



## Hug a tree, hug a building: Reflections on the management of natural and built heritage

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### ABSTRACT

A veteran forester refuses to cut down a mammoth, millennium-old Douglas fir on British Columbia's Vancouver Island. The city council in nearby Victoria designates the stately Empress Hotel as heritage property. The former was an act of environmental conservation; the latter, of built heritage conservation. This essay looks at the two events in the contexts of forest management, historic preservation, climate change, and sustainability. It describes the increasing threats to old-growth and heritage trees, discusses the mitigative tools that are available, and reflects on analogies between safeguarding natural heritage and built heritage. A new management and legislative approach is needed, one that balances science with Indigenous Traditional Knowledge. Until then, advocacy will continue to lead the way. The theme may have been expressed best by an Aboriginal writer from Australia, who reacted to a proposed freeway's threat to destroy dozens of 800-year-old trees: "Their survival and our fight to keep them alive and safe are a cultural obligation and an assertion of our sovereignty." The present article unpacks the issues, focusing on stories from British Columbia and California, while looking at parallel experiences elsewhere.

### VALUING TREES AND FORESTS

One winter morning in 2011, Dennis Cronin tied a green ribbon around a massive Douglas fir in an old-growth forest near Port Renfrew, on southwestern Vancouver Island, British Columbia. Some 80 km (50 miles) to the east and a generation earlier, in 1975, Mayor Peter Pollen and the city council of Victoria had passed a bylaw protecting the stately Empress Hotel, one of Canada's storied railway hotels, as heritage property. The two events—Cronin's ribbon and Victoria's designation—both protected a valued object. Both encouraged people to reflect on what they cherish. Both altered the tide of change. Cronin's deed was an act of environmental conservation; Pollen's, of built heritage conservation.

This essay looks at the two events in the context of forest management, climate change, heritage conservation, and

other broad issues. It focuses on the management of trees and forests along the American and Canadian Pacific Coasts, especially in California and British Columbia, and looks as well at trees in urban settings. The paper describes the increasing tangible and intangible threats to old-growth and heritage trees and forests, discusses the small number of tools available to mitigate those threats, and proposes a framework for enhancing their future management. It reflects on analogies between safeguarding natural heritage and built heritage, showing how the latter can enlighten consideration of the former.<sup>1</sup> The essay argues that a new approach is needed, one that considers cultural and spiritual, as well as scientific and environmental, values and which bases decisions on solid information. The method currently used for built heritage, in which decisions depend partly on a

“statement of significance,” can be adapted for natural heritage. The outcome would be a more integrated, knowledge-based, and respectful approach to natural resource preservation, one that can be accepted by both mainstream and Indigenous communities. The method would embrace old and exceptional trees and forests, as it now does old and exceptional buildings and historic districts.

### SAVING “BIG LONELY DOUG”

Dennis Cronin was a veteran logger. He lived in central Vancouver Island’s Cowichan Valley, a scenic valley blanketed with Western red cedar, Douglas fir, and other large trees. Cronin had come out West from Ontario in 1972, at the age of 18. His first job was as a “hooktender,” helping to haul newly cut logs out of the forest. He later found work with Teal Jones, a Vancouver-based lumber company.<sup>2</sup> His job was to scout the forests and identify stands of timber that were ripe for cutting and milling into lumber. Cronin marked these trees with orange, pink,

(right) “Big Lonely Doug,” a Douglas fir about 1,000 years old, stands tall in a clear-cut near Port Renfrew, on southwestern Vancouver Island, British Columbia.

TJ WATT, ANCIENT FOREST ALLIANCE

(below) The Empress Hotel, on the Inner Harbour of Victoria, BC, opened in 1908 and has been enlarged several times since. CANADIAN ENCYCLOPEDIA



or red ribbons. Green ribbons, which he kept in his kit but rarely used, bore the words “Leave Tree.” They signified that a tree should be spared from cutting. Most, but not the one he used that day on the Douglas fir in Cutblock 7190, marked defective trees with little or no commercial value.<sup>3</sup>

The circumference at the base of the Douglas fir was an astounding 12 meters (nearly 40 feet). The tree reached some 66 meters (216 feet) into the sky. Cronin estimated the behemoth to be about a millennium old. It took root at around the same time that Norseman Leif Erikson, the first European to visit the New World, landed on the coast of Newfoundland.

Cronin’s instincts told him that it would be wrong to cut the tree, even though it would have yielded more than \$50,000 as planks and posts. The tree “towered above the forest” and “stuck out like a sore thumb.” The cutters who followed Cronin into the grove respected his decision. The huge Douglas fir was left to stand entirely on its own in a large clear-cut, devoid of its former context, its green crown visible for miles around and its mass unprotected from winds by other trees. When asked why he had saved the tree, Cronin was almost at a loss for words. His response? “Because I liked it.”

News circulated quickly. Dennis Cronin became a folk hero or a folk villain, depending on one’s point of view. His friend Joe Simpson offered a balanced assessment: “These guys that work in the lumber industry see all sorts of trees, but Dennis obviously recognized this one as a very, very special tree that should never be cut down.” This was consistent with Cronin’s gentle personality: friends thought of him as “the most compassionate, caring person who would have helped anyone.” He died of colon cancer in 2016, a month before his 62nd birthday, leaving his wife of more than 30 years, Lorraine; sons Kyle and Luke, who followed their father into forest engineering; and the tree he had saved, which became known as “Big Lonely Doug.”<sup>4</sup>

The Douglas fir (*Pseudotsuga menziesii*), also known as Oregon pine, grows abundantly throughout the American and Canadian Northwest. “Pseudotsuga” refers to its resemblance to the *Tsuga*, better known as hemlock, a member of the pine family. The Douglas fir, however, is neither a fir nor a hemlock, but rather a distinct variety of coniferous evergreen. Its cones hang downward, whereas those of the true fir stand upright. The coastal variety of Douglas fir is the largest. The tallest so far identified is the Red Creek Fir, located near Port Renfrew on Vancouver Island. It once stood about 90 meters (almost 300 feet) high, but lost its top to the wind and now reaches “only”

