
CLIMATE CHANGE AND FAMILY FOREST LANDOWNERS IN OREGON: A NEEDS ASSESSMENT

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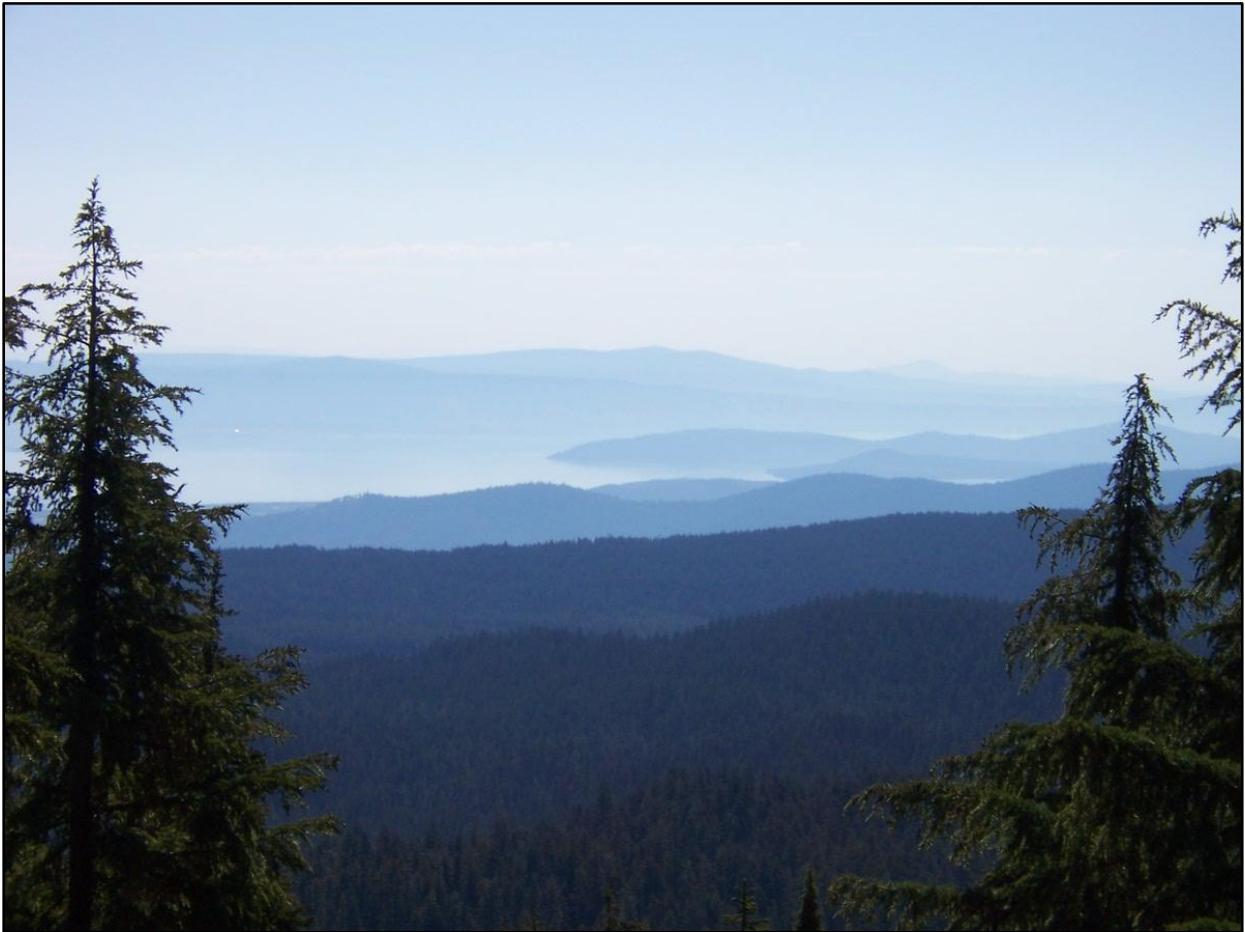


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INTRODUCTION

Family forest landowners control over 15% (4.6 million acres) of Oregon forests (OFRI 2011). Family forests are critical for timber, water, wildlife, and many other shared values. They account for about 3% of Oregon's annual timber output (OFRI 2011), and since they tend to be located in lower elevations, along stream corridors, and near population centers, they provide important ecosystem functions and other public benefits.

