

# Determinants of Public Trust in Natural Resource Management

**Bill Borrie**

Professor,  
Parks and Recreation Management  
College of Forestry and Conservation  
*University of Montana*

**Adam Liljeblad**

*National Forest Foundation*

**Alan Watson**

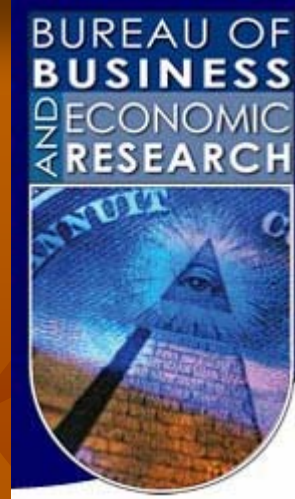
*Aldo Leopold Wilderness Research Institute*



Selway - Bitterroot Wilderness, Montana

(photo by George Wuerthner)

# *Research Funding and Cooperators – thanks!*



Joint Fire Science Program



## Joint Fire Science Program



*Research supporting sound Decisions*



## Bitterroot Ecosystem Management Research Project



## Rocky Mountain Research Station



# Trust is ...

- a key ingredient for good government, and democratic practices
- a “lubrication” for everyday social frictions
- an indicator of the quality of the relationship between the public and the agency
- A measure of managerial success
  - “effective public process”



Bob Marshall Wilderness, Montana

# Our purpose ...

- Identify & measure attributes of trust
  - a comprehensive examination in a natural resource management context
- Why a natural resource management agency is trusted?



Flathead Lake, Montana

# Trust

- “The **willingness** of a party to be **vulnerable** to the actions of another party based on the **expectation** that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”
  - Mayer, R.C., Davis, J.H. & Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20: 709-734



# 14 Attributes of trust

- Shared Norms & Values
- Willingness to Endorse
- Perceived Efficacy



Glacier National Park

# Shared Norms & Values

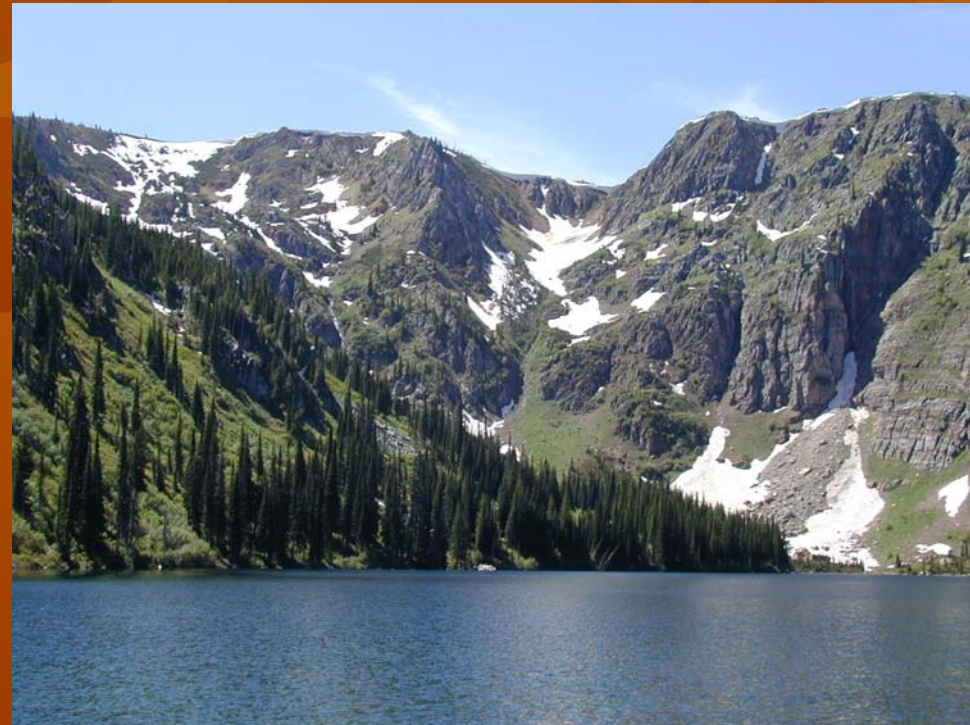
- “The expectation that arises within a community of regular, honest, and cooperative behavior, based on *commonly shared norms*”
  - Fukuyama, F. (1995)  
*Trust: The social virtues and the creation of prosperity*. New York: Free Press
- We understand upon what basis the other will act
- Thus, allows greater efficiency, less oversight, greater flexibility



