CONSTRUCTING EXTENSION CURRICULA TO ENHANCE FAMILY FORESTLAND MANAGEMENT

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Abstract: Family forest owners in Oregon have access to a hierarchy of several woodland management courses thanks to a curriculum project initiated by the Oregon State University Extension Service team. The project has resulted in the creation of 3 new curricula, representing more than 130 hours of woodland owner education programs, each building on the others through linked learning objectives.

Keywords: Family Forest Owners; Curricula

Background: Family forest owners present both great challenges and great opportunities for those who wish to educate them to improve forest stewardship. Collectively they represent the largest segment of forest owners and acreage managed in the USA with 10.3 million owners and somewhere around 262 million acres nationwide, 42% of the entire nation's forest acreage (Butler 2004). The population of these owners is dominated by lots of very small parcels, with more than 6 million parcels less than 10 acres and 11% of the owners controlling 69% of the land base (Smith 2004). Surveys of owners have shown a wide diversity of objectives for owning and managing these lands, with recreation, wildlife, and aesthetics sharing or exceeding the importance of earning income. Another important concern for family forest owners is legacy. With the average forestland owner in their sixth decade of life, many owners are actively thinking about who will take over when their time is complete (Mater 2005). Over the past 40 years, an increasing number of agencies and organizations have begun to take more interest in the desires and behaviors of this landowner category, aware of the critical role they play in our forestry future, and that this land base is ripe for conversion to other uses.

Oregon State University's Extension Forestry program has provided non-formal education for Oregon's family forest owners since 1944. Today, twelve field-based agents and eight campus-based specialists serve this audience. While agents and specialists are individually responsible for either a geographic area (agents) or topic (specialists), OSU's Extension Forestry faculty has a long history of working cooperatively on projects of statewide significance. Our group project planning process has been previously described by Garland and Adams (1992), Reed (2001), and Reichenbach and Simon-Brown (2002). Central to this process is annual identification of highest priority educational needs, development of proposals from Extension Forestry faculty members to address needs, evaluation and prioritization of potential courses of action, and solid commitment from group members to complete the highest priority projects within a targeted time frame.

During the 1970's, the OSU Forestry Extension team developed an educational program for family forest owners entitled "Basic Forestry Shortcourse." The intent of the Shortcourse was to give new owners a solid background in the various aspects of forestland management so they could get started managing their properties. The course was highly successful, and by the early 1980's, many family owners were ready for more advanced training in woodland stewardship. The advent of the Master Woodland Manager program in 1983, offered landowners advanced training in exchange for volunteer service. OSU Extension Foresters also continued to develop and deliver an increasing number of special topic workshops and seminars to benefit family forest owners.

In 1995, OSU's Extension Forestry faculty began to question the sum total of their workshop efforts and subsequently initiated an ambitious project to clearly identify knowledge and skills family forest owners need to effectively manage their forestland resources. During a series of retreats the combined Extension Forestry faculty developed an extensive matrix of skills and knowledge items, arranged by topic and level of application, which has served as a guide for development of an integrated curriculum, with 3 major family forest curricula now used throughout Oregon.

The foundation of our educational hierarchy is the Basic Forestry Short Course (BFS). This series of fifteen modules (covering 24 to 30 hours of instruction) was developed from the skills

and knowledge matrix between 1996 and 2001, with a final module added in 2006. Writing teams were assembled by topic area, lesson plans developed, and detailed outlines drafted. Authors compiled visual aids, wrote scripts, developed student handouts, and assembled instructor reference materials. A project leader coordinated technical reviews, integrated materials into a consistent format, assembled the materials into curriculum sets, and distributed the completed curriculum to Extension Forestry faculty throughout Oregon. Basic Forestry Shortcourse has been and is being used extensively with demonstrated results. Somewhere between 100 and 200 landowners take this course each year.

The Resource Management Planning (RMP) curriculum was developed between 1999 and 2002 to help family forestland owners apply their basic forestry knowledge through construction of a comprehensive written management plan. It includes modules on business and legal considerations, goals and objectives, resource mapping, inventory techniques, and development of action plans. Interpretation of inventory results, identification of management options, and development of action plans are achieved with assistance from professional foresters or specially trained Extension Master Woodland Manager volunteers. Participants in this offering come out of it with a written management plan they can use to manage their property, inform their family, apply for cost-share, or qualify for certification.

