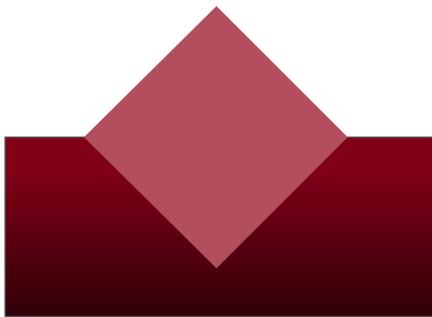


**2008 White Mountain Stewardship Project
Economic Assessment**

Conducted for

**White Mountain Stewardship Project
Multi-party Monitoring Board**

July 13, 2009



McClure Consulting LLC

Highlights

2008 White Mountain Stewardship Project (WMSP) Economic Assessment

- 13 firms purchased or using material, down from 2007 in spite of one addition; building materials have understandably suffered major business losses
- In spite of fewer firms, employment figures are up
- A mix of Inputs/Outputs
- Most employees are full-timers
- Cross-commuting is common
- WMSP encourages both basic and non-basic employment
- The “forestry cluster” provides real economic value to the region, and relies heavily on the WMSP contract

Acknowledgements

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Introduction

In early 2006 work was completed on the 2005 Economic Assessment of the White Mountain Stewardship Project (WMSP). The work program was initiated by the WMSP Multi-party Monitoring Board (Board) to provide a data-based objective evaluation of the regional economic impacts of stewardship-driven timber harvesting. The 2005 assessment was seen as being the first of an annual series of assessments.

This report assesses the economic impacts of the 2008 calendar year. Findings are “generally comparable” to those reported for the 2007 year but they are not always “specifically comparable.” There are a number of reasons for this. First, the data collection instrument used for the 2005 data was “fine tuned” for 2006. (The 2008 data collection instrument is identical to the 2006 instrument.) Second, various refinements have been applied to the approach to the analysis since 2006 by the original (Lay James Gibson, Ph.D.) and current (Joseph McClure of McClure Consulting LLC) authors. For example, for this report McClure and Gibson conferred on the issue of how to treat supplemental funds provided to Future Forest, LLC from the US Forest Service. The two authors agreed that the sales from Future Forest could be considered non-local commensurate with the extent of Forest Service contributions to Future Forest production. The details and implications of this will be discussed in greater detail in subsequent sections of this report.

Overview

For decades Arizona’s forests were managed using the modern conservationist’s “multiple use” model. In the 1970’s and 1980’s, at least in some circles, the notion of “conservation” was replaced by the notion of “preservation” and the multiple use model was sometimes scaled back to become a “limited use” model. The harvesting of forest products was the most conspicuous casualty on the multiple use menu. In some cases harvesting policies were modified, in other cases they were simply suspended. Whereas disruption of harvests was intended to allow for the development and implementation of new procedures designed to strike a better balance between consumptive and non-consumptive management strategies, there were unintended consequences. Perhaps most significant was the build-up of forest density and debris which created an environment susceptible to landscape scale destructive fires and poor forest health. Also significant was a reduction in commercial harvests and the entrepreneurial activity and employment associated with harvesting and manufacturing operations. In many parts of the West the economic dislocations were severe.

The Healthy Forests Initiative and the oversight of the WMSP by the Board marked a significant policy shift. Specifically, two notions were formally recognized. First, that strategic harvesting plans could improve forest health, reduce forest susceptibility to destructive and unmanageable fires, and assure a flow of harvested material that could meet the needs of processing industries. Secondly, that the goals of a cross-section of constituencies could be served by the creation of a group of stakeholders, working collaboratively to specify and prioritize monitoring activities. This Board was created to provide an advisory role when it came to strategically thinking about healthy forest management issues.

The study that is the subject of this report was commissioned by the Board. The idea is to have a factual and critical baseline which quantitatively describes changes in firms that harvest and process forest products. This baseline of data in turn measures the economic impacts of forest industries on the White Mountain Regional Community, and this information points to new ways that the White Mountain Region might capitalize on current and potential industry to get even

more economic benefit from the forest-industry cluster.

