



January 2019

Naturalists

ONE STEP AT A TIME

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In the Native Plant Garden

The garden was spruced up by a killer group of stewardship volunteers (thanks to Sandy and Danielle) and has some new plantings thanks to Rob. We now have a (tentative) list of all plants in the garden, which will be posted on the Nats web page when it is checked over. Our warmer than usual (or is this the new usual?) weather has produced good foliage and some unexpected blooms like this anemone below. Look for some upcoming changes in the garden as we are working out a collaborative agreement with the Washington Native Plant Society.



State of the Naturalists

Our focus is so much on getting out into the natural world, observing and learning together that we don't get much to reflect on what is happening (i.e. the big picture).

I think this may be a misnomer because the big picture is the one we are all looking at, while the machinations of the organization serve mostly as a backdrop for these activities. Since this time of year is, for me, a time of reflection, I thought you might find some of my musings of interest.

From my perch our activities can be categorized into the following:

1. Hikes and field trips – our meat and potatoes
2. Introduction to the natural world course – our bread and butter, and also our service to the larger community as well as path in for most of our members!
3. Workshops – our mutual education in a formal setting
4. Lecture series and other lectures and youth program– outreach and education

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 [Facebook](#)

 [Flickr](#)

State Of Naturlist (Continued)

5. Native plant garden – our stewardship and a resource for celebrating and learning more about our native plants.
6. Training and mentoring – Developing new leaders, fostering longevity, sharing the wealth and our experience
7. Interaction with Mountaineers community – supporting the organization (a good one) and learning how to function within it.
8. Volunteer appreciation – Gifts and other thank you's to show our appreciation – we are totally a volunteer group.
9. Interaction with other naturalist groups – contributing to education in all branches of nature study, interacting with like minded enthusiasts in areas where we have interest but little experience. Nurturing nature study

So how do we stand?

We have continued an active hiking and trip this past year. We have had over 75 hikes and field trips successfully executed and enjoyed.

We had a full complement in the natural world class (80) and a relatively high percentage of graduates (over 50%).

We had workshops on Freshwater ducks (Vicki King), Mosses and lichens (Stewart Hougen and Gary Brill) and watercoloring (Molly Hashimoto) this past year. They were well attended (i.e. full) and fun.



Like old man river our lecture series just keeps rolling along. We have also helped out with the Mountaineers youth summer camp program, leading morning nature walks for them for the second year (Thanks to Danielle, Peg, Gordie and Lisa this year). We have hoped to develop an active youth program and family hikes and this is 'under development'.

The native plant garden has been a challenge area this past year. Our work parties have been sparsely attended



and burnout of leadership has been an issue. The plants hardly know it and keep blooming, and the garden is a shady nook in summer and useful for plant identification in the Intro class. We are looking at collaboration on the garden with the Washington Native Plant Society; seemingly a good fit as they have been using the Mountaineers for their meetings and they have expertise in growing and knowing native plants. Also, we listed a stewardship this last summer which was well attended by strapping young people, who worked hard to accomplish weeding and infrastructure repair tasks. Kudos and thanks to them; we see hope in our future garden work parties.

We've not had a formal leadership training in several years. We are challenged in that many of our hikes are led by very few people (I hesitate to say the 1%). We have a process for leadership 'training' that involves taking a hiking committee leadership seminar, co-leading a hike and doing a mentored hike with listing and leading the hike. We have had some success with this, yet we clearly need more leadership over a broad age and interest spectrum. We (by we I mean myself, Tom Bancroft, Danielle Graham and Stewart Hougen – our de facto leadership committee) are planning a leadership training weekend intensive the weekend of February 23) (see announcement in this newsletter).

The Mountaineers is a large organization with many tentacles. We are a healthy component of it and are seen as minor (financial) contributors. We have been blessed this past year by the activities on our behalf by Danielle Graham (co-leader extraordinaire), who understands organization function and knows how to navigate it. This is perhaps my least passionate area. I have, nonetheless, been impressed with the quality of the staff (their dedication), the flexibility of the organization, and their caring for our health, safety and enjoyment. If I enjoyed meetings I'd be more involved. Like all modern organizations the Mountaineers undergo frequent staff changes and this makes our job more difficult. My wish for the Mountaineers is that next year will offer them (us) more staff stability than in the past year. We also participate in show and tells for prospective members that are associated with gear grabs (Goodman becomes a giant barter trade mart). We do get some people interested in the Intro class this way. Many attendees are new to Seattle.