Rocky Mountain Front

# Willingness to Endorse

- When you have confidence that you've been heard, and in expected outcomes
  - leads to a willingness to let others act on your behalf
- acknowledges voluntary nature of trust
- sense that trust will be reciprocated



Heart Lake, Montana

# Perceived Efficacy

- How well you know about how others will act
  - expectations
  - based on promises of future interaction or reciprocity
  - mutual obligations
- Thus, feeling that you can rely upon them to do certain things



Lee Metcalf National Wildlife Refuge

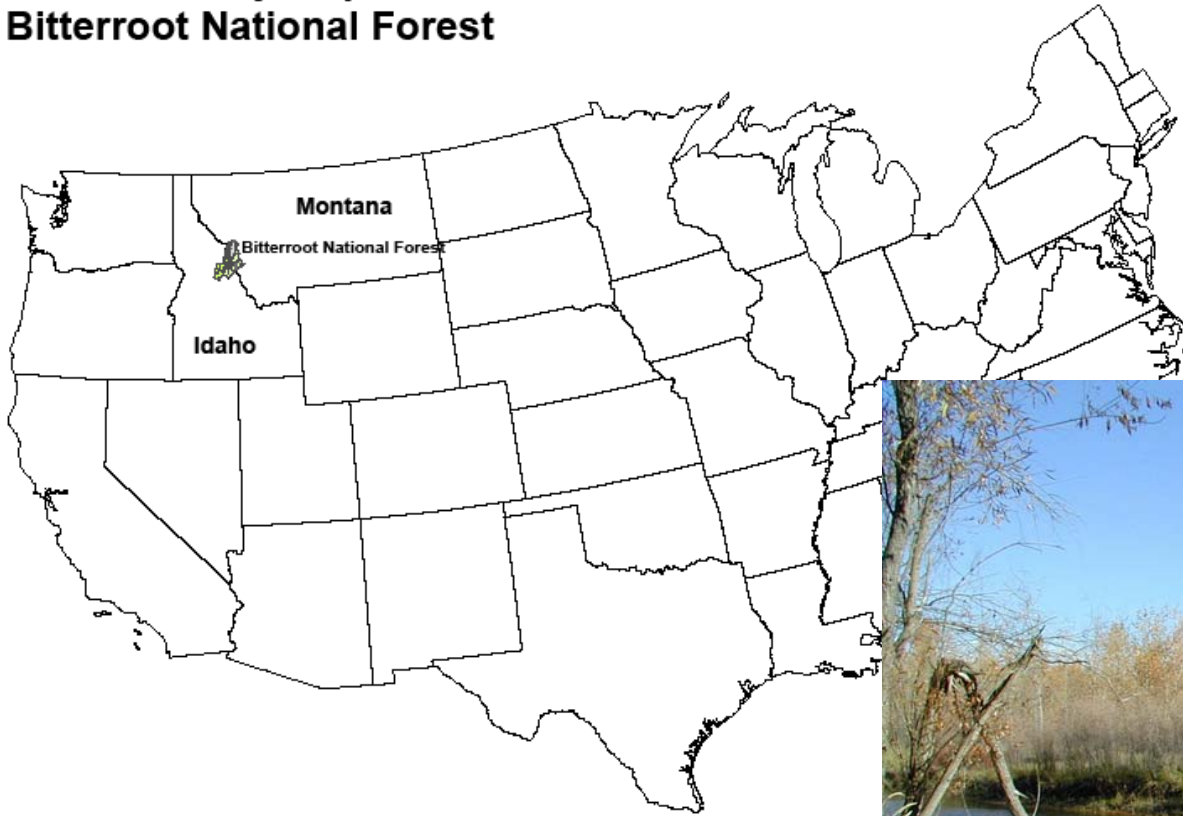
# Methods

- Examine causal structure of trust
- Structural Equation Modeling
  - combines multiple regression and exploratory factor analysis
- Context of U.S. fire & fuels management
  - very public
  - 45% of Forest Service budget in 2006
  - real impact on peoples' lives



