

Using Systematic Evidence Review to Inform Family Forest Owner Educational Program Development

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Abstract

Title: Using Systematic Evidence Review to Inform Family Forest Owner Educational Program

Development

Purpose: Natural resources education and extension is at the intersection of diverse disciplines, where effective practice and policy decisions rely on the impartial evaluation and synthesis of multiple sources of information. This investigation examines contemporary information sources describing attributes of Oregon family forest owners, with the objectives of identifying potential educational program interests of these owners, and identifying information that might be useful in the development of specific educational programming.

Methodology: Two questions frame this inquiry: 1) What interests might family forest owners have about the management of their forestland that can be inferred from the available literature? 2) What can the available literature tell us about the interests, motivations, beliefs, and prior knowledge family forest owners have about specific topics? The first question is answered by using content analysis to evaluate the source materials for manifest and inferred interest in potential topics of interest to family forest landowners. The second question is answered by using content analysis of the source material to identify manifest landowner expressions related to five potential program topics: Intergenerational Planning; Invasive Species; Climate Change; Riparian Management; and Forest Management Plans.

An important step in the systematic review of multiple sources of information is the evaluation of the validity and generalizability of source materials; often these sources represent different target populations and measured constructs, and comprise both qualitative and quantitative forms of data that are difficult to evaluate for validity and generalizability by unified standards.

A framework for the evaluation of validity and generalizability is proposed that makes express factors that contribute to the validity and generalizability of source materials used in the systematic evidence review process. Validity criteria for quantitative research follow generally-accepted survey and experimental standards. Validity criteria for qualitative research are grounded in critical realist epistemology. Generalizability criteria include factors associated with Fisherian, Bayesian, and deductive forms of inference. A model is described for the Reliability of the Generalized Inference (RGI), an index based on the internal validity of the source material and the strength of inference between the source material and the target of generalization.

Results: A total of 77 potential educational topics were identified by the analysis of subject literatures for evidence of inferred and manifest landowner interest. The top ten topics of interest inferred from the subject literature were; conservation easements and land trusts; sustainability; stewardship incentive programs; business planning; creating a management plan; ecosystem services; carbon sequestration/carbon credits; forest health; small woodland owner networks and co-ops; and forest taxation. Content analysis for manifest landowner expressions of interest, prior knowledge, and concern with respect to the five specific topics analyzed found the lowest number of manifest landowner expressions in the topic of invasive species management, and the highest number of manifest expressions in the topic of intergenerational planning.

Conclusion: Although there was considerable evidence of generic landowner interest in the five topics analyzed for manifest landowner expressions, the information extracted from the literature may not by itself be adequate for theory-based educational program development. Much of the reviewed literature may nevertheless contain theoretically-relevant information that was unavailable through the content analysis methodology used by this analysis. Re-

analysis of the literature using a less restrictive data extraction methodology and a better-defined theoretical and conceptual framework is recommended.

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Foreword

This project began as an effort to compile and consolidate information about Oregon small woodland owners, and was the basis of my graduate program at the Oregon State University College of Forestry. The assigned task seemed easy enough when I accepted it, but as I accumulated more literature concerning Oregon small woodland owners – and more knowledge about statistics, epistemology, education theory, and scientific methodologies – the complexity of the task seemed to grow exponentially.

Questions inevitably arose about how to interpret and synthesize information coming from disparate sources: Are the information sources of equal value and relevance, or should the relative value of the subject literatures be weighted to reflect factors relevant to the questions of interest? What factors are relevant, and how should these factors be weighted? Should I account for the different numbers of participants used by these studies when evaluating findings? How do I account for geographic and demographic differences in the studied populations, and methodological differences between the studies? How do I evaluate the validity of source materials? Can I generalize findings beyond the subject population of the source materials? How do I synthesize dissimilar findings? How do I accommodate conflicting findings? Finally, though hardly conclusively, the source materials contained a broad range of information represented by countless constructs that were often vaguely defined; exactly what information about small woodland owners should I compile? Demographics? Opinions? Interests? Motivations? Program needs?

After much trial, error, and lost sleep, I eventually found the means to answer some of these questions, though not unequivocally or comprehensively. I settled on two primary questions of

interest to frame my analysis, an important step I had hitherto little appreciated. The two questions I used to frame this analysis are:

1) What interests might family forest owners have about the management of their forestland that we can we infer from the available literature?

2) What can the available literature tell us about the interests, motivations, beliefs, and prior knowledge family forest owners have about specific topics?

These questions imply the existence of underlying conceptual and theoretical frameworks driving this inquiry, notions I had also little appreciated – or understood – until struggling to find a satisfactory conclusion for this report in the final days and hours prior to the presentation of my findings. In searching for a sound, meaningful, and useful conclusion, I discovered that my conceptual and theoretical frameworks were not as express or well-developed as they could have been, and in retrospect seemed only to suggest that answers to the two questions of interest may in some way be useful for educational program development. One might also have inferred from my analysis that the education of family forestland owners is regarded therein as vaguely beneficial, although to whom these benefits should accrue remains unclear, as is the corollary matter of who should be responsible for providing such benefits. Recognizing these shortcomings in my own work, I affirm the importance of express and unambiguous conceptual and theoretical frameworks, and believe that greater clarity in the expression of our operative frameworks will lead to greater clarity in the results of our research.

Another implicit concept grounding this investigation is that not all sources of information are equally valid, relevant, or generalizable to the questions of interest. Validity, relevance, and generalizability may seem to be obvious prerequisites for information sources used in a

literature review or systematic evidence review; however, there are few guidelines for evaluating these factors and, in the case of validity and generalizability, a good deal of disagreement among recognized authorities. Determining relevance is largely a matter of determining our questions of interest and expressly and unambiguously defining our conceptual and theoretical frameworks, the importance of which I have touched upon in the previous paragraph. In developing a framework for the evaluation of validity and generalizability, I embraced the “critical realist” epistemology of Joseph Maxwell described in *A Realist Approach for Qualitative Research* (2012), and relied heavily on the theoretical grounding of William Shadish and his colleagues explicated in the book, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* (2002), and the practical application of survey statistics described by Robert Groves and his colleagues in *Survey Methodology* (2009).

I came to view the validity and generalizability of source materials as independent qualities that are best evaluated probabilistically. In other words, what is the probability that the findings of a study are valid, and what is the probability that these findings apply to “Oregon family forest owners”, the population of interest to this investigation that I refer to in the body of this report as “the OFFO construct”. To be useful in answering my questions of interest, I presumed that findings needed to be both internally valid with respect to the subject population of the originating research, *and* generalizable to the population of interest of this investigation. Generalizable findings that are not internally valid are, of course, potentially spurious and therefore unreliable in their own right, and valid findings that are not justifiably generalizable to the population of interest of this inquiry (Oregon family forest owners) likewise could lead to unreliable or spurious conclusions here. Assuming that the validity of a finding is independent of

the post hoc generalizability of a finding¹, and based on the rule of independent probabilities², I fashioned the model of the “Reliability of the Generalized Inference” used by this report as a way to assess the reliability of knowledge inferred to my population of interest – the OFFO construct.

Although I do not state it expressly in the body of this report, I believe questions of validity and generalizability are most effectively answered from a Bayesian perspective, both epistemologically and inferentially. Notably, the *Five Principles of Generalized Causal Inference* (Shadish et al. 2002), which were used as evaluation criteria for the generalizability of non-statistical forms of inference in this report, appear to be grounded in Bayesian statistical inference³ as a kind of qualitative Bayesian analogue. Moreover, it seems possible that much of the ongoing debate about the respective generalizability of qualitative and quantitative findings is obfuscated by the conflation of Bayesian and classical forms of statistical inference, the former being a fundamental aspect of human learning and cognition (Griffiths, Kemp, and Tenenbaum 2008) that is used instinctively and unconsciously to process new information, the latter being the commonly recognized “scientific” form of statistical inference characteristic of most quantitative survey research methodologies.

I did not set out to address the problem of how to incorporate questions of uncertainty about the validity and generalizability of source materials into the systematic evidence review process, though this is where it appears my investigation has led. Neither have I solved the problem, though I hope I have made a contribution to its solution. Further theoretical exploration into a

¹ As described by Guba and Lincoln (1985), and Baskerville (1996).

² The rule of independent probabilities states that: $P(A \cap B) = P(A) \times P(B)$. That is; the probability that a finding is both valid and generalizable is equal to the product of their respective probabilities.

³ In the body of this report when I refer to “statistical inference”, I am referring to inference derived from Fisherian (i.e., frequentist or classical) statistical methodologies.

possible Bayesian basis for the generalizability of qualitative research findings seems promising, and further work into the practical application of probabilistic models to evaluate information sources used in the systematic evidence review process may be especially useful to practitioners and decision-makers. It is time for me to move on, however, and these matters must wait for another day.

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Chapter One: Introduction

The intent of this paper is to provide information and analysis that will aid the development of useful and timely educational programs for family forest owners in Oregon. These programs will in turn contribute to forest management practices that protect the viability, sustainability, productivity, and resilience of forest ecosystems while meeting landowner objectives, the objectives of society, and the needs of future generations.

This investigation examines contemporary literature describing attributes of Oregon family forest owners, with the objective of identifying potential educational program interests of these owners, and evidence of their prior knowledge, interest, and concerns about specific program topics that may have social or policy implications in a broader context. By using systematic evidence review as an analytical framework and content analysis as a methodology for data extraction, disparate sources and forms of information are evaluated and compiled in a way that objectively informs a uniform construct representative of Oregon family forest owners.

1.1. Oregon Family Forestlands

The State of Oregon contains 30,169,000 acres of forestland, of which 4,257,000 acres are held by approximately 141,000 family forest owners (Butler 2008). Family owned forestlands, which make up the vast majority of non-industrial private forests in Oregon (Butler 2008), make significant contributions to the State's economic, social, cultural, and environmental well-being, for instance:

- Between the years 1986 and 2011 timber production from lands classified as non-industrial private forest averaged 474mmbf per year, representing an average of ten percent of Oregon's total annual timber harvest (Oregon Department of Forestry 2012a) during that time period. Timber harvest from Oregon non-industrial private forests in the year 2011 was 278mmbf, representing eight percent of Oregon's total 2011 timber harvest (Oregon Department of Forestry 2012a).
- Though non-industrial private forests comprise just sixteen percent of Oregon's total forest area, the concentration of these lands at low elevations and in riparian areas increases their ecological and sociopolitical significance (Bliss 2003). For instance, a bioregional assessment of forestlands of the Oregon Coast Range physiographic province by Spies et al. (2007) reports that the exceptional biodiversity value of non-industrial private lands is a function of their low topographic position (e.g., in foothills and valleys, and along low-gradient streams and rivers) and the unique climate along the margins of the Coast Range. The authors report that non-industrial lands (primarily forestlands, but also containing agricultural lands) contain most of the potential oak (*Quercus garryana*) woodland habitat types, and a large proportion of the high intrinsic potential stream habitat for juvenile coho salmon (*Oncorhynchus kisutch*) in the Oregon Coastal province. Currently, the Oregon coastal coho salmon is classified as an "evolutionarily significant unit" by the National Marine Fisheries Service (NMFS), and is listed as a threatened species under the Endangered Species Act (National Oceanic and Atmospheric Administration 2008).
- Family forests contribute to the economies and well-being of rural communities (Bliss 2003). In contrast to highly centralized industrial and governmental land management

entities with distant offices and remote decision-making structures, NIPF owners and their families are usually members of and contributors to the rural communities they call home. Money earned and local services used for community-scale forestry operations may increase the viability and stability of rural communities (Danks 2009).

- Finally, forest ownership is clearly of great value to many forest owners and their families, contributing to a sense of identity, place, and purpose (Bliss and Kelly 2008; Bliss and Martin 1989; Langer 2008; Redmore and Tynon 2011), which may in turn contribute to the identity, viability, and stability of rural communities.

1.2. Educational Program Needs Assessment

The interests, motivations, beliefs, and prior knowledge of a target audience are important components in the development of effective educational programming (Tobias 1994; Falk and Dierking 2000; Roschelle 1997), and needs assessments of these and other factors are often the initial step in the process of educational program development (Witkin and Altschuld 1995).

Witkin and Altschuld (1995) describe three phases of the formal Needs Assessment (NA) process: pre-assessment; assessment; and post-assessment. The pre-assessment phase investigates what is already known about the target audience, provides focus and scope for the inquiry, and helps determine the nature of data that will be needed for further assessment and program development. During the assessment phase required information is collected and formal assessment of needs is performed, documenting those needs by determining the gap between a current state and the desired future condition. Post-assessment uses the information gathered from the NA process to develop program priorities and solution strategies.

1.3. Research Objectives

The objective of this study is to explore the use of existing literature pertaining to Oregon family forest owners as a means to inform the pre-assessment phase of an educational needs assessment. The following two questions frame this inquiry:

- 1) What interests might family forest owners have about the management of their forestland that can be inferred from the available literature?
- 2) What can the available literature tell us about the interests, motivations, beliefs, and prior knowledge family forest owners have about specific topics?

The first question provides information about topics that family forest owners may be interested in, and can help identify educational needs or interests that previously went unrecognized. Conversely, lack of interest in a topic by landowners may signify a lack of awareness or appreciation by these owners concerning a topic that may be important to them, or to society. For instance, the potential impact to natural ecosystems of aggressive invasive species is broadly recognized by the scientific community (Ries et al. 2004; Oregon Department of Fish and Wildlife 2005; Oregon Invasive Species Council 2012; Pimentel, Zuniga, and Morrison 2005; Lodge et al. 2006), but may not yet be recognized by family forest owners as an issue relevant to their forest management decisions.

The intent of the second question is to reveal detail regarding specific topics, provide information useful in educational program development, and inform subsequent phases of the NA process. For example, based on information revealed by answers to this question, evaluators might determine that there is sufficient information available in the existing knowledge base to proceed directly with the development of an educational program, or they may choose to

continue with the NA process to identify areas where additional information or resources are needed before implementing program development (Witkin and Altschuld 1995).

Chapter Two: Analytical Framework

There has been a growing recognition across many disciplines of the need to develop effective methodologies for the synthesis of disparate forms of evidence as a means to consolidate scientific knowledge, comprehensively answer specific research questions, inform practice, and support policy and decision-making processes (Pope, Mays, and Popay 2007; Sutherland et al. 2004; Tranfield, Denyer, and Smart 2003; Rousseau, Manning, and Denyer 2008; Pullin and Stewart 2006). Some authors suggest that in the absence of an explicit review process, disparate research findings may nevertheless be combined implicitly (Cooper 2010; Tranfield, Denyer, and Smart 2003) or ignored altogether by policy makers, practitioners, or decision makers (Sutherland et al. 2004). Various forms of interpretive research synthesis methodologies that accommodate disparate sources of information have emerged in recent decades, primarily in the field of health evidence review (Dixon-Woods et al. 2004; Paterson et al. 2001; Pope, Mays, and Popay 2007; Sandelowski and Barroso 2007); these review methodologies are being adapted and further developed for other fields, such as management and organizational science (Rousseau, Manning, and Denyer 2008; Tranfield, Denyer, and Smart 2003), and conservation and environmental management (Pullin and Stewart 2006).

Systematic evidence review is to be differentiated from literature review. Literature reviews provide a compilation of topical information, but usually do not assess the methodological quality of the information sources used in the review, systematically search for all relevant evidence, or attempt to integrate findings into second-order knowledge (Pope, Mays, and Popay 2007). While they provide a flexible format for the presentation of diverse forms of information,

literature reviews may be susceptible to bias, and thus may lead to unreliable conclusions (Pope, Mays, and Popay 2007).

When moving beyond literature review and into forms of systematic evidence review, issues of validity, generalizability, and the form of research evidence take on greater importance. In the past there has been controversy about the practicality, feasibility, and validity of combining different forms of research evidence, most notably about combining qualitative and quantitative forms of evidence (Pope, Mays, and Popay 2007; Sandelowski and Barroso 2007). Pope et al. (2007) and Dixon-Woods et al. (2004) specifically address the problem of synthesizing qualitative and quantitative research findings, and describe several integrative synthesis methodologies that might accommodate the knowledge base analyzed here, including content analysis, Bayesian analysis, and thematic analysis. Content analysis emerged as the favored data extraction methodology for this investigation because it is a flexible technique that is amenable to a wide range of information sources and data types (Pope, Mays, and Popay 2007), a characteristic of the body of literature reviewed here.

All of these methodologies follow a similar organizational framework, proceeding from problem definition to protocol development, literature search and evaluation, data extraction, analysis and synthesis, and reporting. The following systematic evidence review framework adapted from Pope et al. (2007) is used in this inquiry:

1. Definition of Research Question
2. Analytical Framework and Protocol Development
3. Literature Search
4. Literature Evaluation
5. Data Extraction
6. Evidence Synthesis
7. Reporting

The definition of the research question has been discussed above, and the analytical framework and protocol development are described here. Chapter 3 describes the literature search process, and is followed by exposition of the literature evaluation process in Chapter 4. Data extraction using content analysis is discussed briefly below, and is described more thoroughly as it pertains to the two primary research questions in Chapters 5 and 6, along with a discussion of findings. Finally, this review will conclude with a discussion of the results of this review process.

2.1. Data Extraction using Content Analysis:

Content analysis is a research methodology for the analysis of texts or other forms of communications (transcripts, documents, propaganda, etc.) that seeks to make valid and reliable inferences about the context in which the texts originated (Krippendorff 2012).

Graneheim and Lundman (2004) note the importance of distinguishing between an analysis that focuses on *manifest* content, and an analysis focusing on *latent* content. *Manifest* content refers to meaning that is express, and that is not dependent on interpretation, analysis, or abstraction by the reader to be understood⁴. *Latent* content refers to underlying meaning that is not obvious or express, but that may be inferred through interpretation or abstraction of contexts or relationships within the texts (Graneheim and Lundman 2004).

The first question of this study – the interests of family forest owners – is investigated by analyzing the subject literature for both latent and manifest expressions of interest with respect to potential topics of interest. The second question of this study – family forest owner interests,

⁴ Krippendorff (2012) writes, “A text does not exist without a reader, a message does not exist without an interpreter, and data do not exist without an observer” (p. 28). As Krippendorff suggests, communications have no meaning without a reader, or observer, to interpret them, and some interpretation or abstraction by the reader is necessary to confer meaning. Manifest content, in contrast to latent content, however, requires a relatively low level of interpretation and abstraction (Graneheim and Lundman, 2004).

motivations, beliefs, and prior knowledge with respect to specific topics – is investigated by searching and evaluating the subject literature for manifest expressions with respect to each of five program topics relevant to the intersection of the interests of family forest owners and those of society; riparian management, global climate change, invasive species management, intergenerational transfer of family forests, and the development of forest management plans. Both questions explore the same literature base.

Chapter Three: Source Literature Used in Analysis

Throughout the United States, landowner surveys using descriptive statistics have routinely been conducted by researchers to determine family forest owner characteristics such as demographics, goals, intentions, and attitudes (Egan 1997). These quantitative studies had for years been the primary tool of investigators seeking to understand small woodland owner attributes, however more recently qualitative methods such as case study, ethnography, and grounded theory have been used by some investigators to provide a more comprehensive understanding of small woodland owner characteristics (Egan 1997; Fischer et al. 2010). Research describing Oregon family forest owners has followed the national pattern of inquiry, and is therefore quite diverse. The literature reviewed here includes descriptive landowner surveys, case studies of landowner perspectives on conservation and regulation, focus group summaries, and correlational studies of landowner survey variables. Several of the studies reviewed here are statewide in scope; however most of the studies are restricted to specific watersheds, counties, regions, or to specific demographic groups.

3.1. Literature Selection Criteria

Selection of literature for inclusion in this investigation was based on the following criteria:

- 1) Publication date – Original research based on data collected from the year 2000 to the present.
- 2) Target population – Literature pertaining to owners of “small woodland”, “family forest”, or “non-industrial private forest” properties in the State of Oregon. In studies

with mixed populations, studies with less than 50 percent Oregon family forestland owners are excluded.

- 3) Target subjects – original research or other documentation that investigates family forest owner characteristics, e.g.; demographics, motivations, property characteristics, personal identities, concerns, associational characteristics, etc.
- 4) Literature source – The primary source of literature for this review has been peer-reviewed original research published in professional journals. Other literature that might be expected to be used or be of use by professional foresters, natural resource specialists, extensionists, and policy makers has also been reviewed. Sources have been limited to material produced by known institutions, such as; Oregon State University Extension, Oregon Forest Resources Institute, Oregon Small Woodlands Association, Oregon Department of Forestry, and County governments.

A complete listing of the source material used in this analysis is displayed in Table 1.

Title	Data Year	Location	n	Percent Response	Study Type	Data Collection	Analysis
Family Forest Owners of the United States, 2006.Gen. Tech. Rep. NRS-27.Oregon Tables and Data. (Butler 2008)	2006	Oregon	136	55.5	Published Report	Mail Survey	Descriptive Statistics
Committee for Family Forestlands: Survey for Participants in the 2001 Family Forests Symposium. (Committee for Family Forestlands 2004)	2004	Oregon	66	35.5	Unpublished Report	Mail Survey	Narrative Summary
Appendix A: The white paper. Looking Forward II – Oregon Families and their Forestland: What's at Stake. (Committee for Family Forestlands 2007a)	2007	Oregon	73	NR	Unpublished Report	Focus Group	Narrative Summary
Family Forestland Survey: A Report for Oregon Forest Resources Institute. (Eiland 2004)	2004	Oregon	400	NR	Unpublished Report	Telephone Survey	Descriptive Statistics
Reducing Hazardous Fuels on Nonindustrial Private Forests: Factors Influencing Landowner Decisions. (Fischer 2011)	2008	Eastern Oregon	505	50	Journal Article	Mail Survey	Analytical Statistics
Mental and Biophysical Terrains of Biodiversity: Conserving Oak on Family Forests. (Fischer and Bliss 2006)	2002	Benton County	20	NA	Journal Article	Interview	Qualitative Analysis
Behavioral Assumptions of Conservation Policy: Conserving Oak Habitat on Family-Forest Land in the Willamette Valley, Oregon. (Fischer and Bliss 2008)	NR	Willamette Valley	36	NA	Journal Article	Interview & Focus Group	Qualitative Analysis
Framing Conservation on Private Lands: Conserving Oak in Oregon's Willamette Valley. (Fischer and Bliss 2009)	NR	Willamette Valley	36, 32	NA	Journal Article	Interview & Focus Group	Qualitative Analysis
Landowner Perceptions of Habitat Protection Policy and Process in Oregon. (Giampaoli and Bliss 2011)	NR	Klamath, Douglas Counties	13	NA	Journal Article	Interview	Qualitative Analysis
Climate Change and Family Forest Landowners in Oregon: A Needs Assessment. (Grotta et al. 2011)	2009-10	Oregon	NR	NA	Unpublished Report	Focus Group	Qualitative Analysis
Conservation incentives programs for endangered species: An analysis of landowner participation. (Langpap 2004)	2001	Oregon, Washington	777	56	Journal Article	Mail Survey	Analytical Statistics
Conservation of endangered species: Can incentives work for private landowners? (Langpap 2006)	2001	Oregon, Washington	737	53	Journal Article	Mail Survey	Analytical Statistics
The sociology of landowner interest in restoring fire-adapted, biodiverse habitats in the wildland-urban interface of Oregon's Willamette Valley Ecoregion. (Nielsen-Pincus, Ribe, and Johnson 2011)	NR	Linn & Lane Counties	651, 281	40, 49	Journal Article	Mail Survey	Analytical Statistics
Looking Forward II. Oregon families & their forestlands: What's at stake. (Committee for Family Forestlands 2007b)	2007	Oregon	NR	NR	Unpublished Proceedings	Focus Group	Narrative Summary
Oregon Small Woodlands Association Membership Survey. (Oregon Small Woodlands Association 2006)	2006	Oregon	745	28	Unpublished Report	Membership Survey	Narrative & Descriptive Statistics
Women owning woodlands: Understanding women's roles in forest ownership and management. (Redmore and Tynon 2011)	2007-09	Western Oregon	16	NR	Journal Article	Individual Interview	Qualitative Analysis
Landowner motivations for watershed restoration: Lessons from five watersheds. (Rosenberg and Margerum 2008)	2003	Western Oregon	446, 80	52, NA	Journal Article	Mail Survey & Interview	Analytical & Descriptive Statistics
Washington County woodland owner survey: Summary report. (Shibley and Styer 2002)	2002	Washington County	505	49%	Unpublished Report	Mail Survey	Descriptive Statistics

Table 1; Reviewed Literature: Search criteria for reviewed literature are described beginning on page 10. Only studies identified as journal articles are known to be peer-reviewed. The following definitions for Analysis Type are used: *Descriptive Statistics* are traditional survey methodologies that estimate population parameters; *Analytical Statistics* use traditional survey methodologies, and analyze or model correlations between population attributes; *Qualitative Analysis* describes peer-reviewed research that uses qualitative methodologies, such as grounded theory and ethnography; *Narrative Summary* describes qualitative reports that do not specify a methodology.

Chapter Four: Evaluation of the Generalizability and Validity of Source Literature

The validity and generalizability of source material is an important consideration in the subsequent conclusions of a literature review or research synthesis (Pope, Mays, and Popay 2007; Cooper 2010; Fink 2009; Rousseau, Manning, and Denyer 2008; Pullin and Stewart 2006). Though no studies were excluded from this investigation based on quality factors, it is nevertheless important to understand how the validity and generalizability of the source material may affect the findings of this review.

This chapter outlines the theoretical frameworks used for the evaluation of the validity and generalizability of the literature reviewed for this investigation, the evaluation criteria used as the basis for this evaluation, and the evaluation methodology. Because the reviewed literature is quite diverse and is based in both qualitative and quantitative research methodologies, evaluation criteria appropriate to the respective methodologies are used.

The literature reviewed here can be divided into four groups characterized by their respective methods of analysis, which in turn determines the appropriate evaluation criteria. Three of these groups follow generally-accepted social science and survey methodologies; the fourth group includes studies or reports that do not follow recognized methodologies, but nevertheless may contain useful information for use in educational program development.

- 1) Quantitative studies using survey methodology and descriptive statistics, such as Butler (2008), Oregon Small Woodlands Association (2006), and Eiland (2004). These studies are evaluated according to criteria for survey methodologies described by Groves et al. (2009).

- 2) Quantitative studies that make use of analytical statistical methodologies, and that use survey-derived descriptive statistics as the basis for this analysis. Examples include; Langpap (2006) and Fischer (2011). These studies are also evaluated according to criteria for survey methodologies described by Groves et al. (2009).
- 3) Studies using qualitative methodologies, such as case study, focus group, or ethnography. Examples include Fischer and Bliss (2008), Giampaoli and Bliss (2011), and Grotta et al. (2011). These studies are evaluated using the qualitative evaluation criteria described by Maxwell (2012).
- 4) Studies that do not follow a standard qualitative or quantitative methodology, and that are that do not appear to be peer reviewed, such as Committee for Family Forestlands (2007a), and Committee for Family Forestlands (2007b). These studies are evaluated using the qualitative evaluation criteria of Maxwell (2012).

4.1. Validity

As used in this review, validity refers to, “The quality of being well-founded on fact, or established on sound principles, and thoroughly applicable to the case or circumstances” (Oxford English Dictionary). In literature describing survey methodologies, the term ‘validity’ is congruent with this definition, and is used specifically to refer to construct validity. For instance, Groves, et al. (2009) define validity as “the extent to which the survey measure accurately reflects the survey construct.” The authors expressly use the term “error”, rather than validity, to refer to other factors that might cause a survey statistic to deviate from true population parameters, such as frame error, coding error, and sampling error. In explicating construct validity as a source of error, de Leeuw, et al. (2008) use the term “specification errors” to signify

errors in the way concepts are translated or operationalized into measurable variables, and define construct validity as, “*The extent to which a measurement instrument measures the intended construct and produces an observation distinct from that produced by a measure of a different construct.*” They note that the specification of measurable variables (e.g.; constructs) is “conceptual rather than statistical”, in contrast to other sources of survey error, which are measurable. Both Groves et al. (2009) and de Leeuw et al. (2008) emphasize that the valid specification and definition of measured constructs is foundational to high quality survey research.

Whereas interpretations and use of the term “validity” are largely uncontested and unconditional by quantitative researchers, some qualitative researchers see fundamental epistemological and ontological differences between quantitative and qualitative research, and regard “positivist” (e.g. quantitative) notions of validity as inappropriate criteria for assessing the value or trustworthiness of qualitative research (Maxwell 2012; Guba and Lincoln 1985). For example, Guba and Lincoln (1985) describe fundamental differences between “rationalistic” and “naturalistic” research, and suggest that rationalistic criteria of internal validity, external validity, reliability, and objectivity be replaced with the concepts of credibility, transferability, dependability, and confirmability for the evaluation of naturalistic (e.g.; qualitative) research. In contrast, Shadish (1995) writes,

Validity is a property of knowledge, not methods. No matter whether knowledge comes from an ethnography [sic] or an experiment, we may still ask the same kinds of questions about the ways in which that knowledge is valid. [...] Acceptance of this point leads to a corollary. Since validity is not the property of a method, no method guarantees validity. So the mere fact that a researcher has properly implemented a method, be it an interpretive method or a randomized experiment, is not a sufficient defense of the knowledge claim being made.

Shadish's argument is accepted as the basis for the assessment of the validity and generalizability of all forms of inquiry evaluated here; from the perspective of a practitioner, decision-maker, or policy-maker, what is important is the reliability, relevance, and utility of new knowledge with respect to the context that knowledge might be applied.

Maxwell (2012), whose typology for the assessment of qualitative evidence is adopted here, describes three types of validity; descriptive validity, interpretive validity, and theoretical validity. Sandelowski and Barroso (2007) use this same typology for the planning and assessment of qualitative research synthesis studies. Maxwell's typology should not imply a rigid methodological approach to validity assessment. Indeed, he emphasizes the context-based nature of qualitative inquiry, and the importance of viewing the qualitative study as a complete entity that leads to understanding, rather than a set of procedures that result in a conclusion.

4.1.1. Validity Assessment of Quantitative Studies

Assessment of quantitative studies follows the "total survey error" framework described by Groves, et al. (2009). The survey methodologies described by Groves, et al. (2009) pertain to descriptive survey statistics, which estimate the frequency of occurrence of survey variables within a target population; the National Woodland Owner Survey (Butler, 2008) is an example of a survey using descriptive statistics. Several of the studies evaluated here involve analytical statistics, which explore relationships between two or more survey variables. Because the variables used in these analytical studies originate from survey instruments similar to those used for descriptive statistics, Groves et al. (2009) will be used to assess this aspect of these investigations. Assessment of the validity of analytical statistical procedures and conclusions is beyond the scope of this investigation.

Quantitative Evaluation Criteria

The following criteria for the evaluation of quantitative studies are adapted from Groves et al. (2009). The list is not exhaustive; nevertheless, these criteria are intended to represent the threats to validity that can be assessed based on the information that is available from the survey research findings reviewed here.

1) Construct Validity

“Construct ‘validity’ is the extent to which the [survey] measure is related to the underlying construct” (Groves, et al., 2009). For example, if you developed a survey to find out how many acres of forest the typical family forest owner in Benton County owns, you might simply ask, “How large is your forest property?” If the total size of the property and size of the forest on it do not match, the measured construct may not match your desired underlying construct for forestland however, depending on the interpretation of the question by the survey respondent. This could lead to a misinterpretation of survey results if the mismatch between the survey measure and underlying construct is not recognized, or could lead to ambiguity about the meaning of survey results, undermining their utility. Measures should unambiguously represent the underlying construct.

