June 1, 2010

To: Oregon Forest Resources Institute (OFRI) and Oregon Department of Forestry (ODF)
From: Davis, Hibbitts & Midghall, Inc. (DHM Research)
Re: OFRI-ODF Values & Beliefs Research Methodologies

I. Introduction

Davis, Hibbitts & Midghall, Inc. (DHM Research) conducted a scientific telephone survey, two scientific online surveys, a community online survey, and two focus groups with Oregonians on behalf of the Oregon Forest Resources Institute (OFRI) and Oregon Department of Forestry (ODF). The overall purpose of the research was to gauge Oregonians' opinions about forest management issues in Oregon and to provide comparisons with previous OFRI and Oregon Department of Forestry (ODF) surveys.

The substantive areas of questioning included general forest management, forest protection, sustainable forestry, forest fire management and cost, and wood products and consumer behavior. This report presents key results and findings from the survey.

II. Research Methodologies

A. Telephone Survey Methodology

Research Methodology: Between April 8 and 17, 2010, DHM Research conducted a telephone survey of 1000 Oregonians ages 18 and older that took an average of 17 minutes to administer. Residents were contacted through random digit dialing (RDD) and wireless (cell phone) sample to research a representative cross-section of residents.

A stratified (rather than proportional) sample was used to allow for more statistically valid comparisons between the three areas of state (Portland Metro, Eastern Oregon, Western Oregon). A total of 400 residents were interviewed in the Portland metro area and 300 residents were interviewed in both Eastern and Western Oregon. Quotas were set by age, gender, and education based on the total populations in these areas to assure a representative sample at the area level.

Area results are reported based on the actual sample in each area (Portland metro, n=400; Eastern and Western Oregon, n=300 each) allowing for more valid area comparisons. A proportional representation of the three areas would have been 43% in the Portland metro area (430 interviews), 33% in Western Oregon (330 interviews), and 24% in Eastern Oregon (240 interviews) and therefore the Oregon statewide results (n=1000) have been weighted to correctly reflect the proportion of population that each area contributes to the total population of the state. The 1000, 400, and 300 sample sizes are sufficient to review findings by multiple subgroups including gender, age, and area.

In gathering responses, DHM Research employed a variety of quality control measures, including questionnaire pre-testing and validations.

Statement of Limitations. Any sampling of opinions or attitudes is subject to a margin of error, which represents the difference between a sample of a given population and the total population (here, Oregon residents ages 18 and older). The following are the margins of error if respondents answered 90% one way and 10% the other, and the proportion 50% each way at the 95% confidence level.

- For a sample size of 1000, 90%-50% margins of error are +/- 1.8% and +/-3.1%
- For a sample size of 500, the 90%-50% margins of error are +/-2.6% and +/-4.4%
- For a sample size of 400, the 90%-50% margins of error are +/- 2.9% and +/-4.9%
- For a sample size of 300, the 90%-50% margins of error are +/- 3.4% and +/-5.7%
- For a sample size of 200, the 90-50% margins of error are +/-4.2% and +/-6.9%
- For a sample size of 150, the 90%-50% margins of error are +/-4.8% and +/-8.0%

The reason for the differences lies in the fact that when response categories are relatively even in size, each is numerically smaller and thus slightly less able-on a statistical basis- to approximate the larger population. These plus-minus error margins represent differences between the sample and total population at a confidence interval, or probability, calculated to be 95%. This means that there is a 95% probability that the sample taken for this study would fall within the stated margins of error if compared with the results achieved from surveying the entire target population.

B. MaxDiff Online Surveys Methodology

Research Methodology: Between April 8 and 15, 2010, DHM Research conducted two scientific online surveys, each with 300 Oregonians ages 18 and older. The surveys were hosted on a secure and independent DHM Research server and available to respondents 24 hours a day. Quotas were set by age, gender and area of state based on the total population of Oregon residents ages 18 and older to assure a representative sample. The data was weighted in order to adjust education to be more representative of the overall population.

One survey was comprised of a MaxDiff (description below) exercise to test residents' opinions about forestland issues. The other included a mix of traditional and MaxDiff questions assessing residents' values and beliefs as they relate to Oregon's forests.

MaxDiff: MaxDiff is an approach for obtaining importance scores for multiple items. It has been shown to deliver greater discrimination among items and between respondents than the more commonly used rating scale questions. MaxDiff is more effective for two reasons. First, respondents must make trade-offs in order to choose the best and worst of the displayed items. They do not rate items in isolation, but in competition. Second, the choices are made without the use of a scale. Scales can often introduce interpretation bias – different individuals could feel an item is equally important yet select a different number. For these reasons, MaxDiff results are able to demonstrate greater discrimination between items. Examples of a MaxDiff question from each survey are displayed below.

