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Putting Comparative Psychology into a History and Systems of Psychology Course

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For several reasons, a Comparative Psychology course has been absent from our curriculum since 2005, so students have had very little exposure to how and why psychologists study animals, and the place of animal research in the history of psychology. In the fall of 2015, out of necessity, five faculty in our department team-taught a History and Systems of Psychology course, which was our capstone at that time. My module focused on the study of animals in psychology, including Comparative Psychology. One purpose was to highlight this side of Psychology, but also to show how the study of animals has led to current interest in Evolutionary Psychology. The content of this module is described here, as is a comparison of several journals that publish animal research, using number of pages published as a dependent variable to illustrate trends. It is intended that the information presented here might be of use to others seeking a way to incorporate more about animal research into their respective curricula in the absence of a course specifically about animal behavior research.

Just ahead of the fall semester of 2015, our department needed to alter our senior-level History and Systems of Psychology course quickly due to the serious illness of a colleague who had taught the course every semester for the previous nine years. As the capstone, every senior needed to take this course prior to graduating. As no one individual faculty member felt comfortable teaching the entire course with relatively little advanced notice, we divided it into five modules, with five faculty members each teaching five classes (1.25 hours each), plus an exam or other form of evaluation. The five modules, based on faculty members' interests and expertise, were, in the order taught, (a) Philosophical Roots and Developmental Psychology, (b) Psychophysics, Sensation/Perception, Gestalt Psychology, and Cognition, (c) Darwinian Functionalism, Biological Psychology, and Evolutionary Psychology, (d) Differential, Psychodynamic, and Humanistic Psychology, and (e) Behaviorism, Therapy, and Applied Psychology. Our intent was to show students the origins of current perspectives in Psychology, tracing the development from some point in the past to the present. My module was the one entitled Darwinian Functionalism, Biological Psychology, and Evolutionary Psychology, but my over-arching goal and theme was to highlight the importance of the study of animals in the history of Psychology, emphasizing how the study of animals, including comparative psychology, has contributed to current interest in human evolutionary psychology.

I am not a student of the history of Psychology, so what I included in this module was selective. I used to teach a Comparative Psychology course annually, but had not done so since the spring of 2005 (see below), in which I covered aspects of the origins of Comparative Psychology vis-à-vis Ethology (Jaynes, 1969), its foci in the early 20th century in the United States (Burghardt, 1987), and early trends in the field, as described by Beach (1950).

In the fall of 2005, all universities in the city of New Orleans were closed in the aftermath of Hurricane Katrina, and when the university re-opened and classes resumed in the spring of 2006, faculty were encouraged to teach courses that would draw as many students as possible, a strategy to promote the return of students to

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the university. The number of students enrolled in the Comparative Psychology course was relatively low and variable, with a mean of 9.75 students (*SD* = 4.4, range: 6-19) for the last eight times I had offered the course between 1997 and 2005. In any one of these years, there would have been about 100 students eligible to take the course. It was then, in the spring of 2006 that I first offered a Psychopharmacology course in place of Comparative Psychology in a compressed 10-week semester, as there was interest in this course that had not been offered for many years. I had not taught that course before, but regularly taught the pre-requisite, which was Physiological Psychology (now called Behavioral Neuroscience). I have wanted to resume offering Comparative Psychology, but student interest in Psychopharmacology has persisted, as Psychopharmacology has become established in our published course rotation and is now part of a new track within the department in Neuroscience. The critical point here is that our students (all undergraduates at a medium-sized, 4-year liberal arts institution) do not get much exposure at all to comparative psychology (or animal behavior) in our curriculum. Incorporating this module into the History and Systems of Psychology course was my attempt (and opportunity) to address this shortcoming and might be something others are interested in doing if exposure to comparative psychology and animal behavior is absent from their respective curricula. The content of the module is presented here.