Evaluation criteria:

- a. Are the measured constructs clear and unambiguous?
- b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?
- c. Do the measured constructs represent the higher order abstractions they are intended to represent?

2) Coding Error

Coding error is a post-survey error associated with transforming survey responses into a new form to meet analytical or reporting format requirements. For example, open-ended survey responses may be “coded” into thematic categories that form the basis for the aggregation of survey results. Substantial bias can be introduced into survey results during the coding process if coding categories are not clear or discrete, and the reliability of coding can be affected by whether the coding process requires “high inference” or “low inference” by coders to place the data into appropriate coding categories. Coding that requires a high level of inference or interpretation to transform survey responses into measurable data tends to reduce reliability (repeatability), and introduces the possibility of coding bias.

Evaluation criteria:

- a. Are coding procedures described?
- b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)
- c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)

3) Coverage Error

Coverage error is the difference between the target population of the survey and the sampling frame of the survey. If the sampling frame matches the target population of the survey, there is no coverage error; if the sampling frame does not match the target population, coverage error will result. For example, consider a hypothetical survey with a target population of owners of forest land that is located in Lane County, and that is between 2 and 640 acres in size. The sampling frame of the hypothetical survey is based on Lane County tax records of the owners of all forest parcels over 5 acres. Because the sampling frame does not match the target

population, coverage error will result: The survey excludes members of the target population that own between 2 and 5 acres of forestland, and includes landowners with more than 640 acres of forestland.

Coverage error affects both the descriptive validity of survey findings, and the construct validity of the generalized inference to the target population. For example, if the sampling frame does not match the target population of a survey, this mismatch could be interpreted as a coverage error causing deviations in parameter values due to elements omitted from or foreign elements included in the sampling frame. Alternatively, this mismatch could be interpreted as an impairment of construct validity, in that the target population construct does not align with the population construct represented by the sampling frame. However this situation is interpreted, it negatively affects both the validity and generalizability of findings, because it makes unclear who the survey statistics represent, and to whom the survey statistics are intended to be generalized. If target populations or sampling frames are ambiguous or undefined, this creates ambiguity in survey results by introducing an unknown level of coverage error, posing an unknown degree of threat to the validity and generalizability of survey findings with respect to the presumed population of interest.

Evaluation criteria:

- a. Is the target population of the study adequately described?
- b. Is the sampling frame of the study adequately described?
- c. Does the sampling frame match the target population?
- d. Are no ineligible units evident in the sampling frame?
- e. Are all elements of the target population included in the sampling frame?

4) Sampling Error and Bias

There are two primary forms of sampling error; error caused by sampling bias, and error caused by variance in the measured attributes of the sample elements drawn from the sampling frame (Groves, et al., 2009). Sampling error due to variance is evaluated as a factor affecting statistical generalizability, and is discussed in section 4.2.3.

Sampling bias occurs when all elements in the sampling frame do not have an equal chance for selection, and affects the descriptive validity of findings. For instance, if a home telephone survey were conducted during business hours, potential respondents who worked away from home during weekdays would have little chance to participate in the survey, resulting in survey bias favoring the unique parameters of those elements of the target population who are available to participate in the survey.

Evaluation criteria:

- a. Is the sampling method described?
- b. Do sampled units in the sampling frame have equal chances for selection?

5) Nonresponse Error

Nonresponse error occurs when not all elements selected from the sampling frame participate in the survey. If there is a significant difference between population parameters of non-respondents and respondents, this will introduce bias into the survey results for the affected parameters.

Evaluation criteria:

- a. Is survey response (or nonresponse) reported?
- b. Is survey nonresponse analyzed?
- c. Is survey nonresponse less than 40%?

4.1.2. Validity Assessment for Qualitative Studies

The assessment of qualitative literature follows the qualitative validity typology of Maxwell (2012). Maxwell's typology is divided into five categories; descriptive validity, interpretive validity, theoretical validity, evaluative validity, and generalizability. Evaluative validity is not used as an evaluation criterion in this investigation, and generalizability is discussed separately in section 4.2.

Unlike the commonly-applied validity typology of Shadish, et al. (2002), which expresses validity in terms of "threats to validity", and Grove's total survey error framework, described above, which expresses deviation from a theoretical population parameter value in terms of degree of error, Maxwell's qualitative validity typology is expressed in terms of the degree of support for validity factors. Evidence for the support of validity thus plays a central role in the evaluation of qualitative research (Maxwell, 2012, p. 145).

Qualitative Evaluation Criteria

1) Descriptive validity

Descriptive validity refers to the factual accuracy of reporting by an investigator. Accurate and sufficient description of events by investigators allows readers of research to see plausible threads of judgment between events reported by the investigator, the interpretation of these events, and the investigator's conclusions. Though all events arguably have meaning that may vary depending upon the interpretation of the observer, descriptive validity is non-inferential; investigators working within the same framework could, in principal, agree on the description of an event, though they might infer different meaning to that event (Maxwell, 2012). Because

events or phenomena have meanings that are shaped by the context within which they occur, a description of that context is also important to convey understanding of the event and to support interpretations and theory developed by the investigator (Geertz 1973). With respect to this analysis, support for descriptive validity should be expressly demonstrated in the reporting of the primary investigator, and descriptions should be sufficient to provide coherence between the different facets of the investigation (e.g., purpose, research question, theoretical framework, methodology, and findings). Support for descriptive validity includes thick (contextual), not just rich (expressive) descriptions⁵ of reported phenomenon or events, and unambiguous descriptions of and reasons for; sampling, recording, transcribing, and coding procedures.

Evaluation criteria:

- a. Is the target population described?
- b. Is the sampling method described?
- c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)
- d. Are recording and transcribing procedures for accounts or other phenomenon documented?
- e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video or audio recording)
- f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)
- g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?

⁵ “Thick description” as described by Geertz (Geertz 1973) refers to a complete and accurate description of the *context* in which the investigated phenomena occurs. This definition should be distinguished from “rich description”, which might produce an eloquently detailed description of the phenomenon itself, but provide little or no information that aids in interpretation of the meaning of the phenomenon within the context that it occurred.

2) Interpretive validity

Interpretive validity is associated with understanding what described events, objects, or other phenomena mean to the study participants, and how these participants perceive these phenomena. Unlike descriptive validity, which deals with observable phenomena that may be verifiable from many perspectives, and theoretical validity, which relates to a theory as an account of a phenomenon, interpretive validity pertains only to meanings that originate from the emic perspective of study participants, and which therefore must be inferred from their actions, words, or behaviors. Because investigators are not able to directly observe the participant's mental state, interpretive validity must be plausibly supported by accurate and contextually relevant descriptions of actions, words, or behavior associated with the inferred mental phenomena.

Evaluation criteria:

- a. Are the participants' emic perspectives supported by descriptive data?
- b. Is contextual information provided that supports the interpretation of participant's emic perspectives?

3) Theoretical validity

The theoretical validity of a study, or account, refers to the ability to plausibly explain the relationships between the constructs that give structure to the account. It is important to recognize that this definition involves two basic components: the constructs that give structure to the account, and the relationship between these constructs. Maxwell (2012) writes;

Theoretical validity thus refers to an account's validity as a *theory* of some phenomenon. Any theory has two components: the concepts or categories that the theory employs, and the relationships that are thought to exist among these concepts. Corresponding to these two aspects of theory are two aspects of

theoretical validity: the validity of the concepts themselves as they are applied to the phenomena, and the validity of the postulated relationships among the concepts. The first refers to the validity of the blocks from which the researcher builds a model, as these are applied to the setting or phenomenon being studied; the second refers to the validity of the way the blocks are put together, as a theory of this setting or phenomenon (p. 140).

Theoretical understanding can refer to an explanation of an account, or to the nature and mechanisms of relationships and associations between the described or interpreted phenomenon. For purposes of evaluation here, there should be a plausible connection between the investigator's descriptions and interpretations of phenomenon, and abstracted theory about that phenomenon.

Evaluation criteria:

- a. Are primary findings expressly reported, rather than integrated into a narrative?
- b. Are the primary findings theoretical in nature, rather than descriptive?
- c. Are the primary findings coherent and logical with respect to descriptions, interpretations, and the study's intended purpose?

4) Construct Validity

In Maxwell's typology, construct validity is a form of theoretical validity (Maxwell, 2012).

Because of the importance of construct validity to generalizability, and to maintain continuity between the qualitative and quantitative evaluation criteria of this review, construct validity is included in this analysis as a separate qualitative evaluation criterion.

Evaluation criteria:

- a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to study participants?
- b. Are the meanings of constructs used in the narrative clear and unambiguous?
- c. Do constructs used in the study unambiguously represent the higher order abstractions they are presumed to represent?

4.2. Generalizability

The terms *generalizability*, *inference*, *statistical inference*, and *external validity*⁶ are all used by various authors to describe the application of research findings to contexts different from which they were originally derived. Because the use of these terms sometimes varies across disciplines and authors, their unspecified use may result in a degree of confusion or misunderstanding. For instance, the use of the term “generalizability” by some authors suggests that the term refers only to statistical inference based on a sampling-based probability model applied to a target population (Lee and Baskerville 2003), while other authors use the term more broadly to include non-statistical forms of inference (Maxwell, 2012; Shadish et al., 2002; Shadish, 1995; Lee and Baskerville, 2003). For this review, the following definitions obtain:

Inference: An inference is a rational knowledge claim derived, induced, or deduced from prior knowledge or information. Though statistical inference can greatly increase the generalizability of findings to an appropriately sampled population, statistical inference is not required to make valid inferences (Shadish, Cook, and Campbell 2002; Lee and Baskerville 2003; Meredith 1998). Writing about the logic of statistical inference, Meredith (1998) notes that formal logic encompasses mathematics, not vice-versa, and that “deductions can be made by applying the rules of formal logic to verbal propositions of the case study.” Inference may also be made through the use of abductive logic, whereby an analysis of the most plausible factor(s) to explain

⁶ External validity is considered by many authors to be synonymous with generalizability (e.g., Maxwell, 2012; Shadish, 1995); however, because external validity does not expressly distinguish between statistical and non-statistical forms of inference, it is not used in this review as a criterion to evaluate the generalizability of research findings. Internal validity might be used along with external validity to differentiate statistical from non-statistical forms of inference, however this distinction is not supported by Shadish et al. (2002), who view statistical conclusion validity as a closely-related but separate concept from internal validity (p. 53).

a phenomenon can be used to infer causality (Haig 2005) or to build grounded theory (Reichertz 2010).

Statistical inference: Generalizability is closely associated with the term inference, however a distinction must be made between the terms *inference* and *statistical inference*, and thus specify these terms within the broader concept of generalizability, which includes both statistical and non-statistical forms of inference (Shadish, Cook, and Campbell 2002; Lee and Baskerville 2003; Meredith 1998). Ramsey and Schafer (Ramsey and Schafer 2002) make the following distinction between an inference and a statistical inference; “An inference is a conclusion that patterns in the data are present in some broader context. A statistical inference is an inference justified by a probability model linking the data to the broader context” (p. 8). As used in the analysis of survey literature reviewed here, a statistical inference refers to an inference justified by a probability model linking a survey sample to the target population of the survey. The generalizability of survey findings with respect to the target population of a survey thus depends, in part, on the soundness of the statistical inference to the target population. Though statistical inference does not apply beyond the target population of a survey, other forms of inference may.

Generalizability: Generalizability refers to the reliability of the inference(s) used to transfer or apply research findings or other forms of knowledge (theories, descriptions, causal or associative relationships, etc.) to populations, individuals, times, or contexts different from which they originated. As a way to align constructs for generalizability used in different research methodologies and to discriminate statistical inference from other forms of inference, this review uses the terms *internal generalizability* and *external generalizability*, adapted from Maxwell (2012).

Internal generalizability refers to the generalizability of a study's findings with respect to individuals or subgroups within the study's target population. Forms of inference associated with internal generalizability can be either statistical or non-statistical.

External generalizability refers to the generalizability of a study's findings with respect to individuals or subgroups outside of the study's target population. Because statistical inference applies only to target populations, inferences associated with external generalizability are necessarily non-statistical forms of inference.

4.2.2 Originating and Receiving Contexts

For the purposes of this review both originating and receiving contexts are recognized as fundamental components in the assessment of the generalizability of research findings. The originating context refers to the source of the knowledge to be generalized, such as a research finding, and the receiving context refers to the target of that generalization. More precisely, the originating context refers to the context from which certain knowledge has been derived, and the receiving context refers to the context to which that knowledge is to be applied.

Guba and Lincoln (1985), reject the notion of the generalizability of qualitative research findings, and instead put forth the concept of *transferability* of qualitative research findings. They assert that the degree of transferability of a finding depends on similarities between the originating and the receiving contexts. This concept is nearly identical to *The Principle of Proximal Similarity*, one of five principles for understanding the generalizability of research findings described by Shadish (1995) and Shadish, et al (2002); "We generalize most confidently to applications where treatments, settings, populations, outcomes, and times are most similar to those in the original research." Baskerville (1996) emphasizes the difference between originating and receiving

contexts by expressly describing the assessment of the generalizability of completed research findings as “deferred generalizability”, reasoning that at the time the authors of originating research report their findings they have no way of knowing to what contexts their research may be applied by future investigators. Originating contexts are typically described in the originating research literature (e.g., journal article, dissertation, proceedings, etc.), and though this literature may include an assessment of the generalizability of findings, the relevance of these findings to specific new contexts will ultimately be judged by consumers of that research (i.e.; deferred generalizability). It therefore follows that assessment of the generalizability of the research findings reviewed here requires the specification of a receiving context by which generalizability can be evaluated.

For purposes of this review, the receiving context for the evaluation of the internal generalizability of a subject study is specified to be the target population of the subject study itself. For example, the target population of the OSWA survey (Oregon Small Woodlands Association 2006) was the entire membership of the Oregon Small Woodlands Association; thus the evaluation context for the internal generalizability of the OSWA study used by this review was also the entire membership of the Oregon Small Woodlands Association. If during the evaluation process the target population of a study was unclear, a target population was assumed based on content and context of the subject study.

The receiving context for the external generalizability of a subject study of this review is specified to be owners of family forest lands in Oregon, referred to herein as the OFFO construct. This definition follows that of Butler et al. (2005); *“Family and individual owners (often referred to as family forest owners) are defined as individual or joint ownerships that have a legally binding interest in ownership of forestland, including family or individual estates and*

trusts". Forestland is defined as, "Land at least 1 acre in size, at least 120 feet wide, with at least 10 well-spaced trees per acre; and land at least 1 acre in size, where trees were removed and trees will grow again (not converted to another use, such as cropland, pastureland, or residential). Forest land does not include Christmas tree farms, orchards, tree nurseries, or land that is mowed for lawn" (Butler et al. 2005).

As noted earlier, construct validity is a crucial element in the assessment of the generalizability of research findings, and alignment between the respective constructs used in originating and receiving contexts is necessary to ensure validity of the generalized inference (Shadish, Cook, and Campbell 2002). Again using the OSWA study as an example, the target population of that study – OSWA members – is in alignment with the specified receiving context for the evaluation of internal generalizability, which is defined here to be the target population of the subject study – OSWA members. The validity of population constructs are therefore not a threat to the internal generalizability of the OSWA study. However, the target population construct of the OSWA study – OSWA members – may not be entirely consistent with the receiving context for the evaluation of external generalizability as used by this review, which is defined as "Oregon family forest owners" (i.e.; the OFFO construct). Because the originating population construct (OSWA members) and the target construct for the evaluation of external generalizability (the OFFO construct) are not in alignment, a potential threat to construct validity exists, with a corresponding threat to the generalizability of the OSWA study findings with respect to the OFFO construct.

4.2.3 Idiographic and Nomothetic Contexts

A potential construct validity threat to both the internal and the external generalizability of research findings exists with regard to units of analysis. While we commonly think in terms of individual family forest owners, survey descriptive statistics pertain to estimates of parameters for the target population of the survey, not to individuals within the target population. As a result, survey results may be more generalizable to sub-populations than to individuals, both internally and externally⁷. Similarly, findings from individual case studies may be most generalizable to individuals with characteristics similar to those described in the subject study, rather than to populations.

The research literature reviewed here can be broadly categorized as either idiographic or nomothetic in nature. Idiographic research describes individual-based inquiry (e.g., case-study), and nomothetic research describes population-based inquiry (e.g., survey). Evaluating this literature with respect to both idiographic and nomothetic receiving contexts recognizes the importance of the alignment of construct validity between the originating and receiving contexts, affording a more contextually valid means to evaluate generalizability. For example, an idiographic receiving context can be seen as the application of research findings to individuals, and a nomothetic receiving context can be seen as the application of research findings to populations. Figure 1 displays the conceptual use of idiographic and nomothetic originating and

⁷ Survey parameter estimates could be inferred to individuals probabilistically, however inferring multiple attributes to one individual on this basis suggests correlations between variables that, if not supported by correlational analysis, are not logically coherent. For example, assume you were to infer a probability of 0.2 for survey parameter A and a probability of 0.3 for survey parameter B to a hypothetical individual belonging to a target population. You could not define this individual's characteristics as $P(A) = 0.2$ **and** $P(B) = 0.3$, nor could you define this individual's characteristics as $P(A) = 0.2$ **or** $P(B) = 0.3$, because the correlation between these variables is undefined. Because probabilistically assigning multiple attributes to an individual is not logically coherent, by extension generalizing aggregate survey results to individuals, either internally or externally, is not valid.

receiving contexts, and an example of the possible relative generalizability of idiographic and nomothetic studies to these contexts.

Originating Context ↓	Receiving Context: Internal Generalizability		Receiving Context: External Generalizability	
	<i>Nomothetic</i>	<i>Idiographic</i>	<i>Nomothetic</i>	<i>Idiographic</i>
<i>Nomothetic</i>	●	✗	●	✗
<i>Idiographic</i>	✗	●	✗	●

Figure 1: Conceptual use of nomothetic and idiographic contexts. Knowledge originating from a nomothetic context is most generalizable to a nomothetic receiving context, more so internally (green dot), and less so externally (yellow dot). Likewise, knowledge originating from an idiographic context is most generalizable to idiographic receiving contexts. In contrast, knowledge originating from a nomothetic context is not generalizable to idiographic contexts, and knowledge originating from an idiographic context is not generalizable to nomothetic contexts.

Internal Generalizability Context Definitions:

The reference receiving context for the evaluation of internal generalizability is the target population of the subject study, as is defined by or inferred from that study.

- Nomothetic Receiving Context: The degree to which you could generalize the study results to a subgroup of the target population of the study.
- Idiographic Receiving Context: The degree to which you could generalize the study results to an individual within the target population of the study.

External Generalizability Context Definitions:

The reference receiving context for the evaluation of external generalizability is the construct of Oregon family forest owners defined by this review as the OFFO construct – not the target population of the originating research. This distinction is made because construct validity is a primary factor affecting the generalizability of research findings (Shadish, et al., 2002, pp. 356-373), and the construct for the target population of the originating context may be undefined,

ambiguous, or not in alignment with the OFFO construct used by this review. The OFFO construct represents a consistent construct against which the generalizability of research findings to Oregon family forest owners can be assessed.

- Nomothetic Receiving Context: The degree to which you could generalize the study results to a subgroup of family forest owners outside of the target population of the subject study (but within Oregon, the bounds of this review).
- Idiographic Receiving Context: The degree to which you could generalize the study results to an individual outside of the target population of the subject study (but within Oregon, the bounds of this review).

4.2.3 Generalizability Evaluation Criteria

Statistical Generalizability:

Statistical generalizability applies only to studies using descriptive or analytical statistics, and is used as a measure of the soundness of the statistical inference made to a target population that is based on estimates of population parameters derived from sampled elements of that population. The evaluation criterion refers only to the soundness of the statistical inference to the target population as represented by sampling error, p-value, or other measures of statistical inference; non-statistical factors that may affect the validity of the substance of findings, such as coding error, sampling bias, and construct validity are evaluated using validity evaluation criteria for quantitative studies described in section 4.1.1.

Because statistical inference applies only to the target population of a subject study, statistical generalizability is used only as an evaluation criterion for internal generalizability (unless the

target population of the subject study matches the target population of this review, in which case internal and external generalizability measures would be identical).

Evaluation criteria:

- a. Is unit sampling error generally less than plus or minus 10% at the 95% confidence level?
- b. Have statistically-significant correlations between variables been demonstrated?

Non-statistical Generalizability:

Generalizability associated with non-statistical inference is evaluated based on the *Five Principles of Generalized Causal Inference* described by Shadish et al. (2002)⁸. The following Generalizability Evaluation Criteria are adapted from Table 11.1, Shadish et al, 2002, pp. 357-358.

- 1) *Surface Similarity: Assessing the apparent similarities between study operations and the prototypical characteristics of the target of generalization.*
 - a. For nomothetic studies: Does the generalized population construct match the construct of the receiving context?
 - b. For idiographic studies: Is sufficient descriptive information about the originating context provided to be able to identify similar characteristics or phenomenon in a receiving context?
 - c. Are there prototypical characteristics or constructs of interest described in the originating context that may link the originating and receiving contexts?

⁸ Though the *Principles* are described in Shadish et al (2002) as they pertain to causal inferences, Shadish (1995) suggests that they also apply to other inferences of interest, not just inferences related to causal generalization. He further suggests that the *Principles* apply to not just formal experiments, but to other forms of inquiry as well, such as case study and ethnography. The *Principles* may also apply to non-causal inferences on conceptual grounds: Though few of the studies reviewed here explore causal relationships and are perhaps best described as descriptive in nature, these descriptive studies nevertheless explore correlations between the target construct (e.g. family forest owners) and variables associated with that construct. To the extent that the *Principles* apply to correlations between constructs, the *Principles* are interpreted to apply to the evaluation of the studies reviewed here.

- 2) *Ruling Out Irrelevancies: Identifying those attributes of persons, settings, treatments, and outcome measures that are irrelevant because they do not change a generalization.*
 - a. Have potential alternative explanatory variables been intentionally investigated to rule them out as explanatory variables? (e.g.; in grounded theory investigations, have *theoretical* sampling categories been explored until the category is “saturated”?)
 - b. Have variables or constructs (“irrelevancies”) been identified that were determined to be unassociated with the research findings? (e.g.; landowner age, size of landholding, type of data analysis, etc.)
 - c. Has the knowledge to be inferred to the receiving context been demonstrated to be unaffected by variations in persons, settings, and times in the sending context?

- 3) *Making Discriminations: Identifying those features of persons, settings, treatments, or outcomes that limit generalization.*
 - a. Do findings hold only for the constructs as specified, and not for some alternate or re-specified version of the construct? For example, could the construct “sustainability” be discriminated from another construct, such as “sustained yield”, that could be perceived to measure a different construct?
 - b. Are the constructs and associated findings used in the originating contexts described with sufficient clarity and detail that they are unlikely to be confused with similar, but different, constructs and findings in the receiving contexts?

- 4) *Interpolation and Extrapolation: Generalizing by interpolating to unsampled values within the range of the sampled persons, settings, treatments, and outcomes and by extrapolating beyond the sampled range.*
 - a. Are there conditions specified under which the findings hold strongly, less strongly, or not at all?

- 5) *Causal Explanation: Developing and testing explanatory theories about the target of generalization.*
 - a. Are explanatory mechanisms specified which may be transferable to a new context?
 - b. Are any mediator or moderator variables specified?

4.3. Application of Validity and Generalizability Evaluation Criteria

Meta-data for the reviewed literature, such as study title, author, target population, date, and other study parameters, were entered into Validity and Generalizability review forms developed for this project (Appendix D). For each study, applicable validity and generalizability evaluation criteria were rated on a scale of one to five. Because both internal and external generalizability

were evaluated for idiographic and nomothetic receiving contexts, there were four evaluation contexts for each evaluation criterion.

A model was used to estimate the reliability of the generalized inference of the subject studies to the target population of this review – the OFFO construct. The model was constructed as follows:

1. A validity score was calculated for each study by averaging the evaluation criteria scores of the applicable evaluation categories.
2. A non-statistical inference score for each receiving context was calculated by averaging non-statistical inference scores.
3. A statistical inference score for each receiving context was calculated by averaging statistical inference scores.

Using the following model, a reliability of the generalized inference score (RGI) for each subject study was calculated for each receiving context based on the respective scores for validity, non-statistical inference, and statistical inference:

C = receiving context

R_C = reliability of the generalized inference score

V_C = average validity score for the subject study

N_C = average non-statistical inference score for the subject study

S_C = average statistical inference score for the subject study

$$R_C = V_C (N_C + S_C)$$

Note that in calculating the reliability score for generalized inference, factors N_C and S_C are additive, while the sum of these factors is multiplied by the validity score V_C ; thus in determining the reliability of the generalized inference a high inference score does not compensate for a low validity score in the originating research. It is assumed that findings

“...established on sound principles, and thoroughly applicable to the case or circumstances” (validity: Oxford English Dictionary) will under most circumstances be closer to a presumed truth than findings that are not, hence the inclusion of validity as a component in the measure of the reliability of the generalized inference.

The calculated RGI scores of the studies reviewed here are displayed in Table 2. These scores are intended to make explicit the soundness of those factors that contribute to the reliability of the generalized inference to the to the target population of the subject studies, and to the OFFO construct.

The columns in Table 2 display the four contexts for generalizability assessed for each study. The following examples describe how the evaluation criteria have been applied to these contexts, and how these data might be interpreted. For the following discussion refer to the applicable evaluation worksheets in Appendix D.

Example 1: This investigation used survey results from the National Woodland Owner Survey (Butler 2008) (NWOS) based on the data from all Oregon survey respondents. The target population of NWOS as applied here is therefore all Oregon family forest owners, the same population defined as the OFFO construct. Because the target population of NWOS (all Oregon family forest owners) matches the OFFO construct, the OFFO construct is used to assess both internal generalizability and external generalizability of NWOS, and the respective idiographic and nomothetic RGI scores of NWOS are the same. The idiographic RGI scores of NWOS are relatively low compared to the nomothetic RGI scores because there is little theoretical basis to apply survey results idiographically (i.e.; to individuals), especially in aggregate (see footnote 7).

The nomothetic RGI scores for NWOS are less than they might be, largely because the sampling error of the survey is quite high due to low sample size.

Example 2: Family Forestland Survey (Eiland 2004). The target population of this survey was not expressly stated, but was assumed to be all Oregon family forestland owners, as defined by the OFFO construct; therefore, as with NWOS, the OFFO construct is used to assess both internal generalizability and external generalizability of the survey findings. As with NWOS, because there is little theoretical basis to apply nomothetic survey results idiographically, idiographic RGI scores for the Family Forestland Survey are substantially less than corresponding nomothetic scores. Although the sampling errors of the Family Forestland Survey are less than those of NWOS, the overall RGI score of the Family Forestland Survey is much lower due to apparent coverage error between the survey sampling frame and the presumed target population of the survey. As applied for the evaluation of the reliability of the generalized inference used here, coverage error affects the validity of the substantive results as evaluated by the Quantitative Evaluation Criteria, the validity of the statistical inference⁹, and the validity of non-statistical inference, resulting in a much lower RGI score than if the sampling frame had matched the target population.

⁹ It may be argued that coverage error is an error of the substantive results, but not an error of the statistical inference, as measured by standard error. Standard error is a function of the estimated variance of the target population however, and if the relation between the true variance of the target population (σ^2) and the variance (s^2) estimated by the sample is undefined, as occurs when the sample frame does not match the target population, estimates of variance of the target population are not valid, and by extension neither is the statistical inference to the target population. It might also be argued that coverage error is an error of statistical inference, but not of the substantive survey results. Substantive survey results may be viewed as the mean of the measured construct, and as with variance, the population mean (μ) is a hypothetical true population parameter that is estimated based on a the mean of a sample (\bar{x}) from the target population. If the relationship between the target population and the sample is undefined, parameter estimates of the mean will not be valid.

Example 3: In contrast to the two previous examples, the CFF survey (Committee for Family Forestlands, 2004) had a target population different from the OFFO construct used in this review, which is reflected in the very large difference between the internal generalizability and external generalizability RGI scores of the survey. Though there was no statistical analysis of results by the author, a strong statistical inference was attributed to the survey for the evaluation of internal generalizability because the survey sampled 100 percent the target population (attendees of the 2001 Oregon Family Forestlands Symposium)¹⁰. Internal RGI scores were fairly high despite low validity scores; because the target population was 100 percent sampled, there was no question to whom the survey results applied. External RGI scores were quite low, however. Other than describing the participants as family forest landowners, there was little descriptive information provided in the study that created an association between the study's target population and the OFFO construct; in fact, the author characterized survey respondents as being quite different from the typical Oregon family forest owner. The low external RGI score is interpreted to mean that the survey results are not reliably generalizable to the OFFO construct; while the CFF survey results clearly represent characteristics of a subpopulation of Oregon family forestland owners, there is little basis to extend these results to the broader OFFO construct.

Example 4: Behavioral Assumptions of Conservation Policy (Fischer and Bliss 2008) is an idiographic study that appears to follow a “generic inductive qualitative model” described by Bryant and Charmaz (2007). Validity was evaluated according to the qualitative criteria described in section 4.1.2, and was rated highly according to those criteria; the sampling method and target population were well described, contextual descriptive information was

¹⁰ Though 100 percent of the population was sampled, response rate was 35.5 percent.

provided, informants' emic perspectives were described and well-supported, and theoretical findings were clearly presented and were logically coherent within the study narrative. As a qualitative study using purposive sampling methods there is no statistical inference associated with the study findings, yet the strong contextual descriptions provided by the authors led to high evaluation ratings for non-statistical inference. The RGI score for internal idiographic generalizability of the study is the highest of all idiographic generalizability scores, largely because of the strong descriptive validity of the paper; the descriptions and findings associated with those descriptions allow a reader to infer to whom these findings might apply outside of the study population. Considering there is no statistical inference associated with the findings, the study shows a strong RGI score for nomothetic internal generalizability. Two factors contributed to the nomothetic generalizability of this study; 1) the target population, and thus the basis for internal generalizability, was well-described and; 2) as a multiple case study with a large sample size ($n = 36$), a degree of generalizability was attributed to the nomothetic receiving context over what might be attributed to studies with smaller sample sizes. The relatively high external RGI scores are also attributable to the strong descriptions afforded by the study. Though the target population of *Behavioral Assumptions* does not match the OFFO construct, the descriptive nature of the study allows a reader to infer an association between study participants and presumed elements within the OFFO construct. Thus, by recognizing similar characteristics and associations to those described by the authors within the OFFO construct, limited inferences to individuals beyond the target population of the study are possible (e.g.; idiographic external generalizability).

Example 5: The Climate Change needs assessment by Grotta et al. (2011) used a focus group methodology, and highlights a weakness in the generalizability of focus group findings with

respect to the evaluation criteria applied here. Although the study scored well above average according to the Qualitative Validity Evaluation Criteria, the RGI for all four generalizability categories was rather low compared to others studies evaluated here. There was insufficient descriptive idiographic detail of the participants, contextual information, and associations between observed phenomena to score highly in the internal idiographic RGI category, and there was no statistical inference associated with the findings to provide internal nomothetic generalizability, thus the RGI for that category was likewise low. The study population was not well described with respect to the OFFO construct, thus the external nomothetic RGI score was very low. As with internal idiographic generalizability, there was insufficient idiographic detail to yield a higher external idiographic RGI score.

