

Baboon reproduction: Linking sexual swellings, estrogen, and mating behavior

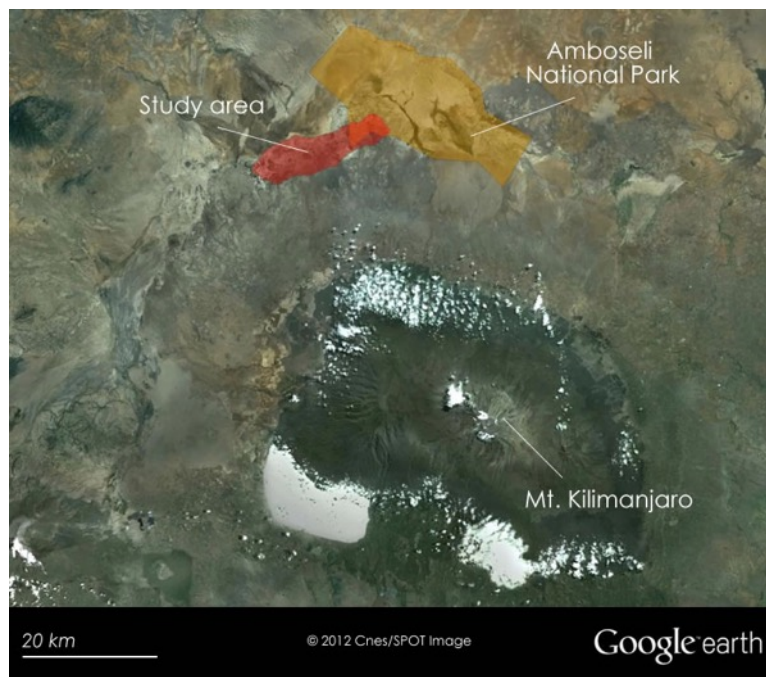
Ali Galezo & Emily Levy



Learning objectives

- Increase coding skills in R
- Increase understanding of wild animal reproduction
- Increase science literacy skills

Amboseli Baboon Research Project



- Continuous data collection since 1971
- Individuals identified by sight
- ~300 living individuals across 5 social groups; ~2000 individuals over whole study



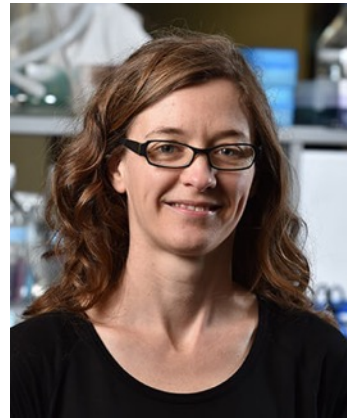
Amboseli Baboon Research Project



Susan Alberts



Jenny Tung



Beth Archie



Jeanne Altmann

Amboseli Baboon Research Project

Kinyua Warutere

Raphael Mututua

Long'ida Siodi

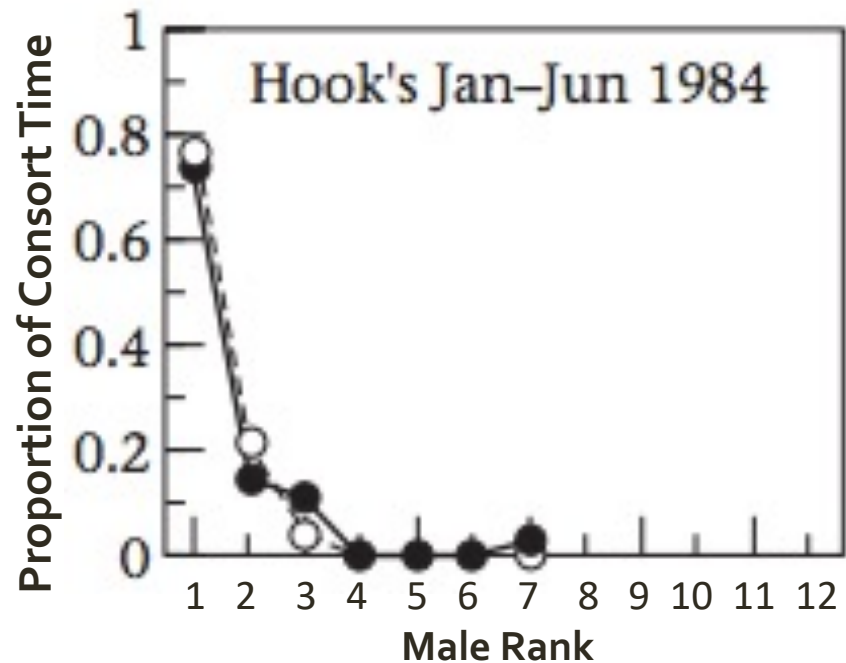
Serah Sayialel



Baboon social lives



- Multi-male, multi-female groups
- Non-seasonal breeders
 - Very few females ovulating simultaneously
 - Females are monopolizable
- Dominance rank determines resource access
 - Females: food & social partners
 - Males: ovulating females



