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GARDEN (MOSTLY) GOOD GUYS – PRAYING MANTIDS

By Nanette Londeree, Marin Master Gardener

This is the time of year you may encounter one of those wonderfully weird, almost perfect insect-hunting machines in your garden – a praying mantis. "Mantis," derived from the Greek word for "prophet" or "soothsayer," is descriptive of the way this unique creature holds up the forepart of their body, with its enormous front legs, as though in an attitude of prayer.



In the family Mantidae, the European mantid *Mantis religiosa*, is the most commonly encountered mantid while the Chinese mantis, *Tenodera aridifolia sinensis*, is widely sold through garden catalogs. Mantids physiology is unique among insects. These masters of camouflage range in size from two to four inches long. Adult mantids (the terms mantid and mantis are often used interchangeably), tend to be yellowish, green or brown, allowing them to blend in with the twigs and stems they sit on waiting to snare their victims. Their triangular-shaped head with a large compound eye on each side and three other simple eyes between them provides sensitivity to the slightest movement up to 60 feet away. They're the only known insect that can turn its head and look over its shoulder, with a "neck" that allows the head to rotate 180 degrees. They also have ultrasound ears, raptorial limbs that can regenerate when young and wings for flight.

Praying mantids are strict carnivores with enormous appetites. With their chewing mouthparts, they eat almost any prey they can overcome. When young, they feed on aphids, leafhoppers, mosquitoes, caterpillars and other soft-bodied insects, while the indiscriminate adults feast on beetles, butterflies, grasshoppers, crickets, spiders and other insects - both pests and beneficials. Most mantises are ambush predators, waiting for prey to stray too near. When close enough, they snap it up with a lightning movement of their strong forelegs - a strike that takes only 50 to 70 milliseconds, one of the fastest muscle movements of any animal.

Mantids have incomplete metamorphosis and one generation per year. Their overwintering eggs, laid in masses that may include hundreds of eggs, often insulated with a foamy material that gives them the appearance of a packing peanut, are attached to wood, bark, rocks, buildings, and dried plant stems. Tiny nymphs emerge from the eggs in spring or early summer. Once hatched, they immediately molt, and within about an hour the new skin has hardened and the nymphs begin to scatter to look for food. Following several molts, their development is complete by late-summer.

Adult males are smaller and more slender than females. Among winged species, males are much more likely to fly; females are incapable of flying once they begin to swell with eggs. During mating, the female may eat the male – usually occurring only if the female is starved. This cannibalistic behavior doesn't seem to deter males from reproduction!

While they look tough and don their protective coloration, they are not well defended from predators, often being eaten by spiders, birds, and larger praying mantids. They're most likely to be observed in the early

morning or late afternoon, basking in the sunshine. During hotter periods of the day, they seek cover in shrubs, bushes and clumps of flowers where there is plenty of food and protection from predators.



Praying mantids are territorial, although the size of the territory depends on the availability of food. They tend to stick around on one or two bushes throughout the season. A twenty by forty foot garden would support two or three adults at most. For the area they inhabit, they are likely to keep the local insect population down (both pests and beneficials), but since they don't move around too much, their general benefit to the garden may be limited.

Photo of adult praying mantid and egg case courtesy of UC IPM website