Low generalizability may be an inescapable characteristic of focus group findings. Much of a survey's generalizability is attributable to statistical inference to the target population; indeed, this is a characteristic that makes survey methodology an attractive research tool. Focus groups, like surveys, may also be characterized as nomothetic in nature, yet they have no statistical inference associated with them. Further, while idiographic studies (e.g.; case study) may be moderately generalizable using non-statistical factors, non-statistical inference is not well supported by focus group findings. Non-statistical inference is supported by clear and detailed descriptions of the units of analysis (e.g.; informants), identification of prototypical characteristics of the informants and contexts of observations, and associations between these characteristics and the phenomenon of interest. Focus group findings, in contrast to idiographic findings, are aggregated to the population (the focus group), and in so doing contextual associations that pertain to individual participants are lost, eliminating a potential source of generalizability to both internal and external idiographic contexts. The unit of analysis of a focus

group thus becomes the focus group itself, rather than the participants, and if the focus group is not well defined with respect to the target of generalization, findings can be only weakly associated with that target, if at all. The problem of focus group generalizability is therefore one of construct validity of the unit of analysis; the focus group does not represent a sample from which findings may be generalized to a target population, nor does it represent individuals from which findings may be generalized to an idiographic context on the basis of unique associations between participants, contexts, and the phenomenon of interest.

Research Document	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
Family Forest Owners of the United States, 2006.Gen. Tech. Rep. NRS-27.Oregon Tables and Data. (Butler 2008)	3.0	15.5	3.0	15.5
Committee for Family Forestlands: Survey for Participants in the 2001 Family Forests Symposium. (Committee for Family Forestlands 2004)	2.3	14.4	0.9	1.4
Appendix A: The white paper. Looking Forward II – Oregon Families and their Forestland: What’s at Stake. (Committee for Family Forestlands 2007a)	0.9	1.4	0.3	0.5
Family Forestland Survey: A Report for Oregon Forest Resources Institute. (Eiland 2004)	1.6	6.7	1.6	6.7
Reducing Hazardous Fuels on Nonindustrial Private Forests: Factors Influencing Landowner Decisions. (Fischer 2011)	7.7	36.6	4.9	9.8
Mental and Biophysical Terrains of Biodiversity: Conserving Oak on Family Forests. (Fischer and Bliss 2006)	9.4	5.5	5.5	2.8
Behavioral Assumptions of Conservation Policy: Conserving Oak Habitat on Family-Forest Land in the Willamette Valley, Oregon. (Fischer and Bliss 2008)	12.4	8.5	7.3	3.4
Framing Conservation on Private Lands: Conserving Oak in Oregon’s Willamette Valley. (Fischer and Bliss 2009)	10.6	7.2	6.8	2.3
Landowner Perceptions of Habitat Protection Policy and Process in Oregon. (Giampaoli and Bliss 2011)	12.1	8.2	8.2	1.3
Climate Change and Family Forest Landowners in Oregon: A Needs Assessment. (Grotta et al. 2011)	3.1	3.1	1.2	0.6
Conservation incentives programs for endangered species: An analysis of landowner participation. (Langpap 2004)	7.5	34.6	4.4	11.4
Conservation of endangered species: Can incentives work for private landowners? (Langpap 2006)	7.0	34.2	4.4	11.4
The sociology of landowner interest in restoring fire-adapted, biodiverse habitats in the wildland-urban interface of Oregon’s Willamette Valley Ecoregion. (Nielsen-Pincus, Ribe, and Johnson 2011)	2.8	21.5	1.5	4.9
Looking Forward II. Oregon families & their forestlands: What’s at stake. (Committee for Family Forestlands 2007b)	0.4	2.2	0.1	0.6
Oregon Small Woodlands Association Membership Survey. (Oregon Small Woodlands Association 2006)	2.6	19.9	1.9	3.4
Women owning woodlands: Understanding women’s roles in forest ownership and management. (Redmore and Tynon 2011)	4.2	4.2	2.4	1.7
Landowner motivations for watershed restoration: Lessons from five watersheds. (Rosenberg and Margerum 2008)	6.2	32.0	5.0	5.4
Washington County woodland owner survey: Summary report. (Shibley and Styer 2002)	1.7	22.6	1.7	4.2

Table 2; Reliability Scores for Generalized Inference: Internal generalizability refers to the generalizability of a study’s findings with respect to individuals or subgroups within the target population of the subject study. External generalizability refers to the generalizability of a study’s findings with respect to individuals or subgroups outside of the study’s target population; as used in this review, external generalizability refers to the generalizability of findings to individuals or populations represented by the OFFO construct. Idiographic receiving contexts refer to inferences as they might apply to individuals; nomothetic receiving contexts refer to inferences as they might apply to populations.

Chapter Five: Family Forest Owner Inferred Interest Analysis

The previous two chapters identified the source material for this review, and evaluated the validity and generalizability of those source materials with respect to the Oregon family forest landowner construct that is the focus of this investigation. This chapter addresses the first question of this investigation, “What interests might family forest owners have about the management of their forestland that can be inferred from the available literature?” Content analysis is used to query the source material for inferred landowner interest in potential topics of interest.

5.1. Methodology

Inferred interests are potential landowner interests that were used as coding targets for the analysis of the subject literature. An initial list of potential topics was adapted from organizational notes for meetings of the Oregon Partnership for Forestry Education¹¹ (Partnership for Forestry Education 2011), and additional topics were identified during pre-screening of the subject literature. If additional topics were identified during analysis of the literature, the list of potential interests was modified, refined, or re-categorized as appropriate. A total of 77 topics were identified from these sources and used as coding targets during analysis. Coding criteria for inferring landowner interest to these topics are described in Appendix B.

Selecting the unit of analysis, meaning units, and logical abstractions, such as themes, categories, and codes, are important steps in the design of a content analysis project

¹¹ The Partnership for Forestry Education was established in 2011 by the Oregon Department of Forestry as a collaborative network to pool the resources of government, nonprofit, and private organizations in an effort to streamline and improve educational delivery mechanisms intended for Oregon forestland owners, managers, and operators.

(Graneheim and Lundman 2004). The unit of analysis was identified as the research paper or other primary source, and units of meaning were identified as “findings” of the research or other source materials. Table 2 shows the conceptual organization of the data using examples from the subject literature.

1) Unit of Analysis	2) Meaning Unit	3) Code
<u>Primary Source Document</u>	<u>Research Finding</u>	<u>Inferred (or express) landowner interest</u>
<i>Family Forestland Survey: A Report for Oregon Forest Resources Institute.</i>	<i>“Top-of-mind concerns: Sustainable growth/forest yield”</i>	<i>Silviculture Principles</i>
<i>Behavioral Assumptions of Conservation Policy: Conserving Oak Habitat on Family-Forest Land in the Willamette Valley, Oregon</i>	<i>“Need for utilitarian aspects to conservation actions, despite negative cost-benefit to SWO.”</i>	<i>Stewardship and Ecosystem Services Incentive Programs and Opportunities</i>
<i>Appendix A: The white paper. Looking Forward II – Oregon Families and their Forestland: What’s at Stake.</i>	<i>“It’s difficult to treat children fairly when they have different levels of involvement.”</i>	<i>Intergenerational Transfer</i>

Table 3; Conceptual Organization of Analysis for Latent Content: The Unit of Analysis (left) is the primary source document. Meaning Units (center) are identifiable findings from within the source literature. In the case of descriptive surveys, these are usually the response categories. The coded inferred (or express) interest categories were based on an initial list from the Oregon Partnership for Forestry Education, and added to during evaluation and review of the literature. Inferred interests were coding targets during content analysis for latent landowner interest.

Much of the data, particularly those in the quantitative surveys, were already disaggregated into measurable constructs as part of the original research design in the primary source document, and these constructs served as the “meaning units” for this investigation. For example, in the second column of table 2, “Top-of-mind concerns: sustainable growth/forest yield” was an a priori response category for the Family Forestland Survey (Eiland 2004), and served as a meaning unit for coding. This was given an inferred interest code representing the topic of

“Silviculture Principles”. Note that a meaning unit may infer several landowner interests; in the above example from the Family Forestland Survey, the meaning unit “Top-of-mind concerns: sustainable growth/forest yield” could also infer landowner interest in topics such as forest health, reforestation, and vegetation management.

A Microsoft Excel spreadsheet was developed to organize the coding procedure, and to record and compile coded material from the primary source documents. Each document was represented by a worksheet, and these were compiled into a summary worksheet. A more complete description of spreadsheet design and organization is detailed in Appendix A.

5.2. Results and Discussion

A summary of the inferred landowner interests generated from the coded data is displayed in Figure 2. The *Sum of Inferences* column displays the sum of inferences by topic as derived from all literature sources. The *Z-score* normalizes the sum of inferences by topic with respect to the population mean and standard deviation of all topics, and represents the number of standard deviations a value is above or below the mean sum of inferences for all topics. That is;

$$Z\text{-score} = \frac{x - \mu}{\sigma}$$

x = sum of inferences (by topic)

μ = population mean (all sums of inferences)

σ = population standard deviation (all sums of inferences)

The values displayed in Figure 2 represent the relative frequency that inferred or express landowner interest in the respective topics were found to be present in the reviewed literature, and should not be interpreted as a measurement of the actual level of interest in the respective categories as might be applied to the OFFO construct. There are many factors that may affect

the degree of topical interest inferred to landowners in this analysis that make such an interpretation untenable. These factors include:

- A priori survey categories. Survey questions may not reflect the actual interests or concerns of family forest landowners, and the wording or organization of questions in a survey device may solicit a spurious response (Groves et al. 2009). It also seems plausible that many topics that are of interest to landowners are not of interest to researchers or survey designers, and so do not appear in surveys.
- A priori research topics. As with survey questions, research topics may be a driver of the differential levels of interest suggested in this analysis. For instance, a study of riparian landowner motivations (e.g.; Rosenberg and Margerum 2008) will quite likely suggest more interest in the topic of riparian management than in the topic of intergenerational transfer, and a climate change needs assessment (e.g.; Grotta et al. 2011) might suggest more interest in climate change than in log markets. Similarly, the absence of research about a topic may create the illusion that the topic is not relevant to landowners, when in fact it may be.
- Format of information source. Many of the sources of information reviewed here provided numerous inferences to topics that were a function of the reporting format, and may produce results that are out of proportion to the number of family forest landowners they might represent, or the relevance of the information source to the OFFO construct. For instance, the Washington County forest landowner survey (Shibley and Styer 2002) was a source for many topical inferences due to the survey format; however as a county-level survey, the survey responses are likely greatly over-represented with respect to the statewide population. Similarly, the OSWA survey

(Oregon Small Woodlands Association 2006) was a comprehensive survey that also provided open-ended comments from survey respondents from which many topical inferences were drawn, and that are likely out of proportion to the number of family forest landowners they represent.

- Research methodology. Some research formats are very tightly-focused, such as the studies by Fischer (2011) and Langpap (2004, 2006), and cover few topics or provide few direct expressions by research participants. In contrast, some forms of study, notably focus groups such as Grotta et al. (2011) and Committee for Family Forestlands (2007a, 2007b), report many expressions by participants and/or cover many topics.

Although the level of topical interest suggested in Figure 2 may have little association with the presumed “actual” level of interest in these topics by Oregon family forestland owners, these data are nevertheless relevant to the needs assessment and educational program development process. This information suggests topics that family forest owners may be interested in, and may identify educational needs or interests that previously went unrecognized. Conversely, a lack of interest in a topic may signify a lack of awareness or appreciation by landowners about a topic that may be important to them, or to society.

As noted in the bullet points above, there are many reasons why the level of interest inferred to specific topics in this analysis may not be especially valid with respect to a presumed level of interest representative of the overall OFFO construct. The process of using content analysis to scope the literature for possible landowner interests is therefore perhaps best considered an identification of possible landowner interests rather than a quantification of those interests. With due consideration of these caveats, there is nevertheless an apparent convergence of results from these disparate studies. One-by-one elimination of studies from the summary data,

beginning with those studies with the lowest combined external RGI score, suggest surprisingly stable normalized results as indicated by the topical Z-scores; Z-scores remained essentially unchanged as studies were incrementally dropped from the summary data. This stability across studies suggests a degree of generalizability of the results of this analysis with respect to the OFFO construct.

Figure 2; Summary of Inferred Interests: See explanation at the bottom of the second page of Figure 2.

Compilation of Survey Data: Inferred Interests	Sum of Inferences	Z-score
Laws and Regulations		
Forest Practices Act requirements	59	0.1
Endangered Species laws and requirements	59	0.1
State-wide/county land use planning	34	-0.8
Riparian and Wetland Requirements	75	0.7
Trespassing Laws	21	-1.3
Category Average	50	-0.2
Business Practices and Marketing		
Business Planning	123	2.3
Marketing	60	0.1
Stewardship and Ecosystem Incentive Programs	125	2.4
Legal issues and liabilities	33	-0.8
Forest Product Certifications	67	0.4
SWO networks and co-ops	89	1.1
Competing forest product markets	55	-0.1
Forest Product pricing updates	44	-0.4
Markets for big logs	38	-0.7
Long haul costs / reducing haul costs	33	-0.8
Timberland purchasing opportunities	10	-1.6
Markets for locally-harvested forest products	62	0.2
Creating a management plan	111	1.9
Forest Taxation Workshop	81	0.9
Category Average	67	0.4
Intergenerational Planning		
Estate Planning	56	0.0
Tax planning	74	0.6
Intergenerational transfer	48	-0.3
Successor Workshops	51	-0.2
Workshops and information directed toward female SWO's	54	-0.1
Alternatives to sale and/or timber liquidation	67	0.4
Category Average	58	0.1
Forest Management Operations		
Vegetation Management	72	0.6
Forest health -- what is a healthy forest?	99	1.5
Possible Impacts of Climate Change	71	0.5
Reforestation	62	0.2
Logging operations	30	-0.9
Chainsaw use and safety	22	-1.2
Slash removal and disposal	55	-0.1
Silviculture principles	78	0.8
Timber cruising 101	30	-0.9
Log scaling and grading	25	-1.1
Labor laws	21	-1.3
Road maintenance - culverts, surfacing, easements, rights-of-way	55	0.0
Non-Douglas fir and p-pine forests ecotypes	76	0.7
Alternatives to "traditional" D-fir and p-pine forestry	78	0.8
Forestry computer applications	22	-1.2
Agroforestry/tree crops; poplar, cottonwood,	41	-0.5
Plant and tree identification	51	-0.2
Category Average	52	-0.1

Compilation of Survey Data: Inferred Interests (cont.)	Sum of Inferences	Z-score
Invasives and Pest Management		
Integrated Pest Management	68	0.4
Species Identification; invasive plants, insects, pathogens	62	0.2
Pesticide/herbicide use and application training	64	0.3
Invasive Species Management	58	0.1
Swiss needle cast	30	-0.9
Pesticide alternatives	57	0.0
Category Average	56	0.0
Fire Control and Use		
Woodland Firefighting	15	-1.4
Prescribed burning and industrial precautions	59	0.1
Firewise and urban-woodland interface information	65	0.3
Fireproofing your forest, fire event pre-planning	71	0.5
Planning for wildfire	31	-0.9
Category Average	48	-0.3
Sustainability and Ecosystem Services		
Ecosystem services	108	1.8
Conservation easements and land trusts	130	2.6
Coarse Woody Debris	59	0.1
Carbon Sequestration / carbon credits	105	1.7
Climate Change	58	0.0
Soils and site productivity	63	0.2
Forest ecology workshop	81	0.9
Sustainability	126	2.5
Riparian management	78	0.8
Non-Douglas fir and p-pine forests	79	0.8
Implications of managing for endangered species	54	-0.1
Conflicts between non-game and non-timber management and	52	-0.2
Managing for non-game wildlife	57	0.0
Category Average	81	0.9
Non-timber Forest Products		
Non-timber forest product markets	50	-0.2
Agro-tourism	59	0.1
Biofuels – slash, non-merch trees	53	-0.1
Rock quarries/mineral resources	19	-1.3
Christmas trees, berries, salal, mosses, mushrooms	41	-0.5
Category Average	44	-0.4
Small Woodlands as a Home		
Recreational use of lands	28	-1.0
Homesite development in the forest	23	-1.2
Wildlife interactions	23	-1.2
Private water systems operation and safety	10	-1.6
Disaster planning and resilience	24	-1.2
Fireproofing your home (non-wildfire)	23	-1.2
Category Average	22	-1.2

Figure 2 (continued); Summary of Inferred Interests: Inferred interest topics and categories are displayed on the left. The Sum of Inferences (center) displays the sum of inferences found in all of the source literature. The Z-score (right) normalizes the sum of inferences with respect to the mean number of inferences for all topics. The Z-score is based on the number of standard deviations above or below the mean of inferences for all topics.

Chapter Six: Family Forest Owner Manifest Expressions of Topical Interest

This chapter addresses the second question of this investigation, “What can the available literature tell us about the interests, motivations, beliefs, and prior knowledge family forest owners have about specific topics?” Content analysis of the source material is used to identify manifest landowner expressions related to five topics relevant to the intersection of societal needs and family forest owner interests: Intergenerational Planning; Invasive Species Management; Climate Change; Riparian Management; and Management Plans.

6.1. Methodology

As with the analysis for latent landowner expressions in potential topics of interest performed in Chapter Five, the unit of analysis for the identification of manifest expressions in the source literature is specified to be the research paper or other primary source, and units of meaning are specified to be “findings” of the research or other source materials. Table 4 displays the conceptual organization of the data as applied to the analysis for manifest expressions in the source literature.

The five topics analyzed for manifest landowner interests were assigned keywords for possible instances of the topic occurring in the subject literature (Appendix C, Table 6). These keywords were used to search the source literature for manifest expressions of interests, motivations, beliefs, and prior knowledge about each topic. Searches were performed using the advanced search functions of either Microsoft Word 2010, or Adobe Acrobat X Pro, according to the file format of the source document. Search results were organized by subject, keyword, and source in an Excel spreadsheet, and relevant notes were attached to the spreadsheet cells corresponding to the source document and target keyword. Additional details about the search

and recording procedure are available in Appendix C. The number of expressions found in the source literature is displayed in Table 5.

1) Unit of Analysis	2) Search Procedure	3) Meaning Unit
<u>Primary Source Document</u>	<u>Operative Keyword</u>	<u>Research Finding</u>
<i>Family Forest Owners of the United States, 2006. Gen. Tech. Rep. NRS-27. Oregon Tables and Data. (Butler 2008)</i>	<i>Plant</i>	<i>“undesirable plants”, ranked third of nine a priori forest health concerns rated as “important” or “very important” on a 7-point Likert scale.</i>
<i>Landowner motivations for watershed restoration: lessons from five watersheds. (Rosenberg and Margerum 2008)</i>	<i>Fish Water</i>	<i>“The sentiment that fish restoration is “the right thing to do” was mentioned by the majority of landowners who had conducted watershed restoration practices.”</i>
<i>Landowner motivations for watershed restoration: lessons from five watersheds. (Rosenberg and Margerum 2008)</i>	<i>Water</i>	<i>In the survey the top four barriers to implementing watershed restoration and best management practices were; finances, time, unfamiliarity with practices, and [the requirement of] participation in a government program.</i>
<i>Committee for Family Forestlands Survey (Committee for Family Forestlands 2004)</i>	<i>Riparian</i>	<i>If riparian regulations are increased the impact on small family forestlands will be much more severe than for others since a higher percentage of family lands involve riparian acreage.</i>

Table 4; Conceptual Organization for Analysis of Manifest Content: The Unit of Analysis (left) is the primary source document. The source documents were searched using keywords (center, see also Table 5). The context of keywords located in the source document was evaluated to determine topical relevance. Relevant research findings (right) representing manifest landowner expressions in the topic of interest were recorded and summarized in an Excel spreadsheet.

Source Title	Inter-generational Planning	Invasive Species Management	Climate Change	Riparian Management	Creating a Management Plan	Source Total
Family Forest Owners of the United States, 2006.Gen. Tech. Rep. NRS-27.Oregon Tables and Data. (Butler 2008)	3	1	0	1	2	7
Committee for Family Forestlands: Survey for Participants in the 2001 Family Forests Symposium. (Committee for Family Forestlands 2004)	21	1	1	6	2	31
Appendix A: The white paper. Looking Forward II – Oregon Families and their Forestland: What’s at Stake. (Committee for Family Forestlands 2007a)	5	1	2	2	1	11
Family Forestland Survey: A Report for Oregon Forest Resources Institute. (Eiland 2004)	2	1	0	3	2	8
Reducing Hazardous Fuels on Nonindustrial Private Forests: Factors Influencing Landowner Decisions. (Fischer 2011)	0	0	0	0	0	0
Mental and Biophysical Terrains of Biodiversity: Conserving Oak on Family Forests. (Fischer and Bliss 2006)	0	0	0	0	1	1
Behavioral Assumptions of Conservation Policy: Conserving Oak Habitat on Family-Forest Land in the Willamette Valley, Oregon. (Fischer and Bliss 2008)	0	2	0	0	0	2
Framing Conservation on Private Lands: Conserving Oak in Oregon’s Willamette Valley. (Fischer and Bliss 2009)	0	0	0	0	0	0
Landowner Perceptions of Habitat Protection Policy and Process in Oregon. (Giampaoli and Bliss 2011)	0	0	0	3	0	3
Climate Change and Family Forest Landowners in Oregon: A Needs Assessment. (Grotta et al. 2011)	0	0	10	0	0	10
Conservation incentives programs for endangered species: An analysis of landowner participation. (Langpap 2004)	0	0	0	0	0	0
Conservation of endangered species: Can incentives work for private landowners? (Langpap 2006)	0	0	0	0	0	0
The sociology of landowner interest in restoring fire-adapted, biodiverse habitats in the wildland-urban interface of Oregon’s Willamette Valley Ecoregion. (Nielsen-Pincus, Ribe, and Johnson 2011)	0	0	0	0	0	0
Looking Forward II. Oregon families & their forestlands: What’s at stake. (Committee for Family Forestlands 2007b)	5	0	1	0	3	9
Oregon Small Woodlands Association Membership Survey. (Oregon Small Woodlands Association 2006)	15	5	4	10	8	42
Women owning woodlands: Understanding women’s roles in forest ownership and management. (Redmore and Tynon 2011)	4	0	1	1	0	6
Landowner motivations for watershed restoration: Lessons from five watersheds. (Rosenberg and Margerum 2008)	0	0	0	9	0	9
Washington County woodland owner survey: Summary report. (Shibley and Styer 2002)	2	0	0	1	2	5
Total	57	11	19	36	21	144

Table 5; Manifest Expressions by Topic: The number of manifest expressions evident in the literature about each topic is displayed by topic and literature source. The total for each literature source is displayed in the column on the left.

6.2. Results by Topic

6.2.1. Intergenerational Planning

Sound intergenerational planning is seen as an important component of family forest stewardship by many forestry extension professionals working with family forest owners. Family forest lands and the social and ecological values associated with them are at risk of liquidation, fragmentation, or development during the process of intergenerational transfer due to a host of complicating issues associated with the estate transfer process. These issues include; equitable distribution of assets among heirs, sibling rivalries, payment of estate and inheritance taxes, and finding or selecting an heir willing and able to take over management of the family forest operations. At the same time there are risks associated with the intergenerational transfer process, good estate planning can create opportunities that benefit family forest owners and provide important social and ecological benefits, such as conservation easements and tax-deductible donations.

There were fifty-seven manifest landowner expressions directly related to the subject of intergenerational planning evident in the eighteen studies reviewed, the highest of the five topics analyzed for manifest landowner expressions. Of the fifty-seven manifest expressions identified, thirty-six came from just two sources; twenty-one manifest expressions were identified in the 2004 CFF survey (Committee for Family Forestlands 2004), and fifteen were identified in the 2006 OSWA membership survey (Oregon Small Woodlands Association 2006). The OSWA survey had several a priori survey categories that related to intergenerational planning or transfer, which accounted for many of the expressions. "Generational transfer" was ranked eighth of 34 a priori subjects respondents would like OSWA to provide programming for in the future. Several written comments in the OSWA survey were related to concerns about

inheritance issues, such as inheritance taxes or lack of heirs. For instance, one respondent commented, “Our dream was to have the children keep the land, but that doesn’t seem the way to go now”. The 2004 CFF survey had several questions that were related to intergenerational issues, and the open-ended answer format of the survey contributed to the large number of expressions in this category. The 2007 Regional Roundtables (Committee for Family Forestlands 2007a), a summary of focus group meetings that framed issues for the 2007 Looking Forward II Symposium (Committee for Family Forestlands 2007b), identified intergenerational planning as a significant issue of concern for family forestland owners, concluding that, “The pathway to succession from one generation to the next is fraught with pitfalls.” The Looking Forward II Symposium (Committee for Family Forestlands 2007b) was focused on solutions to problems facing family forest owners, and one Symposium workgroup suggested using tools that improved profitability and conservation, such as conservation easements, incentives, market enhancements, education, and technical assistance to address the issue of intergenerational transfer.

The OFRI Family Forestland Survey (Eiland 2004) reported that just one percent of respondents rated “Retaining family ownership” as a “Top-of-Mind Concern” out of a list of eighteen a priori subjects from which respondents were able to select multiple responses. The OFRI survey was stratified by ownership size; in none of the size strata was “Retaining family ownership” ranked among the top ten concerns. In contrast to the low interest in retaining family ownership evident in the OFRI survey, the Oregon dataset for NWOS (Butler 2008) reported “To pass land on to children or other heirs” as the top reason for owning forestland ranked by area of forestland, and fifth of twelve a priori categories when ranked by number of owners. Similarly, the OSWA survey (Oregon Small Woodlands Association 2006) reported that, “To pass land on

to my [heirs]" ranked third of sixteen reasons for ownership. The apparent low interest in intergenerational transfer of the OFRI survey respondents seems to be validated by another OFRI survey question that ranked items on an a priori list of "potentially helpful topics"; "Estate planning or ownership transfer" was ranked fourth of fourteen "less helpful" topics, and eighth of fourteen "more helpful" topics. In suggesting low to modest landowner concern over the subject of intergenerational transfer, the OFRI survey appears to be an outlier among the other surveys that had a priori questions associated with the topic.

Summary of Findings:

With the exception of the OFRI survey, there appears to be a high degree of awareness, interest, and concern about the subject of intergenerational transfer evidenced in the literature. Many of these affirmative findings are clustered in studies based on populations of forestland owners that are not well defined however, or that do not match the OFFO construct used by this review. For instance, the 2004 CFF survey (Committee for Family Forestlands 2004), the 2007 CFF Regional Roundtables (Committee for Family Forestlands 2007a), and the Looking Forward II Symposium (Committee for Family Forestlands 2007b) all suggested considerable interest and concern among participants about the topic of intergenerational transfer; however, the external generalizability of these papers appears to be very limited with respect to the OFFO construct. The OSWA study also showed a high level of interest in the subject of intergenerational transfer; however the scope of the survey was limited to OSWA members, and is similarly constrained in generalizability. Setting aside the results of the OFRI survey, and considering the *aggregation* of similar findings to be broadly generalizable to the OFFO construct, evidence across the literature suggests that the topic of intergenerational transfer is an issue of interest and concern to many Oregon family forest landowners.

6.2.2. Invasive Species Management

Invasive species pose a serious global threat to human society and to natural ecosystems (Lodge et al. 2006). Biological invasions by non-native species are a major driver of global change, are linked to declines in worldwide biodiversity, and are a major contributing factor to biotic homogenization (Pyšek and Richardson 2010). These disruptions in global biotic integrity have serious implications for human well-being (Pyšek and Richardson 2010; Lodge et al. 2006; Pimentel, Zuniga, and Morrison 2005). In Oregon, invasive species are a serious economic and ecological threat (Cusack et al. 2009; Oregon Invasive Species Council 2012), and are considered a key challenge to sustainable forest management by the Oregon Board of Forestry (Oregon Board of Forestry 2011). Control of invasive species is an express objective of the Forestry Program for Oregon, and is applied as an indicator of sustainable forest management; *“No invasive species on Oregon’s 100 most dangerous list are uncontained in the state’s forests, and a stable or decreasing forest acreage is affected by invasive species.”* (Oregon Board of Forestry 2011).

Six of the eighteen reviewed studies had at least one direct expression of landowner knowledge of or interest in the topic of invasive species management. Of the quantitative literature, the OFRI survey (Eiland 2004) was the only survey reviewed that had an a priori question or response category associated directly with invasive species, and ranked “Control of invasive plants and animals” third in a list of fourteen “Potential Helpful [program] Topics”. NWOS (Butler 2008) had no survey category that directly addressed the issue of invasive plants or animals, though one a priori forest health concern in the survey was “undesirable plants”¹²,

¹² The most recent version of the NWOS (Oregon 5.0) has several a priori categories that explicitly deal with the issue of invasive plant species. As of this writing, data from this version of the NWOS are not available.

which ranked third of nine *a priori* forest health concerns rated as “important” or “very important” on a 7-point Likert scale.

In the qualitative literature and in surveys that contained qualitative respondent comments, little manifest interest in the subject of invasive species was apparent. The OSWA survey (Oregon Small Woodlands Association 2006) is a rich source of open-ended respondent comments, however there were only a few comments about invasive species: program suggestions for “methods to control invasive species (i.e., false brome)” and “weedkilling seminars”; an expressed concern about “non-native species invasion”; and a comment under the category “future plans” about controlling blackberries and Scotch broom. The CFF Regional Roundtables (Committee for Family Forestlands 2007a) had one comment about invasives; an expressed concern about the possibility of invasive species on adjacent federal lands spreading to private lands.

Summary of Findings:

The eleven manifest expressions of interest in the subject of invasive species found in all of the reviewed literature – the lowest of the five topical categories analyzed – stand in contrast to the moderately high level of concern or interest in the topic suggested by responses to the OFRI and NWOS survey¹³. Both of these surveys appear to be moderately generalizable to the OFFO construct, as indicated by their RGI scores, thus there is a reasonable degree of assurance that these findings are not spurious. The low number of open-ended or unsolicited comments in the literature might imply a general lack of awareness, interest, or concern about invasive species; nevertheless the comments that are present do indicate a degree of concern about the issue by

¹³ The survey measure used by NWOS of “undesirable plants” may have low construct validity with respect to the construct of “invasive, non-native species” intended by this review.

some landowners. If social policy suggests that Oregon family forest landowners need to take action on the issue of invasive species, greater landowner awareness of the threats posed by invasive species may be necessary. There appears to be insufficient information about landowner perceptions of invasive species upon which to premise an educational program.

6.2.3. Climate Change

Climate change is widely acknowledged to have potentially devastating social and environmental consequences across the planet (Solomon et al. 2007; Obama 2013). In the Pacific Northwest, forecasted effects of global change include; diminished springtime snowpack leading to reduced summer streamflows; increased frequency of insect outbreaks; wildfires; changing species composition in forests; diminished and degraded coldwater fish habitat due to warming water temperatures in streams and lakes; and increases in sea-level, resulting in increased erosion and loss of land area along vulnerable coastlines (U.S. Global Change Research Program 2009).

Six of the eighteen studies had at least one direct expression of landowner knowledge of or interest in the topic of climate change; of 19 manifest expressions found in the literature, ten were attributed to the climate change NA study by (Grotta et al. 2011)¹⁴. None of the surveys reviewed here contain a priori categories concerned with climate change; therefore express interest, concern, or opinions about climate change from survey literature were limited to supplementary comments provided by survey respondents. These data were provided only by the OSWA survey (Oregon Small Woodlands Association 2006) and the CFF survey (Committee

¹⁴ Clearly all of the informants in the Grotta et al. study must have made some expressions about the subject of climate change, since this was the topic of the focus group discussions. Quantifying the number of expressions is nearly impossible when results are aggregated, and highlights a limitation of content analysis.

for Family Forestlands 2004)¹⁵. The CFF survey reported one comment and the OSWA survey reported four comments directly expressing concern about climate change or global warming.

