

**Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)**  
**RM-CESU Cooperative Agreement Number: H1200040001 (IMR)**

## **PROJECT COVER SHEET**

---

TITLE OF PROJECT:

Identifying Multi-jurisdictional Adaptation Strategies for Responding to Climate Change on Federal Lands in the Great Plains

NAME OF PARK/NPS UNIT: Natural Resource Program Center

NAME OF UNIVERSITY PARTNER: Colorado State University

NPS KEY OFFICIAL: Melanie Wood, Natural Resources Program Center (NRPC), Suite 150  
1201 Oakridge Drive, Ft. Collins, CO 80525; [melanie\\_wood@nps.gov](mailto:melanie_wood@nps.gov); (970) 225-3513

PRINCIPAL INVESTIGATOR:

Dr. Jessica Thompson, Assistant Professor, Human Dimensions of Natural Resources, Warner College of Natural Resources, Colorado State University, 1480 Campus Delivery, Fort Collins, CO 80523;  
[jes@cnr.colostate.edu](mailto:jes@cnr.colostate.edu); (970) 491-2801

CSU Administrative Contact: Carmen Morales, 970-491-6684

COST OF PROJECT:

Direct Cost: \$ 25,532

Indirect Cost (CSU overhead @17.5%): \$4,468

Total Cost: \$ 30,000

NPS ACCOUNT NUMBER:

2301-2301 REZ

NAME OF FUND SOURCE:

Natural Resource Stewardship and Science, NRPP

PROJECT SCHEDULE, FINAL PRODUCTS, AND PAYMENTS:

[PROPOSED] Due Dates for Final Report/Other Products:

June 1, 2012	Manuscript outline and references
June 15, 2012	Talking points outline and references
August 1, 2012	DRAFT manuscript and talking points documents
August 31, 2012	FINAL manuscript and talking points documents

Project End Date: June 1, 2013

ATTACHMENTS

Attachments to this project completion report: 1) a revised Scope of Work that includes a detailed budget, list of products, and project schedule; 2) Literature review

## PROJECT SUMMARY

The focus of the project was to assess and present a literature review of current research on climate change communication. The process and results of this literature review are presented below. The final report is also attached to this project completion report.

Since 2002 more than 1,100 peer reviewed manuscripts have been published related to climate change communication. In this synopsis of an extensive review of the literature, we focus on key findings in each article related to public understanding of climate change in the United States.

Through our systematic search, categorization, and compilation of the most recent 133 empirical research articles, we organized our findings in two major sections – the factors influencing public understanding of climate change – and – opportunities for advancing effective climate change communication. We reviewed research that explores factors influencing people's views about this issue, and the extent of the public's understanding, and this review also elucidates important divides in perceptions of and engagement in issues related to climate change. This review explores empirical research and literature that provides useful insight for the development of communication strategies to address the gap between nonscientists' and scientists' views of climate change, and to make climate change action and personal mitigation efforts more relevant and meaningful to the American public. The literature review is organized into three main sections; here we provide a brief overview of the major findings in recent research:

### Factors influencing public understanding of climate change:

Information alone is likely not sufficient for increasing the American public's concern about climate change (Potter & Oster, 2008); it is important for people to have enough knowledge of the climate system to understand how different areas of the U.S. will be affected by increasing global temperatures, and also to understand how humans' actions are connected to the climate. The fact that only 49% of the American public believes that human actions are causing climate change while 84% of scientists hold this view (Pew Research Center, 2009) demonstrates the overall inadequacy of prior communication efforts, as well as the need to bridge the knowledge gap between scientists and the public.

### Factors influencing public response to climate change messages:

While uncertainty and lack of knowledge do generally affect people's beliefs about the existence and causes of climate change, many other factors have been shown to influence how people process information about climate change and the extent that they perform mitigating behaviors. For example, Stamm, Clark and Eblacas' (2000) survey results indicate that both mass media and interpersonal communication contribute to understanding, as well as contribute to perpetuating popular misconceptions about climate change. In order to better understand why the American public is relatively reluctant to accept the scientific consensus that human actions are increasing global temperatures, numerous studies have been done over the past few decades in the fields of Psychology, Sociology, Political Science, and Communication Studies. In addition to demographic factors, what appear to be most substantial in shaping people's views about climate change are: (1) **political affiliation**, (2) **trust of experts**, (3) **religious beliefs**, (4) **denial of responsibility**, (5) **self-efficacy**, and (6) **perceived risk**.

