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An Ape Among Many: Animal Co-Authorship and Trans-species Epistemic Authority

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Abstract

Modern Western society assumes that nonhuman animals do not possess an episteme comparable to humans; this presumption is used to exclude nonhuman species from knowledge-making and practices that intimately affect animal lives. For example, conservation policy that appropriates wildlife lands and reshapes animal societies through deportation (translocation) and genocide (culls and harvesting) is imposed without animal consent or consultation. Now, however, science has eliminated the conceptual foundation that sanctions modern humanity's monopoly on epistemic authority. By illustrating trans-species science in the making, ape-human participatory action research (PAR) at the Great Ape Trust, Iowa, dispels the myth that language and science are the unique property and privilege of *Homo sapiens*. This and other scientific research reveals animal objectification as a purely political strategy to maintain modern human hegemony. To refute the error of anthropocentrism, ecocriticism needs to consider current scientific work on animal agency and embrace new modes of communication and models of knowledge that bring other species into dialogue and authority as equal partners.

Introduction

Anatole France's novel *Penguin Island* tells the story of a missionary who, because of his diminished vision, mistakes a colony of great

auks for pagan humans. In his confusion, the priest baptizes the birds.¹ This satirical tale has become one of West's most celebrated caricatures of human folly. The book's humor relies chiefly on the absurdity of mistaking a bird for a human to the extent of extending sacred privilege to another species.

Yet, today, in light of what science has faithfully collated during the intervening decades, France's tale does not carry the same sense of the absurd; indeed, if the novel was contemporary, it would not likely find an audience as receptive as France's fin-de-siècle readers. Times have changed; wildlife is regarded differently both because of science's own epistemic evolution as well as that of the planet. Numerous species, most recently the Yangtze River dolphin and Madagascar Alaotra grebe, have become extinct, and thousands of others are moving toward a similar fate.² Even by the time *Penguin Island* was published, the great auk had been gone for a half century.

The once seemingly immutable line drawn demarcating humans from other species has faded to near obscurity. Disciplines as diverse as neurosciences, ethnology, psychology, philosophy, and critical studies concur: similarities between humans and other animals far outweigh differences.³ Researchers even posit that the roots of human religion and spirituality can be found in animal societies.⁴ Standards and measures of Western science—the episteme and culture that have been chief architects of animal objectification—have placed us in a position not much different than that of the missionary: namely, uncertain as to who really is “us” and who is the “other.”⁵

Still, proponents of human uniqueness shrilly assert that the language barrier has yet to be overcome. They argue that while the same structures and processes of the brain governing cognition, affect, a sense of self, morality, and consciousness may be common to both humans and nonhuman animals, language, after all, is core to human culture and minds. What we say and how we say it is the defining medium for human self-expression and existential affirmation. . . . Or is it?

1. Anatole France, *Penguin Island* (1908; reprint, Mattituck, NY: Amereon House, 1940).

2. Ian Sample, “Yangtze River Dolphin Driven to Extinction,” *Guardian*, 8 August 2007. <http://www.guardian.co.uk/environment/2007/aug/08/endangeredspecies.conservaion>.

3. G. A. Bradshaw and Robert M. Sapolsky, “Mirror, Mirror,” *American Scientist* 94:6 (2006): 487–489.

4. Barbara J. King, *Evolving God: A Provocative View on the Origins of Religion* (New York: Doubleday, 2007).

5. G. A. Bradshaw, *Elephants on the Edge: What Animals Teach Us about Humanity* (New Haven, CT: Yale University Press, 2009).

In the quiet of Des Moines, Iowa, U.S.A., the language barrier has been overcome. For over thirty years, Dr. Sue Savage-Rumbaugh (*Homo sapiens*) has researched nonhuman primate culture and language through a system of lexigrams, spoken English, and bonobo (*Pan paniscus*) vocalizations. On the surface, this research appears largely to provide insights into the origins of human language. Because of evolutionary proximity to humans, other apes are regarded as perfect subjects to investigate and why *Homo sapiens* developed the ability and inclination to “acquire symbols, comprehend spoken words, decode simple syntactical structures, learn concepts of number and quantity, and perform complex perceptual-motor tasks.”⁶ However, by conforming to scientific standards and protocols, Savage-Rumbaugh and her bonobo collaborators do something far grander: they have cultivated meaning *together* across species lines, exchanging ideas, thoughts, feelings, and wishes. They commune and communicate in a common language, and in so doing, create trans-species community whose members are distinguished more by individual than species differences. This *Pan-Homo* community dispels the myth that humans alone have the capacity for language and possess valuable knowledge.

