

BotSoc News



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2023

BotSoc kicks off a New Year of field trips with a hunt for lichens at Chattahoochee Bend

Field Trip: Chattahoochee Bend State Park

Date: Jan. 21, 2023

Trip Leader: Malcolm Hodges

Trip Report: Kevin Doyle

Special Thanks: To *Melanie Flood* for collecting trip photos.

BotSoc kicked off field trips for 2023 with a Jan. 21 trip to Chattahoochee Bend State Park to learn about lichens.

Lichenologist Malcolm Hodges led the popular trip. (Malcolm aimed for 10 participants. In the event, 21 of us joined him.)

The day of the trip dawned wintry and overcast, the kind of cool, muddled weather you expect in the South in January, with occasional splashes of weak sunshine. But if the weather affected participants, it was hard to tell given the level of engagement and animated discussions. And the lichens? Meh. They're tough. They make their eccentric livings on tree bark and rocks.

The group walked Chattahoochee Bend's Flat Rock Trail, a mile long and accurately described as "easy to moderate." It features two substantial sections of exposed rock, both great places to see lichens. Access is via the park's Trailhead No. 1. You'll find the



Will Hembree, Leila Dasher, Malcolm Hodges and others study lichens on chestnut oak bark. Photo by Melanie Flood.

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**BotSoc News**

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Georgia Botanical

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Having already had some 80-degree days in southeastern Georgia, spring is on the way. My *Brassicaceae* (also known as family *Cruciferae*) crops are thriving (*Brassica rapa*, turnips; *Brassica juncea*, mustard greens; *Brassica oleracea*, cabbage, kale; *Brassica napus*, rutabaga). My Eurasian violets (*Violaceae* plant family, *Viola tricolor*) are in full bloom.

Do look in your yards for wild mustards, both native and invasive, as well as our native violets. Also look out for *Stellaria* (chickweeds), *Galium* (bedstraw), *Oxalis* (wood sorrel), *Geranium carolinianum* (crane's bill), *Vicia* (vetches), and other spring ephemerals (some yearly residents). Spring also means time for our annual wildflower pilgrimage (https://www.gabotsoc.org/?page_id=23), scheduled for May 5-7 in the Hiawassee area of Towns County. Vice President Mei Lee Fung has been busy putting together a great event. I hope to see you there!

Thank you for the emails! One member reached out to volunteer, noting they were interested in carnivorous plants. Coincidentally, so am I, and I grow a lot of them and plan to send this member some. During spring I start a lot of seeds indoors, such as *Drosera capillaris* (plant family *Droseraceae*, pink sundew). I also divide my *Dionaea muscipula* (also *Droseraceae*, Venus flytrap). Both were initially given to me. Now I pay the favor forward each year by giving some of each to friends, family, and co-workers. I encourage you to jump into spring by similarly getting your seeds started and plants divided. Then share the fun with others!

Please note that we have some great field trips this year. For details check out <https://www.gabotsoc.org/> (https://www.gabotsoc.org/?page_id=12).

https://www.gabotsoc.org/?page_id=12).

And do you know some academics or at-home scientists? Encourage them to check out and apply for our Marie Mellinger Field Botany Research Fund (https://www.gabotsoc.org/?page_id=9162), instructions also on our website. See our story on Pages 6-7.

Go out and look at some plants. Have a great day!

Timothy Estep



Brassicaceae pollen at 400x magnification. Sample first collected by a honeybee, then by Timothy Estep in January 2023. Suspected source is either a garden variety or wild plant. Photo by Timothy Estep.

Georgia Roadside Wildflowers: Eastern Paintbrush

Georgia has just one native paintbrush, but it's a beauty

Folks who know me are well aware that I am inordinately fond of paintbrushes (genus *Castilleja*) and

By Rich Reaves

Editor's Note:
Welcome to the first installment of a series of articles on some of Georgia's best-loved wildflowers. The author is a botanist, a frequent leader of BotSoc field trips (including hugely popular trips to view flora in the western United States), and an inveterate roadside botanizer.

the closely related owl clovers (genus *Orthocarpus*). Paintbrushes are hemiparasites, tapping into the roots of host plants to obtain additional water and/or nutrients. Taxonomically, *Castilleja* was historically placed in the Scrophulariaceae, but the paintbrushes and other hemiparasites formerly placed among the scrophs have been moved to the Orobanchaceae.