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State Of Naturlist (Continued)



Volunteer appreciation – We do a potluck after the Intro class where we show our appreciation for the contribution of the students. Enthusiastic students make our teaching easier and more rewarding. These have been sparsely attended yet enjoyed by all. I hope in the future more of us come to this potluck because it is a great place to help integrate new members into the group as well as get a feel for what is going on. We also give gifts to our volunteers. These have varied from gift certificates to small gear bags (or purses) with our Naturalist logo on them, personally designed by an artist associated with us. The mountaineers also have a volunteer appreciation dinner and do have gifts for their dedicated volunteers (super volunteers they call us). We all volunteer out of passion. Appreciation for our work is also nice.



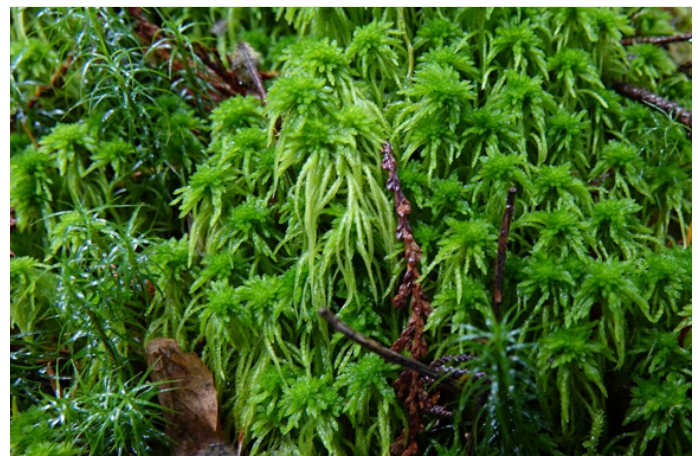
Interaction with other groups - Many of us belong to other naturalist groups – Audubon, Washington Native Plant Society, Puget Sound Mycological Society, yet we rarely share events and activities with them. I would personally like this to change and am working towards this. Several study group members are master birders and have led trips for Audubon and even taught courses (Vicki and Tom for example). Several of our members were involved in teaching a moss and lichen workshop for the native plant society (led by Stewart). We have also attended the Monday mushroom ID clinics this fall led by the Puget Sound Mycological society and have talked with one of the facilitators (Danny Miller) about doing a mushroom ID workshop next year. These are good starts, but our interests continue to follow our growth as naturalists and the opportunities presented by expertise and experience in our community, which is wider by far than the mountaineers. The door is, I think, open to many such opportunities in the future.

December Naturalist Hikes

WALLACE FALLS – HIKE LOOPING THE LOOP INCLUDING THE GREG BALL TRAIL



Into the woods



Peat moss and alpine haircap moss

(Continued on next page)

December Hikes (Continued)



Wallace Falls



Two greybeards

NISQUALLY WILDLIFE RESERVE – TOM BANCROFT



Pintails at Nisqually

POINT NO POINT BIRDING – TOM BANCROFT



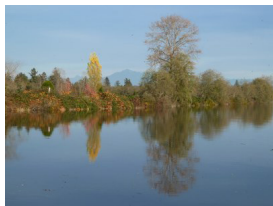
Mew Gulls ply the waters off Pt. No Point



Upcoming Hikes

Sign up online under *Explore, Find Activities* and check exploring nature (or click the register buttons below).

The mountain hiking season is nigh upon us, and we nats have many offerings to enjoy.



Snohomish River (Everett)

JANUARY 7 - GORDIE SWARTZMAN & STEWART HOUGEN

Everett Ponds, Spencer Island and Tulalip Bay. Driving along the freeway we often see an area north of Everett which are loaded with ducks. These are the Everett (sewage) ponds and they are a great birding locations. Nearby Spencer Island and Tulalip Bay also have wonderful birding. Join Stewart and Gordie on this nearby birding adventure. This trip is best for people with some birding experience.

