
New York Supreme Court

Appellate Division—First Department

In the Matter of a Proceeding under Article 70 of the CPLR
for a Writ of Habeas Corpus and Order to Show Cause,

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

Petitioner-Appellant,

– against –

JAMES J. BREHENY, in his official capacity as Executive Vice President and
General Director of Zoos and Aquariums of the Wildlife Conservation Society
and Director of the Bronx Zoo and WILDLIFE CONSERVATION SOCIETY,

Respondents-Respondents.

APPENDIX

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**Appellate
Case No.:
2020-02581**

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STATEMENT PURSUANT TO CPLR § 5531 [A-1-A-2]

New York Supreme Court
Appellate Division—First Department

In the Matter of a Proceeding under Article 70 of the CPLR
for a Writ of Habeas Corpus and Order to Show Cause,

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

Petitioner-Appellant,

— against —

JAMES J. BREHENY, in his official capacity as Executive
Vice President and General Director of Zoos and Aquariums
of the Wildlife Conservation Society and Director of the
Bronx Zoo and WILDLIFE CONSERVATION SOCIETY,

Respondents-Respondents.

-
1. The index number of the case in the court below is 260441/19. The index number issued in Orleans County is 45164/18.
 2. The full names of the original parties are as set forth above. There have been no changes.
 3. The action was commenced in Supreme Court, Orleans County and transferred to Supreme Court, Bronx County.

4. The action was commenced on or about October 2, 2018 by filing of a Verified Petition. Issue was joined on or about December 3, 2018 by service of a Motion to Dismiss the Verified Petition in lieu of an Answer.
5. The nature and object of the action involves Common Law Writ of Habeas Corpus relief.
6. This appeal is from the Decision and Order of the Honorable Alison Y. Tuitt, dated February 18, 2020, which granted Respondents' Motion to Dismiss the Verified Petition.
7. This appeal is on the Appendix method.

NOTICE OF APPEAL, DATED FEBRUARY 25, 2020 [A-3 - A-4]

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF BRONX

In the Matter of a Proceeding under Article 70 of the CPLR
for a Writ of Habeas Corpus and Order to Show Cause,

**Index No.: 260441/2019
(Bronx County)**

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

NOTICE OF APPEAL

Petitioner,

Hon. Justice Alison Y. Tuitt
Justice Supreme Court
Bronx County

-against-


JAMES J. BREHENY, in his official capacity as the
Executive Vice President and General Director of Zoos and
Aquariums of the Wildlife Conservation Society and Director
of the Bronx Zoo, and WILDLIFE CONSERVATION
SOCIETY,

Respondents.

PLEASE TAKE NOTICE that the Petitioner, The Nonhuman Rights Project, Inc. ("NhRP"), on behalf of an elephant named Happy, hereby appeals to the Appellate Division of the Supreme Court of the State of New York, for the First Judicial Department, from the decision and Order of the Supreme Court of the State of New York, County of Bronx (Hon. Justice Tuitt), dated February 18, 2020 and entered in the office of the Clerk of the County of Bronx on February 19, 2020, which granted Respondents' motion to dismiss the NhRP's Verified Petition for a Common Law Writ of Habeas Corpus and Order to Show Cause. Petitioner appeals from each and every part of that decision and Order.

Respectfully submitted,

Dated: 2/25/2020


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Attorneys for Respondents James J. Breheny and Wildlife Conservation Society

DECISION AND ORDER OF THE HONORABLE ALISON Y. TUITT,
DATED FEBRUARY 18, 2020, APPEALED FROM, WITH NOTICE OF ENTRY [A-5 - A-22]

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF BRONX

In the Matter of a Proceeding under Article 70 of the CPLR
for a Writ of Habeas Corpus and Order to Show Cause,

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

Petitioner,

v.

JAMES J. BREHENY, in his official capacity as Executive
Vice President and General Director of Zoos and Aquariums
of the Wildlife Conservation Society and Director of the
Bronx Zoo, and WILDLIFE CONSERVATION
SOCIETY,

Respondents.

NOTICE OF ENTRY

Index No.: 260441/2019

PLEASE TAKE NOTICE that the accompanying Memorandum Decision
and Order was signed on February 18, 2020, and entered in the Office of the Bronx County
Clerk on February 19, 2020.

Dated: Buffalo, New York
February 19, 2020

PHILLIPS LYTLE LLP

By: 

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SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF BRONX, PART 5

The NonHuman Rights Project
on behalf of HAPPY -against-

Index No. 260441/19

Hon. Alison Y. Tuitt
Justice Supreme Court

Brekeny, James J.

The following papers numbered 1 to 16 were read on ^{these} ~~this~~ motions Seq. No. 1, 2, 3, 4-12
for Miscellaneous Reliefs noticed on various dates 9/13/19

Notice of Motion - Order to Show Cause - Exhibits and Affidavits Annexed	No(s).
Answering Affidavit and Exhibits	No(s).
Replying Affidavit and Exhibits	No(s).

Motion is Respectfully Referred to Justice:
Dated:

Upon the foregoing papers, it is ordered that ~~this motion is~~ ^{these motions and} order to show causes, Verified Petition, and related motions are decided in accordance with the annexed memorandum decision.

Dated: 2/18/20

Hon. A. Y. Tuitt

J.S.C.

Allison Y. Tuitt, J.S.C.

1. CHECK ONE..... ☐ CASE DISPOSED IN ITS ENTIRETY ☐ CASE STILL ACTIVE
2. MOTION IS..... ☐ GRANTED ☐ DENIED ☐ GRANTED IN PART ☐ OTHER
3. CHECK IF APPROPRIATE..... ☐ SETTLE ORDER ☐ SUBMIT ORDER ☐ SCHEDULE APPEARANCE
- ☐ FIDUCIARY APPOINTMENT ☐ REFEREE APPOINTMENT

NEW YORK SUPREME COURT-----COUNTY OF BRONX

PART IA - 5

In the Matter of a Proceeding under Article 70 of the
CPLR for a Writ of Habeas Corpus and Order to
Show Cause,

INDEX NUMBER: 260441/2019

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

Petitioner,

-against-

Present:
HON. ALISON Y. TUITT
Justice

JAMES J. BREHENY, in his official capacity as
Executive Vice President and General Director of
Zoos and Aquariums of the Wildlife Conservation
Society and Director of the Bronx Zoo and
WILDLIFE CONSERVATION SOCIETY,

Respondents.

On Calendar of 1/6/2020

The following papers, numbered as follows:

Read on these:

<u>Order to Show Cause, Verified Petition, related papers</u>	<u>1-14</u>
<u>Order to Show Cause with Temporary Restraining Order</u>	<u>15</u>
<u>Motion to Dismiss or Change Venue, related papers</u>	<u>16-21</u>
<u>Motion for a Protective Order, related papers</u>	<u>22-26</u>
<u>Motion for Leave to File Late Papers</u>	<u>27</u>
<u>Motion for Preliminary Injunction, related papers</u>	<u>28-32</u>
<u>Motion to Strike Respondents' Verified Answer, related papers</u>	<u>33-38</u>
<u>Motion for an Order Granting Amici Leave to File an Amicus Curiae Brief</u>	<u>39-46</u>

Upon the foregoing papers, the Order to Show Cause and Verified Petition for Writ of Habeas Corpus and Respondent's motion to dismiss the Petition are consolidated for purposes of this decision. For the reasons set forth herein, the motion to dismiss the Petition is granted and the Petition is dismissed. The remainder of the related motions are denied as moot.

Procedural History

This is a habeas corpus proceeding brought by Petitioner, the NhRP on behalf of Happy, a 48 year old Asian elephant situated in the Bronx Zoo, New York. Petitioner commenced the proceeding on October 2, 2018 in Supreme Court, Orleans County by filing a Verified Petition or a Common Law Writ of Habeas Corpus and Order to Show Cause pursuant to CPLR Article 70 on behalf of Happy. The NhRP alleges that Happy is being unlawfully imprisoned in the Bronx Zoo and demands her immediate release to an appropriate elephant sanctuary of which there are two in the United States, both which have agreed to provide lifetime care at no cost to the Bronx Zoo. In lieu of serving an answer to the Petition, the Bronx Zoo moved to change the venue of these proceedings from Orleans County to Bronx County or, in the alternative, to dismiss the proceedings with prejudice. On January 18, 2019, the Orleans County Court granted the branch of the motion to change venue, and the matter was transferred to Bronx County. The parties brought several other motions that were not decided by the Orleans County Court, and were transferred to this Court. Among the motions that the NhRP filed in Orleans County was a preliminary injunction requesting that the Orleans County Court enjoin the Bronx Zoo from removing Happy from the State of New York pending the outcome of this proceeding. Respondents' moved to dismiss the Petition on the grounds that controlling New York law holds that habeas corpus protection under CPLR Article 70 should not be extended to animals as the NhRP fails to cite any legal precedent applicable in the State of New York to support its position. Additionally, the NhRP brought motions to strike Respondents' opposition to Petitioner's proposed Order to Show Cause, to allow the filing of late reply papers, and, for a protective order. There was also a motion of *Amici* to File Brief *Amicus Curiae*. This Court heard oral arguments on these proceedings on August 12, 2019, September 23, 2019, October 21, 2019 and January 6, 2020.

The NhRP seeks the issuance of the Writ of Habeas Corpus and Order to Show Cause demanding that Respondents demonstrate forthwith the basis of their imprisonment of Happy; upon a determination that

Happy is being unlawfully imprisoned, an Order directing her immediate release from the Respondents' custody to an appropriate sanctuary; and, an award for the NhRP for the costs and disbursements of this action.

The Parties

The NhRP is a not-for-profit corporation, a civil rights organization dedicated to changing “the common law status of at least some nonhuman animals from mere ‘things,’ which lack the capacity to possess any legal rights, to ‘persons,’ who possess such fundamental rights as bodily integrity and bodily liberty, and those other legal rights to which evolving standards of morality, scientific discovery, and human experience entitle them.” <https://www.nonhumanrights.org/who-we-are/>. For the past 20 years, the NhRP has worked to change the status of such nonhuman animals as chimpanzees and elephants from legal things to legal persons. The NhRP has filed similar cases in several other New York Courts with the goal of obtaining legal rights for chimpanzees, elephants, and ultimately for other animals.

Respondent the Wildlife Conservation Society (“WCS”) is a not-for-profit corporation, headquartered at the Bronx Zoo, whose mission statement is to save wildlife and wild places worldwide through science, conservation action, education and inspiring people to value nature. Opened in 1899, the Bronx Zoo, a WCS park, cares for thousands of endangered or threatened animals and provides experiences to visitors that may spark a lifelong passion to protect animals and their natural habitats. WCS manages the Bronx Zoo along with other New York City wildlife parks and zoos. Respondent James Breheny is WCS’ Executive Vice President and General Director of Zoos and Aquariums, and is the Director of the Bronx Zoo.

Happy the Elephant

Happy is a 48 year old female Asian elephant who was captured in the wild and brought to the United States when she was one year old. In 1977, Happy and another elephant named Grumpy arrived at the Bronx Zoo. There, in addition to being on display, Happy gave rides and participated in “elephant extravaganzas”. For the next 25 years, Happy and Grumpy lived together. The Bronx Zoo had other elephants, and they were kept two by two. In 2002, the Bronx Zoo paired Happy and Grumpy with two other elephants, Patty and Maxine in the same elephant exhibit. Patty and Maxine attacked Grumpy who tumbled and fell, and was seriously injured. Grumpy never recovered from her injuries and was euthanized. Thereafter, the Bronx

Zoo separated Happy from them, and introduced a younger female Asian elephant named Sammie into her portion of the exhibit. Sammie suffered from severe liver disease and was euthanized in 2006. The Bronx Zoo announced after the death of Sammie that it would not acquire any new elephants. Since 2006, Happy has been living alone at the Bronx Zoo. The NhRP argues, in essence, that Happy has been imprisoned in solitary confinement, notwithstanding the uncontroverted scientific evidence that Happy is an autonomous, intelligent being with advanced cognitive abilities akin to human beings.

The NhRP's arguments

The NhRP brings the instant proceeding alleging that Happy is being unlawfully imprisoned by Respondents in the Bronx Zoo. Happy has been living alone in an one-acre enclosure within the Bronx Zoo since Sammie's death in 2006. The NhRP argues that Happy has been, and continues to be, denied direct social contact with any other elephants, and spends most of her time indoors in a large holding facility lined with elephant cages, which are about twice the length of the animals' bodies. The NhRP argues that whether Respondents are in violation of any federal, state or local animal welfare laws in their detention of Happy is irrelevant as to whether or not the detention is lawful. The NhRP further contends that this habeas corpus case is neither an animal protection, nor animal welfare case. The Petition does not allege that Happy is illegally confined because she is kept in unsuitable conditions, nor does it seek improved welfare for Happy. Rather, this Petition seeks that this Court recognize Happy's alleged common law right to bodily liberty, and order her immediate release from Respondents' current and continued alleged unlawful detention so that her liberty and autonomy may be realized. NhRP argues that it is the fact that Happy is imprisoned at all, rather than her conditions of her imprisonment, that is unlawful.

The NhRP seeks Happy's immediate release from her imprisonment to a permanent elephant sanctuary, two of which have agreed to take Happy: the Professional Animal Welfare Society ("PAWS") in California, and The Elephant Sanctuary in Tennessee. In support of its application, the NhRP submits expert scientific affidavits from five of the world's most renowned experts on the cognitive abilities of elephants: the affidavit of Joyce Pool; the supplemental affidavit of Joyce Pool; the joint affidavit of Lucy Bates and Richard W. Byrne; the affidavit of Karen McComb; and, the affidavit of Cynthia J. Moss. The NhRP also submits the affidavit from an expert in the care and rehabilitation of captive elephants in sanctuary. In his affidavit, Ed

Stewart, President and Co-Founder of PAWS, states that PAWS has agreed to provide permanent sanctuary to Happy should she be released.

The NhRP submits its expert affidavits which demonstrate that Happy possesses complex cognitive abilities sufficient for common law personhood and the common law right to bodily liberty. These include: autonomy; empathy; self-awareness; self-determination; theory of mind (awareness that others have minds); insight; working memory; an extensive long-term memory that allows them to accumulate social knowledge; the ability to act intentionally and in a goal-oriented manner, and to detect animacy and goal directedness in others; to understand the physical competence and emotional state of others; imitate, including vocal imitation; point and understand pointing; engage in true teaching (taking the pupil's lack of knowledge into account and actively showing them what to do); cooperate and build coalitions; cooperative problem-solving, innovative problem-solving, and behavioral flexibility; understand causation; intentional communication, including vocalizations to share knowledge and information with others in a manner similar to humans; ostensive behavior that emphasizes the importance of particular communication; wide variety of gestures, signals and postures; use of specific calls and gestures to plan and discuss a course of action, adjust their plan according to their assessment of risk, and execute the plan in a coordinated manner; complex learning and categorization abilities; and, an awareness of and response to death, including grieving behaviors.

The NhRP's experts state that African and Asian elephants share numerous complex cognitive abilities with humans, such as self-awareness, empathy, awareness of death, intentional communication, learning, memory, and categorization abilities. Each is a component of autonomy. The experts opine that African and Asian elephants are autonomous, as they exhibit self-determination behavior that is based on a freedom of choice. As a psychological concept, it implies that the individual is directing their behavior based on some non-observable, internal cognitive process, rather than simply responding reflexively. Physical similarities between human and elephant brains occur in areas that link to the capacities necessary for autonomy and self-awareness. The NhRP further alleges that Happy is the first elephant to pass the mirror self-recognition-test ("MSR"), considered to be an indicator of an animal's self-awareness and is thought to correlate with higher forms of empathy and altruistic behavior. As do humans, Asian elephants exhibit MSR, which is the ability to recognize a reflection in the mirror as oneself, while the mark test involves surreptitiously placing a colored mark on an individual's forehead that she cannot see or be aware of without the aid of a mirror. If the individual

uses the mirror to investigate the mark, the individual must recognize the reflection of herself. The NhRP experts argue that MSR is significant because it is a key identifier of self-awareness, which is intimately related to autobiographical memory in humans and is central to autonomy and being able to direct one's own behavior to achieve personal goals and desires. By demonstrating they can recognize themselves in a mirror, the experts claim that elephants must be holding a mental representation of themselves from another perspective, and thus must be aware that they are a separate entity from others.

Both chimpanzees and elephants demonstrate an awareness of death by reacting to dead family or group members. Having a mental representation of the self, which is a pre-requisite for MSR, likely confers an ability to comprehend death. Wild African elephants have been observed using their tusks, trunk or feet to attempt to lift sick, dying or dead elephants. Although they do not give up trying to lift or elicit movement from a dead body immediately, elephants appear to realize that once dead, the carcass can no longer be helped; and instead, they engage in more "mournful" or "grief stricken" behavior, such as standing guard over the body with a dejected demeanor and protecting it from predators. They have been observed covering the bodies of their dead with dirt and vegetation. Mothers who lose a calf may remain with the calf's body for an extended period, but do not behave towards the body as they would a live calf. The general demeanor of elephants attending to a dead elephant is one of grief and compassion, with slow movements and few vocalizations. These behaviors are akin to human responses to the death of a close relative or friend, and demonstrate that elephants possess some understanding of life and the permanence of death. Elephants frequently display empathy in the form of protection, comfort and consolation, as well as by actively helping those in difficulty, assisting injured ones to stand and walk, or helping calves out of rivers or ditches with steep banks. In an analysis of behavioral data collected from wild African elephants over a 40 year continuous field study, the experts concluded that as well as possessing their own intentions, elephants can diagnose animacy and goal directedness in others, understand physical competence and emotional state of others, and attribute goals and mental states to other.

The Bronx/WCS' arguments

Respondents move to dismiss the Petition on the grounds that the NhRP, to no avail, has previously prosecuted several unsuccessful lawsuits on behalf of chimpanzees. Controlling New York precedent provides that animals are not entitled to habeas corpus protection under CPLR Article 70. Respondents argue

that contrary to the NhRP allegations, Happy is not unlawfully imprisoned at the Bronx Zoo. The AZA Standards for Elephant Management and Care and the Animal Welfare Act are the two primary standards for the care and management of elephants in AZA-accredited institutions in the United States. Respondents argue that the Bronx Zoo's compliance with these standards ensures that Happy is provided with excellent care focused on her well-being. The AZA Standards require that "[o]utdoor habitats must provide sufficient space and environmental complexity to both allow for and stimulate natural behavioral activities and social interactions resulting in healthy and well-adapted elephants." The Standards include requirements for variation in an elephant's environment including varied terrain to allow for exercise and "foraging, wallowing, bathing, digging, and resting." "While outdoors and weather permitting, elephants must have regular access to water sources, such as a [sic] pools, waterfalls, misters/sprinklers, or wallows that provide enrichment and allow the elephants to cool and/or bathe themselves." Additional standards are included for subjects such as elephant diet, exercise, medical management, foot care, and skin care. Daily behavioral assessments of elephants must be conducted and recorded in a daily log. Elephant care professionals, managers, and directors who work for the Bronx Zoo are also required to complete AZA's Principles of Elephant Management courses. To remain an AZA-accredited zoo, the Bronx Zoo submits annual reports regarding its elephant program, and is regularly inspected by AZA representatives and individuals from peer institutions. An elephant specialist is included in every AZA accreditation inspection of the Bronx Zoo. On April 27, 2018, in response to the Bronx Zoo's most recent report, the AZA confirmed that the Bronx Zoo is in compliance with the AZA Standards for elephants.

In addition, the Bronx Zoo is regulated under the Animal Welfare Act and Animal Welfare Regulations. Although the Animal Welfare Act does not contain any elephant-specific requirements, the Act's standards and regulations ensure that animals receive humane care and treatment at regulated facilities. Among its requirements, the Animal Welfare Act requires the Bronx Zoo to employ an attending veterinarian who shall provide adequate care, and maintain compliance with standards for "the humane handling, care, treatment, housing, and transportation of animals. Compliance with the Animal Welfare Act is overseen by the U.S. Department of Agriculture ("USDA") Animal Care. USDA inspectors make routine, unannounced inspections of facilities like the Bronx Zoo at least once a year. Respondents argue that Happy's living conditions are therefore not "unlawful" according to applicable standards.

Happy's routine care program incorporates the AZA Standards and requirements under the

Animal Welfare Act. On a daily basis, Happy's appetite, food intake, stool appearance and quantity, overall activity, and responsiveness to keepers are monitored. Happy also receives baths on a daily basis. Everyday Happy's keepers assess her body condition, provide her with various forms of enrichment that encourage mental and physical stimulation, and engage in positive reinforcement training sessions that help to maintain behaviors used to facilitate Happy's care. On a regular basis, the Bronx Zoo conducts voluntary blood draws and trunk washes, as well as weigh-ins to monitor Happy's health. Weather permitting, Happy has regular, year-round access to a large, naturalistic outdoor exhibit in which she may go swimming and engage in other species-typical behavior, and also has regular overnight access to a large outdoor space. Patrick Thomas, PhD, Vice President and General Curator of WCS and Associate Director of the Bronx Zoo, states that Happy has developed a familiarity and comfort with her keepers, and she recognizes her surroundings as her familiar, longstanding environment. It is his opinion that suddenly taking her away from this environment and introducing entirely new surroundings without the support of her keepers could inflict long-term damage on Happy's welfare. Mr. Thomas states that Happy has also shown in past experiences that she does not respond well to even temporary, short moves within the Bronx Zoo. He believes that transporting Happy the long distance from the Bronx Zoo across the country to the sanctuary in California would cause severe stress and potentially inflict long-term physical harm. Based on his 40 years of experience and responsibilities in supervising the care of animals at the Bronx Zoo, including Happy, to the best of his knowledge, Mr. Thomas opines that Happy is currently healthy and well-adapted to her surrounding in the Bronx Zoo.

Paul P. Calle, WCS's Vice President for Health Programs, Chief Veterinarian and Director of the Zoological Health Program based at the Bronx Zoo, states that the Bronx Zoo undertakes a multitude of efforts to ensure Happy's continued physical and psychological well-being and health. Happy is given visual checks by the care staff several times each day and, on occasion when an issue is identified, the veterinary staff responds appropriately to any concern that is noted. The veterinary staff conducts regular health assessments of Happy through body condition evaluations, oral, dental and foot examinations. Baseline toe x-rays of Happy's feet were completed, and are repeated for comparative analysis, on an as-needed basis to address particular areas of concern as they arise. Veterinary staff are consulted by keepers regarding nail and pad conditions, with veterinary participation in trims, evaluations, or treatments as necessary. Veterinary staff participate in development and maintenance of medical behaviors (trunk wash, oral/dental evaluation, blood sampling, foot

work, presentation for injections or x-rays) in conjunction with Happy's animal keeper staff. Happy's health care is recorded and documented in her individual medical record, and documented in the Bronx Zoo's annual AZA Elephant Program Annual Report. Mr. Calle states that based upon his responsibilities in providing veterinary care for almost 30 years to animals at the Bronx Zoo, including Happy, and to the best of his knowledge, Happy is currently healthy and well-adapted to her present surroundings. During his experience with Happy, she has become very distressed during short moves from one area of the Zoo to another. Mr. Calle opines that given Happy's age and longstanding familiarity and attachment to her surroundings, a long-distance move, such as that proposed by the NhRP to California, would cause substantial stress to Happy. Imposing this move on Happy would create a serious risk to her long-term health that Mr. Calle does not believe is justified. In his professional opinion, Happy's health and well-being would not be best served by moving her to an animal sanctuary such as the facility operated by the PAWS Sanctuary.

James J. Breheny, Director of WCS, argues that the NhRP's expert affidavits provide little to no relevant information regarding whether Happy is "unlawfully imprisoned" at the Bronx Zoo. In substance, the affidavits are almost verbatim duplicates of each other and barely address Happy. The affidavits the NhRP relies upon only provide generalized, anecdotal discussions of African and Asian elephants as observed in the wild. Mr. Breheny argues that the affidavits posit that elephants are generally better suited to the company of other elephants, without accounting for the particular needs, wants, and temperament of any one elephant. None of the expert affidavits submitted in support of the NhRP's Petition make any reference to Happy, her current state of well-being, or her needs as a 48 year old Asian elephant who has lived for over 40 years at the Bronx Zoo. Mr. Breheny argues that elephants who have lived at zoos for long periods of time are significantly different from elephants in the wild, and the characteristics of one cannot generally be attributed to the other, therefore, the NhRP's supporting expert affidavits have limited applicability to Happy and her specific needs. In contrast, the Bronx Zoo employees, including Mr. Breheny himself, have been caring for Happy's interest and well-being, knowing her individually for over 40 years.

The Bronx Zoo has significant resources for the care and well-being of Happy, including a large number of highly trained and experienced staff that provides excellent care and medical attention for Happy, as well as the sustained financial resources of a major institution. Happy also has longstanding relationships and familiarity with her caregivers and surroundings at the Bronx Zoo, where she has lived for nearly all of her life.

Mr. Breheny alleges that the NhRP does not take into consideration Happy's unique characteristics, personality and needs. For example, there is Happy's history of not interacting well with other elephants at the Bronx Zoo, which is why she is housed separately since her companion died. The NhRP also fails to consider that Happy may not socialize well with the elephants in the sanctuary due to her alleged acrimonious behavior. Based upon past experiences with Happy, the Bronx Zoo knows that she becomes particularly distressed by even short moves within the Zoo. Based upon his expertise and decades-long experience with Happy, Mr. Breheny states his professional opinion that Happy's interest would not be best served by moving her to an animal sanctuary.

The NhRP Counter-Arguments

In response, the NhRP argues that the Bronx Zoo imprisons Happy in a tiny, cold, lonely, "un-elephant-friendly", an unnatural place that ignores her autonomy as well as her social, emotional, and bodily liberty needs, while daily inflicting further injury upon her that would be remedied by transferring her to any American elephant sanctuary. They argue that the Bronx Zoo's unlawful imprisonment of Happy, an autonomous, extraordinarily cognitively-complex being, violates her common law right to bodily liberty. The NhRP has placed before the Court five deeply educated, independent, expert opinions, all firmly grounded in decades of education, observation, and experience, by some of the most prominent elephant scientists in the world. In great detail, these opinions carefully demonstrate that elephants are autonomous beings possessed of extraordinarily cognitively complex minds. The NhRP specifically demands that this Court determine that Happy possesses the common law right to bodily liberty and immediate release from her unlawful imprisonment so that her autonomy may be realized. The NhRP argues that the notion that living on a 2,300 acre sanctuary, such as PAWS is comparable to being imprisoned in the Bronx Zoo's approximately one acre elephant exhibit is absurd. The NhRP contends that the purported experts on behalf of the Bronx Zoo have not published or submitted for publication any peer-reviewed articles about elephants, nor have they studied or examined any elephants in the wild or in any other zoo. Similarly, none of the Bronx Zoo's affiants present any evidence that they have studied any wild elephant, or know about an elephant's basic social, emotional, behavioral, liberty, and autonomy needs, whether captive or wild.

The NhRP also takes issue with Mr. Calle's statement that to the best of his knowledge, Happy is currently healthy and well-adapted to her present surroundings. Mr. Calle fails to properly address the very

small space available to Happy at the Bronx Zoo. There are three possible locations for elephants at the Zoo: an indoor “holding area” or elephant barn; a barren cemented walled outdoor elephant yard that appears to be 0.05 of an acre; and, a Zoo exhibit, listed as being only 1.15 acres. Since the Bronx Zoo elephants are incompatible, the naturalistic exhibit area has to be shared on a rotational basis. At night, Happy is usually in a small pen in the barn or in the barren outdoor yard. During most days, weather permitting, she is also in the barren outdoor elephant yard. Dr. Poole notes that it is difficult for members of the public to obtain much information about Happy’s behavior other than viewing short videos of her captured by visitors to the Zoo. Dr. Poole states that in these videos, Happy is engaged in only five activities/behavior: standing facing the fence/gate; dusting, swinging her trunk in stereotypical behavior; standing with one or two legs lifted off the ground, either to take weight off painful, diseased feet or again engaging in stereotypic behavior; and once, eating grass. According to Dr. Poole, only two of these activities are natural, dusting and eating grass, and being alone in a small place, there is little else for her to do.

