



CAES

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MANTIDS (Order Mantodea, Family Mantidae)

Mantids are a highly recognizable family of predatory insects. Their distinctive appearance, upright posture, raptorial forelegs, and highly articulated neck have made them culturally familiar worldwide. In Connecticut, the two most commonly seen mantids are both introduced species; the Chinese mantis (*Tenodera sinensis* – first found around 1902) and the European mantis (*Mantis religiosa* – introduced in the 1890's), which is also Connecticut's state insect. The North American native Carolina mantis (*Stagmomantis carolina*) is a subtropical species and is rarely encountered in the northeast.

Description:

Mantids are large insects, adults reaching 3 - 4 inches long. The mantids encountered in the northeast are generally green or brown in color to camouflage with vegetation (Fig. 1). The word 'mantid' is Greek for 'soothsayer,' a reference to this insect's unique resting posture, where the highly modified first pair of legs are held up together as if in prayer or contemplation. These raptorial claws help the insect in capturing and grasping prey. Adult mantids have two pairs of wings, but they rarely fly; the wings are instead most commonly used as part of a threat display to deter predators.



Fig. 1: Chinese mantis

Mantids have highly developed sight. Each compound eye possesses thousands of individual photoreceptors known as 'ommatidia.' The dark spots visible on a mantid's eyes are called 'pseudopupils.' These spots correspond to the clusters of ommatidia that are directly pointed at the viewer; in effect, it indicates where the mantid is looking. Using its highly flexible neck, a mantid can turn its head in any direction to look at and accurately gauge the distance between itself and a focused target.

Mantids are carnivorous and eat anything smaller than themselves. They are stealth predators. They eat other invertebrates, but can also attack small amphibians, lizards, and even hummingbirds. They rely on enhanced vision, camouflage and stealth in order to stalk and catch their prey. Mantids are not venomous, but can defend themselves with sharp strikes of their claws if they feel threatened. Injuries to people are rare and usually the result of prolonged teasing.



Fig. 2: Mantis egg case (ootheca) on Christmas tree branch

Life Cycle:

Mantids undergo incomplete metamorphosis and have 3 life stages: egg, a nymph stage which resembles a smaller wingless adult, and adult. Egg clusters are protected inside papery cases known as ootheca. In the fall these are left attached to small twigs or branches, where the eggs inside overwinter (Fig. 2). Eggs hatch in the spring and hundreds of nymphs emerge. The nymphs immediately disperse. They are cannibalistic so newly hatched nymphs should not be confined together. Nymphs begin to seek out prey and will quickly progress through several molts during the growing season.

Adults begin to appear in the late summer.

Although the common urban legend is that male mantids are killed and eaten by females following mating, scientific studies of wild mantid behavior has shown that this is not inevitably the case. Males will often escape after mating and can encounter and mate with multiple females. Cannibalism of her mate by a hungry female is likely reproductively driven;

it provides a convenient high-quality protein meal and energy to produce eggs.

Mantids in temperate climates live for a single growing season. Females lay ootheca in the fall and die soon afterwards. Any mantids still active in the late fall are killed by the first hard frost. Adult mantids that are brought indoors before the frost may survive a few months into the winter but will die of old age before the spring.

Cultural Impact:

Mantids are an enduring subject in literature, art, mythology, and superstitions worldwide; their behavior, adaptations and anatomy have inspired everything from ancient martial arts to modern robotics.

The European praying mantis officially became Connecticut's state insect on October 1st 1977, but it is not under any additional protections as it is not considered threatened or endangered. A mantid's survival depends on camouflage, so they are cryptic by nature. This can make them appear to be scarce when they are in fact quite numerous, just hard to observe.

Mantid ootheca are occasionally available for sale by garden suppliers as a form of biological control. It is important to keep in mind that while mantids do eat a number of garden pests, they are generalist predators. Mantids will catch and eat bumble bees and butterflies just as readily as they do mosquitoes and stink bugs. Occasionally a mantid ootheca can be discovered attached to the branch of a harvested Christmas tree. These can be carefully removed and placed outdoors by tying it to an overwintering shrub. The young mantids will then emerge the following spring and populate the local area. Live ootheca should not be kept warm or indoors for too long. This will likely cause it to prematurely hatch, resulting in hundreds of tiny mantid nymphs scattered about a room! Rearing mantids in captivity is possible but complicated, because the insects require a consistent supply of live food and may cannibalize each other if confined without adequate space.