Koma Kulshan Chapter WNPS Newsletter

Winter (January, February, March) 2020

Inside this issue

Find Koma Kulshan Online

Website: www.wnpskoma.org
Facebook: WNPSKomaKulshan

The Overstory by Richard Powers: A Botanical View

By Ellen Kuhlmann

(Cont'd p2)

The prologue of The Overstory ends with the following words “The pine she leans against says: Listen. There’s something you need to hear”. And hear you will when reading this sprawling epic novel. It has a complex narrative structure with characters ranging from scientists to activists. What connects the characters and the multiple narrative arcs within the book are trees in all their glory, from remnant American chestnuts to giant redwoods, each part of “the overstory," a term referring to a forest’s tree layer. The book is structured in sections entitled: roots, trunk, crown, and finally seeds. Plant enthusiasts will easily recognize the relation between the section name and the contents within: For example, the roots section contains chapters that introduces each of the novel’s characters.

Trees inform the lives of the protagonists beginning as children and continuing into adulthood. As the novel proceeds, some characters band together to fight the logging of the redwood forests, a fictionalization

President's Corner

by Allan Richardson

As many of you know, my academic background is in anthropology, not botany. The two fields are connected in many ways, including through ethnobotany, which I taught as a college course for many years, and place names, which became a focus of my research and writing. The December 2019 issue of Whatcom Watch has my article about Páatstel Creek, a small stream northeast of Lynden that will have its original Nooksack language restored as its official name. Páatstel means ‘bear trap’, so it is not a botanical name, but does refer to how the people used the environment. Three places nearby are Xwkw’elám ‘place to get scouring rushes’, Kw’elástem7ey ‘serviceberry place’, and Mách’aney ‘black hawthorn berry place’. Clearly the plants are important in many ways to the Nooksack and other native people who are the original stewards of our land.

As a concerned citizen I, along with three others from the Washington Native Plant Society, serve on the Lake Whatcom Watershed Advisory Board for the City of Bellingham. This board’s focus is on protecting the watershed and our drinking water supply, especially through lands purchased by the city. These properties will be protected from development and restored to native forest habitat. Much of the stewardship and restoration work is done by city staff, with assistance from hired crews, Whatcom Land Trust, and volunteers. These efforts closely match the WNPS goal of conservation of native plants and their habitats, although the goal here is the protection of our water supply.

Stewardship is becoming more and more an emphasis for WNPS to further its conservation goals by actively protecting native plants and their habitats from destruction, human abuse, and invasive plants. In addition to our own chapter’s work on field trips, many of us also participate in work parties sponsored by Nooksack Salmon Enhancement Association, Whatcom Land Trust, and Bellingham City Parks. The just completed Native Plant Stewardship course is an important contribution to these efforts of protection and restoration. At our chapter meeting on January 15 we will honor the students who completed the course. Also, the chapter will be forming a stewardship committee to guide future efforts. Let me know if you are interested in serving on this committee.

Meanwhile, don’t forget to go out and enjoy native plants and their habitats on your own or with our chapter field trips. Happy New Year!

An Investigation into the the Bigleaf Maple Decline

In November, forest pathologist Dan Omdal from the Washington State Department of Natural Resources presented his experiences investigating the Big Leaf Maple (*Acer macrophyllum*) decline that has led to significant impacts on Pacific Northwest populations in recent years. Dan’s work brings him to a lot of places, from remote forests to wooded, privately-owned properties.

About twenty years ago, he started receiving calls from landowners out on Highway 20 telling him that their maple trees were dying. He drove out and inspected the trees and found no insect damage, but when he dug around the roots, he found evidence of fungal infections. The sugars present in the roots are a good food source. When he peeled away some of the bark, the xylem was coated with a latex-like mycelia, which he suspected to be *Armillaria* – a parasitic fungus commonly known as honey fungi.

Bigleaf Maples (cont'd)

Omdal believed he'd identified the problem, and after looking at a number of trees, he felt confident enough to make diagnoses based on descriptions given to him by landowners over the phone. But around 2006, a few landowners called back, telling him that there were some ailing trees with no signs of *Armillaria*. They described a pattern of top-down mortality, as if something was choking the tree, which can happen when something limits the ability of water and sugars to move to the top of the tree. That led him to wonder about *Verticillium*, a fungus that can affect a wide range of plants, and which generally enters the plant through wounds in the roots.

