

**Curriculum Vitae**  
**Frederick W. Smith**

NAME: Frederick W. Smith  
TITLE: Professor of Forest Ecology and Silviculture  
ADDRESS: Department of Forest, Rangeland and Watershed Stewardship  
Colorado State University  
Fort Collins, CO 80523  
PHONE: (970) 491-7505  
EMAIL: fwsmith@colostate.edu  
DOB: August 17, 1949

**EDUCATION:**

Ph.D.	1981	University of Washington	Silviculture/Forest Ecology
M.S.	1977	University of Washington	Silviculture
B.S.	1975	University of Washington	Forest Management
B.A.	1971	SUC at Potsdam, New York	Liberal Arts

**EXPERIENCE:**

Assistant Department Head, Department of Forest, Rangeland and Watershed Stewardship, Colorado State University, 2007-present  
Adjunct Professor, Department of Wildland Resources, Utah State University  
Professor of Forest Ecology and Silviculture, Department of Forest, Rangeland and Watershed Stewardship, Colorado State University, 1991-present  
Associate Professor of Forest Ecology and Silviculture, Department of Forest and Wood Sciences, Colorado State University, 1986-1991  
Assistant Professor of Forest Ecology and Silviculture, Department of Forest and Wood Sciences, Colorado State University, 1981-1986

**RESEARCH INTERESTS:**

Fuels and vegetation management in western forests  
Development of silvicultural systems for landscape level goals  
Forest stand dynamics in western conifer and aspen forests

## TEACHING:

F325	Silviculture
F421	Forest Stand Management
F525	Advanced Silviculture
NR326	Forest Vegetation Management

## OUTREACH / CONTINUING EDUCATION:

2002 – 2009	Administrator and Instructor for Continuing Education in Fuels Management (CEFM)
1995 - 2009	Administrator and Instructor for Continuing Education in Ecosystem Management (CEEM)
1995 - 2009	Administrator and Instructor for Intensive Silviculture Training

## CURRENT RESEARCH PROJECTS:

2006 – 2009	Estimating canopy fuels for Black Hills ponderosa pine forests. (Joint Fire Science)
2008 – 2011	Uneven-aged management of ponderosa pine forests (USDA Forest Service)
2008 - 2009	Establishing aspen and serviceberry on reclaimed mine sites (USDI Office of Surface Mines)
2008 – 2011	Silvicultural treatments to regenerate declining aspen clones (USDA Forest Service)
2009 – 2011	Long term post fire recovery of the Jasper Wildfire, Black Hills National Forest, SD. (USDA Forest Service)
2009 -2010	Documenting fuels treatments in ponderosa pine forests. (Joint Fire Science)

## PUBLICATIONS:

- Long, J. N., F. W. Smith and D. R. M. Scott. 1981. The role of stem sapwood and heartwood in the mechanical and physiological support of crowns and development of stem form. *Canadian Journal of Forest Research* 11:459-464.
- 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.
- Smith, F. W. and D. R. M. Scott. 1984. Derivation of a competitive index for individual trees from seasonal growth patterns. *Canadian Journal of Forest Research* 14:266-270.

