RESTORATION CONTRACTORS' EXPERIENCES WITH WORK OPPORTUNITIES IN TWO DIFFERENT POLICY ENVIRONMENTS

by

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Over the last decade, federal and state policy guiding natural resource management in Oregon has transitioned towards restoration of federal and private lands and streams throughout the state. This transition in work opportunities has resulted in a different business environment for the contractors performing the work. Interviews with 190 contractors provide the foundation for a discussion of contractors' experiences with work opportunities in two different policy environments. The discussion and findings show that when categorized into three groups: (1) federal, (2)

nonfederal, and (3) contractors that work equally for both groups, all described declines in federal work opportunities and increased opportunities with community-based organizations. Other major themes include increased competition in the marketplace coupled with fewer federal work opportunities. These themes demonstrate the increasing role community-based organizations play in providing work opportunities for contractors throughout the state and reinforce other research showing declines at the federal level.

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CHAPTER I

INTRODUCTION

The Pacific Northwest has a history steeped in resource use and management, from the early prehistory through Euro-American settlement and into the present. The abundant and seemingly endless forests, rivers and oceans throughout the region have supported and fostered cultures and economies from the very beginning. These cultures have made a living from the forests and waters of Oregon that symbolized the state. Today Oregon's economy is still intertwined with the environment, and much of this economic activity still comes from public and private land management and the associated activities that occur on those lands (e.g. agriculture, ranching, timber production, recreation, etc.). Many of these activities continue to provide an anchor for many rural communities throughout the state.

Land management plays an important role in Oregon's economy, the US Bureau of the Census shows that the total annual payroll for forestry, fishing, agriculture, and supporting activities alone was $450 million (US Census Bureau, 2010). However, the state has experienced a decline in timber management activities since the early 1990's. As this decline played out throughout the state and especially in rural communities federal and state legislatures introduced policy to create new work opportunities in land management that could replace

some of those lost in the decline of timber management. Ecosystem management; recognizes that communities and natural ecosystems are interdependent and builds on the principle of stewardship, a commitment to maintaining and restoring the health of the land (Gray, 2000). The application of policy acknowledging the principles of ecosystem management and the funding support provided in state and federal policy has supported the development of a new source of economic activity in communities throughout the state.

The listing of federal and state endangered species such as northern spotted owls and several salmonid species (e.g., Coho, Sockeye, and Chinook) in Oregon marked the beginning of new policy at both the state and federal level to meet the requirements of the Endangered Species Act (ESA). This catalyst initiated a new approach to land management that focused on improving the health and integrity of entire ecosystems through management that promotes watershed and forest restoration. The principle state policy strategies in Oregon began in the 1990's as an approach to avoid listing all together. While both federal and state policy share similar goals of restoring ecosystem function through restoring watershed and forest health the structure and funding streams for these federal and state policies differ and provide the main discriminating units of analysis for this study. Of particular interest are the experiences of the businesses carrying out this work within these two different policy environments.

Oregon is now home to a unique forest and watershed restoration and management industry, cultivated by diversity of customers over the last ten years (Ellison et. al, 2010, Hibbard & Lurie, 2006, & Beltram et al, 2001). The restoration marketplace in Oregon supports businesses that specialize in restoration specific work as well as businesses that supplement their work in other sectors with restoration specific work. Businesses working within this sector

can work a number of different customers such as private industrial and non-industrial landowners, federal land management agencies, state and local agencies, watershed councils and other non-governmental and community-based organizations coordinating and implementing restoration projects. Two of the largest customers in terms of funding for restoration work are the federal government (US Forest Service, Bureau of Land Management and US Fish and Wildlife Service) and the State of Oregon through grants made available to community-based organizations (Ellison et al, 2010).

This thesis presents a background on the main federal and state land management policies that have created restoration and management opportunities for businesses throughout the Oregon. Other aspects of these policies on private contractors are discussed in the literature review with a focus on the workers and businesses performing restoration work. The remainder of the document will present the findings from interviews with 194 contractors, who have performed this type of work in Oregon. The findings will be focused on the experiences of restoration contractors and discussed by dividing the contractor's responses into three groups; (1) those that work primarily for federal customers; (2) those that work primarily for non-federal customers; and (3) those contractors who work equally for both federal and nonfederal customers. My division is intended to highlight the differences and similarities among contractors working for different customers and policy environments. My discussion of these similarities and differences between contractors working within different policy environments will serve as my overarching research question.

Federal Policy

At the heart of Oregon are the vast expanses of public land that dominate throughout the state. Over fifty-percent of the state's land is managed and held in trust by agencies such as the US Department of Agriculture's Forest Service (USFS) and the Bureau of Land Management (BLM). Federal policy guiding the management of public lands has supported the culture and economies of communities throughout Oregon since the early 1800's. My discussion of federal policy as it relates to ecosystem management and restoration will be on federal legislation and administrative rules that guide the US Department of Agriculture's Forest Service land management decisions. This agency is the largest federal land management agency by area in Oregon and contains many of the geographic areas that restoration work is performed in the state. The USFS will serve as the main unit of analysis to establish a baseline understanding of federal policy as it relates to forest management in Oregon.

The policy surrounding federal lands in Oregon is one of settlement and management. Initially policies like the Donation Land Claim Act (1862), the Timber and Stone Act of 1878, and the Homesteading Act of 1909 sought to populate the rural west through incentives to settle on federally owned lands. In the early 20th century, the federal government shifted its priorities by withdrawing land from settlement and establishing protected resource areas. The notion behind developing national forests was to provide a long-term renewable resource base (e.g. timber production, ranching) that would support the country and regional economic growth. These lands were set aside to stabilize communities and provide for the long-term management of forests. The roots of federal control and management of forests have their origins in Europe, where the state controlled the harvest of forest resources. Specifically German management of

the black forest for sustained yield informed early policy leaders on the ideological origins of "scientific forestry"(Lee et al., 1990). American foresters were impressed with the stable forest communities throughout Germany that that drew their livelihoods from the regular and sustained yield of forests. The aspect of community stability observed in Germany was in complete contrast to the instability that was becoming increasingly prevalent throughout the US from 1900-1920 (Lee et al., 1990).

The beginnings of large-scale policy changes in US forestry coincided with the end of commercial lumbering in the Lake States. The pine forests of the Northeast and Lake States had largely disappeared, to be followed by ghost towns and fires (Lee et al., 1990). The evolution of federal control over forestlands began in 1905 when the forest reserves of the Department of the Interior were transferred to the Department of Agriculture and renamed national forests. From this point through 1944 national forests would undergo an important transition as the sense of forestry's role in the social welfare of communities grew during the great depression. The Forest Service has long argued that forest management created economic opportunity, primarily through its timber sale program. Between World War II and 1992, the Forest Service policy focus on creating community stability through providing an even flow of timber harvested from national forests (Schallau, 1989; Schallau & Alston, 1987). The Sustained Yield Forest Management Act of 1944 codified the ideas of community stability generated throughout the 1900's. The purpose of the Act was to: (1) stabilize communities, forest industries, employment, and taxable forest wealth; (2) assure continuous and ample supplies of forest products; (3) secure the benefit of forest influences on stream flow, erosion, climate, and wildlife conditions (Granger, 1994).

The principle of sustained yield was further codified with the passage of the Multiple Use-Sustained Yield Act of 1960 (MUSYA). This law authorizes and directs the Secretary of Agriculture to develop and administer the renewable resources of timber, range, water, recreation, and wildlife on the national forests for multiple use and sustained yield of the products and services. "This is the first law that contains all of the five major uses of national forests in one law equally, with no use greater than any other". (Godfrey, 2005, p. 399). MUSYA defines the terms "multiple use" and "sustained yield" as follows: the "management of all various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people. Sustained yield: "the achievement and maintenance in perpetuity of a high-level of annual or regular output of the various renewable resources of the national forests without impairment of the productivity of the land" (Godfrey, 2005, p. 339).

During the late 1960's and early 1970's there was increased concern about the environmental impacts of many land management activities including timber management. It was during this time that the environmental movement organized to pressure policymakers into passing environmental legislation at the national level. The rise of environmental groups at this time brought about major paradigm shifts in the role of the federal government to regulate pollution and environmental impacts (Daniels & Daniels, 2003). The early 1970's brought on major shifts in federal environmental policy (e.g. Endangered Species Act (ESA), Clean Water Act (CWA), National Environmental Policy Act (NEPA) and National Forest Management Act (NFMA) and others) (Daniels & Daniels, 2003). These policies set the stage for a transition in the management of private and public lands throughout the US and in Oregon. These policies

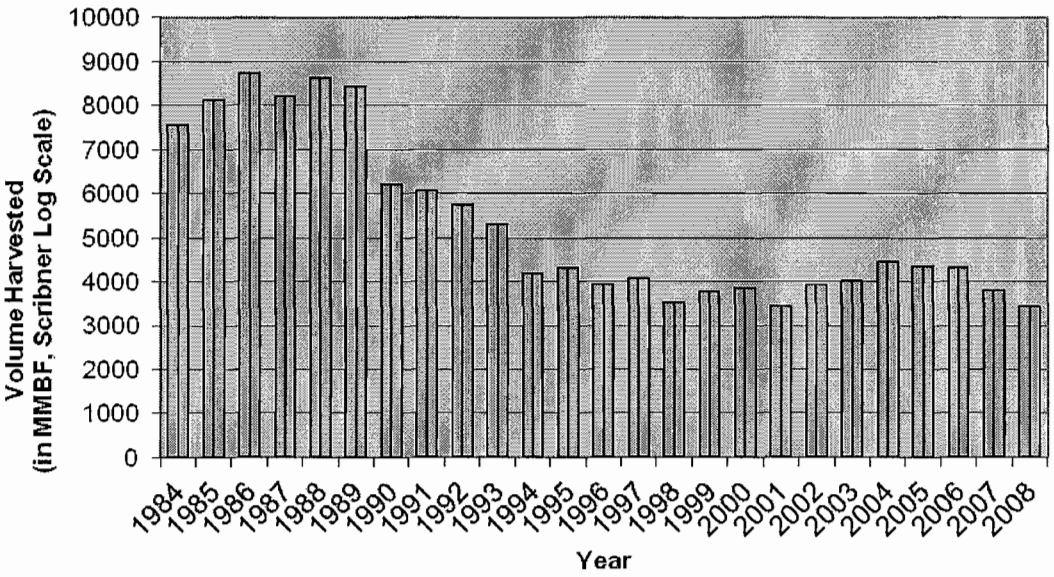
sought to address and provide strategies for mitigating the impacts of individual land management decisions to avoid broader impacts to society.