Langued nonhuman apes have unquestionably transformed the perception of “animal” from object to agent, fully capable of functioning on an equal (if not ethically superior) footing with humans in the creation of culture and epistemic authority. This admission effects a final reversal of one of the “paradigmatic shifts and lurches occasioned by the Industrial Revolution [that] . . . redefin[ed] . . . nature from participative subject and organism in an organic community to the status of pure object.”⁷ Indeed, while ecocriticism seeks to bring literary and ecological discourse together to bear on anthropocentrism and speciesism much as it has with misogyny and racism,⁸ the *Pan-Homo* experience provokes deeper inquiry into the relationship between letters and speciesism. Notably, while bonobos are able to speak, use lexigrams, and answer questions, they are unable to write. Their knowledge and authority is not diminished, but their agency is, unless human society is willing to change its relationship to speech and the written word. Unless we are willing to admit that wisdom and consciousness equal to or greater than our

6. See Great Ape Trust, <http://www.greatapetrust.org/science/scientists-biographies/sue-savage-rumbaugh>.

7. Simon C. Estock, “Theorizing in a Space of Ambivalent Openness: Ecocriticism and Ecophobia,” *ISLE: Interdisciplinary Studies in Literature and Environment* 16:2 (2009): 203–225.

8. *Ibid.*

own are possessed by other species, as our own episteme of science reveals, then efforts to resolve the current social and ecological crisis will suffer. For ecocriticism to function as a political intervention in this crisis, in the error of anthropocentrism,⁹ it should include current scientific work on animal agency and new modes of communication and models of knowledge.

The Bicultural *Pan–Homo* Community

In 2007, the *Pan–Homo* community achieved a singular success: the collaborative work of a human and three bonobos was published in the *Journal of Applied Animal Welfare Science (JAAWS)*.¹⁰ The article's singular nature derives from more than content: it was co-authored by Savage-Rumbaugh and bonobos from the *Pan–Homo* community, Kanzi Wamba, Panbanisha Wamba, and Nyota Wamba. The purpose of the study and article is to describe what apes living in the Des Moines facility considered important for their psychological and physical wellbeing in captivity (fig. 1).¹¹

The title of this unprecedented publication, "Welfare of Apes in Captive Environments: Comments on, and by, a Specific Group of Apes," retains a sense of ambiguity. In the vernacular, "ape" describes gorillas, chimpanzees, and their nonhuman cousins; but more strictly speaking, it is a term that includes humans. However, closer examination of the authors reveals that species distinctions both breakdown and fail to capture significant differences among individuals. While the members, including *Homo sapiens* Rumbaugh, "have all grown up in a bicultural group consisting of humans and bonobos of varied ages and sexes . . . [who] have acquired human language . . . and who tangibly live in a cultural setting encompassing all age/sex classes," there are important, individual differences.¹² "Bicultural" implies competency in two cultures—here, bonobo and human.¹³ There are, however, variations within the *Pan–Homo*

9. Helena Feder, "Biogenetic Intervention (Or 'Gardening,' Shakespeare, and the Future of Ecological Thought)," *Green Letters* 9 (2008): 33–47.

10. Sue Savage-Rumbaugh, Kanzi Wamba, Panbanisha Wamba, and Nyota Wamba, "Welfare of Apes in Captive Environments: Comments on, and by, a Specific Group of Apes," *Journal of Applied Animal Welfare Science* 10:1 (2007): 7–19.

11. Portions of this discussion have been reproduced (with permission) in G. A. Bradshaw, "We, Matata: Bicultural Living among Apes," *Spring: A Journal of Archetype and Culture* 83 (2010): 163–184.

12. Savage-Rumbaugh et al., "Welfare of Apes in Captive Environments" (above, n. 10), p. 15.

13. T. LaFromboise, H. L. Coleman, and J. Gerton, "Psychological Impact of Biculturalism: Evidence and Theory," *Psychological Bulletin* 114:3 (1993): 395–412.

