Nature Playful

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IN SPRING, when the brown and wrinkled leaf litter—remnants of life past—provides the dominant impression of the forest floor in northeastern North America, the flowers of Hepatica (*Hepatica Americana*) rise up through the dead leaves and offer little bursts of color to the forest. What's intriguing about Hepatica's flowers is how strongly they vary in a single plant, among different plants in one location, and among different locations.

In color, they range from white to purple, with many shades of pink and lavender in between. The showy part of Hepatica's flower consists of a varied number of petal-like sepals. (Why botanists say Hepatica has flowers consisting of showy sepals and no petals, and why they consider the three green leaves underneath the sepals, which form a kind of calyx, not to be a true calyx of sepals, but an "involucre" consisting of modified foliage leaves, is an interesting topic—but not one for this little article.)

During my years visiting Hepatica habitats, I've seen flowers with five petal-like sepals and ones with thirteen. Six is the most common number, but you often find seven or eight. The size of the flowers and the shape of the sepals also vary remarkably.

One plant with twelve flowers. Most have six petal-like sepals, but three have seven. The lobed leaves you see over-wintered from the previous year and will wilt and die away as the new leaves emerge at the end of the flowering period.

The photos below, which I took in mid-April, give you an impression of this versatile plant. All the plants grew in just one location—a small area of a mixed deciduous forest in the RamsHorn-Livingston Sanctuary near Catskill, New York. Each photo below showing multiple flowers is of one plant reproduced at natural size, while the photos of individual flowers on the following page present them at twice their natural size.

This plant has three 7-sepaled flowers and one with 9 sepals!

A plant with two differently colored flowers — pale violet and white.

On this plant, the large flowers deviate somewhat from the radial symmetry that is typical of the species.

The small flower on this plant has eight sepals, while all larger ones have six sepals.

In the following photos of individual flowers from different plants, note the many features of variation. Each flower is shown at twice the natural size, so they are all to scale, and you can see the marked variation in size between different flowers. There are fine gradations of coloration within the sepals of an individual plant, and large variations between different specimens. When a flower has six sepals—the typical number—they tend to be similar to each other in size and shape (see image 6). When a flower forms more than six sepals, the additional ones tend to be narrower (images 2 and 5). Flower 5 has five wider sepals below five narrower ones, forming two somewhat irregular and offset pentagrams overlaying one another. The strongly irregular—and beautiful!—shape of flower 8 was most likely influenced by an insect that began feeding on the flower as it was still developing.

Observing such variation in individual plants and within the specimens of a species can bring us into a greater awareness of nature's playfulness. Why do I say playfulness? Because it is not as if the differences followed some variation scheme defined by an algorithm. I can hardly imagine that nature has any functional purpose "in mind" for now having seven gently rose-tinted sepals, now nine small and somewhat elongated violet sepals, and so on.

The more you look, the more different kinds of variations you find. And these variations are nature revealing herself in ways that force us to leave behind fixed categories and expectations ("Hepatica has six petal-like sepals"). When we turn to the concrete appearances and look closely, we see each as a new revelation of the plant's creative potential. Such flowers let us participate in the bursting forth of the playful life of the earth in early spring.

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