I can't pick a favorite paintbrush, as I like them all, but the task is made easy when discussing Georgia roadside flowers. While there are many and varied species of paintbrushes in the western United States, we only have one in Georgia. Fortunately, eastern paintbrush (*Castilleja coccinea* [Linnaeus] Sprengel) is quite spectacular. The brilliant orange-red color that makes this species so striking is provided by bracts (modified leaves that occur

below the flowers) rather than flowers. Because of this, the color display lasts much longer than that for most flowers.

There is a nice population of eastern paintbrush along state Route 60 (GA 60) near Woody Gap north of Dahlonega. This occurrence is best enjoyed from the car, as there is no wiggle room along the side of the road for walking or photographing, and there are no places to safely pull over near where the plants occur. I always drive by at least once a



Eastern paintbrush (*Castilleja coccinea* [Linnaeus] Sprengel). Photo by Rich Reaves.

year when this species is putting on its show and usually try for several viewings.

Not in Georgia but while traveling for work, I noticed a field of paintbrushes along a roadside in southeastern Kansas that had a color morph that I wish we had in Georgia. Eastern paintbrush plants in the field mostly were the common orange-red color with several of the less common yellow color morph (which I have not seen in Georgia). The most eye-catching were a handful of an amazing peach-colored morph, which apparently resulted from crosses of the typical colors.

Chattahoochee Bend Lichens—Continued from Page 1



Participants gather for a group photo at the second of two rock outcrops that highlighted BotSoc's January lichen field trip, the first field trip of 2023. Trip leader Malcolm Hodges is seated in the front row third from right. Photo by Scott Ranger.

trailhead on Flat Rock Road, the entrance road to the park, almost immediately after you enter the park. A parking lot is on the right side of the road as you head toward the park visitor's center. The trail starts on the opposite side of the road.

The field trip group was a wonderful blend of younger and older, veterans and newcomers. (It was Annette Ranger who noted how nice it was to see so many younger participants, and you can see that in the accompanying group photo.) And there was exceptional energy in the group despite the gray day.

When the group wasn't clustered around Malcolm for lessons and discussion, participants eagerly sought out patches of lichen singly or in small groups, huddling here and there on hands and knees, often lying down on rock or trail to squint at lichen through hand lenses, then bringing questions and pictures back to Malcolm for discussion.

Malcolm performed magic with a small ultraviolet (UV) flashlight and drops of lye and bleach, all diagnostic tools for a lichenologist. Some (but not all) lichens respond to tiny drops of the two reagents with vivid color changes, or they reflect bright hues under UV light. The day's indispensable tool, of course, was the botanist's hand lens.

Also indispensable was the trip's leader, who is uniquely qualified to lead such outings. With Sean Beeching, Malcolm has created and populated the Georgia Lichen Atlas Project. Check out an [introduction to the project here](https://www.georgiabiodiversity.org/ga_all4/lichens_intro) (https://www.georgiabiodiversity.org/ga_all4/lichens_intro); access the lichens section via the [Georgia Biodiversity Portal](https://georgiabiodiversity.org/portal/) (<https://georgiabiodiversity.org/portal/>, then scroll down slightly to see the lichens section listing); or go straight to the portal's lichens section [here](https://) (<https://>



A comparison of jester's cap (*Cladonia leporina*) at top and granite thorn (*Cladonia caroliniana*) at bottom. Photo by Megan Browne.

Chattahoochee Bend Lichens—Continued from Page 4

georgiabiodiversity.org/portal/group_info/lichens).

Lichens, as almost all readers will know, are odd admixtures of tiny flora-like and fauna-like structures. They can be described as “fungi that have discovered agriculture,” a phrase attributed to the lichenologist Trevor Goward. They are defined in the introduction to the Georgia Atlas ([link above](#)) as “a compound organism made up of a fungus and its photosynthetic partner, either an alga or a cyanobacterium ... [T]he fungal partner controls conditions under which the photosynthetic partner grows and, like a farmer, harvests food from it (e.g., sugars from green algae).” It’s thought that there may be as many as 20,000 species of lichen worldwide, and Malcolm and the other Georgia Atlas collaborators have documented more than 1,000 in Georgia and counting.

