
Aquatic Plants of Pennsylvania covers an often neglected but important part of our flora. Following the same format as the earlier Trees of Pennsylvania, but looking down rather than up, it plunges into the lakes, ponds, streams, and tidal marshes of the state. Aquatic systems even more than terrestrial ones are threatened by pollution, filling and sedimentation, invasive species, and climate change. Studying how these systems respond to these threats is critically important to protecting water quality, and having a reference guide devoted solely to aquatic vascular plants growing in the state makes the task of identifying the vegetative components of these systems much easier.

The first-time user should read the introductory chapters carefully before diving into the plant descriptions. Chapter One covers the ecology of aquatic plants and habitats and the special adaptations for living and reproducing in water. It also has tables listing the status of rare aquatic plants in Pennsylvania and the worst non-native invasive species. Chapter Two starts with a short sensible list of rules for using identification keys followed by a key to growth habit groups and keys for each group, mostly to the genus level. The book divides the aquatic flora into six broad groups based on growth habits: Emergent plants, floating-leaf plants, thalloid or tiny floating plants, submergent leafy-stemmed plants, submergent rosette-forming plants, and submergent plants with finely divided leaves. Some genera can be found in several groups because of their morphological plasticity. Several aquatic algae, liverworts, and mosses are also mentioned in the text because of their superficial similarity to vascular plants.

Chapters Three through Eight are the meat of this guide. Each growth habitat group has a chapter with keys to genera with more than one species. Within a chapter the genera, species, or families (grasses are lumped) are arranged alphabetically by common name. This can be a little confusing if the reader is used to a more systematic order and is unsure of the common name, but an appendix, Taxonomic List of Plants Included, is arranged by scientific name and also gives the common name used. Nativity and growth habit are given for each species followed by a general description of the plant and its habitat, with tips for distinguishing it from similar-looking aquatic species, its range in North America and a distribution map within Pennsylvania. There are line drawings for every species and color photographs for many. The photographs are helpful not only because they often show growing conditions and associated plants but because line drawings frequently do not resemble plants seen in the wild (Heteranthera dubia being a prime example). Information on culinary, medicinal or other uses of a plant add cultural context to the descriptions.

Unfortunately no non-aquatic plants are described in the text, although some are mentioned or included in the keys. The inclusion of selected wetland species would reduce the chance of misidentifying a common wetland plant as a state-listed aquatic species (Echinochloa crus-galli or E. muricata for E. walterii, Scirpus cyperinus for S. ancistrochaetus) or an invasive alien as a native (Schoenoplectus mucronatus for S. purshianus). The text mentions but does not include (save in a few instances) in any descriptions or keys to extirpated species in the state, some of which occur in neighboring states and might possibly be relocated in Pennsylvania (Eriocaulon decangulare). The distribution maps can be misleading as to current distribution because they include historical occurrences, many of which (especially in southeastern Pennsylvania) likely no longer exist, and because of the lack of recent collections for many species, especially invasives.

In quality and technical nature this guide fills part of the yawning chasm between popular field guides (Newcombe’s, Petersons), and technical manuals (Cronquist, Flora of North America series) a gap which frequently discourages plant enthusiasts from venturing beyond casual botany and inhibits industrial biologists from increasing their skills. This guide will also be useful in neighboring states,