74 meters (240 feet). Its width at the base is 4.4 meters (14 feet).<sup>5</sup>

The “Douglas” in the name refers to David Douglas, a Scottish botanist and outdoorsman who visited America three times for the Royal Horticultural Society of London. On his first trip, in 1825, he marveled at the tree that would bear his name. Science writers David Suzuki and Wayne Grady tell us that Douglas described the tree as being “remarkably tall, unusually straight.” The tree’s Latin name honors the Scottish physician, Archibald Menzies, another botanist and a sometime rival of Douglas. Menzies documented the tree when he visited Vancouver Island aboard Captain George Vancouver’s *Discovery*, in 1792. He was the first to report it to the Horticultural Society.<sup>6</sup>

While the Douglas fir can live a thousand years or more, some conifers have even longer lives. The bristlecone pine (aptly named *Pinus longaeva*), which grows in and beyond the White Mountains of Eastern California and elsewhere, is one such “ancient” tree. The oldest to be identified, nicknamed “Methuselah,” has stood for an estimated 4,850 years. Yews (*Taxus baccata*) can also live thousands of years. The Fortingall Yew in Perthshire, Scotland, is believed to be between 2,000 and 3,000 years old. Big Lonely Doug is a mere adolescent by comparison.<sup>7</sup>

Emerging science reveals that a key to trees’ evolutionary success lies in their ability to communicate with each other through extensive fungal and root networks—what comprise, in effect, the forest infrastructure, analogous to the services that form the infrastructure of cities. In the forest, the agent that transmits the information, including data on how to cope with the changing climate, is mycorrhizal fungus. Its threads grow between and around the cells of the roots. The tree conveys information to the fungal cells in photosynthetic sugars. The roots, in return, deliver water and nutrients from the soil to the plant. Evolution depends on this cooperation, more so than on Darwinian competition.<sup>8</sup>

Trees are cherished for both their tangible and their intangible values. They help to ensure the sustainability of our planet and the survival of our species. Large old trees are the infantry in the battle against human-caused climate change. They absorb and store atmospheric carbon dioxide; contribute to water catchment; offer shade; stabilize soil; recycle nutrients; provide food and shelter for mammals, birds, insects, and reptiles; support biodiversity; support pollinators; and yield edible fruit and nuts.<sup>9</sup> In ancient Greece, cutting down an olive tree threatened a food resource, and so was punishable by death.<sup>10</sup> The intangible values of trees are seen in the

appreciation that these “cathedrals of nature” possess social, cultural, and spiritual significance. As Swedish ecologists M. Blicharska and G. Mikusiński have written, “the social importance of large old trees [is] often underestimated by the conservation community.... The awareness of large old trees as a part of human identity and cultural heritage is essential when addressing the issue of their decline worldwide.”<sup>11</sup> Ethicists appreciate that “to recognize the heritage-dimension of the environment is to see its value as consisting ... in its narrative significance, its role in stories that connect us to the past and contribute a distinctive meaning to our lives.”<sup>12</sup>

Nowhere is the importance of intangible cultural and spiritual values more evident than among the Aboriginal people of Australia. The people retain a particularly strong connection with the land. Indigenous rights activist, freelance writer, and actor Nayuka Gorrie, who has identified himself as Djap Wurrung, Kurnai/Gunai, Gunditjmara, Wiradjuri, and Yorta Yorta, made his feelings clear. The often-controversial Gorrie expressed his passionate reaction to the state’s intention to destroy dozens of 800-year-old redgums (a type of eucalyptus) for the extension of the Western Highway, a freeway near Ararat, Victoria. The mass destruction would save drivers all of two minutes. Gorrie wrote:

These trees are Djap Wurrung people’s inheritance. These trees are my inheritance, our inheritance. Their survival and our fight to keep them alive and safe are a cultural obligation and an assertion of our sovereignty.<sup>13</sup>

The Eastern Maar Aboriginal Corporation and the government of Victoria reached an agreement that roadwork could continue if fifteen of the identified trees remained protected. However, in October 2020, one of those trees was removed: a yellow box (*Eucalyptus melliodora*), known as a “directions tree.”<sup>14</sup> The reaction was immediate and intense. The other fourteen trees remained untouched.

However well intended, the settlers’ well-intentioned tree-conservation policies have overlooked the long Aboriginal tradition of deliberately clearing the trees from time to time, to keep their hunting grounds clear. They managed the land almost like a garden, effectively using expertly controlled fires to keep the flora in check. The practice demonstrates the wise sustainable management of an ancient cultural landscape.<sup>15</sup>

## MANAGING THREATS TO TREES AND FORESTS

Western culture often treats forests as ominous, threatening places. Fairy tales clearly reveal this. Hansel and Gretel fall into the hands of a witch after having been

abandoned in the forest. Little Red Riding Hood meets an evil wolf as she walks through the woods. In reality, trees and forests are themselves threatened from many quarters. They are endangered by human activity, such as encroaching development, and also suffer from the increasing effects of human-induced climate change. Risks to old trees and forests rank high among sustainability concerns. Trees are susceptible to climate-induced drought and fire, as well as to human activities, such as logging and land clearance for agriculture. Some intrinsic characteristics, such as the extreme height of some trees, also increase their vulnerability. Trees may be growing in places that are no longer fit for germination. The resulting changes in tree distribution may result in their populating locations that are unsuitable for the development of new cohorts.<sup>16</sup>

Western society too often sees forests as a source of wood, to be used as fuel and as a building material. Forests have been mowed relentlessly for these purposes since early modern times. Clear-cutting is efficient but destructive, wreaking immense impacts on natural ecological systems. Removing the tree cover deprives wildlife and plants of their habitat, introduces new pests and diseases, encourages erosion, and poses many other environmental threats. Large old trees are particularly vulnerable to ecosystem losses because of their accelerated rates of mortality and reduced regeneration.<sup>17</sup>

Sustainable forestry methods attempt to overcome these concerns by applying a selective approach to logging. Some lumber companies have introduced sustainable practices that encourage the continuity of the original species, protect the soil, and address other issues. Nevertheless, old practices continue, particularly in developing countries.