[Register Here](#)



Vashon & Maury Islands

JANUARY 12 - STEWART HOUGEN

Birding trip to Vashon Island – Join Stewart in the everlasting search for those rare species often plying the waters off Vashon Island an visit quiet cool ponds with their surprises.

[Register Here](#)



Nisqually National Wildlife Refuge

JANUARY 12 - ANITA ELDER

Join Anita on this family-oriented walk through one of our local national treasures.

[Register Here](#)



Union Bay Natural Area and Magnuson Park

JANUARY 18 - GORDIE SWARTZMAN & STEWART HOUGEN

Bird Yesler Swamp, Union Bay, and the haunts of Magnuson Park with Gordie and Stewart. Bay ducks, waterfowl, raptors, feeding flocks of passerines and more. As easy as backyard birding.

[Register Here](#)

Upcoming Workshop



Mosses

JANUARY 2019

We will learn about moss and lichen identification using visual keys for common mosses and lichens in our area, followed by a field trip to identify them together. Lecture on Thursday January 24 and field trips Saturday January 26 – organized by Stewart Hougen and Gary Brill.

[Register Here](#)



Naturalist Leadership Training this February

SAVE THE DATE

The Naturalist Committee will be offering a Naturalist Leadership Course the weekend of February 22-24, Friday evening through Sunday afternoon, at the Seattle Program Center. The course will include both field-based and classroom instruction to provide aspiring leaders with the knowledge and ability to lead field trips for the Introduction to the Natural World course, as well as Exploring Nature Trips. Instruction will include both

natural history topics, as well as leadership and website administration. Follow-on mentoring will be provided. More information and an application to follow. For questions, contact Tom Bancroft at gtbancroft@gmail.com

2018-19 Naturalists Lecture Series

SEATTLE PROGRAM CENTER, 7 PM

Free to Naturalist Study Group members, public welcome – donation

JANUARY 9, 2019 (WED) | JULIA K PARRISH

Marine Birds and a Warming Ocean: The Power of Citizen Science

Julia is Executive Director of Coastal Observation and Seabird Survey Team (COASST) and a professor of ocean fishery sciences at the UW. The COASST effort is helping scientists see patterns about the effects of climate change and other factors on seabirds.

Julia shares the longterm findings of this citizen science program which compiles the data of 100s of volunteers surveying our coast. Rich in visual details and fascinating look into the status of seabirds.

See [page 43](#) of the fall issue of Mountaineers Magazine.

FEBRUARY 13, 2019 (WED) | CHRISTIAN A SIDOR, PH.D.

Fossils From the Bottom of The World: Paleontology at the Shackleton Glacier Camp

Chris is Associate Director of Research and Collections Burke Museum and Professor of Biology UW. He will take us on a visual journey to the spectacular landscapes of the Trans-antarctic mountains where the Triassic rocks he's studying are exposed, as we learn what it's like to do fieldwork in Antarctica.

MARCH 13, 2019 (WED) | GOVINDA ROSLING

Pigeon Guillemots: A Seabird That Measures The Health of The Salish Sea

Govinda's photo rich account of their life cycle, behavioral habits, quirks and antics will entertain as she explains the Pigeon Guillemot Research Group's 15 year study and why it's important.

Central Puget Sound Chapter/Washington Native Plant Society Program

June 2011



May 2017



Update on Sword Fern Die-off in Seward Park

**THURSDAY, JANUARY 3, 2019, 7:00PM,
TIM BILLO, PHD**

**Seattle Program Center
7700 Sand Point Way N.E., Seattle
Refreshments, Public Invited, Admission is free.
Donations are appreciated!
Doors open at 6:00 PM for the Native Plant
Identification Workshop**

The mystery is not yet solved! In November of 2016 Dr Billo introduced us to a local botanical disaster. For several years, sword ferns in an area of Seward Park had been dying, and the problem was getting worse. He continues to work with a team of scientist and community activists to unravel the issue and will summarize the results of the large ongoing collaborative effort in Seward Park and other sites around the region. He'll review the multiple etiologies that have been explored and share the hypotheses the research team has developed. He will also share the team's plans for experimental work to test their hypotheses and to identify restoration solutions.

