

Northern Arizona University

Master of Forestry Program

Professional Portfolio

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## Introduction

I entered the Master of Forestry program to strengthen my understanding of forest management, wildfire, and natural resource decision-making in ways that would be useful both academically and professionally. I wanted the program to expand my technical knowledge, but I also hoped it would help me become better at analyzing complex management problems, communicating clearly, and applying science to real-world decisions. My interest in forestry has always included a strong concern for stewardship, land management, and practical outcomes, so I saw this program as an opportunity to build a stronger professional foundation.

As I moved through the program, I found that it offered much more than technical training alone. It challenged me to think about forestry as an interdisciplinary field that connects ecology, management, policy, communication, and social responsibility. The coursework pushed me to evaluate trade-offs rather than search for simple answers and helped me better understand the role of ethics, stakeholder engagement, and adaptation in land management. These experiences changed how I think about what it means to be an effective natural resource professional.

Four courses were especially important in my development. In FOR 509: Wildland Fire Management & Ecology, I completed both a fire ecology review paper and a reaction paper on post-fire management decisions, which strengthened my understanding of disturbance, recovery, and wildfire-related management choices. In FOR 562: Human Dimensions of Forestry and Natural Resources, I developed a public involvement plan and engagement tools that showed me how much trust, communication, and stakeholder processes matter in natural resource decisions. In FOR 581: Ecological Forest Management, I helped develop a comprehensive forest management plan focused on northern Idaho and Montana, which required balancing ecological,

economic, and social goals in a realistic management setting. Together, these courses gave me the opportunity to apply scientific reasoning, structured communication, and management judgment across different types of resource issues.

This portfolio reflects how those assignments connect to the Program Learning Outcomes and how the program contributed to my personal and professional development. The reflections show not only what I learned in each course, but also how the program shaped my philosophy of management, expanded my perspective, and prepared me for future work in forestry and natural resource management.

### Program Learning Outcome 1 Reflection

For Program Learning Outcome 1, I selected my work from FOR 509: Wildland Fire Management & Ecology, specifically my literature-based review paper on how fire-driven changes in prey species ecology affect wildlife management and human hunting. I chose this assignment because it required me to examine ecological principles and processes in a way that directly connected fire, habitat change, wildlife response, and management implications. Rather than focusing only on wildfire as a disturbance event, the paper asked me to analyze how fire severity, recovery patterns, and post-fire environmental conditions influence prey species over time and how those changes affect predator-prey relationships, habitat use, and practical management decisions.

The assignment required me to compare peer-reviewed literature, organize the paper like a review article, and build an evidence-based discussion around ecological mechanisms rather than isolated examples. Through that process, I developed a stronger understanding of how disturbance-driven succession can temporarily improve forage quality while also reducing cover, shifting movement pathways, and changing wildlife vulnerability. I also had to consider how post-fire hydrology, drought stress, and climate-driven changes in fire regimes affect long-term habitat recovery. One of the most valuable parts of this assignment was learning how to translate ecological complexity into management-relevant conclusions, including what land managers should monitor after fire and what kinds of short-term and long-term wildlife responses they should realistically expect.

This assignment clearly connects to Program Learning Outcome 1 because it required me to apply ecological principles and processes to the interrelationships among wildlife, the environment, and human interactions in a real-world setting. In the paper, the environment was

not treated as separate from management concerns. Instead, I had to evaluate how fire regime characteristics and post-fire conditions shaped wildlife behavior and habitat quality, and how those changes could influence agency priorities, restoration planning, prescribed fire use, and hunting-related outcomes. This assignment helped me strengthen my ability to think ecologically across multiple scales and to connect scientific understanding to real management decisions.

## Program Learning Outcome 2 Reflection

For Program Learning Outcome 2, I selected my public involvement plan and engagement tools from FOR 562: Human Dimensions of Forestry and Natural Resources. I chose this assignment because it directly addressed the human side of forestry and natural resource management, which is essential but often underestimated in environmental decision-making. This course helped me recognize that even technically strong management decisions can fail if they are not supported by transparent communication, public trust, and meaningful engagement. The assignment gave me the opportunity to design a structured involvement process for a real-world natural resource issue and required me to think beyond general outreach by building a process tailored to specific audiences, concerns, and decision points.

