

Wild Orchids

by Bob Armstrong and Marge Hermans
from Southeast Alaska's Natural World



A dance fly that probes into a green bog orchid blossom will likely emerge with clumps of pollen stuck to tiny disks on its head. The insect's subsequent visits to other flowers of the same species help promote the exchange of pollen between plants (cross-pollination).

(Preceding page)
Calypso bulbosa,
"fairy slipper"

(Right) White bog orchids may grow three feet high in Southeast Alaska, often rising above surrounding plants in a muskeg and emitting a strong, pleasant aroma similar to that of vanilla.

People the world over have long been fascinated with orchids. Wealthy collectors have paid fortunes to possess exotic varieties, and adventurers have risked their lives to extract rare varieties from jungles and remote locations.

In 2001, U.S. sales of potted orchids (artificially raised or hybrids) approached \$100 million; and according to an item in *U.S. News and World Report*, a single potted white stem of a phalaenopsis orchid at the elegant Takashimaya Floral Boutique in New York was priced at \$175. Nurseries and other outlets currently ship millions of orchids all over the United States and Canada, and their spectacular varieties and colors are often the highlight of garden shows and greenhouse displays.

Most people are attracted by the complex and elegant blossoms of orchids, and tropical species especially show a staggering variety of colors, petal shapes, and intricate markings.

A few wild orchids in Southeast Alaska have blossoms large and colorful enough to remind us of their more spectacular tropical relatives. Those are the beautiful *Calypso bulbosa*, or "fairy slipper," found mostly on small islands of Southeast Alaska, often on the outer coast; and three species of "lady's slippers" occasionally found in the northern parts of our region.

But a number of other wild orchids are quite common in Southeast forests and bogs, and it's easy to discover and appreciate their lovely, delicate blossoms by just looking more



closely or using a magnifying glass or hand lens.

Fairy slipper and lady's slipper blossoms display the quintessential orchid-type blossom. Each flower has several upright parts (petals and sepals), and a lower petal modified into a showy pouch that apparently serves as a landing pad for pollinating insects. Insects are attracted to the blossoms



by their color and fragrance, then when they probe the blossoms, they emerge carrying pollen that they subsequently deposit on other plants.

Some orchids go to great lengths to trick insects into helping with the process of pollination. They have developed blossoms that mimic both the appearance and the chemical sex signals, or pheromones, of female insects. The blossoms of *Chiloglottis tropeziformis*, an orchid not found in Southeast, looks and “smells” so much like a particular species of female wasp that males of the species are attracted to the orchid flowers from long distances. And the orchid *Coryanthes speciosa*, one of the species known as bucket orchids found in lowland forests in Central and South America, lures male euglossine bees into its heart, coating them with both pollen and a waxy perfume that appears to be useful in attracting female bees.

Here in Southeast Alaska, **white bog orchids**, which often grow in large patches in marshes and muskegs, emit a strong fragrance that some describe as a combination of vanilla, cloves, and other spices. They seem to attract certain insects, such as mosquitoes, dance flies, and moths, which help transport their pollen from one flower to another. The nectar in bog orchids is housed in a narrow pouch or “spur” that projects backward from the lip of the blossom, and it can only be reached by an insect with a long proboscis, or tubular mouth part. When the insect sticks its head into the blossom it bumps against and tears off tiny adhesive discs that stick to its forehead and proboscis, and pick up clusters of pollen that can then be deposited in another orchid blossom.

Heart-leaved twayblades—tiny orchids that are fairly common in moist or wet forests in our region—use a different approach. They give off a strong odor that attracts flies and fungus gnats. When they are touched by one of these insects, they

shoot out a drop of viscous fluid filled with pollen grains. The fluid glues the pollen mass to the insect’s body so it, too, can be carried to subsequent blossoms.

