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VERMONT SECRETARY OF STATE
OFFICE OF PROFESSIONAL REGULATION

FORESTERS

Preliminary Assessment on Legislative Request for Sunrise Review

Request and State Policy on Regulation of Professions

In a letter dated June 2, 2014, the Vermont House Committee on Government Operations directed the Office of Professional Regulation ("OPR") to make, in writing, a preliminary assessment of whether the legal criteria for regulating foresters have been met.[1]

Chapter 57 of Title 26 of the Vermont Statutes states in pertinent part:

> It is the policy of the state of Vermont that regulation be imposed upon a profession or occupation solely for the purpose of protecting the public. The legislature believes that all individuals should be permitted to enter into a profession or occupation unless there is a demonstrated need for the state to protect the interests of the public by restricting entry into the profession or occupation. If such a need is identified, the form of regulation adopted by the state shall be the least restrictive form of regulation necessary to protect the public interest.[2]

The Legislature delegates responsibility for a preliminary assessment of requests for professional regulation to OPR. "Prior to review under this chapter and consideration by the Legislature of any bill to regulate a profession or occupation, the Office of Professional Regulation shall make, in writing, a preliminary assessment of whether any particular request for regulation meets the criteria set forth in subsection (a) of this section. The office shall report its preliminary assessment to the appropriate house or senate committee on government operations."[3]

[1] This assessment is limited to the issue of the unregulated practice of forestry by professional foresters, or those who design and oversee forest management plans. Loggers are not subject to this review.
[2] 26 V.S.A. § 3101.
[3] 26 V.S.A. § 3105(d).

Pursuant to 26 V.S.A. § 3105(a), a profession or occupation shall be regulated by the State only when:

> (1) it can be demonstrated that the unregulated practice of the profession or occupation can clearly harm or endanger the health, safety, or welfare of the public, and the potential for the harm is recognizable and not remote or speculative;
>
> (2) the public can reasonably be expected to benefit from an assurance of initial and continuing professional ability; and
>
> (3) the public cannot be effectively protected by other means.

If the Legislature decides that the public interest requires minimum competency standards for a profession, OPR is directed to protect the public by licensing or otherwise regulating qualified individuals and disciplining those who commit unprofessional conduct. The entire cost of regulating a profession is borne by the licensees that practice in that profession. As a result, OPR costs the general public nothing in general fund dollars. OPR does not teach professionals how to practice in their profession, micromanage professional practice, or promote one legitimate approach to practicing over another. The Legislature decides the eligibility requirements for licensure, sets licensing fees, and establishes unprofessional conduct standards for each profession. Administrative licensing, disciplinary and rulemaking authority are delegated to a combination of professional boards and the Director of OPR with the assistance of licensed advisors, depending on the profession.

Sunrise Review Process and Outreach

In response to the legislative request, OPR posted a copy of the request on its web site along with a link permitting easy comment. OPR next sent a letter to 520 individuals and 175 different organizations and businesses with ties to the profession. OPR's outreach efforts targeted a broad range of individuals and groups with varying forestry-related interests, including, but not limited to: private foresters, sawmill operators, landowners, county foresters and other state forestry employees, federal forestry employees, wood energy suppliers, landscapers, excavating contractors, surveyors, tree servicers, academic institutions, professional associations, third-party certification organizations, environmental and conservation organizations, forest products organizations, legal experts, and the timberland real estate industry.

In addition, OPR held two separate public hearings on August 12, 2014 and September 29, 2014 to seek additional comments to determine whether or not the unregulated practice of forestry satisfies the statutory prerequisites for regulation. In total, OPR received 46 written responses from 41 different commenters to the question: "should foresters be licensed in Vermont?" Of these 41 commenters, 35 identify as foresters or former foresters, three are forest landowners, one works for a university outside the state, one is a lumber company, and one is the Green Mountain Division of the Society of American Foresters ("SAF"). Many of the commenters expressed either vigorous support or opposition to the notion of regulation, while

others were unsure or lukewarm about additional regulation. In total, 14 commenters expressed support for licensure, 23 opposed licensure, three expressed uncertainty and neither directly supported nor rejected licensure, and one responded simply to provide context and information about forestry in Vermont. Notably, the Green Mountain Division of SAF responded in support for a credentialing program, writing that it "supports rigorous forester credentialing programs as implemented by professional organizations such as SAF and/or through state-level forester licensing and mandatory registration requirements. The state is the appropriate authority to administer forester credentialing programs…" This position is in concert with the national SAF position regarding state credentialing programs.

The Commissioner of Vermont's Department of Forests, Parks & Recreation provided information to OPR regarding the Department's role in implementing state policy. The Commissioner also assisted OPR in its efforts to identify and reach out to interested parties from all parts of the forest-based economy.