The most recently completed curriculum, Master Woodland Manager, an 85 hour training package, was published in January 2007, and represents a complete revision of the widely acclaimed Master Woodland Manager training program that OSU Extension created in 1983. The new curriculum builds beyond BFS and RMP, which are pre-requisites for it. The new curriculum features a high level of internal integration to ensure graduates of this volunteer training program are not only well versed in forest management concepts and techniques, but all can serve as effective members of our OSU Extension educational outreach team.

These four curricula although developed separately share a common link in the educational needs matrix and represent an opportunity for family forest owners to grow in their knowledge and skills as they progress from one course to the next. Their development processes are offered as a series of case studies, each building upon its predecessor.

Developing the Hierarchy and Matrix

Our underpinning hierarchy of curricula (Attachment 1) was conceived during an annual group-planning meeting in 1995. During discussions of how we might refine our existing Master Woodland Volunteer training system, we noted that students came into that program with widely disparate levels of forest management education and skills. Although each of our Extension Foresters delivered some form of Basic Forestry Shortcourse, the content of those trainings varied and each educator was required to develop his or her own set of teaching materials. A hierarchy of educational curricula was envisioned that would help field faculty teach basic concepts, make management planning assistance available to a broader audience, and yield a pool of better prepared candidates for our master volunteer program.

To ensure coordination among our several layers of curricula, the critical content of each was identified in advance and assembled into what became known as the “matrix.” It featured skills and knowledge items, arranged by topic and level of application. (An example drawn from the

matrix is provided in Attachment 2.) Development of the matrix was done in a series of retreats by what might be considered an expert focus group. The entire group of Extension Foresters and Specialists participated, and its members represented well over 200 years of combined forestry education experience.

Lesson plans for each for our three highest priority curricula (Basic Forestry Short Course, Resource Management Planning, and Master Woodland Manager) were developed during retreats in 1996. An expert on educational design provided initial direction on lesson plan development (including proper statement of learning objectives and evaluation techniques) and a lesson plan template was constructed (including key words for learning objectives) to ensure uniformity among authors. Authors then developed plans addressing the items appearing on the matrix, adding detailed content outlines.

Developing the Basic Forestry Short Course

Development of the Basic Forestry Short Course began soon after completion of the matrix and its lesson plans. The authors of each "basic" lesson plan were tasked with development of its teaching materials. A project leader was designated and charged with keeping the project on track and getting all materials to the OSU Forestry Media Center, which would then assemble them into a coherent curriculum. Authors assembled materials in rough format to illustrate points from their lesson plans' content outlines, using photos, illustrations, text and tables in a variety of formats. The Media Center assembled the materials into PowerPoint presentations, with uniform backgrounds and logos. Authors reviewed the materials, added scripts to guide users in their application, and identified reference materials for instructors and handouts for students.

Scripted draft materials were distributed to other Extension Foresters for review, under the project leader's coordination. Outside review was solicited where the group lacked expertise. Materials were revised and in some cases subjected to a second round of review. Final drafts of the materials were reviewed by the Extension Forestry faculty as a whole prior to distribution.

Most of the BFS curriculum was distributed in 1999, with two remaining modules completed and distributed a year later, and a few remaining handouts provided in 2001. The materials were provided in several formats, intended to give users flexibility in delivery. Each set filled three large notebooks and included over 500 slides, master copies of student handouts, reference materials, lesson plans, an electronic set of visual aides formatted for overheads, and another electronic set formatted as PowerPoint shows. Each set cost approximately $700 to reproduce, primarily attributable to slide costs.

The materials have been utilized widely by OSU Extension Foresters, not only for teaching the Basic Forestry Short Course but mixed and matched with other materials to support a broad range of teaching activities.

As a group, we consider the BFS curriculum a success, but its development process tedious. It took five years to take the project from inception (hierarchy) to completion, and we went through two project leaders in the process. The Forestry Media Center provided valuable support, but lacked the "pull" to get authors to make needed revisions and, as a result, exhausted the limited

funding we had provided before completing the curriculum. At points when no one was clearly identified as the project's leader (and actively pushing to make things happen) progress stalled.