One respondent to the OSWA survey was quite specific:

My property is changing due to a warmer climate. My cedar trees are wormy and I heard/read that wormy red cedar is becoming more common in the north because of the climate change, yet climate change is rarely, if ever, discussed in any OSWA publication (p. 28).

Several comments that came from the OSWA survey were listed under that survey's "greatest concern" category, and one comment suggested OSWA develop programming to address the issue of global warming.

Climate change was identified as one of 10 key issues facing small woodland owners at the 2007 CFF Regional Roundtables (Committee for Family Forestlands 2007a). The summary of the focus group discussions regarding climate change stated:

Global climate change poses ecological threats, but also potential economic opportunities...A warming climate will cause unpredictable changes in the ecological function of forests and in the financial climate in which they operate. Forestland owners may be able to profit from managing forests for carbon mitigation. Using wood as biofuel may open opportunities for forest owners, but may also strip forests of needed nutrients (p. 33).

The summary from the Looking Forward II Symposium (Committee for Family Forestlands 2007b) framed climate change as an opportunity for small woodland owners:

*The third most important challenge is to take advantage of **opportunities presented by global climate change** [emphasis by original author]. The group that addressed this problem (#5) looked past the financial incentives of carbon banking to make the point that the public alarm over global climate change offers an opportunity to align the interests of family forestland owners with those of the larger society. In this way, this group's solutions also address conflicts of values and outreach to the community (p. 13).*

¹⁵ The National Woodland Owner Survey (Butler, 2008) did have an open-ended response category, however these data were not available as part of the published survey results.

As part of a multi-state regional needs assessment, Grotta et al. (2011) conducted a series of six focus group discussions in Oregon with small woodland owners to determine their perceptions, understandings, and educational needs with respect to the possible effects of global climate change on their forest landholdings. The investigators found that participants seemed much less concerned about potential climate change-related impacts to their forests than they were about the effects of climate change on forest policy. In discussing implications for extension programming, the authors found that global climate change is not a top-of-mind concern for small woodland owners. They suggested that extension programs described as “climate change” education may not generate much interest among landowners, and that integrating climate change topics into other programming may be a more effective approach.

Summary of Findings:

Although climate change was not an a priori category in any of the surveys, and with the exception of Grotta et al. (2011) was not the topic of any of the studies, unsolicited expressions suggesting concern about climate change were nevertheless evident in the literature reviewed, though sparse. These expressions may not be broadly generalizable to the Oregon family forest owner construct by themselves; however in aggregate they may indicate a more generalizable, albeit diffuse, degree of concern. These concerns do not appear to be supported by the Grotta et al. study, however, and contrast with the financial opportunity climate change was perceived to afford family forest owners suggested by the Looking Forward II Symposium and the 2007 CFF Regional Roundtables. Generalizability of these latter findings to the OFFO construct is limited; participants in the Grotta et al. climate change study were selected based on prior participation in forestry extension programs, and may not be representative of the broader OFFO construct used by this review, and informants to the Looking Forward II Symposium and 2007 CFF

Regional Roundtables reports are largely undefined with respect to the OFFO construct.

Although these findings are only minimally generalizable to the OFFO construct, they nevertheless represent the perspectives of a subpopulation of Oregon family forest owners.

There is no information about the perspectives of Oregon family forest owners that can be generalized to the OFFO construct without qualification however, and our understanding of the perceptions of Oregon family forest owners about climate change remains limited.

6.2.4. Riparian Management

Riparian areas are structurally and floristically the most diverse forest types in the Pacific Northwest, and the maintenance of riparian areas is a fundamental component of watershed management (Naiman, Bilby, and Bisson 2000). The interaction between the aquatic and terrestrial components of riparian areas form a complex ecological relationship that is both sensitive to and dependent on disturbances in the surrounding forest composition and structure (Reeves and Duncan 2009). Management activities near riparian areas must therefore be carefully considered, and the regulatory environment for riparian areas is correspondingly complex, as exemplified in the Oregon Forest Practices Act (Logan 2002), and at times contentious (Giampaoli & Bliss 2011). In western Oregon, many stream networks provide habitat for Oregon coastal coho salmon (*Oncorhynchus kisutch*), which is listed as a threatened species under the Endangered Species Act (National Oceanic and Atmospheric Administration 2008). Burnett et al. (2007) found that eighty-one percent of coho salmon high intrinsic potential habitat in the Oregon Coastal Province is privately-owned, and that the majority of this is in non-industrial private ownership. The authors found that 68 percent of the high-intrinsic coho habitat is classified as forestland, suggesting that a substantial portion of the high-intrinsic potential coho habitat is in the non-industrial forest ownership category. Current Oregon

Department of Forestry Specified Resource Site Protection Rules do not identify any salmon species as being sensitive to forestry practices (Oregon Department of Forestry 2012b); however, if the regulatory environment pertaining to coastal coho changes, family forest landowners could be disproportionately affected.

Nine of the eighteen studies analyzed showed manifest landowner interest, knowledge, or concerns about the topic of riparian management. In evaluating responses to this issue it may be important to note that not all family forestland properties contain riparian areas, and interest and concern about riparian management may thus be moderated in comparison to more universal topics affecting family forest landowners, such as intergenerational planning or climate change.

Among the qualitative studies and in surveys that allowed open-ended comments, concerns about the regulation of activities in riparian areas were apparent. The 2004 CFF survey (Committee for Family Forestlands 2004) had five unique comments expressing concern about riparian regulations, and one comment expressing the opinion that publicly-financed wetland improvement projects accomplish little actual habitat improvement. Several of the comments about regulations expressed the concern that a disproportionate burden of riparian regulation falls on small woodland owners. Comments from the OSWA survey (Oregon Small Woodlands Association 2006) were mixed; some comments clearly indicated support for improving riparian habitat, such as those from survey respondents whose future plans included “Develop fish and wetland project” and “Improve riparian zone”. Other comments clearly indicated opposition to riparian regulation, with one respondent noting; “Forestland owners are wimps...Do you see farmers not produce on riparian area...?” Several of the comments were difficult to categorize, with respondents merely stating “riparian areas” or “stream buffer requirements” in response

to open-ended questions about what are perceived to be important issues. One comment was notable for its perception of good riparian management:

The land I acquired had been logged three years prior. It had been replanted right after, but no clean-up was done. The trees did not get a good start. So now I've got to get it back into tree production. The creek on the land was not protected and they felled trees into it and they need to be removed. With the help of the OSWA I think it can be done. (p. 31)

In a qualitative study of the effect of specified resource site (SRS)¹⁶ protection rules on small woodland owners, Giampaoli and Bliss (Giampaoli and Bliss 2011) reported on the perceptions of small woodland owners of the SRS process. The study included landowners that had been affected by SRS requirements arising from protections for spotted owls, bald eagles, and osprey, and several of the informants had been affected by SRS restrictions on riparian or wetland habitat. One study informant expressed the opinion that riparian regulations and restrictions were a time-consuming nuisance, and an infringement on individual property rights.

Analysis of quantitative categorical survey responses for manifest expressions about riparian issues suggests little interest in the topic. The OFRI survey (Eiland 2004) had no questions or response categories that were specific to riparian issues, although 38% of respondents reported “improving fish or wildlife habitat” in the past five years, and two percent of respondents reported that “Poor quality of water supply/stream quality issues” were one of their top 3 concerns. Thirty-six percent of the OFRI survey respondents indicated that information on the topic of fish or wildlife habitat improvement would be helpful, ranking it eleventh of fourteen a priori “most helpful” topics to choose from. No specific mention is made of stream or riparian

¹⁶ Rules related to the Oregon Forest Practices Act that are intended to protect endangered or sensitive wildlife species and their habitats that may be negatively affected by forestry operations.

issues in NWOS (Butler 2008)¹⁷, though “Air or water pollution” is an a priori survey category under forest health concerns, and was rated as a top concern by 7 percent of landowners, and five percent of NWOS respondents reported that they had performed wildlife habitat improvement projects. The Washington County woodland owner survey (Shibley and Styer 2002) showed a moderate level of interest (3.4 on a 7-point Likert scale) by landowners for information on watershed and stream “enhancement”, and reported that ten percent of survey respondents had undertaken wildlife habitat or fisheries improvement projects in the five-year period prior to the survey.

A study of landowner motivations for watershed restoration in five western Oregon watersheds (Rosenberg and Margerum 2008) focused on three ownership groups; small woodland, agricultural, and rural residential owners of riparian properties. Nine manifest landowner expressions relating to riparian management were found in the study. These expressions were reported as interpreted findings by the authors, and primarily pertain to landowner motivations for watershed restoration. These findings include:

- Personal land ethic played an important role in landowners’ watershed restoration practices.
- The most significant barriers to implementing riparian restoration and best management practices were financial constraints, lack of time, lack of information about the practices, and required participation in a government or community group program.
- Landowners receiving more than 25 percent of their income from the land were less likely to choose improving fish habitat or water quality over improving/maintaining the property for future generations as a motivating factor.
- Landowners associated with the watershed council and residents who do not receive income from the land emphasized fish and wildlife habitat more often than expected.

¹⁷ The most recent version of the NWOS (Oregon 5.0) has an a priori answer “To protect water resources” to a question asking landowners their reasons for owning forestland, and “Water pollution” is an a priori answer to a question about forestland-related topics that are of concern to landowners. As of this writing, data from this version of the NWOS are not available.

- Technical staff played an important role in promoting watershed restoration efforts to landowners, and trust in technical staff was an important consideration in the landowners' decision whether or not to undertake restoration efforts.

Summary of Findings:

Manifest expressions concerning riparian management found in the reviewed literature generally fell into three categories: concern over the impacts of riparian regulation to family forest owners; concern about riparian habitat and/or potential interest in riparian habitat improvement; and motivational aspects associated with engaging in riparian habitat improvement. Expressions from the latter category came primarily from the Rosenberg and Margerum study of landowner motivation for watershed restoration (Rosenberg and Margerum 2008), and appear to be well-founded with respect to the population of interest – riparian landowners in the five watersheds studied. The low-to-moderate external idiographic and nomothetic RGI's of the subject study suggest that inferences to the OFFO construct may be tentatively supported if they are qualified by consideration of the respective originating and receiving contexts.

Manifest expressions of concerns about or improvement to riparian habitat by forest owners were scarce – less than ten such expressions were evident in the literature. These expressions were scattered throughout the literature, perhaps indicating that, in aggregate, some degree of generalizability to the OFFO construct is supported, though the level of interest appears low.

Concerns about regulation associated with riparian and wetland areas came primarily from comments in the 2004 CFF survey, and from the OSWA survey. Though the external RGI scores of these studies were low, indicating that the generalizability of these findings with respect to

the OFFO construct is not well-supported by this analysis, this does not negate the validity of these findings with respect to the populations from which they originate.

6.2.5. Creating a Management Plan

There is considerable academic and professional interest in forest management planning for non-industrial forest landowners, as evidenced by the a priori survey categories in the survey research reviewed here (Butler 2008; Eiland 2004; Oregon Small Woodlands Association 2006; Shibley and Styer 2002). Forest Stewardship Plans¹⁸ may be required for participation in cost-share programs, land use actions, carbon credit trading, and certification, and are a useful tool for passing property history and planning information on to new owners (Oregon State University Forestry Extension 2011).

The Chapter Five analysis for *latent* interest in the subject of forest management plans suggested considerable potential interest in the topic by landowners. This is not surprising, since management planning is a widely-acknowledged means to attain management goals and objectives. For example, during my analysis of latent interests I inferred that a landowner intending to harvest timber might be interested in developing a management plan, since a considerable degree of organizational effort is involved in successfully undertaking timber harvest, reforestation, and subsequent stand management. Similarly, a landowner expressing interest in securing retirement income or utilizing best management practices could reasonably be expected to have an interest in developing a management plan, since such a plan could be instrumental in attaining these goals. Though analysis of the literature for latent landowner interest in developing management plans for their forest property suggested a rather high level

¹⁸ A formal forest planning document recognized by the Oregon Department of Forestry and the U.S.D.A. Forest Service.

of interest in the subject, there was by comparison little *manifest* interest in management planning apparent in the literature.

A common small woodland owner survey query is whether or not the owner has a forest management plan for their forest property, and four of the studies analyzed here asked some form of this question. Though the construct of “written management plan” appears to be relatively unambiguous, there is considerable range in the values reported for the statistic of owners having a written forest management plan: computation of reported statistics from NWOS (Butler 2008) suggests that eight percent of Oregon family forestland owners have a written forest management plan; the OFRI survey (Eiland 2004) reported that 20 percent of respondents had developed or updated a written management plan in the five years prior to the survey; the OSWA survey (Oregon Small Woodlands Association 2006) reported that “Well over half of the respondents have a written management plan for their forestland”; and the Washington County survey (Shibley and Styer 2002) reported that 13 percent of respondents had a written management plan. It is difficult to account for such different statistics, though it seems possible that the different sample frames of the respective studies could underlie the inconsistent results. The Washington County survey clearly is a different sample frame from those of the statewide surveys, and the OSWA survey is a membership survey for the Oregon Small Woodlands Association, which could represent a landowner population that is more engaged in active forest management than a sample of all small woodland owners in the State. The OFRI sample frame was based on an Oregon Department of Revenue database, which could be biased with respect to statewide family forest landowner population parameters, and the NWOS sample, though apparently unbiased with respect to the statewide family forest owner population, is quite small, and the reported sampling error is correspondingly high.

The size of ownership appears to be related to the likelihood of having a forest management plan: The authors of the Washington County survey reported that the larger the size of a woodland, the more likely landowners were to have a management plan (Shibley and Styer 2002), and the OFRI survey reported that just eight percent of owners with less than 10 acres had developed or updated a management plan in the past five years, whereas 32 percent of owners with 81 or more acres had done so. These findings are consistent with NWOS data, which reveal that 20 percent of Oregon family forestland is covered by a management plan, compared to eight percent of family forest owners that are estimated to have a management plan for their forestland¹⁹, numbers that suggest a higher percentage of management plans on larger acreages than for smaller acreages.

Manifest expressions about management plans occurred in several of the open-ended comments from surveys, and in some of the qualitative literature. Some of these comments mention management plans in the context of other activities; for example, the 2004 CFF survey (Committee for Family Forestlands 2004) included a response to a question about desired Committee for Family Forestlands priorities, “Long term forest planning and transfer of ownership”, and a response to a question soliciting concerns about Oregon family forestland stated, “Generation transfer and continuity of long term plan”. A comment from the CFF Regional Roundtable (Committee for Family Forestlands 2007a) suggested that a management plan can make family forestland operations more profitable, and several comments from the Looking Forward II Symposium (Committee for Family Forestlands 2007b) remarked on the importance of management plans to family forestland operations and intergenerational transfer. One working group at the Symposium suggested management plans could constitute

¹⁹ These figures are not directly reported in Butler (2008), but are calculated from reported data.

improved stewardship standards over-and-above Forest Practices Act requirements that would communicate the value of family forestlands to businesses, consumers, and regulators. The OSWA survey (Oregon Small Woodlands Association 2006) had several respondent comments that referred to their use of management plans, and four comments were related to a need, or request, for additional program support for the development of management plans.

In contrast to respondent comments in the OSWA survey, the OFRI survey (Eiland 2004) reported what seems to be an express lack of interest in forest management planning information. The survey asked the following question; "During the next five years, how helpful would information about each topic be to you in using and managing your forestland?" Respondents rated on a 5-point scale of "Not helpful at all" to "Very Helpful" each of 14 topics about which they might be interested in receiving information. The top "Very Helpful" item was a tie between "Fire hazard reduction" and "Insect and disease control", while the lowest-rated "Very Helpful" item was "Developing a written management plan." Conversely, the top "Not Helpful at All" topic was "Developing a written management plan."

Several comments in the literature involved management plans that were associated with specified resource site protection policies of the Oregon Forest Practices Act (OFPA), and with riparian and wetland requirements of the OFPA. Giampaoli and Bliss (Giampaoli and Bliss 2011) reported specifically on the perceptions of small woodland owners who have been engaged in the OFPA specified resource site process, and a lengthy comment in the 2004 CFF survey involved concerns about the disproportionate effect of OFPA-required plans on small woodland owners.

Finally, a survey and analysis of landowner motivations to participate in hypothetical conservation plans with different incentive structures was performed by Langpap (2004). The investigation was premised on participation in a management plan scenario, and contained many references to hypothetical plans with different incentive structures respondents might select from. These references were not considered manifest expressions by landowners, and were thus not included in this analysis.

Summary of Findings:

Of the 21 manifest expressions related to management plans found in the reviewed literature, nine were attributable to a priori questions, primarily related to reasons for harvest or management plan status, and several of the remaining expressions about management plans were incidental to other subjects. In contrast to the express lack of interest in management planning evident in the OFRI survey, the OSWA study had several unsolicited affirmative comments about management plans, and the use of a management plans was suggested as a successful strategy for family forestland owners in the Looking Forward II Symposium report. While it is clear from the literature that many family forest owners use and benefit from forest management plans, across the spectrum of reviewed literature the express desire for additional resources to aid in forest management planning appears to be rather low, with the OWSA survey and the OFRI survey providing dichotomous expressions about the utility of forest management planning information to family forest owners.

Chapter Seven: Conclusion

7.1. Findings

The objective of this study was to explore the use of existing literature pertaining to Oregon family forest owners as a means to inform needs assessments for educational program development. Two questions framed this inquiry:

- 1) What interests might family forest owners have about the management of their forestland that can be inferred from the available literature?
- 2) What can the available literature tell us about the interests, motivations, beliefs, and prior knowledge family forest owners have about specific topics?

Both questions followed an analytical framework for systematic evidence review adapted from Pope et al. (2007), and used content analysis as a data-extraction methodology.

7.1.1. Question One

The first question examined the literature for latent and manifest expressions of landowner interest in topics related to the management of their forestland. A total of 77 potential educational topics were identified, and the number of expressions found in the subject literature tallied. The top ten topics of interest inferred from the subject literature were:

1. Conservation easements and land trusts
2. "Sustainability"
3. Stewardship and Ecosystem Incentive Programs
4. Business Planning
5. Creating a Management Plan
6. Ecosystem Services
7. Carbon Sequestration/Carbon Credits
8. Forest Health
9. Small woodland owner networks and co-ops
10. Forest Taxation Workshop

7.1.2. Question Two

The second question looked more closely at five topics that are relevant to the intersection of small woodland owner interests and the interests of society: Intergenerational Transfer; Invasive Species Management; Climate Change; Riparian Management; and Creating a Management Plan. The intent of the second question was to reveal detail about landowner understanding and perceptions of these topics that could be used to inform the development of educational programming for Oregon family forest landowners.

The sufficiency of information about the five topics for educational programming revealed here would in practice be made within the theoretical framework of an operative learning theory. Such a theory might be andragogy, free-choice, constructivism, communities of practice, or adoption-diffusion, among many other possibilities. Each of these learning theories has different requirements for what might be deemed necessary and sufficient information about the target audience for whom the planned educational programming is intended. For example, information about prior subject knowledge and the personal motivations of landowners would be important components for an educational program based upon an andragogical educational model (Merriam 2001); prior knowledge and social context would be important considerations

for the development of a constructivist-based educational program (Roschelle 1997); and social context, personal identity, and shared practices would be important considerations in developing communities of practice-based educational programs (Wenger, McDermott, and Snyder 2002). Adoption-diffusion, though not a theory of learning per se, considers the diffusion of ideas and innovations through social networks as key to knowledge transfer, thus information about social structure and networks would be an important requirement of such an educational approach (Sisock 2009).

Analysis of the subject literature for manifest expressions suggested varying degrees of generic interest or concern by landowners over the five program topics studied. Although demonstrated landowner interest or concern about a topic may suggest a need for program development, interest or concern alone is unlikely to meet the specific information requirements for the development of theory-based educational programs. Generalizable findings that might meet the needs of specific educational frameworks, such as information about motivating factors, personal identity, landowner networks, or social context were largely absent from the results of this analysis. Further, a substantial and disproportionate amount of the information that was extracted by this analysis tended to come from uninterpreted findings that are poorly generalizable, both internally and externally (see *Appendix F: Statistical Analysis of Expressions versus RGI*). Although the topical landowner expressions that were extracted from the source literature form a solid basis for directing further inquiry, little information that might inform the development of a theory-based educational program was evident in the literature, and the specific information needs of an operative theoretical framework for educational program development remain largely unanswered by this investigation.

7.2. Implications for Future Research and Program Development

7.2.1. Re-analysis

It is likely that the content analysis procedure used for this review did not capture all of the information available in the source literature that might be relevant to educational program development. Some of the literature about Oregon family forest owners that was identified in Chapter Three as information sources for this review contributed few or no manifest landowner expressions to the analysis, yet appear to contain potentially-useful information. For example, a study about conservation motivations by Fischer and Bliss (2008) contained information about how personal identity and the need for autonomy in decision-making shaped landowner stewardship motivations. This information could be highly relevant to Free-Choice Learning or communities of practice educational models, but was not captured by content analysis. Langpap (2004 and 2006) investigated the use of incentives as a means to affect conservation decisions by family forest landowners, information that might be significant to behavior-based learning theories; this information was also overlooked by content analysis as applied in this review.

Systematic evidence review is an iterative and adaptive process (Pope, Mays, and Popay 2007; Sandelowski and Barroso 2007), and it may be possible to learn from the analysis just completed to develop a revised iteration of the analysis that provides more and better information with which to inform educational program development. Figure 4 illustrates the iterative and adaptive nature of the systematic evidence review process; what is learned during the initial evidence review is used to refine and adapt subsequent iterations of the review process to better meet operational, organizational, or research goals and objectives.

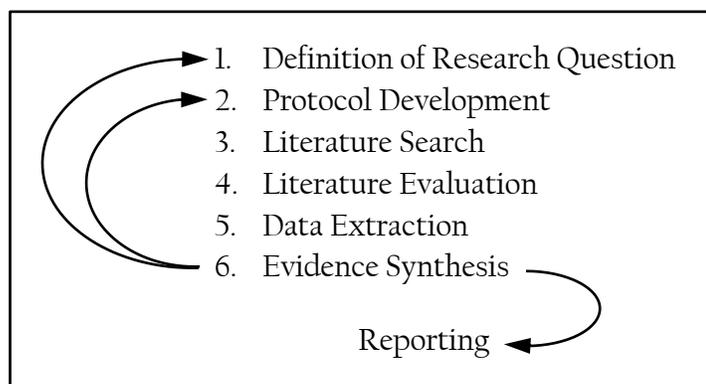


Figure 3: The Systematic Evidence Review Process

The following adaptive changes could lead to a more effective and productive review process with respect to the questions of interest of this investigation:

- Identify a theoretical framework for educational programming early in the review process, and develop the review protocols with the operative theoretical framework in mind. Re-analysis of the literature sources through the lens of a theoretical framework would lead to the capture of more theoretically-relevant information.
- Recognize that information relevant to the operative educational theory will not be restricted to the program topic of interest; in fact, topical information may be secondary in importance to theoretically-relevant information.
- The use of content analysis for manifest topical expressions was intentionally rigid for this analysis, with the intent to reduce bias that may be introduced by the use of just one reviewer/interpreter/coder. The process of extracting relevant information requires human judgment however, and a more subjective and interpretive process than content analysis is needed to sort through the disparate findings for relevant material. The use of qualitative data analysis software that supports human judgment, rather than replaces it, is highly recommended. Clear protocols must be developed for extracting data from the source materials; however they must not be so strict as to limit the use of

inference, knowledge, and judgment to identify material that is relevant to the development of effective educational programming.

- It may be unrealistic and impractical to expect that meaningful findings should apply to a broad target population, such as the OFFO construct used in this analysis. Though family forest landowners may have some characteristics in common, such as a propensity to own forestland and certain demographic characteristics, it may be more useful to think of the OFFO construct as a collection of subpopulations, and to design educational programming with the needs and characteristics of these subpopulations in mind. This is in line with the recommendations of other authors (e.g.; Majumdar, Teeter, and Butler 2008), and with the Sustaining Family Forests Initiative (Langer 2008). Many of the studies reviewed here were targeted toward specific populations, such as Grotta et al. (2011), which targeted family forest landowners likely to use Cooperative Extension services, and Rosenberg and Margerum (2008), which targeted riparian landowners. The results of such studies are far more relevant to their intended target populations than they are with respect to the OFFO construct.
- A revised analysis should recognize that findings are not equally valid or generalizable; in the vernacular of this report, findings may not have the same Reliability of the Generalized Inference. While this may be apparent with respect to the differences between studies, less apparent, and more difficult to evaluate, are the differences within individual studies. For instance, individual findings within NWOS (Butler 2008) have different participant response rates and different standard errors, leading to different degrees of statistical generalizability, and uninterpreted respondent comments, such as those that append the OSWA survey (Oregon Small Woodlands

Association 2006) have very little generalizability, though the survey itself may be highly generalizable to its target population.

7.2.2. Theoretical and Conceptual Frameworks

This project has demonstrated to me the importance of approaching family forest research and program development from the perspective of appropriate conceptual and theoretical frameworks. In conclusion, I offer the following brief argument in support of placing greater emphasis on defining our operative frameworks for educational program development and family forest owner research:

In times of diminished resources for education and extension programming such as these, it is all the more important to make efficient use of available resources in order to provide the most effective programming possible. If we accept that there is some merit to education theory, and that under a given set of circumstances one education theory may be more effective than another, it follows that in the interest of both efficiency and efficacy we should seek to employ the education theory that best fits the circumstances at hand. To operationalize such a theory, programming must be developed within the framework of our preferred education theory, otherwise we risk developing programming that does not meet our objectives. With respect to educational program needs assessment, such assessment arguably must also be performed within the framework of an operative education theory in order to meet the specific requirements of the operative theory.

If a theoretical framework allows us to understand what information is relevant and necessary for program development, then we should be able to use that framework to better understand where to direct research efforts intended to inform program development. Indeed, without a

theoretical framework it is possible that our research efforts will result in the collection of unnecessary information, to the exclusion of information that may be essential for effective program development.

Finally, it is possible – even likely – that in the absence of express conceptual and theoretical frameworks, implicit frameworks will nevertheless act to direct our research and program development efforts. Time spent researching, developing, clarifying, and explaining our conceptual and theoretical frameworks will pay large dividends in the clarity, transparency, and effectiveness of our research and program development efforts.

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Appendix

Summary Worksheet:

The summary worksheet sums the “inferred interest” hits from each individual worksheet and places these values within their respective columns (e.g., OFRI, NWOS, OSWA, etc.). Study scores summed in the Sum of References column. The sums of references indicate the number of times a category generated a coding “hit”. This number should not be construed as having any statistical correlation to the actual level of interest in the category by landowners; rather, it merely represents how often that category of interest was found to be present in the literature.

Compilation of Survey Data: Inferred Interests	Sum of Inferences	Adjusted Sum of Inferences	Adjusted Z-score	OFRI Family Forest Survey	National Woodland Ownership Survey	OSWA 2006 Membership Survey	CFF Survey of Participants in 2001 Symposium	Creighton Climate Change Survey
				OFRI-FFS	NWOS	OSWA-2006	CFF-2004	CSC
Laws and Regulations								
Forest Practices Act requirements	58	140	-0.1	37	16	22	4	0
Endangered Species laws and requirements	56	134	0.2	30	19	23	4	2
State-wide/county land use planning	60	85	-0.7	12	25	17	4	0
Riparian and Wetland Requirements	72	174	1.0	42	24	28	4	2
Trespassing Laws	21	55	-1.3	9	22	7	2	0
Business Practices and Marketing								
Business Planning	132	289	0.4	47	28	30	26	8
Marketing	66	126	0.1	11	8	17	14	4
Stewardship and Ecosystem Incentive Programs	122	254	2.4	38	28	28	22	10
Legal issues and liabilities	33	97	-0.5	26	32	11	4	0
Forest Product Certifications	68	136	0.2	27	5	20	6	6
SWO networks and co-ops	100	204	1.5	34	8	22	14	6
Competing forest product markets	58	121	0.0	18	7	20	10	0
Forest Product pricing updates	46	95	-0.5	10	6	19	8	0
Markets for big logs	39	82	-0.8	10	4	13	8	0
Long haul costs / reducing haul costs	35	75	-0.9	13	1	12	8	0
Timberland purchasing opportunities	10	21	-1.9	3	2	2	4	0
Markets for locally-harvested forest products	66	127	0.1	10	7	19	18	6
Creating a management plan	112	229	2.0	27	18	23	16	8
Forest Taxation Workshop	85	170	0.9	15	16	21	14	2
Intergenerational Planning								
Estate Planning	63	126	0.1	6	19	13	12	0
Tax planning	77	158	0.7	11	20	14	16	2
Intergenerational transfer	53	105	0.3	6	13	13	12	4
Successor Workshops	57	109	0.3	6	13	13	14	2
Workshops and information directed toward female SWO's	62	110	-0.2	6	7	13	14	2
Alternatives to sale and/or timber liquidation	71	152	0.6	13	7	13	14	2
Forest Management Operations								
Vegetation Management	85	161	-0.1	47	0	0	0	0
Forest health -- what is a healthy forest?	92	208	1.6	46	0	0	0	0
P...	81	142	0.4	33	0	0	0	0
			0.3	35	0	0	0	0
			0.9	20	0	0	0	0

These are the “inferred interests” each source was evaluated for, and comprise the Y-axis of each worksheet.

“Sum of Inferences” column shows the simple (unadjusted) sums of inferences from combined worksheets.

“Adjusted Sum of Inferences” column shows weighted sums of inferences from combined worksheets.

Bar graphs (in orange) are based-on the column average.

These columns are the adjusted sums of “inferred interest” hits from each individual worksheet. Cell values are linked to worksheets; as worksheets are changed, the values shown here will change accordingly. Bar graphs (in green) are based on column average.

Adjusted Z-Score is based on values from the Adjusted Sum of Inferences column.

$$Z\text{-score} = \frac{x - \mu}{\sigma}$$

Appendix B: Coding Criteria for Inferred Interests

The bulleted descriptions under each category below are used as a reference to determine if an inference can be made from the literature to an inference category. This was a highly subjective process, and these are explanatory guidelines, not hard and fast rules. The constructs in each study are usually different, and their meanings may be context-dependent and subject to interpretation.

1) Laws and Regulations

Topics under this category were intended to infer a possible landowner interest in understanding regulations appropriate to activities the landowner may undertake. Survey or study data that suggested the landowner merely objected to regulations did *not* infer an interest in learning about those regulations. A landowner that expressed intent to harvest timber, perform road maintenance, or undertake wildlife habitat improvement projects in riparian areas, for instance, was assumed to have an interest in understanding regulations that apply to these activities.

