



# Rockin E Gardening Handouts

*Tips and Suggestions for 'Year-Round' Gardening*

1201 West 500 South Woods Cross, UT

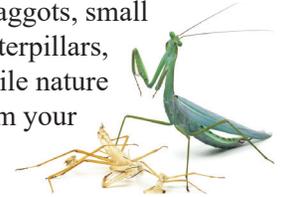
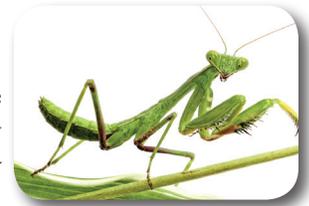
[www.RockinEcountrystores.com](http://www.RockinEcountrystores.com)

801-299-9990

## The Praying Mantis

Praying Mantids are one of the most all-purpose, beneficial insect in the home garden. The Praying Mantids will eat almost any pest that moves. When the nymphs hatch, they're so hungry they sometimes eat their siblings. In fact, praying mantids are just as likely to eat a helpful lady beetle as they are to catch a destructive caterpillar. To a mantis, all bugs are good bugs to eat.

Praying mantis eat a wide variety of garden pests. While young they eat aphids, thrips, flies, maggots, small caterpillars, leaf hoppers, white grubs and other soft-bodied insects. Mature mantis feed on larger caterpillars, earwigs, chinch bugs, sow bugs, beetles, grasshoppers and other large insects. Because of their docile nature some people actually keep praying mantis as pets. Praying mantis will eat meat, or insects right from your hand, if they are hungry. Praying mantis are interesting insects to watch. They will teach you about the cruelties of nature, and about the survival of the fittest.



**Is the mantis "prAying" or "prEying"?** It is still an old argument, but spell this insect's name with an 'a' -- praying -- not an 'e'. The insect was originally named for its resemblance to someone in a praying position, not because it was a hunter. However, "Preying" would be a much better description.



***This insect is a lean, green (sometimes brown), eating machine!*** Its body is built for finding prey, including big eyes, an extremely mobile, swiveling head, and lightning-fast arms. The praying mantis is an ambush hunter: it sits very still, blending in with its surroundings and waiting patiently for an unwary insect to come near. Then it easily snatches its unsuspecting victim -- some much larger than itself. When it spots a meal, it only takes the mantis a few milliseconds to strike out and snare its prey. It is successful 85% of the time.

The diet of the praying mantis includes all sorts of insects and spiders. Sometimes larger mantids will eat frogs, lizards, or small mice. A tropical mantis may grow to 8 inches, and will occasionally add hummingbirds to their diet.

### Life Cycle

Praying mantis are found on every continent except Antarctica. Of the more than 2,400 known species, only 20 species live in North America, and only 6 are found in the US.

Praying mantis hatch out of their egg case along a seam that looks like little louvered windows. They hatch in the spring when the weather is warm; the warmer the temperature, the sooner they hatch.

As many as 100 to 300 praying mantis may hatch from a single egg case. Unlike most insects, mantis do not hatch as larvae; they emerge as miniature adults, about half



an inch long. They will grow through the spring and summer until they reach a length of three to four inches, shedding their skin several times. Every time the mantis sheds its skin, it will grow. Because of its rigid outer skeleton (skin), the mantis cannot grow in between molts.



Mantids do not develop wings until their final molt. Some mantids do not develop wings at all, or may have small flightless wings. Although praying mantis have wings, they are clumsy fliers, and many do not use them until fall. When the female begins to emit pheromones, males fly to find a partner for mating.

After mating, a female mantid sometimes eats the head off the male, which helps her nourish her eggs. (Contrary to popular belief, the female does not always eat the male after mating with him.)



She then attaches a brown foam to a branch, lays eggs inside, and dies shortly afterwards. The eggs are protected from the cold winter temperatures in the foam. The cycle begins again in the spring. They only complete one life cycle each year.

If you are collecting your own praying mantis egg cases in the fall, look for them in plants that grow in clumps. Leave the egg case attached to the branch and store the egg cases in a refrigerator until spring, or you can put them directly into the garden, by attaching them to another shrub..

### Camouflage and colors

Some mantis species depend on good camouflage to prevent predators from eating them, while others keep a more simple look. Well camouflaged mantids



have many projections on their body in the shape of dead leaves, branches, flower petals or even moss.

Their colors can vary from brown, to green, white, pink, yellow or a mix of all colors. The more straightforward looks are simply green, brown or sandy colored but without any special modifications. There are more than 2,000 species of mantids in the world



## Interesting Facts

Praying Mantis is the only predator fast enough to catch mosquitoes and flies.

Praying mantids have as many senses as humans; sight, smell, taste, feeling and hearing.



