



# NATURE



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## **THIRTEEN's *Nature* Profiles**

### ***The Gathering Swarms***

**Wednesday, May 21, 2014 on PBS**

*Lineup includes bees, bats, cicadas, desert locusts, emperor penguins, mayflies*

It is quite a spectacle when animals come together in inconceivable numbers: sometimes in the millions, billions, and even trillions. When swarms gather, a kind of super-organism is created in which individual intelligence is superseded by a collective consciousness that shares information and moves with a single purpose for the benefit of all. This behavior applies to a number of creatures that form these great gatherings for a variety of reasons: to breed, migrate, find food, and even to protect themselves.

Using high-speed camera techniques, ***The Gathering Swarms*** captures these world-wide displays and explains why they occur. The documentary airs Wednesday, May 21 at 8 p.m. (ET) on PBS (check local listings). After the broadcast, the episode will be available for online streaming at [pbs.org/nature](http://pbs.org/nature).

***The Gathering Swarms*** provides many examples of swarm intelligence such as what prompts emperor penguins to start huddling. As the only creatures on earth to breed in the Antarctic winter, their survival, as well as those of their chicks, is put in jeopardy when the

temperature falls to 40 below. So, instinctively, emperor penguins all converge on the same central point and begin to form a huddle. As those on the outside take the brunt of the cold, those on the inside take tiny steps that move the huddle in waves. The pack continues to shift and rotate from the center, so no one is left permanently in the cold. The formation often breaks down when those on the inside overheat, at which point the coldest penguins, which were on the outside, form a new center as the other members of the colony huddle around them.

Bees create swarms when they are house hunting. A scout bee is sent out to find a new cavity large enough to house the whole hive. Once she has measured and inspected the new accommodations, the scout returns to let the swarm know its location using a “waggle dance.” An advance party follows her to check it out, hold a “committee meeting,” and somehow arrive at a consensus. Then the scouting party signals the entire colony that it’s time to move, and tens of thousands of bees take to the air as one to make their way to their new home. The whole process is an example of highly-developed collective decision-making.

Like many birds, fish school together on the principal that it is better to be part of a crowd when finding food or facing predators. Travelling up the coast of South Africa, sardines are part of the greatest fish migration on earth. Their ability to simultaneously move as one relies on a pressure sense that runs along their bodies detecting the movements of their nearest neighbor. This “lateral line” also detects predators like sharks, dolphins and flocks of cape gannets. Although sardines try to fend off attacks by staying deep and keeping the school together, some assaults can break up the super-shoal into smaller, more vulnerable target groups. But they will try to rejoin the master shoal as soon as possible, benefiting once more from the collective intelligence of the swarm.

**Nature** is a production of THIRTEEN Productions LLC for WNET. For **Nature**, Fred Kaufman is executive producer. **The Gathering Swarms** is a production of John Downer Productions for THIRTEEN Productions LLC and BBC in association with WNET.

**Nature** pioneered a television genre that is now widely emulated in the broadcast industry. Throughout its history, **Nature** has brought the natural world to millions of viewers. The series has been consistently among the most-watched primetime series on public television.

**Nature** has won over 700 honors from the television industry, the international wildlife film communities and environmental organizations, including 12 Emmys and three Peabodys. The series received two of wildlife film industry’s highest honors: the Christopher Parsons Outstanding Achievement Award given by the Wildscreen Festival and the Grand Teton Award given by the Jackson Hole Wildlife Film Festival. Recently, the International Wildlife Film Festival honored **Nature** executive producer Fred Kaufman with its Lifetime Achievement Award for Media.

[PBS.org/nature](http://PBS.org/nature) is the award-winning web companion to **Nature**, featuring streaming episodes, filmmaker interviews, teacher's guides and more.

Support for this **Nature** program was made possible in part by the Arnhold Family in memory of Clarisse Arnhold, the Lillian Goldman Charitable Trust, the Filomen M. D'Agostino Foundation, by the Corporation for Public Broadcasting and by the nation's public television stations.

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#### **About WNET**

As New York's flagship public media provider and the parent company of [THIRTEEN](#) and [WLIW21](#) and operator of [NJTV](#), WNET brings quality arts, education and public affairs programming to over 5 million viewers each week. WNET produces and presents such acclaimed PBS series as [Nature](#), [Great Performances](#), [American Masters](#), [PBS NewsHour Weekend](#), [Charlie Rose](#) and a range of documentaries, children's programs, and local news and cultural offerings available on air and online. Pioneers in educational programming, WNET has created such groundbreaking series as [Get the Math](#), [Oh Noah!](#) and [Cyberchase](#) and provides tools for educators that bring compelling content to life in the classroom and at home. WNET highlights the tri-state's unique culture and diverse communities through [NYC-ARTS](#), [Reel 13](#), [NJTV News with Mike Schneider](#) and [MetroFocus](#), the multi-platform news magazine focusing on the New York region. WNET is also a leader in connecting with viewers on emerging platforms, including the [THIRTEEN Explore iPad App](#) where users can stream PBS content for free.

#### **About "Think Wednesday"**

**The Gathering Swarms** is part of PBS' new "Think Wednesday" programming lineup of television's best science, nature and technology programming that includes the acclaimed series NATURE and NOVA, the highest-rated nature and science series on television, coupled with new special programming at 10 p.m. Wednesday nights on PBS offer new perspectives on life in the universe and keep viewers both curious and wanting more.