

Forestry's Conundrum: High Value, Low Relevance

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Abstract:

Forests have never been more valuable, or more at risk. So why isn't public attention riveted on forests? Why isn't Forestry's relevance increasing? The *Journal* is full of laments about Forestry being misunderstood by the public and misrepresented by media. This is a legitimate concern. However, a bigger problem exists: the declining political and economic power of forestry's traditional patrons. Forestry is a service-oriented profession that emerged and evolved to meet the needs of powerful patrons. And several of these patrons—government agencies, forest industry, and commodity producing landowners—have declining power and influence. Forestry's future lay with new patrons: environmental nongovernment organizations, residential forest investors, and the working green infrastructure. Servicing these groups will require Forestry to develop new tools and tactics.

Introduction

Consider this conundrum: (1) Forests produce increasingly scarce and valuable goods and services that are increasingly at risk because of climate change, pests, disease, urbanization, exploitation and neglect. (2) The confluence of rising value and rising threat presents a golden opportunity for professionals who can capture and enhance forest values. But, (3) Forestry's influence is eroding.¹

Readers of the *Journal* will be familiar with calls to improve public understanding and appreciation of forests and Forestry as one strategy to address this conundrum. Progress on this goal has been elusive but remains within reach. A bigger challenge exists, however, if Forestry is to renew its social relevance. It is argued here, in the second and longer section of this paper, that Forestry is losing relevance because its traditional patrons are losing political and economic power. Before developing that argument, let's first examine the public's appreciation for forest-related issues. How does Forestry compare to other issues vying for public attention? Regrettably, not well.

The Image of Forest and Forestry

National opinion polls seek to identify the most pressing issues of our day. The issues identified vary from poll to poll according to what crisis dominates the news cycle,

¹ Polemics of this type are not new to the *Journal*, and I humbly acknowledge a lineage of constructive critiques such as Behan (1966), Luckert (2006), and Zivnuska (1963).

but a typical order would be: (1) economy, jobs, taxes, and business, (2) national security, war, terrorism, (3) faith, spirituality, and religion, (4) personal health and health care, (5) family values and leisure time, (6) energy and transportation, and (7) equity and civil rights. Concerns about forests rarely surface. The environment gets mentioned only occasionally; perhaps 1% or 2% of Americans identify it as the most critical issue of our day, deserving immediate attention and action (Dunlap 2006; McCright and Dunlap 2008).²

We should not conclude from these polls that the public doesn't care about forests; instead, we should conclude that neither the pollsters nor those polled connect forests to the pressing issues of the day. Readers of this *Journal* easily connect the dots: forests enhance national security through reliable energy and stable climate, forests promote family values through nurturing and proximate recreation, forests reinforce faith through stewardship of creation, forests support economic opportunities through management and manufacturing jobs, and forests promote public health through filtered air and water. Forestry must continue to celebrate and promote these connections.

How do forests fare when polls focus only on environmental issues? Again, not well. A 2009 Harris/BBC poll provides some insight. It asked citizens to identify their top 2 environmental concerns (Table 1).

Table 1: A 2009 Harris/BBC Poll Asked People Specifically About Their Top Two Environmental Concerns

Environmental Concern	% saying it is a top two concern
air pollution	42
water pollution	40
global warming	34
water shortages	34
reducing carbon footprint	18
deforestation	16
species extinction	11

The questions asked by pollsters should concern readers as much as the results. Forestry appears to be a problem rather than a solution.

- Air pollution is a problem. How do we stop it? Stop polluting.
- Global warming is a problem. How do we stop it? Stop emitting carbon.
- Deforestation is a problem. How do we stop it? Stop forestry!

² The polling data reported here were summarized from "Polling the Nation: The Ultimate Survey Data Base," which collects polling data from around the world (<http://poll.orpub.com/>). Thirty years of Gallop polls asking Americans if they favor economic growth over environmental protection presents an important exception: even in times of economic crisis, Americans say the environment matters more than the economy (<http://www.gallup.com/poll/105715/Half-Public-Favors-Environment-Over-Growth.aspx>).

