APIACEAE (UMBELLIFERAE) (Carrot Family)
(Mathias andConstance, 1944–1945)
Plantsannual or perennial herbs. Stems usually branched, oftenhollow between the nodes. Leaves alternate and/or basal, less commonlyopposite or whorled, variously compound or simple, petiolate or less commonlysessile, rarely perfoliate or peltate, the petiole base often expanded andsomewhat sheathing, the stipules partially fused to the petiole base orlacking. Inflorescences simple or compound umbels of smallflowers or sometimes condensed into heads, rarely appearing as small spikes,often with bracts subtending the flowers and at the branch points.Flowers mostly perfect (functionally staminate or pistillate flowers mixed withthe perfect ones in some genera, or occasionally the outermost flowers of anumbel functionally sterile and with enlarged corollas), epigynous,actinomorphic or occasionally the outermost flowers of the inflorescence withsome of the petals enlarged. Sepals reduced to 5 small teeth (slightly largerin Eryngium and some genera with enlarged perianth in the outerflowers), sometimes absent, when present usually persistent in fruit. Petals 5,the tips usually curved or curled inward. Stamens 5, thefilaments free. Pistil 1 per flower, composed of 2 fused carpels, theovary inferior with a swollen nectar disk at the tip, the styles 2, oftenexpanded at the base. Fruits schizocarps consisting of 2 mericarps thatseparate along the inner side at maturity, the tips of the inner sides oftenremaining attached for some time to a slender, sometimes Y-shaped stalk.Mericarps indehiscent, 1-seeded, often somewhat flattened, with 5 more or lessprominent ribs, some or all of these sometimes winged. Threehundred to 450 genera, 3,000–3,550 species, nearly cosmopolitan, mostdiverse in temperate portions of Northern Hemisphere and mountainous regions ofthe tropics.
Genera and speciesin this family can be difficult to determine. As with many large, morphologicallycomplex families, a set of specialized terms has evolved to describe variationin the Apiaceae and to facilitate discrimination between genera. In specieswith compound umbels, the branches (stalks) of the inflorescence are called rays.When present, the involucre subtending an inflorescence consists of bracts,whereas the involucel subtending an individual umbellet of acompound inflorescence is composed of bractlets (sometimes referred toas bracteoles in the literature). The small petals (0.5–3.0 mmin most Missouri species) are usually incurved or rolled inward, making size measurementsdifficult, and petal lengths thus are not useful for differentiating mostgenera. In the fruits, the usually persistent stalk positioned between themericarps, to which they often remain attached after beginning to break apart,is called a carpophore. Details of the fruits often require viewingunder magnification. The sides of the mericarps that are joined prior tobreaking apart are known as commissures, and the two ribs along theedges of each commissure are referred to as lateral ribs, to distinguishthem from the dorsal rib along the opposite margin and the two intermediateribs on the mericarp face between the lateral and dorsal ones. Fruits thatare laterally flattened have narrow commissures relative to the sidesand individual mericarps that appear relatively plump, whereas fruits that are dorsallyflattened have broad commissures and individual mericarps that appearstrongly flattened. In most species, longitudinal secretory canals known as oiltubes occur between the ribs; these contain aromatic oils or resins and,although usually visible on the fruit surface, are most easily seen incross-sectioned samples.
The relationshipbetween the Apiaceae and Araliaceae, as traditionally circumscribed, continuesto be imperfectly understood, and some authors have advocated uniting the twointo a single family, Apiaceae

(Thorne, 1973; Judd et al., 1994, 2002).Molecular studies of a number of independent gene sequences (summarized inPlunkett et al., 1997; Downie et al., 2000) have suggested that although thesituation is complicated, most of the genera can be classified into twolineages that correspond roughly to Apiaceae and Araliaceae. However, the generatraditionally included in Apiaceae subfamily Hydrocotyloideae, whoserelationships were controversial even before the advent of molecularsystematics (Cronquist, 1981), have been shown to represent several groups withdifferent affinities. One cluster, including Hydrocotyle and some othernon-Missouri genera, appears to be more closely related to the Araliaceae thanApiaceae, and probably is better classified as a morphologically aberrant basalgroup in that family. Because further studies involving larger samples ofadditional species will be necessary to resolve the complex relationships amongthe umbellifer genera, the traditional classification of the two familiescontinues to be followed in the present treatment.

Most Apiaceaecontain aromatic oils in secretory canals present throughout the plants(although not evenly distributed in all parts; canals in the mericarps, forinstance, are known as oil tubes), and many species emit characteristic strongodors when bruised or crushed. In part because of these terpenoid oils, manyspecies are used as food, garnishes, and/or spices, including dill (Anethiumgraveolens L.), celery (Apium graveolens L.), caraway (Carumcarvi L.), coriander (Coriandrum sativum L.), carrot (Daucuscarota L.), parsley (Petrosalinum crispum(Mill.) Nyman), and parsnip (Pastinaca sativa L.).A number of species also are cultivated as garden ornamentals. However, manymembers of the family are extremely poisonous when ingested, especially thehemlocks (Cicuta, Conium), and inexperienced individuals should resistthe urge to harvest plants from the wild for culinary experiments. Aftercontact with the skin, a number of species also cause dermatitis, in particularphototoxic reactions (those brought on and mediated by continued exposure ofthe skin to sunlight or other strong light sources). The information presentedfor individual taxa below was taken primarily from Kingsbury (1964) and Roth etal. (1994) but should not be considered an exhaustive account of all toxicspecies in the family. Unless sure knowledge of the identity and properties ofa given species is known, all wild members of the Apiaceae should be consideredpotentially poisonous or toxic to the skin.

Steyermark (1963)reported Aegopodium podagraria L. (goutweed) (Pl. 202 c, d) from Missouri, based on a single specimen from Jefferson County. This specimen, cited as beingcollected by Bill Bauer in 1940, could not be located during the present study.Aegopodium podagraria is commonly grown in gardens as a ground cover andspreads vigorously by branched rhizomes, often forming irregular patches ofbasal rosettes of large, glabrous leaves, these 1 or 2 times ternatelycompound, with large, oblong to ovate, coarsely toothed leaflets. Thewhite-petaled flowers are in dense compound umbels usually lacking bracts andbractlets, and the flattened fruits are inconspicuously ribbed. Steyermark didnot state whether the specimen he reported had green or variegated leaves (var.variegatum L.H. Bailey), but forms with mottled or white-margined leavesare common in gardens. Goutweed can persist at old homesites and eventually maybecome naturalized in Missouri.