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Photo: Banner Moffat

## Geology of Pocus Point and Vinalhaven's Origins

The southern shore of Vinalhaven forms a rugged and somewhat forbidding coastline that is challenging to reach and less well-known than other parts of the island. The rocks exposed here tell a story of tectonic collisions, explosive volcanic activity, glacial epochs, and sea level fluctuations. Several of the rock outcrops at Pocus Point and Lane's Island provide spectacular examples of a highly unusual geologic feature found in just a handful of places worldwide.

In September, VLT led a walk to this area to see these features and discuss the geologic evolution of the island, with a focus on its history as one of Maine's ancient "supervolcanoes."

The origins of Vinalhaven lie shrouded deep in the past, and reflect the effects of the Earth's plate tectonic engine, which over the past 3 billion years has sent continents and microcontinents cruising around the globe, clustering together at times, breaking apart periodically, and colliding occasionally, with accompanying mountain-building and massive volcanic eruptions. Vinalhaven was created during such a collision over 400 million years ago.

To set the stage, it's important to know about the landscape before Vinalhaven existed. About 500 million years ago during the Ordovician period, the eastern edge of the ancestral North American continent, known as "Laurentia," lay some two hundred miles to the west of present-day Vinalhaven, running through western Massachusetts and Ver-

mont. The rocks that today comprise Maine had not yet been added to Laurentia, but were parts of offshore island chains and microcontinents, many of which were volcanic in origin. These islands likely resembled the volcanic archipelagos of present-day Japan or the Aleutian Islands off Alaska, which form above tectonic "subduction zones" where plates collide.



An example of "pillow mounds", found on both Pocus Point and Lane's Island. Photo: Norbert Leser.

One recent reconstruction of the Ordovician period shows that ancestral North America was actually rotated more than 50 degrees clockwise from its present position, thus making the current-day "east" coast actually a south-facing margin, and the coast was also located in tropical waters just south of the equator. At the same time, some of the rocks that now make up coastal Maine were 2,500 miles away on the opposite shores of the ancient ocean, part of a microcontinent called Avalonia that was on a slow collision course

towards Laurentia.

Later, during the Silurian period about 420 million years ago, the Avalonian plate was just off the coast of Laurentia, and a tectonic subduction zone had formed along the margin of the two plates. In subduction zones, the kilometers-thick crust of one of the plates typically buckles underneath the overriding plate, sinking deep into the Earth until

it reaches temperatures high enough to melt the sinking rocks and generate magma. The hot magma rises toward the surface, forcing its way into the overlying crust and creating a magma chamber. Over time, a cooled and crystallized magma chamber (called a "pluton") results in a coarse-grained igneous rock, like granite. However, if the magma rises high enough, it may

produce a volcano that can periodically erupt an explosive mix of ash, lava, and toxic gases derived from the underlying magma chamber.

In some cases, especially for magmas very high in silica content, these volcanoes can explode so violently that they blanket the surrounding lands with massive accumulations of silicic lava flows and ash thousands of feet thick, and the underlying magma chamber may empty so thoroughly that the surface collapses and forms an enormous cra-



# Pocus Point *continued from front page*

ter called a caldera. Crater Lake in Oregon is a small example of a caldera; Yellowstone National Park is a larger version.

Such a series of highly-explosive silicic volcanoes with massive calderas formed in a line along the Avalonia-Laurentia collision 420 million years ago, with at least four major eruption centers identified at Vinalhaven, Isle au Haut, Bar Harbor, and the Cranberry Islands. The thick deposits of ash erupted from these Maine "supervolcanoes" are staggering in scale: the volcanic rock layers on Cranberry Island include a 2,300-foot-thick layer of welded tuff, a rock formed from solidified volcanic ash. On Isle au Haut, the volcanic rocks are more than 3 miles thick, and they are capped by an immense ash flow more than 3,200 feet thick.

On Vinalhaven, the silica-rich volcanic rocks exposed on the northern part of the island are estimated to be at least 2,000 feet thick, although erosion over the past 400 million years has likely removed a significant portion of Vinalhaven's volcanic deposits. Fortunately for us, that same erosion has exposed major portions of the underlying granite magma chamber, providing us with a unique glimpse into the caldera's engine.

