

# Themed issue lays foundation for emerging field of collective movement ecology

March 26 2018

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On land, in air, and through water, many species of animals move together in groups. Thundering herds of wildebeest migrate across the Serengeti; murmurations of starlings move as if one to avoid hawks; and pods of dolphins work together to hunt schools of sardines. Collective movement is one of the great natural wonders on Earth and has long captured our imaginations. But there's a lot we don't understand about how collective movement drives—and is driven by—broader ecological and evolutionary processes.

In a special themed issue in *Philosophical Transactions of the Royal Society B*, Andrew Berdahl (Santa Fe Institute), Colin Torney (University of Glasgow), Dora Biro (Oxford University) and Peter Westley (University of Alaska Fairbanks), have gathered together contributions from a range of researchers working in the emerging field of collective [movement](#) ecology, which is poised to dive into some of these outstanding questions.

The themed issue came about as part of an SFI working group, and explores four interconnected themes: technological advances; linking individual to collective movement; linking collective movement to ecological and [evolutionary processes](#); and the implications of understanding such processes for species conservation and management.

Collective movement ecology merges two separate but related fields. The first—movement ecology—explores both the drivers of individual animal movements, and how those movements influence other ecological

processes. The second—collective animal behavior—largely relies on lab-based studies and simulations to understand how social interactions influence animal decision-making in groups.

"It is a very exciting time: movement ecology is increasingly considering the social context of movement decisions; and [collective behaviour](#) is being integrated with ecology and evolution" says Berdahl. "Meanwhile, new technologies are allowing us to put all of these ideas together with data from real animal groups moving in the wild."

Beyond fundamental fascination, collective movement [ecology](#) is poised to inform pressing issues of conservation and management of [animals](#) on the move. According to Westley, "Knowledge that individuals move in groups has long been used by local harvesters, fishermen, and natural resource managers, but the new insights emerging from our work will help catalyze the incorporation of social dynamics into conservation decision-making."

Provided by Santa Fe Institute

Citation: Themed issue lays foundation for emerging field of collective movement ecology (2018, March 26) retrieved 23 April 2024 from <https://phys.org/news/2018-03-themed-issue-foundation-emerging-field.html>

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