Family forest owners historically have looked to university extension as a partner and a trusted source of information for forest management. As new knowledge about the potential impacts of climate change on western forests is being generated by the research community, extension educators are now beginning to conceptualize education and technology transfer programs for family forest owners around climate change, its impacts on forests, and forest management implications. To make sure new research and extension programming related to climate change and western forests is as useful as possible for family forest owners, we conducted a needs assessment to determine family forest owners' perceptions, understanding, and educational needs regarding the impact of climate change on their forests. Oregon forest owners were interviewed as part of a larger study of family forest owners in Idaho, Oregon, Washington and Alaska that was funded with support from the US Forest Service PNW Research Station.

METHODS

Between September 2009 and September 2010, we conducted a series of focus group discussions held throughout the four Pacific Northwest states. The project was designed to allow comparisons between regions and sub-regions based on general forest type among the four states (Figure 1). Six focus groups were conducted in each state for a total of 24 different groups (Figure 1).

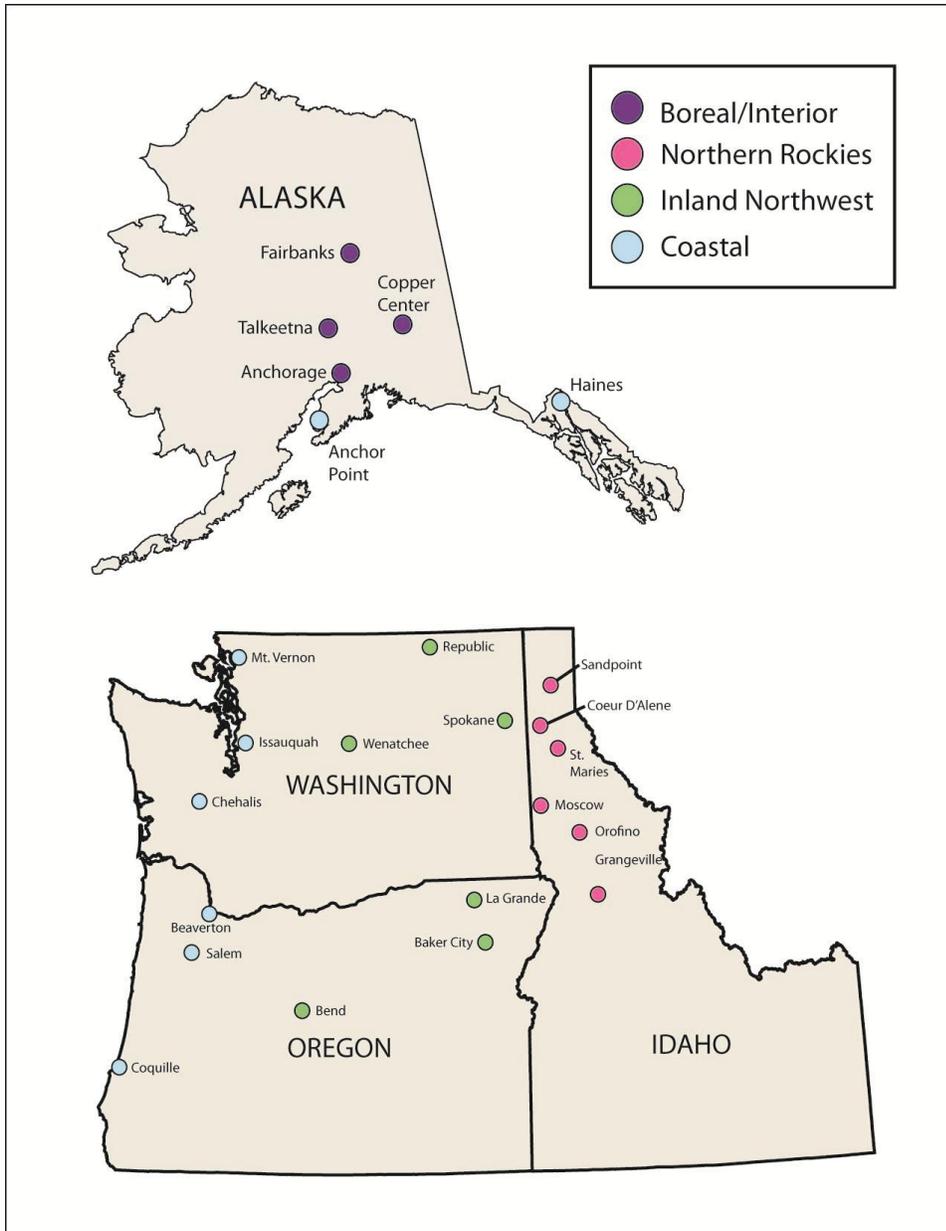


Figure 1. Location of the 24 focus groups in the Pacific Northwest study region.

Oregon focus groups ranged from four to eleven participants. Participants were family forest owners from the surrounding area that had previously taken part in forestry education programs through Extension; they were recruited with the help of the local OSU Extension forestry agents. Purposely open-ended questions were developed to stimulate active discussion among participants about their knowledge, attitudes and educational needs regarding climate change and the potential consequences for management of their forests (Table 1).

Table 1. Pacific Northwest Forest Owner Climate Change focus group questioning route.

Tell us about your forest.
Where do you get information about climate change?
How do you assess the validity of the information you receive about climate change?
How do you think climate change may or may not impact your forest?
What are you doing differently on your forest (if anything) as a result of anticipated climate change?