Overview of the Profession

What is at Stake? Vermont's Forests and Forest-Based Economy

Vermont's identity, unique character and quality of life are inherently and profoundly tied to its forests. Nearly 4.6 million acres of forests cover 78% of the aptly monikered Green Mountain State, the third most forested state in the lower 48 states. The overwhelming majority of Vermont's forest land is owned by private landowners. As of 2013, over 80% of Vermont's forests were owned by individuals and families.[4]

The forests of Vermont provide far-reaching benefits, including immense natural splendor, biodiversity, wildlife habitat, clean water and air, stream and river protection from soil erosion, flood protection, mitigated greenhouse gases, and significant recreation and economic value. Aside from its people, Vermont's forests are arguably its greatest asset and allow Vermont to have a forest-based economy.

Some of the benefits of our forests are easily measured and assigned a monetary value. Vermont's *forest products industry*, which includes forestry consulting services, logging, trucking, wood products and paper manufacturing, wood energy including heating and electric generation, maple syrup and Christmas trees generates approximately 10,555 jobs and 1.4 billion dollars annually.[5]

Some of the benefits of our forests, on the other hand, are *not* easily measured, such as the benefit of having wildlife habitat. To the wildlife, including threatened and endangered species, and to those Vermonters and visitors who gain some utility from their presence in our woods, these benefits are immeasurable. Vermont's primarily northern hardwood mix of beech, birch, and maple trees are home to over 60 species of mammals, over 60 species of reptiles and amphibians, and over 300 species of birds.

[4] North East State Foresters Association, "The Economic Importance of Vermont's Forest-Based Economy 2013," (Report, North East State Foresters Association, 2014), 2
[5] Ibid., 3

Most, if not all, of the benefits that are difficult to measure and assign a monetary value to are part of what is known as ecosystem services. The forest is an ecological life-support system that is vital to human health and livelihood. The flood protection alone provided by our forests is of enormous benefit to Vermont, especially in light of Tropical Storm Irene. Healthy forests play an absolutely vital role in moderating water movement over the landscape, minimizing the intensity and extent of all flooding events, which in turn significantly reduces the damage to life and property that serious flooding causes. Forests absorb water like a super-capacity sponge and then reroute it, thereby diffusing its potentially damaging energy, before slowly releasing the water into streams, rivers, ponds, and lakes. [6] The net *hydrologic* effect of the forest is to delay and reduce the size of the flood peak. It also serves to filter and produce cleaner water.

From these unquantifiable benefits comes Vermont's more measurable *forest-based recreation and tourism economy* which is tied to non-industry activities that take place primarily in the forest environment. These recreation and tourism activities, such as camping, hiking, hunting, skiing, snowmobiling, and wildlife and foliage viewing, contribute nearly as many jobs to Vermont (approximately 10,050) as the forest products industry itself and generate even more revenue, approximately $1.9 billion annually.[7]

As vital to public welfare as Vermont's forests are, it is important to note that they are changing. Although Vermont's standing forest stock is estimated to be increasing faster than it is being harvested, for the first time in a century the areal extent of the forestland is decreasing.[8] Climate change is currently altering the forest composition and ecosystem as higher temperatures allow longer growing seasons, shortened winters, and increased threats from invasive plants, insects, and pathogens. Some invasive plant species are outcompeting the indigenous ones. Invasive organisms (insects and pathogens) threaten extirpation, a local extinction, of various plants, including trees. Insect infestations linked to climate change also threaten the maple sugar industry.[9]

Climate change requires solutions which in turn create opportunities in our forest-based economy. We can now measure and value previously unquantifiable benefits, like carbon sequestration. A tree's ability to remove carbon in the air through photosynthesis is presently earning money for some forest owners through the California greenhouse gas regulatory process. Although current payments are modest, additional markets are soon to open and aggregation of smaller properties is coming. For professional foresters and landowners, it is wise to understand that there is now additional value in not cutting, as well as cutting.

The number of individual forest parcels has been increasing of late leading to a decreasing average parcel size.[10] Parcelization is the process of parcel division, and it is the first

[6] Michael Snyder, "Woods Whys: Can Forests Prevent or Mitigate Floods?," *Northern Woodlands*, (Summer 2012). http://northernwoodlands.org/articles/article/can-forests-prevent-or-mitigate-floods
[7] NEFA, *The Economic Importance of Vermont's Forest-Based Economy 2013*
[8] Ibid.
[9] Ibid.
[10] Vermont Department of Forests, Parks and Recreation, Agency of Natural Resources, "2010 Vermont Forest Resources Plan," (State Assessment and Plan, Vermont Department of Forests, Parks and Recreation, 2010), 67

step towards fragmentation, a significant threat to Vermont's forests.[11] Fragmentation occurs when we break large, contiguous, forested areas into smaller pieces of forest; typically these pieces become separated by roads, agriculture, utility corridors, subdivisions, or other human development. Over time, those non-forest patches tend to multiply and expand until eventually the forest is reduced to scattered, disconnected forest islands.

