

SUPREME COURT OF THE STATE OF NEW YORK  
COUNTY OF NEW YORK

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In the Matter of a Proceeding under Article 70 of the  
CPLR for a Writ of Habeas Corpus,

THE NONHUMAN RIGHTS PROJECT, INC., on behalf  
of KIKO,

Petitioner,

-against-

**SUPPLEMENTAL  
AFFIDAVIT OF EMILY SUE  
SAVAGE-RUMBAUGH**

CARMEN PRESTI, individually and as an officer and  
director of The Primate Sanctuary, Inc., CHRISTIE E.  
PRESTI, individually and as an officer and director of  
The Primate Sanctuary, Inc., and THE PRIMATE  
SANCTUARY, INC.,

Index No.

Respondents.

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STATE OF \_\_\_\_\_ )  
  ) ss:  
COUNTY OF \_\_\_\_\_ )

Emily Sue Savage-Rumbaugh, being duly sworn, deposes and says:

**Introduction and Qualifications**

1. My name is Emily Sue Savage-Rumbaugh. I received a B.A. in Psychology from Southwest Missouri University in 1970, a M.S. in Psychology from University of Oklahoma in 1975, and a Ph.D. in Psychology from the University of Oklahoma in 1975. I have been awarded honorary Ph.Ds by the University of Chicago in 1997 and Missouri State University in 2008. I work and reside in Des Moines, Iowa.

2. I submit this affidavit in support of Petitioner, The Nonhuman Rights Project, Inc. (“NhRP”), on behalf of Kiko, for a writ of habeas corpus. I am a non-party to this proceeding.

3. I am currently the President of Bonobo Hope and Co-Director of the Panbanisha Chimpanzee and Bonobo Sanctuary. I previously served as (in reverse chronological order): (1) an Affiliate Professor at Iowa State University, Simpson college for seven years; (2) a Professor, an Associate, and an Adjunct Professor in the Department of Biology & Psychology at Georgia State University over the course of twenty-five years; and (3) an Associate Research Professor, Assistant Research Professor, and Research Associate at the Yerkes Primate Research Center at Emory University over a twelve year period. I have regularly taught classes in primate behavior, evolution of innate behaviors, evolution of learned behavior, learning theory, developmental psychology, biology, psycho-biology of language, socio-biology, and introductory ethology.

4. During my career I have received sixteen awards from a variety of academic, research, nongovernment, media, and professional organizations. Some of the more notable include: (1) one of the most 100 influential scientists in the world by *Time Magazine* in 2010; (2) selection by the Millennium Project for inclusion on the 100 most influential works in cognitive science in the 20<sup>th</sup> century for my book titled, “Language comprehension in ape and child,” (1993, Monographs of the Society for Research in Child Development); (3) a Fellow at the American Psychological Association; and (4) a Woodrow Wilson Fellow (1970-1975). I have also received funding support from, the University of Oklahoma, National Control Devices, The Templeton Foundation, The Townsend Foundation, The Milt Harris Foundation for the study of intelligence, language and social behaviour in chimpanzees, beginning in 1972 and continuing to date.

5. I am affiliated with a number of professional organizations including the International Primatological Society and the American Psychological Association. During the course of my career, I have also received numerous research grants including grants from: (1) National Institute of Child Health and Human Development; (2) Biomedical Research Support Grant, Emory University; (3) World Wildlife Fund; and (4) The Templeton Foundation.

6. My research specialization is in the study of the language learning and cognition of chimpanzees and bonobos. I began studying the cognitive processes and linguistic behavior in captive chimpanzees in 1971. From 1972 to 1975, I conducted captive studies of mother-infant groups of chimpanzees. From 1975 to 1976, I studied the social behavioral of *Pan paniscus* and *Pan troglodytes*. Following that, I spent thirteen years (between 1976-1989) conducting studies of symbolic and cognitive processes in *Pan paniscus*, *Pan troglodytes*, and alinguistic *Homo sapiens*. In 1993, I spent a year studying free-ranging bonobos. From 1989 until present, I have studied the lexical and vocal linguistic ability, musical ability, tool manufacturing ability and general cognitive development of apes, with a specific focus on bonobos.

7. I have written or co-authored seven books, the most relevant include: (1) *Ape Language: From Conditioned Response to Symbol* (1986, New York: Columbia University Press); (2) *Kanzi: A Most Improbable Ape* (1993, NHK Publishing Co: Tokyo, JAPAN); (3) *Kanzi: The Ape at the Brink of the Human Mind* (1994, New York: John Wiley Publishers); (4) *Apes, Language, and the Human Mind* (1998, New York, NY: Oxford University Press); and (5) *Kanzi's Primal Language: The cultural initiation of apes into language* (2005, London: Palgrave/Macmillan). I have also appeared in five films on chimpanzees and apes, three NHK network (Japan) specials and one BBC special.

8. I have published 183 articles on the learning capability, behaviour, ecology, welfare, or conservation of chimpanzees, monkeys, and baboons. These articles are published in many of the world's most-cited peer-reviewed scientific journals, including: *Science*, *American Journal of Primatology*, *Folia Primatologica* (the official journal of the European Federation for Primatology), *International Journal of Primatology*, *Journal of Comparative Psychology*, *Journal of Human Evolution*, *Behavioral and Brain Sciences*, and *Journal of Experimental Psychology*, *Journal of Biology and Philosophy*. I have also published in *Proceedings of the Fifth International Congress of Primatology*, *Proceedings of the Sixth International Congress of Primatology*, *Contemporary Primatology*, *Encyclopedia Americana*, *Collier's Encyclopaedia*, *Encyclopaedia Britannica Yearbook*, *The Cambridge encyclopaedia of human evolution* and *Encyclopaedia of Neuroscience*. Specific topics of these publications include: the use of symbolization and language by chimpanzees, group formation among captive mother-infant chimpanzees, human-oriented courtship behavior in a human-reared chimpanzee, mothering behavior towards a kitten by a chimpanzee, play and socio-sexual behaviour in chimpanzees, chimpanzee communication, chimpanzee tool use, chimpanzee cognition, chimpanzees and protolanguage, primate intelligence, chimpanzee counting, communicative intentionality in the chimpanzee, the relationship between language in apes and human beings, summation in the chimpanzee, care of captive chimpanzees, imitation by an ape, grammatical development by an ape, the invention of protogrammar by an ape, imitative learning in chimpanzees, delay of gratification in chimpanzees, spontaneous logicomathematical constructions by chimpanzees, primate geometry, and ape consciousness.

9. I regularly give invited lectures and take part in international symposia on primatology, which I have done since 1978. In the United States, I have given lectures at

Columbia University, Emory University, Princeton University and the University of Chicago, among many other notable educational institutions. I have also given lectures and presentations on primates in other countries including: England, Japan, Canada, Germany, Australia, Portugal, France, Mexico, Sweden and Berlin.

10. My Curriculum Vitae sets forth my educational background and experience and is annexed to my original Affidavit, filed herewith.

### **Basis for Opinions**

11. The opinions I state in this affidavit are based on my professional knowledge, education, training, research and fieldwork, as well as my review of peer-reviewed literature. A full reference list of peer-reviewed literature cited herein is annexed hereto.

12. In addition, the opinions set forth herein are based on many years of collaboration and research with my colleague, Duane Rumbaugh. Professor Rumbaugh and I have designed and implemented research experiments together in a joint laboratory and have co-authored numerous peer-reviewed articles.

### **Opinions**

13. Chimpanzees and bonobos who acquire language are often asked to carry out duties and responsibilities and succeed. (Savage-Rumbaugh, Rumbaugh and Boysen, 1978a, Savage-Rumbaugh, 1986; Savage Rumbaugh, 1993). They enter into contractual agreements (such as “If you do X, I’ll do Y.”) They evidence an understanding of their duties and responsibilities both in their interactions with human beings and in their interactions with each other. (Savage-Rumbaugh, 1986a; Segerdahl, Fields and Savage-Rumbaugh, 2005). For example, one chimpanzee will remind another of the task at hand, if the attention wanders. (Savage-Rumbaugh, Rumbaugh and Boysen, 1978b). Bonobos in the wild have duties to see that

all members of the group have access to food, that all group members arrive at a feeding source together, and that all group members have access to that source in a manner that benefits the entire group. This requires cognitive concentration, social rules and a greater sense of social responsibility for the 'good' of the group than for fulfilling one's individual desires. (NHK Video, archive footage, Savage-Rumbaugh, in preparation; Savage-Rumbaugh, Williams, Furuichi and Kano, 1994; Kano, 1992). Chimpanzees inhabit sparser environments and therefore travel in smaller parties and generally feed at separate locations. However the larger "unit group" does travel together, though out of sight of one another. Individuals sleep separately, but in vocal contact with each other. The distances between a travelling group of chimpanzees make it mandatory for them to share similar information with one another. It appears that long distance vocalizations are employed to announce arrival at large food patches, and other information regarding food and planned travel patterns are shared among group members (Pruetz, archive video, Goodall, 1986; Boesch, 2012).

