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By: Tudor Raiciu, Technology and Science Editor



## [Amazonian Devil's Gardens Were Made by Ants](#)

### *Myrmelachista schumanni*

For the first time, scientists have identified an ant species that produces its own natural herbicide to poison unwanted plants. Stanford University biologist Deborah M. Gordon and her co-workers describe the findings in the Sept. 22 issue of the journal Nature. The discovery was made during a four-year field study led by Stanford graduate student Megan E. Frederickson in the Amazon jungle of western Peru. The research focused on devil's gardens, mysterious tracts of vegetation that randomly appear in the Amazonian rainforest. "Devil's gardens are large stands of trees in the Amazonian rainforest that consist almost entirely of a single species, *Duroia hirsuta*, and, according to local legend, are cultivated by an evil forest spirit," write Frederickson and her colleagues in Nature. "Here we show that the ant, *Myrmelachista schumanni*, which nests in *D. hirsuta* stems, creates devil's gardens by poisoning all plants except its hosts with formic acid. By killing other plants, *M. schumanni* provides its colonies with abundant nest sites--a long-lasting benefit, as colonies can live for 800 years." Most tropical rainforests are densely populated with a remarkable diversity of trees, vines, shrubs and wildflowers. But devil's gardens usually consist of a single plant, *D. hirsuta*, which happens to be the preferred habitat of the devil's garden ant, *M. schumanni*. In addition to the evil-spirit legend, two scientific proposals have been offered to explain why devil's gardens occur. One hypothesis is that *D. hirsuta* trees release toxic secretions that kill competing plants--a process botanists call allelopathy. Others argue that devil's garden ants are responsible for controlling vegetation, either by extensive pruning or poisoning. "The idea is that by killing other plants, the insects create a space for young *D. hirsuta* saplings to grow, thereby allowing the ant colony to expand as it occupies new nesting sites in the saplings," Frederickson explains. To test this hypothesis, she and her colleagues conducted a series of experiments at the Madre Selva Biological Station in the Amazonian rainforest of Loreto, Peru. The research team located 10 devil's gardens for the study, ranging in size from one to 328 *D. hirsuta* plants. Two saplings of a common Amazonian tree called *Cedrela odorata*, or Spanish cedar, were planted inside each garden near the base of a *D. hirsuta* tree actively patrolled by worker ants. A sticky insect barrier was applied to one cedar sapling to exclude ants, while the other sapling was left untreated. The researchers planted two additional saplings--one treated, one untreated--about 150 feet outside of each garden but within the primary rainforest. The results were immediate. Worker ants promptly attacked the untreated saplings, injecting a poison called formic acid into the leaves, which began to die within 24 hours. "Most of the leaves on these saplings were lost within five days, and the proportion lost was significantly higher than on ant-excluded saplings," the authors write. On the other hand, cedars treated with Tanglefoot fared well, whether inside or outside devil's gardens. "These results show that devil's gardens are produced by *M. schumanni* workers rather than by *D. hirsuta* allelopathy," the authors conclude. This week, Softpedia would like to know your opinion on gaming consoles. What is your favorite console you either own or you are planning to buy? Are you an Xbox fan or a Playstation fan? Has Xbox360 convinced you it's time to buy one? Or you'll wait for the PS3? [Express your opinion here.](#)