Our operating premise throughout the project was to utilize the full Extension Forestry team, with each member contributing to those modules where he or she held recognized expertise. Each writing team was responsible for preparing their own materials, and while the Forestry Media Center helped us unify our efforts, it couldn't lead us. Coordination of this large group was difficult and we struggled to bring the project to completion.

Developing the Resource Management Planning Curriculum…Twice

When the time came to begin development of the next curriculum in our educational hierarchy we all hoped to avoid the frustrating aspects of our earlier effort. A coordinating committee was formed to guide the process of development, a project leader/curriculum coordinator identified, and a graphic artist hired. Lesson plans (from the matrix process) were organized into a logical order of delivery and a project leader recruited authors, who would also be presenters, based on their subject matter expertise and willingness to commit to a delivery date. They were asked to review the original lesson plans, update them if needed, draft lesson materials, and present the lesson to a group of pilot test students. The dates for the pilot test series classes were established and promoted, and a group of students recruited. This served as a strong incentive for authors to complete their materials on time.

As authors presented their draft materials to the class, other Extension Foresters served as observers. They evaluated the effectiveness of the materials and made notes to help authors finalize scripts. Students provided immediate feedback, which was captured and considered in the refinement process. At the conclusion of each class segment, draft materials were collected and handed over to the graphic artist who worked with the curriculum coordinator to integrate them into a consistent format. The initial presentations utilized slides, overheads, PowerPoint shows, and other learning aids. The graphic designer massaged them into PowerPoint and produced more effective, updated versions of many of the illustrations and photos. Revised versions of each fledgling module were returned to authors for review, development of scripts, and production of any missing student handouts.

A second pilot test was conducted (involving a different group of students) using the revised materials presented, in most cases, by their authors. Students and Extension Foresters again provided feedback. The result: great information, excellent lesson materials, an overwhelming amount of forest management information, and students still didn't really know how to write a forest management plan. We had lost sight of the mission (developing functional management plans) and tried to teach our landowners too much forest management content.

The curriculum committee reviewed the materials and gave careful consideration to participant feedback. While it was clear the project's primary objective had not been met, it was difficult to abandon any part of the significant work that had been done. After much debate it was determined that the materials developed for the Resource Management Planning course were, in fact, too in-depth for that purpose. Rather than abandon them, they would be released later as a series of stand-alone, advanced forest management education modules. As such they would facilitate higher-level study of forestry concepts and form the content material for courses higher

up in our educational hierarchy. This left us lacking a Resource Management Planning curriculum, and a new series of modules needed to be developed.

Based on its educational experience and student feedback the committee identified the following key factors for the management planning curriculum:

- A management plan template
- An overview of the management planning process
- An overview of forest resources, defined broadly, that would help landowners recognize those resources occurring on their properties
- An overview of basic forest processes and management activities
- Step-by-step inventory processes for the array of resources common to Oregon family forestlands
- Mechanisms for recognizing implications and developing action plans
- A coaching system that would pair landowners with experienced natural resource managers to help them interpret data and identify courses of action

The final RMP curriculum, as published, was developed over a twelve-month period. The committee met initially to review the "old" curriculum, identify critical components of the desired curriculum and lay out a course syllabus that identified individual modules. A previously scheduled management planning workshop series was reconfigured to serve as a pilot program for the new curriculum. At each monthly meeting that followed new modules were outlined by the committee. The project leader, now acting as the lead author, then developed the corresponding teaching materials. The materials were reviewed by the committee at its next meeting, then utilized in the pilot program and evaluated by students. At the next committee meeting the materials were again reviewed and updated to address landowner and instructor feedback. Development, review, and utilization of several modules was underway concurrently throughout much of the process, which was choreographed to meet the pilot program's delivery schedule.

In seven months this process resulted in a solid working draft of the curriculum, complete with lesson materials, scripts, handouts, and reference lists. A second pilot program was conducted immediately following the first. The lead author delivered the material to a group of 30 students, fine-tuning the curriculum throughout the process. Development of the RMP curriculum required a major investment from the Extension Forestry faculty, including eight full-day curriculum committee meetings, instructor and student time to host two complete pilot tests, approximately one-quarter of the project leader/lead author's total work time, and several thousand dollars in grant funding to support graphic design activities.