The topics covered in the five classes are listed in Table 1. I began with the origins of comparative psychology and ethology (following Jaynes, 1969), the works of others that influenced Darwin and his formulation of evolutionary theory (Dewsbury, 2009), and Darwin's contributions to Psychology (Dewsbury, 2009). Following this, the fundamental ideas of European animal behaviorists of the mid-to-late 19th century were presented, then focus shifted to behavioral research being done with animals in the United States in the early 20th century (Burghardt, 1987). Burghardt (1987) traced the history of animal behavior research by describing the founding (and merging) of various journals, and included an analysis of articles published in the *Journal of Animal Behavior* during its existence between 1911 and 1917, describing the species studied by zoologists and psychologists, respectively, as well as whether the research, by discipline, was lab-based or field-based.

The demise of the *Journal of Animal Behavior* in the time of World War I enabled the starting of the *Journal of Comparative Psychology* in 1921 (Burghardt, 1987), which, in turn, led to the *Journal of Comparative and Physiological Psychology* in 1947. The gist of Beach's (1950) well-known critique of comparative psychology was presented, raising the question of possible alternatives to "rat psychology." Beach's criticism brought focus back to evolutionary theory, including Tinbergen's questions, proximate and ultimate causes, phylogenetic and adaptive approaches in selecting species to study and misconceptions about evolutionary theory (Hodos & Campbell, 1969), individual and inclusive fitness (Hamilton, 1964a, 1964b), and the development of sociobiology (i.e., Wilson, 1975).

In the 1970's, the work of Trivers was certainly influential (Trivers, 1971, 1972, 1974; Trivers & Willard, 1973), providing a wealth of research questions. In class, the main points of Trivers' works were presented regarding parental investment theory, reciprocal altruism, parent-offspring conflict, and facultative adjustment of secondary sex ratios, and while not traditional comparative psychology, his work prompted a great deal of comparative animal behavior research (e.g., Smuts, Cheney, Seyfarth, Wrangham, & Struhsaker, 1987), as well as research with humans (e.g., Daly & Wilson, 1983). Parental investment theory (Trivers, 1971), for example, contributed, in my opinion, to greater consideration of ecological variables, such as resource distribution and availability, and contributed to the study of variations in mating systems and status relationships, at least for nonhuman primates (e.g., van Schaik, 1989; Wrangham, 1980), which is the taxon that I study (e.g., Zucker & Clarke, 1998; Zucker & Kaplan, 1981).

Table 1

Topics Addressed in the Five Classes

Class	Title	Topics Addressed
1	European Influences and Darwinian Functionalism	(a) Roots of Comparative Psychology, Ethology, and Ecology (Jaynes, 1969) (b) Darwin's Theory of Evolution (c) Influences on Darwin's Theory of Evolution (Dewsbury, 2009) (d) Darwin's influences on Psychology (Dewsbury, 2009)
2	Early Historical Trends: Comparative Psychology in the United States	(a) Early animal behaviorists- Wundt, Romanes, and Morgan (Dewsbury, 1992) (b) Journals publishing animal behavior research and their history/development (Burghardt, 1987) (c) Ethologists, Biologists, and Comparative Psychologists (Burghardt, 1987) (d) Snarks and Boojums (Beach, 1950)
3	Psychologists, Evolutionary Theory, and Proximate and Ultimate Causes of Behavior	(a) Tinbergen's Four Questions (b) Proximate and ultimate causes (c) Misunderstanding evolution – phylogenetic and adaptive approaches (Hodos & Campbell, 1969) (d) Individual and inclusive fitness (Hamilton, 1964a, 1964b) (e) Emergence of Sociobiology (Wilson, 1975)
4	Sociobiology and Behavioral Ecology	(a) Increasing and decreasing fitness – competition and cooperation (b) Contributions of Trivers (c) Ecological influences on behavior (Behavioral Ecology)
5	Emergence of Physiological Psychology and Evolutionary Psychology	(a) Growth of Physiological Psychology and Behavioral Neuroscience (b) Development of Cognitive Neuroscience and Social Neuroscience (c) Emergence of Evolutionary Psychology

