

Syllabus

SEX DIFFERENCES & SEXUAL SELECTION IN PRIMATES

Anthropology 569

Fall 2014

- Instructor:** Ryne A. Palombit
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<http://www.rci.rutgers.edu/~palombit/>
- Office Hours:** Wednesday 1:30 – 3:30 pm, or by appointment
- Class Meeting Times:** Thursday, 2:15-5:15 pm
- Sakai Course Website:** **01:070:569:01 F14**
- Texts:** Readings (online)
Saxon, L. 2012. *Sex at Dusk*. CreateSpace Independent Publishing Platform, New York.
Strunk Jr, W. & White, E.B. 1999. *The Elements of Style*, 4th ed., Macmillan, New York.
- Requirements:** Participation in Seminar Discussions (25%)
(includes duties as moderator, discussant rapporteur)
Book Review (15%)
Presentation (20%)
Paper (40%)

GOAL OF SEMINAR

Our goal is to reach some conclusions about the current state of studies of sex differences and sexual selection in the order Primates. Sexual selection is “among the most powerful evolutionary forces”¹ and it is also one of the most debated

As a focal point of our efforts, we’ll consider the following interesting situation. Primatologists spend a lot of time talking about sex differences, male-male competition, and female choice in primates. And yet, studies of nonhuman primates typically do not figure very prominently in general reviews of sexual selection. Why is this? Is it because the studies haven’t yet been done in primates? Is it because the studies have been done, but they haven’t been done very well? Is it because the studies have been done, and they’ve been done well, but there is currently little evidence for the action of sexual selection in primates? Or, finally, have well-executed studies generating evidence for sexual selection failed to attract the attention they’re due?

Bring to my attention new papers or topics you run across that you think might merit our consideration. The syllabus is somewhat flexible and we may alter it to suit current trends, findings, or interests.

¹ Shuster, S.M. 2009. Sexual selection and mating systems. *Proc. Nat. Acad. Sci.*, 106:10009-10016.

MODERATING

Twice during the semester you'll moderate discussion (once for a general meeting, and once for your presentation of your paper topic—see below). This means leading the discussion by offering your critical evaluations of the readings. This does not mean simply rephrasing the content of the papers. Rather, take a position on the work and present it. Foster debate by presenting opposing views on a subject.

One of your responsibilities as moderator is to do a (computer) search of the literature on the topic you're moderating and make recommendations regarding papers we should read in class. The question basically is: are there other papers of enough importance to recommend we drop the currently assigned reading (see below) and replace it? Your recommendations don't have to be necessarily based on in-depth analysis of each paper. Rather, you should be able to make a preliminary evaluation based on a quick reading of it.

So, *two weeks* before your moderating date, you should email to a list of 3-5 papers you've run across that you think are relevant for the discussion. Then, for each one, explain *in a few sentences* why you recommend it or don't recommend it for as a reading for the seminar.

RAPPORTEUR

Responsibility of rapporteur: Each meeting will have one person who will act as rapporteur, charged with summarizing the important points of the discussion that day. This should generally be only one page (single-spaced). The rapporteur should link ideas with the people who offered them, and should identify and highlight in their reports the following: (1) the 3 most important ideas presented *and explain why* each idea is important (the latter, *explaining why, is crucially important!*); (2) the best quote of the day (linked to the person who generated it). Email the summary to me within **24 hrs** of the meeting. After checking it, I may request revision. After those are made, I'll then put in on the Sakai site.

Responsibilities of the rest of class: the rapporteur will write the summary. Each of the rest of you will be responsible for bringing to class and presenting one suggested improvement to the summary. Think of this exercise as the following: your colleague has given you a draft of his/her summary report of a symposium and asks for your suggestions. You offer one.

BOOK REVIEW

You will write a professional review of Saxon's popular book. Write as a biologist or biological anthropologist for an intended audience of biologists. You will want to address: (1) whether or not it does justice to the subject; and (2) how empirically and theoretically sound the book and its ideas are. To do this you will call upon your knowledge and understanding of the subject material derived from readings in and out of seminar. Identify the way Saxon approaches and defines questions, and how she handles theory and data to answer them. (Examples of book reviews can be found in the pages of just about any journal, but those in *Science* and *Nature* are useful). Your review should be not exceed 1500 words. Give your review article a title that captures your position evocatively.

EMAIL: On the due date, please email your review to me at rpalombit@anthropology.rutgers.edu. ***Please do not email participants in the course directly.*** I will post the position papers to the Sakai site.

PAPER (DUE DECEMBER 11)

You will choose some topic in sexual selection. There are many possible topics: see below. You will pick some phenomenon in sexual selection & present the hypotheses explaining it (or variation in it). Then review empirical evidence for the hypotheses and reject & accept them.

Email me your topic no later than September 26.