Clear and bold lines must be drawn to connect forests with the public values driving politics and culture. Excellent resources exist to steer this work. Public relations firms have developed effective vocabularies and media relations strategies (e.g., Biodiversity Project, Water Words that Work³), cognitive linguists offer powerful ways to reframe forestry's message (i.e., Lakoff 2004), landowner surveys help effectively target different forest owners types (e.g., Kendra and Hull 2005), and social marketers help build green public relations campaigns (Andresen 2006). Recent revisions to Society of American Foresters' webpage reflect an important public relations advance

Public relations campaigns also create liabilities, however. The public is understandably cynical about green washing (Laufer 2003). It is critical that deeds clearly follow words. For example, we can't promote the links between forests and water but then say inspections of stream crossings at logging sites or mandatory BMPs are impractical. No matter how nuanced and complex these issues seem to forest experts, from the vantage point of public opinion, such positions make Forestry appear inconsistent. Credibility demands actions that clearly match rhetoric.

Unfortunately, Forestry's problems run far deeper than public relations and may require more substantive changes.

Forest Advocates and Forestry's Patrons

Forestry is a service-oriented profession that emerged and evolved to meet the needs of powerful patrons (Perlin 1989). The first foresters managed and guarded the hunting grounds of kings, warlords and landed gentry. In modern times, governments called on foresters to provide the materials needed to build navies and economies; here emerged the foundations of American professional Forestry and celebrated icons such as Gifford Pinchot and Bernhard Fernow. More recently, multinational corporations asked foresters to improve rates of return on financial investments. In the US, where private property dominates, private landowners are a long time patron of forest professionals, although their diversity diffuses their power and foresters think of them as clients rather than patrons. SAF's Code of Ethics captures Forestry's patron-service orientation in its pledge to honor and advocate employer and landowner objectives.

The remainder of this essay examines the changing expectations and capabilities of six patrons: (1) the government agencies charged with stewarding public forested lands, (2) globalized forest industry and commodity producing landowners, (3) remote, rural landowners bypassed by urbanization and forest investments, (4) environmental nongovernment organizations, (5) owners of real estate investment forests typically located near urbanizing areas, and (6) communities dependent upon economies and services flowing from a working green infrastructure.⁴

Forestry's traditional patrons (numbers 1 through 3, above) have declining power and influence, as well as a reduced need for professional advice. Forestry's future lay, instead, with patrons 4 through 6, as these patrons both need Forestry's advice and are increasingly politically/economically relevant.

³ <http://www.biodiversityproject.org/publications.htm> ; <http://waterwordsthatwork.com/>

⁴ These categories represent ideal types for discussion purposes. In practice and on the ground they are not mutually exclusive: people, organizations, and forests can be in multiple categories.

Government forestry agencies: Between one-third and half of our nation's forested estate is owned or managed for the public good (estimates vary depending on what land is counted as forested and public: Alig et al. 2003, Alvarez 2007). State and federal government agencies, Native American Nations, municipal water systems, land trusts and numerous other institutions employ professionals to manage these lands, providing foresters a prominent platform to influence forest policies and economies.

During the early 20th Century, the US Forest Service was respected not just as the source of professional advice on forest-related matters but as a model government agency. Its reputation and efficacy changed during the middle of the century when it and other land management agencies were accused of being captured by corporate interests to exploit public resources by emphasizing timber production over other forest services (Hirt 1996, Mather 2001, McQuillan 1993). Media attention focused on unlikely but now iconic places such as Monongahela and Bitterroot. The public spotlight was so intense that national legislation resulted. Most but not all of these battles have waned, and government agencies such as the US Forest Service now practice more tourism promotion, ecological restoration and conservation biology than commodity extraction (Bosworth and Brown 2007a, 2007b). Unfortunately, these public battles also damaged the reputation of forest professionals and forest science, placing them on the wrong side of politically popular topics and narrowly defining Forestry as an advocate for corporate interests and commodity production (Hirt 1996, McQuillan 1993, Nelson, 2000).