Sight is their strongest sense. They have five eyes, and can see three dimensionally. Their two large compound eyes see images, movement, colors and provide depth. Their three simple eyes, arranged in a triangle pattern between the antennae, tell the difference between light and dark.

They look at the same object with two independent eyes, making it possible to judge distances very accurately. Their long, flexible necks bend easily, allowing them to turn their heads 180° from side to side, giving them a 300° field of vision. They can spot the slightest movement from 60 feet away.



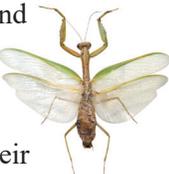
Their antennae are used for smell. Their sense of smell is limited to just smelling specific pheromones of their own species. The female will emit a pheromone when she is ready to mate. The male can smell this pheromone of his own species from miles away, and will fly towards her.

Their sense of hearing is unique in the insect world. Most insects cannot hear; they can only sense vibrations. Praying mantids actually have one ear, in the middle of their abdomen. It can sense the high-pitched tones of a bat; their ear cannot hear other frequencies, or determine the direction of a sound.

Because of this ear, a flying mantis can hear when a bat is chasing him in the air. When a flying mantis hears the call of the bat, at a close distance, it will stop flying horizontally, and fly (drop drastically) towards the safety of the ground, at a high speed. Since bats are one of the most common natural predators of mantids, they have developed a unique warning system for detecting and evading them.

Mantids are one of the only insects able to feed at night on moths (most moths are only active after dark).

When threatened, praying mantids stand tall, spread their forelegs, fan out wide their wings and open their mouths. The fanning of the wings is used to make the mantis seem larger, and to scare their enemy. Some species have bright colors and patterns on their



hind wings, and inner surfaces of their front legs, for this purpose. If harassment persists, the mantis will then strike with their forelegs and attempt to pinch, bite or slash its opponent. They may also make a hissing sound.

## Hatching Mantids Indoors

If you find a mantid egg case, keep it at winter temperatures in a box in an unheated garage, shed, or porch. Do not bring it inside or the eggs may hatch in January or February. Once the eggs hatch, they need food, and their own space. Hatching them inside, when you cannot release them outdoors, becomes a huge task when you are trying to keep them alive.



Bring the egg case inside anytime the weather starts to warm, in late-March or April, and begin watching for nymph emergence in about mid-May. Unfortunately, some eggs will never hatch.

When the eggs do hatch it becomes a challenge to handle the sudden population explosion of tiny nymphs. They will be all right together for a day or two, but then they will begin to eat each other, even if there is other food available.



To maximize the number of survivors, nymphs need to be moved to separate cages, or more practically, scattered around outside, as soon as possible after hatching. Raising nymphs through to adult stage in captivity is incredibly difficult.

It is much easier to find an adult to keep as a pet. Praying mantises actually make great pets. Some will even eat raw meat and insects from your fingers. With plenty to eat they usually will not stray far. If handled properly they don't bite.

## Releasing Outdoors

If you purchase mantis eggs, put the egg case in a bush, hedge, limb, or anything more than two feet above the ground. The egg case may be inserted in the fork of a branch or hung with a piece of string. Hanging the egg case will help keep birds and rodents from eating the eggs in the case. If ants are in the area, put a little oil on the string to keep them away.



When the eggs hatch, the egg case does not change in appearance. A little sawdust appears to be hanging from the seam where the mantis hatched from. Since mantis do not move much and they blend easily with their surroundings, it is easy to miss the hatching.

## Biological Control Benefits

When home gardeners think of natural pest control, mantids come to mind. While mantids are a beneficial insect, their overall benefit is small compared with lady beetles and green lacewings. This is due to the way they interact with each other. There is only a



limited number of mantids in any one area, otherwise they will eat each other.

Placing additional egg cases in an area may not increase the population, due to the fact that mantids tend to move away from each other to find suitable territory, and to find adequate food supplies.

Most predatory insects, that are of value in the biological control of other insect pests, concentrate on one type of insect. They generally hunt down a specific insect and consume it in great numbers. In addition, most predatory insects have several life cycles each year, increasing their numbers rapidly.

While most insects are constantly searching for food, praying mantis are content to stay in one area, and wait for their 'prey' to walk by, so they can grab it with their strong forelegs. They are not fussy about what they eat, they eat almost anything that happens their way.



Because praying mantis are such passive eaters, they do not care what they have for lunch, and because they only complete one life cycle each year, praying mantis are not considered an important part of the biological control of insects.

Their impact is negligible on the insect populations in their area; especially since they will eat each other just as much as they will eat other insects.

A praying mantis is just as likely to eat a bee, that's pollinating your plants, as it is to eat a caterpillar pest that is defoliating your prize flowers.

While mantids are predators, they also have enemies that eat them. Bats, rodents, birds, frogs, and spiders, all eat mantids whenever they can find them.