Deep beneath the Vinalhaven volcano (at an estimated depth of 5 miles), the magma

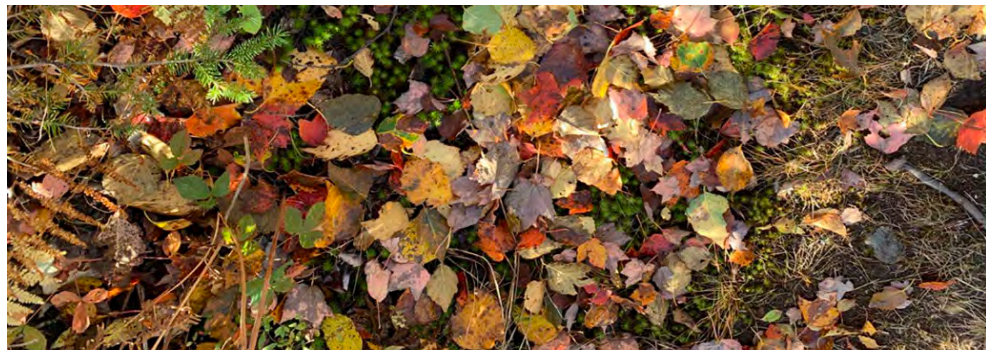
chamber feeding the massive surface eruptions was periodically replenished with magmas of varying types, depending on the original compositions of the subducting rocks that melted. Most of the magma was enriched in silica and therefore considered a granite, lighter in color and containing minerals like quartz, feldspar, and mica. In other cases, melting of rocks with less silica and higher amounts of iron and magnesium resulted in a more "mafic" magma known as gabbro, darker in color and containing a different mix of minerals. The surface eruption of a gabbro magma produces "basalt" lava flows, similar to those found on Hawaii. On Vinalhaven, both granite and gabbro are found, especially on the south end of the island. And in a few locations, the two rock types appear intermixed, swirled together like taffy, or in isolated blobs shaped like pillows. That is perhaps one of the most unique aspects of Vinalhaven's geology; it suggests that both magmas co-existed as liquids in the magma chamber at the same time.

Which brings us to the unique outcrops at Pocus Point and Lane's Island. Both locations possess some unique mound-like outcrops, up to 30 feet high and 300 feet long, that display tightly-packed accumulations of gabbro "pillows" in a granite matrix. The field relation-

ships of these "pillow mounds" share many features with submarine lava flows in places like Hawaii, where basalt lava flows spilling into the ocean become chilled and form piles of basalt "pillows." Researchers believe that Vinalhaven's pillow mounds may represent a situation where periodic injections of gabbro magma into a cooler granite magma at the very bottom of the magma chamber resulted in chilling of the gabbro and formation of gabbro pillows. Subsequent cooling and crystallization preserved the relationship, making this one of the only places in the world where evidence of such a process deep in a magma chamber can be seen.

The complex story of Vinalhaven's geology has been developed over decades by a number of extremely talented and dedicated geologists from the Maine Geological Survey and several major academic institutions. Their work has been published in scientific technical journals worldwide, and the geologic map of Vinalhaven is available for purchase from VLT and the Maine Geological Survey.

*George Kendrick is a geologist and year-round resident of Vinalhaven, who enjoys exploring geologically puzzling corners of the island and sharing knowledge of Maine's ancient past.*



## Planned Giving

A planned gift of almost any size will help ensure the protection of the habitats and scenic views we all love. Such a gift could be accomplished by simply adding a codicil (amendment) to your will, or by naming VLT as the beneficiary of an insurance policy or retirement plan.

In planning your gift, you should consult with a financial advisor or attorney to discuss your particular situation. Please call Linnell Mather at 207.863.2543 for more information on planned giving options.

## Environmental Education News

At the time of writing this, Vinalhaven School has returned to in-person learning, with all staff and students wearing masks and practicing social distancing. A small percentage of students have opted for remote learning, and a team of educators has been hired to coordinate their curriculum.