Long before today’s industrial forestry, the Indigenous Peoples of the Pacific Northwest developed sophisticated techniques for sustainable tree-harvesting. They stripped bark and selectively removed wood, which they used for both practical and spiritual reasons. Trees were left alive but were often scarred, pollarded, or otherwise altered. These are called “culturally modified trees” (CMTs). Their evidence of past use provides precious anthropological and archaeological information. Indigenous people continue to utilize environmentally sustainable methods passed down from their ancestors, creating new CMTs as part of their cultural and economic activity. For example, the Inland Dena’ina people of south-central Alaska maintain the practice of modifying trees to mark waypoints along trails.<sup>18</sup>

CMTs and other special trees, particularly the biggest and best specimens, also hold popular appeal. Legendary



Maynard Drawson stands beside a culturally modified tree.

OREGON TRAVEL INFORMATION COUNCIL

champions for their protection include Oregonian Oliver Matthews (1892–1979), a self-taught dendrologist and self-described “botanical tramp,” who drove around the state in his Model-A Ford, searching for trees to nominate to the Big Tree Registry of the American Forestry Association. He was followed in this quest by his protégé, barber Maynard Drawson (1925–2012), also known as “the Tree Man.” One of Drawson’s achievements was to convince the federal Bureau of Land Management to designate as an Outstanding Natural Area Oregon’s Valley of the Giants, a remarkable stand of Douglas fir in the headwaters of the Siletz River.<sup>19</sup>

CMTs are sometimes managed and sometimes ignored. Thousands have been inventoried and many preserved for future research. One trove of CMTs is the Gifford Pinchot National Forest in Washington state, which has been governed since 1985 by a memorandum of understanding between the US Forest Service and the Advisory Council on Historic Preservation.<sup>20</sup>

In British Columbia, a wrinkle in the legislation states that if one or more CMTs in a “forest utilization site” can be shown to have been altered before 1846, then all the trees in that site are *de facto* protected.<sup>21</sup> New techniques in dendrochronology can securely determine whether CMTs were modified before that watershed year.

Conflicts between logging and preservation are rife. In California, the “timber wars” of the 1990s saw countless protests, some violent. In May 1990, at the beginning of what became known as California’s “Redwood Summer,” Judi Bari and Darryl Cherney, two campaigners for a group called “Earth First!,” were injured by the explosion of a pipe bomb that they were transporting in their car.<sup>22</sup> Two months later, Earth First! held a noisy, but non-violent, protest against commercial logging of national forests outside the US Forest Service office in Asheville, North Carolina.<sup>23</sup> Six environmental activists were arrested in June 2012 at Oregon’s state capitol, while protesting a proposed increase in clear-cut logging of old-growth timber in a state forest.<sup>24</sup>

Parallel demonstrations occurred in British Columbia, in what came to be known as “The War in the Woods.” Protests against removing old-growth timber began 1984 in Clayoquot Sound, located off Tofino, on the west coast of mid-Vancouver Island. These were the largest acts of civil disobedience in Canada until the Fairy Creek blockades of 2021, described below.<sup>25</sup> Fairy Creek was first brought to public attention by the Ancient Forest Alliance (AFA), a group formed in 2010 by activist Ken Wu and others. Its objective is “to find and document the remaining exceptionally large trees and intact stands” and “to ensure their protection.” Wu hired Victoria photographer TJ Watt to seek out some good examples. Watt had gained respect in the naturalist community for finding a remarkable old-growth forest near Port Renfrew. The media-savvy AFA named it “Avatar Grove,” after the James Cameron sci-fi film. It branded one old-growth western red cedar with a large burl as “Canada’s gnarliest tree.”

Jeff Jones, also known as Pacheena, the elected chief of Pacheedaht First Nation, on whose unceded territory Avatar Grove stands, helped to make the difficult terrain accessible. Jones fashioned a walkway from cedar planks and recruited members of his band to serve as guides. The public can now enter an ancient rainforest, learn about it, and marvel at the sight.<sup>26</sup>

The Pacheedaht found themselves boxed into a corner. They had long depended on logging for their livelihood but were now advocating to keep the most lucrative trees standing. Tensions arose among members of the band and between the band and the activists. Struggles



“Canada’s gnarliest tree,” in Avatar Grove, has been made more accessible to visitors with the construction of a cedar plank walkway by the Pacheedaht First Nation.

TJ WATT, ANCIENT FOREST ALLIANCE

continued as well between forest advocates and the forest industry. Avatar Grove became yet another battleground in the ongoing conflict between the conservation and development communities. The British Columbia government stepped in to protect Avatar Grove in 2012, an important victory for the AFA and their improbable partner, the Port Renfrew Chamber of Commerce.

Not far from Avatar Grove, Watt spied the tree that came to be known as Big Lonely Doug. It was 2012, a year after Cronin marked it with a ribbon and Teal Jones cleared the surrounding trees. Watt rushed to show Wu a photograph. The campaign to save the solitary survivor had begun. The AFA’s message was simple: industry and government should do something to protect special trees.

A parallel incident involving a solitary old tree had occurred on Haida Gwaii, an archipelago off the north coast of British Columbia, in January 1997. As John Vaillant relates in *The Golden Spruce*, forest engineer Grant Hadwin came upon a Sitka spruce with a genetic mutation that produced golden needles. It had been named Kiidk’yaas, “ancient tree” in the Haida language.