Dr. Poole found that Happy has no general problem getting along with other elephants, and opines that Happy is not anti-social, per se, but the historical information indicates that Happy was once attacked by Maxine and Patty and there was a risk that it could happen again. The NhRP argues that in the 40 years that she has been at the Bronx Zoo, Happy has only been given a choice of four companions, with whom she was forced to share a space that for an elephant is the equivalent of the size of a house. Two of these companions she liked and lost, and the other two attacked her. Dr. Poole opines that this is a confirmation of the Bronx Zoo’s inability to meet Happy’s basic needs. Moreover, Dr. Poole notes that the claims that Happy does not do well with change; that she will not survive the transport; that a transfer to a sanctuary will be too stressful; that she does not know how to socialize; and, that her unique personality is problematic, have often been disproven. Dr. Poole states that elephants with serious physical or psychological problems in zoos have usually become more normal functioning elephants when given more appropriate space in a sanctuary such as PAWS. Dr. Poole then provides examples of elephants similar to Happy who, when moved from a zoo to a sanctuary, almost immediately blossomed into happy, successful, autonomous, and socially and emotionally fulfilled beings. Dr. Poole opines that such space permits autonomy and allows elephants to develop healthy social relationships and to engage in a near natural movement, foraging, and repertoire of behavior.

The Law

New York Courts have addressed the question of “personhood” with respect to chimpanzees. The NhRP has brought four identical, separate habeas corpus proceedings on behalf of “imprisoned chimpanzees” in four different counties, each within a different department of the Supreme Court, Appellate Division. The NhRP argued that chimpanzees are entitled to habeas corpus relief as their human-like characteristics render them “persons”. In each case, the trial court declined habeas corpus relief for the chimpanzees, and the NhRP appealed each decision. On appeal, all four Departments of the Appellate Division affirmed the decisions of the trial courts to decline habeas corpus relief.

The NhRP has standing to file the Petition for habeas corpus on behalf of Happy. Pursuant to CPLR 7002(a), a petition may be brought by “[a] person illegally imprisoned or otherwise restrained in his liberty within the state, or one acting on his behalf..., may petition without notice for a writ of habeas corpus...”. “As the statute places no restriction on who may bring a petition for habeas on behalf of the person restrained, ... petitioner [NhRP] has met its burden of demonstrating that it has standing.” The Nonhuman Rights Project, Inc. v. Stanley Jr. M.D., 2015 WL 1804007 (N.Y. Sup. Ct. 2015), amended in part, The Nonhuman Rights Project, Inc. v. Stanley, 2015 WL 1812988 (N.Y. Sup. 2015). Indeed, in the six habeas corpus cases that the NhRP has filed on behalf of chimpanzees in New York, the Courts found that NhRP had standing. See, Id.; People ex rel Nonhuman Rights Project Inc. v. Lavery, 998 N.Y.S.2d 248 (3d Dept. 2014); Nonhuman Rights Project, Inc. ex rel Kiko v. Presti, 999 N.Y.S.2d 652 (4th Dept. 2015); Nonhuman Rights Project, Inc. ex rel. Tommy v. Lavery, 54 N.Y.S.3d 392 (1st Dept. 2017), leave to appeal den., 31 N.Y.3d 1054 (2018); Nonhuman Rights Project on Behalf of Tommy v. Lavery, 31 N.Y.3d 1054 (2018); Nonhuman on Behalf of Tommy v. Lavery, 31 N.Y.3d 1065 (2018). Thus, this Court finds that the NhRP has standing to bring the habeas corpus proceeding on behalf of Happy.

However, on the question of whether an animal may be a “person”, the Courts have held that animals are not “persons” entitled to rights and protections afforded by the writ of habeas corpus. In People ex rel. Nonhuman Rights Project, Inc. v. Lavery, 998 N.Y.S.2d 248 (3d Dept. 2014), the appeal presented the novel question of whether a chimpanzee is a “person” entitled to the rights and protections afforded by the writ of habeas corpus. In Lavery, like here, the NhRP did not allege that respondents were in violation of any state or federal statutes respecting the domestic possession of wild animals. Instead it argued that a chimpanzee is a

“person” entitled to fundamental rights.

According to petitioner, while respondents are in compliance with state and federal statutes, the statutes themselves are inappropriate. Yet, rather than challenging any such statutes, petitioner requests that this Court enlarge the common-law definition of “person” in order to afford legal rights to an animal. We decline to do so, and conclude that a chimpanzee is not a “person” entitled to the rights and protections afforded by the writ of habeas corpus. *Id.* at 249

* * *

Not surprisingly, animals have never been considered persons for the purposes of habeas corpus relief, nor have they been explicitly considered as persons or entities capable of asserting rights for the purpose of state or federal law... Petitioner does not cite any precedent and there appears to be none in state law, or under English common law, that an animal could be considered a “person” for the purposes of common-law habeas corpus relief. In fact, habeas corpus relief has never been provided to any nonhuman entity. *Id.* at 249-250

* * *

Needless to say, unlike human beings, chimpanzees cannot bear any legal duties, submit to societal responsibilities or be held legally accountable for their actions. In our view, it is this incapability to bear any legal responsibilities and societal duties that renders it inappropriate to confer upon chimpanzees the legal rights—such as the fundamental right to liberty protected by the writ of habeas corpus—that have been afforded to human beings. *Id.* at 251

(Internal citations omitted).

In The Nonhuman Rights Project, Inc. ex rel. Hercules and Leo v. Stanley, 16 N.Y.S.3d 898 (N.Y. Sup. Ct. 2015), the NhRP brought an Article 70 proceeding under the common law for a writ of habeas corpus, on behalf of Hercules and Leo, two chimpanzees in the custody of respondent State University of New York at Stony Brook, seeking an Order directing their release and transfer to a sanctuary in Florida. The conditions under which Hercules and Leo were confined were not challenged by NhRP and it did not allege that respondents are violating any laws. While the Court was extremely sympathetic to the plight of the NhRP, on behalf of Hercules and Leo, it nonetheless held that given the Third Department precedent to which it is bound, the chimpanzees are not “persons” entitled to rights and protections afforded by the writ of habeas corpus, and the petition was denied, and the proceeding was dismissed.

In Nonhuman Rights Project, Inc., ex rel. Kiko v. Presti, 999 N.Y.S.2d 652 (4th Dept. 2015), *lv. denied* 26 N.Y.3d 901 (2015), the NhRP sought a writ of habeas corpus on behalf of another chimpanzee, Kiko, arguing that he was illegally confined because he was kept in unsuitable conditions, and sought to have him

placed in a sanctuary. The Court did not address the question of whether a chimpanzee was deemed a person for habeas corpus purposes, or whether the NhRP had standing to seek habeas corpus on the chimpanzee's behalf. The Fourth Department affirmed the dismissal of the petition, holding that habeas corpus did not lie where the NhRP sought only to change the conditions of confinement rather than the confinement itself. In this matter, the NhRP sought to transfer Kiko to a different facility, a sanctuary, that it deemed more appropriate. The Court held that even if a chimpanzee was deemed a person for habeas corpus purposes, and even if the NhRP had standing to seek habeas corpus relief on Kiko's behalf, habeas corpus did not lie as it is well-settled that habeas corpus relief must be denied where the subject of the petition is not entitled to immediate release. Since the NhRP did not seek the immediate release of Kiko, but sought to transfer him to a sanctuary, habeas corpus does not lie. Here, the trial court declined to sign the order to show cause seeking habeas corpus relief, and the Fourth Department affirmed.

While petitioner's cited studies attest to the intelligence and social capabilities of chimpanzees, petitioner does not cite any sources indicating that the United States or New York Constitutions were intended to protect nonhuman animals' rights to liberty, or that the Legislature intended the term "person" in CPLR article 70 to expand the availability of habeas protection beyond humans. No precedent exists, under New York law, or English common law, for a finding that a chimpanzee could be considered a "person" and entitled to habeas relief. In fact, habeas relief has never been found applicable to any animal. Id. at 395-396.

The asserted cognitive and linguistic capabilities of chimpanzees do not translate to a chimpanzee's capacity or ability, like humans, to bear legal duties, or to be held legally accountable for their actions. Petitioner does not suggest that any chimpanzee charged with a crime in New York could be deemed fit to proceed, i.e., to have the "capacity to understand the proceedings against him or to assist in his own defense". Id. at 396.

* * *

Petitioner argues that the ability to acknowledge a legal duty or legal responsibility should not be determinative of entitlement to habeas relief, since, for example, infants cannot comprehend that they owe duties or responsibilities and a comatose person lacks sentience, yet both have legal rights. This argument ignores the fact that these are still human beings, members of the human community. Id.

Even assuming, however, that habeas relief is potentially available to chimpanzees, the common-law writ of habeas corpus does not lie on behalf of the two chimpanzees at issue in these proceedings. Petitioner does not seek the immediate production of Kiko and Tommy to the court or their placement in a temporary home, since petitioner contends that "there are no

adequate facilities to house [them] in proximity to the [c]ourt.” Instead, petitioner requests that respondents be ordered to show “why [the chimpanzees] should not be discharged, and thereafter, [the court] make a determination that [their] detention is unlawful and order [their] immediate release to an appropriate primate sanctuary... Since petitioner does not challenge the legality of the chimpanzees’ detention, but merely seeks their transfer to a different facility, habeas relief was properly denied by the motion court. Id. at 397.

(Internal citations omitted).

In Nonhuman Rights Project, Inc. ex rel. Tommy v. Lavery, 54 N.Y.S.3d 392 (1st Dept. 2017), lv denied 31 N.Y.3d 1054 (2018), the NhRP filed two petitions for habeas corpus on behalf of two chimpanzees, Tommy and Kiko. Supreme Court declined to extend habeas corpus relief to the chimpanzees. The NhRP appealed and the Appellate Division, First Department affirmed, holding that the human-like characteristics of chimpanzees did not render them “persons” for purposes of habeas corpus relief. The Court noted that any position to the contrary is without legal support or legal precedent. The asserted cognitive and linguistic capabilities of chimpanzees did not translate to a chimpanzee’s capacity or ability, like humans, to bear legal duties, or to be held legally accountable for their actions. The Court further held that even if habeas corpus was potentially available to chimpanzees, writ of habeas corpus did not lie on behalf of the chimpanzees where the NhRP did not challenge the legality of the detention, but merely sought their transfer to a different and more appropriate facility.

Analysis

Regrettably, in the instant matter, this Court is bound by the legal precedent set by the Appellate Division when it held that animals are not “persons” entitled to rights and protections afforded by the writ of habeas corpus. Lavery, 54 N.Y.S.3d at 392. The First and Fourth Departments did not address the question of personhood for chimpanzees. For purposes of the decisions, both Appellate Departments noted that even if the NhRP had standing to bring the habeas corpus proceeding, and habeas corpus was potentially available to chimpanzees, the NhRP did not meet its burden for habeas corpus relief because it did not challenge the legality of the chimpanzees’ detention, but merely sought transfer of the chimpanzees to sanctuaries. Thus, both Courts assumed, for purposes of the argument, that the NhRP had standing and that habeas corpus was available to the chimpanzee. However, the Third Department squarely addressed the question and held that animals are not “persons” entitled to rights and protections afforded by the writ of habeas corpus.

This Court is extremely sympathetic to Happy's plight and the NhRP's mission on her behalf. It recognizes that Happy is an extraordinary animal with complex cognitive abilities, an intelligent being with advanced analytic abilities akin to human beings. Notwithstanding, in light of the Appellate Division, Third Department's holding that animals are not "persons", this Court is also constrained to find that Happy is not a "person" entitled to the writ of habeas corpus. In Lavery, 31 N.Y.3d 1054 (2018), the NhRP motion for leave to appeal the Third Department decision to the Court of Appeals was denied. However, in a concurring opinion, Justice Fahey noted that the denial of leave to appeal was not a decision on the merits of the NhRP claim. He stated that "[t]he question will have to be addressed eventually. Can a non-human animal be entitled to release from confinement through the writ of habeas corpus? Should such a being be treated as a person or as property, in essence a thing?" Id. at 1057. Justice Fahey further noted that "[t]he issue whether a nonhuman animal has a fundamental right to liberty protected by the writ of habeas corpus is profound and far-reaching. It speaks to our relationship with all the life around us. Ultimately, we will not be able to ignore it. While it may be arguable that a chimpanzee is not a 'person,' there is no doubt that it is not merely a thing." Id. at 1059.

Conclusion

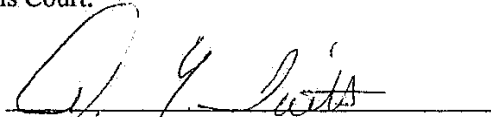
This Court agrees that Happy is more than just a legal thing, or property. She is an intelligent, autonomous being who should be treated with respect and dignity, and who may be entitled to liberty. Nonetheless, we are constrained by the caselaw to find that Happy is not a "person" and is not being illegally imprisoned. As stated by the First Department in Lavery, 54 N.Y.S.3d at 397, "the according of any fundamental legal rights to animals, including entitlement to habeas relief, is an issue better suited to the legislative process". The arguments advanced by the NhRP are extremely persuasive for transferring Happy from her solitary, lonely one-acre exhibit at the Bronx Zoo, to an elephant sanctuary on a 2300 acre lot. Nevertheless, in order to do so, this Court would have to find that Happy is a "person" and, as already stated, we are bound by this State's legal precedent.

Accordingly, Respondents' motion to dismiss the Petition is granted and the Petition is dismissed. The remainder of the motions are denied as academic or moot.

This constitutes the decision and Order of this Court.

Dated:

February 18, 2020



Hon. Alison Y. Tuitt

ORDER OF THE HONORABLE TRACEY A. BANNISTER,
DATED JANUARY 18, 2019, WITH NOTICE OF ENTRY [A-23 - A-30]

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF ORLEANS

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 HAPPY,

Petitioner,

-against-

JAMES J. BREHENY, in his official capacity as
Executive Vice President and General Director of Zoos
and Aquariums of the Wildlife Conservation Society and
Director of the Bronx Zoo, and WILDLIFE
CONSERVATION SOCIETY,


Respondents.

Index No.: 18-45164

NOTICE OF ENTRY

PLEASE TAKE NOTICE, that the within is a true copy of the Order of the Supreme Court,
Orleans County, signed by the Honorable Tracey A. Bannister, Justice of the Supreme Court, and
entered by the Chief Clerk of the Orleans County Supreme Court on January 18, 2019, granting
Respondents' motion to transfer venue from Orleans County to Bronx County.

Dated: January 23, 2019



Elizabeth Stein, Esq.
Attorney for Petitioner
5 Dunhill Road
New Hyde Park, New York 11040
516-747-4726
lizsteinlaw@gmail.com

NOTICE TO:

Karen Lake-Maynard
County Clerk, Orleans County

3 South Main St.
Albion, NY 14411

By Delivery Service and Email to Karen.Lake-Maynard@orleanscountyny.gov

Supreme & County Court, Orleans County
Kristin E. Nicholson, Chief Clerk

1 South Main St.
Albion, NY 14411

Phone: (585) 283-6657

By Email to knichols@nycourts.gov

PHILLIPS LYTLE LLP

Kenneth A. Manning, Esq.

Joanna J. Chen, Esq.

Attorneys for Respondents *James J. Breheny* and *Wildlife Conservation Society*

One Canalside

125 Main Street

Buffalo, New York 14203-2887

Tel: (716) 847-8400

By Email to kmanning@phillipslytle.com, jchen@phillipslytle.com

At a Term of the Supreme Court, of the State of New York, held in and for the County of Orleans at the Orleans County Courthouse, 1 South Main Street, in the Town of Albion, New York, on the 14th of December, 2018.

PRESENT: HON. TRACEY A. BANNISTER, J.S.C.
Justice Presiding

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF ORLEANS

In the Matter of a Proceeding under Article 70 of the CPLR for a Writ of Habeas Corpus and Order to Show Cause,

~~PROPOSED~~
ORDER

TAB

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

Index No. 18-45164

Petitioner,

v.

JAMES J. BREHENY, in his official capacity as
Executive Vice President and General Director of Zoos
and Aquariums of the Wildlife Conservation Society and
Director of the Bronx Zoo, and WILDLIFE
CONSERVATION SOCIETY,

Respondents.

Petitioner The NonHuman Rights Project, Inc., ("Petitioner") having filed a Verified Petition for a Writ of Habeas Corpus on behalf of Happy the elephant by order to show cause, and having moved for the admission of Steven M. Wise, Esq. pro hac vice; and having moved the Court to rule on its Petition for a Writ of Habeas Corpus, and having moved to strike Respondents James Breheny and the Wildlife Conservation Society's

("Respondents") opposition to Petitioner's proposed order to show cause; and having moved for a preliminary injunction pursuant to CPLR 6301, and having moved for a protective order as to Respondents' Notice to Admit served pursuant to CPLR 408 and 3123; and

Respondents having opposed the Petition and Petitioner's proposed order to show cause, and having moved to change venue pursuant to CPLR 511 and 7004(c), or alternatively, to dismiss the Petition with prejudice pursuant to CPLR 3211(a), and having opposed Petitioner's motion for a preliminary injunction, and having opposed Petitioner's motion for a protective order; and

Putative *Amici* Alliance of Marine Mammal Parks and Aquariums, Protect the Harvest, and the Zoological Association of America ("*Amici*") having moved to appear *amicus curiae* in this proceeding; and

Petitioner having opposed *Amici*'s motion;

NOW, upon reading Petitioner's Verified Petition for a Writ of Habeas Corpus, sworn to October 2, 2018, with exhibits, the Joint Affidavit of Lucy Bates and Richard M. Byrne, sworn to December 5, 2016, with exhibits, the Affidavit of Karen McComb, sworn to December 22, 2016, with exhibits, the Affidavit of Cynthia J. Moss, sworn to May 6, 2017, with exhibits, the Affidavit of Joyce Poole, Ph.D., sworn to December 2, 2016, with exhibits, the Supplemental Affidavit of Joyce Poole, Ph.D., dated October 1, 2018, the Affidavit of Ed Stewart, sworn to September 26, 2018, with exhibit, and Petitioner's supporting memorandum of law, dated October 2, 2018, all filed in support of Petitioner's proposed order to show cause and in support of its Petition for a Writ of Habeas Corpus; and

The Affidavit of James Breheny in opposition to Petitioner's proposed order to show cause, sworn to October 9, 2018, and Respondents' supporting memorandum of law, dated October 9, 2018, both filed in opposition to Petitioner's proposed order to show cause; and

Petitioner's Notice of Motion to Strike Respondents' opposition to Petitioner's proposed order to show cause, dated October 10, 2018, and the Affirmation of Elizabeth Stein, dated October 10, 2018, both filed in support of Petitioner's Motion to Strike; and

Petitioner's Notice of Motion to Rule on Petitioner's Habeas Corpus Petition, dated October 25, 2018, the Affirmation of Elizabeth Stein, dated October 25, 2018, and Petitioner's supporting memorandum of law, dated October 25, 2018, all in support of Petitioner's Motion to Rule; and

The Affidavit of Joanna J. Chen, Esq. in Opposition to Petitioner's Motion to Strike and Motion to Rule, sworn to November 14, 2018, with exhibits, and Respondents' supporting memorandum of law, dated November 14, 2018, both in opposition to Petitioner's Motion to Strike and Motion to Rule; and

Respondents' Demand for Change of Venue, dated November 21, 2018, and the Affirmation in Opposition to Respondents' Demand to Change Venue, dated November 27, 2018; and

Respondents' Notice of Motion to Change Venue or alternatively to Dismiss Petitioner's Petition, dated December 3, 2018, the Affidavit of Kenneth A. Manning, Esq., sworn to December 3, 2018, with exhibits, the Supplemental Affidavit of James J. Breheny, sworn to December 3, 2018, the Affidavit of Paul P. Calle, sworn to December 3, 2018, the

Affidavit of Patrick Thomas, Ph.D., sworn to December 3, 2018, with exhibit, and Respondents' supporting memorandum of law, dated December 3, 2018, all in support of Respondents' Motion to Change Venue or alternatively to Dismiss and in Opposition to Petitioner's Petition for a Writ of Habeas Corpus; and

The Reply Affirmation of Elizabeth Stein, Esq., dated December 10, 2018, the Reply Affidavit of Steven Wise, sworn to December 10, 2018, the Reply Affirmation of Kevin Schneider, dated December 10, 2018, with exhibits, the Reply Affidavit of Lauren Choplin, sworn to December 10, 2018, with exhibits, the Reply Second Supplemental Affidavit of Joyce Poole, Ph.D., sworn to December 10, 2018, and Petitioner's Reply Memorandum of Law, dated December 10, 2018, all in opposition to Respondents' Motion to Change Venue or alternatively to Dismiss and in further support of Petitioner's Petition for a Writ of Habeas Corpus; and

Petitioner's Notice of Motion to File Late Reply Papers, dated December 11, 2018 (corrected on December 11, 2018, and further corrected on December 12, 2018), and the Affirmation of Elizabeth Stein, Esq., in Support of Petitioner's Motion to File a Late Reply, dated December 11, 2018; and

Petitioner's Notice of Motion for a Preliminary Injunction, dated December 12, 2018, the Affirmation of Elizabeth Stein, Esq. in Support of Petitioner's Motion for Preliminary Injunction, dated December 12, 2018, and Petitioner's supporting memorandum of law, dated December 12, 2018, all in support of Petitioner's Motion for a Preliminary Injunction; and

The Reply Affidavit of Joanna J. Chen, Esq. sworn to December 13, 2018, and Respondents' Reply Memorandum of Law in further Support of its Motion to Change

Venue or alternatively to Dismiss and in opposition to Petitioner's Motion for a Preliminary Injunction, both in further support of Respondents' Motion to Change Venue or alternatively to Dismiss and in Opposition to Petitioner's Motion for a Preliminary Injunction; and

Petitioner's Notice of Motion for a Protective Order, dated December 12, 2018, the two Affirmations of Kevin Schneider, Esq., both dated December 12, 2018, and the Affirmation of Elizabeth Stein, Esq., dated December 12, 2018, all in support of Petitioner's Motion for a Protective Order; and

The Affirmation of Kenneth A. Manning, Esq. in Opposition to Petitioner's Motion for a Protective Order, dated December 13, 2018, with exhibits; and

The Notice of Motion of *Amici* to File Brief *Amicus Curiae*, the Affirmation of Bezalel A. Stern, dated December 3, 2018, and the proposed Brief of *Amicus Curiae*, all in support of *Amici*'s motion to File Brief *Amicus Curiae*; and Petitioner's Memorandum of Law in Opposition to *Amici*'s Motion to File Brief *Amicus Curiae*, dated December 11, 2018; and all the papers and proceedings herein (and proof of service of the foregoing papers having been made); and having heard Petitioner The NonHuman Rights Project (Steven M. Wise, Esq., and Elizabeth Stein, Esq., of counsel) and Phillips Lytle LLP (Kenneth A. Manning, Esq. and Joanna J. Chen, Esq., of counsel), attorneys for Respondents, and after due deliberation thereon, and upon the attached transcript of the decision of this Court; it is hereby:

ORDERED that Respondents' motion to change venue is GRANTED; and it is further

ORDERED that

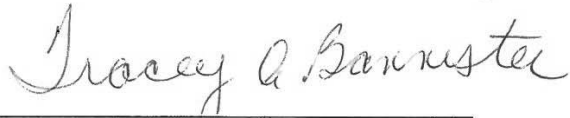
(i) the above-captioned proceeding, with all pleadings, motions, and papers submitted herein, shall be and hereby is transferred to the New York State Supreme Court, Bronx County; and

(ii) the Clerk of the Court is directed to transfer this proceeding forthwith upon the entry of this Order to the New York State Supreme Court for the County of the Bronx; and it is further

ORDERED that all motions and issues submitted to this Court and not expressly decided herein are hereby stayed, pending transfer of this proceeding to Bronx County; and it is further

ORDERED, that the Clerk of the Court may enter this Order without further notice.

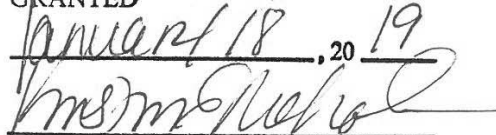
Dated: Buffalo, New York
January 18, 2019


HON. TRACEY A. BANNISTER, J.S.C.

ENTER:

Doc #01-3169290

GRANTED


January 18, 2019

KRISTINE E. NICHOLSON
Chief Clerk

VERIFIED PETITION FOR A COMMON LAW WRIT OF HABEAS CORPUS AND ORDER
TO SHOW CAUSE, DATED OCTOBER 2, 2018 [A-31 - A-79]

STATE OF NEW YORK
SUPREME COURT COUNTY OF ORLEANS

In the Matter of a Proceeding under Article 70 of the CPLR
for a Writ of Habeas Corpus and Order to Show Cause,

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

Petitioner,

-against-

JAMES J. BREHENY, in his official capacity as Executive
Vice President and General Director of Zoos and Aquariums
of the Wildlife Conservation Society and Director of the
Bronx Zoo, and WILDLIFE CONSERVATION SOCIETY,

Respondents.

VERIFIED PETITION

ORAL ARGUMENT
REQUESTED

Index No.

18-45164

ORLEANS CO CLERK NY
2018 OCT 10 AM 9:16

"In the interval since we first denied leave to the Nonhuman Rights Project¹, I have struggled with whether this was the right decision . . . I continue to question whether the Court was right to deny leave in the first instance. The issue whether a nonhuman animal has a fundamental right to liberty protected by the writ of habeas corpus is profound and far-reaching. It speaks to our relationship with all the life around us. Ultimately, we will not be able to ignore it. While it may be arguable that a chimpanzee is not a 'person,' there is no doubt that it is not merely a thing."

Nonhuman Rights Project, Inc., on Behalf of Tommy v. Lavery, 31 N.Y.3d 1054, 1058 (May 8, 2018) ("*Tommy*") (Eugene Fahey, J., concurring)

"[I]t is common knowledge that personhood can and sometimes does attach to nonhuman entities like . . . animals[.]"

People v. Graves, 163 A.D.3d 16, 21 (4th Dept. June 15, 2018) (citations omitted)

¹ 26 N.Y.3d 901, 2015 WL 5125507 [2015]; 26 N.Y.3d 902, 2015 WL 5125518 [2015].

PETITIONER, THE NONHUMAN RIGHTS PROJECT, INC. (“the NhRP” or “Petitioner”), by its attorneys ELIZABETH STEIN, ESQ. and STEVEN M. WISE, ESQ. (subject to *pro hac vice* admission), alleges as follows:

I. Preliminary Statement

1. This Verified Petition is for a Common Law Writ of Habeas Corpus and Order to Show Cause (“Petition”) filed by the NhRP pursuant to New York Civil Practice Law and Rules (“CPLR”) Article 70 on behalf of an elephant named Happy, dubbed by the *New York Times* as “The Bronx Zoo’s Loneliest Elephant,”² who is being unlawfully imprisoned by Respondents at the Bronx Zoo. Attached to the Petition is a Memorandum of Law in Support (“Memorandum”), Expert Affidavits (including five Expert Scientific Affidavits) and exhibits annexed thereto, and a proposed Order to Show Cause (attached hereto as **Exhibit 1**).

2. This Petition seeks a good faith and well-supported extension of the New York common law of habeas corpus to Happy, who is autonomous, and being unlawfully imprisoned solely because she is an elephant.

3. The timely intervention of this Court is necessary to grant Happy her common law right to bodily liberty and immediate release so as to prevent future unlawful deprivations of her liberty and allow her to exercise her autonomy to the greatest degree possible.

4. Autonomous nonhuman animals such as Happy should have “the right to liberty protected by habeas corpus.” *Tommy*, 31 N.Y.3d at 1057 (Fahey, J., concurring). “To treat a chimpanzee as if he or she had no right to liberty protected by habeas corpus is to regard the chimpanzee as entirely lacking independent worth, as a mere resource for human use, a thing the value of which consists exclusively in its usefulness to others. Instead, we should consider

² Tracy Tullis, “The Bronx Zoo’s Loneliest Elephant,” THE NEW YORK TIMES (June 26, 2015), <https://www.nytimes.com/2015/06/28/nyregion/the-bronx-zoos-loneliest-elephant.html> (last visited Sept. 22, 2018).

whether a chimpanzee is an individual with inherent value who has the right to be treated with respect[.]” *Id.* at 1058 (citation omitted).

