

## Chapter 41

### Evolutionary Aside 41.1--Evolution of Wind Pollination

Wind pollination in angiosperms is thought to be a derived condition because wind-pollinated species have insect-pollinated ancestors. About 18% of the angiosperms are wind-pollinated, and phylogenetic analysis indicates there were multiple independent origins. Wind pollination is more common in open, dry areas and is found at higher latitudes and elevations in temperate but not tropical environments.

In the absence of pollinators or when plants are distributed at a very low density, either self-pollination or wind pollination could be selected over time. For wind pollination to be successful, plants must have certain floral morphologies or have the potential for those morphologies to evolve. For example, the flowers must be in the wind flow. Feathery stigmas aid in capturing pollen and the ratio of pollen to ovules is much higher in wind-pollinated than in insect-pollinated species.

An intermediate stage in the evolution of wind pollination may be ambophily. In ambophily both insect and wind pollination occur. Some species thought to be only wind-pollinated have been found to have insect pollinators. Although this can be an intermediate stage in evolution, it may also be a long-term, stable strategy for reproduction. For example, ambophily can extend the reproductive period in some species such as willow after the pollinator is gone. Greater genetic variation is achieved through wind pollination than self-pollination.