The golden spruce lacked 80% of its normal chlorophyll, in much the same way as a human with albinism has insufficient pigmentation. Hadwin had an awakening. He turned against the forestry companies and invoked the image of the golden spruce to fight clear-cutting. Despite his efforts, the logging companies continued to cut the forests. In utter frustration, Hadwin felled the golden spruce himself. When his detractors dismissed him as being insane, Hadwin replied: “When society places so much value on one mutant tree and ignores what happens to the rest of the forest, it’s not the person who points this out who should be labelled [insane].”<sup>27</sup>

Exceptional trees have been protected by advocacy and regulation ever since Greek antiquity.<sup>28</sup> European settlers in North America also preserved outstanding trees, forests, and groves. An early advocacy group was the Save the Redwoods League in California, founded in 1918. The non-profit organization buys large tracts of land containing redwood forests, undertakes restoration work, and donates the land to state and national parks. The league’s restorative procedures include removing invasive plants, restoring streams, thinning dense

forests, retaining buffers, and starting controlled burns. Interventions such as these modify the natural forest and allow it to be managed as a cultural landscape. Since its founding, the league has protected and restored more than 200,000 acres of redwood forests and has helped to create 66 redwood parks and reserves. The league focuses on coast redwoods (*Sequoia sempervirens*), also called California redwoods and sequoias, and also the closely related giant sequoias (*Sequoiadendron giganteum*), by most measures the largest trees in the world.<sup>29</sup>

Coast redwoods are towering members of the cypress family. They reach heights beyond 100 meters (325 feet) and can live more than 2,000 years. Botanist and tree-climber Richard Preston discovered that the ecosystems at the bottoms and the tops of redwoods are very different, demonstrating the importance of systems analysis to understanding trees.<sup>30</sup> The tallest redwood thus far found, called “Hyperion,” is in Redwood National and State Parks (California) and stands 115.5 meters (379 feet).<sup>31</sup> The largest redwood by bulk is the General Sherman Tree, in the southern Sierra Nevada, which contains around 1,560 m<sup>3</sup> (55,000 cubic feet) of wood. Protected within Sequoia-Kings Canyon National Parks, if, theoretically, it were cut down and milled into foot-wide planks an inch thick, and the planks laid end to end, they would extend some 200 km (125 miles).<sup>32</sup>

Redwoods are increasingly protected. Redwood National and State Parks, comprising one national and three state parks on the northern California coast, are an outcome of this initiative.<sup>33</sup> Other success stories include the protection of Alder Creek Grove in the western Sierra Nevada, the largest remaining privately owned giant sequoia forest in the world, and Cascade Creek in the San Francisco Bay area, which comprises the ancestral territory of the Quiroste people. Another protected forest near San Francisco is Muir Woods National Monument, named after pioneering naturalist John Muir (1838–1914) and managed by the US National Park Service. Located in Marin County, just north of the Golden Gate Bridge, Muir Woods comprises 97 hectares (240 acres) of old-growth coast redwood. Nearly a million people visit every year.<sup>34</sup>

### PROVIDING FORMAL PROTECTION

Ever since antiquity, extraordinary places, both built and natural, have been selected for protection. Most were the former: buildings considered to have exceptional value. The first recorded example of protective legislation may be a 5th-century CE decree by the Roman Emperor, Majorian, who fined magistrates who presumed to grant permission for the removal of fragments of historic monuments, going so far as to threaten violators with amputation of their hands.<sup>35</sup>

Alder Creek Grove, in California’s Sierra Nevada, contains nearly 500 giant sequoias. [SAVE THE REDWOODS LEAGUE](#)



Other European nations began to manage historic places more recently, beginning with Sweden in 1666. By the 20th century, most developed nations had passed the legislation and set up the infrastructure to identify noteworthy old buildings, landscapes, and districts, and to protect the most significant ones.<sup>36</sup> The US administers heritage conservation federally, by means of the National Historic Preservation Act of 1966, as subsequently revised. An amendment to the act, Executive Order 11593 (1971), introduced the helpful concept of the “cultural environment,” extending conservation well beyond the retention of individual assets.<sup>37</sup> In Canada, the constitution devolves land-use management to the provinces and territories.

From the point of view of government forestry policy, the overarching challenge is to strike a balance between logging and conservation. It follows a persistent clash: the economy vs. the environment. The most straightforward way to achieve conservation is with outright protection by land ownership, whether the land be purchased by a government or trust or acquired by donation. The outcome is often the creation of a park or other public land use.

The province of British Columbia, which contains immense coastal coniferous forests, began to go beyond logging by revising its public land and forest policies in the 1990s. It sought to create sustainable ecosystems and preserve diversity, without imposing a major impact on employment.

A small, but popular, protected area is Cathedral Grove, on central Vancouver Island, a remnant of an ancient Douglas fir ecosystem that eluded foresters and fires. Early settlers recorded their wonder and gave the place its Eurocentric name. Easily accessible, it now forms part of Macmillan Provincial Park. In a twist of irony, the park commemorates forester and businessman H.R. Macmillan (1885–1976), who headed one of British Columbia’s largest forestry and milling firms. He donated the grove to the province.<sup>38</sup>

Protection by public ownership is a blunt, but effective, instrument. A second technique is control of land use by legislation or regulation, which comes without the costs or responsibilities of ownership. The British Columbia government applied land-use control in September 2020, when it proclaimed a Special Tree Protection Regulation as part of the Forest and Range Practices Act. The regulation protects 11 species of specified sizes, their diameter depending on the species, as well as establishing a one-hectare (about 2.5-acre) buffer zone around qualifying trees.<sup>39</sup> The province estimated that the regulation would save up to 1,500 trees. The minimum diameters, however, were set high, and so

countless large old trees will not be spared. Another useful tool for both forests and urban areas in British Columbia is the Protected Areas Regulation, a section of the Environmental Assessment Act. The law designates protected areas to require government to manage species, patrol poaching, provide visitor services, and respond to development threats.<sup>40</sup> Forest resources can also be protected under the provisions of the Heritage Conservation Act (1966) and its successor legislation.

British Columbia’s Ministry of Environment and Climate Change Strategy administers more than 1,000 provincial parks, protected areas, conservancies, and recreation areas. Together they comprise over 35 million acres (14 million hectares), or 14.4% of the provincial land base.<sup>41</sup> The vulnerable and embattled Carmanah and Walbran Valleys near Port Renfrew, for example, are now protected as the 16,000-hectare (40,000-acre) Carmanah Walbran Provincial Park.