VLT-sponsored programs will be a little different this year, with fewer guest speakers and more focus on local environmental education. Teachers have committed to gardening and

spending as much time outdoors as possible. To support this, VLT funded the purchase of a mini science kit for every student in grades K-8. Tucked into a canvas bag each kit contains a ruler, tape measure, mini-compass, magnifying lens, ping pong ball, string, bug boxes, and sample jars. These kits will accompany students on all their outings, helping them report data, collect specimens, track their steps, and engage in many different activities.

# The Life of an Executive Director

## IN THE TIME OF COVID

VLT's staff has been working remotely since late March. Though we all miss the brainstorming, shared laughter and comradery of being in the office together, we have adapted to staying in touch via email or Zoom. It's not the same as stopping by someone's desk with a question or idea, and sometimes tasks fall between the cracks, but I've been impressed at how quickly and competently we've pivoted to working from our home offices.

Among the many joys of working remotely has been pretty much living in comfy pants and slip-on shoes, and not having to pack a lunch before heading to the office. A look at my calendar in the morning informs me whether a nicer shirt or sweater is needed for a Zoom meeting, or if I can get by with something less elegant that won't show the cat hair after my large, affectionate Maine coon cat "helps" me finalize a report or crashes a Zoom meeting.

One of the advantages of working for a land trust is that spending time outdoors is built into my job description. There are landowners to meet, properties to monitor, parcels to explore, and trails to hike. And of course, there's the endless roadside and coastal trash to clean up. Both VLT's steward Kerry Hardy and I have spent more time than usual on the trails this summer, making sure that even with the additional use they've received, they are still in good shape and inviting. Programs Coordinator Sherry Rega and I have been out in different locations, planning interpretive trails and virtual walks to share with you.

This summer, I spent more time than in the past on the phone and email, responding to queries from those planning a trip to the island, answering questions such as, "Where can we launch our kayaks?", "Will there be anything open for lunch?", and of course, "Which preserve is your favorite?" The answer to that question varies according to the weather and the season (Fox Rocks is spectacular in the fall), the amount of rainfall (Marcuse Wetlands offers so much diversity, especially after a good soaking rain), the age of the hikers ("You've got children with you? Don't miss the Story Trail!") I offer suggestions on places to explore and guide people to our website to download preserve brochures and to learn more about our work.

Much as I enjoy sharing what makes Vinalhaven special with these people, I also miss the

connections made when visitors would stop by the office. I loved the opportunities to talk about what we do and why, maybe sell a hat or two, and often gain new supporters. Visitors often gravitate to the large natural resource maps hanging on the wall. Taking the time to explain to them, even if only briefly, some of the island's history, geology, and water issues, will, I hope, lead them to having a more meaningful experience while here.

We've started keeping more and more of our documents in the cloud; Covid has made us very grateful to have done so. Though all original, irreplaceable documents are stored in a fireproof, climate controlled off-site location, we also have digital copies of those and many more of our day-to-day documents in the cloud. Now board and staff can easily access them no matter where we are, allowing us to collaborate in creating and editing reports and engagement tools.

Zoom: let's talk about a love/hate relationship. Though it's not the same as meeting in person, not even close, it does allow us to "see" each other, to share documents, and to work collaboratively. But it is no substitute for sitting around the table at the VLT office, brainstorming ideas or working through issues and then lingering afterwards to catch up with other attendees. On the plus-side, meeting participants joining us from off the island uniformly report it is a huge improvement over calling in on the conference phone!

Covid has inspired us to up our game, to master new technologies, and explore different ways of engaging with our communities. It has presented challenges to our work, especially to environmental education programming in the school, but has also emphasized the importance of what we do: providing unspoiled spaces where people can get outside alone, or with family or friends, and enjoy the changing panorama of the natural world.

Thanks for helping make that happen!

*Kinell Mather*

We are now sending monthly email updates.  
If you'd like to be on the list, let us know at  
[info@vinalhavenlandtrust.org](mailto:info@vinalhavenlandtrust.org)

## VLT GIFT IDEAS

Trying to think of a gift for someone who has it all? How about a gift membership to VLT?! We will send an informational packet and a photo card of a VLT preserve. You can also order a few select VLT items such as mugs (\$15), caps (\$15), fleece vests (\$45), notecards (\$20), and bags (\$25). Call the office number (207-863-2543) to order any of these items. Shipping and handling will be added to each order. Payment can be made via PayPal or by credit card.

