Economics, University of Wyoming. Laramie, WY.
- Tenny, D. 2001. Discretionary review of the Chief's appeal decisions for the Arapaho-Roosevelt, Rio Grande, and Routt National Forests' Land and Resource Management Plan revisions. USDA Forest Service. Washington, D.C.

- Terrestrial Ecosystems Task Force Resources Inventory Committee. 1998. Inventory methods for bats: standards for components of British Columbia's biodiversity No. 20. Ministry of Environment, Lands, and Parks Resources Inventory Branch for the Terrestrial Ecosystems Task Force Resources Inventory Committee. <http://www.for.gov.bc.ca/ric>.
- Tewksbury, J. J., S. J. Hejl, and T. E. Martin. 1998. Breeding productivity does not decline with increasing fragmentation in a western landscape. *Ecology* 79(8.): 2890-2903.
- The Interagency National Survey Consortium. 2000. 1999-2000 National Survey on recreation and the environment. USDA Forest Service and the University of Tennessee. Knoxville, Tennessee.
- The Nature Conservancy. 1998. Ecoregional planning in the Northern Great Plains steppe. Helena, MT: 111.
- Theodore Roosevelt Conservation Alliance. 2000. The economic impacts of fishing, hunting, and wildlife viewing on national forest lands. On file at the Bighorn National Forest. Sheridan, WY.
- Thomas, J. W., R. J. Miller, C. Maser, R. G. Anderson, and B. E. Carter. 1979. Wildlife habitats in managed forests: the Blue Mountains of Oregon and Washington. USDA Forest Service. Washington, D.C.
- Thomas, J. W., and D.E. Toweill. 1982. Elk of North America - Ecology and management. Wildlife Management Institute. Stackpole Books. Harrisburg, PA.
- Thomas, J. W., and C. Maser. 1986. Wildlife habitats in managed rangelands: the Great Basin of southeastern Oregon. General Technical Report PNW-160. USDA Forest Service.
- Thompson, M. J., and R. E. Henderson. 1998. Elk habituation as a credibility challenge for wildlife professionals. *Wildlife Society Bulletin* 26(3): 477-483.
- Thurow, R. F., and J. G. King. 1988. Attributes of Yellowstone cutthroat trout redds in a tributary of the Snake River, Idaho. *Transactions of the American Fisheries Society* 123: 37-50.
- Tillman, D., P. Reich, H. Phillips, M. Menton, A. Patel, E. Vos, D. Peterson, and J. Knops. 2000. Fire suppression and ecosystem carbon storage. *Ecology Society of America*.
- Tinker, D. B., C. A. C. Resor, G. Beauvais, K. F. Kipfmüller, C. Fernandes, and W. L. Baker. 1998. Watershed analysis of forest fragmentation by clearcuts and roads in a Wyoming forest. *Landscape Ecology* 13: 149-165.
- Tinker, D. B., C. A. C. Resor, G. Beauvais, K. F. Kipfmüller, C. Fernandes, and W. L. Baker. 1999. Coarse woody debris in Wyoming lodgepole pine forests. Ph.D. dissertation. University of Wyoming. Laramie, Wyoming.
- Tinker, D. B., and W. L. Baker. 2000. Forest fragmentation in the southern Rocky Mountains: using the LANDLOG model to analyze the fragmentation of a Wyoming forest by a century of clearcutting. University Press of Colorado, Boulder, Colorado.
- Tinker, D. B., and D. H. Knight. 2000. Coarse woody debris following fire and logging in Wyoming lodgepole pine forests. *Ecosystems*. 3: 472-483.
- Tinker, D. B., and D. H. Knight. 2001. Temporal and spatial dynamics of coarse woody debris in harvested and unharvested lodgepole pine forests. *Ecological Modeling* 141: 125-149.