14. In the case of chimpanzees and bonobos whom I study in a cross-cultural linguistic (*Pan/Homo*) world, duties and responsibilities (and the moral imperatives they necessarily entail) are simply a part of everyday life.

15. The focus of the research is upon determining the degree to which both species of apes are capable of human language and human culture. Because human children acquire these abilities by being reared in families and villages where such capacities are naturally expected to emerge in their children, bonobos and chimpanzees were reared in a similar manner and with similar expectancies in order to equate the cultural and environmental experiences of both species. (The psychological literature is replete with findings that "expectancies" during rearing are a central component in establishing the capabilities that human children display). It is

noteworthy that these chimpanzees and bonobos were never treated as pets. They were *expected*, at all times, to behave as the self-conscious beings that apes are.

16. There are two critical capacities that allow for the emergence of symbolic thought and language, and thus the emergence of a self-conscious understanding of one's duties and responsibilities to the group, or the capacity to see one-self as others see them. The first is the capacity to cognitively step outside the "flow" of life and reflect upon it. Chimpanzees and bonobos reared in a language world clearly display this capacity. They recognize their shadows; they recognize themselves in mirrors; they apply bodily decorations; they intend beyond the immediacy of the current social situations in which they are engaged; they signal intent by means other than through the use of incipient actions; and they prevent their offspring from engaging in behaviors that could be dangerous, long before danger actually arises. "Danger" is thus "cognitively defined" rather than simply perceived. The second is the awakening of the ape child's desire to adopt and to accept duties and responsibilities. This awakening resides in the emotional cross-cultural attachments between group members. Both humans and apes engaged in this research display a degree of mutual trust and cooperation otherwise found only *within* a species, in a cross-cultural bi-species world.

17. The focus of ape language and cultural studies has been to determine the extent to which apes have the capacity for human forms of culture and language. Duties and responsibilities are a natural extension of both human language and human culture, though their documentation has not often been the focus of inquiry. As with many things, duties and responsibilities simply fall naturally out of the appearance of human language and culture. Therefore, documentation of these abilities listed here is to be found in visual material and descriptive accounts along with allusions to such abilities in studies dedicated to other topics. For

this reason, a general list of applicable references are provided as an addendum to this affidavit in place of a particular citation for each capacity reported herein.

18. Individual chimpanzees and bonobos vary widely in their interests and in the particular capacities they seek to master, as do human children. Often if one chimpanzee or bonobo excels in some skill, those close in age seek to excel in other skills. For example, Kanzi views himself as the expert stone tool maker and the expert fire maker in the group. He behaves as though it is his responsibility to demonstrate these skills, and to practice them. He clearly does not appreciate it if Panbanisha takes this role, or if she is asked to take this role by humans in the name of research. Panbanisha is the artist and story manufacturer, Elykia is the translator between human and bonobo languages, Teco is the one who found a way to cheer up the group when their spirits are low, Matata teaches the skills of the forest, Nathan was the mediator between the worlds, P-Suke was the sex symbol, Panzee was the puzzle solver, Maisha is the show-off, Sherman is the leader, Lana is the critic and Austin was the careful one. Each of these apes recognized the roles of the others and “stood down” when the recognized expert set about to demonstrate their capacities for human visitors.

19. Capacities indicative of the chimpanzees’ ability to assume duties and responsibilities and to make contractual agreements in the groups with which I worked included:

- a. A conscious awareness of the fundamental importance of fire, accompanied by an understanding that fire is produced by a variety of different kinds of activities.
  - 1) A conscious awareness of the need to responsibly practice this skill and to demonstrate it to human beings who place great value on it.



- 2) A conscious awareness of all the component skills required (finding dry twigs and leaves, placing them in a pile, lighting them, adding additional larger pieces of wood as fuel, not adding too much fuel and the need to keep the fire contained, the need to take to avoid being burned, and the need to put the fire out, lest it spread).
  - 3) A conscious awareness of the way in which fire alters the texture, taste, and desirability of various foods, making some better and others worse.
  - 4) A conscious awareness of the properties and material required to start fire, i.e., small dry sticks, paper, etc.
- b. A conscious awareness of how to cook a meal as a human would, accompanied by an understanding of the responsibility to practice this and to demonstrate to human beings this ability. Within activities that dealt with cooking, they were many sub-components they were willing to demonstrate, including:
- 1) Obtaining pots and pans
  - 2) Obtaining foods
  - 3) Chopping foods
  - 4) Mixing and stirring foods
  - 5) Heating foods
  - 6) Serving foods
  - 7) Extracting juices

- 8) Crushing seeds
  - 9) Blending foods as they processed them through different stages of heat
- c. Within their own social group they assumed responsibilities listed below:
- 1) Teaching younger group members rules about food sharing
  - 2) Teaching younger group members rules for how to interact with human beings
  - 3) Teaching younger group members about dangerous animals
  - 4) Protecting younger group members from dangerous animals
  - 5) Teaching younger group members about dangerous objects and/or locations in the environment
  - 6) Protecting younger group members from dangerous objects and/or locations in the environment
  - 7) Conveying vital information to other group members about the actions of humans as well as other group members that were out of site
  - 8) Teaching those members of the bonobo group who had little human contact how to employ lexical symbols in communicative exchanges with human
  - 9) Teaching those group members who had little human contact how to employ vocal symbols in exchanges with humans
  - 10) Informing group members of any unusual or suspicious actions on the part of humans

- 11) Informing group members of any unusual or suspicious actions on the part of animals
- 12) Those who could comprehend spoken English assuming the responsibility to translate for other members that were unable to comprehend spoken English
- 13) Taking into account which members were not receiving sufficient food from human caretakers who made their own rules about how much food various bonobos were allowed and flaunting human rules by hiding food for those members who were being underfed
- 14) Protecting young humans and young apes from falling or engaging in activities that could lead to harm
- 15) Seeing that needed items, such as blankets were distributed among the group in a responsible manner
- 16) Conveying to human beings whom they trusted, information regarding deceitful actions of other human beings
- 17) Conveying to human beings whom they trusted, information regarding physical harm done to them by human beings who tried to intimidate and frighten the bonobos by violent means
- 18) Reminding human beings of promises that had been made to themselves or to other members of their own social group
- 19) Taking responsibility for care of dogs and making certain that dogs were properly treated

- 20) Taking responsibility for care of orangutans and making requests for their needs when the orangutans were unable to do so for themselves
- d. A conscious awareness of the importance painting and writing serve as symbolic modes of expression. An understanding of the need to paint in a manner that is interpretable by human beings, and an ability to so do.
- e. A conscious awareness of the importance of making and understanding contractual agreements and promises (“If you do X I will do Y”, or “I do Y, will you promise to do X?”) and to keep them. These agreements are made linguistically and cover all manner of situations with both humans and other chimpanzees. Examples include:
- 1) “If you promise to stay with me, we will go outdoors.”
  - 2) “If you will watch Teco for me, while I go get tea, I will bring you some.”
  - 3) “If you want some Austin’s Cheerios, please give some of your peanuts to him.”
  - 4) “If you promise not to tear up this computer, you may use it.”
  - 5) “If you will show the visitors how to use the keyboard now, we will go outdoors and make a fire later.”
  - 6) “If you will promise to take care of the dog, I will let it play with you.”
  - 7) “If you will translate what Matata is saying, I will take you for a car ride.”

- 8) "If you leave a written note in the sand, X will read it on another day and leave here what you request."
  - 9) "If you are good and help me while the visitors are here they will bring you a surprise."
  - 10) "If you are quiet, no one will know we are here and we can listen to what they are saying."
- f. A conscious awareness that humans are expected to uphold their end of contractual agreements and promises which they make to apes as well as to one another.
  - g. A conscious awareness of the importance humans attach to being able to tie knots and to link things together through this method.
  - h. A conscious awareness of the need to keep blankets and other nest-building materials laundered and folded and an awareness of the need to utilize clean blankets on the top side of the nest.
  - i. A conscious awareness of the importance humans place on the apes' capacity to make stone tools, bone tools, and stick tools.
    - 1) A conscious awareness of the requirements of the various properties of these different classes of tools (i.e. stick tools can be fashioned with hands and teeth, stone tools must be fashioned with other stone, bones can be split lengthwise in a manner that stone and wood cannot, etc.).
    - 2) A conscious awareness of the uses to which tools of different shapes can be addressed.

