2010 White Mountain Stewardship Project
Economic Assessment

Conducted for

White Mountain Stewardship Project
Multi-party Monitoring Board

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Highlights

2010 White Mountain Stewardship Project (WMSP) Economic Assessment

- 14 firms purchased or using material, compared to 14 firms in 2009 (13 of which we were able to obtain data for in that year); and 13 in 2008. Low demand for building materials continues to limit participation by firms tied to the building industry.

- Overall employment figures are up considerably from 2009, and employment attributable to Future Forest, LLC is up in both absolute and percentage terms from figures reported in 2009.

- Stewardship-related employment continues to be based on a mix of Inputs and Outputs, or suppliers and producers.

- Most employees are full-timers.

- Cross-commuting is common, and somewhat less pronounced in 2010 than previous years.

- WMSP encourages both basic and non-basic employment.

- The “forestry cluster” taken together provides real economic value to the region, and increasingly relies on the WMSP contract.

I. Introduction

Economic Assessments of the White Mountain Stewardship Project (WMSP) were begun in 2006 for the 2005 calendar year. This initial report was viewed from the beginning as the first of an annual series of assessments. Assessments through 2007 were conducted by Lay James Gibson, Ph.D., and subsequent to his retirement by McClure Consulting LLC for 2008 and subsequent years to the present, 2010 report, which is the subject of this document. The report series 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.

This report assesses the economic impacts of the 2010 calendar year. Findings are "generally comparable" to those reported for the previous years 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 2010 data collection instrument is nearly identical to the 2006 instrument.) Second, various refinements have been applied to the approach to the analysis since 2006 by the original and current authors. In 2008 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. This was a change from assumptions applied in the 2007 report, and results in a higher proportion of "basic employment" in the 2008 and subsequent assessments than would otherwise exist.

Overview

For decades Arizona's forests were managed using the modern conservationists' "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. Second, 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 for strategically thinking about healthy forest management issues. In the last few years, additional initiatives that build on the WMSP have been put forth.

The study that is the subject of this report was commissioned by the Board. The purpose is to have a factual and critical baseline that 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. As an added benefit, this information reinforces the recognition that this set of firms represents new ways that the White Mountain Region might capitalize on current and potential industries to get even more economic benefit from the forest-industry cluster.

Scope and Nature of the Assignment

The Board defined three goals for the Economic Assessment series:

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, 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.

Note that through this set of goals, this Assessment addresses impacts from a specific component of economic activity, not the full range of economic and social benefits that could be linked to the process of strategic harvesting to enhance forest health.

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, revised in 2006, and administered in essentially that form in August/September of 2011 to obtain figures for the 2010 calendar year. The 2010 questionnaire was administered to 14 firms engaged in harvesting and processing forest materials in association with the contract with Future Forest, LLC.

The number of firms that completed the survey is the same as the 2009 assessment, but some of the players have changed. Most of the significant firms 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 year through at least 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 significantly 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.

Starting in 2006 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.

At the request of Northern Arizona Wood Products Association, an additional, "qualitative," question was added to this year's survey. Respondents were asked about conditions that existed in the region that either: a) "allowed your business to start and/or b) allowed your company to stay in business."

Expenditures and Employment. Readers should note that "expenditures" and "employment" are, in this report, two mutually exclusive forms of reporting impacts. The path of money through the forestry cluster in the White Mountains is predominantly in two forms: 1) Wages to employees, and 2) Expenditures made in support of business operations. Rather than report wages, this report focuses on "number of employees," for the following reasons: 1) firms are much less reluctant to report the number of employees than the wages to those employees, in part because it is simply easier to do but also because it is a lesser intrusion into their business practices, and 2) job-generation is generally a more compelling and meaningful statistic for readers of a report such as this one. Consequently, "expenditures" as used in this report must be understood as an increment of the economic impacts that does *not* include wages to the workers also documented in this report.

II. Findings

Existing Firms

We identified 14 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, either directly or indirectly (through users also in this database). Firm locations are more evenly distributed throughout the region than in past years, but employment continues to be highest in two communities – Springerville-Eagar and Snowflake-Taylor. The firms are listed in Table 1 along with the types of inputs received from (or supplied to) Future Forest, LLC. A complete directory of firms is provided in Appendix B.