5. This case will turn on whether an extraordinarily cognitively complex and autonomous nonhuman being such as Happy should be recognized as a legal person with the right to bodily liberty protected by the common law of habeas corpus pursuant to a New York common law that keeps abreast of evolving standards of justice, morality, experience, and scientific discovery and an evolving New York public policy which already recognizes certain nonhuman animals as “persons.” (Mem. at Part I). As recently recognized by Court of Appeals Associate Justice Eugene Fahey in *Tommy*, 31 N.Y. 3d at 1058 (Fahey, J. concurring), this question is “a deep dilemma of ethics and policy that demands our attention.” Further, “[t]he evolving nature of life makes clear that chimpanzees and humans exist on a continuum of living beings To solve this dilemma, we have to recognize its complexity and confront it.” *Id.* at 1059.³

6. To dismiss this Petition without issuing the requested Order to Show Cause would amount to a “refusal to confront a manifest injustice.” *Tommy*, 31 N.Y.3d at 1059 (Fahey, J., concurring) (lower courts that refused to consider the NhRP’s arguments erred).

7. CPLR Article 70 governs the application of the common law writ of habeas corpus. This Petition invokes this Court’s common law authority to apply the common law of habeas corpus to an autonomous nonhuman being such as Happy.

8. This Petition specifically requests that this Court: a) issue the requested Order to Show Cause requiring Respondents to justify their imprisonment of Happy; b) after the return, determine that Happy possesses the common law right to bodily liberty, thereby rendering

³ Judge Fahey also asserted “that denial of leave to appeal is not a decision on the merits of petitioner’s [NhRP’s] claims.” *Tommy*, 31 N.Y.3d at 1056 (Fahey, J., concurring).

unlawful Respondents' imprisonment and deprivation of that bodily liberty; c) order Happy's immediate release from Respondents' unlawful imprisonment; and d) decide where Happy should thereafter be placed, which the NhRP suggests is the Performing Animal Welfare Society ("PAWS") near Sacramento, California (attached hereto is the Affidavit of Ed Stewart, Co-Founder and President of PAWS ["Stewart Aff."]).⁴

9. "One of the hallmarks of the writ [is] . . . its great flexibility and vague scope." *People ex rel. Keitt v. McCann*, 18 N.Y.2d 257, 263 (1966) (citation omitted). In New York, habeas corpus is not "the creature of any statute . . . and exists as a part of the common law of the State." *People ex rel. Tweed v. Liscomb*, 60 N.Y. 559, 565 (1875). The writ "cannot be abrogated, or its efficiency curtailed, by legislative action. . . . The remedy against illegal imprisonment afforded by this writ . . . is placed beyond the pale of legislative discretion." *Id.* at 566.

10. The term "person" designates the law's most fundamental category by identifying those entities capable of possessing a legal right. Personhood can determine, among other things, who counts, who lives, who dies, who is enslaved, and who is free. *See Byrn v. New York City Health and Hospitals Corp.*, 31 N.Y. 2d 194, 201 (1972) ("[U]pon according legal personality to a thing the law affords it the rights and privileges of a legal person.") (citing John Chipman Gray, *The Nature and Sources of the Law*, Chapter II (1909)).

11. "Person" has never been a synonym for "human being" and may designate an entity broader, narrower, or qualitatively different from a human being. *Id. People v Graves*, 163 A.D.3d 16, 21 (4th Dept. 2018).

⁴ "For elephants in captivity, especially those born into it or kept there for a majority of their lives, going back to the 'wild' is unfortunately not an option. For these elephants, human-run sanctuaries are currently the best option." Supplemental Affidavit of Joyce Poole ¶ 5.

12. Historically, nonhuman animals were recognized as rightless legal things under the common law. The New York State Supreme Court Appellate Division, Fourth Judicial Department (“Fourth Department”), recently declared, however, that now “it is common knowledge that personhood can and sometimes does attach to nonhuman entities like . . . animals.” *Id.* (citing *inter alia* *Matter of Nonhuman Rights Project, Inc. v Presti*, 124 A.D.3d 1334 [4th Dept 2015], *lv denied*, 26 N.Y.3d 901 [2015])). Similarly, Judge Eugene Fahey recently opined that “there is no doubt that [a chimpanzee] is not merely a thing.” *Tommy*, 31 N.Y.3d at 1059 (Fahey, J., concurring).

13. The adjudication of personhood for purposes of the common law of habeas corpus is a matter for the courts rather than the legislature, and is based upon public policy rather than biology or taxonomy. *See Byrn*, 31 N.Y.2d at 201-02; *Tommy*, 31 N.Y.3d at 1056-57 (Fahey, J., concurring). Relying on *Byrn*, the Fourth Department reiterated that “personhood is ‘not a question of biological or natural’ correspondence.” *Graves*, 163 A.D.3d at 21 (quoting *Byrn*, 31 N.Y.2d at 201).

14. This Petition and accompanying Memorandum demonstrate that this Court has a common law duty to recognize that modern scientific evidence and justice require that Happy be recognized as a “person” with the common law right to bodily liberty vindicated through common law habeas corpus. *See, e.g., Gallagher v. St. Raymond’s R.C. Church*, 21 N.Y.2d 554, 558 (1968) (“the common law of the State is not an anachronism, but is a living law which responds to the surging reality of changed conditions”); *Bing v. Thunig*, 2 N.Y.2d 656, 668 (1957) (a rule of law “out of tune with the life about us, at variance with modern day needs and with concepts of justice and fair dealing . . . should be discarded”); *Silver v. Great American Ins. Co.*, 29 N.Y.2d 356, 363 (1972) (“Stare decisis does not compel us to follow blindly a court-

created rule . . . once we are persuaded that reason and a right sense of justice recommend its change.”).

15. New York courts have “not only the right, but the *duty* to re-examine a question where justice demands it” to “bring the law into accordance with present day standards of wisdom and justice rather than ‘with some outworn and antiquated rule of the past.’” *Woods v. Lancet*, 303 N.Y. 349, 355 (1951) (emphasis added). “‘When the ghosts of the past stand in the path of justice clanking their mediaeval chains the proper course for the judge is to pass through them undeterred.’ [The Court] act[s] in the finest common-law tradition when [it] adapt[s] and alter[s] decisional law to produce common-sense justice.” *Id.* (citation omitted).

16. In *Woods*, the Court of Appeals rejected the claim that common law “change . . . should come from the Legislature, not the courts.” *Id.* (“We abdicate our own function, in a field peculiarly nonstatutory, when we refuse to reconsider an old and unsatisfactory court-made rule.”). See also *Flanagan v. Mount Eden General Hospital*, 24 N.Y. 2d 427, 434 (1969) (“we would surrender our own function if we were to refuse to deliberate upon unsatisfactory court-made rules simply because a period of time has elapsed and the legislature has not seen fit to act”).

17. To dismiss the Petition without issuing the writ would amount to a “refusal to confront a manifest injustice.” *Tommy*, 31 N.Y.3d at 1059 (Fahey, J., concurring) (“The reliance on a paradigm that determines entitlement to a court decision based on whether the party is considered a ‘person’ or relegated to the category of a ‘thing’ amounts to a refusal to confront a manifest injustice. . . . To solve this dilemma, we have to recognize its complexity and confront it.”) (emphasis added).

18. The NhRP is not seeking any right for Happy other than the common law right to bodily liberty protected by common law habeas corpus.

19. The common law of habeas corpus “is deeply rooted in our cherished ideas of individual autonomy and free choice.” *Article 70 of CPLR 70 for a Writ of Habeas Corpus, The Nonhuman Rights Project, Inc. on Behalf of Hercules and Leo v. Stanley*, 16 N.Y.S.3d 898, 903-04 (citations omitted) (“*Stanley*”). As set forth in more detail in the accompanying Memorandum at Part III, autonomy is a sufficient condition for the right to bodily liberty secured by the common law of habeas corpus. The Expert Scientific Affidavits attached hereto demonstrate that elephants are autonomous beings who possess complex cognitive abilities and that Happy’s interest in exercising that autonomy and bodily liberty is as fundamental to her as it is to us. Like humans, elephants are a social species who suffer immensely when confined in small spaces and deprived of social contact with other members of their species. “Elephants have evolved to move. Holding them captive and confined prevents them from engaging in normal, autonomous behavior and can result in the development of arthritis, osteoarthritis, osteomyelitis, boredom and stereotypical behavior. Held in isolation elephants become bored, depressed, aggressive, catatonic and fail to thrive. Human caregivers are no substitute for the numerous, complex social relationships and the rich gestural and vocal communication exchanges that occur between free-living elephants.”⁵ Indeed, elephants thrive and depend on that social interaction, which cannot be achieved when housed alone.⁶ Elephants exhibit a level of empathy – incorrectly assumed to belong to humans only – that “is a cornerstone of normal social interaction.”⁷ Respondent’s imprisonment of Happy deprives her of her ability to exercise her autonomy in meaningful ways, including the freedom to choose where to go, what to do, and with whom to be.

⁵ Supplemental Affidavit of Joyce Poole ¶ 4.

⁶ Affidavit of Joyce Poole ¶¶ 37-39.

⁷ *Id.* ¶ 32.

20. Denying the common law right to bodily liberty to an autonomous nonhuman being solely because she is not human is arbitrary, irrational, and violates fundamental equality. (Mem. at p.15.) All humans in New York possess the right to bodily liberty secured by the common law of habeas corpus, even those who have always, and will always, lack the ability to choose, to understand, or make a reasoned decision about, for example, medical treatment. *Tommy*, 31 N.Y.3d at 1057 (Fahey, J., concurring) (“no one would suppose that it is improper to seek a writ of habeas corpus on behalf of one's infant child . . . or a parent suffering from dementia”). Because even humans bereft of consciousness may seek the remedy of habeas corpus to protect their bodily liberty, this Court must either recognize an autonomous nonhuman being's just claim to bodily liberty or contravene the fundamental principle of equality that is deeply enshrined in New York statutory, constitutional, and common law. (Mem. at Parts III. A-B).

21. The Fourth Department has made clear that “personhood can and sometimes does attach to nonhuman entities like . . . *animals*.” *Graves*, 163 A.D.3d at 21 (emphasis added).

22. In determining whether New York public policy supports common law personhood for nonhuman animals, this Court may look to statutes which “can serve as an appropriate and seminal source of public policy to which common-law courts can refer.” *Reno v. D’Javid*, 379 N.Y.S.2d 290, 294 (Sup. Ct. 1976) (citations omitted). By enacting sec. 7-8.1 of the Estates, Powers and Trusts Law (“EPTL”), which allows certain nonhuman animals the right to be trust beneficiaries, the Legislature acknowledged their personhood, *See In re Fouts*, 677 N.Y.S.2d 699 (Sur. 1998) (five chimpanzees), as only “persons” may be trust beneficiaries. *Lenzner v. Falk*, 68 N.Y.S.2d 699, 703 (Sup. Ct. 1947); *Gilman v. McCardle*, 65 How. Pr. 330, 338 (N.Y. Super. 1883) (“Beneficiaries . . . must be persons”), *rev. on other grounds*, 99 N.Y. 451 (1885); RESTATEMENT (THIRD) OF TRUSTS § 43 *Persons Who May Be Beneficiaries* (2003) (“A person

who would have capacity to take and hold legal title to the intended trust property has capacity to be a beneficiary of a trust of that property; ordinarily, a person who lacks capacity to hold legal title to property may not be a trust beneficiary.”); RESTATEMENT (THIRD) OF TRUSTS § 47 (Tentative Draft No. 2, approved 1999); RESTATEMENT (SECOND) OF TRUSTS § 124 (1959); BENEFICIARY, *Black’s Law Dictionary* (9th ed. 2009).

23. This Court need not address the question of Happy’s personhood in order to issue the Order to Show Cause. *See Stanley*, 16 N.Y.S.3d at 900 (“[T]he court need not make an initial determination that Hercules and Leo are persons in order to issue the writ and show cause order.”).

24. In 2015, the *Stanley* court issued an Order to Show Cause under CPLR 7002 on behalf of two chimpanzees, Hercules and Leo, and expressly rejected the State’s argument that issuance “requires an initial, substantive finding that chimpanzees are not entitled to legal personhood for the purpose of obtaining a writ of habeas corpus.” 16 N.Y.S.3d at 908, 917. *See also id.* at 900; *The Nonhuman Rights Project, Inc. v. Stanley Jr., M.D.*, 2015 WL 1804007 (N.Y. Sup. 2015), *amended in part*, *The Nonhuman Rights Project, Inc. v. Stanley*, 2015 WL 1812988 (N.Y. Sup. 2015).⁸

⁸ Although the court ultimately ruled against the NhRP because it believed it was bound by *People ex rel. Nonhuman Rights Project, Inc. v. Lavery*, 124 A.D.3d 148, 150-53 (3d Dept. 2014), *leave to appeal den.*, 26 N.Y.3d 902 (2015) (personhood is contingent upon the ability to shoulder legal duties and responsibilities) (Mem. at Part IV), the court opined that the NhRP *could* eventually prevail. 16 N.Y.S.3d at 903, 912-13, 917-18. The foundation for the New York State Supreme Court Appellate Division, Third Judicial Department’s (“Third Department”) decision in *Lavery*, 124 A.D. 3d, at 151-152 was flawed in large part because it principally relied upon a definition of “person” found in *Black’s Law Dictionary* and in several cases that relied upon *Black’s Law Dictionary* that defined a “person” as one with the capacity for both duties *and* responsibilities, instead of one with the capacity for duties *or* responsibilities. However, *Black’s Law Dictionary* relied solely upon the 10th edition of *Salmond on Jurisprudence*, which actually defines “person” as an entity that can bear rights *or* responsibilities, as the NhRP claimed. When the NhRP pointed out this error, the editor-in-chief of *Black’s Law Dictionary* promptly agreed to correct it in its next edition. *See* James Trimarco, “Chimps Could Soon Win Legal Personhood,” YES! Magazine (Apr. 28, 2017), *available at*: <http://www.yesmagazine.org/peace-justice/chimps-could-soon-win-legal-personhood-20170428> (last visited Sept. 27, 2018).

25. This Court is precluded from following the personhood holding in *Lavery*, 124 A.D. 3d, at 150-53, because it was: (1) disregarded by the Fourth Department in *Presti* (decided months later), which twice assumed, without deciding, that a chimpanzee could be a “person” for habeas corpus, *Presti*, 124 A.D.3d 1334; (2) explicitly rejected by Judge Fahey in *Tommy*, 31 N.Y.3d at 1056-1057; and (3) implicitly rejected by the Fourth Department in *Graves*, which expressly cited *Presti* for the notion that it is “common knowledge that personhood can and sometimes does attach to . . . animals.” 163 A.D.3d, at 21.⁹

26. Writs of habeas corpus have been issued on behalf of nonhuman animals in foreign countries.

27. Deciding a case based upon the NhRP’s legal strategy, an Argentine court in November 2016 recognized a chimpanzee named Cecilia as a “non-human person,” ordered her released from a Mendoza Zoo pursuant to a writ of habeas corpus, and sent her to a sanctuary in Brazil. *In re Cecelia*, Third Court of Guarantees, Mendoza, Argentina, File No. P-72.254/15 at 22-23 (November 3, 2016).

28. A writ was issued on behalf of an orangutan named Sandra in Buenos Aires, Argentina in 2015. *Asociacion de Funcionarios y Abogados por los Derechos de los Animales y Otros contra GCBA, Sobre Amparo* (*Association of Officials and Attorneys for the Rights of Animals and Others v. GCBA, on Amparo*), EXPTE. A2174-2015 (October 21, 2015).

29. A writ was issued on behalf of a bear named Chucho in Colombia, though that ruling was overturned by a higher court and further appeal is pending. *Luis Domingo Gomez*

⁹ The Fourth Department correctly understands that the ability of an entity to bear duties and responsibilities is irrelevant to the determination of personhood under any and all circumstances. (Mem. at Part IV). *Graves*, 163 A.D. 3d 16; *Tommy*, 31 N.Y.3d at 1057 (Fahey, J., concurring). An entity is a “person” if she can either bear rights *or* duties. *Id.* Judge Fahey made clear that it is irrelevant “that nonhuman animals cannot bear duties,” as the “same is true of human infants or comatose human adults, yet no one would suppose that it is improper to seek a writ of habeas corpus on behalf of one’s infant child.” *Id.*

Maldonado contra Corporacion Autonoma Regional de Caldas Corpocaldas, AHC4806-2017 (July 26, 2017).

30. Writs of habeas corpus were frequently issued on behalf human slaves who were not at the time deemed legal persons in order to determine their personhood status.

31. In *Somerset v. Stewart*, 1 Lofft 1, 98 Eng. Rep. 499 (K.B. 1772), adopted into New York's common law,¹⁰ Lord Mansfield assumed, without deciding, that the slave, James Somerset, could possibly possess the right to bodily liberty protected by the common law writ of habeas corpus, and famously issued the habeas corpus requiring the respondent to justify the detention. *See also W.J.F. Realty Corp. v. State*, 672 N.Y.S.2d 1007, 1009 (Sup. Ct. 1998), *aff'd*, 267 A.D.2d 233 (1999) ("For those who feel that the incremental change allowed by the Common Law is too slow compared to statute, we refer those disbelievers to the holding in *Somerset v. Stewart*, . . . which stands as an eloquent monument to the fallacy of this view.").

32. In *Lemmon v. People*, 20 N.Y. 562, 604-06, 618, 623, 630-31 (1860), the Court, relying heavily upon *Somerset*, issued a writ of habeas corpus upon the petition of five slave children who were not deemed legal "persons" at the time the writ was issued, to determine their personhood status.

33. In *In re Kirk*, 1 Edm. Sel. Cas. 315 (N.Y. Sup. Ct. 1846), the free black abolitionist dockworker, Lewis Napoleon, filed a petition for habeas corpus on behalf of a black slave boy who "was closely confined on board the brig . . . and bound in chains." The respondent, a Georgia slaveholder, claimed the boy was his lawful property who had escaped to New York. *Id.* The circuit judge issued a writ to determine whether the boy was a legal person or property, explicitly ruling: "the party had a right to bring the matter at once before me; under our statute I

¹⁰ New York adopted the English common law as it existed prior to April 19, 1775. N.Y. Const. Art. I, § 14; N.Y. Const. § 35 (1777).

was bound to allow the writ of habeas corpus, even if I had been fully convinced of the legality of the imprisonment; and . . . it becomes my duty to consider and decide it--*a duty from which I am not at liberty to shrink.*" *Id.* at 332 (emphasis added). The court added: "I approach this with all the caution becoming the gravity of the case, yet with a lively sense of what is *due to personal liberty* and the fraternal relations existing among the members of the union." *Id.* at 335 (emphasis added). The court eventually concluded: "This boy must at all events be discharged. The law allows it and the court awards it." *Id.* at 344.

34. In *In re Belt*, 2 Edm. Sel. Cas. 93 (Sup. Ct. 1848), a writ of habeas corpus was issued on behalf of a fugitive slave from Maryland. The slaveholder's lawyer argued: "That in a slave State all colored men are presumed to be slaves; and that the same presumption must be allowed here." *Id.* at 105. The court held that there "was only one case in which a fugitive slave could be held by his master, in his personal custody, in this State. That was, under the law of congress, to take him without delay before the proper authorities, in order to obtain the certificate necessary to justify his removal out of the State. This had not been done in this case," and therefore the slave was entitled to legal personhood. *Id.* at 106.

35. In *In re Tom*, 5 Johns. 365 (N.Y. 1810) (per curiam), a writ of habeas corpus was issued on behalf of a slave who was being detained by his alleged master, and was subsequently set free after the writ was issued and he showed proof that he had been manumitted.

36. Analogously, in *United States ex rel. Standing Bear v. Crook*, 25 F. Cas. 695 (C.C. Neb. 1879), the court rejected the United States Attorney's argument that no Native American could ever be a "person" able to obtain a writ of habeas corpus and issued a writ of habeas corpus on behalf of the Ponca Chief, Standing Bear.

II. Parties

37. The NhRP is a not-for-profit corporation organized pursuant to the laws of the State of Massachusetts with a principal address at 5195 NW 112th Terrace, Coral Springs, FL 33076. It is the only civil rights organization in the United States dedicated to changing “the common law status of at least some nonhuman animals from mere ‘things,’ which lack the capacity to possess any legal rights, to ‘persons,’ who possess such fundamental rights as bodily integrity and bodily liberty, and those other legal rights to which evolving standards of morality, scientific discovery, and human experience entitle them.” <https://www.nonhumanrights.org/who-we-are/>. For the past twenty years, the NhRP has worked to change the status of such nonhuman animals as chimpanzees and elephants from legal things to legal persons. The NhRP does not seek to reform animal welfare legislation. *See Stanley*, 16 N.Y.S.3d at 900-01 (“In accordance with its mission, petitioner commenced this litigation and has filed similar cases in several other New York courts with the goal of obtaining legal rights for chimpanzees, and ultimately for other animals.”).

38. The NhRP submits this Petition on behalf of Happy, who is being unlawfully imprisoned by Respondents in the Bronx Zoo. Upon information and belief, the NhRP further alleges the following: Happy is a 47-year-old female Asian elephant who was captured in the wild and imported to the United States when she was a year old. She along with six other calves were purchased by the Lion County Safari, Inc. and lived initially in California and then Florida until 1977, when she and one other elephant named Grumpy were sent to the Bronx Zoo. There, in addition to being on display, Happy gave rides and participated in “elephant extravaganzas,” including tug-of-war contests. In 2002, Grumpy was euthanized after she was attacked by Patty and Maxine, two other elephants imprisoned at the zoo. The zoo separated Happy from them and introduced a younger female Asian elephant named Sammie into her portion of the exhibit. In 2005, Happy became the *first* elephant to pass the mirror self-recognition-test, considered to be a

true indicator of an animal's self-awareness and "is thought to correlate with higher form of empathy and altruistic behavior."¹¹ In 2006, Sammie was euthanized after suffering from kidney failure and shortly thereafter the zoo announced that it was ending its captive elephant exhibit. Since that time, Happy has been and continues to be denied direct social contact with any other elephants and "spends most of her time indoors in a large holding facility lined with elephant cages, which are about twice the length of the animals' bodies."¹²

39. Happy is the beneficiary of an *inter vivos* trust created by the NhRP pursuant to EPTL section 7-8.1 for the purpose of her care and maintenance if she is transferred to an appropriate elephant sanctuary. A true and correct copy of the trust is attached hereto as **Exhibit 2**.

40. Respondent James J. Breheny, 2300 Southern Boulevard, Bronx, New York 10460, is Wildlife Conservation Society's ("WCS") Executive Vice President and General Director of Zoos and Aquariums and is the Director of the Bronx Zoo.

41. Respondent WCS is a 501(c) non-profit organization headquartered in the Bronx Zoo at 2300 Southern Boulevard, Bronx, New York 10460. WCS manages the Bronx Zoo along with other New York City wildlife parks and zoos.

III. Venue and Standing

42. CPLR 7002(b) provides in part: "a petition for the writ shall be made to: ... 3. *any justice of the supreme court*." (emphasis added). In *Stanley*, the court ruled that venue was proper in New York County, though the chimpanzees were detained in Suffolk County. 16 N.Y.S.3d at

¹¹ Joshua M. Plotnik, Frans B.M. deWaal, and Diana Reiss, *Self-recognition in an Asian elephant*, 103 PNAS 17053 (Nov. 7, 2006)

¹² Brad Hamilton, *Happy the Elephant's Sad Life Alone at the Bronx Zoo*, NEW YORK POST (Sept. 30, 2012), <https://nypost.com/2012/09/30/happy-the-elephants-sad-life-alone-at-the-bronx-zoo/> (last visited Sept. 26, 2018).

905-07. This Petition is therefore properly brought before this Court even though Happy is unlawfully imprisoned in Bronx County.

43. Once the requested Order to Show Cause issues, it must be made returnable to Orleans County as the county of issuance, unless the Court makes it returnable to the county of detention. CPLR 7004 (c).¹³ However, “where no factual issues are raised, no one sought the production in court of [the nonhuman animal], and [a]ll that remains is for the Court to issue its decision,’ a change of venue is not required.” *Stanley*, 16 N.Y.S. 3d at 908, quoting *Chaney v. Evans*, No. 2012-940, 2013 WL 2147533, at *3 (Sup Ct. Franklin County May 7, 2013).

44. The NhRP has standing to file the Petition on behalf of Happy. Pursuant to CPLR 7002(a), a petition may be brought by “one acting on . . . behalf” of “[a] person illegally imprisoned or otherwise restrained in his liberty within the state.” CPLR 7002(a) places no restriction on who may file the petition, consistent with the longstanding common law practice of allowing anyone—including complete strangers—to file habeas corpus petitions on another’s behalf. *See People v. McLeod*, 3 Hill 635 n. “j” sec.7 (N.Y. 1842) (“The common law right was clear . . . ‘that every Englishman who is imprisoned by any authority whatsoever, has an undoubted right, by his *agents* or *friends*, to apply for and obtain a writ of *habeas corpus* in order to procure his liberty by due course of law.’”) (emphases in original); *Somerset*, 1 Lofft 1, 98 Eng. Rep. 499 (unrelated third parties received common law writ of habeas corpus on behalf of a slave imprisoned on a ship); *Lemmon*, 20 N.Y. at 562, 599-600 (dockworker had standing to seek

¹³ Pursuant to CPLR 7004(c), a writ *must* be returnable to the county in which it is issued except: a) where the writ is to secure the release of a prisoner from a state institution, it must be made returnable to the county of detention; or b) where the petition was made to a court outside of the county of detention, the court *may* make the writ returnable to such county. As Respondents are not a “state institution,” the Court should make the writ returnable to Orleans County. *See Stanley*, 16 N.Y.S.3d at 907 (Hercules and Leo were not being detained in a state institution within the meaning of CPLR 7004(c) even though they were imprisoned in a state educational facility).

a common law writ of habeas corpus on behalf of slaves with whom he had no relationship); *In re Kirk*, 1 Edm. Sel. Cas. at 315 (same).¹⁴

45. The New York Supreme Court in *Stanley* correctly ruled: “As the statute places no restriction on who may bring a petition for habeas on behalf of the person restrained, . . . petitioner [NhRP] has met its burden of demonstrating that it has standing.” 16 N.Y.S.3d at 905 (citing CPLR 7002(a)).

46. Indeed, in the six habeas corpus cases that the NhRP has filed on behalf of chimpanzees in New York, not a single court found that the NhRP lacked standing. *See id.*; *Nonhuman Rights Project, Inc. ex rel. Tommy v. Lavery*, 152 A.D.3d 73, 75 n.1 (1st Dept. 2017) (“*Tommy*”) (“[a]ssuming habeas relief may be sought on behalf of a chimpanzee, petitioner [NhRP] undisputedly has standing pursuant to CPLR 7002(a), which authorizes anyone to seek habeas relief on behalf of a detainee”), *leave to appeal den.*, No. 2018-268, 2018 WL 2107087 (N.Y. May 8, 2018); *Lavery*, 124 A.D.3d at 150-53 (3d Dept. 2014); *Presti*, 124 A.D.3d 1334; *Matter of Nonhuman Rights Project, Inc. v Stanley*, 2014 NY Slip Op 68434(U) (2d Dept. 2014).

IV. The NhRP is entitled to the issuance of the writ pursuant to CPLR 7002(c) and 7003.

47. The NhRP is entitled, as of right, to the issuance of the writ.

48. Article 70 governs the procedure applicable to common law writs of habeas corpus. *See* CPLR 7001 (“the provisions of this article are applicable to common law or statutory writs of habeas corpus”). Article 70 is purely procedural and does not—*cannot*—curtail substantive entitlement to the writ, including the determination of who constitutes a “person.” *Tweed*, 60

¹⁴ *See also Case of the Hottentot Venus*, 13 East 185, 104 Eng. Rep. 344 (K.B. 1810) (Abolitionist Society sought habeas corpus on behalf of black woman being exhibited in London); *In re Trainor*, *New York Times*, May 11, 14, 21, 25, June 14 (1853) (abolitionist and underground railway conductor Jacob R. Gibbs on behalf of nine year old slave); “Reported for the Express,” *New York Evening Express*, July 13, 1847, *New York Legal Observer* 5, 299 (1847) (John Iverness obtained writ on behalf of three slaves—the Lembrança slaves—whom he had never met after he was told they were being held captive on a ship in New York harbor).

N.Y. at 569 (“the [habeas corpus] act needs no interpretation and is in full accord with the common law”).

49. Article 70 permits a common law “person” unlawfully detained, or any “person” acting on his or her behalf, to seek a common law writ of habeas corpus or order to show cause to require the detainer to demonstrate a legal basis for that “person’s” detention and denial of liberty. CPLR 7002.