- j. A conscious awareness of the need for child-care. This includes a great sensitivity to the needs of infants, both those belonging to self and those belonging to others. It includes a conscious monitoring of what the infant can and cannot do, as well as what an infant can and cannot understand. It demands a conscious understanding of the kinds of things that must be done to ensure an infant's safety. This includes an understanding that the needs of human infants and bonobos differ considerably. (This skill was not highly developed in Matata; however Panbanisha's monitoring of infants and their requirements was essentially at the human level). This care and caution is not only exhibited when the infant is in clear and present danger (as is the case with most animal.). The care and caution is exerted long before the infant becomes endangered.
- k. A conscious awareness of the need to keep the living facility clean according to human standards and to remove what humans designate as trash. Also a conscious awareness of what USDA inspectors search as demonstrated by helping to prepare for inspections (by hiding items they might asked to be removed from the enclosures, etc.).
- l. A conscious awareness of the importance of sharing food among group members in an appropriate manner according to bonobo food rules as taught by Matata who was wild-reared.
- m. A conscious awareness that most human beings neither understand, nor respect their capacity to employ symbols creatively and in contextually appropriate novel manners. They attempt to meet such persons more than

halfway, because they are keenly aware and understand that humans fail to grasp that any kind of symbolic system except their own could be symbolic or complex. Bonobos will go to great lengths to teach human words, preferring to do so only in contextually appropriate meaningful communicative contexts; because humans cannot grasp symbol meanings devoid of context.

- n. A conscious awareness that many humans fail to grasp that they understand spoken words and sentences at a high level. They will take great care to try and demonstrate this to humans in novel socially appropriate contexts. They have learned that responding in “test” situations, when humans repeat trials over and over, does little to convey their actual abilities and desire to avoid these settings. Some apes completely refuse them.
- o. A conscious awareness of numerosity, which gives them a grasp of numbers to twelve or more without actually counting. This can become accompanied by an awareness of the human desire for counting, and some apes have demonstrated behaviors that are true counting and reading.
- p. A conscious awareness of, and interest in, similar to that of human children, pretend play. This can be accompanied by a fascination with that play. This can take the form of object play, as when figures (toys representing apes) are engaged in actions of pretend attack. It can also take the form of pretending to do things to others such as pretending to be afraid, pretending to be angry, pretending to be asleep, pretending to hide,

pretending to be another entity (as in wearing a mask), or pretending not to hear or see something obvious. This fascination can extend to pretending to do things to other chimpanzee and/or bonobos to determine if they understand the pretense; for example whether other bonobos or chimpanzees understand that a plastic snake is not real, or that a person in a gorilla suit is not a gorilla.

- q. A conscious awareness of the power of deceit. This includes knowledge of “good” and “bad” and the capacity to label one’s own actions as belonging to one or the other of these categories.
- r. A conscious awareness of their ability to plan and co-ordinate group actions. This can be as simple as making a plan to make a fire and being sure that the needed items are packed, or as complex as making a plan to attack human beings who are perceived as deceitful or devious. Such plans are exchanged vocally and coordinated across space and time.
- s. A conscious awareness of the need to attempt to form connections with human beings on levels that human beings can understand. As experience with a variety of humans began to take place, the apes recognized that they needed to stretch their communicative competencies to try and enable human beings to understand their communications, their rules, and their view of what moral treatment entailed.

20. Bonobos and chimpanzees have a clear understanding of their strength relative to that of humans (much greater) and their speed and agility (far greater). They demonstrate that they understand the need to treat humans with care, whether the interactions be grooming, play,



tree climbing, etc. They slow down their pace, they exert exact control over their bodies and their teeth, with exceeding care and precision.

21. Bonobos and chimpanzees who have acquired language recognize the need to inform others of important information. They understand the circumstances that cause others to lack information they themselves have (often termed “Theory of Mind”). For example, they inform others of things that have led to danger, such as potential fires, wild dog packs nearby, branches on trees that are unstable, foods that are poisonous, location of hidden objects, causes of death of other group members, mistreatment of group members, deceit on the part of others, etc.

22. Bonobos and chimpanzees understand that they must remain in certain areas and that they must not harm or scare human beings who are visitors or who do not know them. Frequently, when doors are left open they refuse to go into areas where they are not allowed. If humans whom they do not know inadvertently enter their areas, they avoid those human beings, in recognition that interaction with them is prohibited by rules of the facility, unless they feel threatened.

23. Having acquired language, if bonobos or chimpanzees harmed human beings, it was inevitably the case that they perceived those human beings as either having broken rules of conduct, having said something insulting (often out of another’s persons earshot) or having threatened them or persons they trust.

24. Having acquired language, bonobos and chimpanzees become increasingly trustworthy and responsible as they pass out of adolescence and into adulthood. They assume roles of group monitoring and teaching of children.

25. Having acquired language, bonobos and chimpanzees presume that humans will explain their intentions and that they are to do likewise. Every interaction becomes a linguistically negotiated contract. These contracts can be applied to time periods that are days, weeks and even years ahead and will be remembered and enacted at the appropriate time.

26. Whenever there exists a disagreement between a human and a chimpanzee or bonobo who has acquired language, the disagreement can be solved by explaining the reasons for the action. For example, if a bonobo does not wish a person to leave and stands in front of the door, repeatedly insisting they remain in the cage; this behavior can be negotiated by an explanation of the reason for leaving - such as dentist appointment, etc.

27. Bonobo and chimpanzees keep promises and secrets. In the wild, adult males use this capacity to stealthily approach other groups for purposes of surprise attack. In captivity, having acquired a human language, they remind others of events such as birthdays, days visitors are expected, etc. They remind caretakers of trash that has not been carried out, drains that are clogged, computer programs that are mis-performing, etc. If Panbanisha requested foods that she was not allowed to have while on a diet, she would indicate to her caretakers to keep it a "secret." Other "secrets" were certain kinds of knowledge, shared with only the most trusted, such as if an important object had been hidden for emergency use.

28. When apes are taken out of doors on leads they are asked to promise to be good, not to harm anyone and to return when asked. If they promise these things they keep their promise. Should they decide they are not going to keep such a promise, reminding them of the promise, the need for and the reason for it, has always been sufficient to reinstate the promise. If they are not capable of understanding language at that level, they do not make and/or keep promises except for the immediate future (five minutes), and cannot be taken outdoors on leads.

But language extends the time of promise keeping to years, thus serving as an extremely power mechanism for the development of very complex group networks of social obligations, responsibilities and duties.

29. Ape children acquire the moral sense and duties of both cultures and the languages of both cultures. Self-aware beings cognizant of their own identity, they come to desire to engage in mutually responsible moral actions. They come to display a sense of loyalty, duty, honor, and mutual respect which takes cognizance of the individuality and free-will of other self-aware beings. However, they extend this to human beings only as long as they are, in turn, treated similarly.

30. Adult chimpanzees and bonobos, when reared in the proper manner, also become capable of duties and responsibilities that are “self-assigned.” They also acquire an understanding of how to behave in a manner that they begin to perceive as culturally appropriate for humans. As this occurred, they began to demonstrate a sense of responsibility to help the human members of their Pan/Homo world attempt to show visitors how to begin to cross the species boundary. Additionally some *Pan* members, as they entered their decade of life, began to study this problem themselves and reflect upon it. This surprising event occurred when the Pan/Homo group found themselves relocated to a new facility where they had to cope with large numbers of people who viewed the *Pan* members as basically nonsentient, nonknowing, nonself-reflective beings.

31. In response to the highly distressing event of relocation to facility where they were all were treated very differently than had been the case at the Language Research Center where they were reared, Kanzi, Panbanisha and Nyota each began to try to find their own ways to help shoulder the new responsibilities imposed upon this *Pan/Homo* group. They started to

assist those that the outsiders viewed as their “experimenters.” Panbanisha began to repeatedly watch and comment on documentaries about human/ape differences. The earliest that caught her attention was “Harry and the Hendersons,” which she watched over and over as child. As an adult, she studied the specials on PBS and the Discovery Channel. She also began to translate Kanzi’s vocal utterances onto the keyboard. Elykia began to understand some English and started to offer running translations of what humans were saying for her mother Matata, and her brother Maisha, knowing that they could not understand human language. Kanzi began to pose for photographers, doing precisely as they asked, so the photographers did not have to watch and “wait” for their shot. He began to carry out scenes for videographers precisely as they asked. Kanzi also taught Elykia (his mother Matata's fourth daughter) how to smile for the camera, and for visitors. Panbanisha began teaching Matata how to use the symbol board filled with lexigrams, which she had acquired spontaneously as an infant, even before she began to speak “bonobo.”

32. Maturation in the Pan/Homo world began to reflect back upon the wild caught bonobo matriarch of the group Matata. She had *refused* for decades to view the keyboard as a linguistic device. Once her children, Kanzi and Panbanisha, grew up and were regularly employing it to communicate with humans, each other, and their offspring, Matata started to show a greater interest in the potential of this device. Also at this point, her children began to be able to vocally translate lexigrams into bonobo speech for her. As she began to grasp the true function of the keyboard, she started to study it for hours at a time; but always hid it, if caught doing so. She continued to act as though she did not know lexigrams, but when the situation was urgent or critical, she could produce fully complete appropriate sentences; for example, one day when she became ill, she requested, “Give green medicine.”

