INTRODUCTION: THE FOREST FUTURES HORIZON SCANNING PROJECT

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The external environment in which forest planners, managers, and policymakers operate today is one of rapid, complex, and turbulent change. The broad social, economic, technological, and political contexts for forestry are constantly changing and the pace of change is accelerating (Steffen et al. 2015). The internal environment for forestry is also characterized by rapid and often surprising change, as new developments and emerging issues within the field continually appear and pose challenges for decisionmakers. To be effective in these changing internal and external contexts, forestry decisionmakers must anticipate emerging issues, trends, opportunities, and threats, and act proactively. They need to develop and apply strategic foresight: insight into how and why the future could be different from today (Lum 2016).

Horizon scanning is a method to help decisionmakers develop strategic foresight and achieve the broad forward view they need to prepare for change. Also known as environmental scanning, horizon scanning involves searching the internal and external environments for signals of change. Hines and Bishop (2006: 55) state that horizon scanning "involves identifying the *macro-trends* that will form the basis of the baseline forecast (or 'most likely future') and the *weak signals* that may portend discontinuities that drive alternative futures." Distinguishing characteristics of horizon scanning include its emphasis on weak signals (early indicators of potential change), comprehensive scanning of all domains (e.g., social, technological, economic, environmental, political), and the inclusion of possible wild cards (low-probability, high-impact events). Horizon scanning also tends to emphasize emerging issues in the *external* environment of a field or organization. This external emphasis is critical because experts within a particular field tend to focus most of their attention on developments and emerging issues within their field or area of expertise. But an internal focus creates the risk of being blindsided by surprising developments in the external environment.

Horizon scanning encompasses a wide range of techniques and organizational approaches for identifying and interpreting possible implications of signals of change (Bengston 2013). Techniques for systematically gathering and analyzing information about emerging external issues and trends were originally devised by military intelligence officers to gain insights into new developments in enemy countries (Cornish 2004). Scanning has long been standard practice in the military, the intelligence community, and the business world and is a core method in futures research. In recent years, horizon scanning has been used in a growing number of fields in the public sector. But the use of formal horizon scanning in forestry, natural resources, and conservation has been limited. A notable exception is the annual horizon scanning exercises on global conservation issues carried out for 9 consecutive years by Sutherland and colleagues (Sutherland et al. 2018). Though widely used in many fields, horizon scanning remains an underused tool for environmental and natural resource planning and decisionmaking (Sutherland and Woodroof 2009).

Although *formal* horizon scanning is uncommon in forestry and natural resource management organizations, all decisionmakers scan the internal and external environments in their organization or field to some extent and in some form. Most scan passively and informally, keeping their "antennae up" for signals of change that may be important. A few scan actively and formally. The research literature on scanning in business clearly shows the value of active and formal scanning

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(Choo 2002). Ideally, horizon scanning serves as an early warning system to identify potential threats and opportunities. More broadly, horizon scanning can help foster a culture of foresight in an organization.

The papers in this General Technical Report describe a formal and ongoing horizon scanning project—the Forest Futures Horizon Scanning system—developed by the USDA Forest Service (hereafter, Forest Service), Northern Research Station's Strategic Foresight Group and the University of Houston Foresight program. The overall goal of this report is to introduce forest planners, managers, and policymakers to horizon scanning and describe the lessons learned through the setting up and early implementation of this system.

The opening paper by Hines and coauthors, "Setting Up the Forest Futures Horizon Scanning System," describes the design of the system and the thought process behind it. The University of Houston Foresight program's "Framework Foresight" approach (Hines and Bishop 2013) provided the conceptual structure for the system. Key decisions involved in framing the domain for the system are outlined, steps in the scanning process are described, and lessons learned throughout the process of setting up the system and early implementation are noted.

In "An Innovative Method for Identifying Fruitful Scanning Sources for Forest Futures," Roe and Hines describe the method they developed for identifying a list of useful and relevant scanning sources for the forest futures domain. The Forest Futures Horizon Scanning project depends on volunteer scanners, who often have no experience with scanning. Therefore, it was important to find ways to help volunteers become productive scanners quickly and effectively. The table of scanning sources produced by this research is intended to help new scanners begin to identify relevant signals of change related to forest futures, and the method will be useful in any horizon scanning project.

A vital step in any ongoing horizon scanning process is regularly analyzing the growing database of scanning hits to identify emerging issues, shed light on possible implications of the emerging issues, and generate foresight. A paper by Bengston and others titled "Connecting the Dots in the Forest Futures Horizon Scanning Database: An Initial Analysis" describes a first step in "connecting the dots" in the Forest Futures Horizon Scanning system. The authors examine the descriptive tags associated with each scanning hit as a way to characterize the database, and then describe several broad themes that have emerged from multiple scanning hits.

A paper by Callaway and others, "Identifying Current USDA Forest Service Issues to Provide Context for Horizon Scanning," describes an effort to develop a list of current issues for the Forest Service to be used by scanners in the project. A key purpose of scanning is to identify new, emerging issues for the agency and its stakeholders. But in order to identify what qualifies as "emerging," the scanning team must first be aware of the *current* issues. Without a list of current issues, scanners from outside the organization are likely to have difficulty determining whether a scanning hit represents an emerging issue or whether it is well known and already on the organization's "radar screen." The authors developed a simple method for identifying current issues, and summarize 12 broad current issues that were found.