Historic management regimes on private and public lands often focused on economic outcomes with little emphasis on the larger ecological impacts of management decisions. The environmental legislation passed in the 1970 has provided the legal foundation for land management decisions to be challenged, especially on public lands (Daniels &Daniels, 2003). The ESA in particular provided the regulatory teeth and a legal basis for challenging management decisions on public lands where their decisions might affect a species like the northern spotted owl and other species listed under the law (Yaffee, 1994). The passage of environmental legislation including the NEPA provided administrative checks to ensure that the federal government's decisions about land management considered all of the environmental impacts of any action including taking no action.

A number of circumstances culminated in the early to mid 1980's that had severe impacts on the productivity of logging and timber management in the Pacific Northwest. Increased mechanization of sawmills and logging operations spawned a decrease in the number of jobs available in the wood products sector. At the same time increased market availability of lumber from foreign markets, contributed to difficult economic realities for logging communities throughout Oregon. Additionally the economic downturn of the 1980's reduced the amount of available capital for continued investment in logging operations (Yaffee, 1994). The culmination of all of these economic factors and uncertainty about continued and sustainable yield of timber in the region put the industry in a difficult situation. From 1984-2008 a high of 8615 million board feet (mmbf) in 1989 to 3441 mmbf in 2008 on industrial, non-industrial private, Indian,

ODF & Land Board, BLM, USFS and other public lands (Figure 1.). In association with these economic challenges, the spotted owl controversy polarized the region as the future of timber management became much more uncertain.

Figure 1. 25 Year Harvest History for all land ownerships in Oregon 1984-2008



Source: Oregon Department of Forestry, (2010)

(http://www.oregon.gov/ODF/STATE_FORESTS/FRP/docs/2008rpt25YearTable.xls)

The early 1990's proved to be the most difficult times for those working in the timber management and wood products sectors. It was clear to many environmental groups that policies like the ESA, NEPA and CWA could be used to exert a greater influence on how land in

Oregon and the Pacific Northwest (PNW) is managed. In particular, the historic land management practices were thought to be driving declines in many species throughout the region. Land management practices affected both aquatic and terrestrial habitat for species like the Coho salmon and the Northern spotted owl. Environmental groups used environmental legislation to ensure federal accountability of management decisions and their impacts on endangered species

The eventual determination that species were at risk of being threatened and endangered forced a significant shift land management practices in Oregon. The eventual listing of the coho salmon and the northern spotted owl forced changes in timber management on public and private lands where their habitat was to be protected. Agencies and landowners scrambled to adjust their management priorities to support the listings (Yaffee, 1994). Although, timber dependent economies were facing declines in productivity, timber supply and job opportunities prior to listing under the ESA, the spotted owl would ensure that business in Oregon's federal forests would not continue as usual. The Endangered Species Act (ESA) of 1973 proved to be a catalyst for new land management strategies that recognize individual resources as components of systems, this new level of understanding has ushered in a new era of policy that is more broadly focused on managing whole ecological systems.

In an effort to assist impacted communities the Clinton administration proposed and passed the Northwest Forest Plan (NWFP) in 1994 creating a new strategy for managing public's lands that would provide opportunities for rural communities affected by declines in contracting for timber production and harvest (REO, 2008). This plan primarily affected the USFS and the BLM because their lands tended to provide the largest habitats for these listed species. These

agencies adjusted their management priorities from timber production and extraction to restoration and maintenance to enhance and protect habitat for endangered species. It was intended that this change in management priorities would create new opportunities for business formerly working in timber production and harvest. Under the new management priorities, the BLM and USFS would be contracting for restoration and maintenance activities associated with ecosystem management (REO, 2008 & Yaffee, 2001).

The Northwest Forest Plan had five primary goals; (1) Never forget human and economic dimensions of the issues; (2) Protect the long-term health of forests, wildlife, and waterways; (3) Focus on scientifically sound, ecologically credible, and legally responsible strategies and implementation; (4) Produce a predictable and sustainable level of timber sales and nontimber resources; and (5) Ensure that federal agencies work together (REO, 2008). These policy goals resulted in major changes within federal agencies on how their lands were managed. Work on land managed by federal agencies had long been a source of contracting opportunities for businesses in the state. Up until the early 1990's most of the work occurring on public lands was related to resource extraction, primarily timber production and harvest and included activities such as logging, road building and maintenance, precommercial thinning, reforestation and timber cruising (Moseley, 2006). The North West Forest Plan (NWFP) ushered in new management priorities that emphasized ecosystem management and maintaining and strengthening the principle of multiple use.

Ecosystem management brought with it a host of new activities that might include tree planting; thinning to reduce fire hazard or improve wildlife habitat; road decommissioning, maintenance or repair; stream restoration including riparian planting, placement of woody

debris, or activities that improve fish passage; noxious weed removal; and plant and animal surveys (Moseley, 2006). Under the Northwest Forest Plan, two programs, Jobs-in-the-Woods and the Hire-the-Fisher were developed to provide training for forest workers displaced by the new management priorities. The central purpose of these programs was to create a trained workforce that could undertake new activities for the federal land management agencies while creating high-skill, high-wage jobs for displaced workers (Anderson, 1999; and Brodsky and Hallock, 1998). This overview of federal land management policy for ecosystem management demonstrates the ways in which the federal government created new opportunities for service contracting on federal lands in Oregon.

State Policy

The state of Oregon initiated a state-led strategy for conserving salmon species listed or headed for listing under the ESA. The potential economic, cultural, environmental, and political impact of severe declines in salmon species especially on private landowners brought the state together to develop strategies for conservation and restoration. This strategy recognized that salmon inhabit the ribbons of streams the flow throughout state without regard to land ownership. Ahara et al (2003) provide a very useful historical review of the Oregon Plan for Salmon and Watersheds. In 1987, the state legislature passed Senate Bill 23, which created the Governor's Watershed Enhancement Board (GWEB). This board had two primary purposes, the first to provide assistance and outreach to affected private landowners to support local restoration efforts. The second purpose was to enable the state's natural resource agencies to work together across bureaucratic and geographic boundaries to achieve better watershed

management. In addition to fulfilling the two purposes of the mission, the state also pledged $500,000 each biennium to support GWEB through providing funding for local watershed restoration effort (OACD, 2010).

The experience with spotted owls on federal and private lands and concern over declines in salmon species provided an incentive to design state policy solutions to avoid further ES listings within the state. While, spotted owl habitat tended to occur on federal lands and in remote areas, the same was not true for salmon species; their habitat would likely include vast amounts of mostly private and some public land bordering rivers and watersheds. This difference in circumstance provided motivation for the state to develop policies to avoid listing and avoid the economic impacts that might arise from any federal plan to protect habitat for salmon species in Oregon's watersheds. In 1993, the Oregon Legislature initiated a watershed management program, informed by review of a report entitled, "Proposal: A Watershed Management Strategy for Oregon, Final Report, and Recommendations of the strategic Watershed Management Group Policy Group" (August 11, 1992). This report initiated the Watershed Health Program HB 2215, was intended to create pilot watershed councils within the selected basins (Ahara et al, 2003). These basins were targeted to receive the state's resources for achieving sustainable watershed health within the selected basins. The legislature emphasized the need to create voluntary programs at the local level. The state then asked that its agencies cooperate and coordinate their functions to facilitate and support the local watershed protection and enhancement efforts. Local government bodies (e.g. county commissioners, city councils, and councils of government) were encouraged to form voluntary local watershed councils. Councils could then request state assistance in implementing local

watershed improvement projects. Support for these activities was evaluated based on whether the project reflected the various interests in the affected watershed and whether the project would protect and enhance the quality of the watershed in question (Ahara et al, 2003).

In addition to passing HB 2215, the state legislature also passed SB 1010, which directed the Oregon Department of Agriculture (ODA) to address agricultural waters quality issues. This legislation described the boundaries of agricultural and rural lands subject to water quality management plans. Some of the need for these plans came out of the requirements of the Clean Water Act and other federal policies developed to clean water pollution from human activities such as forestry, factories, wastewater treatment plants, and agricultural runoff. Another component for these plans was the need meet the federal guidelines of the Water Pollution Control Act (33 U.S.C. 1313) and the need for Oregon's Department of Environmental Quality to establish total maximum daily load targets for Oregon's waters. The majority of this work was carried out by the states 45 Soil and Water Conservation Districts. In total, the ODA identified 39 watershed-based Agricultural Water Quality Management Areas across the state. Water quality specialists worked with local ranchers, farmers, and landowners to identify opportunities to improve water quality (Ahara et al. 2003). This initial step at developing coordination among institutions would prove to be a continuing theme of state restoration efforts. The Governors Watershed Enhancement Board (GWEB) would continue to facilitate and fund watershed restoration projects throughout Oregon. A unique aspect of GWEB was the emphasis on local participation and funding. Because watersheds are diverse and unique in character, developing local institutions was viewed as an ideal and beneficial way to approach watershed restoration in Oregon through state-level policy.