He conducted a survey of a growing list of maple decline – now numbering 61 sites – throughout Washington. He found no *Verticillium*, and *Armillaria* in just 11% of the sample trees. The disappointing results made him realize that he was approaching the problem with tunnel vision, and perhaps too intent on identifying a fungal culprit. So he thought back to one of the first precepts of forest ecology – that disease outbreaks are defined by a host, a pathogen… and the environment. "I failed to appreciate the role that environment was playing," he said.

Around the same time, California reported similar problems in Bigleaf maples, and had determined the cause to be an insect-transmitted bacteria called *Xylela fastidiosa*. The bacteria can infect a range of species, including grapes, and the newly-established winery industry in Washington expressed concern about a potential northward spread. The symptoms included crown dieback, reduced leaf size, and heavy seed drop. Omdal surveyed another 52 sites in Washington, collecting soil, leaf, and bark samples. "We were just fishing now, casting a wide net," he said. But once again, the search turned up nothing.

After years of frustration, in 2015, Omdal met a young professor at the University of Washington named Patrick Tobin. He had a student named Jacob Betzen, who was interested in how the environment can influence pathogen outbreaks. He used core samples to examine climate, pollutants, and other factors. With this fresh approach, the team collected 463 core samples, two per tree, from about 120 randomly selected sites. The dendrochronology from the cores revealed something alarming – smaller growth rings showed that the decline was widespread.

The researchers looked more closely at the data, trying to identify trends or associations. They found no relationship between decline and the age or size of the tree – that is, young, old, big, and small trees could all be affected. However, there was more evidence of decline in warmer and drier sites. Proximity to paved roads was also associated with decline. No specific pollutant was associated with decline. Bigleaf Maples seemed to be uniquely susceptible, with normal-looking conifers often growing right alongside.

Based on the dendrochronology, the first signs of decline occurred in 1984. When the researchers graphed the expected growth of trees versus observed growth, they found that the majority of trees began to experience decline between 2009 and 2016. Trees suffering the first year of decline in the same year were widespread spatially, which made the pathogen explanation less likely.

Although this information began to hint at an environmental cause for the Bigleaf maple decline, Omdal admits he has trouble shaking off an old prejudice. "I am still hoping there might be some agent, and maybe there's a signature in the data indicating it," he said.

The team ultimately concluded that increases in summer temperatures and a higher frequency of drought, along with human land development, are all statistically associated with Bigleaf Maple decline. Pollution could also be a factor if it piles additional stress onto an already struggling tree, but the researchers couldn't identify any specific trouble agent.

Ultimately, the specific cause of Bigleaf maple decline is still a bit nebulous, though drought seems like the most likely explanation, said Omdal. But the search goes on. "I and many other people find that explanation unsatisfying, but it's what we have."

Book Review: The Overstory

(Cont'd from p1)

of the timber wars of the 1980s. Another character makes a startling discovery of how trees communicate with each other, a discovery derided by her more established scientist peers. Elsewhere, a gamer tries to develop a video game that will reconnect people to nature.

There is a lot of scientific information on trees sprinkled throughout the book, doled out in manageable chunks using language accessible to the general public. If you've ever struggled to explain to a friend or family member why plants, specifically trees, are so special, hand them this book. For example, in this book you learn: "The bole of the fig put forth branches, and branches built their drip-tipped leaves. Elbows bent from the larger limbs, which lowered themselves to earth and thickened into new trunks. In time, the single central stem became a stand."

Powers is not content to convey the scientific facts of the matter. His characters care passionately about trees; their engagement as much spiritual as logical. They participate in tree sits, replant clearcut slopes, and take governments to court; each character in their own way attempting to change the view of trees as only an expendable commodity. In so doing they seek to wake humanity to the value and connection of all living things. The following passage is a sample of this spiritual aspect: "Trees stand at the heart of ecology, and they must come to stand at the heart of human politics. Tagore said, Trees are the earth's endless effort to speak to a listening heaven."