If you shop on Amazon.com, you can simultaneously support VLT. Just visit <https://smile.amazon.com> and select Vinalhaven Land Trust as the charitable organization to receive donations of .5% on your eligible purchases. There is no charge to you, and your existing account, wish lists, and wedding or baby registry will remain unchanged. It's an easy way to help VLT every time you shop!





# In a Global Pandemic, the

People everywhere have discovered, or re-discovered, their love of the outdoors in the last six months. While we adapted our V  
bors have found their own ways to join us in rediscovering Vinalhaven's abundant natural treasures. We're especially gratified  
mountains, parks, and preserves. We thought these happy explorers might brighten your day





# The Healing Power of Nature

Walks and Talks and Environmental Education Programs for safety's sake, we're thrilled that our members, friends, and neighbors to see our island's youngest members, and their family members (human and canine!), joyfully exploring our beaches, woods, and more. A warm thank you to all the parents who sent us photos of your young nature lovers!





## President's Message

The Land Trust Alliance (LTA) is the national organization that provides many educational resources and support services to local land trusts, and serves as a national voice for hundreds of land trusts across the country. As an accredited land trust, VLT has been able to learn and benefit from the experience of other experts while remaining focused on and committed to the community we serve.

As I write this during the first week in October, the annual conference, called Rally, that LTA holds in some interesting city around the country, is being held virtually, which makes it easier for many board members to participate. Land trusts are local organizations that protect land and care for it. As one would expect, a significant number of the sessions at Rally are grouped under "Caring for Land" and "Protecting Land", and many others focus on the challenges of running a non-profit—such as governance and securing support. It is worth noting, though, how the interests and work of land trusts have evolved; over one-third of the sessions at Rally this year are on the topics of climate change, engaging the community, and diversity.

It may be easier to imagine a land trust that manages thousands of acres of forest in the western United States thinking about the impact of their decisions on climate than it is here on Vinalhaven, but it is also clear that VLT is part of a larger whole. We are part of a network of independent, local organizations that when considered together have a national footprint and impact on the issue of climate.

There has also been renewed awareness in recent years that land trusts, as local organizations, are in a position to engage and serve our local communities as we encourage the protection and appreciation of our natural resources. As VLT engages in a strategic planning process, which has been described by my predecessor, it is great to have these sessions to stimulate our thinking.

I am honored to have taken the reins as President of VLT in this past August from David Hyde, who for the past three years has guided the board through various initiatives. We all are grateful for his time and effort and glad that he has agreed to continue to serve VLT as Vice-President.

– Lee Campbell

## New Board Members



**Elizabeth Swain** termed off the board in 2019, took a year off, and is now eager and eligible to serve again. While off the board, she continued to serve on both the Easements and Acquisitions and Strategic Planning Committees. She is a skilled writer, organizer, and leader. Elizabeth is a long-time summer resident and has deep relationships on the island, as well as state-wide professional contacts.



**Joshua Eckels** is a highly skilled carpenter who has been a year-round resident of Vinalhaven for nine years. He has a background as an educator and artist. An enthusiastic supporter of VLT, Joshua has done volunteer work over the years in monitoring preserves and working on trails.

## Outgoing Board Members

Joining the VLT Board in 2013, **Dick Byrd** has served ably on the Development and the Finance Committees. He follows a family tradition of generously supporting land preservation on Vinalhaven. In 1986 his mother, aunt, and uncle conserved the parcel at the mouth of Perry Creek that we now know as the Saltonstall Reservation. Under Dick's leadership, the Saltonstall-Byrd Endowment Fund was developed to cover stewardship expenses, including a payment in lieu of taxes, for this parcel and all of VLT's protected lands that comprise the Perry Creek Conservation Area. Each summer, VLT's staff looked forward to that August afternoon when Dick would pop, unannounced, into the office asking, "Who wants ice cream?"

The office would empty out! We shall miss our valued "rare Byrd sightings" but know that our good and loyal friend will not be far away.

While **Blake Reidy** was balancing all her many school duties, she served on the Monitoring Committee and the Environmental Education Committee, bringing a sense of curiosity and openness to the process. On the Environmental Education Committee, Blake's focus on programs that would best connect with students brought about lots of wonderful programming that got students exploring the outdoors, and learning about nature in the classroom, too. We wish Blake all the best as she takes some time to enjoy Gavin Charles, our newest VLT member.