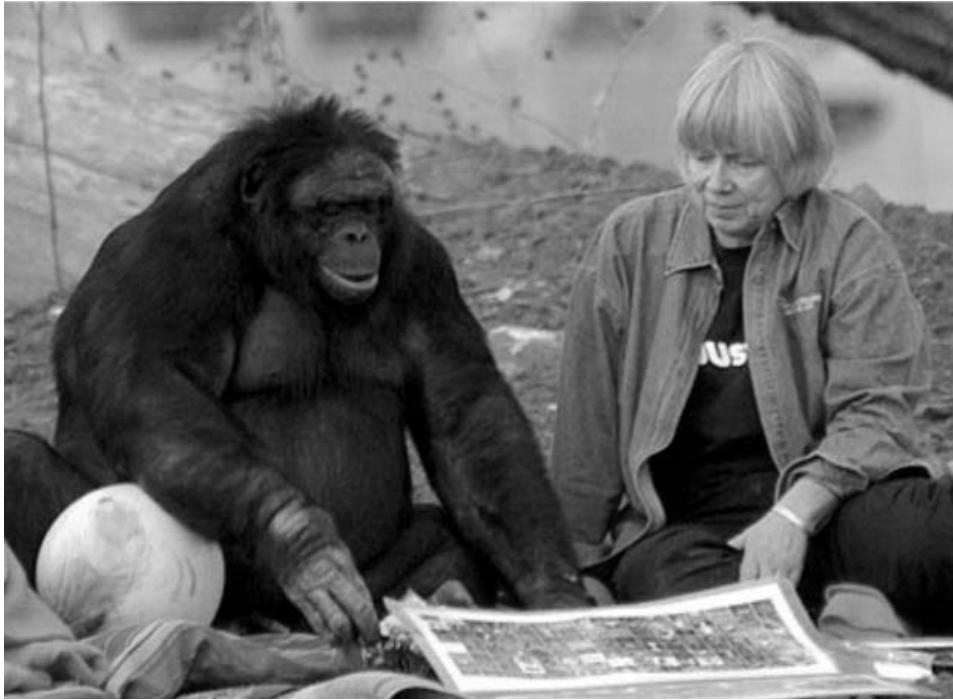


Figure 1. Trans-species knowledge in the making. (Photo courtesy of Dr. Sue Savage-Rumbaugh, Great Ape Trust.)

group. For example, Matata (see below), Kanzi, and Nyota belong genetically and morphologically to the same species, but they have distinct histories and childhood experiences. Unlike their wild counterparts who have been reared in a shared complex of interactions and experiences, the *Pan-Homo* members have come together by force of circumstances.

Matata was wild-born in 1970 and brought with four other bonobos to the Yerkes National Primate Research Center in Atlanta, after having lived in bonobo society in Zaire (now the Democratic Republic of the Congo) until age 5. Two of Matata's children born into captivity were taken away from her and reside in zoos. Her son Akili is now age 30 and living in the San Diego Zoo, and one of her daughters, AnaNeema, is 18 and living in the Milwaukee Zoo. Matata took Kanzi as her own a few hours after his birth; she is his adoptive mother.¹⁴

Kanzi was born to two bonobos, Lorel (now age 41 and living in the Jacksonville [Florida] Zoo), and Bosandjo, in captivity at Yerkes. Kanzi attended over 30,000 "language trials" with Matata. Such early exposure to English and lexigram lessons are considered to be, at

14. Great Ape Trust, <http://www.greatapetrust.org/about-the-trust/meet-our-apes/kanzi>.

least in part, responsible for his linguistics talents. Nyota is Matata's grandson, the progeny of Matata's daughter Panbanisha. Matata, Panbanisha, Kanzi, and Nyota are all bicultural by definition, but in different degrees and ways. In contrast to Kanzi—a "first-generation" bicultural bonobo—and Matata, who is wild-born, Nyota is a "second generation" bonobo reared in a bicultural environment.¹⁵

In theory, in a bicultural setting marked by two sets of culturally normative psychologies, behaviors, and languages, an individual's sense of self and competence will reflect both contexts. However, because Matata, Kanzi, and Nyota each came to bicultural living in different ways, we would expect that each has his/her own "brand" of biculturalism. Matata spent her formative years learning free-ranging bonobo language and culture and came to human, captive living as someone who was shaped by and identified with her species culture of origin. This particular cultural upbringing is expressed in multiple ways. For example, Savage-Rumbaugh observes that there are some concepts that captive-born Kanzi does not share with his adoptive-mother Matata, because they do not have meaning in her cultural world. The sentence "No, you cannot use that ball, it is Kanzi's" may have meaning and use in captive-born *Pan* culture, but not for immigrant bonobo society where an individualized "I" is absorbed into an inclusive "we." Matata's "I," cultivated in the free-ranging bonobo troop of the Congo, is not the same as one honed by modernity's dualist traditions. When Matata speaks, she speaks of "we," demonstrating a concept of the self that is reflective of collective, interdependent societies that one finds in free-ranging bonobo groups, in contrast to the individualistic, independent, "I"-centered culture of modern, Western humans.¹⁶ Similarly and related, neither is Matata's sense self identical to that of Kanzi or Nyota, whose minds developed straddling bonobo and human cultures of varying degrees of biculturalism.¹⁷

