

infected individuals carry the same single B-group *Wolbachia* infection, that the infection is associated with at least five closely related host mtDNA haplotypes, and that infected and uninfected individuals may share the same haplotype. We discuss possible implications of *Wolbachia* infection in this invasive species.

#### **437 - THERMOREGULATORY BROOD TRANSPORT IN THE FIRE ANT, SOLENOPSIS INVICTA**

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Only a minority of ant species build true mounds (i.e., above ground mounds with a network of livable galleries). The primary use of these mounds is thermoregulation, which is especially important to brood (larvae and pupae) rearing. Fire ants (*Solenopsis invicta*) move their brood into the mound on the side (usually the south side) that receives the most direct sunlight following sunrise. As temperatures rise above optimal (~32° C) they move their brood lower in the nest to cooler regions. Here we focused on two aspects of fire ant thermoregulation: 1) the general patterns of heating and cooling in the nest, and 2) what factors govern where and when fire ants place their brood in the mound. Specifically, we manipulated field conditions to separate a response to temperature from behavioral habit or circadian rhythm.

#### **438 - FLORAL PREFERENCES OF THE BUMBLEBEES (HYMENOPTERA, APOIDEA, BOMBUS LATREILLE) OR HOW THE AGRI-ENVIRONMENTAL MEASURES CAN BE USED TO SUSTAIN THE THREATENED SPECIES OF POLLINATORS**

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In Belgium as in a great part of Europe, the abundance and biodiversity of the long tongued wild bees, and especially the bumblebees, are strongly degraded. Some species are now locally extinct. The European Community has developed a financial support program for farmers whom contribute to the quality of the environment by using agri-environmental measures. In Belgium, one of those measures, so called "managed field margins", is intended to put the wild fauna and the wild flora up. The plant species sown on these margins have the roles to be used as shelter, passage or food resources to wild fauna. We see here the occasion to propose the choice of sowings those margins in order to support the threatened species of pollinators. In order to identify the floral preferences of the bumblebees, we used the data bank of Gembloux and Mons that is rich of almost 60,000 observations of visited flowers for the only species of bumblebees present in France and Belgium. We note that the floral preferences of the males and the females are different and must be both taken into account. While selecting among the list of the plants preferred by the bumblebees, those which are susceptible to be sown on the field margins, the following plant species seem to be the best candidates to sustain an abundant and diversified population of bumblebees: *Trifolium pratense*, *Lamium album*, *Vicia cracca*, *Brassica napus* and *Echium vulgare* for the females and *Epilobium angustifolium*, thistles (*Carduus* sp., *Centaurea* sp. and *Cirsium* sp.) and *Eryngium* sp. for the males.

#### **439 - POPULATION GENETICS OF ZOOTHERMOPSIS NEVADENSIS I: POPULATION AND BREEDING STRUCTURE AND COLONY COMPOSITION**

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Explaining eusociality in termites has proved problematic due, in part, to a lack of empirical evidence supporting current theories of termite eusociality and limited knowledge concerning evolutionary changes in termite breeding structure. One way to address this is by studying the breeding and colony genetic structure of basal termite species. To this end, we performed a comparative population genetics study of two basal termite subspecies, *Z. n. nevadensis* and *Z. n. nuttingi*. The two subspecies displayed fixed sequence differences in the mitochondrial cytochrome oxidase subunit I gene. Twelve polymorphic microsatellite loci were then used to investigate subspecies-specific genetic differences and characterize the breeding and colony structures of the two subspecies. No one microsatellite locus showed fixed subspecies-specific differences; however, a cluster analysis using all