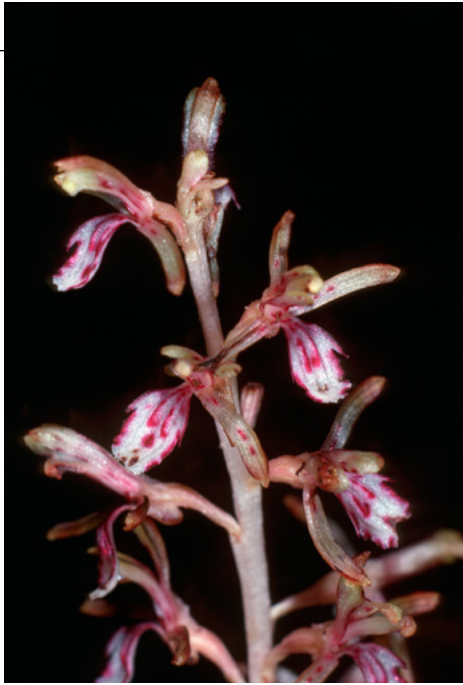
If pollination is successful, an orchid may produce for each blossom a single oval or oblong capsule filled with tiny seeds. A capsule may contain an enormous number of seeds—as many as 3,770,000 were counted in a single capsule of a tropical American orchid, *Cynoches chlorochilon*, for example. And it’s a good thing, too. As A.F. Szczawinski writes in *The Orchids of British Columbia*, “Unless the conditions of temperature, moisture, soil and shelter are ideal, failure for the seedlings is certain. There is one chance in thousands that such ideal conditions will occur.”

Once orchid seeds land on the ground, they do not germinate as easily as the seeds of most plants. Their outer seed-coat must be penetrated by the microscopic threads of certain fungi species in the soil before they can germinate. Apparently the fungi are needed to convert starches in the seed into simpler sugars that the embryo orchid can use.

Whether or not pollination is successful, it may be years before a particular orchid will bloom again. For this reason, as well

(Bottom) Rattlesnake plantain is named for the variable striations on its leaves, which often resemble the markings of rattlesnake skin. Its blossom, shown above the photo of the leaves, displays delicate petals on a central spike.





Spotted coralroot is a saprophytic orchid that lives off decaying organic matter in the soil. Small clusters are often seen in the deep shade of coniferous forests in Southeast Alaska.

as their fragility and their dependence on associating with fungi growing in the soil around them, wild orchids in many parts of the U.S. and the world have become rare, and many states have laws prohibiting picking them.

Some orchids also reproduce by vegetative multiplication. This is true of the **rattlesnake plantain**, found in primary glacial forests and dense forests along the beach fringe in Southeast. This

intriguing plant, with rosettes of mottled or striped evergreen leaves and delicate flowers on a slender spike, can spread very rapidly, “creeping” along under the ground by extending its underground stem, or rhizome.

In the case of the **bog adder’s tongue** (*Malaxis paludosa*), found in bogs in Southeast Alaska, small projections known as “bulbils” grow at the tips of the leaves and break off to form new plants.

Two species of orchids seen fairly often in the deep shade of Southeast coniferous forests may not at first be recognized as orchids. Completely pink or yellowish and semi-transparent, the **coralroots** are saprophytic plants—they live off decaying organic matter and contain no chlorophyll for making their own food. Coralroot flowers nonetheless show orchid-like characteristics—their many-petaled blossoms have a characteristic protruding lip, though they are small and clustered along an upright spike.

Authoritative field guides list 21 species of wild orchids found in Southeast. To learn more about them we recommend *Native Plants of Southeast Alaska* by Judy Hall, and *Plants of the Pacific Northwest Coast* edited by Pojar and MacKinnon. ●

Calypso bulbosa, “fairy slipper”



Elusive Promises

Many people’s inordinate fascination with orchids, or “orchidelerium,” over the centuries probably stems from myths and traditions in a number of cultures. The Aztecs and Mayas of Middle America used vanilla, made from the

seed capsules of orchids of the *Vanilla* genus, as an erotic drink; and once the Spanish carried vanilla flavoring to Europe in the 1700s, it was touted as a tincture or infusion to insure male potency. After Thomas Jefferson brought vanilla to the United States from France, it was enthusiastically accepted, and occasionally

advertised to “stimulate the sexual propensities.”

Women in Victorian England were forbidden to own orchids, whose name comes from the Latin *orchis*, meaning testicle and suggesting sexual associations. Even today the scent and flavor of vanilla is widely marketed for its sensuous and evocative qualities in soap and perfumes.

The “fairy slipper” *Calypso bulbosa* is named for the beautiful goddess who ensnared Homer’s Ulysses for seven years on the island of Ogygia. The mountain lady-slipper, occasionally found in northern Southeast Alaska, is named *Cypripedium*, which means “the foot of Aphrodite,” the ancient Greek goddess of love.