

Field Notes – Second Week of March
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SPRING WAKING

Life returns to the wetlands first. The ice melts, and water begins to flow again. Crustaceans and amphibians are waking up in the mud. Migrating ducks are stopping to rest and feed at Andover Lake. I've seen early insect swarms in sunny woods, and egg masses on the shores of Chamberlain Pond, and minnows in the shallows of Blackman's Brook.

FIRST FLOWERS

All winter long, I've been watching the speckled alder catkins around the local ponds and Andover Lake. Their maroon flower buds stand out in the brown-and-gray landscape.



Speckled alder (*Alnus incana*) catkins, Bolton Notch near pond, January 12

At the top of this photo are “cones” that developed from last year’s fertilized female catkins. Just below them are pointy leaf buds. In the center of the frame, at the end of the right-forking twig, are the new year’s female catkins. At the bottom are male catkins— clusters of scores of flowers tightly ensconced in purple scales. The catkins and leaf buds are all deeply pigmented with anthocyanins.



Speckled alder catkins fully open, March 13

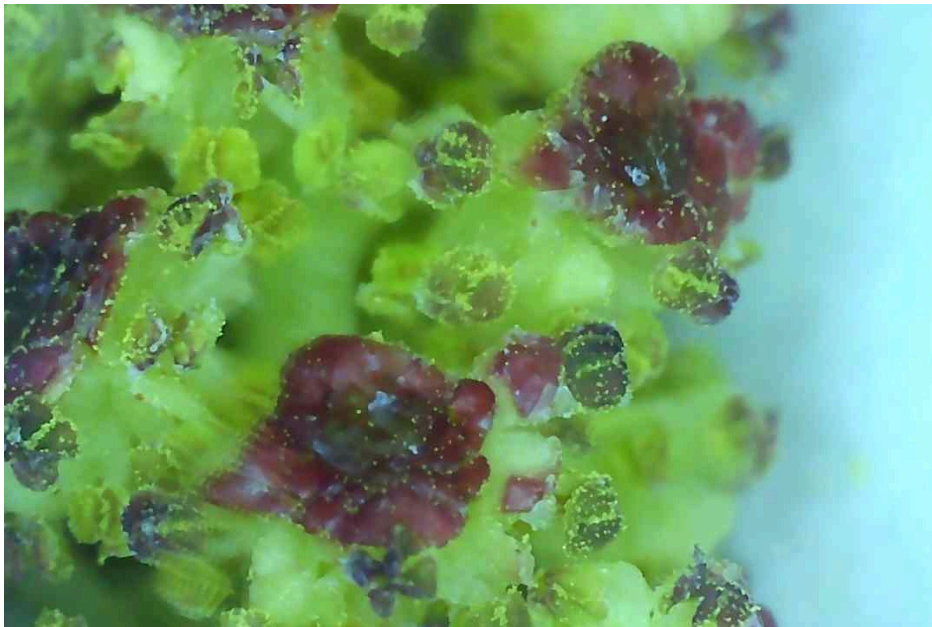
By the middle of March, both male and female catkins are in full flower. The male catkins look like fancy argyle socks: the ruby-colored elongated diamonds are the opened scales; the chartreuse parts are the open flowers. The golden sparkle is due to pollen, ready to fly on the March wind. The female flowers are open and receptive.

Here's a photo of the female flowers close up:



Speckled alder female catkin.

The sticky styles are unfurling and capturing pollen. The pollen in this case is from male catkins of the same plant. (I know, because I isolated the branch on my porch, far from any other alders.) But much of the pollen the females in a wetland environment receive will be from the flowers of other plants, releasing pollen into the March wind -- so a fair amount of outcrossing will surely happen. Most of the other wind-pollinated deciduous plants will wait another month before opening.



Speckled alder male flowers in the catkin

The nubbins that are smaller than the large open scales are the anther-producing flowers.

SKUNK CABBAGE PATCH MYSTERIES

Remember back in November when I was looking in all the local wetlands for Skunk Cabbage points and could find none? Well, I found my first green point emerging and beginning to unfold on January 1. The “point” is a modified leaf that protects the spathe as it emerges from the soil. You can just barely see the purple spathe beneath the green point in this photo. The spathe, in turn, protects the developing inflorescence.



First skunk cabbage “point” in our intermittent stream, January 1

Three weeks later, the protective leaves were falling away, and I could see a fully formed, well-colored spathe.



Skunk cabbage spathe, January 22

By February 14, something had taken a bite out of the spathe and eaten the developing spadix (flower head) clean out of its center. It seemed pretty clear that it was the spadix the vandal was after.



