

C Mass Audubon *Protecting the Nature of Massachusetts* Connections

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A NEWSLETTER FOR THE MEMBERS OF MASS AUDUBON

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Mass Audubon works to protect the nature of Massachusetts for people and wildlife. Together with more than 100,000 members, we care for 33,000 acres of conservation land, provide educational programs for 200,000 children and adults annually, and advocate for sound environmental policies at local, state, and federal levels. Mass Audubon's mission and actions have expanded since our beginning in 1896 when our founders set out to stop the slaughter of birds for use on women's fashions. Today we are the largest conservation organization in New England. Our statewide network of 45 wildlife sanctuaries welcomes visitors of all ages and serves as the base for our conservation, education, and advocacy work. To support these important efforts, call 800-AUDUBON (283-8266) or visit www.massaudubon.org.

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Learning to Love Ants

by Chris Leahy, Gerard A. Bertrand Chair of Natural History
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“To dream of ants denotes that you will live in a great town or city, or in a large family, and that you will be industrious, happy, well-married and have a large family.”


—*The Royal Dream Book*, a nineteenth-century English North Country chapbook




The ambivalence with which people regard very small, crawly (though fascinating and beneficial) animals finds its perfect balance in the ants. In the abstract, we bask in the industry and order of ant societies as supposedly reflecting our own ideals. And this is not just a frivolous notion received in childhood from Aesop. The renowned myrmecologists (ant scientists) Edward O. Wilson and Bert Hölldobler state with unimpeachable authority that the ants “represent the culmination of insect evolution, in the same sense that human beings represent the summit of vertebrate evolution.” *And yet*, when a platoon of *actual* ants appears on the kitchen counter to helpfully recycle some leftovers or undertakes to remove quantities of wet wood from a load-bearing beam in the den, even those of us with true biophilic feelings toward insects tend to feel invaded by an alien army and have to suppress an urge to counterattack.

So perhaps the fact that Mass Audubon chose ants over a group of insects with better PR—say, butterflies—to monitor as key ecological indicators on our sanctuary system requires a little explanation.

A major goal of Mass Audubon's Conservation Science Division is to create within our sanctuary system a monitoring program that will allow us to measure the ecological integrity, as it were, of our Commonwealth. By paying close attention to the fortunes of a wide range of organisms over time according to sound scientific protocols, we can perceive changes—as a result of global warming, for example—and assess the impact of these changes, not only on the ecosystems we are bound by our mission to conserve but also on our own well-being. Crucial to effective monitoring is choosing the right groups of organisms to study. They should be common, widespread, and easy to sample. They should occur in a wide spectrum of habitats and play a role in a variety of ecological niches. They should not contain so many species as to overwhelm the would-be monitors (the inordinately diverse beetles were rejected for this reason). Of the groups we ultimately picked to thoroughly survey and monitor—plants, birds, herps (reptiles & amphibians), odonates, and ants—the last probably meet these criteria best.



Ants are: 


- **Abundant**—roughly equivalent in dry weight to the human population and representing 20 to 30 percent of the total animal biomass in many ecosystems;
- **Everywhere**—occurring in virtually all terrestrial habitats as well as some aquatic ones; 
- **Versatile**—Serving as ecological players with major roles as predators, scavengers, and herbivores;
- **Influential**—the world’s prime earth movers (at least equal to earthworms in this region); 
- **Reliable**—their colonies tend to be stable for long periods;
- **Sensitive to environmental changes**—making them excellent ecological indicators; and
- **Not dauntingly diverse**—with only about 100 species known in Massachusetts. 

Having identified ants as the ideal insect family to monitor, we teamed up with Aaron Ellison, senior ecologist at the Harvard Forest, who was in the process of organizing a statewide ant survey and looking for organizations with ecologically diverse land holdings spread across the Commonwealth.

In the first (2007) season of fieldwork, Ellison and his intrepid intern myrmidons, Mark Johnston from Wheaton College, Illinois, and Kelly McBride from the University of Vermont, sampled 20 Mass Audubon properties—from the islands to the Berkshires—and recorded a total of 62 species of ants. Of our sanctuaries, Laughing Brook in Hampden took the Gold in ant diversity with 15 species discovered along the shores of Smiling Pool, according to Southeastern Regional Scientist Robert Buchsbaum, who coordinates Mass Audubon’s ant work. Other notably ant-rich habitats found on our sanctuaries include the red maple swamp at Moose Hill in Sharon and the sandplain grassland at Wellfleet Bay. It should also be mentioned here that Becky Harris and Ellen Jedrey, director and assistant



director of our Coastal Waterbird Program, noticed possible predation by the so-called Cornfield ant on tern chicks, a phenomenon that has never been reported in the scientific literature.

Such discoveries underscore another aspect of the ant world that make them irresistible (as subjects of research if not picnic companions). Robert Buchsbaum once asked Aaron Ellison if he had found any ants that were especially interesting on our sanctuaries. Aaron paused and then replied patiently with a touch of pity: “Robert, *all* ants are interesting.” 


And in fact, this is more accurate than not. Consider, for example, that certain species of ants protect the sluglike larvae of some butterflies (species of blues in the family Lycaenidae), even carrying the caterpillars into their nest chamber, in return for which the ants feed on the sugar-rich “honeydew” excreted by the larvae. Other ants “herd” aphids like livestock and subsist mainly on

aphid honeydew. Such “mutualistic” relationships also exist between ants and acacia trees: the ants live in the acacias’ large thorns and protect the plants from herbivores, and the acacias produce “food bodies” for the ants’ consumption. The leafcutter ants of the New World Tropics are sophisticated agriculturalists, defoliating entire trees, carrying pieces of leaves underground into their cavernous nests, chewing the leaves into a spongy mass on which they grow their food—a type of fungus.

But it is perhaps the eerie similarity of ant and human societies that fascinate us most. Ants, after all, are insects that care for their young, live in multigenerational dwellings, and, as noted, cultivate gardens and keep livestock. Less flattering—to them and us—they also maintain a strict caste system, keep slaves, and in many species exist in a continual state of war with their own and other species.


Ants You May Already Know (and Love?)

Sugar ant (aka odorous house ant) (*Tapinoma sessile*).

Tiny. Common and widespread in a variety of habitats, including beaches, fields, and houses. Gives off smell of rotten coconut. 

***Aphaenogaster rudis*.** The ant found most commonly in our Massachusetts surveys, it inhabits forests, grasslands, rocky areas, and other habitats. A great seed disperser, upon which many of our spring ephemeral wildflowers depend. Seed dispersal is one of the major ecosystem services ants provide.

This is just the tip of the ant hill. To burrow down for information about other common ants found in Massachusetts (know which ant gives off an odor of banana oil?), a list of resources, and the project’s goals, visit:

 www.massaudubon.org/ants