The completed RMP curriculum was provided to the Extension Forestry faculty in November 2002 on CD and in printed form. (Lacking slides, each set cost less than $50 to reproduce.) A train-the-trainer session was conducted in December, and the RMP curriculum was utilized for management planning classes during 2003 and since then.

Master Woodland Manager Redesign

After a year to implement the new RMP curricula, the OSU Forestry Extension team was now ready for a redo of its flagship landowner training program, Master Woodland Manager. Lessons learned in the previous two curricula projects were very useful in the MWM revision. The statewide Master Woodland Manager coordinator, Nicole Strong, took an active role from the beginning of the revision, assembling a curriculum team in early 2005, and securing an agreement on what would be in the new curriculum. A timeline was agreed upon, funding was obtained from Oregon Forest Resources Institute, and authors were secured for the various modules. In this case, timeline was important because of the grant funding involved, and need to have the materials ready for delivery by spring 2006. The preparation and review of lesson plans was completed first, with Strong and the curriculum team reviewing them for consistency and integration.

Draft modules were presented in early 2006 to a panel Extension Foresters and other experienced non-formal educators, who examined content and teaching methods and ensured integration among subject areas. Two, and in some cases three, drafts of materials were reviewed prior to pilot testing – as it was difficult at times to get the experts to appropriately limit their content and effectively integrate with other instructors.

The new lessons were pilot tested with a group of MWM trainees beginning in April 2006, and their training dates served as relatively hard and fast deadlines for completion of materials. While this had worked well in other curriculum endeavors, it was not wholly successful with MWM. Our experts had been teaching the series for years, and it was a bit too easy to fall back on "old" curriculum rather than complete the new.

Subsequent new trainings have been done utilizing the new materials in fall 2006, winter 2007 and spring 2007. After considerable cajoling by our project leader, the new MWM curriculum finally completed and distributed (sans one module) in January of 2007. As an "expert" level curriculum, an observer would note that it lacks the scripts and detailed lesson content of BFS and RMP, but includes more information on the roles of local hosts and places significant emphasis on integration among modules and development of volunteer skills.

Thoughts on Our Curriculum Design Experiences

Each stage of Extension Forestry's curriculum development process utilized differing organizational formats, and the ease with which the group attained its objectives varied from stage to stage.

Stage One: Hierarchy, Matrix & Lesson Plans

Our underpinning hierarchy of curricula was conceived during a regular, annual, group-planning meeting. Identification of the entire set of components across the various curricula levels was envisioned as a beneficial first step, and the resulting group project drew near unanimous support from Extension Forestry Faculty. The project was well organized by a project leader, writing retreats were utilized to ensure group members could fully focus on the project, an educational

design expert provided invaluable guidance, and tools (templates, etc.) were provided to simplify the process for group members. The process enjoyed excellent group commitment and contributions and was completed in a relatively short time frame.

Stage Two: Basic Forestry Short Course

As a continuation of the Hierarchy of Forestry Education process, development of the Basic Forestry Short Course began with a solid foundation (matrix and lesson plans) already in place. It remained a large-group process, with nearly the entire Extension Forestry faculty involved. The time frame and development process were less structured. Writing teams were identified by subject expertise and to a large extent dictated their own paces. Although completion times had been established early on, deadlines were frequently missed. Draft materials "disappeared" into the Forestry Media Center, which lacked a clear explanation of Extension Forestry's expectations and sufficient resources to fulfill them. The project lost its momentum and dragged on into a second and third year, with each remaining unfinished module receiving progressively less commitment from its authors. A second project leader, motivated by personal need for the teaching materials, managed to revive the development process but brought the curriculum to completion only with significant effort.

Stage Three: Resource Management Planning, First Version

For the first attempt at developing the Resource Management Planning Curriculum a smaller group stepped forward to serve as a steering committee. Authors were chosen for their subject matter expertise, and directed to work from the original lesson plans (from Stage One) and to supplement as needed. Authors were also presenters of their subject matter, and a pilot program was scheduled as to motivate compliance with deadlines. The pilot program ensured authors would complete a functional and timely first draft of their materials, afforded prompt feedback from students, and allowed steering committee members to serve as observers. A graphic designer was hired to work directly with the project leader to produce high quality materials from the mix of materials utilized in the pilot class. A second pilot test "enforced" the schedule for revision of materials. The process was successful in producing significant content over a reasonably short time frame (one year), but student feedback from the pilot test indicated something was amiss. Unrealistic expectations of how much students could absorb, and lack of focus on the management planning process itself, resulted in good materials that failed to accomplish the objective!