February 14, spadix gone

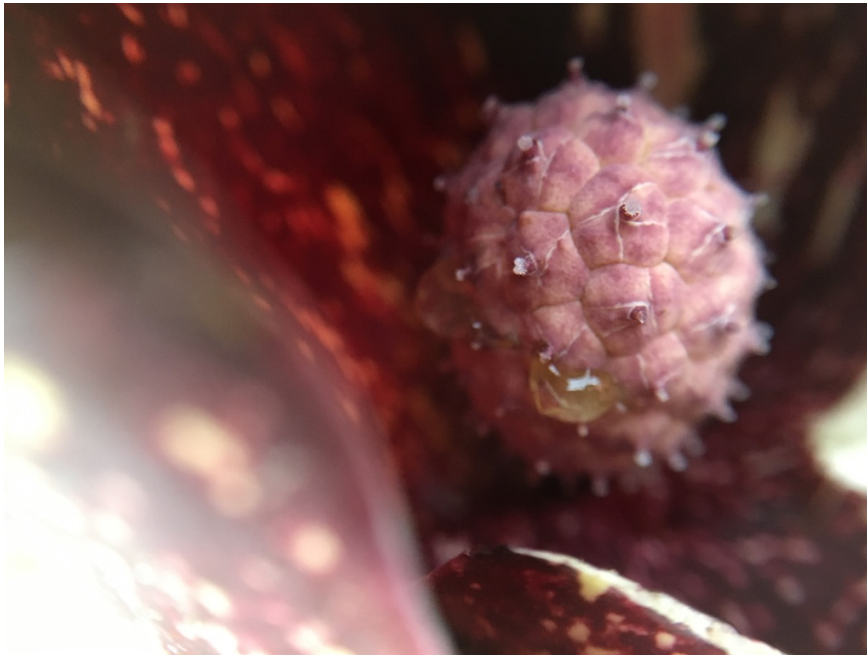
What the heck? I had never read anything about the spadix being eaten by animals. There is endless literature about the needles of oxalic acid crystals in the plant making it inedible for all but bears – but this vandalism was not the work of any bear, and we don't have bears on the property, anyway. The spadix had been quite precisely plucked out of the center of the spathe. Perhaps a wild turkey? We do have them.

A week later, a different vandal had chomped the spathe adjoining the one that had lost its flower.



February 27, Spathe 2a chomped – but spadix left intact.

This time, the top of the spathe was broken off, with chunks floating nearby. Who would be so rough and careless? Well, maybe deer. Deer will take a few bites of anything. Skunk cabbage is the first new growth in the landscape, so even if the spathe tissue feels funny on the tongue (and may be mildly poisonous), it's fresh, and thus probably more attractive than the other rations available in the late-winter woods – at least the first bite or two.