Scope and Nature of the Assignment

The Board determined early-on that a focused study with real data would be more useful and more informative than a broader study that traded breadth for depth. They concluded that a study of this sort would be appropriate if it were to achieve three goals:

1. Identify the firms that are directly involved in harvesting and processing the forest products made available through the Future Forest, LLC contract.
2. Better understand the nature and extent of these firms in general, and their stewardship-related work in particular and the implications for the White Mountain Region's economic system.
3. Determine ways that the impacts of the stewardship project might be enhanced and identify the economic development strategies that will be needed to assure that the White Mountain Region sees even greater economic benefit in the longer term.

The Region and Procedures. This project is focused on Arizona's White Mountain Region. For purposes of this study the White Mountain Region is the contiguous area anchored on the east by Springerville-Eagar-Alpine, on the south by Whiteriver, on the west by Heber-Overgaard and on the northwest by Snowflake-Taylor.

The findings reported in this study come largely from a questionnaire (Appendix A) that was initially developed in the fall of 2005. It was subsequently revised in 2006 and administered in December 2006, and again in December of 2007 and in 2009 for the 2008 calendar year. The 2008 questionnaire was administered to 13 firms engaged in harvesting and processing forest materials in association with the contract with Future Forest, LLC. Most, but not all, of the significant players in the White Mountains forest economy are included. Questions were designed to provide full contact information for all firms included in the study, detailed employment data, economic base bifurcation data to support multiplier analysis, data on dependence on Future Forest, LLC for material inputs, data on geographic markets for outputs, and data on major expenditures for goods and services by specific type. All data are best estimates provided by a ranking company official.

It is anticipated that the questionnaire will be administered each December through 2014. Most questions will remain the same, offering the possibility to measure change (growth or decline) in activity by firm as the stewardship harvest evolves. The one question that has changed since the survey series began is the question on expenditures by firm. The question asked in 2005 was intended to inform researchers about important expenditure types. In 2006 and 2007 this question was more focused. The answers to this question help determine the need for more locally available goods and firms to service and supply the forest harvesting and processing industries.

Findings

Existing Firms. We identified 13 firms that met our criteria – they were engaged in the harvesting or processing of forest products and they had purchased, or were positioned to purchase, material supplied by Future Forest, LLC. The firms were highly concentrated in just two communities – Springerville/Eagar and Snowflake/Taylor. The firms are listed in Table 1 along with the types of inputs received from Future Forest, LLC. A complete directory of firms is

offered in Appendix B. Eleven of the fifteen firms interviewed in 2007 were interviewed again to obtain 2008 figures. Those dropping out for 2008 were generally firms closely tied to the building industry. One firm's data were interpreted using the previous year's data and sales data from Future Forest, because by the time the interviews were conducted (in July 2009) the company had ceased operations and the owner could not be reached; although we knew they were relevant to the 2008 study. One new firm joined the group of Future Forest customers since the 2007 study.

Table 1. Woody Biomass Products Delivered by Future Forest, LLC (2008)

Purchasing Firm	Woody Biomass Inputs/Outputs				
	Clean chips	Dirty chips	Roundwood	Saw Timber	Harvesting Woody Biomass
Arizona Log and Timberworks (Eager)			X	X	
APC Lumber (Eager)			X	X	
Cooley Forest Products (Heber)			X	X	
Forest Energy Corporation (Show Low)	X	X	X		
Future Forest LLC (Pinetop)					X
Moulding Accents (Snowflake)				X	
Nutriosio Logging (Nutriosio)					X
Reidhead Brothers Lumber, Inc. (Nutriosio)			X	X	
Renegy (Snowflake)		X			
Round Valley Wholesale Lumber (Eager)			X	X	
Tri Star Logging, Inc. (Snowflake)			X		X
WB Contracting (Eager)					X
Winner's Circle Soils, Inc. (Taylor)	X	X	X		

Source: Survey by Author, July 2009 and previous WMSP Economic Assessments

Employment and Cross-Commuting. Employment data were initially collected by gender and by full-time, part-time, and seasonal status. These data were subsequently converted to a FTE or full-time equivalent value to facilitate comparisons between firms. In many studies the difference between headcount employment and FTE employment is substantial. But in this study the numbers are very close. Most employees are full-time, year-round employees. Only a handful of the employees are part-time. And whereas some 16% of all headcount employees are seasonal, most seasonal workers are employed the better part of the year, e.g. 10 months.