Stage Four: Resource Management Planning, Second Version

The second attempt at creation of a functional forestland management curriculum featured an even smaller group of contributors. The curriculum committee retained its steering function and assumed that of review. Pilot programs were again utilized to impose deadlines with real consequences. The project leader assumed the role of lead author, supported by the graphics design staff person. Student feedback and experience from earlier pilot programs helped focus efforts, and the wealth of content materials developed during the earlier RMP attempt were available to illustrate concepts where needed. A clear and detailed course of action was identified early in the process, and nearly real-time feedback from students and instructors allowed the review committee and lead author to move the project forward quickly. Strict focus on those elements of the management planning most critical for family forestland owners (listed earlier in this document) ensured the resulting curriculum would be that desired.

Stage Five: Master Woodland Manager Redesign

While previous curriculum projects had taught us that small groups were likely to be most successful in maintaining focus, the more advanced outcomes expected of MWM demanded that subject matter experts be actively involved in their respective modules. As might be expected, this resulted in a plethora of content (which reviewers had to gently pare back) and a paucity of integration (which reviewers had to firmly demand). The addition of reviewers who were non-traditional teaching experts challenged us to use a wider variety of teaching techniques. Pilot testing was once again critical to our success, although our subject matter experts were fairly adept at showing up and teaching without truly having completed their new curriculum! All self-criticism aside, the new MWM curriculum is much more cohesive than that employed previously, and has significantly more emphasis on preparing participants to serve as effective volunteers for the Extension Forestry program.

What's next?

A glance at our educational hierarchy will reveal that we still have more to do. Future curriculum projects will feature advanced topics for Master Woodland Managers and a second level of advanced management planning (focused on business issues) for woodland owners. Stay tuned for more (but excuse us if we take a bit of a breather first)!

What Can Other Educators Learn from Our Experience?

- Observation: As a group, we were most committed early in the project's life. Commitment waned with each successive year. Suggestion: Carve out time, make serious commitment and maintain your momentum.
- Observation: Our multi-year project required champions to rally for continued efforts, and strong leadership keep things on track. Suggestion: Choose a project leader that can motivate and will invest the time needed to keep team members on schedule.
- Observation: Writing retreats were used successfully to draw project members away from their day-to-day activities and facilitate focused work on curriculum development. Suggestion: Get away from your office and normal operating environment- allow no interruptions.
- Observation: Where our deadlines lacked teeth they didn't work. We used pilot programs successfully to force ourselves to complete work on time. Suggestion: Delivery dates drive completion. Schedule the classes- your authors will complete materials when they have to.
- Observation: Where we used large numbers of subject matter experts to develop materials, we got lots of depth but lost focus on the project's overall objectives. Suggestion: Stay focused on the objectives.
- Observation: We met our project objectives best by using a small group to develop materials, allowing them to draw upon the resources and experience of the larger group of subject matter experts. Suggestion: Get the commitment of experts to develop and deliver materials, but plan and refine materials with a small, process oriented group.

- Observation: Participant feedback was the key to developing effective curricula. Suggestion: The ultimate test of materials is how effective they are with participants. Using participant feedback to improve early generation materials is essential.
- Observation: Our curriculum projects depended heavily on support from outside sources. We needed graphic design assistance, mentoring in curriculum design, help with packaging and distribution, new training equipment, and funding to make it all happen. Suggestion: Make sure you have the funding and technical support to ensure success.