The decade of the 1970's was also when several brain imaging techniques became prevalent (CT, PET, and MRI), contributing to the growth of physiological psychology and behavioral neuroscience. I presented the number of pages published, per year, for several psychology journals that publish animal-based research - the original *Journal of Comparative Psychology* (JCP; Figure 1), the *Journal of Comparative and Physiological Psychology* (JCPP; Figure 2), the *Journal of Comparative Psychology* (JCP; Figure 3), and *Behavioral Neuroscience* (BN; Figure 3), the latter two diverging from JCPP after 1983. Summary data for these journals are presented in Table 2. Table 2 also contains data for the *International Journal of Comparative Psychology*, and while not presented in class, those data are included here for comparison. For these journals, data through calendar year 2014 were presented in the fall of 2015.

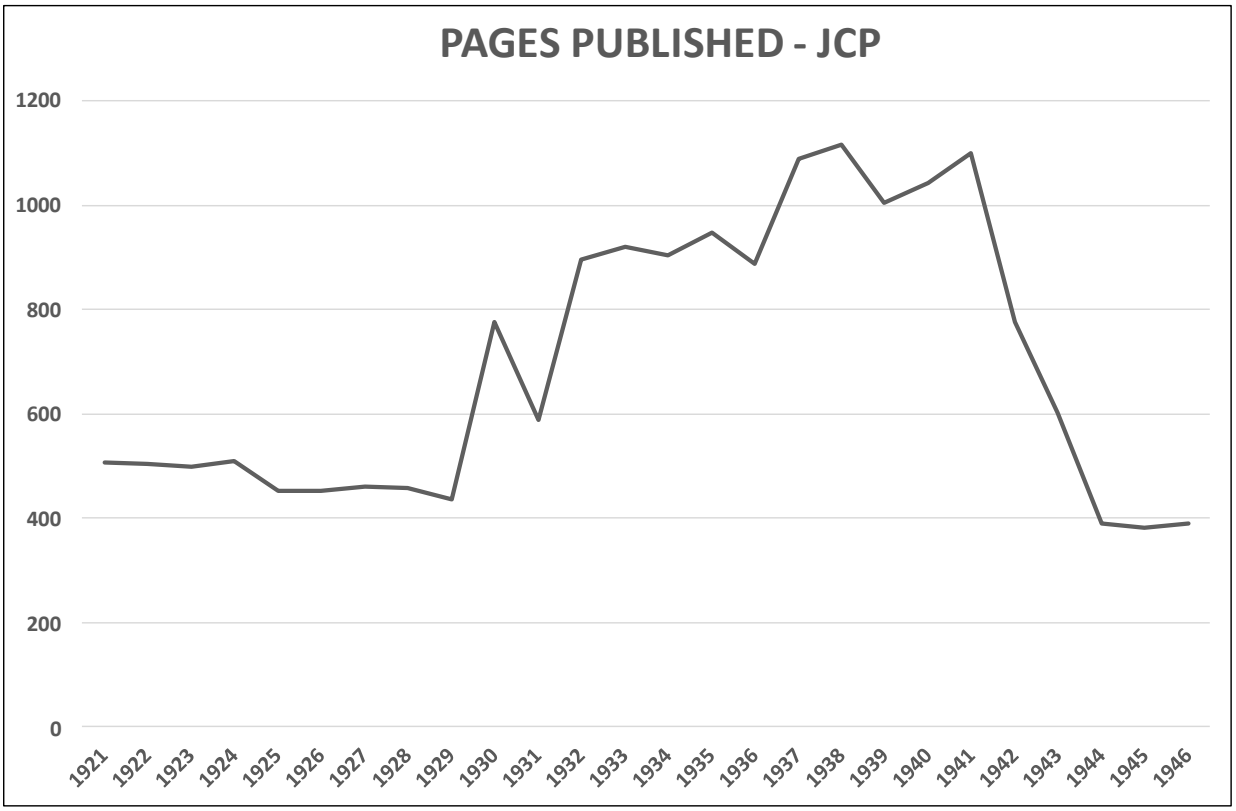

Figure 1. **Number of pages published annually in the *Journal of Comparative Psychology* (1921-1946).**