- Todd, L. D. 1969. Preference and utilization trends by cattle on grass-forb vegetation in the northern Big Horn Mountains, Wyoming. Agricultural Experiment Station. University of Wyoming. Laramie, WY: 73 p.
- Toweill, D. E., and J. W. Thomas. 2002. North American elk: ecology and management. Smithsonian Institution Press. Washington, DC.
- Town, F. E. 1899. Survey of the Bighorn Forest Reserve. *In* 19th Annual Report of the USGS to the Secretary of the Interior. On file at the Bighorn National Forest. Sheridan, WY: 165-190.
- Troendle, C. A. 1982. The effects of small clearcuts on water yield from the Deadhorse watershed; Fraser, Colorado. Western Snow Conference, April 20-22, 1982. Reno, Nevada.
- Troendle, C. A. and H. L. Gary. 1982. Snow accumulation and melt under various stand densities in lodgepole pine in Wyoming and Colorado. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, Colorado: 1-7.
- Troendle, C. A. 1983. The Deadhorse experiment: A field verification of the subalpine water balance model. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, Colorado: 1-7.
- Troendle, C. A. and J. R. Meiman. 1984. Options for harvesting timber to control snowpack accumulation. *Water Resource Res.* 2112: 86-97.
- Troendle, C. A. and R. M. King. 1985. The effect of timber harvest on the Fool Creek watershed, 30 years later. *Water Resource Res.* 2112: 1915-1922.
- Troendle, C. A. 1986. The potential effect of partial cutting and thinning on streamflow from subalpine forest. Research Paper RM-274. USDA Forest Service. Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO: 7.
- Troendle, C. A. and R. M. King. 1986. The effect of partial and clearcutting on streamflow at Deadhorse Creek, Colorado. *Journal of Hydrology* 90: 145-147.
- Troendle, C. A. 1987. Effect of clearcutting on streamflow generating processes from a subalpine forest slope. Symposium: Forest Hydrology and Watershed Management. Vancouver, B.C.
- Troendle, C. A. and L. S. Porth. 2000. Predicting the 1.5-, 10-, and 25 year event from the snow zones of Colorado and Wyoming. *In* Proceedings of the Snow Conference. Port Angeles, Washington.
- Turner, M. G., W. H. Romme, R. H. Gardner, and W. H. Hargrove. 1997. Effects of fire size and pattern on early succession in Yellowstone National Park. *Ecological Monographs.* 67(4): 411-413.
- Turner, M., W. H. Romme, and R. H. Gardner. 1999. Pre-fire heterogeneity, fire severity, and early post-fire plant reestablishment in subalpine forests of Yellowstone National Park, Wyoming. *International Journal of Wildland Fire* 9(1): 21-36.
- Turner, D. L., and W. P. L. Clary, W.C. 2001. Sequential sampling protocol for monitoring pasture utilization using stubble height criteria. *Journal of Range Management* 54(2): 132-137.

- Turner, M. G., W. H. Romme, and D. B. and Tinker. 2003. Surprises and lessons from the 1988 Yellowstone Fires. *Front. Ecol. Environ.* 1(7): 351-358.
- Tuttle, M., and D. A. Taylor. 1994. Bats and mines. Resource Publication No. 3. Bat Conservation International, Inc. Austin, Texas.
- Tuttle, M. D., and D. L. Hensley. 2001. The bat house builder's handbook. Bat Conservation International, Inc, Austin, Texas.
- U.S. Census Bureau. 2002. Population Division, Population Projections Branch. <http://www.census.gov/population/www/projections/natproj.html>.
- U.S. Department of Commerce Bureau of Economic Analysis. 2005. Tables CA30 for Wyoming and U.S. <http://www.bea.gov/bea/regional/reis/>. Washington, D.C.
- U.S. Department of Commerce. U.S. Census Bureau. 2000. <http://www.census.gov/>.
- U.S. Fish and Wildlife Service. 2002. 2001 National survey of fishing, hunting and wildlife-associated recreation. Publication FHW/01-NAT.
- U.S. Geological Survey. 2001. General reference map in the national atlas of the United States. . Reston, Virginia. ESRI Conference Edition.
- Uhl, P. J. 1980. An inventory and evaluation of the cave resources on the Bighorn National Forest. On file in the project record. Bighorn National Forest. Sheridan, WY: 244.
- University of Wyoming Rocky Mountain Herbarium. 2003. Atlas of the vascular plants of Wyoming [report on the Internet. <http://www.esb.utexas.edu/tchumley/wyomap/atlas.htm>].
- Urban, D. L. 1994. Landscape ecology and ecosystem management. *In*: Sustainable ecological systems: implementing an ecological approach to land management. W. W. Covington and D. F. DeBano, editors. USDA Forest Service. Fort Collins, CO.
- USDA Forest Service. 1914. Cumulative statistics: Annual wildlife report. Historical documents on file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1984. Circa old growth score card users guide. On file at the Bighorn National Forests. Sheridan, WY. .
- USDA Forest Service. 1985. Land and resource management plan for the Bighorn National Forest. On file at the Bighorn National Forest. Sheridan, WY. Bighorn National Forest.
- USDA Forest Service. 1986. Monitoring and evaluation report, FY 1985, Bighorn National Forest, Region 2. Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1987. Monitoring and evaluation report, FY 1986, Bighorn National Forest, Region 2. Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1988. Monitoring and evaluation report, FY 1987, Bighorn National Forest, Region 2. Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1989. Monitoring and evaluation report, FY 1988, Bighorn National Forest, Region 2. Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1989. Wild and scenic river study report and final environmental impact statement on the Little Bighorn River. On file at the Bighorn National Forest. Sheridan, WY.