Tim Billo is a lecturer with the University of Washington Program on the Environment. The focus of his position is undergraduate teaching. He teaches a wide range of interdisciplinary courses, often centered around field studies and natural history. Here are links to two of his summer courses: <https://sites.uw.edu/gb2018uw/> and <http://envir495onp2018.blogspot.com/>

Dr Billo's PhD is in biology, with a specialty in bird behavior and evolution, with much of his research taking place in lowland tropical rainforests of Central America. With a lifelong interest in plants, however, and two small children at home, he welcomed the opportunity to work on a the sword-fern die-off problem affecting Seward Park, a field site in his own neighborhood!



Butterflies and Garden Habitat

**SATURDAY, JANUARY 12, 2019, 1:00PM,
JULIE O'DONALD**

**Sammamish Library, 825 228th Ave SE,
Sammamish, WA 98075
Refreshments, Public Invited, Admission is free.
Donations are appreciated!**

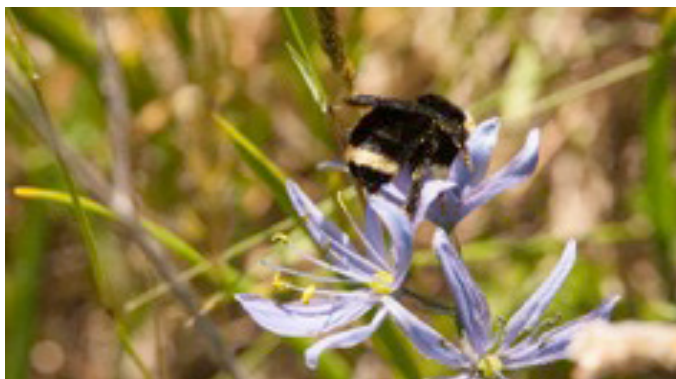
Meet 18 species of butterflies found in the Puget Sound Lowlands. Learn the best native flowering shrubs and wildflowers for attracting butterflies. Practices that help butterflies survive throughout the year and in all stages of their life cycle will be covered. Be part of the garden connection needed to keep butterflies in our neighborhoods.

Julie O'Donald is a Community Wildlife Habitat Steward and Master Gardener with over 30 experience creating wildlife friendly gardens. She has focused on the use of native plants integrated with ornamentals to attract butterflies and pollinators. Julie's garden has been featured in Pacific Horticulture and The Butterfly Gardener magazines, as well as the book, Butterfly Gardening: The North American Butterfly Association Guide, 2018. Active in educational community outreach, Julie volunteers for the Washington Native Plant Society, the Washington Butterfly Association, Kruckeberg Botanic Garden, and the National Wildlife Federation.

Photo Credit: Will Peterman

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WA Native Plant Society (Continued)



Greater Seattle Native Bee Populations and the Land Use Practices that Affect Them

**SATURDAY, JANUARY 26, 2019, 1:00PM,
JULIE O'DONALD**

Tukwila Community Center Classroom, 12424 42nd Ave S, Tukwila 98168

**Refreshments, Public Invited, Admission is free.
Donations are appreciated!**

Join local bee researcher Will Peterman and restoration expert Nelson Salisbury as we explore the world of our native bee populations, their life strategies and the land use practices that can change populations and abundance. The first half of the session will be led by Will Peterman, co-author of “Bees of the Puget Sound Lowlands”. Several years of bee studies on Port of Seattle properties have yielded some fascinating observations about short and long-term changes in populations due to

habitat changes. The second half of this session will be led by Nelson Salisbury, co-author of “Native Pollinator Habitat Restoration Guide”, who will help us to understand how our restoration practices can impact pollinator habitat – both in positive and negative ways.

Registration is Required. Please register at nativebees.brownpapertickets.com. Attendance is \$10 for all WNPS members and Native Plant Stewards and \$20 for non-members or stewards. Waivers and information can be requested by calling or texting (206) 588-1247 or email at CPSStewardshipProgram@gmail.com.