The public platform these agencies provided forest professionals is further muted because most government agencies have been retreating after decades of neo-liberal critique that government is a problem rather than a solution. The US Forest Service, once heralded as among the most respected and effective government agencies, has become a case study of bureaucratic red tape and low morale (Hirt 1996, Nelson 2000). It is now subjected to intense litigation that constrains professional expertise and frustrates forest management (Broussard and Whitaker 2009, Kelle, Malmsheimer, Floyd, and Perez 2006). Repeated internal mis-management resulted in it being ranked among the least favorite federal agencies in which to work (Davidson 2009). Moreover, in the next 5 to 10 years, as the baby boomers retire, federal and state agencies are projected to lose 30-60% of their staff to retirement. Powerful and informed voices are being silenced.

Even the most effective public forestry programs must downsize as scarce tax revenues get redirected to support defense, welfare, bridge repair, deficit reduction, and bank solvency. Leaders of state forestry agencies report changes in funding priorities reflecting a shift of political power in statehouses from rural to urban and suburban. There simply are fewer advocates in state legislatures for the rural forestry programs that dominated the 20th century. State forestry agencies struggling to be seen as more than firefighters and tree planters are re-inventing themselves to better serve urban and suburban constituents.⁵

Forest Industry: Forest industry has been a good patron for Forestry and a strong advocate for forests. It remains so. However, its influence is waning and its emphasis changing. Paradoxically, foresters' success at growing trees has reduced forest industry's interest in forests (Oliver 1999). Technological innovations allow foresters to produce

⁵ Based on interviews in Texas, Virginia, and Florida, where, of course, fire management remains a major selling point for forest agencies.

more and more fiber on less and less land area. Timber famine is not the concern it was a century ago when Forestry's relevance soared. Society can grow more wood than it uses: predictions suggest that by 2050, 60 percent of US softwood harvest will come from only 6 percent of U.S. forests (Haynes 2007, Wear, Carter, Prestemon 2007). Depending on which land classification system you look at, industrial forests now comprise only 10 to 30% of our nation's forest estate (Alvarez, M. 2007, Alig et al. 2004). Similar trends are happening globally (Sampson 2000, NCSSF 2005, Victor 2005).

In addition to intensifying production on fewer acres, forest industry has been relocating and concentrating its production and processing operations to where they make the most profit. These innovations, relocations, and efficiencies make it increasingly difficult to profitably grow timber on forests not fortunate enough to be located near the few places where forest industry is concentrating its investments and facilities. The parallels between the industrialization of forest management and industrialization of agriculture are bold and unmistakable: the demise of the working woodlot echoes the demise of the family farm. Producers of wood and food commodities are caught in a "race to the bottom" caused by a cost-price squeeze: on the one hand are rising costs of production and on the other hand are stable or declining prices resulting from global competition and lack of product differentiation (Freudenberg 1992, Ince et al. 2007, NCSSF 2005).

Declining profits encourages cutting costs. It's becoming more difficult to afford the advice of foresters. For example, between 2005 and 2006, forest industry's Landowner Assistance Programs, which helped private land owners manage their forests, dropped 1/3 of their clients and 60% of their acreage. Employment statistics available on the US Census website present a sobering picture of declining employment in forest-related fields between 1999 and 2007: the number of forest and conservation workers dropped 25% from 11,780 to 8,770, the number of fellers declined 20% from 9,420 to 7,500, the number of logging equipment operators declined 16% from 33,230 to 27,700 and the number of log graders declined 19 % from 5,500 to 4,430. Predicted changes for the US economy through 2016 suggest that declines in forestry related employment will continue (Bureau of Labor Statistics 2007).

The sad truth is that a thriving forest products industry does not benefit all forests equally: some benefit from professional management while others get neglected or exploited. Rising transportation costs are unlikely to reinvigorate local forests industry because transportation costs comprise a significant percentage of the costs born by landowners, loggers and foresters, but comprise only a small percentage of the total revenue stream generated by globally marketed forest products (Ince et al. 2007, Oliver 2005, Victor 2005).

Consider a specific example from my home state of Virginia, which recently completed a comprehensive economic impact study that found the state's forest-related business' generated a total economic impact of over \$23 billion—which you think would generate considerable political clout (Rephann 2008). Very little of that money went to people directly connected to forests and Forestry—only \$350 million went to land owners and less than that to forest consultants, loggers, and others working firsthand with forests. The rest of the economic impact, as described below, is associated with industries that have diminishing direct connections to forests or Forestry.