Twelve of the fourteen firms interviewed in 2009 were interviewed again to obtain 2010 figures. A start-up firm included in last year's report was not yet fully operational for 2010 and did not appear in this year's database. Two firms that were not in last year's database but appeared in previous years were back in the database for 2010.

Table 1. Firms Engaged in Woody Biomass Products Delivered by/to Future Forest, LLC (2010)

	Woody Biomass Inputs/Outputs				
Purchasing Firm	Clean chips	Dirty chips	Roundwood	Saw Timber	Harvesting Woody Biomass
APC Lumber, Inc			X	X	
APC Pallets, Inc. (1)				X	
Arizona Log & Timerworks			X		
Canyon Creek Logging					X
Cooley Forest Products			X	X	
Forest Energy Corporation	X	X	X		
Future Forest LLC					X
Nutrioso Logging					X
R&J Eco-Challenge West, Inc (Holliday Timber)					X
Reidhead Brothers Lumber Mills, Inc (1)			X	X	
Round Valley Wholesale Lumber			X	X	
Snowflake Wht Mtn Power (Renegy LLC)		X			
Tri Star Logging, Inc.	X		X		X
WB Contracting					X

(1) New firms added in 2010.

Source: Survey conducted August/Sept. 2011 and previous WMSP Economic Assessments.

Employment and Cross-Commuting

Employment data were collected, through the survey of businesses, 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 provide a more accurate description of the employment picture. In many studies the difference between headcount employment and FTE employment is substantial. But in this series of studies the numbers are very close. Most employees have been, and continue to be, full-time, year-round employees. Similar to previous years, only a small fraction of employees are part-time. And whereas 16% of all headcount employees are seasonal, most seasonal workers are employed the better part of the year, e.g. 9 months.

As summarized in Table 2 below, headcount employment for 2010 is 339, which is the highest since 2005. The FTE estimate for 2010 is 316.6, which is also correspondingly higher, and in a similar proportion to the other years' relationship of headcount to FTE employment. Last year (2010) continued to be a year in which firms tied to the building industry would have been challenged, but any negative effects to the surveyed firms are not evident from the data.

Table 2. Employment by Type

	Employment counts					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Full time employees	414	222	195	226	184	**272**
Part time employees	6	13	13	11	7	**14**
Seasonal employees	44	28	39	21	40	**53**
Total employees	**464**	**263**	**247**	**258**	**231**	**339**
FTE Value	449.90	245.52	228.04	246.07	213.27	**316.61**

The 14 firms included in our survey database have employment structures that continue to be male-dominated. Eighty-eight percent of the full- and part-time employees are males, which is consistent with the data from previous years. Whereas we do not have gender data on seasonal employment, we know that most are males. Part-time employment maintained a similar relationship, as a percent of the total employment, as prior years. While seasonal employment has fluctuated in the last few years, seasonal as a percent of total employment is similar in 2010 to 2007 levels.

Note that 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 (Table 3) 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. For 2010, most communities show a high degree of balance. For instance, Snowflake-Taylor employs 64.5 FTE workers, and 60.8 FTE workers reside there. In previous years this spread has been more pronounced. Whiteriver/Apache on the other hand has no Future Forest-driven

employers but serves as a place of residence for 5.8 FTE – making it and Pinetop-Lakeside for example “job importers.” Heber-Overgaard, Alpine-Nutrioso, and Snowflake-Taylor are exporters of jobs and the payrolls that come with them.

The importance of this to local economic development efforts is to recognize that there are winners and losers at the community scale. For example, some of the workers in Snowflake-Taylor will contribute very little to that community in economic terms. Job-importing places, 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 some winners and losers, but this effect is not overly pronounced in 2010.