Headcount employment for 2008 is 258, which is higher than the 2007 total of 246 and has narrowed the gap for the employment count of 263 in 2006. The FTE estimate for 2008 is 246.07, which is higher than the two previous years. 2008 was a difficult year for many industries but particularly those tied to the building industry. Three firms that were part of the 2007 study dropped out the database for 2008. Other firms saw some reduction in activity, but some had employment increases.

2006	2007	2008
222 Full time employees	195 Full time employees	226 Full time employees
13 Part time employees	13 Part time employees	11 Part time employees
28 Seasonal employees	39 Seasonal employees	21 Seasonal employees
<hr/> 263 Total	<hr/> 246 Total employees	<hr/> 258 Total employees
FTE Value = 245.52	FTE Value = 228.04	FTE Value = 246.07

The 13 firms included in our survey have employment structures that are male-dominated. Nearly 88% of the full- and part-time employees are males, above the 85% reported in 2007. Whereas we do not have gender data on seasonal employment, we know that most are males.

One more comment on employment is called for before we move on to cross-commuting. Specifically, our definition of an employee includes owners, family members, managers, and of course hourly workers. Our definition covers most all “economically active individuals” who are associated with the firms covered by this study. Most governmental definitions focus on hourly workers and perhaps a few others; our definition is much more comprehensive

Data on cross-commuting are useful because they describe the extent to which employment and a firm’s impacts are spread throughout a region – or even beyond a region (Table 2). For instance, the areas of Snowflake and Taylor employ 106.74 FTE workers in firms that purchased forest products from Future Forest, LLC but only 61.16 FTE of those workers actually live in Snowflake and Taylor. Whiteriver/Apache, on the other hand has no Future Forest-driven employers but serves as a place of residence for 9.77 FTE. Even though Heber and Overgaard now have a Future Forest connection, a presence that was not there in 2007, only 3.5 of the 17.58 FTE who work there live in the Heber/Overgaard area. Similar to the findings in 2007, the Snowflake and Taylor area continue to be exporters of jobs and the payrolls that come with them whereas Heber/Overgaard and the Whiteriver/Apache areas continue to be importers.

The importance of this to local economic development efforts will be discussed later in this report. Are there winners and losers? Yes, Snowflake/Taylor are providing jobs for workers who will contribute very little to that community in economic terms. Heber/Overgaard and the Whiteriver/Apache area, on the other hand, are getting economic benefit from workers who are employed elsewhere. From a regional standpoint it is a zero sum game. From the standpoint of individual communities there are clearly winners and losers.

Table 2. Cross Commuting. 2008 Estimated Number of FTE Employees by Place of Work and Place of Residence

Place of Residence → Place of Work ↓	Lakeside/ Pinetop	Show Low	Snowflake/ Taylor	Heber/ Overgaard	Springerville/ Eager	Alpine/ Nutrioso	Whiteriver/ Fort Apache	Outside the Region	Total (by place of work)
Lakeside/Pinetop	-	1.00	2.00	-	1.00	-	-	-	4.00
Show Low	13.00	15.25	3.00	1.00	2.00	1.00	-	2.00	37.25
Snowflake/Taylor	0.50	3.00	61.16	13.08	-	-	3.00	26.00	106.74
Heber/ Overgaard	-	2.00	6.00	3.50	-	-	6.00	-	17.50
Springerville/Eager	1.00	3.77	3.00	-	34.51	12.13	0.77	3.77	58.94
Alpine/ Nutrioso	-	-	-	-	16.40	4.23	-	1.00	21.63
Whiteriver/ Fort Apache	-	-	-	-	-	-	-	-	-
Outside the Region	-	-	-	-	-	-	-	-	-
Total (by place of residence)	14.50	25.02	75.16	17.58	53.91	17.36	9.77	32.77	246.07

Source: July 2009 Survey by Author.

Forestry as an “Export Engine.” Economic base theory tells us that employees who produce goods that are “exported,” i.e. shipped out of the local region, are “basic” to the local economy inasmuch as they bring new money into the region. Without these basic jobs there would be no local-serving or non-basic jobs. The way that we express the relationship between total employment and basic employment is the “multiplier.” From a region-building perspective we might say, “Any new job is good but basic jobs are especially good because workers support themselves and additional workers through the multiplier process.” (An expanded discussion is found in Appendix C.)

Based on previous research studies we can estimate the average multiplier in the White Mountain Region to be 1.591;¹ this means that on average every export or non-basic employee will support another 0.591 non-basic local-serving employees. Using bifurcation estimates reported in this study we can estimate the full impact of the 13 firms covered by our study.