The number of pages published in BN was approximately three times that of JCP, whether 4 or 6 issues of BN were published in any given year (or volume), indicative of continued, if not growing, interest in neuroscience. The number of pages published in BN has declined over the last 3-5 years (Figure 3), and in the three years since these data were first tallied and presented to students, the number of pages published has continued to decline (M = 649/year). There are many reasons why journals and publishers decrease the number of pages per volume, but one possible explanation for this decline might be that there has been an increase in the number of journals publishing translational neuroscience research, as well as more researchers doing work in the areas of cognitive and/or social neuroscience with human participants and publishing this work in more specialized journals.

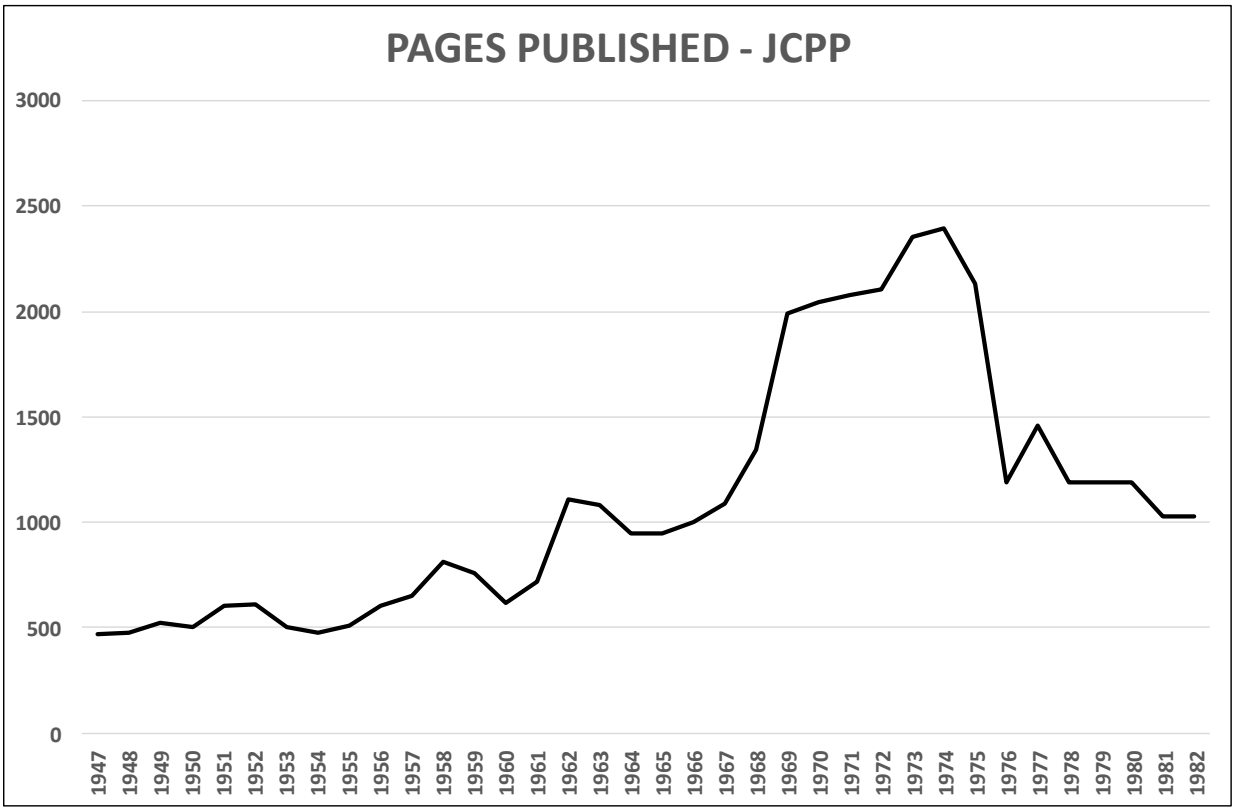

Figure 2. **Number of pages published annually in the *Journal of Comparative and Physiological Psychology* (1947-1982).**