50. CPLR 7003 (a) provides in part: “The court to whom the petition is made *shall issue* the writ without delay on any day, or, where the petitioner does not demand production of the person detained . . . order the respondent to show cause why the person detained should not be released.” (Emphasis added). See *Stanley*, 16 N.Y.S.3d at 908 (“And the legislature was concerned that judges issue valid writs that it enacted a provision, unique in all respects, that a judge or group of judges who refuse to issue a valid writ must forfeit \$1,000 to the person detained.”). As the NhRP does not demand that Respondents produce Happy, an order to show cause must be issued. See *Stanley*, 16 N.Y.S.3d at 904-05 (“This proceeding thus commenced with the signing of an order to show cause.”) (citing CPLR 7003).

51. CPLR 7003 provides just three grounds upon which a court may deny a habeas petition: (1) if the petition is “successive” within the meaning of 7003(b); (2) “a court or judge of the United States has exclusive jurisdiction;” or (3) “[i]f it appears from the petition or the documents annexed thereto that the person is not illegally detained[.]” None of these grounds is applicable to the case at bar, *infra*.

52. This is the first petition filed on behalf of Happy. No appeal has been taken from any order by virtue of which Happy is detained.

53. No court or judge of the United States has exclusive jurisdiction to order Happy's release.

54. Assuming, as the Court must at this juncture, that Happy reasonably *could be* a legal person, *supra*, her imprisonment by Respondents is unlawful under the common law, which presumes that all natural persons are free absent positive law. *See Somerset*, 98 Eng. Rep. at 510 (slavery "is so *odious* that nothing can be suffered to support it but positive law"); *Oatfield v. Waring*, 14 Johns. 188, 193 (Sup. Ct. 1817) (on the question of a slave's manumission, "all presumptions in favor of personal liberty and freedom ought to be made"); *People ex. rel Caldwell v Kelly*, 33 Barb. 444, 457-58 (Sup Ct. 1862) (Potter, J.) ("Liberty and freedom are man's natural conditions; presumptions should be in favor of this construction[.]"). Stated differently, as a "person" under the common law of New York, Happy's detention by Respondents is *per se* unlawful.

55. Once the NhRP satisfies the requirements of CPLR 7002(c) (requiring petitioner to state the "person" is "detained" and the "nature of the illegality"), this Court must issue the Order to Show Cause, pursuant to CPLR 7003(a), after which the burden shifts to the Respondents to demonstrate that the detention of Happy is lawful. CPLR 7006(a), 7008(b).

56. That Respondents may not be in violation of any federal, state, or local animal welfare laws in their detention of Happy is irrelevant as to whether or not the detention is lawful. This habeas corpus case is neither an "animal protection" nor "animal welfare" case, just as a habeas corpus case brought on behalf of a detained human would not be a "human protection" or "human welfare" case. *See Lavery*, 124 A.D.3d at 149; *Stanley*, 16 N.Y.S.3d at 901. This Petition does not allege that Happy "is illegally confined because [she] is kept in unsuitable conditions[.]" nor does it seek improved welfare for Happy. *Presti*, 124 A.D.3d at 1335. Rather,

this Petition demands that this Court recognize Happy's common law right to bodily liberty and order her immediate release from Respondents' current and continued unlawful detention so that her liberty and autonomy may be realized. It is the fact Happy is imprisoned *at all*, rather than the conditions of her imprisonment, that the NhRP claims is unlawful. *See Stanley*, 16 N.Y.S.3d at 901 ("The conditions under which Hercules and Leo are confined are not challenged by petitioner . . . and it advances no allegation that respondents are violating any federal, state or local laws by holding Hercules and Leo."). The Third Department in *Lavery* understood: "we have not been asked to evaluate the quality of Tommy's current living conditions in an effort to improve his welfare." 124 A.D.3d at 149.

57. The NhRP seeks Happy's immediate release from her imprisonment. This Court then has the authority to release her to PAWS which has agreed to provide permanent sanctuary for her.¹⁵ At PAWS, Happy, along with other elephants, will flourish in an environment that respects her autonomy to the greatest degree possible, as close to her native Asia as may be found in North America.

58. That this Court may order Happy sent to a sanctuary such as PAWS rather than into the wild or onto the streets of New York does not preclude her from habeas corpus relief (Mem. at Part VI). *See Tommy*, 31 N.Y.3d at 1058-59 (Fahey, J., concurring) (noting habeas corpus could be used for "transfers of the chimpanzees to a primate sanctuary" and that the Fourth Department erred in holding that habeas corpus was not an appropriate remedy based upon a misinterpretation of the relevant case law);¹⁶ *Stanley*, 16 N.Y.S.3d at 917 n.2 (citing *McGraw v. Wack*, 220 A.D.2d 291, 292 (1st Dept. 1995); *Matter of MHLS v. Wack*, 75 N.Y.2d 751 (1989)).

¹⁵ Stewart Aff. ¶ 2.

¹⁶ In addition to the Fourth Department's misinterpretation of the relevant case law, it also misconstrued the relief sought by the NhRP. In response, the NhRP has painstakingly and specifically made clear in this Petition that the NhRP is seeking Happy's immediate release from her unlawful imprisonment and is not seeking a change in the conditions of her detention.

In *Stanley*, the court rejected the respondents' argument that, because the NhRP sought Hercules and Leo's "transfer to a chimpanzee sanctuary, it has no legal recourse to habeas corpus," as habeas corpus has been used to "secure [the] transfer of [a] mentally ill individual to another institution." *Id.*

A. The NhRP's arguments are meritorious and supported by a New York Court of Appeals Justice, Harvard Law and Habeas Corpus Professors, Foreign Courts, Philosophers, and Respected Scientists.

59. "The issue whether a nonhuman animal has a fundamental right to liberty protected by the writ of habeas corpus is profound and far-reaching." *Tommy*, 31 N.Y.3d at 1059 (Fahey, J., concurring); *see also Stanley*, 16 N.Y.S.3d at 917 ("Efforts to extend legal rights to chimpanzees are thus understandable; some day they may even succeed.").

60. As the *Stanley* court noted after issuing an order to show cause on behalf of two chimpanzees, "[t]he lack of precedent for treating animals as persons for habeas corpus purposes does not, however, end the inquiry, as the writ has over time gained increasing use given its 'great flexibility and vague scope.'" 16 N.Y.S.3d at 912. "If rights were defined by who exercised them in the past, then received practices could serve as their own continued justification and new groups could not invoke rights once denied." *Id.* (citing *Obergefell v. Hodges*, 135 S. Ct. 2602 (2015)). *See, e.g., United States ex rel. Standing Bear v. Crook*, 25 F. Cas. 695, 697 (D. Neb. 1879) (that no Native American had previously sought relief pursuant to the Federal Habeas Corpus Act did not foreclose a Native American from being characterized as a "person" and being awarded the requested habeas corpus relief); *Somerset*, 1 Lofft 1, 98 Eng. Rep. 499 (that no slave had ever been granted a writ of habeas corpus was no obstacle to the court granting one to the slave petitioner); *see also Lemmon*, 20 N.Y. at 562.

61. The only written opinion from any judge of the New York Court of Appeals, or any American high court, on the issue presented in this case is Judge Fahey's concurrence in *Tommy*, which found the NhRP's arguments meritorious, *supra*.

62. In addition to Judge Fahey's opinion, the Supreme Court of Oregon referenced NhRP's "ongoing litigation" and declared in a similar fashion: "As we continue to learn more about the interrelated nature of all life, the day may come when humans perceive less separation between themselves and other living beings than the law now reflects. However, we do not need a mirror to the past or a telescope to the future to recognize that the legal status of animals has changed and is changing still[.]" *State v. Fessenden*, 355 Or. 759, 769-70 (2014).

63. At least four courts, including the New York Supreme Court in *Stanley*, have issued writs of habeas corpus or orders to show cause on behalf of nonhuman animals, *supra* at paragraphs 24 and 27 through 29.

64. The Indian Supreme Court has held that nonhuman animals have both a statutory and a constitutional right to personhood and certain legal rights. *Animal Welfare Board v. Nagaraja*, 6 SCALE 468 (2014), available at: <https://indiankanoon.org/doc/39696860/> (last visited Sept. 27, 2018).

65. In 2018, the Colombian Supreme Court designated its part of the Amazon rainforest as "as an entity subject of rights," in other words, a "person."¹⁷

66. Constitutional law scholar Laurence H. Tribe of Harvard Law School, and habeas corpus experts Justin Marceau, of the University of Denver Law School, and Samuel Wiseman, of the Florida State University College of Law, submitted *amicus curiae* briefs in favor of the

¹⁷ See STC4360-2018 (2018-00319-01), <http://www.cortesuprema.gov.co/corte/index.php/2018/04/05/corte-suprema-ordena-proteccion-inmediata-de-la-amazonia-colombiana/>, excerpts available at <https://www.dejusticia.org/wp-content/uploads/2018/04/Tutela-English-Excerpts-1.pdf?x54537> (last visited Sept. 27, 2018).

NhRP's habeas corpus lawsuits.¹⁸ See *Tommy*, 31 N.Y.3d at 1056-57 (Fahey, J., concurring) (finding persuasive the *amicus curiae* briefs of Tribe, Marceau, and Wiseman).

67. A group of North American philosophers submitted an *amicus curiae* brief in support of extending habeas corpus to such autonomous nonhuman animals as chimpanzees.¹⁹ See *id.* at 1058 (“the amici philosophers with expertise in animal ethics and related areas draw our attention to recent evidence that chimpanzees demonstrate autonomy by self-initiating intentional, adequately informed actions, free of controlling influences”). These philosophers included: Kristin Andrews (York University); Gary Comstock (North Carolina State University); G.K.D. Crozier (Laurentian University); Sue Donaldson (Queen’s University); Andrew Fenton (Dalhousie University); Tyler M. John (Rutgers University); L. Syd M Johnson (Michigan Technological University); Robert Jones (California State University, Chico); Will Kymlicka (Queen’s University); Letitia Meynell (Dalhousie University); Nathan Nobis (Morehouse College); David Peña-Guzmán (California State University, San Francisco); James Rocha (California State University, Fresno); Bernard Rollin (Colorado State); Jeffrey Sebo (New York University); Adam Shriver (University of British Columbia); and Rebecca L. Walker (University of North Carolina at Chapel Hill).

68. The NhRP’s cases have captured the interest of the world’s leading legal scholars and the most selective academic publications,²⁰ while catalyzing the development of an entire

¹⁸ The *amicus curiae* brief of Laurence Tribe in *Kiko* is available at: https://www.nonhumanrights.org/content/uploads/2016_150149_Tribe_ITMO-The-NonHuman-Rights-Project-v.-Presti_Amicus-1-2.pdf (last visited Sept. 27, 2018). The *amicus curiae* brief of Justin Marceau and Samuel Wiseman in *Kiko* is available at: https://www.nonhumanrights.org/content/uploads/2016_150149_ITMO-The-Nonhuman-Rights-Project-v.-Presti_Amici.pdf (last visited Sept. 27, 2018).

¹⁹ See <https://www.nonhumanrights.org/content/uploads/In-re-Nonhuman-Rights-v.-Lavery-Proposed-Brief-by-PHILOSOPHERS-74435.pdf> (last visited Sept. 27, 2018).

²⁰ See Richard A. Epstein, *Animals as Objects of Subjects of Rights*, ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS (Cass R. Sunstein & Martha C. Nussbaum eds. 2004); Richard A. Posner, *Animal*

field of academic research and debate, generating extensive discussion in almost one hundred law review articles, multiple academic books, science journals, and a variety of legal industry publications.²¹

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²¹ Richard A. Epstein, *Animals as Objects of Subjects of Rights*, ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS (Cass R. Sunstein & Martha C. Nussbaum eds. 2004); Richard A. Posner, *Animal Rights: Legal Philosophical, and Pragmatic Perspectives*, ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS (Cass R. Sunstein & Martha C. Nussbaum eds. 2004); Justin F. Marceau and Steven M. Wise, "Exonerating the Innocent: Habeas for Nonhuman Animals," WRONGFUL CONVICTIONS AND THE DNA REVOLUTION - TWENTY-FIVE YEARS OF FREEING THE INNOCENT (Daniel S. Medwed, ed. Cambridge University Press 2017); Steven M. Wise, *A Great Shout: Legal Rights for Great Apes*, in THE ANIMAL ETHICS READER (Susan J. Armstrong & Richard G. Botzler eds., 2017); Steven M. Wise, *Animal Rights, One Step at a Time*, in ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS (Cass R. Sunstein & Martha C. Nussbaum eds. 2004); Steven M. Wise, *The Capacity of Non-Human Animals for Legal Personhood and Legal Rights*, in THE POLITICS OF SPECIES: RESHAPING OUR RELATIONSHIPS WITH OTHER ANIMALS (Raymond Corbey & Annette Lanjouw eds., 2013); Katrina M. Albright, *The Extension of Legal Rights to Animals Under A Caring Ethic: An Ecofeminist Exploration of Steven Wise's Rattling the Cage*, 42 NAT. RESOURCES J. 915, 917 (2002); Jeffrey L. Amestoy, *Uncommon Humanity: Reflections on Judging in A Post-Human Era*, 78 N.Y.U. L. REV. 1581, 1591 (2003); Pat Andriola, *Equal Protection for Animals*, 6 BARRY U. ENVTL. & EARTH L.J. 50, 64 (2016); Louis Anthes & Michele Host, *Rattling the Cage: Toward Legal Rights for Animals*, by Steven M. Wise, 25 N.Y.U. REV. L. & SOC. CHANGE 479, 482 (1999); Matthew Armstrong, *Cetacean Community v. Bush: The False Hope of Animal Rights Lingers on*, 12 HASTINGS W.-N.W. J. ENVTL. L. & POL'Y 185, 200 (2006); Rich Barlow, *Nonhuman Rights: Is It Time to Unlock the Cage?*, BOSTON UNIVERSITY SCHOOL OF LAW, July, 18, 2017, <https://www.bu.edu/law/2017/07/18/nonhuman-rights-is-it-time-to-unlock-the-cage/>; David Barton, *A Death-Struggle Between Two Civilizations*, 13 REGENT U. L. REV. 297, 349 (2001); Douglas E. Beloof, *Crime Victims' Rights: Critical Concepts for Animal Rights*, 7 ANIMAL L. 19, 27 (2001); Lane K.

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V. The Expert Scientific Affidavits demonstrate that Happy's interest in exercising her autonomy is as vital to her as it is to humans.

69. Attached are the following affidavits, including four affidavits from five of the world's most renowned experts on the cognitive abilities of elephants and a supplemental affidavit from one of those elephant experts ("Expert Scientific Affidavits"), and an affidavit from an expert in the care and rehabilitation of captive elephants in sanctuary. In total, these affidavits include:

- (a) Joint Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D.
- (b) Affidavit of Joyce Poole, Ph.D.
- (c) Affidavit of Karen McComb, Ph.D.
- (d) Affidavit of Cynthia Moss
- (e) Supplemental Affidavit of Joyce Poole, Ph.D.
- (f) Affidavit of Ed Stewart

70. The Expert Scientific Affidavits—(a) through (e)—demonstrate that Happy possesses complex cognitive abilities sufficient for common law personhood and the common law right to bodily liberty. These include: autonomy; empathy; self-awareness; self-

6 ANIMAL L. 259, 262 (2000); Richard York, *Humanity and Inhumanity: Toward a Sociology of the Slaughterhouse*, 17 ORGANIZATION AND ENVIRONMENT 260 (2004); Randall S. Abate and Jonathan Crowe, *From Inside the Cage to Outside the Box*, 5(1) Global Journal of Animal Law (2017); Jonas - Sebastian Beaudry, *From Autonomy to Habeas Corpus: Animal Rights Activists Take the Parameters of Legal Personhood to Court*, 4(1) Global Journal of Animal Law (2016); Natalie Prosin and Steven M. Wise, *The Nonhuman Rights Project - Coming to a Country Near You*, in 2(2) Global Journal of Animal Law (2014); "Why Things Can Hold Rights: Reconceptualizing the Legal Person," LEGAL PERSONHOOD: ANIMALS, ARTIFICIAL INTELLIGENCE AND THE UNBORN (Tomasz Pietrzykowski and Visa Kurki, eds., Springer, 2017); Brandon Keim, *The Eye of the Sandpiper: Stories from the Living World*, Comstock (2017), pp. 132-150; Charles Seibert, "Should a Chimp Be Able to Sue Its Owner?", *New York Times Magazine* (April 23, 2014), available at: <https://www.nytimes.com/2014/04/27/magazine/the-rights-of-man-and-beast.html> (last visited Feb. 15, 2018); Astra Taylor, "Who Speaks for the Trees?", *The Baffler*, (Sept. 7, 2016), available at: thebaffler.com/salvos/speaks-trees-astra-taylor (last visited Feb. 15, 2018); Sindhu Sundar, "Primal Rights: One Attorney's Quest for Chimpanzee Personhood.", *Law360* (March 10, 2017), available at: <https://www.law360.com/articles/900753> (last visited Feb. 15, 2018).

determination; theory of mind (awareness others have minds); insight; working memory, and an extensive long-term memory that allows them to accumulate social knowledge; the ability to act intentionally and in a goal-oriented manner, and to detect animacy and goal directedness in others; to understand the physical competence and emotional state of others; imitate, including vocal imitation; point and understand pointing; engage in true teaching (taking the pupil's lack of knowledge into account and actively showing them what to do); cooperate and build coalitions; cooperative problem-solving, innovative problem-solving, and behavioral flexibility; understand causation; intentional communication, including vocalizations to share knowledge and information with others in a manner similar to humans; ostensive behavior that emphasizes the importance of a particular communication; wide variety of gestures, signals, and postures; use of specific calls and gestures to plan and discuss a course of action, adjust their plan according to their assessment of risk, and execute the plan in a coordinated manner; complex learning and categorization abilities; and, an awareness of and response to death, including grieving behaviors.

71. African and Asian elephants share numerous complex cognitive abilities with humans, such as self-awareness, empathy, awareness of death, intentional communication, learning, memory, and categorization abilities.²²

72. Many of these capacities have been considered — erroneously — as uniquely human; each is a component of autonomy.²³ African and Asian elephants are autonomous, as they exhibit “self-determined behaviour that is based on freedom of choice. As a psychological

²² Joint Affidavit of Lucy Bates and Richard M. Byrne [“Bates & Byrne Aff.”] ¶37; Affidavit of Karen McComb [“McComb Aff.”] ¶31; Affidavit of Joyce Poole [“Poole Aff.”] ¶29; Affidavit of Cynthia Moss [“Moss Aff.”] ¶25.

²³ Bates & Byrne Aff. ¶37; McComb Aff. ¶31; Poole Aff. ¶29; Moss Aff. ¶25.

concept it implies that the individual is directing their behaviour based on some non-observable, internal cognitive process, rather than simply responding reflexively.”²⁴

73. Elephants possess the largest absolute brain of any land animal.²⁵ Even relative to their body sizes, elephant brains are large.²⁶

74. An encephalization quotient (“EQ”) of 1.0 means a brain is exactly the size expected for that body size; values greater than 1.0 indicate a larger brain than expected for that body size. (*Id.*)²⁷ Elephants have an EQ of between 1.3 and 2.3 (varying between sex and African and Asian species).²⁸ This means an elephant’s brain can be more than twice as large as is expected for an animal of its size.²⁹ These EQ values are similar to those of the great apes, with whom elephants have not shared a common ancestor for almost 100 million years.³⁰

75. A large brain allows greater cognitive skill and behavioral flexibility.³¹ Typically, mammals are born with brains weighing up to 90% of the adult weight.³² This figure drops to about 50% for chimpanzees.³³ At birth, human brains weigh only about 27% of the adult brain weight and increase in size over a prolonged childhood period.³⁴ This lengthy period of brain development (termed “developmental delay”) is a key feature of human brain evolution.³⁵ It provides a longer period in which the brain may be shaped by experience and learning, and plays a role in the emergence of complex cognitive abilities such as self-awareness, creativity, forward

²⁴ Bates & Byrne Aff. ¶30, ¶60; McComb Aff. ¶24, ¶31, ¶54; Poole Aff. ¶22, ¶53; Moss Aff. ¶18; ¶48.

²⁵ Bates & Byrne Aff. ¶32; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

²⁶ Bates & Byrne Aff. ¶32; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

²⁷ Encephalization quotients (EQ) are a standardized measure of brain size relative to body size, and illustrate by how much a species’ brain size deviates from that expected for its body size. Bates & Byrne Aff. ¶32; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

²⁸ Bates & Byrne Aff. ¶32; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

²⁹ Bates & Byrne Aff. ¶32; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

³⁰ Bates & Byrne Aff. ¶32; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

³¹ Bates & Byrne Aff. ¶¶32-33; McComb Aff. ¶26; Poole Aff. ¶24; Moss Aff. ¶20.

³² Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

³³ Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

³⁴ Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

³⁵ Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

planning, decision making and social interaction.³⁶ Elephant brains at birth weigh only about 35% of their adult weight, and elephants accordingly undergo a similarly protracted period of growth, development and learning.³⁷ This similar developmental delay in the elephant brain is likewise associated with the emergence of analogous cognitive abilities.³⁸

76. Physical similarities between human and elephant brains occur in areas that link to the capacities necessary for autonomy and self-awareness.³⁹ Elephant and human brains share deep and complex foldings of the cerebral cortex, large parietal and temporal lobes, and a large cerebellum.⁴⁰ The temporal and parietal lobes of the cerebral cortex manage communication, perception, and recognition and comprehension of physical actions, while the cerebellum is involved in planning, empathy, and predicting and understanding the actions of others.⁴¹

77. Elephant brains hold nearly as many cortical neurons as do human brains, and a much greater number than do chimpanzees or bottlenose dolphins.⁴² Elephants' pyramidal neurons — the class of neurons found in the cerebral cortex, particularly the pre-frontal cortex, which is the brain area that controls “executive functions” — are larger than in humans and most other species.⁴³ The term “executive function” refers to controlling operations, such as paying attention, inhibiting inappropriate responses, and deciding how to use memory search. These abilities develop late in human infancy and are often impaired in dementia. The degree of complexity of pyramidal neurons is linked to cognitive ability, with more complex connections

³⁶ Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

³⁷ Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

³⁸ Bates & Byrne Aff. ¶33; McComb Aff. ¶27; Poole Aff. ¶25; Moss Aff. ¶21.

³⁹ Bates & Byrne Aff. ¶34; Poole Aff. ¶26; McComb Aff. ¶28; Moss Aff. ¶22.

⁴⁰ Bates & Byrne Aff. ¶34; McComb Aff. ¶28; Poole Aff. ¶26; Moss Aff. ¶22.

⁴¹ Bates & Byrne Aff. ¶34; McComb Aff. ¶28; Poole Aff. ¶26; Moss Aff. ¶22.

⁴² Humans: 1.15×10^{10} ; elephants: 1.1×10^{10} ; chimpanzees: 6.2×10^9 ; dolphins: 5.8×10^9 . Bates & Byrne Aff. ¶35; McComb Aff. ¶29; Poole Aff. ¶27; Moss Aff. ¶23.

⁴³ Bates & Byrne Aff. ¶35; McComb Aff. ¶29; Poole Aff. ¶27; Moss Aff. ¶23.

between pyramidal neurons being associated with increased cognitive capabilities.⁴⁴ Elephant pyramidal neurons have a large number of connections with other neurons for receiving and sending signals, known as a dendritic tree.⁴⁵

78. Elephants, like humans, great apes, and some cetaceans, possess *von Economo neurons*, or spindle cells, the so-called “air-traffic controllers for emotions,” in the anterior cingulate, fronto-insular, and dorsolateral prefrontal cortex areas of the brain.⁴⁶ In humans, these cortical areas are involved, among other things, with the processing of complex social information, emotional learning and empathy, planning and decision-making, and self-awareness and self-control.⁴⁷ The presence of spindle cells in the same brain locations in elephants and humans strongly implies that these higher-order brain functions, which are the building blocks of autonomous, self-determined behavior, are common to both species.⁴⁸

79. Elephants have extensive and long-lasting memories.⁴⁹ McComb et al. (2000), using experimental playback of long-distance contact calls in Amboseli National Park, Kenya, showed that African elephants remember and recognize the voices of at least 100 other elephants.⁵⁰ Each adult female elephant tested was familiar with the contact-call vocalizations of individuals from an average of 14 families in the population.⁵¹ When the calls came from the test elephants’ own family, they contact-called in response and approached the location of the loudspeaker; when they were from another non-related but familiar family, one that had been shown to have a high

⁴⁴ Bates & Byrne Aff. ¶35; McComb Aff. ¶29; Poole Aff. ¶27; Moss Aff. ¶23.

⁴⁵ Bates & Byrne Aff. ¶35; McComb Aff. ¶29; Poole Aff. ¶27; Moss Aff. ¶23.

⁴⁶ Bates & Byrne Aff. ¶36; McComb Aff. ¶30; Poole Aff. ¶28; Moss Aff. ¶24.

⁴⁷ Bates & Byrne Aff. ¶36; McComb Aff. ¶30; Poole Aff. ¶28; Moss Aff. ¶24.

⁴⁸ Bates & Byrne Aff. ¶36; McComb Aff. ¶30; Poole Aff. ¶28; Moss Aff. ¶24.

⁴⁹ Bates & Byrne Aff. ¶54; McComb Aff. ¶48; Poole Aff. ¶49; Moss Aff. ¶42.

⁵⁰ Bates & Byrne Aff. ¶54; McComb Aff. ¶48; Poole Aff. ¶49; Moss Aff. ¶42.

⁵¹ Bates & Byrne Aff. ¶54; McComb Aff. ¶48; Poole Aff. ¶49; Moss Aff. ¶42.

association index with the test group, they listened but remained relaxed.⁵² However, when a test group heard unfamiliar contact calls from groups with a low association index with the test group, the elephants bunched together and retreated from the area.⁵³

80. McComb et al. has demonstrated that this social knowledge accumulates with age, with older females having the best knowledge of the contact calls of other family groups, and that older females are better leaders than younger, with more appropriate decision-making in response to potential threats (in this case, in the form of hearing lion roars).⁵⁴ Younger matriarchs under-reacted to hearing roars from male lions, elephants, most dangerous predators.⁵⁵ Sensitivity to the roars of male lions increased with increasing matriarch age, with the oldest, most experienced females showing the strongest response to this danger.⁵⁶ These studies show that elephants continue to learn and remember information about their environments throughout their lives, and this accrual of knowledge allows them to make better decisions and better lead their families as they age.⁵⁷

81. Further demonstration of elephants' long-term memory emerges from data on their movement patterns.⁵⁸ African elephants move over very large distances in their search for food and water.⁵⁹ Leggett (2006) used GPS collars to track the movements of elephants living in the Namib Desert, with one group traveling over 600 km in five months.⁶⁰ Viljoen (1989) showed

⁵² Bates & Byrne Aff. ¶54; McComb Aff. ¶48; Poole Aff. ¶49; Moss Aff. ¶42.

⁵³ Bates & Byrne Aff. ¶54; McComb Aff. ¶48; Poole Aff. ¶49; Moss Aff. ¶42.

⁵⁴ Bates & Byrne Aff. ¶55; McComb Aff. ¶49; Poole Aff. ¶50; Moss Aff. ¶43.

⁵⁵ Bates & Byrne Aff. ¶55; McComb Aff. ¶49; Poole Aff. ¶50; Moss Aff. ¶43.

⁵⁶ Bates & Byrne Aff. ¶55; McComb Aff. ¶49; Poole Aff. ¶50; Moss Aff. ¶43.

⁵⁷ Bates & Byrne Aff. ¶55; McComb Aff. ¶49; Poole Aff. ¶50; Moss Aff. ¶43.

