

Nature notes

From The Natural Resources Group

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Nature Notes is a publication of field observations from the Natural Resources Group, a division of the Department of Parks and Recreation of the City of New York. NRG's mission is to protect and preserve New York City's natural parklands through active management, restoration, acquisition and outreach using scientifically supported and sustainable approaches.

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THE GRAY(T) PRETENDER

During the hot and humid "dog days" of June, July, and August, you might hear a lilting trill from high in a tree, or deep amidst a shrubby thicket. The first image that comes to mind is that of a bird, perhaps a Red-bellied Woodpecker, a well-known triller. But this summer singer reaches the heights of the tree canopy not with wings, but with sticky toepads. It is the Gray Treefrog (*Hyla versicolor*), one of NYC's success stories.



Gray Treefrog

Once extirpated from all except a few parks in Queens and Staten Island, the Gray Treefrog has been successfully reintroduced into Pelham Bay Park, Jamaica Bay National Wildlife Refuge, and the Greenbelt. Other species of amphibians such as the Wood Frog (*Lithobates [Rana] sylvatica*) and the Spotted Salamander (*Ambystoma maculatum*) have had only limited success at reestablishing populations.

To what does the Gray Treefrog owe its success? Perhaps its affinity for suburban landscapes; it is known to breed in abandoned swimming pools in residential neighborhoods, as long as there are shrubs and tall trees close by. Perhaps its large suite of anti-predator defenses: In past times this species was also known as the "Chameleon Hyla" and its scientific name "versicolor" means varying in color. The Gray Treefrog is normally a light gray with darker lines and splotches, resembling the lichen-covered tree bark on which it often rests. However, it can change its color from light to dark gray and even greenish. It is an accomplished ventriloquist, and you would be hard-pressed to find one calling from among dense brush. If you find one despite these defenses, it displays an orange "flash" pattern on its thighs when it springs from its perch. This coloration is thought to startle the predator, perhaps giving the frog the second it needs to escape.

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The Gray Treefrog's young are similarly protected. Fish are the nemesis of frog eggs and tadpoles. Experiments have shown that Gray Treefrog females can smell fish in a pond, and they will not lay their eggs there given an alternative, fish-free pond. When the tadpoles hatch, they are further protected from predation by their tail "flag", an orange tail-tip that distracts the predator or may cause it to strike at the expendable tail, not the vital head.

Whatever the reasons for its success in NYC, hearing one on a summer afternoon, long after many frogs have ceased calling, is an experience that brightens a dreary, hot, humid day. We hope it will continue its song long into the future and spread its joy into more New York natural areas.

~by Ellen Pehek, Ph.D.
Senior Ecologist



Young Gray Treefrog camouflaged on green leaf

DRAGONFLIES & DAMSELFLIES

Visit any city pond or lake during the warmer months and you are sure to see the acrobatics of brightly-colored dragonflies and damselflies. Both belong to the order Odonata, although there are a number of visible differences between dragonflies and damselflies. Dragonflies are generally larger with thicker bodies, are strong fliers, have eyes that touch, and perch with their wings open. Damselflies are usually slimmer and smaller, are weak fliers, have eyes that do not touch, and perch with their wings closed.

However, despite these differences, dragonflies and damselflies have similar lifestyles. These aerial aces utilize the city's waterbodies in all life stages, from egg to adult. Adult females deposit eggs in the water or insert them into aquatic vegetation. Once hatched, larvae remain underwater using gills for respiration. In order to escape predators, larvae can expel water rapidly through abdominal gills, a kind of jet propulsion. They are effective predators using

a unique folding lower lip, or labium, to capture prey. They eat aquatic insects, small fish, and amphibians. When it is time to undergo metamorphosis into the adult form, larvae crawl out of the water onto the bank or nearby vegetation. A split forms along the back of the larval exoskeleton and the soft-bodied adult emerges. The body and wings of the insect expand as blood circulates through the body. In a few days the body of the odonate hardens and darkens in color. The shed exoskeleton, or exuvium, can often be found still clinging to grasses and shrubs after emergence. The lives of adults are brief, usually lasting only a few months. These mature odonates remain near the water where they can be seen foraging, guarding territories, and mating.



Damselfly (Ebony jewelwing)

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Both adult dragonflies and damselflies eat mosquitoes, gnats, and other small insects, helping to control the populations of these pests. Many odonates are active when the sunlight is strongest, during the late morning and early afternoon. However, some are active closer to dusk when biting insects can be abundant. Prey is caught directly in the mouth or trapped in the legs. Damselflies have even been witnessed trying to steal prey caught in spider webs.



Dragonfly (Calico Pennant)

Odonate reproduction can frequently be observed at the water's edge. Males of many species guard territories, fending off other males that can threaten their chances at obtaining a mate. They can be seen flying along the borders of these territories, making large oval loops, or sometimes they keep watch from a perch, such as a twig or grass blade over the water, flying out to confront any challengers. Males are usually brightly colored, while the dull colors of the females help camouflage them in the vegetation where they spend much of their time. When ready, females will come to the pond and choose a mate. Copulation takes place in a wheel position, where the male holds the female behind the head with claspers, and she bends her abdomen forward to meet the male's underside. Afterwards, the female lays eggs while the male either continues to hold her or guards her by hovering close by.

Dragonflies and damselflies are appreciated in many countries around the world, and field guides are now readily available in the United States. The Wildlife Ecologists at the Natural Resources Group collect data on New York City's odonates and contribute this information to the New York State Dragonfly and Damselfly Survey. A few places in the city to see odonates include the lakes and ponds in Van Cortlandt Park in the Bronx, Central Park in Manhattan, Blue Heron Park in Staten Island, Forest Park in Queens, and Prospect Park in Brooklyn. In addition, the Prospect Park Audubon Center has exhibits and programming on dragonflies and damselflies.

~by Susan Stanley
Research Ecologist