Advocacy groups argued for more effective protection and stricter enforcement. Protests erupted in August

Cathedral Grove, Vancouver Island. PHIL CARSON



2020 in unprotected areas of the Walbran and Fairy Creek watersheds. In effective acts of civil disobedience, a group called the Rainforest Flying Squad obstructed Teal Jones's logging activity. The protesters ultimately faced charges, but the blockades continue. More than one thousand arrests had been made by the end of January 2022. In that month, the global activist group Extinction Rebellion blockaded streets in several British Columbia cities to demand an end to logging old-growth forests.<sup>42</sup>

Indigenous communities have also spoken out and been heard. The province of British Columbia recently approved a request from the Huu-ay-aht, Ditidaht, and Pacheedaht First Nations to suspend old-growth logging in certain areas for two years.<sup>43</sup> The affected lands comprise about 2,000 hectares (5,000 acres) of old-growth forest. The province committed to respect First Nations' land-management rights, consistent with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).<sup>44</sup> The Rainforest Flying Squad argues that the deferral falls short, leaving nearby old-growth areas at risk.

Several tools may be used to conserve lands and fund their preservation. The most effective, but also the most expensive, is by outright purchase. One of the initial properties owned by England's National Trust was a clergy house in Sussex, which it bought for £10. Donations eliminate the acquisition cost; the National Trust's first property, acquired in 1884, comprised five acres of cliff-top in Dinas Olen, Wales. Nevertheless, however acquired, a land trust must bear the ongoing costs of conservation and maintenance, which may be funded by any of several sources, from private endowments to dedicated funds.<sup>45</sup>

Conservation easements offer a less expensive alternative. These are voluntary contractual agreements, by which the property owner gives responsibility to a second party, usually a trust, a conservancy, or a government, for imposing conditions that ensure conservation of the property. The property owner may receive a tax credit or other financial consideration for donating the easement.

A successful outcome of a Canadian conservation easement is the immense Waldron Ranch (also called "The Waldron") in the foothills of the Rocky Mountains, in southwestern Alberta. It comprises some 30,500 acres (12,350 hectares) of land with remarkable scenic and historical values. The Waldron is protected by an easement between the Nature Conservancy of Canada and the Waldron Grazing Cooperative. The deal, worth a reported CA\$15 million, allows 72 ranchers to continue using the land for grazing livestock, but prevents future subdivision, cultivation, or development, including prohibiting new roads, fences, or houses.<sup>46</sup>

Land conservation efforts have succeeded in the US as well. Programs such as the Land and Water Conservation Fund (1964) offer financial assistance.<sup>47</sup> Agreements have sometimes been encumbered by disputes between state and federal authorities. The contrast reflects constitutional differences: Canada devolves land management to the provinces, whereas the US has a more complex jurisdictional web.<sup>48</sup>

Landscape and tree protection extend into urban areas as well. In cities, it is usually provided for by legislation intended for built heritage. The traditional method of identifying urban historic places begins with an inventory, also called a "register," "survey," or "list." The inventory is followed by laws or regulations that protect or otherwise manage the places.<sup>49</sup>

Many American cities have adopted tree-protection ordinances. Seattle, Washington, for example, requires a permit to remove an "exceptional tree," defined as "a tree or group of trees that because of its unique historical, ecological, or aesthetic value constitutes an important community resource." The city restricts tree removal from environmentally critical areas, which include slopes prone to landslides or erosion, and also from fish and wildlife habitat conservation areas and wetlands.<sup>50</sup> In Atlanta, Georgia, an appointed commission advises local government on the protection and maintenance of trees; at Harpers Ferry, West Virginia, a tree committee is responsible for managing the "urban forest."<sup>51</sup> In Santa Barbara County, California, deciduous valley oaks (*Quercus lobata*) and blue oaks (*Quercus douglasii*) are protected by the Historic Landmark and Specimen Tree Program, which links preservation of the built and natural environments.<sup>52</sup>

Other local governments have also passed tree-preservation ordinances. The regulations fall into three basic categories:

- Street tree ordinances, which address planting and removing trees within public rights-of-way;
- Tree protection ordinances, primarily directed at providing protection for native trees or trees with historical significance (i.e., exceptional trees); and
- View ordinances, intended to resolve conflicts about blocked views or sunlight.<sup>53</sup>

Some municipalities in British Columbia have enacted dedicated tree-protection bylaws, as ordinances are called in Canada. Oak Bay, near Victoria, safeguards four species: garry oak (*Quercus garryana*), arbutus (*Arbutus menziesii*), Pacific (western) yew (*Taxus brevifolia*), and Pacific (western flowering) dogwood

(*Cornus nuttallii*). Trees intended to be protected are identified by diameter or height, rather than by the imprecise adjective “exceptional,” but this runs the risk of overlooking some old or otherwise unique trees.<sup>54</sup>

In Vancouver, British Columbia, many trees are protected by municipal heritage designation. The Vancouver Heritage Register, adopted in 1986, focuses on buildings, but it also lists three dozen trees, or groups of trees, as “landscape resources.” One set of trees whose protection met with broad approval is found in the intimate Dr. Sun Yat-Sen Classical Chinese Garden and Park, a precious walled retreat within Vancouver’s Chinatown.

Other proposals for tree protection have been more contentious, none more so than the “Hollow Tree” in Vancouver’s 1,000-acre (405-hectare) Stanley Park, a long-time tourism attraction and a national historic site. A trip to Vancouver used to be considered incomplete without a visit to the Hollow Tree. Cars and buses—even a circus elephant!—entered the hollow to be photographed. Engineer Lorne Whitehead and the present author showed that the Hollow Tree is the

remnant of an ancient western red cedar (*Thuja plicata*), likely a thousand years old. Hollow for centuries, which is common with the species, it continued to produce growth rings until around 1875. The tree lost its upper portion to a storm, likely about a century ago.

In 2008, the city of Vancouver’s Park Board voted unanimously to cut down the Hollow Tree’s remnant trunk, deemed a hazard and an eyesore. “This was the only solution that was viable and practical,” Park Board Chair Ian Robertson told CTV News. Pro-tree activists, however, prevailed. They persuaded the park board’s elected members to let them conserve the Hollow Tree. This they did in 2011, in a volunteer effort that raised funds, placed the trunk on a concrete foundation, reinforced it with a steel support frame, and installed interpretive panels to tell its story to visitors.