Regardless of the relative numbers of pages published in BN and JCP, much of the research was done with animal species, and with increases in human neuroscience research, a comparative, evolutionary perspective is present, albeit often implicit. Also shown in Figure 3 is the number of pages published, per year, in *Evolutionary Psychology* (EVP), which debuted in 2003. The first article in EVP was an editorial relating evolutionary psychology to sociobiology (Silverman, 2003), which further highlighted the comparative nature of these perspectives – the theories and hypotheses generated by sociobiologists for their studies of nonhuman species were being applied to studies of humans to understand social phenomena. The number of pages published in EVP has shown a dramatic increase over the first 12 years of this journal (2003-2014), consistent with the increased use of the term "evolutionary psychology" and a decreased use of the term "sociobiology," at least with respect to materials included in Google Scholar (Webster, 2007). Of course, evolutionary psychology, as a field of study, received a large boost from the publication of Buss' textbook entitled *Evolutionary Psychology* (1999), as well as other work published in primary sources where distinctions between evolutionary psychology and sociobiology are presented (e.g., Buss, 1995).

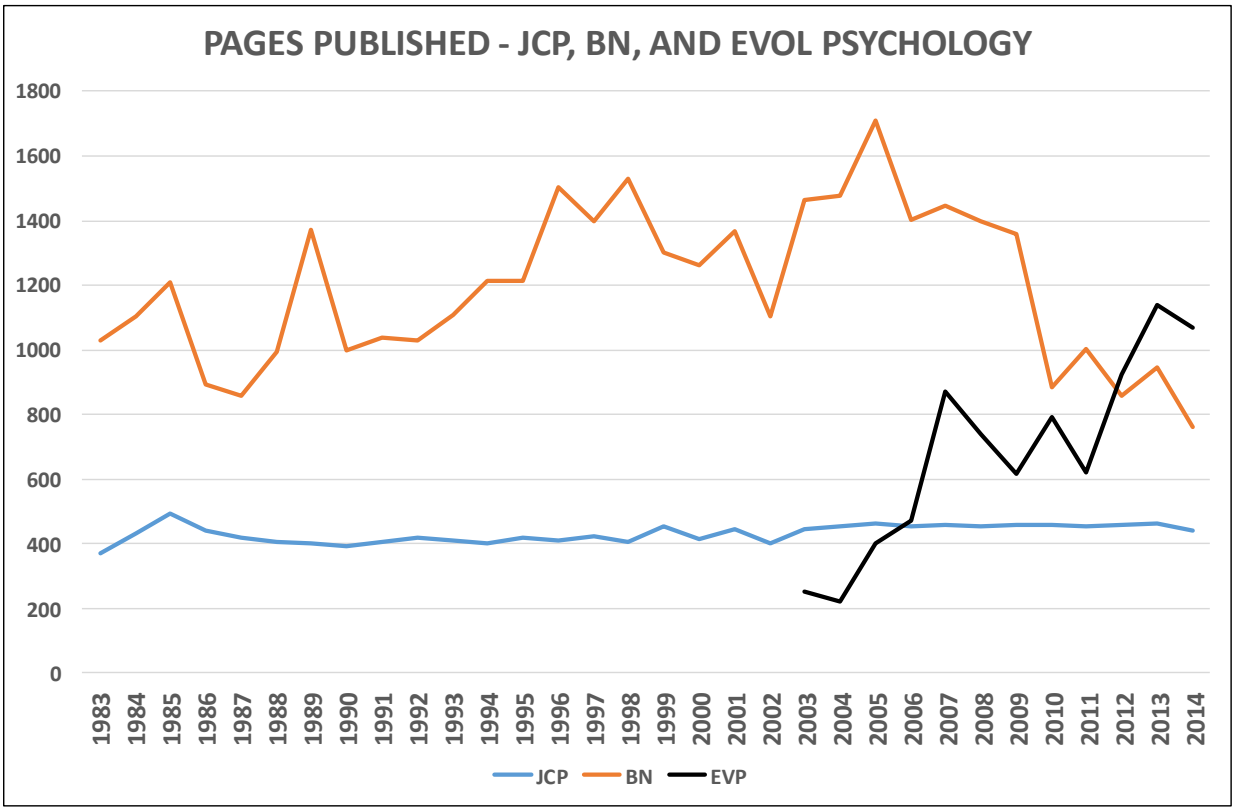

Figure 3. **Number of pages published annually in the *Journal of Comparative Psychology* (JCP; 1983-2014), *Behavioral Neuroscience* (BN; 1983-2014), and *Evolutionary Psychology* (EVP; 2003-2014).**

My primary intent for this module was to expose students to information, in historical context, about the contributions to the field of Psychology made via the study of animals, whether those studies were labeled as animal behavior, comparative psychology, physiological psychology, behavioral neuroscience, or sociobiology, and how human evolutionary psychology developed from these other approaches, thus making evolutionary psychology inherently comparative. The fifth and final class included a summary of Buss' (1989) study of mate preferences across 37 cultures, mention of titles of some articles published in the first two volumes of *Evolutionary Psychology* (2003-2004), as well as titles from the last two issues of 2015, which were already available when this module was being taught. The similarities of the topics of these articles and those of previous animal-based research were emphasized, one more attempt to highlight the value of a comparative approach to the study of behavior.