When a forest parcel becomes disconnected and isolated, the movement of plants and animals is inhibited. The increasing barriers restrict breeding and gene flow and result in long-term population decline among small and medium populations, reducing their fitness and causing localized extinctions.[12] Fragmentation results in a loss of biodiversity.

Biodiversity is essential to a healthy forest ecosystem and all that it provides and, as it turns out, it is essential *to human health* as well. With fragmentation comes increased risks of infectious diseases.[13] The underlying reason that Lyme disease has become the most common vector-borne disease in the United States may be loss of biodiversity as we continue to fragment our forests and simplify ecosystems.[14] People get this disease from ticks infected with a bacterium, Borrelia burgdorferi. The ticks, in turn, get the bacterium by feeding on small mammals in their larval stage, particularly white-footed mice, the primary and most competent animal host reservoir of Lyme disease in the northeastern United States. Woodlots without predators like weasels, foxes, hawks, owls, and snakes favor white-footed mice. The more white-footed mice that are in the forest, the greater the chance more ticks will be infected, and the greater chance one has of being bitten by an infected tick. Historically, Lyme disease was probably rare because forests had a large range of mammals, from large cats all the way down to a widespread community of rodents. These mammals both act as population controls for white-footed mice and augment the forest's host diversity. Larval ticks are far less likely to be infected when they feed on these other vertebrate animals instead of white-footed mice, thus making them benign to humans when they feed as nymphs the following year.[15] But fragmentation and reduction of forest biodiversity has led to deep declines in the number of predatory and other mammals, and white-footed mice tend to thrive in species-poor places, like small patches of forest on the edge of neighborhoods.[16] It is thus essential that our management and forestry practices attempt to preserve biodiversity.

Vermont's Forest Policies, Laws and Regulations

The Vermont Legislature recently passed Act 118, an act related to forest integrity. In it, the Legislature made the following findings:

> (1) Vermont's forests are a unique resource that provides habitat for wildlife, a renewable resource for human use, jobs for Vermonters in timber and

[11] See Act 118, Finding 3
[12] David Tilman, Joseph Fargione, Brian Wolff, Carla D'Antonio, Andrew Dobson, Robert Howarth, David Schindler, William H. Schlesinger, Daniel Simberloff, Deborah Swackhamer, "Forecasting Agriculturally Driven Global Environmental Change," *Science,* 292.5515 (April 13, 2001): 281-284
[13] Brian F. Allan, Felicia Keesing, and Richard Ostfeld, "Effect of Forest Fragmentation on Lyme Disease Risk," *Conservation Biology,* 17.1 (February 11, 2003): 267-272
[14] Ibid.
[15] Ibid.
[16] Ibid.

other forest-related industries, and economic development through a productive forest products industry.

(2) Large areas of contiguous forest are essential for quality wildlife habitat, to preserve Vermont's scenic qualities, to implement best practices in forest management, and to ensure the continued economic productivity of Vermont's diverse forest products industry.

(3) The division of forests into lots for house sites or other construction fragments Vermont's forests and reduces their value as wildlife habitat, for forest industries, and to Vermont's tourist economy.

The Act requires the Commissioner to submit, on or before January 15, 2015, a report to the Legislature assessing the current and projected effects of fragmentation on Vermont's forestlands, and providing recommendations, including regulatory and non-regulatory mechanisms, and legislation if appropriate, for how to best protect the integrity of Vermont's forestlands and preserve large blocks of contiguous forestland.

With so much of Vermont's environmental, economic and public health at stake, it is important to note Vermont's longstanding and clearly stated forest conservation policy. 10 V.S.A. § 2601(a) reads as follows:

> The conservation of the forests, timberlands, woodlands, and soil and recreational resources of the state are hereby declared to be in the public interest. It is the policy of the state to encourage economic management of its forests and woodlands, to maintain, conserve and improve its soil resources and to control forest pests to the end that forest benefits, including maple sugar production, are preserved for its people, floods and soil erosion are alleviated, hazards of forest fires are lessened, its natural beauty is preserved, its wildlife is protected, the development of its recreational interests is encouraged, the fertility and productivity of its soil are maintained, the impairment of its dams and reservoirs is prevented, its tax base is protected and the health, safety and general welfare of its people are sustained and promoted.

