STATE OF NEW YORK
SUPREME COURT COUNTY OF FULTON

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 TOMMY, Petitioners, v. PATRICK C. LAVERY, individually and as an officer of Circle L Trailer Sales, Inc., DIANE LAVERY, and CIRCLE L TRAILER SALES, INC., Respondents.	**AFFIDAVIT OF JENNIFER M.B. FUGATE** Index No.:

COMMONWEALTH OF MASSACHUSETTS)
) ss:
COUNTY OF BRISTOL)

Jennifer M.B. Fugate being duly sworn, deposes and says:

Introduction and Qualifications

1. My name is Jennifer M.B. Fugate. I reside and work in Dartmouth, Massachusetts. I have a B.S. (1999) from the University of Wisconsin – Madison in Psychology and Zoology, and a Ph.D. (2008) from Emory University in Atlanta, Georgia in Psychology (Neuroscience and Animal Behavior). I was a Postdoctoral Fellow at Boston College in Psychology from 2008-2010 and a Postdoctoral Researcher in Psychology at Northeastern University from 2010-2012.

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

3. I am currently a Full-time Lecturer at the University of Massachusetts – Dartmouth in the department of Psychology. I have been in this position since the fall of 2012. My duties include teaching, advising, and service to the community and University. In addition, I perform some research related to my area of study as a postdoctoral fellow (human social cognition) and continue to write theoretical pieces on chimpanzee cognition and communication. I have taught six different courses at UMass-Dartmouth (General Psychology, Social Psychology, Cognitive Processes, Statistics for Psychology, Child Psychology, and a College of Arts and Sciences freshman seminar), and several others during graduate and postdoctoral training (Primate Social Cognition, Research Methods in Psychology, Psychological Construction of the Mind).

4. I am the recipient of a Ruth Kirschstein National Research Service Award (NRSA) grant (funded by the NIMH, 2010-2012) for my postdoctoral research. I have also received several teaching and development grants, including an IBIS (Blended Learning for the Improvement of Student Learning) grant (funded by Davis Educational Foundation through UMASS-Dartmouth, PI: Jeannette Riley, 2012-2013), an ORDER (On Recent Discoveries by Emory Researchers) grant (funded by Howard Hughes through Emory University; PI: David Lynn, 2007-2008) and an Academic Staff Development grant (through University of WI-Madison, 1999).

5. My specialization is in human and nonhuman social cognition, especially the role of language in emotion perception. I am a reviewer for several major academic journals in social and cognitive psychology.

6. My graduate research involved rhesus macaques, chimpanzees, and human participants. My research during this time involved studying the production and perception of vocalizations in rhesus macaque monkeys, and the perception of vocalizations and perception of facial expressions in chimpanzees. My research was conducted at the Yerkes Primate Research

Center, and included animals at both "main station" (pair-housed) and "field station" (group-living). Currently, I do not have access to nonhuman primates and my empirical research in the last four years has been exclusive to humans. I continue to write theoretically about the cognitive capacities of nonhuman and human primates.

7. I have written chapters for three books, one of which is relevant to the discussion here: *Evolutionary Constraints and Cognitive Mechanism in the Construction of Emotion: Insights form Human and Nonhuman Primates* (to appear in *The Psychological Construction of Emotion.* New York: Guilford, L. F., and Russell, J. A., Eds.) (*in press*).

8. I have published several peer-reviewed articles on different research areas, two of which are relevant to the discussion here: *Emotional Communication in Primates: Implications for Neurobiology (2005)* and *Reading Chimpanzee Faces: Testing the Structural and Conceptual Hypotheses of Categorical Perception (2010).* My dissertation (2008, Emory University) is entitled: *An Investigation of Categorical Perception for Chimpanzee Facial Expressions by Conspecifics.* Together, these publications examine how chimpanzees and humans perceive chimpanzee emotional expressions, and whether the structural information provided by a face is sufficient for emotion perception or whether additional (auditory or linguistic) information is necessary.

9. I have presented my research at over 30 national and international conferences, with the most relevant work being presented at meetings sponsored by the *International Society for Research on Emotion, International Primatological Society, Animal Behavior Society, International Conference on Comparative Cognition,* and *American Psychological Society.* I have also given research talks on chimpanzee communication and emotion at several universities, including Emory University and Boston College. I am a past or current member of nine

professional societies, including *American Psychological Society, International Society for Research on Emotion, International Primatological Society, Animal Behavior Society, and Comparative Cognition.*

Basis for Opinions

10. The opinions I state in this Affidavit are based on my professional knowledge, education, training, and 10 years of research with chimpanzees, as well as my reading of peer-reviewed articles published in some of the world's most respected journals and books that are generally accepted as authoritative in the field of comparative social cognition, many of which were written by colleagues with whose research I am personally familiar. A full reference list of peer-reviewed literature cited herein is annexed hereto as **"Exhibit A"**.

Opinions

11. Some of the most recent advances in our understanding of emotion in animals, particularly in such nonhuman primates as chimpanzees, have come from communication research (Parr and Waller, 2006). This includes significant advances in our understanding of the signals and expressions used by nonhuman primates to communicate about emotion. The accumulation of evidence suggests that the emotional systems of chimpanzees may have become specialized to cope with the increasing demands of complex social organization and more elaborate relationships.

