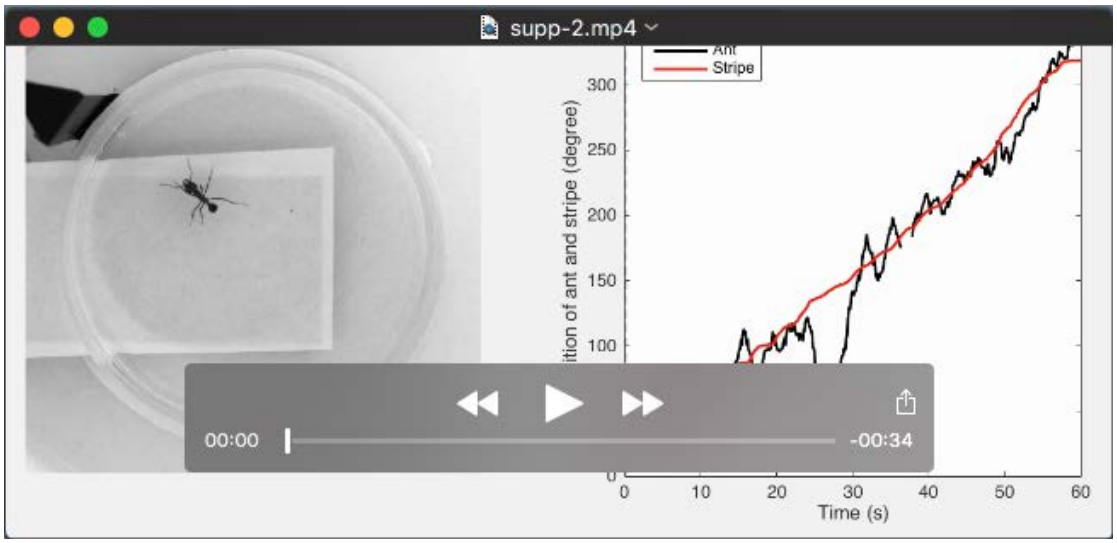
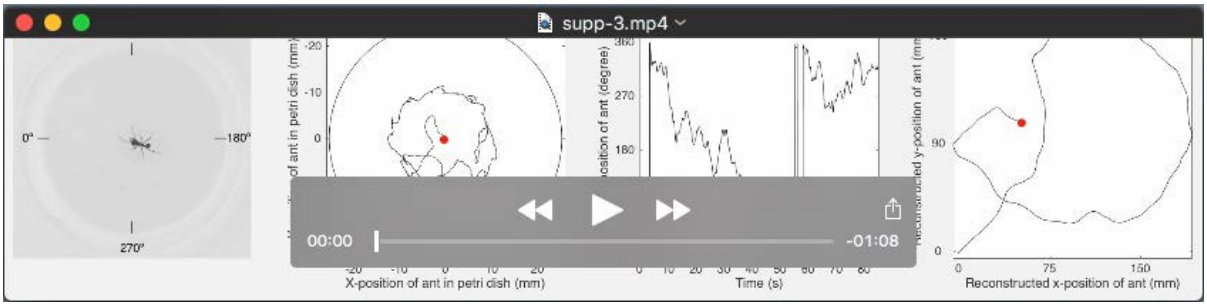


Movie S1

The water surface of a petri dish was used as a treadmill for Acromyrmex lundii worker ants. The surface tension supported medium-sized workers but the slippery surface together with the concave meniscus prevented the ants from reaching the wall of the vessel (first and second graphs showing the video image and the XY-position of the tracked position in the petri dish). In the absence of any visual cues, ants showed an innate bias to turn counter-clockwise (angular position of ant, third graph from left). By adding the slipped steps of the front limbs to the ant's position, the effectively walked path was reconstructed which revealed a looping pattern (right-most graph).



Movie S2

The water surface of a petri dish was used as a treadmill for Acromyrmex lundii worker ants. A single vertical black strip was provided as a visual cue which was slowly moved around the petri dish. The angular position of the ant and stripe are shown in the right-hand graph. The ant exhibited directed movement towards the strip which indicates that visual cues are recognised by this species. Visual cues are probably an important fallback option when chemical cues are absent.