In 1990, approximately 28 forest-based companies were in the Fortune 500, 7 were among the largest 100. By 2008 only 7 forest industry companies can be found among the Fortune 500 and only 1 remained in the Fortune 100 (Newman 2008). Perhaps most importantly, the remaining corporate players have less to do with forests or Forestry. The implications for reinvestment into forests and forest science are worrisome. The TIMOs and REITs that now own much of the commodity producing forest land invest less in research and development than the vertically integrated forest industry that previously stewarded those lands (Clutter et al. 2005).

The biggest potential for corporate growth and increased profits comes not from managing forests, but instead from manufacturing, marketing, and distributing products. Major corporate players have renamed and repositioned themselves accordingly. For example, from MeadWestvaco's website it is hard to find any connection to forests. Instead, the company promotes itself as providing "packaging and packaging solutions" servicing consumers and businesses in "personal and beauty care, healthcare and pharmaceuticals, food and beverage, home and garden, and media."⁶ As a consequence, the public relations campaigns and lobbying efforts of large corporations understandably focus on the profit-making sectors of their businesses, not forests or Forestry. The fiber inputs to their industries are inexpensive and widely available from global commodity markets.

Remote Land Owners: During most the 20th Century, forest professionals advised rural landowners on how to manage and harvest the timber demanded by local mills and markets. These opportunities are becoming less common because of relocated processing facilities and declining profits. Forests located far from major processing facilities or growing urban populations—the two sources of revenue that fund management—now face a fate of being neglected or exploited because professional management is unprofitable (Ince et al. 2007, Oliver 1999). Forest owners typically know little about silviculture and few have explicit management plans or intentions (Butler and Leatherberry 2004). The trees on these properties, however, keep growing and putting on merchantable value.

The value accumulating from unmanaged tree growth may eventually cross some threshold that leads to an unmanaged harvest, a situation exasperated if a financial crisis results from an owner's emergency medical expenses, grandchildren's tuition, retirement needs, estate taxes, or property transfer closing costs. Some harvested logs may be of high enough value to justify transport over long distances or their price might be discounted deeply enough by landowners in fiscal crisis to supply local mills that are

⁶ <http://www.meadwestvaco.com/AboutUs/index.htm> (accessed 5/09). Likewise, Georgia-Pacific emphasizes the manufacturing and marketing "of tissue, packaging, paper, pulp, building products and related chemicals." Boise Cascade and Temple-Inland occasionally use the word "wood," but mostly emphasize building materials. Weyerhaeuser is an exception. Its website uses forest images and contains promotional material specifically mentioning trees "Weyerhaeuser releases the potential in trees to solve important problems for people and the planet. ... We are inspired by trees. Their strength, vitality, and unlimited potential to be transformed into useful products have guided our approach to business for more than a century" (May 2009). For further evidence of the widening gap between forests and forest products industry one can look at staffing and priorities of the major industry trade association—the American Forest and Paper Association—to see increasing emphasis on products and less on forests and forestry.

vestiges of the 20th century wood economy and managing to survive through innovative and shrewd business practices.

Because there is little forest management or long term commitment by the timber harvesting services, best management practices may not be followed and “high-grading” is a likely result, further reducing forest productivity and opportunity for future profit and management (Nyland 1992). Despite wrestling this problem for many years, Forestry has been unable to solve the downward spiral of neglect and exploitation (Nyland 1992, Oliver 2005). Foresters and Forestry are not to blame for the exploitation and neglect, but are instead victims of forces they have been unable to influence or adapt to. Neglect and exploitation are not unique to remote, rural forests: agriculture, mining, tourism, and other rural development efforts similarly struggle to re-invigorate economies and communities as their industries globalize and intensify (Freshwater, 2006; Marsden, 2003).