- a. Forest Practices Act requirements:
 - Actual performance of, or intent to perform logging, road construction, tree planting, or other activities that are, or may be, regulated under the FPA.
- b. Endangered Species laws and requirements:
 - Actual performance of, or intent to perform logging, road construction, tree planting.
 - Activities in riparian activities, vegetation management
 - Intent to change land use
 - Interest in performing wildlife enhancement.
- c. State-wide/county land use planning:
 - Intent to change land use
 - Concerns about property taxes
 - Legal concerns about land use
 - Concerns about neighboring development and conflicting land uses, urbanization.
- d. Riparian and Wetland Requirements:
 - Interest in financial incentives (tax status or deferral)
 - Intent to perform logging road construction or road maintenance
 - Interest in conservation easements
 - Performance of or interest in interest in vegetation management
- e. Trespassing Laws:
 - Liability concerns
 - Urbanization
 - Fire concerns
 - Vandalism
 - Trespassing

2) Business Practices and Marketing:

- a. Business Planning: This category was used quite broadly, viewing landowner's properties as an investment where capital expenditures infer a possible interest in building business planning skills. Inferences included;
 - Expressed lack of time
 - Money concerns
 - Marketing
 - Ongoing operations requiring a capital investment
 - Expressed interest in financial assistance program
- b. Marketing:
 - Marketing of forest products or services. This would be the same criterion applied under "Business Planning", but isolates the marketing aspect.
- c. Stewardship and Ecosystem Services Incentive Programs and Opportunities:
 - expressed interest in ecosystem services or incentive programs
 - Interest in non-timber products
 - Ecosystem protection
 - Alternative income sources
 - Compensation for ecosystem services
 - Interest in carbon credit programs
- d. Legal issues and liabilities:
 - Concern about trespassing
 - Attractive nuisance
 - Fire liability (arising from forest management operations, for instance)
 - Pesticides
- e. Forest Product Certifications (FSC, SFI):
 - Interest in BMP's
 - Stewardship
 - Marketing
 - Financial incentives
 - Indications of active management, such as; logging, planting, vegetation management, wildlife enhancement.
- f. SWO networks and co-ops (equipment leasing, seedling purchase, group contracting opportunities, etc.):
 - Expressed interest in business networking and co-ops.
 - Expressed interest in marketing co-ops.
- g. Competing forest product markets:
 - General interest in forest products markets inferred potential interest in competing markets.
- h. Forest product pricing updates:
 - Interest in commercial forest products or markets inferred potential interest in prices.

- i. Markets for big logs: Finding markets for big logs has been identified as a problem for many SWO's.
 - Interest in log markets
 - Management planning
 - Alternative practices
- j. Long haul costs / reducing haul costs: This was identified as a problem on the eastside, in particular.
 - Ongoing or planned harvesting operations
 - Marketing concerns or interest
 - Management planning
 - Concerns about costs
 - Road Maintenance
- k. Timberland purchasing opportunities:
 - Express interest in forest or business planning
 - Express interest in business opportunities
- l. Markets for locally-harvested products:
 - Business or forest planning
 - Harvesting
 - Marketing
 - Concerns about income or profitability
- m. Creating your management plan: This refers to a forest management plan or stewardship plan as distinct from business planning or intergenerational planning, and was interpreted broadly. Inferences include;
 - Active forest management
 - Expressed interest in planning
 - Interest in controlling costs
 - Interest in increasing income
 - Interest in forest management activities
 - Interest in incentive programs
- n. Forest Taxation Workshop: Intended for operational taxes (e.g., income, harvest, and property taxes), not inheritance taxes.
 - Harvesting
 - Management operations, e.g., sources/sinks of cash flow
 - Concerns about profitability
 - Interest in incentive programs
 - Future plans that could affect tax status (e.g., conversion, wildlife habitat development, alternative forest practices, etc.)

3) Intergenerational Planning:

- a. Estate Planning: Used here as related to Intergenerational planning, not business planning or forest management plan.
 - Concerns about estate planning
 - Interest in passing land intact to heirs
 - Expressions of future intent (e.g., transfer to non-profit)
 - Concerns about inheritance tax
 - Interest in conservation easements
- b. Tax planning: Used as with intergenerational planning, but also where there could be tax implications;
 - Intergenerational planning
 - Intention to buy, sell, or convert land to another use
- c. Intergenerational Transfer:
 - Interest in TTL-type workshops
 - Concerns about estate and inheritance
- d. Successor Workshops: This ended-up being synonymous with the Intergenerational Transfer category, above.
- e. Workshops and information directed toward female SWOs; spouses, family members, etc: This was a little awkward to draw inferences to, but this was a unique issue that originated from the Pinchot report, and from Lauren Redmore's thesis.
 - Transfer of property to female spouses or family members.
- f. Alternatives to sale and/or timber liquidation: Self-explanatory, and perhaps covered elsewhere, but this is direct and to the point, and covers a range of issues.
 - Concerns about income
 - Concerns about future of family forestlands as a viable business activity
 - Concerns about inheritance or intergenerational transfer

4) Forest Management Operations:

- a. Vegetation Management: This was a fairly broad category, with many ways to infer interest.
 - Timber harvest
 - Reforestation
 - Wildlife habitat management
 - Production of both timber and non-timber products
 - Herbicides
 - Riparian management
 - Silviculture
 - Concerns about wildfire

- b. Forest health:
 - Production of both timber and non-timber products
 - Aesthetic concerns
 - Stewardship
 - Climate change
 - Forest productivity
 - BMP's
 - Concerns about fire/fuel loading
 - Concerns about disease and insects
 - Biodiversity
 - Concerns about wildfire
- c. Possible impacts of climate change:
 - Production of timber and non-timber forest products
 - Forest productivity
 - Forest health
 - BMP's
 - Wildlife habitat
 - Sustainability and biodiversity
 - Concerns about wildfire
- d. Reforestation:
 - Recent or intended harvesting operations
 - Production of forest products
 - BMP's
 - Forest productivity
 - Silviculture
 - Pesticides
 - Wetland/riparian management
 - Alternative species or silvicultural regimes
 - Conservation or sustainability
- e. Logging operations:
 - Production of forest products
 - Recent or planned harvesting operations
 - BMP's
 - Riparian management
 - Sustainability
- f. Chainsaw use and safety:
 - Production of firewood
 - Safety

- g. Slash removal and disposal:
- Production of forest products
 - Production of firewood
 - Recent or planned harvesting operations
 - Concerns about wildfire
 - Aesthetic concerns
 - BMP's
 - Riparian Management
 - Wildlife habitat management
 - Sustainability
 - Biodiversity
- h. Silvicultural principles:
- Production of timber and non-timber forest products
 - BMP's
 - Forest productivity
 - Vegetation management
 - Wildlife habitat management
 - Alternative silvicultural systems
 - Sustainability
 - Biodiversity
- i. Timber cruising 101:
- Production of forest products
 - Investment motivations
 - Income or profit motivations
 - Forest productivity
 - Classification of forestland
 - History of harvest
 - Intention to harvest
 - Marketing
- j. Log scaling and grading:
- Production of forest products
 - Investment motivations
 - Income or profit motivations
 - History of harvest
 - Intention to harvest
 - Marketing
- k. Labor laws: Used where owners might be hiring their own labor;
- Thinning
 - Tree planting
 - Slash disposal.
- l. Road maintenance - culverts, surfacing, easements, rights-of-way:
- Logging operations
 - trespassing issue (gates, easement and ROW disagreements)
 - Wildfire safety.

- m. Non-Douglas-fir and p-pine forests; Oak woodland, fraxinus, Sitka spruce, lodgepole/pumice soils: Refers to native/indigenous stand management and silviculture, not as commodity-based alternatives to d-fir and p-pine mgt.
- Interest in forest restoration
 - Wildlife habitat management
 - Riparian management
- n. Alternatives to “traditional” D-fir and p-pine forestry – red alder, hemlock, larch, true firs, madrone, redwood...: Intended to refer to using commercial species and silvicultural systems in place of conventional even-age management Doug-fir and p-pine silvicultural systems.
- Possible interest in alternative forms of management or silvicultural systems
- o. Forestry computer applications:
- Production motivations
 - Income motivations
 - Marketing
 - Forest classification
 - Cruising/scaling
- p. Agroforestry/tree crops; e.g., poplar, cottonwood:
- Investment motivations
 - Alternative sources of income
 - Recent or intended timber harvest
- q. Plant and tree identification:
- Production of Christmas trees
 - Production of non-timber forest products
 - Aesthetic motivations
 - Habitat management
 - Forest productivity
 - Forest classification
 - Biodiversity/sustainability motivations

5) Invasives and Pest Management:

- a. Integrated Pest Management: This category is intended to be more technical and synergistic with other disciplines than “pesticide alternatives”, below.
- Forest health interest or concerns
 - Silviculture
 - Sustainability motivations
 - Pesticide concerns.
- b. Species Identification; invasive plants, insects, pathogens:
- Forest health
 - Production of forest products
 - Sustainability
 - Forest productivity
 - Silviculture
 - Alternative silvicultural systems

- c. Pesticide use and application training:
 - Vegetation management
 - Production of forest products
 - BMP's
 - Silviculture
 - Riparian/wetland management
 - Reforestation
 - History of or intention to harvest timber
- d. Invasive Species Management:
 - Aesthetic concerns
 - BMP's
 - Sustainability motivations
 - Biodiversity motivations
 - Stewardship motivations
 - Forest productivity motivations
 - Forest health motivations
- e. Swiss needle cast:
 - Forest productivity
 - BMP's
 - Forest health
 - Production of forest products
- f. Pesticide alternatives: Intended to mean non-chemical pesticide alternatives, such as mowing, hand-pulling, and prayer for invasive plants, traps for nuisance insects, etc. I intended *integrated* measures such as such as silvicultural treatments, alternative species, and combinations that could include pesticides to be included in IPM (above):
 - Production of non-timber forest products
 - Certification motivations
 - BMP's
 - Biodiversity motivations
 - Sustainability motivations
 - Stewardship motivations

6) Fire Control and Use:

- a. Woodland Firefighting; fire tools, chainsaws, pumps, fire behavior:
 - Safety
 - Specific expressions of interest
- b. Prescribed burning and industrial precautions (burning, industrial restrictions):
 - Production of forest products
 - BMP's
 - Safety
 - History of or intention to harvest timber
 - Wildlife habitat management motivations

- c. Firewise and wildland-urban interface information:
 - Residential motivations
 - Wildfire concerns
 - Safety
- d. Fireproofing your forest, fire event pre-planning: Very similar to WUI category (above), but intended more toward the non-residential, non-WUI properties.
 - Aesthetic motivations
 - Wildfire concerns
 - Safety
 - Thinning
 - Road maintenance
 - Vegetation management
- e. Planning for wildfire (escape route planning, pets, livestock, water systems, etc.): Intended for residential owners. Should be combined with “c”, above.
 - Safety
 - Residential motivations
 - Wildfire concerns

7) Sustainability and Ecosystem Services:

- a. Ecosystem services:
 - Sustainability motivations
 - Biodiversity motivations
 - Certification interest
 - Aesthetic motivations
 - Production of non-timber forest products
 - Income motivations
 - Interest in incentive programs
 - Wildlife or riparian motivations
 - Stewardship motivations
- b. Conservation easements and land trusts:
 - Sustainability motivations
 - Biodiversity motivations
 - Aesthetic motivations
 - Income motivations
 - Interest in incentive programs
 - Wildlife or riparian motivations
 - Intergenerational issues
 - Stewardship motivations
- c. Coarse Woody Debris:
 - Sustainability motivations
 - Biodiversity motivations
 - Aesthetic motivations
 - Wildlife or riparian motivations
 - Stewardship motivations

d. Carbon Sequestration / carbon credits:

- Production of forest products
- Income motivations
- Stewardship motivations
- Climate change concerns
- Forest productivity
- Sustainability motivations
- Interest in incentive programs

e. Climate Change:

- Production of forest products
- Stewardship motivations
- Climate change concerns
- Forest productivity
- Sustainability motivations
- Wildlife habitat motivations
- Biodiversity motivations
- Alternative silvicultural systems
- Forest health motivations
- Wildfire concerns

f. Soils and site productivity:

- Forest productivity
- Sustainability motivations
- Stewardship motivations
- Forest health motivations
- Production of forest products
- Recent or intended harvesting operations
- Land investment
- Income motivations
- BMP's
- Wetland or riparian management
- Forest certification

g. Forest ecology workshop:

- Sustainability motivations
- Stewardship motivations
- Forest health motivations
- BMP's
- Wetland or riparian management
- Forest certification
- Production of non-timber forest products
- Wildfire concerns

h. Sustainability:

- Forest productivity
- Sustainability motivations
- Stewardship motivations
- Forest health motivations
- Production of forest products
- Land investment
- Income motivations
- BMP's
- Wetland or riparian management
- Forest certification
- Family legacy motivations
- Aesthetic motivations
- Wildlife habitat motivations

i. Riparian Management:

- Sustainability motivations
- Stewardship motivations
- Biodiversity motivations
- Forest health motivations
- Production of forest products
- Recent or intended harvesting operations
- BMP's
- Wetland or riparian management
- Forest certification
- Wildlife habitat motivations
- Recreation motivations
- Road maintenance

j. Non-Douglas-fir and p-pine forests; Oak woodland, fraxinus, lodqepole/pumice soils:

Generally intended as non-commercial forest-type management.

- Sustainability motivations
- Stewardship motivations
- Biodiversity motivations
- Forest health motivations
- Aesthetic motivations
- Recreation motivations
- Wetland or riparian management
- Production of non-timber forest products
- Wildlife habitat motivations
- Interest in alternative silvicultural systems

- k. Implications of managing for endangered species:
 - Production of forest products
 - Sustainability motivations
 - Concerns about regulation
 - Stewardship motivations
 - Biodiversity motivations
 - Wetland or riparian management
 - Production of non-timber forest products
 - Wildlife habitat motivations
 - Interest in alternative silvicultural systems
- l. Conflicts between non-timber management practices and OFPA: Some non-coniferous management (e.g.; oak woodland) conflicts with OFPA reforestation stocking requirements.
 - Production of forest products
 - Sustainability motivations
 - Concerns about regulation
 - Stewardship motivations
 - Biodiversity motivations
 - Wetland or riparian management
 - Production of non-timber forest products
 - Wildlife habitat motivations
 - Interest in alternative silvicultural systems
- m. Managing for non-game wildlife:
 - Sustainability motivations
 - Stewardship motivations
 - Biodiversity motivations
 - Wetland or riparian management
 - Wildlife habitat motivations
 - Recreation motivations
 - Aesthetic motivations
 - Alternative silvicultural systems

8) Non-timber Forest Products:

- a. Non-timber forest product markets:
 - Production of timber or non-timber forest products
 - Income motivations
- b. Agro-tourism:
 - Production of non-timber forest products
 - Income motivations
 - Family legacy motivations
 - Stewardship motivations
 - Aesthetic motivations
 - Forest recreation
 - Sustainability motivations

- c. Biofuels – slash, non-merchantable trees: Non-dimensional timber, non-cordwood.
 - Production of forest products
 - Production of non-timber forest products
 - Production of firewood
 - Income motivations
 - Stewardship motivations
 - Sustainability motivations
 - Wildfire concerns
 - Alternative silvicultural systems
- d. Rock quarries / mineral resources:
 - Production of non-timber forest products
 - Income motivation
- e. Christmas trees, berries, salal, mosses, mushrooms:
 - Production of non-timber forest products
 - Income motivation
 - Sustainability motivations
 - Stewardship motivations
 - Aesthetic motivations

9) Small Woodlands as a Home:

- a. Recreational use of lands:
 - Recreation motivations
 - Aesthetic motivations
 - Family legacy motivations
 - Concerns about trespassing
 - Liability concerns
- b. Homesite development in the forest:
 - Safety concerns
 - Wildfire concerns
 - Aesthetic motivations
- c. Wildlife interactions (bear, cougar, deer, implications for domestic animals and pets, crops, etc):
 - Safety concerns
 - Wildlife habitat motivations
- d. Private water systems operation and safety: Most SWO water systems are private, and are not subject to EPA standards.
 - Safety concerns
- e. Disaster planning and resilience; floods, landslides, earthquakes, windstorms, drought, fire: Isolated homes are the last to receive assistance during a disaster. There were few direct references to this concern.
 - Safety concerns
 - Wildfire concerns
 - Concerns about natural events, e.g., floods, windstorms, etc.

- f. Fireproofing your home (non-wildfire): Isolated homes frequently burn to the ground before help arrives.
- Safety concerns
 - Wildfire concerns

10) Networking and Resources:

This section is a compilation of sources of assistance as inferred by particular issues or concerns.

- a. Selecting a logger:
- Production of forest products
 - Recent or planned harvesting operations
 - Marketing
- b. Service contractors / Forestry Professionals:
- Production of forest products
 - Recent or planned harvesting operations
 - Marketing
 - Recent or planned harvesting operations
 - Motivations for land management activities
 - Interest in certification
- c. Cooperatives and associations (OSWA, etc): This category is so broad as to cover nearly all SWO activities, motivations, concerns, etc.
- Production of forest products
 - Recent or planned harvesting operations
 - Marketing
 - Motivations for land management activities
 - Interest in certification
 - Income motivations
 - Recreation motivations
 - Family legacy motivations
 - Concerns about trespassing
 - Liability concerns
 - Sustainability motivations
 - Stewardship motivations
 - Biodiversity motivations
 - Wetland or riparian management
 - Wildlife habitat motivations
 - Aesthetic motivations

- d. OSU Extension, Watershed Councils, ODF service foresters, USFS, ODFW, USFW, NGO's, etc.: As with "c", above, this is a very broad category. It is intended to cover situations where government agencies or extension might be consulted
- Production of forest products
 - Recent or planned harvesting operations
 - Marketing
 - Motivations for land management activities
 - Interest in certification
 - Income motivations
 - Recreation motivations
 - Family legacy motivations
 - Concerns about trespassing
 - Liability concerns
 - Sustainability motivations
 - Stewardship motivations
 - Biodiversity motivations
 - Wetland or riparian management
 - Wildlife habitat motivations
 - Aesthetic motivations
- e. Resources for women -- WOWnet, etc.: This category was inferred by Lauren Redmore's paper on WoWnet. There are few direct references to the need for women-specific resources, but this may be because males in the household answer the survey questions.
- Family legacy motivations
- f. Resources for youth: There were few specific references to the need for youth resources, but it seems to be a possible point of departure for many educational, mentorship, and work/internship opportunities.
- Family legacy motivations

- g. Peer-to-peer learning networks and opportunities: In analyzing peer-to-peer as a possible resource for small woodland owners, I considered the technical requirements of those needs. For example, someone looking for advice on pre-commercial thinning might ask a knowledgeable neighbor, but that neighbor might not be an appropriate source for estate-planning advice.
- Production of forest products
 - Recent or planned harvesting operations
 - Marketing
 - Motivations for land management activities
 - Interest in certification
 - Income motivations
 - Recreation motivations
 - Sustainability motivations
 - Stewardship motivations
 - Biodiversity motivations
 - Wetland or riparian management
 - Wildlife habitat motivations
 - Aesthetic motivations

Appendix C: Manifest Expressions Search Procedure

In the example below, a PDF document was searched for the keyword “plan”. All words with the root “plan” are displayed, and can be analyzed in context for manifest landowner expressions with respect to the topic “Management Plans”. Though the keyword shows up in the document, examination of the context reveals that it is part of the discussion by the author, and not an expression of a landowner. The keyword search is recorded and noted in the spreadsheet (below). Keywords used for searching source documents are displayed in Table 6.

Figure 5: Acrobat Text Search Example

The screenshot shows an Acrobat search window with the following content:

- Looking For: Plan in the current document
- Results: 1 documents with 6 instances
- Search Results:
 - tree plantations, and the elimination of periodic fires to which it is adapted, the conifer plantations. He explained, Industrial forestry has a big sway in Oregon, and it's fir plantation management through Conservation Biology Volume
 - management plans, providing legitimacy for their conservation efforts. Financial assistance can provide another
 - planned unit development, tourism, and fee recreation on lands where oak is being
 - in planning and decision-making regarding oak conservation. Agencies can also provide funding and

The diagram on the right includes:

- MOTIVATIONS** (indicated by arrows pointing to the search results)
- INCENTIVE TOOLS**
 - Financial rewards
 - Regulatory relief
 - Markets

Text on the right: "...s) and the motivations (in arrows) that correspond with policy analysis framework. tive, economical, and worthwhile, satisfying their utilitarian interests. They can also help owners incorporate scientific research into their management plans, providing legitimacy for their conservation efforts. Financial assistance can provide another level of legitimacy by helping owners feel compensated for their work. Cost sharing and grants can make oak conservation possible for landowners that treat conservation like any other production activity and cannot justify providing conservation benefits below cost. Finally, policies formed

Figure 5: Excel Spreadsheet Data Recording Format

		Fischer & Bliss, 2009	Fischer & Bliss, 2008	Giampaoli & Bliss, 2011	Grotta, 2010	Grotta et al., 2011	Langpap, 2004	Langpap, 2006	Nielsen-Pincus et al., 2011	CFF, 2007b	OSWA, 2006	Redmore & Tynon, 2011	Ros & Ma, 200
	Species	0	0	0	0	0	0	0	0	0	1	0	
	Control	0	0	0	0	0	0	0	0	0	1	0	
	Native	0	0	0	0	0	0	0	0	0	0	0	
	Plant	0	0	0	0	0	0	0	0	0	0	0	
	Intergenerational Planning												
	Succession	0	0	0	0	0	0	0	0	5	0	0	
	Plan	0	0	0	2	0	0	0	0	0	0	0	
	Transfer	0	0	0	0	0	0	0	0	0	2	3	
	Estate	0	0	0	0	0	0	0	0	0	3	0	
	Family	0	0	0	0	0	0	0	0	0	1	0	
	Spouse	0	0	0	0	0	0	0	0	0	0	0	
	generation	0	0							0	3	0	
	heritage	0	0							0	0	0	
	Inherit	0	0							0	3	0	
	heir	0	0							0	1	0	
	children	0	0							0	3	1	
	Management Plans												
	Stewardship	0	0							0	0	0	
	Manage	0	0	0	0	0	0	0	0	0	6	0	
	Plan	0	0	0	2	0	5	0	0	3	2	0	

Such programs can also give owners the skills and funds they need to be sure that their conservation efforts are productive, economical, and worthwhile, satisfying their utilitarian interests. They can also help owners incorporate scientific research into their management plans, providing legitimacy for their conservation efforts.

This is discussion by the authors unrelated to expression by study informants.

<u>Riparian Management</u>	<u>Climate Change</u>	<u>Invasive Species Management</u>	<u>Intergenerational Planning</u>	<u>Management Plans</u>
Riparian Wetland Fish Salmon Coho Stream River Water Habitat Creek	Climate Global Warming GCC Weather	Invasive Introduced Weed Species Control Native Plant	Succession Plan Transfer Family Spouse Generation Heritage Inherit Heir Children	Stewardship Plan Manage

Table 6; Keywords used for document search.

Appendix D: Validity and Generalizability Review Forms

Validity and Generalizability Review		
Title: <i>Family forest owners of the United States, 2000</i> [Oregon data]		
Author(s): Butler, B.J.		
Reviewer: Carlson	Review Date: 10/20/2012	
Source: Jim Johnson	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
<p>Publication: Information about the NWOS comes from many sources. Primary source: Butler, B.J. 2008 Family forest owners of the United States, 2006. Gen. Tech. Rep. NRS-27. Newton Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. Background information comes from: BUTLER, B.J., E.C. LEATHERBERRY, AND M.S. WILLIAMS. 2005. <i>Design, implementation, and analysis methods for the National Woodland Owner Survey</i>. US For. Serv. Gen. Tech. Rep. NE-336. Newtown Square, PA. 43 p. BUTLER, B.J., AND E.C. LEATHERBERRY. 2004. America's family forest owners. <i>J. For.</i> 102(7):4–9.</p>		
Publication Date: 2006	Type of Media: Supplemental data (compact disc) supplied with primary source document	Peer Review: Unknown
Methodology: Descriptive survey		
Reporting Format:		
<ul style="list-style-type: none"> Narrative summary for national data; categorical quantitative summary only for Oregon dataset 		
Purpose of Study:		
<ul style="list-style-type: none"> <i>"The primary goal of the NWOS is to provide policy makers, administrators, managers, and other interested parties contemporaneous information about private forest-land owners in the United States to facilitate the planning and implementation of forest policies and to support forest sustainability assessments."</i> (Butler, Leatherberry, & Williams, 2005, p.3.9) 		
Target Population:		
<ul style="list-style-type: none"> <i>"The NWOS has two populations of interest: 1) private forest-land (area) and 2) private forest-land owners in the United States and its territories"</i>(Butler, Leatherberry, & Williams, 2005, p.4.2). As applied here, the target population is restricted to the State of Oregon. 		
Sampling Frame:		
<ul style="list-style-type: none"> <i>The United States was divided into non-overlapping, 6,000 ac hexagons. Within each hexagon, a sample point was selected. This resulted in a grid of points that, on average, was 3.25 miles apart. Using remotely sensed imagery and/or ground reconnaissance, each point was identified as forest or non-forest.</i> (Butler, Leatherberry, & Williams, 2005, p.12.6). As applied here, the sampling frame is restricted to the State of Oregon, and to the Oregon dataset 		
Sample Selection:		
<ul style="list-style-type: none"> <i>For all forested sampling points [see Sampling Frame, above], the names and addresses of the forest-land owners were obtained from tax records, other publicly available government records, or the owner. The identified private owners and the land they owned were the basis for estimating attributes of interest.</i> (Butler, Leatherberry, & 		

Williams, 2005, p.12.65)		
<ul style="list-style-type: none"> • <i>The probability of a forest-land owner being contacted to participate in the NWOS, the inclusion probability, was equal to the area of forest land that he or she owned in the estimation unit divided by the total area of forest in the estimation unit.</i> (Butler, Leatherberry, & Williams, 2005, p.15.3) • Because the probability of participation in the survey was proportional to the size of landholding, individual landowner attributes were estimated using the Horvitz-Thompson estimator. (Butler, Leatherberry, & Williams, 2005, p.15.3) 		
Data Collection Format: Mail Survey		
Geographic Scope: <i>National</i>	Location: <i>Oregon data only</i>	
Data Year: 2002 to 2006	n: 136	Response Rate: 55.5
Theoretical/Conceptual Frameworks: Not reported		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?	N/A	
b. Is the sampling method described?	N/A	
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	N/A	
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	N/A	
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	N/A	
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A	
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A	
Interpretive Validity:		
a. Are participants' emic perspectives supported by descriptive data?	N/A	
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A	
Theoretical Validity:		
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A	
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A	
c. Are the primary findings coherent and logical with respect to descriptions, interpretations, and the study's intended purpose?	N/A	
Construct Validity:		
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A	
b. Are the meanings of constructs used in the narrative clear and	N/A	

unambiguous?				
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A			
Quantitative Validity Evaluation Criteria				
Construct Validity:				
a. Are the measured constructs clear and unambiguous?	4			
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	4			
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	4			
Processing Error:				
a. Are coding procedures described?	N/A			
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A			
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A			
Coverage Error:				
a. Is the target population of the study adequately described?	5			
b. Is the sampling frame of the study adequately described?	5			
c. Does the sampling frame match the target population?	5			
d. Are no ineligible units evident in the sampling frame?	5			
e. Are all elements of the target population included in the sampling frame?	5			
Sampling Bias:				
a. Is the sampling method described?	5			
b. Do all of the units in the sampling frame have equal chances for selection?	5			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>				
Non-response Error:				
a. Is survey response (on nonresponse) reported?	5			
b. Is survey nonresponse analyzed?	0			
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	4			
Generalizability Evaluation Criteria				
Study Type: Nomothetic				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	1	5	1	5

b:	N/A	N/A	N/A	N/A
c:	0	3	0	3
2) Ruling Out Irrelevancies:				
a:	0	0	0	0
b:	0	0	0	0
c:	0	0	0	0
3) Making Discriminations:				
a:	2	4	2	4
b:	4	4	4	4
4) Interpolation and Extrapolation:				
a:	0	0	0	0
5) Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
6) Statistical Inference:				
a: Sampling Error	0	2	0	2
b: Coverage Error	0	5	0	5
c: Sampling Bias	0	5	0	5
d: Significant correlations	0	0	0	0
Notes:				
6a – This is a national survey, from which only the Oregon results are analyzed here. The Oregon sample size is relatively low, and the sampling errors tend to be quite high, especially in response categories with low numbers of respondents.				

Validity and Generalizability Review		
Title: <i>Committee for Family Forestlands Survey</i>		
Author(s): Anonymous (Oregon Committee for Family Forestlands)		
Reviewer: Carlson	Review Date: 1/7/2013	
Source: Survey Summary received from Jim Johnson, survey results from Gary Springer.	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
Publication: unpublished report		
Publication Date: 12/14/04	Type of Media: report format	Peer Review: unknown
Methodology: <ul style="list-style-type: none"> • Survey • <i>“The survey had seven questions. Two of the questions were multi-part and asked the respondents to rate their concerns on a scale of importance (1-5). The other five questions were quite broad and open-ended. As a result, we received a very wide range of responses. Attached to this summary is a document that lists the questions and the responses to each of them. The answers we received to each question are grouped into general ‘themes’, which are listed alphabetically under the question. The bulleted answers to the questions are in the words of the respondents.”</i> 		
Reporting Format: Narrative summary of results by survey category		
Purpose of Study: <ul style="list-style-type: none"> • <i>“The goal of this project was twofold: First, to reconnect those of us who serve on the Committee for Family Forestlands with the landowners who attended the 2001 symposium. That meeting and the four regional roundtable meetings that led up to it were important events that have helped shape CFF activities in the years since. The second purpose of the goal was to ‘reassess the broad range of forest policy issues that you, as a family forestland owner, feel are important’ (to quote from the cover letter). It is our expectation that the responses to the survey will help define the priorities of the CFF, as we move ahead into 2005.”</i> 		
Target Population: Attendees to the 2001 Oregon Family Forestlands Symposium		
Sampling Frame: Attendees to the 2001 Oregon Family Forestlands Symposium		
Sample Selection: <ul style="list-style-type: none"> • 100 percent sample (query) of target population; 35.5% response. • <i>“The CFF survey was conducted by mail, with a pretty ‘self-selected’ audience. Land owners who attended the 2001 symposium were undoubtedly some of the most active and motivated of family forestland owners in the state. Those who responded to our survey are the most motivated of that group...‘the top 5% of the top 5%’ so to speak. They also represent the medium to larger ownerships in the family forestland class. The questions asked were mostly open-ended and primarily policy-oriented, designed to solicit answers that will help the CFF more effectively represent family forestland owners before the Board of Forestry.”</i> 		
Data Collection Format: mail survey		
Geographic Scope: State	Location: Oregon	
Data Year: 2004	n: 186 sent, 66 received	Response Rate: 35.5%
Theoretical/Conceptual Frameworks: Not reported		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		

<ul style="list-style-type: none"> • This report is perhaps more a policy instrument than scientific inquiry. • Though responses to the survey were both open-ended (qualitative) and categorical, the study is assessed using only survey quality factors, since the open-ended questions are uninterpreted. 	
Qualitative Validity Evaluation Criteria	
Descriptive Validity:	
a. Is the target population described?	N/A (5)
b. Is the sampling method described?	N/A (5)
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	N/A (5)
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	N/A (1)
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	N/A (1)
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A (0)
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A (0)
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	N/A (1)
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A (0)
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A (4)
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A (1)
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A (3)
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A (3)
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A (3)
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A (3)
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	2
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	2
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	2

Processing Error:					
a.	Are coding procedures described?			0	
b.	Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)			0	
c.	Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)			0	
Coverage Error:					
a.	Is the target population of the study adequately described?			5	
b.	Is the sampling frame of the study adequately described?			5	
c.	Does the sampling frame match the target population?			5	
d.	Are no ineligible units evident in the sampling frame?			5	
e.	Are all elements of the target population included in the sampling frame?			4	
Sampling Bias:					
a.	Is the sampling method described?			5	
b.	Do all of the units in the sampling frame have equal chances for selection?			4	
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a.	Is survey response (on nonresponse) reported?			5	
b.	Is survey nonresponse analyzed?			0	
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?			2	
Generalizability Evaluation Criteria					
Study Type: nomothetic					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:					
	a:	1	5	0	1
	b:	N/A	N/A	N/A	N/A
	c:	3	4	1	2
2) Ruling Out Irrelevancies:					
	a:	0	0	0	0
	b:	0	0	0	0
	c:	0	0	0	0
3) Making Discriminations:					
	a:	2	3	1	1
	b:	2	3	1	1
4) Interpolation and Extrapolation:					
	a:	0	0	0	0

5) Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
6) Statistical Inference:				
a: Sampling Error	0	5	0	0
b: Coverage Error	0	5	0	0
c: Sampling Bias	0	4	0	0
d: Significant Correlations	0	0	0	0
Notes:				
<ul style="list-style-type: none"> • The summary for the survey states, <i>“The CFF survey was conducted by mail, with a pretty ‘self-selected’ audience. Land owners who attended the 2001 symposium were undoubtedly some of the most active and motivated of family forestland owners in the state. Those who responded to our survey are the most motivated of that group...‘the top 5% of the top 5%’ so to speak. They also represent the medium to larger ownerships in the family forestland class.”</i> The CFF survey participants are expressly not representative of Oregon family forestland owners (OFFO). This does not represent a sampling error or coverage error, because the target population of the survey (2001 CFF Oregon Family Forests Symposium participants) was 100% sampled. There is an apparent but unknown degree of divergence from the construct of family forest owner as used in the CFF survey, and the OFFO construct as used by this review, representing a significant threat to the generalizability of the subject study findings to the OFFO construct used for this review. • Making Discriminations, 3a,b; the meanings of constructs that are included in the findings are generally undefined by the survey, and may be unique to individual participants; construct validity between participant responses is thus largely undefined. With respect to the larger context of the Oregon family forest owners used by this review, presumed definitions may have little validity. • Statistical Inference, a: Though sampling error for survey results is not reported, the sample size and survey format suggests the sampling error would be approximately plus or minus 6% at the 95% confidence interval. 				

