


The FORSight Resource


Volume 2, Issue 4

November 1, 2005


Upcoming Events...



Remsoft User's Group Mtg.
Nov 17-18, 2005
Victoria, B.C.
<http://remsoft.com/events.php?id=22>



Sustainable Wood Production Initiative
Nov 30 - Dec 1, 2005
Vancouver, WA
www.westernforestry.org



Managing Forestlands Sustainably - Workshops in Ecology
Feb 13-16, 2006
Ichauway, Ga
www.osiny.org.conservaionforestry/home.htm



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Foreign Exchange Rate and the Forest Products Industry

The exchange rate can be defined as the price at which one country's currency trades for another, typically on the exchange market.

Exchange rates can be floating or fixed. Floating exchange rates fluctuate freely and are determined without intervention by governments or central banks. Fixed or 'pegged' exchange rates are subject to intervention and remain constant until changed by the interveners.

This type of intervention is usually done by a country's central bank where the bank purchases or sells the country's currency on the exchange market in order to influence or fully determine

its price. These transactions change the monetary base of the country and thus its money supply.

There are several formal definitions of money supply, but all include the quantity of a country's currency in circulation plus the amount of demand deposits. The money supply coupled with the amount of real economic activity in a country are important determinants of the currency's price level and the exchange rate.

The balance of trade must be mentioned when discussing effects of exchange rate on foreign investment. Simply put, it is the value of a country's exports minus the

value of its imports. It normally incorporates trade in services, including earnings (interest, dividends, etc.) on capital.

A country's trade account is comprised of two accounts; a capital account and a current account. The capital account refers to a minor component of international transactions, involving unilateral transfers of ownership of property or capital assets. The current account tracks international transactions arising from current flows, as opposed to changes in stocks which are part of the capital account. The current accounts indicate trade in goods and services (including payments

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Data Storage Solutions

The Declaration of Independence was written almost 230 years ago and to this day is still in remarkable condition. Of course great care has been taken to preserve this important document.

Important information these days is most often stored electronically begging the question...how safe is it?

As we dive headlong into the digital revolution, embracing processor speed and storage space, have we overlooked this critical question?

Digital files must be 'touched' in order to be maintained. They must be migrated to updated software and hardware or the risk of losing them permanently becomes very real.

Defects in, or deterioration of the media electronic files are stored on are also a cause for concern.

The digital revolution has become a two-edged sword. While technology races forward to reduce size and increase speed, let's not forget the fact that huge amounts of data can be obliterated with the single

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Data Storage...

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stroke of a key!

Key Issues

Format is one of the biggest challenges facing data managers today. The software and hardware we use today are constantly changing and, in all likelihood, will be different in a few short years. There are no standards in place to guide that change and format applies not just to storage media but operating systems, and program software. Storing data is well and good but it has to be retrievable!

Hard-drive failures are a scary proposition that only happens to other people right? Talking from personal experience, the answer is a resounding NO! There is a term called 'Mean Time Between Failures' or MTBF used throughout the computer industry. Simply put, this means there are only two types of computers, those that have failed...and those that will.

There is a wealth of information stored on this fragile and less than permanent technology. Unlike paper documents which decay slowly and incrementally, hard-drives tend to fail instantly and catastrophically!

Media used to store digital files has evolved from the 'floppy disk' to CD and now even DVD's are used to store massive amounts of data. Flash cards or data sticks are another type of media that allows for the easy storage and transfer of files.

The most common storage media currently in use is the CD. CDs rely on organic dye sandwiched between a reflective layer and a plastic layer. A laser 'writes' data into the dye by burning pits into the disk. Over time the organic dye can degrade making the CD unreadable. This degradation can take as little as two years or as long as 40 depending upon the quality of the CD and whether it is read or read/write formatted. Proper care of the CD (low humidity, moderate temperature and

low light) can extend the life of the CD even further.

Capturing and preserving digital data is such a critical issue that Congress appropriated \$100 million in 2000 to create the Digital Preservation Program. To date, the research effort has failed to yield a permanent solution to the issue but IT experts and digital preservation specialists say there are some things we can do to ease the transition into the future.