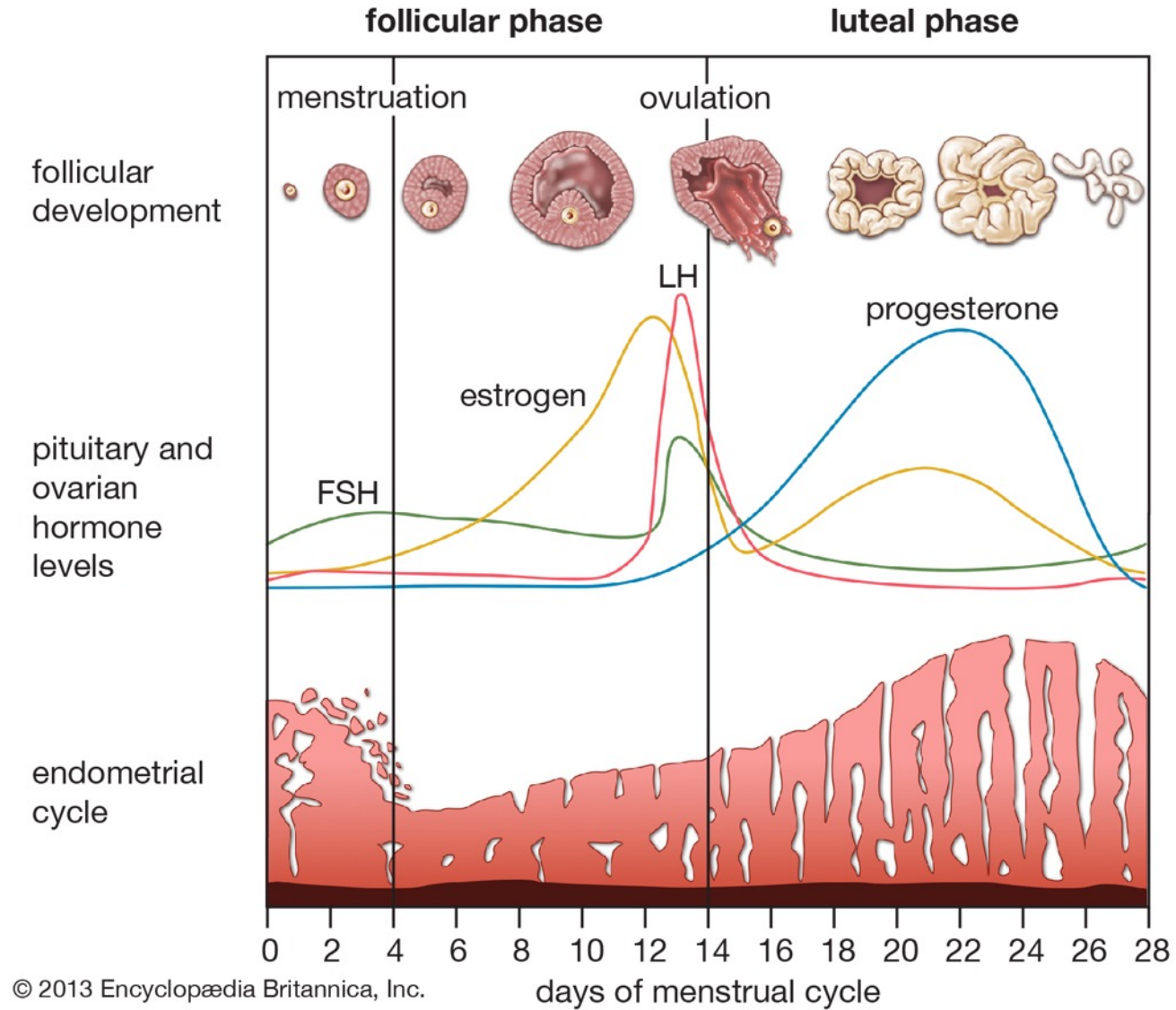
Consortship & mating

Amboseli Baboon Research Project

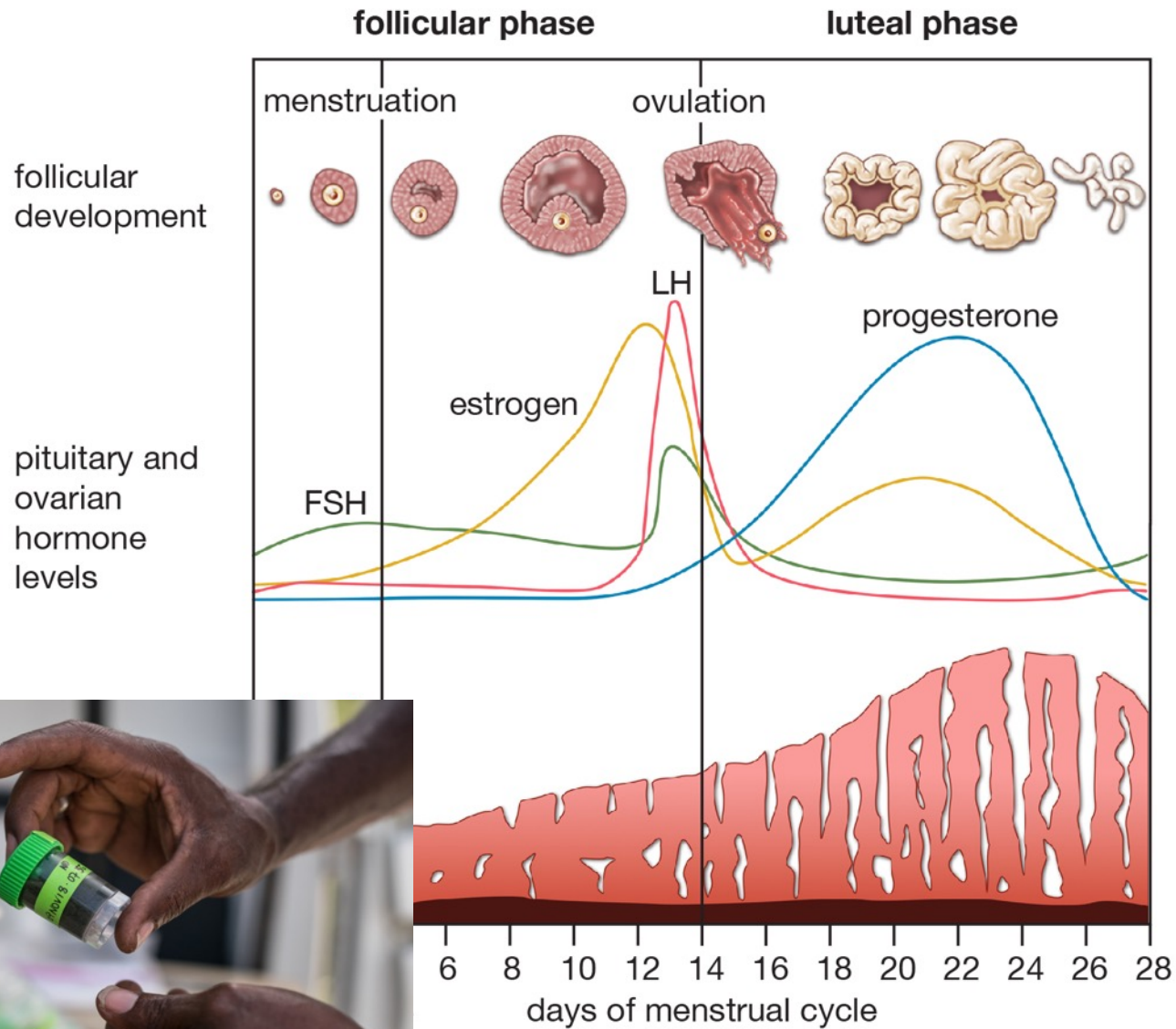
Consortships

<https://amboselibaboons.nd.edu/>

Female baboon reproductive cycle



Female baboon reproductive cycle

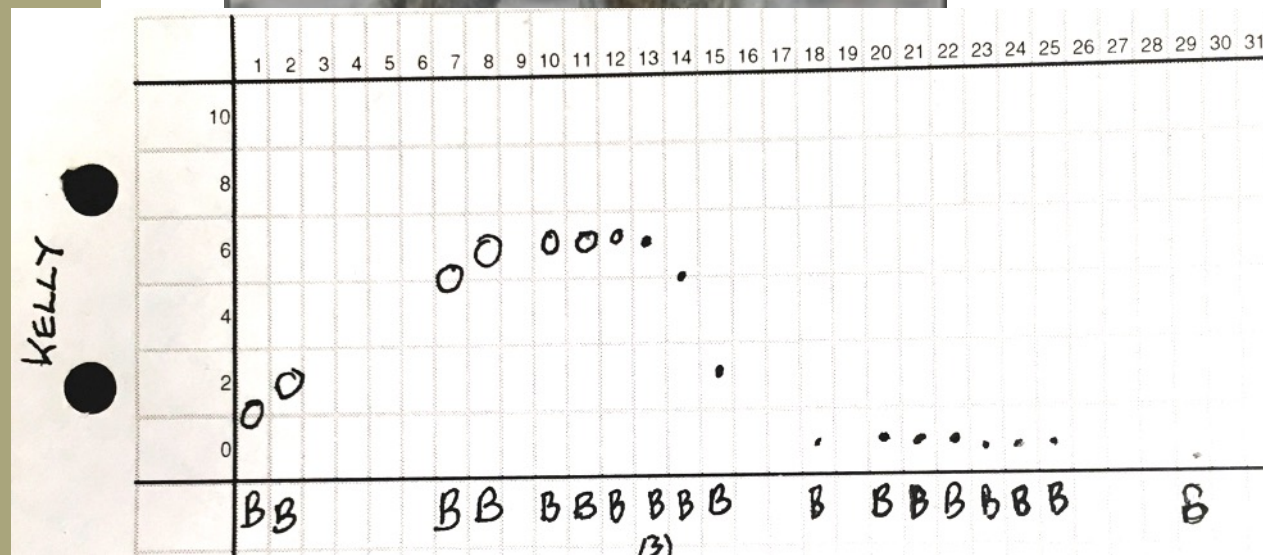


Feces → Estrogen

Female baboon reproductive cycle



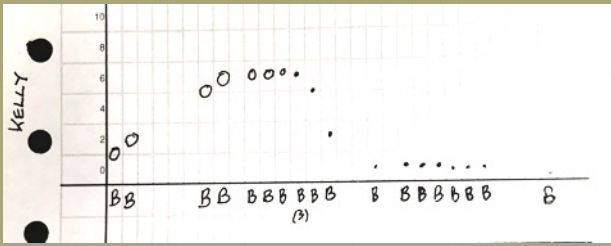
Female baboon reproductive cycle



