

Observatory

Damselfish Cultivate Their Algae Gardens

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Published: June 21, 2010

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Gardeners who are vigilant against weeds may have a newfound appreciation for damselfish, which, a [new study](#) reports, are diligent weeders of algae gardens in coral reefs around the world.

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Hata et al./BMC Evolutionary Biology

Scientists say damselfish remove weeds to allow for Polysiphonia.

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Weeding, when done by fish being studied by scientists who are writing reports, is called cultivation mutualism. And in the case of damselfish, it involves plucking unwanted algae from their territories with their mouths and disposing of it at a distance.

This leaves more room for Polysiphonia, a red algae that the fish enjoy. Damselfish lack the digestive enzymes to process many kinds of algae, and members of the genus Polysiphonia are some of the few they can eat.

The fish also act the gardener (Mr. McGregor, perhaps) in chasing away invaders like the sea urchin, the Peter Rabbit of the damselfish garden.

The researchers found a variety of gardening strategies among the 18 damselfish species they observed in 320 places in Egypt, Kenya, Mauritius, the Maldives, Thailand, Borneo, the Okinawa islands and the Great Barrier Reef.

In some areas, like the Okinawa islands, damselfish engage in extensive weeding and maintain a monoculture of red algae in their beds. In others, like Mauritius, they maintain a mixed crop bed, weeding out only invasive plants.

Next, the researchers hope to determine why these variations in gardening behavior exist between fish in different locations, said Hiroki Hata, the study's lead author and an ecologist at Ehime University in Ehime, Japan.

[The study](#) appears in the June 18 issue of the journal BMC Evolutionary Biology.