⁵⁸ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁵⁹ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁶⁰ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

that elephants in the same region visited water holes approximately every four days, though some were more than 60 km apart.⁶¹

82. Elephants inhabiting the deserts of Namibia and Mali may travel hundreds of kilometers to visit remote water sources shortly after the onset of a period of rainfall, sometimes along routes that have not been used for many years.⁶² These remarkable feats suggest exceptional cognitive mapping skills that rely upon the long-term memories of older individuals who may have traveled that same path decades earlier.⁶³ Thus, family groups headed by older matriarchs are better able to survive periods of drought.⁶⁴ These older matriarchs lead their families over larger areas during droughts than families headed by younger matriarchs, again drawing on their accrued knowledge, this time about the locations of permanent, drought-resistant sources of food and water, to better lead and protect their families.⁶⁵

83. Studies reveal that long-term memories, and the decision-making mechanisms that rely on this knowledge, are severely disrupted in elephants who have experienced trauma or extreme disruption due to “management” practices initiated by humans.⁶⁶ Shannon, *et al.* (2013) demonstrated that South African elephants who experienced trauma decades earlier showed significantly reduced social knowledge.⁶⁷ As a result of archaic culling practices, these elephants had been forcibly separated from family members and subsequently taken to new locations.⁶⁸ Two decades later, their social knowledge and skills and decision-making abilities were

⁶¹ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁶² Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁶³ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁶⁴ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁶⁵ Bates & Byrne Aff. ¶56; McComb Aff. ¶50; Poole Aff. ¶51; Moss Aff. ¶44.

⁶⁶ Bates & Byrne Aff. ¶57; McComb Aff. ¶51; Poole Aff. ¶52; Moss Aff. ¶45.

⁶⁷ Bates & Byrne Aff. ¶57; McComb Aff. ¶51; Poole Aff. ¶52; Moss Aff. ¶45.

⁶⁸ Bates & Byrne Aff. ¶57; McComb Aff. ¶51; Poole Aff. ¶52; Moss Aff. ¶45.

impoverished compared to an undisturbed Kenyan population.⁶⁹ Disrupting elephants' natural way of life has substantial negative impacts on their knowledge and decision-making abilities.⁷⁰

84. Elephants demonstrate advanced working memory skills.⁷¹ Working memory is the ability to temporarily store, recall, manipulate and coordinate items from memory.⁷² Working memory directs one's attention to relevant information, utilized in reasoning, planning, coordination, and execution of cognitive processes through a "central executive."⁷³ Adult human working memory has a capacity of around seven items.⁷⁴ When experiments were conducted with wild elephants in Kenya in which the locations of fresh urine samples from related or unrelated elephants were manipulated, the elephants responded by detecting urine from known individuals in surprising locations, thereby demonstrating the ability continually to track the locations of at least 17 family members in relation to themselves, as either absent, present in front of self, or present behind self.⁷⁵ This remarkable ability to hold in mind and regularly update information about the locations and movements of a large number of family members is best explained by the fact that elephants possess an unusually large working memory capacity that is much larger than that of humans.⁷⁶

85. Elephants display a sophisticated categorization of their environment on par with humans.⁷⁷ Bates, Byrne, Poole, and Moss experimentally presented the elephants of Amboseli National Park, Kenya with garments that gave olfactory or visual information about their human wearers, either Maasai warriors who traditionally attack and spear elephants as part of their rite

⁶⁹ Bates & Byrne Aff. ¶57; McComb Aff. ¶51; Poole Aff. ¶52; Moss Aff. ¶45.

⁷⁰ Bates & Byrne Aff. ¶57; McComb Aff. ¶51; Poole Aff. ¶52; Moss Aff. ¶45.

⁷¹ Bates & Byrne Aff. ¶58; McComb Aff. ¶52; Poole Aff. ¶53; Moss Aff. ¶46.

⁷² Bates & Byrne Aff. ¶58; McComb Aff. ¶52; Poole Aff. ¶53; Moss Aff. ¶46.

⁷³ Bates & Byrne Aff. ¶58; McComb Aff. ¶52; Poole Aff. ¶53; Moss Aff. ¶46.

⁷⁴ Bates & Byrne Aff. ¶58; McComb Aff. ¶52; Poole Aff. ¶53; Moss Aff. ¶46.

⁷⁵ Bates & Byrne Aff. ¶58; McComb Aff. ¶52; Poole Aff. ¶53; Moss Aff. ¶46.

⁷⁶ Bates & Byrne Aff. ¶58; McComb Aff. ¶52; Poole Aff. ¶53; Moss Aff. ¶46.

⁷⁷ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

of passage, or Kamba men who are agriculturalists and traditionally pose little threat to elephants.⁷⁸ In the first experiment, the only thing that differed between the cloths was the smell, derived from the ethnicity and/or lifestyle of the wearers.⁷⁹ The elephants were significantly more likely to run away when they sniffed cloths worn by Maasai men than those worn by Kamba men or no one at all. (See “Video 7” attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as “Exhibit K”).⁸⁰

86. In a second experiment, they presented the elephants with two cloths that had not been worn by anyone; one was white (a neutral stimulus) and the other red, the color ritually worn by Maasai warriors.⁸¹ With access only to these visual cues, the elephants showed significantly greater, sometimes aggressive, reactions to red garments than white.⁸² They concluded that elephants are able to categorize a single species (humans) into sub-classes (*i.e.*, “dangerous” or “low risk”) based on either olfactory or visual cues alone.⁸³

87. McComb, *et al.* further demonstrated that these same elephants distinguish human groups based on voices.⁸⁴ The elephants reacted differently, and appropriately, depending on whether they heard Maasai or Kamba men speaking, and whether the speakers were male Maasai versus female Maasai, who also pose no threat.⁸⁵ Scent, sounds and visual signs associated specifically with Maasai men are categorized as “dangerous,” while neutral signals are attended to but categorized as “low risk.”⁸⁶ These sophisticated, multi-modal categorization skills may be exceptional among non-human animals and demonstrate elephants’ acute sensitivity to the

⁷⁸ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁷⁹ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸⁰ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸¹ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸² Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸³ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸⁴ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸⁵ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸⁶ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

human world and how they monitor human behavior and learn to recognize when we might cause them harm.⁸⁷

88. Human speech and language reflect autonomous thinking and intentional behavior.⁸⁸ Similarly, elephants vocalize to share knowledge and information.⁸⁹ Male elephants primarily communicate about their sexual status, rank and identity, whereas females and dependents emphasize and reinforce their social units.⁹⁰ Call types are separated into those produced by the larynx (such as “rumbles”) and calls produced by the trunk (such as “trumpets”), with different calls in each category used in different contexts.⁹¹ Field experiments have shown that African elephants distinguish between call types. For example, such contact calls as “rumbles” may travel kilometers and maintain associations between elephants, or “oestrus rumbles” may occur after a female has copulated, and these call types elicit different responses in listeners.⁹²

89. Elephant vocalizations are not merely reflexive; they have distinct meanings to listeners and communicate in a manner similar to the way humans use language.⁹³ Elephants display more than two hundred gestures, signals and postures that they use to communicate information to their audience.⁹⁴ Such signals are adopted in many contexts, such as aggressive, sexual or socially integrative situations, are well-defined, carry a specific meaning both to the actor and recipient, result in predictable responses from the audience, and together demonstrate

⁸⁷ Bates & Byrne Aff. ¶59; McComb Aff. ¶53; Poole Aff. ¶54; Moss Aff. ¶47.

⁸⁸ Bates & Byrne Aff. ¶50; McComb Aff. ¶44; Poole Aff. ¶42; Moss Aff. ¶38.

⁸⁹ Bates & Byrne Aff. ¶50; McComb Aff. ¶44; Poole Aff. ¶42; Moss Aff. ¶38.

⁹⁰ Bates & Byrne Aff. ¶50; McComb Aff. ¶44; Poole Aff. ¶42; Moss Aff. ¶38.

⁹¹ Bates & Byrne Aff. ¶50; McComb Aff. ¶44; Poole Aff. ¶42; Moss Aff. ¶38.

⁹² Bates & Byrne Aff. ¶50; McComb Aff. ¶44; Poole Aff. ¶42; Moss Aff. ¶38.

⁹³ Bates & Byrne Aff. ¶50; McComb Aff. ¶44; Poole Aff. ¶42; Moss Aff. ¶38.

⁹⁴ Bates & Byrne Aff. ¶52; McComb Aff. ¶46; Poole Aff. ¶43; Moss Aff. ¶40.

intentional and purposeful communication intended to share information and/or alter the others' behavior to fit their own will.⁹⁵

90. Elephants use specific calls and gestures to plan and discuss a course of action.⁹⁶ These may be to respond to a threat through a group retreating or mobbing action (including celebration of successful efforts), or planning and discussing where, when and how to move to a new location.⁹⁷ In group-defensive situations, elephants respond with highly coordinated behaviour, both rapidly and *predictably*, to specific calls uttered and particular gestures exhibited by group members.⁹⁸ These calls and gestures carry specific meanings not only to elephant listeners, but to experienced human listeners as well.⁹⁹ The rapid, predictable and collective response of elephants to these calls and gestures indicates that elephants have the capacity to understand the goals and intentions of the signalling individual.¹⁰⁰

91. Elephant group defensive behavior is highly evolved and involves a range of different tactical maneuvers adopted by different elephants.¹⁰¹ For example, matriarch Provocadora's contemplation of Poole's team through listening and "j-sniffing," followed by her purposeful "perpendicular-walk" (in relation to Poole's team) toward her family and her "ear-flap-slide" clearly communicated that her family should begin a "group-advance" upon Poole's team.¹⁰² This particular elephant attack is a powerful example of elephants' use of empathy, coalition and cooperation.¹⁰³ Provocadora's instigation of the "group-advance" led to a two-and-a-half minute "group-charge" in which the three other large adult females of the 36-member

⁹⁵ Bates & Byrne Aff. ¶52; McComb Aff. ¶46; Poole Aff. ¶43; Moss Aff. ¶40.

⁹⁶ Poole Aff. ¶44.

⁹⁷ Poole Aff. ¶44.

⁹⁸ Poole Aff. ¶45.

⁹⁹ Poole Aff. ¶45.

¹⁰⁰ Poole Aff. ¶45.

¹⁰¹ Poole Aff. ¶45.

¹⁰² Poole Aff. ¶45.

¹⁰³ Poole Aff. ¶45.

family took turns leading the charge, passing the baton, in a sense, from one to the next.¹⁰⁴ Once they succeeded in their goal of chasing Poole's team away, they celebrated their victory by "high-fiving" with their trunks and engaging in an "end-zone-dance."¹⁰⁵ "High-fiving" is also typically used to initiate a coalition and is both preceded by and associated with other specific gestures and calls that lead to very goal oriented collective behavior.¹⁰⁶

92. Ostensive communication refers to the way humans use particular behavior, such as tone of speech, eye contact, and physical contact, to emphasize that a particular communication is important.¹⁰⁷ Lead elephants in family groups use ostensive communication frequently as a way to say, "Heads up – I am about to do something that you should pay attention to."¹⁰⁸

93. In planning and communicating intentions regarding a movement, elephants use both vocal and gestural communication.¹⁰⁹ For example, Poole has observed that a member of a family will use the axis of her body to point in the direction she wishes to go and then vocalize, every couple of minutes, with a specific call known as a "let's-go" rumble, "I want to go this way, let's go together."¹¹⁰ The elephant will also use intention gestures — such as "foot-swinging" — to indicate her intention to move.¹¹¹ Such a call may be successful or unsuccessful at moving the group or may lead to a 45-minute or longer discussion (a series of rumble exchanges known as "cadenced rumbles") that researchers interpret as negotiation.¹¹² Sometimes such negotiation leads to disagreement that may result in the group splitting and going in

¹⁰⁴ Poole Aff. ¶45.

¹⁰⁵ Poole Aff. ¶45.

¹⁰⁶ Poole Aff. ¶45.

¹⁰⁷ Poole Aff. ¶36.

¹⁰⁸ Poole Aff. ¶36.

¹⁰⁹ Poole Aff. ¶46.

¹¹⁰ Poole Aff. ¶46.

¹¹¹ Poole Aff. ¶46.

¹¹² Poole Aff. ¶46.

different directions for a period of time.¹¹³ In situations where the security of the group is at stake, such as when movement is planned through or near human settlement, all group members focus on the matriarch's decision.¹¹⁴ So while "let's go" rumbles are uttered, others adopt a "waiting" posture until the matriarch, after much "listening," "j-sniffing," and "monitoring," decides it is safe to proceed, where upon they bunch together and move purposefully, and at a fast pace in a "group-march."¹¹⁵

94. Elephants typically move through dangerous habitat and nighttime hours at high speed in a clearly goal-oriented manner known as "streaking," which has been described and documented through the movements of elephants wearing satellite tracking collars.¹¹⁶ The many different signals — calls, postures, gestures and behaviors elephants use to contemplate and initiate such movement (including "ear-flap," "ear-flap-slide") — are clearly understood by other elephants (just as they can be understood after long-term study by human observers), mean very specific things, and indicate that elephants: 1) have a particular plan which they can communicate with others; 2) can adjust their plan according to their immediate assessment of risk or opportunity; and 3) can communicate and execute the plan in a coordinated manner.¹¹⁷

95. Elephants can vocally imitate sounds they hear, from the engines of passing trucks to the commands of human zookeepers.¹¹⁸ Imitating another's behavior is demonstrative of a sense of self, as it is necessary to understand how one's own behavior relates to the behavior of others.¹¹⁹ African elephants recognize the importance of visual attentiveness on the part of an intended recipient, elephant or human, and of gestural communication, which further

¹¹³ Poole Aff. ¶46.

¹¹⁴ Poole Aff. ¶46.

¹¹⁵ Poole Aff. ¶46.

¹¹⁶ Poole Aff. ¶46.

¹¹⁷ Poole Aff. ¶46.

¹¹⁸ Bates & Byrne Aff. ¶51; McComb Aff. ¶45; Poole Aff. ¶47; Moss Aff. ¶39.

¹¹⁹ Bates & Byrne Aff. ¶51; McComb Aff. ¶45; Poole Aff. ¶47; Moss Aff. ¶39.

demonstrates that elephants' gestural communications are intentional and purposeful.¹²⁰ This ability to understand the visual attentiveness and perspective of others is crucial for empathy, mental-state understanding, and "theory of mind," the ability to mentally represent and think about the knowledge, beliefs and emotional states of others, while recognizing that these can be distinct from your own knowledge, beliefs and emotions.¹²¹

96. As do humans, Asian elephants exhibit "mirror self-recognition" (MSR) using Gallup's classic "mark test."¹²² MSR is the ability to recognize a reflection in the mirror as oneself, while the mark test involves surreptitiously placing a colored mark on an individual's forehead that she cannot see or be aware of without the aid of a mirror.¹²³ If the individual uses the mirror to investigate the mark, the individual must recognize the reflection as herself. (See "Video 1," attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as "Exhibit D").¹²⁴

97. MSR is significant because it is a key identifier of self-awareness.¹²⁵ Self-awareness is intimately related to autobiographical memory in humans and is central to autonomy and being able to direct one's own behavior to achieve personal goals and desires.¹²⁶ By demonstrating they can recognize themselves in a mirror, elephants must be holding a mental representation of

¹²⁰ Bates & Byrne Aff. ¶53; McComb Aff. ¶47; Poole Aff. ¶48; Moss Aff. ¶41.

¹²¹ Bates & Byrne Aff. ¶40, ¶53; McComb Aff. ¶34, ¶47; Poole Aff. ¶32, ¶48; Moss Aff. ¶28, ¶41.

¹²² Bates & Byrne Aff. ¶38; McComb Aff. ¶32; Poole Aff. ¶30; Moss Aff. ¶26. Happy has specifically been found to possess Mirror Self-Recognition (MSR) which is an indicator of self-consciousness. See *supra* n.11.

¹²³ Bates & Byrne Aff. ¶38; McComb Aff. ¶32; Poole Aff. ¶30; Moss Aff. ¶26.

¹²⁴ Bates & Byrne Aff. ¶38; McComb Aff. ¶32; Poole Aff. ¶30; Moss Aff. ¶26.

¹²⁵ Bates & Byrne Aff. ¶38; McComb Aff. ¶32; Poole Aff. ¶30; Moss Aff. ¶26.

¹²⁶ "Autobiographical memory" refers to what one remembers about his or her own life; for example, not that "Paris is the capital of France," but the recollection that you had a lovely time when you went there. Bates & Byrne Aff. ¶38; McComb Aff. ¶32; Poole Aff. ¶30; Moss Aff. ¶26.

themselves from another perspective and thus be aware that they are a separate entity from others.¹²⁷

98. One who understands the concept of dying and death must possess a sense of self.¹²⁸ Both chimpanzees and elephants demonstrate an awareness of death by reacting to dead family or group members.¹²⁹ Having a mental representation of the self, which is a pre-requisite for mirror-self recognition, likely confers an ability to comprehend death.¹³⁰

99. Wild African elephants have been shown experimentally to be more interested in the bones of dead elephants than the bones of other animals. (See "Video 2," attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as "Exhibit E").¹³¹ They have frequently been observed using their tusks, trunk or feet to attempt to lift sick, dying or dead individuals.¹³² Although they do not give up trying to lift or elicit movement from a dead body immediately, elephants appear to realize that once dead, the carcass can no longer be helped; and instead they engage in more "mournful" or "grief-stricken" behavior, such as standing guard over the body with dejected demeanor and protecting it from predators. (See "Photographs," attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as "Exhibit F").¹³³

100. Wild African elephants have been observed to cover the bodies of their dead with dirt and vegetation.¹³⁴ Mothers who lose a calf may remain with the calf's body for an extended

¹²⁷ Bates & Byrne Aff. ¶38; McComb Aff. ¶32; Poole Aff. ¶30; Moss Aff. ¶26.

¹²⁸ Poole Aff. ¶31; Bates & Byrne Aff. ¶39; Moss Aff. ¶27.

¹²⁹ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³⁰ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³¹ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³² Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³³ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³⁴ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

period, but do not behave towards the body as they would a live calf.¹³⁵ Indeed, the general demeanor of elephants attending to a dead elephant is one of grief and compassion, with slow movements and few vocalizations.¹³⁶ These behaviors are akin to human responses to the death of a close relative or friend and demonstrate that elephants possess some understanding of life and the permanence of death. (See “Photographs,” attached to the Affidavit of Karen McComb, Ph.D. on CD as “Exhibit E”).¹³⁷

101. Elephants’ interest in the bodies, carcasses and bones of elephants who have passed is so marked that when one has died, trails to the site of death become worn into the ground by the repeated visits of many elephants over days, weeks, months, even years.¹³⁸ The accumulation of dung around the site attests to the extended time that visiting elephants spend touching and contemplating the bones.¹³⁹ Poole observed that, over years, the bones may become scattered over tens or hundreds of square meters as elephants pick up the bones and carry them away.¹⁴⁰ The tusks are of particular interest and may be carried and deposited many hundreds of meters from the site of death.¹⁴¹

102. The capacity for mentally representing the self as an individual entity has been linked to general empathic abilities.¹⁴² Empathy is defined as identifying with and understanding another’s experiences or feelings by relating personally to their situation.¹⁴³

103. Empathy is an important component of human consciousness and autonomy and is a cornerstone of normal social interaction.¹⁴⁴ It requires modeling the emotional states and desired

¹³⁵ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³⁶ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³⁷ Bates & Byrne Aff. ¶39; McComb Aff. ¶33; Poole Aff. ¶31; Moss Aff. ¶27.

¹³⁸ Poole Aff. ¶31.

¹³⁹ Poole Aff. ¶31.

¹⁴⁰ Poole Aff. ¶31.

¹⁴¹ Poole Aff. ¶31.

¹⁴² Bates & Byrne Aff. ¶40; McComb Aff. ¶34; Poole Aff. ¶32; Moss Aff. ¶28.

¹⁴³ Bates & Byrne Aff. ¶40; McComb Aff. ¶34; Poole Aff. ¶32; Moss Aff. ¶28.

goals that influence others' behavior both in the past and future, and using this information to plan one's own actions; empathy is only possible if one can adopt or imagine another's perspective, and attribute emotions to that other individual.¹⁴⁵ Thus, empathy is a component of "theory of mind."¹⁴⁶

104. Elephants frequently display empathy in the form of protection, comfort and consolation, as well as by actively helping those in difficulty, such as assisting injured individuals to stand and walk, or helping calves out of rivers or ditches with steep banks. (See "Video 3," attached to the Affidavit of Karen McComb, Ph.D. on CD as "Exhibit F").¹⁴⁷ Elephants have been seen to react when anticipating the pain of others by wincing when a nearby elephant stretched her trunk toward a live wire, and have been observed feeding those unable to use their own trunks to eat and attempting to feed those who have just died.¹⁴⁸

105. In an analysis of behavioural data collected from wild African elephants over a 40-year continuous field study, Bates and colleagues concluded that as well as possessing their own intentions, elephants can diagnose animacy and goal directedness in others, understand the physical competence and emotional state of others, and attribute goals and mental states (intentions) to others.¹⁴⁹

106. This is borne out by examples such as:

IB family is crossing river. Infant struggles to climb out of bank after its mother. An adult female [not the mother] is standing next to calf and moves closer as the infant struggles. Female does not push calf out with its trunk, but digs her tusks into the mud behind the calf's front right leg which acts to provide some anchorage for the calf, who then scrambles up and out and rejoins mother.

¹⁴⁴ Bates & Byrne Aff. ¶40; McComb Aff. ¶34; Poole Aff. ¶32; Moss Aff. ¶28.

¹⁴⁵ Bates & Byrne Aff. ¶40; McComb Aff. ¶34; Poole Aff. ¶32; Moss Aff. ¶28.

¹⁴⁶ Bates & Byrne Aff. ¶40; McComb Aff. ¶34; Poole Aff. ¶32; Moss Aff. ¶28.

¹⁴⁷ Bates & Byrne Aff. ¶41; McComb Aff. ¶35; Poole Aff. ¶33; Moss Aff. ¶29.

¹⁴⁸ Bates & Byrne Aff. ¶41; McComb Aff. ¶35; Poole Aff. ¶33; Moss Aff. ¶29.

¹⁴⁹ Bates & Byrne Aff. ¶42; McComb Aff. ¶36; Poole Aff. ¶34; Moss Aff. ¶30.

At 11.10ish Ella gives a “lets go” rumble as she moves further down the swamp . . . At 11.19 Ella goes into the swamp. The entire group is in the swamp except Elspeth and her calf [<1 year] and Eudora [Elspeth’s mother]. At 11.25 Eudora appears to “lead” Elspeth and the calf to a good place to enter the swamp — the only place where there is no mud.

(See “Video 3,” attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as “Exhibit G”).¹⁵⁰

107. In addition to the examples analyzed in Bates, *et al.*, Poole observed two adult females rush to the side of a third female who had just given birth, back into her, and press their bodies to her in what appeared to be a spontaneous attempt to prevent injury to the newborn.¹⁵¹

In describing the situation, Poole wrote:

The elephants’ sounds [relating to the birth] also attracted the attention of several males including young and inexperienced, Ramon, who, picking up on the interesting smells of the mother [Ella], mounted her, his clumsy body and feet poised above the newborn. Matriarch Echo and her adult daughter Erin, rushed to Ella’s side and, I believe, purposefully backed into her in what appeared to be an attempt to prevent the male from landing on the baby when he dismounted.¹⁵²

108. Such examples demonstrate that the acting elephant(s) (the adult female in the first example, Eudora in the second, and Erin and Echo in the third) were able to understand the intentions or situation of the other (the calf in the first case, Elspeth in the second, Ella’s newborn and the male in the third), and could adjust their own behavior to counteract the problem being faced by the other.¹⁵³

109. In raw footage Poole acquired of elephant behavior filmed by her brother in the Mara, Kenya, an “allo-mother” (an elephant who cares for an infant and is not the infant’s mother or father) moves a log from under the head of an infant in what appears to be an effort to make him more comfortable. (See “Video 1,” attached to the Affidavit of Joyce Poole, Ph.D. on

¹⁵⁰ Bates & Byrne Aff. ¶42.

¹⁵¹ Poole Aff. ¶34.

¹⁵² Poole Aff. ¶34.

¹⁵³ Bates & Byrne Aff. ¶42; McComb Aff. ¶36; Poole Aff. ¶34; Moss Aff. ¶30.

CD as “Exhibit C”).¹⁵⁴ In a further example of the ability to understand goal directedness of others, elephants appear to understand that vehicles drive on roads or tracks and they further appear to know where these tracks lead.¹⁵⁵ In Gorongosa, Mozambique, where elephants exhibit a culture of aggression toward humans, charging, chasing and attacking vehicles, adult females anticipate the direction the vehicle will go and attempt to cut it off by taking shortcuts *before* the vehicle has begun to turn.¹⁵⁶

110. Empathic behavior begins early in elephants. In humans, rudimentary sympathy for others in distress has been recorded in infants as young as 10 months old; young elephants similarly exhibit sympathetic behavior.¹⁵⁷ For example, during fieldwork in the Maasai Mara in 2011, Poole filmed a mother elephant using her trunk to assist her one-year-old female calf up a steep bank. Once the calf was safely up the bank she turned around to face her five-year-old sister, who was also having difficulties getting up the bank. As the older calf struggled to clamber up the bank the younger calf approached her and first touched her mouth (a gesture of reassurance among family members) and then reached her trunk out to touch the leg that had been having difficulty. Only when her sibling was safely up the bank did the calf turn to follow her mother. (*See* “Video 2,” attached to the Affidavit of Joyce Poole, Ph.D. on CD as “Exhibit D”).¹⁵⁸

111. Captive African elephants attribute intentions to others, as they follow and understand human pointing gestures.¹⁵⁹ The elephants understood that the human experimenter was pointing to communicate information to them about the location of a hidden object. (*See*

¹⁵⁴ Poole Aff. ¶34.

¹⁵⁵ Poole Aff. ¶34.

¹⁵⁶ Poole Aff. ¶34.

¹⁵⁷ Poole Aff. ¶34.

¹⁵⁸ Poole Aff. ¶34.

¹⁵⁹ Bates & Byrne Aff. ¶43; McComb Aff. ¶37; Poole Aff. ¶35; Moss Aff. ¶31.

“Video 4,” attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as “Exhibit H”).¹⁶⁰ Attributing intentions and understanding another’s reference point is central to both empathy and “theory of mind.”¹⁶¹

112. There is evidence of “natural pedagogy,” or true teaching — whereby a teacher takes into account the knowledge states of the learner as she passes on relevant information — in elephants. Bates, Byrne, and Moss’s analysis of simulated “oestrus behaviours”¹⁶² in African elephants — whereby a non-cycling, sexually experienced older female will simulate the visual signals of being sexually receptive, even though she is not ready to mate or breed again — demonstrates that these knowledgeable females can adopt false “oestrus behaviours” to demonstrate to naïve young females how to attract and respond appropriately to suitable males.¹⁶³ The experienced females may be taking the youngster’s lack of knowledge into account and actively showing them what to do — a possible example of true teaching as it is defined in humans.¹⁶⁴ This evidence, coupled with the data showing they understand the ostensive cues in human pointing, suggests that elephants understand the intentions and knowledge states (minds) of others.¹⁶⁵

113. Coalitions and cooperation have been frequently documented in wild African elephants, particularly to defend family members or close allies from (potential) attacks by

¹⁶⁰ Bates & Byrne Aff. ¶43; McComb Aff. ¶37; Poole Aff. ¶35; Moss Aff. ¶31.

¹⁶¹ Bates & Byrne Aff. ¶43; McComb Aff. ¶37; Poole Aff. ¶35; Moss Aff. ¶31.

¹⁶² Bates & Byrne Aff. ¶44. Ostension is the way that we can “mark” our communications to show people that that is what they are. If you do something that another copies, that’s imitation; but if you deliberately indicate what you are doing to be helpful, that’s “ostensive” teaching. Similarly, we may “mark” a joke, hidden in seemingly innocent words; or “mark” our words as directed towards someone specific by catching their eye. Ostension implies that the signaller knows what she is doing.

¹⁶³ Bates & Byrne Aff. ¶44; McComb Aff. ¶38; Poole Aff. ¶36; Moss Aff. ¶32.

¹⁶⁴ Bates & Byrne Aff. ¶44; McComb Aff. ¶38; Poole Aff. ¶36; Moss Aff. ¶32.

¹⁶⁵ Bates & Byrne Aff. ¶44; McComb Aff. ¶38; Poole Aff. ¶36; Moss Aff. ¶32.

outsiders, such as when one family group tries to “kidnap” a calf from an unrelated family.¹⁶⁶ These behaviors are generally preceded by gestural and vocal signals, typically given by the matriarch and acted upon by family members, and are based on one elephant understanding the emotions and goals of a coalition partner.¹⁶⁷

114. Cooperation is evident in captive Asian elephants, who demonstrate they can work together in pairs to obtain a reward, but also understand the pointlessness of attempting the task if their partner was not present or could not access the equipment. (See “Video 5,” attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as “Exhibit I”).¹⁶⁸ Problem-solving and working together to achieve a collectively desired outcome involve mentally representing both a goal and the sequence of behaviors that is required to achieve that goal; it is based on (at the very least) short-term action planning.¹⁶⁹

115. Wild elephants have frequently been observed engaging in such cooperative problem-solving as retrieving calves kidnapped by other groups, helping calves out of steep, muddy river banks (see “Video 3,” attached to the Affidavit of Karen McComb, Ph.D. on CD as “Exhibit F”), rescuing a calf attacked by a lion (acoustic recording calling to elicit help from others), and navigating through human-dominated landscapes to reach a desired destination such as a habitat, salt-lick, or waterhole.¹⁷⁰ These behaviors demonstrate the purposeful and well-coordinated social system of elephants and show that elephants can collectively hold specific

¹⁶⁶ Bates & Byrne Aff. ¶45; McComb Aff. ¶39; Poole Aff. ¶37; Moss Aff. ¶33.