# Ravalli County, Montana

Vicinity Map  
Bitterroot National Forest



- $\frac{3}{4}$  is public land
- recent wildfires
- Some residents have a lack of **trust** in the Forest Service's ability to make decisions that reflect **local meanings**



Bitterroot River

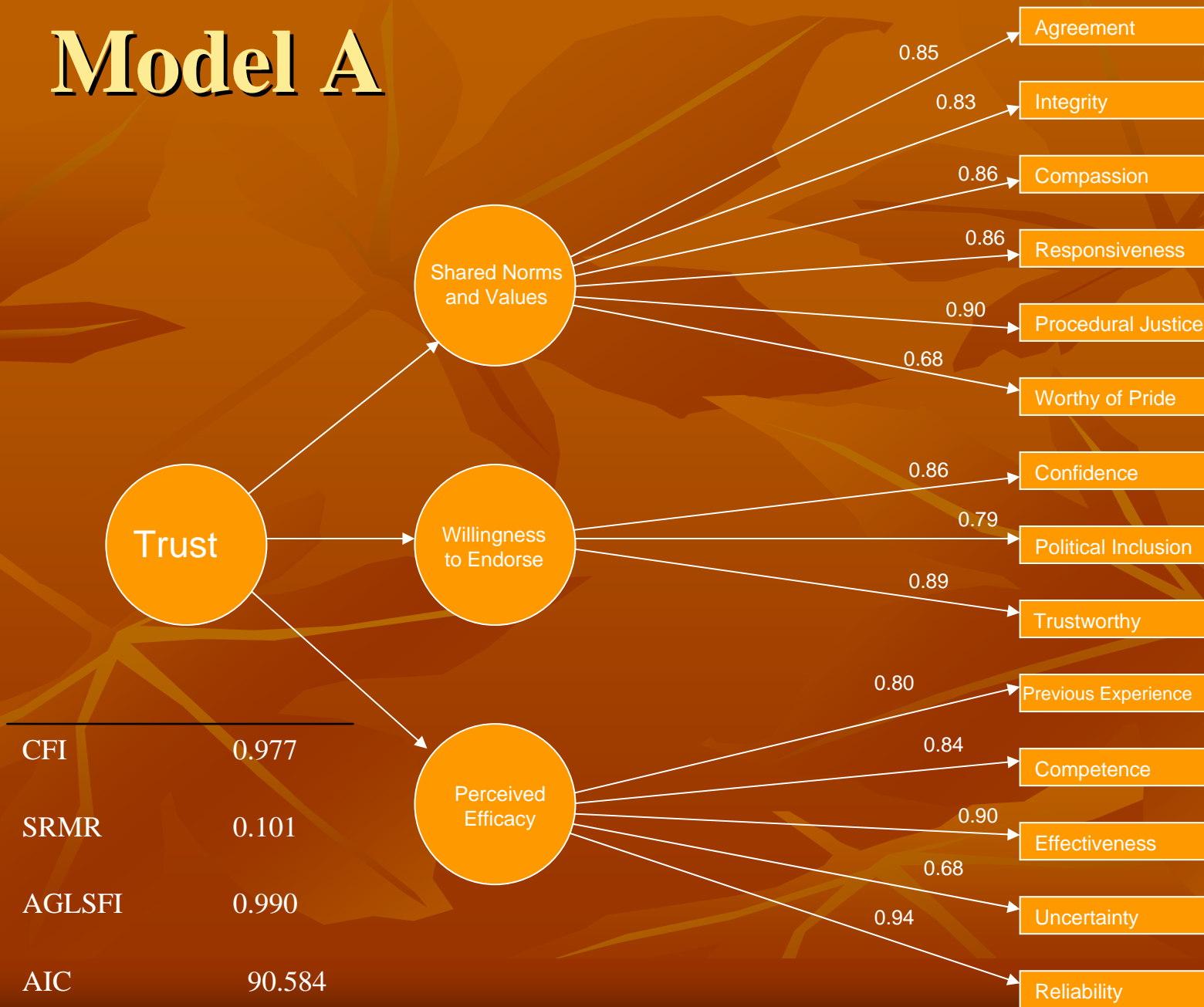
# Methods

- Telephone survey conducted by Bureau of Business & Economic Research, University of Montana
- May – June 2004
- Random digit dialing
- 68% response rate
- 1152 usable surveys

