Foraging on the move
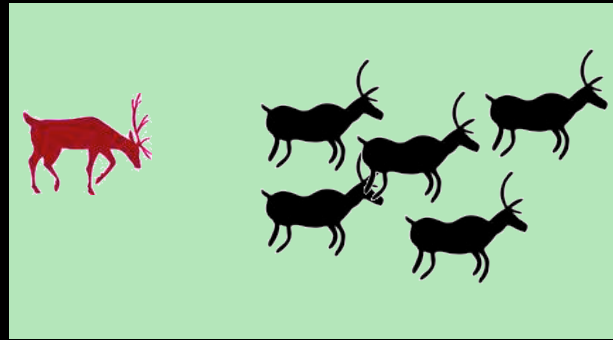

Planet Earth

Allison Shaw
Andrew Berdahl
Kate Behrman
Liliana Salvador
Steven Lade
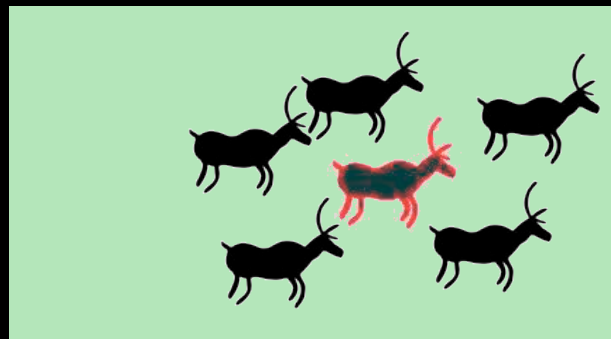
SFI Complex Systems Summer School 2009

Foraging vs Flocking

Forage
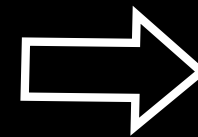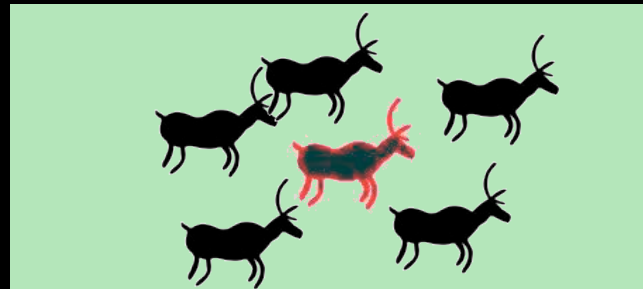
- gain energy
- predation risk increases

Flock

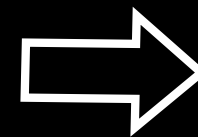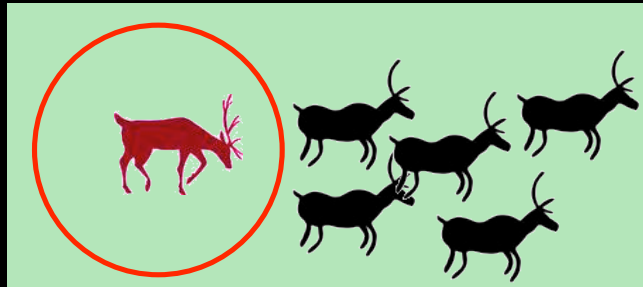- decrease predation risk
- lose energy

