

# The Forsight Resource

Volume 1, Issue 2

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## Upcoming Events...



Western Forestry Conference  
Dec 7 - 8  
Coeur d'Alene, Idaho



SOFORGIS - 2004  
Dec 16 - 17  
Athens, GA  
[Http://soforgis.net](http://soforgis.net)



International Symposium  
Red Alder:  
A State of Knowledge  
March 23-25, 2005  
University of Washington  
Seattle, WA



Small Log Conference  
Mar 31 - Apr 1, 2005  
Coeur d'Alene, Idaho  
[www.forestnet.com/sl](http://www.forestnet.com/sl)



Global Forest & Paper Summit  
June 1-3, 2005  
Vancouver, BC  
[globalforestpapersummit.com](http://globalforestpapersummit.com)



V International Conference on  
Forest Vegetation Management  
June 20-24, 2005  
Oregon State University  
Corvallis, OR  
<http://outreach.cof.orst.edu/icfvm>

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## Forest Planning : Strategic vs. Tactical Part II : Tactical Planning

### TACTICAL PLANNING

Tactical planning is focused on producing short-term, more spatially-specific, stand-based or harvest unit-based plans. These plans detail short-term timber supply and activity levels, with more consideration of the spatial aspects. Therefore, tactical planning requires more resolution and detail than strategic planning analyses. In order to accommodate these higher resolution, detailed plans, the analyses are run over shorter time horizons (typically less than 1 rotation).

Important tactical planning applications include those dealing with:

- ◆ Sustainable forestry spatial constraints
- ◆ SFI, regulatory or voluntary BMP maximum harvest opening restrictions
- ◆ Transportation networks
- ◆ Ecological or wildlife objectives

A subset of tactical planning is spatial management planning, in which the spatial structure of the forest is explicitly considered during plan development. This gets at the issues of:

- ◆ Exactly where to harvest?
- ◆ Exactly where to thin?
- ◆ Exactly where to apply intensive silvicultural activities?

The goal is to produce a spatially feasible management plan, which is sustainable with respect to future allocations, and can be implemented on-the-ground. The plan that is developed must be one that can be implemented operationally, typically with the objective of maximizing financial returns from timberlands subject to specific operational needs & spatial constraints (adjacency of clearcuts, harvest opening size limitations).

The greatest problem with spatial restrictions, as they concern the achievement of the strategic planning results over the planning horizon, is the inability

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## Log Haul Optimization...Making the Best Allocation

The right log to the right mill at the right time... sounds simple enough. Nothing could be further from the truth. Multiple species and sorts, varying transportation costs from every harvest unit to every possible destination, mill capacities and fluctuating prices can play havoc on a company's bottom line.

Log allocation decisions have traditionally been made by individuals that have spent years establishing good working relationships with their buyers. Integrated forest product companies' biggest customers have typically been an internal manufacturing facility. As timberland continues to shift out of the hands of the

integrated forest products companies into entities that manage timberland portfolios, optimal log allocation becomes even more critical. Log sales for these portfolio managers are usually their most important source of revenue and must be treated as such.

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## How to Evaluate Predictions From a Growth & Yield Model

Growth and Yield models are mathematical equations used to predict how stands will grow and how much volume will be produced in the future by product class. Early growth models were provided as tables but they are generally implemented as computer programs today. They are abstractions of very complex biological processes that cannot completely represent all relationships. A prudent course of action is to evaluate a model's projections prior to utilizing it in an operational setting. The evaluation should consist of:

- Examining the range of data used to build the model (modeling data set),
- Examining the model equation forms used to describe growth, and
- Comparing the projections to recorded growth on the property.

### Examine the range of data used to build the model.

While it is important to determine if all of the significant tree species can be represented by the model it is just as important to determine if the data used to develop the model come from similar locations as your property. Models

of Monterey pine growth derived from data collected in the coast range of central California may not well predict its growth in New Zealand. Likewise

growth models derived from plantation data may not predict the growth of natural stands well.

Descriptions of the data sets used to build most growth models are generally available from the model's developer. It is critical to fully examine the ranges of the data used to develop the model. If these descriptions are not available the utility of the model is greatly reduced. The parameters that are used to summarize growth vary with the type of growth model and they should be compared to the range of the data found on your property as well as the range of conditions that you expect to find on your property through the projection.

