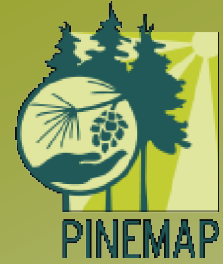


All Team PINEMAP meeting: Special guest Andy Hoffman helps us understand the role of trust in the context of climate change communication

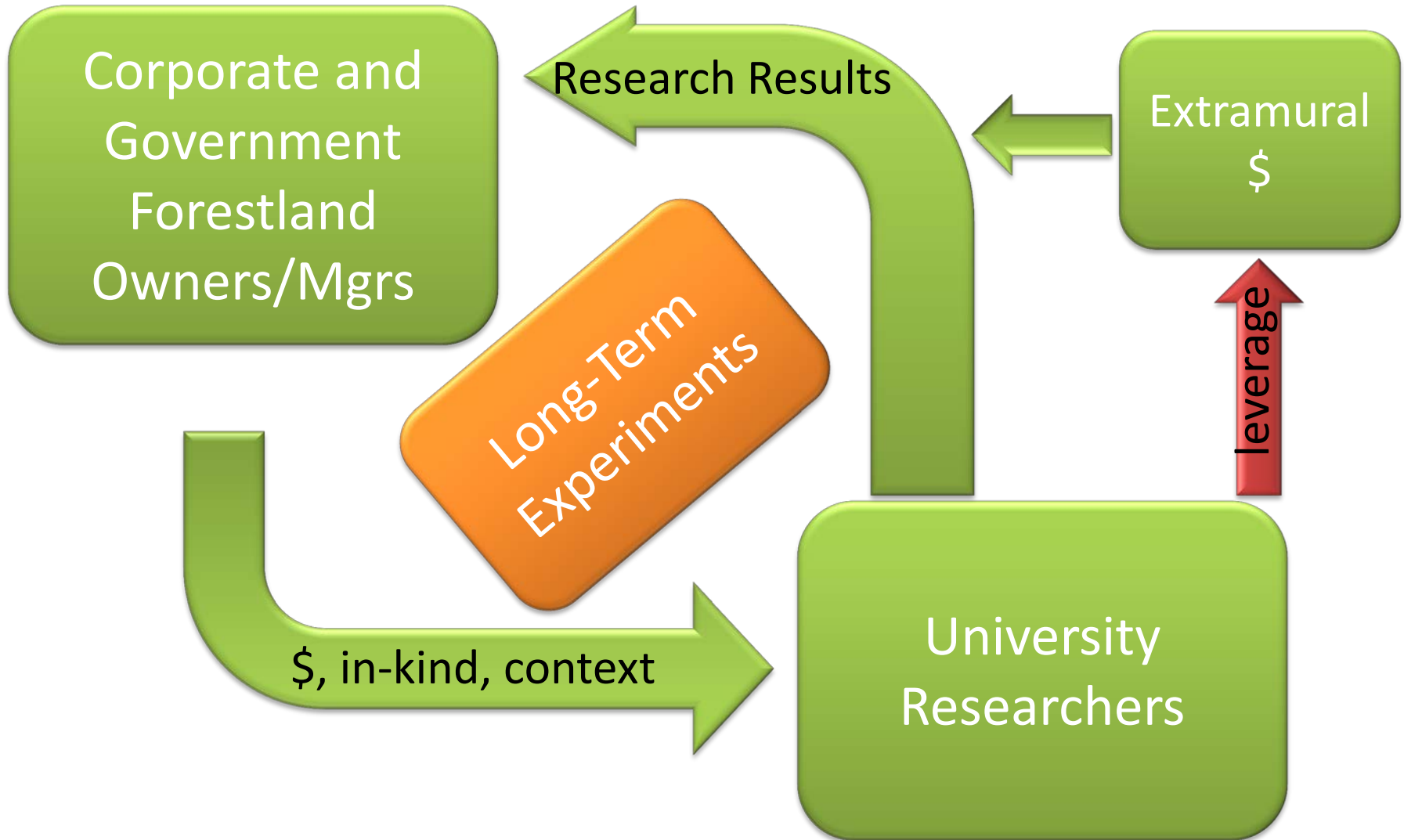
October 21, 2015

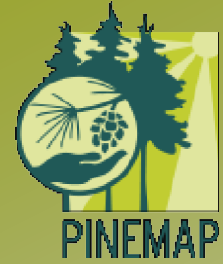


Forestry Research Cooperatives: A Productive Legacy

All Team PINEMAP Meeting
October 21, 2015

Corporate/Government/University Cooperative Research Model

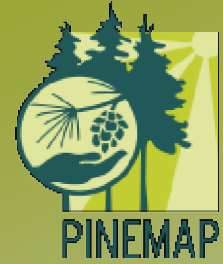




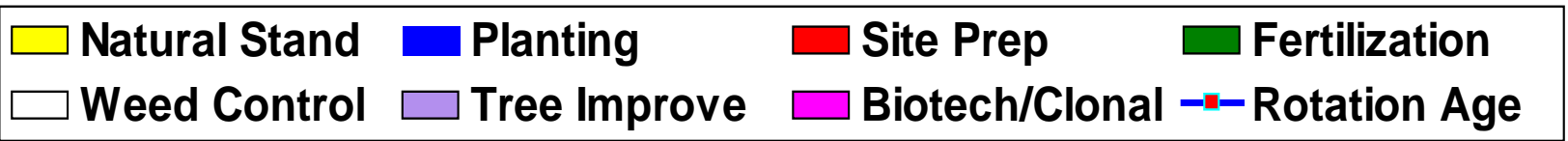
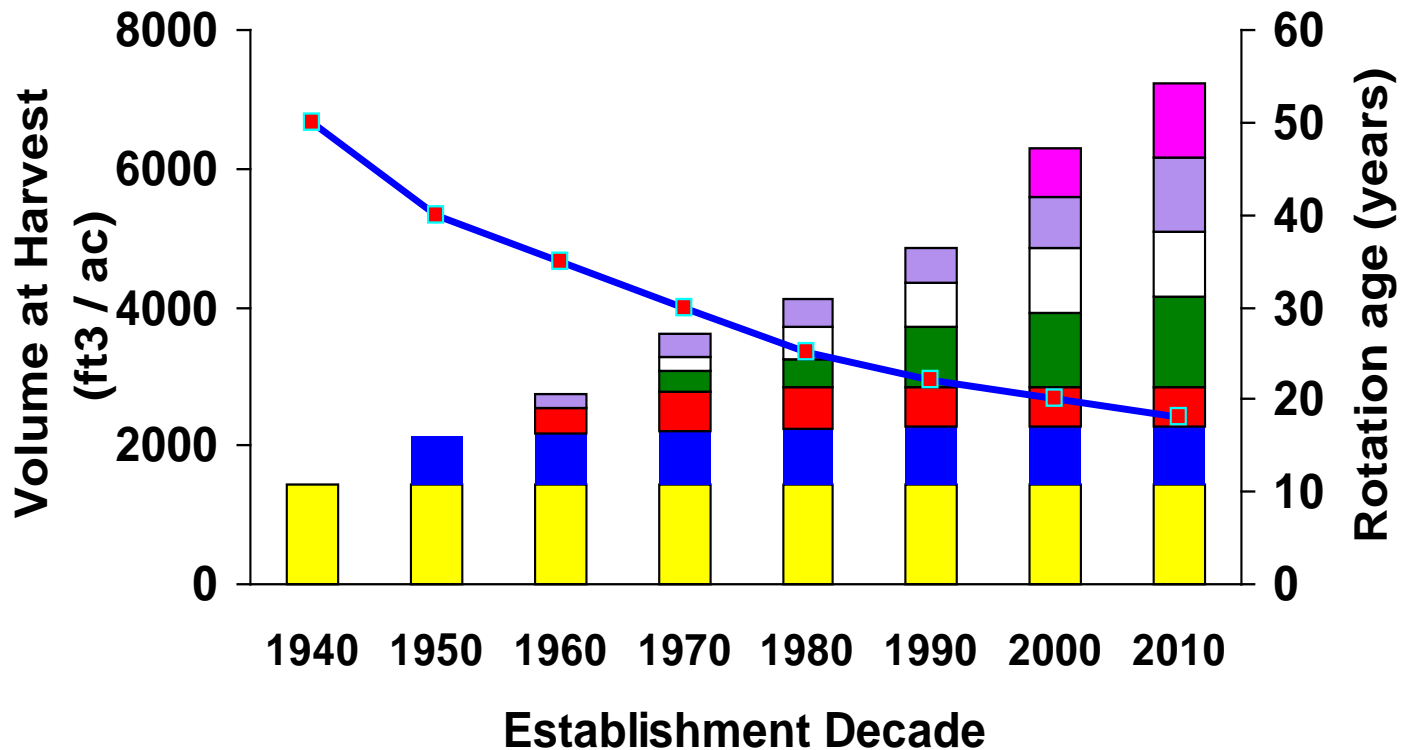
Forestry Research Cooperative

Host University (year founded)

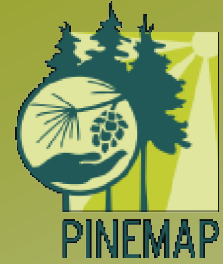
Cooperative Forest Genetics Research Program	University of Florida (1953)
Cooperative Tree Improvement Program	North Carolina State University (1955)
Forest Biology Research Cooperative	University of Florida (1996)
Forest Modeling Research Cooperative	Virginia Polytechnic Institute and State Univ. (1979)
Forest Nutrition Cooperative	Virginia Polytechnic Institute and State Univ. / NC State Univ. (1969)
Plantation Management Research Cooperative	University of Georgia (1975)
Southern Forest Resource Assessment Consortium	North Carolina State University (1994)
Western Gulf Forest Tree Improvement Program	Texas A&M Univ. / Texas Forest Service (1969)



Increased productivity through multiple technologies

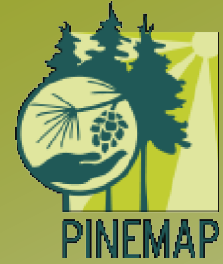


Redrawn from: Fox, T.R., E.J. Jokela and H.L. Allen. 2007. The development of pine plantation silviculture in the southern United States. *J. Forestry* 105:337-347.