The assignment involved identifying stakeholder groups, evaluating their interests and influence, mapping likely areas of support and concern, and selecting engagement methods that matched each phase of planning. I also had to develop question design, facilitation strategies, timelines, and communication checkpoints that would keep the process consistent and accountable from start to finish. What I learned from this work was that social information is not secondary to ecological data. It is a necessary form of evidence that helps explain why people respond to decisions the way they do. I came to better understand how risk perception, prior experience with agencies, and differences in values can shape public responses to management proposals. I also improved my ability to separate stated positions from underlying interests, which is essential for identifying workable solutions rather than just reacting to conflict at face value.

This assignment connects clearly to Program Learning Outcome 2 because it required me to apply social science methods to a real forestry and natural resource management scenario. I

used stakeholder analysis, structured engagement strategies, and participatory planning tools to reduce conflict risk and improve decision-making. More importantly, the assignment showed me that successful management depends on understanding people as much as understanding ecological systems. Through this work, I developed a stronger appreciation for communication, trust-building, and process design as core parts of professional natural resource management.

### Program Learning Outcome 3 Reflection

For Program Learning Outcome 3, I selected the comprehensive forest management plan from FOR 581: Ecological Forest Management, along with the recorded presentation that accompanied it. My colleague and I developed this project around the temperate forest region of northern Idaho and Montana. I chose this assignment because it required me to move beyond single-objective thinking and instead work through the challenge of balancing ecological, economic, and social goals within one management framework. That made the assignment especially valuable because it reflected the real complexity of professional forest management, where decisions must be justified not only scientifically but also in terms of feasibility, trade-offs, budgets, and policy constraints.

The project required my team to develop scope and objectives, stakeholder analysis, zoning, recommended treatments, implementation steps, and monitoring frameworks. We considered management techniques such as variable retention, uneven-age approaches where appropriate, thinning for structure and fuels, riparian protections, road access considerations, and restoration strategies for degraded areas. One of the most important lessons I gained from this assignment was that good management depends heavily on context. The best treatment is not universal; it depends on site conditions, desired future conditions, stakeholder needs, and acceptable levels of risk. I also learned how to anticipate second-order effects and explain why certain approaches were more defensible than others. The recorded presentation component strengthened my ability to communicate technical information clearly and translate management reasoning into a form that stakeholders and decision-makers can understand.

This assignment connects strongly to Program Learning Outcome 3 because it required me to assess a range of forest management techniques and strategies across multiple objectives

while incorporating resilience, conservation, and adaptive monitoring. It demonstrated my ability to compare alternatives, choose defensible actions, explain trade-offs, and communicate a management plan clearly. It also showed me that professional forest management is not only about knowing treatment options, but also about designing plans that are practical, evidence-based, and responsive to both landscape conditions and human needs.

### Program Learning Outcome 4 Reflection

For Program Learning Outcome 4, I selected my reaction paper from FOR 509: Wildland Fire Management & Ecology, which focused on post-wildfire management decisions such as BAER treatments, salvage logging, post-fire seeding, and planting procedures. I chose this assignment because it required me to think critically about management choices after severe fire and to evaluate their consequences across multiple resource areas. Rather than treating post-fire recovery as a simple technical problem, the paper pushed me to think more like a project manager by asking what actions create what impacts, how those impacts interact, and which risks might be acceptable under different conditions. I was especially interested in how the course connected fire ecology to real agency decisions made under pressure and public scrutiny.