33. It was in the conscious awareness of the bonobos and chimpanzees of the implicit agendas and external goals of their *Pan/Homo* group that one could most clearly discern the emergence of their capacity to assume duties and responsibilities in a human-like manner. They understood not only what they were doing, but why they were doing it. As is the case with humans, their understanding increased with age and experience. Similarly their recognition of the degree to which persons who were outside their immediate *Pan/Homo* family misunderstood them increased. They became highly creative in trying to reach across the divide to even the most incredulous human beings. They slowed down their actions and sounds, they exaggerated them, they repeated them, they blended sounds, gestures and lexigrams and they waited till they noted that the humans were observing or their cameras were turned off before they engaged them. While these were skills that the human members of the group could model, they could never have been taught. Close observation of the behavior of others, while reflecting on the intent of others, requires the knowledge that the “other” has a mind, that the contents of two minds are not always the same, and that one must pay attention to the “attention” of the other if one wishes to successfully redirect their perspectives, ideas, views, etc.

34. Both species in a *Pan/Homo* world become intensely aware of their differences and their similarities and engage in real and mutual trust and cooperation. Both species understand the magnitude of this event and that it requires far more than simple friendship. All sentient self-knowing entities, such as chimpanzees and bonobos, endowed with a sense of “I am” manifest the self-understanding, self-knowledge and self-choice that enable them to recognize, respect and acknowledge *the existence of a similar capacity* in the other species. In this regard it is noteworthy, that while both apes and humans can love, rear, care for and interact with canids, adults of both species recognize that canids are incapable of the kind of self-

knowledge that adult humans and adults apes possess. Therefore, neither species holds dogs responsible for "intentional actions" in the same way that hold other adult humans and/or apes responsible for such actions. Apes did however, display far less patience with misbehavior on the part of dogs than the human members of their *Pan/Homo* culture. In part this was because when dogs attached themselves and their allegiance to particular apes and not others, this proved unsettling to the group.

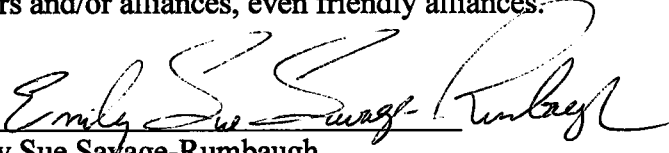
### **Wild Chimpanzees and Bonobos**

35. In essence the species-boundary that normally separates *Pan* and *Homo* can become extremely permeable, allowing cultural process to become cleanly separated from that which we normally think of as "species-specific" behaviors. Any human-like behaviors that appeared in this work demonstrate these capacities of apes and are likely to exist in wild apes, albeit in a different cultural form and possibly not yet understood.

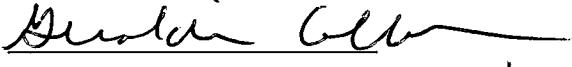
36. Wild bonobos and chimpanzees demonstrate the ability to harvest a constantly changing forest. Their mental mapping is extremely fluid, rapid and highly accurate. Chimpanzees and bonobos obtain food without weapons and hunting is more of luxury than common event. Meat is the only food reportedly shared by chimpanzees, who inhabit sparser environments and who are thus moving farther toward the lifestyles of human beings. Bonobos share all foods in their diet. For bonobos to harvest their territories without the swidden agricultural practices- employed by human beings living in the same areas requires considerable planning, group communication, group co-ordination and cooperation. Everyone must fulfill his or her responsibilities for it to succeed. The group must agree to travel together long distances each day - without food - in order to arrive a particular food resource together. The resource the group agrees to harvest one day will determine the options for travel that it will encounter the following day. Incorrect choices will lead to hunger for the entire group as the forest is a

plentiful larder, but only if it is well known, well predicted and the entire group, infants, juveniles, pregnant females and the elderly are able to travel, as a group, the long distances required for harvesting. The planning required to make those critical decisions must be agreed to by the entire group and communicated, for the groups split up during travel, but arrive together a common feeding resource. The mapping problem for traveling through a forest that is ripening in a very complex and somewhat variable manner is similar to the traveling salesman problem. This not only requires advance planning but constantly updated information as well in order maximize options for scheduling, sequencing, resource allocation and time investment planning.

37. Advance planning and sharing of information is a duty and responsibility that lies at the heart of bonobo and chimpanzee survival in the wild. No bonobo or chimpanzee group could survive if its members failed to carry out these assigned duties and responsibilities to the group. They would cease to locate sufficient food, their youngsters would become easy prey, or they would have to try to make it on their own, which would be dangerous. Chimpanzees and bonobos place great emphasis on activities that are devoted to monitoring one another and to the deep insults, threats, fears and angers that are generated when the actions of any group member threaten the unity and cohesion of the group. Chimpanzees and bonobos take immediate insult and vociferous exception to all such actions. They monitor themselves and their rivals and react to any disturbances in what they perceived as a change in the group balance of power, distribution of resources, or inappropriate behaviors and/or alliances, even friendly alliances.

  
Emily Sue Savage-Rumbaugh

Sworn to before me  
this 1<sup>st</sup> day of December, 2015

  
Attorney at Law of the state of New Jersey

Notary Public

STATE OF New Jersey )  
 ) ss:  
 COUNTY OF Middlesex )

On the 1st day of December in the year 2015 before me, the undersigned, a notary public in and for said state, personally appeared Emily Sue Savage-Rumbaugh personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual(s) acted, executed the instrument, and that such individual made such appearance before me the undersigned in the County of Middlesex and the State of New Jersey.

Geraldine Callahan  
 Notary Public Geraldine Callahan  
 Attorney at Law of the State of  
 My Commission Expires: \_\_\_\_\_ New Jersey



SUPREME COURT OF THE STATE OF NEW YORK  
COUNTY OF NEW YORK

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In the Matter of a Proceeding under Article 70 of the  
CPLR for a Writ of Habeas Corpus,

THE NONHUMAN RIGHTS PROJECT, INC., on behalf  
of KIKO,

Petitioner,

-against-

PATRICK C. LAVERY, individually and as an officer of  
Circle L Trailer Sales, Inc., DIANE LAVERY, and  
CIRCLE L TRAILER SALES, INC.,

Respondents.

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**CERTIFICATE OF  
CONFORMITY**

Index No.

STATE OF New Jersey )  
                                      ) ss:  
COUNTY OF Middlesex )

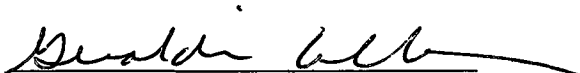
1. This Certificate of Conformity is submitted pursuant to New York CPLR 2309(c)  
and New York Real Property Law § 299-a.

2. I am an attorney duly licensed to practice law in New Jersey

3. I certify that the Affidavit of Emily Sue Savage-Rumbaugh, signed and dated on

December 1, 2015 was taken in the manner prescribed by the laws of New Jersey

Dated: December 1, 2015



## REFERENCES

**Visual examples of these capacities are available from the following audio-visual resources.**

- Savage-Rumbaugh, E. S. Documentary film depicting symbol use and testing in the pygmy chimpanzee. National Geographic Special, February 23, 1986.
- Savage-Rumbaugh, E. S. Ape language: From conditioned response to symbol. (1986). Distributed by Psychological Cinema Registrar, Pennsylvania State University. (Edited 2-hour tape).
- Rumbaugh, D. M., Hopkins, W. D., Washburn, D. A., Savage-Rumbaugh, E. S. & Runfeldt, S. (1989). Lana chimpanzee learns to count by "Numath". Psychological Cinema Register, Pennsylvania State University, University Park, PA.
- Greenfield, P. M. & Savage-Rumbaugh. (1990). Ape language work featured in the Psychology Telecourse Language Program. Coastline Community College and KOCE-TV (Prod.), Huntington Beach, California.
- Savage-Rumbaugh, Murphy, Sevcik, Williams, & Rumbaugh (1994). Family history of Language Research Center Bonobos detailing how each was raised and the resulting differences in language ability. Includes data base and segments of published research filmed by NHK of Japan. Bonobo People
- NHK Special Feature: Kanzi: An Ape of Genius (1994).
- BBC Special Feature: Chimptalk (1994).
- NHK Special Feature: Kanzi II (2000).
- NHK Special Feature: Kanzi III (2002).
- Savage-Rumbaugh video archives - Located in the Rare Book Collection of Cornell. A large segment of the collection is annotated.
- General discussions of the abilities of apes that lead to duties and responsibilities take place in the following books:**
- Savage-Rumbaugh, E. S. (1986). Ape Language: From Conditioned Response to Symbol. New York: Columbia University Press.
- Savage-Rumbaugh, E. S. (1993). Kanzi: A Most Improbable Ape. NHK Publishing Co: Tokyo, JAPAN.
- Savage-Rumbaugh, S., & Lewin, R. (1994). Kanzi: The Ape at the Brink of the Human Mind.

New York: John Wiley Publishers. (Translated in German and Japanese)

Savage-Rumbaugh, S., & Lewin, R. (1995). Kanzi: der sprechende Schimpanse: Was den tierischen vom menschlichen Verstand unterscheidet. [Kanzi: The Ape at the Brink of the Human Mind]. Munchen: Droemer Knaur.

Savage-Rumbaugh, E. S., Shanker, S., & Taylor, T. J. (1998). Apes, Language and the Human Mind. New York, NY: Oxford University Press.