- USDA Forest Service. 1989. Wild and scenic river study report and final environmental impact statement on the Little Bighorn River. Bighorn National Forest, Sheridan, WY.
- USDA Forest Service. 1989. Amendment number 9 to the Forest Plan. On file in the administrative record. Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1990. Monitoring and evaluation report, FY 1989, Bighorn National Forest, Region 2. Bighorn National Forest, Sheridan, WY.
- USDA Forest Service. 1990. Forest Service Manual 2300 - Recreation, Wilderness, and Related Resource Management. WO Amendment 2300-90-2.
- USDA Forest Service. 1991. Monitoring and evaluation report, FY 1990. Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1991. Environmental assessment, amendment to restocking standards, Bighorn National Forest, land and resource management plan, USDA Rocky Mountain Region, R-2. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1991. Forest and rangeland birds of the United States - Natural History and Habitat Use. USDA Forest Service Agriculture Handbook 688
- USDA Forest Service. 1991. Wildlife Task Force report on elk standards and guidelines. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1992. Monitoring and evaluation report, FY 1991. Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1993. Monitoring and evaluation report, FY 1992, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1994. Monitoring and evaluation report, FY 1993, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1994. Amended land and resource management plan, final supplemental environmental impact statement. Unpublished report. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1994. Flammulated, boreal, and great gray owls in the United States - A Technical Conservation Assessment. General Technical Report RM-253. USDA Forest Service, Rocky Mountain Research Station. Ft. Collins, CO.
- USDA Forest Service. 1995. Monitoring and evaluation report, FY 1994, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1995. Inland native fish strategy - Decision notice and finding of no significant impact. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1996. Monitoring and evaluation report, FY 1995, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1996. Watershed conservations practices handbook, Region 2. Forest Service Handbook 2509.25.
- USDA Forest Service. 1996. Rangeland analysis and management training guide. USDA Forest Service, Rocky Mountain Region. Denver, CO.

- USDA Forest Service. 1997. Monitoring and evaluation report, FY 1996, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1997. Clear Creek/Crazy Woman Creek and Powder River landscape assessments. Powder River Ranger District, Bighorn National Forest. Buffalo, WY.
- USDA Forest Service. 1997. Northwest forest plan - standards and guidelines. Attachment A to the Record of Decision. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1998. Monitoring and evaluation report, FY 1997, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1998. FSRAMIS allotment and vegetation management report. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1998. Rocky Mountain resource information system (RMRIS) data dictionary. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 1998. Bighorn National Forest noxious weed management environmental assessment. On file at the Powder River Ranger District, Bighorn National Forest. Buffalo, WY.
- USDA Forest Service. 1999. Monitoring and evaluation report, FY 1998, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 1999. Roads analysis: Informing decisions about Managing the National Forest transportation system. USDA Forest Service. Washington, D.C.: 222 p.
- USDA Forest Service. 1999. Sustaining the people's lands: recommendations for stewardship of the National Forests and Grasslands into the next century. Committee of Scientists; USDA. Washington, D.C.: 22.
- USDA Forest Service. 1999. Conservation strategy and agreement for northern goshawk in Utah. Dixie National Forest. Cedar City, UT.
- USDA Forest Service. 2000. Monitoring and evaluation report, FY 1999, Bighorn National Forest, Region 2. Sheridan, WY.
- USDA Forest Service. 2000. Roadless area conservation: final environmental impact statement. Washington, D.C.
- USDA Forest Service. 2000. Protecting people and sustaining resources in fire-adapted ecosystems - A cohesive strategy. GAO/RCED-99-65. The Forest Service Management Response to the General Accounting Office.
- USDA Forest Service. 2000. The recreation agenda. FS-691. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 2000. USDA Forest Service strategic plan (2000 Revision). FS-682. Washington, D.C.
- USDA Forest Service. 2001. Monitoring and evaluation report for the Bighorn National Forest FY 2000. Sheridan, WY.
- USDA Forest Service. 2001. National visitor use monitoring project. On file at the Bighorn National Forest. Sheridan, WY.