### Examine the model forms used to summarize the growth data.

It is a common desire to project stand conditions beyond those found in the modeling data set. When this

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## Log Allocation...

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Remsoft, Inc. has developed **Allocation Optimizer**, software that gives land managers the ability to make optimal allocations based on a variety of inputs. Allocation Optimizer will be closely linked and utilize outputs from strategic management plans including Remsoft's popular Woodstock forest modeling software to ensure the best possible economic results.

Allocation Optimizer is scheduled for release in November and Remsoft plans to promote the application across the U.S. and Canada shortly thereafter. In an effort to support our client base, and offer services to assist with log allocation, FORSight will undergo training for Allocation Optimizer in the fourth quarter and offer optimized log allocation as part of our suite of decision support services.

For more information or to schedule a demonstration of Allocation Optimizer contact Doug Jones at 506.450.1511 or email [doug@remsoft.com](mailto:doug@remsoft.com)

**"An Acre of Performance is Worth a Whole World of Promise"**

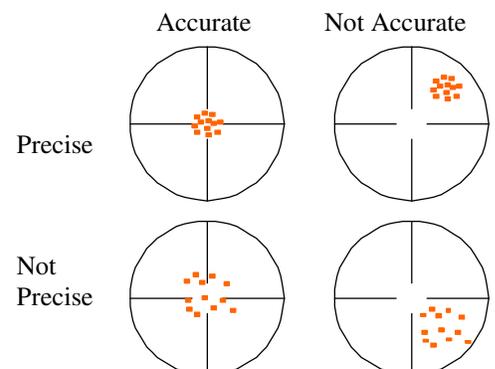
W.D. Howells

## Precision vs. Accuracy...What's the Difference?

When applying these terms to forest inventory, they generally refer to the accuracy and precision of measurement. To have an accurate measurement, the measurement must be close to the true value of the measured quantity. Accuracy depends largely on the skill of the observer/cruiser and the quality and calibration of the measuring device. A precise measurement is one that agrees closely with itself over repeated measurements. Like accuracy, precision depends largely upon the skill of the observer/cruiser and the quality and calibration of the measuring device.

Can measurements be accurate without being precise? Absolutely. The lower left circle in the figure shows that individual measurements are not precise (they are widely spread out), but the mean of the measurements is close to the true value. The size of the error in each measurement is not consistent. The reverse situation is also true; measurements can be very precise but not accurate. In the upper right circle, the points are clustered tightly together (precise), but they are not centered around the true value (inaccurate). This indicates repetition of a certain

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## Tactical Planning ...

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to “find” stands which are valid for harvest further along the planning horizon. Spatial regulations have the potential to impact the worth of forested properties that are managed for timber production objectives. Thus, the value of a spatial planning tools for supporting the development of annual operating plans.

For development of forest manage-

ment plans, neither of these tools should be used in isolation. It is common to link these tools in a hierarchical planning process. First, a long-term strategic planning model is created in order to ensure that forest-level decisions are in alignment with strategic management objectives. Subsequently, a more detailed tactical plan is developed which deals explicitly with short

term operational and spatial issues. The linkage between these two plans ensures that the tactical and operational plans still meet the overall forest-wide objectives and come as close as possible to the optimum financial solution. ■

## Precision vs. Accuracy ...

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type of error. Foresters deal with accuracy and precision on a regular basis. A common question in forest inventory is, “How many samples do I need to take?” The answer is most often driven by accuracy and precision requirements, such as, “We want to be within  $\pm 10\%$  with 90% confidence.” The ‘ $\pm 10\%$ ’ requirement is a requirement of how close the sample estimate needs to be to the true value, and is therefore an accuracy requirement. After sampling, our single overall estimate of the inventory based on the samples measured must be within 10% of the true inventory value. Unless one measures every tree on the property with infinite accuracy, it is unlikely that the true value of standing volume will ever be known. Precision is therefore used to give us an idea of how likely it is that we’ve achieved our accuracy goal. The ‘90% confidence’ requirement is a precision requirement. How confident we are