Solutions

Back-ups are a necessary, time consuming annoyance...emphasis on the word **necessary**. Fortunately, technology in this area is improving and many back-ups can now be fully automated. Changes to files should be made daily and a complete system back-up done on a weekly basis. In addition to backing up data files, the software used to access those files should also be backed up. There are programs available to assist with this process such as Symantec's Norton Ghost Writer with Drive Image Technology. Program disks for software installed on your computer should be saved in a low humidity, dark environment should reinstallation ever be necessary.

Upgrade often. The fact that the 2003 edition of Microsoft Word cannot handle documents that were created with editions that predate Microsoft Office 97 illustrates this point well. Operating system upgrades are necessary from time to time also. Newer versions of software may not be supported on older operating system!

Done? Not quite! Backing up your data onto some type of media and tossing it in the desk drawer is a common mistake. Off-site storage in a dark, low humidity environment should be a component of every 'disaster recovery plan'.

In The Future

Most of the discussions on potential solutions revolve around 'metadata' which is essentially data about data. The idea is that if a stored data file could also store information about the program and operating system that created it, it would make access

and management of the file easier.

Another potential solution is called 'emulation'. This theory puts forth the notion of a software program that could run on whatever the standard computing system of the day is, while copying or 'emulating' the old software, operating system and hardware that created the file. This concept has been tested and has proven effective but it is far from mainstream at this time.

Others propose 'persistent object preservation', in which a data file could be described by simple tags making the file self-describing. This potentially could make files in such a format, readable decades or even centuries into the future.

Preserving digital data remains laborious and mundane. The best approach for avoiding catastrophe in the future is to develop a process for continually backing up data and converting it to new formats so it will be accessible in the future. Once the process has been developed, it must become routine. The digital world has endowed us with many benefits, unfortunately, this is one of the downsides. ■

"Forecasts are dangerous, particularly those about the future."

Samuel Goldwyn

MS Excel Tips

A **PivotTable** report is an interactive table that you can use to quickly summarize large amounts of data. You can rotate its rows and columns to see different summaries of the source data, filter the data by displaying different pages, or display the details for areas of interest.

To create a PivotTable report, use the PivotTable and PivotChart Wizard as a guide to locate and specify the source data you want to analyze and to create the report framework. You can then use the PivotTable toolbar to arrange the data within that framework.

Growth Model Review - ORGANON

	PARTICULARS
Author	Dr. David W. Hann
Species	Primarily D-fir & western hemlock but models other prominent conifer and hardwood species found in the PNW
Region	Oregon, Washington, British Columbia
Silviculture	Establishment, Intermediate & Final Harvest Options
Model Type	Individual Tree
Add'l Info	http://www.cof.orst.edu/cof/fr/research/organon/

ORGANON is a stand simulator developed at Oregon State University by Dr. David W. Hann. There are currently three versions of ORGANON, 1) The Southwest Oregon (SWO) version, 2) The Northwest Oregon (NWO) version, and 3) the Stand Management Cooperative (SMC) version. The development of ORGANON is continuing and new editions are being revised and released. The latest Edition has extended the growth of Douglas-fir into younger ages while still providing accurate estimates in older stands.

SWO-ORGANON was developed to project growth in mature stands of mixed conifers and hardwoods in southwest Oregon. In the early 1990's more data was collected in older stands and stands with a higher fraction of hardwoods. This extended the model into old-growth stands with ages over 300 years.

NWO-ORGANON was developed to project growth in young to mature stands of Douglas-fir and western hemlock in the western Willamette valley. Most of the data used to develop the model came from even-aged stands with breast height ages ranging from 20 - 120 years. The western hemlock growth model was re-parameterized with a more robust dataset collected in stands in a broader area of northwest Oregon.

SMC-ORGANON was developed to

project pure and mixed young-growth Douglas-fir and western hemlock stands in western Oregon, western Washington, and southwest British Columbia. As with the other versions, SMC-ORGANON is designed to predict the development of both even and uneven-aged stands. However, the data used to parameterize the model came from even-aged stands with breast height ages ranging from 3 - 108 years.