Environmental Nongovernmental Organizations (ENGOS): Non-governmental organizations address problems falling outside the boundaries that constrain established institutions, disciplines, businesses, and states. Their functions have become necessary in today’s complex, interdependent, dynamic society and their collective interactions and impacts contribute to the network governance that is a defining quality of the 21st Century (Hajer and Wagenaar 2003). These organizations are self-governing, private, non-profit, and address issues such as labor, civil rights, and environmental concerns. They can be local or global and deploy strategies such as education, voluntary collaboration, litigation, public relations, lobbying, and market strategies such as boycotts and certification. Hawken (2007) identified hundreds of thousands of ENGOS; most focus on local issues, many with environmental dimensions. ENGOS familiar to readers of this *Journal* include Audubon, Sierra Club, American Forests, Green Peace, The Nature Conservancy, Forest Watch, Friends of the So-&-So Watershed, and Society of American Foresters (SAF).

Forestry has long had an adversarial relationship with several ENGOS, dating back to confrontations between John Muir of the Sierra Club and Gifford Pinchot of SAF. A schism between preservation and conservation defined a century of similar encounters so adversarial that historians characterized the era using the metaphor of war (Hays 2007, Salazar, 2000). As a result of this adversarial relationship, forest industry, public forest agencies, and Forestry have been prime targets for ENGOS public relations campaigns advocating environmental preservation. Adversarial posturing on forest issues in the US persisted even when, starting in the 1980s, global movements such as sustainable development and ecological modernization demonstrated the efficacy of collaboration (Simmons 1998, Sonnenfeld 2002, Weible and Sabatier 2009). Other industries began adopting ENGO-endorsed practices for a variety of reasons, including reducing costly waste, lowering insurance costs, and increasing access to socially responsible investments and “green” markets (Mol 2000). Multi-national pulp and paper manufacturing industries, for instance, sought more cooperative solutions and have dramatically transformed their emissions, processing, and marketing in ways endorsed by ENGOS (Sonnenfeld 2002).

However, adversarial tendencies still characterizes many interactions between US Forestry and ENGOS. Certification of forest products provides a case in point. In Europe and elsewhere, forest industry and forest professionals collaborated in developing the Forest Stewardship Council certification system promoted by ENGOS such as Rainforest

Alliance and World Wildlife Fund. In the US, efforts to collaborate and negotiate failed, so a separate certification system was developed, the Forest Sustainability Initiative (Sasser, Prakash, Cashore, and Auld 2006). This decision epitomizes the history of antagonism in the US, the result of which has diffused and confused political advocacy for forests and forest management initiatives such as forest certification.

New opportunities for collaboration are presenting themselves. Some preservation-oriented ENGOs are questioning their all-or-nothing adversarial posture. Specifically, they are questioning the logic of promoting a conception of nature as a place without human influence, a logic that restricts or eliminates active management through forestry, agriculture, and related natural resource professions. Intense controversy has raged within the ENGO community in the recent decade over charges that their adversarial orientation has led to a “death of environmentalism.” Critics argue that the old position is neither feasible nor productive in a 21st century humanized world. They argue that solutions advocated by ENGOs must celebrate the role of people managing renewable resources such as forests and agriculture (see Brulle and Jenkins 2006, Freyfogle 2006, Nordhaus and Shellenberg 2007). The emerging context could create a new class of patrons for Forestry, as is evinced in pioneering collaborative efforts such as Massachusetts’ Wildlands and Woodlands program and Oregon’s Cascade Agenda.⁷

Residential Investment Forests. We do not know the exact size of America's residential forest, but we do know that it is growing: in 1950, only 5% of private land had at least one building every 40 acres. By 2007, this density of settlement sprawled to 30% of privately owned lands (Brown 2005). Butler and Leatherberry (2004) estimate that slightly more than 9 million different people own forests smaller than 50 acres and cumulatively control over 78 million acres of forested land.

The residential investment forest is often portrayed as a threat to Forestry because forests get “converted” to residential uses and traditional timber management practices become less appropriate. Often times, however, the forests are not destroyed; they just change. Some of the understory gets modified by houses, exotic species, trails, and swing sets, but much of the forest system remains functional and still provide valuable services such as habitat, water filtration, and carbon storage. Millions of small patches of forest dot our landscape. They still need professional management, a service many land owners desire but few receive (Bliss and Kelly 2008; Hull, Robertson, and Buhyoff 2004). The silviculture appropriate for Residential Investment Forests is different than what is currently developed for urban or industrial forests, so new practices are needed (Lee 1984, Puettmann, Coates, and Messier 2009). Relevant forest “products” include scenery, carbon sequestration, property value, health, privacy, biodiversity and safety as much or more than timber.

