Onagraceae A. L. de Jussieu
(Evening Primrose Family)

Herbs to shrubs or occasionally trees; raphides present. Hairs simple. *Leaves* alternate, opposite, or whorled, *simple,* entire to toothed, sometimes lobed, *with pinnate venation;* stipules present to vestigial or lacking. Inflorescences indeterminate, terminal, or axillary and solitary. *Flowers* usually bisexual, radial or bilateral, *usually with well-developed hypanthium that is clearly prolonged above ovary* (except in *Ludwigia). Sepals* (2-) 4 (-7), distinct, valvate. *Petals* (2-) *4* (-7), distinct, sometimes clawed, occasionally lacking, imbricate, convolute, or valvate. *Stamens (4-) 8,* anthers with septa dividing the sporogenous tissue within locules; pollen grains in monads, tetrads, or polyads, usually triporate, occasionally colpate, tricolporate, or biporate, with unique paracrystalline beaded outer exine, and associated with viscin threads. *Carpels usually 4,* connate; ovary inferior, usually with axile placentation; stigma capitate or clavate to 4-lobed or 4-branched. Ovules 1-numerous in each locule; megagametophyte 4-nucleate (i.e., *Oenothera-type).* Nectary usually near or at base of hypanthium. *Fruit a loculicidal capsule,* berry, or sometimes small, indehiscent, and nutlike; seeds sometimes winged or with a tuft of hairs; endosperm lacking (Figure 8.89).

Floral formula:

* or X, 4, 4, 4 or 8, $\underline{\overline{4}}$; capsule, berry, nut

Distribution: Widely distributed and especially diverse in western North America and South America.

Genera/species: *16/650. Major genera: Epilobium* (164 spp.), *Oenothera (120), Fuchsia* (110), *Ludwigia* (80), *Camissonia* (62), and *Clarkia* (45). *chamaenerion* and *Circaea* also occur in North America.

Economic plants and products: *Fuchsia, Oenothera (*evening primrose), and *Clarkia* are ornamentals with showy flowers.

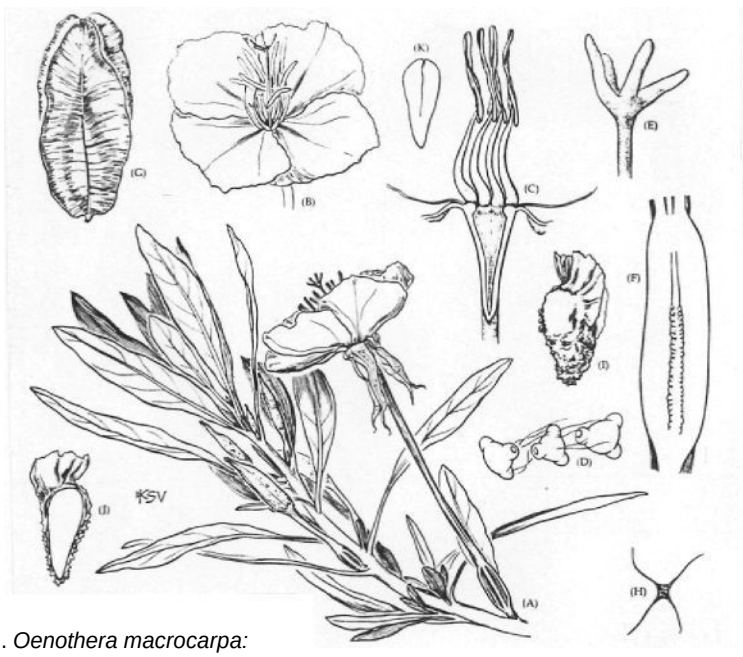

Figure 8.89 Onagraceae. *Oenothera macrocarpa:* (A) part of flowering plant (x 0.5); (B) upper part of flower (x 1);(C) upper part of flower to show insertion of stamens at apex of hypanthium (x 1.5); (D) pollen grains connected by viscin threads (greatly magnified); (E) stigmas (x 30); (F) ovary in longitudinal section, with base of hypanthium and base of style, note ovules (x 3); (G) fruit (x 1); (H) fruit in cross-section (x 1); (I) seed (x 30); (J) seed in longitudinal section, note large embryo (x 30); (K) embryo (x 30). (From Wood 1974, *A student's atlas of flowering plants,* p. 77.)