The next two papers use a futures research method called the Futures Wheel or Implications Wheel® (Bengston 2016) to explore possible direct and indirect implications of themes that emerged from scanning. The Futures Wheel is a structured "smart group" technique to explore possible consequences of any type of change. For the paper "Using the Implications Wheel in Horizon Scanning: Exploring Implications of Growing Apathy Toward the Environment," Bengston and coauthors conducted a small-scale, online Implications Wheel exercise to examine an emerging social trend: growing apathy toward the environment in the United States. Multiple scanning hits pointed toward this trend. Although

this was a small and exploratory exercise—with just six participants—many useful insights were generated. A total of 155 possible implications of growing apathy toward the environment were uncovered, many with important long-term consequences for public land management agencies.

In the second Implications Wheel paper, "Exploration of a Horizon Scanning Trend: Growing Indigenous Empowerment," DeVaney and coauthors explore the emerging trend of increasing indigenous empowerment and recognition of rights with respect to natural resources. This exercise was carried out with a group of University of Houston Foresight graduate students, faculty, and alumni at the annual "Houston Foresight" spring gathering. The exercise did not include American Indian or Alaska Native participants, and therefore should be viewed as an illustration of the usefulness of the method for exploring the implications of emerging issues identified through horizon scanning. Despite this limitation, the findings reveal a wide range of significant possibilities that could result from growing indigenous empowerment and suggest the importance of monitoring this trend as it unfolds.

In "Scenarios to Provide Context for Horizon Scanning: Backcasting North American Forest Futures from 2090 to 2035," Andy Hines and others report on a scenario backcasting project, an offshoot of the Forest Futures Horizon Scanning system. The horizon scanning team determined that it would be useful to provide context for the emerging issues identified through scanning by crafting a set of scenarios. Emerging issues could then be analyzed and understood in terms of how they related to the scenarios; that is, one could explore how the emerging issues might fare in different scenarios. A baseline scenario and three alternative scenarios for the year 2035 are presented. These scenarios for 2035 provide a context from which policymakers can craft responses to avoid scenarios they consider undesirable and work toward scenarios they consider preferable.

"Communicating Horizon Scanning" by Hines describes the importance of diverse outputs of horizon scanning to meet the needs of the various users of scanning information. Forest planners, managers, policymakers, social scientists, and other potential audiences are unlikely to have the time or inclination to peruse the large number of raw scanning hits in the cloud-based scanning library. To be useful for the intended audiences, this large volume of information must be communicated in a variety of formats that fit the needs of diverse users. Hines describes the range of communication outputs of the Forest Futures Horizon Scanning project, including the scanning library itself, blog posts about significant scanning hits or emerging themes, detailed articles and technical reports, presentations to a wide range of audiences, and input to other strategic foresight projects.

Finally, the scanner guide written for the project is presented in its entirety in a paper by Hines and coauthors titled "Forest Futures: A Guide for Scanners." A clear and concise guide for volunteer scanners is essential for creating a rigorous, consistent, and sustainable horizon scanning system. The guide includes a brief introduction; an overview of the Forest Service for scanners from outside the agency; an explanation of horizon scanning and its goals, uses, and stakeholders; a "how to" guide for using the Web-based system for collecting scanning hits; a description of the domain map used in tagging scanning hits; and a quick guide for getting started in scanning.

Collectively, these papers summarize the early phases of a core and ongoing project of the Northern Research Station's Strategic Foresight Group. The Forest Futures Horizon Scanning system is designed to help forest planners, decisionmakers, and policymakers identify important emerging issues, grasp their possible implications for the future of forestry, and act proactively. Hence, the goal of this formal horizon scanning system is ambitious: to increase strategic foresight within the Forest Service and beyond.

LITERATURE CITED

Bengston, D.N. 2013. **Horizon scanning for environmental foresight: a review of issues and approaches.** Gen. Tech. Rep. NRS-121. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 20 p. https://doi.org/10.2737/NRS-GTR-121.

Bengston, D.N. 2016. **The Futures Wheel: a method for exploring the implications of social-ecological change.** Society and Natural Resources. 29(3): 374-379. https://doi.org/10.1080/08941920.2015.1054980.

Choo, C.W. 2002. **Information management for the intelligent organization: the art of scanning the environment.** 3rd ed. Published for the American Society for Information Science. Medford, NJ: Information Today, Inc. 325 p.

Cornish, E. 2004. **Futuring: the exploration of the future.** Bethesda, MD: World Future Society. 313 p.

Hines, A.; Bishop, P. 2006. **Thinking about the future: guidelines for strategic foresight.** Washington, DC: Social Technologies. 242 p.

Hines, A.; Bishop, P.C. 2013. **Framework foresight: exploring futures the Houston way.** Futures. 51: 31-49. https://doi.org/10.1016/j.futures.2013.05.002.

Lum, R.A.K. 2016. **4 steps to the future: a quick and clean guide to creating foresight.** Honolulu, HI: FutureScribe. 79 p.

Steffen, W.; Broadgate, W.; Deutsch, L. [et al.]. 2015. **The trajectory of the Anthropocene: the Great Acceleration.** Anthropocene Review. 2(1): 81-98. https://doi.org/10.1177/2053019614564785.

Sutherland, W.J.; Butchart, S.H.M.; Connor, B. [et al.]. 2018. **A 2018 horizon scan of emerging issues for global conservation and biological diversity.** Trends in Ecology and Evolution. 33(1): 47-58. https://doi.org/10.1016/j.tree.2017.11.006.

Sutherland, W.J.; Woodroof, H.J. 2009. **The need for environmental horizon scanning.** Trends in Ecology and Evolution. 24(10): 523-527. https://doi.org/10.1016/j.tree.2009.04.008.