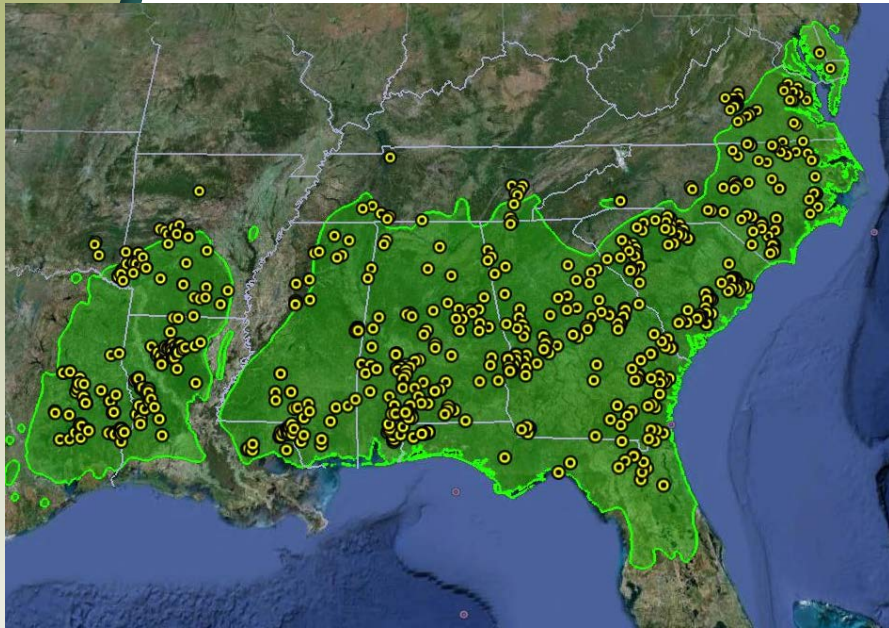


Cooperative Research Legacy

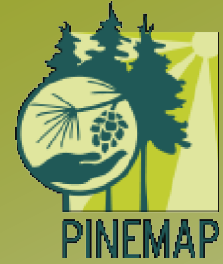
- Multi-fold increases in productivity through
 - improved genetics: growth rate and disease resistance
 - multiple silvicultural technologies
- Most gains through cooperative forestry research and associated tech transfer to cooperators
- Decades of cooperation have engendered substantial trust



Trust Example: Sharing Previously Unshared Data



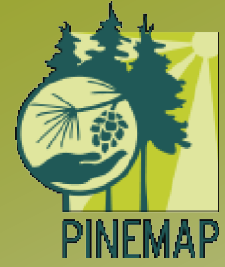
- ~700 existing cooperative sites and data
- Data **shared** under PINEMAP guidelines
- Develop and test models
- Datasets assembled and uploaded into spatially explicit database



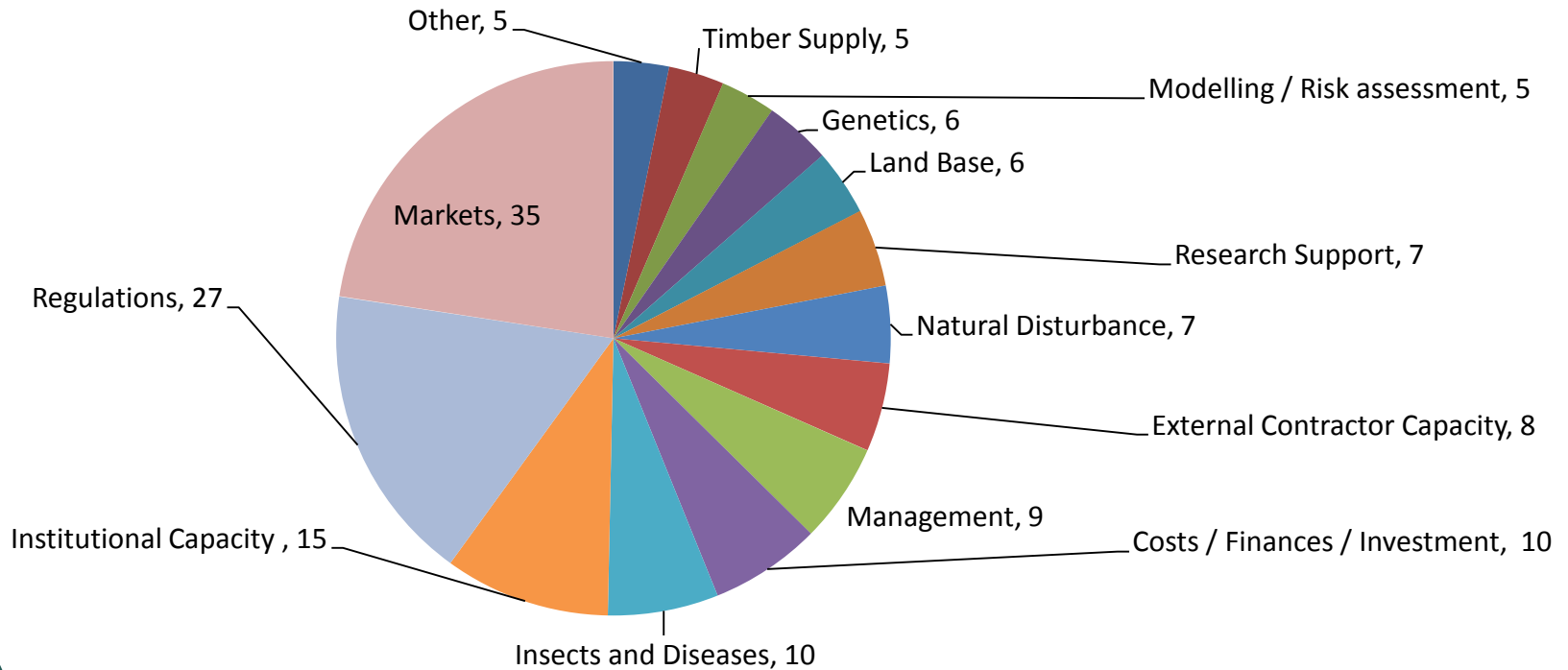
Research Needs: Impacts of climate variability & climate change

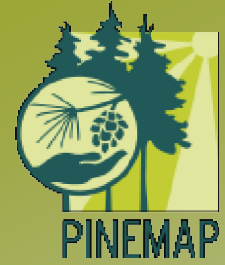
Please rate the importance to your organization of research on the following potential impacts of climate variability and climate change.

Research	Important or Very important
Changes in <i>forest growth and productivity</i>	91.67%
Changes in <i>timber supply</i>	79.31%
Changes in <i>land values and land use options</i>	70.00%
Changes in forest management risk associated with the <i>intensity, severity, or magnitude of forest insect or disease outbreaks</i>	64.41%
Changes in <i>abundance and ranges of invasive species</i>	49.15%
Changes in forest management risk associated with <i>intensity, severity, or magnitude of forest fires</i>	44.06%
Changes in <i>phenology</i>	41.38%
Changes in forest management risk associated with <i>extreme weather events (heavy winds, lightning, hurricanes, drought)</i>	33.89%



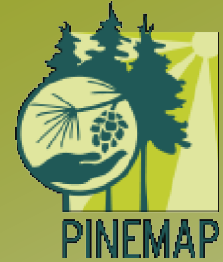
From a broad perspective (not just considering climate variability and climate change), what are your 4 main concerns regarding the ability of your organization to successfully manage its forest resources over the next 10-20 years?





Question

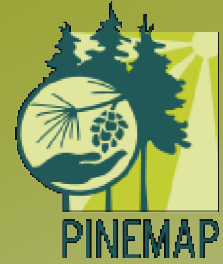
- To what extent does existing trust extend to climate change issues?



CLIMATE CHANGE ATTITUDES OF SOUTHERN FORESTRY PROFESSIONALS


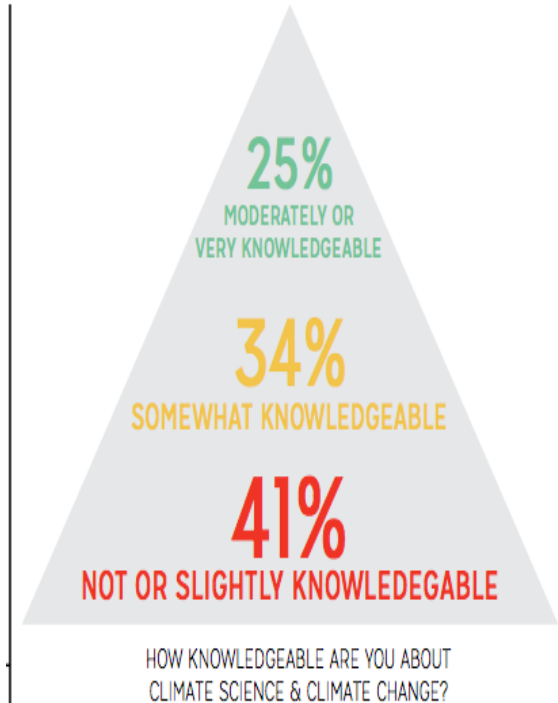
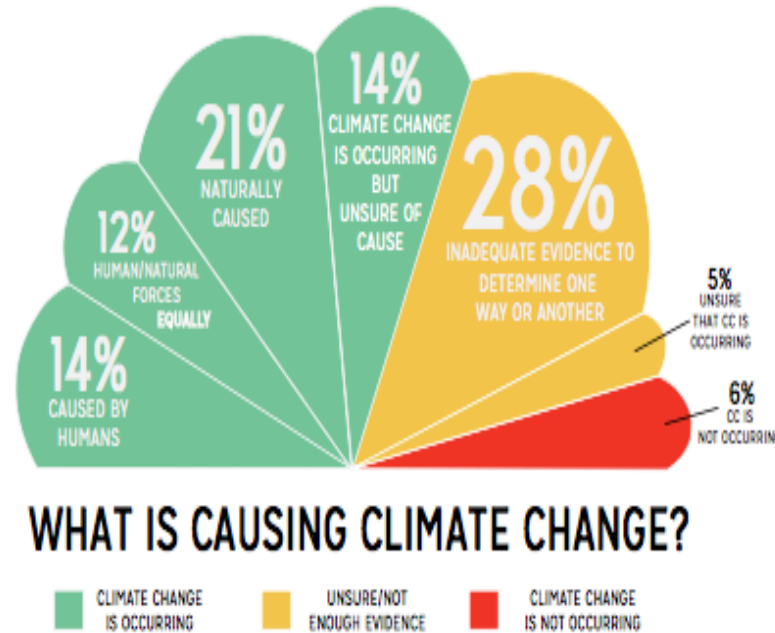
What we learned through a Needs
Assessment Survey of Southern
Foresters

Leslie Boby, Bill Hubbard
All Team PINEMAP meeting
October 21, 2015

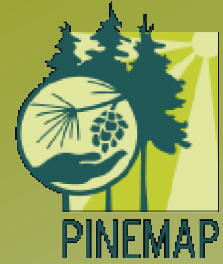


What do foresters know about climate science/change?

MOST HAVE A BACHELOR'S DEGREE IN FORESTRY; ABOUT 23% HAVE A MASTER'S DEGREE; AN ADDITIONAL 9% HAVE DOCTORATES.

- ~60% of Southern Foresters think that the climate is changing
- ~60% think that they are somewhat to very knowledgeable about climate science
- Foresters' views on climate change are linked with their political identity



What have foresters witnessed?