Initial action at the state level in developing institutions and policy surrounding watershed management was intended to avoid the same debilitating experience as was experienced when the northern spotted owl was listed. Having experienced the effects of the ESA in Oregon, the state took the initiative to develop their own program to promote health and to restore watershed conditions on the Oregon coast to support the expansion of coastal coho populations. Governor Kitzhaber directed state agencies to develop a state salmon restoration initiative. By the fall of 1996, a draft of the Oregon Coastal Salmon Restoration Initiative (OCSRI) was made available for public review. The goal of developing this statewide effort to restoring salmon populations was to make the National Marine Fisheries Service (NMFS) listing of coho salmon unnecessary. Under the ESA, the determination to list a species must take into account all other conservation efforts being undertaken by a state or other entity to protect the species subject to listing (Ahara et al., 2003).

As the NMFS reviewed the draft OCSRI, to determine the whether or not the draft OCSRI addressed all of the factors in the decline of coastal coho. In early 1997, progress was being made and the Oregon legislature endorsed the proposals outlined and identified in the OCSRI report. The name of the report was changed to the Oregon Plan for Salmon and Watersheds (the Oregon Plan). The bill (SB 924) and was intended to present and deliver an Oregon-based solution for salmon restoration and healthy streams. To fund the implementation of the Oregon Plan for the first two years the Legislature appropriated fifteen million dollars for the grants and staff necessary to carry out the Oregon Plan. The second source of funding came from the timber tax or HB 3700 was a one-time tax on harvested timber intended to raise up to $fifteen million. The timber tax was only intended to be used in the event that the coastal coho were not

listed; if they were listed, the tax would be suspended. In addition, SB 372 directed the Oregon Department of Transportation (ODOT) to establish a salmon license plate option for drivers in the state for an additional surcharge of fifteen dollars. This funding provided the necessary support to implement restoration and conservation projects throughout the state (Ahara et al, 2003).

Oregon Plan

The Oregon plan was developed as a state-based solution to avoiding the potential negative impacts of the listing of coastal coho under the ESA. The notion was that the Oregon Plan would provide a homegrown solution for restoring salmon habitat and would avoid significant involvement of the federal government on private landowners. The Oregon Plan contained many unique attributes including an emphasis on coordination between agencies, stakeholders, landowners, scientists, and politicians. It emphasized locally based solutions implemented by local stakeholder groups (i.e. watershed councils and Soil and Water Conservation Districts). The Oregon plan also focused on monitoring the progress of watershed restoration efforts to inform adaptive management of on-the-ground restoration work. Together these four aspects of the Oregon Plan instigated a new strategy towards engaging citizens around natural resource management.

Despite the best intentions of the Oregon Plan to avoid the listing of the coastal coho, in 1997 the Southern Oregon-Northern California Coastal Coho ESU was listed as threatened. The NMFS stated that the Oregon Coast Coho was not warranted for listing in lieu of the Oregon Plan. While initially successful in preventing the listing of the Oregon Coastal Coho, the decision

by NMFS was challenged in court by the Sierra Club Legal Defense Fund. The NMFS lost the lawsuit and was directed by the court to reconsider its decision, by August 1998 the NMFS listed the Oregon Coastal Coho ESU as threatened. The policy lived on as an Oregon based solution to dealing with the issue of watershed health and restoration.

In 1998, Oregonians voted to approve Ballot Measure 66, which dedicated 15% of the net state lottery proceeds for the next 15 years to go towards restoring and protecting Oregon's natural environment. Half of the 15% from net lottery proceeds was dedicated towards the protection and restoration of native salmonid populations, watersheds, fish and wildlife habitats, and water quality. The remaining 7.5% of the lottery proceeds were directed towards funding state parks. One of the provisions of the ballot measure was that funds would be administered by one state agency and that at least 65% of the funding go towards: watersheds, fish and wildlife, habitat conservation activities, watershed and riparian education efforts and enforcement of fish and wildlife and habitat protection laws and regulation (Ahara et al, 2003). This continued to add momentum to efforts to provide long-term funding for salmon and watershed restoration and enhancement throughout Oregon.

In 1999, John Kitzhaber, the Governor of Oregon continued to maintain state leadership in salmon recovery and watershed restoration. The Governor outlined a new purpose and scope for the Oregon Plan through an executive order (EO 99-01). The Oregon Plan was expanded to take the lead in addressing water quality, watershed health, and native salmon populations throughout the state. Following the governor's executive order, NMFS listed six other ESU's of salmonid populations in state. The expanded scope of the Oregon Plan became a statewide initiative for improving watershed health and salmon habitat to recover threatened wild

populations of salmon throughout Oregon. This enhanced vision of the Oregon Plan was intended to restore Oregon's wild salmon and trout populations and fisheries to sustainable and productive levels to provide substantial environmental, cultural, and economic benefits.

The governor expanded the scope of the Oregon Plan from a coastal plan to avoid ES listings in specific watersheds to a statewide comprehensive restoration and recovery initiative supporting the restoration of watersheds and fisheries throughout the state. In doing so the passage of Oregon Statute 541 defined the process through which watershed councils could be created and clearly defined their role in addressing "the goal of sustaining natural resource and watershed protection, restoration and enhancement within a watershed" (ORS 541, 1999). This legislation also outlined the development of the Oregon Watershed Enhancement Board (OWEB) a new state agency charged with providing technical assistance and grant funding for restoration projects being implemented under this new legislation (Ahara et al., 2003). To date there are over 90 watershed councils operating throughout the state under the framework created by the Oregon Plan. Each of these councils is driven by a board of local representatives who form a diverse group of stakeholders that are able to establish their own goals and objectives for improving the integrity of the watershed in which they live and represent. Councils play a formal role as an intermediary between OWEB and the private landowners living in watersheds. These groups are the primary community-based organizations working at the local level in Oregon to coordinate and implement voluntary forest and watershed restoration projects on private lands.

Restoration Marketplace

With the decline of industrial-scale timber management on national forests in the early 1990's in the Oregon, several federal and state agencies and community-based groups sought to create new economic benefits for forest communities near national forests and other public lands, by replacing timber management and harvest with restoration (Gray et al, 2001, Hallock, 1998 & Spencer, 1999). Generations of culture and economic dependence on public timber harvests proved to be a central issue in the northwest forest crisis that came out of the listing of the northern spotted owl. Any politically viable agreement would somehow need to address timber dependency by providing timber dependent economies with new work opportunities in ecosystem management (Gray et al, 2001). The shift in both policy and management surrounding public lands in Oregon was echoed by state government in its development of policy to address salmon listings on private and public lands. While sharing the same goal as the federal government their strategy intended introduce restoration, and conservation through Best Management Practices (BMP's) and community-based organizations.

Together the state of Oregon under the Oregon Plan and the federal government under the Northwest Forest Plan created a new market for contractors that enabled them to perform restoration work on both private and public lands. Beltram et al., (2001) define the ecosystem management industry to include activities that: (1) enhance the components and functions of natural ecosystems; (2) protect, maintain, and restore the integrity and diversity of biological structures; (3) manage natural ecosystems for social, economic, and ecological purposes; and (4) perform studies to enable informed management decisions. This data provides a useful background on the composition of the businesses working in this broadly defined industry.

Other early studies of the industry focused more specifically on the workers doing equipment and labor-intensive work. These studies have shown the Hispanic workers are more likely to be performing labor-intensive work while whites are more likely to be performing equipment intensive work (Moseley, 2006). Businesses doing the most labor-intensive work also travel greater distances to work than contractors performing equipment-intensive work (Moseley and Shankle, 2001; Moseley, 2006). Recent research conducted in association with the data analyzed in this thesis found that businesses are able to perform numerous contracted services related to forest and watershed management for federal agencies as well as for a very diverse group of community-based organizations throughout the state (Ellison et al., 2010). The investment and economic impacts of the restoration industry on communities throughout Oregon through the purchase of goods and services is significant. Nielsen-Pincus and Moseley (2010) found that between 1995 and 2007 investment in the Oregon plan alone supported nearly 2,700 jobs or about 230 jobs per year. For a more complete description of businesses participating in the restoration economy and the economic impacts of their work, please see by Ellison et al., (2010) and Nielsen-Pincus and Moseley (2010).

Research Question

How do the experiences of federal and nonfederal contractors working in Oregon's restoration differ?

To identify differences in contractors' experiences I divided responses by customer (i.e. federal, nonfederal and mixed) and then analyzed each group for reoccurring subjects of

discussion or experiences. Contractors in each group with like responses on discussions of the industry were then grouped and again analyzed to provide elaboration and detail to the initial experience identified. This method of analysis was done to more clearly understand how the experiences of contractors differed and how if at they might be related to the different policy environments in which the contractors are working. My research seeks to provide unique insights into the experiences of federal and nonfederal contractors working in Oregon's restoration economy. My discussion of contractors experiences highlight the ways in which, differences in policy environments results in different experiences for contractors working within it. Ideally, this research will be useful to those involved in the restoration economy and enable more informed decision-making and consideration of the impacts policy changes have on contractors working in Oregon's restoration economy.

The thesis is organized with a review of relevant literature on restoration contracting presented next to continue to build a foundation to understanding the types of experiences perceptions that restoration contractors might have. Chapter II contains details about the methods uses to collect and analyze the data for this thesis. The findings are presented in the fourth chapter and are discussed by dividing the contractor's responses into three groups; (1) those that work primarily for federal customers; (2) those that work primarily for non-federal customers; and (3) those contractors who work equally for both federal and nonfederal customers. Chapter IV covers my discussion of the experiences and perceptions of these three groups of contractors separated by theme.