Diagram 1
One of Twelve MaxDiff Questions Displayed in OFRI-ODF Forestland Issues Online Survey

For the following issues related to Oregon's forests, which one are you most concerned about and which one are you least concerned about?

	Most Concern	Least Concern
Jobs and revenue for communities	○	○
Climate change	○	○
Forests being converted to non-forest uses	○	○
Providing wood for homes and products	○	○
Replanting trees after harvest	○	○

Select one item for Most Concern and one item for Least Concern

Source: Davis, Hibbitts & Midghall, Inc. (DHM Research), May 2010

Diagram 2
One of Nine MaxDiff Questions Displayed in OFRI-ODF Forest Value & Beliefs Online Survey

Over the next 30 years, which one of the following do you think will be the biggest and least big problem affecting Oregon's forests?

	Biggest Problem	Least Big Problem
Not having enough cool and clear water	○	○
More wildfires	○	○
Shortage of forest recreation opportunities	○	○

Select one item for Biggest Problem and one item for Least Big Problem

Source: Davis, Hibbitts & Midghall, Inc. (DHM Research), May 2010

Interpreting MaxDiff Data: The MaxDiff exercises were designed to determine Oregonians' prioritization of the following:

- Twenty (20) issues related to Oregon forests (Values & Beliefs Survey)
- Nine (9) problems affecting Oregon forests over the next 30 years (Forestland Issues Survey)

For the Values & Beliefs Online Survey, the exercise presented a different group of five issues to each respondent a total of twelve times. From each group, respondents selected both the issue of "most concern" and that of "least concern."

For the Forestland Issues Online Survey, the exercise presented a different group of three problems to each respondent a total of nine times. From each group of three, respondents selected both their "biggest" and "least big" problem "affecting Oregon's forests."

By breaking up the twenty and nine items into groups of five and three, the exercises become easier for respondents and thereby increase validity. At the same time, exposing each respondent to different combinations of five concerns or three problems ensures the experiment is balanced. Each concern/problem item is displayed an equal number of times and it's displayed in each position (top thru bottom) the same number of times as every other item. This ensures that each item has an equally likely chance of being selected Most Concern/Biggest Problem and Least Concern/Least Big Problem.

This method reveals each respondent's rank order of the items along with their relative strength (score) for each item. In analysis, a Hierarchical Bayes algorithm is employed to determine the relative strength of each item for each respondent. These scores are then converted to a 100 point scale to most clearly show the relative strength of each item. The result from this procedure provides individual item scores for each respondent that add up to 100. Next, these individual scores are weighted, to match the population's demographics (in terms of gender, age, location, ethnicity and income) during the creation of cross tabulation tables. The weighted individual respondent scores for each concern/problem item are then divided into categories (banner points) and then averaged (mean) across those subgroups to show differences between population segments.

A good way to interpret MaxDiff results is to consider them analogous to those that would be obtained if we asked respondents to allocate points among all the items so that their summed total equaled 100. The expected score for each of:

- the twenty concern items is 5.00 (100/20)
- the nine problem items is 11.11 (100/9)

In other words, if all twenty/nine items are equally important to the population, than each item would receive a score of 5.00 and 11.11, respectively. Thus, items with scores above 5.00 (concerns) and 11.11 (problems) are above average to the state population. Conversely, items with scores below 5.00 and 11.11 are below average in amount of concern and size, respectively.

C. Focus Groups Methodology

Research Methodology: Two focus groups were conducted on May 15, 2010 to provide elaboration on the findings from the survey research. One group was with people who lived in urban areas of the Portland metro region, and the other group was with people who lived in the region's rural areas near forestlands.

There were 10 participants in the urban group, nine from Multnomah County and one from Washington County. Nine people were in the rural group. Four lived in Clackamas County, three in Washington County, and two in Columbia County. Participants were recruited to reflect a cross-section of their respective communities, including age, gender, education, income, and political party affiliation.

Statement of Limitations: Research of this type is not designed to measure with statistical reliability the attitudes of a particular group, but it is valuable for giving a sense of the attitudes and opinions of the populations from which the samples were drawn.

D. Community Online Survey Methodology

A community online survey was also available that provided Oregonians not contacted to participate in the other surveys an opportunity to share their values and beliefs about forest management in the state.

Research Methodology: Between April 10 and 15, 2010, selected questions from the telephone survey were available for Oregonians to complete online. A URL to the online survey was posted on the OFRI and ODF websites and the survey was hosted on a secure and independent DHM Research server and available to respondents 24 hours a day. A total of 1,920 residents participated.

Statement of Limitations: Although research of this type is not designed to measure with statistical reliability the attitudes of the general population, it is valuable as a public involvement tool and for measuring the attitudes of the population which chose to participate in the survey.