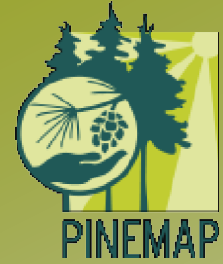


"IN MY LIFETIME, I HAVE NOTICED A CHANGE IN THE CLIMATE."
LEVEL OF AGREEMENT

- INVASIVE PLANT INFESTATIONS*
- LONGER DRY PERIODS AND/OR DROUGHT CONDITIONS
- WARMER WINTERS
- HOTTER SUMMERS
- EXTREME WEATHER EVENTS*
- DRIER PLANTING SEASONS
- INCREASED FREQUENCY OF/MORE SEVERE FIRE EVENTS
- CHANGE IN LENGTH OF GROWING SEASON
- EXTREME RAINFALL EVENTS*
- INSECT DAMAGE*
- DISEASE DAMAGE*
- FLOODING*
- INCREASED SOIL EROSION
- WETTER PLANTING SEASONS
- COOLER WINTERS
- COOLER SUMMERS

*REFERRING TO GREATER FREQUENCY OF/MORE SEVERE OCCURRENCES OF THESE CONDITIONS

These are the phenomena foresters have witnessed in recent times, arranged to reflect frequent or very frequent observation. Similar to what foresters are concerned about, invasive plants and droughts have been observed in greater frequency.



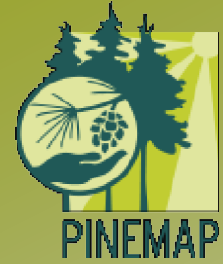
What are Foresters Concerned About?



This word cloud demonstrates the top weather and climate-related factors with which foresters are concerned. These include invasive plants, drought, an insect and disease outbreaks. Less important are soil erosion and extreme rainfall events.

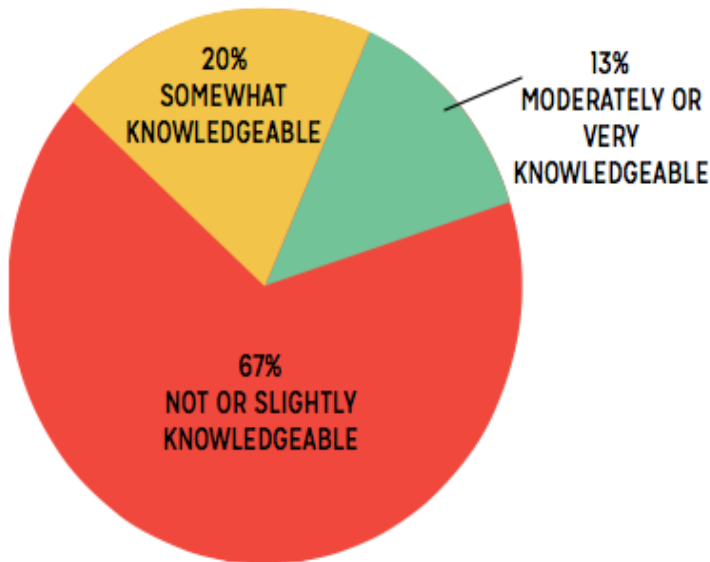
“Climate change is a frequent issue in the media, so people are thinking about it and asking about it from the standpoint of:

where is this going to lead us, in terms of being able to depend on the forest as a resource for future harvests and income, etc. Folks are concerned whether they believe climate change is happening due to fossil fuels, nature, or some combination of human activities and nature.”

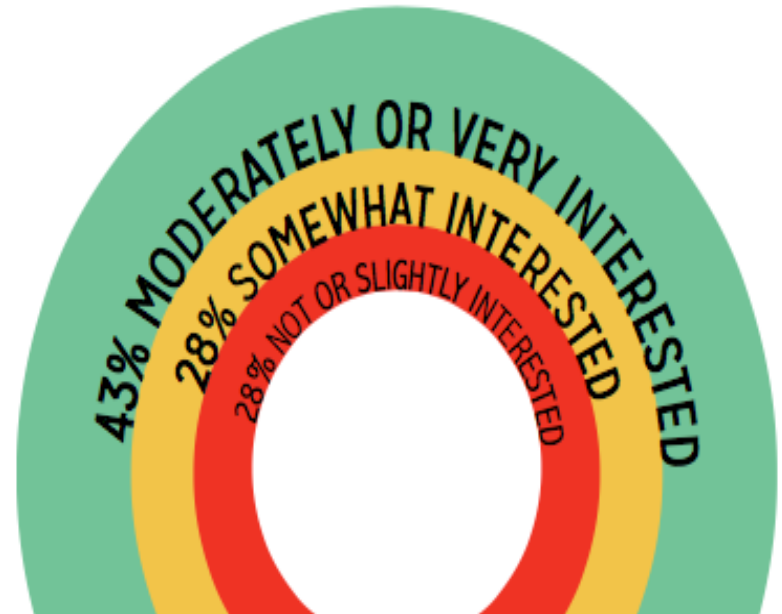


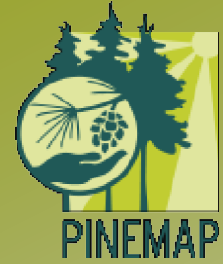
Forest Resiliency Strategies: what do foresters think and know?

KNOWLEDGE OF FOREST RESILIENCY STRATEGIES



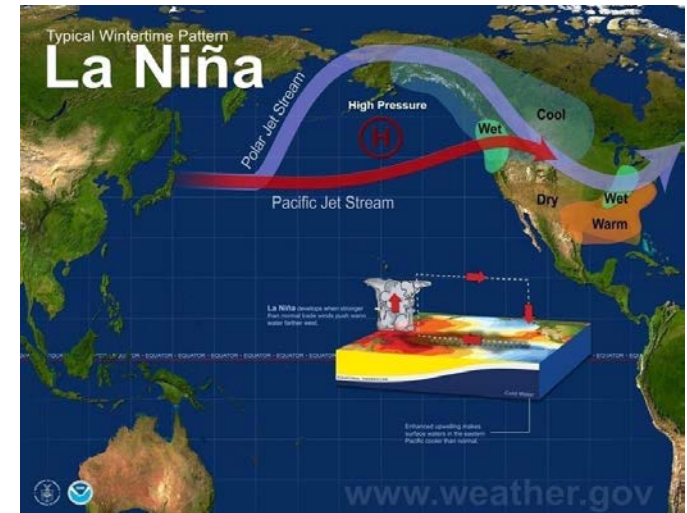
HOW INTERESTED ARE YOU IN LEARNING MORE ABOUT FOREST MANAGEMENT STRATEGIES THAT PROMOTE FOREST HEALTH AND RESILIENCY?



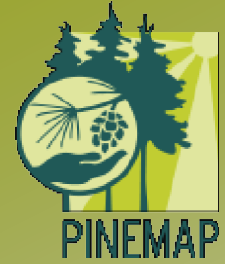


Climate change, think locally, act locally

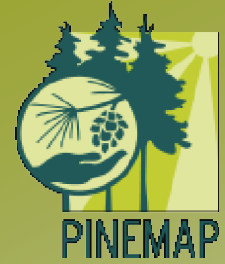
- Is current climate variability negatively impacting some forests?
- Is future climate variability likely to impact forests in the future?
- If you could manage your forests to better adapt to current and future climate variability, would you?



SOUND
FOREST MANAGEMENT

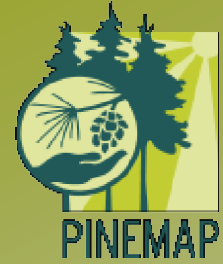


Forests are the answer.....



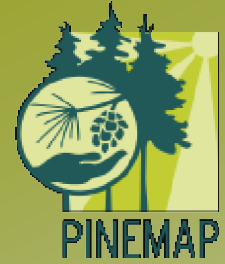
Perceptions of Climate Change with Educators: reflections on our research in Aim 5

All Team PINEMAP meeting,
October 21, 2015

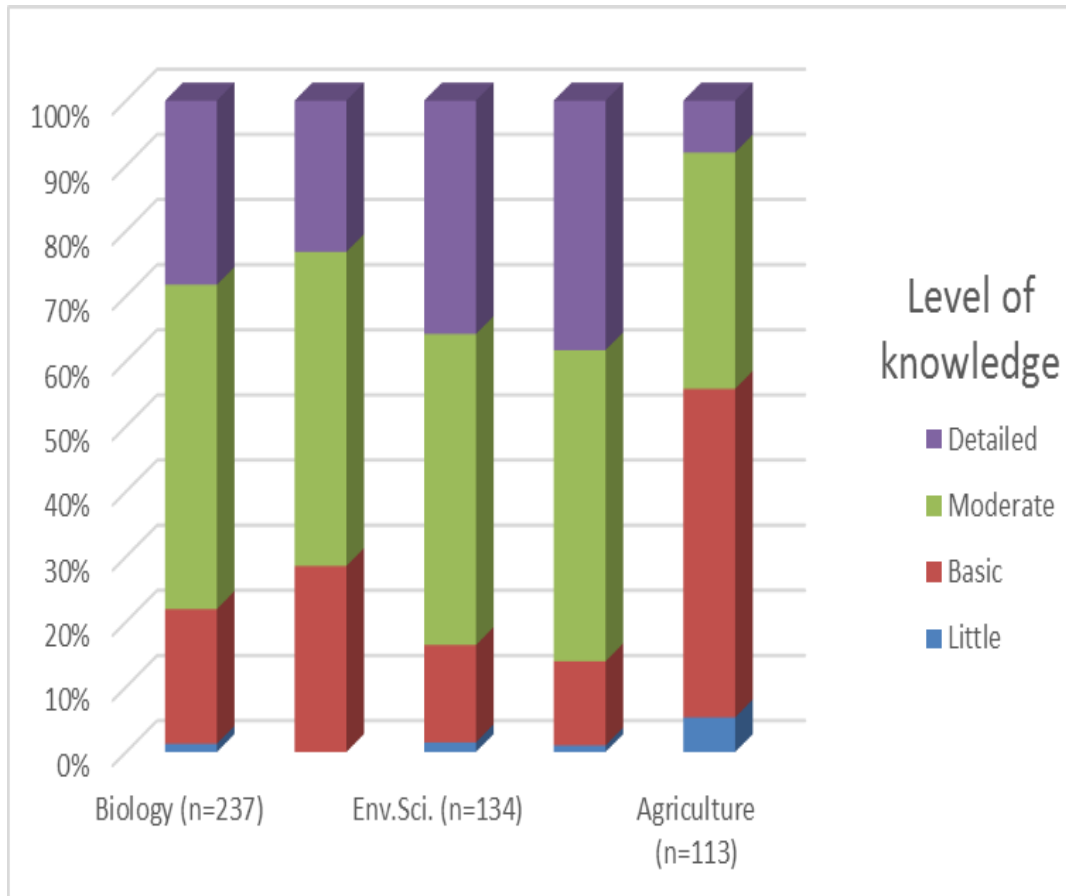


Our Intent and Expectation

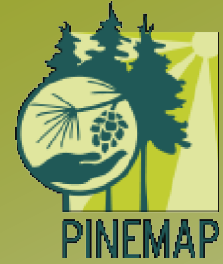
- We need to provide clear, concrete, locally relevant information about forests and climate to high school science teachers
- Because they teach biology, environmental science, and agriculture/forestry, they will be interested and somewhat knowledgeable
- Because they teach science, they will be aware and maybe concerned about climate change
- They will want to convey current research to their students
- They will want to empower their students to make good decisions
- Our information plus activity ideas will be useful because this is their job