On table 3, the “body counts” of employees working in the different White Mountain communities are translated to basic and nonbasic employment categories. The factors used for this segmentation are based on the question to respondents about the percent of sales made to individuals or firms in each of the White Mountain communities. For example, a firm located in a specific community that had 10% of its sales outside of the White Mountains would contribute 10% of its total workforce to the basic employment column of Table 3 for that particular community where the company was located. The allocations on the table include the generalization that the amount of a firm’s sales is roughly proportional to the number of employees in that firm.

Table 3 tells an interesting story. White Mountain Region firms with a Future Forest connection have a total of 246.07 FTE employees. Of these, 55.89 are local-serving (non-basic) and 190.18 are basic (export) employees with a multiplier impact. The figures for basic employment are up from the 140.89 FTE reported in 2007 and non-basic employment figures have declined from the 2007 level of 72.15. This change is largely due to the treatment of supplemental funds provided to Future Forest, LLC from the US Forest Service, as discussed in the Introduction to this report. The higher basic employment numbers emphasize the “export power” of the region’s forestry cluster related to Future Forest activities.

We estimated that these 190.18 basic FTE support another 112.39 non-basic FTE throughout the White Mountain Region (Table 5). In others words the 13 White Mountain Region firms considered support a total of 358.46 FTE workers; the 2007 total (based on a more conservative methodology, as discussed above) was 296.31.

In the following discussion we will sort out the Future Forest-related employment. Up to this point, our intention has been simply to show the general importance of the firms upon which we are focusing.

¹ Source is Lay J. Gibson, Ph.D.

Table 3. 2008 Estimated Basic and Non-basic FTE Employees Working in the White Mountain Region and Employed by Firms with a Future Forest Connection

Place of Work ↓	Basic FTE Employment	Non-basic FTE employment	Total FTE employment
Lakeside/Pinetop	1.96	2.04	4.00
Show Low	35.40	1.85	37.25
Snowflake/Taylor	93.63	13.12	106.74
Heber/ Overgaard	17.50	-	17.50
Springerville/Eager	36.64	22.30	58.94
Alpine/ Nutrioso	5.05	16.58	21.63
Whiteriver/ Fort Apache	-	-	-
Total	190.18	55.89	246.07

Source: 2009 Survey by Author.

The Specific Role of Future Forest, LLC. The discussion of forestry as an export engine shows that the 13 firms located in the White Mountains are major players, but they do not tell us about “extra production” that has been made possible by the WMSP. Those estimates are shown in Table 4.

- Whereas the 13 firms described in Table 3 gave the White Mountain Region 246.07 FTE employees, only 146.26 FTE employees can be traced back to Future Forest, LLC (Table 4).
- The 13 firms gave the Region another 112.39 FTE employees through the multiplier process, and 62.59 of them are tied to Future Forest, LLC. (Table 5.)

The estimated multiplier effect of Future Forest, LLC is summarized in Table 5. The 13 “engine firms” that are based in the region directly and indirectly support 358.46 FTE employees, most of whom live in the White Mountain Region. Fifty-eight percent of this total (208.85 FTE) have their jobs because of Future Forest, LLC. This number has the potential to grow as Future Forest, LLC increases its production in absolute terms.

Table 4. 2008 Estimated Basic and Non-Basic FTE Employees Working in White Mountain Region who are Directly Supported by Material Harvested by Future Forest LLC.

Place of Work ↓	Basic FTE Employment	Non-basic FTE employment	Total FTE employment
Lakeside/Pinetop	1.96	2.04	4.00
Show Low	23.09	1.21	24.30
Snowflake/Taylor	34.03	9.38	43.41
Heber/ Overgaard	7.18	-	7.18
Springerville/Eager	35.20	16.54	51.74
Alpine/ Nutrioso	4.45	11.18	15.63
Whiteriver/ Fort Apache	-	-	-
Total	105.90	40.36	146.26

Source: 2009 survey by author.

Table 5. 2008 Estimated Employment Impact of Forest Industries on the White Mountain Region with Future Forest, LLC and without Future Forest, LLC.