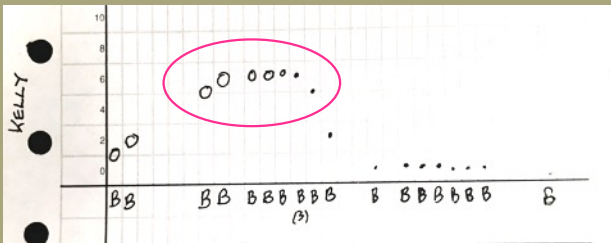
Swelling size

Hypotheses & Predictions

- Hypothesis 1: female sexual swellings are a cue of fertility that males can use to prioritize mating with fertile females
 - Prediction 1:
 - Prediction 2:
- Hypothesis 2: high-ranking males are able to monopolize fertile females better than low-ranking males
 - Prediction:

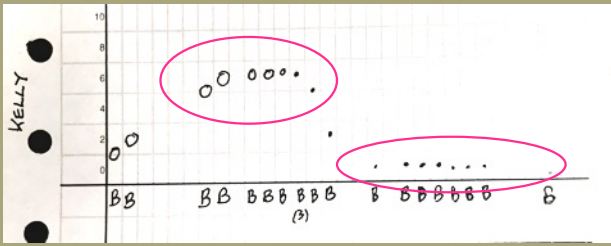


Hypotheses & Predictions



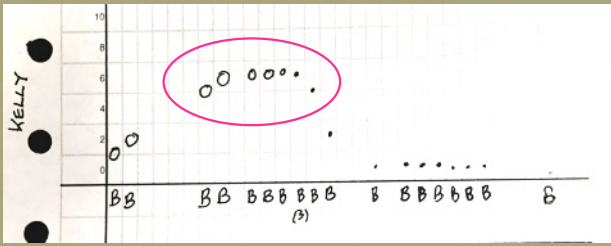
- Hypothesis 1: female sexual swellings are a cue of fertility that males can use to prioritize mating with fertile females
 - Prediction 1: **peak estrogen (and ovulation) coincides with peak sexual swelling**
 - Prediction 2:
- Hypothesis 2: high-ranking males are able to monopolize fertile females better than low-ranking males
 - Prediction:

Hypotheses & Predictions

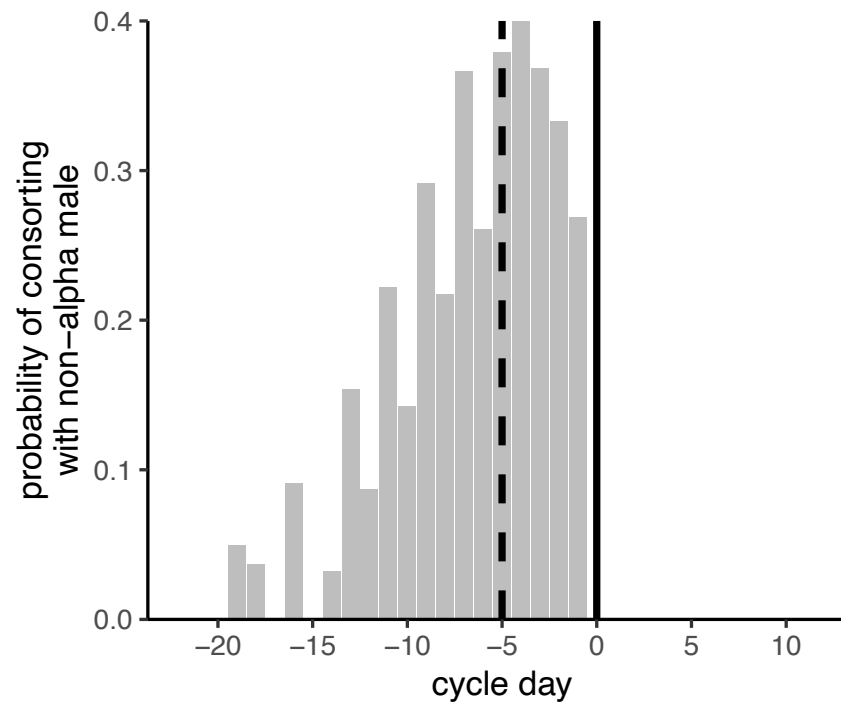
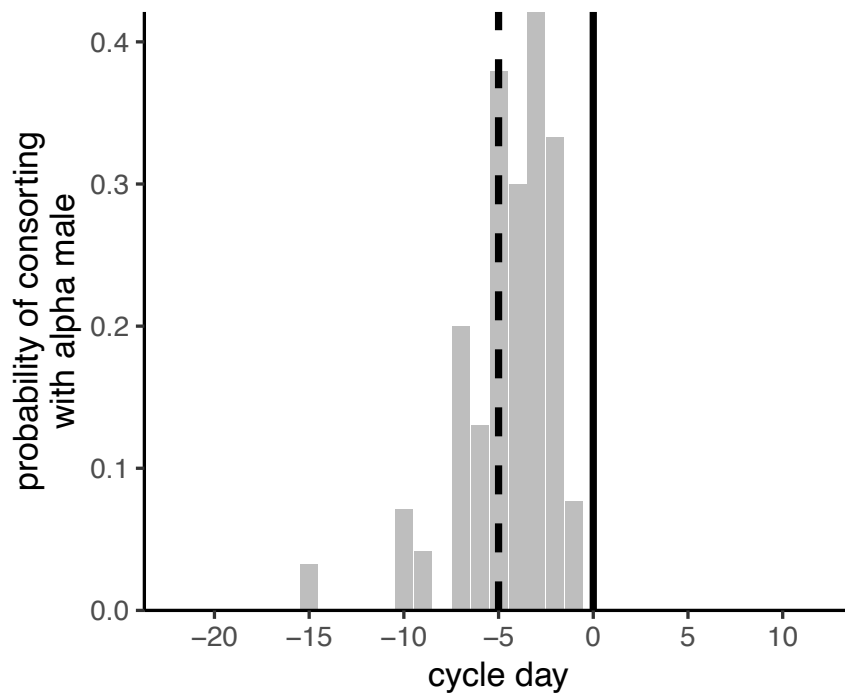