## Year-End Giving

Covid-19 has made us appreciate the outdoors more than ever. Our conservation efforts focus on protecting significant plant and wildlife habitats, water resources, and traditionally valued spaces that nourish our lives and our souls. Our environmental education programs at Vinalhaven School inspire the next generation to become better stewards of the island we love. We are hopeful that the Walks and Talks program will be back next year to educate on topics such as geology, botany, aquaculture, photography, and more.

VLT operates on a calendar year basis; gifts need to be received by December 31<sup>st</sup> to help us meet our 2020 goals. Though gifts of all sizes are important and welcome, we especially appreciate gifts of \$250 or more, which traditionally represent 80% of all funds raised. You can also make a gift of appreciated securities; in addition to being able to claim a charitable income tax deduction for the full fair market value of the shares, you also avoid paying a capital gains tax on appreciation. You may donate by mail or securely online at [vinalhavenlandtrust.org/donate](http://vinalhavenlandtrust.org/donate), or by phone at 207.863.2543. Thank you!

# Honoring Our Volunteers

VLT would like to thank all the incredible people who gave their time and energy in this past year. Now more than ever, it is critical to work together and we are overwhelmed by the support of our volunteers. Last year over 80 people volunteered over 150 hours, in addition to the many hours our board members give to VLT! Please accept our apologies if we have inadvertently omitted your name.

## Committee Members

Board members are active on all our committees, which also include both seasonal and year-round community members. Louisa Ives and Charlie Lowrey lend their skills to the Investments Subcommittee. Elise Stockly brings her expertise to the Development Committee, as does Sarah Forbes to the Communications Committee, and Javier Peñalosa to the Preserve and Easement Management Committee. Former board member Lucy Quimby remains an active member of VLT's Easements and Acquisitions Committee. We also thank Merry Boone, Claudia Dengler, George Fosque, Beth Gilford, Janet Gohres, Banner Moffat, Rick Morgan, Steve Rosen, and Sally Wylie for their support of the Walks and Talks Program. Pam Alley serves on the Tax Impact Task Force, while Skip Thompson assists the Skoog Park Committee.

## Mailings and Office Help

We are so grateful to those who came in when we called, and with great enthusiasm! Thanks to Sophie Benzi, Merry Boone, Steve Brock, Amy and Dave Calkins, Diane Cochran, Claudia Dengler, Karen Gates, Pam Grumbach, Carla Harris, Suzanne Heller, David Lawrence, Stevie Mesko, Debbie Pixley, Lila and Sophie Schaefer, Carol and Skip Thompson.

Additional thanks to Sarah Forbes, Paula Sullivan, and Carol and Skip Thompson for reviewing and editing our mailings and newsletters.

## Boat Transportation

Thanks to Claudia Dengler and Dick Young for transporting staff and board members to one of VLT's newest properties, Little Garden Island.

## Perry Creek Moorings

Thanks to Lila and Sophie Schaefer for helping put together membership packets, and to David Lawrence for delivering those packets to John McLeod in Perry Creek. And kudos to John McLeod for giving information about the work of VLT to boaters enjoying Perry Creek, one of VLT's whole place focus areas.

## Trail work

Per Black, Tyler Diaz, Lila and Sophie Schaefer, and Andre Sloan all helped with reblazing Watershed Trail. Lou Gallagher helped with trail maintenance at Round Pond Trail. Javier Peñalosa helped identify some unusual plants and assisted in editing the forest type signs on Watershed Trail. Mae Applegate, Donna Carter, Cait Clapham, Sue Dempster, Julie Dickenson, Cherie Doughty, Ann Osgood, Pat Paquet, Calliope Price, Kelly Richards, Samantha Thompson, and Mary Lou Upton helped update and maintain the stories on the Story Trail. Niall Conlan lent hours of snowplow expertise to clear trail heads all over the island after every storm, enabling our winter hikers access to the trails they love. Thank you all!