We will set aside half of one class period for you to present a working version of your idea for your paper in class. This will give you a chance to get feedback from colleagues before you hand in the paper. You'll assign some readings and then basically share your preliminary conclusions, get feedback and suggestions, etc.

Preliminary Reading List

These readings will change upon moderators' recommendations. So, what is listed below is *preliminary* list.

Other topics possibly covered in more detail in the student presentations:

Sexual selection of cognitive processes, infanticide, sex ratios, visual signals, hormonal mechanisms, sexual selection & sexually transmitted diseases, ecological constraints on sexual selection, sexual selection & speciation, alternative reproductive strategies (e.g., sexual bimaturism, extra-pair copulations), fluctuating asymmetry, sexual selection & cultural evolution, sexual selection for moral capacity, inferring sexual selection from fossil evidence.

| Date | Topic | Readings | Moderator | Rapporteur | Summary Reviewers |
|-------------|--|---|------------------|-------------------|--------------------------|
| Sept. 4 | - | <i>Organizational meeting</i> | - | | |
| Sept. 11 | Basic principles (from the source) ² | Darwin, Darwin, C. 1871. <i>The Descent of Man, and Selection in Relation to Sex</i> , 1st ed., J. Murray, London. Chapter 8. Clutton-Brock, T.H. & Huchard, E. 2013. Social competition and selection in males and females. <i>Philos. Trans. R. Soc. Lond. B</i> , 368:10.1098/rstb.2013.0074. Clutton-Brock, T.H. 2007. Sexual selection in males and females. <i>Science</i> , 318:1882-1885. | Ryne | Melanie | - |
| Sept. 18 | Intrasexual competition Size dimorphism in primates | Plavcan, J.M. 2011. Understanding dimorphism as a function of changes in male and female traits. <i>Evol. Anthro.</i> , 20:143-155. Leigh, S.R., Setchell, J.M., Charpentier, M., Knapp, L.A. & Wickings, E.J. 2008. Canine tooth size and fitness in male mandrills (<i>Mandrillus sphinx</i>). <i>J. Hum. Evol.</i> , 55:75-85. Lawler, R.R. 2009. Monomorphism, male-male competition, and mechanisms of sexual dimorphism. <i>J. Hum. Evol.</i> , 57:321-325. Kappeler, P. & Schaffler, L. 2008. The lemur syndrome unresolved: Extreme male reproductive skew in sifakas (<i>Propithecus verreauxi</i>), a sexually monomorphic primate with female dominance. <i>Behav. Ecol. Sociobiol.</i> , 62:1007-1015. | Tom | Alex | - |
| Sept. 25 | Background: Female Choice | Fisher, R.A. 1958. <i>The Genetical Theory of Natural Selection</i> , 2nd ed., Dover, New York. Excerpt: pp. 146-156. Edward, D.A. 2014. The description of mate choice. <i>Behav. Ecol.</i> , DOI 10.1093/beheco/aru142. Andersson M, and Simmons LW. 2006. Sexual selection and mate choice. <i>Trends Ecol. Evol.</i> 21(6):296-302. Kokko, H., Jennions, M.D. & Brooks, R. 2006. Unifying and Testing Models of Sexual Selection. <i>Ann. Rev. Ecol. Evol. Syst.</i> , 37:43-66. | Alysse | Fred | Tom, Fred, Melanie |

² I'm assuming you all have already read at some point: Trivers, R.L. 1972. Parental investment and sexual selection. In: *Sexual Selection and the Descent of Man, 1871-1971*, (B. Campbell, ed.) pp. 136-179. Aldine, Chicago.