We learned all teachers are not equal



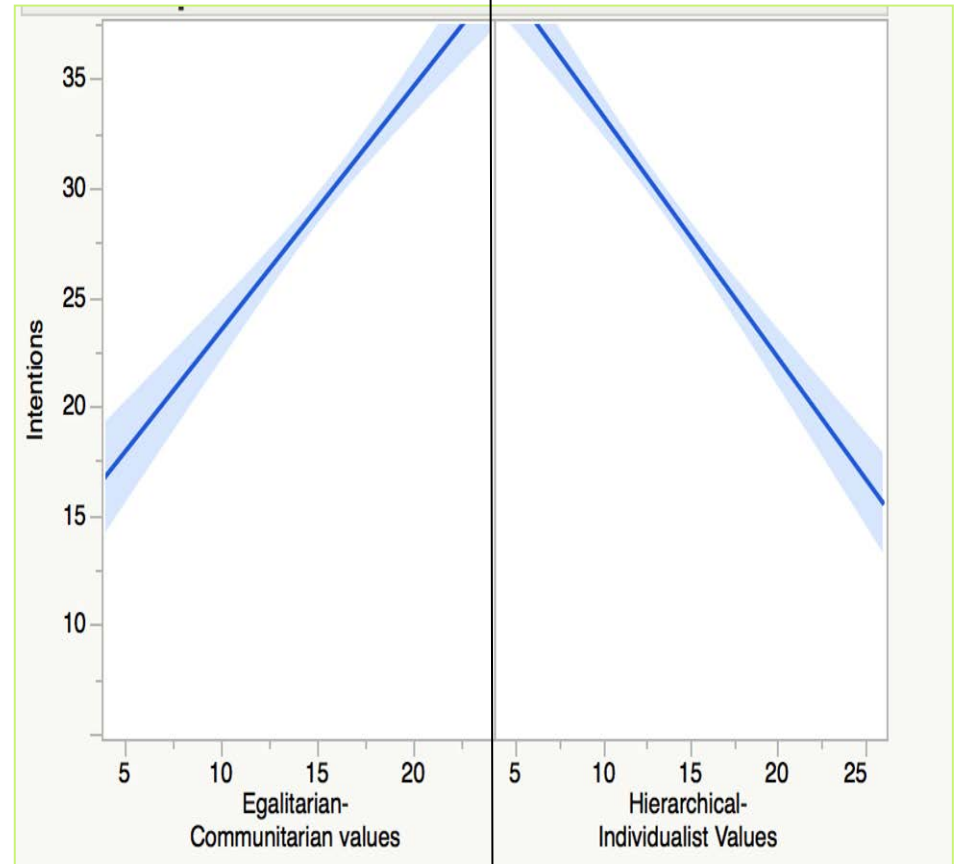
Respondents who teach agriculture courses self-report less knowledge about climate change than those who teach biology, AP biology, environmental science, and AP environmental science.



When we link teacher responses to worldview

As worldview values increase, willingness to teach about climate change increases for some and decreases for some. Worldview explains 43.5% of the variance.

-K. Kunkle Thesis





Egalitarian-Communitarians (n= 145)

- *Highest concern* about the issue
- Highest intentions to support
- Highest desired EC* content emphasis
- Lowest desired HI* content emphasis

Subpopulations of educators

Subpopulations of educators

Egalitarian-Communitarians (n= 145)

- *Highest concern* about the issue
- Highest intentions to support
- Highest desired EC* content emphasis
- Lowest desired HI* content emphasis

Egalitarian-Individualists (n= 31)

- High concern about the issue
- Higher intentions to support
- High desired EC content emphasis
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Subpopulations of educators

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“Alarmed & Concerned” H-I (n= 36)

- High concern about the issue
- Lower intentions to support
- Lower desired EC content emphasis
- Higher desired HI content emphasis

Subpopulations of educators

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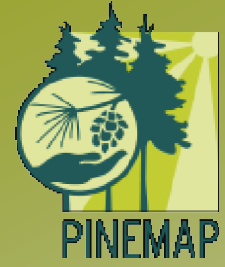
- High concern about the issue
- Higher intentions to support
- High desired EC content emphasis
- High desired HI content emphasis

“Alarmed & Concerned” H-I (n= 36)

- High concern about the issue
- Lower intentions to support
- Lower desired EC content emphasis
- Higher desired HI content emphasis

Hierarchical-Individualists (n= 79)

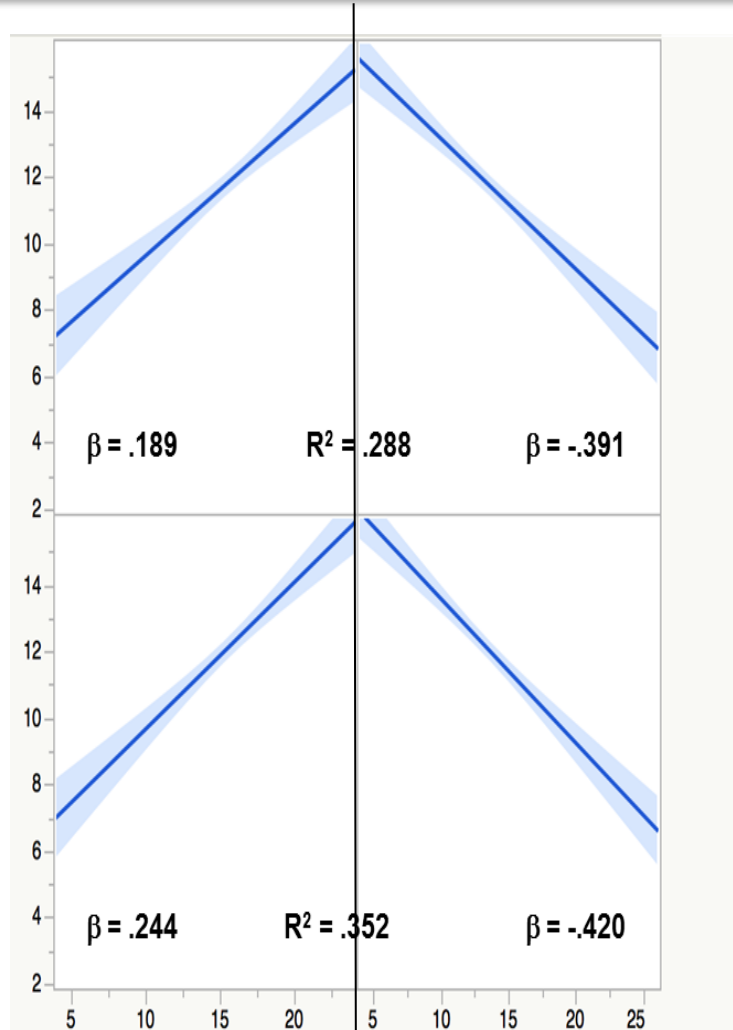
- Lowest concern about the issue
- Lowest intentions to support
- Lowest desired EC content emphasis
- Highest desired HI content emphasis

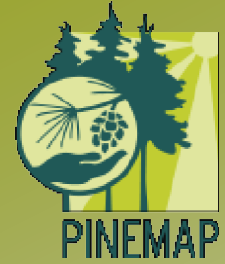


Benefits of teaching about climate vary

Engaging students in the nature of science

Opportunities to empower students

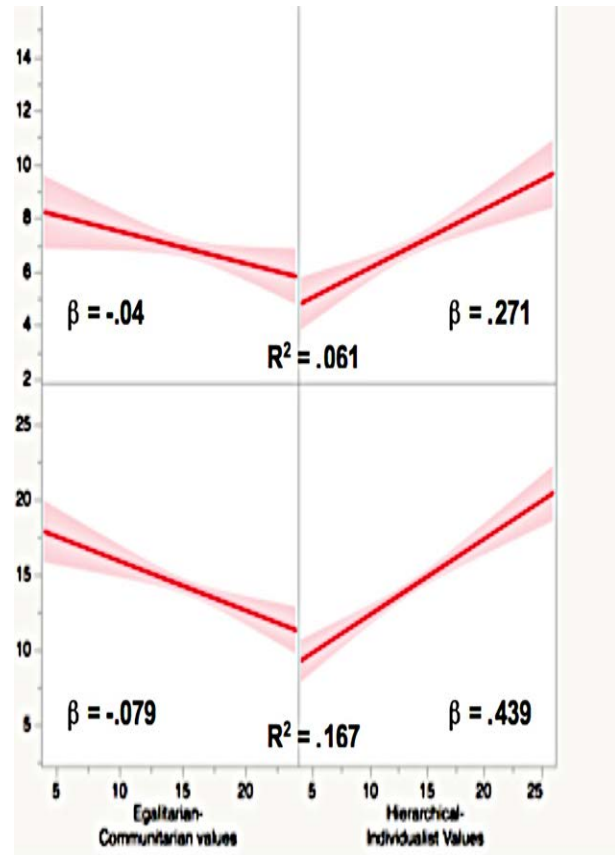


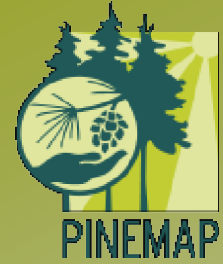


Concerns about teaching also vary slightly

Subject is too complex

Subject is too political

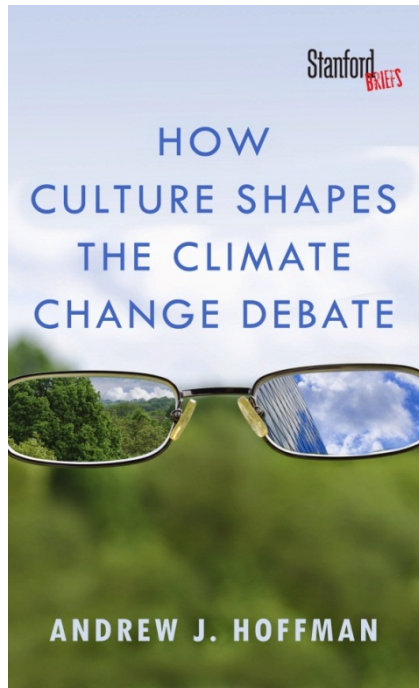




So...