Consistent with today’s more democratic ideologies, protection now often extends not only to exceptional places, such as the Empress Hotel and the Hollow Tree, but also to unremarkable, vernacular buildings, landscapes, and ensembles, called historic (or heritage)

The Dr. Sun Yat-Sen Classical Chinese Garden and Park, in Vancouver, BC, is protected by designation. [DADEROT / WIKIMEDIA COMMONS](#)





The millennium-old Hollow Tree in Stanley Park, Vancouver, has been stabilized and interpreted as an historic relic. Photographed in 2012. [ANOTHER BELIEVER / WIKIMEDIA COMMONS](#)

districts (or areas). This is analogous to protecting forests as well as trees. Adjacent to the Empress and Victoria's Inner Harbour is "Old Town." Dozens of vernacular buildings dominate three areas: the old commercial core, a cluster of waterfront warehouses, and Chinatown. Old Town traces its origins to Victoria's role as the point of departure for prospectors heading to the Fraser River Gold Rush of 1858. Old Town has been designated a municipal historic area and its development commemorated as a National Historic Event.<sup>55</sup>

In Victoria and elsewhere, the dominant system for evaluating and protecting historic places, whether individual assets or larger areas, follows a tried-and-true pattern. The community sets things in motion by identifying assets it considers significant. They are listed in an "inventory" or "register." A set of criteria, also called "values," defines their historical, social, and spiritual characteristics. A committee that represents diverse community interests assesses them vis-à-vis each criterion. The better the objects or groups fare in relation to the criteria, the greater their significance is deemed to be.<sup>56</sup> Buildings and landscapes that achieve

high grades are nominated for protection, often called "designation." Elected officials make the final decision as to what to protect. The practice is done much as teachers grade students, consumer magazines rate products, and guidebooks review restaurants. The best athletes win medals, the best animals win blue ribbons, the best buildings are protected.

The method works for both individual assets and groups, and for both buildings and landscapes. Trees are to forests as buildings are to historic districts. Criteria of this kind appear in the US National Register of Historic Places, which lists "designed" and "rural" landscapes that were created or modified by human agency. Their "quality of significance ... [must] possess integrity" and be associated with events or persons "that have made a significant contribution to the broad patterns of history." Alternatively, they may "embody the distinctive characteristics of a type, period, or method of construction," possess high artistic values, represent a significant entity whose components lack individual distinction [e.g., a grove or a historic district], or yield "information important in prehistory or history [archaeological evidence]."<sup>57</sup> Natural features can be protected for their cultural values. The Canadian system is similar. The criteria used by the Historic Sites and Monuments Board of Canada state: "A place may be designated of national historic significance by virtue of a direct association with a nationally significant aspect of Canadian history," or may "illustrate or symbolize ... a cultural tradition, a way of life, or ideas important in the development of Canada."<sup>58</sup>

Central to these criteria is the concept of a "cultural landscape," an extended landscape that has been shaped both by nature and by human use. For more than a generation, the US National Park Service and Parks Canada have both engaged extensively in the documentation, analysis, and management of cultural landscapes.<sup>59</sup>

In both countries, the reasons for designation and protection are provided in a document called a "statement of significance" ("SOS," elsewhere termed a "statement of cultural heritage value"). The SOS defines the historic place, describes its primary values, and identifies the key components. The last are called "character-defining elements" (CDEs), which must be protected to retain the significance. The method used for the Canadian Register of Historic Places follows this formula rigorously, whereas the US National Register of Historic Places is more flexible.<sup>60</sup>

As an example, the SOS for the Dr. Sun Yat-Sen Classical Chinese Garden and Park, illustrated above, lists 13 CDEs. They include:

- The design of the garden and park as one entity;
- Its design, which is done according to traditional Ming Dynasty principles, including all four essential elements (rocks, water, plants, architecture);
- Placement of objects and the manipulation of the course of qi (positive energy, a key element in feng-shui, the Chinese art or practice of creating harmonious surroundings); and the
- “Balance of yin and yang, in contrast of forms such as the water-worn limestone rocks and the rectilinear smooth surface of the stone bridge and curvilinear and rectilinear forms of the teak windows.”<sup>61</sup>

Internationally, many places have achieved international acclaim by being inscribed on the United Nations Educational, Scientific, and Cultural Organization’s (UNESCO’s) World Heritage List, which works in much the same way. It inventories sites with “outstanding universal value.” UNESCO defines this as cultural and/or natural significance that is so exceptional as to transcend national boundaries and be of common importance now and for future generations of humanity.<sup>62</sup> As of this writing, the World Heritage List includes 1,154 places in 167 “states parties” (UN member states). Of the 43 in Canada and the US, 27 are described as “cultural,” 14 as “natural,” and 2 as “mixed.” Many World Heritage sites are parks, both designed and natural, while others are urban districts. Despite the classifications, considerations of World Heritage over time have tended to integrate cultural and natural heritage into a single instrument, encouraging interdisciplinary investigation and analysis. Places that represent significant interactions between people and the natural environment are also recognized as cultural landscapes.<sup>63</sup>

In Canada, World Heritage sites range from Wood Buffalo National Park, an immense natural landscape, larger than Switzerland, which spans Alberta and the Northwest Territories; to the Historic District of Old Québec, whose fortifications and buildings date back to the 17th century.<sup>64</sup> Large old trees are the main features of SḠang Gwaay Llanagaay, a Haida Heritage Site, within Gwaii Haanas National Park Reserve, off the north coast of British Columbia. Gwaii Haanas in its entirety is on Parks Canada’s list of potential future World Heritage sites. It is situated in a rainforest dominated by large Sitka spruces, one of which was Grant Hadwin’s ill-fated Golden Spruce. Indigenous “Watchmen” from the Haida Nation serve as guardians to protect the natural and cultural heritage.<sup>65</sup>

#### STATEMENTS OF SIGNIFICANCE: A MODEL FOR NATURAL HERITAGE

Although initially intended for the built, cultural environment, the process described above provides a good model for the management of trees, groves, and forests in the

natural environment. Statements of significance for natural heritage can follow the procedures adopted for buildings and designed landscapes.<sup>66</sup>

