

What's Happening in... Biosciences

Researchers in LEC link the environment with honey bee diets

Researchers at Lancaster Environment Centre worked with the British Beekeepers Association to examine the link between honey bee nutrition and the composition of the environment. They found that the quality of pollinator nutrition is dependent on floral resources (i.e., nectar and pollen), and that these are linked to landscape composition, which may have important impacts for our pollinator health.

Honeybees forage on flowering plants utilising pollen and nectar to meet their nutritional requirements for amino acids, vitamins minerals, proteins, and carbohydrates. However, not all flowering plants offer the same amounts or blends of nutrients.

In the same way as how nectar is converted to honey in the hive, pollen is converted to "beebread", which is fed to infant bees. As part of his PhD research project, Dr Philip Donkersley analysed the composition of 'beebread' in different hives and tested its nutritional value throughout the summers of 2012 and 2013.

By combining these data with extensive land-use data generated by Countryside Survey (2007), they found that beebread protein content was lower in areas where arable and horticultural farmland surrounded the hives, but beebread found in hives near natural grasslands and broadleaf woodlands had higher protein levels.

These results have significant implications for our understanding of honey bee decline, as it is understood that bee larvae with lower dietary protein intake may not live as long and may have reduced immune function. This study shows a clear link between landscape and the nutritional ecology of these important pollinators.

Philip completed his PhD in 2014 and was supervised in his PhD by Professor Ken Wilson (LEC), Professor Roger Pickup (BLS), Dr Glenn Rhodes (CEH) and Professor Kevin Jones (LEC).

For more details about the Biology and Biological Sciences degrees at Lancaster University please contact the Biology Admissions Staff: -

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