Kanzi, while raised by Matata, was immersed in a *Pan-Homo* environment. He learned *Pan-Homo* language and customs by being reared by an immigrant bonobo, while ensconced in the customs and language of English, lexigram-speaking humans, and languaged bonobos, some of whom were born in captivity. Nyota's brand of biculturalism is yet different from both Matata's and Kanzi's. His mother Panbanisha was born in captivity; unlike Panbanisha, who was raised by a mother who came from "the old country (Matata),"

15. Ibid.

16. Estock, "Theorizing in a Space of Ambivalent Openness" (above, n. 7).

17. Bradshaw, "We, Matata" (above, n. 11).

Nyota was raised by a mother who had been born into a captive setting. We may consider Kanzi and Nyota similar to Japanese *nisei* and *sansei* generations, respectively.

These differences are not superficial. As several lines of neuropsychological research document, different developmental contexts correlate with different social psychologies and underlying neural substrates.¹⁸ Because mammalians' and altricial birds' neuropsychological development is highly sensitive to experience and reflective of environmental input and change, variations in developmental contexts will have an effect on a child's evolving neuroendocrinal pathways; early development is a, if not *the*, formative process that shapes individual psychophysiology and sense of self. The individuating self is defined by an attendant interdependency and ethical contract that distinguishes individuation from individuality—an individuality that varies with culture.¹⁹ Subsequently, cultural context and attachment styles sculpt self-identity and explain cross-generational differences in behavior, social psychology, and identity, as observed in the *Pan-Homo* community.

The inspiring result of this research is that bicultural rearing is producing cross-generational epigenetic effects upon the bonobos and the humans at a very rapid rate.²⁰ Both species are co-evolving toward a new kind of understanding of each other with the experience of small biological changes. There is arising enlightened insights and a greatly increased ability to communicate across the species boundary in each succeeding generation. Both species are benefiting, with each beginning to draw upon the best traits of the other in succeeding generations. These changes are not occurring through sexual transmission, but rather through cultural transmission. We believe this to be through epigenetic markers, as well as "learning." Thus a new window is opening into the nature of the process of change across time.²¹

18. G. A. Bradshaw, T. Capaldo, G. Grow, and L. Lindner, "Developmental Context Effects on Bicultural Post-Trauma Self-Repair in Chimpanzees," *Developmental Psychology* 45:5 (2009): 1376–1388.

19. Patricia Greenfield, H. Keller, A. Fugligni, and A. Maynard, "Cultural Pathways through Universal Development," *Annual Reviews of Psychology* 54 (2001): 461–490.

20. E. S. Savage-Rumbaugh and W. M. Fields, "Human Uniqueness: Constructions of Ourselves and Our Sibling Species: *Pan troglodytes* and *Pan paniscus*," in *Proceedings at the Tierpsychologie to Behavioral Biology: Past, Present and Future of an Evolving Science International Symposium*, Humboldt University Berlin and the Leopoldina, 30 April–4 May 2009.

21. *Ibid.*

In a simple schema, the sense of self and psychology of the members of the *Pan-Homo community* fall along a bicultural continuum.²² Each individual is technically bicultural—namely, each is competent in both bonobo and human cultures, though in slightly different ways. To unschooled human eyes, individual bonobos may look the same on the outside, yet underneath, and in action and habit, there are nuanced social psychological differences derived from distinct developmental experiences. Subsequently, the answer to the question “who are these apes?” lies less in the realm of species classifications than with the individual. The genetic human who has spent more than half her/his lifetime with bonobos, and bonobos who have spent most or all of their lives with humans, may have more in common with each other than they do with their *in situ* (literally, “on-site”) conspecific counterparts who live in their country of origin. Brain, behavior, and psyche show that culture, language, and identity extend beyond the discrete boxes of “human” and “bonobo.” Given this perspective of animal identity, we are challenged to ask that if the “other” is now “us,” then who are “we”?