| Date | Topic | Readings | Moderator | Rapporteur | Summary Reviewers |
|------------|---|---|-----------|------------|----------------------------|
| Oct. 2 | Some Female Choice Data, Indirect Benefits Genetic Compatibility | <p>Kappeler, P.M. 2012. Mate choice. In: <i>The Evolution of Primate Societies</i>, (J.C. Mitani, J. Call, P.M. Kappeler, R.A. Palombit & J.B. Silk, eds.), pp. 367-386. University of Chicago Press, Chicago.</p> <p>Hamilton, W.D. & Zuk, M. 1982. Heritable true fitness and bright birds: A role for parasites? <i>Science</i>, 218:384-387.</p> <p>Setchell, J., Charpentier, M., Abbott, K., Wickings, E. & Knapp, L. 2009. Is brightest best? Testing the Hamilton-Zuk hypothesis in mandrills. <i>Int. J. Primatol.</i>, 30:825-844.</p> <p>Setchell, J.M. & Huchard, E. 2010. The hidden benefits of sex: Evidence for MHC-associated mate choice in primate societies. <i>Bioessays</i>, 32:940-948.</p> <p>Havlicek, J. & Roberts, S.C. 2009. MHC-correlated mate choice in humans: A review. <i>Psychoneuroendocrinology</i>, 34:497-512.</p> <p><i>Glance at:</i> Little, A.C., Paukner, A., Woodward, R.A. & Suomi, S.J. 2012. Facial asymmetry is negatively related to condition in female macaque monkeys. <i>Behav. Ecol. Sociobiol.</i>, 66:1311-1318.</p> | Megan | Alysse | Alysse, Megan, Didik, Alex |
| Oct. 9 | Some Female Choice Data, Direct Benefits | <p>Review part of Kappeler (2012) dealing with “Direct Benefits”</p> <p>Møller, A. & Jennions, M. 2001. How important are direct fitness benefits of sexual selection? <i>Naturwissenschaften</i>, 88:401-415.</p> <p>Oneal, E., Connallon, T. & Knowles, L.L. 2007. Conflict between direct and indirect benefits of female choice in desert <i>Drosophila</i>. <i>Biology Letters</i>, 3:29-32.</p> <p>Ostner, J., Vigilant, L., Bhagavatula, J., Franz, M. & Schülke, O. 2013. Stable heterosexual associations in a promiscuous primate. <i>Anim. Behav.</i>, 86:623-631.</p> <p>Palombit, R.A. 2009. Friendships with males: A female counterstrategy to infanticide in the Okavango chacma baboons. In: <i>Sexual Coercion in Primates and Humans</i>, (M.N. Muller & R.W. Wrangham, eds.), pp. 377-409. Harvard University Press, Cambridge, Massachusetts.</p> | Alex | Tom | Tom, Fred, Melanie |
| Oct. 16 | Sexual Conflict (“third force” of sexual selection?) | <p>Arnqvist, G. & Rowe, L. 2005. <i>Sexual Conflict</i>, Princeton University Press, Princeton. [Chapter 1]</p> <p>Palombit, R.A. 2014. Sexual conflict in nonhuman primates. <i>Adv. Stud. Behav.</i>, 46:191-280. <i>Read only pages on sexual conflict and pre-copulatory mechanisms, i.e., pp. 192-249.</i></p> <p>Muller, M.N., Emery Thompson, M., Kahlenberg, S.M. & Wrangham, R.W. 2011. Sexual coercion by male chimpanzees shows that female choice may be more apparent than real. <i>Behav. Ecol. Sociobiol.</i>, 65:921-933.</p> <p>Knott, C.D., Thompson, M.E., Stumpf, R.M. & McIntyre, M.H. 2010. Female reproductive strategies in orangutans, evidence for female choice and counterstrategies to infanticide in a species with frequent sexual coercion. <i>Proc. Roy. Soc. Lond. B</i>, 277:105-113..</p> | Melanie | Didik | Alysse, Megan, Didik, Alex |

| Date | Topic | Readings | Moderator | Rapporteur | Summary Reviewers |
|------------|------------------------------|---|-------------------|--------------------|----------------------------|
| Oct. 23 | Postcopulatory mechanisms | <p>Fisher, D.O., Double, M.C., Blomberg, S.P., Jennions, M.D. & Cockburn, A. 2006. Post-mating sexual selection increases lifetime fitness of polyandrous females in the wild. <i>Nature</i>, 444:89-92.</p> <p>Eberhard, W.G. 2010. Evolution of genitalia: Theories, evidence, and new directions. <i>Genetica</i>, 138:5-18.</p> <p>Engelhardt, A., Heistermann, M., Hodges, J.K., Nürnberg, P., Niemitz, C. 2006. Determinants of male reproductive success in wild long-tailed macaques (<i>Macaca fascicularis</i>)—male monopolization, female mate choice or post-copulatory mechanisms? <i>Behav. Ecol. Sociobiol.</i>, 59:740-752.</p> <p>Dixson, A. 2002. Sexual selection by cryptic female choice and the evolution of primate sexuality. <i>Evol. Anthro.</i>, 11, Supplement 1:195-199.</p> <p>Danielsson, I. 2001. Anagonistic pre- and post-copulatory sexual selection on male body size in the water strider (<i>Gerris lacustris</i>). <i>Proc. R. Soc. Lond. B</i>, 268:77-81.</p> | Fred | Megan | Tom, Fred, Melanie |
| Oct. 30 | “Sex role reversal” | <p>Schärer, L., Rowe, L. & Arnqvist, G. 2012. Anisogamy, chance and the evolution of sex roles. <i>Trends Ecol. Evol.</i>, 27:260-264.</p> <p>Tobias, J.A., Montgomerie, R. & Lyon, B.E. 2012. The evolution of female ornaments and weaponry: Social selection, sexual selection and ecological competition. <i>Philos. Trans. R. Soc. Lond. B</i>, 367:2274-2293</p> <p>Huchard, E. & Cowlshaw, G. 2011. Female-female aggression around mating: An extra cost of sociality in a multimale primate society. <i>Behav. Ecol.</i>, 22:1003-1011.</p> <p>Stockley, P. & Bro-Jørgensen, J. 2011. Female competition and its evolutionary consequences in mammals. <i>Biol. Rev.</i>, 86:341-366.</p> <p>Hrdy, S.B. 2013. The “one animal in all creation about which man knows the least.” <i>Philos. Trans. R. Soc. Lond. B</i>, 368: http://dx.doi.org/10.1098/rstb.2013.0072 <i>And you might want to glance back at the Clutton-Brock & Huchard (2013) paper read for our very first session.</i></p> | Didik | Alysse | Alysse, Megan, Didik, Alex |
| Nov. 6 | <i>Student presentations</i> | <p>MEGAN PETERSDORF: <i>Mechanisms maintaining genetic variation & implications for sexual selection</i></p> <p>Dubuc, C., Winters, S., Allen, W.L., Brent, L.J.N., Cascio, J., Maestriperi, D., Ruiz-Lambides, A.V., Widdig, A., & Higham, J.P. 2014. Sexually selected skin colour is heritable and related to fecundity in a non-human primate. <i>Proc. R. Soc. B</i>, 281:20141602.</p> <p>ALEX PRITCHARD: <i>Sexual conflict over parenting and parental investment</i></p> <p>Wesneat, D., & Sargent, C. 1996. Sex and parenting: The effects of sexual conflict and parentage on parental strategies. <i>Trends Ecol., Evol.</i>, 11:87-91.</p> | Megan Alex | Melanie Tom | NA |