An SOS has three tasks. It describes the place, explains its primary values, and identifies its character-defining elements:

- The *description of the place* (with buildings, called the “historic place”) identifies the physical character and principal assets of the place as they exist today, including its location, extent, boundaries, context, and proximity to other notable places.
- The *statement of heritage value* describes the heritage values that give the place its significance. It explains why the place is important to its community, defines that community, enumerates the principal values, describes the comparative context of each value, and provides the reason why the place is significant within that context. This statement is *not* a narrative history.
- The *character-defining elements* (CDEs) are the tangible and intangible features that embody the heritage values. They are the characteristics that most clearly convey the meanings and importance of the place. If the CDEs were to be removed, it would no longer be possible to understand the significance of the place. Heritage value and CDEs are co-dependent: each CDE must relate directly to one or more values. The CDEs make the SOS a valuable management tool because they define the features that must be protected in order to retain the heritage value of the place.

Created as a tool for the conservation of human-made resources: buildings, structures, cultural landscapes,

Gwaii Haanas Watchman Walter Russ leads a tour in Haida Heritage Site, British Columbia, 2012. [PARKS CANADA](#)



heritage districts, and archaeological sites, the SOS is equally applicable to the management of natural heritage. An SOS for Big Lonely Doug, for example, would include the following data:

- A description of the tree and a defined perimeter, including the location, area, height, diameter at the base, proximity to other notable places, condition, and physical context. It would note that Doug stands within a clear-cut of a certain area and is visible from a certain distance.
- A listing of the quantitative and qualitative values that give Doug and its physical environment their significance. This might include size, age, botanical value, value to the soil and the air, value in controlling climate change, value to the forestry industry, and value to the community.
- The SOS should also mention Doug's ecological value in illustrating the loss of the broader woodland habitat by clear-cutting and the need for more effective conservation of old-growth forests. On its own, Doug has little or no ecological value, nor will it help mitigate the effects of change.<sup>67</sup>
- A list of the CDEs that embody and convey these values. These might include Doug's extreme size; features such as its branches, foliage, bark, and roots; its appearances in literature; and its associations with the forestry industry and the conservation movement, along with the importance of both to the development of Canada as a nation.

An SOS for Avatar Grove would follow the same pattern. It would remark on the grove as an asset that combines many individual trees and botanical features, in the same way that a historic district comprises many individual buildings and landscape features. The SOS would also address the significance of the conflict between forestry and conservation.

Once the places have been identified and evaluated through an SOS, plans must be made for their ongoing management. Many exceptional forests, groves, and trees are already well managed by organizations such as the US National Park Service, Parks Canada, equivalent agencies in lower tiers of government, and private, non-profit entities. Adding the SOS as a further management tool can expand the effectiveness of their efforts. Agencies such as these, as well as activists such as John Muir and Grant Hadwin, have all helped to bring about the management and protection of ancient forests and trees, as well as of their urban counterparts, historic buildings, and districts.

While this article emphasizes the importance of building forest management on a solid base of information, it is

survival and sentiment, rather than dry data, that often motivate action. For centuries, First Nations practiced responsible stewardship because the forest was essential to their livelihood. As for sentiment, large old trees often inspire emotional reactions. For instance, the Australian “bush poet,” Henry Kendall, writes in “Mountains”:

Underneath these regal ridges—underneath the  
gnarly trees,  
I am sitting, lonely-hearted, listening to a lonely  
breeze!

Passion was central to the campaign to save Big Lonely Doug. Dennis Cronin's personal enthusiasm overcame his professional responsibilities. The old Douglas fir became a celebrity as soon as it was given a name. As Harley Rustad writes, “This wasn't just any tree in a forest. This was a sole survivor standing amid ruin. Its anthropomorphization resonated with people. It had a name, and a sad one, too.”

Feelings like these inspire “tree-huggers” to cling to precious, old trees. However, to ensure the long-time survival of ancient trees and forests, activism and advocacy must be translated into regulations and laws. This is why activist Marie-Claire Cordonier Segger—who, as a tenacious teenager, protested old-growth logging from a tree limb in front of the British Columbia Legislature—now practices as an environmental lawyer. She serves as a UN treaty negotiator and general counsel, the director of a sustainable development law center, and professor of international law at the Universities of Cambridge (UK) and Waterloo (Canada). Cordonier Segger recalls that she went out on the limb to urge the government “to save a special tree, waterfall, and valley—and actually an entire ecosystem—from degradation and destruction.” It was, she asserts, “a question of deep injustice.”<sup>68</sup>



LUKE / ADOBE STOCK

Long-term resolution will come from an integrated approach to forest management and legislation that understands trees as components of large cultural landscapes and ecosystems.<sup>69</sup> The approach must balance science with spiritual, cultural, environmental, and aesthetic values, many of which are grounded in Indigenous Traditional Knowledge.<sup>70</sup> Resolution will also result from translating successful techniques for managing the cultural environment to the natural environment. Solutions that consider this shared heritage should support both mainstream and Indigenous communities.

Perhaps in time, exceptional trees and forests may be routinely identified and protected by due process, as are heritage buildings and districts today. For the time being, however, advocacy will continue to lead the way. Big Lonely Doug was saved only after a courageous individual effort and a catchy moniker; Avatar Grove, only after its association with pop culture. Creative promotional campaigns such as these catch the attention of the media, resonate with people, and inspire change.

British Columbia has moved toward a preservation regime because of action by concerned advocates, such as Grant Hadwin, the Gwaii Haanas Watchmen, and the Ancient Forest Alliance. Individuals and advocacy groups there and in the United States, including the Save the Redwoods

League, American Forests,<sup>71</sup> and Earth First!, continue to promote action and legislation. Future political champions will emerge in both countries to bring about new management practices.