¹⁶⁷ Bates & Byrne Aff. ¶45; McComb Aff. ¶39; Poole Aff. ¶37; Moss Aff. ¶33.

¹⁶⁸ Bates & Byrne Aff. ¶46; McComb Aff. ¶40; Poole Aff. ¶38; Moss Aff. ¶34.

¹⁶⁹ Bates & Byrne Aff. ¶46; McComb Aff. ¶40; Poole Aff. ¶38; Moss Aff. ¶34.

¹⁷⁰ Bates & Byrne Aff. ¶47; McComb Aff. ¶41; Poole Aff. ¶39; Moss Aff. ¶35.

aims in mind, then work together to achieve those goals.¹⁷¹ Such intentional, goal-directed action forms the foundation of independent agency, self-determination, and autonomy.¹⁷²

116. Elephants also show innovative problem-solving in experimental tests of insight, defined as the “a-ha” moment when a solution to a problem suddenly becomes clear.¹⁷³ A juvenile male Asian elephant demonstrated such a spontaneous action by moving a plastic cube and standing on it to obtain previously out-of-reach food.¹⁷⁴ After solving this problem once, he showed flexibility and generalization of the technique to other similar problems by using the same cube in different situations, or different objects in place of the cube when it was unavailable. (See “Video 6,” attached to the Affidavit of Lucy Bates, Ph.D. and Richard Byrne, Ph.D. on CD as “Exhibit J”).¹⁷⁵ This experiment demonstrates that elephants can choose an appropriate action and incorporate it into a sequence of behavior to achieve a goal they kept in mind throughout the process.¹⁷⁶

117. Asian elephants demonstrate the ability to understand goal-directed behavior.¹⁷⁷ When presented with food that was out of reach, but with some bits resting on a tray that could be pulled within reach, elephants learned to pull only those trays baited with food.¹⁷⁸ Success in this kind of “means-end” task demonstrates causal knowledge, which requires understanding not just that two events are associated with each other, but that some mediating force connects and

¹⁷¹ Bates & Byrne Aff. ¶47; McComb Aff. ¶41; Poole Aff. ¶39; Moss Aff. ¶35.

¹⁷² Bates & Byrne Aff. ¶47; McComb Aff. ¶41; Poole Aff. ¶39; Moss Aff. ¶35.

¹⁷³ Bates & Byrne Aff. ¶48; McComb Aff. ¶42; Poole Aff. ¶40; Moss Aff. ¶36. In cognitive psychology terms, “insight” is the ability to inspect and manipulate a mental representation of something, even when you can’t physically perceive or touch the something at the time. Simply, insight is using only thinking to solve problems.

¹⁷⁴ Bates & Byrne Aff. ¶48; McComb Aff. ¶42; Poole Aff. ¶40; Moss Aff. ¶36.

¹⁷⁵ Bates & Byrne Aff. ¶48; McComb Aff. ¶42; Poole Aff. ¶40; Moss Aff. ¶36.

¹⁷⁶ Bates & Byrne Aff. ¶48; McComb Aff. ¶42; Poole Aff. ¶40; Moss Aff. ¶36.

¹⁷⁷ Bates & Byrne Aff. ¶49; McComb Aff. ¶43; Poole Aff. ¶41; Moss Aff. ¶37.

¹⁷⁸ Bates & Byrne Aff. ¶49; McComb Aff. ¶43; Poole Aff. ¶41; Moss Aff. ¶37.

affects the two which may be used to predict and control events.¹⁷⁹ Understanding causation and inferring object relations may be related to understanding psychological causation, which is appreciation that others are animate beings who generate their own behavior and have mental states (*e.g.*, intentions).¹⁸⁰

CONCLUSION

118. An extraordinarily cognitively complex autonomous individual's species should be irrelevant to whether she should have the fundamental right to the bodily liberty — the autonomy — that habeas corpus protects.

WHEREFORE, the NhRP respectfully demands the following relief:


A. Issuance of the attached Writ of Habeas Corpus and Order to Show Cause demanding that Respondents demonstrate forthwith the basis for their imprisonment of Happy;

B. Upon a determination that Happy is being unlawfully imprisoned order her immediate release from Respondents' custody to an appropriate sanctuary, preferably PAWS;

D. Award the NhRP the costs and disbursements of this action; and

E. Grant such other and further relief as this Court deems just and proper.

Dated: October 2, 2018


 Elizabeth Stein, Esq.
 Attorney for Petitioner
 5 Dunhill Road
 New Hyde Park, New York 11040
 (516) 747-4726

¹⁷⁹ Bates & Byrne Aff. ¶49; McComb Aff. ¶43; Poole Aff. ¶41; Moss Aff. ¶37.

¹⁸⁰ Bates & Byrne Aff. ¶49; McComb Aff. ¶43; Poole Aff. ¶41; Moss Aff. ¶37.

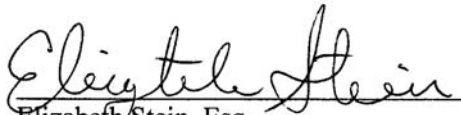
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VERIFICATION

The undersigned is an attorney admitted to practice in the courts of New York State and is the attorney of record for Petitioner, The Nonhuman Rights Project, Inc. ("NhRP") in this action. Deponent has read the foregoing Verified Petition for a Common Law Writ of Habeas Corpus and Order to Show Cause and is familiar with the contents thereof; the same is true to the deponent's own knowledge, except as to the matters therein stated to be alleged on information and belief, and as to those matters deponent believes it to be true. This verification is made by deponent and not by the NhRP, because the NhRP does not reside nor maintain its office in the county where your deponent maintains her office. The grounds of deponent's belief as to all matters not stated upon deponent's knowledge are based upon a review of the facts, pleadings and proceedings in this matter, as well as conversations with the NhRP.

The undersigned affirms that the foregoing statements are true, under the penalties of perjury.

Dated: October 2, 2018


Elizabeth Stein, Esq.

ORLEANS CO CLERK NY
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EXHIBIT 1 TO VERIFIED PETITION -
PROPOSED ORDER TO SHOW CAUSE, UNDATED [A-80 - A-82]

At I.A.S Part ____ of the
Supreme Court of the State of
New York, held in and for the
County of Orleans, at the
Courthouse thereof, 1 South Main
Street, Suite 3, Albion, NY on the
_____ day of October, 2018

PRESENT: HON. _____
Justice of the Supreme Court

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF ORLEANS

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 HAPPY,

Petitioner,

-against-

**[PROPOSED] ORDER TO
SHOW CAUSE**

Index No.:

JAMES J. BREHENY, in his official capacity as the Executive
Vice President and General Director of Zoos and Aquariums of the
Wildlife Conservation Society and Director of the Bronx Zoo, and
WILDLIFE CONSERVATION SOCIETY,

Respondents.

TO THE ABOVE-NAMED RESPONDENTS:

PLEASE TAKE NOTICE, That upon the annexed Verified Petition for a Common Law
Writ of Habeas Corpus and Order to Show Cause of Elizabeth Stein, Esq. and Steven M. Wise,
Esq. (subject to *pro hac vice* admission), filed the second day of October, 2018, the exhibits and

affidavits attached thereto, the Memorandum of Law in support thereof, and upon all pleadings and proceedings herein, the Respondents JAMES J. BREHENY, in his official capacity as the Executive Vice President and General Director of Zoos and Aquariums of the Wildlife Conservation Society and Director of the Bronx Zoo, and WILDLIFE CONSERVATION SOCIETY, or their attorneys, are hereby ORDERED to SHOW CAUSE at I.A.S. Part _____, Room _____, of this Court to be held at the Courthouse located at Courthouse Square, 1 South Main Street Suite 3, Albion, New York 14411-1497, on the _____ day of _____, 2018 at _____ o'clock in the _____ of that day, or as soon thereafter as counsel can be heard, why an Order should not be entered granting the Nonhuman Rights Project, Inc. ("Petitioner"), the following relief:

- A. Upon a determination that Happy is being unlawfully imprisoned order her immediate release from Respondents' custody to an appropriate sanctuary, preferably the Performing Animal Welfare Society;
- B. Awarding Petitioner the costs and disbursements of this action; and
- C. Such other and further relief as this Court deems just and proper.

It is THEREFORE:

ORDERED THAT, Sufficient cause appearing therefore, let service of a copy of this Order and all other papers upon which it is granted upon JAMES J. BREHENY, in his official capacity as the Executive Vice President and General Director of Zoos and Aquariums of the Wildlife Conservation Society and Director of the Bronx Zoo, and WILDLIFE CONSERVATION SOCIETY, by personal delivery, on or before the _____ of _____, 2018, be deemed good and sufficient. An affidavit or other proof of service shall be presented to this Court on the return date fixed above.

IT IS FURTHER ORDERED, that answering affidavits, if any, must be received by Elizabeth Stein, Esq., 5 Dunhill Road, New Hyde Park, New York 11040, no later than ____ of _____, 2018. Reply papers, if any, must be served on or before the ____ day of _____, 2018.

Dated: _____, 2018
Albion, New York

Honorable

ENTER:

EXHIBIT 2 TO VERIFIED PETITION -
THE NONHUMAN RIGHTS PROJECT, INC. TRUST FOR HAPPY AGREEMENT,
DATED OCTOBER 2, 2018 [A- 83 - A-91]

The Nonhuman Rights Project, Inc. Trust for Happy

AGREEMENT made and entered into as of the 2nd day of ~~September~~ ^{October}, 2018, by The Nonhuman Rights Project, Inc. (hereinafter referred to as the "grantor"), at 5195 NW 112th Terrace, Coral Springs, Florida 33076, as grantor, by Carisa Janes (hereinafter referred to as the "trustee") residing at 413 Howland Canal, Court C, Venice, California, as trustee, and by Elizabeth Stein (hereinafter referred to as the "enforcer"), residing at 5 Dunhill Road, New Hyde Park, New York 11040, as enforcer.

W I T N E S S E T H:

The grantor has granted, assigned and transferred, and does hereby grant, assign and transfer to the trustee hereunder, the property set forth in Schedule A attached hereto, to have and to hold the same, and any moneys, securities and other properties which the trustee may, pursuant to any of the provisions hereof, at any time hereafter hold or acquire (all of which is hereinafter collectively referred to as the "Trust Estate"), in trust, to hold, invest and reinvest the Trust Estate, and to collect and receive the income therefrom and, after deducting the expenses of administering the trust hereby created, to hold and dispose of the income and principal of the Trust Estate as hereinafter provided. This trust shall be known as the **The Nonhuman Rights Project, Inc. Trust for Happy.**

ARTICLE ONE: Beneficiary. The trustee is hereby authorized to expend the income and principal of the Trust Estate for the benefit of the domestic or pet animal named Happy (hereinafter referred to as the "beneficiary") who is presently held captive at the BRONX ZOO

This trust is being created pursuant to New York Estates, Powers and Trusts Law Section 7-8.1, as amended.

ARTICLE TWO: Disposition of Income and Principal.

A. The trustee, in the trustee's discretion, may pay for the care of the Beneficiary during her life from the income and principal of the Trust Estate, as the trustee determines is necessary and/or beneficial to the Beneficiary.

B. Any income accrued but not distributed for the benefit of the beneficiary shall be added to the principal of the trust.

C. The grantor is creating this trust to pay for the care of the beneficiary and the trustee does not need to consider the interests of the remainderman. The trustee, in the trustee's discretion, may use all of the Trust Estate for the benefit of the beneficiary so that nothing remains when the trust terminates.

D. This trust shall terminate upon the death of the beneficiary or upon the revocation of the trust by the grantor in accordance with Article Seven of the trust, whichever comes first. In the event the trust terminates upon the death of the beneficiary, the property remaining in the Trust Estate, if any, shall be paid to the sanctuary in whose care the beneficiary has been entrusted. If the beneficiary is not in the care of such a sanctuary at the time of her death, the property remaining in the Trust Estate, if any, shall be paid to the grantor. In the event the trust terminates due to revocation by the grantor, the property remaining in the Trust Estate, if any, shall be paid to the grantor.

ARTICLE THREE: Additions to the Trust Estate. The trustee may, but need not, receive, hold, manage and dispose of as part of the Trust Estate and subject to all of the

provisions of this Agreement, any additional cash, securities and other properties which the grantor, or any other person, may hereafter validly transfer or set over to the trustee, as trustee of the trust, with written instructions to hold the same under the terms of this Agreement.

ARTICLE FOUR: Successor Trustees.

A. In the event that the trustee shall die, resign, fail, or be unable to act as trustee, the President of The Nonhuman Rights Project, Inc. shall designate a successor trustee. The successor trustee shall accept such appointment by acknowledged instrument filed with the records of the trust.

B. In the event that the successor trustee shall die, resign, fail, or be unable to act in that capacity, the President of The Nonhuman Rights Project, Inc. shall appoint a suitable person to act as the successor trustee. Such person shall accept such appointment by acknowledged instrument filed with the records of the trust.

C. Any and all rights, powers, discretions, and duties conferred and imposed under this Agreement upon the trustee are hereby likewise conferred and imposed upon any and all successor trustees.

D. No bond, surety or undertaking of any kind shall be required of the trustee (or successor trustees) in this or any other jurisdiction for the faithful performance of the trustee's duties as such.

ARTICLE FIVE: Trustee Powers. In the administration of the Trust Estate, and the trust hereby created, the trustee shall have the full power and authority, not in limitation, but in addition to the ordinary powers of trustees:

A. To hold and retain all or any part of the Trust Estate for so long as the trustee may deem advisable;

B. To keep all or any portion of the Trust Estate in cash uninvested for such period or periods of time as the trustee may deem advisable;

C. To invest, reinvest and change the form of investment in the trustee's uncontrolled discretion. In making or retaining investments, the trustee shall be under no obligation to diversify them;

D. To engage attorneys, accountants, agents, custodians, clerks, investment counsel, and such other persons as the trustee may deem advisable in the administration of the Trust Estate, and to make such payments therefore from the Trust Estate as the trustee may deem reasonable, and to delegate any discretion which the trustee may deem advisable;

E. To exercise all of the trustee's powers and authority, including any discretion conferred in this Agreement, after termination of any trust created herein and until the same is fully distributed.

It is the intention of the grantor that the enumeration of specific powers herein shall not be construed in any way to limit or affect the general powers granted herein.

ARTICLE SIX: Enforcer. Grantor designates Elizabeth Stein to be the enforcer of the trust (hereinafter referred to as the "enforcer") who shall have the full power and authority, not in limitation, but in addition to the ordinary powers of the enforcer to enforce the terms of the trust, if necessary. In the event that the trustee shall die, resign, fail, or be unable to act as enforcer, the President of The Nonhuman Rights Project, Inc. shall designate a suitable person to act as the

successor enforcer. Such person shall accept such appointment by acknowledged instrument filed with the records of the trust. Any and all rights, powers, discretions and duties conferred and imposed under this Agreement upon the enforcer are hereby likewise conferred and imposed upon any and all successor enforcers.

ARTICLE SEVEN: Trust is Revocable. The grantor reserves the right, at any time and without the consent or approval of any person, (a) by an instrument signed by the grantor and delivered to the trustee, to revoke the trust hereby created in whole or in part, without the consent of any other person, or (b) by a like instrument signed and acknowledged by the grantor and delivered to the trustee, to amend this agreement, provided that the duties, responsibilities, and rate of compensation of the trustee shall not be altered without the trustee's written consent. The trustee shall be under no duty to inquire into the circumstances surrounding any revocation or amendment (including whether the revocation or amendment was procured by undue influence), except to be satisfied that the grantor is competent to execute the instrument delivered to the trustee.

ARTICLE EIGHT: New York Law Governs. This shall be a New York trust administered in accordance with the laws of that State. It shall be construed and the validity and effect of the provisions hereof shall be determined in accordance with the laws of New York.

ARTICLE NINE: Language. As used in this Agreement, words in the masculine, feminine or neuter gender shall be considered to be the appropriate gender as the context and circumstances require and words in the singular or plural shall be considered to be the appropriate number as the context and circumstances require.

ARTICLE TEN: Acceptance by Trustee and Enforcer. The trustee and enforcer accept the trust established by this Agreement and agree to execute the same in accordance with its true intent and meaning.

ARTICLE ELEVEN: Signatures. The trust may be signed in counterparts. The signatures, and notarization thereof, of the grantor, trustee and enforcer together constitute a valid acknowledgment of the trust.

Schedule A

Assets in Trust

\$5,000 Cash

IN WITNESS WHEREOF, Steven M. Wise, President of The Nonhuman Rights Project, Inc., as grantor, hereunto subscribes his name as of ~~September~~ ^{October} 2, 2018.

Steven M. Wise
 Steven M. Wise, President
 The Nonhuman Rights Project, Inc., Grantor

STATE OF

: ss.:

COUNTY OF


On the 2 day of ^{October} ~~September~~, in the year 2018, before me, the undersigned, a Notary Public in and for said state, personally appeared **Steven M. Wise, President of The Nonhuman Rights Project, Inc.**, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity as trustee and that by his signature on the instrument, the person or the entity upon behalf of which the person acted, executed the instrument.

Maureen Devane
 Notary Public

MAUREEN DEVANE
 Notary Public, State of New York
 No. 01DE6092988
 Qualified in Bronx County
 Commission Expires 5/27/2019

IN WITNESS WHEREOF, TRUSTEE, as trustee, hereunto subscribes her name as of September
 , 2018.

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

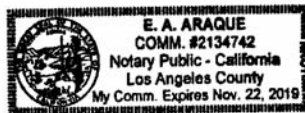
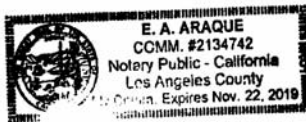

 Carisa Janes, Trustee


STATE OF CALIFORNIA

: SS.:

COUNTY OF LOS ANGELES

On the 18th day of September, in the year 2018, before me, the undersigned, a Notary Public in and for said state, personally appeared Carisa Janes, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged to me that she executed the same in her capacity as trustee and that by her signature on the instrument, the person or the entity upon behalf of which the person acted, executed the instrument.




 Notary Public

IN WITNESS WHEREOF, Elizabeth Stein, as enforcer, hereunto subscribes her name as of September 26, 2018.

Elizabeth Stein

Elizabeth Stein, Enforcer

STATE OF NEW YORK

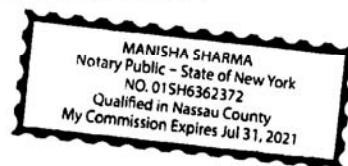
: ss.:

COUNTY OF NASSAU

On the 26th day of September, in the year 2018, before me, the undersigned, a Notary Public in and for said state, personally appeared **Elizabeth Stein**, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her capacity as enforcer and that by her signature on the instrument, the person or the entity upon behalf of which the person acted, executed the instrument.

Manisha Sharma

Notary Public



JOINT AFFIDAVIT OF LUCY BATES AND RICHARD W. BYRNE, FOR PETITIONER, IN
SUPPORT OF PETITION, SWORN TO JANUARY 25, 2017 AND DECEMBER 5, 2016,
RESPECTIVELY (EXCERPTS) [A-92 - A-122]



Joint Affidavit of Lucy Bates and Richard W. Byrne

Lucy Bates being duly sworn, deposes and says:

I. Introduction and Qualifications

A. Lucy Bates

1. My name is Lucy Bates. I graduated with a Bachelor of Arts (with Honors) in Experimental Psychology from Oriel College at the University of Oxford in 2000. I earned a Master's of Science in Human Biology from the Institute of Biological Anthropology, University of Oxford in 2001 and earned a Ph.D. in Evolutionary Biology from the University of St. Andrews in 2005. As of January 2016, I am a Daphne Jackson Trust Postdoctoral Research Fellow at the School of Psychology, University of Sussex, studying culture in elephants. I currently reside in Paris, France.

2. I submit this affidavit in support of Petitioner The Nonhuman Rights Project, Inc. (NhRP) for a writ of habeas corpus on behalf of the captive elephants listed above. I am a nonparty to this proceeding.

3. I study the evolution of cognition and social behavior, and my research focuses on the evolution of cognitive skills which allow social mammals to thrive in close-knit groups. My research has focused on the social and cognitive skills of African elephants since 2005, when I became a Leverhulme Trust Post-Doctoral Research Fellow at the University of St. Andrews. I was an Honorary Research Associate at the University of St. Andrews from 2008 – 2016, and since January 2016 I have been employed as a Daphne Jackson Research Fellow at the School of Psychology, University of Sussex.

COPY

4. I have been studying elephant cognition and social behaviour for eleven years, since 2005. During this time, I have worked with the world's pre-eminent elephant biologists, most of whom are also submitting affidavits in this matter, and spent months observing wild African elephants in both Kenya and South Africa, working in collaboration with the Amboseli Trust for Elephants, Elephant Voices, and Save the Elephants. In order to be more efficient, my colleagues and I agreed that I would draft the main affidavit, which I would circulate to my colleagues for them to add or delete anything they believed was appropriate.

5. I have published 18 scientific articles on social cognition in African elephants and primates. These articles have been published in many of the world's premier scientific journals and books, including: APA Handbook of Personality and Social Psychology, Animal Behaviour, Biology Letters, Current Biology, Neuron, and PLoS One.

6. In addition to my research work, I also currently serve as a Management Committee Member for the Elephant Specialist Advisory Group (ESAG), South Africa, a non-profit organisation that offers advice on elephant behaviour and management for government departments and managers of reserves within South Africa. I have previously acted as a consultant in elephant welfare and conservation, including freelance work for Save the Elephants, Kenya; Ezevelo KwaZulu Natal Wildlife, South Africa; and Society for the Prevention of Cruelty to Animals, Zimbabwe.

7. I have previously served as a consulting expert in legal matters, including: (1) in 2010/11, where I commented on licensing documents and attended a workshop for Ezemvelo KZN (Kwa Zulu Natal) Wildlife authority (South Africa), which resulted in tighter controls being implemented in the licence agreement, considerably improving the elephants' welfare; and (2) in 2009, at the request of the Zimbabwe SPCA, I conducted a site visit and inspection of a private farm where 10 juvenile elephants were being held. The elephants had been illegally captured from the wild and were undergoing training for the elephant-back safari

industry. The ZNSPCA presented our reports to the then Minister for Environment and Tourism, who intervened and said that the elephants were to be rehabilitated and released back in to the wild. They were released six months later, and have adapted well.

8. My Curriculum Vitae fully sets forth my educational background and experience and is annexed hereto as "Exhibit A".

Basis for opinions

9. The opinions I state in this Affidavit are based on my professional knowledge, education, training, and over 10 years of experience observing and studying elephants, as well as my knowledge of peer-reviewed literature about elephant behaviour and intelligence published in the world's most respected journals, periodicals and books that are generally accepted as authoritative in the field, and many of which were written by myself or colleagues whom I have known for several years and with whose research and field work I am personally familiar. A full reference list of peer-reviewed literature cited herein is annexed hereto as "Exhibit B".

B. Richard Byrne

10. My name is Richard William Byrne. I earned my Masters of Art with 1st Class Honours in Natural Sciences from St. John's College, Cambridge between 1969-1972. I received my Ph.D. from the University of Cambridge in 1975 for my thesis entitled "Memory in complex tasks." I am a Fellow of the Royal Society of Edinburgh. I reside and work in St. Andrew's, Scotland.

11. I submit this affidavit in support of Petitioners The Nonhuman Rights Project, Inc. (NhRP), in support of its petition for a writ of habeas corpus on behalf of the Elephant Petitioners named above. I am a nonparty to this proceeding.

12. I have studied the evolution of cognition and social behavior throughout my career. As a Professor of Evolutionary Psychology at the University of St Andrews, Scotland,

I have studied the evolution of cognition with a particular focus on the origins of uniquely human characteristics, utilizing evidence from a number of mammalian species including great apes, elephants, and domestic pigs, among other animals. I have studied the evolutionary basis of gestural communication, the use of tools, spatial mapping, cognition, and social behaviour.

13. Over the course of my career, I have received several awards and honors related to my research, including; (1) the Wright Prize & Hughes Prize, St Johns College, Cambridge, in 1972; (2) an MRC Studentship, tenure at MRC Applied Psychology Unit, Cambridge, from 1972-1975; (3) a Development Fellowship from the Association of Commonwealth Universities in 1993; (4) British Psychology Society Book Award for my Oxford University Press monograph "The Thinking Ape" in 1997; (5) awarded *Convenorship* of Focus Group 2003, "Precursors to Culture," from the Institute of Advanced Study, Collegium Budapest, Hungary in 2001; (6) elected Fellow of the *Royal Society of Edinburgh* (FRSE) in 2002; and (7) elected Fellow of the *Higher Education Academy*.

14. In 1987, I founded (along with Bill McGrew at Stirling University, Liz Rogers at Edinburgh University, and Andy Whiten at St Andrews University) the *Scottish Primate Research Group*, in order to coordinate the research interests of the 3 centers, promote new joint grant applications, encourage outside visitors to Scotland and postgraduate admissions, and coordinate joint seminars and lectures. The *Scottish Primate Research Group* now boasts national and international acclaim and attendance at hosted research presentations and seminars, and it is now larger and more productive than ever with 21 faculty members and over 50 affiliated researchers, including at Aberdeen and Abertay Universities. The focus of SPRG research is the natural behaviour, mentality, and ecology of primates. Field studies are carried out by core SPRG members at several sites in Africa, Asia, and South America; captive primate studies rely on well-housed breeding groups at Edinburgh Zoo, particularly

the SPRG Living Links Research Centre, as well as primate centers in France, Japan, and the USA. (Full Group member and affiliated researcher information can be found at the SPRG website: <http://psy.st-andrews.ac.uk/research/sprg/>).

15. I have conducted field work as part of my scientific research in multiple sites over my career, including: (1) at Mont Assirik, Senegal from January to April 1979, studying the Guinea baboon (*Papio papio*); (2) at Giant's Castle Game Reserve, South Africa from August to December 1983, studying the Chacma baboon (*Papio ursinus*); (3) at the Mahale Mountains, Tanzania from July to December 1984, studying the Chimpanzee (*Pan troglodytes*); (4) at the Virunga Volcanoes, Rwanda from July to December 1989, studying the Mountain gorilla (*Gorilla b. beringei*); and (5) at Mbeli Bai, Republic of the Congo from August to October 2010, studying the Western gorilla (*Gorilla g. gorilla*).

16. Throughout my career, I have been involved with Editorial work in a variety of capacities. Since 2000, this editorial work has included: (1) Serving on the Editorial Board of *Current Biology*, ongoing since 2006; (2) Serving on the Editorial Board of *Biology Letters*, from 2007-2013; (3) serving on the Editorial Board of *Animal Cognition*, from 1997-2011; (4) Serving on the Editorial Board of the *Journal of the Royal Anthropological Institute*, from 1995-2010; (5) Refereeing of book proposals for a number of publishers, including Basil Blackwell, Cambridge University Press, Curzon Press, Lawrence Erlbaum Associates, Oxford University Press, and John Wiley; (6) Refereeing of manuscripts for many premier scientific journals, including *Science*, *Nature*, *PNAS*, *Proc.Roy.Soc.B.*, *Phil.Trans.B*, *TICS*, *TINS*, *Psychological Science*, *Psychological Bulletin*, and *Current Biology*; (7) Refereeing of promotion applications for a number of Universities in both the USA and United Kingdom, including Arizona State University, University of California San Diego, University of Colorado, University of Florida (Gainsborough, FL), Max Planck Institute for Evolutionary Anthropology (Leipzig), Miami University of Ohio, University of Natal (Republic of South

Africa), University of Portsmouth (UK), University of Stirling (UK), and York University (Toronto); (8) Refereeing of research grants for many research foundations including the Biomedical and Biological Sciences Research Council (BBSRC), the Economic and Social Research Council (ESRC), Israel Academy of Sciences and Humanities (Basic Research Foundation), LSB Leakey Foundation (Oakley, California), Leverhulme Trust, Medical Research Council (MRC, United Kingdom), National Science Foundation (NSF, USA), National Environment Research Council (NERC, United Kingdom), and the National Science and Engineering Research Council (NSERC, Canada); and (9) Refereeing of research programmes for the Leverhulme Trust, Max-Planck-Society (Germany), and Earthwatch Europe.