- Even with a population that might be perceived as being “similar” to scientists, worldview trumps their knowledge of climate change and their willingness to teach about it.
- How should we begin to communicate with audiences that we know do not share our perspectives?
- How will they hear our message?
- Is it our responsibility to make sure they hear what we intend to say?

How Culture Shapes the Climate Change Debate



Andrew J. Hoffman

*Education Director, Graham Sustainability Institute
Ross School of Business/School of Natural Resources & Environment
University of Michigan*

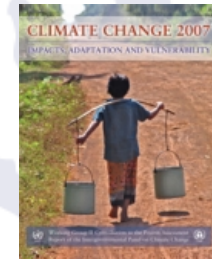
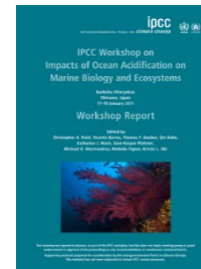
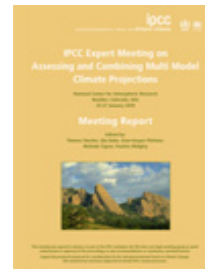
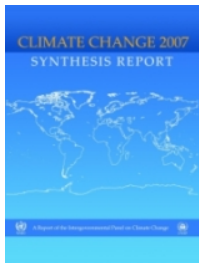
***Pinemap: Climate Change Communication
October 21, 2015***



Divergent Trends

Intergovernmental Panel on Climate Change (2013)

“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.”



Divergent Trends

Academia Brasileira de Ciências, Brazil
Academia Chilena de Ciencias, Chile
Academia das Ciencias de Lisboa, Portugal
Academia de Ciencias de la República Dominicana
Academia de Ciencias Físicas, Venezuela
Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala
Academia Mexicana de Ciencias, Mexico
Academia Nacional de Ciencias de Bolivia
Academia Nacional de Ciencias del Peru
Academia Sinica, Taiwan, China
Académie des Sciences et Techniques du Sénégal
Académie des Sciences, France
Academy Council of the Royal Society of New Zealand
Academy of Athens, Greece
Academy of Science of Mozambique
Academy of Science of South Africa
Academy of Sciences Malaysia
Academy of Sciences of Moldova
Academy of Sciences of the Czech Republic
Academy of Sciences of the Islamic Republic of Iran
Academy of Scientific Research and Technology, Egypt
Academy of the Royal Society of New Zealand
Accademia Nazionale dei Lincei, Italy
African Academy of Sciences
Albanian Academy of Sciences
Australian Academy of Science
Bangladesh Academy of Sciences
Bulgarian Academy of Sciences
Cameroon Academy of Sciences

Caribbean Academy of Sciences
Chinese Academy of Sciences
Colombian Academy of Exact, Physical and Natural Sciences
Croatian Academy of Arts and Sciences
Cuban Academy of Sciences
Delegation of the Finnish Academies of Science and Letters
Deutsche Akademie der Naturforscher Leopoldina, Germany
European Academy of Sciences and Arts
Georgian Academy of Sciences
Ghana Academy of Arts and Sciences
Indian National Science Academy (India)
Indonesian Academy of Sciences
InterAcademy Council
International Council of Academies of Engineering and Technological Sciences
Islamic World Academy of Sciences
Israel Academy of Sciences and Humanities
Kenya National Academy of Sciences
Korean Academy of Science and Technology
Kosovo Academy of Sciences and Arts
Latin American Academy of Sciences
Latvian Academy of Sciences
Lithuanian Academy of Sciences
Matemáticas y Naturales de Venezuela
Mauritius Academy of Science and Technology
Montenegrin Academy of Sciences and Arts
National Academy of Exact, Physical and Natural Sciences, Argentina
National Academy of Sciences, United States
National Academy of Sciences of Armenia
National Academy of Sciences of the Kyrgyz Republic
National Academy of Sciences, Sri Lanka
National Research Council, United States
Network of African Science Academies
Nicaraguan Academy of Sciences

Nigerian Academy of Sciences
Norwegian Academy of Sciences and Letters
Pakistan Academy of Sciences
Palestine Academy for Science and Technology
Polish Academy of Sciences
Romanian Academy
Royal Academies for Science and the Arts of Belgium
Royal Academy of Exact, Physical and Natural Sciences of Spain
Royal Danish Academy of Sciences and Letters
Royal Flemish Academy of Belgium for Sciences and the Arts
Royal Irish Academy
Royal Netherlands Academy of Arts and Sciences
Royal Scientific Society of Jordan
Royal Society of Canada
Royal Society of New Zealand
Royal Society of the United Kingdom
Royal Swedish Academy of Sciences
Russian Academy of Sciences
Science Council of Japan
Serbian Academy of Sciences and Arts
Slovak Academy of Sciences
Slovenian Academy of Sciences and Arts
Sudanese National Academy of Science
Tanzania Academy of Sciences
Turkish Academy of Sciences
TWAS - The academy of sciences for the developing world
Uganda National Academy of Sciences
Union of German Academies of Sciences and Humanities
Zimbabwe Academy of Sciences

Divergent Trends

Academia Brasileira de Ciências, Brazil

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Academia Sinica, Taiwan, China

Académie des Sciences et Techniques du Sénégal

Académie des Sciences, France

Academy Council of the Royal Society of New Zealand

Academy of Athens, Greece

Academy of Science of Mozambique

Academy of Science of South Africa

Academy of Sciences Malaysia

Academy of Sciences of Moldova

Academy of Sciences of the Czech Republic

Academy of Sciences of the Islamic Republic of Iran

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African Academy of Sciences

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Cameroon Academy of Sciences

Caribbean Academy of Sciences

Chinese Academy of Sciences

Colombian Academy of Exact, Physical and Natural Sciences

Croatian Academy of Arts and Sciences

Cuban Academy of Sciences

Delegation of the Finnish Academies of Science and Letters

Deutsche Akademie der Naturforscher Leopoldina, Germany

European Academy of Sciences and Arts

Georgian Academy of Sciences

Ghana Academy of Arts and Sciences

Indian National Science Academy (India)

Indonesian Academy of Sciences

InterAcademy Council

International Council of Academies of Engineering and

Technological Sciences

Islamic World Academy of Sciences

Israel Academy of Sciences and Humanities

Kenya National Academy of Sciences

Korean Academy of Science and Technology

Kosovo Academy of Sciences and Arts

Latin American Academy of Sciences

Latvian Academy of Sciences

Lithuanian Academy of Sciences

Matemáticas y Naturales de Venezuela

Mauritius Academy of Science and Technology

Montenegrin Academy of Sciences and Arts

National Academy of Exact, Physical and Natural Sciences,

Argentina

National Academy of Sciences, United States

National Academy of Sciences of Armenia

National Academy of Sciences of the Kyrgyz Republic

National Academy of Sciences, Sri Lanka

National Research Council, United States

Network of African Science Academies

Nicaraguan Academy of Sciences

Nigerian Academy of Sciences

Norwegian Academy of Sciences and Letters

Pakistan Academy of Sciences

Palestine Academy for Science and Technology

Polish Academy of Sciences

Romanian Academy

Royal Academies for Science and the Arts of Belgium

Royal Academy of Exact, Physical and Natural Sciences of Spain

Royal Danish Academy of Sciences and Letters

Royal Flemish Academy of Belgium for Sciences and the Arts

Royal Irish Academy

Royal Netherlands Academy of Arts and Sciences

Royal Scientific Society of Jordan

Royal Society of Canada

Royal Society of New Zealand

Royal Society of the United Kingdom

Royal Swedish Academy of Sciences

Russian Academy of Sciences

Science Council of Japan

Serbian Academy of Sciences and Arts

Slovak Academy of Sciences

Slovenian Academy of Sciences and Arts

Sudanese National Academy of Science

Tanzania Academy of Sciences

Turkish Academy of Sciences

TWAS - The academy of sciences for the

developing world

Uganda National Academy of Sciences

Union of German Academies of Sciences and Humanities

Zimbabwe Academy of Sciences

Divergent Trends

- **Farnsworth, S. and S. Lichter (2011)** “The structure of scientific opinion on climate change,” *International Journal of Public Opinion Research*, Survey of 489 scientists working in academia, government, and industry members of the American Geophysical Union or the American Meteorological Society. Of those surveyed, **97%** agreed that that global temperatures have risen over the past century. Moreover, **84%** agreed that "human-induced greenhouse warming" is now occurring. Only 5% disagreed with the idea that human activity is a significant cause of global warm
- **Doran, P. and M. Kendall Zimmerman (2009).** "Examining the Scientific Consensus on Climate Change". *EOS 90 (3): 22–23*. 3,146 of the 10,257 polled Earth scientists. Among all respondents, **90%** agreed that temperatures have risen compared to pre-1800 levels, and 82% agreed that humans significantly influence the global temperature.
- **Bray, D. and H. von Storch (2008).** "A Survey of the Perspectives of Climate Scientists Concerning Climate Science and Climate Change" 2,058 climate scientists from 34 different countries. "How convinced are you that climate change, whether natural or anthropogenic, is occurring now?" got **93.8%** very much agree (67.1%) or to some large extent (26.7%), 6.2% said to some small extent (2–4), none said not at all. Question 21 "How convinced are you that most of recent or near future climate change is, or will be, a result of anthropogenic causes?" received **83.5%** very much agree, (34.6%) or agreeing to a large extent (48.9%), 15.1% to a small extent (2–4), and 1.35% not agreeing at all.
- **Lichter, R. (2008).** "Climate Scientists Agree on Warming, Disagree on Dangers, and Don't Trust the Media's Coverage of Climate Change". *Statistical Assessment Service, George Mason University*. 489 randomly selected members of either the American Meteorological Society or the American Geophysical Union. **97%** agreed that global temperatures have increased during the past 100 years; **84%** say they personally believe human-induced warming is occurring, and 74% agree that “currently available scientific evidence” substantiates its occurrence. Only 5% believe that that human activity does not contribute to greenhouse warming; and 84% believe global climate change poses a moderate to very great danger.
- **Anderegg, W., J. Prall, J. Harold, and S. Schneider (2010).** "Expert credibility in climate change". *Proceedings of the National Academy of Sciences of the United States of America*. Survey of 1,372 climate researchers found that **97–98%** of the climate researchers most actively publishing in the field support the tenets of ACC (Anthropogenic Climate Change) outlined by the Intergovernmental Panel on Climate Change, and (ii) the relative climate expertise and scientific prominence of the researchers unconvinced of about CC are substantially below that of the convinced researchers.