A group’s language embodies the unconscious background of common understanding on which the rest of the culture rides. This unconscious background is the unspoken and unencoded way of being human, of creating meaning, and of signaling intention that allows information to flow among accepted members of the group. In the *Pan-Homo* community, language and mind fly across borders and we discover that “*language and personhood are simply not coincident with the human form.*”²³ Nonetheless, despite shared language, do the bonobos qualify for scientific authorship of a written, human-linguaged journal? Do they qualify as epistemic equals?

Current Authorship Criteria and Meaning

Authorship is an ongoing debate within the academy. Beyond the obvious impulse to achieve individual recognition and acclaim, authorship is also tied to concrete monetary gain. Tenure, research funding, and awards all depend on what has been published and by whom. Authorship is no minor issue to academia. The lengths to which scholars will go for authorship is best exemplified by Maurice Maeterlinck, who plagiarized the work of Eugène Marais.²⁴ Although in 1911 he had received the Nobel Prize in Literature, Maeterlinck

22. Bradshaw et al., “Developmental Context Effects” (above, n. 18).

23. Savage-Rumbaugh and Fields, “Human Uniqueness” (above, n. 20).

24. Eugène Marais, *The Soul of the White Ant* (London: Penguin, 1973).

used his knowledge of Dutch to publish South African Marais's work (written in the less-circulated Afrikaans language) in his own name in French in 1926. Marais's suicide is attributed to Maeterlinck's plagiarism and the colonial violence he witnessed during the Boer War.

The issue of authorship is considered a fairly recent and historically localized phenomenon. Western intellectual-property law and literary theory co-evolved during the eighteenth century. Coincident with other social, economic, and political trends, credit for creation increasingly focused on and privileged the individual. As science became harnessed to the political and economic market, so did the fortune and interests of individual researchers and scholars. Today, authorship is literally "the currency of modern science and a measure of a scientist's participation in the international community."²⁵

As a result of the post-World War II corporatization of science,²⁶ authorship has become even more contentious and commoditized. In 1930, the average number of authors on a scientific paper was 1.3, compared to six in 1989.²⁷ Since then, the numbers have exploded to the point of prompting various alarmed governing bodies to reissue formal criteria for legitimate authorship. For example: "Authorship credit should be based on 1) substantial contributions to conception and design [of the project], or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3."²⁸

Others maintain that authorship needs to accommodate the changes that science has undergone, from the single endeavor to a more collaborative effort. This is particularly true in the biomedical sciences, where a diversity of resources and partners are required to accomplish the research. The Quantitative Uniform Authorship Declaration (QUAD)²⁹ encourages authors to state their "percentage

25. Giovanni Frazzetto, "Who Did What? Uneasiness with the Current Authorship System Is Prompting the Scientific Community to Seek Alternatives," *EMBO Reports* 5:5 (2004): 446–448. <http://www.nature.com/embor/journal/v5/n5/full/7400161.html>.

26. Laura Nader, *Naked Science: Anthropological Inquiry into Boundaries, Power, and Knowledge* (New York: Routledge, 1996).

27. Frazzetto, "Who Did What?" (above, n. 25).

28. Peter Jaszi and M. Woodmansee, "Beyond Authorship: Refiguring Rights in Traditional Culture and Bioknowledge," in *Scientific Authorship: Credit and Intellectual Property in Science*, ed. M. Biagioli and P. Galison (New York: Routledge, 2002), pp. 195–224.

29. J. V. Verhagen, K. J. Wallace, S. C. Collins, and T. R. Scott, "QUAD System Offers Fair Shares to All Authors," *Nature* 426 (2003): 602.

share of the total credit” in each of the following four categories: conception and design of the project; data collection; data analysis and conclusions; and manuscript. The least an author can contribute to a paper would be 10 percent within a single category, and authors would be listed in descending order of their total contribution across all four categories. Even more broadly, a survey conducted to assess publishing and authorship standards in academic journals (e.g., those of the National Institutes of Health, National Academy of Science, and American Physical Society) shows that a person legitimately qualifies for authorship if she or he has “made significant contributions,” owns “a stake in the product,” and/or “made [a] substantive creative contribution to the generation of an intellectual product.”³⁰