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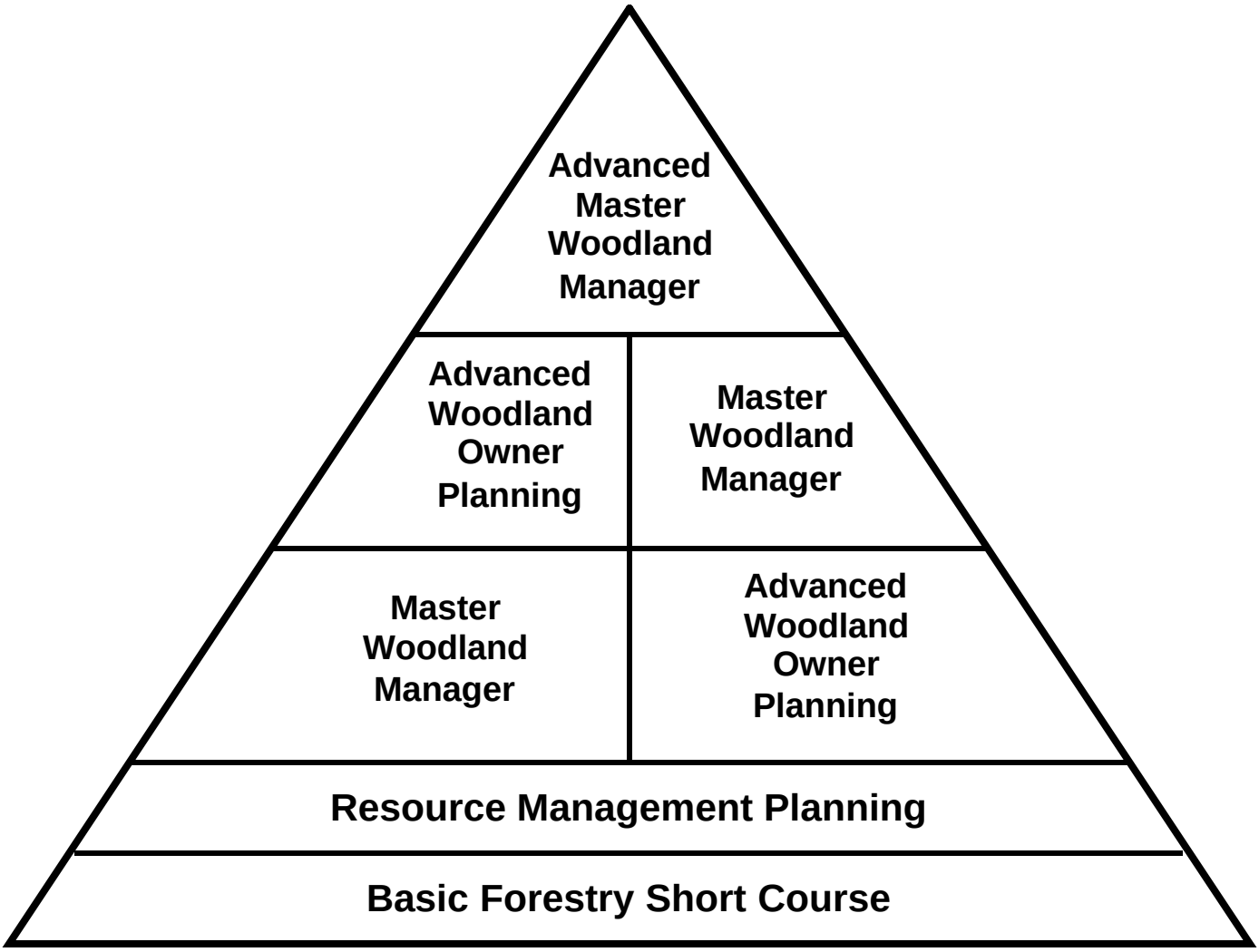
Attachment 1

Oregon State University Extension Forestry Hierarchy of Educational Programs



Attachment 2

Example from OUS Forestry Education Matrix

Section 5. Silviculture (Bill Emmingham, Steve Fitzgerald, Dave Hibbs)

Curriculum Topic		BFS	RMP	MWM 1	AWOP	MWM 2
1.	Prepare, implement and adjust silvicultural prescriptions for own property		Prepare	Implement & Adjust		
2.	Know when, why and how to prune, thin, fertilize	Awareness	Prescribe	Apply & Monitor		
3.	Understand tree functionality to meet management objectives	Awareness		Apply		
4.	Understand link between stand development/density and future forest stand conditions	Awareness	Apply	Explain		Explain
5.	Understand and apply growth and yield principles		Understand		Apply	
6.	Awareness and application of silvicultural systems	Awareness	Apply	Explain		Landscape Management