



Evaluating the Effectiveness of National Woody Biomass Utilization Efforts on National Forest Lands



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Background

The USDA Forest Service is currently conducting hazardous fuel reduction projects on national forest lands to reduce wildfire risk through the United States. A byproduct of these treatments is woody biomass, which can be used to achieve renewable energy goals, as well as to enhance forest health. Significant amounts of time and financial resources have been invested by the Federal Government to achieve these goals. However, to date, there is little evidence on the A) amount of biomass used to achieve renewable energy goals, or B) the effectiveness of agency efforts to enhance biomass utilization. Making an analysis of this data requires that information entered into forest databases Timber Information Manager (TIM) and National Fire Plan Operations and Reporting System (NFPORS) be broken apart and re-aggregated to identify and measure biomass data..

Objectives

The objectives of this project are to take the first steps in the process of analyzing biomass data by : (i) Identify variables relating to biomass projects (ii) Re-aggregate variables according to project number/ name (iii) create a matrix to use for a national level assessment on the project details, cost, year, volume, and project description of biomass utilized per project

Variables and Design

Variables

Two Phases:

- 1) **IDENTIFICATION:** Variables within the database were listed with limited information as to what they were indicating. This step was used to identify key indicators such as costs, volumes, biomass removals, bid winners, or removal mechanisms pertaining to biomass project details. These lists contained over 500 variables, of which approximately 150 were identified as 'variables of interest' or important to biomass project details. Below is a sample of the variables identified

TIM	NFPORS
U_of_M Description: Unit of Measure	FACT_VEG_A MT_TREATED .NBR_TREES Description: The Number of Trees Treated or Found

- 2) **SELECTION:** Selection aggregated a list of variables that were found to contain information pertaining to biomass volume, costs, bid winner, and mechanisms,

DESIGN (Illustrated in Figure 1,2,3)

1) Query Data:

(Figure 1)

TIM

Data was queried from TIM database by a database manager based on the selected variables. Data was reported according to sale gate and block within the TIM database.

Listed are the sale gate and blocks used:
FS_PUBLIC_TIM_RQ_BID_WINNER_VW
FS_PUBLIC_TIM_RQ_CUTTING_UNITS_VW
FS_PUBLIC_TIM_RQ_CONTRACT_SALE_S_ADD2_VW
FS_PUBLIC_TIM_RQ_CONTRACT_SPU_S_INCLUD_VW
FS_PUBLIC_TIM_RQ_CONTRACT_PAYU_NIT_VOL_VW
FS_PUBLIC_READ_294360_CDW_TIM_FUNDING_SALEDTL

NFPORS

Access to data within the NFPORS is pending

Results

Step 1: Raw Data Form

Figure 1: This figure is an example of the initial reporting format of data variables within the TIM database. The variables are aggregated according to Block/Gate variable contents . Within the Block/Gate the sale number , name, and other common identification variables link data to counterparts throughout the database.

TIM RQ BID WINNER VW

REGION_CODE	FOREST_CODE	DISTRICT_CODE	REGION_CODE	FOR	DIS	SAL	LAST	FIRST	MIDDLE	CONCAT_ORG	CITY	STATE	ZIP	TSA_CONTR	PLAN_NED	PLAN_NED	PLAN_NED	PLAN_NED	ACTUAL_DATE	ACTUAL_DATE	ACTUAL_DATE	ACTUAL_DATE	BID_MOUNTNTR	CONTRACT_PURCH_BIDDE
03	01	01	Sout hwe st	Apac he/Si tgreas	Alpin061	DS Cork bark seed cones	DEAN SWIFT SEED CO.	DEAN SWIFT		DEAN SWIFT SEED CO.	Alamo sa, CO.,	81101	202404	2006-08-01	2006-08-01	2006-08-02	2006-08-14	2006-08-30	2006-08-30	2006-08-30	2006-08-30		an individual doing business under the name of DEAN SWIFT DEAN SWIFT SEED CO., City of Alamosa, State of Colorado	
03	01	06	Sout hwe st	Apac he/Si tgreas	Alpin0106	Greer C	FUTURE FOREST, LLC			FUTURE FOREST, LLC	Pineto p, AZ.,	85935	202891	2009-11-25	2009-11-25	2009-11-25	2009-11-30	2009-11-25	2009-11-30	2009-11-30	2009-11-30		a corporation organized and existing under the laws of the State of Arizona	