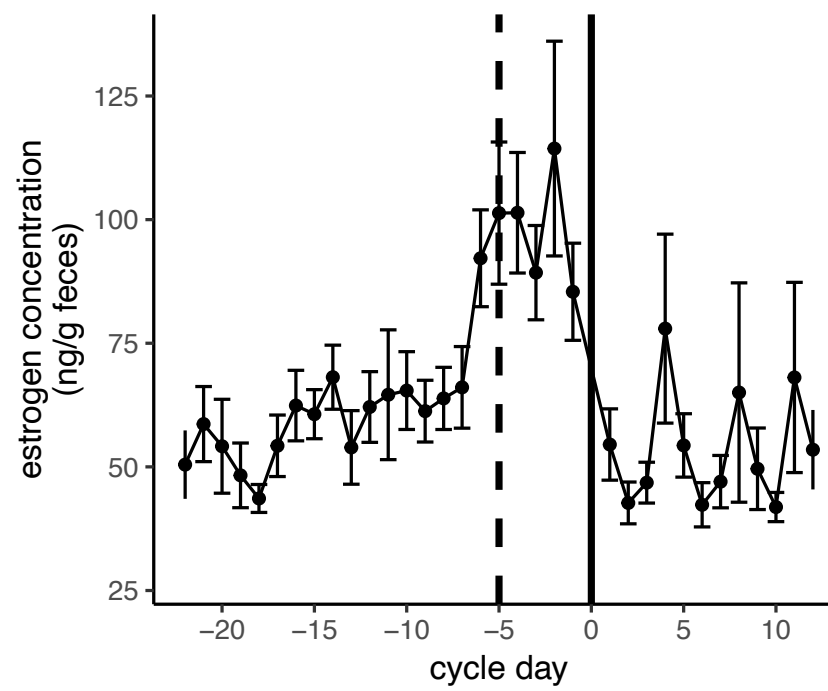
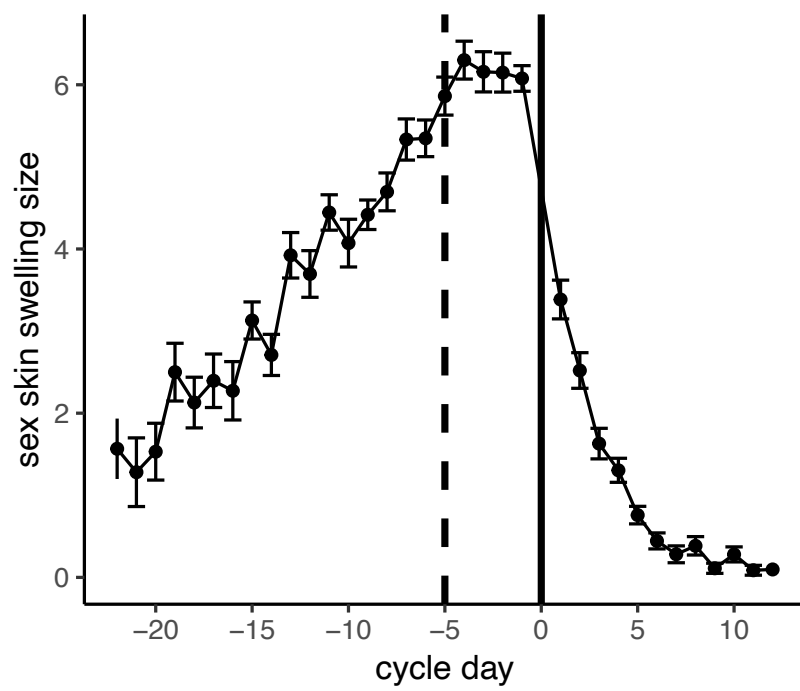