12. Chimpanzees have approximately 20-30 different facial expressions and their vocalizations have been divided into several categories based on morphology and apparent function (Parr, Cohen, and de Waal, 2005). Several independent lines of evidence suggest that many facial expressions are shared across humans and chimpanzees. First, the facial musculature which forms the structure of facial expressions is essentially the same in humans and chimpanzees (Burrows et al., 2006; Huber, 1931). Likewise, stimulation of these muscles in both species

produces nearly identical facial movements (Waller et al., 2006; Vick et al.,2007). This implies that, with few exceptions, the facial expressions of humans and chimpanzees can be compared directly.

13. Many of the expressions in chimpanzees and humans are displayed in similar circumstances, suggesting a common function or meaning. Since chimpanzees live in complex social groups, they must possess well-developed emotion processing skills in order to be able to interpret the many different meanings associated with facial displays used in different emotional contexts (Parr, Cohen, and de Waal, 2005). These facial expressions reflect the motivations and tendencies towards certain actions in the individual given a set of social and environment conditions (Seyfarth and Cheney, 2003).

14. Chimpanzees also exhibit "emotional contagion," which is a basic form of empathy that results from watching a behavior in others (Preston and deWaal, 2002). There is evidence of this kind of empathy in chimpanzees for contagious yawning, scratching, and such emotional behavior as play and aggression (Anderson, Myowa-Yamakoshi, and Matsuzawa, 2004; Parr and Hopkins, 2001). This kind of complex emotional awareness plays a key role in coordinating activities among group members, including facilitating social bonding and motivating cooperation, conciliation, and other forms of pro-social behaviors in chimpanzees. One of the neurobiological bases for empathy may be the presence of mirror neurons, special nerve cells in the primate brain. Mirror neurons are found in the prefrontal cortex of all primates, including humans and chimpanzees. They allow for the ability to share and relate to another's emotional state. These specialized cells respond to actions performed by an individual but also when that individual watches the same action performed by others, forming the basis of empathic responses (Preston and de Waal, 2002).

15. Chimpanzees, with minimal training, are not only able to recognize familiar individuals but are able to discriminate different species-typical facial expressions of unfamiliar individuals when presented on a computer screen. These findings show that chimpanzees are sensitive to the distinctive features of different facial expressions (Parr, Hopkins and de Waal, 1998). They are also able to extract emotional meaning from short videos depicting behavioral events (e.g. a caregiver giving a chimpanzee a hypodermic injection for veterinary purposes, or researcher rewarding another chimpanzee with food). For example, chimpanzees are able to match a positive facial expression (such as making a "play face") to positive events and negative facial expressions (such as bared teeth or "scream face") to negative events (Parr, 2001), demonstrating that these facial expressions are reliably associated with familiar emotional events.

16. Studies of captive chimpanzees show they are very competent at cross-modal perception (matching faces to voices), including matching a vocalization (audio) recording of a familiar chimpanzee individual or a video of a familiar individual chimpanzee producing a vocalization to the picture of the individual (Kojima, Izumi, and Ceugniet, 2003; Parr, 2004). Chimpanzees in captivity have also been shown to match a voice recording of a familiar human to the picture of the human (Hashiya and Kojima, 2001). These findings show that chimpanzees are highly attuned to the individual emotional expressions and states of others.

17. For the past ten years, I have studied emotions in chimpanzees and have examined, specifically, the cognitive bases of emotion. Human language provides one way for our species to make certain distinctions in emotion (Barrett, 2006a, b, 2009; 2011, Fugate, Gouzoules, and Barrett, 2010; Fugate in press), but human language may not be necessary for chimpanzees and other great apes to find meaning in basic emotional information from the face, voice, body, etc.

(this central feature of emotion – based on information other than human language- is called core affect and is shared with humans). Moreover, chimpanzee communication skills are rich and chimpanzees share components of at least three basic cognitive abilities with humans, including 1) analogical reasoning (using relational devices, like symbols, to organize information at a higher level) (Thompson and Oden, 2000), 2) shared mental states (understanding that other's have minds and goals and intentions and false beliefs) (Call et al., 2004; Hare et al., 2001), and 3) causal inference (an ability to intuit hypothetical or causal forces) (Brauer et al., 2006; see Fugate, in press; Hanus and Call, 2008).

Jennifer M.B. Fugate

Sworn to before me
this 22nd day of November, 2013

Notary Public

NANCY J CARVALHO
Notary Public
Commonwealth of Massachusetts
My Commission Expires July 9, 2015

STATE OF MA)
) ss:
COUNTY OF Bristol)

On the 22nd day of November in the year 2013 before me, the undersigned, a notary public in and for said state, personally appeared Jennifer M.B. Fugate, 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 Bristol and the State of MA.

Nancy J Carvalho
Notary Public

My Commission Expires:

NANCY J CARVALHO
Notary Public
Commonwealth of Massachusetts
My Commission Expires July 9, 2015

EXHIBIT A

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