- Aguirre-Bravo, C. and F. W. Smith. 1986. Site index and volume equations for *Pinus patula* in Mexico. *Commonwealth Forestry Review* 65:51-60.
- Long, J. N., F. W. Smith, R. L. Bassett, J. Olsen. 1986. Silviculture - the past 30 years - the next 30 years: Part VI. The Rocky Mountains. *Journal of Forestry* 84:43 -49.
- Smith, F. W. and J. N. Long. 1987. Implications of ungulate hiding and thermal cover guidelines on density management. *Western Journal of Applied Forestry* 2:6-10.
- Smith, F. W. and T. Schuler. 1987. Assessment of site quality in pinyon-juniper woodlands. in *Pinyon-Juniper Conference - Proceedings* (ed. R. Everett). Re no, Nevada, Jan. 13- 16, 1986. USDA Forest Service General Technical Report INT -215:260-265.
- Aplet, G. H., R. D. Laven, and F. W. Smith. 1988. Patterns of community dynamics in Colorado Engelmann spruce - subalpine fir forests. *Ecology* 69:312-319.
- Dean, T. J., J. N. Long, and F. W. Smith. 1988. Bias in leaf area - sapwood area ratios and its impact on growth analysis in *Pinus contorta*. *Trees: Structure and Function* 2:104-109.
- Long, J. N. and F. W. Smith. 1988. Leaf area - sapwood area relations of lodgepole pine as influenced by stand density and site index. *Canadian Journal of Forest Research* 18:247-250.
- Smith, F. W. 1988. Silviculture of subalpine conifers in the central Rocky Mountains. in *Proceedings: Management of Subalpine Forests of the Rocky Mountains* (ed. C. Troendel). Frazer, Colorado, July 6-9, 1987. USDA Forest Service Agriculture Handbook No. 659.
- Smith, F. W. and T. Schuler. 1988. Yields of southwestern pinyon-juniper woodlands. *Western Journal of Applied Forestry* 3:70-74.
- Schuler, T. M. and F. W. Smith. 1988. The effect of species mix on size-density and leaf area relations in southwest pinyon-juniper woodlands. *Forest Ecology and Management* 25:211-220.
- Aplet, G. H., F. W. Smith and R. D. Laven. 1989. Stemwood biomass and production during spruce-fir stand development. *Journal of Ecology* 77:70-77.
- Long, J. N. and F. W. Smith. 1989. Estimating leaf area of *Abies lasiocarpa* across ranges of stand density and site index. *Canadian Journal of Forest Research* 19:930-932.
- Long, J. N. and F. W. Smith. 1990. Canopy development and leaf area efficiency: links between production ecology and density management. *Proceedings IUFRO Conference New approaches to spacing and thinning in plantation forestry*. Rotorua, New Zealand. April 10-14, 1989, pp. 260-266.

- Long, J. N. and F. W. Smith. 1990. Determinants of stemwood production in *Pinus contorta* var. *latifolia* forests: the influence of site quality and stand structure. *Journal of Applied Ecology* 27:847-856.
- Smith, F. W. and J. N. Long. 1990. The influence of canopy architecture on stemwood production and growth efficiency of *Pinus contorta* var. *latifolia*. *Journal of Applied Ecology* 26:681-691.
- Smith, F. W. and J. N. Long. 1991. A comparison of stemwood production in monocultures and mixtures of *Pinus contorta* var. *latifolia* and *Abies lasiocarpa*. In: *Ecology of Mixed Species Stands of Trees* (Cannell, Malcolm and Robertson, eds.). Cambridge University Press. pp. 88-98.
- Smith, F. W., D. A. Sampson and J. N. Long. 1991. Comparison of leaf area index estimates from tree allometrics and measured light interception. *Forest Science*. 36:1682-1688.
- Long, J. N. and F. W. Smith. 1992. Volume increment in *Pinus contorta* var. *latifolia*: the influence of stand development and crown dynamics. *Forest Ecology and Management*. 53:53-64.
- Sampson, D. A. and F.W. Smith. 1993. Light interception in response to changes in stand structure in lodgepole pine forests. *Forest and Agricultural Meteorology*. 64:63-79.
- Roberts, S., J.N. Long and F.W. Smith. 1993. Effects of size distribution on efficiency of production in *Pinus contorta* and *Abies lasiocarpa* stands. *Forest Ecology and Management*. *Forest Ecology and Management* 60:143-156.
- Shepperd, W.D. and F.W. Smith. 1993. The role of near-surface lateral roots in the life cycle of aspen in the central Rocky Mountains. *Forest Ecology and Management* 61:157-170.
- Vose, J.M., P.M. Dougherty, J.N. Long, F.W. Smith, H.L. Gholz, and P.C. Curran. 1994. Factors influencing the amount and distribution of leaf area in pine stands. in: *The structure and productivity of pine forests: a synthesis.*, Gholz, McMurtrie and Linder (eds.) *Ecol. Bull.* Stockholm.
- Binkley, D, F.W. Smith and Y. Son. 1995. Nutrient supply and declines in leaf area and production in lodgepole pine. *Canadian Journal of Forest Research*.25:621-628.
- Ollson, U., D. Binkley and F.W. Smith. 1998. Nitrogen supply, nitrogen use and production in an age sequence of lodgepole pine. *Forest Science* 44:454-457.
- Smith, F.W. and S.C. Resh. 1999. Age related changes in below -ground production and carbon allocation in *Pinus contorta* forests. *Forest Science* 333-341.
- Long, J.N. and F.W. Smith. 2000. Restructuring the forest: goshawks and the restoration of southwestern ponderosa pine. *Journal of Forestry* 98:25 – 30.