- Hypothesis 1: female sexual swellings are a cue of fertility that males can use to prioritize mating with fertile females
 - Prediction 1: peak estrogen (and ovulation) coincides with peak sexual swelling
 - Prediction 2: **males consort with females more when females have large swellings than when they don't have large swellings**
- Hypothesis 2: high-ranking males are able to monopolize fertile females better than low-ranking males
 - Prediction:

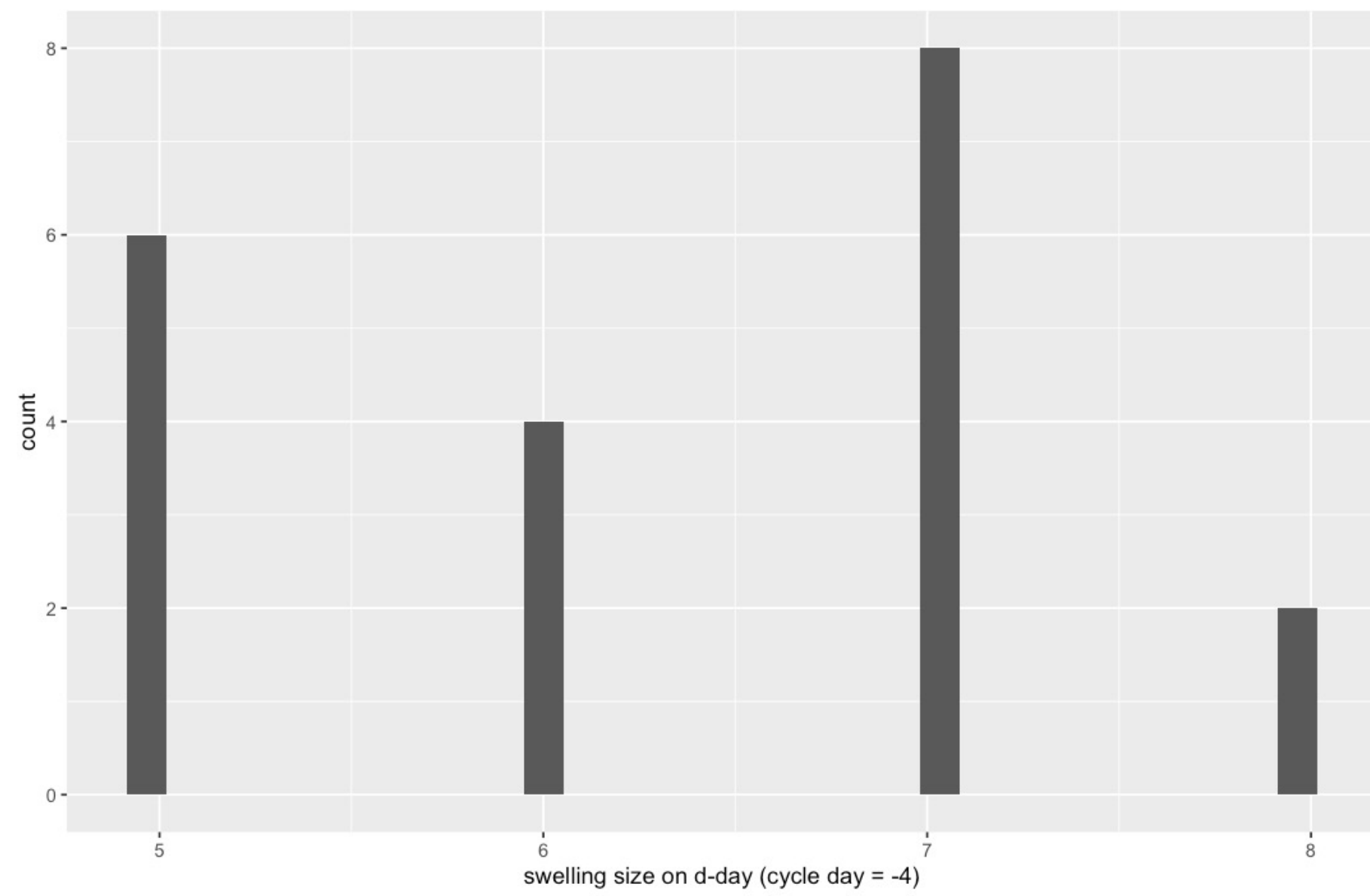
Hypotheses & Predictions



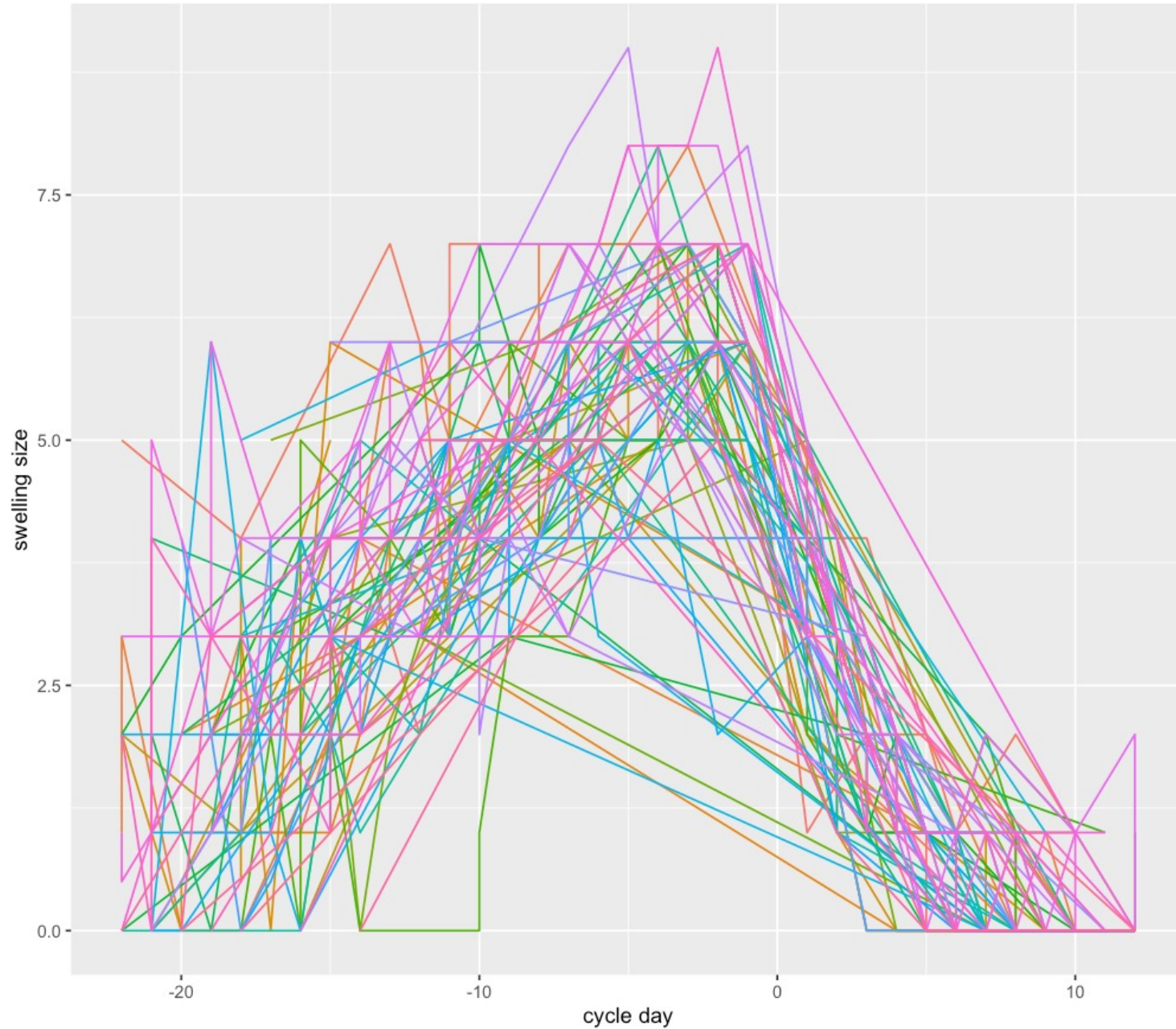
- Hypothesis 1: female sexual swellings are a cue of fertility that males can use to prioritize mating with fertile females
 - Prediction 1: peak estrogen (and ovulation) coincides with peak sexual swelling
 - Prediction 2: males consort with females more when females have large swellings than when they don't have large swellings
- Hypothesis 2: high-ranking males are able to monopolize fertile females better than low-ranking males
 - Prediction: **during ovulation, high-ranking males will consort with females more than low-ranking males**



Variability in swelling sizes: Range of swelling size on cycle day -4



Variability in swelling sizes: Every female on the same graph



factor(female)

1	20	39	58	77
2	21	40	59	78
3	22	41	60	79
4	23	42	61	80
5	24	43	62	81
6	25	44	63	82
7	26	45	64	83
8	27	46	65	84
9	28	47	66	85
10	29	48	67	86
11	30	49	68	87
12	31	50	69	88
13	32	51	70	89
14	33	52	71	90
15	34	53	72	91
16	35	54	73	92
17	36	55	74	93
18	37	56	75	
19	38	57	76	

Variability in swelling sizes: Every female on a different graph