### Specific opportunities for advancing climate change communication:

This section includes a discussion of place-based communication as a means of engaging the public in climate-related dialogue, as well as consideration of message framing, specific types of frames appropriate for public climate change communication, and the significance of trusted messengers in delivering information about climate change to the American public.

Place-based climate change engagement: An emerging approach to demonstrating the relevance of climate change and reducing public skepticism that human activities are altering the earth's climate is through communicating about global warming in a place-based context. This approach encourages

people to witness ecological changes associated with climate change and gain knowledge of humans' role in the climate system. Public lands such as national parks offer a safe space in which to engage people in informal dialogue about this issue by providing an opportunity for critical reflection and conversation during nature tours and other types of recreational programs. Research suggests that public audiences trust the National Park Service as a source of information about climate change (Leiserowitz, Maibach, Roser-Renouf & Smith, 2011). In fact, 75% of the public trusts the National Park Service for information about climate change, which indicates that the potential to foster open communication about this issue could be strengthened through place-based engagement in national parks across the U.S. (Leiserowitz et al., 2011).

**Message Framing:** Message framing could be a powerful tool for increasing public understanding of climate change as well as people's sense of responsibility to take individual and collective mitigating action. Effectively addressing the divergence between scientists' and nonscientists' beliefs about climate change will require creating and employing frames that apply particularly to conservatives and Republicans, as political identification has repeatedly been shown to affect the public's concern and beliefs about climate change. As stated by O'Neill and Nicholson-Cole, "...communication approaches that take account of individuals' personal points of reference (e.g., based on an understanding and appreciation of their values attitudes, beliefs, local environment, and experience) are more likely to meaningfully engage individuals with climate change" (O'Neill & Nicholson-Cole, 2009, p.375). The audience's mental model of climate change should be considered, and information should be tailored based on people's level of knowledge and beliefs about this issue (Newell & Pitman, 2010).

In order to make these broad concepts more useful to climate change communicators, several specific frames that have been receiving the most attention in climate change communication research are discussed: (1) **threats to national security and natural resources**, (2) **public health**, (3) **economics**, (4) **religion**, and (5) **appeals to emotions**. In this section we also discuss the importance of **trusted messengers** in delivering climate change messages through these frames.

For the public to be better engaged in climate change issues, it is important for trusted sources to develop a prominent presence in climate change discourse using personally relevant frames for their messages. Consistent messaging about climate change from diverse, non-expert spokespersons, in a place-based context could help increase people's receptiveness to engaging in and better understanding climate change in the United States.

## **Attachment: Revised Scope of Work**

Change in Scope of Work and Deliverables schedule – CSURM-139, J2370083566

Identifying Multi-jurisdictional Adaptation Strategies for Responding to Climate Change on Federal Lands *through Climate Change Communication Scholarship*

### Project Schedule and Final Products

Date of Project Initiation: September 1, 2008

[PROPOSED] Due Dates for Final Report/Other Products:

June 1, 2012	Manuscript outline and references
June 15, 2012	Talking points outline and references
August 1, 2012	DRAFT manuscript and talking points documents
August 31, 2012	FINAL manuscript and talking points documents

Project End Date: June 1, 2013

### Revised Scope of Work

Background: Hundreds of articles on climate change communication have been published in recent years. Yet a synthesis of this research is currently lacking. A synthesis product would provide a broad picture of the research available for this topic, while helping to direct NPS staff to the most relevant articles for a specific topic of interest that can enable them to continue more in-depth research and utilize this research in interpretation and education activities.

Task: To create a rigorous and relevant literature review, synthesizing all of the current climate change communication research and highlighting key insights and lessons learned – with specific applications for the NPS.

Products:

- 1) State of the Climate Change Communication Scholarship document
  - a. This manuscript is an in-depth, publishable manuscript detailing all of the current research on climate change communication.
- 2) Talking points document for interpreters/education specialists that acts as a companion to the publishable manuscript.
  - a. The document will provide an accessible format for NPS interpreters and education specialists to understand the current research broken out into logical sections. The format may be similar to the existing bioregional Talking Points documents produced by the NPS Climate Change Response Program.