Key to the Species of *Potamogeton* modifed from Aquatic Plants of Penssylvania (Block and Rhoads) for Michigan

A. stipular sheaths fused to the bases of the submersed leaves with the tips extending as a ligule
  B. stipular sheath fused to the base of the leaf blade for ½ or more of its length
    C. base of stipular sheath inflated; achenes not beaked ..... *Potamogeton filiformis*
    C. base of stipular sheath not inflated; fruits beaked ..... *Potamogeton pectinatus*
  B. stipular sheath fused to the base of the leaf blade for ½ or less of its length
    D. leaves stiff, conspicuously 2-ranked, auriculate at the base; leaf margins finely toothed ..... *Potamogeton robbinsii*
    D. leaves not conspicuously 2-ranked, not auriculate; margins smooth
      E. submersed leaves obtuse to acute, floating leaves with rounded tips
        F. free portion of the stipular sheath much shorter than the fused part; achenes mostly greater than 1.5 mm, with a single dorsal wing and smooth sides ..... *Potamogeton spirillus*
        F. free portion of the stipular sheath longer than the fused part; achenes mostly less than 1.5 mm, with a prominent dorsal wing and often a suggestion of lateral wings or bumps ..... *Potamogeton diversifolius*
      E. submersed leaves acute to acuminate; floating leaves with pointed tips submersed leaves 0.1–0.4 (–0.6) mm wide, without obvious lacunae; floating leaves with 3–7 veins ..... *Potamogeton bicupulatus*
A. stipular sheaths of the submersed leaves completely free from the leaf bases
  H. leaves distinctly wavy-margined and finely toothed ..... *Potamogeton crispus*
  H. leaves not wavy-margined or toothed
    I. submersed leaf blades ovate, lanceolate, or elliptic
      J. submersed leaves with a clasping base, floating leaves not produced
        K. stipules deciduous, leaves ovate to orbicular ..... *Potamogeton perfoliatus*
        K. stipules persistent at least as shredded fibers, leaves ovate-lanceolate to lanceolate
          L. leaf tip hooded ..... *Potamogeton praelongus*
          L. leaf tip flat ..... *Potamogeton richardsonii*
      J. submersed leaves not clasping, floating leaves present or absent
        M. submersed leaves folded and curved along the midrib, 23–37-veined ..... *Potamogeton amplifolius*
        M. submersed leaves not folded and curved, veins 5–19
          N. stems black-spotted ..... *Potamogeton pulcher*
          N. stems not black-spotted
            O. submersed leaves sessile
              *P. 7 veined redish leaves ..... *Potamogeton alpinus*
              P. stipular sheath 4–10 cm long; submersed leaves with 7–19 veins and an acute-mucronate tip ..... *Potamogeton illinoensis*
              P. stipular sheath 1–3 cm long, submersed leaves with 3–9 veins and an acuminate tip ..... *Potamogeton gramineus*
            O. submersed leaves with a definite petiole
              Q. petioles 2–13 cm long; larger submersed leaves acute, but without a sharp awl-like tip; fruits reddish-brown ..... *Potamogeton nodosus*
              Q. petioles less than 4 cm; larger submersed leaves acuminate and often mucronate; fruits greenish ..... *Potamogeton illinoensis*
    I. submersed leaves ribbon-like or thread-like with parallel sides
      R. floating leaves usually present
        S. blades of floating leaves 0.6–1.5 cm long; submersed leaves 1(3)-veined ..... *Potamogeton vaseyi*
        S. blades of floating leaves more than 2 cm long
          T. submersed leaves 2–10 mm wide with prominent lacunar bands ..... *Potamogeton epihydrus*
          T. submersed leaves 0.3–2 mm wide with 3–5 obscure veins, lacunae present or absent
            U. petiole of floating leaves with a 1–2 cm-long zone at the apex that is lighter colored and more flexible than the rest; base of floating leaves cordate or rounded ... *Potamogeton natans*
            U. petiole of floating leaves continuous in color and texture; base of floating leaves rounded to tapering ... *Potamogeton oakesianus*
            *U. floating leaves less than 1.6cm long ..... *Potamogeton vaseyi*
      R. floating leaves not produced
        V. submersed leaves very slender and thread-like, 0.1–0.3 mm wide with a single vein; peduncles 10–25 cm ..... *Potamogeton confervoides*
        V. leaves not thread-like, 0.1–5 mm wide with more than 1 vein; peduncles shorter
          W. stems conspicuously flattened ..... *Potamogeton zosteriformis*
          W. stems terete or only slightly flattened
            X. leaves bristle-tipped
              Y. leaves firm and rigid; nodal glands present; fruits not keeled ..... *Potamogeton strictifolius*
              Y. leaves lax, not holding their shape out of water; nodal glands rarely present; fruits with 3 keels ..... *Potamogeton hillii*
            X. leaves not bristle-tipped
              Z. fruits keeled
                AA. keel undulate ..... *Potamogeton foliosus*
                AA. keel not undulate ..... *Potamogeton obtusifolius*
              Z. fruits not keeled
                BB. leaf tip apiculate to acute; stipules white and fibrous, 0.5–2 cm long ..... *Potamogeton friesii*
                BB. leaf tip acute to obtuse; stipules brown to green or whitish, less than 1 cm long ..... *Potamogeton pusillus*

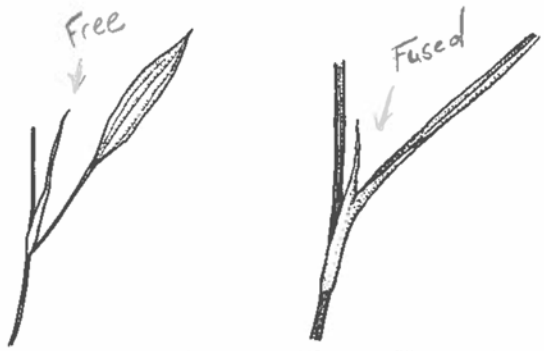

Figure 6.1. Stipular sheath of pondweeds (*Potamogeton* spp.)

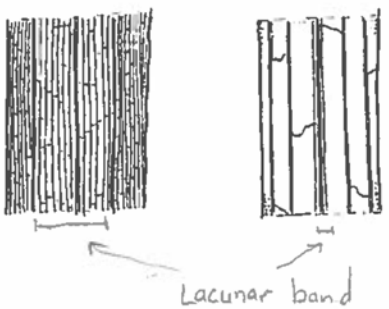

Figure 6.2. Leaf sections of pondweeds (*Potamogeton* spp.) showing a wide lacunar band (left) and a narrow lacunar band (right)

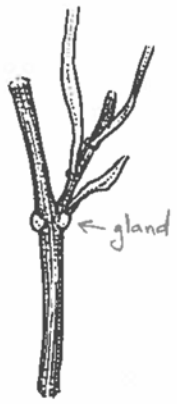

Figure 6.3. Pondweed (*Potamogeton* sp.) stem with glands at the nodes


Figure 6.4. Pondweed (*Potamogeton* spp.) achenes: beaked and with a rounded edge (left), beaked with a distinct keel (center), keeled but without a beak (right).