What are your major questions about climate change?
What form would you like to get information about climate change?
Do you have any further questions or comments?

Each session was videotaped and audio recorded with participants’ consent and recordings were transcribed verbatim. Data were also collected on participants’ size and tenure of forest ownership (Tables 2 & 3).

Table 2. Number of forest landowners by acreage class in six Oregon focus groups

Acreage class	Number of owners*
1 - 49	15
50 - 99	8
100 - 199	5
200 - 999	8
1,000+	8
*when two members of the same household were present, they are listed as one owner in this table.	

Table 3. Number of forest landowners by length of tenure in six Oregon focus groups

Years of ownership	Number of owners*
0 – 10 years	9
11 – 20 years	14
21 - 50 years	12
> 50 years	5
*when two members of the same household were present, they are listed as one owner in this table. Not all owners reported length of ownership.	

DATA ANALYSIS

Each of the four members of the research team reviewed and analyzed a subset of the transcripts and generated potential codes (shorthand categories to capture primary data content). The team then met and categorized and condensed these codes into a shared system which included 11 broad themes. All four researchers then used this system to code the transcripts using NVivo, computer assisted qualitative data analysis software (CAQDAS) by QSR. Each transcript was coded by at least two team members to account for intercoder variation.

RESULTS

Analysis of the Oregon focus group transcripts yielded numerous themes related to landowner understanding of climate science, attitudes toward climate change and the information they receive about climate change, and their interest in receiving information from Extension about climate change and forest management. These themes are outlined in more detail below.

SOURCES OF INFORMATION ABOUT CLIMATE CHANGE

Mainstream media sources were commonly cited when asked where participants got information about climate change. These sources included newspapers, radio, television, and magazines. Specific media sources mentioned are listed in Table 4. Most participants do not actively seek out climate change information from these sources; rather, they receive it passively when they are watching, listening or reading their “regular” news sources. The internet was often mentioned but specific internet sites were not typically mentioned nor were they asked for by the researchers.