Table 3. Cross Commuting. 2010 Estimated Number of FTE Employees by Place of Work and Place of Residence

Place of Residence → / Place of Work ↓	Pinetop-Lakeside	Show Low	Snowflake-Taylor-Clay Springs	Heber-Overgaard	Springerville-Eagar	Alpine-Nutrioso	Whiteriver-Fort Apache	Outside the Region (1)	Total (by place of work)
Pinetop-Lakeside	3.38	1.69	1.00	-	2.50	-	1.38	-	9.96
Show Low	9.00	18.50	6.00	2.00	-	1.00	1.00	4.50	42.00
Snowflake-Taylor-Clay Springs	1.00	7.00	31.48	14.00	7.00	2.00	-	2.00	64.48
Heber-Overgaard	-	7.00	20.75	14.00	1.00	-	2.00	-	44.75
Springerville-Eagar	2.54	4.31	1.54	8.00	47.77	4.00	0.77	1.00	69.92
Alpine-Nutrioso	-	1.73	-	-	12.77	3.00	-	-	17.50
Whiteriver-Fort Apache	-	-	-	-	-	-	-	-	-
Outside the Region(1)	-	-	-		-	-	-	68.00	68.00
Total (by place of residence)	15.92	40.23	60.76	38.00	71.04	10.00	5.15	75.50	316.61

(1) These figures include employees of 2 firms with operations in the Phoenix area.
Source: August/Sept. 2011 Survey

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 generated. 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 estimates of both basic and non-basic employees as generated by this study, we can estimate the full impact of the 14 firms covered by our study.

On Table 4, the employees working in the different White Mountain communities are translated to basic and non-basic 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 4 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. Starting with the 2008 report, supplemental funds provided to Future Forest, LLC from the US Forest Service were also considered non-local dollars, and consequently a factor was applied to the employment figures for material-supplier firms to reflect their "basic" employment contribution.

Table 4 tells an interesting story. The White Mountain Region firms with a Future Forest connection in our database have a total of 316.6 FTE employees. Of these, 63.3 are local-serving (non-basic) and 253.3 are basic (export) employees with a multiplier impact. The figures for basic employment are up from the 156.7 FTE reported in 2008, and non-basic employment figures are also up but by a smaller proportion than the basic figures. In other words, the proportion of basic employment is greater for 2010 than for 2009.

Using the region's multiplier, we estimated that these 253.3 basic FTE support another 149.7 non-basic FTE throughout the White Mountain Region (Table 6). In others words the 14 White Mountain Region firms considered support a total of 466.3 FTE workers; the 2009 total was 305.9 FTE.

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 4. 2010 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
Pinetop-Lakeside	5.98	3.98	9.96
Show Low	39.90	2.10	42.00
Snowflake-Taylor-Clay Springs	50.69	13.78	64.48
Heber-Overgaard	80.54	14.21	94.75
Springerville-Eagar	47.54	22.39	69.92
Alpine-Nutrioso	10.50	7.00	17.50
Whiteriver-Fort Apache	-	-	-
Phoenix	18.00	-	18.00
Total	253.14	63.47	316.61

Source: August/Sept. 2011 Survey

The Specific Role of Future Forest, LLC

The discussion of forestry as an export engine shows that the 14 evaluated firms 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 5. Of the 316.6 FTE employment for the 14 firms in the survey database, as summarized on Table 4, 271.0 FTE employees can be traced directly back to Future Forest, LLC (Table 5). FTE employment linked to Future Forest, LLC, as a percentage of total employment, increased by over 10 percentage points from the figures for 2009.

The estimated *multiplier effect* of Future Forest, LLC is summarized in Table 6. Overall, the 14 firms gave the region another 149.7 FTE employees through the multiplier process, and 126.2 of those are tied to Future Forest, LLC. In total, the 14 firms directly and indirectly support 466.3 FTE employees, most of whom live in the White Mountain Region. Eighty-five percent of the 466.3 FTE employees, or 397.2 FTE, have their jobs because of Future Forest, LLC. This proportion has increased over the last several years.

This percentage has the potential to continue to grow to the extent that Future Forest, LLC is able to increase its production in absolute terms. As the interrelationship of the forestry firms with Future Forest, LLC has increased, the observation that most of these firms would not be operating without the Stewardship project in place is increasingly supportable.