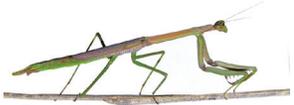
## Walkingsticks

Walkingsticks and Mantids are somewhat related, they are in the same sub group of insects.



Mantids are predators, and Walkingsticks are herbivores.

These bizarre-looking, slow-moving, plant-eating 'walking-sticks', are among the most intriguing of the insects. Their camouflage, mimicry, and defense mechanisms are a veritable art form.



Through an adaptation called "crypsis," it blends in so perfectly with its natural habitat that it often goes completely undetected by would-be predators.

Walkingstick bugs are found in every continent except for Antarctica. They prefer living in tropical climates near the equator, although they are found both north and south of the equator.



Walkingstick bugs have life spans of up to 3 years in the wild. They grow up to 13 inches long. Praying mantises typically live no longer than 1 year. They grow up to 6 inches long.



Walkingstick bugs are herbivores and eat different species of fresh plant leaves, from bramble to oak leaves. Different species of walking stick bugs prefer different species of plants. They spend most of their time camouflaging themselves among plant life.

## Mantis or Mantid?

*The terms mantid and mantis are often used interchangeably. This handout is no exception.*

Technically; Mantis is properly applied to a genus of mantids, the most widely recognized being "the" praying mantid: **Mantis religiosa**.

Mantid is the best term applied to the entire group of the order: Mantodea.

## More Resources

<https://extension.usu.edu/files/publications/factsheet/beneficial-insects-mantid07.pdf>

<https://organiccontrol.com/mantids/>

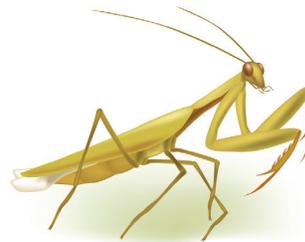
<http://www.gardeninsects.com/prayingmantis.asp>

<https://entomology.ca.uky.edu/ef418>

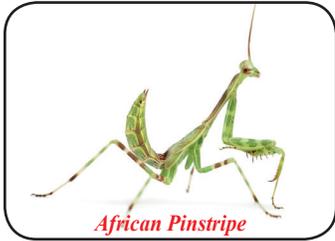
<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/ec1605.pdf>

<https://extension.colostate.edu/topic-areas/insects/mantids-of-colorado-5-510/>

<http://cru.cahe.wsu.edu/CEPublications/EM067E/EM067E.pdf>



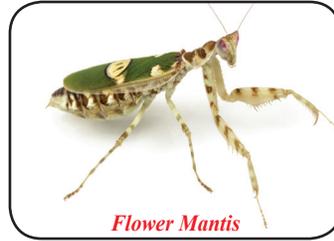
*There are 2,400 species of mantids in the world. Only about 20 species live in North America, and about 6 species are found in the United States. These are just a few of the many Praying Mantids you will probably never see.*



*African Pinstripe*



*Dead Leaf Mantis*



*Flower Mantis*



*Devil Horse*



*Orchid Mantis*



*Orchid Mantis Adult*



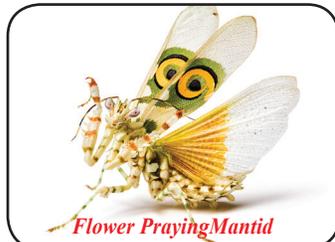
*Mantid with Wings*



*Orchid Mantis*



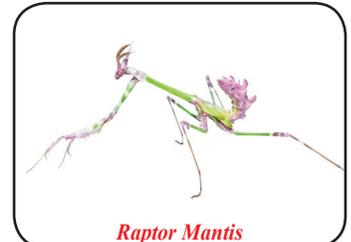
*Mantis Laying Eggs*



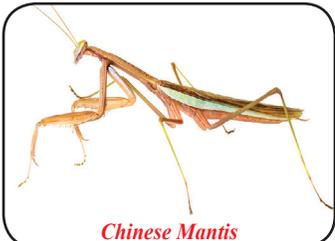
*Flower PrayingMantid*



*Rain Forest Mantis*



*Raptor Mantis*



*Chinese Mantis*



*Spiny Flower Mantis*



*Fighting Mantis w/Wings Spread*



*Malaysian Orchid Mantis*



*Old and Blind Mantis*



*Leaf Mantis*



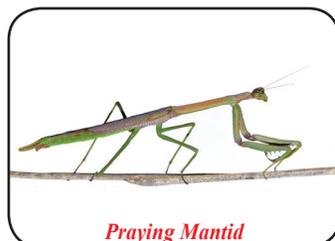
*Malaysian Dead Leaf Mantis*



*Dead Leaf Mantis Top*



*Flower Mantis Female*



*Praying Mantis*



*Israel Mantis*



*Walking Stick*



*Walking Stick Brown*



*Walking Stick Green*



*Walking Stick*



*Walking Sticks*