	Total	Portion attributable to Future Forest, LLC	Portion independent of Future Forest, LLC
Total direct employment	246.07	146.26	99.81
Total indirect employment through multiplier	112.39	62.59	49.81
Total direct and indirect	358.46	208.85	149.61

Source: Estimates Provided in Tables 3 and 4. Multiplier estimated as sourced in text.

Local Expenditures. Another important part of the impact equation is expenditures for goods and services. The employment generated by these expenditures has already been accounted for in the discussion of indirect multiplier impacts. But what about the dollar values and the types of goods and services? Table 6 does not provide definitive answers to these questions but it does represent a start. The 2008 economic assessment has built upon the information offered in Table 6 and provides information that can support pro-active economic development initiatives. Specifically, the goal is to internalize more of the expenditures for goods and services within the White Mountain Region. This would benefit the firms that harvest and process forest products by improving their access to critical supplies, and it would benefit the region by reducing sales leakage.

It is important to remember when examining Table 6 that the data describe only major expenditures, not total expenditures for the firms included in our study.²

Raw material (clean and dirty chips, roundwood, and saw timber) remains a key expenditure item for 2008, but is down from 2007 and is the leading expenditure only for share purchased in the White Mountains. Raw materials are harvested by a number of entities – including, but not limited to, Future Forest LLC. Outsourced hauling was the leading category of expenditure, followed by petroleum products, mill equipment, heavy equipment parts, electricity, and heavy equipment. These are all “million dollar” categories.

The 10 categories which were used account for estimated expenditures of over \$18 million including over \$14 million in local sales. In several major categories most sales are made by local firms (raw material, electricity, petroleum products are three). Mill equipment, mill parts, heavy equipment, and heavy equipment parts, on the other hand are often purchased outside the region. The 2008 expenditure totals are down from the 2007 total, but the local share has increased in both absolute numbers and percentage.

From an economic development standpoint it would be ideal to have all expenditures for goods and services made within the White Mountain Region. But this rarely happens in any region and does not appear to be something that could ever be achieved in the White Mountains. Local businesses should continue to explore new ways of reaching the region’s markets. In 2008 an impressive 76% of expenditures in the 10 categories (Table 6) were from White Mountain Region firms. In 2007 the figure was 55% but in 2006 almost 71% of purchases were local; so we should expect some variability in this measure and look over the long term for solid indications of progress.

² We were ultimately unable to obtain this information from one firm, except for raw materials purchased from Future Forest.

Table 6. Estimated 2008 Expenditures. Estimated Total and Local (White Mountain Region) Expenditures for Selected Goods.

Expenditures for	\$ Expenditures 2008	Share of total spent in White Mtn Region
Raw material	\$4,864,252	\$4,081,863
Hauling (Outsourced)	\$4,890,911	\$4,022,754
Electricity	\$1,132,310	\$1,114,310
Mill equipment	\$1,238,654	\$843,191
Mill parts	\$718,608	\$240,715
Transport equip	\$192,503	\$102,555
Petroleum products	\$2,816,895	\$2,114,973
Vehicle part, tires	\$438,122	\$375,705
Heavy equip	\$1,028,354	\$311,354
Heavy equip parts	\$1,171,331	\$897,651
Total	\$18,491,940	\$14,105,070 76%

Source: 2009 survey by author.

Conclusions and Recommendations

The forest harvesting and processing industries in the White Mountains of Arizona are impressive in a variety of ways – magnitude of employment, number of firms and variety of processes and products. Further, judging from data that describe the role of the WMSP in increasing material supply for the processing industries, the project has already produced positive results. But conclusions after the fourth year of evaluation are still tentative and preliminary – a condition made more problematic by the current recession. The current study builds on the previous studies but it is still a “work in progress.” The 2006 study was designed to be replicated annually in a way that assures comparability from year to year and the ability to see changes in the industry over time.

The current economic recession of course makes the tracking of progress of the WMSP in 2008 especially problematic. It is noteworthy however that the 2008 figures in this study show an increase in employment, even though the number of firms has decreased; while general unemployment rates in Navajo and Apache Counties, as the table below shows, have moved sharply upward in the last few years.

County	Unemployment rates		
	2007	2008	2009 (1)
Apache County	8.7%	10.6%	13.3%
Navajo County	6.4%	9.2%	12.8%

(1) Figures for 2009 are an average of the unemployment from January - May 2009

Source: Bureau of Labor Statistics and the Arizona Department of Commerce (Workforce Informer website)

Conclusions. As a general conclusion, it seems clear that the WMSP has already contributed to the economic well-being of the White Mountain Region, aside from “health and safety” benefits.