Table 5. 2010 Portion of Estimated Basic and Non-Basic Employees Working in the 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
Pinetop-Lakeside	5.98	3.98	9.96
Show Low	38.70	2.04	40.74
Snowflake-Taylor-Clay Springs	39.71	13.66	53.37
Heber-Overgaard	57.99	10.23	68.22
Springerville-Eagar	45.26	19.67	64.93
Alpine-Nutrioso	9.47	6.31	15.78
Whiteriver-Fort Apache	-	-	-
Phoenix	18.00	-	18.00
Total	215.11	55.90	271.01

Source: August/Sept. 2011 Survey.

Table 6. 2010 Estimated FTE Employment Impact of Forest Industries on the White Mountain Region With, and Without, Future Forest, LLC

	Total	Portion attributable to Future Forest, LLC	Portion independent of Future Forest, LLC
A. Total direct employment	**316.61**	**271.01**	**45.60**
B. Total basic employment	***253.34***	***213.48***	***39.86***
C. Total indirect employment (multiplier X B)	**149.72**	**126.17**	**23.55**
Total direct and indirect (sum of A and C)	**466.33**	**397.18**	**69.15**

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 7 does not provide definitive answers to these questions but it does represent an overview of major expenditures. The expenditure data also provide information that can support proactive economic development initiatives. Specifically, a reasonable economic development goal would be 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.

Additionally, it is important to understand the relationship between expenditures and job creation, from a subcontracting perspective. For example, there are a number of additional jobs that are created due to outsourced hauling and transport, even though the costs of these jobs are essentially accounted for within the expenditures for each individual firm in the outsourced hauling figures. The point of emphasis here is that the hauling and transport industry represents a major employment component not included in the employment figures in this report. This is indicated by the presence of 15 hauling firms that operate within the White Mountain region as a part of the outsourced harvesting process.

It is important to remember when examining Table 7 and Table 8 that the data describe only major expenditures, not *total* expenditures for the 14 firms included in our study. The 11 categories in the tables account for estimated expenditures of over $27 million, including $18.4 million in local sales. Raw material purchases (clean and dirty chips, roundwood, and saw timber) increased considerably from 2009 and remains by far the largest expenditure item for 2010. Raw materials are harvested by a number of entities including, but not limited to, Future Forest LLC. For locally sourced expenditures, outsourced hauling was the second highest category of expenditure, followed by (in descending order) petroleum products, electricity, heavy equipment parts, mill equipment, and heavy equipment. These categories each involve expenditures of $0.5 million or more in local purchases.

The “other” category was added to the expenditure list in 2009 and is evolving as a category that might appropriately be assigned one or more specific category names for future reports. Five firms reported sums in this category in 2010, and the largest single entry was for “packaging.” Also, at the request of the Monitoring Board future reports will reflect additional “utility” categories, and the authors will review other possible cost categories.

In several major categories the majority of sales are made by local firms, for example raw material, hauling, and petroleum products. For 2010, this list includes heavy equipment parts and mill equipment, which, together with mill parts and heavy equipment, are often purchased outside the region. The 2010 expenditure total is up considerably from the 2009 total, although the local share of total expenditures decreased by 7 percentage points to 67%. Note that inflation effects are minimal for the last two years.[2]

[2] According to the Bureau of Labor Statistics, $1.00 in 2008 equals $1.00 in 2009, and $1.00 in 2009 equals $1.02 in 2010. http://www.bls.gov/data/inflation_calculator.htm

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. However, local businesses should continue to explore new ways of reaching the region's markets. In 2010, 67% of expenditures in the 11 categories (Table 7) were from White Mountain Region firms. In 2009 and 2008 the figures were 74-76%, but in 2007 about 55% of purchases were local (see Table 8); so we should expect some variability in this measure and look over the long term for solid indications of progress. Firm expenditures within the White Mountains increased $5.5 million over 2009, and amounts decreased from 2009 in only four categories: transport equipment, mill parts, electricity, and "other."