And they are everywhere. Pictures accompanying this article show but a small fraction of lichens seen on the trip.

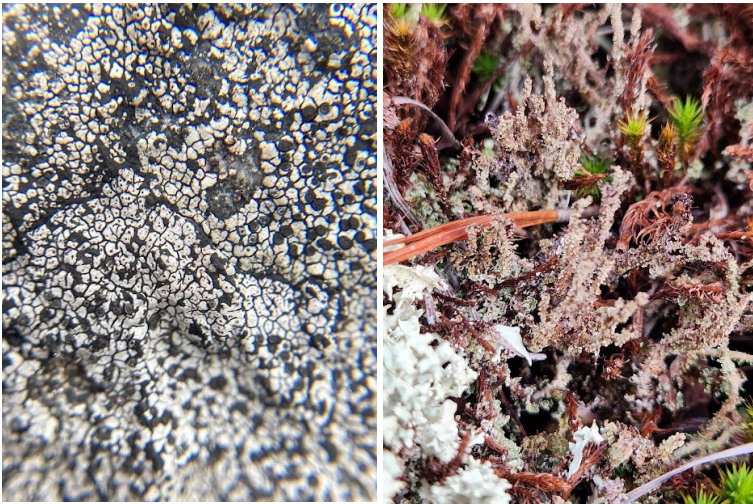


Top, the group gathers around a large forest boulder for a first look at rock lichens. Photo by Melanie Flood. Bottom left, K-red islets (*Chrysothrix insulizans*), one of the “gold dust” lichens. Photo by Megan Browne. Bottom right, a close-up of jester’s cap (*Cladonia caroliniana*). Photo by Megan Browne.

For example, take a moment sometime to closely examine the bark of a mature flowering dogwood

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Chattahoochee Bend Lichens—Continued from Page 5



Left, sunken rock buttons (*Buellia spuria*). Photo by Hannah Umstead.
Right, northern dragon (*Cladonia squamosa*). Photo by Megan Browne.

(*Cornus florida* Linnaeus), as Malcolm suggested to participants. With a bark that is relatively chemically neutral, this is a species of tree favored by lichen. You may easily see a dozen species of lichen there at a glance. Twigs, branches and trunks may be essentially papered over with lichens, the border of one lichen touching the borders of its neighbors. (Lichen don't intermingle, however. Borders touch but don't bleed into one another.) Note, too, that on weakened or fallen twigs and limbs, there is often a top, sun-facing world—that of the lichens—and a shaded bottom side, where you can expect to find fungi that devour rotting woody plants. (Lichen use bark and rock as

substrates. They are not parasitic.)

Among the day's many takeaways were these: If you haven't yet made one of Malcolm's trips, set it as a goal. He has a gift for teaching, and his knowledge of lichens is encyclopedic. And this: Magical, otherworldly sights are as close as the nearest stone or tree for anyone with a hand lens and curiosity.

Society News—Marie Mellinger Proposal Deadline

Know someone doing good field-oriented botanical research in Georgia? They may qualify for BotSoc funding, but they need to apply soon!

BotSoc is looking for candidates for awards from our society's Marie Mellinger Field Botany Research Fund. Do you know someone who might qualify?

For more than 10 years, the Mellinger Fund has provided small monetary awards to support students, instructors, field botanists, and conservationists who conduct field research, conservation projects, and educational programs focusing on Georgia's native flora. The primary goal of the fund is to support field-oriented research in the state of Georgia.

Eligible recipients will include faculty at colleges or universities within Georgia (or outside the state but conducting research in Georgia); private consultants; government officials; qualified amateur botanists; conservation land managers; and other individuals with a demonstrated interest in field botany. (Please note that projects primarily focused on molecular research are not eligible.)

Projects should be conducted primarily in Georgia or focus on taxa of priority interest in Georgia. Awards for 2023 will go to projects beginning or continuing in 2023. Projects eligible for funding include—but are not limited to—the following:

- Floristic studies, surveys, and inventories.
- Species or habitat conservation and restoration efforts.

