**ORCHIDACEAE** (OrchidFamily)

Plantsperennial, sometimes with rhizomes or corms. Roots mycorrhizal (receivingnutrients from a symbiotic relationship with soilborne fungi), often fleshy,sometimes thickened and tuberlike. Aerial stems erect to spreading. Leavesmostly alternate or basal, rarely opposite or whorled, parallelveined,the bases sheathing the stems. Inflorescences spikes, racemes, or panicles, orthe flowers 1 per stem. Flowers usually subtended by bracts, zygomorphic,perfect (uncommonly unisexual elsewhere), often twisted 180° at the base during development so that the top of the flower isoriented toward the bottom at maturity *(resupinate).* Sepals 3, free orwith 2 sepals fused together, green or other colors. Petals 3, usually notgreen, free or less commonly with 2 petals fused, 1 differentiated from theother 2 into a lip of various shape and size, this appearing as the lowermostpetal in resupinate flowers. Stamen 1 (2 fertile stamens and 1 staminode in *Cypripedium*),fused to the stylar *column* on the side opposite the stigma and separatedfrom it by an expanded lobe of tissue known as the *rostellum* (except in *Cypripedium*).Pollen grains (except in *Cypripedium*) fused into 1–6 saclike masses *(pollinia)*per locule of the anther, each with 1[1] end tapering into an elongate tip with a sticky pad *(viscidium).*Ovary 1 per flower, inferior, with 1 locule. Style 1, fused with the stamensinto a usually thickened stylar column. Stigma 1; 2 or 3lobed.Fruits capsules dehiscing by 3(6) longitudinal slits. Seeds numerous, dustlike,shortlived, the embryos mostly undifferentiated. About 600 genera, about15,000 species, worldwide.

TheOrchidaceae are one of the largest families of flowering plants. The greatestdiversity of genera and species is in the tropics, where epiphytic species arecommon. Although many interspecific hybrids have been described within thefamily, these mostly involve tropical genera, and there is apparentlyrelatively little hybridization among temperate, terrestrial species. Thedelimitation of genera below follows Dressler's (1993) excellent review of thefamily.

Thehighly modified flowers of the orchids are adapted to pollination by variousinsects. The pollinia become attached by the viscidia to insect visitors andare subsequently deposited on the stigmatic lobes when the pollinator visitsanother flower. The pollination syndromes involved are often complex, and theflowers often can only be pollinated successfully by particular kinds ofinsects, such as butterflies, fungus gnats, small, native bees, or particulargroups of moths. Data on pollinators cited in the species treatments mostlyoriginated from Catling and Catling's (1991) review of breeding systems andpollination in North American orchids.

Findingorchids in the field can be a most challenging experience. Many species produceonly vegetative growth some years and several regularly take breaks fromaboveground life, persisting subterraneously for one or more years. Apopulation of *Platanthera praeclara* in northwestern Missouri was thoughtto have become extirpated, but flowering plants reappeared eight years afterthe initial find. The life histories of most North American orchids are as yetpoorly understood, and even how long most plants live is unknown for most species.

**Manyspecies in Missouri occur in relatively small populations and produce fewfruits. Overcollection and modifications to their habitats, such as changes insoil moisture, light levels, and density of competing vegetation, have undoubtedlycontributed to the present rarity of some species. All orchids have obligaterelationships with soilborne, mycorrhizal fungi and do not tolerateenvironmental changes well. Thus, orchids generally do not transplant well intogardens.**

**Collectors also should avoid disturbing rootstocks and should considerphotographic documentation of populations rather than herbarium specimens, asmost species can be determined readily from habit and closeup photographs.**