Table 7. Estimated 2010 Expenditures. Estimated Total and Local (White Mountain Region) Expenditures for Selected Goods

Expenditures for	$ Expenditures 2010	Share of total spent in White Mtn Region
Raw material	$9,158,749	$8,290,149
Hauling (Outsourced)	$5,558,160	$4,625,807
Electricity	$2,175,936	$937,936
Mill equipment	$918,185	$611,048
Mill parts	$686,938	$184,372
Transport equip	$339,417	$4,417
Petroleum products	$2,617,728	$1,879,978
Vehicle part, tires	$505,623	$411,729
Heavy equip	$3,150,200	$520,698
Heavy equip parts	$1,196,726	$787,365
Other	$1,130,208	$182,941
Total	$27,437,870	$18,436,439 67.2%

Source: August/Sept. 2011 Survey

Table 8. Expenditures Comparison 2007-10. Estimated Total and Local (White Mountain Region) Expenditures for Selected Goods

Expenditures for:	2007		2008		2009		2010	
	$ Expenditures 2007	Amount of total spent in White Mtn Region	$ Expenditures 2008	Amount of total spent in White Mtn Region	$ Expenditures 2009	Amount of total spent in White Mtn Region	$ Expenditures 2010	Amount of total spent in White Mtn Region
Raw material	$7,627,010	$4,530,758	$4,864,252	$4,081,863	$5,063,617	$4,484,984	$9,158,749	$8,290,149
Hauling (Outsourced)	$2,929,699	2,241,163	$4,890,911	$4,022,754	$4,094,420	$3,510,890	$5,558,160	$4,625,807
Electricity	$976,450	$976,450	$1,132,310	$1,114,310	$1,147,772	$1,147,772	$2,175,936	$937,936
Mill equipment	$2,270,500	$549,650	$1,238,654	$843,191	$356,696	$309,045	$918,185	$611,048
Mill parts	$486,200	$86,900	$718,608	$240,715	$689,376	$233,386	$686,938	$184,372
Transport equip	$331,035	$138,810	$192,503	$102,555	$243,000	$27,700	$339,417	$4,417
Petroleum products	$2,895,689	$1,398,372	$2,816,895	$2,114,973	$1,656,565	$1,656,140	$2,617,728	$1,879,978
Vehicle part, tires	$363,700	$313,000	$438,122	$375,705	$168,530	$156,748	$505,623	$411,729
Heavy equip	$1,134,100	$180,300	$1,028,354	$311,354	$1,521,291	$487,172	$3,150,200	$520,698
Heavy equip parts	$1,011,400	$640,060	$1,171,331	$897,651	$931,150	$406,734	$1,196,726	$787,365
Other					$1,506,276	$483,165	$1,130,208	$182,941
Total	**$20,025,783**	**$11,055,463**	**$18,491,940**	**$14,105,070**	**$17,378,694**	**$12,903,737**	**$27,437,870**	**$18,436,439**
		76%		76%		74%		67%
Total ignoring "other"	$20,025,783	$11,055,463	$18,491,940	$14,105,070	$15,872,418	$12,420,572	$26,307,662	$18,253,498

Source: August/Sept. 2011 Survey and prior studies.

Analysis by Industry Segment

Of the 14 firms evaluated within this assessment, six (6) are harvesters/loggers and the remaining eight (8) are involved in various wood product businesses. Table 9 (below) provides a comparison of employment figures and expenditures for the harvesters/loggers and wood product businesses. The data show that the wood product businesses account for a majority of the full time employment (87.5%) and approximately three-quarters of the estimated FTE, while the harvesters/loggers account for 100% of the seasonal employment. The wood product businesses account for 68% of the total expenditures, which includes 1/3rd of the outsourced hauling-related expenditures. The harvesters/loggers account for 85% of the transportation equipment costs, 70% of heavy equipment expenditures, and just under half of petroleum products expenditures.

Table 9. Employment Figures, Estimated FTE Value and Estimated 2010 Expenditures by Industry Type.