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Marie Mellinger—Continued from Page 6

- Studies in plant systematics.
- Quantitative and qualitative analyses of natural communities and vegetation.
- Life history studies.
- Research focused on exotic pest plants in Georgia and their eradication or control.
- Surveys for and conservation of state- and federal-listed, tracked, and rare species.
- Inventory and management of significant natural communities.
- Horticultural research on propagation and management of native plant species.

Know someone who seems a good fit for an award? The deadline for submission of award proposals is March 31. Proposals for this year must be submitted via email by then, or if submitted by U. S. mail, postmarked by then. For more information and proposal guidelines, please contact Richard Ware at gabotany@comcast.net or Linda Chafin at lchafin@uga.edu.

Getting Started: Tree ID and Pitfalls

Pitfalls that novices should watch for when learning to ID trees

By Bobby Hattaway

Editor's note: In this third installment of Bobby's series on tree ID and the pitfalls to watch out for, the author tackles the first two of six areas where novices may stumble. A future article will tackle other pitfalls.

In my last article for this series (*BotSoc News*, January 2023), I mentioned that for some woody species, winter identification (ID) is actually easier than spring ID. Or it is, as I said then, if you have the right reference books, and I named a few. But the best time to ID trees is early summer to early fall. That's when leaves will be of normal size, and the buds that will overwinter in the coming winter will be large enough to see and be used in ID. Yet still there are still pitfalls for the novice. Anticipating some of those pitfalls may help you avoid them.

Pitfall No. 1: How do you tell a tree from a shrub? It's not always easy.

The standard definition of a shrub is a perennial woody plant that usually has several main stems arising at or near ground level. (Some arbitrarily say also that a shrub is less than 15 feet tall.) A tree, on the other hand, has a single trunk.

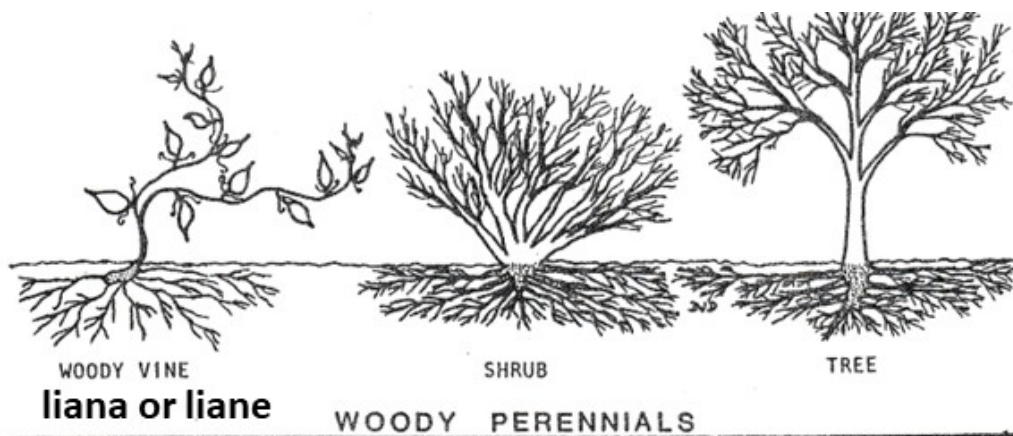
The most common problem occurs is mistaking a juvenile tree for a shrub. Worse yet, you may be standing in a state park on the edge of maintained trail. I cannot tell you how many times I have seen someone struggle to identify a woody plant along a park trail that park personnel had "weed whacked." The resulting would-have-been-a-tree looks like a shrub with abnormally large leaves. The young leaves are large because they are basal and supplied with nutrients from a massive older root system, a result often called "sucker growth."



Buckeye (*Aesculus*) twig with buds.
Photo by Bobby Hattaway.

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Getting Started: Tree ID—Continued from Page 7



In the field, the three woody plant habits can be confusing. Source unknown.

The tree-versus-shrub dilemma can be compounded by geography. *Where the species grows* can determine whether it manifests itself as a tree or not. One of the best examples I know is castor bean (*Ricinus communis*). This non-native plant escapes from cultivation,

grows in our region and appears here as a relatively soft “annual.” The same species, in the warm, mild winters of southern California, looks like a perennial attaining tree-like dimensions, reaching a height of 30 or more feet and having a trunk diameter of up to a foot.