CHAPTER II

LITERATURE REVIEW

Until recently, much of the academic and gray literature discussing restoration contractors tended to focus on contractors working primarily for the federal government. The literature on federal contracting has focused on the Northwest Forest Plan and other federal policy in the region and has provided extensive documentation of the policy monitoring outcomes. Moseley and her colleagues in particular has been instrumental documenting many aspects of the workers involved in federal contracting on public lands. Her research has studied ethnic differences in job quality, investigated the benefits distributed from investment in hazardous fuel reduction as well documentation of the changes in procurement contracting in counties impacted by the Northwest Forest Plan (Moseley, 2006; Moseley and Reyes, 2008; Moseley and Toth, 2004). This research has contributed significantly to our understanding of the impacts of federal procurement on the workforce and the relationship between workforce and job quality.

Moseley (2006) reveals data about procurement contracting by federal agencies in the counties affected by the NWFP. Her research shows declines in the USFS procurement of service

contracts from a high of $103 million in 1991 to a low of $33 million in 2002 where as the BLM shows a relatively consistent expenditure on procurement contracting for restoration related activities of around $20 million annually through the study period. In addition to considering overall spending on procurement contracting, she provides details about the expenditures for specific work activities. Her work shows that reforestation work decreased by the greatest percentage of any work type. In addition there were also declines in contracting for other types of labor intensive work including thinning, despite an increased focus on fire hazard reduction in the late 1990's and the National Fire Plan being funded by Congress in 2001, demonstrating that the type of work that the Forest Service contracted changed as over-all spending declined (Moseley, 2006). "Over time, the Forest Service reduced its spending on tree planting; a labor-intensive activity associated with intensive timber management, and increased the proportion of its spending on contracted road maintenance and decommissioning. The Forest Service also increased the proportion of its spending on technical activities such as endangered species surveying, however, technical activities made up a small percentage of spending throughout the study period" (Moseley and Reyes, 2008, p. 334). The overall finding is that decreases in federal spending on restoration contracting resulted in eclipsing some of the benefits that might have been expected from the Northwest Forest Plan. The overall finding is that despite increases in the proportion of spending on certain activities related to ecosystem management and decreases in labor-intensive activities the spending on all types of service contracting decreased dramatically over the decade long study period.

Moseley and Reyes (2008) reveal that the budgets creating work opportunities and for carrying out the objectives of the Northwest Forest Plan have not been delivered to the extent

that they were envisioned. The Forest Service identified many costly restoration projects like road decommissioning, wildlife enhancement and stream restoration project throughout the region when it conducted watershed assessments. In addition, it was not clear that many of the provisions to benefit local contractors that were outlined in the NWFP were clearly met with any regularity as would be expected had they been major finding (Moseley and Reyes, 2008). The research shows that while spending could have declined for a several reasons, lack of restoration work, and a decision to use in-house staff rather than contracts and declines in Forest Service budgets (Moseley and Reyes, 2008). The Forest Service did not dramatically increase the size of its in-house staff, furthermore research shows that Forest Service budgets did not decline and in fact increased and rather that decisions at the executive level of the Forest Service, Office of Management and Budget, or the Administration are the ones likely for the decision to reduce funds to the national forests affected by the NWFP (Moseley and Reyes, 2008). Overall, we see a decrease in staffing within the forest service as well as decrease in spending on ecosystem management as well (Moseley and Reyes, 2008).

Baker (2003) provides details about the socioeconomic characteristics of the natural resource restoration system in Humboldt County, California. His research finds that "there exists a vigorous and growing natural resources restoration sector in Humboldt County" (Baker, 2003, p. 3). The study provides extensive detail on the contributions of federal policy in the 1990's to the development of a restoration industry. In Baker's discussion of the restoration economy in Humboldt County he identifies barriers to restoration contractors: These include: "Inequity in application of regulatory authority governing the heavy equipment work season, multiplicity and complexity of restoration funding sources, relatively short or non-complementary grant life

spans, cash flow challenges, permitting hurdles, difficulty providing quality jobs in restoration"(Baker, 2003, p. 46). These themes appear to be emblematic of the challenges facing contractors involved in the restoration industry. Baker's work goes a long ways to detail some of the socioeconomic impacts of restoration and specifically equipment intensive restoration. His conclusions show that a dynamic restoration system has evolved in Humboldt County, one that generates significant employment, is socially important and provides opportunities for communities to come together to identify common ground for collective action (Baker, 2003). This research shows that policy has worked in other states and supported the establishment of an industry.

Beltram et al. (2001) described the humble beginnings of the restoration industry in Oregon by defining the industry and the types of work activities that might be associated with restoration. This research was the first major work to show the economic benefits of restoration to contractors working for community-based organizations and customers other than the federal government. Their work shows that restoration industry provides more than 16,000 jobs for Oregonians, the total annual payroll is more than one half billion dollars performing this work for more than 600 private firms and public agencies at all levels of government. This suggests that the industry has had a big impact in Oregon despite declines in federal contracting for ecosystem management work.

Hibbard and Lurie (2006) provide a useful description of the industry and the use of contractors by community-based organizations in Oregon. Their findings on the socioeconomic outcomes of watershed councils and community-based natural resource management in Oregon reveal that community-based groups make extensive use of contractors for restoration projects,

with an average of 60% of projects being done with contractors. Community-based groups estimated that 85% of their contract work goes to local (i.e. within the county) contractors. Thirty-four councils said that they do give preference to local contractors either formally or informally (Hibbard and Lurie, 2006). Their research also estimates that the typical community based group in Oregon generates US$ 268,072 local economic activity each year. This discussion of the community-based groups highlights the increasing role these groups have in procuring, managing, and coordinating restoration activities.

MacDonald et al. (2010) confirm findings by Hibbard and Lurie (2006) showing that community-based organizations primarily use contractors to implement restoration projects in Oregon. This research describes the ways community-based organizations in Oregon mobilize human resources for watershed restoration. With regard to contractors, almost half of the watershed councils interviewed described using informal procurement policies that enabled them to be flexible in determining the evaluation of contractors' project bids. Whereas the other half of councils is using formalized policies, including some modeled on the State of Oregon Attorney General Model Rules (MacDonald et al, 2010). Councils use criteria like experience, local, work quality, cost, past experience with the council and reference to evaluate and determine bids from contractors. Watershed councils in Oregon discussed contracting with local contractors when possible (MacDonald et al, 2010). In addition, all councils in Oregon discussed using similar approaches including: requests for proposal, requests for quotes, sole sourcing, and prequalification to select contractors. Many councils, maintained lists of contractors from their local area that they contacted when they were soliciting bids for a restoration project (MacDonald et al, 2010). This research highlights the use of private

contractors for restoration projects by the community-based organizations in Oregon. It also provides a good overview of how these organizations solicit and evaluate contractors. This helps provide another level of detail about the interaction between councils and contractors with regard to work opportunities.

Ellison et al. (2010) provide a detailed description of restoration contractors with their work titled; *The Business of Restoration: A Profile of Restoration Contractors in Oregon*. This work provides an elaborate and refined discussion of the types business participating in this economy and some of their experiences within this economy. To begin with there are a number of different customers types that a restoration contractor may perform contracted work for including; federal, state and local governments, private businesses, non-governmental organizations (e.g. watershed councils, Trout Unlimited). In addition to different customers there are three very clear differences in the type of work that is being performed: (1)labor intensive work like hand thinning and piling, to reforestation and tree planting;(2) equipment-intensive work includes activities such as culvert replacements, mastication, mechanized thinning; (3) technically intensive work like surveying, engineering and design services (Ellison et al., 2010). These three work categories and the predominant customer's of restoration contractors can provide a basis for analyzing the forest and watershed restoration economy in Oregon. There is some utility in looking at the differences in contractor's perceptions of the industry through the lens of their primary customer and the influence on their experiences and perceptions of the work opportunities available to them.

Ellison et al., (2010) provide substantive data about the characteristics of businesses working in this industry including data about federal and nonfederal contractors. Ellison et al,

(2010) show that businesses working for nonfederal customers or mixed customers were more likely to 1) be older businesses, 2) be family owned, 3) focus on equipment and technical work, 4) perform forest and watershed restoration work as a supplement to their main businesses activities, 5) and work frequently close to home (Table 1). Highlighting the difference between federal and nonfederal contractors with regard to their level of involvement in Oregon's restoration is that greater than fifty percent of federal contractors earn more than fifty percent of their revenue from restoration where less than twenty-five percent of nonfederal contractors earn more than fifty percent of their revenue from restoration (Table 1.). This study provides a high level of detail about the differences between federal and nonfederal contractors and highlights that nonfederal contractors tend to be doing watershed restoration work as a supplement to their work in other industries.

Ellison et al. (2010) also identify a number of theses discussed by Oregon restoration contractors with regard to work opportunities in restoration. Contractors discussed: 1) forest management and logging, 2) watershed management, and 3) changing requirements of forest and watershed management. Contractors reported that forest management and logging had declined and that the federal agencies in Oregon had transitioned away from timber management (Ellison et al., 2010). Contractors reported an increased in watershed restoration work opportunities and discussed changes in the scope, requirements, and regulations of forest and watershed management (Ellison et al., 2010). Their research also shows that contractors are increasingly diversifying into restoration work as well diversifying outside of restoration depending on whether or not they experienced increases in work opportunities over the last decade. Of federal contractors interviewed in the study, forty-six percent said that forest and

watershed restoration opportunities declined while fifty-two percent of nonfederal contractors said that work opportunities increased. This research indicates that federal contractors have perceived a decline in work opportunities while nonfederal contractors have seen an increase.