	Harvesters/Loggers	% of ttl	Wood Product Businesses	% of ttl	Total
Employment					
Full-time employment	34	12.5%	238	87.5%	272
Part-time employment	8	57.1%	6	42.9%	14
Seasonal employment	53	100.0%	-	0.0%	53
Total employment	95	28.0%	244	72.0%	339
FTE Value	75.38	23.8%	241	76.2%	316.61
Expenditures					
Raw material	$89,058	1.0%	$9,069,691	99.0%	$9,158,749
Hauling (Outsourced)	$3,717,299	66.9%	$1,840,861	33.1%	$5,558,160
Electricity	$21,805	1.0%	$2,154,131	99.0%	$2,175,936
Mill equipment	$0	0.0%	$918,185	100.0%	$918,185
Mill parts	$0	0.0%	$686,938	100.0%	$686,938
Transport equip	$289,417	85.3%	$50,000	14.7%	$339,417
Petroleum products	$1,243,819	47.5%	$1,373,909	52.5%	$2,617,728
Vehicle part, tires	$168,293	33.3%	$337,330	66.7%	$505,623
Heavy equip	$2,208,944	70.1%	$941,256	29.9%	$3,150,200
Heavy equip parts	$965,513	80.7%	$231,213	19.3%	$1,196,726
Other	$67,402	6.0%	$1,062,806	94.0%	$1,130,208
Total	**$8,771,550**	**32.0%**	**$18,666,320**	**68.0%**	**$27,437,870**

Source: August/Sept. 2011 Survey

Influential Business Factors

For the 2010 report an additional, "qualitative," question was added to this year's survey. Respondents were asked about conditions that existed in the region that either: a) allowed your business to start and/or b) allowed your company to stay in business, and were given the choices listed below, including the option to name other factors. The results are shown in Table 10 below. "Assurances that materials will be available at reasonable cost" was mentioned most frequently, followed by "friendly business climate" and "workforce availability." The latter was somewhat unexpected, given that the region once had a fairly robust forest-industry base. One respondent indicated that a specific organizational representative was a key factor.

As an additional "experimental" component of the survey for 2010, this question and its options for answers, etc. will be reviewed by the authors for subsequent reports.

Table 10. Which of the following are important factors that have either: a) allowed your business to start, and/or b) allowed your company to stay in business: (Multiple entries)

Factor	No. of times selected
Incentives	4
Presence of other similar/complementary firms or industries	5
"Friendly" business climate	6
Workforce availability	6
Assurances that materials will be available at reasonable cost	7
Other	1
No opinion	2

III. 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 even the sixth year of evaluation are still tentative, now primarily due to 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.

As was the case in 2009, the national economic recession continues to make the tracking of progress problematic for 2010. To add perspective to this issue, the following table highlights the changes in population and total employed and unemployed for 2008 through 2010, for Arizona and the counties of Apache and Navajo. In terms of population change, all three of the geographic areas have increases (State) or decreases in population of less than 1%. For all three years, Apache and Navajo counties have significantly higher unemployment rates compared to the State. The number of unemployed increased by 48% in Apache County over the two years, by 73% in Navajo County, and 73% for the State. Figures for 2009 were also, generally, worse (lower numbers of population and the employed, and higher numbers of

unemployed) than for 2008, with the exception of some growth in 2009 in the number of employed in Apache County.[3]

During these periods of overall increasing unemployment, the number of FTE workers in the forestry harvesting and processing firms in our database *increased* in 2010 over the figures for 2008, even with a 13% decline in 2009 over 2008.[4]

Year		Apache County	Navajo County	Arizona
2008	Population (2)	72,030	108,573	6,368,649
	Total Employed (1)	18,923	35,573	2,934,136
	Total Unemployed	2,370	3,811	183,128
	Unemployment rate	11.1%	9.7%	5.9%
2009	Population	72,024	108,441	6,389,081
	Total Employed	19,550	35,308	2,851,063
	Total Unemployed	3,560	6,205	305,500
	Unemployment rate	15.4%	14.9%	9.7%
2010	Population	71,685	107,677	6,401,569
	Total Employed	19,463	35,455	2,859,967
	Total Unemployed	3,813	6,586	316,188
	Unemployment rate	16.4%	15.7%	10.0%
% change, 2008-2010	Population	-0.48%	-0.83%	0.52%
	Total Employed	2.85%	-0.33%	-2.53%
	Total Unemployed	60.89%	72.82%	72.66%
	Unemployment rate	47.75%	61.86%	69.49%

Source: Arizona Department of Administration, Office of Employment & Population Statistics, McClure Consulting. Population estimates are as of July 1st for each year.

Conclusions

As a general conclusion, it seems clear that the WMSP continues to contribute to the economic well-being of the White Mountain Region, aside from "health and safety" benefits.