Additionally we can conclude that:

- Having 13 firms involved with the WMSP – and there would undoubtedly be more under non-stressed economic conditions – suggests substantial acceptance in the marketplace;
- Innovative technologies, and the markets they spawn, are clearly in play to support demand for a variety of harvest outputs (clean chips, dirty chips, roundwood, and saw timber) including materials that historically had little or no value;
- Impacts are not always localized. Data on cross-commuting suggest that impacts (and community benefits) can be spread over the entire White Mountain Region;
- The “forestry cluster” is a major employer. Firms surveyed employ 246 full-time-equivalent employees;
- The “forestry cluster,” as described in this study, is an important economic engine that indirectly supports an additional 112 FTE employees in the White Mountain Region through the multiplier effect;
- Despite the fact that Future Forest, LLC is a new player it is already an important player. Of the 358.46 FTE workers tied directly or indirectly to these 13 firms, well over one-half are employed because of the harvesting and processing of Future Forest, LLC material – 146

FTE directly and 63 FTE indirectly through the multiplier process;

- Local expenditures by the 13 firms surveyed are substantial; the grand total spent by these firms in the White Mountain Region is over \$14,000,000 annually.

Recommendations. The following four general recommendations from previous WMSP Economic Assessment reports remain relevant:

- Invest substantial effort in monitoring and evaluating supply, demand, price, and maximum sustainable yield information;
- Keep the Board fully engaged in the WMSP process;
- Continue to conduct an annual economic assessment to assure the flow of objective data to describe the outcomes of the WMSP; and
- Disseminate findings of the economic assessment and other assessments widely to a variety of constituencies including the forest-industry cluster itself, the White Mountain Region's business community, and elected officials and public sector managers.

From a strategic point of view, local economic development stakeholders could look for ways to initiate partnerships with both public and private entities to expand local users of forest products, such as for example using pellets for space heating. Local providers of goods and services can be encouraged to pay close attention to the needs of timber harvesters and processors. There may be unmet needs for goods and services that they can fulfill if they are aware of the ongoing as well as changing needs of existing customers.

Appendix A

June 2009 (information is requested for 2008 calendar year)

Community _____ Subarea _____
Date _____ Interviewer _____

White Mountain Area Employer Questionnaire

Hello! I'm _____ and I'm a research consultant working on a study here in the region that we hope will tell us something about the role of forestry in the area's economic structure. May I have a few minutes to ask you some questions?

A. GENERAL

1. What is the formal name of this establishment? _____

2. What is the street address? _____

3. PO Box _____ Community _____ Zip _____ Phone _____

4. Who is the principal local official and what is his/her title?

Name	Title
_____	_____

5. What is the principal function of this establishment (primary product or service)? _____

SIC Code _____ NAICS Code _____

B. WORK FORCE DESCRIPTION (Note all questions refer to calendar year 2008)

6. Including yourself, members of your family, and those on salary, how many employees do you have? (Average for the calendar year 2008)

7. How many are:

a. Year-round full-time male employees? _____

b. Year-round full-time female employees? _____

c. Year-round part-time male employees? _____

d. Year-round part-time female employees? _____

8. On the average, how many hours per week do these part-time employees work? (Note if total or per employee)

9. How many of these year-round full-time employees live in the White Mountain Region communities listed below.

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Outside the Region	_____

10. How many of these year-round part-time employees live in the White Mountain Region communities listed below.

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Outside the Region	_____

11. How many seasonal employees did you hire during the last year?

12. How many weeks (annually) did you employ seasonal workers?

13. How many of your seasonal workers live in the White Mountain Region communities listed below.

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Outside the Region	_____

C. ECONOMIC BASE (Note all questions refer to calendar year 2008)

14. Approximately what percent of your sales are made to individuals or firms in the White Mountain communities listed below.

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Elsewhere in Arizona	_____
Elsewhere in the U.S.	_____
Non-U.S.	_____

15. We have listed eight important expenditure categories below. What were your total expenditures for each category in 2008? What portion of each expenditure was made in White Mountain Region? Would you like to add to the list?

