

Table S1. The parameterisations of nest re-discovery probabilities, using empirically-derived ant search patterns in Net Logo simulations.

	Case 1: Good nest far, poor nest near [1]	Case 2: Two equidistant nests [2]	Case 3: Three equidistant nests (new experiment)																																																									
Arena shape and dimensions	Rectangle: 180 x 1800 mm	Rectangle: 750 x 430 mm	Circle: radius 500 mm																																																									
Positions of entrance to each nest (as mm grid coordinates with old nest at origin)	Old = (0,0) A = (0, 300) B = (0, 1200)	Old: (0,0) A: (340, 300) B: (-340, 300)	Old= (0,0) A= (0, 386) B= (334, -193) C= (-334, -193)																																																									
Nest entrances orientation	Old: 0° A: 180° B: 180°	Old: 0° A: 180° B: 180°	Old: Random ¹ A: 180° B: 300° C: 60°																																																									
Probabilities of finding nests (from column to row)	<table style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>Old</td><td>A</td><td>B</td></tr> <tr><td>Old</td><td>{0.91</td><td>0.15</td><td>0.03}</td></tr> <tr><td>A</td><td>{0.06</td><td>0.80</td><td>0.06}</td></tr> <tr><td>B</td><td>{0.03</td><td>0.05</td><td>0.91}</td></tr> </table>		Old	A	B	Old	{0.91	0.15	0.03}	A	{0.06	0.80	0.06}	B	{0.03	0.05	0.91}	<table style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>Old</td><td>A</td><td>B</td></tr> <tr><td>Old</td><td>{0.70</td><td>0.15</td><td>0.15}</td></tr> <tr><td>A</td><td>{0.15</td><td>0.70</td><td>0.15}</td></tr> <tr><td>B</td><td>{0.15</td><td>0.15</td><td>0.70}</td></tr> </table>		Old	A	B	Old	{0.70	0.15	0.15}	A	{0.15	0.70	0.15}	B	{0.15	0.15	0.70}	<table style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>Old</td><td>A</td><td>B</td><td>C</td></tr> <tr><td>Old</td><td>{0.76</td><td>0.08</td><td>0.08</td><td>0.08}</td></tr> <tr><td>A</td><td>{0.08</td><td>0.82</td><td>0.05</td><td>0.05}</td></tr> <tr><td>B</td><td>{0.08</td><td>0.05</td><td>0.82</td><td>0.05}</td></tr> <tr><td>C</td><td>{0.08</td><td>0.05</td><td>0.05</td><td>0.82}</td></tr> </table>		Old	A	B	C	Old	{0.76	0.08	0.08	0.08}	A	{0.08	0.82	0.05	0.05}	B	{0.08	0.05	0.82	0.05}	C	{0.08	0.05	0.05	0.82}
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1. Robinson, E. J. H., Smith, F. D., Sullivan, K. M. E. & Franks, N. R. 2009 “Do ants make direct comparisons?” Proc. R. Soc. Lond. B. 276, 2635-2641. (doi:10.1098/rspb.2009.0350)

2. Mallon, E. B., Pratt, S. C. & Franks, N. R. 2001 “Individual and collective decision-making during nest site selection by the ant *Leptothorax albipennis*.” Behav. Ecol. Sociobiol. 50, 352-359. (doi:10.1007/s002650100377)

¹ This nest had a central exit in the roof, so no bias in direction of leaving would be introduced