Additionally we can conclude that:

- Having 14 firms involved with the WMSP – and there would probably be more under non-stressed economic conditions – suggests substantial acceptance in the marketplace;

[3] Note that all of these figures were recently revised by the state reporting agency for 2008 and 2009, over what had been reported in prior years – which is common but especially prevalent now with population and especially employment in flux to a greater degree than normal. Consequently the figures do not match those given in last year's report.

[4] As we stated last year in a similar analysis, although this comparison is interesting, its relevance should not be overstated. The two sets of figures are not directly comparable of course, and the number of unemployed in a region is a combination of many factors, including movement of people in and out of a region, peoples' willingness to participate in the workforce, and the like.

- 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 316.6 full-time-equivalent employees;
- The "forestry cluster," as described in this study, is an important economic engine that indirectly supports an additional 149.7 FTE employees in the White Mountain Region through the multiplier effect;
- Future Forest, LLC is an important player. Of the 466.3 FTE workers tied directly or indirectly to these 14 firms, 85% are employed because of the harvesting and processing of Future Forest, LLC material – 271.0 FTE directly and 126.2 FTE indirectly through the multiplier process;
- Local expenditures by the 14 firms surveyed are substantial; the total spent by these firms in the White Mountain Region for 2010 is $18.4 million.

Recommendations

The following 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. By this point in the Assessment series we could add that the potential for sustained activity in White Mountain forest products, let alone growth, is closely tied to both actual material supply conditions and to entrepreneurs' confidence in the Forest Service's role in the supply chain.
- Keep the Board fully engaged in the WMSP process.
- 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, economic development, and workforce development community, and elected officials and public sector managers.

As discussed in the 2009 report, local economic development stakeholders could support the local forestry cluster by initiating 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.

Among the typical economic development activities undertaken by regions, "business retention and expansion," which involves focused consultation with existing firms, seems highly justified in the White Mountains, given the fluctuation in the number and other characteristics of firms that have been involved with Future Forest LLC during the course of these assessments. Workforce training/placement organizations should be made aware of the concerns that employers expressed about availability of workers.

Appendix A – 2010 WMSP Economic Assessment Business Survey

The White Mountain Stewardship Project Economic Assessment, which began in 2005, provides a factual and critical base that quantitatively describes the changes in the group of firms that harvest and process forest products. This baseline data in turn measures the economic impacts of forest industries on the White Mountain regional community.

This project is administered by McClure Consulting, LLC (Phoenix, AZ) and executed in coordination with Molly Pitts, Executive Director, Northern Arizona Wood Products Association. If you have any questions related to this survey, please contact Joe McClure of McClure Consulting, LLC at (602) 840-3699 (additional information can be found on the last page of the survey).

Information on individual firms provided in this survey will be considered confidential.

Date completed: _____

A. **GENERAL**

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

   _____

2. What is the street address? _____

3. P.O. Box:_____ Community:_____ Zip:_____ Phone:_____

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

   Name: _____ Title:_____

4a. (If different) who is the primary contact person for the data in this form?

   Name:_____ Phone:_____ Email:_____

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

   _____

   NAICS Code:_____ OR SIC Code:_____

6. Is the firm a) a user of materials from ____ or b) supplier of raw material to ____ , Future Forest.

7. Including yourself, members of your family, and those on salary, how many employees do you have? (Average for the calendar year 2010, not including SEASONAL workers)

   _____

B. **WORK FORCE DESCRIPTION** (Note all questions refer to calendar year 2010)

8. 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: _____
   e. SEASONAL employees (hired during the last year)?_____

9. On the average, how many hours per week do these PART-TIME employees work? (Note if total or per employee): _____

10. How many weeks (annually did you employ SEASONAL workers? _____

11. How many of these year-round FULL-TIME employees live in the White Mountain Region communities listed below:

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor/Clay Springs	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Outside the Region	_____
Total (should equal 8a + 8b)	_____

12. How many of these year-round PART-TIME employees live in the White Mountain Region communities listed below:

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor/Clay Springs	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Outside the Region	_____
Total (should equal 8c + 8d)	_____

