

**Ranunculaceae** A.L. de Jussieu  
(Buttercup Family)

Herbs, shrubs, or occasionally vines; stems with vascular bundles often in several concentric rings or  $\pm$  scattered; usually with alkaloids or ranunculin a lactone glycoside); often with triterpenoid saponins. Hairs usually simple. Leaves usually alternate, simple, sometimes lobed or dissected, to compound, usually serrate, dentate, or crenate, with pinnate to occasionally palmate venation; stipules usually lacking. Inflorescences determinate, sometimes appearing indeterminate or reduced to a single flower, terminal. Flowers usually bisexual, radial to occasionally bilateral, with short to elongate receptacle. Perianth parts usually not 3-merous. Tepals 4 to numerous distinct, and imbricate; or perianth differentiated into calyx and corolla, then sepals usually 5, distinct, imbricate, and deciduous, and petals usually 5, distinct, imbricate, often with nectar-producing basal portion or represented only by small nectar glands, probably derived from staminodes. Stamens numerous; filaments distinct; anthers opening by longitudinal slits; pollen grains tricolpate (or  $\pm$  modified). Carpels usually 5 to numerous, occasionally reduced to 1, usually distinct; ovaries superior, with usually parietal placentation; stigmas punctate or extending along one side of the style. Ovules 1 to numerous per carpel. Fruit usually an aggregate of follicles or achenes, occasionally a berry (Figure 8.40).

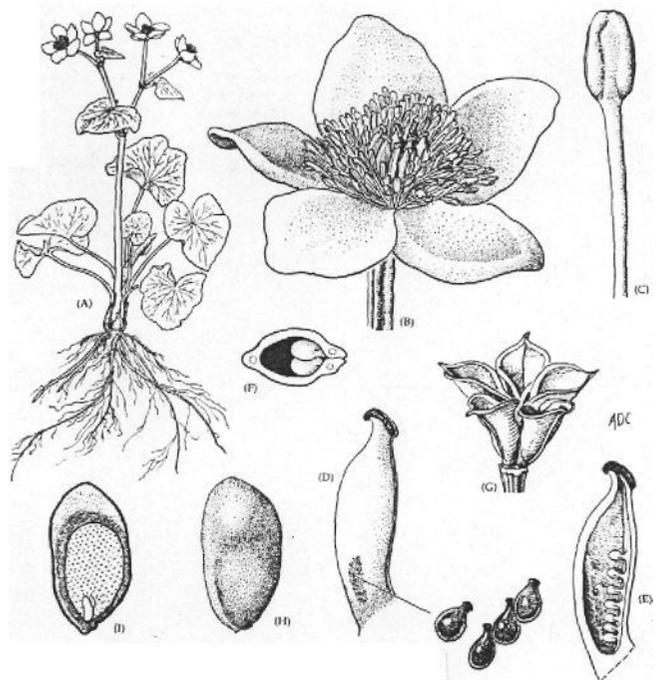
**Floral formula:**

\* or X,  $4-\infty$  or 5, 5,  $\infty$ ,  $1-\infty$ ; follicles, achenes, berries

**Distribution:** Widespread, but especially characteristic of temperate and boreal regions of the Northern Hemisphere.

**Genera/species:** 47/2000. **Major genera:** *Ranunculus* (400 spp.), *Aconitum* (250), *Clematis* (250), *Delphinium* (250), *Anemone* (150), and *Thalictrum* (100). Some of the numerous genera in the continental United States and/or Canada (in addition to those listed above ) are *Actaea*, *Aquilegia*, *Caltha*, *Coptis*, *Hydrastis*, *Isopyrum*, *Myosurus*, *Trollius*, and *Xanthorhiza*.

**Economic plants and products:** The family is chiefly important for its numerous ornamental herbs, such as *Anemone* (windflower, including *Hepatica*), *Aconitum* (monkshood), *Actaea* (baneberry, including *Cimicifuga*), *Aquilegia* (columbine), *Caltha* (marsh marigold), *Clematis* (virgin's bower). *Delphinium* (larkspur), *Helleborus* (hellebore), *Ranunculus* (buttercup), *Thalictrum* (meadow rue), and *Trollius* (globeflower). A number of genera are highly poisonous.



**Figure 8.40** Ranunculaceae. *Caltha palustris*: (A) flowering plant (x 0.5); (B) flower (x 3); (C) stamen (x 12); (D) lateral view of carpel, with detail of nectar glands at base (x 10); (E) carpel in longitudinal section (x 10); (F) carpel in cross-section (x 15); (G) follicles from a five-carpellate flower (x 2); (H) seed (x 20); (I) seed in longitudinal section, note spongy seed coat, endosperm (stippled), and minute embryo (x 20). (From Wood 1974, *A student's atlas of flowering plants*, p. 29.)