Divergent Trends

1. Cook, J., D. Nuccitelli, S. Green, M. Richardson, B. Winkler, R. Painting, R. Way, P. Jacobs and A. Skuce (2013) "Quantifying the consensus on anthropogenic global warming in the scientific literature," *Environmental Research Letters*. A study of 11 944 climate abstracts from 1991–2011 in the peer reviewed literature matching the topics 'global climate change' or 'global warming' found that 66.4% of abstracts expressed no position on AGW, 32.6% endorsed AGW, 0.7% rejected AGW and 0.3% were uncertain about the cause of global warming. Among abstracts expressing a position on AGW, **97.1% endorsed the consensus position** that humans are causing global warming.
2. Oreskes, N. (2004). "Beyond the Ivory Tower: The Scientific Consensus on Climate Change" *Science* 306 (5702): 1686. 928 abstracts of papers from refereed scientific journals between 1993 and 2003, listed with the keywords "global climate change". Oreskes divided the abstracts into six categories: explicit endorsement of the consensus position, evaluation of impacts, mitigation proposals, methods, paleoclimate analysis, and rejection of the consensus position. 75% of the abstracts were placed in the first three categories, thus either explicitly or implicitly accepting the consensus view; 25% dealt with methods or paleoclimate, thus taking no position on current anthropogenic climate change; **none of the abstracts disagreed with the consensus position**

Divergent Trends

American Association for the Advancement of Science: "The conclusions in this statement reflect the **scientific consensus** represented by, for example, the Intergovernmental Panel on Climate Change, and the Joint National Academies' statement."

AAAS (2006) *Board Statement on Climate Change*

http://www.aaas.org/news/press_room/climate_change/mtg_200702/aaas_climate_statement.pdf

US National Academy of Sciences: "In the judgment of most climate scientists, Earth's warming in recent decades has been caused primarily by human activities that have increased the amount of greenhouse gases in the atmosphere. ... On climate change, [the National Academies' reports] have assessed **consensus findings on the science...**" NAS (2008) *Understanding and*

Responding to Climate Change <http://dels-old.nas.edu/climatechange/understanding-climate-change.shtml>

Divergent Trends

Belief in the science of climate change declined from 71 to 57 percent among Americans between 2008 and 2009 (Pew Research Center, 2009) and rose to 67 percent by 2012 (Borricks and Rabe, 2013).

Divergent Trends

Belief that “most scientists think global warming is happening” declined from 47 to 39 percent among Americans between 2008 and 2011 (Ding, et al, 2011).

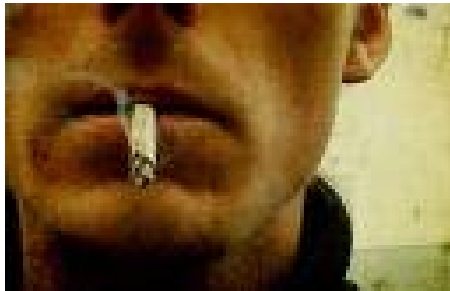
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US National... in recent d... of greenho... reports] ha... Responding to Climate Change <http://dels-old.nas.edu/climatechange/understanding-climate-change.shtml>

Outline

1. Climate change as a cultural issue
Social psychology & climate change
 - i.* Four forms of distrust that animate the climate change debate
 - ii.* Three possible paths forward
 - iii.* Four tactics for bridging the cultural schism
2. The full scope of the issue
3. *Illustrative post-script*

Climate Change as a Cultural Issue



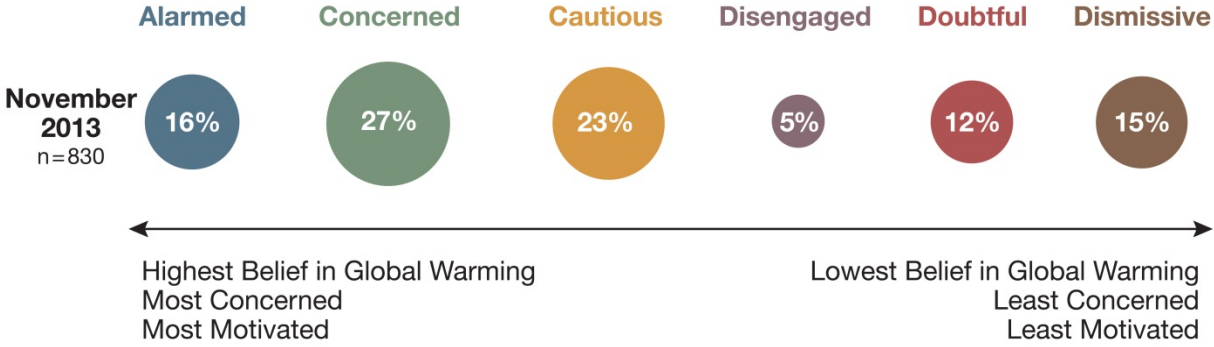
Cigarettes and human health

**Scientific
Consensus**

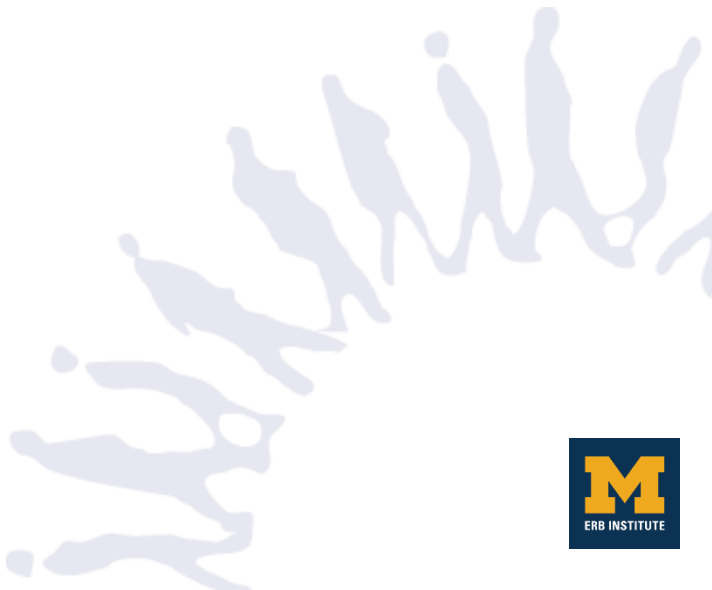


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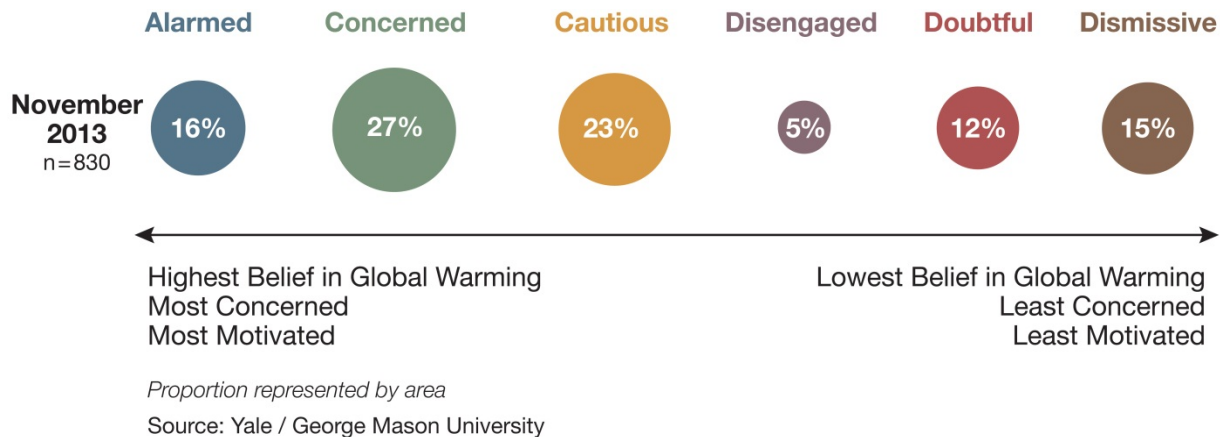
Climate Change as a Cultural Issue



Proportion represented by area
Source: Yale / George Mason University

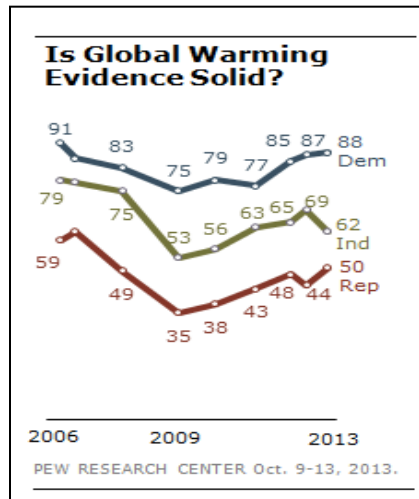
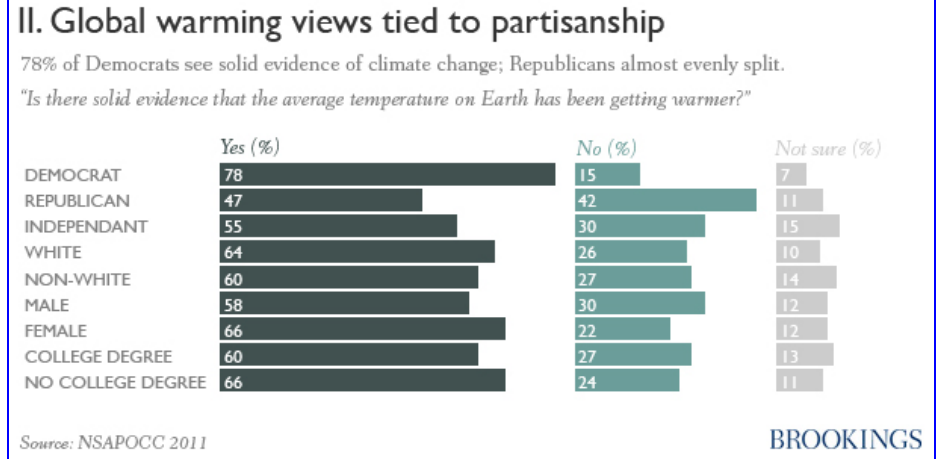
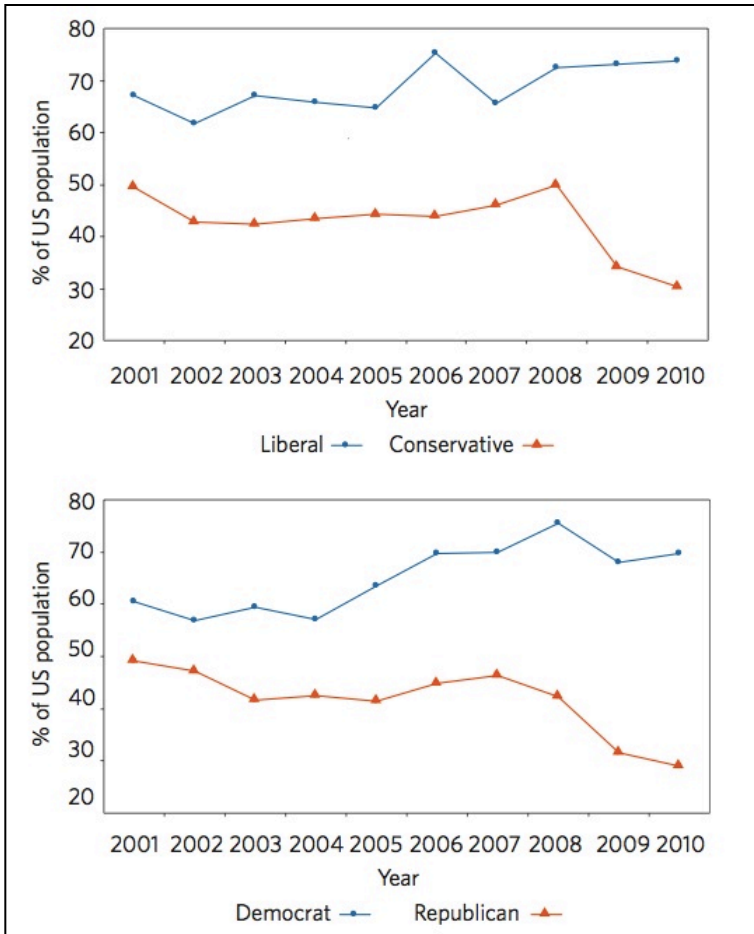


Climate Change as a Cultural Issue



- Multiple studies have shown that **political affiliation**, cultural worldview and environmental values are the strongest correlates of individual uncertainty about climate change, not scientific knowledge (Hoffman and Jennings, 2012; Hoffman, 2011a; Maibach, Leiserowitz, Rosen-Renouf and Mertz, 2011).