Benson, J., Greaves, W., Savage-Rumbaugh, S., Tagliatela, J., & Thibault, P. (2005) "The thin end of the wedge: grammar and discourse in the evolution of language." In J. D. Benson & W. S. Greaves (Eds.) Functional Dimensions of Ape-Human Discourse, Equinox Press.

Segerdahl, P., Fields, W.M., & Savage-Rumbaugh, E.S. (2005) *Kanzi's Primal Language: The cultural initiation of apes into language*. London: Palgrave/Macmillan.

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### References

Altenmüller, E., Schmidt, S. & Zimmermann, E. (2013). *Evolution of Emotional Communication: From Sounds in Nonhuman Mammals to Speech and Music in Man*. Oxford: Oxford University Press. Astington, J., Harris, P., & Olson, D. (Eds.). (1988). *Developing Theories of Mind*. Cambridge: Cambridge University Press. □ Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood

Boesch, Christophe, (2012). *Wild Cultures: A Comparison between Chimpanzee and Human Cultures*. Cambridge University Press.

Bradshaw, G.A., Capaldo, T., Lindner, L., & Grow, G. (2009). Developmental Context Effects on Bi- Cultural Post-Trauma Self Repair in Chimpanzees. *Developmental Psychology*, 45 (5):1376-1388. Bruner, J.S., Oliver, R.R., & Greenfield, P.M. (1967). *Studies in Cognitive Growth*. New York: Wiley.

Brakke, K. E., & Savage-Rumbaugh, E. S. (1995). The development of language skills in bonobos and chimpanzees: I. Comprehension. *Language and Communication*, 15,(2), 121-148.

Brakke, K. E. & Savage-Rumbaugh, E. S. (1996). The development of language skills in Pan: II. Production. Language and Communication, 16(4), 361-380.

Byrne, R.W. (1998). The Early Evolution of Creative Thinking: Evidence from Monkeys and Apes. In S. Mithen (Ed.), *Creativity in Human Evolution and Prehistory* (pp. 110-124). London: Routledge.

Burrows, A.M., Waller, B.M., Parr, L.A., & Bonar, C.J. (2006). Muscles of Facial Expression in

the Chimpanzee (*Pan troglodytes*): Descriptive, Comparative and Phylogenetic Contexts. *J. Anat.*, 208:153-167.

Chiarelli, B. 1986. Vocalization in Non Human Primates and Descent of Human Language. In *Problemi Attuali di Scienza e di Cultura* (pp. 217-225), Quaderno 259, Proc. Intern. Meeting on Variability and Behavioral Evolution (23-26 November 1983). University of Rome 'La Sapienza' and Accad. Nazion. Lincei. Rome, Italy

Corballis, M.C. (2002). *From Hand to Mouth. The Origins of Language*. Princeton: Princeton University Press.

Crockford, C., & Boesch, C. (2005). Call Combinations in Wild Chimpanzees. *Behaviour*, 142: 397– 421.

Crockford, C., Herbinger, I., Vigilant, L., & Boesch, C. (2004). Wild Chimpanzees Produce Group-Specific Calls: A Case for Vocal Learning? *Ethology*, 110: 221-243.

Fields, W.M., Segerdahl, P., & Savage-Rumbaugh, E.S. (2007) "The Material Practices of Ape Language." In J. Valsiner (Ed.) *The Cambridge Handbook of SocioCultural Psychology*.

Kano, T. (1992). *The Last Ape: Pygmy Chimpanzee: Behavior and Ecology*. Stanford, CA: Stanford University.

□Kendon, A. (1988). How Gestures Can Become Like Words. In F. Poyatos (Ed.), *Cross-Cultural Perspectives in Nonverbal Communication* (pp.131-141). Toronto,

Goodall, J. (1986). *The Chimpanzees of Gombe: Patterns of Behavior* Cambridge University Press, Cambridge.

Goodman, M., Grossman, L.I., & Wildman, D.E. (2005). Moving Primate Genomics Beyond the Chimpanzee Genome. *TIG*, 9 :511-517. □Herbinger, I., Papworth, S., Boesch, C., & Zuberbühler K. (2009). Vocal, Gestural, and Locomotor

Greenfield, P. M. & Savage-Rumbaugh, E. S. (1984). Perceived variability and symbol use: A common language-cognition interface in children and chimpanzees. *Journal of Comparative Psychology*, 98, 201-218.

Greenfield, P. M., & Savage-Rumbaugh, E. S. (1990). Grammatical combination in *Pan paniscus*: Processes of learning and invention in the evolution and development of language. In S. Parker & K. Gibson (Eds.), *Comparative developmental psychology of language and intelligence in primates* (pp. 540-578). New York, Cambridge University Press.

Greenfield, P. M., & Savage-Rumbaugh, E. S. (1991). Imitation, grammatical development, and the invention of protogrammar by an ape. In N. Krasnegor, D. M. Rumbaugh, M. Studdert-Kennedy, & R. L. Schiefelbusch, (Eds.), *Biological and Behavioral Determinants of Language Development* (pp. 235-258). Hillsdale, NJ: Lawrence Erlbaum.

Greenfield, P. M., & Savage-Rumbaugh, S. (1992). Comparing the ontogeny of symbol use in

*Pan paniscus* and *Homo sapiens*. Bulletin of the Chicago Academy of Sciences, 15(1), 26. (Abstract).

Greenfield, P. M., & Savage-Rumbaugh, E. S. (1993). Comparing communicative competence in child and chimp: The pragmatics of repetition. Journal of Child Language, 20, 1-26.

Hopkins, W. D., & Savage-Rumbaugh, E. S. (1991). Vocal communication as a function of differential rearing experiences in *Pan paniscus*: A preliminary report. International Journal of Primatology, 12(6), 559-583.

Hopkins, W. D., Morris, R. D., & Savage-Rumbaugh, E. S. (1991). Evidence for asymmetrical hemispheric priming using known and unknown warning stimuli in two language-trained chimpanzees (*Pan troglodytes*). Journal of Experimental Psychology: General, 120(1), 46-56.

Hochberg, Z. (2011). Developmental Plasticity in Child Growth and Maturation. *Front Endocrinol*.

Hogrefe & Huber. □Kendon, A. (1991). Some Considerations for a Theory of Language Origins. *Man* (N.S.), 26:199-221.

Kingdon, J. (1993). *Self-Made Man: Evolution from Eden*. New York: Wiley. □Knight, C. (1996). Darwinism and Collective Representations. In J. Steele and S. Shennan (Eds.), *The Archaeology of Human Ancestry* (pp. 331-346). London: Routledge. □

Kurjak, A., Stanojevic, M., Andonotopo, W., Salihagic-Kadic, A., Carrera, J.M., & Azumendi, G. (2004). Behavioral Pattern Continuity from Prenatal to Postnatal Life: A Study by Four-Dimensional (4D) Ultrasonography. *J. Perinat. Med.*, 32:346-353. □Lazarus, R.S. (1963). *Personality and Adjustment*. Englewood Cliffs, NJ: Prentice-Hall.

Lemmon, W. B., Temerlin, J. W., & Savage, E. S. (1975). The development of human-oriented courtship behavior in a human-reared chimpanzee (*Pan troglodytes*). In S. Kondo, M. Kawai, & A. Ehara (Eds.), Proceedings of the Fifth International Congress of Primatology, Contemporary Primatology (pp. 292-294), Karger: Basel.

Lock, A.J. (1981). Universals in Human Conception. In P.L.F. Heelas and A.J. Lock (Eds.), *Indigenous Psychologies* (pp. 19-36). New York: Academic Press. □

Lyn, H., Savage-Rumbaugh, E. S., & Rumbaugh, D. (1998). Observational word learning in bonobos (*Pan paniscus*). American Journal of Primatology, 45(2), 193. (Abstract).

Menzel, E., Savage-Rumbaugh, E. S., & Lawson, J. (1985). Chimpanzee (*Pan troglodytes*) spatial problem solving with the use of mirrors and televised equivalents of mirrors. Journal of Comparative Psychology, 99(2), 211-217.