In the mid 1990's a structured version of ORGANON was made available in the form of a dynamic link library (DLL). Unfortunately due to the structure of the DLL code, it couldn't be used in support of the console version. This was addressed in 2003 and after extensive testing, the ORGANON growth engine was made available as a DLL. The DLL now shares the same source code as the console version thus ensuring that the predictions are the identical between the two forms. In this article, we would like to introduce readers to the advantages and challenges of using the ORGANON DLL.

The development of the new DLL separated the growth engine from the yield calculator and system Input/Output functions allowing the user to more tightly couple the DLL with other information systems. This increased flexibility requires knowledge of how to utilize the DLL in concert with other applications. To ease this burden examples of application development with

the DLL are provided at the ORGANON web site. Currently, connections to Microsoft Excel and Access are represented, as are example programs for calling the DLL from FORTRAN, C, C++, and Visual Basic.

ORGANON is now implemented in three dynamic link libraries; ORGEDIT, ORGRUN, and ORGVOL. ORGEDIT examines and prepares the input tree list by filling in missing values and testing values against program expectations. ORGRUN implements the growth engine, and ORGVOL implements the Oregon State University volume equations. With these three dynamic link libraries the user can implement the functionality of the console application in growing untreated stands. Management applications must be implemented in the calling application.

Console editions of ORGANON provided output in user readable yield table output files. Parsing these files for electronic reading required significant text processing programs that were subject to failure when the format changed. To ease this output burden an option to print comma separated value (.csv) tree lists was added to ORGANON. This allowed the volume in each tree record to be accumulated into user defined tables. The DLL implementation allows the use of other applications such as Microsoft Access to create and manage output variables in an efficient fashion.

The input data requirements of the dynamic link libraries are the same as the console editions. However instead of forcing data into rigid, fixed-format files, data are held in user-defined structures and passed to the growth model in arrays. This allows applications calling the DLL to easily exchange data resulting in a more efficient exchange and flow of data between databases, inventory projection systems, harvest scheduling software, and optimization applications.

Unlike the console edition of ORGANON, the DLL is strictly a growth

ORGANON...

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engine. Merchandizing and yield accumulation has been separated from the DLL allowing the user to customize outputs to meet specific objectives. The ORGVOL DLL provides access to the OSU volume equations however different volume and taper equations, proprietary or otherwise, may be incorporated into an application.

Probably the most complicated aspect of using a growth engine is the construction of management code. In the new Edition of the ORGANON DLL the user is responsible for creating this code. FORSight Resources has

significant experience in the development of management simulation programs in ORGANON and other growth models.

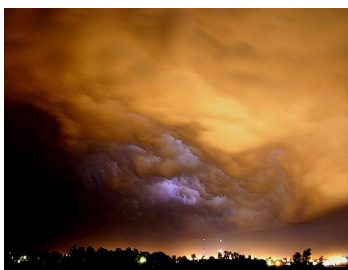
A mechanism for reducing the bulk of generated yield tables is to produce these tables properly formatted for input into harvest scheduling programs. While this technique does reduce the amount of the disk storage required to hold yield tables a complicated error trapping and yield checking routine must accompany the projection routines. It is much easier to validate yields separately. If yields are generated only when called by the DLL and not saved, they cannot be reviewed. The software must assume the responsibility for passing validated data to the

harvest schedule thus adding to the overhead required at run time.

The currently released Edition of ORGANON is 7.0. However, soon there will be a new Edition released incorporating the latest revisions and refits to the SMC version. The console version is also being retired and replaced with a program that will incorporate all of the functionality of the console program in a Microsoft Windows application. As with all changes to the ORGANON model this one will be fully documented and available to the user at no charge from the ORGANON website. To download the DLL version of ORGANON, visit the website listed above and follow the download in-

Photo Gallery

Tornadoes and other extreme weather phenomena taken by storm chaser Mike Hollingshead in Kansas and Nebraska between 2002 and 2004. These photos have been circulated incorrectly as being photographs of Hurricane Katrina.



