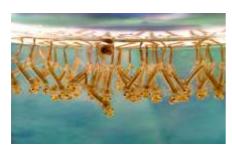# Variation & Overproduction of offspring

Overproduction of offspring

Mosquitoes lay their eggs in wet mud or water often by 'dabbing' – flying low over the water and bobbing down to the surface to lay eggs one at a time. Females can lay up to 200 eggs during their adult life span of a few weeks.

"Culex sp larvae" by (Image: James Gathany, CDC) CC BY 2.5 via WikiCommons

1. If the female from one mating of two mosquitoes lays 200 eggs, and half of these are females who also each lay 200 eggs, how many mosquitoes will hatch in the following generation?

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2. In fact, nearly all of the mosquitoes which hatch from the eggs die. Suggest three causes of death.

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Spiders live for about two years but often only reproduce once, males are sometimes eaten by females after mating and females often die after egg laying. However they can lay up to 3000 eggs in silk egg sacks.

"Gasteracantha mammosa spiderlings" by Brocken Inaglory - public domain via Commons

3. If a spider population contains 20 spiders and 10 male spiders mate successfully with 10 female spiders, but then each male is eaten by the female after mating. The population will half. However if each female then lays 3000 eggs.

   a. How many spiderlings will hatch? _____

   b. What will be the percentage increase in the spider population if they all survive?

      _____

      _____

Red squirrels live for about 3 years and females can have up to two litters per year from the age of two. That makes three or four litters in a lifetime. Each litter usually contains 3 or 4 young. Sadly 80% of the young die during their first winter and 50% die in their second winter, before breeding.

Newborn squirrel CC-BY on Flicker by Audrey

4. If a red squirrel population is 100 squirrels in spring, 50 of these are mature females. Using the information above deduce:

   a. the maximum population size at the end of the summer (assume the mature females each have 2 litters of 4 young)

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   _____

   b. The maximum population after the following winter (assume all the mature females survive, and 80% of the young die)

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5. Given these breeding and survival figures discuss whether you think the population of red squirrels is growing (give reasons for your ideas)

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