Table 2
Pages Published in Relevant Journals

Journal Name	Years	Volumes	Total Pages	Pages/Volume ($M \pm SD$)	Pages/Issue
Journal of Comparative Psychology	1921-1946	1-43	18,091	695.8 ± 261.1	117.5
Journal of Comparative and Physiological Psychology	1947-1982	40-96	39,724	1,103.4 ± 593.2	150.5
Behavioral Neuroscience	1983-2014	97-128	38,204	1,193.9 ± 241.1	199.0
Journal of Comparative Psychology	1983-2014	97-128	13,823	432.0 ± 27.4	108.0
Evolutionary Psychology	2003-2014	1-12	8,122	676.8 ± 301.3	208.3
International Journal of Comparative Psychology	1987-2014	8-27	6,528	326.4 ± 169.8	78.2

Note. For several journals, numbers of issues per volume varied across years. *Evolutionary Psychology* published only one issue per year (and per volume) in its first four years. Information for the *International Journal of Comparative Psychology* was based on what was available electronically and does not include the first seven volumes.

As an epilogue, I want to mention two things. First, I recognize that my account of the history of animal behavior research was selective, as mentioned, and I included some topics in this module that had personal relevance to my interests and my career. Readers can find more detailed histories elsewhere, and I recommend the work of Donald Dewsbury. Second, the History and Systems of Psychology course, as described here, was offered only that one semester, and since the fall of 2015, has been taught by one instructor rather than being team-taught. However, whether team-taught or not, incorporating some of the history of the scientific study of animal behavior belongs in any History of Psychology course, and might be particularly valuable to students at institutions where they get relatively little exposure, via other course work, to the comparative and evolutionary aspects of behavior. With the current interest levels in both neuroscience and evolutionary psychology, it is important for students to know about the origins and development of these areas of study, and the contributions of comparative animal research to modern psychology.