Validity and Generalizability Review		
Title: <i>Looking Forward II, Appendix A: The white paper</i>		
Author(s): Anonymous (Oregon Committee for Family Forestlands)		
Reviewer: Carlson	Review Date: 1/7/2013	
Source: Jim Johnson	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
Publication: <i>Looking Forward II -- Oregon Families & their forestlands: What's at stake.</i>		
Publication Date: unknown; 2007 or 2008 seems likely	Type of Media: Symposium proceedings	Peer Review: unknown
Methodology: Roundtable discussion format. Thematic analysis of responses to a priori questions.		
Reporting Format: Narrative summary as appendix to Looking Forward II Symposium.		
Purpose of Study: <ul style="list-style-type: none"> • From the Appendix A introduction: <i>"In early 2007, the Committee for Family Forestlands posed a series of questions to family forestland owners and other interested people throughout Oregon. The questions were intended to stimulate discussion about the challenges facing family forest owners. This paper summarizes the responses to those questions..."</i> • <i>The most immediate application of this roundtable review is to guide the committee as they prepare for the April 27-28 Symposium..."</i> 		
Target Population: <ul style="list-style-type: none"> • Not expressly stated. • The Introduction states, <i>"In early 2007, the Committee for Family Forestlands posed a series of questions to family forestland owners and other interested people throughout Oregon..."</i> • For purposes of this review, the target population of the subject study is presumed to be the participants of the regional roundtable focus groups. 		
Sampling Frame: <ul style="list-style-type: none"> • Not expressly stated. • The Introduction states, <i>"In early 2007, the Committee for Family Forestlands posed a series of questions to family forestland owners and other interested people throughout Oregon..."</i> The Background section states: <i>"In preparation for the April Symposium, the Committee sponsored five regional roundtable discussions at locations throughout Oregon. A total of 73 people attended – 20 in Portland, 22 in Eugene, 10 in LaGrande, 6 in John Day, and 15 in Bend. About two-thirds of the attendees were family forestland owners; others were publicly and privately employed foresters and land managers, local elected officials, and other interested persons...Along with responses from roundtable participants, this summary also includes separately submitted remarks from about a dozen people who were unable to attend a roundtable. Also included is feedback from a number of family forestland owners in Coos and Lincoln counties, arising from brief group discussions conducted by the Oregon Small Woodlands Association."</i> 		
Sample Selection: Not reported.		
Data Collection Format: Roundtable discussion; how roundtable discussion and informant's remarks were recorded and coded is not reported. Individually submitted remarks (i.e.; email?)		
Geographic Scope: <i>Statewide</i>	Location: <i>Oregon</i>	
Data Year: 2007	n: 73 + ~12 submitted	Response Rate: Not reported

	remarks	
Theoretical/Conceptual Frameworks: Not reported		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes: This report is perhaps more of a policy instrument than a scientific inquiry.		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a.	Is the target population described?	2
b.	Is the sampling method described?	0
c.	Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	0
d.	Are recording and transcribing procedures for accounts or other phenomenon documented?	0
e.	Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	unknown
f.	Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	0
g.	Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	0
Interpretive Validity:		
a.	Are participants' emic perspectives supported by descriptive data?	2
b.	Is contextual information provided that supports the interpretation of participants' emic perspectives?	1
Theoretical Validity:		
a.	Are primary findings expressly reported, rather than integrated into a narrative?	5
b.	Are the primary findings theoretical in nature, rather than descriptive?	1
c.	Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	1
Construct Validity:		
a.	Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	2
b.	Are the meanings of constructs used in the narrative clear and unambiguous?	2
c.	Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	2
Quantitative Validity Evaluation Criteria		
Construct Validity:		
a.	Are the measured constructs clear and unambiguous?	N/A
b.	Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c.	Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A

Processing Error:					
a.	Are coding procedures described?	N/A			
b.	Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A			
c.	Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A			
Coverage Error:					
a.	Is the target population of the study adequately described?	N/A			
b.	Is the sampling frame of the study adequately described?	N/A			
c.	Does the sampling frame match the target population?	N/A			
d.	Are no ineligible units evident in the sampling frame?	N/A			
e.	Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:					
a.	Is the sampling method described?	N/A			
b.	Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a.	Is survey response (on nonresponse) reported?	N/A			
b.	Is survey nonresponse analyzed?	N/A			
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria					
Study Type: Idiographic					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
Surface Similarity:					
	a:	N/A	N/A	N/A	N/A
	b:	2	5	0	0
	c:	0	0	0	0
Ruling Out Irrelevancies:					
	a:	0	0	0	0
	b:	0	0	0	0
	c:	0	0	0	0
Making Discriminations:					
	a:	3	4	1	2
	b:	2	2	1	2
Interpolation and Extrapolation:					
	a:	0	0	0	0

Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
Statistical Inference:				
a: Sampling Error	0	0	0	0
b: Coverage Error	0	0	0	0
c: Sampling Bias	0	0	0	0
d: Significant Correlations	0	0	0	0
Notes:				
<ul style="list-style-type: none"> • Descriptive Validity: Selected comments are used to support summaries of thematically-organized issue categories. There is no methodological description to describe the selection of comments for presentation in the study. Selected comments are out of context, and may not necessarily support the themes or thematic summaries developed for the study. • Interpretive Validity: Some interpretation of comments appears to have been necessary to reach the abstractions represented in the findings (e.g., themes and descriptions), but there is no evidence to support this interpretation and transformation into findings. • Theoretical Validity: The process for reaching the report conclusions is not described, and no process can be inferred from the narrative. Thematic categories are not necessarily supported by the comments selected to accompany their descriptions. Comments are acontextual, and may be interpreted in ways that do not necessarily support the thematic category they accompany. • Construct Validity: The meanings of constructs that are included in the findings are generally undefined, and are largely those of the participants; construct validity between participants' responses is thus largely undefined. With respect to the larger context of the Oregon family forest owners used by this review, these definitions may have little validity. • Generalizability: There is no description of the selection process for participants in the roundtable discussions, and approximately one-third of the participants were, "publicly and privately employed foresters and land managers, local elected officials, and other interested persons." The role of these non-family forestland owners is not described. Representativeness of the focus group participants to the OFFO construct is not clear, and presents a serious threat to the generalizability of these findings to that construct. 				

Validity and Generalizability Review		
Title: Family Forestland Survey: A Report For Oregon Forest Resources Institute		
Author(s): Tom Eiland, CFM Research		
Reviewer: Carlson	Review Date: 1/7/2013	
Source: Jim Johnson	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
Publication: <i>Report published by Oregon Forest Resources Institute.</i>		
Publication Date: January, 2005	Type of Media: self-published report	Peer Review: Unknown
Methodology: Telephone survey		
Reporting Format: Quantitative descriptors/ranking, narrative summary		
Purpose of Study: <i>"The research objectives were to identify important sources of information about forestry issues among forestland owners, to determine those topics that would be most helpful to owners in using and managing their forestland and to assess demographic characteristics of family forestland owners."</i> (page 1)		
Target Population: <ul style="list-style-type: none"> • Not specifically reported. See purpose of study, above. • Based on the report title and the commissioners of the report (OFRI and the Oregon Board of Forestry), for purposes of this assessment it is assumed that the target population of the subject study is all Oregon family forestland owners. 		
Sampling Frame: <i>"The sample was based on an Oregon Department of Revenue (DOR) list of 31,416 family forestland owners that included owner name, home address, acres owned, county location of forestland and other information. CFM cross-matched the names and addresses from the DOR list with a database of phone numbers for voters and other Oregon residents. The cross-matching process generated a list of 8,412 owners with phone numbers."</i>		
Sample Selection: <i>"A total of 400 interviews were conducted among a stratified sample of family forestland owners. Stratification was based on acres owned. One hundred interviews were conducted within each owner segment, with segments defined as owning ten acres or less, 11 to 40 acres, 41 to 80 acres and 81 acres or more."</i>		
Data Collection Format: Telephone survey		
Geographic Scope: State	Location: Oregon	
Data Year: September, 2004	n: 400	Response Rate: Not reported
Theoretical/Conceptual Frameworks: Not reported		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		N/A
b. Is the sampling method described?		N/A
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		N/A
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		N/A
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		N/A

f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	4
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	4
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	4
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	2
b. Is the sampling frame of the study adequately described?	5
c. Does the sampling frame match the target population?	1
d. Are no ineligible units evident in the sampling frame?	5
e. Are all elements of the target population included in the sampling frame?	1

Sampling Bias:					
a.	Is the sampling method described?				1
b.	Do all of the units in the sampling frame have equal chances for selection?				1
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a.	Is survey response (on nonresponse) reported?				0
b.	Is survey nonresponse analyzed?				0
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?				N/A
Generalizability Evaluation Criteria					
Study Type: Nomothetic					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:					
a:		1	2	1	2
b:		N/A	N/A	N/A	N/A
c:		1	2	1	2
2) Ruling Out Irrelevancies:					
a:		0	0	0	0
b:		0	0	0	0
c:		0	0	0	0
3) Making Discriminations:					
a:		1	3	1	3
b:		4	4	4	4
4) Interpolation and Extrapolation:					
a:		0	0	0	0
5) Causal Explanation:					
a:		0	0	0	0
b:		0	0	0	0
6) Statistical Inference:					
a:	Sampling Error	0	5	0	5
b:	Coverage Error	0	1	0	1
c:	Sampling Bias	0	1	0	1
d:	Significant correlations	0	0	0	0
Notes:					
<ul style="list-style-type: none"> Sampling Frame: The sampling frame was based on an Oregon Department of Revenue (DOR) list of 31,416 family forestland owners, which is substantially less than the total population of 141,000 Oregon family forestland owners reported by Butler (2008). The target population was not specifically reported, but might be inferred to be all Oregon family forestland owners based on the report title and the report's narrative content. If this is the case, the sampling frame does not match the target population, and it is 					

possible that the sampling frame may not be representative of the target population; coverage error could result in biased findings with respect to true population parameters (Groves, 2009). For instance, if the DOR list was based on income tax filings that report timber revenue from forestland owners, forestland owners that have not reported timber revenue would not be included in the sampling frame, and thus would not be represented in the study. Similarly, if the sampling frame was based on enrollment in a tax program (e.g., small tract forest or forestland programs) the sample could be biased in some population parameters with respect to the OFFO construct used by this review. Note: Mike Cloughesy of OFRI provided additional information about the sample frame (Mar 21, 2013): “The database was developed from County Assessor data to include the owners of all parcels of land taxed as forestland and being between 2 & 5000 acres.”

- Sampling Frame: The DOR list of family forest owners was cross-matched with a database containing phone numbers for voters and other Oregon residents, creating a list of 8,412 owners with phone numbers – the subject study’s sampling frame. If the database used did not fairly represent the target population of the subject study, bias in some population parameters with respect to that target population could result.
- Sampling Bias: The report does not specify how the sample was selected from the sampling frame; selection bias cannot be evaluated.
- Non-response Error: Non-response was not reported; non-respondents might have had significantly different responses from those reported. Possible non-response error cannot be evaluated.
- 6a – Statistical inference is presumed to apply probabilistically in the idiographic receiving context, however such inference is hypothetically limited to one survey category, since correlations between categories are undefined (i.e.; multiple categorical inferences cannot simultaneously be made to a single individual – see note 5).
- 6a – Internal and external generalizability are the same because the target populations are the same.

Validity and Generalizability Review		
Title: <i>Reducing Hazardous Fuels on Nonindustrial Private Forests: Factors Influencing Landowner Decisions</i>		
Author(s): Fischer, A. Paige		
Reviewer: Carlson	Review Date: 1/17/2013	
Source: Google Scholar	Date Retrieved: May 24, 2012	
Retrieval Keywords: "family forest" + Oregon		
Publication: <i>Journal of Forestry, Volume 109, Number 5, July/August 2011, pp. 260-266(7)</i>		
Publication Date: August, 2011	Type of Media: Journal	Peer Review: Yes
Methodology: Survey data collection instrument with descriptive statistics, quantitative analysis; logistic regression		
Reporting Format: IMRAD		
Purpose of Study: <i>"This article examines factors that influence nonindustrial private forest owners' ...decisions to address fire risk in Oregon east of the Cascade Mountains."</i>		
Target Population: NIPF owners of "eastside" ponderosa pine forests predicted to support more than 13 m ² /ha of ponderosa pine basal area and where ponderosa pine grew in the past, and could or does grow today.		
Sampling Frame: "Eastside" ponderosa pine forestlands predicted to support more than 13 m ² /ha of ponderosa pine basal area: <i>"Four geographic information system layers were overlaid to create a polygon of the study area: (1) all pixels that were predicted to support more than 13 m²/ha of ponderosa pine basal...the amount characteristic of historic ponderosa pine...(2) all pixels with conditions that could support ecological systems in which ponderosa pine would be a major component ...(3) a forest/non-forest mask; and (4) an ownership layer. The resulting polygon represents the mixed ownership landscape where ponderosa pine likely grew in the past and could be growing today. One-quarter of this area (1.2 million ac) is in nonindustrial private forest ownership and three-quarters (3.7 million ac) is in federal and other ownerships...The study area comprises a little more than one half of all nonindustrial private forestland and 60% of all forestland on Oregon's eastside."</i>		
Sample Selection: The sampling description is similar to "Area probability sampling" described by Groves, et al. (2009). Random points were cast on the nonindustrial private areas of the polygon identified as the geographic sampling frame (see above). Author obtained contact information for the owners of the tax lots on which the points fell.		
Data Collection Format: mail survey		
Geographic Scope: <i>Regional</i>	Location: <i>Eastern Oregon ponderosa pine forestlands</i>	
Data Year: 2008	n: 505	Response Rate: 50%
Theoretical/Conceptual Frameworks: Not express.		
Institutional Review Board Approval (or equivalent)? Yes		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?	N/A	
b. Is the sampling method described?	N/A	
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	N/A	

d. Are recording and transcribing procedures for accounts or other phenomenon documented?	N/A
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	N/A
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	5
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	5
b. Is the sampling frame of the study adequately described?	5
c. Does the sampling frame match the target population?	5

d. Are no ineligible units evident in the sampling frame?					5
e. Are all elements of the target population included in the sampling frame?					4
Sampling Bias:					
a. Is the sampling method described?					5
b. Do all of the units in the sampling frame have equal chances for selection?					5
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a. Is survey response (on nonresponse) reported?					5
b. Is survey nonresponse analyzed?					0
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?					4
Generalizability Evaluation Criteria					
Study Type: Nomothetic					
	Internal Generalizability		External Generalizability		
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context	
1) Surface Similarity:					
a:	0	5	0	3	
b:	N/A	N/A	N/A	N/A	
c:	4	4	2	2	
2) Ruling Out Irrelevancies:					
a:	2	3	2	3	
b:	3	5	2	3	
c:	1	4	0	3	
3) Making Discriminations:					
a:	3	4	2	3	
b:	3	4	2	3	
4) Interpolation and Extrapolation:					
a:	1	3	1	2	
5) Causal Explanation:					
a:	0	0	0	0	
b:	0	0	0	0	
6) Statistical Inference:					
a: Sampling Error	0	5	0	0	
b: Coverage Error	0	5	0	0	
c: Sampling Bias	0	5	0	0	
d: Significant correlations	0	5	0	0	
Notes:					
<ul style="list-style-type: none"> Construct Validity: Because sampling selection probability was based on area, findings with respect to owner characteristics are biased (weighted) toward owners of large 					

parcels. The author found that ownership size was not correlated with the likelihood to reduce hazardous fuels, however, ownership size could be associated with other variables. This possibility should be recognized when generalizing results to landowner constructs defined by different characteristics.

- **Construct Validity:** Survey design was informed by landowner interview data and reviewed by landowners, social scientists, and natural resource professionals. These considerations increase the level of confidence in construct validity.
- **Surface similarity, b:** Though this is a nomothetic study, the correlation of individual attributes such as age and residency with other findings are presumed to increase idiographic generalizability.
- **Statistical Inference, a:** Though sampling error for descriptive survey statistics is not reported, the sample size and apparent survey format suggests the sampling error would be approximately plus or minus 5% at the 95% confidence interval.

Validity and Generalizability Review		
Title: <i>Mental and Biophysical Terrains of Biodiversity: Conserving Oak on Family Forests</i>		
Author(s): A. Paige Fischer and John C. Bliss		
Reviewer: Carlson	Review Date: 5/7/12	
Source: Google Scholar	Date Retrieved: 5/24/12	
Retrieval Keywords: "family forest" + Oregon		
Publication: <i>Society and Natural Resources</i> , 19:625–643		
Publication Date: September, 2006	Type of Media: Journal	Peer Review: Yes
Methodology: <i>"We recorded and transcribed our interactions with the owners. Aided by the coding and theme-building software ATLAS ti, we followed a qualitative protocol for building theory. We used the grounded theory techniques of simultaneous data collection and analysis, two-step coding, and memo writing (Charmaz 2001; Strauss1987). This process yielded 37 codes with explanatory power on owners' relationships with biodiversity that we divided into 3 families: knowledge, beliefs, and external constraints."</i>		
Reporting Format: IMRAD		
Purpose of Study: <i>"By listening to forest owners...describe their relationships to their forests, we hope to inform development of effective private forest conservation policy. Our focus is on the Oregon white oak ecotype, one of Oregon's most biologically diverse ecotypes, and a resource in decline. Because much oak occurs on the lands of family forest owners, its conservation will depend on the effectiveness of policy measures targeted at this ownership group."</i>		
Target Population: Family forest owners of historically oak woodland ecotypes in the Western Muddy Creek Watershed of Benton County, Oregon.		
Sampling Frame: <i>"...we drew a random sample of owners in historically oak covered areas within the watershed from tax lot lists, stratified according to ownership size. This resulted in a list of 200 potential interviewees representing ownerships across the range of tract sizes present in the watershed. We contacted individuals from within each ownership size category and arranged to meet them on their properties."</i>		
Sample Selection: The actual selection process for informants from the sampling frame (above) was not reported.		
Data Collection Format: Personal interviews		
Geographic Scope: <i>Local</i>	Location: <i>Western Muddy Creek Watershed of Benton County, Oregon.</i>	
Data Year: Fall,2002	n: 10 (20 additional to confirm saturation)	Response Rate: not reported
Theoretical/Conceptual Frameworks: Grounded Theory (Strauss, 1987, Lincoln and Guba, 1985); Schneider and Ingram policy framework (1990).		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a.	Is the target population described?	5
b.	Is the sampling method described?	3

c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	3
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	5
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	5
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	0
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	4
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	5
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	4
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	2
b. Are the primary findings theoretical in nature, rather than descriptive?	4
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	4
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	5
b. Are the meanings of constructs used in the narrative clear and unambiguous?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	N/A

b.	Is the sampling frame of the study adequately described?	N/A			
c.	Does the sampling frame match the target population?	N/A			
d.	Are no ineligible units evident in the sampling frame?	N/A			
e.	Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:					
a.	Is the sampling method described?	N/A			
b.	Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a.	Is survey response (on nonresponse) reported?	N/A			
b.	Is survey nonresponse analyzed?	N/A			
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria					
Study Type: Idiographic					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:					
	a:	N/A	N/A	N/A	N/A
	b:	4	2	3	1
	c:	4	2	3	1
2) Ruling Out Irrelevancies:					
	a:	0	0	0	0
	b:	0	0	0	0
	c:	0	0	0	0
3) Making Discriminations:					
	a:	3	2	1	1
	b:	5	4	3	2
4) Interpolation and Extrapolation:					
	a:	0	0	0	0
5) Causal Explanation:					
	a:	4	2	2	1
	b:	4	2	2	1
6) Statistical Inference:					
	a: Sampling Error	0	0	0	0
	b: Coverage Error	0	0	0	0
	c: Sampling Bias	0	0	0	0
	d: Significant correlations	0	0	0	0
Notes:					

Sampling Method: Sampling is reported to be purposive, but sampling criteria are not clear. Theoretical sampling is an important component of theory generation in grounded theory research (Strauss and Corbin 1998; Bryant and Charmaz 2007), but is not mentioned in the methodology.

2A – A primary purpose of theoretical sampling is to explore the variability associated with the investigated phenomenon, and the relevant conditions under which evolving theory holds, thus ruling out irrelevant conditions (Strauss and Corbin 1998). This form of sampling was not described in the study.

5a,b – Belief mechanisms and constraints described in the study are prototypical mediators/moderators that can be expected to generalize beyond the idiographic context of the study, both externally and to nomothetic contexts.

Validity and Generalizability Review		
Title: <i>Behavioral Assumptions of Conservation Policy: Conserving Oak Habitat on Family-Forest Land in the Willamette Valley, Oregon</i>		
Author(s): A. Paige Fischer & John C. Bliss		
Reviewer: Carlson	Review Date: 1/8/13	
Source: Google Scholar	Date Retrieved:	
Retrieval Keywords: family + forest + Oregon		
Publication: Conservation Biology. 22.2 (Apr. 2008): p275.		
Publication Date: April, 2008	Type of Media: Journal	Peer Review: Yes
Methodology: <i>"We used a qualitative protocol of coding, memo writing, and theory building to analyze the responses given in the interviews. Using the qualitative data analysis software Atlas.ti, we coded transcriptions of the interviews 3 times to identify owners' knowledge, beliefs, and values about oak; views about opportunities and constraints for conservation; and ideas for policy options. We conducted a first round of analysis by coding each interview shortly after it was completed to identify as many different ideas as possible. After finishing all the interviews we conducted a second and third round of analysis to consolidate the codes into thematic categories and develop theories about owners' motivations and policy preferences."</i>		
Reporting Format: IMRAD		
Purpose of Study: From abstract: <i>"Designing policies that harness the motivations of landowners is essential for conserving threatened habitats on private lands. Our goal was to understand how to apply ethnographic information about family-forest owners to the design of conservation policy for Oregon white oak (Quercus garryana) in the Willamette Valley, Oregon. We examined owners' knowledge, beliefs, values, and socioeconomic contexts through in-depth individual and focus-group interviews to understand their motivations to conserve oak."</i>		
Target Population: Owners of members of families that own parcels at least 4 ha in size that support oak habitat in the Willamette Valley, Oregon		
Sampling Frame: <i>"The owners we interviewed were individuals or members of families that own parcels at least 4 ha in size that support oak habitat in the Willamette Valley, Oregon...We created a list of over 80 owners that had been in contact with Oregon State University Forestry Extension, Soil and Water Conservation Districts, state and federal natural resource agencies, landtrusts, and watershed councils."</i>		
Sample Selection: Purposive <i>"We interviewed a total of 36 family forest owners in 18 in-depth, semi-structured interviews and 3 structured focus-group interviews of about 6 owners each...Sampling was purposive; we created a list of over 80 owners that had been in contact with Oregon State University Forestry Extension, Soil and Water Conservation Districts, state and federal natural resource agencies, landtrusts, and watershed councils. We selected owners to interview on the basis of the balance they brought to our sample in terms of parcel sizes, types of oak habitats, and conservation attitudes. We determined the final size of the sample through theoretical saturation."</i>		
Data Collection Format: 18 semi-structured interviews, 3 structured focus groups		
Geographic Scope: Regional	Location: Willamette Valley, Oregon	
Data Year: Not reported	n: 36	Response Rate: not reported
Theoretical/Conceptual Frameworks:		
<ul style="list-style-type: none"> Though it is not expressly stated, the authors' description and citations suggest that the analytical framework of the study is similar to the "generic inductive qualitative model" described by Bryant and Charmaz (2007). 		

<ul style="list-style-type: none"> Schneider and Ingram's policy analysis framework (Schneider and Ingram 1990). 	
Institutional Review Board Approval (or equivalent)? Not reported	
Notes:	
Qualitative Validity Evaluation Criteria	
Descriptive Validity:	
a. Is the target population described?	5
b. Is the sampling method described?	4
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	4
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	3
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	5
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	0
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	4
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	5
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	4
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	5
b. Are the primary findings theoretical in nature, rather than descriptive?	5
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	5
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	5
b. Are the meanings of constructs used in the narrative clear and unambiguous?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Processing Error:	

a. Are coding procedures described?	N/A			
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A			
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A			
Coverage Error:				
a. Is the target population of the study adequately described?	N/A			
b. Is the sampling frame of the study adequately described?	N/A			
c. Does the sampling frame match the target population?	N/A			
d. Are no ineligible units evident in the sampling frame?	N/A			
e. Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:				
a. Is the sampling method described?	N/A			
b. Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>				
Non-response Error:				
a. Is survey response (on nonresponse) reported?	N/A			
b. Is survey nonresponse analyzed?	N/A			
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria				
Study Type: Idiographic (though as a multiple case study it could also be characterized as nomothetic)				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	N/A	N/A	N/A	N/A
b:	4	3	3	1
c:	4	3	3	1
2) Ruling Out Irrelevancies:				
a:	3	2	1	0
b:	0	0	0	0
c:	3	2	1	0
3) Making Discriminations:				
a:	3	2	2	1
b:	4	4	3	3
4) Interpolation and Extrapolation:				
a:	0	0	0	0

5) Causal Explanation:				
a:	4	2	2	1
b:	4	2	2	1
6) Statistical Inference:				
a: Sampling Error	0	0	0	0
b: Coverage Error	0	0	0	0
c: Sampling Bias	0	0	0	0
d: Significant correlations	0	0	0	0
Notes:				
<p>2a – The process of theory-building in grounded theory (assumed to be the analytical framework here) is in part a process of abductive logic (Reichertz 2007), whereby through comparison of likely alternatives (e.g. explanatory variables), the most plausible alternatives are conditionally accepted for further analysis, and “irrelevancies” are conditionally rejected. Though it is an implied component of the methodology, this process is not explicit in the subject study.</p> <p>2a – The investigators selected informants “on the basis of the balance they brought to our sample in terms of parcel sizes, types of oak habitats, and conservation attitudes,” providing a degree of heterogeneity to the informant pool.</p>				

Validity and Generalizability Review		
Title: <i>Framing Conservation on Private Lands: Conserving Oak in Oregon's Willamette Valley</i>		
Author(s): A. Paige Fischer and John C. Bliss		
Reviewer: Carlson	Review Date: 1/10/13	
Source: Google Scholar	Date Retrieved:	
Retrieval Keywords: "family forest" + Oregon		
Publication: <i>Society and Natural Resources</i> , 22:884–900		
Publication Date: 2009	Type of Media: Journal	Peer Review: Yes
<p>Methodology: Though it is not expressly stated, the authors' description and citations suggest that the analytical framework of the study is similar to the "generic inductive qualitative model" described by Bryant and Charmaz (2007). Findings were analyzed with respect to a framework described by Schneider and Ingram (1990). The authors used this framework to "identify policies that are most compatible with informants' frames for oak conservation, and owners' motivations to conserve oak in particular."</p>		
Reporting Format: Narrative		
<p>Purpose of Study: "In our case study of oak conservation in the Willamette Valley, Oregon, we explored policy options that would advance the goals of family forest owners and natural resource professionals alike and foster a cooperative model of policymaking."</p>		
<p>Target Population: The investigators studied two populations; landowners, and natural resource professionals; "Our study site was the Willamette Valley, the primary location of oak woodlands and savanna in Oregon. Study informants comprised a purposive sample of two of the main stakeholder groups in oak conservation in Oregon: landowners and natural resource professionals (i.e., individuals who are employed as experts in a natural resource field)."</p>		
Sampling Frame: Not express; see "Sample Selection", below.		
<p>Sample Selection: "Study informants comprised a purposive sample of two of the main stakeholder groups in oak conservation in Oregon: landowners and natural resource professionals (i.e., individuals who are employed as experts in a natural resource field). Landowners were selected from a list of more than 80 owners who had been in contact with Oregon State University Forestry Extension, Soil and Water Conservation Districts, state and federal natural resource agencies, land trusts, and watershed councils. Informants were selected on the basis of the balance they brought to the sample with respect to parcel size, oak habitats and interest in conservation. We interviewed 36 owners, 18 individually and 18 in focus groups. We used snowball sampling to select natural resource professionals, resulting in a sample of 32 publicly and privately employed foresters, biologists, planners, ecologists, administrators, and business people. We interviewed 19 natural resource professionals individually and 17 in focus groups."</p>		
Data Collection Format: Interviews and focus groups		
Geographic Scope: <i>Regional</i>	Location: <i>Willamette Valley</i>	
Data Year: Not reported	n: 36 landowners, 32 natural resource professionals	Response Rate: Not reported
<p>Theoretical/Conceptual Frameworks: Multiple; discussion includes: human-nature relationships; rights and obligations of property ownership; role of policy in social change. Theoretical/analytical framework included Schneider and Ingram's (Schneider and Ingram 1990) behavioral/motivational policy framework.</p>		
Institutional Review Board Approval (or equivalent)? Not reported		

Notes: The study included both family forest owners and natural resource professionals.	
Qualitative Validity Evaluation Criteria	
Descriptive Validity:	
a. Is the target population described?	5
b. Is the sampling method described?	4
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	4
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	3
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	5
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	0
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	3
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	3
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	3
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	2
b. Are the primary findings theoretical in nature, rather than descriptive?	5
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	5
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	5
b. Are the meanings of constructs used in the narrative clear and unambiguous?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Processing Error:	
a. Are coding procedures described?	N/A

b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A			
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A			
Coverage Error:				
a. Is the target population of the study adequately described?	N/A			
b. Is the sampling frame of the study adequately described?	N/A			
c. Does the sampling frame match the target population?	N/A			
d. Are no ineligible units evident in the sampling frame?	N/A			
e. Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:				
a. Is the sampling method described?	N/A			
b. Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>				
Non-response Error:				
a. Is survey response (on nonresponse) reported?	N/A			
b. Is survey nonresponse analyzed?	N/A			
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria				
Study Type: Idiographic (though as a multiple case study it could also be characterized as nomothetic)				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	N/A	N/A	N/A	N/A
b:	3	3	2	1
c:	4	3	3	1
2) Ruling Out Irrelevancies:				
a:	3	2	1	0
b:	0	0	0	0
c:	3	2	1	0
3) Making Discriminations:				
a:	3	2	2	1
b:	4	3	3	1
4) Interpolation and Extrapolation:				
a:	0	0	0	0
5) Causal Explanation:				

a:	4	2	3	1
b:	4	2	3	1
6) Statistical Inference:				
a: Sampling Error	0	0	0	0
b: Coverage Error	0	0	0	0
c: Sampling Bias	0	0	0	0
d: Significant correlations	0	0	0	0
Notes:				
2a – The investigators selected landowner informants “on the basis of the balance they brought to our sample in terms of parcel sizes, types of oak habitats, and conservation attitudes,” providing a degree of heterogeneity to the informant pool.				