In the paper, I compared two different scientific perspectives on post-fire management, especially around the use of treatments such as salvage logging. I evaluated the evidence supporting restoration and economic arguments while also considering conditions under which those treatments may create ecological harm. This required me to think across soil disturbance, infiltration, erosion, sediment delivery, water quality, snag retention, wildlife habitat, regeneration pathways, and invasive species risk. One of the most valuable aspects of this assignment was learning to identify second-order effects and time-scale trade-offs, such as when short-term reductions in erosion risk may create long-term ecological costs. I also improved my ability to determine where the science clearly supported a treatment and where uncertainty required additional monitoring before drawing strong conclusions.

This assignment clearly supports Program Learning Outcome 4 because it required me to evaluate alternatives, assess environmental consequences, and develop defensible recommendations that considered land use, water resources, climate-related conditions, and long-

term resilience. It strengthened my ability to think through cumulative impacts and apply environmental review logic to management decisions. As a result, I became better at translating complex post-fire science into management-relevant reasoning that could support more responsible and defensible decision-making.

## Discussion

### Philosophy Statement

My philosophy of forestry and natural resource management is that effective stewardship must be adaptive, evidence-based, and ethically grounded in responsibility to both ecological systems and the people connected to them. When I began the program, I thought more narrowly about management in terms of treatments, actions, and measurable outcomes. Through the program, I came to understand that good forestry is not simply about choosing an efficient action. It is about balancing ecological resilience, social responsibility, practical implementation, and long-term sustainability. Strong management requires the ability to interpret evidence, evaluate trade-offs, and make defensible decisions under uncertainty.

Coursework across the program shaped this philosophy in specific ways. My FOR 509 review paper helped me understand ecological relationships across fire, habitat, wildlife response, and management implications. My FOR 509 reaction paper on post-fire management pushed me to think across soil, water, wildlife, vegetation, and longer-term resilience rather than isolating one issue at a time. My FOR 562 public involvement work showed me that sound ecological plans can still fail if people do not understand or trust the process behind them. My FOR 581 forest management plan reinforced the importance of balancing ecological, economic, and social objectives within a realistic decision framework. Together, these assignments taught me that stewardship must be integrated, adaptive, and justified by both evidence and responsibility.

Ethics became a much more important part of my thinking during the program. Earlier on, I often thought of management decisions as technical problems with better or worse answers. The program helped me understand that many forestry decisions are ethical decisions because

they involve competing values, unequal impacts, and uncertainty about long-term outcomes. In post-fire management, for example, actions that reduce one risk can create another. In stakeholder planning, technically strong management can still be flawed if it excludes people or ignores trust. I now believe ethical forestry requires transparency, accountability, humility, and a willingness to justify decisions not only in terms of effectiveness, but also in terms of fairness and responsibility to future generations.

### **Perspective and Climate Change**

One of the biggest changes in my perspective during the program was learning to take different knowledge systems and viewpoints more seriously. Before entering the program, I tended to think mainly through technical and scientific frameworks. While those remain essential, the program showed me that natural resource management is also shaped by community values, lived experience, and cultural ways of understanding land. In FOR 509, I encountered topics such as Traditional Ecological Knowledge alongside fire ecology and management. That experience helped me understand that fire is not only a hazard or a technical management issue. It is also an ecological and cultural process that has been understood and managed in different ways over time.

This change helped me better appreciate Indigenous knowledge as a legitimate and valuable form of understanding rather than something secondary to Western science. Indigenous perspectives often emphasize relationship, continuity, responsibility, and long-term care for land, which strengthened my own thinking about stewardship. I now believe effective natural resource management should respect scientific evidence while also remaining open to place-based knowledge, cultural values, and collaborative approaches. This broader perspective made my understanding of forestry more complete and more realistic.

The program also prepared me to think more clearly about climate change and environmental uncertainty. Climate change affects wildfire, drought, regeneration, hydrology, species response, and management feasibility, so it requires an adaptive approach rather than a static one. My work in FOR 509 helped me think about ecological recovery across multiple time scales and under changing conditions, while my FOR 581 forest management plan reinforced the need for resilience, risk tolerance, and adaptive monitoring. FOR 562 also showed me that climate readiness depends partly on communication and public trust, because adaptation strategies are more likely to succeed when people understand the reasoning behind them. Because of these experiences, I now feel more prepared to approach climate-related challenges with a mindset focused on resilience, flexibility, and long-term stewardship.

