In our Collection

The Autumn Willows

In addition to samples representing the living collection, the Arnold Arboretum Herbarium in Jamaica Plain contains specimens of plants cultivated across the world including unique historical ones. One example is a widespread yet in some respects unusual European species—Salix pentandra, known as laurel willow or bay willow due to the similarity of its broad, shiny leaves to bay leaves.

The paramount, illuminating part of any herbarium sample is its label. On the sheet illustrating S. pentandra, the label heading reads: Toepffer, Salicetum Exsiccatum. German botanist Adolph Toepffer wrote the monograph Bavarian Willows, yet he is best known historically for his Salicetum Exsiccatum, an extensive series of duplicate willow samples forwarded with his comments to leading botanical institutions and researchers across the world. Producing and disseminating such duplicates—called exsiccates, or exsiccatae—was a common way to share knowledge about plants at the time when scientists communicated by snail mail. Toepffer’s series contained a staggering number of sampled plants: 772, all of them cultivated at a nursery near München (Salicetum Kranzberg). In German, the label further reads: “This is our latest-flowering willow; its catkins remain on branches until late in the fall.” Dates for the two collections combined on a single sheet are June 20, 1906 (catkins with immature capsules at upper right) and September 5, 1906 (mature catkins bursting with fluffy wind-dispersed seed at lower left).

Herbarium sheet for S. pentandra from Toepffer’s Salicetum Exsiccatum, from the Arnold Arboretum Herbarium of Cultivated Plants.

In fact, bay willow starts flowering in June, while most other willows are already in fruit, and then holds its fruiting catkins through the fall and winter. Among the European willows, this species has unique phenology (timetable), yet not quite unique worldwide. S. serissima, a close relative of S. pentandra aptly called autumn willow, does the same trick here in New England. In his chapter on willows in the Flora of North America, George Argus commented on this unusual adaptation: “Their seeds remain dormant throughout the winter and germinate in the spring, thus enabling them to invade fens by completing their first annual growth before the sedges and grasses are tall enough to shade them out.” To fully appreciate this departure from the norm, keep in mind that willow seeds typically don’t have a dormancy period and must germinate promptly upon reaching the ground. While S. serissima grows across Canada and the northern US, in Massachusetts this special shrub occurs only in the Berkshires. As a matter of fact, there is one “autumn willow” on each of the three continents of the Northern Hemisphere: the third is the East Siberian species S. pseudopentandra. All three are closely related.

Remarkably, more than a century after it was assembled, herbarium samples like those created by Toepffer for his Salicetum Exsiccatum continue to stir thoughts, encourage comparisons, illuminate history, and share their stories with anyone eager to discover more.