Validity and Generalizability Review		
Title: <i>Landowner Perceptions of Habitat Protection Policy and Process in Oregon</i>		
Author(s): Peter Giampaoli and John C. Bliss		
Reviewer: Carlson	Review Date: 1/10/2012	
Source: Google Scholar	Date Retrieved: May 23, 2012	
Retrieval Keywords: nipf + Oregon		
Publication: <i>Western Journal of Applied Forestry</i> , Volume 26, Number 3, July 2011 , pp. 110-118(9)		
Publication Date: July, 2011	Type of Media: Journal	Peer Review: Yes
Methodology: <i>Semi-structured interviews (Robson 1993) lasted 1–3 hours, using open-ended questions regarding forest management practices and objectives, history of landownership, relationship with agencies, and views regarding wildlife and habitat. These topics were addressed with each respondent; however, the specific wording and order of questions varied with the flow of the interview. Participants signed consent forms and confidentiality agreements approved by the Oregon State University Institutional Review Board. Interviews were tape recorded, transcribed, and analyzed. The transcripts were then coded analyzed for recurring themes with the aid of Atlas.ti qualitative data analysis software.</i>		
Reporting Format: Narrative		
Purpose of Study: <i>“Study objectives were to (1) determine the extent and distribution of sensitive resource site actions in Oregon, and (2) to understand the perceptions, attitudes, and behaviors of affected NIPF owners regarding specified resource site policies and procedures. Understanding the subjective perceptions of forest owners, we argue, is essential to successful resource protection policy design and implementation.”</i>		
Target Population: Limited to Oregon nonindustrial forest landowners who have experience with “specified resource sites” (as per Oregon Forest Practices Act) with respect to timber harvesting operations.		
Sampling Frame: <i>“Two ODF administrative units, Klamath and Roseburg, were selected for more detailed analysis because of a relatively high concentration of potential forest operation-SRS interactions affecting nonindustrial private forest owners.”</i> Informants were limited to NIPF landowners that had been affected by the Oregon Forest Practices Act “specified resource site” (SRS) rules.		
Sample Selection: <i>“Review of administrative documents and interviews with ODF staff generated a list of candidate NIPF owners for interviews about their experiences with specified resource sites. ODF foresters were asked to identify landowner operations that met any of the following criteria: (1) landowner chose not to conduct an operation because of a potential conflict with a specified resource site; (2) landowner submitted notification, and the site was evaluated but required no protection; (3) landowner submitted notification, and a written plan was submitted because a resource site needed protection. Initial informants were purposively selected according to the above criteria. Using snowball sampling (Robson 1993), each interviewee was asked to identify other potential participants meeting selection criteria. Following the qualitative research technique of theoretical saturation (Robson 1993), additional participants were recruited and interviews conducted until little new information relevant to the questions under study emerged.”</i>		
Data Collection Format: Semi-structured, open-ended interview. Recorded, transcribed, and coded.		
Geographic Scope: Regional	Location: <i>Klamath and Douglas counties</i>	

Data Year: 2004	n: 13	Response Rate: not reported
Theoretical/Conceptual Frameworks: Though it is not expressly stated, the authors' description and citations suggest that the analytical framework of the study is similar to the "generic inductive qualitative model" described by Bryant and Charmaz (2007).		
Institutional Review Board Approval (or equivalent)? Yes		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		5
b. Is the sampling method described?		3
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		5
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		5
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		5
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)		0
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?		4
Interpretive Validity:		
a. Are participants' emic perspectives supported by descriptive data?		5
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?		5
Theoretical Validity:		
a. Are primary findings expressly reported, rather than integrated into a narrative?		5
b. Are the primary findings theoretical in nature, rather than descriptive?		5
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?		4
Construct Validity:		
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?		4
b. Are the meanings of constructs used in the narrative clear and unambiguous?		5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?		5
Quantitative Validity Evaluation Criteria		
Construct Validity:		
a. Are the measured constructs clear and unambiguous?		N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?		N/A

c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A			
Processing Error:				
a. Are coding procedures described?	N/A			
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A			
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A			
Coverage Error:				
a. Is the target population of the study adequately described?	N/A			
b. Is the sampling frame of the study adequately described?	N/A			
c. Does the sampling frame match the target population?	N/A			
d. Are no ineligible units evident in the sampling frame?	N/A			
e. Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:				
a. Is the sampling method described?	N/A			
b. Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>				
Non-response Error:				
a. Is survey response (on nonresponse) reported?	N/A			
b. Is survey nonresponse analyzed?	N/A			
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria				
Study Type: Idiographic				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	N/A	N/A	N/A	N/A
b:	4	3	3	0
c:	4	3	3	0
2) Ruling Out Irrelevancies:				
a:	0	0	0	0
b:	0	0	0	0
c:	3	2	2	0

3) Making Discriminations:				
a:	3	3	3	3
b:	4	1	3	0
4) Interpolation and Extrapolation:				
a:	2	1	1	0
5) Causal Explanation:				
a:	4	3	2	0
b:	4	3	2	0
6) Statistical Inference:				
a: Sampling Error	0	0	0	0
b: Coverage Error	0	0	0	0
c: Sampling Bias	0	0	0	0
d: Significant correlations	0	0	0	0
Notes:				
<ul style="list-style-type: none"> • Descriptive validity, b: Though the selection process is quite detailed, final selection criteria for selecting informants from the sampling frame are not provided. • Making discriminations, a: the study's findings are based in widely-recognized constructs that would likely not be misinterpreted. 				

Validity and Generalizability Review		
Title: <i>Climate Change and Family Forest Landowners in Oregon: A Needs Assessment</i>		
Author(s): Amy Grotta, Janean Creighton, Chris Schnepf, Sylvia Kantor		
Reviewer: Carlson	Review Date: 1/11/13	
Source: Janean Creighton	Date Retrieved: September, 2011	
Retrieval Keywords: N/A		
Publication: USFS PNW research report		
Publication Date: September, 2011	Type of Media: agency report	Peer Review: unknown
<p>Methodology: <i>“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 [...] Six focus groups were conducted in each state for a total of 24 different groups [...].</i></p> <p><i>“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.”</i></p>		
Reporting Format: Narrative/IMRAD		
<p>Purpose of Study: <i>“As new knowledge about the potential impacts of climate change on western forest 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.</i></p>		
Target Population: Family forest owners who had taken part in forestry education programs through extension (pers. comm.; Janean Creighton).		
Sampling Frame: Family forest owners who had taken part in forestry education programs through extension.		
Sample Selection: <i>“Participants were family forest owners who had taken part in forestry education programs through extension; they were recruited with the help of the local OSU Extension forestry agents.</i>		
Data Collection Format: Focus group (six, with 4 to 11 members in each group)		
Geographic Scope: State	Location: Regional focus groups in Beaverton, LaGrande, Salem, Baker City, Bend, and Coquille	
Data Year: 2009 - 2010	n: 44 (from table 2, page 5)	Response Rate: not reported
Theoretical/Conceptual Frameworks:		
Institutional Review Board Approval (or equivalent)? IRB approval was not reported. The authors write that they did obtain participant consent to videotape and audio record focus group sessions.		
Notes:		

Qualitative Validity Evaluation Criteria	
Descriptive Validity:	
a. Is the target population described?	3
b. Is the sampling method described?	1
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	N/A
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	5
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	4
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	5
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	1
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	2
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	0
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	2
b. Are the primary findings theoretical in nature, rather than descriptive?	1
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	4
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	5
b. Are the meanings of constructs used in the narrative clear and unambiguous?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A

c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A			
Coverage Error:				
a. Is the target population of the study adequately described?	N/A			
b. Is the sampling frame of the study adequately described?	N/A			
c. Does the sampling frame match the target population?	N/A			
d. Are no ineligible units evident in the sampling frame?	N/A			
e. Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:				
a. Is the sampling method described?	N/A			
b. Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>				
Non-response Error:				
a. Is survey response (on nonresponse) reported?	N/A			
b. Is survey nonresponse analyzed?	N/A			
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria				
Study Type: Idiographic				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	N/A	N/A	N/A	N/A
b:	1	1	0	0
c:	3	1	0	0
2) Ruling Out Irrelevancies:				
a:	0	0	0	0
b:	0	0	0	0
c:	0	0	0	0
3) Making Discriminations:				
a:	3	3	2	1
b:	3	3	2	1
4) Interpolation and Extrapolation:				
a:	0	0	0	0
5) Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
6) Statistical Inference:				

a: Sampling Error	0	0	0	0
b: Coverage Error	0	0	0	0
c: Sampling Bias	0	0	0	0
d: Significant correlations	0	0	0	0
Notes: <ul style="list-style-type: none">• Descriptive validity b: Sampling method is ambiguous with respect to the final determination of participants.• Descriptive validity, c: Methodology is not expressly stated.• Interpretive validity, a: Descriptions of individual participants' perspectives are generally limited to selected quotes.				

Validity and Generalizability Review		
Title: <i>Conservation Incentives Programs for Endangered Species: An Analysis of Landowner Participation</i>		
Author(s): Christian Langpap		
Reviewer: Carlson	Review Date: 1/12/13	
Source: Google Scholar	Date Retrieved:	
Retrieval Keywords: nipf + Oregon		
Publication: <i>Land Economics August 1, 2004 vol. 80 no. 3 375-388</i>		
Publication Date: August, 2004	Type of Media: Journal	Peer Review: Yes
Methodology: Quantitative analysis; econometric utility modeling.		
Reporting Format: Narrative		
Purpose of Study: <i>"The objective of the paper is to identify the landowner characteristics and property characteristics that affect participation in an incentives program designed to provide habitat for endangered species, and to examine how these characteristics differ from those that determine participation in more general incentives programs"</i> (p. 376.6)		
Target Population: NIPF landowners with more than 10 acres in 25 western Oregon and Washington counties.		
Sampling Frame: <i>The names and addresses of NIPFs in 25 counties in western Oregon and Washington who owned at least 10 acres of land were obtained from county tax assessor's offices.</i> (p. 378.1) In this paper it is unclear whether the sampling frame included <i>all</i> NIPF landowners with more than 10 acres in the counties in the sampling frame. In Langpap (2006) however, which apparently uses the same dataset, the author expressly stated that, <i>"all NIPFs who owned at least 10 acres of land zoned as forest were obtained from county tax assessor offices."</i>		
Sample Selection: Random from tax lists. Follow-up phone calls to determine survey response bias.		
Data Collection Format: mail survey		
Geographic Scope: Regional	Location: Western Oregon and Washington	
Data Year: 2001	n: 777 (combined OR & WA)	Response Rate: 56%
Theoretical/Conceptual Frameworks: Econometric analysis of a landowner utility optimization model populated by landowner survey data.		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		N/A
b. Is the sampling method described?		N/A
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		N/A
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		N/A
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		N/A

f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	5
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	4
b. Is the sampling frame of the study adequately described?	4
c. Does the sampling frame match the target population?	4
d. Are no ineligible units evident in the sampling frame?	4
e. Are all elements of the target population included in the sampling frame?	4

Sampling Bias:				
a. Is the sampling method described?	4			
b. Do all of the units in the sampling frame have equal chances for selection?	4			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>				
Non-response Error:				
a. Is survey response (on nonresponse) reported?	5			
b. Is survey nonresponse analyzed?	5			
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	4			
Generalizability Evaluation Criteria				
Study Type: nomothetic				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	0	5	0	4
b:	N/A	N/A	N/A	N/A
c:	2	3	1	2
2) Ruling Out Irrelevancies:				
a:	2	4	1	3
b:	2	5	1	4
c:	2	5	1	4
3) Making Discriminations:				
a:	2	4	1	3
b:	4	4	3	3
4) Interpolation and Extrapolation:				
a:	3	4	2	3
5) Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
Statistical Inference:				
a: Sampling Error	1	5	0	0
b: Coverage Error	1	4	0	0
c: Sampling Bias	1	4	0	0
d: Significant correlations	1	5	0	0
Notes: Construct validity; a, b, c: It is difficult to conjecture how constructs are perceived by survey participants, however, the author's use of pre-test with focus groups and a pre-survey is presumed to ensure a high degree of construct validity.				

Validity and Generalizability Review		
Title: <i>Conservation of endangered species: Can incentives work for private landowners?</i>		
Author(s): Christian Langpap		
Reviewer: Carlson	Review Date: 1/12/13	
Source: Google Scholar forward citations	Date Retrieved: 5/23/12	
Retrieval Keywords: <i>Conservation incentive programs for Endangered species: An Analysis...</i>		
Publication: <i>Ecological Economics, Volume 57, Issue 4, 1 June 2006, Pages 558–572</i>		
Publication Date: June, 2006	Type of Media: Journal	Peer Review: Yes
Methodology: Quantitative analysis, probit utility models		
Reporting Format: Narrative		
Purpose of Study: <i>“One of the main objectives of the survey was to examine how landowners’ management decisions would respond to cost sharing, compensation, and assurances incentives.”</i>		
Target Population: NIPF owners in western Oregon and Washington with at least 10 acres of land.		
Sampling Frame: <i>“The study area included 25 counties in western Oregon and Washington. The names and addresses of all NIPFs who owned at least 10 acres of land zoned as forest were obtained from county tax assessor offices.”</i>		
Sample Selection: Not reported, however Langpap (2004), which apparently uses the same dataset, reported that sample selection was random. Follow-up phone calls were used to determine survey non-response bias.		
Data Collection Format: mail survey		
Geographic Scope: Regional	Location: Western Oregon and Washington	
Data Year: 2001	n: 737 (combined OR & WA)	Response Rate: 53%
Theoretical/Conceptual Frameworks: Econometric analysis of a landowner utility optimization model populated by landowner survey data.		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a.	Is the target population described?	N/A
b.	Is the sampling method described?	N/A
c.	Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	N/A
d.	Are recording and transcribing procedures for accounts or other phenomenon documented?	N/A
e.	Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	N/A
f.	Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g.	Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A
Interpretive Validity:		

a. Are participants' emic perspectives supported by descriptive data?	N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	5
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	5
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	5
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	4
b. Is the sampling frame of the study adequately described?	4
c. Does the sampling frame match the target population?	4
d. Are no ineligible units evident in the sampling frame?	4
e. Are all elements of the target population included in the sampling frame?	4
Sampling Bias:	
a. Is the sampling method described?	4
b. Do all of the units in the sampling frame have equal chances for selection?	4
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>	

Non-response Error:					
a.	Is survey response (on nonresponse) reported?			5	
b.	Is survey nonresponse analyzed?			5	
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?			4	
Generalizability Evaluation Criteria					
Study Type: Nomothetic					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:					
	a:	0	5	0	4
	b:	N/A	N/A	N/A	N/A
	c:	1	2	1	2
2) Ruling Out Irrelevancies:					
	a:	2	4	1	3
	b:	2	5	1	4
	c:	2	5	1	4
3) Making Discriminations:					
	a:	2	4	1	3
	b:	4	4	3	3
4) Interpolation and Extrapolation:					
	a:	3	4	2	3
5) Causal Explanation:					
	a:	0	0	0	0
	b:	0	0	0	0
6) Statistical Inference:					
	a: Sampling Error	0	5	0	0
	b: Coverage Error	0	4	0	0
	c: Sampling Bias	0	4	0	0
	d: Significant correlations	0	5	0	0
Notes:					
Construct validity; a, b, c: It is difficult to conjecture how constructs are perceived by survey participants, however, the author's use of pre-test with focus groups and a pre-survey is presumed to ensure a high degree of construct validity.					

Validity and Generalizability Review		
Title: <i>The Sociology of Landowner Interest in Restoring Fire-adapted, biodiverse habitats in the Wildland-Urban Interface of Oregon's Willamette Valley Ecoregion.</i>		
Author(s): Max Nielsen-Pincus; Robert G. Ribe; Bart R. Johnson		
Reviewer: Carlson	Review Date: 1/12/13	
Source: Google Scholar	Date Retrieved: 6/1/2012	
Retrieval Keywords: "family forest" + Oregon		
Publication: In <i>Proceedings of the Second Conference on the Human Dimensions of Wildland Fire</i> . McCaffrey, S.M., and C.L. Fisher (eds.). Gen. Tech. Rep. NRS-P-84. US For. Serv., Washington, DC. Pp. 58-66		
Publication Date: August, 2011	Type of Media: Conference Proceedings	Peer Review: unknown
Methodology: Descriptive statistics, Factor analysis, ANOVA		
Reporting Format: IMRAD		
Purpose of Study: "In this paper, we report on the initial results of sociological research developed to help inform a coupled natural and human systems model. That model investigates how climate change, land use, management decisions, and wildfire may interact over the next 50 years in the WUI of western Oregon's Willamette Valley Ecoregion." (p. 58.7) "In this paper, we examine socio-demographic influences on landowner interest in restoring fire-adapted habitats...Specifically, our objective was to determine the influence of length of residence, political ideology, and experience with wildfire on the likelihood that landowners will express interest in conducting ecological restoration to reduce fire hazard and increase biodiversity." (p. 59.9)		
Target Population: Not specified; it can be inferred that the population of interest is NIPF owners of forestland in wildland-urban interface areas of the Willamette Valley Ecoregion, however, only Lane and Linn Counties were sampled. For the purposes of this review, it is presumed that the target population of the study is NIPF owners in the WUI study areas of Linn and Lane counties that comprise the sampling frame.		
Sampling Frame: NIPF owners in two WUI study areas in western Oregon (Lane and Linn Counties) with ≥ 2 acres of land and ≥ 1 acre of oak.		
Sample Selection: Stratified random sample based on GIS parcel data from county records.		
Data Collection Format: mail survey		
Geographic Scope: County	Location: Lane County and Linn County, Oregon	
Data Year: not reported	n: 651, 281	Response Rate: 40, 49
Theoretical/Conceptual Frameworks: Not reported		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a.	Is the target population described?	N/A
b.	Is the sampling method described?	N/A
c.	Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	N/A
d.	Are recording and transcribing procedures for accounts or other phenomenon documented?	N/A

e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	N/A
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	2
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	2
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	2
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	2
b. Is the sampling frame of the study adequately described?	3
c. Does the sampling frame match the target population?	3
d. Are no ineligible units evident in the sampling frame?	5

e. Are all elements of the target population included in the sampling frame?					4
Sampling Bias:					
a. Is the sampling method described?					4
b. Do all of the units in the sampling frame have equal chances for selection?					4
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a. Is survey response (on nonresponse) reported?					5
b. Is survey nonresponse analyzed?					0
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?					4
Generalizability Evaluation Criteria					
Study Type: Nomothetic					
	Internal Generalizability		External Generalizability		
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context	
1) Surface Similarity:					
a:	0	4	0	2	
b:	N/A	N/A	N/A	N/A	
c:	1	3	1	2	
2) Ruling Out Irrelevancies:					
a:	2	4	1	2	
b:	2	5	1	3	
c:	1	3	0	2	
3) Making Discriminations:					
a:	2	3	1	2	
b:	1	3	1	2	
4) Interpolation and Extrapolation:					
a:	0	0	0	0	
5) Causal Explanation:					
a:	0	0	0	0	
b:	0	0	0	0	
6) Statistical Inference:					
a: Sampling Error	0	5	0	0	
b: Coverage Error	0	4	0	0	
c: Sampling Bias	0	4	0	0	
d: Significant correlations	0	5	0	0	
Notes:					
<ul style="list-style-type: none"> Construct validity: Little supportive evidence for construct validity is provided. Statistical Inference, a: Though sampling error for survey results is not reported, the sample size and apparent survey format suggests the sampling error would be approximately plus or minus 5% at the 95% confidence interval with respect to the 					

presumed target population of the study.

- Statistical Inference, a, b: Limited statistical inference is assumed to apply probabilistically idiographically to the target population of the survey.

Validity and Generalizability Review		
Title: <i>Looking Forward II. Oregon Families & Their Forestlands: What's at Stake.</i>		
Author(s): Anonymous; notes by Gary Springer. Proceedings of a conference sponsored by the Oregon Board of Forestry and the Committee for Family Forestlands.		
Reviewer: Carlson	Review Date: 1/12/13	
Source: Jim Johnson	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
Publication: unpublished proceedings; Oregon State University?		
Publication Date: April, 2007 (Conference date)	Type of Media: Proceedings	Peer Review: Unknown
Methodology: N/A		
Reporting Format: Narrative		
Purpose of Study: <ul style="list-style-type: none"> • <i>"This year's symposium, "Oregon Families & Their Forestlands: What's at Stake," was designed to take some of the most important "survivability issues" for family forestlands and turn them into an action plan. This action plan will have elements for the Committee for Family Forestlands, Board of Forestry, OSWA, Extension Service, Department of Forestry and others to work on in the coming years." (p. 5.3)</i> • <i>"The task faced by attendees of the symposium was to consider the whole complement of family forest issues and then work to narrow and distill them into a few practical recommendations for the Committee for Family Forestlands and the Board of Forestry." (p. 8.0)</i> 		
Target Population: The conference proceedings are inferred to represent issues relating to all Oregon family forestland issues.		
Sampling Frame: N/A		
Sample Selection: <i>"The symposium 'Oregon Families & Their Forestlands: What's at Stake?' was attended by family forestland owners from all over Oregon, as well as many other interested people."</i>		
Data Collection Format: Not reported		
Geographic Scope: State	Location: Oregon	
Data Year: 2007	n: not reported	Response Rate: N/A
Theoretical/Conceptual Frameworks: N/A		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes: The study does not lend itself to characterization. For purposes of this review, it will be evaluated as a qualitative, idiographic study.		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		2
b. Is the sampling method described?		0
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		N/A
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		0
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		N/A

f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	0
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	0
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	0
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	3
b. Are the primary findings theoretical in nature, rather than descriptive?	0
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	0
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	3
b. Are the meanings of constructs used in the narrative clear and unambiguous?	3
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	3
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	N/A
b. Is the sampling frame of the study adequately described?	N/A
c. Does the sampling frame match the target population?	N/A
d. Are no ineligible units evident in the sampling frame?	N/A
e. Are all elements of the target population included in the sampling frame?	N/A

Sampling Bias:					
a.	Is the sampling method described?	N/A			
b.	Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a.	Is survey response (on nonresponse) reported?	N/A			
b.	Is survey nonresponse analyzed?	N/A			
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria					
Study Type: Idiographic					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:					
a:	N/A	N/A	N/A	N/A	N/A
b:	0	5	0	1	1
c:	0	5	0	1	1
2) Ruling Out Irrelevancies:					
a:	0	0	0	0	0
b:	0	0	0	0	0
c:	0	0	0	0	0
3) Making Discriminations:					
a:	2	5	1	2	2
b:	1	4	0	1	1
4) Interpolation and Extrapolation:					
a:	0	0	0	0	0
5) Causal Explanation:					
a:	0	0	0	0	0
b:	0	0	0	0	0
6) Statistical Inference:					
a:	Sampling Error	0	0	0	0
b:	Coverage Error	0	0	0	0
c:	Sampling Bias	0	0	0	0
d:	Significant correlations	0	0	0	0
Notes: The subject study is not a scientific or quasi-scientific study, but is included in this review because it contains potentially useful information about the program needs of Oregon family forest owners.					

Validity and Generalizability Review		
Title: <i>Oregon Small Woodlands Association Membership Survey</i>		
Author(s): Anonymous (Oregon Small Woodlands Association)		
Reviewer: Carlson	Review Date: 1/12/13	
Source: Jim Johnson	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
Publication: Self-published by OSWA		
Publication Date: 2006	Type of Media: Self-published report	Peer Review: Unknown
Methodology: Mail Survey		
Reporting Format: Survey summary; categorical rankings, descriptive statistics		
Purpose of Study: <i>"OSWA and its partner Family Forests of Oregon are using the information from this survey to design programs that will provide opportunity to our members and other family woodland owners" (p. 2)</i>		
Target Population: Members of Oregon Small Woodlands Association		
Sampling Frame: Members of Oregon Small Woodlands Association		
Sample Selection: All members of Oregon Small Woodlands Association		
Data Collection Format: Mail survey		
Geographic Scope: State	Location: Oregon	
Data Year: 2006	n: 745	Response Rate: 27.6%
Theoretical/Conceptual Frameworks: Descriptive survey		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		N/A (5)
b. Is the sampling method described?		N/A (5)
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		N/A (5)
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		N/A (2)
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		N/A (2)
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)		N/A (1)
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?		N/A (0)
Interpretive Validity:		
a. Are participants' emic perspectives supported by descriptive data?		N/A (0)
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?		N/A (0)
Theoretical Validity:		
a. Are primary findings expressly reported, rather than integrated into a		N/A (1)

narrative?	
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A (0)
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A (0)
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A (1)
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A (2)
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A (2)
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A (5)
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A (4)
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A (4)
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	5
b. Is the sampling frame of the study adequately described?	5
c. Does the sampling frame match the target population?	5
d. Are no ineligible units evident in the sampling frame?	4
e. Are all elements of the target population included in the sampling frame?	4
Sampling Bias:	
a. Is the sampling method described?	N/A
b. Do all of the units in the sampling frame have equal chances for selection?	N/A
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>	
Non-response Error:	
a. Is survey response (on nonresponse) reported?	4
b. Is survey nonresponse analyzed?	0
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	1

Generalizability Evaluation Criteria				
Study Type: nomothetic				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:				
a:	0	5	0	2
b:	N/A	N/A	N/A	N/A
c:	1	3	1	2
2) Ruling Out Irrelevancies:				
a:	0	0	0	0
b:	0	0	0	0
c:	0	0	0	0
3) Making Discriminations:				
a:	2	2	1	2
b:	2	2	2	2
4) Interpolation and Extrapolation:				
a:	0	0	0	0
5) Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
Statistical Inference:				
a: Sampling Error	0	5	0	0
b: Coverage Error	0	5	0	0
c: Sampling Bias	0	5	0	0
d: Significant correlations	0	0	0	0
Notes:				
<ul style="list-style-type: none"> • Coverage Error and Sampling Bias: The target population of the survey was the membership of OSWA. As such, this was assumed to be a 100 percent sample of the membership. • Nonresponse error: nonresponse was not directly reported, and was calculated for this review based on numbers provided in the survey. • Statistical Inference: This was a 100 percent survey of membership, therefore statistical generalizability applies, though there was no analysis of sampling error. 				

Validity and Generalizability Review		
Title: <i>Women Owning Woodlands: Understanding Women's Roles in Forest Ownership and Management</i>		
Author(s): Redmore, Lauren E.; Tynon, Joanne F.		
Reviewer: Carlson	Review Date: 1/13/13	
Source: Google scholar	Date Retrieved: 6/1/2012	
Retrieval Keywords: "family forest" + Oregon		
Publication: <i>Journal of Forestry, Volume 109, Number 5, July/August 2011, pp. 255-259(5)</i>		
Publication Date: August, 2011	Type of Media: Journal	Peer Review: Yes
Methodology: Thematic analysis of transcribed interviews with narrative summary of results.		
Reporting Format: Narrative		
Purpose of Study:		
<ul style="list-style-type: none"> • <i>"This article describes part of an exploratory study of Oregon WOWnet members. The research question, within the context of WOWnet, was, how do women perceive their role as forest landowners and managers? Contextualizing women's roles in this way is an important step in understanding women who manage and own forestlands. We conducted this study to examine the situation in Oregon and to identify system changes that extension and other organizations can make to support the increasingly important category of female-owned/managed NIPFs in Oregon and elsewhere." (p. 256.5)</i> • <i>"...this article does not focus on the amount and type of work women do in forestry. Instead, the focus is on how women ensure the future care of the land through good stewardship and effective land transfer. We also examined some of the challenges women face in forest ownership and management, particularly with regard to their experience accessing information.</i> 		
Target Population: WOWnet members		
Sampling Frame: WOWnet membership list		
Sample Selection: Randomly selected from membership list		
Data Collection Format: Semi-structured interviews, recorded, transcribed, and thematically coded. Transcripts of interviews were member-checked.		
Geographic Scope: Regional	Location: Western Oregon	
Data Year: 2008	n: 16	Response Rate: not reported
Theoretical/Conceptual Frameworks: There is a noticeable lack of research on issues facing women in forestry in the United States (Pinchot Institute for Conservation 2006), and almost nothing that examines women forest managers and landowners specifically, in Oregon or elsewhere. Warren (2003, p. 95) says that "discounting the impact of traditionally underserved forestland owners, such as women ... is a strategic error." We can work to correct this "strategic error" by giving voice to women landowners and managers.		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a.	Is the target population described?	5
b.	Is the sampling method described?	4

c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)	1
d. Are recording and transcribing procedures for accounts or other phenomenon documented?	5
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)	5
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	1
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	3
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	4
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	4
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	4
b. Are the primary findings theoretical in nature, rather than descriptive?	2
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	3
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	5
b. Are the meanings of constructs used in the narrative clear and unambiguous?	3
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	3
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	N/A
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	N/A

b.	Is the sampling frame of the study adequately described?	N/A			
c.	Does the sampling frame match the target population?	N/A			
d.	Are no ineligible units evident in the sampling frame?	N/A			
e.	Are all elements of the target population included in the sampling frame?	N/A			
Sampling Bias:					
a.	Is the sampling method described?	N/A			
b.	Do all of the units in the sampling frame have equal chances for selection?	N/A			
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a.	Is survey response (on nonresponse) reported?	N/A			
b.	Is survey nonresponse analyzed?	N/A			
c.	Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	N/A			
Generalizability Evaluation Criteria					
Study Type:					
		Internal Generalizability		External Generalizability	
		Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
1) Surface Similarity:					
	a:	N/A	N/A	N/A	N/A
	b:	2	2	1	1
	c:	2	2	1	1
2) Ruling Out Irrelevancies:					
	a:	0	0	0	0
	b:	0	0	0	0
	c:	2	2	1	1
3) Making Discriminations:					
	a:	3	3	2	1
	b:	3	3	2	1
4) Interpolation and Extrapolation:					
	a:	0	0	0	0
5) Causal Explanation:					
	a:	0	0	0	0
	b:	0	0	0	0
Statistical Inference:					
	a: Sampling Error	0	0	0	0
	b: Coverage Error	0	0	0	0
	c: Sampling Bias	0	0	0	0
	d: Significant correlations	0	0	0	0
Notes:					

- Descriptive validity, c: purposive forms of sampling are more generally accepted in qualitative research than is random sampling (Bryant and Charmaz 2007; Maxwell 2012; Strauss and Corbin 1998).
- Construct validity, b, c: Key constructs to the study such as “good stewardship” and “effective land transfer” are not well-defined with respect to the meaning(s) intended by the authors.
- Ruling out irrelevancies, c: specified constructs (e.g.; stewardship) were found to hold over variation in the sampled population.