Marchant, L., & Nishida, T. (1996). *Great Ape Societies*. Cambridge: Cambridge University Press. □

- Mithen, S. (1998). A Creative Explosion? Theory of Mind, Language, and the Disembodied Mind of the Upper Palaeolithic. In S. Mithen (Ed.), *Creativity in Human Evolution and Prehistory* (pp. 165-191). London: Routledge. □ Morecraft
- Ragir, S. and Savage-Rumbaugh, E. S. (2009) Playing with meaning: normative function and structure in play. In R. Botha and C. Knight, *The Prehistory of Language: Studies in the Evolution of Language*. Oxford University Press. (pp. 122-141).
- Roffman, I. (2008). *Are Bicultural Bonobos Able to Recognize Iconic Representations and Produce Referential Signs in Human Cultural Terms?* [Masters thesis]. Ames, Iowa: Iowa State University.
- Roffman, I., & Nevo, E. (2010). Can Chimpanzee Biology Highlight Human Origin and Evolution? *Rambam Maimonides Med. J.*, 1:1. doi:10.5041/RMMJ.10009
- Roffman, I., Savage-Rumbaugh, S., Rubert-Pugh, E., Ronen, A., & Nevo, E. (2012). Stone Tool Production and Utilization by Bonobo-Chimpanzees (*Pan paniscus*) *Proc. Natl. Acad. Sci.*, 109 (36): 14500-14503.
- Roffman, I., Savage-Rumbaugh, S., Rubert-Pugh, E., Stadler, A., Ronen, A., & Nevo, E. (2015). Preparation and Use of Varied Natural Tools for Extractive Foraging by Bonobos (*Pan paniscus*). *American Journal of Physical Anthropology*, In press.
- Rumbaugh, D. M., & Savage-Rumbaugh, E. S. (1980). A response to Herbert Terrace's article "Linguistic apes: What are they saying?" New York University Education Quarterly, Winter, p.33.
- Rumbaugh, D. M., & Savage-Rumbaugh, E. S. (1983). Apes and language research. In H. B. Miller & W. H. Williams (Eds.), Ethics and animals. (pp. 207-217) Clifton, NJ: Humana Press.
- Rumbaugh, D. M., Savage-Rumbaugh, E. S., & Scanlon, J. L. (1982). The relationship between language in apes and human beings. In J. L. Fobes, & J. E. King (Eds.), Primate Behavior. (pp. 361-385) New York: Academic Press.
- Rumbaugh, D. M., Washburn, D., & Savage-Rumbaugh, E. S. (1989). On the care of captive chimpanzees: Methods of animal enrichment. In E. Segal (Ed.), Housing, Care, and Psychological Well-being of Captive and Laboratory Primates (pp. 357-375). Hillsdale, NJ: Lawrence Erlbaum.
- Rumbaugh, D. M., Hopkins, W. D., Washburn, D. A., Savage-Rumbaugh, E. S. (1989). Lana chimpanzee learns to count by "Numath": A summary of a videotaped experimental report. The Psychological Record, 39, 459-470.
- Rumbaugh, D. M., Washburn, D. A., Savage-Rumbaugh, E. S. & Hopkins, W. D. (1990). The Language Research Center's Computerized Test System (LRC-CTS): Video-formatted tasks for

primates. (Abstract) Proceedings and Abstracts of the Annual Meeting of the Eastern Psychological Association, 61.

Rumbaugh, D. M. & Savage-Rumbaugh, E. S. (1990). Chimpanzees: Competencies for language and numbers. In W. C. Stebbins & M. A. Berkley (Eds.), Comparative perception-Volume II: Complex signals (pp. 409-441.) John Wiley & Sons.

Rumbaugh, D. M., & Savage-Rumbaugh, E. S. (1992). Cognitive competencies: Products of genes, experience, and technology. In T. Nishida, W. C. McGrew, P. Marler, M. Pickford, & Frans B. M. de Waal (Eds.), Topics in primatology, Vol. 1, Human origins (pp. 293-304). Tokyo, Japan: University of Tokyo Press.

Rumbaugh, D. M., & Savage-Rumbaugh, E. S. (1986). Reasoning and language in chimpanzees. In R. J. Hoage & L. Goldman (Eds.), Animal intelligence: Insights into the animal mind (pp. 57-75). Washington, DC: Smithsonian Institute Press.

Rumbaugh, D. M., Savage-Rumbaugh, E. S., & Hegel, M. (1987). Summation in the chimpanzee (Pan troglodytes). Journal of Experimental Psychology: Animal Behavior Processes, 13, 107-115.

Rumbaugh, D. M., Hopkins, W. D., Washburn, D. A. & Savage-Rumbaugh, E. S. (1993). Chimpanzee competence for counting in a video-formatted task situation. In H. Roitblat, L. M. Herman, & P. E. Nachtigall (Eds.), Language and communication: Comparative perspectives (pp. 329-346). Hillsdale, NJ: Lawrence Erlbaum.

Rumbaugh, D. M., Washburn, D. A., Savage-Rumbaugh, E. S., Hopkins, W. D., & Richardson, W. K. (1991). Language Research Center's Computerized Test System (LRC-CTS): Video-formatted tasks for comparative primate research. Primate Today, 325-328. Elsevier Science Publishers.

Russon, A.E., & Andrews, K. (2011). Pantomime in Great Apes: Evidence and Implications. Commu- nicative & Integrative Biology, 4(3) 315-317.

Savage, E. S., Temerlin, J. W., & Lemmon, W. B. (1973). Group formation among captive mother-infant chimpanzees (Pan troglodytes). Folia Primatologica, 20, 453-473.

Savage, E. S., Temerlin, J. W., & Lemmon, W. B. (1975). The appearance of mothering behavior toward a kitten by a human-reared chimpanzee. In S. Kondo, M. Kawai, & A. Ehara (Eds.), Proceedings of the Fifth International Congress of Primatology, Contemporary Primatology (pp. 287-291). Karger: Basel.

Savage, S. (1976). Pygmy chimpanzees: Update. Yerkes Newsletter, 13, 25-26.

Savage, E. S., & Malick, C. (1977). Play and socio-sexual behaviour in a captive chimpanzee (Pan troglodytes) group. Behaviour, 60, 179-194.

Savage, E. S., & Rumbaugh, D. M. (1977). Communication, language, and Lana: A perspective.

In D. M. Rumbaugh (Ed.), Language learning by a chimpanzee: The LANA project (pp. 287-309). New York: Academic Press.

Savage-Rumbaugh, E. S., Wilkerson, B. J., & Bakeman, R. (1977). Spontaneous gestural communication among conspecifics in the pygmy chimpanzee (*Pan paniscus*). In G. H. Bourne (Ed.), Progress in ape research (pp. 97-116). New York: Academic Press.

Savage, E. S., & Bakeman, R. (1978). Sexual morphology and behavior in *Pan paniscus*. Proceedings of the Sixth International Congress of Primatology (pp. 613-616). New York: Academic Press.

Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1978). Symbolization, language and chimpanzees: A theoretical reevaluation based on initial language acquisition processes in four young *Pan troglodytes*. Brain and Language, 6, 265-300.

Savage-Rumbaugh, E. S., & Wilkerson, B. J. (1978). Socio-sexual behavior in *Pan paniscus* and *Pan troglodytes*: A comparative study. Journal of Human Evolution, 7, 327-344.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., & Boysen, S. (1978). Symbolic communication between two chimpanzees (*Pan troglodytes*). Science, 201, 641-644.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., & Boysen, S. (1978). Linguistically mediated tool use and exchange by chimpanzees (*Pan troglodytes*). Behavioral and Brain Sciences, 4, 539-554.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., & Boysen, S. (1978). Sarah's problems of comprehension. Behavioral and Brain Sciences, 4, 555-557.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., & Boysen, S. (1978). Describing chimpanzee communication: A communication problem. Behavioral and Brain Sciences, 4, 614-616.

Savage-Rumbaugh, E. S. (1979). Symbolic communication - its origins and early development in the chimpanzee. New Directions for Child Development, 3, 1-15.

Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1979). Chimpanzee problem comprehension: Insufficient evidence. Science, 206, 1201-1202.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., & Boysen, S. (1979). Chimpanzees and protolanguage. The Behavioral and Brain Sciences, 2, 396-397.

Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1979). Initial acquisition of symbolic skills via the Yerkes computerized language analog system. In R. L. Schiefelbusch & J. R. Hollis (Eds.), Language intervention from ape to child (pp. 277-294). Baltimore: University Park Press.

Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1980). Language analogue project, phase II: Theory and tactics. In K. E. Nelson (Ed.), Children's language (Vol. II, pp. 267-307). New York: Gardner Press.



Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1980). Requisites of Symbolic Communication-- or are words for birds? The Psychological Record, 30, 305-315.

Savage-Rumbaugh, E. S., Scanlon, J., & Rumbaugh, D. M. (1980). Communicative intentionality in the chimpanzee. The Behavioral and Brain Sciences, 3, 620-623.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., Smith, S. T., & Lawson, J. (1980). Reference: The linguistic essential. Science, 210, 922-925.

Savage-Rumbaugh, E. S. (1981). Can apes use symbols to represent their world? In T. A. Sebeok & R. Rosenthal (Eds.), The clever Hans phenomenon: Communication with horses, whales, apes, and people, Vol. 364, (pp. 35-59). New York Academy of Sciences.

Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1982). Ape language research is alive and well: A reply. Anthropos, 77, 568-573.

Savage-Rumbaugh, E. S. (1982). A pragmatic approach to chimpanzee language studies. In H. E. Fitzgerald, J. A. Mullins, & P. Gage (Eds.), Child nurturance, Vol. 3 (pp. 137-157). New York: Plenum.

Savage-Rumbaugh, E. S., Pate, J. L., Lawson, J., Smith, S. T., & Rosenbaum, S. (1983). Can a chimpanzee make a statement? Journal of Experimental Psychology: General, 112, 457-492.