Table 1. A comparison of characteristics among contractors, based on the majority of revenue coming from federal, nonfederal, or a mix of customers

Characteristics	All	Work Predominantly for federal agencies	Work predominantly for nonfederal entities	Work with a mix of customers
Number of Responses (n)* **	180	52	83	42
Average business age*	22 years	17 years*	24 years*	24 years
Sole proprietorship	51 (28%)	18 (35%)	24 (28%)	9 (21%)
Family-owner business	130 (73%)	34 (65%)	63 (76%)	33 (77%)
Seasonality of business	154 (86%)	46 (88%)	68 (80%)	35 (81%)
Average employment range[1]	11-27 jobs	19-45 jobs	8-20 jobs	8-20 jobs
Work Performed				
Labor-Intensive	53 (29%)	26 (50%)	19 (22%)	8 (19%)
Equipment-Intensive	68 (38%)	16 (31%)	33 (39%)	19 (44%)
Technical	26 (14%)	3 (6%)	14 (16%)	9 (21%)
Mixed	33 (18%)	7 (13%)	19 (22%)	7 (16%)
Revenue from forest and watershed management * **	(n=179)			
>90%	64 (36%)	29 (56%)	19 (22%)	16 (38%)
75-90%	8 (4%)	3 (6%)	3 (4%)	2 (5%)
50-75%	13 (7%)	4 (8%)	5 (6%)	4 (10%)
25-50%	23 (13%)	6 (12%)	13 (15%)	4 (10%)
10-25%	26 (15%)	5 (10%)	11 (13%)	10 (24%)
<10%	45 (25%)	5 (10%)	34 (40%)	6 (14%)
**Work within daily commuting range ** **	(n=173)			
>90% of the time	81 (47%)	16 (31%)	51 (63%)	14 (34%)
75-90% of the time	24 (14%)	5 (10%)	9 (11%)	10 (24%)
50-75% of the time	18 (10%)	6 (12%)	9 (11%)	3 (7%)
25-50% of the time	12 (7%)	4 (8%)	5 (6%)	3 (7%)
10-25% of the time	13 (8%)	8 (16%)	1 (1%)	4 (10%)
<10% of the time	25 (14%)	12 (24%)	6 (7%)	7 (17 %)
Hire local workers when working away from home	25 (17%)	10 (21%)	11 (18%)	4 (10%)
Equipment ownership	154 (85%)	43 (83%)	74 (88%)	34 (85%)

Note 1: * p<0.05; **<0.01; *** p<0.001

Note 2: Respondents were asked how many people worked for their business during the previous high and low seasons

Source : Ellison et al (2010)

Identification of work opportunities was another area where federal contractors and nonfederal contractors differed according to Ellison et al., (2010). Federal contractors primarily identified federal work opportunities through federal contracting websites whereas those businesses that worked for nonfederal and mixed customers reported that many of their work opportunities often came from word of mouth or through solicitation from project sponsors (Ellison et al, 2010). This shows that federal and nonfederal contractors are using very different methods to identify work opportunities. Research by MacDonald et al, (2010) also indicates that many of the community-based organizations in Oregon are personally contacting contractors and soliciting bids from them similar to the findings reported by contractors in research by Ellison et al (2010).

The literature reveals the presence of a very strong and robust restoration economy. This economy has had roots in the state for at least the last 10 years and has provided many jobs for Oregonians. State-level policy enabled the creation of community-based groups, which as discussed by Hibbard and Lurie (2006) have a significant impact on Oregon's local economy. Evidence by Beltram et al., (2001) and more recently Ellison et al, (2010) demonstrate that the economy is composed of a number of private businesses who work primarily in two policy environments; (1) federal and (2) nonfederal. The documented decline in federal spending on ecosystem management by Moseley & Reyes (2008) & Moseley (2006) are confirmed in research by Ellison et al., (2010) where forty-six percent of federal contractors described declines in work opportunities. In contrast, there is a great deal of evidence showing increases in work opportunities for nonfederal contractors (MacDonald, 2010 & Ellison et al., 2010). It is likely that nonfederal opportunities are important source of work opportunities for businesses

throughout the state, whether they are specialized in restoration or just supplementing their work in other industries with restoration work. Given these differences in experiences with work opportunities, it seems likely that federal and nonfederal contractors may have different experiences with work opportunities depending on who their primary customer is. The methods section provides more details about how this study was conducted.

CHAPTER III

DATA AND METHODS

The data for this thesis was gathered in association with an extensive study (The Business of Restoration: A Profile of Restoration Contractors in Oregon) of the restoration economy in Oregon and the businesses and institutions involved in supporting and implementing projects throughout the state. This research gathered information about businesses participating in the restoration economy and their opinions and experiences in this type of work over the past decade.

To identify businesses that have performed contracted restoration work for the federal government I used methods developed in past studies Moseley (2006) to query the Federal Procurement Data System (FDPS). I queried this system to identify businesses that performed contracted services for the BLM, USFS, or USFWS between 2002-2009 with the principle place of performance being Oregon. I further narrowed this list to focus just on contractors that were likely to have performed restoration related work. This initial dataset was filtered by Product Service codes that were related to land management, using the same criteria as Moseley and Shankle (2001), and Moseley and Toth (2004).This ensured that the contractors selected for inclusion in the study were performing services related to natural resource management. Contractors were then grouped and sorted into three different samples; with the first being the

road maintenance and construction group, the second being the labor-intensive forestry groups, and the third sample was all other forestry related services. Each of the contractors was identified by their DUNS number, a unique 9-digit code assigned to each contractor prior to the interviews. We used Dun and Bradstreet (http://www.dnb.com/us/) to find the contact information for each contractor in our sample.

To identify contractors who had performed restoration work for community-based organizations in Oregon we used a sample of restoration projects from two databases supplied by the Oregon Watershed Enhancement Board (OWEB), that track all of the grants for restoration projects awarded by OWEB or that meet the Oregon Plan goals. The two databases that were used are the Oregon Watershed Restoration Inventory (OWRI) and the OWEB Grant Management System (OGMS). We took a sample of 116 different restoration projects from these two databases and entered the contact information for all of the invoices that were submitted for each project. We used the invoices to determine whether the vendor performed a service for a restoration project or whether they provided a product. All of the contact information for invoices that appeared to be for a service was then compiled into one large sample of contractors who had performed contracted restoration work for NGO's. We then obtained contact information for all of the contractors in the OWEB restoration grant sample that had performed contracted restoration work for OWEB grantees in our sample of projects.

We developed an interview guide that asked restoration contractors to provide business demographics, project expense breakdowns for their most common types of work, and to describe their experiences with work opportunities in the last decade in Oregon. Two researchers then contacted the businesses over the telephone and asked them to participate in

our study by consenting to do an over the phone interview with the researcher. If we were unable to get in touch with a business owner via the telephone, we mailed them a paper copy of the survey to complete and then followed up with phone calls two weeks after mailing the survey. Each phone interview was digitally recorded, assigned a unique identification code, and stored on a secure server. Responses were recorded using and on-line survey tool (www.surveymonkey.com) and downloaded by the research team following completion of all interviews.

Included in the questions about business demographics, contractors were asked to provide percentages (i.e. <25%, 25-50%, 50-75%, >75%) for the amount of work that they did for the following customers: (1) Forest Service/BLM (2) Other federal Agencies, (3) State Agencies, (4) Non-Industrial Private Landowners, (5) Industrial Landowners, (6) Non-Profit Forest or Watershed Organization and (7) Other. For the purposes of this thesis contractors responses were grouped by their predominant customer; (1) contractors who predominantly work for federal customers; (2) contractors who work predominantly for nonfederal customers and (3) mixed contractors who worked about equally for federal and nonfederal customers. To analyze these three groups of contractors I used similar thematic coding methods described Boyatzis (1998). I began by familiarizing myself with contractors' responses in each group, I then developed a coding scheme whereby common responses were coded and then grouped by code. Responses with like codes were then analyzed again to determine if there was a particular trend within the responses describing contractors experience with identified themes. The coded themes were then grouped an analyzed a third time to more fully describe contractors sentiments. The themes identified in the thematic coding describe contractor's experiences and

perceptions of restoration work opportunities within two different policy environments in Oregon.

CHAPTER IV

FINDINGS

My findings for each of the three groups: (1) federal, (2) nonfederal, and (3) contractors that work relatively equally for both federal and nonfederal customers are presented individually. The themes for each group of contractors are organized with a description of the theme as the heading for the section. My discussions of the themes are contained within these sections, summarize, and describe each theme with supporting quotes from contractors within that group. The quotes included are abbreviated to provide concise descriptions of contractor's experiences within different policy environments. Following my presentation of my findings by customer, I present a synthesis of themes identified by contractors in my research (Table 2).

Federal Contractors

Federal contractors discussed their perceptions and experiences of structural changes in federal and state policy. Federal contractor's discussed four main themes of their experiences and perceptions within two different policy environments. First, they discussed changes in work opportunities on federal lands. Second, they discussed increased competition for federal work

opportunities performing restoration and ecosystem management. Third federal contractors discussed changes in federal policy structure that focused on regulations and science-based management. Fourth, federal contractors talked about increased work opportunities in watershed restoration. Lastly, federal contractors commonly talked about funding and their experiences and perceptions of the funding on work opportunities. Federal contractor's experiences within the restoration industry provide the most insightful information about their perceptions and experiences with structural changes especially in federal policy. The discussion of these themes will be broken into five sections one for each theme.