The Legislature has gone further, by placing a legal duty on landowners and managers of forest lands, *whether public or private*, to manage and harvest forest crops in a manner that conserves those lands.[17]

Managing forests sustainably requires an understanding of the ecological, social and economic systems necessary to simultaneously maintain forest health and provide the array of benefits described above. Vermont's Department of Forests, Parks & Recreation (hereafter referred to as the "Department") performs this role and implements the State's policy by assisting forest land owners and industry in the practice of conservation and management of

[17] 26. V.S.A. § 2621.

forest lands.[18] The Department is required by law to adopt both advisory and mandatory rules, as well as voluntary guidelines, establishing forestry practices that promote good forestry management, conservation, and clean water.[19]

The Department's mandatory regulations implement Vermont's responsibilities under the federal Clean Water Act. Specifically, Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont ("AMPs") serve as the rules to Vermont's water quality statutes, and are designed to prevent mud, sediment, petroleum products and slash from being discharged into the state's waters. Both the logger *and* landowner can be held liable for a non-permitted discharge that occurs when AMPs are not followed. The Department's mandatory regulations also implement Vermont's heavy cut law by requiring an "Intent to Cut Notification" to be submitted for Department approval for harvests or clear-cuts of 40 acres or greater.

The Department also oversees Vermont's fire prevention and slash removal laws. Slash is defined in the Vermont Timber Harvesting Resource Guide as "the residue left on the ground after timber cutting or after a storm, fire, or other event. Slash includes unused logs, uprooted stumps, broken or uprooted stems, branches, bark, [and other debris]."[20] Pursuant to 10 V.S.A. § 2648, timber harvesters, owners and operators must comply with the state's slash removal laws unless the town forest fire warden deems there to be no fire hazard as a result of the cutting. These removal laws include: removing all slash for a distance of 50 feet from the right-of-way of any public highway, or from the boundary lines of woodlots owned by adjoining property owners; removing all slash for a distance of 100 feet from standing buildings on adjoining properties; and leaving main logging roads through cutover areas free from slash so that tractors may pass through unobstructed in order to carry men, supplies, and firefighting equipment to fire suppression crews.

Finally, the Department implements Vermont's Use Value Appraisal ("UVA" aka "Current Use") Program. Many Vermonters participate directly in our forest-based economy by harvesting wood from their land. A significant portion of them have been introduced to forest stewardship through Vermont's UVA Program. To be enrolled in the UVA Program, forest land must have an approved, 10-year forest management plan. This document must clearly state the landowner's long-term forest management goals, describe forest stand conditions including tree inventory data, forest management objectives and treatments, and include both a detailed map and schedule for forest management activities. Plans expire after 10 years. In order to keep their land assessed at use value, prior to expiration the landowners need to submit an updated forest management plan.

Since the plan must assure that the land is being managed according to accepted forest management standards, most landowners contract with professional foresters to develop, write and implement the plan. The Department's county foresters are employed by the State to administer the program but do not write or implement forest management plans. The county

[18] 10 V.S.A. § 2601(b).
[19] 10 V.S.A. § 2622 & 2750.
[20] Mark Kolonoski, Thom McEvoy, and Gary Sabourin, "Timber Harvesting in Vermont: Summary of Laws and Regulations," (Resource Guide, Vermont Department of Forests, Parks and Recreation, 2009)

forester's role is to advise landowners and consultants, review and approve management plans, and to conduct on-site monitoring.

Professional Foresters

Into this complex ecological, economic and regulated setting comes the unregulated professional forester. Professional foresters play a critical role in overseeing the State's forests by directing activities in them for economic, recreational, and conservational purposes. The State, towns, individual landowners, and industry that own Vermont's forests seek the professional expertise of foresters to manage their use and development principally through the design and implementation of forest management plans.

There is sometimes a misperception that a professional forester simply manages the removal of wood from the forest, nothing more than boards and cords. Fifty years ago, sustainability only meant sustaining the yield of wood products from the land. Today, sustainability means sustaining the whole forest, because we recognize forests provide much more than wood benefits. We also recognize that the whole forest is needed to produce the wood continuously. Wood is a by-product and sustainability is about harvesting the interest, not the principal.

Forestry, then, is more than cutting trees; forestry is about making trees. In the process, the forester has enormous control over forest ecology (how the entire forest functions as an ecosystem). The narrower the focus of the forester in terms of management goals, the more potential there is for harming the forest ecosystem. During one of the public hearings at OPR, there was a debate regarding which a forester serves first, the landowner or the land, in a situation where the client's objectives do not square with good forestry practices or the State's conservation policies. Not all agreed. To be a member of The Forest Guild in Vermont, for instance, foresters adopt the standard of practice that the first duty of a forester is to the forest and its future.