Exchange Rate...

(Continued from page 1)

of interest and dividends on capital plus inflows and outflows of transfers.

The exchange rate is important because it facilitates the conversion of one country's currency into that of another, thereby facilitating international trade for the purchase of goods and services and/or transfer of funds between countries. In general, the price difference between similar goods determines which goods are traded and where they

are manufactured and sold. The exchange rate allows for the comparison of similar goods from different countries. Hence, the exchange rate is a significant factor influencing the competitiveness and profitability of industries including the Forest Products Industry.

How is the Exchange Rate Determined?

There are a number of factors which come into play in the determination of a country's exchange rate; gov-

ernment, supply & demand for a particular country's currency, interest rates, inflation, balance of trade and expectations about the future.

This article will focus on the two main factors influencing the exchange rate; government and market forces of supply and demand.

Governments can influence the exchange rate directly or indirectly through a country's monetary policy. Governments can set 'fixed' exchange rates meaning that the rate

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stays at the same value until changed by the government. This intervention directly influences a country's exchange rate. Governments can indirectly exert influence over the exchange rate by raising or lowering interest rates or by purchasing other currencies on the foreign exchange markets.

Some countries (e.g. US, Japan & Canada) set 'floating exchange rates' which are in a constant state of flux. Other countries such as China, have fixed or pegged exchange rates.

Generally speaking, when the exchange rate increases (i.e. a unit of your currency is worth more in foreign currency than previously), the currency is said to have strengthened. For example, assume that the exchange rate between the U.S. dollar and Japanese yen changed from \$1(US) = 104 yen to \$1(US) = 110 yen. This would strengthen the value of the US dollar meaning you would receive more yen in exchange for your dollar.

An increase in demand for a country's currency on the foreign exchange market usually increases the value of its currency also. For example, increased demand for U.S. exports would translate into a stronger U.S. dollar because other countries would be demanding more U.S. dollars in order to pay for goods and services. Likewise, foreigners wishing to invest in the U.S. or repay debts owed to the U.S. could cause demand for U.S. dollars to increase, resulting in the appreciation or strengthening of the U.S. dollar. Of course, the inverse is also true. Factors that increase the supply of or decrease the demand for a country's currency on the foreign exchange market cause the exchange rate for that currency to weaken. Such factors include the desire of U.S. consumers and businesses to purchase foreign goods and services, or to transfer or repay debts owed outside the U.S.

Impacts of Changes in Exchange Rate

A change in the exchange rate, in the short run, affects the demand for and supply of commodities, and the competitiveness of U.S. timber industry. When the U.S. dollar strengthens, it causes importers to pay more for the U.S. dollar to buy U.S. commodities. On the flip side, it decreases demand for U.S. commodities abroad. It also decreases U.S. domestic prices and increases the number of domestic commodities. This could seriously affect the profitability of an enterprise, especially in cases where profit margins are already thin. However, when the U.S. dollar is strong, U.S. businesses and consumers can purchase foreign goods and services at cheaper exchange rates. This encourages foreign imports because U.S. importers can pass on some of the cost savings to U.S. consumers in the form of lower prices. By and large, consumers benefit from a strong U.S. dollar (increased purchase power). In general, while a strong U.S. currency makes our goods less competitive abroad and at home, which could negatively influence a timber producer's profitability, it also makes imported goods from abroad cheaper and commodities produced locally less competitive in the domestic market. A strong U.S. currency encourages imports and discourages exports.

On the other hand, when the U.S. dollar weakens, foreigners pay less for the U.S. dollar, and U.S. consumers and business pay more for a unit of foreign currency. A weak U.S. dollar decreases the cost of and increases the demand for U.S. commodities and services abroad. An increased demand abroad for U.S. commodities causes U.S. domestic prices...and profits to increase. A weakened U.S. dollar also means U.S. importers must now pay more for a unit of foreign currency which increases prices to U.S. consumers for imported goods and services. This in turn could cause U.S. demand for foreign goods and services to decrease. In this situa-

tion, locally-produced commodities stand a better chance of competing with foreign imports. In general, while a weak U.S. currency makes U.S. goods more competitive abroad and at home, which could positively influence a timber producer's profitability, it also makes goods imported from abroad more expensive, and U.S. commodities more competitive in the domestic market since a weak U.S. dollar discourages imports.