Work Opportunities

Changes in federal policy in the early 1990's brought on dramatic changes in public land management. One of the outcomes the changes in policy resulted in decreased timber management on public lands. This structural shift in policy resulted in decreased federal contracting for timber management and related activities from the early 1990's on. As part of this policy shift, the federal government and other groups sought to create new opportunities for displaced forests workers through increased contracting for ecosystem management. For many contractors, especially labor-intensive contractors, changes in federal policy have resulted in changes in the types of activities being contracted (e.g., shift from contracting for precommercial thinning to hazardous fuel reduction; Moseley, 2006).The responses of contractors tended to reflect this shift in policy and a focus on a different type of land management than formally practiced on federal lands. One contractor had this to say about their experiences: "The work opportunities have stayed about the same, but there is a change in the type of work being done. There is a lot of thinning, no clearcut, or regenerative harvest going on" (899404633). Another discussed this shift from activities related to timber

management to ecosystem management: "We haven't grown much in fire, it has grown as a result of the season, we didn't go after more. Starting to do more fuel treatment than we maybe did 10 years ago. A lot less of the reforestation and precommercial thinning" (915340508). Another contractor described the changes the experienced in federal work opportunities:

> Work opportunities for fuel hazard reduction has increased, reforestation has decreased somewhat, for 2 reasons, one with the stand replacement cutting, not much clear cutting, a lot of planting comes after wildfires, takes 1-2 year lag after fire to getting trees planted. More competition for one thing, maybe more work but there is more people competing for the work, has driven the price down, so there is less of a margin for making a profit (898064977).

The discussion points raised by these quotes highlight some issues that were commonly discussed by other federal contractors. Another contractor had this to say about their experience with changes in work opportunities: "We broaden the scope of our work. The business goes where the money goes; we shift our attention to where the money is. Our business responds to the demands of the forest service and BLM for the types of work that they are investing and hiring contractors to do" (893172731). The first is the change in the type of management occurring, from timber management to ecosystem management. This is reflected in contractors primarily shifting their work activities in order to stay in the same line of business performing service contracting for federal agencies.

Along with their discussion of changes in activities related to timber management such as a shift from precommercial thinning to hazardous fuel reduction, federal contractors also discussed changes in management related to watershed restoration work. One road contractor

had this to say about the increase in watershed related restoration opportunities: "been more drainage structures required, building of roads and maintenance has gone up as well" (893780124). Another contractor described the changes his business: "[We] started to specialize in in-stream work, as an adjunct to our logging operation" (904882183). Contractors described experiencing many more contracting opportunities in watershed restoration echoing the same sentiments as this contractor, "There is a lot more emphasis on stream side and watershed restoration" (899362179).In addition, some contractors reported adjusting their business strategies to target new opportunities in ecosystem management and restoration:

> We have totally shifted from replanting, used to plant clear cuts and conifers solely and then [we] started to get more money planting shrubs and riparian areas with varying types of plants and not just conifers; [we're] planting bitter brush and mountain mahogany and rabbit brush, [we] stumbled into these over the last ten years. We are looking for whatever type of work is available. We are seeing that there will be a lot of work in fuel reduction and we will eventually start doing more of it as the opportunities come up. (920156152).

Competition

The second theme raised by federal contractors is the number of opportunities and the competition for those opportunities. Many federal respondents and especially those doing labor-intensive work discussed increased competition for work opportunities.

> Every time a contractor goes out of business, his foremen start their own companies, they keep under bidding the prices and then crash and go bankrupt in two years but in the meantime they take all of the business out of the market in the course of those two years. Once those businesses go bankrupt their foremen start their own companies and underbid contractors for two years until they go broke and the same cycle perpetuates itself. During this time they are pulling jobs off the market that we would otherwise have access to if they weren't being underbid by these companies (893970978).

This quote captures the sentiment of many federal contractors and their experiences with labor-intensive work opportunities. Two other federal contractors highlighted some of the business strategies for businesses engaged in hazardous fuel reduction, thinning and other labor-intensive restoration as well as fire related service contractors for federal customers. Federal contractors also described experiencing situations where contractors under bid thinning work as a strategy for providing year-round work for experienced fire-crew leaders:

> This year was the worst. Large companies are getting contracts with no bids. Appears to be the big getting bigger. Six million in recovery money spent on four companies. No companies in town are getting work. Companies don't need to turn a profit on the reforestation because they can make money doing fire suppression (893081825).

According to one contractor, this strategy affords his businesses the ability to employ people year round: "We are able to have more of a steady supply of work throughout the spring and fall months. Fire season is July- September, and then this kind of work [i.e. thinning] allows

us work longer and employ more people longer" (901058060). Another contractor described his experience with increased competition: "There is more competition, not offering the projects that they [Forest Service] used. Used to do 5000ac of thinning work a year locally and the last few years it's been about half that amount of acreage. Just not doing the management that they [Forest Service] used to" (898338030). It is evident from federal contractors' responses that some contractors have experienced increased competition for labor-intensive service contracting in the federal restoration marketplace.

Regulations and Science-Based Management

In addition to changes in the type of work opportunities being procured by the federal government, many contractors discussed their understanding of the motivations behind the policy and how management is implemented. One contractor had this to say about the way things shifted at the federal level: "The changes that I have seen, in terms of availability of work, work is getting more technical as the science behind it improves; the expectations are higher because they understand it more" (934078798). Another contractor discussed their perception that work opportunities were dynamic and evolving as we might expect to see in a system embracing adaptive management: "At one time there will be a big push for something, and then the agencies will change--next biggest thing, there are opportunities if your business can morph and change, you have to be able to change and be ready for new science and management objectives as they come down the line (892979327). Contractors seemed to be aware of the role of science and adaptive management in federal policy and the ways in which this affected

projects and work activities. One contractor suggested, "the work is becoming more complex as engineers determine what does and does not work" (911992499).

Funding

Federal funding for restoration and ecosystem management was only discussed by a handful of contractors. Funding for restoration work and more specifically ecosystem management work has not increased in the same way as other sources of funding for restoration like, the Oregon Plan. One contractor described how a shift away from timber-management had reduced budgets and jobs: "Less work, more competition, no cutting timber. Started in the 1990's when the FS and BLM stopped cutting on their lands. Cutting timber gives more money to everyone, helps loggers, and helps tree planters, and doing only precommercial thinning doesn't create jobs in tree planting" (915654360). Another described how other aspects like permitting and review might impact funding for restoration service contracting: "Environmental issues have been a big part of it, it is the government's red tape[permitting and review], they get a budget for a project, so by the time they do environmental review there is little money for the actual contracts. The trickle down on the cash flow from the stimulus hasn't really created any real jobs" (898338030).

Another federal contractor described his understanding of recent funding: "Dramatically decreased just this year, been actively looking and nothing out there, budget cuts" (899108288). These responses from federal contractors highlight some of the challenges contractors face in a dynamic funding environment that has undergone a major shift in the types of work opportunities provided.

Nonfederal Contractors

Nonfederal contractors discussed a number of themes that relate to changes in federal and state policy. The most dominant theme for this group of contractors focused on increases in work opportunities for watershed restoration. Nonfederal contractors also discussed increased specialization in restoration related work and finding niches within the restoration marketplace. In addition, contractors also discussed funding and the implications of funding on restoration work opportunities. These themes highlight some the main findings for contractors working for community-based contractors and primarily in a state policy environment.

Work Opportunities

These contractors were very aware and familiar with the source of increased opportunities for watershed restoration: "In Oregon they have increased. The state institutionalized watershed restoration, both the support and funding. This is a means to get back fish populations" (904959867). Many of these contractors also discussed community-based groups and their role in creating more opportunities for restoration contractors: "There does seem to be more available work within the watershed restoration field, but much of this new work has come from conservation groups/watershed councils" (912993666). This nonfederal contractor captured many of the sentiments of other contractors who as a result of changes in state and federal policy shifted into restoration work:

> There seems to be more knowledge in those areas [restoration]; in the past, there wasn't the knowledge and experience. General awareness about streams and rivers and keeping them cool and how the wildlife is dependent on that, so we see more emphasis in stream restoration and staying out of those areas.

> Less direct management and in-direct management. We've continued to get better and more professional about how we steward the land. We have more awareness and we are doing a better job (909748661).

Increased awareness of riparian and in-stream restoration work has primarily been a result of changes in the structure of federal and state policy. One contractor had this to say about work opportunities created through state policy:

> State funding of watershed projects has increased the number of work opportunities. The knowledge base, it has become fairly standard, no one knew what a native plant was and the knowledge base of the community has increased. Competition has increased, even landscape designers are getting into restoration. The desire of people to do the work has increased, both in contractors and in landowners (920098113).

Changes in state policy to focus on watershed restoration have likely had the biggest affect on nonfederal contractors. Many of the watershed work opportunities in Oregon have been result of the creation of state policy that supports community-based organizations in contracting for watershed restoration opportunities.

Specialization

Many nonfederal contractors also suggested that they had increased and begun to specialize in watershed restoration work. One contractor had this to say about their niche within the industry: "We have specialized in doing the electrical work on fish screens" (915292487). Another had this to say about the way their business approached the work:"we gear up for

watershed work in the spring and winter, and then do other types of work throughout the year. But watershed restoration is our big business" (915708777). In addition to specializing in certain niches within the marketplace, some contractors took longer term approaches to specializing in the industry, such as this contractors who explained that [He] "had to retool, went back to school and got a masters, knowing the competition was getting more scientific, getting more technically oriented" (920098113). Other contractors just suggested that they sought specific types of work: "we have taken a very aggressive role in pursuing FS and BLM projects that require more technical knowledge such as bottomless culverts and bridges" (940021681) and "we have continually morphed to adjust to the needs we perceive of our primary client [watershed councils] which means hiring new staff and maintaining trained crews" (941597349).

In addition, to experiencing increases in watershed management opportunities contractors also describe increasing the specializations of their businesses to respond to the increase in work opportunities for watershed restoration. This evidence suggests that state and federal policy creating work opportunities in restoration and watershed restoration specifically has resulted in creating a base of restoration contractors that are increasingly specializing in this type of work. The Oregon Plan is likely an important contributor of the increased specialization and work opportunities for watershed restoration.