Climate Change as a Cultural Issue



Climate Change as a Cultural Issue

Two-thirds of Americans rarely if ever discuss global warming with family or friends.

Source: Yale Project on Climate Change Communication, 2013

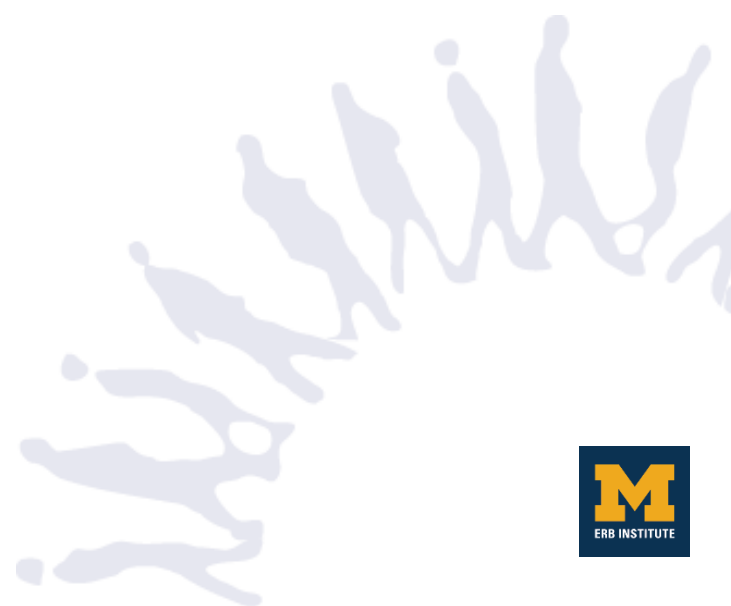
Social Psychology & Climate Change

- **We all use cognitive filters.**
- **Our cognitive filters reflect our cultural identity.**
- **Cultural identity can overpower scientific reasoning.**
- **Our political economy creates inertia for change.**



Social Psychology & Climate Change

- **We all use cognitive filters.** We interpret and validate conclusions from the scientific community by filtering their statements through our own pre-existing beliefs.
Motivated Reasoning.
- **Our cognitive filters reflect our cultural identity.**
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Once our minds are made up and our position aligns with our cultural identity, providing additional scientific data can make us more resolute in resisting conclusions that are at variance with our cultural beliefs

Social Psychology & Climate Change

We live by activating *Black Boxes*.



Social Psychology & Climate Change

We live by activating *Black Boxes*.

- According to the California Academy of Sciences, the majority of the U.S. public is unable to pass even a basic scientific literacy test (California Academy of Sciences, 2009).
- The National Science Foundation reports that two-thirds of Americans do not clearly understand the scientific process (National Science Foundation, 2004)



Social Psychology & Climate Change

- Final Thought -

- **IS NOT** a pollution issue.
 - CO₂ is a ubiquitous part of our existing biological, social and economic reality.
 - We live in a fossil fuel based world.



Social Psychology & Climate Change

- Final Thought -

- **IS NOT** a pollution issue.
 - CO₂ is a ubiquitous part of our existing biological, social and economic reality.
 - We live in a fossil fuel based world.
- **IS** an existential challenge to our worldviews
 - Think of a formerly benign, even beneficial, material in a new way; as a hazard.
 - Think of the global ecosystem and our place within it on different terms
 - Consider how and whether we cooperate and organize a global response to this global problem

Four Forms of Distrust that Animate the Climate Change Debate

1. Distrust of the messengers.

2. Distrust of the process that created the message.

3. Distrust of the message itself.

4. Distrust of the solutions that come from the message.

- ① Environmentalists
- ② Democratic Politicians
- ③ Scientists

AGW believers “hate people, they hate the Western economy.”

“The environmental agenda seeks to use the state to create scarcity as a means to exert their will, and the state’s authority, over your lives.”

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The scientific process

“The problem of science goes back to WWII...they moved the peer review process to the pal review process.”

United Nations and the IPCC

“Climate-gate”

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Discomfort with Climate Scenarios

*Just World Theory and “Climate Porn”
Terror Management Theory*

Belief in God

Genesis

Differing conceptions of risk

Four Forms of Distrust that Animate the Climate Change Debate

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Role of government

One-world government

“All of our industries have been hampered by government regulation...climate change is just another attempt to diminish our freedom.”

“Green jobs is just an ideological push for a Euro-style disaster.”

“He who controls carbon controls life.”

Differing conceptions of the value of nature

Trust in the market

Three Possible Paths Forward

1. The optimistic path in which people do not have to change their worldviews.



Three Possible Paths Forward

1. The [optimistic path](#) in which people do not have to change their worldviews.
2. The [pessimistic path](#) in which people fight to maintain their worldviews. The “cultural schism.”



Three Possible Paths Forward

1. The [optimistic path](#) in which people do not have to change their worldviews.
2. The [pessimistic path](#) in which people fight to maintain their worldviews. The “cultural schism.”
3. The [consensus based path](#) in which people reason through an evolved set of worldviews, moving beyond positions to consider the underlying values and interests at play.



Four Tactics for Bridging the Cultural Schism

1. The messenger is as important as the message.

2. Address the process by which the message was created.

3. Choose messages that are personally accessible.

4. Present solutions for a commonly desired future.

Know your audience

Find “climate brokers”

Brokers from the market

Brokers from the ideological right

Four Tactics for Bridging the Cultural Schism

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Strong correlation between belief about climate change and belief of scientific consensus

Ask the right scientific questions

Avoid cataclysmic scenarios

Separate the problem from the solution

Four Tactics for Bridging the Cultural Schism

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Find “broker frames”

Recognize the power of language

Recognize multiple referent groups

Employ events as leverage for change

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1. The messenger is as important as the message.

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3. Choose messages that are personally accessible.

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Move beyond the negative

Balance individual/community responsibility

Preserve the “American way of life”

New “Carl Sagan’s” from the academy

...and at times, simply mandate change and let values follow.

The Full Scope of the Issue

Source: Rockström, J; Steffen, WL; and 26 others (2009), “Planetary Boundaries: Exploring the Safe Operating Space for Humanity,” *Ecology and Society* 14 (2): 32



The Full Scope of the Issue

The Anthropocene, a new geological epoch in which humans beings now act as a geophysical force on the planet as a whole.

Planetary Boundaries

after Johan Rockström, Stockholm Resilience Centre et al. 2009

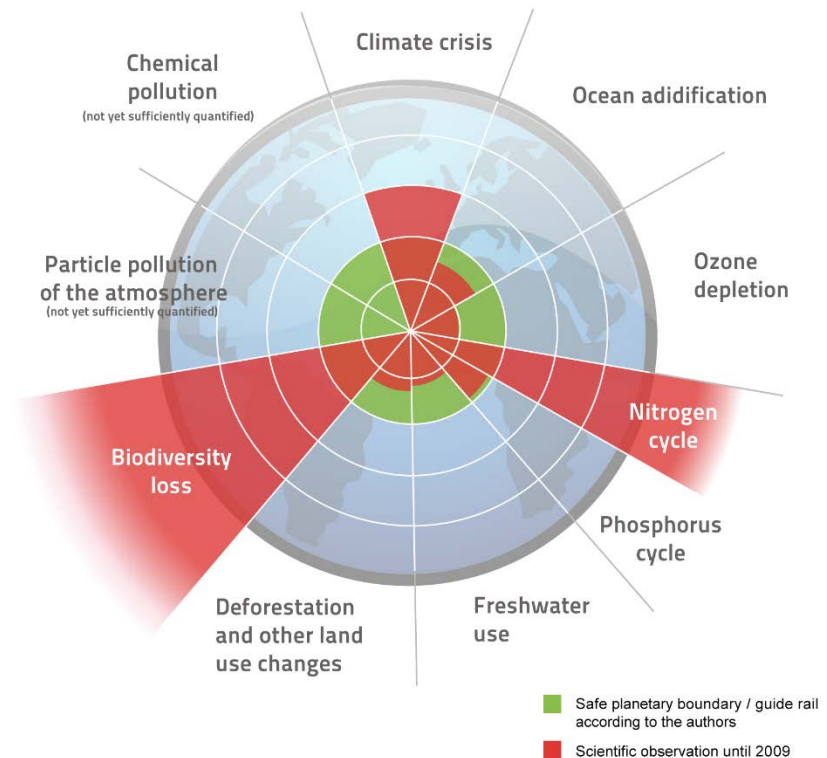


Illustration: Felix Müller (www.zukunft-selbermachen.de/) Licence: CC-BY-SA 4.0

Source: Rockström, J; Steffen, WL; and 26 others (2009), "Planetary Boundaries: Exploring the Safe Operating Space for Humanity," *Ecology and Society* 14 (2): 32

Illustrative post-script



Hoffman, A. (2010) “Climate change as a cultural and behavioral issue: Addressing barriers and implementing solutions,” *Organizational Dynamics*, (39): 295-305.



Cigarettes and human health



Slavery abolition

A Woman exchanged for a Ram and Sheep. Page 110.



Green



A Blog About Energy and the Environment

October 27, 2010, 12:33 PM

A Cultural Barrier to Action on Climate Change

By JOHN M. BRODER



North Carolina Museum of History

A researcher draws parallels to long resistance to the notion that smoking poses risks.