Whether one agrees or disagrees with The Forest Guild's precise ethos, *ensuring long-term forest health and sustainability, which is the express policy of the Legislature, requires a management plan and planner to incorporate an understanding and appreciation of the breadth of forest ecology into the landscape.* The challenge is to meet the objectives of the landowner with *good* forestry practices that are consistent with Vermont's policies and regulations. Sometimes the objectives of the landowner (for instance, maximum monetary gain) may conflict with good forestry practices, the State's conservation policy, or public health if those objectives are met at the expense of wildlife protection, flood protection, or biodiversity. Good forestry management requires a balanced approach.

Good forest management also requires the capacity to observe, respond to, and predict the actions of a natural system. Practicing forestry is not like working with a circuit board; it involves biology at play and is characterized by complexity, dynamism and variation over long periods of time. Good forest management is about science: biology, chemistry, zoology, entomology, plant pathology, plant physiology, and genetics essential to an understanding of higher-order ecological processes.

What does the landowner client need? There are many possible triggers that might bring a landowner and forester together. Often, a landowner chooses to seek expert advice and forest management oversight. Sometimes the client is faced with an easement, regulation or an order from a tribunal. A client may wish to know what a particular stand of trees is worth if harvested, or may be seeking to increase wildlife populations in the same stand. While ascertaining the objectives of the landowner, the forester must also ascertain the history and present ecological capacity of the forest to meet those objectives. Previous and present land use conspire to suggest an objective to the landowner, but the compatibility of the landowner's objectives with the land requires a deep understanding of the ecological capacity of that land. Landowners cannot always get what they want and not all sites are appropriate for the landowner's or forester's objectives. Like many professionals who offer expert guidance in complex professions that require significant education, training and experience, it can be quite difficult for foresters to ascertain a landowner's objectives when oftentimes the landowner does not know what the options are. In these types of situations, a professional is in a position of power and authority and can, from the moment of first contact, unduly influence a client or move them to the professional's own objectives.

As one forester noted in his comments, foresters oftentimes manage an individual's or family's biggest economic asset. In this sense, foresters are like financial advisors, planning for and preserving future economic value and lifestyle. However, the forester's timeline dwarfs the financial planner's. A forestry plan takes into account the next 100-150 years. A client may ask for present monetary gain but not understand the extent to which they can have something of significant value left for their children and grandchildren.

In Vermont, as in those states that do not require licensing, almost anyone can call themselves a professional forester and begin to practice. There are no assurances for the Department or the public of initial and continuing professional ability. The Department, through the county foresters, keeps and makes available to the public a list of professional foresters by county. To be included on the list, all a forester must do is ask. The Department cannot screen the registrants or certify them to the public in any way. There are no minimum eligibility requirements for inclusion on the list; it is simply a voluntary registration system.

From the comments and testimony received by OPR, there seems to be a broad consensus that foresters must acquire minimum professional core competencies before holding oneself out to the public and practicing as a professional forester. The appropriate *path* for the acquisition of this core education, training and experience, whether through formal education or not, is beyond the scope of this report. SAF, as the accreditation body for post-secondary forestry education in the United States, has established the following core competencies for the professional forester:[21] [22]

[21] Society of American Foresters Task Force on Forestry Education Accreditation, "A Report to the Council of the Society of American Foresters," (Task Force Report, Society of American Foresters, May, 2000).
[22] Society of American Foresters Task Force on Educational Programs in Terrestrial Ecosystem Management, "Final Report of the SAF Task Force on Educational Programs in Terrestrial Ecosystem Management," (Task Force Report, Society of American Foresters, May 8, 2012).

A. Fundamental Knowledge of Forest Ecosystem Components and Functioning:

1. Knowledge of the elements of botany, zoology, entomology, plant pathology, plant physiology, and genetics essential to an understanding of higher-order ecological processes.

2. Understanding of taxonomy and systematics and ability to identify dominant and/or ecologically significant components of the flora and fauna of ecosystems at regional to continental scales.

3. Knowledge of the important life history characteristics of dominant and special-concern species.

4. Knowledge of soil properties and processes, hydrology, water quality, and watershed functions.

5. Understanding of ecological concepts and principles including the structure and function of ecosystems, plant and animal communities, competition, diversity, population dynamics, succession, disturbance, and nutrient cycling.

6. Understanding of the effects of climate, fire, pollutants, moisture, nutrients, insects and diseases, and other environmental factors on ecosystem health and functioning at local and landscape scales.

B. Measurement and Assessment of Ecosystem Components, Properties, and Functioning:

1. Ability to identify, measure, and map land areas and conduct spatial analyses.

2. Ability to design and implement accurate inventories and assessments of dominant or critical ecosystem components and services, ecosystem properties, and indicators of ecosystem health, including trees and other vegetation, vertebrate fauna, biodiversity, soil and water resources, timber, and recreational opportunities.

