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HONEY BEE PARASITES AND UNDERTAKING BEHAVIOUR

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European honey bees live in closed colonies with many other bees that they are closely related to, so they may all have similar vulnerability to diseases. Also, nests have constant high temperatures and humidity that are ideal conditions for microbes to grow, making disease prevention a necessity. Undertakers are a specialist group of honey bee workers that remove dead bees from the hive, presumably to restrict the spread of pathogens. *Nosema ceranae* is a fungal parasite of the European



honey bee, and is a serious threat to hive health. The first objective of this study was to test if undertakers distinguished among dead bees with different intensities of *Nosema* infection. The second objective was to test if undertakers treated dead bees consistently in experimentally-provoked consecutive removals. Dead bee traps (2 m x 1 m wooden frames with a screen bottom) were used to collect dead bees. We recorded distances at which dead bees were dropped from a hive (drop distance), redeployed them after they had been uniquely marked with paint or string in a second hive, and again recorded drop distances. *N. ceranae* parasite levels were measured in recovered dead bees. There was no significant relationship between drop distance and *N. ceranae* intensity. There was also no significant relationship between the initial and second drop distance of dead bees experimentally re-introduced to hives. These results suggest that undertaking is not pathogen-driven. However, observations suggest a new hypothesis that drop distance depends on how dead bees are carried and whether they get tangled with undertakers. This could be investigated by observing and manipulating how undertakers grasp dead bees, how undertakers drop dead bees, and how undertakers become tangled with dead bees.

Megan Colwell graduated from Prince Andrew High School in Dartmouth, Nova Scotia in 2006. Megan is currently completing her Honours thesis in her fourth year of Biology at Acadia. She received an Honours Student Research Award grant to fund her Honours summer work. Megan was a member of the Acadia University Women's Rugby team for four years playing as an Academic All-Canadian. In her last year she was co-captain of the team and was vice-president of the club. She was also a member of the Acadia Player's Association for 2008-2010. Megan was involved with Acadia's Relay For Life, and was a team captain in her last two years. During her last year at Acadia she also participated in the planning and promotion of the first annual Biology Banquet at Acadia. Megan plans on beginning research for her Master's degree at Acadia University this summer, studying honey bee behaviour and nutrition.

