Designing forest landscape management
By E. Z. Baskent, G. A. Jordan, and A. M. M. Nurullah

The article *Designing forest landscape management* emphasizes the importance of using a holistic approach in managing forest landscapes. Baskent suggests management paradigms, modeling approaches, and software engineering be incorporated together to address ecosystems as a whole.

Management paradigms discussed in the article, focused on integrated resource management (IRM), forest-zoning management, and natural disturbance model management. IRM advocates the use of forests for multiple use and values, but IRM operates more readily in theory than in reality, giving it many benefits and drawbacks. The complexity involved in managing an ecosystem for wildlife habitat, water quality, timber, and biodiversity can be overwhelming and difficult to implement.

Forest zoning is another important management paradigm used to design and execute management techniques. Forest zoning is a difficult issue to handle because forests are spread out over large areas. Wildlife, watersheds, and stands are all components of the forest. Different management strategies are suggested for each component, which increases the complexity of management. In order to avoid disturbing large areas, the intensity is often upgraded on a site, even though greater intensity promotes greater uncertainty and costs. Baskent also mentions that zoning must be flexible because of the social and economic pressures that influence future management.

Another paradigm is the natural disturbance model (NDM) that tries to replicate natural phenomena like fire, storms, etc. NDM objective is to mimic intensity, severity, and frequency of natural disturbance through silvicultural practice, however it is arguable if it is possible.
Baskent states that it is necessary for the three paradigms to be continuously intertwined and working together to manage the entire landscape. Ecosystem landscape management (ELM) would account for spatial composition and structure with zoning that would not divide the landscape or be absolute.

Another important issue in ELM is the modeling approach. Baskent asserts the required elements to manage a forest are stand type, forest description, management objectives and constraints, forest growing stock and measure, and management strategy development (rules, timing, location, amounts). With this knowledge, a mathematical program can be used to solve for multiple objectives that apply to management decisions.

A meta-heuristic program, derived from algorithms, is being developed to be a tool used in ecosystem management. The program is flexible in solving ELM problems, because it can be customized to each situation. This allows for spatially explicit management objectives to be met. In the past foresters were not able to calculate for harvest opening size and adjacency delay to determine the optimal management for ecosystems. The meta-heuristic program accounts for different measurement units, the relative importance of the objective, and different penalty cost functions such as timber flow and patch size distribution into the equation.

Baskent tries to deliver an unbiased report by illustrating the programs positive and negative attributes. The program is beneficial because it provides a spatial forest model for ELM. It can also evolve and meet new management goals as they develop. One drawback of using mathematical equations for ELM is a poorly designed formula can be counter-productive.

Baskent mentions briefly the importance that the public, culture, and spirituality play in landscape management. On the other hand, Thom Erdle (1998) stresses that the most important objective in ELM is public involvement. Erdle states that we need more public involvement in
policy making and management decisions. Baskent believes public involvement is important, he
does not believe it is a key issue. Both Erdle and Baskent do agree that for successful ELM a set
of actions needs to be laid out and implemented. These actions need to reflect forest conditions
and the desired values to be taken from the forest.

Baskent and coauthors did a good job on the article. Ecosystem management is a vague
topic that is difficult to define, let alone to apply. Baskent offers a rough outline to follow and
specific tools to use in order to design an ecologically sound practice. Baskent also uses
examples to illustrate points. He mentioned the shortcomings and constraints of yearly
operational planning, and hierarchical planning that tries to manage for strategic, tactical, and
short-term harvesting. The hierarchical plan is limited because it lacks geographical detail. Thus
supporting the program model for ELM that does consider such detail.

Baskent’s argument would have benefited if he defined “ecosystem landscape
management” more fully rather than assuming that the reader knows the definition. Each
scientist often defines ecosystem management differently. If a clear-cut definition was given, the
reader would have a better understanding of the exact objectives the program. Baskent probably
chose to omit the definition because of the complexity of the subject matter. Greater clarity of
the program objectives through examples of past and current experiments could help the reader
to see the effectiveness and the applicability of the program in their own management practices.
Overall Baskent made it clear that ELM can be an excellent tool to use.

Baskent article seems to be effective because foresters are required to take theoretical
knowledge and apply it to real life. Baskent’s program can be applied and modified in the
forests, as it is needed, which provides the flexibility required in today’s system where values
and priorities change and evolve.
Works Cited