3. Ability to summarize and statistically analyze inventory and assessment data, evaluate the status of important ecosystem components, describe and interpret interactions and relationships, and project future ecosystem conditions.

C. Identification and Evaluation of Management Objectives:

1. Understanding of the valuation procedures, including market and nonmarket forces that apply to ecosystem goods and services such as timber, water, recreational opportunities, carbon and nutrient cycling, and plant and animal biodiversity.

2. Ability to explain the relationships between demand, costs of production, and availability of those goods and services.

3. Ability to describe procedures for measuring stakeholder values and managing conflicts in the evaluation and establishment of management objectives.

4. Ability to evaluate and understand the economic, ecological, and social trade-offs of alternative land uses and ecosystem management decisions at local, regional, and global scales.

5. Knowledge and understanding of environmental policy as applied to ecosystems and the processes by which it is developed.

D. Development of Management Plans:

1. Ability to develop management plans with specific objectives and constraints that are responsive to ownership or stakeholder goals and demonstrate clear and feasible linkages between current condition and desired future condition.

2. Ability to describe the process of adaptive management and its application to the management of ecosystems.

E. Management Practice and Conduct:

1. Ability to develop and apply prescriptions for manipulating the composition, structure, and function of ecosystems to achieve management objectives, and understand the impacts of those prescriptions at local and landscape scales.

2. Ability to identify and control or mitigate specific threats to ecosystems such as insects, diseases, fire, pollutant stressors, and invasive plants or animals.

3. Knowledge of the methods and procedures unique to the production of ecosystem goods and services such as timber, recreation, water, and wildlife populations.

4. Understanding of how federal, state, and local laws and regulations apply to management practice.

5. Understanding of professional ethics, and recognition of the responsibility to adhere to ethical standards in the practice of ecosystem management on behalf of clients and the public.

6. Ability to integrate the knowledge, understanding, and skills from prior coursework in the development of collaborative solutions to realistic management problems.

In a typical undergraduate education culminating in a baccalaureate science degree in forestry, the above-stated core professional competencies would follow the satisfactory demonstration of: oral and written communication skills; competencies in the biological and physical sciences; as well as an understanding and use of applications of algebra, trigonometry and statistics for problem solving. While the appropriate path to the acquisition of these core competencies can be debated and was debated during the public hearings, there was not a single person who identified himself or herself as a forester who took issue with the necessity that all foresters possess the above or substantially similar core competencies prior to holding oneself out to the public as a forester, and practicing forestry in Vermont.

According to the U.S. Department of Labor, sixteen states currently sponsor some type of credentialing for professional foresters.[23] Of these sixteen states, seven regulate foresters through a system of licensure (Alabama, California, Connecticut, Maine, Maryland, Massachusetts, and New Hampshire), six regulate through mandatory registration (Arkansas, Georgia, Mississippi, North Carolina, and South Carolina), and four utilize a system of voluntary licensure (Michigan, New Jersey, Oklahoma, and West Virginia).[24] Vermont and Rhode Island are currently the only New England states without a system of forestry regulation. Each of the sixteen states imposes certain prerequisites for licensure, albeit in markedly different ways. For example, ten states require a combination of education (usually a baccalaureate in forestry) and experience prior to licensure, with five of these states also requiring applicants to pass an examination. Three states require only experience and an examination, one state requires education and an examination, one state requires only experience, and one state requires only an examination. Some states, including California and New Hampshire, either accept certain degrees as experience for fulfilling the requirement, or tailor the experience requirements according to the applicant's education. Maine, one of the states that requires all three, issues intern forester licenses that applicants must obtain before fulfilling the experience requirement. Many states also incorporate SAF standards into their regulations. With the exception of South Carolina and Oklahoma, every state that requires some level of education recognizes, either in statute or its rules, the SAF education standards as the baseline for its approved curriculums. Additionally, three states, including Maine, use the SAF Certified Forester Exam. Thirteen out of the sixteen states require continuing education prior to renewal.

Although licensing occurs at the state level, forests do not recognize state boundaries. The northeastern hardwood and conifer forest stretches across states, including Vermont, and consists of various forest habitats in an interconnected web of forest activity.[25]

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[23] Bureau of Labor Statistics, United States Department of Labor, "Conservation Scientists and Foresters," last modified January 8, 2014, http://www.bls.gov/ooh/life-physical-and-social-science/conservation-scientists.htm#tab-4

[24] The Society of American Foresters explains that mandatory registration is essentially the equivalent of licensing, while voluntary registration is optional and not required to practice forestry. Voluntary registration regulates use of the title "registered (or its equivalent) forester," and is similar to what Vermont calls "certification."