While manipulation of the exchange rate is controlled by governments and central banks, there are a few things that companies can do to protect their interests from exchange rate volatility:

- Hedging commodities and/or currencies on the futures and options markets when the opportunity exists.
- Pre-sell commodities to foreign countries and pre-buy foreign inputs if belief is that the exchange rate will weaken.
- Conversely, delay both pre-selling commodities abroad and the purchase of foreign capital items if it is likely that the exchange rate will strengthen.
- In some cases, it may make sense to draw up contracts in a certain currency depending upon the relative strength of the foreign currency relative to the U.S. dollar.

Exchange Rate & Foreign Investment

Foreign exchange rate issues have become more important in recent years, especially in emerging markets, but most businesses appear to discount exchange rate volatility to focus on key market opportunities.

Global businesses take exchange rates into consideration in making investment decisions, but market opportunity, political risk, and the legal environment seem to be more important for foreign investment decisions, except in the case of an outright currency crisis. ■

Letter from the Editor

What originally started as an offering to expand our influence along our clients value chain has become a significant part of our business.

Our sales of Trimble and ESRI products have increased dramatically for two reasons. First, our expertise has helped clients obtain the right hardware and software combinations that will achieve their objectives...no more, no less. Second, we realize that if we can build a relationship through hardware and software sales, our chances of assisting clients in other areas is increased.

If GPS or GIS procurement is in your future, I would highly recommend calling William Boswell (Boz) at our headquarters in Charleston. FORSight offers very competitive prices and expert advise on a variety of GIS and GPS related products.

FORSight Resources is a leading provider of decision support services for natural resource management. The company's offerings include forest planning, inventory, growth and yield modeling, GIS analysis and custom programming, acquisition due diligence, wood supply analysis, forest finance, forest economics, and a host of other decision support services geared specifically towards natural resource management.

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for natural resource management...*

The FORSight Library...

Error Propagation in Forest Planning Models

Presented at the "Supplying Forest Values in the Face of Uncertainty" Workshop, Saskatoon, Saskatchewan, October 18, 2005.

ABSTRACT

By Sean J. Canavan & Karl R. Walters (presenter).

This paper illustrates how much of an impact error propagation has by using uncorrected and corrected inventory measurements as the basis for growth & yield estimates in harvest scheduling analyses. A measurement error (ME) is a component of any study involving the use of actual measurements, but is often not recognized or is ignored. The consequences of ME on models can be severe, affecting estimates of tree and stand attributes and model parameters. Conventional wisdom assumes that measurement errors will cancel out in the long run, with overestimates counteracting underestimates. The effects of diameter measurement error are asymmetric even if the error distribution was

assumed to be symmetric, increasing on the order of n^2 in basal area and volume estimates. If the error distribution is asymmetric, the effects are even more pronounced. Height measurement error increases on the order of n only, but in west coast markets log length is becoming the dominant parameter in price determination.

Error propagation through optimization planning models only serves to amplify the effects of measurement error, as the optimization routines try to capitalize on erroneous differences in treatment to devise an optimal solution. Propagation of measurement error has the potential for significantly misrepresenting the

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"Your chances of being run over are doubled if you stay in the middle of the road."

John M. Capozzi

In the Next Issue...

Non-timber Values...Dollars and Sense

USFS Planning Rules Change

Growth Model Review - FVS

Portfolio Optimization Strategies

The FORSight Library

Letter from the Editor

Tahune AirWalk

The Tahune AirWalk has become one of Tasmania's most popular tourist attractions. Over 150,000 visit the AirWalk which takes them on a stunning walk through the tree tops offering spectacular views of the Huon and Picton Rivers. Cable hang-gliding and abseiling are also offered on site.