- USDA Forest Service. 2001. Watershed conservation practices handbook. Lakewood, CO.
- USDA Forest Service. 2001. USDA Forest Service guide to noxious weed prevention practices, Version 1.0. On file at the Bighorn National Forest. Buffalo, WY.
- USDA Forest Service. 2002. Fire effects information system, [Online]. Available:<http://www.fs.fed.us/database/feis/>.
- USDA Forest Service. 2002. Region 2 desk guide for forest planning. USDA Forest Service, Rocky Mountain Region. Lakewood, CO.
- USDA Forest Service. 2002. Region 2 emphasis species. On file at the Bighorn National Forest. Sheridan, WY: 30.
- USDA Forest Service. 2002. Pers. comm. Letter of October 07 from National Cave Coordinator, Jerry Trout to Harold Golden. T. R. D. Biologist. Sheridan, WY: Confirming significance of Eaton's, Tongue River, Cliff Dweller's, and Big Piney caves.
- USDA Forest Service. 2002. Letter of December 9 from Forest Supervisor to Mike Long of Cheyenne USFWS office, with enclosed report on the potential habitat and surveys conducted for Ute's ladies-tresses on the Bighorn National Forest.
- USDA Forest Service. 2003. Bighorn National Forest species conservation project aquatic, riparian, and wetland ecosystem assessment - Preliminary draft. On file at the Powder River Ranger District, Bighorn National Forest. Buffalo, WY.
- USDA Forest Service. 2003. Draft revised sensitive species of the Rocky Mountain region. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 2003. Region 2 sensitive species evaluation form, for all sensitive species,. USDA Forest Service.
- USDA Forest Service. 2003. Letter of September 8 from Forest Supervisor to Brian Kelly of Cheyenne USFWS office describing efforts to locate Ute's ladies-tresses on the Bighorn National Forest.
- USDA Forest Service. 2005. Canada lynx conservation agreement. Missoula, MT: 9 pages.
- USDA Forest Service. 2005. Bighorn National Forest trails strategy. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. 2005. Canada lynx conservation agreement: USFS and USFWS. Missoula, MT. 9 pp.
- USDA Forest Service, and Department of the Interior. 2005. Federal fire and aviation operations 2005 action plan. On file at the Bighorn National Forest. Sheridan, WY.
- USDA Forest Service. No date. Congressional grazing guidelines. WO AMENDMENT 2300-90-2, FSM 2323.2: 19-26.
- USDA Forest Service. No Date. Bighorn National Forest species conservation project terrestrial ecosystem assessment - Preliminary draft. On file at the Powder River Ranger District. Bighorn National Forest. Buffalo, WY.
- USDI. 2001. U.S. Geological Survey. General reference map in the national atlas of the United States. ESRI Conference. Reston, Virginia.