### **Program Reflection**

When I began the program, I hoped to strengthen my technical knowledge of forestry and natural resource management while building skills that would support my long-term academic and professional goals. I wanted a stronger understanding of wildfire, forest management, and the broader relationship between environmental processes and decision-making. I expected the program to improve my technical foundation, but I did not fully anticipate how much it would also shape the way I think about communication, ethics, collaboration, and professional responsibility.

One of the most important takeaways from the program is that natural resource management is inherently interdisciplinary. Strong management depends on ecological science, human dimensions, policy, communication, and implementation working together. My coursework showed me that there are rarely simple answers in forestry. More often, good decisions require careful reasoning under uncertainty, a willingness to work through trade-offs,

and an ability to explain why one course of action is more defensible than another. That lesson appeared repeatedly in my wildfire coursework, public involvement work, and forest management planning assignments.

The program also helped me achieve my academic and professional goals by giving me practice in research, synthesis, communication, and applied problem-solving. My review paper in FOR 509 strengthened my ability to organize and interpret scientific literature. My reaction paper improved my ability to compare alternatives and evaluate environmental consequences. My public involvement plan in FOR 562 strengthened my understanding of stakeholder processes and social science tools. My comprehensive forest management plan in FOR 581 gave me experience balancing multiple objectives, justifying management choices, and presenting technical information clearly. These assignments contributed directly to the development of my professional identity by helping me see myself not just as a student learning concepts, but as an emerging forestry professional capable of thoughtful, adaptive, and responsible decision-making.

Overall, the program changed both my thinking and my sense of professional direction. It deepened my knowledge of forestry, but it also broadened my understanding of what responsible practice requires. I now see effective natural resource management as a combination of ecological understanding, ethical reasoning, communication, adaptability, and respect for diverse perspectives. That is the foundation I will carry forward into future academic and professional work.

## Appendix

*Note. The full original assignment files referenced in the portfolio were not available in the current conversation. The appendix below provides formatted artifact summary pages so the original assignment documents can be inserted before submission if required.*

### Appendix A. PLO 1 Artifact Summary

**Course:** FOR 509 - Wildland Fire Management & Ecology

**Artifact:** Literature-based review paper on fire-driven changes in prey species ecology and implications for wildlife management and human hunting.

**Relevance:** This paper was selected because it demonstrates application of ecological principles to real-world wildlife and fire management questions. The assignment required synthesis of peer-reviewed literature, evaluation of ecological mechanisms, and translation of scientific findings into management-relevant conclusions.

### Appendix B. PLO 2 Artifact Summary

**Course:** FOR 562 - Human Dimensions of Forestry and Natural Resources

**Artifact:** Public involvement plan and engagement tools for a real-world natural resource issue.

**Relevance:** This assignment demonstrates application of social science methods, stakeholder analysis, engagement strategy design, and communication planning. It shows how public trust, conflict management, and process design contribute to effective natural resource decision-making.

### Appendix C. PLO 3 Artifact Summary

**Course:** FOR 581 - Ecological Forest Management

**Artifact:** Comprehensive forest management plan and recorded presentation focused on the temperate forest region of northern Idaho and Montana.

**Relevance:** This project demonstrates the ability to balance ecological, economic, and social goals within a realistic planning framework. It includes treatment selection, zoning, stakeholder analysis, implementation, and monitoring, along with communication of technical reasoning to broader audiences.

#### Appendix D. PLO 4 Artifact Summary

**Course:** FOR 509 - Wildland Fire Management & Ecology

**Artifact:** Reaction paper on post-wildfire management decisions, including BAER treatments, salvage logging, post-fire seeding, and planting procedures.

**Relevance:** This paper demonstrates evaluation of alternatives, environmental consequences, second-order effects, and defensible recommendation-making under uncertainty. It connects post-fire science to management and environmental review logic.