Until then, people must continue to express their disapproval and lobby for legislation every time they see an exceptional tree marked for removal or a significant historic building threatened with demolition. We owe the survival of Big Lonely Doug, Canada's gnarliest tree, and Alder Creek, as well as the adoption of new laws, to acts of advocacy: Dennis Cronin's contrarian action, Ken Wu's and TJ Watt's dogged persistence, Cordonier Segger's venturing out on a limb, and the outcries of countless concerned citizens. All give us reason to believe that these precious assets and many more will live on to be hugged, and hugged in, again and again.

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## ENDNOTES

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  60. Kalman and Létourneau, 321–326; “Cultural Significance”; Parks Canada, “Canadian Register of Historic Places: Writing Statements of Significance,” 2006, available at [https://publications.gc.ca/collections/collection\\_2017/pc/R62-506-2006-eng.pdf](https://publications.gc.ca/collections/collection_2017/pc/R62-506-2006-eng.pdf) (accessed August 10, 2021), National Park Service, “How to Complete the National Register Registration Form,”

- National Register Bulletin* 16, 1997, 35–51, <https://www.nps.gov/subjects/nationalregister/upload/NRB16A-Complete.pdf> (accessed August 17, 2021). The National Park Service uses the term “character-defining features.”
61. “Dr. Sun Yat-Sen Classical Chinese Garden and Park,” *Canada’s Historic Places*, <https://www.historicplaces.ca/en/rep-reg/place-lieu.aspx?id=20664&pid=0>, accessed August 18, 2021. Statesman Sun Yat-Sen (1866–1925) resided briefly in Vancouver. Under Canada’s federal system, national historic site status alone does not provide protection, nor does the federal government assume responsibility for management. The regulation of non-federal historic places and landscapes is the constitutional responsibility of the provinces, which, in turn, often pass on the task to municipalities. Protection from demolition or significant change requires heritage designation by a provincial or local government. Hundreds of thousands of historic places across Canada have been listed in this way. Perhaps 13,000 have been designated, an estimate made with the assistance of Chris Weibe of the National Trust for Canada and Larry Pearson of the Historic Resources Management Branch, Province of Alberta.
  62. <https://whc.unesco.org/en/>. An issue of *The George Wright Forum* (vol. 34, no. 2, 2017), focused on the theme “Nature–Culture Journeys: Exploring Shared Terrain.” It was edited by Nora J. Mitchell, Jessica Brown, and Brenda Barrett.
  63. Peter Bille Larsen and Gamini Wijesuriya, “Nature–Culture Interlinkages in World Heritage: Bridging the Gap,” *The George Wright Forum*, vol. 34, no. 2 (2017): 142–153.
  64. <https://www.pc.gc.ca/en/culture/spm-whs/sites-canada/sec02g> and [/sec02i](https://www.pc.gc.ca/en/culture/spm-whs/sites-canada/sec02i), accessed January 18, 2022.
  65. <https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/index.aspx>; <https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/culture/gardiens-watchmen>, both accessed April 5, 2020.
  66. Parks Canada, Canadian Register of Historic Places, “Writing Statements of Significance,” Ottawa, 2006, <https://www.historicplaces.ca/media/5422/sosguideen.pdf>; David Weible, “National Register Guide, Episode 6: The Statement of Significance,” National Trust for Historic Preservation, 2015, <https://savingplaces.org/stories/preservation-tips-and-tools-national-register-guide-episode-6-the-statement-of-significance#.YhUjcJalYh4>, both accessed February 22, 2022; Kalman and Létourneau, *Heritage Planning*, 322–325.
  67. Grant Hadwin was stating this by felling the Golden Spruce. He wanted to stop the public from focusing on one iconic tree while thousands of acres are clear-cut. He recognized that one must not lose sight of the forest for the tree.
  68. Author’s interview with Marie-Claire Cordonier Segger, April 6, 2020.
  69. The author participated, in 1977, in an analysis and interpretation plan for the natural and cultural landscapes at Callaway Gardens, Pine Mountain, Georgia. We described the ensemble as a “watershed’.
  70. Bernbaum, “Cultural and Spiritual Significance,” 168–179. The value of “traditional ecological knowledge” is emphasized in Deanna Beacham et al., “Indigenous Cultural Landscapes: A 21st-Century Landscape-scale Consideration and Stewardship Framework,” *The George Wright Forum* 34, no. 3 (2017): 343–353; Bryner, “Balancing Preservation and Logging.”
  71. American Forests traces its roots to 1875: <https://www.americanforests.org/>.



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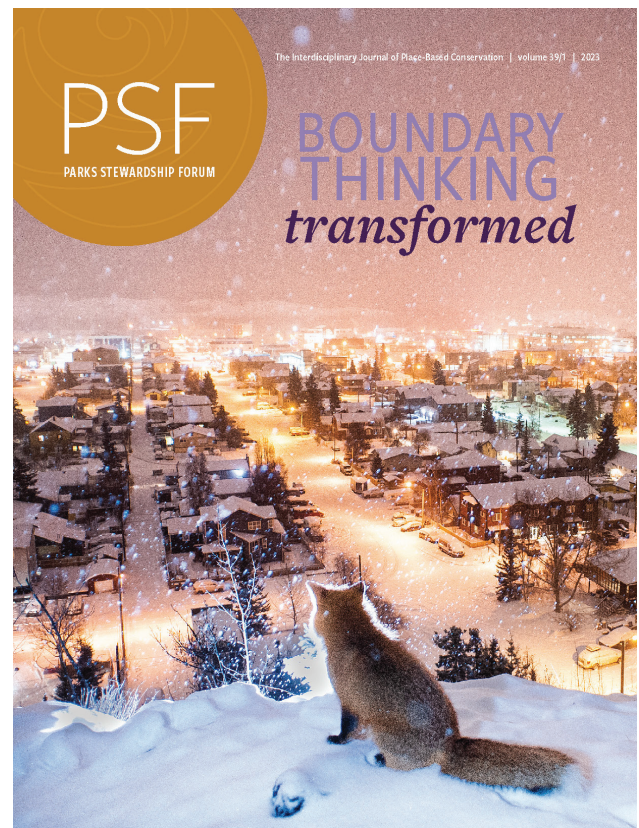
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A red fox on the clay cliffs above the city of Whitehorse, Yukon Territory.  
**PETER MATHER**