Funding

Funding plays a major role in creating new opportunities for restoration work through providing adequate financial resources to community-based groups to coordinate projects. Contractors' discussion of funding for state policy highlights the importance of providing funding to support the long-term objective of Oregon watershed policy. Many of the nonfederal

contractors discussed how increased investment by the state had resulted in increased restoration work opportunities. Prior to state investment in restoration through the Oregon Plan, much of the watershed restoration that occurred throughout the state happened on public lands and was funded through federal agencies. The creation of OWEB, the state agency in charge of implementing the Oregon Plan, has created a new source of funding opportunities for restoration contractors: "[We've seen] More investment in restoration. It has been the last four years since we got into restoration. It's been a great market" (931258459). Other nonfederal contractors had this to say about increased funding at the state level: "They have tended to increase, you are writing grants to OWEB, and that money has increased the opportunities for work for me. In Union County that stuff becomes jobs" (934010895) and "The creation of OWEB through measure 66 has provided a stable funding base for watershed restoration activities that has dramatically altered the landscape of the profession" (941597349).

Nonfederal contractor's discussion of restoration work opportunities focused on the opportunities that were created by state level policy. The Oregon Plan, which laid out the framework for the creation of watershed councils and other community-based groups to access funding and technical assistance, has clearly provided increased opportunities in watershed restoration work, where there was none before or where it was limited. Funding sources for state policy was one of the main themes highlighted by this group of contractors. Many of the contractors were very aware of where the sources for restoration funding are coming from. Contractors also suggested that these dedicated funds for restoration provided them with job opportunities. The discussion of state funding for restoration by contractors provides evidence

that dedicated funding this type of work through federal and state-level policy create new opportunities for contractors in watershed restoration and ecosystem management.

Mixed Contractors

Mixed contractors provide the best level of detail about experiences within the restoration economy by virtue of their relatively equal participation in both federal and state policy environments in Oregon. Mixed contractors discussed themes discussed by both federal and nonfederal contractors. These themes include changes in work opportunities, increase in competition for restoration jobs, and funding. The one very different theme discussed by contractors in this group that did not emerge in any of the other was an increase in specialization and growth in their particular area.

Work Opportunities

Mixed contractors like both federal and nonfederal contractors discussed changes in work activities away from timber management. This group of contractors described shifting towards other types of work as they experienced declines in timber management. One contractor who made the transition had this to say: "We started off in logging and then transitioned into restoration" (933896531). Another contractor described this change in his business due to declines in timber management "[We] narrowed our focus from a wider range of forestry activities, to almost exclusively acting as a general contractor for restoration work" (915220763). Another contractor had this to say about how work opportunities had changed in association with a change in timber management on federal lands: "The types of work have changed, less tree planting, less herbicide application more fuels management, including

precommercial thinning, more government contracts and less work from timberland owners other than the federal government due to restrictions on private logging and timber prices" (933837826).

These quotes provide further evidence that many of the contractors interviewed described changes in work opportunities as result of declines in timber management. We get the impression from these contractors that they have transitioned their businesses to participate in the restoration economy. This theme provides additional evidence that a diversity of contractors working in this economy have experienced changes resulting from the shift towards ecosystem management as with both federal and nonfederal contractors.

Competition

As with federal contractors, mixed contractors discussed increased competition in the restoration marketplace. One of the contractors working equally for both federal and nonfederal customers suggested that the increase in competition has happened as the work has become more common: "The opportunities have stayed the same, but people after them have increased, practices are getting more refined, everyone was guessing what to do in the beginning, methods and standards are getting better, what works and what doesn't has been determined, as these opportunities are around longer, they get more refined" (892693018).

Another contractor in this group discussed how increased competition for work opportunities had driven down the bid price of the work: "They have so many people biding on these for something to do that it's pretty tough to find a job that you can make any money. There is a lot of competition" (933031200). Another contractor has this to say about increased competition:

> The restoration jobs have helped us from growing broke, but this work is pretty specialized and the window of opportunity is so small. Because the economy is getting tighter and tighter, everyone is bidding these projects with hairline margins. There is a whole lot of competition, because there is less and less work. If all these rural communities could work on public lands, it would make our communities healthier and our forests healthier (931124727).

These contractors raise some important issues with relation to increased competition within that restoration economy they highlight that there are more people bidding on the work because of fewer work opportunities in other related areas causing businesses to shift to ecosystem management.

Funding

Many mixed contractors brought up funding in their discussion of changes in work opportunities. Many of the comments on funding centered on decreases in federal budgets, changes in programs and grant funding. The discussion of funding focused on a decline in federal funding for restoration work as state funding through OWEB increased. One contractor had this to say about their experience with spending on restoration: "Way busier in the 90s. There is less work for federal agencies, which is tough; a lot of this kind of work comes from these federal agencies, so a decrease in their funding really has a significant impact in the amount of this kind of work that is available" (925757198).Another said their experiences with funding for restoration work: "Work opportunities have decreased. When Clinton and Gore were in office, they were throwing millions at work that benefited my business. A lot of the

money is now grant money, the grant revenue is down" (899326279). Another contractor said this about federal and state funding:

> Some programs have faded out like Jobs in the Wood. As that has faded other, things have come along. They wanted me to downsize as Jobs in the Woods was fading, and then once OWEB got their funding tied to lotteries it has really been a big component of keeping us in business. We have continued to grow and our business has continued to pick up customers (933896531).

Another contractor described experiencing declines in federal funding for "ecology related fields" and more work opportunities with community-based groups through OWEB: "Forest Service work opportunities for ecology related fields have dried up. [They] have laid off a lot of botanists. But work in other places has picked up; the watershed councils seem to have more opportunities-less [from] federal funding and more from OWEB" (917441053). Lastly, one contractor discussed his experiences with funding over the long-term for restoration: "There has been a lot more work happening, in the last year it has declined and in the last decade it increased, and right now budgets are pulling back" (933766866).

Mixed contractors brought up many of the same observations and descriptions of their experiences with funding as both federal and nonfederal contractors. They highlight increases in state funding for watershed restoration and decreases in federal funding for restoration and ecosystem management. The emergence of these themes across the spectrum of contractors suggests that these are dominant themes for many restoration and ecosystem management contractors in Oregon. Funding for restoration work clearly plays a major role in driving

restoration work opportunities for contractors and highlights a challenge for contractors working in the industry.

Specialization

More so than federal and nonfederal contractors, many contractors working equally for both federal and nonfederal customers said that their businesses had grown as a result of their ability to specialize in restoration and ecosystem management. Additionally contractors discussed diversification as a strategy to staying to obtaining restoration and ecosystem management work. One contractor had this to say about the transition they had made: "At the time the Forest Service wasn't spending money we started getting into off stream water developments, and that has been going really strong for the last 10 years" (909486647). Another said, "I have tried to specialize more in this type of work [log placements and in-stream work]" (916600089). Other contractors talked about changes they made to their businesses in relation to work opportunities: "[We are] busier and have hired more people, when we started 6-10 full timers, and now there are 40, so a large increase over the last 10 yrs since I have been here" (925940146). Another contractor said this about their transition away from logging: "[We have] started to specialize in thinning more so than just logging alone" (903970371). These quotes suggest that for many contractors' restoration and ecosystem management work opportunities have created a new marketplace for their businesses and one in which they can specialize.

While there are many mixed contractors that discussed their focus and specialization in restoration work opportunities, some contractors discussed the implications of these new opportunities on their businesses. One contractor discussed having to do things differently than in the past, specifically to obtain work opportunities: "We've learned to do different things.

[We're] spending more time looking for work opportunities than in the past. Minimum 10-15 hours a week looking for work and bidding on jobs, learning new software to find jobs. Seems like this is consuming more of my time than in the past where we could just find jobs" (893920923).

The responses from mixed contractors indicate that there are themes that transcend who contractors are working for and highlight issues working for federal and nonfederal customers. The increase in specialization and resulting growth in business described by mixed contractors was a unique business strategy and outcome. This might indicate that there are niches within the restoration economy that may transcend customers and enable a business to perform specialized work for a variety of customers.

Table 2. A comparison of federal, nonfederal and mixed contractors' experiences working in Oregon's restoration economy

Theme	Federal Contractors	Nonfederal Contractors	Mixed Contractors
Funding	Declines in Funding	State policy and its role in providing funding for watershed restoration	Declines in federal funding and increases in state funding for restoration work
Competition	Increased competition performing labor-intensive work		Increased competition for restoration jobs
Work opportunities	Transition from timber management to ecosystem management, increased watershed management	Increased watershed management opportunities	Transition from timber management to ecosystem management
Specialization		Increased specialization in watershed restoration	Increased specialization in restoration
Regulations and science-based management	Changes in regulations and an increasingly technical focus for work opportunities		

CHAPTER V

DISCUSSION AND CONCLUSION

Federal policy first initiated a transition and shift toward ecosystem management and away from timber management on Oregon's public lands. This initial step created the roots of the restoration economy in Oregon and set the stage for the growth and development of a diverse marketplace with many customers and businesses (Ellison et al, 2010). My research shows that indeed federal contractors have experienced a shift in the type of management occurring on federal lands in Oregon as discussed by Ellison et al. (2010) and Moseley & Reyes (2008). Mixed contractors discussion of these same changes emphasizes that this transition towards ecosystem management on federal lands has indeed occurred. Adding some nuance to our understanding of this shift has been an increase in watershed management opportunities for federal contractors. The responses of federal contractors support findings by Moseley (2006) that work opportunities have shifted away from labor-intensive forest and timber management and towards other types of work like watershed management.