Model

Decision Rules: individuals have thresholds for switching behaviors

When energy is too low…

Energy

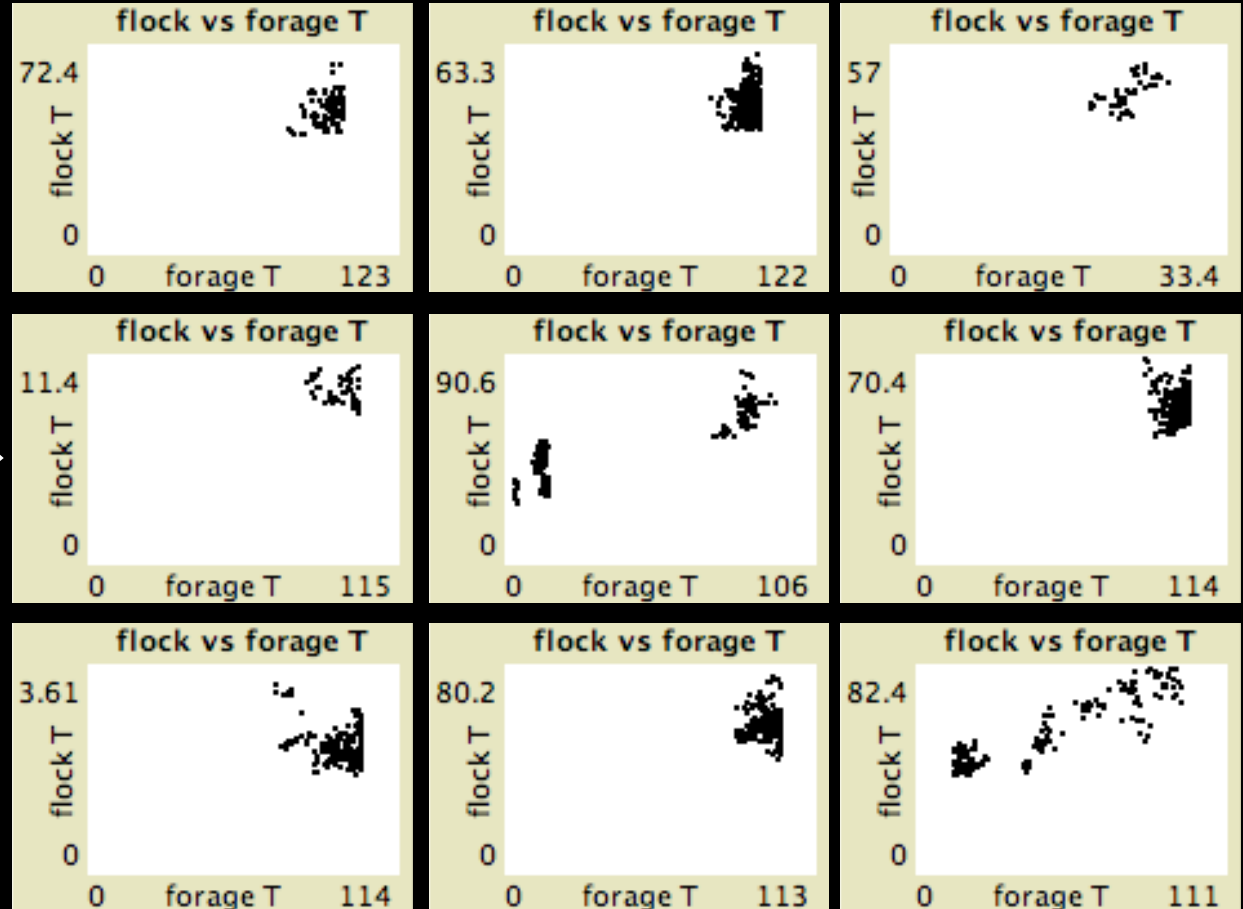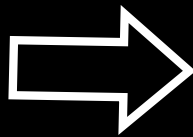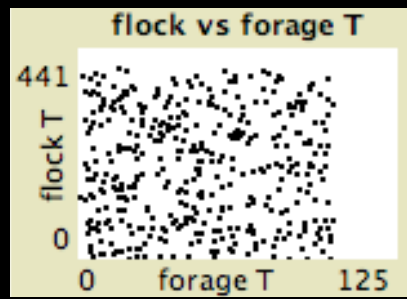…start **FORAGING**

When neighbors are too few…

Energy

…start **FLOCKING**

Start with random distribution of thresholds, then **evolve** them over the course of a simulation using a genetic algorithm.

Preliminary Results

- Evolved flocking and foraging thresholds converge

Initial distribution

Next: How do thresholds vary as a function of model parameters?

(e.g. population size; energy gain per bite; energy spent per step; risk of predation)