Validity and Generalizability Review		
Title: <i>Landowner motivations for watershed restoration: lessons from five watersheds</i>		
Author(s): Rosenberg, Stacy, and Margerum, Richard M.		
Reviewer: Carlson	Review Date: 1/13/13	
Source: Google Scholar	Date Retrieved:	
Retrieval Keywords: Oregon + "small woodland"		
Publication: <i>Journal of Environmental Planning and Management</i> Vol. 51, No.4, July, 2008, 477-496		
Publication Date: July, 2008	Type of Media: Journal	Peer Review: Yes
Methodology: Survey: Descriptive statistics, logistic regression. Interview: methodology not reported.		
Reporting Format: Narrative		
Purpose of Study: <i>"The primary goal of this study is to understand the motivations for implementing watershed restoration practices among riparian agricultural, small woodland and rural residential landowners. This study was particularly interested in four elements in a landowner's decision-making process: (1) land management goals; (2) trusted sources of information; (3) preferred outreach methods; and (4) perceived barriers to changing land management practices." (p. 477.9-478.0)</i>		
Target Population: <i>"This study was conducted in collaboration with five watershed groups in Western Oregon: Coos Watershed Association, Coquille Watershed Association, Siuslaw Watershed Council, Yamhill Basin Council and Mary's River Watershed Council..." (page 480).</i>		
Sampling Frame: <i>"The study focused on riparian landowners because these are the highest priority lands for improving water quality and habitat." Survey took place in five Oregon watersheds associated with five watershed groups in western Oregon: The Coos Watershed Association; Coquille Watershed Association, Siuslaw Watershed Council, Yamhill Basin Council, and Mary's River Watershed Council. There were two sampling frames: Owners of riparian lands randomly selected from County property records, and riparian owners selected from watershed group mailing lists. The watershed group list was created by overlaying the watershed group mailing lists with County property tax records. Only landowners who resided on the subject property were selected for the study. (p. 481)</i>		
Sample Selection: <i>Half of the 900 land owners were randomly selected from county property records (i.e. random list) and the other half were selected from watershed group mailing lists (i.e. watershed group list). The random list was obtained by segregating agricultural, small woodland and rural residential property from zoning data within each watershed and then randomly selecting 30 landowners...from each group...A total of 180 questionnaires were mailed out to landowners in each watershed... (P. 481)</i> <i>Eighty semi-structured, face-to-face interviews were undertaken between October and December 2003. Interviews were conducted with watershed group members, land owners not involved in watershed group activities, landowners who had implemented watershed restoration practices and landowners who had not conducted restoration activities. A snowball sample was utilized in the interview process. Key informants and previously interviewed landowners provided the names for potential interviewees. Landowners were then selected from this group of names depending on which of the above categories they were thought to fit into. (p. 482.1)</i>		
Data Collection Format: Mail survey, face-to-face interviews		
Geographic Scope: Regional (watersheds)	Location: Five western Oregon watersheds	

Data Year: 2003	n: 900 (survey) + 80 (interviews)	Response Rate: 52% (survey)
<p>Theoretical/Conceptual Frameworks: The study is informed by several motivational theories: Agricultural extension models; soil and water conservation literature; adoption-diffusion, and; environmental and social psychology. The author's write, "All four areas of literature provide valuable insights into landowner decision making. However, most of this research focuses on government sponsored and expert-driven programs for one specific type of landowner (e.g.; farmer or small woodlands owner). As a result, there is less understanding about the range of landowners in a watershed and the differences among these landowners about how they make decisions about conservation. Furthermore, most of the research does not examine social influences on decision making (such as neighbor-to-neighbor interaction) and the influence of non-governmental organizations (such as watershed groups).</p>		
<p>Institutional Review Board Approval (or equivalent)? Not reported.</p>		
<p>Notes: This study used both survey data and qualitative interviews. The authors largely used the interview data to support survey findings, and these data do not appear to play a major role in the study findings themselves; therefore, only the quantitative aspects of the survey are evaluated here.</p>		
<p>Qualitative Validity Evaluation Criteria</p>		
<p>Descriptive Validity:</p>		
a. Is the target population described?		N/A
b. Is the sampling method described?		N/A
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		N/A
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		N/A
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		N/A
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)		N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?		N/A
<p>Interpretive Validity:</p>		
a. Are participants' emic perspectives supported by descriptive data?		N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?		N/A
<p>Theoretical Validity:</p>		
a. Are primary findings expressly reported, rather than integrated into a narrative?		N/A
b. Are the primary findings theoretical in nature, rather than descriptive?		N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?		N/A
<p>Construct Validity:</p>		
a. Do the constructs used to describe phenomenon accurately and reliably		N/A

represent the intended meanings of these phenomenon to the study participants?			
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A		
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A		
Quantitative Validity Evaluation Criteria			
Construct Validity:			
a. Are the measured constructs clear and unambiguous?	4		
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	4		
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	4		
Processing Error:			
a. Are coding procedures described?	N/A		
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A		
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A		
Coverage Error:			
a. Is the target population of the study adequately described?	5		
b. Is the sampling frame of the study adequately described?	5		
c. Does the sampling frame match the target population?	5		
d. Are no ineligible units evident in the sampling frame?	4		
e. Are all elements of the target population included in the sampling frame?	4		
Sampling Bias:			
a. Is the sampling method described?	5		
b. Do all of the units in the sampling frame have equal chances for selection?	5		
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>			
Non-response Error:			
a. Is survey response (on nonresponse) reported?	5		
b. Is survey nonresponse analyzed?	0		
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	4		
Generalizability Evaluation Criteria			
Study Type:			
	Internal Generalizability	External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	
		Idiographic Receiving Context	Nomothetic Receiving Context

1) Surface Similarity:				
a:	0	5	0	3
b:	N/A	N/A	N/A	N/A
c:	4	4	2	2
2) Ruling Out Irrelevancies:				
a:	2	4	2	1
b:	3	5	2	1
c:	2	3	2	2
3) Making Discriminations:				
a:	2	3	2	2
b:	2	3	2	2
4) Interpolation and Extrapolation:				
a:	0	0	0	0
5) Causal Explanation:				
a:	0	0	0	0
b:	0	0	0	0
6) Statistical Inference:				
a: Sampling Error	0	5	0	0
b: Coverage Error	0	5	0	0
c: Sampling Bias	0	5	0	0
d: Significant correlations	0	5	0	0
Notes:				
<ul style="list-style-type: none"> Statistical Inference, a: Though sampling error for survey results is not reported, the sample size and apparent survey format suggests the sampling error would be approximately plus or minus 5% at the 95% confidence interval. 				

Validity and Generalizability Review		
Title: <i>Washington County Woodland Owner Survey: Summary Report</i>		
Author(s): Mark Shibley and Patricia Styer		
Reviewer: Carlson	Review Date: 1/14/13	
Source: from Jim Johnson	Date Retrieved: April, 2011	
Retrieval Keywords: N/A		
Publication: Independently produced report for the Washington County Small Woodlands Association		
Publication Date: September, 2002	Type of Media: Internal? report	Peer Review: unknown
Methodology: Survey; descriptive statistics		
Reporting Format: Narrative and graphic results.		
Purpose of Study: Not reported		
Target Population: The reports states, " <i>Washington County woodland owners are identified as owners of at least 5 acres classified as forest land for tax purposes</i> " (p. 2.0). Note that the sampling frame was restricted to owners of less than 5,000 acres, indicating that the intended target population of the survey was restricted to owners of at least 5 acres and less than 5,000 acres of land in Washington County classified as forest land for tax purposes.		
Sampling Frame: " <i>In June 2001, we received a data file from the Department of Assessment and Taxation of Washington County, Oregon containing a listing of owners of 5 acres or more of land classified as forest land for tax purposes. We eliminated owners with total forest land acreage over 5.000 acres, and have used the remaining listing as our sampling frame</i> " (p. A.1).		
Sample Selection: Samples were randomly chosen from four strata based on size of acreage, with 250 samples each selected from 3 strata; owners with < 10 acres; 10 to 30 acres; and 30 to 50 acres. All 280 owners in the 50 + strata were sampled. Of 1030 owners sampled, 505 complete responses were returned. The return rate varied by acreage class; the inverse of the percent of the strata population sampled was used to create a response weight (adjustment). The population weights were used to reduce response bias caused by having disproportionate numbers of responses by acreage class. (p. A.1)		
Data Collection Format: Mail survey		
Geographic Scope: County	Location: Washington County, Oregon	
Data Year: Spring, 2002	n: 505	Response Rate: 49%
Theoretical/Conceptual Frameworks: Mail survey; Dillman (2000)		
Institutional Review Board Approval (or equivalent)? Not reported		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		N/A
b. Is the sampling method described?		N/A
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		N/A
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		N/A
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		N/A

f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?	N/A
Interpretive Validity:	
a. Are participants' emic perspectives supported by descriptive data?	N/A
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?	N/A
Theoretical Validity:	
a. Are primary findings expressly reported, rather than integrated into a narrative?	N/A
b. Are the primary findings theoretical in nature, rather than descriptive?	N/A
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	N/A
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	N/A
b. Are the meanings of constructs used in the narrative clear and unambiguous?	N/A
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	N/A
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	4
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	4
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	4
Processing Error:	
a. Are coding procedures described?	N/A
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	N/A
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	N/A
Coverage Error:	
a. Is the target population of the study adequately described?	5
b. Is the sampling frame of the study adequately described?	5
c. Does the sampling frame match the target population?	5
d. Are no ineligible units evident in the sampling frame?	5
e. Are all elements of the target population included in the sampling frame?	5

Sampling Bias:					
a. Is the sampling method described?					5
b. Do all of the units in the sampling frame have equal chances for selection?					5
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>					
Non-response Error:					
a. Is survey response (on nonresponse) reported?					5
b. Is survey nonresponse analyzed?					0
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?					3
Generalizability Evaluation Criteria					
Study Type: nomothetic					
	Internal Generalizability		External Generalizability		
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context	
1) Surface Similarity:					
a:	0	5	0	2	
b:	N/A	N/A	N/A	N/A	
c:	0	3	0	1	
2) Ruling Out Irrelevancies:					
a:	0	0	0	0	
b:	0	0	0	0	
c:	0	0	0	0	
3) Making Discriminations:					
a:	0	4	0	3	
b:	4	4	4	4	
4) Interpolation and Extrapolation:					
a:	0	0	0	0	
5) Causal Explanation:					
a:	0	0	0	0	
b:	0	0	0	0	
6) Statistical Inference:					
a: Sampling Error	0	5	0	0	
b: Coverage Error	0	5	0	0	
c: Sampling Bias	0	5	0	0	
d: Significant correlations	0	0	0	0	
Notes:					
<ul style="list-style-type: none"> Statistical Inference, a: Though sampling error for survey results is not reported, the sample size and apparent survey format suggests the sampling error would be approximately plus or minus 5% at the 95% confidence interval. 					

Appendix: Review Template

Validity and Generalizability Review		
Title:		
Author(s):		
Reviewer: Carlson	Review Date:	
Source:	Date Retrieved:	
Retrieval Keywords:		
Publication:		
Publication Date:	Type of Media:	Peer Review:
Methodology:		
Reporting Format:		
Purpose of Study:		
Target Population:		
Sampling Frame:		
Sample Selection:		
Data Collection Format:		
Geographic Scope:	Location:	
Data Year:	n:	Response Rate:
Theoretical/Conceptual Frameworks:		
Institutional Review Board Approval (or equivalent)?		
Notes:		
Qualitative Validity Evaluation Criteria		
Descriptive Validity:		
a. Is the target population described?		
b. Is the sampling method described?		
c. Is the sampling method appropriate for the methodology? (e.g.; purposive, random, or theoretical sampling)		
d. Are recording and transcribing procedures for accounts or other phenomenon documented?		
e. Are recording and transcribing procedures appropriate for the methodology? (e.g.; notes, video, or audio recording)		
f. Are reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)		
g. Do descriptions provide contextual information that allows for interpretation of the investigated phenomenon within the context that they occurred?		
Interpretive Validity:		
a. Are participants' emic perspectives supported by descriptive data?		
b. Is contextual information provided that supports the interpretation of participants' emic perspectives?		
Theoretical Validity:		
a. Are primary findings expressly reported, rather than integrated into a narrative?		

b. Are the primary findings theoretical in nature, rather than descriptive?	
c. Are the primary findings coherent and logical with respect to descriptions and interpretations of the investigated phenomenon?	
Construct Validity:	
a. Do the constructs used to describe phenomenon accurately and reliably represent the intended meanings of these phenomenon to the study participants?	
b. Are the meanings of constructs used in the narrative clear and unambiguous?	
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	
Quantitative Validity Evaluation Criteria	
Construct Validity:	
a. Are the measured constructs clear and unambiguous?	
b. Do the constructs accurately and reliably represent the intended meanings of the studied phenomenon to all survey/study participants?	
c. Do constructs used in the study unambiguously represent the higher order abstractions they seem to be intended to represent?	
Processing Error:	
a. Are coding procedures described?	
b. Do coding inferences require little interpretation? (e.g.; are they repeatable by multiple coders?)	
c. Are coding reliability measures incorporated into the analysis? (e.g.; multiple coders, coding checks)	
Coverage Error:	
a. Is the target population of the study adequately described?	
b. Is the sampling frame of the study adequately described?	
c. Does the sampling frame match the target population?	
d. Are no ineligible units evident in the sampling frame?	
e. Are all elements of the target population included in the sampling frame?	
Sampling Bias:	
a. Is the sampling method described?	
b. Do all of the units in the sampling frame have equal chances for selection?	
<i>Note that sampling error due to variance is evaluated as related to statistical inference under Generalizability Evaluation Criteria.</i>	
Non-response Error:	
a. Is survey response (on nonresponse) reported?	
b. Is survey nonresponse analyzed?	
c. Survey nonresponse < 40% (5); 41-50% (4); 51-60% (3); 61-70% (2); > 80% (0)?	
Generalizability Evaluation Criteria	

Study Type:				
	Internal Generalizability		External Generalizability	
	Idiographic Receiving Context	Nomothetic Receiving Context	Idiographic Receiving Context	Nomothetic Receiving Context
7) Surface Similarity:				
a:				
b:				
c:				
8) Ruling Out Irrelevancies:				
a:				
b:				
c:				
9) Making Discriminations:				
a:				
b:				
10) Interpolation and Extrapolation:				
a:				
11) Causal Explanation:				
a:				
b:				
12) Statistical Inference:				
a: Sampling Error				
b: Coverage Error				
c: Sampling Bias				
d: Significant correlations				
Notes:				

Appendix E: Family Forest Owner Inferred Interest Analysis Spreadsheet

Compilation of Survey Data: Inferred Interests	Sum of Inferences	Z-Score	Literature Citations																	
			Eland, 2004 (OFPI)	Buller, 2008 (NWCOS)	OSWA, 2006	CFE, 2004	Gotta et al, 2011	Fischer & Bliss, 2009	Fischer & Bliss, 2008	CFE, 2007a	CFE, 2007b	Fischer & Bliss & Syver, 2009	Fischer, Shibley & Tyrone, 2012	Redmore, 2011	Fischer, 2011	Nilsen-Pincus et al., 2011	Rosenberg & Mangrum, 2011	Garrido-Langpap, 2004	Langpap, 2006	
Laws and Regulations																				
Forest Practices Act requirements	53	0.1	7	3	11	2	0	3	0	2	3	0	12	0	3	2	2	0	0	
Endangered Species laws and requirements	54	0.2	6	4	11	2	1	3	0	2	3	1	12	0	3	3	2	3	0	
State-wide/county land use planning	34	-0.6	2	5	9	2	0	3	0	0	3	0	4	0	4	0	1	0	0	
Recreation and Wetland Requirements	67	0.7	8	5	14	2	1	4	1	2	6	0	12	0	3	4	4	2	0	
Trespassing Laws	20	-1.2	2	4	4	0	0	0	0	3	4	0	2	0	0	1	1	0	0	
Category Average	46	-0.2	5	4	10	18	0.4	2.6	0.2	2.4	4	0.2	8	0	2	2	2	1	0	
Business Practices and Marketing																				
Business Planning	107	2.3	9	6	15	13	4	5	0	12	21	1	14	1	5	1	1	1	0	
Marketing	54	0.2	2	2	7	2	2	3	1	9	13	0	9	0	1	1	1	0	0	
Stewardship and Ecosystem Incentive Programs	112	2.4	7	5	14	11	5	9	3	11	20	5	13	1	2	2	4	0	0	
Legal Issues and Liabilities	32	-0.7	5	1	6	2	0	0	0	4	2	0	4	0	1	1	1	0	0	
Forest Product Certifications	61	1.0	7	1	10	3	3	5	2	6	13	0	10	3	4	1	1	0	0	
SWO networks and co-ops	76	0.4	5	2	11	7	3	6	1	5	16	0	10	0	3	4	1	0	0	
Competing forest product markets	48	-0.1	4	1	10	5	0	3	1	6	6	0	10	0	1	1	0	0	0	
Forest Product pricing updates	38	-0.7	2	1	9	4	0	2	0	5	4	0	8	0	1	1	0	0	0	
Markets for big logs	33	-0.5	2	1	6	4	0	2	0	6	4	0	7	0	1	1	0	0	0	
Long haul costs / reducing haul costs	31	-0.8	3	1	6	4	0	2	0	4	3	0	7	0	1	1	0	0	0	
Timberland purchasing opportunities	9	-1.6	1	0	1	2	0	1	1	2	0	2	0	0	0	0	0	0	0	
Markets for locally-harvested forest products	59	0.4	2	1	9	9	3	5	1	8	10	0	9	0	1	1	0	0	0	
Creating a management plan	36	0.8	3	4	12	17	4	4	3	11	20	2	13	1	6	2	3	0	0	
Forest Taxation Workshop	71	1.8	5	3	10	17	1	4	5	10	15	0	13	0	2	1	2	0	0	
Category Average	59	0.4	4.1	2.4	9.2	6.1	1.8	3.7	0.9	6.8	10.6	0.6	9.0	0.5	1.9	0.7	0.9	0	0	
Intergenerational Planning																				
Estate Planning	54	0.2	1	4	7	6	0	7	0	6	15	0	6	0	0	1	2	0	0	
Tax planning	88	0.7	2	4	7	8	1	6	0	11	17	0	9	0	0	1	3	0	0	
Intergenerational transfer	46	-0.2	1	3	7	6	2	4	0	6	9	0	4	1	0	1	2	0	0	
Successor Workshops	49	0.0	1	3	7	7	1	4	0	6	11	0	4	2	0	1	2	0	0	
Workshops and information directed toward female SWO's	52	0.1	1	3	7	7	1	4	0	6	11	0	4	2	0	1	2	0	0	
Alternatives to sale and/or timber liquidation	59	0.3	1	4	16	17	1	17	1	17	13	0	7	0	0	1	1	0	0	
Alternatives to sale and/or timber liquidation	55	0.1	1	4	12	15	1	17	1	17	11	0	5	0	0	0	1	0	0	
Category Average	55	0.2	1.6	3.0	7.6	6.5	1.0	5.3	0.2	6.8	12.7	0.0	5.3	1.8	0.0	0.8	2.0	0	0	
Forest Management Operations																				
Vegetation Management	59	0.4	9	3	11	2	6	1	7	0	3	0	9	0	4	2	1	0	0	
Forest health -- what is a healthy forest?	84	1.4	9	5	14	3	5	4	8	7	13	0	11	1	4	2	3	0	0	
Possible impacts of Climate Change	59	0.4	7	2	10	4	6	3	6	2	9	0	5	0	1	1	4	0	0	
Reforestation	53	0.1	7	2	11	2	4	5	3	3	9	0	9	0	2	1	3	0	0	
Logging operations	25	-1.0	4	2	7	0	1	1	0	0	3	0	6	0	0	0	0	0	0	
Charmsaw use and safety	18	-1.3	6	2	2	0	0	0	0	0	4	0	2	0	1	1	0	0	0	
Sisal removal and disposal	47	-0.7	10	2	10	2	2	0	0	1	3	0	9	0	2	1	0	0	0	
Structural principles	65	0.6	10	2	10	2	2	5	7	1	5	1	10	1	4	1	1	0	0	
Timber chipping (O)	24	-0.2	1	1	5	0	0	1	0	1	3	0	7	0	1	0	0	0	0	
Logging and grading	20	-1.2	1	1	6	0	0	1	0	0	4	0	5	0	0	1	0	0	0	
Land use and grading	49	-0.1	6	5	12	3	1	2	0	2	5	0	10	1	1	1	2	0	0	
Road maintenance - culverts, surfacing, easements, rights-of-way	88	0.7	9	3	13	3	5	5	8	0	8	1	10	1	1	1	3	1	0	
Non-Douglas fir and pine forests ecotones	69	0.7	9	3	12	1	5	4	8	2	9	0	10	1	1	1	3	0	0	
Alternatives to traditional D-fir and pine forestry	18	-1.3	2	1	6	0	1	0	0	3	0	0	2	0	0	1	1	0	0	
Forestry computer applications	36	-0.5	3	1	8	1	3	2	1	4	4	0	6	0	1	1	1	0	0	
Agroforestry/ribe crops, poplar, cottonwood,	40	-0.4	3	2	10	2	4	4	1	3	6	0	5	0	1	1	0	0	0	
Plant and tree identification	44	-0.2	7	2	9	2	4	2	2	2	6	0	7	1	1	1	1	0	0	
Category Average	44	-0.2	6.2	2.3	9.0	1.3	2.8	2.2	3.0	1.0	5.2	0.1	7.1	0.2	1.8	0.8	1.2	0	0	

Appendix F: Statistical Analysis of Expressions versus RGI

Linear regression analysis of the number of manifest topical expressions evidenced in the literature and the respective RGI scores of the source literature suggested a possible inverse relationship between the number of expressions found in the literature and the generalizability of findings. Subsequent pairwise comparison using Spearman's Rank Order Correlation analysis of the total number of topical interests found in each source literature with their respective RGI scores shows significant negative correlations between the number of manifest topical expressions found in the source literature and the Reliability of the Generalized Inference; as the number of manifest topical expressions found in the source literature increases, the Reliability of the Generalized Inference tends to decrease. Analyses were performed using SigmaPlot 12.3 statistical analysis software.

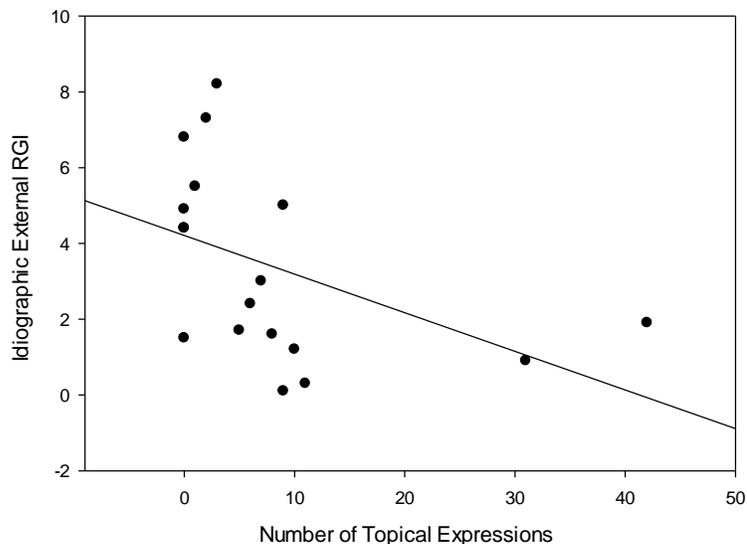
The results displayed in Table 5 of the body of this report reveal that some literature sources contributed proportionally far more expressions to individual topics, and in total, than other sources. For example, of the eighteen literature sources analyzed, five had no expressions evident for the reviewed topics, whereas two of the sources contributed slightly more than half of all expressions found in the literature; these were the CFF survey (Committee for Family Forestlands 2004) and the OSWA survey (Oregon Small Woodlands Association 2006). Though these two studies were classified and evaluated as surveys, it's notable that nearly all of the expressions evidenced in them come from uninterpreted open-ended response categories attributable to individual participants. These open-ended responses are not interpreted nomothetic findings that comprise the survey results and that are therefore generalizable as survey findings; rather, these open-ended participant responses are uninterpreted idiographic data. When re-evaluated by qualitative standards, as would be appropriate for idiographic

sources, these two studies showed very low RGI scores, suggesting that the open-ended responses in these studies are poorly generalized both internally, and with respect to the OFFO construct.

The SigmaPlot analyses displayed on the following pages compare the number of topical expressions found in the literature with their respective RGI scores. An analysis using the RGI scores for the 2004 CFF and 2006 OSWA surveys as originally evaluated as quantitative survey findings is displayed on pages 184 and 185. Results of the analysis using RGI scores for the 2004 CFF and 2006 OSWA surveys when re-evaluated as qualitative findings is displayed on pages 186 and 187. All other literature evaluations were unchanged in these analyses.

Using the original dataset, the analysis suggests a significant negative correlation between the number of manifest topical landowner expressions found in the literature and the Reliability of the Generalized Inference for all receiving contexts, with significance levels of between $p < 0.1$ and $p < 0.01$, depending upon the receiving context. Using the dataset with re-evaluated 2004 CFF and 2006 OSWA findings, the negative correlation between manifest topical landowner expressions and the Reliability of the Generalized Inference is significant at $p < 0.01$ for all receiving contexts.

Simple Linear Regression
 Idiographic External RGI / Number of Topical Expressions
 CFF 2004 & OSHA evaluated by quantitative criteria



$RGI = 4.210 - (0.102 * Expressions)$

N = 18

R = 0.459 Rsqr = 0.211 Adj Rsqr = 0.161

Standard Error of Estimate = 2.284

	Coefficient	Std. Error	t	P
Constant	4.210	0.668	6.306	<0.001
Expressions	-0.102	0.0493	-2.066	0.055

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	22.268	22.268	4.267	0.055
Residual	16	83.502	5.219		
Total	17	105.769	6.222		

Normality Test (Shapiro-Wilk) Passed (P = 0.634)

Constant Variance Test: Passed (P = 0.792)

Power of performed test with alpha = 0.050: 0.484

The power of the performed test (0.484) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one actually exists. Negative results should be interpreted cautiously.

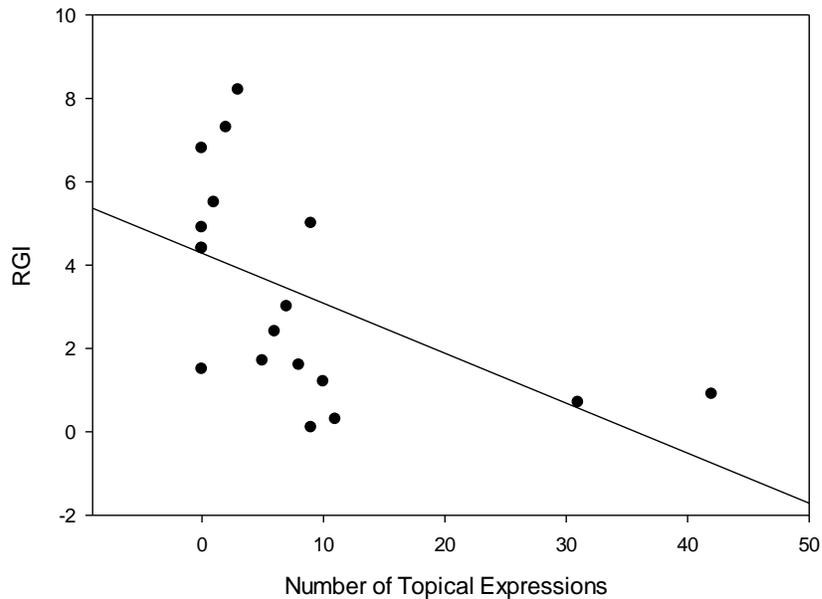
Statistic ↓	Receiving Context: Internal Generalizability		Receiving Context: External Generalizability	
	<i>Nomothetic</i>	<i>Idiographic</i>	<i>Nomothetic</i>	<i>Idiographic</i>
<i>Correlation Coefficient</i>	-0.457*	-0.635***	-0.487**	-0.576**
<i>P-value</i>	0.0552	0.00460	0.0391	0.0121

Table 4: Spearman Rank Order Correlation; Topical Interests. CFF 2004 and OSWA evaluated by quantitative criteria. Pairwise comparison of the total number of topical interests found in each source literature with the respective RGI scores shows significant negative correlations between the number of manifest topical expressions found in source literature and the Reliability of the Generalized Inference. As the number of manifest expressions found in the source literature increases, the Reliability of the Generalized Inference tends to decrease. * = significance at $p < 0.1$; ** = significance at $p < 0.05$; *** = significance at $p < 0.01$.

Statistic ↓	Receiving Context: Internal Generalizability		Receiving Context: External Generalizability	
	<i>Nomothetic</i>	<i>Idiographic</i>	<i>Nomothetic</i>	<i>Idiographic</i>
<i>Correlation Coefficient</i>	-0.344	-0.635***	-0.268	-0.508**
<i>P-value</i>	0.159	0.00460	0.278	0.0306

Table 5: Spearman Rank Order Correlation; Inferred Interest. CFF 2004 and OSWA evaluated by quantitative criteria. Pairwise comparison of the total number of inferred interests found in each source literature with the respective RGI scores shows significant negative correlations between the number of inferred expressions of interest found in the source literature and the Idiographic Reliability of the Generalized Inference. As the number of inferred expressions found in the source literature increases, the Idiographic Reliability of the Generalized Inference tends to decrease. ** = significance at $p < 0.05$; *** = significance at $p < 0.01$.

Simple Linear Regression
Ideographic External RGI / Number of Topical Expressions
CFF 2004 & OSWA evaluated by qualitative criteria



External Idiographic = $4.287 - (0.120 * \text{Topic Interest})$

N = 18

R = 0.528 Rsqr = 0.278 Adj Rsqr = 0.233

Standard Error of Estimate = 2.234

	Coefficient	Std. Error	t	P
Constant	4.287	0.653	6.565	<0.001
Topic Interest	-0.120	0.0483	-2.485	0.024

Analysis of Variance:

	DF	SS	MS	F	P
Regression	1	30.830	30.830	6.175	0.024
Residual	16	79.886	4.993		
Total	17	110.716	6.513		

Normality Test (Shapiro-Wilk) Passed (P = 0.632)

Constant Variance Test: Passed (P = 0.786)

Power of performed test with alpha = 0.050: 0.623

Statistic ↓	Receiving Context: Internal Generalizability		Receiving Context: External Generalizability	
	<i>Nomothetic</i>	<i>Idiographic</i>	<i>Nomothetic</i>	<i>Idiographic</i>
<i>Correlation Coefficient</i>	-0.736***	-0.671***	-0.591***	-0.645***
<i>P-value</i>	0.000273	0.00213	0.00969	0.00377

Table 6: Spearman Rank Order Correlation; Topical Interests. CFF 2004 and OSWA evaluated by qualitative criteria. Pairwise comparison of the total number of topical interests found in each source literature with the respective RGI scores shows significant negative correlations between the number of manifest topical expressions found in source literature and the Reliability of the Generalized Inference. As the number of manifest expressions found in the source literature increases, the Reliability of the Generalized Inference tends to decrease. *** = significance at $p < 0.01$.

Statistic ↓	Receiving Context: Internal Generalizability		Receiving Context: External Generalizability	
	<i>Nomothetic</i>	<i>Idiographic</i>	<i>Nomothetic</i>	<i>Idiographic</i>
<i>Correlation Coefficient</i>	-0.531**	-0.656***	-0.357	-0.551**
<i>P-value</i>	0.0229	0.00305	0.141	0.0173

Table 7: Spearman Rank Order Correlation; Inferred Interest. CFF 2004 and OSWA evaluated by qualitative criteria. Pairwise comparison of the total number of inferred interests found in each source literature with the respective RGI scores shows significant negative correlations between the number of inferred expressions of interest found in the source literature and the Idiographic Reliability of the Generalized Inference. As the number of inferred expressions found in the source literature increases, the Idiographic Reliability of the Generalized Inference tends to decrease. ** = significance at $p < 0.05$; *** = significance at $p < 0.01$.