

Reproductive Success in House Sparrows: A Captive Breeding Study

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Reproductive Success

- Fitness is determined by an organism's ability to reproduce successfully.
- Animals generally breed so that young are born when resources are most abundant.



Reproductive Timing

- Animals use many different cues to determine the beginning and end of the breeding season.
- It is a mystery as to which factor is most important, but photoperiod is likely to play a key role.

The Influence of Photoperiod on Reproduction

- Allows for a cue that is reliable.
- Photoperiod elicits an increase in the release of sex hormones in birds. (MacDougall-Shackleton, 2009)
- Photoperiod could also be a factor in reproductive success.

Purpose of the Experiment

- The goal of this experiment is to successfully breed house sparrows indoors, which hasn't been done before.
- Importance of photoperiod in reproductive success has not been tested.
- To test photoperiod as an independent factor, birds must be bred entirely indoors.

House Sparrows



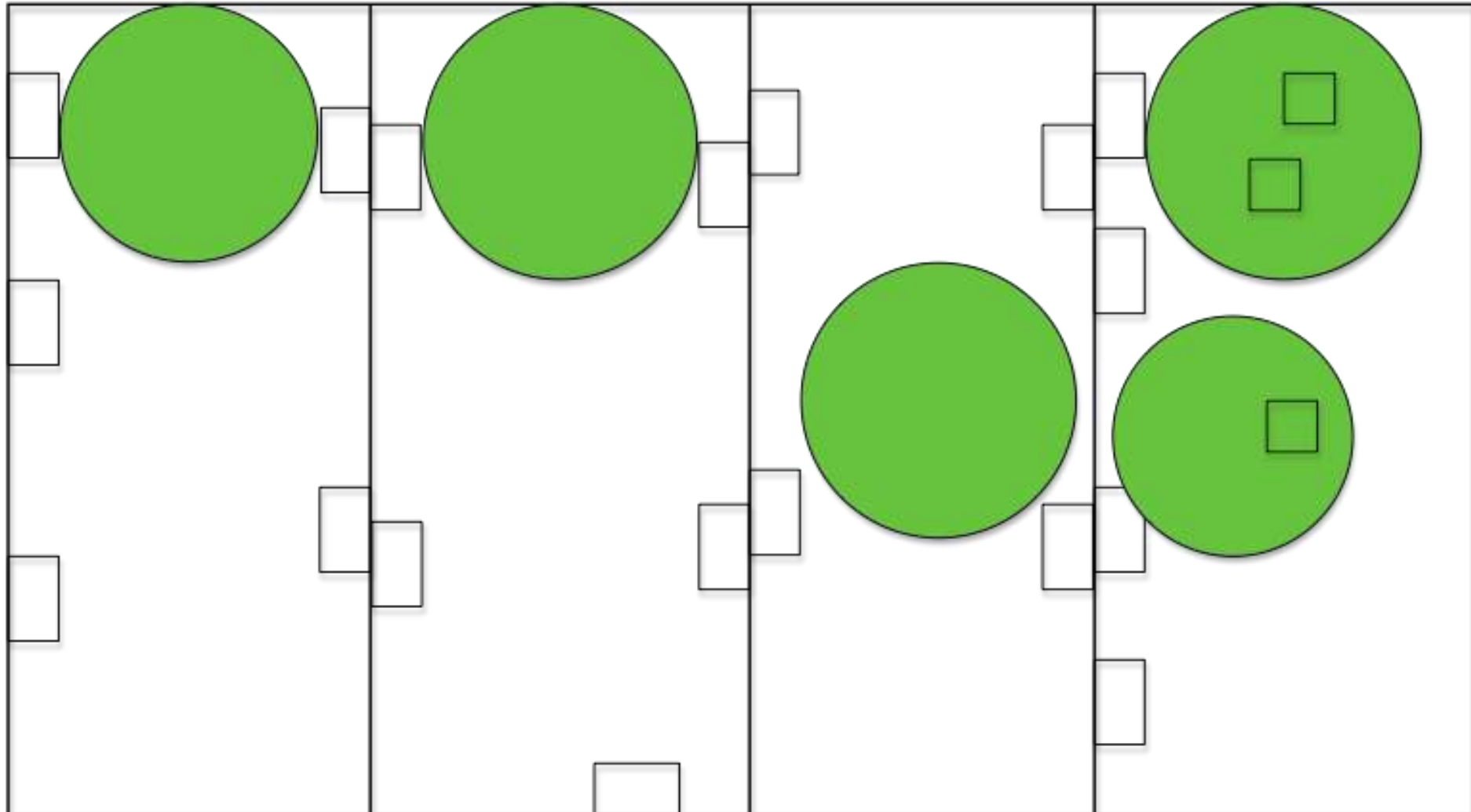
<http://www.thejeffway.com/birds.html>

- Birds are ideal subjects because they are seasonal breeders.
- House sparrows were chosen because they produce a large clutch size.
- House sparrows fare well in captivity.

