

Field Notes – March 7, 2023
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When I look up to the tops of trees now, I notice a silvery shimmer that wasn't there in February. Maybe the sunlight was just too weak to bounce off the twigs before? Or maybe the twigs are pulsing with sap, and the bark is "tighter" and more reflective? In some cases, I'm sure it's that the sun is reflecting off loosening bud scales.



March 6, 2023

Closer to the ground, shrubs are opening their flower buds . . .

CATKIN TIME



Hazelnut shrub in our back yard, February 18, 2023

See how the hazelnut catkins shine in the sun, like gold! Each catkin has scores of smooth scales and each scale opens to release a couple of male flowers. You can see the flowers close up here, with their golden anthers showing between the scales:



Close-up of Male Hazelnut Catkins, showing individual bracts and anthers, March 3, 2023

Each catkin can produce a million functional pollen grains, and each shrub can produce hundreds of catkins.¹ Now check out the single, demure female inflorescence just above these catkins, its ruby styles just emerging from the bud scales. Each inflorescence contains 4–16 separate flowers. What an absurd sex ratio on a single branch! It would only take the slightest breeze to bring pollen from one of these catkin flowers upward to fertilize the female, right?

¹ <https://catalog.extension.oregonstate.edu/em9074/html>



Female inflorescence of American Hazelnut (*Corylus americana*), just opening March 3

Nope – hazel flowers from the same plant are sexually incompatible, so that’s not going to happen. The wind will bring the golden pollen of *other* shrubs with slightly different pollen genetics to the stigmas of *this* shrub – and vice versa – to ensure genetic diversity in the community. So large amounts of pollen need to fly on the March wind. And even after pollination, fertilization is still weeks away; in early spring, the female stigmas are receptive, but not mature; it will be weeks or even months before pollination occurs within the female inflorescence, and a long time after that before the hazelnuts are mature – maybe August or September.

The alder shrubs are in full bloom around Bishop Swamp and Andover Lake in Andover, along the Airline Trail in Hebron.



Smooth Alder (*Alnus serrulata*) in full bloom, Airline Trail, March 6



Smooth alder (*Alnus serrulata*) catkins, male below, female above, March 3

I see two kinds of alders side by side at Bishop Swamp: the smooth alder (*Alnus serrulata*), with its female catkins sticking up from the branch (as in photo above), and the speckled alders (*Alnus incana*, photo below), with theirs drooping down. (I gather that they're kissing cousins, blooming at the same time, and often interbreed.)²

² George W. D. Symonds, *The Shrub Identification Book*, New York: William Morrow, 1963.



Speckled alder (*Alnus serrulata*) catkins, male below, female above, March 3

Last year's alder fruits have opened, but they haven't yet released all their seeds.



Alder “cones” from 2022, still on the shrub

There’s a lot of sticky, waxy stuff between the scales that seems to keep the seeds attached to the cone through the winter. I crumble a cone between my fingers, and sure enough, out come dozens of seeds.



Alder seeds and scales from about 1/4 of a cone, March 6

Alders are pioneer species, colonizing bare earth wherever it may be – especially on floodplains, stream banks, lakesides. After the last Ice Age, they were among the first shrubs to return to New England, their seeds riding the freezing wind currents of those times. When climate is in a state of change, catkin-producing wind-pollinated plants have good odds of success. Thanks to their association with nitrogen-fixing bacteria, alders and some willows can produce large amounts of protein-rich pollen.

In another part of the yard, the male pussy willow catkins are opening. The catkins grow upward rather than downward, but the structural plan is the same: hundreds of stamens on a single linear inflorescence. The collection of silvery filaments surrounding the anthers keep them warm as they begin to mature inside the catkin. The female flowers are on different plants; they will open a little later. There will be some days later in March and early April when conditions are right for insect pollination–

- pollen is mature
- flowers are producing nectar
- temperature is over 50°
- the air is still, and
- the native bees and honey bees are out on their earliest nectar- and pollen-collecting forays –

and the female pussy willow flowers might get pollinated. There will be many other March days when the insects are hiding, and wind pollination might happen instead. The pussy willow catkins (male and female) mature in a slow sequence, so that some will be ready whichever conditions prevail.



Male Pussy Willow (*Salix discolor*) catkins breaking bud, March 3

Now we're less than two weeks from the vernal equinox, a new spring. I'm watching the buds of all the shrubs and trees in our yard, and seeing the first changes in color for many. The next post will surely be more about bud break.



Sugar Maple (*Acer saccharum*) buds, March 3



American Elm (*Ulmus americana*) bud, March 3



Swamp Azalea (*Rhododendron viscosum*) buds, March 6