[25] The Nature Conservancy, "Northern Hardwood Conifer," http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/hg/terrestrial/Pages/NorthernHardwoodConifer.aspx

Analysis

The first sunrise criterion asks:

> whether it can be demonstrated that the unregulated practice of the profession or occupation can clearly harm or endanger the health, safety, or welfare of the public, and the potential for the harm is recognizable and not remote or speculative;

The costs of bad forestry management practices are often not quantifiable and external to the activity that produced them, for instance, increased flooding or loss of biodiversity a mile away. Notwithstanding, and with a clear recognition that Vermont, by all accounts, is filled with accomplished and respected foresters, OPR did receive, through public comment and testimony, examples of professional *forester* misconduct that would reasonably be considered unprofessional conduct under state law in every profession currently licensed by OPR. OPR also received examples of individuals and companies that, while not *expressly* holding themselves out as foresters, offer questionable forest management services to landowners.

One consulting forester, certified by a nationally recognized forestry association, drastically altered his advertising and approach toward landowners after he purchased a sawmill, originally warning them of "smooth-talking" timber buyers, but later advising against hiring third-party consulting foresters. Instead, he advertised free forestry services in exchange for the opportunity to purchase a landowner's timber. He also sent landowners grossly misleading warnings about an infectious disease plaguing the Ash population in Vermont, suggesting that he inspect the woods and conduct what turned out to be unnecessary, but profitable, timber harvesting operations to "limit [the landowner's] loss." Contrary to this forester's advice, good forestry practices backed by scientific research recommend against such salvaging, as some Ash trees are either genetically resistant to the disease or can continue to thrive and appreciate in value even when infected. This particular forester, unlike most foresters in Vermont, appeared not to be able to set aside his ties to the forest industry and provide professional *independent* judgment and consulting services to his landowner clients.

OPR received examples of loggers and lumber companies, apparently without a professional forester on staff, advertising and offering to landowners "forest management" services. In one example, a logger, advertising his company as specializing in "forest management," committed a series of deceptive forestry practices and environmental violations in Vermont and New Hampshire. This particular individual mailed solicitations to landowners offering free timber "cruises," "proper forest management," and tree removal, and caused significant damage to at least one landowner by failing to abide by a timber sale agreement. He was convicted in New Hampshire of a felony count of deceptive forestry for failing to pay for forest products, has been the subject of multiple compliance actions by the New Hampshire Department of Environmental Services for logging violations, and in early 2014 was sentenced to prison and banned from logging in New Hampshire.

In a written solicitation, one lumber company, apparently without a professional forester on staff, recommended that landowners circumvent the costs of a consulting forester and instead utilize the company's forest management services before harvesting. The lumber company advertised that its harvests would, among other things, promote wildlife survival and help combat global warming, services that in OPR's opinion, demand a forester who has demonstrated at least the core professional competencies outlined above.

In his comments to OPR, an SAF-Certified Vermont consulting forester wrote, "As the demographics of landownership has changed too many landowners are convinced by unscrupulous loggers that they can provide 'forest' management ... I have seen loggers prepare management plans that lead to a landowner losing thousands of dollars as well as being left with a damaged forest and possibly with large environmental violations." Examples provided to OPR suggest that lumber companies and loggers sometimes cross the line and practice forestry management. One county forester recalled a ten-year renewal plan submitted in 2014 in his county under the Current Use Program. Unaware of revisions to Vermont's land management standards in 2006, and then again more substantially in 2010, a logger submitted on behalf of his client landowner an exact copy (except for changed dates) of the 2004 plan. The county forester rejected the plan, citing that it failed to reflect *even the 2006 modifications*.

Whether it be filed by a logger or a forester, according to the Workforce Report prepared by the Vermont Division of Forests, a manageable number of Current Use Program parcels for a county forester in Vermont to administer is approximately 500 at any one time.[26] Unfortunately, a district breakdown of parcels administered by each county forester reveals that their workload is significantly greater than this, with the parcels/county forester reaching almost 1,200 in Barre, and sitting at over 800/county forester in the St. Johnsbury and Springfield districts. One county forester stated that at least half the land management plans he receives have some type of significant error. He further explained that many county foresters in high submission areas have enormous difficulty keeping up with the required 10-year on-site inspection process. Similar to the State requirement that professional engineering and architectural plans be signed and sealed by a licensed professional, it is OPR's opinion that county foresters would benefit if the State required the assurance of minimum competency for foresters who submit forest management plans under the Current Use Program. County foresters may, in turn, have more time to conduct on-site inspections or offer technical assistance for public benefit.