Table 4. Media sources mentioned by Oregon participants.

Television	Radio	Newspapers	Magazines
Fox News	NPR	The Oregonian	National Geographic
NBC Nightly News	Rush Limbaugh	Capital Press	The Economist
		Local newspaper	High Country News
		The Grower’s Guide	Newsweek

Participants also cited a variety of public figures, organizations, government or scientific entities, books and films, and sources related to their professional contexts as sources of information (Table 5). The most commonly mentioned public figures included Al Gore and local weather authorities.

Table 5. Other information sources mentioned by Oregon participants.

Named Individuals/Affiliations	Organizations	Science Community	Books/Film
George Taylor (former Oregon state climatologist)	“My church”	OSU	An Inconvenient Truth by Al Gore
Lester Brown (president of Earth Policy Institute)	Society of American Foresters	USFS PNW Research Station	<i>Trickle Up Poverty</i> by Michael Savage
Cliff Mass (University of Washington atmospheric scientist)	Oregon Small Woodlands Association	OSU Extension Service	The Real Global Warming Disaster by Christopher Booker
Bill Bradbury (former Oregon Secretary of State)	American Tree Farm System	NOAA	Unnamed book by University of Adelaide (Australia) author
Chuck Wiese (meteorologist)		NASA	
Al Gore			
Art Robinson (political candidate)			

TRUST IN INFORMATION SOURCES

Although participants hear about climate change from many different sources, not all of these are viewed as credible. For example, participants generally said that they were very dubious about what they hear or read about climate change through the mass media. Many people expressed the belief that mainstream media does not delve deeply enough into the science, or provides only the information that is headline-worthy.

I've just seen a lot of stuff in the newspapers about it, which, as Will Rogers said, 'Don't believe everything you read in the newspaper.' [Coquille]

I hear the pundits on the various media extrapolating their positions...I find tremendous amounts of discrepancies...they oversimplify, or they leave out relevant details and so forth. So I don't pay too much attention to them. [Baker City]

Some of the named individuals listed in Table 5 were described as both trusted and distrusted sources of information, by different focus group participants:

My favorite authority is George Taylor who was our state climatologist until he disagreed with the governor. [Bend]

George Taylor picks and chooses data that fits his agenda. [Salem]

The scientific community was viewed by some to be a very credible source of information. However, many others were concerned that science can be biased, particularly by the funding source or by scientists' need to generate future funding.

Well even science is – you know, they get the grants, and they write the grants to climate change, and that's the way you get 'em – 'cause that's what's popular. And, so I don't trust a lot of the scientific stuff that comes out. [Baker City]

If you don't think that scientists aren't biased...then you're mistaken because, whether you're a doctor trying to have a certain medical procedure or whatever you think is the best thing since sliced bread, that person is biased, okay. So we all are human beings is the bottom line. [La Grande]

Distrust in scientific information was also connected to a distrust or lack of understanding of global climate change models (see next section).

Many participants expressed that they did not know whom to trust or what information is credible, because they receive so much conflicting information. A common request was for Extension to help sort out credible vs. false information about climate change (see *Landowner Information Needs* below).

UNDERSTANDING OF CLIMATE SCIENCE

Landowners are attuned to climate and weather patterns both on an annual basis and over longer time periods. When asked about their perceptions of climate change, conversations often turned to comparisons of current and past weather. Some felt that conditions have been getting “warmer and wetter”, while others perceived “warmer and drier” conditions. Many participants recalled much colder weather in their youth. But they did not point to this as evidence of climate change; rather they

understand this to be a cyclical phenomenon. Perceptions of future climate scenarios were also wide-ranging and uncertain.