13. How many of these year-round SEASONAL employees live in the White Mountain Region communities listed below:

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor/Clay Springs	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Whiteriver/Fort Apache	_____
Outside the Region	_____
Total (should equal 8e)	_____

C. **ECONOMIC BASE** (Note all questions refer to calendar year 2010)

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

Lakeside/Pinetop	_____
Show Low	_____
Snowflake/Taylor/Clay Springs	_____
Heber/Overgaard	_____
Springerville/Eagar	_____
Alpine/Nutrioso	_____
Elsewhere in Arizona	_____
Elsewhere in the U.S.	_____
Non-U.S.	_____
Total	**100%**

15. We have listed ten important expenditure categories below. What were your total expenditures for each category in 2010? What portion of each expenditure was made in the White Mountain Region? If there are other significant expenditures that are not included in the list below, please detail in the "Other" designation.

Major Expenditures	**Total $ Expenditure Amounts Calendar 2010**	**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	_____	_____
Other	_____	_____

16. What percentage of your total production (2010) is based on inputs purchased FROM the Future Forest Company, or BY the Future Forest Company (for timber harvesters)?

Purchased FROM: _____
Purchased BY: _____

17. Which of the following are important factors that have either: a) allowed your business to start and/or b) allowed your company to stay in business: (Please check all that apply.)

	Incentives		Workforce availability
	Presence of other similar/complementary firms or industries		Assurances that materials will be available at reasonable cost
	"Friendly" business climate		No opinion
	Other (please state)		

Appendix B – Contact information for firms with a Future Forest, LLC connection, 2010

Establishment Name	Street Address	City	Zip	Phone	Principal local official name	Title	Principal function
Future Forest LLC	1630 E White Mtn Blvd Ste C-3	Pinetop	85935	928-367-0057	Dwayne Walker	Managing Partner	Forest thinning
Snowflake Wht Mtn Power (Renegy LLC)	4764 W Hwy 277	Snowflake	85937	928-536-2432	Heath Hildebrand	VP-Operations	Power generation
WB Contracting	306 E. 12th St.	Eagar	85925	928-333-4491	Ricky Walker	President	Forest Restoration
Tri Star Logging, Inc.	190 N. Freeman Hollow Rd.	Snowflake	85937	928-536-7848	Stephen Reidhead	President	Logging, grinding, and chipping of forest products
R&J Eco-Challenge West, Inc (Holliday Timber)	75 ACR 2107	Alpine	85920	928-245-1895	Judy Holliday	President	Logging
Round Valley Wholesale Lumber	151 County Rd 4128	Eagar	85925	928-339-4415	Terry Reidhead	VP	Lumber manufacturing
Reidhead Brothers Lumber Mills, Inc	93 County Road 2180	Nutrioso	85932	928-339-4542	Terry Reidhead	Owner	Sawmill
Forest Energy Corporation	1001 N 40th St	Show Low	85901	928-537-1647	Gary Moore	Dir. of Operations	Manufacturer of wood pellets
Arizona Log & Timerworks	1990 W Central Ave	Eagar	85925	928-333-2751	Randy Nicoll	Sec./Treas.	Manufacture round wood products; pressure treating
Nutrioso Logging	Hwy 180 & 191 Bldg #42630	Nutrioso	85932	928-339-1946	Jerold Reidhead	Owner	Harvesting timber
APC Lumber, Inc	975 W Water Canyon Rd	Eagar	85938	602-254-4821	Rebecca Carranza	CEO	Lumber mill
Cooley Forest Products	320 S. 19th Ave. (operations in Heber)	Phoenix	85036	602-276-2402	Michael Cooley	COO	Saw mill
Canyon Creek Logging	2505 Hall Drive	Pinetop	85935	928-242-2713	Tom Holl	President	Logging
APC Pallets, Inc.	3011 W. Whitton	Phoenix	85017		Rebecca Carranza	CEO	Pallet and lumber manuf.

Appendix C – Economic Base Theory and Regional Economic Analysis

SOME TECHNICAL ISSUES REGARDING ECONOMIC BASE THEORY AND REGIONAL ECONOMIC ANALYSIS[5]

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 14 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 14 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 analysis of the impact of the forest products industry on the regional economic system.

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