Watershed management was commonly discussed by federal, nonfederal and mixed contractors. This emphasizes the role that both federal and state policy has had in creating work opportunities for watershed management in Oregon. Both federal and nonfederal contractors

discussed increased work opportunities performing watershed restoration work in Oregon. While federal contractors discussed watershed management with relation to work opportunities, nonfederal contractors discussed increased opportunities, funding and increased specialization in watershed management. This focus on watershed restoration by nonfederal contractors highlights the presence of a strong watershed restoration marketplace with a diverse group of nonfederal customers like watershed councils and other community-based organizations (Ellison et al. 2010, MacDonald, 2010 & Hibbard & Lurie 2006). My findings show that both state and federal policy have created watershed management work opportunities for contractors in Oregon.

Funding is at the heart of Oregon's restoration economy. Federal and state funding for restoration create work opportunities and discussion from contractors reflects this important connection. It is expected, that an increase in funding for restoration would result in increased work opportunities and that a decrease in funding would result in decreased work opportunities. My findings show similar results as Ellison et al. (2010) and Moseley & Reyes (2008), with a decrease in federal funding and work opportunities over the last decade, especially for labor-intensive forest management. My findings do indicate that there is some nuance to their findings in that federal contractors have also experienced an increase in watershed management opportunities. The responses of federal contractors support findings by Moseley (2006) that funding and work opportunities have shifted away from labor-intensive forest management and towards other types of work like watershed management as the scale of salmon decline in Oregon has increased and the importance of water quality and riparian habitats has increased politically. My results reflect existing and documented changes in federal

funding for labor-intensive forest management and provide evidence of an increase or shift towards watershed restoration in Oregon.

Both nonfederal and mixed contractors discussed state funding for watershed restoration. Nonfederal contractors discussed the state policy (i.e., the Oregon Plan) and the role it has had in funding work opportunities for watershed management, while mixed contractors reflected on declines in federal funding for restoration work and increases in state funding for watershed restoration. Funding at the state level has clearly increased opportunities for contractors working for nonfederal customers. As Ellison et al. (2010) show nonfederal contractors tend to supplement their work in other industries with restoration where federal contractors tend to work primarily in restoration. Mixed contractors discussion of decreases in federal funding and increases in state funding reflect an important transition in the restoration economy away from federal contracting as state funding has increasingly supported community-based organizations in implementing restoration projects. This difference in funding for state and federal work opportunities have resulted in dramatically different experiences within the economy as it has developed over the last decade.

Other themes highlight the evolution and growth of the restoration economy in Oregon over the last decade (Hibbard and Lurie, 2006). Increased competition as described by federal and mixed contractors might be from three sources. First, I could postulate that there are more contractors interested in performing this type of work. Second, it might be possible that there are fewer of these opportunities now than there were with the decline of timber management related activities. Third, it might be possible that spending on restoration work and ecosystem management has not increased. Moseley (2006) showed that the USFS reduced its expenditures

on ecosystem management work. What we likely see happening is a combination of all three as the market consolidates due to fewer opportunities. This adjustment in the marketplace reflects the evolution of federal contracting opportunities and highlights the key role funding plays in creating work opportunities for restoration contractors.

In contrast to the adjustments in the federal marketplace, nonfederal and mixed contractors indicate that there is likely growth and expansion happening within the nonfederal restoration marketplace. Nonfederal and mixed contractors both discussed increased funding for watershed restoration as well as increased specialization in restoration. The consistent funding provided through the Oregon Plan for community-based organizations has likely contributed to growth in work opportunities for contractors and the ability to specialize in restoration. As Ellison et al. (2010) show, nonfederal contractors tend to supplement their work with restoration while federal contractors tend to specialize in restoration. The suggestion that nonfederal contractors are increasingly specialized in restoration may suggest that over time we may see an increase in nonfederal contractor revenue from restoration. The changes occurring with federal contracting opportunities suggest that federal contractors may increasingly have to diversify outside of restoration amidst declines in funding and increased competition. Both of these suggestions should highlight the evolution we see within the industry and the impact that changes in funding can have in contractors' participation working within Oregon's restoration economy.

My findings show that Oregon's restoration economy is dynamic and evolving as funding, work opportunities change at the federal level, and watershed management increases at the state level. Ellison et al. (2010) show that contractors experienced changes in regulations

and science-based management In Oregon's restoration economy. My findings show that many federal contractors experienced similar changes in regulations and science-based management. The nature of these issues are also discussed by Baker (2003) who shows that heavy equipment contractors in Humboldt County, California also experienced challenges with regulatory authority governing the heavy equipment work season and permitting hurdles. Federal contractors were more likely aware of changes in regulations and science-based management by virtue of restoration opportunities beginning earlier for federal contractors than for nonfederal contractors.

We see that a transition towards restoration initiated at the federal level has overtime included support from the Oregon legislature resulting in the growth of an extensive industry where contractors can work for a number of customers. The issues discussed by contractors in this study show that the restoration economy in Oregon has evolved and changed over the last decade as federal opportunities have transitioned towards restoration, while the state of Oregon has played an increasing role in providing funding and support for watershed restoration projects. These changes in funding and work opportunities have likely resulted in contractors having different experiences within Oregon's restoration economy. Changes at the federal level have resulted in increased competition for types of work that have experienced declines in funding and work opportunities while in contrast nonfederal contractors have increasingly been able to specialize in restoration suggesting that the market for watershed restoration at the state level is growing and still developing. It is likely that as work at the nonfederal level continues to develop nonfederal contractors may also experience more changes in regulations and science-based management. My findings present Oregon's contractors experiences working

in Oregon's restoration economy and emphasize the role funding plays in driving work opportunities and growth and development within the industry.

Conclusion

Federal and state level policy has created funding and new work opportunities to support restoration and ecosystem management objectives. While, much of this transition was driven by concern over endangered species such as salmon and spotted owls and the ESA, the result is a robust, diverse industry that is active throughout Oregon. In addition to federal customers and work on public lands, community-based organizations are continuing to grow in capacity throughout the state. These two customers in particular have driven growth and the development of a restoration economy in Oregon. The findings of this thesis demonstrate that contractors working within different policy environments have different experiences and perspectives on restoration work opportunities.

Federal contractors mainly described existing in an environment where there was increased competition for the work opportunities that likely developed as contracting and federal funding for restoration declined. As this spending has decreased, it seems likely that so to have the opportunities. As result of decreased investment, the industry may be saturated with contractors looking for work opportunities. The discussion of watershed restoration by federal contractors may also suggest that there may be opportunities for them to transition to working for community-based groups. The major finding is that declines in federal spending on restoration work, have likely pushed federal contractors to shift their lines of work, face new competition, diversify, and find a new niche or new customers. Given these implications, addressing market stability through increased funding and work opportunities would greatly

improve conditions for federal contractors especially those performing labor-intensive work. Emphasizing local, bid price, and quality of work as contract evaluation criteria might foster new opportunities for businesses affected by changes in management.

Nonfederal contractors had many similar experiences as other groups of contractors but their experiences in particular focus on opportunities created through the Oregon Plan for Salmon and Watersheds. Like all federal and mixed contractors, nonfederal contractors were aware of funding sources for restoration and described the impact that dedicated funding has had on creating work opportunities for their businesses. Nonfederal contractor's descriptions of increasingly specializing in restoration highlight the extent to which these contractors are willing to invest in restoration and diversify from their traditional activities in other sectors to take advantage of the growing opportunities in watershed restoration. The focus of nonfederal contractors on watershed restoration reinforces the impact that state funding has had on creating a new industry within Oregon that performs restoration work. Continuing to make watershed restoration opportunities available to contractors through community-based groups will advance ecological, economic, and social conditions throughout Oregon. Increasing the scale, number, complexity, and technical nature of watershed restoration projects will foster continued growth and specialization In Oregon's restoration economy. State funding has complimented work opportunities offered by the federal government while enabling specialization and growth in watershed management.

Mixed Contractors as contractors in both federal and nonfederal worlds highlight a number of interesting dynamics of their experiences within the restoration economy in Oregon. Their experiences with funding continue to reiterate that funding is what drives restoration

contracting in Oregon. The shift in work activities discussed by mixed contractors, suggests that this group of contractors has been part of the shift from timber management to ecosystem management. Mixed customers also likely diversified to nonfederal customers as increases in watershed management increased with these customers. The increased specialization discussed by mixed contractors provides evidence that these contractors have found a niche within restoration and successfully made a transition in work opportunities.

The findings of my thesis support the role the Oregon Plan has had in creating work opportunities for contractors throughout the state. Federal policy initiated restoration and ecosystem management in the mid 1990's, and state policy and the Oregon Plan have been instrumental in maintaining the industry and supporting the growth and development of businesses. The funding of restoration work by federal and nonfederal entities has facilitated businesses transitioning away from timber management and specializing in restoration while also attracting new business ventures. In all likelihood, state funding for restoration has been the main constant in the growth and development of this industry. The declines in federal contracting opportunities and contractors descriptions of increased competition support the role that state level policy has played in creating work opportunities in watershed restoration (Ellison et al. 2010). Funding for ecosystem management and restoration at the federal and state level determine work opportunities. Contractor's experiences within the industry reflect the important role that funding plays in creating opportunities and shaping contractors experiences in the industry. As contractors in this study described dedicated funding at the state level has supported businesses growth, development, diversification, and specialization within restoration.

My findings provide more extensive discussion of contractor's perceptions and experiences in the restoration economy with specific respect to the customer they primarily work for and the policy environment in which that customer operates. Investment in Oregon for restoration work proves to be both a benefit to the environment and the economy one that can support private enterprise throughout communities in Oregon. Continuing watershed restoration in Oregon will support ecological benefits like water quality and quantity and increased salmon populations while creating social benefits like economic growth and stability in Oregon communities. Over the last decade, Oregon has created a training academy for contractors supporting their growth and development through continued work opportunities. Oregon's leadership and experience in restoration will undoubtedly be an asset to state now and into the future as ecological, social and economic conditions continue to change locally and globally.

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