The seasons have a lot to do with what's happening – not only the yearly season but the 10, 20, and 30-year seasons. Because they do change quite a bit...hey, I'm an old guy and I can remember back, [having] a lot of four-foot snows here. [Beaverton]

The trend has been warmer and wetter, since you know, since I've been looking. 'Cause I can remember in high school you know the big [deep snow] we'd get, it could be hard to get out there with the cows. [Bend]

And I'm thinking warmer and drier, at least for right here where we live. I have lived in this area for most of my life and I certainly feel that way, I've experienced that. [Bend]

While there was little consensus among participants on climate trends, there was even less consensus on whether changes are being caused by human or other factors. Some individuals were quite certain that human influences such as land use change, population growth, and industrial activity are important factors. Others expressed deep misgivings that humans could influence the climate. On a related note, some acknowledged that while human activity might be a cause, reversing course would be unlikely.

I heard the statistic that there's 40,000 babies born every day globally – so there's got to be some kind of a change 'cause somehow we've got to be feeding those people, and housing 'em...but I don't know, I'm not trying to say that America is being arrogant by taking this on saying we can fix this, but boy I'll tell you what, it's a huge endeavor folks. And I think there's got to be a lot of non-biased science come forward, so that all Americans can buy into it. [La Grande]

Participants expressed skepticism, distrust and uncertainty about climate models and their role in the science and public discourse about climate change. There was a sense that climate models could be manipulated to produce desired results, as well as a discomfort with scientists' relying on modeled predictions as opposed to empirical (historical) data.

[Scientists] can't demonstrate it – you know, computer models don't demonstrate anything. [Bend]

When you said "models" I was thinking that most of the things that started to tell Al Gore what was going on about the climate and so forth was done by people who did it on a computer, and they didn't introduce a lot of the things that are talked about in here. In other words it's many, many things that are involved with it besides just burning fuel or that sort of thing, or a gas-eating car. And so, if you don't enter all of those things into the computer, you're not going to get the right answers. And I think that maybe it doesn't give a very good picture of what might happen with global warming. [Coquille]

PERCEPTIONS AND ATTITUDES REGARDING CLIMATE CHANGE IMPACTS

For the most part, landowners did not report having already witnessed climate change impacts on their forests. Some participants cited increased insect or disease outbreaks, increased fire activity, and changes in species distribution as impacts that may occur in the future, but they felt that there is not enough information yet to predict in what regions or to what extent these impacts may occur.

A two degree change in temperature could have a big impact on what kind of insects are gonna start attacking our trees. It's been a hyperbola – but I think it's the subtlety of change, and the lack of understanding of what that change can mean in terms of impact, that we need to have a better handle on. [Baker City]

Some landowners remarked that they are already accustomed to changing conditions because of the dynamic nature of forest systems, and because of the long-term nature of forest management cycles. These landowners perceive climate change to be just one more driver of change. Some of the other drivers of change that were cited (fire, disease, etc.) are probably linked to climate change, but landowners don't necessarily make that distinction.

I think if you're a forest landowner, you work or you live in a dynamic environment. Forests are continually changing. So we're all familiar with the changing environment I think. The other thing is if you deal with forests you already have a long-term view. And the way that I look at climate change is it's almost like a forest: it's changing, and it's a long-term thing; it's been changing forever, it's gonna change forever, there are things you do in a forest that'll impact that change, or maybe things we're doing in the climate or not, that are impacting the climate. But I see a real parallel to some of that stuff. [Baker City]

Participants' concerns about potential climate change-related impacts to their forests seem to be much less significant than their concerns about climate change-related policy implications. Concerns about climate change as a political and policy issue were strong, especially in eastern Oregon. These concerns had two distinct aspects: climate change being used to justify policy "solutions" (such as corn-based ethanol or public land management) that are perceived to be more political than pragmatic; and added regulatory or policy burden that may arise from climate science findings. Eastern Oregon landowners compared the latter to what they have experienced with federal forest policies and the lack of active management on federal lands.

