

OR259

Follow the streakers - in flight decision-making by honeybees

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During the spring, honeybee colonies issue reproductive swarms that go on to form new colonies. A small proportion of the swarm, the scouts, explores the local surroundings to find and assess potential sites for a new home. The location and quality of suitable sites are communicated to other decision making scouts with waggle dances. Once a new home is chosen, knowledgeable scouts have the additional task of guiding naive members of the swarm to the new nest site. It is generally thought that the knowledgeable scouts guide the swarm by flying rapidly through the upper portion of the swarm in the direction of their target (streaking) before dropping down to the lower sections of the swarm, flying slowly to the trailing edge of the swarm and then returning to the top of the swarm to streak again. The level of agreement amongst scouts on the swarm's ultimate destination, reflected by the locations advertised by waggle dances in the final period before take-off, seems to vary between honeybee species. Swarms of the cavity-nesting *Apis mellifera* often show complete agreement on their final destination. In contrast the open-nesting *A. florea* seemingly advertise multiple sites in the final minutes before take-off. If it is assumed that swarm guidance is the same for all species and that scouts will try to guide the swarm in the direction of their own preferred nest-site then a 'decision' on the ultimate direction of the motion of the group could be made by the swarm in-flight, governed by the individual level interactions of members of the swarm. I will use a well-established individual based model for collective animal motion to examine how dissent amongst scouts on a preferred home might affect a swarm's final destination.