Arborists, landscapers, loggers, lawn and garden companies and other entrepreneurs are currently exploring business models and management practices for these forests (Nelson 2009). A multi-billion dollar green industry currently services suburban and exurban properties, but very little of that revenue involves forest care (DeCosta 1998, Hall et al. 2005). Forestry may cede this market, responsibility, and relevancy to other professionals (as it did previously with hydrology, wildlife management, forest recreation and tourism, and conservation biology), but the

⁷ <http://www.wildlandsandwoodlands.org/> ; <http://www.cascadeagenda.com/ourstory>

opportunity is knocking. Innovators are responding to these opportunities and challenges. For example, the Southern Group of State Foresters and the US Forest Service developed a “Changing Roles” education program to help agency foresters retool, the Texas Forest Service organized an Expo to engage and motivate exurban forest owners, and the Virginia Department of Forestry held business planning sessions for arborists and other entrepreneurs.⁸

Working Green Infrastructure Forest (WGIF). The green infrastructure often goes uncelebrated and political attention instead focuses on the better known built infrastructure—utilities, roads, buildings, and markets. But both built and green infrastructures are needed to sustain high quality lives and lifestyles (Benedict and McMahon 2006; Bills and Gross 2005). The WGIF overlaps, conceptually and on the ground, with the Residential Investment Forest described above.⁹ The distinction that merits a separate category is the emphasis on local markets for community sustaining goods and services.

The WGIF is politically and economically powerful. Eight out of 10 Americans reside in or near urban areas and thus so does the bulk of political, cultural and economic power. These people get their income and forest products from elsewhere in the global economy. They are *not* dependent upon local forests for food, shelter or employment. They *are* dependent upon WGIF for ecosystem services and any *local* source of energy or materials they want to consume. The WGIF provides first contact for the majority of citizens. It is where Americans develop ecological literacy and nature appreciation. It is where Americans engage the challenges of sustainability, green economy, carbon neutrality, caring for creation, wildfire, and dignified employment with equitable income.

The WGIF “works” for communities by fueling a local economy that grows, processes, and consumes timber, energy, ecosystem services, beauty, and other local forest products (Wolf and Klein 2007). WGIF economies are characterized by *scope and synergy* that emphasize local partnerships and integration to move value up the supply chain towards forest owners and to communities where the forests are located (Marsden 2003). They contrast with economies of *scale* that minimize costs by exporting resources to concentrated production facilities and add value further down the supply chain, closer to retail distribution. WGIF economies often require creating or redeveloping infrastructures for local forest-based services and processing through deliberate community-based coordination (Christoffersen et al. 2008; Marsden and Smith 2005).

⁸ Find the Changing Roles material at Centers for Urban and Interface Forestry website http://www.interfacesouth.org/products/training/changing_roles.html. The 2009 Texas’ Forest Expo reached almost 1000 people (<http://tfsweb.tamu.edu/conferences/texasforestexpo/>) and provides just one example of TFS’s aggressive efforts to service this new constituency. Virginia’s Department of Forestry, as another example, conducted workshops to help service providers re-tool.

⁹ The name and scope of this forest type is contested and includes multifunctional or post-production forests (Mather 2001), community-based forestry (Christoffersen, et al. 2008; McCarthy 2006), and forest landcare (Nelson, 2009). Wolf and Klein (2007) analyzed the “working forest” discourse and identified three distinct meanings in active circulation: (1) what I focus on here, a local economy that respects local ecology and community, (2) the work that forests perform via ecosystem services and thus applies to all green infrastructure forests, and all forests for that matter, and (3) the traditional timber production forest where work fueling an industrial economy occurs, and thus applies to the globalizing forest industry category developed above.