that the true value of something falls within a certain range depends both on the width of the range and the variability in our samples of the desired value. The more spread out a sample of points are, the less confident we can be where the actual mean of the population is located. In this instance, the spread of values in the sample must be small enough that (statistically) one can be 90% confident that the true value is somewhere in the range of the sample estimate  $\pm 10\%$ . For a fixed accuracy requirement, confidence that the desired accuracy has been achieved increases as the precision of the samples measured increases. With an imprecise sample, for example, it may only be possible to say that the estimate is within  $\pm 10\%$  with 70% confidence. With a very precise sample, it may be possible to say that the estimate is within  $\pm 10\%$  with 95% confidence. Ideally, everyone would want to sample as accurately and precisely as possi-

ble. However, the cost of gaining small increments of accuracy and precision can be substantial. It is not inconceivable that the cost of improving the precision to 90% from a 70% confidence level would be equal to improving from a 90% to a 95% confidence level. This should be an important consideration in determining how accurate and how precise any estimate needs to be.



*Mt. St. Helens letting off some steam of late...*

## Karl Walters to Lead Forest Planning Activities at FORSight

Karl Walters has been appointed Vice President of Forest Planning. In his new role, Walters will be responsible for supervision of the Forest Planning and Economics staff, business development, project management, training and development of strategic and tactical models. Walters will work out of FORSight Resource’s northwest office located in Vancouver, Washington.

Walters has 17 years of experience in the development, design, implementation and use of harvest scheduling software. He was responsible for the co-development of Remsoft, Inc.’s popular Woodstock software and has trained scores of individuals in its use. Walters received an M.S. in Forestry from the University of New Brunswick after obtaining a B.S. in Chemistry from the University of Alberta.

Kurt Muller, Vice President of Regional Operations, had this to say about Walters’ appointment, “We are incredibly fortunate to have Karl as part of our team. I can think of no one I’d rather have in this capacity. To attract someone of Karl’s stature to our young company will allow us to more effectively serve our clients. ■

## **FORSight Adds Additional Capacity**

**Ian Prior** has been hired to run FORSight Resources Northeastern Office located in Bangor, Maine. Ian has extensive experience in the north-eastern U.S. and Canada and will have responsibilities for forest planning and business development throughout the region.

**Bill Guiffre**, a veteran harvest scheduling forester and GIS expert has also been hired to meet the growing demand for services in these areas. Bill has over two decades of experience working with Champion International and International Paper among others. He will work out of the company headquarters in North Charleston, SC.

**“Good planning always costs less than good reacting.”**

**John Galbraith**

**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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***World-class decision support for natural resource management...***

## **FORSight Achieves B.C. Ministry of Forest’s Preferred Professional Service Provider List**

The B.C. Ministry of Forests issued a Request for Expressions of Interest (REI) earlier this year for companies interested in providing professional services in a variety of forestry related business areas. Many of the business areas listed were areas that FORSight specializes in. While we are a relatively young company, we can demonstrate in excess of 165 years of combined experience in natural resource management and decision support.

FORSight will now be placed on a select list of contractors who will be invited to participate in subsequent Request for Proposals, Invitations to Tender or direct awards in the following business areas:

- ◆ **Economic Analysis**
- ◆ **Growth & Yield**
- ◆ **Information System Design & Analysis**
- ◆ **Statistical Analysis**
- ◆ **Mapping**
- ◆ **Technical Report Writing & Editing**

We look forward to working with the B.C. Ministry of Forests and earning a reputation for quality, timeliness and professionalism as we have with our other clients.

### **In the Next Issue...**

*Stratified vs. Stand Based Forest Planning*

*Natural Resource Damage Assessments & Valuation*

*Growth Model Review - FASTLOB*

## **How to Evaluate G & Y Predictions...**

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occurs the projections become extrapolations and the model form used is very important. Many are familiar with the pitfalls of extrapolating beyond the range of available data. This is just as important when making yield projections. Extrapolations can occur during projections. Most models will project stands to ages, volumes, or diameters far beyond those of the trees in the modeling data set.

### **Compare projections to recorded growth information.**

Finally, model projections should be compared to your expectations and to records of growth from stands on your property. If a model can not replicate the growth that you expect from your stands then it isn’t going to be of much value. Pay particular attention to projections that are beyond the range of the modeling data set. Projections should be run and compared for with data at the midpoint of the range for (basal area, site index, etc.) as well as actual data from the extremes of the range. ■