Major Expenditures	Total \$ Expenditure Amounts Calendar 2008	Percent Purchased in White Mountains
Raw Material	_____	_____
Hauling (Outsourced)	_____	_____
Electricity	_____	_____
Mill Equipment	_____	_____
Mill Parts	_____	_____
Transport Equipment	_____	_____
Petroleum Products	_____	_____
Vehicle Parts, Tires	_____	_____
Heavy Equipment	_____	_____
Heavy Equipment Parts	_____	_____

16. Finally, what portion of your total production (2008) is based on inputs purchased from/by the "Future Forest" company? _____%

Appendix B
Firms that had Purchased, or were Positioned to Purchase, Material Supplied by Future Forest, LLC in 2008

Contacts: (N=13)

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Timber processing

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Remanufacture of roundwood.

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Sawmill

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Forest Energy Corporation
1001 N. 40th St.
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Phone: 800-246-3192
Phone: 928-537-1647
Fax: 928-537-1661
Manufacture of densified wood products for fuel and animal bedding.

Dwayne Walker, Manager
Future Forest, LLC
1630 E. White Mountain Blvd., Suite C-3
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www.futureforest.info
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Management of forest stewardship contract.

Don Gonsalves, Owner
Moulding Accents

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Wood building products
Jerold Reidhead, General Partner
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Cell: 928-521-0060
Electricity from biomass.

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Manufacture of dimension lumber and planing mill.

Steve Reidhead, President
Tri Star Logging, Inc.
140 S. Otto Dr.
Snowflake, AZ 85938
Phone: 928-536-7848
Fax: 928-536-7712
Cell: 602-270-4414
Email: sreidhead1@frontiernet.net
Logging.

Lea Walker, Office Manager
WB Contracting

41190 Highway 261

PO Box 411

Eagar, AZ 85925

Phone: 928-333-4491

Fax: 928-333-2866

Forest thinning and harvesting of forest materials. NAICS code: 115310.

Bill Baldwin, President

Winner's Circle Soils, Inc.

1820 N. Centennial Blvd.

Taylor, AZ 85939-0128

Phone: 928-536-7398

Fax: 928-536-2464

Email: wincircle@frontiernet.net

Wood waste is processed to make animal bedding, mulch, potting soil, landscape material.

APPENDIX C

SOME TECHNICAL ISSUES REGARDING ECONOMIC BASE THEORY AND REGIONAL ECONOMIC ANALYSIS³

As noted in the text, basic or export jobs are those that bring money into the region by producing goods sold outside the region. It is important to note that jobs are rarely purely basic or non-basic – most workers are at least a little of each. How do we bifurcate the employment data for each firm? The answer is simple – we use sales data. We asked the manager of each of the 15 firms that we visited to estimate the portion of his/her annual sales made outside the region. If, for example, the answer was 62% we then assumed that 62% of his/her employees must be working to produce that 62% and conversely, that 38% of the employees must be working to supply local (non-basic) markets.

A second question that is sometimes raised is, "Why use an employment multiplier instead of a dollar multiplier?" An answer to this question is fairly straightforward too – employment data are more willingly provided than sales data and perhaps, easier to understand also. Put another way, we can get employment data per firm whereas experience has shown us that most firms will resist supplying dollar data for sales, which is also a more intrusive form of fact-finding. Additionally, the approach employed in this study is much richer in White Mountain-specific detail per research dollar spent than the detail provided by an "off the shelf" IO (input-output) model that would provide more generic estimates expressed in dollar terms. If this study were a regional economic analysis of the entire White Mountain economy, an IO approach might have been called for. But this study focuses on just 13 firms; the attributes of these firms can be described in detail--so why estimate these attributes? Further, this study has the benefit of having access to a detailed White Mountain-specific multiplier analysis based on a survey of virtually 100% of all firms in the region. Again, why estimate when you have answers from a region-specific 100% sample?

Third, we are sometimes asked if the multiplier is the same thing as "velocity" or "trade turnover." The answer is "no." The multiplier tells us how many local-serving indirect and induced employees (or dollars) are supported by each export/direct employee (or dollar). The trade turnover measure tells us how many times a dollar, or some part of a dollar, is spent before it goes to zero. This might be interesting information if our purpose is to fully understand the detailed workings of the regional economy but it is of at most minor value to the task at hand--an impact analysis of the forest products industry on the regional economic system.

¹Adapted virtually intact from Appendix C of the 2007 report, written by Lay J. Gibson, Ph.D.