To minimize confusion, my recommendation is that novices who want to learn tree ID focus their efforts between early spring and early fall concentrating on specimens that have a single trunk and stand at least 15 feet tall.

Pitfall No. 2: The second pitfall arises when novices try to determine leaf arrangement (phyllotaxy), which can be very challenging for some species.

There are usually three types of leaf arrangements: alternate, opposite, and whorled. Most plants have alternate leaf arrangements, fewer have oppositely arranged leaves, and truly whorled leaves are relatively rare. Alternate-leaved species have only one leaf at a node. (Nodes are the places on a stem/twig where leaves occur.) Opposite-leaved ones have two leaves at a node on opposite sides of the stem. Plants with whorled leaves have three or more leaves per node.

The most difficult situation in determining leaf arrangements is when leaves appear to have a whorled arrangement but actually have alternate leaves. This condition can be labeled as a false whorl. Oaks are notorious for this. In fact, oaks are sometimes described as having their leaves clustered at the ends of branches.

Our species of *Catalpa* have 3 (whorled) or two (opposite) leaves at a node. This truly whorled character state is the least common leaf arrangement, at least in our flora. In fact, I will go so far as to say that, when someone is having a problem with leaf arrangement, it usually turns out to be alternate. However, see “Sub-opposite” below for an exception to that rule.

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Pitfall No. 2a: Falsely Whorled Arrangements: As noted above, these are actually alternate arrangements. When the inter-node is very short, which is usually the case when a bud has just opened in the spring, it is often hard to tell leaf arrangement, as in the water oak (*Quercus nigra*) juveniles pictured at right. However, in many oaks even later in the growing season, it can still be very difficult to see that the arrangement is not whorled but really alternate. On oaks, one of the best ways to show the true alternate leaf arrangement is to look at the alternate branch pattern or alternately arranged leaf scars on older twigs. Alternate branches are associated with alternate leaf arrangements. Less common native species in our flora that also have false whorled leaf arrangements are the thorny species of bumelia or bully (*Sideroxylon*). This group is more tropical in distribution, but there is an uncommon (to rare further north) species in Georgia known as eastern gum bumelia or eastern gum bully (*Sideroxylon lanuginosum*). Like some members of the rose family, these plants also have "accordionized," or expanded, spur shoots/stems which are lateral in position. The best way to see the truly alternately arranged leaves is to find the fast-growing new shoots/stems. (See the photo at middle right.)



Pitfall No. 2b: Sub-opposite leaf arrangements: The last and probably least significant problem with leaf arrangements is that seen in some normally opposite-leaves species. Here, instead of the norm—with leaves appearing directly on opposite sides of the stem—they are staggered somewhat. The term that is most apt for this is sub-opposite, which means almost opposite. In our flora, one of the most common plants that exhibits this is the fringe tree or old man's beard (*Chionanthus virginicus*) in the Olive family (Oleaceae). Other members of that family often show this trait.

Top photo, three variable water oak (*Quercus nigra*) juveniles with false whorled leaves. Middle, new growth on an eastern gum bumelia (*Sideroxylon lanuginosum*) shows the alternate leaf arrangement. Bottom, uncommon sub-opposite leaf arrangement on a fringe tree (*Chionanthus virginicus*). All photos by Bobby Hattaway.

Getting Started: Tree ID

Want help identifying trees (and any other plant)? Get to know these terrific resources available online

By Bobby Hattaway

Online resources are underutilized by beginners. They can help greatly.

For example, I live in Pembroke in the Atlantic Coastal Plain physiographic province of Georgia, and let's say I want to identify a tree that I believe might be an oak. If acorns are not present, oaks can be tough to identify. But online resources may narrow my choices dramatically.

SERNEC (<https://www.serneportal.org/portal/>) is my go-to online source. SERNEC stands for Southeast Regional Network of Expertise and Collections. It is an online consortium of 233 herbaria in 14 states in the southeastern U.S. Using SERNEC, I am able to determine which 13 species of oak (*Quercus*), including non-native species, have been documented within a 20-mile radius of me. The website for The Biota of North America Program, BONAP (<http://bonap.net/NAPA/Genus/Traditional/County>), is a second valuable resource.