- USDI BLM. 2001. BLM Wyoming sensitive species policy and list. Cheyenne, WY: 14.
- USDI BLM. 2003. Final environmental impact statement and proposed plan amendment for the Powder River Basin oil and gas project report. Bureau of Land Management State Office. Cheyenne, WY.
- USDI BLM Worland Field Office. 2002. Review of potential wild and scenic rivers in the Washakie resource management plan planning area. On file at the Bighorn National Forest. Sheridan, WY.
- USDI Fish and Wildlife Service. 1999. Guidelines for raptor protection from human and land use disturbances. Utah field office. Salt Lake City, UT.
- USDI Fish and Wildlife Service. 2000. Pers. comm. Letter from Mike Long to Bighorn NF Forest Supervisor: Concurrence on Forestwide BA determination of NLAA for lynx. On file at the Bighorn National Forest. Sheridan, WY.
- USDI Fish and Wildlife Service. 2002. Pers. comm. Letter of November 27 providing input to draft plan revision documents (standards and guidelines and species emphasis categories). On file at the Bighorn National Forest. Cheyenne, WY.
- USDI Fish and Wildlife Service. 2003. Pers. comm. An updated list of TE species for the Bighorn NF: On file at the Bighorn National Forest. Sheridan, WY.
- USDI Fish and Wildlife Service. 2003. Science news advisory: Scientists confirm hybridization of Canada lynx with bobcats in Minnesota. News release available at <http://mountain-prairie.fws.gov/pressrel/06-03.htm>.
- USDI Fish and Wildlife Service. 2003. Letter from Brian Kelly to Forest Supervisor with concurrence on removal of the species from being considered on the Bighorn National Forest.
- USDI Fish and Wildlife Service. 2003. 2001 National survey of fishing, hunting, and wildlife-associated recreation - Wyoming. FHW/01-WY Rev.
- USGS Patuxent Wildlife Research Center. 2001. Breeding bird survey results - Trend analysis and route information. On file at the Bighorn National Forest. Sheridan, WY.
- Van Tassell, L. W., L. A. Torell, and N. R. Rimbey. 2001. Grazing on public lands in the 21st century. *Agricultural and Rural Sociology*, Univ. of Idaho, Moscow, ID.: p.12.
- Van Wagner, C. E. 1977. Conditions for the start and spread of crown fire. *Canadian Journal of Forest Research* 23.
- Vanderhorst, J. 1997. Conservation assessment of sensitive moonworts (*Ophioglossaceae: Botrychium Subgenus Botrychium*) on the Kootenai National Forest. Montana Natural Heritage Program, Helena, MT: 82 plus appendices.
- Veblen, T. T., R. Kitzberger, and J. Donnegan. 2000. Climatic and human influences on fire regimes in ponderosa pine forests in the Colorado Front Range. *Ecological Applications* 10(4): 1178-1195.
- Ward, J. 1993. Photo interpretation and mapping of riparian vegetation and potential geomorphic riparian areas. Unpublished report. On file at the Powder River Ranger District, Bighorn National Forest. Buffalo, WY.

- Washington Department of Ecology Water Quality Program. 2003. Aquatic plants and lakes. <http://www.ecy.wa.gov/programs/wq/links/plants.html>.
- Watson, J., E. Hamilton-Smith, D. Gillieson, and K. Kieman. 1997. Guidelines for cave and karst protection. International Union for Conservation of Nature and Natural Resources. Cambridge, UK.
- Weller, T. J., and C. Zabel. 2001. Characteristics of fringed myotis day roosts in Northern California. *Journal of Wildlife Management* 65(3): 489-497.
- Welp, L., W. F. Fertig, and G. P. Jones. 1998. Ecological evaluation of the potential Research Natural Areas (10) on the Bighorn National Forest. Laramie, WY.
- Welp, L., W.F. Fertig, G. P. Jones, G.P. Beauvais, and S.M. Ogle. 2000. Fine filter analysis of the Bighorn, Medicine Bow, and Shoshone National Forests in Wyoming. University of Wyoming. Laramie, WY.
- Wenger, S. 1999. A review of the scientific literature on riparian buffer width, extent and vegetation. Institute of Ecology, University of Georgia. Athens, Georgia.
- Western Bat Working Group. 1998. Regional priority species matrix. Unpublished report. On file at the Bighorn National Forest. Sheridan, WY.
- Western Economic Services LLC. 2005. Wyoming housing needs forecast: 2005. Prepared for the Wyoming Housing Database Partnership. Cheyenne, WY.
- Whipple, S. A., and R. L. Dix. No date. Age structure and successional dynamics of a Colorado subalpine forest. *The American Midland Naturalist* 101(1): 142-158.
- Whitson, T. D. 1999. Russian knapweed. *In: Biology and management of noxious rangeland weeds*, Corvallis, Ore. 315-322.
- Wier, S. 1998. The limber pine of the southern Rocky Mountains. *In: Native trees of the southern Rocky Mountains*. <http://iws.net/wier/>.
- Wiitala, M. R. 1999. PROBACRE. USDA Forest Service. Portland, OR.
- Wildlife Service. 2002. Birds of Conservation Concern. On file at the Bighorn National Forest. Sheridan, WY.
- Wildlife Task Force. 1991. Report of the Bighorn National Forest Wildlife Task Force: Elk hiding cover and habitat effectiveness standards. Bighorn National Forest. Sheridan, WY.
- Winters, D. 2003. Aquatic ecosystem assessment of the Bighorn landscape. USDA Forest Service. Lakewood, CO.
- Wyoming Department of Administration and Information, Economic Analysis Division. 2002. Equality State Almanac 2005, 11th edition. Cheyenne, WY.
- Wyoming Department of Administration and Information, Economic Analysis Division. 2003. Ten year outlook Wyoming economic forecast: 2003 to 2012. Cheyenne, WY.
- Wyoming Department of Administration and Information, Economic Analysis Division. 2005. Wyoming cost of living for the fourth quarter 2004. Cheyenne, WY.
- Wyoming Department of Administration and Information, Economic Analysis Division. 2005. <http://eadiv.state.wy.us/pop/cty03hu-est.htm>.

