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## Pollination

If you are walking on the Grand Parade in spring or summer, pollination is going on all around you. Pollination is an essential step in the reproduction of seed plants. It is the transfer of male pollen grains to female plant structures.

Most of the grasses and trees you see around you are *wind*-pollinated. A stalk of grass might release thousands of grains of pollen, depending on the wind to spread it and deliver at least a few grains to another grass plant of the same species.

The pines at the center of this valley also are wind-pollinated. Pines are prodigious producers of pollen, and the ground beneath them sometimes is coated in their fine, yellow dust.

Most flowers, by contrast, are pollinated by animals. Such pollinators move from flower to flower looking for nectar – an important food source. During their search for food, they coincidentally move pollen from one plant to another, resulting in fertilization and allowing plants to produce seeds. Common pollinators at Valley Forge are butterflies, bees, hummingbirds, moths, and other nectar-feeding insects and bats.

Butterflies play a large role in the pollination of this area. Approximately 60 kinds of butterflies can be observed at Valley Forge. Most are dependent on one or two host plants to survive. The beautiful monarch butterfly, for example, is attracted to the large patches of milkweed found throughout park meadows. Do you see the tall plant with elliptical-shaped leaves that are velvety above and downy underneath? This is the milkweed plant. The term “milkweed” comes from the characteristic “milky” white juice that flows through this plant. In spring, the pinkish-purple flower buds look like loose broccoli. In summer, the seed pods are the most recognizable feature of the common milkweed: they are green, elliptical shaped and about 1-4 inches in length with a pointed tip. Milkweed is essential to the life cycle of the monarch butterfly, providing it with both nutrition and protection. Adult female monarchs lay their eggs on the underside of

milkweed leaves. After these eggs hatch, the larvae or monarch caterpillar feeds on the leaves. Following a chrysalis stage, a new butterfly emerges and feeds on milkweed and other flowers. The juice of the milkweed plant also contains toxins that are absorbed by the monarch and makes them distasteful to predators – providing an effective form of defense.

Fruit trees are pollinated primarily by bees. Historically farms each maintained a family orchard. You see a remnant of a family apple orchard here. Farm families also kept bee hives to ensure that there were enough bees to pollinate the flowers and ensure that fruit would be produced.