The success of The Overstory as literature is for others to decide. However, I can say I think it brilliantly expresses in words what many of us in the Washington Native Plant Society already feel in our hearts and minds; how magnificent, complex, and wondrous trees are. The Overstory won the 2019 Pulitzer Prize in Fiction and just in November, 2019 was selected for Now Read This, the PBS Newshour-New York Times book club. At 512 pages in paperback it is not a fast or easy read. However the rewards are well worth the time invested, and I recommend it to all; perhaps especially to those who's understanding of trees is thus far limited to their human utility.

Winter (January, February, March) 2019

Chapter Meetings

Meetings begin at 7pm in the Sustainable Living Center education room at the ReStore (2309 Meridian St.). The entrance is off the back alley and the SLC is upstairs. For more information, contact Katrina Poppe at (360) 303-7806 or katrinalee_98@yahoo.com.

January 15, 2020: Chasing blue carbon on the Arabian peninsula
You may not expect the arid Middle East to be an ideal study area for a wetland ecologist, but the region does contain a narrow strip of tidal wetlands along the coast, and what they lack in diversity, they make up for in hardiness to some of the toughest conditions for plant life. Katrina Poppe traveled to the United Arab Emirates in 2019 to study the country's tidal mangrove forests, which not only have some impressive adaptations to their environment, but also the ability to sequester a substantial amount of carbon in their sediments, which was the focus of her study. Katrina's talk will be part travelogue and part science talk, and the photos of sweating scientists in 120° heat may help you appreciate cooler January conditions in the PNW.
Katrina is a research associate at WWU in the Wetlands Ecology Lab, where she has been studying carbon, plant, and sediment dynamics in tidal wetlands since 2013. She also serves on the WNPS Koma Kulshan chapter board as secretary and as program committee member.

February 19, 2020: Native Plant Travels in Time and Space: Adventures in Biogeography
Ellen Kuhlmann and Barry Wendling will discuss some of the unique characteristics that make places like Whatcom County unique. Ellen and Barry are long-time members of the WNPS Koma Kulshan chapter. Ellen is a space analyst at Western Washington University and is a co-author along with Mark Turner of Trees and Shrubs of the Pacific Northwest (Timber Press). Barry is the collection manager for vascular and non-vascular plants at the Pacific Northwest Herbarium at Western Washington University and a former president of the WNPS Koma Kulshan chapter.

March 18, 2020: Reconstructing past climate using tree-ring data from ancient Bristlecone Pine
The annual growth rings from ancient Bristlecone Pine contain valuable information about climate variability extending back thousands of years. These proxies for variation in temperature and precipitation allow us to reconstruct past climates in a way that helps us understand the dynamics of the climate system and puts modern climate change into a long-term context. Dr. Andy Bunn is a Professor in the Environmental Science department at WWU with a focus on paleoclimate and carbon cycling. He leads the Huxley Tree Ring Lab, and was the founding director of the Institute for Energy Studies.

Field Trips

January 18, Saturday 9:00 AM to 4:00 PM, Forest Ecology with Marvelous Old Growth Examples
Larrabee Park attracted 12 of us to a big tree sweet spot in 2019. This year the destination will be the same, but the journey will be longer and more inclusive for those wishing to participate. Group A will ascend 1200 vertical ft. and cover 5 ½ miles, perhaps ½ off trail. Group B will mostly follow last year's route ascending 400 feet in 3 ½ miles; most on a user established route. Bob Lemon (lemprev@alphahunt.com or (360)714-8629) leads the A group, limit 12. Pam Borso (borsope@aol.com or (360)319-9004) leads the B group, also limit 12. Inquire or pre-register with the leader and route that best suits your needs; only then meet at 9:00 AM at the Fairhaven Park and Ride off 32nd and west of I-5.