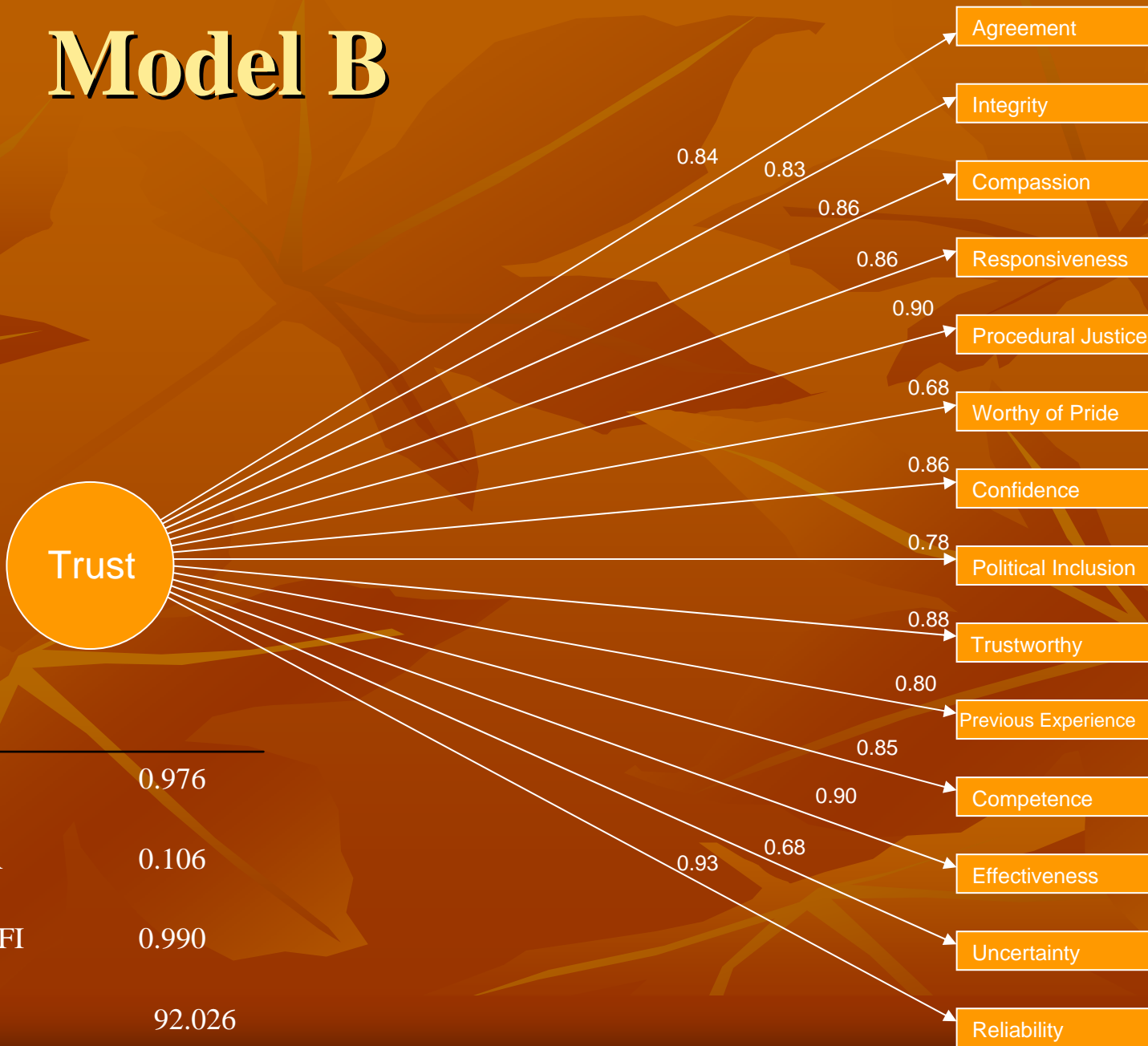


Bitterroot Valley

# Model A



# Model B



CFI 0.976

SRMR 0.106

AGLSFI 0.990

AIC 92.026

# Results

- Empirically, 1 dimension more elegant
- Empirically, 3 dimensions equally valid
- Conceptually, 3 dimensions useful

