# Cupressaceae Bartlett
## (Cypress or Redwood Family)

*Trees or shrubs; wood and foliage often aromatic.* Bark of trunks often fibrous, shredding in long strings on mature trees or forming blocks. Leaves persistent (deciduous in three genera), simple, alternate and distributed all around the branch or basally twisted to appear 2-ranked, opposite, or whorled, *scale-like, tightly appressed and as short as 1 mm to linear and up to about 3 cm long,* with resin canals, shed with the lateral branches; adult leaves appressed or spreading, sometimes spreading and linear on leading branches and appressed and scale-like on lateral branches; scale-like leaves often dimorphic, the lateral leaves keeled and folded around the branch and the leaves on the top and bottom of the branch flat. Monoecious (dioecious *in juniperus).* Microsporangiate strobili with spirally arranged or opposite microsporophylls; microsporangia 2-10 on the abaxial microsporophyll surface; pollen nonsaccate, without prothallial cells. Cone maturing in 1-3 years; scales peltate or basally attached and flattened, juicy in *Juniperus,* fused to bracts, persistent (deciduous in *Taxodium);* ovules 1-20, on adaxial scale surface, erect (micropyle facing away from the cone axis; in some the ovules may eventually be inverted); archegonia quite variable in number per ovule, clustered. Seeds with 2 (3) short lateral wings (wings absent in some genera); embryo straight, cotyledons 2-15 (Figure 7.15).

*Distribution and ecology:* This is a cosmopolitan family of warm to cold temperate climates. About three-quarters of the species occur in the Northern Hemisphere. About 16 genera contain only one species, and many of these have narrow distributions. Members of this family grow in diverse habitats, from wetlands to dry soils, and from sea level to high elevations in mountainous regions. The two species of *Taxodium* in the southeastern United States often grow in standing water.

*Genera/species:* About 29/110-130. *Major genera: Juniperus* (50 spp.), *Callitris* (15), *Cupressus* (13), *Chamaecyparis* (8), *Thuja* (5), *Taxodium* (3), *Sequoia* (1), and *Sequoiadendron* (1).

*Economic plants and products:* The family produces highly valuable wood. *Cryptomeria, Chamaecyparis, Juniperus, Sequoia, Taxodium, Thuja,* and several other genera are suited for house construction, siding, decking, caskets, shingles, wooden pencils, and many other purposes. Many woods from this family are naturally fragrant and have been used as a natural moth-proofing for closets and chests and in the manufacture of perfumes. *Juniperus* cones are used to flavor gin. *Chamaecyparis, Cupressus, Juniperus, Platycladus, Thuja,* and other genera are grown extensively as ornamentals.

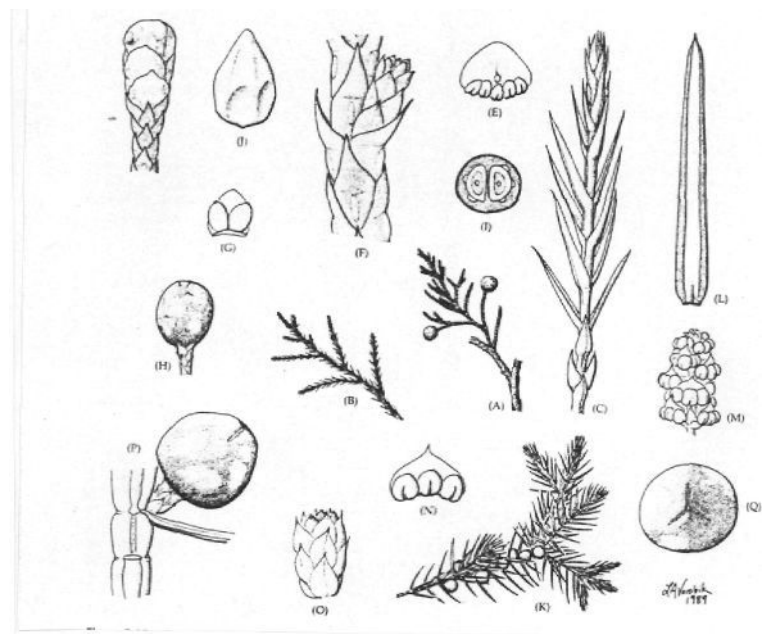

**Figure 7.15** Cupressaceae. (A-J) *Juniperus virginiana:* (A) branchlets with only scale leaves, bearing mature ovulate cones (x 0.9); (B) branchlet with scale and needle leaves (x 0.9); (C) detail of branchlet with needle leaves, showing decurrent leaf bases (x 6.2); (D) microsporangiate strobilus before shedding of pollen, subtended by numerous scale leaves (x 6.2); (E) microsporophyll (abaxial view), showing dehisced sporangia (x 12); (F) branchlet with ovulate cone near time of pollination (x 9); (G) cone scale (adaxial view) with 2 erect ovules near time of pollination (x 12); (H) mature ovulate cone with fused cone scales (x 3.7); (I) cross-section of mature cone, only two seeds maturing (note resin vesicles outside seeds) (x 3.7); (J) seed, showing pits and ridges (x 6.2). (K-Q) *J. communis:* (K) branch, showing ternate leaves and axillary ovulate cones (x 0.9); (L) details of abscised portion of leaf in adaxial view, showing broad, white stomatal band (x 6.2); (M) microsporangiate strobilus after shedding of pollen (x 6.2); (N) microsporophyll, abaxial view; (O) axillary shoot with young ovulate cones at apex, showing three ovules near time of pollination (x 12); (P) portion of branchlet with mature ovulate cone; note remnant leaf bases fused to larger stem (x 3.7); (Q) apical views of ovulate cone, showing suture lines between three fused cone scales (x 3.7). (From Hart and Price *1990 J. Arnold Arbor.* 71: pp. 275-322.)