February 8, Saturday, 9:00 AM to noon: Native Plant Teaching Trail at Maritime Heritage Park
Native plant enthusiasts, lovers of parks, and community volunteers will be removing invasive plants and planting native trees and shrubs. We will also be cleaning and replacing some of the plant identification signs which feature hand drawn pictures of native plants by Whatcom Middle School 8th graders. Another task will be to remove the covers on older signs so they can be cleaned underneath. Bring a set of hex/Allen wrenches or a cordless drill with hex bits, and pliers, if you have them. Come dressed for the weather, and bring water and a snack. City Parks will provide gloves and tools. More information about the Parks Volunteer Program is at www.cob.org/workparties. Meet at 9:00 AM at the park building (Environmental Learning Center) on Holly Street in Maritime Heritage Park next to Whatcom Creek. If you have questions contact Allan at asrichardson5@gmail.com or 360-733-5477.

March 7, Saturday: Cryptogam Ramble
The Cryptogam Ramble is an informal annual event: a slow rambling walk in the early spring focusing on mosses, lichens, ferns, and other small plant-like organisms that are often passed by. The locale for this year's Ramble has yet to be chosen, but will be somewhere in our local lowlands. Fred Rhoades leads the Ramble. Please look for an announcement in February with more details. Contact Fred at fmrhoades@comcast.net with any questions.

March 14, Saturday, 9:00 AM to noon. Turner Woodland: Stewardship Begins at Home
When Mark Turner and Natalie McClendon purchased five acres just outside Bellingham in late 2013 they found that their back 3 acres of woods had major Himalayan blackberry infestations, a roadside wetland was home to Bohemian knotweed, and there were substantial patches of yellow archangel and English ivy. Their woods and associated wetlands are also home to a few big conifers, the usual deciduous trees and shrubs for our area, and masses of a few shade-loving wildflowers. There are deer, a coyote or two, owls, and myriad small birds that make their home here. Come meander gentle paths through the woods and see how diligent work can control the blackberries and other invasives, opening the understory for natives to re-establish. You'll also see young conifers and shrubs they've planted getting established, the emerging growth of spring wildflowers, and how the woods connect to a more formal landscape near the house that also includes native species. Meet at 9:00 am at the property, 4682 Wynn Road, Bellingham. Contact Mark Turner, mark@turnerphotographics.com, 360-671-6851, with any questions.

Koma Kulshan Board

President
Allan Richardson: (360) 733-5477
asrichardson5@gmail.com
Vice President
Lyle Anderson: (360) 739-9249,
lyleand2@comcast.net
Secretary
Katrina Poppe: (360) 303-7806
katrinalee_98@yahoo.com
Newsletter Editor
Jim Kling: (360) 671-1156
jkling@gmail.com
Treasurer
Jazmen Yoder: (360) 927-9895
wildginger2063@hotmail.com
Program Team
Jim Kling: (360) 671-1156
Jazmen Yoder: (360) 927-9895
Anu Singh-Cundy: (360) 650-7473
Katrina Poppe: (360) 303-7806
Field Trip Chair
Eric Worden: (360) 778-3542,
eric@ericworden.seattle.wa.us
Backyard Habitat Liaison
Molly Porter: (360) 714-0781
Greenhouse Chair
Wendy Scherrer: (360) 715-2993
Grants Committee Chair
Barry Wendling: (360) 393-9181
Publicity Chair
Aimee Wright:
aimwright07@gmail.com
State Board Representative
Mark Turner (at large)
(360) 671-6851

Koma Kulshan Chapter WNPS Newsletter

If you would like to join WNPS

Please return the membership application form to:
Washington Native Plant Society
6310 NE 74th St., Suite 215E
Seattle, WA 98115

Please make checks payable to WNPS
(outside US add $5 to dues)

Name:_____

Address:_____

City, State, Postal Code:_____

Phone:_____

Email:

Koma Kulshan Chapter Total Enclosed:____

Mebership Category:

$20 Budget (Senior/Student)
$40 Individual
$55 Family
$75 Club/Institution
$100 WNPS Friend
$250 Special Friend
$500 Best Friend
$1000 Sustaining Member

The Koma Kulshan chapter of WNPS is dedicated to the preservation and study of native plants and vegetation of Washington State and the education of the public to the values of native flora and its habitat.

WNPS -- Koma Kulshan Chapter
Newsletter Editor
2928 Cherrywood Ave
Bellingham, WA 98225