- Smith, F.W. and J.N. Long. 2001. Age related decline in forest production – an emergent property. *Forest Ecology and Management* 144:175-181.
- Knight, R.L., F.W. Smith, S.W. Buskirk, W.H. Romme and W.L. Baker. 2001. *Forest fragmentation in the southern Rocky Mountains*. University of Colorado Press.
- Smith, A.E. and F.W. Smith. 2005. Twenty-year change in aspen dominance in pure aspen and mixed aspen/conifer stands on the Uncompahgre Plateau, Colorado, USA. *Forest Ecology and Management* 213:338-348.
- Keyser, T.L., Smith, F.W. & Shepperd, W.D. 2005. Trembling aspen response to a mixed-severity wildfire in the Black Hills, SD. *Canadian Journal of Forest Research*, 35: 2679-2684.
- Lentile, L.B., Smith, F.W. & Shepperd, W.D. 2005. Patch structure, fire scar formation, and tree regeneration in a mixed-severity fire in the South Dakota Black Hills, USA. *Canadian Journal of Forest Research*, 35: 2875-2885.
- Keyser, T.L., Smith, F.W., Lentile, L.B. & Shepperd, W.D. 2006. Modeling postfire mortality of ponderosa pine following a mixed-severity wildfire in the Black Hills: The role of tree morphology and direct fire effects. *Forest Science* 52:530-539.
- Lentile, L. B., F. W. Smith and W. D. Shepperd. 2006. Influence of topography and forest structure on patterns of mixed severity fire in ponderosa pine forests of the South Dakota Black Hills, USA. *International Journal of Wildland Fire* 15:557-566.
- Hunter, M.E.; Shepperd, W.D.; Lentile, J.E.; Lundquist, J.E.; Andreu, M.G.; Butler, J.L.; Smith, F.W. 2007. A comprehensive guide to fuels treatment practices for ponderosa pine in the Black Hills, Colorado Front Range, and Southwest. Gen. Tech. Rep. RMRS-GTR-198. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 93 p.
- Keyser, T.L., L.B. Lentile, F.W. Smith and W.D. Shepperd. 2008. Temporal changes in forest structure after a large, mixed-severity wildfire in ponderosa pine forests of the Black Hills, South Dakota. *Forest Science* 54:328-338.
- Battaglia, M, F.W. Smith and W.D. Shepperd. 2008. Can prescribed fire be used to maintain fuel treatment effectiveness over time in Black Hills ponderosa pine forests? *Forest Ecology and Management*. 256:2029-2038.
- Battaglia, M, F.W. Smith and W.D. Shepperd. 2009. Predicting mortality of ponderosa pine regeneration after prescribed fire in the Black Hills, South Dakota, USA. *International Journal of Wildland Fire*. 18:176–190
- Keyser, T.L., F.W. Smith and W.D. Shepperd. 2009. Short-term impact of postfire salvage logging on forest structure and hazardous fuel

accumulation in ponderosa pine forests of the Black Hills, SD, USA.  
*International Journal of Wildland Fire*. 18, 451–458

Keyser, T.L., Smith, F.W., and Shepperd, W.D. *in press*. Growth response of  
*Pinus ponderosa* following a mixed-severity wildfire in the Black Hills,  
South Dakota *Western Journal of Applied Forestry*.