I have some strong view that I'm not sure we're gonna take care of the human side of it if it were important...I'm more concerned about its coming out with some political solution, like "let's do ethanol". That makes absolutely no sense, under any measure, to anybody looking at it. And I'm more concerned about that kind of thing, than I am about whether or not it's heating up. [Bend]

The lack of active forest management in public forests, on a scale of zero to ten ranks close to a nine, while the impact of climate change on our forests probably ranks around one, in terms of relative concern. The fact that they haven't thinned this forest that's sitting right next to mine, small as it is, is a big concern. And that has nothing to do with climate change; that has to do with policies that come out of someplace that we have very little control over. Now where does that connect back to climate change? Maybe it's a policy threat because we may find ourselves having to deal with policies that, again, we've had little or nothing to do with. [Baker City]

Who cares about climate change? Roll with it. I'd like to try to take care of what I can, but because of the social [issues], to get to have the ability to access the various tools that I need to manage forests, that is a super big concern for me. [Baker City]

CLIMATE CHANGE AND LANDOWNER BEHAVIOR

Very few landowners are making changes to their management due to current or anticipated climate impacts. Some are planting non-native species, but more out of an interest in experimentation than out of concern for species shift due to climate change. For example, in western Oregon, many of the participants had planted some coast redwood, but only one participant mentioned that climate change had anything to do with his decision to do so. Most landowners felt that there was still insufficient research to justify making major changes to the management of their forests (i.e. changing species mix or seed source on a significant scale), but that managing for resiliency would be prudent.

What we do on our lands is dictated largely by what the markets are doing. Right now, where do you sell your redwood? It has to be in northern California – we’re not truckin’ it down there. So, we’re planting redwood, only who knows why we’re doing it – for the amusement of it, frankly. [Coquille]

I’ve read various articles that talked about that maybe areas that would’ve normally been, say, Doug. Fir, that might eventually be pine areas in the future if we continue to warm, and those kinds of things, but we haven’t made any changes on our operation. I think mainly because those things seem to be so subtle, that I’m not sure that we necessarily see them very quickly, if it is in fact happening. [La Grande]

I think when you’re used to workin’ out in the woods like a lot of us are, you don’t get too excited about it because you’re always plannin’ for the worst thing. And here it is hot and dry. So we’re already planning that way. So we’re just [gonna] keep doin’ what we’re doin’ now. [Baker City]

The idea of changing management practices now to adapt to climate scenarios many decades away was perceived to be at odds with the time scale of growing a rotation of timber, or with the landowners’ management horizons of a few years to decades.

Well the problem we have here is that dry side pine is a hundred-year rotation. So if you start saying, ‘well what are we gonna do if the climate changes?’, there’s not a whole lot you can do in your lifetime, in the amount of time that you really have to make a change. [Bend]

I don’t see any impacts to our forest land and we’ve owned it for 52 years. Nowadays rotation age is at 40 years; probably on our tree farm the rotation age will be 50 or 55 depending on what my heirs decide to do. And so, in the length of the rotation, it was planted four-five-six-years ago, it’s not gonna make any difference. So in the foreseeable future, I’m not worried. [Coquille]

Landowners expressed some interest in carbon markets, but they were largely skeptical about participating in them. Some were reluctant because of perceived limitations on harvest or other management activities. Others cited philosophical opposition to cap and trade and/or carbon markets because they see them as simply shifting carbon emissions elsewhere.

LANDOWNER INFORMATION NEEDS

Participants recognized the extreme complexity of climate science and suggested that Extension programming around climate science be kept simple. By and large, they were not interested in more science around the climate debate being presented to them or programs that aim to prove or disprove climate change (although some wanted more facts on climate trends). Rather, they would like to see (where possible) concrete, locally relevant information and practical management implications. Adaptation strategies were mentioned as an information need more often than mitigation strategies.