17. I am affiliated with a number of professional organizations and have engaged in a variety of professional activities throughout my career. Since the year 2000, this has included: (1) Focus Group Convenor, "Precursors to Culture," at the Collegium Budapest Institute for Advanced Studies, Hungary, from Oct-Dec 2003; (2) Member of the Subgroup on *Use of non-human primates in research and testing* from 2000-2002 for the Boyd Group; (3) Vice-President for the *International Primatological Society* from 1996-2001; (4) organized symposium of 18th Congress of the *International Primatological Society*, Adelaide, 2001; (5) discussant at *Perspectives on Imitation*, France, 2002; (6) discussant at *Nijmegen Lectures*, Max Planck Institute for Psycholinguistics/University of Nijmegen, Holland, 2002; (7) organized symposium of St Andrews International Conference on *Animal Social Learning*, June 2005; (8) discussant at symposium *The cognitive triangle: Primates, Cetaceans, and Corvids*, Kyoto, 2006; (9) organized symposium of the 23rd Congress of the *International Primatological Society*, Kyoto, 2010; and (10) served as part of the Steering Committee for Assessment for the *Quality Assurance Agency /Scottish Higher Education Funding Council* from 2003-2005.

18. I have written two books concerning my work with cognition: (1) *The Thinking Ape: evolutionary origins of intelligence* (1995, Oxford University Press, Oxford, 266 pages; 1997 *British Psychological Society* Book Award winner; Reprinted annually; Japanese edition published by Otsuki Shoten, Tokyo, 1998; Chinese edition, in translation, published by Hunan Education Publishing House, 2006); (2) *Evolving Insight* (2016, Oxford University Press, Oxford, 304 pages).

19. I have co-edited two books concerning my work with cognition: (1) *Machiavellian Intelligence: Social Expertise and the Evolution of Intellect in Monkeys, Apes and Humans* (Co-edited with A. Whiten, 1988, Oxford University Press, Oxford, 413 pages; Japanese edition published by Nakanishiya Shuppan Press, Kyoto, 2004); (2) *Machiavellian Intelligence II: Extensions and Evaluations* (Co-edited with A. Whiten, Cambridge University Press, Cambridge, 1997, 403 pages; Japanese edition published by Nakanishiya Shuppan Press, Kyoto, 2004).

20. I have published 138 peer-reviewed scientific articles over my career. These articles have been published in many of the world's premier scientific journals, including: *Science*, *Biology Letters*, *Animal Cognition*, *Animal Behaviour*, *Biosemiotics*, *Behavioural Ecology and Sociobiology*, *Current Biology*, *International Journal of Primatology*, *Annals of the New York Academy of Sciences*, *Journal of Comparative Psychology*, *American Journal of Primatology*, *Trends in Evolution & Ecology*, *PLoS One*, *Trends in Cognitive Sciences*, *Philosophical Transactions of the Royal Society of London – Series B Biological Sciences*, *The Behavioral and brain sciences*, *Methods*, *American Journal of Physical Anthropology*, *Canadian Journal of Psychology*, and *The British Journal of Mathematical and Statistical Psychology*. Over the last four years, specific topics of these publications have included: Interpretation of human pointing by African elephants – generalization and rationality, African elephants recognize visual attention from face and body orientation, Flexibility and

survival of Apes in the Anthropocene, Wild baboons (*Papio ursinus*) remember single foraging episodes, The what as well as the why of animal fun, Change point analysis of travel routes reveals novel insights into foraging strategies and cognitive maps of wild baboons, Age-dependent social learning in a lizard, The meanings of chimpanzee gestures, Using cross correlations to investigate how chimpanzees use conspecific gaze cues to extract and exploit information in a foraging competition, Complexity in animal behaviour: towards common ground, African elephants can use human pointing cues to find hidden food, Deictic gesturing in wild chimpanzees – some possible cases, Laterality in the gestural communication of wild chimpanzees, Age-related differences in the use of the “moo” call in black howler monkeys, Evolutionary origins of human handedness – evaluating contrasting hypotheses, Titi monkey call sequences vary with predator location and type, Animal curiosity, Evidence for semantic communication in Titi monkey alarm calls, The alarm call system of wild black-fronted Titi monkeys, From parsing actions to understanding intentions, Serial gesturing by wild chimpanzees – its nature and function for communication, The gestural repertoire of the wild chimpanzee, What are we learning from teaching?, Local traditions in gorilla manual skill – Evidence for observational learning of behavioural organization, and Cognition in the wild – exploring animal minds with observational evidence.

21. My scientific work has also been published as chapters in 65 books. Over the last four years, these books have included *The Amboseli Elephants: A Long-Term Perspective on a Long-Lived Mammal* (2011, University of Chicago Press), *Integrating Gestures. The interdisciplinary nature of gesture* (2011, John Benjamins Publishing Company, Amsterdam), *Current research in applied ethology* (2011, Kuratorium für Technik und Bauwesen in der Landwirtschaft e.V. (KTBL), Darmstadt, Germany), *Developments in Primate Gesture Research* (2012, John Benjamins Publishing Company, Amsterdam), *Tool Use in Animals: Cognition and Ecology* (2013, Cambridge University Press), *New Perspectives on the*

symbolic species (new edition in press, Springer-Verlag, Heidelberg, Germany), *The Emergence of Personhood: A Quantum Leap?* (in press, William B. Eerdmans Publishing Company, Grand Rapids, Michigan), and *Formal Models in Evolutionary Cognitive Archaeology* (in press, New York: Oxford University Press).

22. I have given a number of major invited lectures at international research meetings and symposia throughout the world over the course of my career. Since the year 2000, these have included: (1) the 85th James Arthur Lecture at the American Museum of Natural History (Public lecture, 2015); (2) two lectures in 2013: (a) the Tarragona Laterality Conference (invited lecture to closed conference) and (b) a public lecture at the University of Portsmouth; (3) an Invited lecture in the 2012 Workshop "Unpacking intentionality in animal vocal communication: an integrative approach" at the Institute of Evolutionary Biology, University of Zurich; (4) three lectures in 2011: (a) an invited lecture to a symposium entitled "The Emergence of Personhood" for the John Templeton Foundation, (b) a lecture at a closed workshop entitled "The evolution of human handedness" at the Hanse-Wissenschaftskolleg in Delmenhorst, Germany, and (c) a public lecture at the Institute of Evolutionary Biology at the University of Zurich; (5) a referential communication for a workshop at the 2010 INCORE Thematic Meeting in Berlin; (6) three lectures in 2009: (a) a Plenary lecture at the 11th Congress of the German Society for Primatology in Hanover, Germany, (b) a public "Year of Darwin Lecture" for the School of Biosciences at Birmingham University, and (c) a lecture at the Workshop "Understanding Tool Use" at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany; (7) an invited lecturer at the 2008 Summer School on "Social Cognition" at the Institute of Cognitive Sciences in Montreal; (8) four lectures in 2007: (a) an inter-faculty series "The evolution of social cognition" for the Faculty of Life Sciences at the University of Vienna, (b) a Plenary lecture at the Second Congress of the European Federation of Primatology, at Charles University, Prague, (c) an invited lecture

at a Workshop on "Social Cognition" by the MRC/Cold Spring Harbor at St Anne's College, Oxford, and (d) a Plenary lecture at the "Missing Links" conference at Carlsberg Academy, Copenhagen; (9) two lectures in 2006: (a) a lecture at the symposium "From Brain to Culture" hosted by The Royal Society, London, and (b) a Plenary lecture at the 66th Annual Meeting of the Japan Society for Animal Psychology in Kyoto; (10) two lectures in 2005: (a) Plenary lectures at the Portuguese Primatological Association's 2nd International Conference in Lisbon, and (b) a lecture in the "Evolutionary Cognitive Sciences" series at the University of Tokyo; (11) two lectures in 2004: (a) a Public lecture at the Institute of Cognitive & Decision Sciences at the University of Oregon, and (b) a lecture at the closed conference "Roots of Human Sociality" for the Wenner-Gren Foundation for Anthropological Research in North Carolina; (12) an International Workshop in 2003 for the European Workshop in Cognitive Neuropsychology in Bressanone, Italy; (13) three lectures in 2002: (a) a lecture in the Annual Autumn School in Cognitive Neuroscience with the theme "Rational animals?" for the McDonnell-Pew Centre at the University of Oxford, (b) a lecture at an International Workshop called "Perspectives on Imitation" in Royaumont Abbey, France, and (c) Public lectures for the Fundacio "la Caixa" Museum of Science in Barcelona and the Social & Cultural Centre in Tarragona, Spain; (14) six lectures in 2001: (a) the Keynote Address to the VIIth European Congress of Psychology, forming part of the BPS Centenary in London, (b) a lecture at the "Human Cognition" symposium at the Institute of Cognitive Neurology at UCL, London, (c) a lecture and Press Conference on "Constraints on Culture" for the British Association for the Advancement of Science in Glasgow, (d) the Keynote Lecture for the Consciousness & Experiential Psychology section of the British Psychological Society, (e) a lecture entitled "Knapping Stone: a uniquely hominid behaviour?" for an International Workshop in Abbaye des Premontres, France, and (f) a lecture at an International Workshop "Malingering & Illness Deception" in Blenheim, Oxford; and (15) seven lectures in 2000: (a)

a Plenary lecture to the Millennial Meeting "The social brain" for the British Neuropsychiatry Association, (b) the Invited Main Lecture entitled "Primate Cognition" for the International Congress for Cognitive Science in Inuyama, Japan, (c) a lecture at the Symposium "Animal Architecture" for the Gaia Research Project in Edinburgh, (d) a lecture at the International Conference "Human Nature" for the Royal Society of Edinburgh in Edinburgh, a lecture at the Workshop "Cognitive Science" at Sorbonne University in Paris, (e) a lecture at the Symposium "The Social Brain" at the Max Planck Institute in Andechs, Germany, and (f) a lecture at the Symposium "Science and Philosophy of Pain" for the University of Ghent, in Ghent, Belgium.

23. In addition to the major invited lectures listed above, I have given invited, funded talks at: Auckland University (Psychology, Zoology); BAAS SET7 Week (St Andrews); Gesamthochschule, Kassel (Primatenbiologie); Deutsches Primatenzentrum, Gottingen; Duke University, North Carolina (Biological Anthropology); Dundee University (teaching forum); Durham University (Psychology, Anthropology); Eotvos Lorand University, Budapest (Ethology); Hang Sen Centre for Cognitive Studies, Sheffield (twice); Hawaii University, Honolulu (Psychology); Kyoto University; Living Links Center, Emory University; MRC Cognitive Brain Research Unit, Cambridge (twice); Max Planck Institute, Leipzig; Max Planck Institute, Seewiesen, Bavaria; Miami University, Ohio (Zoology); University of Otago, New Zealand (Psychology); Queens University, Kingston Ontario (Psychology); Universite de Rennes 1 (Zoology); Royal Anthropological Institute, London; Royal (Dick) School of Veterinary Studies, Edinburgh; Yerkes Regional Primate Research Center, Atlanta GA; UCSD (Psychology); York University, Toronto (Psychology); Universities of Aberdeen (Psychology), Abertay (Psychology), Cambridge (Psychology), Archaeology & Anthropology, Reading (Archaeology), St Andrews (Divinity, Modern Languages, Zoology, Psychology), Stirling (Psychology), UCL (Archaeology), Sussex (Neuroscience & Robotics),

York (Centre for Human Palaeontology & Human Origins); and the Zoological Society of London.

24. Throughout my scientific career, I have had the privilege of supervising a number of PhD level students. Since the year 2000, these have included: (1) R. Noser, (self-funded), "Navigation by chacma baboons within the home-range" from 1999-2004; (2) R. da Cunha (funded by CAPES, Brazil), "Long distance communication of howler monkeys" from 2000-2004; (3) A. Valero (funded by CONACYT, Mexico), "Social interactions of spider monkeys" from 2000-2004; (4) L. Bates (funded by BBSRC), "Foraging skills of female chimpanzees" from 2001-2005; (5) E. Cartmill (funded by Univ. St Andrews), "Gestural communication in great apes" from 2004-2008; (6) F. Moore (joint supervision), "Effects of resource control on female reproductive strategies from 2005-2006; (7) A. Ruiz (funded by James Cook Foundation and ORS), "Monkeys' understanding of intention and attention" from 2005-2009; (8) C. Hobaiter (funded by own EC grant), "Gestural communication in great apes" from 2007-2010; (9) C. Casar (funded by CAPES, Brazil), "Vocal communication of wild Titi monkeys" from 2007-2011; (10) K. Hall (funded by Janet Anderson Trust and ORSAS), "Theory of mind in chimpanzees" from 2008-2012; (11) L. Orr (funded by NSF Studentship), "Gestural communication in gorillas" from 2010-2014; (12) A. Smet (funded by Univ. St Andrews), "Cognition in the African Elephant" from 2011-2015; (13) B. Fallon (self-funded), "Gestural communication by sexually consorting male chimpanzees" 2012 - 2016; and (14) K. Graham (funded by Univ. St Andrews), "Negotiation of sexual relationships among bonobos" 2013 - 2016.

25. In addition to direct supervision of PhD students, I have also served as an External Postgraduate Examiner for a number of individuals. Since the year 2000, these have included: (1) L. Ambrose, Ph.D. Oxford Brookes University (Anthropology) in 2000; (2) A. Nowell, M.Sc. University of Stirling (Psychology) in 2001; (3) B. A. Whiting, M.Sc.

University of Durham (Anthropology) in 2002; (4) K. Rigby, Ph.D. London School of Economics (Psychology) in 2002; (5) P. Citrynell, Ph.D. Exeter University (Psychology) in 2003; (6) J. Dally Ph.D. University of Cambridge (Psychology) in 2004; (7) P. Citrynell Ph.D. Exeter University (Psychology, re-examination) in 2004; (8) J. Dalley Ph.D. University of Cambridge (Psychology); (9) Dr. Thomal Bugnyar, Habilitation, University of Vienna (Faculty of Life Sciences) in 2008; (10) C. Bird University of Cambridge (Psychology) in 2009; (11) P. Bertolani University of Cambridge (Archaeology & Anthropology) in 2012; (12) J. Trosciano University of Birmingham (Psychology) in 2012; and (13) J. Wathen University of Sussex in 2015.

26. I have been interviewed and my scientific research has been featured on a number of radio broadcasts, including: (1) interviews with BBC Radio 4 "Today" in 2000 and 2008; (2) with BBC Radio 4 as an interview with Jonathan Miller, "Self-made things" in 2005; (3) interview on Australian Radio with an article on my own research in "The Science Show" in 2001; (4) interview on Radio Netherlands with an article on my own research in 2001. Additionally, other interviews on my own research have been featured on: ABC Radio Australia, Austrian Broadcasting Corporation, US Public Broadcasting Network, Breakfast Radio Auckland (NZ), Radio Canada, Western Australia Radio, Discovery Canada, Radio New Zealand "Morning Report," Radio Ireland, Talkback Radio (Ireland), BBC World Service, BBC Radio Scotland, Radio Wales, Radio Cambridgeshire, BBC Radio Jersey, BBC Radio 5 Live, Radio Tay, Kingdom FM, Talk 107, Voice of Russia, and Wave 102.

27. I have appeared and been featured in a number of Television broadcasts, including: (1) Interview with BBC1 6 O' Clock News (Scotland) on my own great ape research in 2008; (2) Interview with BBC1 6 O' Clock News (UK) on my own elephant research in 2013; (3) as a consultant for the BBC2 Program "The Secret Life of Pigs" in 2010; (4) Interview with BBC World/BBC4 Evening News on my own elephant research in

2013; (5) Interview with ITV/STV (ITN News) on my own elephant research in 2013; and (6) Interview with Australian ABC Channel TV as part of a programme on my research in the "Catalyst" series.

28. My Curriculum Vitae fully sets forth my educational background and experience and is annexed hereto as "Exhibit C".

Basis for opinions

29. The opinions I state in this Affidavit are based on my professional knowledge, education, training, and years of experience observing and studying elephants, as well as my knowledge of peer-reviewed literature about elephant behaviour and intelligence published in the world's most respected journals, periodicals and books that are generally accepted as authoritative in the field, and many of which were written by myself or colleagues whom I have known for several years and with whose research and field work I am personally familiar. A full reference list of peer-reviewed literature cited herein is annexed hereto as "Exhibit B".

II. Opinions

A. Premise

30. Elephants are autonomous beings. Autonomy in humans and nonhuman animals is defined as self-determined behaviour that is based on freedom of choice. As a psychological concept it implies that the individual is directing their behaviour based on some non-observable, internal cognitive process, rather than simply responding reflexively. Although we cannot directly observe these internal processes in other humans, we can explore and investigate them by observing, recording and analysing their behaviour. We can explore autonomy in non-human animals in a similar way, by observing similar behaviour and recording evidence of shared cognitive capacities in elephants.

31. We shall indicate which species, African (*Loxodonta Africana*) or Asian (*Elephas maximus*), specific observations relate to. If the general term 'elephants' is used with no specific delineation, it can be assumed the comment relates to both species.

B. Brain And Development

32. Elephants are large-brained, with the biggest absolute brain size of any land animal (Cozzi et al 2001; Shoshani et al 2006). Even relative to their body sizes, elephant brains are large. Encephalization quotients (EQ) are a standardised measure of brain size relative to body size, and illustrate by how much a species' brain size deviates from that expected for its body size. An EQ of one means the brain is exactly the size expected for that body, and values greater than one indicate a larger brain than expected (Jerison 1973). Elephants have an EQ of between 1.3 and 2.3 (varying between sex and African and Asian species). This means an elephant's brain can be more than twice as large than is expected for an animal of its size. These EQ values are similar to those of the great apes, with whom elephants have not shared a common ancestor for almost 100 million years (Eisenberg 1981, Jerison 1973). Given how metabolically costly brain tissue is, the large brains of elephants must confer significant advantages; otherwise their size would be reduced. The advantage of a large brain is to allow greater cognitive skill and behavioural flexibility (Bates et al 2008a).

33. Typically, mammals are born with brains weighing up to 90% of the adult weight. This figure drops to about 50% for chimpanzees. Human baby brains weigh only about 27% of the adult brain weight, increasing in size over the prolonged childhood period (Dekaban & Sadowsky 1978). This long period of brain development over many years (termed 'developmental delay') is a key feature of human brain evolution. It provides a longer period in which the brain may be shaped by experience and learning (Fuster 2002), and plays a role in the emergence of our complex cognitive abilities such as self-awareness, creativity, forward planning, decision making and social interaction (Bjorkland 1997). Likewise,

elephant brains at birth weigh only about 35% of their adult weight (Eltringham 1982), and elephants show a similarly protracted period of growth, development and learning (Lee 1986). This similar developmental delay in the elephant brain is likewise associated with the emergence of analogous cognitive abilities.

34. Despite nearly 100 million years of separate evolution (Hedges 2001), elephants share certain characteristics of our large brains, namely deep and complex folding of the cerebral cortex, large parietal and temporal lobes, and a large cerebellum (Cozzi et al 2001). The temporal and parietal lobes of the cerebral cortex manage communication, perception, and recognition and comprehension of physical actions (Kolb and Whishaw 2008), while the cerebellum is involved in planning, empathy, and predicting and understanding the actions of others (Barton 2012). The physical similarities between human and elephant brains occur in areas that are relevant to capacities necessary for autonomy and self-awareness.

35. Elephant brains hold nearly as many cortical neurons as do human brains, and a much greater number than chimpanzees or bottlenose dolphins (humans: 1.15×10^{10} ; elephants: 1.1×10^{10} , chimpanzees: 6.2×10^9 ; dolphins: 5.8×10^9 , Roth & Dicke 2005). Elephants' pyramidal neurons (a class of neuron that is found in the cerebral cortex, particularly the pre-frontal cortex - the brain area that controls executive functions) are larger than in humans and most other species (Cozzi et al 2001). (This term "executive function" refers to controlling operations, for example paying attention, inhibiting inappropriate responses, deciding how to use memory search, and so on. These abilities develop late in human infancy and are often impaired in dementia.) The degree of complexity of pyramidal neurons is linked to cognitive ability, with more (and more complex) connections between pyramidal neurons being associated with increased cognitive capabilities (Elston 2003). Elephant pyramidal neurons have a large dendritic tree, i.e. a large number of connections with other neurons for receiving and sending signals (Cozzi et al 2001).

36. Elephants, like humans, great apes and some cetaceans, possess *von Economo neurons*, or spindle cells – the so-called ‘air-traffic controllers for emotions’ - in the anterior cingulate, fronto-insular, and dorsolateral prefrontal cortex areas of the brain (Hakeem et al 2009). In humans, these cortical areas are involved - among other things - in the processing of complex social information, emotional learning and empathy, planning and decision-making, and self-awareness and self-control (Allman et al 2001; Allman et al 2002; Allman et al 2011). The shared presence of spindle cells in the same brain locations in elephants and humans strongly implies that these higher-order brain functions – the building blocks of autonomous, self-determined behaviour – are common between these species (Butti et al 2009; Hakeem et al 2009).

37. As described below, evidence demonstrates that along with these common brain and life-history characteristics, elephants share many behavioural and intellectual capacities with humans, including: self-awareness, empathy, awareness of death, intentional communication, learning, memory, and categorisation abilities. Many of these capacities have previously been considered – erroneously - to be uniquely human, and each is fundamental to and characteristic of autonomy and self-determination.

C. Awareness Of Self And Others

38. Asian elephants exhibit Mirror Self Recognition (MSR) using Gallup’s classic ‘mark test’ (Gallup 1970; Plotnik et al 2006). MSR is the ability to recognise a reflection in the mirror as oneself, and the mark test involves surreptitiously placing a coloured mark on an individual’s forehead that it could not see or be aware of without the aid of a mirror. If the individual uses the mirror to investigate the mark, the individual must recognise the reflection as herself. (See “Video 1”, attached on CD as “Exhibit D”). The only other mammals beyond humans and elephants who have successfully passed the mark test and exhibit MSR are the great apes (chimpanzees, bonobos, gorillas and orangutans) and bottlenose dolphins (Parker,

Mitchell & Boccia 1994, Reiss and Marino 2001). MSR is significant because it is a key identifier of self-awareness. Self-awareness is intimately related to autobiographical memory in humans (Prebble et al 2013), and is central to autonomy and being able to direct one's own behaviour to achieve personal goals and desires. ("Autobiographical memory" refers to what one remembers about his or her own life; for example, not that "Paris is the capital of France", but the recollection that you had a lovely time when you went there). By demonstrating that they can recognize themselves in a mirror, elephants must be holding a mental representation of themselves from another perspective, and thus be aware that they are a separate entity from others (Bates and Byrne 2014).

39. Related to possessing a sense of self is an understanding of death. Observing reactions to dead family or group members demonstrates an awareness of death in only two animal genera beyond humans; chimpanzees and elephants (Anderson et al 2010, Douglas-Hamilton et al 2006). Having a mental representation of the self – a pre-requisite for mirror-self recognition – likely confers an ability to comprehend death. Wild African elephants have been shown experimentally to be more interested in the bones of dead elephants than the bones of other animals (McComb et al 2006) (See "Video 2", attached on CD as "Exhibit E"), and they have frequently been observed using their tusks, trunk or feet to attempt to lift sick, dying or dead individuals (see Poole & Granli 2011). Although they do not give up trying to lift or elicit movement from the body immediately, elephants appear to realise that once dead, the carcass cannot be helped anymore, and instead they engage in more 'mournful' behaviour, such as standing guard over the body with dejected demeanour, and protecting it from the approaches of predators (Poole & Granli 2011) (See "Photographs", attached on CD as "Exhibit F"). They also have been observed to cover the bodies of dead elephants with dirt and vegetation (Moss 1992; Poole 1996). In the particular case of mothers who lose a calf, although they may remain with the calf's body for an extended period, they do not behave

towards the body as they would a live calf. Indeed, the general demeanour of elephants who are attending to a dead elephant is one of grief and compassion, with slow movements and few vocalisations (Poole, pers. comm.). These behaviours are akin to human responses to the death of a close relative or friend, and illustrate that elephants possess some understanding of life and the permanence of death.

40. The capacity for mentally representing the self as an individual entity has been linked to general empathic abilities (Gallup 1982), where empathy can be defined as identifying with and understanding another's experiences or feelings by relating personally to their situation. Empathy is an important component of human consciousness and autonomy, and is a cornerstone of normal social interaction. It goes beyond merely reading the emotional expressions of others. It requires modeling of the emotional states and desired goals that influence others' behaviour both in the past and future, and using this information to plan one's own actions; empathy is only possible if one can adopt or imagine another's perspective, and attribute emotions to that other individual (Bates et al 2008b). Empathy is, therefore, a component of and reliant on 'Theory of Mind' - the ability to mentally represent and think about the knowledge, beliefs and emotional states of others, whilst recognising that these can be distinct from your own knowledge, beliefs and emotions (Premack and Woodruff 1978; Frith and Frith 2005).

41. Elephants clearly and frequently display empathy in the form of protection, comfort and consolation, as well as by actively helping those who are in difficulty, such as assisting injured individuals to stand and walk, or helping calves out of rivers or ditches with steep banks (Bates et al 2008b; Lee 1987). Elephants have even been observed feeding those who are not able to use their own trunks to eat (Poole and Granli 2011).

42. In an analysis of behavioural data collected from wild African elephants over a 40-year continuous field study, we concluded that as well as possessing their own intentions,

elephants can diagnose animacy and goal directedness in others, understand the physical competence and emotional state of others, and attribute goals and mental states (intentions) to others (Bates et al 2008b), as evidenced in the examples below:

'IB family is crossing river. Infant struggles to climb out of bank after its mother. An adult female [not the mother] is standing next to calf and moves closer as the infant struggles. Female does not push calf out with its trunk, but digs her tusks into the mud behind the calf's front right leg which acts to provide some anchorage for the calf, who then scrambles up and out and rejoins mother.' (See "Video 3," attached on CD as "Exhibit G").

'At 11.10ish Ella gives a 'lets go' rumble as she moves further down the swamp . . . At 11.19 Ella goes into the swamp. The entire group is in the swamp except Elspeth and her calf [<1 year] and Eudora [Elspeth's mother]. At 11.25 Eudora appears to 'lead' Elspeth and the calf to a good place to enter the swamp — the only place where there is no mud.'

Examples such as these demonstrate that the acting elephant (the adult female in the first example, and Eudora in the second) was able to understand the intentions of the other (the calf in the first case, and Elspeth in the second) – i.e. to either climb out of or into the water – and they could adjust their own behaviour in order to counteract the problem being faced by the other. Whilst humans may act in this helpful manner on a daily basis, such interactions have been recorded for very few non-human animals (Bates et al 2008b).

43. Experimental evidence from captive African elephants further demonstrates that elephants attribute intentions to others, as they follow and understand human pointing gestures - the only wild animal so far shown to do so spontaneously. The elephants understood that the human experimenter was pointing in order to communicate information to them about the location of a hidden object (Smet and Byrne 2013) (See "Video 4",

attached on CD as "Exhibit H"). Attributing intentions and understanding another's reference point is central to empathy and theory of mind.

44. Our analysis of simulated oestrus behaviours in African elephants – whereby a non-cycling, sexually experienced older female will simulate the visual signals of being sexually receptive, even though she is not ready to mate or breed again – shows that these knowledgeable females adopt false oestrus behaviours in order to demonstrate to naïve young females how to attract and respond appropriately to suitable males. The experienced females may be taking the youngsters lack of knowledge into account and actively showing them what to do; an example of true teaching as it is defined in humans. This evidence, coupled with the data showing that they understand the ostensive cues in human pointing, demonstrates that elephants do share some executive theory of mind skills with humans, namely understanding the intentions and knowledge states (minds) of others. (Ostension is the way that we can "mark" our communications to show people that that is what they are. If you do something that another copies, that's imitation; but if you deliberately indicate what you are doing to be helpful, that's "ostensive" teaching. Similarly, we may "mark" a joke, hidden in seemingly innocent words; or "mark" our words as directed towards someone specific, by catching their eye. Ostension implies that the signaller knows what they are doing).

