

# A multiagent model of sexual selection in Malaysian diopsids

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# A Multiagent model of Sexual Selection in Malaysian diopsids

## Area of Research

### NATURAL SELECTION SURVIVAL OF THE FITTEST

- Explains evolution of traits that enhance survival in the natural environment

### SEXUAL SELECTION

#### Good genes Hypothesis

A female chooses a male for an enhanced trait so that her progeny has a good genetic constitution

#### Fisher's Runaway Hypothesis

Male progeny inherits better genes for enhanced ornament

Female progeny inherits better genes that evolve female preference

Phenomenon explained well by Stalk-eyed flies.

**Exaggerated ornament**: Distance between eye stalks

### EXPERIMENTAL STUDIES

Wet lab experiments

costly

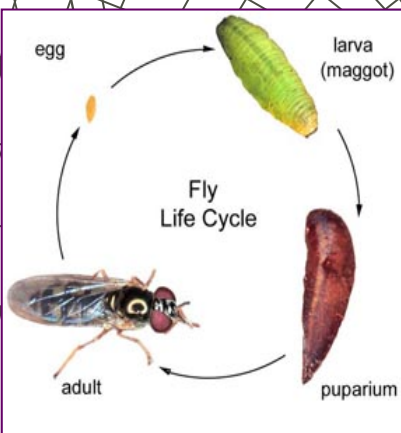
Simulation studies

Biologically inaccurate

Agent based Model

## Methodology and Simulation

### Life Cycle



### Simulated Genetic structure



Structure of chromosome: Colors represent different abilities



### Discrete Event Simulation

Events

### Simulated Larval event

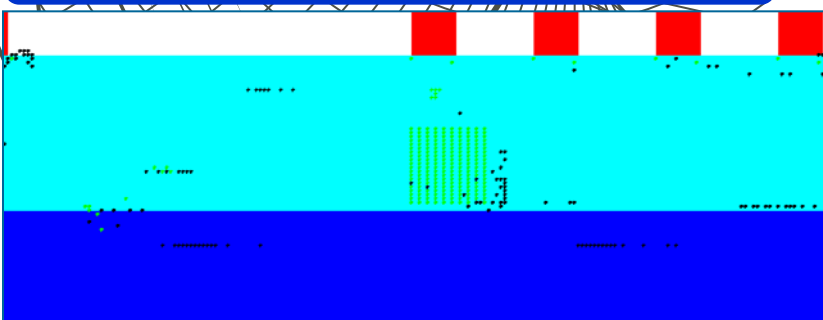
#### Fixed Attributes

Eye span

Body Size

Immunity

### Observed Simulated Environment



### Environment

Light

Bank

Leks

Food

Bed

Stream

### Adult activities

Resting

Contesting

Mating

Foraging

### Simulated Adolescent event

#### Fixed Attributes

Immunity

Size of Sexual organ