Should we be doing something different? Planting different species? What should I plan for? [Salem]

It isn’t this big thing called “climate change.” It’s what’s gonna happen to our trees, and how can we respond to that change. To at least ameliorate the impact. [Baker City]

I think the best way to have this conversation is to bring it down to practical terms. What are the immediate effects on what I’m doing on this piece of land and this forest – what are the savings? Some people want to know the savings in terms of resources, materials and time, other people want the monetary results, some people want the life cycle – I think that’s the easiest way to have this conversation when you’re looking at a specific issue – forests, for instance. That’s the better way to have this conversation ‘cause it brings what’s important to everybody to the table and it gets the politics out of the

way and it gets the ideologies out of the way and it makes progress possible whatever situation you're in.
[Coquille]

Participants recognize that climate change, along with other contemporary issues, will bring about new policies and shifting economic realities. Biomass markets were mentioned in all three of the eastern Oregon focus groups as an economic opportunity connected to climate change policies, and landowners saw a need for more information and assistance in accessing these emerging markets.

Landowners like to obtain information via a wide range of formats. Face-to-face workshops and tours are valued for the quality of interaction, but all sorts of formats from printed factsheets, to online documents, to podcasts, blogs, and peer-to-peer discussion forums were mentioned.

IMPLICATIONS FOR EXTENSION PROGRAMMING

Our research indicates that as is true of the general public, climate change is not a top-of-mind issue for most of Oregon's family forest owners. Therefore extension efforts that are billed as "climate change" programs may have a hard time gaining traction. Integrating climate change as a factor to be considered into existing (or new) programming efforts could be a better approach. For example, a program addressing forest health could address the effects of temperature and moisture patterns on insect populations. Likewise, programming should focus on practical, on-the-ground management strategies, as that information becomes available.

By and large, climate change impacts on Oregon forests are not yet observable by landowners. That, combined with the fact that the public discourse about climate change is currently centered around emissions reductions, climate predictions, and impacts elsewhere on the globe will make engaging landowners on the topic difficult, as one focus group participant put it:

And so your goal is to get information that perhaps you can develop some curriculum or something from for people that have trees?...All I have to say to you is good luck. Because I hear forestry out here, and climate change out here [spreads arms out]. To date, I've not heard or seen anything that really draws 'em together, much more, mix them up. [Beaverton]

Landowners' knowledge, attitudes, and interests regarding climate change come in many stripes. Some are looking for an independent authority to validate or discredit climate change arguments, while some are impatient with those who are skeptical of climate change, and want to see extension "get off the fence". Many landowners continue to approach most of what they hear about climate change with a high degree of skepticism, and are less interested in being further convinced one way or the other than in receiving practical information that they can put to use. It is important to recognize, therefore, that one level or type of program will not suit all landowners' needs or interests. The most effective and meaningful extension efforts may even arise from individual conversations, rather than as publications or workshops intended for a broad audience.

Landowners are deeply concerned about public policies and potential infringements on their ability to manage their resources. Other social scientists have found that when individuals have negative expectations regarding policy arising from climate change, they are more likely to distrust information

that affirms climate change, and more willing to believe such information if proposed policy solutions are not threatening (Kahan et al. 2007). In light of this, a possible role for extension could be to facilitate landowner participation in shaping public policies that affect forest land and that are climate-related. Reaching landowners through an issue of personal value (in this case, forest policy) could be an avenue for deeper discussions of climate change, climate science, and forest management implications.

Specific program recommendations include:

- Be aware that climate change can be a value-laden term for many people. Avoid approaching the topic as a “belief that needs to be changed.”
- Emphasize managing healthy, resilient forests in the face of environmental uncertainty and extreme events.
- Incorporate climate information into existing curricula and programs.
- Facilitate landowner involvement in public policy discussions (without extension taking an advocacy role).
- Develop materials aimed to increase science literacy in order to help landowners assess and interpret climate science.
- Educational programs should be grounded in and reference local conditions whenever possible.

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