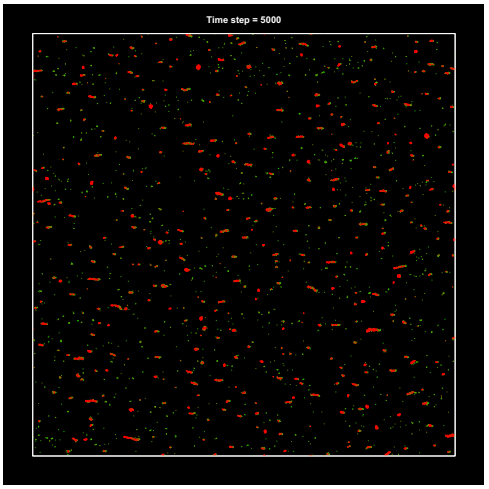
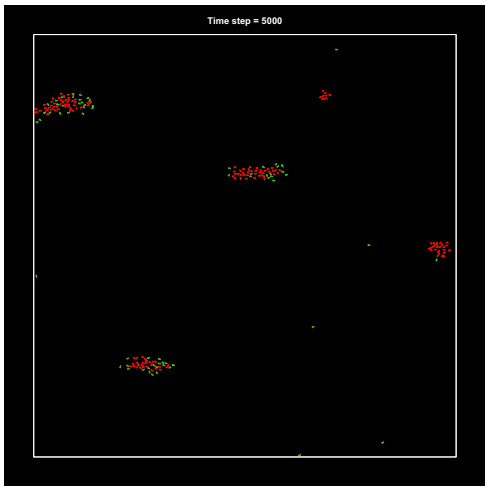
Supporting Information

Guttal and Couzin 10.1073/pnas.1006874107



Movie S1. The spatiotemporal dynamics of the evolved population of Fig. 1 consisting of 16,384 individuals. Individuals are represented by small triangles and the color of each triangle represents its gradient detection ability, ω_{gi} with red being no or very weak ω_{gi} and green representing individuals with strong ω_{gi}, i.e., leaders (see the title page of the video for the color scale). At the beginning of the video ($t = 0$) individuals are assigned their evolved sociality-trait, ω_{si} obtained from simulations of Fig. 1 but their gradient detection ability is set to zero, $\omega_{gi} = 0$. During a transient phase of $t = \omega_{tr} = 2{,}000$ time steps, individuals are locally attracted to others and form aggregations. At the end of the transient phase, we switch on individual's evolved gradient detection ability, ω_{gi}. Individuals in the leader mode of the evolved state have higher ω_{gi} and therefore colors of triangles representing those individuals now appear green. This population consisting of leaders and social individuals perform fission–fusion dynamics and performs collective migration. Therefore we have labeled this part of the video (after $t > 2{,}000$) as the migratory phase.

Movie S1



Movie S2. See legend for Movie S1, but the video zooms into a certain small portion of the space to observe dynamics occurring at the individual and group levels.

Movie S2

Other Supporting Information Files

SI Appendix (PDF)