References

Beach, F. A. (1950). The snark was a boojum. *American Psychologist, 5*, 115-124. doi: 10.1037/h0056510

Burghardt, Jr., R. W. (1987). The *Journal of Animal Behavior* and the early history of animal behavior studies in America. *Journal of Comparative Psychology, 101*, 223–230. doi: 10.1037/0735-7036.101.3.223

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12, 1–49. doi:10.1017/S0140525X00023992

Buss, D. M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry*, 6, 1–30. doi:10.1207/s15327965pli0601_1

Buss, D. M. (1999). *Evolutionary psychology: The new science of the mind*. Boston, MA: Allyn & Bacon.

Daly, M., & Wilson, M. (1983). *Sex, evolution and behavior*. Boston, MA: Willard Grant.

Dewsbury, D. A. (1992). Comparative psychology and ethology: A reassessment. *American Psychologist, 47*, 208–215. doi:10.1037/0003-066X.47.2.208

Dewsbury, D. A. (2009). Charles Darwin and psychology at the bicentennial and the sesquicentennial: An introduction. *American Psychologist, 64*, 67–74. doi:10.1037/a0013205

Hamilton, W. D. (1964a). The genetical evolution of social behaviour. I. *Journal of Theoretical Biology, 7*, 1–16. doi:10.1016/0022-5193(64)90038-4

Hamilton, W. D. (1964b). The genetical evolution of social behaviour. II. *Journal of Theoretical Biology, 7*, 17–52. doi:10.1016/0022-5193(64)90039-6
Hodos, W., & Campbell, C. B. G. (1969). Scala Naturae: Why there is no theory in comparative psychology. *Psychological Review, 76*, 337–350. doi:10.1037/h0027523
Jaynes, J. (1969). The historical origins of 'ethology' and 'comparative psychology.' *Animal Behaviour, 17*, 601–606. doi:10.1016/S0003-3472(69)80001-1
Silverman, I. (2003). Confessions of a closet sociobiologist: Personal perspectives on the Darwinian movement in psychology. *Evolutionary Psychology, 1*, 1–9. doi:10.1177/147470490300100101
Smuts, B. B., Cheney, D. L. Seyfarth, R., Wrangham, R. W., & Struhsaker, T. T. (Eds.). (1987). *Primate societies.* Chicago, IL: University of Chicago Press.
Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology, 46*, 35–57. doi:10.1086/406755
Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago, IL: Aldine.
Trivers, R. L. (1974). Parent-offspring conflict. *American Zoologist, 14*, 249–264. doi:10.1093/icb/14.1.249
Trivers, R. L., & Willard, D. E. (1973). Natural selection of parental ability to vary the sex ratio of offspring. *Science, 179*, 90–92. doi:10.1126/science.179.4068.90
van Schaik, C. P. (1989). The ecology of social relationships amongst female primates. In V. Standen & R. A. Foley (Eds.), *Comparative socioecology: The behavioral ecology of humans and other mammals* (pp. 195–217). Oxford, UK: Blackwell Scientific.
Webster, G. D. (2007). What's in a name? Is 'evolutionary psychology' eclipsing 'sociobiology' in the scientific literature? *Evolutionary Psychology, 5*, 683–695. doi: 10.1177/147470490700500401
Wilson, E. O. (1975). *Sociobiology: The new synthesis.* Cambridge, MA: Belknap Press.
Wrangham, R. W. (1980). An ecological model of female-bonded primate groups. *Behaviour, 75*, 262–299. doi:10.1163/156853980X00447
Zucker, E. L., & Clarke, M. R. (1998). Agonistic and affiliative relationships among adult female howlers (*Alouatta palliata*) in Costa Rica over a 4-year period. *International Journal of Primatology, 19*, 433–449. doi:10.1023/A:1020356321396
Zucker, E. L., & Kaplan, J. R. (1981). Allomaternal behavior in a group of free-ranging patas monkeys. *American Journal of Primatology, 1*, 57–64. doi:10.1002/ajp.135001010

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