| Date | Topic | Readings | Moderator | Rapporteur | Summary Reviewers |
|------------|------------------------------|---|-----------------------|--------------------|-------------------|
| Nov. 13 | <i>Student Presentations</i> | <p>FRED FOSTER: <i>How do we infer the action of sexual selection in the fossil record, including material culture?</i></p> <p>Kohn, M. & Mithen, S. 1999. Handaxes: Products of sexual selection? <i>Antiquity</i>, 73:518-526.</p> | Fred | Alysse | NA |
| Nov. 20 | <i>Student Presentations</i> | <p>MELANIE JACKSON: <i>Alternative reproductive strategies</i></p> <p>Berard, J.D., Nurnberg, P., Epplen, J.T. & Schmidtke, J. 1994. Alternative reproductive tactics and reproductive success in male rhesus macaques. <i>Behaviour</i>, 129:177-201.</p> <p>ALYSSE MOLDAWER: <i>Is sexual bimaturism an alternative reproductive strategy in primates?</i></p> <p>Utami, S.S., Goossens, B., Bruford, M.W., de Ruiter, J.R. & van Hooff, J.A.R.A.M. 2002. Male bimaturism and reproductive success in Sumatran orang-utans. <i>Behav. Ecol.</i>, 13:643-652.</p> | Melanie Alysse | Didik Megan | NA |
| Nov. 25 | <i>Student Presentations</i> | <p>DIDIK PRASETYO: <i>Does sexual selection explain loud calling in primates?</i></p> <p>Mitra Setia, T. & van Schaik, C.P. 2007. The response of adult orang-utans to flanged male long calls: Inferences about their function. <i>Folia Primatol.</i>, 78:215-226.</p> <p>TOM CONTE: <i>Does sexual selection explain humor and prosociality in humans?</i></p> <p>Bressler, E.R., & Balshine, S. 2006. The influence of humor on desirability. <i>Evol. Hum. Behav.</i>, 27:29-39.</p> | Didik Tom | Alex Fred | NA |
| Dec. 4 | Reviews & Stock-Taking | <p>Discussion of Reviews of <i>Sex at Dusk</i></p> <p>Conte, T. 2014. <i>Sex at Dusk</i>: A frenetic response to <i>Sex at Dawn</i>.</p> <p>Foster, F. 2014. Afternoon delight: Why all of Ryan, Jethá, and Saxon got it wrong while the answer lies somewhere between dawn and dusk.</p> <p>Jackson, M. 2014. Sex at what time?</p> <p>Moldawer, A. 2014. Saxon's sexual selection takes a walk of shame, with minimal direct benefits</p> <p>Petersdorf, M. 2014. <i>Sex at Dusk</i>: Keep the lights on.</p> <p>Prasetyo, D. 2014. A review of Saxon L. <i>Sex at Dusk: Lifting the Shiny Wrapping from Sex at Dawn</i>.</p> <p>Pritchard, A. 2014. How not to unwrap a book.</p> <p>Roughgarden, J.E. 2007. Challenging Darwin's theory of sexual selection. <i>Daedalus</i>, 136:23-36.</p> <p>Roughgarden, J.E. & Akçay, E. 2010. Do we need a Sexual Selection 2.0? <i>Anim. Behav.</i>, 79:e1-e4.</p> | Ryne | Melanie | NA |