Close-up of spadix, with stamens exserted, February 27

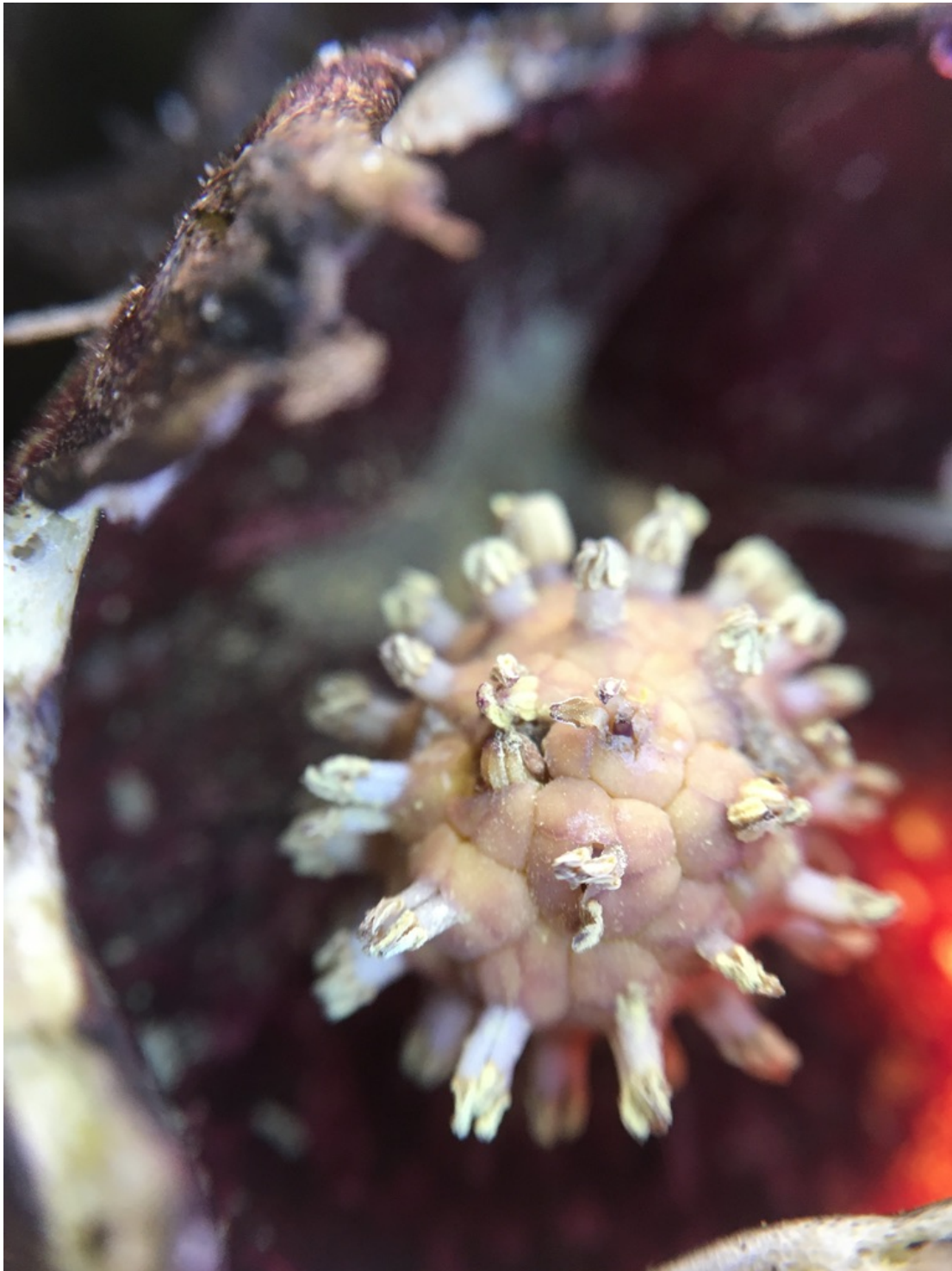
I have been watching Skunk Cabbage for over two months now, and have read a great deal about the spadix's remarkable ability to generate heat within the spathe using an alternative respiration pathway that consumes oxygen, rather than generating it, and produces heat as a byproduct – this is how it manages to be the most precocious of our woodland wildflowers. I've read a lot about how it protects itself from predators by producing calcium oxalates which sting the tongues of animals that sample it. I've read plenty about the way it produces carrion-like scent to attract pollinating flies, and how spiders set up their webs at the entrance to the spathe to catch the flies. It's all very interesting to contemplate. But the first sight of a skunk cabbage flower in full bloom takes my breath away.



Skunk Cabbage spadix in full bloom, March 12

In spite of the fact that some animal has eaten away its protective hood, this spadix is in full bloom, shedding pollen. (You can see the pollen speckling the base of the spathe.) By this time, the warmth of the spathe is no longer needed, so the ventilation at the top of the spathe is perhaps not all bad – possibly, it helps the pollen to get out and about.

I know: the resemblance to you-know-what is uncanny, right?



Closeup of Skunk Cabbage spadix in full bloom, shedding pollen, March 12

SUNNY-DAY SHOWERS

Standing in front of the kitchen sink on a blue-sky, 40° day in early March, I saw drops of sap weeping from the tips of the twigs of our old front-yard sugar maple. Yes! They were large drops, and they were making large wet circles on the stepping stones below the maple tree.

Splat! Splat! Splat!



Maple sap drips on a 12 x 24-inch stepping stone, March 4.

Ten days later:



Maple sap drip outlines, March 14

We've had a couple of weeks of cold nights and days above freezing – the perfect conditions for a good sap run. I've known that since I was in first grade. But it's only been in the past twenty years or so that science has really explained why sap runs in March, long before budbreak. I think I understand it now. It has to do with compression (due to cold nights) and expansion (due to warm days) of air in the cells adjacent to the xylem. The changing volumes in fixed cell-spaces create positive pressure on the xylem during the day, negative pressure at night. Negative pressure is sort of a vacuum that draws up liquid water from the soil. That explains the water flow. It's warm temperatures activating enzymes that break down starch into sugars that explains the sugar content.¹ For reasons unknown, but clearly due to their DNA, the maples are the sweetest of all the trees.

¹ This is the conclusion I've come to after reading a number of articles addressing the question of the relationship between sap flow and bud break. It's actually still not very clear how trees wake up from dormancy.

FAMILIAR VOICES

I heard my first “Conquer-ee” – the call of the red-winged blackbird – over Staddle Pond on March 7, and saw that the Canada geese had also arrived on the pond. By the next morning, the great blue herons had arrived.

The song sparrows are singing. The red-shouldered hawks are screaming. The chickadees have begun to sing their “Hey, Swee-tie . . .” song. Cardinals, Carolina wrens, and titmice are calling. Mourning doves are cooing and grackles are cackling.

It’s been quiet too long. The spring chorus is starting to tune up. It won’t be long before we hear phoebes and wood frogs and peepers.

It’s a rare walk in March that brings us nothing new.

Bell well, and enjoy this prelude to spring.



Red-winged blackbird (photo from Wikipedia)