Upcoming Programs:

- 2-7-19 Joe Rocchio On peatlands
The Mountaineers, Cascade Room
- 2-12-19 Lauren Danner Crown Jewel Wilderness:
Creating North Cascades National Park
Bellevue Botanical Garden, Aaron Education Center
- 3-7-19 Ray Larson “The Flora of Seattle in 1850: Major Species and Landscapes Prior to Urban Development
- 4-4-19 Jon Bakker On prairies
The Mountaineers, Cascade Room
- 4-9-19 Donovan Tracy “The Alpine Flowers of Mount Rainier”
Bellevue Botanical Garden, Aaron Education Center
- 5-2-19 Andy MacKinnon On the role of endophytic fungi in the production of plant chemicals
The Mountaineers, Goodman Room

Washington Native Plant Society Study Weekend – Bays Bogs and Balds

MAY 17-19, 2019

The Salal Chapter invites you to join other WNPS members in exploring the lowland flora of Skagit and Island Counties, a geologically and climatically diverse area, in prime wildflower season. The base will be the Fidalgo Bay Resort in Anacortes on Fidalgo Island (access by bridge). Anacortes is the jumping off place for ferries to the four largest San Juan

Islands and to Vancouver Island, so you may want to plan an extended trip.

There will be about 30 fieldtrips, 15 each day, many with stunning views. Sites will include beaches, bogs, and balds in Anacortes parks and community lands, Deception Pass State Park (on both Whidbey and Fidalgo), central Whidbey, Samish Island, and mainland areas including Padilla Bay, home of a National Estuarine Research Reserve that manages and protects more than 11,000 acres of intertidal and upland habitat and the second largest eel grass bed in the United States.

[Register Here After January 12th](#)

Odds & Ends

Naturalist facebook group:



The Facebook Group is a group of Mountaineers who have a passion for the natural world and want to learn more about it.

It is called The Mountaineers Naturalist Group. It is open to Mountaineers Members who are affiliated with the Naturalist Program, either as a current or past student of the Intro to the Natural World course or as a member of the Naturalist Study Group. It provides a place for

members to share photos of their hikes and trips, as well as to help with identification of species.

People can search for it on Facebook and ask to join. If they are a current member of The Mountaineers and affiliated with the Naturalist Program, they will be added.

The group is open only to Mountaineers Members as it helps us build camaraderie among our members. (There are many other Facebook groups open to all such as the Washington Native Plant Society and Western Washington Birders.)

UW sponsored Washington Biological Symposium

MARCH 6, 2019

An extensive network of professional, academic, and amateur botanists are actively engaged in the conservation, management, and study of Washington's diverse flora. Their

expertise ranges from how best to manage biodiversity, to understanding climate change impacts on plant communities, to naming and classifying the flora's rare, common, and invasive elements. Invited speakers and poster presentations will share new insights and discoveries about these topics and more.

[Register Here](#)



Mountaineers Leader E-Learning – FREE!

If you are interested in becoming a Mountaineers leader, there is a leadership e-training course available. Check it out!

[Register Here](#)

Stewardship Opportunity

Provided by Alex Harwell of the Snoqualmie Tribe:

The Snoqualmie Tribe's Habitat Restoration Program has many opportunities to participate in restoration activities including volunteer planting events, invasive species removal, and native plant salvages. For more information on upcoming events or other ways to be involved in the work the Tribe is doing please contact:

Alex Harwell , Outreach Program Coordinator
Alex.harwell@SnoqualmieTribe.us



Poetry

WHITE-EYES

By Mary Oliver

In winter
all the singing is in
the tops of the trees
where the wind-bird

with its white eyes
shoves and pushes
among the branches.
Like any of us

he wants to go to sleep,
but he's restless—
he has an idea,
and slowly it unfolds

from under his beating wings
as long as he stays awake.
But his big, round music, after all,
is too breathy to last.

So, it's over.
In the pine-crown
he makes his nest,
he's done all he can.

I don't know the name of this bird,
I only imagine his glittering beak
tucked in a white wing
while the clouds—

which he has summoned
from the north—
which he has taught
to be mild, and silent—

thicken, and begin to fall
into the world below
like stars, or the feathers
of some unimaginable bird

that loves us,
that is asleep now, and silent—
that has turned itself
into snow.

Source: Poetry (Poetry Foundation, 2002)

WINTER TREES

By William Carlos Williams

All the complicated details
of the attiring and
the disattiring are completed!