Viewing the totality of the harm to the public from the unregulated practice of forestry, the harm appears recognizable and not remote.

The second sunrise criterion asks:

> whether the public can reasonably be expected to benefit from an assurance of initial and continuing professional ability;

The issue is whether the public could benefit from the assurance of minimum competency when the subject matter of the profession is a vast and comprehensive body of

[26] Vermont Forestry Division Workgroup, "Workforce Report*"* (Vermont Division of Forestry Report, Vermont Division of Forestry, Vermont Department of Forests, Parks and Recreation, 2006), 18

scientific and fast-changing knowledge, as it is in the instant case. If the reader takes anything away from this report, it should be that understanding and applying forest ecology requires significant education, training and experience. In the eyes of OPR, the practice of forestry appears to be a significant professional responsibility, akin to other regulated professions where an assurance of minimum eligibility requirements is necessary to protect the public. A licensing program would prohibit holding oneself out to the public as a forester without having demonstrated initial competency. The State, municipalities, industry and the public who choose to utilize the services of a professional forester would be then be assured of minimum qualifications before receiving forest management services. OPR received testimony during the public hearings in the form of opinions from non-foresters that licensing itself would increase awareness of good forestry practices. Of course, licensing also allows the State to discipline those that commit unprofessional conduct.

Moreover, the unregulated practice of forestry fails to promote and enforce State policy and laws that currently require good forestry practices. The development and implementation of forest management plans requires an understanding of these state laws as well a firm understanding of forest ecology. But the State and the public has no assurance of initial and continuing professional competency in this regard. Presently, only the landowner is responsible for satisfying the conservation responsibilities in Title 10. Regulation of foresters would place that responsibility on the trained and qualified professional foresters in Vermont as well.

The third sunrise criterion asks:

> whether the public can be effectively protected by other means.

A licensing program does not serve to compensate the public for damages. A licensing program may establish a statute, regulations and professional standards. A licensing program may also take disciplinary action against a licensee for violating a statute, regulation or perhaps a professional standard. Although there are exceptions to this regulatory standard, the consumer, to recover economic damages against a professional, must generally seek a judgment in a court of law.

If some of the costs of bad forestry practice, however, are not quantifiable and external to the activity that produced them, then the public is most likely not *effectively* protected by the civil justice system. A bad forestry practice may, for example, cause increased flooding and soil erosion, or harm wildlife, in surrounding communities. Bad forestry practices may also cause harm generations from now. The internalization of these external costs can best take the form of legal standards of practice created by a licensing program.

Form of Regulation

The sunrise criteria require the least amount of regulation necessary to meet the public protection need. This minimal regulation could be accomplished through registration, certification, or licensure. The sunrise statute defines each of these at 26 V.S.A. § 3101a as follows:

"Registration" means a process which requires that, prior to rendering services, all practitioners formally notify a regulatory entity of their intent to engage in the profession or occupation. Notification may include the name and address of the practitioner, the location of the activity to be performed, and a description of the service to be provided.

"Certification" means a voluntary process by which a statutory regulatory entity grants to an individual, who has met certain prerequisite qualifications, the right to assume or to use the title of the profession or occupation, or the right to assume or use the term "certified" in conjunction with the title. Use of the title or the term "certified," as the case may be, by a person who is not certified is unlawful.

"Licensing" and "licensure" mean a process by which a statutory regulatory entity grants to an individual, who has met certain prerequisite qualifications, the right to perform prescribed professional and occupational tasks and to use the title of the profession or occupation. Practice without a license is unlawful.

It is OPR's recommendation that foresters be regulated through licensure. Accordingly, only licensed foresters would be allowed to practice forestry, with some appropriate exemptions. All others would be barred by statute. Licensure is appropriate to eliminate unqualified individuals from holding themselves out to the public as foresters. With licensure, a period of "grandfathering" would be appropriate for existing foresters who would not meet the licensing criteria to give them a fair opportunity to become qualified.

Conclusions

Following the criteria of 26 V.S.A. § 3105, we conclude:

(1) The evidence demonstrates that the unregulated practice of forestry harms the welfare of the public. The potential for the harm is not remote and speculative.

(2) There has been a showing that the public requires a State approved assurance of initial and continuing professional ability.

(3) The best regulator of this profession is not the marketplace.

The statutory criteria for regulation of foresters has been met.

Recommendation

OPR is recommending that any person who holds himself or herself out to the public as a professional forester or practices professional forestry be licensed. *This does not mean that forestry management practices necessarily require a licensed forester.* Appropriate exemptions should include forestry management practices on one's own land or practice for no remuneration. Research foresters and teachers should also be considered for exemption. State foresters, including county foresters, on the other hand, should be required to be licensed.

Respectfully submitted:

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January 9, 2015