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I have considered it critical - throughout my career - to learn and develop new analytical tools to address research projects. New technologies and mathematical models have served me well in analytical work aimed at evaluating how various components function through their interdependences. With new technologies, more detailed and diversified data are compiled. Eventually we arrive at a point when the accumulated quantity of data pushes us to reconsider traditional processing techniques.

In my most recent and biggest research effort I was faced with this challenge. The enormity of the data arrays that I was prepared to handle had to be converted into specific analytical systems placed in usable formats. My goal was to bring all the data I had to process – to potential users of my program – and distribute it into a set of interconnected modules allowing me to express findings in a spatially explicit and temporally consistent form. This was a major challenge and it was associated with the use of a complex model: simpler analytical models would detract from credibility of the findings and were not an option for me, since they would fail in achieving the ultimate task I was facing. I had to find a safe balance between expression and complexity within the conceptual design, which for me would be paramount to a successful solution.

My goal was to process a huge amount of data through integrated systems of their potential interdependencies: in other words, to handle data interpretation using spatially oriented tools as applied to temporal event sequences. My concern was based on many frustrations specialists experience when processing vast data outputs, inevitably leading to isolated technological solutions with their inevitable "silo-effects" of data inaccessibility. I had an ambitious plan to unite diverse sets of workable data units, capable of communication within the entire data domain - through a total rearrangement of meaningful accents – pushing statistical and socioeconomic findings, environmental concerns, and a shift in economic/financial analyses onto a new level of data interpretation and integration.

As a private sector Natural Resource Economist, I have extended my economic and environmental studies to network computer systems and software hosted on different computer platforms such as Microsoft, Linux (Unix), and Macintosh, which led me to design the **Forest Resource Analysis System Software (FRASS http://forest-econometrics.com**).

The FRASS system I developed, integrates within it a Real Price Appreciation Forecast Tool feature I designed by modifying Nominal market prices - within a log marketing area - to be combined with Bureau of Labor Statistics (BLS) data. Specifically, I use the Producer Price Index (PPI) to convert monthly Nominal delivered log prices into continuously updated Real prices. Market price trends are identified according to a mathematical Markov Chain continuous time with memory model, through a random walk with a return to base levels. Commodity price predictions are delivered in Real terms, updated monthly with the PPI, and are interpreted as a Reserve Price Indicator. The RPA Forecast Tool is a fundamental change in how industrial timber market practitioners interpret price data to seek financially optimal timber harvest timing solutions. The platform is accessible, and useful internationally.

I have extended this price forecasting approach to logging costs. The core of the FRASS system is shaped through multiple rotations stacked through time, on each timber stand, to generate financially optimal harvest rotation timing. I achieved this financial optimization protocol using Quadratic Sequential Programming as timber rotation values through rotations are projected and then discounted to present time values.

The FRASS program stores information from a wide array of data collections, which are processed and analyzed into temporally and spatially quantitative database fields, digital maps, and economic solutions. This allows a user to review various components of landscape level information in a fast and comprehensive way. Spatially and temporally explicit ecological and societal data need to be the standard behind contemporary multi-component data integration. The FRASS program provides open and equal access to formulate identity linkages in data clusters pertaining to a discrete parcel as a key unit of the entire landscape.

I have designed the program as a model which combines biometrics and economics to generate optimal timber harvest timing solutions, based on resource projections in annual (short-term), 5-year intervals (mid-term) and for centuries (long-term) into the future. The program articulates spatially explicit landscape-based ecological components: soil damage susceptibility, riparian protection for riverine species, terrestrial species and bird species habitat, wildfire risks, carbon sequestration rates, zoning regulations, and infrastructure components, placing any timber harvest scenario into a bigger picture of potential ecosystem disturbances. All this is accomplished with the major focus on financially optimal harvest timing on the current rotation, the next rotation, and all rotations into perpetuity – one timber stand at a time, accumulated to entire tenures, and through landscapes.

In Summary:

Local and International Business managers experience a pressing need to reevaluate data management challenges shifting the accent towards formulating a better understanding in compatibility of the factors of time and space, when applied to evaluating factors of how environmental changes interrelate with our business management determinations, especially when viewed in the context of broader technological capabilities. My experience in business and economics with applied sciences has led me to recognize how imperative it has become to quantify societal impacts in policy and economics - based on a variety of interdependent characteristics – in order to gain new insights in addressing hidden challenges of sustainability issues in resource management decisions.

I have determined that economic analysis techniques and their application to real goals of sustainability require the availability of large, complex data sets with more sophisticated inter-relational patterns, realized in new-generation software solutions, as most intimately suited to the innovative goals of today. My mission as a scientist is to keep looking for answers and to help bridge the gap existing between pressures of data management and challenges of economic solutions so prominently called for by modern research.

I plan to continue developing the FRASS forest econometrics platform through further research efforts, and its application on forestlands, integrating undergraduate and graduate student involvement.

I welcome working with others dedicated to the integration of economic and business knowledge across sciences. Together, we can explore and extend the research and study to the classroom of the future. I will be at the core of this effort.