Pan-Homo Authorship

Savage-Rumbaugh’s publications demonstrate that *Pan-Homo* bonobos are able to comprehend and communicate at levels required for conducting research by scientific standards. The bonobo researchers communicate with human beings with sufficient sophistication to convey their “own views regarding their welfare.” The *Pan-Homo* bonobos have unique communicative abilities in “that three of them are able to comprehend and respond to complex linguistic narration and questioning in a free-flowing manner on essentially any topic connected meaningfully to their lives. It is thus possible to ask for, and receive, their feedback on many aspects of their environment, whether social, physical, psychological, or cultural.”³¹

The topic of the research and article is ape welfare—specifically, the wellbeing of the co-authors themselves, a subject about which they have clear knowledge and authority. The bonobos also have a “stake” in the product: without their participation, there would be no data, no source of information from which to base the study, and no manuscript. Consequently, the bonobos fulfill authorship criteria set by U.S. science institutions. In keeping with publishing standards, the *JAAWS*’s article author-order was based on levels of contribution and seniority. If, as Savage-Rumbaugh points out, “the participation of human beings had been equal to that of the bonobos,

30. Jason W. Osborne and Abigail Holland, “What Is Authorship, and What Should It Be? A Survey of Prominent Guidelines for Determining Authorship in Scientific Publications,” *Practical Assessment, Research & Evaluation* 14:15 (2009): 1–19, quote on 6.

31. Savage-Rumbaugh et al., “Welfare of Apes in Captive Environments” (above, n. 10), p. 15.

no one would object to the sharing of authorship. It therefore seems proper to recognize not only the bonobos' contribution to this article, but also their right to have a legitimate voice—their own voice—in determining the adequacy of the environments in which they reside."³²

Arguments objecting to mixed-species authorship ring hollow when evaluated scientifically and from the perspective of political history. Scientific theory, data, and standards confirm bonobos' capacity to function in the role as colleagues. A glance at history illustrates that Western colonial cultures have denied other indigenes' voices; other societies have been silenced by a prejudiced collective. Liberation psychologist Ignatio Martín-Baró maintained that to serve the minds and hearts of people, it is necessary to understand them from their own points of view, not from an enforced group standard. It is necessary, he argued, for researchers "to redesign our theoretical and practical tools . . . from the standpoint of the lives of [these] people: from their sufferings, their aspirations, and their struggles."³³ Savage-Rumbaugh puts this view into practice by insisting that creating conditions to meet the needs of bonobos requires expertise not from an enforced group standard (human), but from the people themselves (bonobos): "Why rely solely on the judgments of human beings when one can ask the apes for their own opinions? . . . The bonobos have contributed directly, through conversation, to important aspects of this work. Their listing as authors is not a literary technique but a recognition of their direct verbal input to the article. They are not able to write, but they are able to speak, to use lexigrams, and to answer questions."³⁴ Through this process, the *Pan-Homo* bonobos were not only able to provide input, but to critique study results and inferred conclusions: they were able to "defend" and explain results. The bonobos were capable of verbal "review [of] all drafts of manuscripts for accuracy/fidelity and . . . indicate agreement [or dissent] before a draft is moved forward to publication."³⁵ As senior author, Savage-Rumbaugh consulted with her co-authors before, during, and after the process.

The bonobos' active participation is evident in one of the study's most critical findings: the items they need for healthful and respect-

32. Ibid., p. 17.

33. Ignatio Martín-Baró, *Writings for a Liberation Psychology*, ed. Adrienne Aron and Shawn Corne (Cambridge, MA: Harvard University Press, 1994), p. 25.

34. Savage-Rumbaugh et al., "Welfare of Apes in Captive Environments" (above, n. 10), p. 17.

35. Osborne and Abigail Holland, "What Is Authorship?" (above, n. 30), p. 6.

ful life in captivity (see table 1).³⁶ Savage-Rumbaugh began the study by listing “the things I have come to believe are important to these bonobos and to solicit their views regarding my thoughts. After I formulated a list of the items that I believed have been paramount to their self-actualization, I presented my ideas, in simpler terms, to Kanzi, Panbanisha, and Nyota to determine if they agreed.”³⁷ While there was considerable agreement between Savage-Rumbaugh and her co-authors on welfare criteria, there were also differences; not all of the human researcher’s suggestions were “met with agreement”:

Although it is true that I chose the items listed as critical to the welfare of these bonobos and facilitated the discussion of these particular items, I did not create this list arbitrarily. These items represent a distillation of the things that these bonobos have requested repeatedly during my decades of research with them. When I meet these requests, as best I can, new and unexpected competencies emerge in this group; many still are not documented in sufficient detail.³⁸