- Wyoming Department of Audit, Public Funds. 2001, 2002. Cost of maintaining county government in Wyoming, Fiscal Year July 1, 2000 - June 30, 2001 and Fiscal Year July 1, 2001 - June 30, 2002. Cheyenne, WY.
- Wyoming Department of Employment. 2003. Labor market information. <http://doe.state.wy.us/lmi/laus/toc.htm>.
- Wyoming Game and Fish Department. 1995. Memos regarding beaver cache surveys from Dan Thiele and Roger Wilson. On file at the Bighorn National Forest. Sheridan, WY: 5.
- Wyoming Game and Fish Department. 1998. Bighorn sheep herd unit review. Cheyenne, WY.
- Wyoming Game and Fish Department. 1999. Atlas of birds, mammals, reptiles, and amphibians in WY. Cheyenne, WY.
- Wyoming Game and Fish Department. 2000. Annual furbearer harvest report. Cheyenne, WY.
- Wyoming Game and Fish Department. 2001. Pers. comm. Letter of September 12, 2001 regarding input to emphasis species documents for plan revision. On file at the Bighorn National Forest. Sheridan, WY.
- Wyoming Game and Fish Department. 2001. Annual report of big game harvest. Cheyenne, WY.
- Wyoming Game and Fish Department. 2002. Annual report of big game harvest. Cheyenne, WY.
- Wyoming Game and Fish Department. 2002. Native species status matrix nongame bird and mammal species of special concern. Lander, WY: 6.
- Wyoming Game and Fish Department. 2002. Wildlife Observation database. Cheyenne, WY.
- Wyoming Game and Fish Department. 2002. Pers. comm. Letter of October 22 regarding comments to management area and forest-wide standards and guidelines. On file at the Bighorn National Forest. Sheridan, WY.
- Wyoming Game and Fish Department. 2003. Pers. comm. (emails) with S. Patla, S. Yekel, T. Easterly, A. Cerovski, and M. Grenier regarding species assessments and emphasis species plan revision documents. On file at the Bighorn National Forest. Sheridan, WY.
- Wyoming Game and Fish Department. 2003. Final Wyoming gray wolf management plan. Cheyenne, WY.
- Wyoming Statistical Office, and USDA National Agricultural Statistics Service. Various. Wyoming Agricultural Statistics. Wyoming Business Council, Cheyenne, WY and the University of Wyoming; Laramie, WY.
- Yeutter, C. 1990. Pers. comm. Letter with enclosures conveying draft legislation "to designate a segment of the Little Bighorn River in Wyoming as a component of the National Wild and Scenic River system and for other purposes" and a recommendation to Congress for enactment.,. On file at the Bighorn National Forest. Sheridan, WY.
- Yonder, B. J., M. G. Ryan, R. H. Waring, A. W. Schoettle, and M. R. Kaufmann. 1994. Evidence of reduced photosynthetic rates in old trees. *Forest Science* 40(3): 513-527.
- Young, M. K., D. Haire, and M. A. Bozek. 1994. The effects and extent of tie drives in streams of Southeast Wyoming. *Western Journal of Applied Forestry* 9(4): 125-130.

- Young, M. K. 1995. Conservation assessment for inland cutthroat trout. USDA, Forest Service, Rocky Mountain Forest and Range Experiment Station. Ft. Collins, Colorado.
- Zielinski, W., and T. Kucera. 1995. American marten, fisher, lynx, and wolverine: survey methods for their detection. USDA Forest Service.
- Zimmerman, G. T., and D. L. Bunnell. 1998. Wildland and prescribed fire management policy, implementation procedures reference guide.
- Zimmerman, G. T., and D. L. Bunnell. 2001. Review and update of the 1995 federal wildland fire management policy.

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