Savage-Rumbaugh, E. S., Romski, M. A., Sevcik, R., & Pate, J. L. (1983). Assessing symbol usage versus symbol competency. Journal of Experimental Psychology: General, 112, 508-512.

Savage-Rumbaugh, E. S. (1984). Review of: Primate Communication, Charles T. Snowdon, Charles H. Brown, Michael R. Petersen (Eds.), Cambridge University Press (1982). American Scientist, 72, 286-288.

Savage-Rumbaugh, E. S. (1984). Verbal behavior at a procedural level in the chimpanzee. Journal of the Experimental Analysis of Behavior, 41(2), 223-250.

Savage-Rumbaugh, E. S. (1984). Acquisition of functional symbol usage in apes and children. In H. L. Roitblat, T. G. Bever, & H. S. Terrace (Eds.), Animal cognition (pp. 291-310). Hillsdale, NJ: Lawrence Erlbaum Associates.

Savage-Rumbaugh, E. S., & Sevcik, R. (1984). Levels of communicative competency in the chimpanzee: Pre-representational and representational. In G. Greenberg & E. Tobach (Eds.), Behavioral evolution and integrative levels (pp. 197-219). Hillsdale, NJ: Lawrence Erlbaum Associates.

Savage-Rumbaugh, E. S. (1984). Pan paniscus and Pan troglodytes: Contrasts in preverbal communicative competence. In R. L. Susman (Ed.), The pygmy chimpanzee (pp. 395-413). New York: Plenum.

Savage-Rumbaugh, E. S., Sevcik, R. A., Rumbaugh, D. M. & E. Rubert. (1985). The capacity of animals to acquire language: Do species differences have anything to say to us? Philosophical Transactions of the Royal Society, B308, 177-185.

Savage-Rumbaugh, E. S., Rumbaugh, D. M., & McDonald, K. (1985). Language learning in two species of apes. Neuroscience and Biobehavioral Reviews, 9, 653-665.

Savage-Rumbaugh, E. S., McDonald, K., Sevcik, R. A., Hopkins, W. D., & Rubert, E. (1986). Spontaneous symbol acquisition and communicative use by pygmy chimpanzees (*Pan paniscus*). Journal of Experimental Psychology: General, 115(3), 211-235.

Savage-Rumbaugh, E. S., & Hopkins, W. D. (1986). Awareness, intentionality, and acquired communicative behaviors: Dimensions of intelligence. In R. J. Schusterman, J. A. Thomas, & F. G. Wood (Eds.), Dolphin cognition and behavior: A comparative approach (pp. 303-313). Hillsdale, NJ: Lawrence Erlbaum Associates.

Savage-Rumbaugh, E. S., & Hopkins, W. D. (1986). The evolution of communicative capacities. In W. Bechtel (Ed.), Science and philosophy: Integrating scientific disciplines (pp. 243-262). Dordrecht, The Netherlands: Martinus Nijhoff.

Savage-Rumbaugh, E. S. (1987). Communication, symbolic communication, and language: A reply to Seidenberg and Petitto. Journal of Experimental Psychology: General, 116, 288-292.

Savage-Rumbaugh, E. S. (1988). A new look at ape language: Comprehension of vocal speech and syntax. In D. Leger (Ed.), Nebraska Symposium on Motivation, 35. Lincoln, NE: University of Nebraska Press.

Savage-Rumbaugh, E. S., Hopkins, W. D., & Sevcik, R. A. (1988). Symbolic cross-modal transfer in two species of chimpanzees (*Pan troglodytes* and *Pan paniscus*). Journal of Child Development, 59, 617-625.

Savage-Rumbaugh, E. S. (1988). [Review of Apes of the world: Their social behavior, communication, mentality, and ecology], American Anthropologist, 90, p. 479.

Savage-Rumbaugh, E. S. and McDonald, K. (1988). Deception and social manipulation in symbol using apes. In R. W. Byrne & A. Whiten (Eds.), Machiavellian Intelligence: Social Expertise and the Evolution of Intellect in Monkeys, Apes, and Humans (pp.224-237). London: Oxford University Press.

Savage-Rumbaugh, E. S. (1989). Mother-infant conflict: Distal or proximate causes: Comments on Plooij & van de Rijt-Plooij's paper. European Journal of Psychology of Education, 4, 193-194. (Invited commentary).

Savage-Rumbaugh, S. (1989) Chimpanzees in the wild. [Review of: East of the Mountains of the Moon], Contemporary Psychology, 34, 666-667.

Savage-Rumbaugh, E. S., Romski, M. A., Hopkins, W. D., & Sevcik, R. A. (1989). Symbol acquisition and use by Pan troglodytes, Pan paniscus, and Homo sapiens. In P. G. Heltne and L. A. Marquardt (Eds.) Understanding Chimpanzees (pp. 266-295). Cambridge, MA and London, England: Harvard University Press.

Savage-Rumbaugh, E. S. (1990). Language acquisition in a nonhuman species: Implications for the innateness debate. Developmental Psychobiology, 23(7), 1-22.

Savage-Rumbaugh, E. S. (1990). Language as a cause-effect communication system. Philosophical Psychology, 3, 55-76.

Savage-Rumbaugh, E. S., Sevcik, R. A., Brakke, K. E., Rumbaugh, D. M. & Greenfield, P. M. (1990). Symbols: Their communicative use, combination, and comprehension by bonobos (Pan paniscus). In Lewis P. Lipsitt, & Carolyn Rovee-Collier (Eds.), Advances in infancy research, 6 (pp. 221-278). Norwood, NJ: Ablex Publishing Corp.

Savage-Rumbaugh, E. S., & Brakke, K. E. (1990). Animal Language: Methodological and Interpretive Issues. In M. Bekoff and D. Jamieson (Eds), Interpretation and explanation in the study of behavior: Interpretation, intentionality, and communication, Vol. 1 (pp. 313-343). Boulder, CO: Westview Press.

Savage-Rumbaugh, E. S. (1991). Multi-tasking: the Pan-human rubicon. The Neurosciences, 3, pp. 417-422.

Savage-Rumbaugh, E. S. (1991). Language learning in the bonobo: How and why they learn. In N. Krasnegor, D. M. Rumbaugh, M. Studdert-Kennedy, & R. L. Schiefelbusch (Eds.), Biological and behavioral determinants of language development (pp. 209-233). Hillsdale, NJ: Lawrence Erlbaum.

Savage-Rumbaugh, E. S. (1992). Language training of apes. In S. Jones, R. Martin, & D. Pilbeam (Eds), The Cambridge encyclopedia of human evolution (pp. 138-141). Hillsdale, NJ: Erlbaum.

Savage-Rumbaugh, E. S. (1992). Language from Pan to man. Bulletin of the Chicago Academy of Sciences 15(1): 23 (Abstract).

Savage-Rumbaugh, E. S., Brakke, K. E., & Hutchins, S. S. (1992). Linguistic development: Contrasts between co-reared *Pan troglodytes* and *Pan paniscus*. In T. Nishida, W. C. McGrew, P. Marler, M. Pickford, & F. B. M. deWaal (Eds.), Topics in primatology: Vol 1, Human origins (pp. 51-66). Tokyo, Japan: University of Tokyo Press.

Savage-Rumbaugh, E. S. & Rubert, E. (1992). Language comprehension in ape and child: Evolutionary implications. In Y. Christen & P. S. Churchland (Eds.), Neurophilosophy and Alzheimer's disease (pp. 30-48). Springer-Verlag, Berlin: Foundation Ipsen Pour la Recherche Scientifique.

Savage-Rumbaugh, E. S. (1993). Language learnability in man, ape, and dolphin. In H. Roitblat, L. M. Herman, & P. E. Nachtigall (Eds.), Language and communication: Comparative perspectives (pp. 457-484). Hillsdale, NJ: Lawrence Erlbaum.

Savage-Rumbaugh, E. S. (1993). How does evolution design a brain capable of learning language?: A Reply. Monographs of the Society for Research in Child Development, Serial No. 233, Vol. 58, 3-4, pgs. 243-252.

Savage-Rumbaugh, E. S., & Rumbaugh, D. M. (1993). The emergence of language. In K. R. Gibson & T. Ingold (Eds.), Tools, language and cognition in human evolution (pp. 86-108). Cambridge University Press.

Savage-Rumbaugh, E. S., Murphy, J., Sevcik, R. A., Rumbaugh, D. M., Brakke, K. E., & Williams, S. (1993). Language comprehension in ape and child. Monographs of the Society for Research in Child Development, Serial No. 233, Vol. 58, Nos. 3-4, pgs. 1-242.

Savage-Rumbaugh, E. S. (1994). Hominid evolution: Looking to modern apes for clues. In D. Quiatt and J. Itani (Eds), Hominid Culture in Primate Perspective (7-49). Niwot, CO: University Press of Colorado.

Savage-Rumbaugh, E. S. & Rumbaugh, D. M. (1996). Primate intelligence and language: Brain and environment [abstract]. XVIth Congress of the International Primatological Society and XIXth Conference of the American Society of Primatologists, No. 740.