A liquid moon
moves gently among
the long branches.

Thus having prepared their buds
against a sure winter
the wise trees
stand sleeping in the cold.

THE SNOW MAN

By Wallace Stevens

One must have a mind of winter
To regard the frost and the boughs
Of the pine-trees crusted with snow;

And have been cold a long time
To behold the junipers shagged with ice,
The spruces rough in the distant glitter

Of the January sun; and not to think
Of any misery in the sound of the wind,
In the sound of a few leaves,

Which is the sound of the land
Full of the same wind
That is blowing in the same bare place

For the listener, who listens in the snow
And, nothing himself, beholds
Nothing that is not there and the nothing that is.

THE SKY IS LOW

By Emily Dickinson

The sky is low, the clouds are mean,
A travelling flake of snow
Across a barn or through a rut
Debates if it will go.

A narrow wind complains all day
How some one treated him;
Nature, like us, is sometimes caught
Without her diadem.

Winter solitude by Matsuo Basho
Winter solitude--
in a world of one color
the sound of wind.

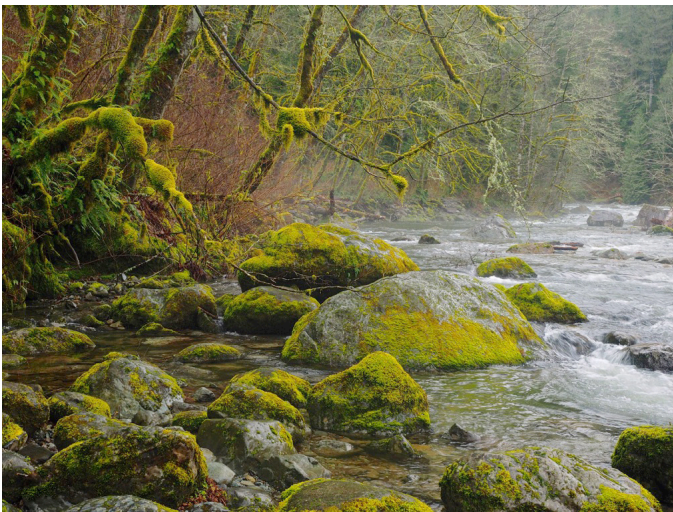
Moss Musings

By Gary Brill

I very much enjoyed hiking this summer, and especially in fall when the smoke of summer fires had largely disappeared and temperatures became cooler. As rains returned and snows fell in the mountains, I began once again to hike in the lowland forests but at first just hiked, and did not begin my winter-time challenge of photographing, and trying to identify and feel comfortable with my identifications of mosses that I find particularly difficult to differentiate.

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For me beginning to learn Mosses - and to a lesser degree Liverworts and Lichens - has been a sometimes difficult, but always challenging winter-time pursuit that also coalesces with my interest in photography. Arguably, the beautiful green hues of mosses covering rocks, and draping themselves, or hanging from tree trunks and branches are the most beautiful part of hiking in the winter in the Northwest; all the mosses standing out because the mosses are most active in the wetter months; but also because deciduous trees have lost their vernal cover of photosynthesizing leaves, making the mosses that are always there (but not always obvious) stand out so much more vividly. So making images of winter scenes in rain forests and along accessible Cascade and Olympic Rivers can be very rewarding.



In the fall of 2015 I began photographing individual Mosses and Liverworts and Lichens; and then, of course, once photographed, I wanted to be able to label my images. By this time in my life I was already pretty proficient at identifying wildflowers, which are much easier because of obvious color differences and distinctions like composites and bell shaped flowers, as examples. Mosses initially proved far more difficult, as they are all green, or nearly so, are very small, and at times even obscure. At first it was a daunting task; but my initial images were of very common mosses, and I had help from the trip leader, Bruce Barklow on the Tiger Mountain Talus Caves trail, and Gordy Swartzman on others. Still some of the images were not good because of the low light, the Depth of Field demands of close-up photography, and my unfamiliarity with the digital camera I bought in 2014; and, as a consequence of that, and the difficulty of the botanical task, some went unnamed. I signed up for additional winter Naturalist hikes that winter and learned those few basic and repetitive mosses. Although progress was slow; my interest grew not only because of the fact that close-up mosses are really cool and beautiful, but also because of a streak in me that wanted to overcome challenge. I am really not competitive with others, and don't want to be; but I am demanding of myself in areas of my life that hold interest for me. One of

