Title

What is the geometric probability of mating success in a giraffe, *Giraffa camelopardalis*?

Author

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Abstract

The only male giraffe that mates with the female giraffe is usually the most dominant male of the
giraffe group. He is taller than the female giraffe in order to mount her and have a higher chance
of ejaculating in to her vagina. He usually tends to pick a young adult female to mate with in
order to increase the chances of mating success. He first tastes the females’ urine in order to see
whether or not she is in heat. If so, he courts her so that he can eventually mate with her. During
copulation, he jumps his two front legs on to the females’ sides and ejaculates his sperm in to her
quickly. The random geometric probability of mating success was estimated to be about 16.5%
in a giraffe. This random probability is equivalent to blindly throwing 100 darts at a target (the
female vagina) and only successfully hitting the target 16 times. This only occurs if the male
giraffe is successful enough to court the female giraffe, mount her and transfer his sperm in to
her vagina.
Introduction

The giraffe lives in various parts of Africa. Known to this day, they are the tallest living terrestrial animals. They use their long necks in order to reach high leaves that other herbivores cannot usually reach. Male giraffes also use their necks to dominate social hierarchies by “necking” one another. The most dominant males are the ones that mate with the females. Male giraffes are larger than female giraffes in order to mount them and have a higher chance ejaculating into the female’s vagina; however, the male giraffe will not mate with the female giraffe until he has tasted her urine to know whether or not she is in heat.

Method

The large rectangle represents the surface area of the female giraffe’s back side. The circle represents the female’s vagina, or target, in which the male aims for in order to get a mating success. The male’s penis enters the target in between the legs. Random mating success was calculated by dividing the rectangle by the circle of the female’s back side.
**Figure 1:** This image of the giraffe was obtained from Google Images at http://www.freenaturepictures.com/giraffe-pictures.php. The circle and rectangle represent the surface area of a female giraffe, as a male would see her to mate. The smaller rectangle represents her vagina.

**Results**

Target surface area of the rectangle:

6.5cm x 14.8cm = 96.2cm

Target surface area of the circle:

3.14 x 2.25cm² = 15.89cm

Possibility of hitting the target to gain mating success:

15.89/96.2 = 0.165 x 100 = 16.5%

There are 16 chances out of 100 that mating will be randomly successful in a giraffe according to my geometric calculations. This random probability is equivalent to blindly throwing 100 darts at the target, the female’s vagina, and only successfully hitting the target 16 times.
Discussion

Male giraffes aim their penises in to the female giraffe’s vagina in order to reach their goal of mating success. The random probability of mating success was estimated at 16.5%. If you were to blindly throw 100 darts at a female giraffe’s vagina, the target, you would only successfully hit the target 16 times. The reason for this random probability is due to the male giraffe only having the small opening of the female giraffe’s vagina to aim for. This of course requires the male giraffe to successfully court, mount, and transfer his sperm in to the female to have this random probability of success. The dominant male of the group picks his female giraffe by tasting her urine to know whether or not she is in heat. If the female giraffe is in heat, the male giraffe will mount her and attempt to ejaculate his sperm in to her vagina.
References


doi: [http://dx.doi.org/10.1016/j.yhbeh.2006.04.004](http://dx.doi.org/10.1016/j.yhbeh.2006.04.004).


