

Mantids in Washington By Art Antonelli and Jenny R. Glass

Mantid populations have been largely unknown in Washington State, except for a **rare** small (ca. 1 inch long) gray native species in the sagebrush areas of eastern Washington. In recent years, however, the habit of gardeners purchasing and releasing egg cases of Carolina, California, and Chinese mantids, have introduced and increased the presence of mantids in Washington. These large two to three inch long brown or green mantids (Fig. 1.) have seemingly become established throughout much of eastern Washington and since 2002, specimens have been collected from Clark, Cowlitz, Pierce, and King counties as well. So introduced mantids, appear to be gaining a foothold in western Washington.



Fig. 1. An adult mantid (3 inches in length)

Mantids, known to some as praying mantids because of the shape of their forelegs suggests hands folded in prayer and as preying mantids to others knowledgeable about their diet, have fascinated humankind forever. In ancient China, mantids were actually nurtured and manipulated as biological control agents. Their value as beneficial agents,

however, is questionable. A sedentary ambushing predator, the mantid lays motionlessly in wait of prey and then quickly springs to snares many types of food including other mantids, flies, moths, spiders, honeybees and other insects. Thus, beneficial creatures are on their menu in addition to the pests that gardeners hope that the mantids will manage. Nor can the slow development of a mantid keep up with a rapidly expanding pest capable of several generations per year.

The mantid is a well-developed killing machine whose raptorial forelegs are designed to trap and hold prey. Vicious spines on the inner edges of the femur and tibia where the forelegs meet (Fig. 2.) allows a mantid to firmly grasp its prey while dining. In addition, the mantid head with developed eyes can turn in all directions to spot prey



Fig. 2. Close-up of mantid forelegs showing spines on inner surfaces of femur and tibia

while the rest of the body remains motionless. Despite this predatory design, mantids are not that effective at controlling spider mites, caterpillars, or aphids, which are often the most problematic pests in Northwest gardens.

The mantid lifecycle is one of simple metamorphosis (egg, nymph, adult). Mantids appear to have a single generation each year and overwinter in the egg stage. Eggs are laid in shingled masses attached to twigs or weeds and are coated with a hard, gummy material. These egg cases are what biological supply companies often sell to gardeners interested in adding insect predators to their gardens. Sufficient warmth allows eggs to hatch. The emerging young mantids feed on small prey, such as gnats, and may cannibalize other mantids emerging from the egg case. Growing and molting, the developing mantid reaches a size capable of feeding on larger prey such as grasshoppers, bees, and large flies. Adults of some species are winged and can fly but the smaller male mantids are more likely to do so- especially once the female becomes too swollen with eggs to fly. The well-known fact that female mantids will eat the males while mating is probably over exaggerated, and may have originated from research conducted with starved mantids as study animals.

One other interesting side note (not related to mantids found in Washington): Mantids are past masters of mimicry. That is, many mantid species mimic or have evolved to resemble plant parts including leaves (Fig. 3.) and flowers. This phenomena appears to not only protect a mantid from its own predators but also to fool would-be prey looking for a plant meal into visiting it- in other words, these mantids of mimicry attain considerable benefit from looking like a “fast food joint”.



Fig. 3. A tropical mantid mimic of leaf material

References

Borror, D.J., C.A. Triplehorn, and N.F. Johnson. An Introduction to the Study of Insects. 1992. Smith Saunders College Printing. 875 pp.