TIM RQ LATEST SALE GATES VW

REGI ON_CODE	FOREST_CODE	DISTRIC T_CODE	REGI ON_CODE	FORE ST_CODE	DISTR IC T_CODE	SAL E_NUM	LATEST LOCKED	CONTR ACT	STEW ARDS	CONV ERTIB LE	SAL E_NUM	SAL E_NUM	SAL E_NUM	PRIMAR Y	PRIMAR Y	TER MIN	TER MIN	DAT E	DAT E	DAT E	DAT E	DAT E	DAT E	DAT E	DAT E
03	01	01	Sout hwe st	Apac he/Si tgreas	Alpin061	DS Cork bark seed cones	2400-4P	NO	Bshls	NON CONV ERTIB LE	999	0	0	50		2006-10-28	2006-09-05	2006	2006	2006	2006	2006	2006	2006	2006
03	01	06	Sout hwe st	Apac he/Si tgreas	Alpin0106	Greer C	2400-IR	YES	TON	CONV ERTIB LE	1649	2749	5496	1894		2012-11-30	2009-12-02	2009	2009	2009	2009	2009	2009	2009	

Step 2: Initial Aggregate of Variables by Sale Name/Number:

Figure 2 is a sample taken from the initial aggregation from the TIM database variables listed in figure 1. This data was selected according to variables of interests and then re-aggregated according to sale number/ sale name.

TIM RQ BID WINNER VW

SALE_NUM	SALE_NAME	REGI ON_CODE	FOREST_CODE	DISTRIC T_CODE	REGI ON_CODE	FOR	DIS	SAL	LAST	FIRST	MIDDLE	CONCAT_ORG	CITY	STATE	ZIP	TSA_CONTR	BID_AMOUNT	BID_MOUNTNTR	CONV ERTIB LE	SAL E_NUM	SAL E_NUM	SAL E_NUM	PRIMAR Y	PRIMAR Y	TER MIN	TER MIN	DAT E	DAT E	DAT E	DAT E	DAT E
0613	DS Cork bark seed cones	03	01	01	Sout hwe st	Apac he/Si tgreas	Alpin061	DS Cork bark seed cones	DEAN SWIFT SEED CO.	DEAN SWIFT		DEAN SWIFT SEED CO.	Alamo sa, CO.,	81101	202404	999	0	0	50	NON CONV ERTIB LE	999	0	0	50		2006-10-28	2006-09-05	2006	2006	2006	2006
1060	06-10-Greer C	03	01	06	Sout hwe st	Apac he/Si tgreas	Alpin0106	Greer C	FUTURE FOREST, LLC			FUTURE FOREST, LLC	Pineto p, AZ.,	85935	202891	1649	2749	5496	1894	CONV ERTIB LE	1649	2749	5496	1894		2012-11-30	2009-12-02	2009	2009	2009	2009

Step 3: Desired Final Format

Figure 3 is an example of a final matrix model that will be used to quantify biomass according to project details, volume offered, contract bid treatment acres, and project description

PROJECT DETAILS		VOLUME OFFERED (ccf)			CONTRACT BID		TREATMENT ACRES					PROJECT DESCRIPTION								
Year	Contract Name	Contract Type	Advertise Date	Sawtimber Volume (9"+dbh)	Non-sawtimber Volume (5"-9"dbh)	Biomass Volume (<5"dbh)	Successful Bidder	High/Low ('winning')	Amount Paid to Govt.	Amount Paid By Govt.	Wildland-Urban Interface	Wildland	Total Acres Treated	Pre/non-Comm. Acres	Comm. Acres	Restoration Acres	Burn Acres	Description of Biomass Removal and Treatment of Residuals		
0613	0613						DEAN SWIFT SEED CO.	DEAN SWIFT SEED CO.	999	0	0	50	NON CONV ERTIB LE	999	0	0	50		2006-10-28	2007
1060	1060						FUTURE FOREST, LLC	FUTURE FOREST, LLC	1649	2749	5496	1894	CONV ERTIB LE	1649	2749	5496	1894		2012-11-30	2013

2) Arrange Data :

(Figure 2)

Variables of interest were selected from within the data blocks and aggregated by sale name/number

3) Aggregate Data:

(Figure 3)

Aggregate data and arrange according to Project Details, Volume offered, contract bid, treatment acres, and project Description

Summary and Conclusions

- National data important for answering the question of the amount of biomass utilized is reported in several databases, which are not functionally linked. The implication is that the USDA Forest Service is unable to determine the effectiveness of A) agency initiatives to enhance biomass projects, or B) their contribution to national renewable energy goals.
- The results evidence the difficulty in assessing what is being measured per variable, how it's measured, or how the information is used within the database.
- The findings of this study reveal that significant amounts of work is still required to query the data in usable form, and then to compile the data over multiple National Forests over multiple years.
- Based upon these findings and communication with national database managers, efforts are underway to improve the functionality of agency reporting procedures . Additional efforts for the continuation of these efforts are planned, building upon the work reported here.

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