Savage-Rumbaugh, E. S., Shanker, S., Taylor, T. J. (1996). Apes with language. Critical Quarterly, 38(3), 45-57.

Savage-Rumbaugh, E. S., Williams, S. L., Furuichi, T., Kano, T. (1996). Language perceived: Paniscus branches out. In W. C. McGrew, L. F. Marchant & T. Nishida (Eds), Great Ape Societies (pp. 173-184). New York, NY: Cambridge University Press.

Savage-Rumbaugh, S. (1997). P-Suke has become a father. Monkey, 41-4, No. 276, 14-17. Inuyama, Aichi, Japan: Japan Monkey Centre (Japanese).

Savage-Rumbaugh, S. (1997). Why are we afraid of apes with language? In A. B. Scheibel & J. W. Schopf (Eds.) The Origin and Evolution of Intelligence (pp. 43-69). Sudbury, MA: Jones and Bartlett.

Savage-Rumbaugh, E. S. (1997). [Review of the book Mutualities in Dialogue]. International Journal of Primatology, 18(5), 847-853.

Savage-Rumbaugh, E. S. (1998). Scientific schizophrenia with regard to the language act. In J. Langer and M. Killen (Eds.) Piaget, evolution and development (pp. 145-169). Hillsdale, N.J.: Lawrence Erlbaum and Associates.

Savage-Rumbaugh, E. S. and Fields, W. M. (1998). Language and Culture: A Trans-Generation Interweaving. Language Origins Society, 27, 19-41.

Savage-Rumbaugh, E. S. & Rumbaugh, D. M. (1998). Perspectives on consciousness, language, and other emergent processes in apes and humans. In S. J. Hameroff, A. W. Kaszniak, & A. C. Scott (Eds.) Toward a science of consciousness II: The second Tucson discussions and debates (pp. 533-549). Cambridge, MA: MIT Press.

Savage-Rumbaugh, E. S. (1999). Ape language: Between a rock and a hard place. In B. King (Ed), Origins of language: What nonhuman primates can tell us. Santa Fe, NM: School of American Research Press.

Savage-Rumbaugh, S., Fields, W. M., Tagliatela, J. P. (2001). Language, speech, tools and writing: A cultural imperative. Journal of Consciousness Studies, 8, Nos. 5-7, 273-92.

Savage-Rumbaugh, S., Fields, W. (2002). "Hacias el control denuevas realidades." Quark, 25, 20-26.

Savage-Rumbaugh, S., Fields, W.M., & Spircu, T. (2004). The Emergence of Knapping and Vocal Expression Embedded in a Pan/Homo Culture. Journal of Biology and Philosophy, 19(4), 541-575.

Savage-Rumbaugh, E.S, Segerdahl,P. and Fields, W. M. (2005) "Individual differences in language competencies in apes resulting from unique rearing conditions imposed by different first epistemologies." In L. L. Namy (Ed.) *Symbol Use and Symbolic Representation* (pp. 199-219). Mahwah, NJ: Lawrence Erlbaum Associates.

Savage-Rumbaugh, S., Fields, W.M.,Segerdahl, P., & D.M. Rumbaugh. (2005) "Culture prefigures cognition in Pan/Homo Bonobos." *Theoria* 20(3).

Savage-Rumbaugh, E. S., Toth, N., Schick, K. (2005) Kanzi learns to knap stone tools. *In Emergents and Rational Behaviorism: Essays in Honor of D. M. Rumbaugh*. Ed. By David A. Washburn,

Savage-Rumbaugh, S., Rumbaugh, D.M. & W.M. Fields. (2006) "Language as a Window on the Cultural Mind." In S. Hurley (Ed.) *Rational Animals*, Oxford: Oxford University Press.

Savage-Rumbaugh, S. & Fields, W.M. (2007) "Rules and Tools: Beyond Anthropomorphism: A qualitative report on the stone tool manufacture and use by captive bonobos Kanzi and Panbanisha." In N. Toth's Craft Institute Oldowan Technologies 1(1).

Savage-Rumbaugh, E. S., Wamba, K., Wamba, P., and Wamba, N. (2007) Welfare of Apes in Captive Environments: Comments On, and By, a Specific Group of Apes. *Journal of Applied Animal Welfare Science*, V. 10, N.1., pp. 7-19.

Savage-Rumbaugh ES, Rumbaugh DM, & Fields WM. (2009) “Empirical Kanzi: The ape language debate revisited.” *The Skeptic* (15)1, 25-34.

Savage-Rumbaugh ES, & Fields WM. (2011) “The Evolution and the Rise of Human Language: carry the baby.” In Christopher S. Heshilwood & Francesco d’Errico (Eds.) *Homo Symbolicus: the dawn of language, imagination, and spirituality*. Netherlands:

Savage-Rumbaugh ES & Fields WM. (2013). “Human Uniqueness – Constructions of Ourselves and Our Silbling Species: *Pan troglodytes* and *Pan paniscus*.” In A. Wessel, R. Menzel, & G. Tembrock (Eds.) *Quo Vadis, Behavioral Biology? Past, Present, and Future of an Evolving Science*. Stuttgart: Nova Acta Leopoldina.

Slocombe, K.E., Kaller, T., Call, J., & Zuberbühler, K. (2010). Chimpanzees Extract Social Information from Agonistic Screams. *PLoS ONE*, 5: e11473.

Slocombe, K.E., Townsend, S.W., & Zuberbühler, K. (2009) Wild Chimpanzees (*Pan troglodytes schweinfurthii*) Distinguish between Different Scream Types: Evidence from a Playback Study. *Anim. Cogn.*, 12: 441-449.

Temerlin, M.K. (1975). *Lucy: Growing Up Human*. Palo Alto

Tomasello, M., & Call, J. (2007). Introduction: Intentional Communication in Nonhuman Primates. In J. Call and M. Tomasello (Eds.), *The Gestural Communication of Apes and Monkeys* (pp. 1-15). Mahwah, New Jersey: Lawrence Erlbaum Associated. □

Tomonaga, M., & Imura, T. (2015). Efficient Search for a Face by Chimpanzees (*Pan troglodytes*). *Scientific Reports*, 5: 11437. DOI: 10.1038/srep11437

Uddin, M., Wildman, D.E., Liu G., et al. (2004). Sister Grouping of Chimpanzees and Humans as Revealed by Genomic-Wide Phylogenetic Analysis of Brain Gene Expression Profiles. *Proc. Natl. Acad. Sci., USA*, 101: 2957-2962.

Van Hooff, J.A. (1972). Comparative Approach to the Phylogeny of Laughter and Smiling. In R.A. Hin- de (Ed.), *Non-Verbal Communication* (pp. 209-241). Cambridge, UK: Cambridge University Press.

van Leeuwen, E.J., Cronin, K.A., & Haun, D.B. (2014). A Group-Specific Arbitrary Tradition in Chim-panzees (*Pan troglodytes*). *Anim. Cogn.*, 17(6):1421-1425.

Watson, S.K., Townsend, S.W., Schel, A.M., Wilke, C., Wallace, E.K., Cheng, L., West, V., & Slocombe, K.E. (2015). Vocal Learning in the Functionally Referential Food Grunts of Chimpanzees. *Current Biology*, 25(4), 495-499. □

Whiten, A. (2011). The Scope of Culture in Chimpanzees, Humans and Ancestral Apes. *Phil. Trans. R.Soc. B*, 366: 997-1007. □

Whiten, A., Goodall, J., McGrew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y., Tutin, C.E.G., Wrangham, R., & Boesch, C. (1999). Cultures in Chimpanzees. *Nature*, 399:682-685. □

Whiten, A., Goodall, J., McGrew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y., Tutin, C.E.G., Wrangham, R.W., & Boesch, C. (2001). Charting Cultural Variation in Chimpanzees. *Behaviour*, 138: 1481-1516. □

Whiten, A., Schick, K., & Toth, N. (2009). The Evolution and Cultural Transmission of Percussive Technology: Integrating Evidence from Paleoanthropology and Primatology. *J. Hum. Evol.*, 57:420-435. □

Wildman, D., Grossman, L.I., & Goodman, M. (2002). Functional DNA in Humans and Chimpanzees Shows They are More Similar to Each Other Than Either is to Apes. In M. Goodman and A.S. Morfitt (Eds.), *Probing Human Origins* (pp 1-10). Cambridge, MA: American Academy of Arts and Sciences.

Wildman, D., Uddin, M., Liu, G., Grossman, L.I., & Goodman, M. (2003). Implications of Natural Selection in Shaping 99.4% Nonsynonymous DNA Identity between Humans and Chimpanzees: Enlarging Genus *Homo*. *Proc. Natl. Acad. Sci. USA*, 100: 7181-7188.

Wrangham, R.W., McGrew, W.C., de Waal, F.B.M. & Heltne, P.G. (Eds.). (1994). *Chimpanzee Cultures*. Cambridge, MA: Harvard University Press.