Fit indices for Trust Models

Fit index	Model A	Model B	Paired-Fit Guideline <sup>a</sup>
CFI	0.977	0.976	> 0.96
SRMR	0.101	0.106	< 0.10
AGLSFI	0.990	0.990	
AIC	90.584	92.026	

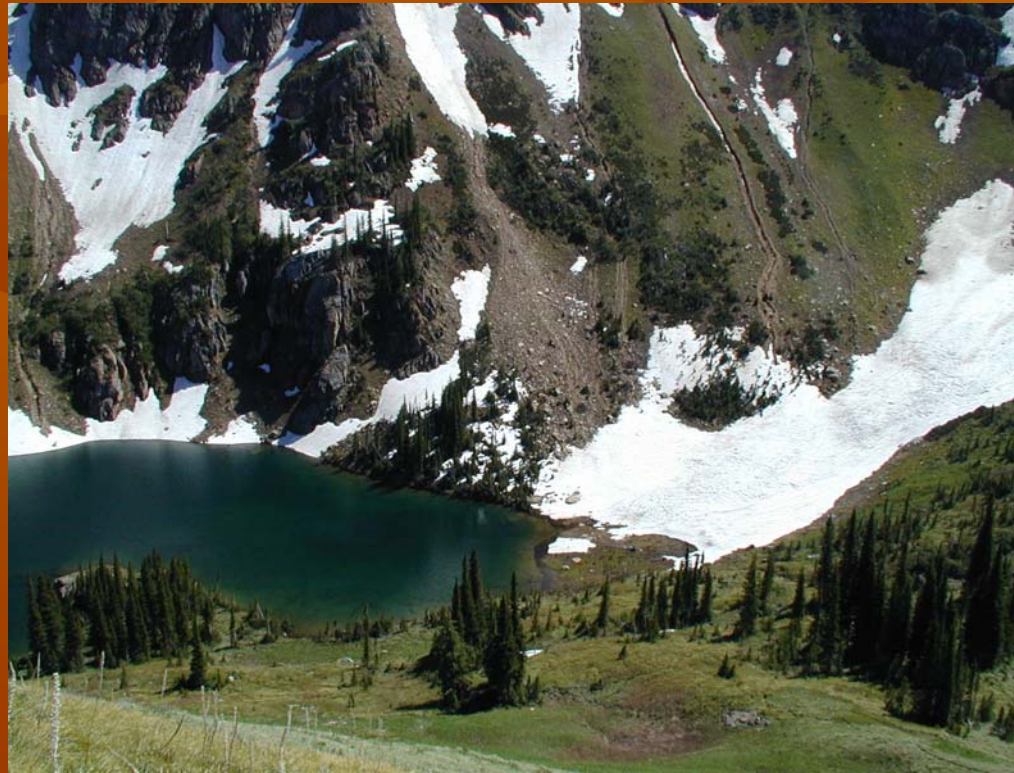
Note: CFI = Comparative Fit Index; SRMR = Standardized Root Mean-Square Residual;  
AGLSFI = Arbitrary Generalized Least Squares Fit Index; AIC=Akaike's Information Criterion



Glacier National Park

# Conclusions

- We can measure trust!
- Useful for baseline, benchmarking & monitoring
- A Scorecard for managers
  - what they are doing right
  - what they need to work on



Dalton Lake, Montana

# Publications:

- Liljeblad, A. and Borrie, W.T. (2006).  
“Trust in Wildland Fire and Fuel Management Decisions.”  
**International Journal of Wilderness**, 12(1), 39-43
- Liljeblad, A., Watson, A.E. & Borrie, W.T. (in press).  
“A look inside the dynamics of trust: A guide for managers.”  
**Proceedings of Eighth World Wilderness Congress**,  
Anchorage, Alaska Sept. 30-Oct. 6, 2005. Proc. RMRS-P-  
XX. (pp. xx-xx). Fort Collins, CO: USDA Forest Service.
- Liljeblad, A., Watson, A.E. and Borrie, W.T. (in prep.)  
“Determinants of public trust in Natural Resource  
Management: Fire and fuels management on the Bitterroot  
National Forest.” **Environmental Management**



bill.borrie@umontana.edu

Lubrecht Experimental Forest,  
University of Montana