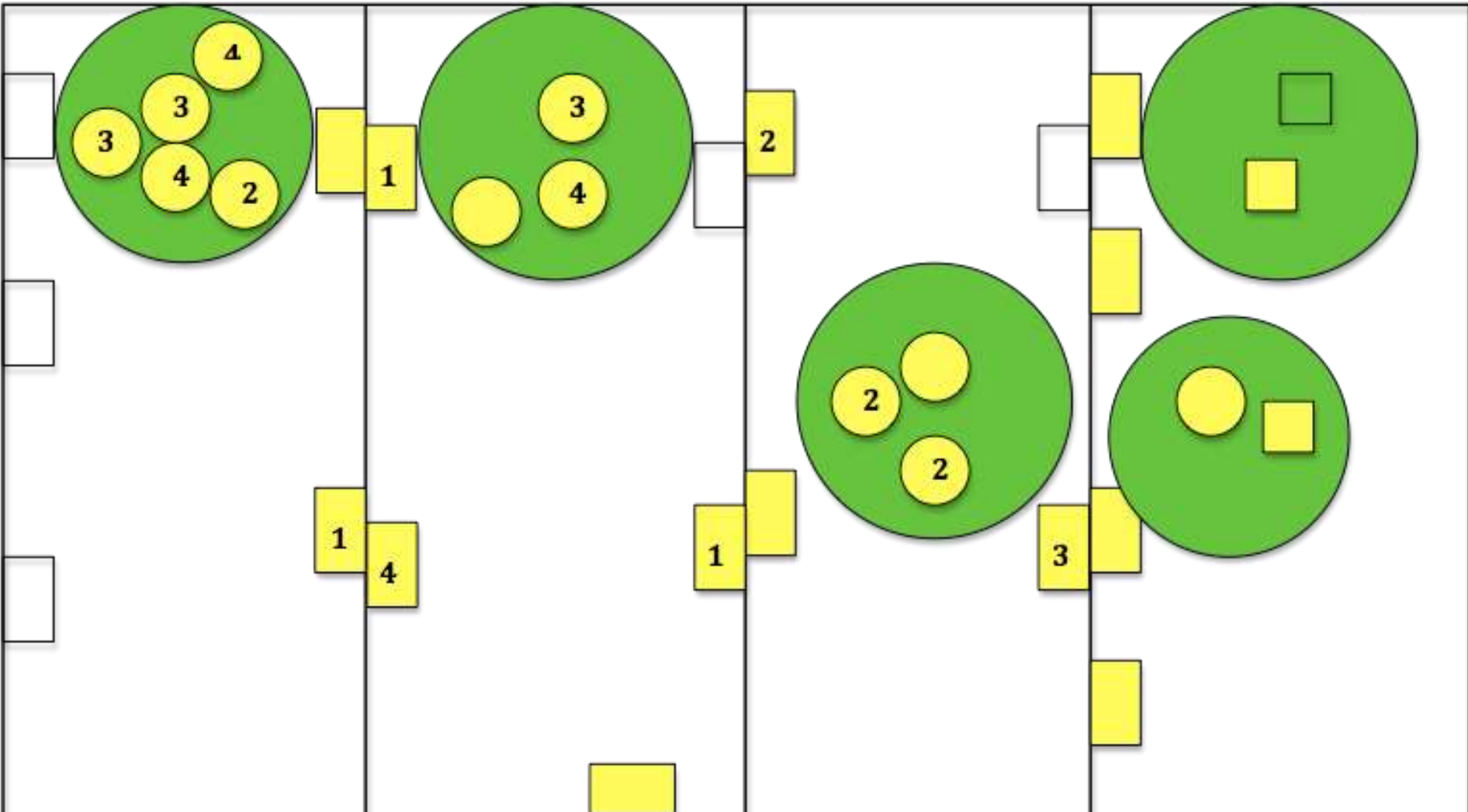
Methods

- 40 house sparrows (20 male, 20 female) caught from the wild
- 5 male-female pairs placed in each of 4 indoor aviaries.
- Photoperiod lengthened to send the birds into a reproductive period (winter → summer).
- Nests were monitored every other day until the first egg appeared, then checked every day.

Methods



Results



Results

- 15 of the 21 nest boxes had nesting material in them.
- There was a total of 27 nests.
- A total of 41 eggs were laid.
- The maximum clutch was 4 and the minimum was 1.

Discussion

- We have developed methods to breed house sparrows entirely indoors under controlled photoperiod conditions.
- Results provide tools to investigate the importance of photoperiod in shaping reproductive success.

Further Investigation

- It is known that reproductive success varies in accordance with latitude (Biancucci, 2010)
- Many factors covary with latitude, such as temperature and photoperiod.
- Can isolate individual factors to test relative importance in affecting reproductive success.

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