## Monitoring

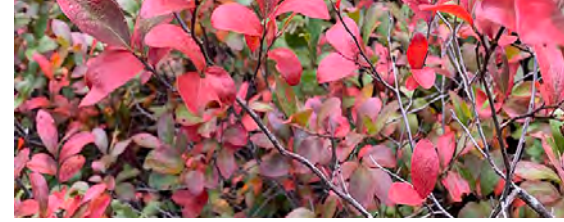
For their invaluable assistance in making sure that any restrictions on VLT's properties are being observed, we would like to thank volunteer monitors Colleen Conlan, Niall Conlan, Pam and Jim Grumbach, Hal Holt, George Kendrick, Charlie Lowrey, Audrey Nichols, Herb Parsons, Anna Poe, Susie Rodriguez, Marthena Webster, and David and Sally Wylie. Thanks also to Banner Moffat for boating Kerry Hardy to monitor.

## Photos

Thank you Sarah Barrett, Alice Bissell, Judi Gay, Kirk Gentalen, Norbert Leser, Banner Moffat, Julia Morgan, and Kate O'Donnell for providing such beautiful images of our preserves and of people enjoying them.

## Walks and Talks

Thanks to Creelman Farm and Robert's Harbor Farm for welcoming guests to their farms this summer; and to George Kendrick for leading the September Geology Walk on Pocus Pont. Next year, we hope to be back with a full sea-



son of walks and talks. Aside from the usual bird walks, low tide walk, and Hurricane Island trip, there will be programs on beekeeping, forest management, lobsters, photography, and more. This winter we will have a snowshoe walk if the conditions cooperate, and we will be sending out environmental book and film recommendations to get us all through the cooler months.

## Other

Andrew Quinlan provided pest control management; Ames Brothers Forest Service took down a huge hung up tree; and Banner Moffat installed a replacement door to keep us warmer at the office.

## Fall Cleanup

Our spring Basin cleanup was cancelled, but we were able to organize a small cleanup there in September, in partnership with MCHT steward Kirk Gentalen. Volunteers included Merry Boone, Steve Brock, Lindsey and Peg Grandison, Jack Myer, and Sandy Rega. Thank you for helping with this important work of keeping trash off roadsides and protected land.

## Board of Directors

We could not do this without the support of the board of directors. They, too, volunteered their time and skills for many of the opportunities above, as well as leading walks, monitoring properties, proofreading and editing, and sharing their wisdom and insights through their work on VLT's many committees.



Photo: Banner Moffat



# Our Leadership

## Board of Directors

Carol Baker  
 Jim Boone  
 Lee Campbell, Jr.,  
*President*  
 Art Carpenter  
 Emily Cohn,  
*Secretary*  
 Eric Davis  
 Joshua Eckels  
 Chuck Gadzik  
 David Hyde,  
*Vice-President*  
 Bill Jaques

Cay Kendrick  
 Pam Kittredge  
 Susie Lawrence  
 Sean Mahoney  
 Lucy McCarthy,  
*Vice-President*  
 Meagan Miller,  
 Kevin Moore  
 Elizabeth Swain  
 Mark Tolette,  
*Treasurer*  
 Pam Wetherbee

## Staff

Linnell Mather, Executive Director  
 Kerry Hardy, Stewardship Coordinator  
 Sherry Rega, Programs Coordinator  
 Sheri Romer-Day, Office Assistant and  
 Monitoring Oversight

# Help Conserve the Nature of Vinalhaven

Join us in protecting Vinalhaven's natural beauty with your membership or additional contribution. Use this form or donate online at [www.vinalhavenlandtrust.org](http://www.vinalhavenlandtrust.org). Annual dues (for each calendar year) are \$20 per person. Thank you!

\$500    \$250    \$100    \$50    Other \$ \_\_\_\_\_

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All donations, including dues, are tax deductible and will ensure that you receive VLT's newsletter and notice of special events. Contributions at all levels are greatly appreciated.

[www.vinalhavenlandtrust.org](http://www.vinalhavenlandtrust.org) • 207.863.2543 • PO Box 268 • Vinalhaven, Maine • 04863



*Vinalhaven Land Trust promotes the conservation and appreciation of our island's significant plant and wildlife habitat, our water resources, and scenic or traditionally valued spaces in order to preserve the character of the community for generations to come.*



Photo: Julie Morgan



Vinalhaven Land Trust



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