Let me note that yet another website, the United States Department of Agriculture (USDA) Plants Database (<https://plants.usda.gov/home>), is often criticized as out of date. However, a county search of that database for *Quercus* in Bryan County (Pembroke is the county seat) produced 11 species of oak. (The non-native species included in SERNEC's results were not included. Also, the SERNEC search was not a county-level query but one based on a radius of 20 miles around Pembroke.)

Finally, I want to recommend Dr. Alan Weakley's excellent downloadable floras. The parent or major work is *Flora of the Southeastern United States* (<https://fsus.ncbg.unc.edu/>). At the time of this writing, the latest edition is April 13, 2022. The link above takes you to the web app for the work. The 994-page document is found at Microsoft Word - Flora 19.docx (unc.edu) (https://ncbg.unc.edu/wp-content/uploads/sites/963/2020/06/WeakleyFlora_2010-Mar.pdf).

Note that Weakley's Flora covers *all* vascular plants instead of just woody species, and for novices the sheer size of the document might be intimidating at first. The size alone means the document is better used as a PDF file on a computer. And there are no illustrations and no descriptions (yet). However, it is comprehensive, and it is clear that Alan has made every effort to make the keys workable even for beginners, and he continues to improve them.

The really good news is that Weakley and his team have produced what I call a Georgia extract of the parent document. It is entitled *Flora of the Southeastern United States: Georgia*. At the time of this writing, the latest edition was that of April 24, 2022.

Introducing *Field Notes*

Part of the fun of being a BotSoc member is hearing what everyone else is up to, and that's the goal of *Field Notes*

So here's a question: What if there were a place in the newsletter for informal notes about what our members—what *we*—are doing?

This notion started with a comment Hal Massie made at the annual holiday party in December. He said that he was hearing from members that they wished they knew more about what everyone else was doing. This *Field Notes* is a beginning. We asked around and collected this handful of notes as a start:

From **Linda Chafin**: *Do you live in the Athens area or within easy driving distance? March means that the Nature Ramblers begin meeting again weekly (till Thanksgiving) at the State Botanical Garden of Georgia in Athens. The group meets at the Children's Garden arbor on Thursdays at 9:00 a.m. for a 1.5 hour walk and talk. Interested? Email Linda (lchafin@uga.edu) for more information ...*

From **Bobby Hattaway**: *Bobby's wrapping up his virtual Basic Botany course. The course featured virtual lectures and occasional virtual, interactive question-and-answer sessions, and it covered everything from the definition of a plant to plant genetics. Email Bobby (botanikman@g-net.net) if you want to get a copy of the course syllabus or learn more about links to archived videos ...*

From **Richard Ware**: *Richard says that he's continuing to update his and Teresa's website "as I get new photos but recently have concentrated on two things. 1) I have been posting a plant photo (each day) on Facebook for a very long time now. I post in alphabetical order starting with wildflowers beginning with 'A' and just finished with Zizia. A few days ago I started with the trees beginning with 'A'" ... Richard also reports that he and event co-host **Bobby Hattaway** had a terrific response for a virtual Asteraceae Zoom presentation held Feb. 11 with more than 70 pre-registered and, according to Bobby's count, 62 people in attendance! ... **Richard** also plans to have a summer tree ID workshop in the summer and a winter tree ID workshop in the fall or early next year. Reach Richard at gabotany@comcast.net.*

Importantly—we can't stress this enough—you *don't have to lead a walk, teach a class or maintain a website to have something interesting to contribute*, as this additional note from **Linda** shows: *"Round-lobed Hepatica seen in flower on February 3 at the Broad River Wildlife Management Area in Madison, County."*

There. That's it. That, too, is right on target. A "field note" can be as simple as one sentence on something you've seen and want to share.

And now it's your turn. What have you seen lately? Where have you explored or hiked? What plants, places or people are on your mind? Drop a note to Kevin Doyle, newsletter editor, at kdadoyle@bellsouth.net. Nothing fancy. Just a sentence or three.

And then stay tuned to this space in future newsletters!

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