WGIF economies have parallels to the local foods movement, with its emphasis on consumer concerns about food source, worker equity, health, and artesian/traditional means of production. “Woods to goods,” “field to fork”, “fuel to schools,” “home grown wood,” localism, and farmers markets are parts of this growing movement (Hess, 2008). These efforts have learned lessons from failed first-generation cooperatives that aggregated local production in attempts to compete in global commodity markets and strive instead to develop niche markets, add value through local processing, and practice sophisticated marketing strategies such as regional branding (Christoffersen et al. 2008, Torgerson 1998, Hull and Ashton 2008). The Sustainable Woods Network, for example, offer databases that connect buyers and sellers and provides education and other resources assisting emerging efforts to build local forest-based economies. Likewise, ENGOs as diverse as National Network of Forest Practitioners, US Endowment for Forests and Communities, and landcare promote grassroots non-profits and local, "green" business solutions designed to revitalize regional economic opportunities drained away by globalization, restore ecological functions degraded by exploitation, and build social capacity to care for forested environments.¹⁰

Forest professionals can play a critical role in WGIF economies. As ecological entrepreneurs they can generate and manage multiple revenue streams and an emerging green economy (Marsden 2005, Rosenfeld 2009). They can: (1) aggregate or broker ecosystem services, (2) coordinate, market or distribute special forest products such as mushroom logs and holiday decorations, (3) link cabins and recreation opportunities through websites to create a network of properties with access controlled through gates and reservations, (4) add trails, vistas, and wildlife plots as part of silvicultural operations, (5) manage for long rotation saw-timber because standing trees add value to wildlife, carbon sequestration, scenery, and inheritance, (6) coordinate timber harvesting, processing and sales through local markets, and (7) help shape smart growth, cluster zoning, conservation design, and related land use planning tools so that the resulting forests lend themselves to profitable, sustainable management that improves regional economy and quality of life.

WGIFs are promoted by government policy and public subsidy because such forests explicitly address the triple bottom line of economic development, community vitality, and environmental health (Bills and Gross 2005, Christoffersen et al. 2008, Wolf and Klein 2007). They generate profits that help landowners pay taxes and resist pressures to fragment forests for real estate developments (D'Amato et al. 2010, Daniels 1999). They sustain landscapes and cultures by employing people in agrarian trades, which in turn sustains land management expertise and therefore the capacity to respond as new opportunities or challenges arise. They provide an alternative strategy to mitigate the poverty and out-migration afflicting economies built on race-to-the-bottom commodity production (Marsden 2003). And, they promote security and resiliency by providing redundant supplies of food, energy and material less vulnerable to disruption than long, just-in-time, global supply lines (Freudenberg and Gramling 1994, Marsden and Smith 2005).

¹⁰ See: <http://www.sustainablewoods.net/>; <http://www.nnfp.org/About/index.htm> ; <http://www.landcarecentral.org>; <http://www.nnfp.org/index.php>. The US Endowment has funded specific programs promoting Forest Investment Zones and Working Forests Marketplace (<http://www.usendowment.org/programs.html>)

Conclusion

Can Forestry solve its conundrum? Will its relevance soar? Or, will other institutions, professions, and entrepreneurs replace it? Better public relations and human dimensions may help, but by themselves such incremental changes are probably insufficient. Re-aligning the profession to better service new patrons must occur. Forestry must develop new practices and purposes that service the needs of powerful new patrons, especially those in wildland-urban interface. Innovative foresters in every region of the US are already experimenting with strategies that serve these new patrons, so we have a great deal to learn through exchanges in forums such as the *Journal*.

Dramatic and unpredictable changes due to climate, energy security, and urbanization can make forests and Forestry even more relevant, but in ways we can't easily predict. New weather patterns can trigger changes that require capable responses to sustain species, productivity, and critical ecosystem services. New tax laws, banking practices, and transportation priorities can dramatically redirect land development and forest fragmentation. Likewise, political winds can redirect economies and land uses. Pellet mills and cellulose stills have not popped up as quickly in forests as have ethanol plants in cornfields, but that is probably because the corn lobby is so effective in Washington DC. If they do, a rush to forest fuels can transform forests and Forestry. Despite the unpredictability, one thing seems certain: society will need and reward professionals who can capture and enhance forest values.

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