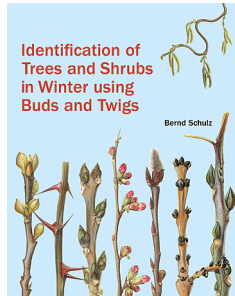


Identification of Trees and Shrubs in Winter using Buds and Twigs

By Bernd Schulz. 2018. Royal Botanic Gardens, Kew, distributed by University of Chicago Press. 368 pages, 45.00 GBP, 80.00 USD, Cloth or E-book. Originally published in German as: *Gehölzbestimmung im Winter: mit Knospen und Zweigen*, 2013.

As a Canadian naturalist, how will you be spending the upcoming winter? Perhaps a Christmas Bird Count shortly after the landscape transforms into snow and ice, and then as frigid weather lingers toward a seemingly relentless polar vortex, maybe an occasional excursion such as hiking the trails in snowshoes and perhaps a nocturnal Mudpuppy hunt by the local dam? Many nature lovers by then become relatively dormant, and begin to dream about early spring arrival of migrating birds or of Skunk Cabbage bursting through a melting snowpack, only a month or two away.



How about hunting for trees and shrubs? Woody plants are always available for study, and are perhaps best observed during the winter months when distinctive twig features are fully developed and easily visible without being obscured by deciduous leaves (in contrast to herbaceous plants which may be withered and hidden under snow; e.g., Levine 1995). Besides being a rewarding and easily accessible winter activity from cultivated yards to remote wilderness, real contemporary conservation questions are awaiting resolution such as occurrences of populations for rare/threatened species: relevant examples from this writer's current work are establishing the locations of Red Spruce populations in the greenbelt of Ottawa, and documenting the presence of new Rock Elm populations in Quebec along the land border of eastern Ontario and Quebec (Vaudreuil-Soulanges; *FloraQuebeca* 2009). Spotting trees and shrubs is frequently best done in winter, coincidentally when there may be little else obvious for the naturalist to do outdoors. But how does one confirm that plant species of interest have really been found?

The 'fingerprint' of woody plant species identification is their twigs. All features of woody plants, from growth form to bark, leaves, flowers, and fruit, are useful to observe, but the only identification trait reliably present and virtually invariant among individual plants of a given species, at any age from sapling to centuries-old giant, is the twigs. Trees and shrubs can nearly always be accurately determined to genus via mature twig features (leaf scars, buds, etc.), and usually to species with a trained eye.

Bernd Schulz's *Identification of Trees and Shrubs*

in *Winter using Buds and Twigs* is an excellent resource to learn the key features for differentiating woody plants from family to genus to species. The book is at its essence a thoroughly modern textbook sorely needed for a curriculum which, one may state with little exaggeration, is no longer actively taught. The book has useful and accessible chapters regarding the history of twig-identification botany, twig structure and terminology, and identification keys, but is at its core a comprehensive species-by-species treatment of the trees and shrubs found in central Europe with detailed descriptions and hundreds of technically sound and attractive colour illustrations. A number of high-quality twig identification books relevant to eastern North America were published from early to mid 20th century (e.g., Blakeslee and Jarvis 1911; Trelease 1918; Harlow 1941; Graves 1952; Core and Ammons 1958; Petrides 1958; Symonds 1958, 1963). These classic books are still very much useful and worth studying but suffer from being stuck in an historical era before the current "globalization" of cultivated plants, and the corresponding emergence of widespread naturalization and invasive species as dominant ecological features. Little on the subject was published from the 1960s until the 2010s. Schulz's book is therefore a major step forward toward modernization for the subject, with comprehensive descriptions and illustrations showing the native, cultivated, and naturalized plants of central Europe in the 21st century; there is much species overlap with the woody plants of eastern North America in modern times. The classic 20th-century books, in contrast, often give at most a light treatment of non-native plants, some of which have only arrived and become dominant in the wild in the last few decades.

It is worth noting that the subject matter of Schulz's book is not just relevant to winter: "winter" twig features (mature buds, etc.) are indeed present from late summer until spring, approximately two thirds of the year from August to April.

Despite being an authoritative and high-quality publication, a few features are worth considering which may be drawbacks to some of the intended audience. The book is large and heavy, with a typical 'textbook form' factor and so is not a portable handbook to be easily tossed in one's backpack. The book was written from a central European perspective, and so is a comprehensive treatment of the native, naturalized, and commonly cultivated trees

and shrubs of that region specifically. While there is much overlap of naturalized and commonly cultivated woody plants of Europe and North America, as noted above, some woody plants of Canada are not included. Evergreen trees and shrubs are not treated, so one cannot use this book to learn their identification traits: e.g., spruces versus firs or Sheep-laurel versus Bog-laurel. This book only considers twigs, and despite doing this with unprecedented breadth and depth, does not treat other aspects of woody plants such as growth form, leaves, etc. which many of the classic books cover in addition to twigs.

Overall, Schulz's book is highly recommended to anyone interested in temperate zone woody plants and their conservation, and is available at reasonable prices (~50.00–70.00 CAD) from a variety of sellers.

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