the problems I had with identification of mosses was that the images were out of context - just a shot of something with no reference (which limits memory). The camera I bought in spring of 2014 was an Olympus EM-1 and I had both a wide to short telephoto zoom and a macro lens. I solved the "context" part of the problem by taking first an image of the habitat and then of the moss. Moss habitat is a very crucial part of learning to identify mosses. Typical differentiations of habitat are, or might be, tree trunks, or the bases of trunks, or on shrub or tree branches, on fallen logs (epiphytic), on the ground (terricolous), or on rocks (saxicolous). Those distinctions were made very clear from a website I bumped into while making early attempts at identification by Jonathon Mitchley of Great Britain. He has an excellent blog that is very helpful in at least getting a start on mosses (although there are species differences in North America): <http://drmgoeswild.com/dr-ms-marvellous-mosses/> The organization of mosses pointed out in this blog and a series of related blog posts by Mitchley helped me to overcome my problem with treating the 597 Washington mosses and 232 Liverworts as just a bunch of individual cases, which, of course, is overwhelming when viewing Bryophytes (Mosses, Liverworts, and Hornworts) as individuals.



In time I got better with my photography and identification by taking an image of the habitat as mentioned and shown above; by learning how to take images of Mosses and Liverworts, much as the same learning curve applies to vascular plants; and by learning my camera. One of the things my camera will do is to Focus Stack images in camera by automatically taking a series of eight images at different depths (user controlled depths) and combining them into one image with far greater depth of field. In the use of a macro lens - which is enlightening in leaf detail - I find the relevant significant depth of field requirement to be about three quarters to one inch. (Since this "project" is a passion of mine, I often go out with a tripod to get the best images I can). Most of the group of Naturalists will not want to go to this more time-consuming extent, but learning your camera and taking images (for instance with flash), and having a permanent record of the Mosses

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and Lichens you see in the field makes *ultimately* learning Bryophytes much easier as it does for wildflowers. I find it most valuable to catalog the images of Mosses, Liverworts, and wildflowers by name, and to use a photo program that allows me to make notes as to how I identified some particular Bryophyte by use of a quotation or summarization thereof, and then also to cite the source. I can then search all of my images of a particular Moss by name and with proper labeling by location (as, for example, Big *Quilcene River*).

I still carry a loupe when I am out to photograph and learn (or cement down distinctions of), through fine leaf detail, certain mosses. The best loupes to use are 30X and are lighted as forests are often quite dark. I got mine from Minerox: <https://www.minerox.com/category-s/1829.htm> but it is easy to find 30X lighted loupes by googling just that. One key with loupes besides magnification is that the diameter of the glass lens is roughly a minimum of 20mm. This magnification is about the same as my Olympus EM-1 I camera with my 1:1 60mm macro lens, but the obvious advantage of the camera is the permanent record. When you go out with just a loupe and view numerous mosses you will find that soon you don't remember which was which.

Another key in identification of mosses besides habitat (and leaf detail) is the morphological form of the moss. This rapidly becomes fairly obvious as the distinctions are most often significant and can be definitive in identification of many mosses. Primarily from the above distinctions, and plant color - which is not *just green*, but various tones from yellowish or even brownish, to light, or dark green - Stewart Hougen has created a chart that is very effective in helping aspiring Naturalists to get their foot in the door so to speak to begin learning Pacific Northwest west slope lowland forest mosses. The chart is structured on the basis of form, but includes the above other distinctions, and can be found by searching the Course Materials for the 2018 Naturalists Course: <https://www.mountaineers.org/locations-lodges/seattle-branch/committees/seattle-naturalists-committee/course-templates/introduction-to-the-natural-world-course/inw-course-materials/identification-charts> The chart can be printed out and then placed in protected plastic or cellophane covers and used for field use. The beauty of the chart (like the usefulness of Jonathon Mitchley's blog) is in having an organized method of categorizing and differentiating mosses. It also works because it contains just 35 mosses and 4 liverworts that we have found most common in the lowland forests where Naturalist winter hikes are most often held. Hence, it is not encyclopedic. For people taking the late January Moss and Lichen class this year you will be provided with a copy of this chart in a small notebook.