It may seem far-fetched to compare the resistance to action on climate change to the slow progress toward the abolition of slavery or the recognition of the fatal effects of smoking, but a

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Next Eco-Scare is Here! 'Biodiversity': 'The new Big Lie': The green movement is ditching 'Climate Change' in favor of species extinction fears

'High Priestess of Global Warming' No More! Former Warmist Judith Curry Admits To Being 'Duped Into Supporting IPCC' - 'If the IPCC is dogma, then count me in as a heretic'

Prominent Physicist Resigns From American Physical Society: 'Global warming is the greatest and most successful pseudoscientific fraud I have seen in my long life'

Scientific Rubic?: John Holdren ridiculed for claiming Arctic could be ICE FREE IN WINTER! Holdren 'appears to have less scientific competence than most 1st graders'

Cameron's Spokesman: 'Morano is not at Cameron's level to debate, and that's why it didn't happen. Cameron should be debating someone who is similar to his stature in our society'

Left-wing Env. Scientist Bails Out Of Global Warming Movement: Declares it a 'corrupt social phenomenon...strictly an imaginary problem of the 1st World middleclass'

Read Selected Portions of the Esquire Mag. Profile on Climate Depot (April 2010 Hardcover at Newsstands - Tina Fey Cover)



Prof. Andy Hoffman: Climate skeptics are the moral equivalent of those who defended slavery? 'Climate change requires shift similar to smoking, slavery'
ajhoff@umich.edu

Here comes the Cooling?! "In the last month, did we just lose nearly a century's worth of global warming?" 'Global air and sea temperatures starting to drop rapidly'

Extreme Weather Whining: 'US in 1990s had nearly as much extreme weather as all other decades combined'

'In fact, the past decade (2000-2009) may have had the least extreme weather. Twenty three states set their record high temperature in the 1930s,



Warmist Arnold Schwarzenegger compares AGW heretics to Nazis? Schwarzenegger on skeptics: 'This is like Eva Braun selling a kosher cookbook. It's not about jobs at all'

Next Eco-Scare of Biodiversity is twice climate ransom! Poor nations seek \$200bn per year 'for biodiversity conservation' -- Up from



Prof. Hoffman: 'Just as few people saw a moral problem with slavery in 18th century, few people in 21st century see a moral problem with burning of fossil fuels'

ajhoff@umich.edu

Reaction to Hoffman's slavery analogy: 'Skeptics have been called 'deniers' a deliberate comparison to Holocaust denial...We've been labeled traitors to the planet...I don't

Climate 411

Watts Up With That?
Trenberth on fixing the IPCC? and ? missing?heat?

Planet Gore
Tweet of the Day

Planet Gore
Future of Solar Projects in the U.S. in Doubt

Planet Gore
Previewing California's New Cap-and-Trade Rules

Keyword:
globalwarming
Happy Climate Fools' Day

Dot Earth

- SUBJ: AGW is a Nazi eugenical depopulationary Rockefeller scam. Scum, You think you are doing good, but you are working for Satan. What will become of you? Stan in Seattle
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- We will see who is right and who is wrong. I will be proven right soon. I know you will not respond now, and you will NEVER respond if I am correct. That is how you all operate. But I won't let you forget who was right.
- Are you an idiot deceiver or just plane stupid? I have news for you. There is no such thing as man-made global warming!!!! It's quite possibly the largest fraud in human history!!!! CO2 is plant food! I'm leaving now to increase my carbon footprint which I know will HELP society. If you're still worried, then please by all means, just kill yourself!
- SUBJ: Get a clue you loser. Or should I get your resume ready. Your days of milking the system with your phony science are numbered.
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- SUBJ: What a nut! The only moral problem I see is the one where ideologues like yourself want to force the USA to lower its standard of living to pursue your fantasies. ... By the way, how's that hockey stick graph working out for you? Perhaps you should provide some evidence for your pathetic climate theory, then us peasants will take you and your fellow "scientists" seriously. Until then, take a hike. .One more thing, you are a secular evolutionist right? If so, how do molecules in motion have moral stances on ANYTHING, much less fossil fuels?
- Being in the business world you have missed one important fact: anthropogenic global warming is a hoax. The "consensus" is only among a handful of scientists charged by the UN IPCC with the task of evoking evidence of global warming and what to do about the "disasters" it will cause. There were not "2000 international experts" who "all agree" that AGW, in fact, exists. Some of the few early believers have now become skeptics. Certainly weaning off fossil fuels may have some advantages, but prevention of global warming is not one of them. Eco-imperialism caused by this scam has prevented developing countries from having their own industrial revolution with the coal and natural gas they have. Surely, you are not one of those who hope to de-develop the world and push us backward?! There wouldn't be much need for business professors if that happened! Check out a website, <http://www.climatedepot.com>, to keep up with the devolution of anthropocentric global warming
- SUBJ: Slavery was a Democrat institution, you're a racist. The democrat party is the most racist organization in the history of Western Civilization.The Indian Removal Act and Trail of Tears was the democrats idea. All the slave owners were democrats. Democrats made educating blacks illegal. Reconstruction was opposed by democrats. Jim Crow Laws were enacted by democrats. The KKK was founded by the democrats.
- SUBJ: Greetings Komrade. It's funny you should equate rational thought with proponents of slavery, since the solutions of the warming nutballs like yourself are all Marxist destruction of civilization. IT IS ACTUALLY YOU who are promoting slavery. Wake the hell up from dreamworld. Read up on the fraud of temperature "adjustments". There is no fucking warming. None to speak of. Is your Phd printed on Charmin? Reverse course now, and blame others for the fraud. Don't go down with the warming ship. It's already listing to Port.
- Hey Dick Head. Sorry you have such an empty life, but I'm going to bet it gets a lot worse from here. Count on it. Shallow minded talking airheads always have that skeleton in the closet. I bet we are soon going to be hearing about yours. Have a care free day.

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Skepticism of Science and Scientific Elites

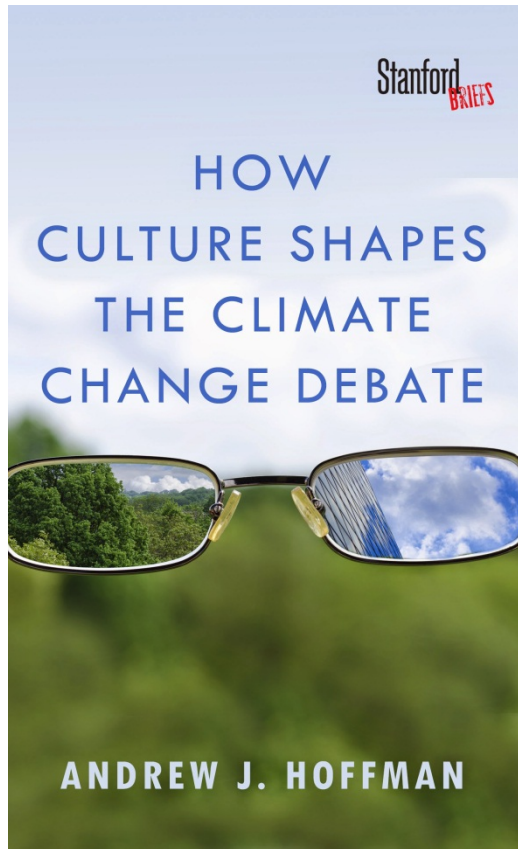
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- We will see who is right and who is wrong. I will be proven right soon. I know you will not respond now, and you will NEVER respond if I am correct. That is how you all operate. But I won't let you forget who was right.
- Are you an idiot deceiver or just plane stupid? I have news for you. There is no such thing as man-made global warming!!!! It's quite possibly the largest fraud in human history!!!! **CO2 is plant food!** I'm leaving now to increase my carbon footprint which I know will HELP society. If you're still worried, then please by all means, just kill yourself!
- SUBJ: Get a clue you loser. Or should I get your resume ready. Your days of **milking the system** with your **phony science** are numbered.
- SUBJ: Warming terrorists need a spanking. "professor huffing hoffman" No sonabitch **green terrorist** listens to reason. Emotion is the password. Crawl out of Fantasyland and face reality. It is all you falsifying sh--theads who wish to **enslave** anyone who does not agree with your agw fairytales. So, it is you who wish to be the **self-appointed overseers**. So, just go away, crawl in a safe hole somewhere, and wait for the world to prove to you your own special brand of stupidity.
- SUBJ: What a nut! The only moral problem I see is the one where ideologues like yourself want to force the USA to lower its standard of living to pursue your fantasies. ... By the way, how's that hockey stick graph working out for you? Perhaps you should provide some evidence for your pathetic climate theory, then **us peasants** will take you and your fellow "**scientists**" seriously. Until then, take a hike. .One more thing, you are a **secular evolutionist** right? If so, how do molecules in motion have moral stances on ANYTHING, much less fossil fuels?
- Being in the business world you have missed one important fact: anthropogenic global warming is a hoax. The "consensus" is only among **a handful of scientists** charged by the UN IPCC with the task of evoking evidence of global warming and what to do about the "disasters" it will cause. There were not "2000 international experts" who "all agree" that AGW, in fact, exists. Some of the few early believers have now become skeptics. Certainly weaning off fossil fuels may have some advantages, but prevention of global warming is not one of them. **Eco-imperialism** caused by **this scam** has prevented developing countries from having their own industrial revolution with the coal and natural gas they have. Surely, you are not one of those who hope to de-develop the world and push us backward?! There wouldn't be much need for business professors if that happened! Check out a website, <http://www.climatedepot.com>, to keep up with the devolution of anthropocentric global warming
- SUBJ: Slavery was a Democrat institution, you're **a racist**. The democrat party is the most racist organization in the history of Western Civilization. The Indian Removal Act and Trail of Tears was the democrat idea. All the slave owners were democrats. Democrats made educating blacks illegal. Reconstruction was opposed by democrats. Jim Crow La
- SUBJ: Greetings Komrade. It's funny you should equate rational thought and your own self are all Marxist destruction of civilization. IT IS ACTUALLY YOU on the fraud of temperature "adjustments". There is no fucking warming now, and blame others for the fraud. Don't go down with the warming sh
- Hey Dick Head. Sorry you have such an empty life, but I'm going to bet it gets a lot worse from here. Count on it. Shallow minded talking airheads always have that skeleton in the closet. I bet we are soon going to be hearing about yours. Have a care free day.

Skepticism of Science and Scientific Elites **Suspicion of Political Ideology**

- SUBJ: AGW is a Nazi eugenical depopulationary Rockefeller scam. Scum, You think you are doing good, but you are working for **Satan**. What will become of you? Stan in Seattle
- Dr. Hoffman: Where is the Creditable experimental data that proves the greenhouse gas effect? The moral issues is that supposed scientists have accepted a "hypotheses "as theory without finding any "credible experimental evidence " that the Hypothesis exists. You and Univerity of Michigan are the **criminals** not the "skeptics.
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Thank you

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