Notably, the method used in the study was Participatory Action Research (PAR), where study objectives, process, and outcome are designed to be informed by and benefit all participants.³⁹ PAR’s transparency and lack of epistemic hierarchy in the research process creates a dynamic of co-participation and shared authority. Its purpose, therefore, is to make explicit what is usually implicit and often denied: the influence of the researchers’ own projections and bias. In this instance, a PAR approach was used to engage and investigate the bi-cultural experience of the *Pan-Homo* community to determine what the bonobos considered essential to their welfare. Instead of the conventional animals-as-object framing, the *Pan-Homo* community participated simultaneously as objects *and* subjects. The resultant publication represented research findings in English to communicate to a broad readership of scientists and policy makers, who do not know bonobo or *Pan-Homo* lexigram English. In summary, then, the study proves that the bonobos’ scholarship meets standards required for human work. As published authors in a peer-review journal, the bonobos are now officially members of science academy.⁴⁰

36. Bradshaw, “We, Matata” (above, n. 11).

37. Savage-Rumbaugh et al., “Welfare of Apes in Captive Environments” (above, n. 10), p. 15.

38. Ibid.

39. S. Kemmis and R. McTaggart, “Participatory Action Research,” in *Handbook of Qualitative Research*, 2nd ed., ed. N. K. Denzin and Y. S. Lincoln (Thousand Oaks, CA: Sage Publications, 2007), pp. 567–605.

40. Bradshaw, “We, Matata” (above, n. 11).

Implications of Trans-species Authorship

Undoubtedly, the *Pan-Homo* researchers have brought the academic community to an uncomfortable edge. While some scientists and ecocritics have argued diverse perspectives concerning the status of other animals,⁴¹ science has, for the most part unwittingly, discovered a unitary model of brain, behavior, and mind that includes all vertebrates (and evidence for invertebrates is not far behind). Nature is no longer a silent “other” against which human identity and meaning can be argued. Instead, Nature stares back—agentic, and with epistemic authority challenging modernity to answer for itself. What debate remains is explicitly political, a matter of modern humanity’s willingness or unwillingness to relinquish its self-proclaimed power and privilege over other species. If, as science demonstrates, the human–animal difference is not greater than animal–animal differences, then ethical and legal standing must follow, as insisted by the cultural and legal precepts with which science is partnered. Arguments for human personhood based on science hold for bonobo, elephant, cat, tortoise, goldfish, or any other animal. Ethical arguments no longer logically fall along species lines, but become philosophical and political discussions for life as a whole. This has implications beyond animal rights.

For example, the current realm of sustainable futures and environmental policy is largely determined by Western human values and vision, where proposed solutions generally exclude the conservation of traditional, indigenous human and animal cultures.⁴² Nonhuman animals and their indigene human neighbors have been denied participation in shaping policies that affect their lives. Recognition of human–animal mental and moral continuity, now including language, deconstructs this hierarchical imperative by directly links questions of wildlife disenfranchisement and the present socio-ecological crisis to the agenda of a specific human culture and agenda. Real sustainability must be rooted in the status of animal self-determination; achieving sustainability involves all of us

41. For examples in the sciences, see recent works by Frans B. M. de Waal, Bennett G. Galef, and Kim Hill; for many examples in the humanities, see Sarah E. McFarland and Ryan Hediger, eds., *Animals and Agency: An Interdisciplinary Exploration* (Boston: Brill, 2009), and Cary Wolfe, ed., *Zoontologies: The Question of the Animal* (Minneapolis: University of Minnesota Press, 2003).

42. Alice Benessia and Silvio Funtowicz, “Waiting for Sustainability,” paper presented at the Second International Conference on Sustainable Science, Rome, 23–25 June 2010; Marisol de la Cadena, “Indigenous Cosmopolitics in the Andes: Conceptual Reflections beyond ‘Politics,’” *Cultural Anthropology* 25:2 (2010): 334–370.

living like animals, with shared trans-species language, values, and meaning. Similarly, wildlife conservation must be transformed from a project of species preservation to one of social justice and self-determination, where epistemic authority and decision-making may not only be shared with other species, but dictated by nonhuman species.