Finally, it is far more useful to learn Mosses, Liverworts, and Lichens by scientific name if you think you want to

commit these names to memory. But depending on what you want to get out of your interest in Bryophytes and Lichens, and not to feel overloaded, it is often necessary for further use to simply learn the genus. Species distinctions are often far more difficult and are likely beyond the scope of what many would want to commit to learning. But the advantage of learning the genus of a Bryophyte or Lichen is that, with but a couple of cases, all of the available reference materials on the internet and in books use primarily scientific names. Hence even to try to learn more about a particular subject you need to look it up by genus and then to scroll or select a link for species. Mosses by genus also tend to have common general morphological similarities, and hence this becomes the easiest way to branch out laterally across a genus, and rapidly expand your knowledge of mosses. Common names by comparison can be varied and seldom help in expanding knowledge.



For example, one of the most difficult mosses is *cat-tail moss* or *Isothecium*. It is also one of the most common lowland forest mosses and has the distinction of having all different types of form, and even of leaf shape. But all *Isothecium* have a strong costa (or leaf midrib) and are strongly toothed (serrate) towards the upper half of the leaf. That easily separates in the field *Isothecium* from another genus, *Brachythecium*, which is also often very common. I had been having trouble identifying certain common mosses on hikes, and really was up in the air wondering if I could distinguish them. So, I took some images this week and then spent 6-8 hours researching *Isothecium* and found that cat-tail moss, also known as *Isothecium* moss, or variable moss by common name, varies all over the board in form, and, to a lesser extent, in leaf details. It isn't just me that was having trouble with these distinctions. I found at least three different studies, including genetic, that found that it was just plain not possible to be very precise in describing the varied forms of *Isothecium* moss. Dale Vitt, for instance in his book, *Mosses, Lichens, and Ferns of North America*, says regarding *Isothecium myosuroides* moss (the common one) that "Generally in humid coastal rain forest any

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hanging, trailing, branched, white-green moss with erect leaves could be this species. If you are unsure, your best bet is to name it *Isothecium*, chances are you will be right. Other names for this moss are *I. spiculiferum* and *I. stoloniferum*." In fact the history of trying to categorize and name these variants goes back to 1851 and continues to this day. Without my research on *Isothecium* moss I would have continued to be clueless in attempting to name certain common examples in the field. Following are two images of *Isothecium* moss I photographed this week. One might be described as cat-tail moss, the other, clearly not; but they are certainly variable. The leaves, on these examples which would be described 1) as hanging, irregularly branched, and delicate, and 2) as rough and pinnate, are similar. They are also of distinctly different sizes.

But even the leaves are different in the third 2017 example below; more broadly lanceolate.



But wait, it gets better!

Take an *Isothecium myosuroides* moss from one habitat and move it and put it in another and the growth form from the original specimen could be completely different! Cat-tail moss is what is called phenotypically plastic.

What fun. If you want to learn more about *Isothecium*

(Cat-tail moss, *Isothecium moss*, *Variable moss*) the descriptions are at Bryophyte flora of North America. More interesting than the descriptions are the line drawings (illustrations) of two species here: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=116622 *Isothecium myosuroides* was drawn in WB Schofield's valuable out of print book "Some Common Mosses of British Columbia" <https://www.amazon.com/common-mosses-British-Columbia-Handbook/dp/0771891652>, which is a great NW guide to 200 mosses, or you can google *Isothecium myosuroides* images to get a grasp of the great diversity of forms of this variable moss. And there you go; with a little effort you are on your way to understanding and perhaps being able to identify one of the most common but most difficult mosses in moist Pacific Northwest Forests.

A Study in Parmelia lichens

By Tom Bancroft

Parmelia is a worldwide genus of lichens and common across temperate North America. This foliose lichen has pale bluish-gray upper tops to the leaves and dark, usually black, undersides of the leaves. At least one member of this genus is common in the Pacific Northwest. These photographs, however, come from western Pennsylvania where I found it growing on a post and rail fence.



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Heerman's gull by Thomas Bancroft