We stand at an existential and epistemic crossroad. Many ecocritics and like-minded scientists have called for human knowledge to become accountable to the world, for greater social and ecological impact.⁴³ If indeed we possess a keen moral sensibility, an obligation to answer for our actions and inactions, then knowledge of human-animal comparability compels an ethical reconfiguration to match this knowledge. The Cartesian world of “constructed time, linear cause-effect thought, moral judgment, criticism, episodic memory, and mental time travel”⁴⁴ ceases to be de facto normative. In the now-leveled epistemic playing field, we are compelled to find other models of living among animal kin that will not perpetuate the social and ecological holocausts destroying the planet today.

New relational modes of knowledge, based on felt existence and experience, suggest that consciousness is not produced by the machinery inside our heads, but rather through the matrix of relationships in which we are immersed.⁴⁵ The *Pan-Homo* project suggests that the “null” or “natural” state of community exists in species intersections, in the psychological borderlands⁴⁶ characteristic of many traditional, subsistence, indigenous peoples.⁴⁷ Primatologist Barbara Smuts⁴⁸ and others⁴⁹ suggest expanded “ways of commu-

43. Among ecocritics, see Val Plumwood, *Environmental Culture: The Ecological Crisis of Reason* (London: Routledge, 2002), and Estok, “Theorizing in a Space of Ambivalent Openness” (above, n. 7).

44. Savage-Rumbaugh and Fields, “Human Uniqueness” (above, n. 20).

45. Alva Noe, *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness* (New York: Hill & Wang, 2009).

46. Jerome S. Bernstein, *Living in the Borderland: The Evolution of Consciousness and the Challenge of Healing Trauma* (New York: Taylor & Francis, 2005).

47. Vine Deloria Jr., *The World We Used to Live In: Remembering the Powers of the Medicine Men* (Golden, CO: Fulcrum Publishing, 2006).

48. Barbara Smuts, “Between Species: Science and Subjectivity,” *Configurations* 14:1–2 (2004): 115–126; Smuts, “Embodied Communication in Non-Human Animals,” in *Human Development in the 21st Century: Visionary Policy Ideas from Systems Scientists*, ed. Alan Fogel and Barbara King (Cambridge: Cambridge University Press, 2007), pp. 134–156.

49. Paula M. Niedenthal, “Embodying Emotion,” *Science* 316 (18 May 2007): 1002–1005.

nicating that can be described as embodied, creative, co-regulated, mutually contingent” to replace the Cartesian paradigm, where the self is bifurcated into a “*doer* and a *viewer*,” thereby imposing a perceptual and political dichotomy. The *Pan-Homo* community illustrates how to move from a separatist world based on Cartesian theory back to lived experience and a path toward human and non-human indigene recovery and survival. The time is now to put this knowledge into action.

Table 1. Comparison between Bonobo Rights and Human Rights

Bonobo rights	Human rights
1. Having food that is fresh and of their choice	Having an environment that is not harmful to health or well-being
2. Being able to travel from place to place	The right to freedom of movement
3. Going to places they have never been before	The right to leave the state, to enter, to remain in, and to reside anywhere in the state
4. Planning ways of maximizing travel and resource procurement	Every citizen has the right to a passport
5. Being able to leave and rejoin the group, to explore, and to share information regarding distant locations	The right to form, join, and maintain cultural, religious, and linguistic associations and other organs of civil society. The right to access of information
6. Being able to be apart from others for periods of time	Persons belonging to a cultural, religious, or linguistic community may not be denied the right, with other members of that community, to enjoy their culture or be denied the ability to practice their religion and use their language, to form, join, and maintain cultural, religious, and linguistic associations and other organs of civil society
7. Maintaining lifelong contact with individuals whom they love	Having their environment protected for the benefit of present and future generations
8. Transmitting their cultural knowledge to their offspring	The right to use the language and to participate in the cultural life of their choice, and to receive education in the official language or languages of their choice. Persons belonging to a cultural, religious, or linguistic community may not be denied the right to enjoy their culture, practice their religion, and use their language
9. Developing and fulfilling a unique role within the social group	The right of freedom of expression
10. Experiencing the judgment of their peers regarding their capacity to fulfill their roles, for the good of the group	The right to choose their trade, occupation, or profession freely

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| 11. Living free from the fear of human beings attacking them | The right to freedom and security of the person, and to be free from all forms of violence from either public or private sources |
| 12. Receiving recognition from the humans who keep them in captivity of their level of linguistic competency and ability to self-determine and self-express through language | Everyone has inherent dignity, and has the right to have their dignity respected and protected |
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Source: G. A. Bradshaw, "We, Matata: Bicultural Living among Apes," *Spring: A Journal of Archetype and Culture* 83 (2010): 163–184.