45. Further related to empathy, coalitions and cooperation have been documented in wild African elephants, particularly to defend family members or close allies from (potential) attacks by outsiders, such as when a family group tries to 'kidnap' a calf from an unrelated family (Lee 1987; Moss and Poole 1983). These behaviours are based on one elephant understanding the emotions and goals of the coalition partner (Bates et al 2008b).

46. Cooperation is also evident in experimental tests with captive Asian elephants, whereby elephants demonstrated they can work together in pairs to obtain a reward, and

understood that it was pointless to attempt the task if their partner was not present or could not access the equipment (Plotnik et al 2011) (See "Video 5", attached on CD as "Exhibit I"). Problem-solving and working together to achieve a collectively desired outcome involve mentally representing both a goal and the sequence of behaviours that is required to achieve that goal; it is based on (at the very least) short-term action planning.

47. Wild elephants have frequently been observed engaging in cooperative problem solving, for example when retrieving calves that have been kidnapped by other groups, or when helping calves out of steep, muddy river banks (Bates et al 2008b; Moss 1992). These behaviours demonstrate the purposeful and well-coordinated social system of elephants, and show that elephants can hold particular aims in mind and work together to achieve those goals. Such intentional, goal-directed action forms the foundation of independent agency, self-determination, and autonomy.

48. Elephants also show innovative problem solving in experimental tests of insight (Foerder et al 2011), where insight can be defined as the 'a-ha' moment when a solution to a problem 'suddenly' becomes clear. (In cognitive psychology terms, insight is the ability to inspect and manipulate a mental representation of something, even when you can't physically perceive or touch the something at the time. Or more simply, insight is thinking and using only thoughts to solve problems (Richard Byrne, *Evolving Insight*, Oxford Online Press, 2016¹). A juvenile male Asian elephant demonstrated just such a spontaneous action by moving a plastic cube and standing on it to obtain previously out-of-reach food. After solving this problem once, he showed flexibility and generalization of the technique to other, similar problems by using the same cube in different situations, or different objects in place of the cube when it was not available (See "Video 6" attached on CD "Exhibit J"). This experiment again demonstrates that elephants can choose the appropriate action and incorporate it into a

¹ Available at <https://global.oup.com/academic/product/evolving-insight-9780198757078?cc=us&lang=en&> (last accessed Oct. 11, 2016).

sequence of behaviour in order to achieve a goal, which they kept in mind throughout the process.

49. Further experiments also demonstrate Asian elephants' ability to understand goal-directed behaviour. When presented with food that was out of reach, but with some bits resting on a tray that could be pulled within reach, the elephants learned to pull only those trays that were baited with food (Irie-Sugimoto et al 2008). Success in this kind of 'means-end' task is a demonstration of causal knowledge, which requires understanding not just that two events are associated with each other but also that there is some mediating force that connects and affects the two which may be used to predict and control events. Moreover, understanding causation and inferring object relations may be related to understanding psychological causation, i.e., the appreciation that others are animate beings that generate their own behaviour and have mental states (e.g., intentions).

D. Communication and social learning

50. Speech is a voluntary behaviour in humans, whereby a person can choose whether to utter words and thus communicate with another. Therefore speech and language are reflections of autonomous thinking and intentional behaviour. Elephants also use their vocalisations to share knowledge and information with others (Poole 2011). Male elephants primarily communicate about their sexual status, rank and identity, whereas females and dependents call to emphasise and reinforce their social units. Call types can generally be separated into calls produced by the larynx (such as rumbles) or calls produced by the trunk (such as trumpets), with different calls in each category being used in different contexts (Poole 2011; Poole and Granli 2009; Soltis et al 2005; Wood et al 2005). Field experiments have shown that African elephants distinguish between different call types (for example, contact calls – rumbles that travel long distances to maintain associations between elephants that could be several kilometres apart, or oestrus rumbles – that occur after a female has

copulated) and these different call types elicit different responses in the listeners. Elephant vocalisations are not simply reflexive, they have distinct meanings to listeners and they are truly communicative, similar to the volitional use of language in humans (Leighty et al 2008; Poole 1999; Poole 2011).

51. Furthermore, elephants have been shown to vocally imitate the sounds they hear around them, from the engines of passing trucks to the commands of human zookeepers (Poole et al 2005; Stoeger et al 2012). Imitating another's behaviour is demonstrative of a sense of self, as it is necessary to understand how one's own behaviour relates to the behaviour of others.

52. Elephants display a wide variety of gestures, signals and postures, used to communicate information to the audience (Poole and Granli 2011). Such signals are adopted in many different contexts, such as aggressive, sexual or socially integrative situations, and each signal is well defined and results in predictable responses from the audience. That is, each signal or gesture has a specific meaning both to the actor and recipient. Elephants' use of gestures demonstrates that they communicate intentionally and purposefully to share information with others and/or alter the others' behaviour to fit their own will.

53. Experimental evidence demonstrates that African elephants recognize the importance of visual attentiveness of the intended recipient (in this case, human experimenters) of gestural communication (Smet & Byrne 2014), further supporting that elephants' gestural communication is intentional and purposeful. Furthermore, the ability to understand the visual attentiveness and perspective of others is crucial for empathy and mental-state understanding.

E. Memory And Categorisation

54. Elephants have both extensive and long-lasting memories, just as the folk stories and adages encourage us to believe. McComb et al. (2000), using experimental playback of

long-distance contact calls in Amboseli National Park, Kenya, showed that African elephants remember and differentiate the voices of at least 100 other elephants. Each adult female elephant tested was familiar with the contact-call vocalizations of individuals from an average of 14 families in the population. When the calls were from the test elephants' own family, they contact-called in response and approached the location of the loudspeaker and when they were from another non-related but familiar family— that is, one that had previously been shown to have a high association index with the test group— they listened but remained relaxed. However, when a test group heard unfamiliar contact calls (from groups with a low association index with the test group), they bunched together and retreated from the area.

55. McComb et al (2001) went on to show that this social knowledge accumulates with age, with older females having the best knowledge of the contact calls of other family groups. McComb et al (2011) also showed that older females are better leaders, with more appropriate decision-making in response to potential threats (in this case, in the form of hearing lion roars). Younger matriarchs under-reacted to hearing roars from male lions, elephants' most dangerous predators. Sensitivity to the roars of male lions increased with increasing matriarch age, with the oldest, most experienced females showing the strongest response to this danger. These experimental studies show that elephants continue to learn and remember information about their environments throughout their lives, and this accrual of knowledge allows them to make better decisions and better lead their families as they grow older.

56. Further demonstration of elephants' long-term memory comes from data on their movement patterns. African elephants are known to move over very large distances in their search for food and water. Leggett (2006) used GPS collars to track the movements of elephants living in the Namib Desert. He recorded one group traveling over 600 km in five

months, and Viljoen (1989) showed that elephants in the same region visited water holes approximately every four days, even though some of them were more than 60km apart. Elephants inhabiting the deserts of both Namibia and Mali have been described traveling hundreds of kilometers to arrive at remote water sources shortly after the onset of a period of rainfall (Blake et al. 2003; Viljoen 1989), sometimes along routes that researchers believe have not been used for many years. These remarkable feats suggest exceptional cognitive mapping skills, reliant on the long-term memories of older individuals who traveled that path sometimes decades earlier. Indeed it has been confirmed that family groups with older matriarchs are better able to survive periods of drought. The older matriarchs lead their families over larger areas during droughts than those with younger matriarchs, again apparently drawing on their accrued knowledge (this time about the locations of permanent, drought-resistant sources of food and water) to better lead and protect their families (Foley et al 2008).

57. Significantly, it has recently been shown that long-term memories, and the decision-making mechanisms that rely on this knowledge, are severely disrupted in elephants who have experienced trauma or extreme disruption due to 'management' practices initiated by humans. Shannon et al (2013) demonstrated that elephants in South Africa who had experienced trauma decades earlier showed significantly reduced social knowledge. During archaic culling practices, these elephants were forcibly separated from family members and subsequently translocated to new locations. Two decades later, they still showed impoverished social knowledge and skills and impaired decision-making abilities, compared with an undisturbed population in Kenya. Disrupting elephants' natural way of life has substantial negative impacts on their knowledge and decision-making abilities.

58. Elephants demonstrate advanced 'working memory' skills. Working memory is the ability to temporarily store, recall, manipulate and coordinate items from memory.

Working memory directs attention to relevant information, and results in reasoning, planning, and coordination and execution of cognitive processes through use of a 'central executive' (Baddeley 2000). Adult human working memory is generally thought to have a capacity of around seven items. In other words, we can keep about seven different items or pieces of information in mind at the same time (Miller 1956). We conducted experiments with wild elephants in Amboseli National Park, Kenya, manipulating the location of fresh urine samples from related or unrelated elephants. The elephants' responses to detecting urine from known individuals in surprising locations showed that they are able to continually track the locations of at least 17 family members in relation to themselves, as either absent, present in front of self, or present behind self (Bates et al. 2008c). This remarkable ability to hold in mind and regularly update information about the locations and movements of a large number of family members is best explained by the fact that elephants possess an unusually large working memory capacity, apparently much larger than that of humans.

59. Elephants show sophisticated categorisation of their environment, with skills on a par with those of humans. We experimentally presented the elephants of Amboseli National Park, Kenya, with garments that gave olfactory or visual information about their human wearers - either Maasai warriors (men who traditionally attack and spear elephants on occasion as part of their rite of passage), or Kamba men (who are agriculturalists and traditionally pose little threat to elephants). In the first experiment, the only thing that differed between the cloths was the smell, derived from the ethnicity and/or lifestyle of the wearers. The elephants were significantly more likely to run away when they sniffed cloths worn by Maasai men than those worn by Kamba men or no one at all (See "Video 7" attached on CD as "Exhibit K"). In a second experiment, we presented the elephants with two cloths that had not been worn by anyone, but here one was white (a neutral stimulus) and the other was red—the color that is ritually worn by Maasai warriors. With access only to these

visual cues, the elephants showed significantly greater reaction to red garments than white, often including signs of aggression. We concluded that elephants are able to categorize a single species (humans) into sub-classes (i.e. 'dangerous' or 'low risk') based on either olfactory or visual cues alone (Bates et al. 2007). McComb et al. went on to show that the same elephants can also distinguish between human groups based on our voices. The elephants reacted differently (and appropriately) depending on whether they heard Maasai or Kamba men speaking, and also when they heard male or female Maasai (where female Maasai pose no threat as they are not involved in spearing events), and adult Maasai men or young Maasai boys (McComb et al 2014). Scent, sounds and visual signs associated specifically with Maasai men are categorized as 'dangerous', while neutral signals are attended to but categorized as 'low risk'. These sophisticated, multi-modal categorization skills may be exceptional among non-human animals. These experiments demonstrate elephants' acute sensitivity to the human world – monitoring our behavior and learning to recognize when we might cause them harm.

III. Conclusion

60. Both African and Asian elephants share many key traits of autonomy with humans and are also autonomous beings.

61. Scientific knowledge about elephant intelligence has been increasing rapidly in the past decade: what we currently know is only a tiny fraction of what elephant brains are likely capable of, and yet more amazing abilities are still likely to be discovered.



Lucy Bates, Ph.D.

Sworn to before me
this 25 day of JANUARY 2019

Notary Public

Je soussigné M. Thierry GUICHARD, Th.
notaire associé à GARCHES, certifie
sincère et véritable la signature de
Mme Lucy Anne BATES, 28.
apposée ci-dessus.
A GARCHES, le 25 Janvier 2019.



LB



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Attesté

5. à **VERSAILLES**6. le **06 FEV. 2017**

7. par le Procureur général près la Cour d'appel de Versailles

8. sous le n° **A. 1686**.....

9. sceau :

10. signature

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visual cues, the elephants showed significantly greater reaction to red garments than white, often including signs of aggression. We concluded that elephants are able to categorize a single species (humans) into sub-classes (i.e. 'dangerous' or 'low risk') based on either olfactory or visual cues alone (Bates et al. 2007). McComb et al. went on to show that the same elephants can also distinguish between human groups based on our voices. The elephants reacted differently (and appropriately) depending on whether they heard Maasai or Kamba men speaking, and also when they heard male or female Maasai (where female Maasai pose no threat as they are not involved in spearing events), and adult Maasai men or young Maasai boys (McComb et al 2014). Scent, sounds and visual signs associated specifically with Maasai men are categorized as 'dangerous', while neutral signals are attended to but categorized as 'low risk'. These sophisticated, multi-modal categorization skills may be exceptional among non-human animals. These experiments demonstrate elephants' acute sensitivity to the human world – monitoring our behavior and learning to recognize when we might cause them harm.

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Richard M. Byrne, Ph.D.

Sworn to before me
this 5 day of December, 2016


Notary Public

JULIE ANNE GRINYER.

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(Convention de La Haye du 5 octobre 1961)	
1. Country: Pays / País:	United Kingdom of Great Britain and Northern Ireland
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EXHIBIT A TO JOINT AFFIDAVIT - CURRICULUM VITAE OF LUCY BATES

Lucy Anne BATES

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RESEARCH PROFILE

I study the evolution of social behaviour and cognition, with a particular focus on the cognitive tools that are necessary to allow mammals to thrive in close-knit, social groups. I have published numerous research papers on behaviour and cognition in large mammals, particularly elephants and primates.

EMPLOYMENT AND EXPERIENCE

- Jan 2016 – Present **Daphne Jackson Research Fellow**
School of Psychology, University of Sussex
Culture in Elephants
- Jan 2012 – Present **Management Committee Member and Trustee**
Elephant Specialist Advisory Group (ESAG), South Africa
Board member for NPO that offers advice on elephant behaviour and management within South Africa.
- Jun 2008 – Jan 2016 **Honorary Research Associate**
School of Psychology, University of St Andrews
Continuing research on elephant social cognition.
- Jun 2008 – Oct 2012 **Consultant: Elephant Welfare and Conservation**
Pretoria, South Africa
Freelance consultant for conservation projects, including Save the Elephants, Kenya; Ezemvelo KZN Wildlife, South Africa; and SPCA, Zimbabwe.
- Mar 2005 – May 2008 **Leverhulme Trust Post-Doctoral Research Fellow**
School of Psychology, University of St Andrews
Socio-Cognitive skills of the African Elephant
Designed, conducted and published research exploring elephant cognition and social skills, in collaboration with the Amboseli Trust for Elephants, Kenya.

QUALIFICATIONS

- Nov 2001 – Mar 2005 **PhD Evolutionary Psychology**
School of Psychology, University of St Andrews
Supported by a BBSRC Studentship
Title: *Travel and food location by chimpanzees of the Budongo Forest Reserve*
- Oct 2000 – Oct 2001 **MSc Human Biology**
Institute of Biological Anthropology, University of Oxford
Dissertation: *Female gregariousness in chimpanzees of the Budongo Forest Reserve*
- Oct 1997 – Jun 2000 **BA (Hons) Experimental Psychology (2:1)**
Oriel College, University of Oxford
Papers taken: Animal Behaviour; Biology of Learning and Memory; Brain and Behaviour; Individual Differences; Memory and Cognition; Perception; Social Psychology.

EXHIBIT B TO JOINT AFFIDAVIT - LIST OF PEER-REVIEWED LITERATURE [A- 124 - A- 126]

PUBLICATIONS

Peer reviewed manuscripts

- Bates LA**, Handford R, Lee PC, Njiraini N, Poole JH, Sayialel K, Sayialel S, Moss CJ & Byrne RW (2010) Why do African elephants simulate oestrus? An analysis of longitudinal data. *PLoS One* 5 (4) 1-6
- Byrne RW & **Bates LA** (2010) Primate social cognition: uniquely primate, uniquely social, or just unique? *Neuron* 65 815-830
- Bates LA** & Byrne RW (2010) Imitation: what animal imitation tells us about animal cognition. *WIREs Cogn Sci* 1 (5) 685-695
- Bates LA** & Byrne RW (2009) Sex differences in the movement patterns of free-ranging chimpanzees: foraging and border checking. *Behavioral Ecology and Sociobiology* 64 247-255
- Byrne RW, **Bates LA** & Moss CJM (2009) Elephant cognition in primate perspective. *Comparative Cognition and Behavior Reviews* 4 1-15
- Byrne RW, Noser RG, **Bates LA** & Jupp PE (2009) How did they get here from there? Detecting changes of direction in terrestrial ranging. *Animal Behaviour* 77 (3) 619-631
- Bates LA**, Lee PC, Njiraini N, Poole JH, Sayialel K, Sayialel S, Moss CJ & Byrne RW (2008) Do elephants show empathy? *Journal of Consciousness Studies* 15 (10-11) 204-225
- Bates LA**, Sayialel K, Njiraini N, Poole JH, Moss CJ & Byrne RW (2008) African elephants have expectations about the locations of out-of-sight family members. *Biology Letters* 4 (1) 34-36
- Bates LA**, Sayialel K, Njiraini NW, Poole JH, Moss CJ & Byrne RW (2007) Elephants classify human ethnic groups by odour and garment colour. *Current Biology* 17 (22) 1938-1942
- Byrne RW & **Bates LA** (2007). Sociality, Evolution and Cognition. *Current Biology* 17 (16) R714-723
- Bates LA** & Byrne RW (2007). Creative or created: Using anecdotes to investigate animal cognition. *Methods* 42 (1) 12-21
- Bates LA** & Chappell J (2002). Inhibition of optimal behaviour by social transmission in the guppy depends on shoaling. *Behavioural Ecology* 13 827-831

Books and book chapters

- Bates LA** (In Prep) Cognitive abilities in elephants. In: *Cambridge Handbook of Evolutionary Perspectives on Human Behaviour*. Eds. L. Workman, W. Reader & J. Barkow. Cambridge University Press, Cambridge
- ESAG (Garai ME, Pretorius Y, **Bates LA**, Henley M, Selier J) (In Press) Understanding Elephants: Guidelines for safe and enjoyable elephant viewing. Struik Nature: Penguin Random House, South Africa
- Bates LA** & Byrne RW (2014) Primate Social Cognition: What we have learned from nonhuman primates and other animals. In: *APA Handbook of Personality and Social Psychology Vol. 1. Attitudes and Social Cognition*. Eds. M. Mikulincer & P.R. Shaver. APA, Washington, DC.
- Byrne RW & **Bates LA** (2011). Elephant cognition: What we know about what elephants know. In: *The Amboseli Elephants: A long-term perspective on a long-lived mammal*. Edited by CJ Moss, H Croze, & PC Lee. University of Chicago Press, Chicago

Invited manuscripts

Byrne RW & Bates LA (2011) Cognition in the wild: exploring animal minds with observational evidence. *Biology Letters* 7 619-622

Bates LA, Poole JH, & Byrne RW (2008) Elephant cognition. *Current Biology* 18 (13) R544-R546

Byrne RW & Bates LA (2007) Animal Brain Evolution: When is a group not a group? *Current Biology* 17 (20) R883-R884

Byrne RW & Bates LA (2006) Why are animals cognitive? *Current Biology* 16 (12) 445-448

ORAL PRESENTATIONS

Bates, LA (2010) Using observational data to study cognition; using examples from elephants and primates. *International Primatology Society XXIII Congress*, Kyoto, Japan

Bates, LA (2009) Social knowledge in a free-ranging population of African elephants. *Department of Zoology & Entomology*, University of Pretoria, South Africa

Bates, LA (2008) What do we know about the social cognitive skills of elephants. *Behaviour Discussion Group*, University of St Andrews, UK

Bates, LA (2006) Parallel Evolution of Intelligence: African elephants. *Behaviour Discussion Group*, University of St Andrews, UK

Bates, LA (2006) Travel and food location in chimpanzees. *Animal Behaviour Society Conference*, Utah, USA

Bates, LA (2005) Food location in chimpanzees. *Scottish Primate Research Group Conference*, The Burn, UK

GRANTS and FELLOWSHIPS RECEIVED

Jan 2016 – Jan 2018 Daphne Jackson Trust Research Fellowship
University of Sussex

Mar 2005 – May 2008 Research Project Grant - Named Post-Doctoral Fellow (£102,000)
Leverhulme Trust

Oct 2001 – Sep 2004 PhD Studentship (fully funded)
Biotechnology and Biological Sciences Research Council

OTHER AWARDS

June 2005 EPS Grindley Travel Award (£450)

Nov 2003 Russell Trust Award (£550)

May 2001 Oriel College Travel Bursary (£1000)

STUDENT SUPERVISION

Sep 2016 – Present	Co-supervising two BSc Honours projects with Professor Karen McComb School of Psychology, University of Sussex
Oct 2016 – Present	Co-supervising MSc candidate With Professor Klaus Zuberbuhler Department of Comparative Cognition, University of Neuchatel
Oct 2010 – Sep 2011	Co-supervised MSc candidate School of Psychology, University of St Andrews

PROFESSIONAL ACTIVITIES

Jan 2016 – Present	Member of the United Nations Environment Programme's (UNEP) Convention on the Conservation of Migratory Species (CMS) intercessional expert working group on Culture and Social Complexity
Oct 2016	External examiner for MSc thesis Department of Animal and Wildlife Sciences, University of Pretoria
Oct 2003 – Present	Peer reviews of 30+ submitted manuscripts and book proposals for various international journals and publishers
Mar 2011	Co-editor of Special Feature 'Cognition in the Wild' Biology Letters
Sep 2010	Symposium Co-ordinator IPS XXIII Congress, Kyoto, Japan
Oct 2007	Live radio interviews about my research on elephant cognition Including 'Kingdom FM', Scotland, 'NewsTalk Radio', Ireland and 'AM Network', New Zealand

MEMBERSHIP OF PROFESSIONAL SOCIETIES

Jan 2002 – Present	Association for the Study of Animal Behaviour
Oct 2001 – Present	Primate Society of Great Britain



EXHIBIT C TO JOINT AFFIDAVIT - CURRICULUM VITAE OF RICHARD WILLIAM BYRNE [A- 127 - A- 138]

Richard William Byrne FRSE

7th March 2015

Professor of Evolutionary Psychology

University of St Andrews

Education

1969-1972 M.A. in Natural Sciences, St John's College, Cambridge (1st Class Honours)
1972-1975 Ph.D., University of Cambridge, "*Memory in complex tasks*"

Awards

1972 Wright Prize & Hughes Prize, *St Johns College, Cambridge*
1972-1975 MRC Studentship, tenure at MRC Applied Psychology Unit, Cambridge
1993 *Association of Commonwealth Universities*: Development Fellowship
1997 *British Psychological Society*: Book Award
2001 *Collegium Budapest*: Institute of Advanced Study. Awarded *Convenorship* of Focus Group 2003 "*Precursors to Culture*".
2002 Elected Fellow of the *Royal Society of Edinburgh*
2007 Elected Fellow of the *Higher Education Academy*

Professional activities (since 2000)

Focus Group Convenor, *Precursors to Culture*, Collegium Budapest Institute Advanced Studies, Hungary. Oct-Dec 2003.

Boyd Group Member of Subgroup on *Use of non-human primates in research and testing*. 2000-2002
(See <http://www.boyd-group.demon.co.uk/> for report.)

Vice-President, *International Primatological Society* 1996 – 2001

Conferences and Symposia: organized symposium of 18th Congress of the *International Primatological Society*, Adelaide, 2001; discussant at *Perspectives on Imitation*, France 2002; discussant at *Nijmegen Lectures*, Max Planck Institute for Psycholinguistics/University of Nijmegen, Holland 2002; organized symposium of St Andrews International Conference on *Animal Social Learning*, June 2005; discussant at symposium, *The cognitive triangle: Primates, Cetaceans, and Corvids* Kyoto, 2006; organized symposium of the 23rd Congress of the *International Primatological Society*, Kyoto, 2010

National teaching: *Quality Assurance Agency/ Scottish Higher Education Funding Council*: Steering Committee for Assessment (2003-5)

Editorial work (since 2000)

Current Biology, Editorial Board, 2006 - present

Biology Letters, Editorial Board, 2007 - 2013

Animal Cognition, Editorial Board, 1997 - 2011

Animal Behaviour, Consulting Editor, 1996 – 2000

Journal of the Royal Anthropological Institute, Editorial Board, 1995 - 2010

Refereeing of **book proposals**: Basil Blackwell, Cambridge University Press, Curzon Press, Lawrence Erlbaum Associates, Oxford University Press, John Wiley.

(And refereeing of **manuscripts**: numerous journals, including Science, Nature, PNAS, Proc.Roy.Soc.B., Phil.Trans.B., TICS, TINS, Psychological Science, Psychological Bulletin, Current Biology.)

Refereeing of **promotion applications**: Arizona State University; University of California, San Diego; University of Colorado; University of Florida, Gainesborough, FL; Max Planck Institute for Evolutionary Anthropology, Leipzig; Miami University, Ohio; University of Natal, RSA; University of Portsmouth, UK; University of Stirling, UK; York University, Toronto

Refereeing of **research grants**: BBSRC, ESRC, Israel Academy of Sciences and Humanities (Basic Research Foundation), L S B Leakey Foundation (Oakland, California), Leverhulme Trust, MRC, NSF (USA), NERC, NSERC (Canada)

Refereeing of **research programmes**: Leverhulme Trust, Max-Planck-Society, Germany, Earthwatch Europe

Broadcasting (since 2000)

BBC1 6 O'Clock News (Scotland) interview on own great ape research 2008; 6 O'Clock news (UK) interview on own elephant research 2013

BBC2 'The Secret Life of Pigs' (consultant 2010)

BBC World/BBC4 Evening News interview on own elephant research 2013

ITV/STV (ITN News) interview on own elephant research (2013)

Australian ABC Channel TV (programme on my research in *Catalyst* series)

BBC Radio 4 'Today' (interviews 2008, 2000)

BBC Radio 4 Interview with Jonathan Miller, *Self-made things* (2005)

Australian Radio (article on own research in "The Science Show", 2001); Radio Netherlands (article on own research, 2001)

Numerous other interviews on own research: ABC Radio Australia, Austrian Broadcasting Corporation, US Public Broadcasting Network, Breakfast Radio Auckland (NZ), Radio Canada, Western Australia Radio, Discovery Canada, Radio New Zealand "Morning Report" Radio Ireland, Talkback Radio (Ireland), BBC World Service, BBC Radio Scotland, Radio Wales, Radio Cambridgeshire, BBC Radio Jersey, BBC Radio 5 Live, Radio Tay, Kingdom FM, Talk 107, Voice of Russia, Wave 102

Fieldwork Periods

Mont Assirik, Senegal. January-April 1979. (Guinea baboon *Papio papio*)

Giant's Castle Game Reserve, South Africa. August-December 1983. (Chacma baboon, *Papio ursinus*)

Mahale Mountains, Tanzania. July-December 1984. (Chimpanzee, *Pan troglodytes*)

Virunga Volcanoes, Rwanda. July-December 1989. (Mountain gorilla, *Gorilla b. beringei*)

Mbeli Bai, Republic of Congo. August-October 2010. (Western gorilla, *Gorilla g. gorilla*)

Scottish Primate Research Group

In 1987 I set up (with McGrew, Stirling; Rogers, Edinburgh; Whiten, St Andrews) the *Scottish Primate Research Group*, to co-ordinate the cognate research interests of the 3 centres, promote new joint grant applications, encourage outside visitors to Scotland and postgraduate admissions, and co-ordinate joint seminars and lectures. The *Scottish Primate Research Group* now attracts international notice (e.g. US researchers coming to spend Sabbatical with Group), and it is now larger and more productive than ever, with 21 faculty members and over 50 researchers.

Major invited lectures (since 2000)

2015 85th James Arthur Lecture, American Museum of Natural History. (Public lecture, 5th March)

2013 Tarragona Laterality Conference. (Invited lecture to Closed Conference)
University of Portsmouth. (Public lecture, 25th April)

2012 Institute of Evolutionary Biology, University of Zurich. (Invited lecture in Workshop, *Unpacking intentionality in animal vocal communication: an integrative approach*.)

2011 John Templeton Foundation. (Invited lecture to Symposium, *The Emergence of Personhood*)
Hanse-Wissenschaftskolleg, Delmenhorst. (Closed Workshop, *The evolution of human handedness*)
Institute of Evolutionary Biology, University of Zurich. (Public lecture, 29th September)

2010 INCORE Thematic Meeting, Berlin. (Workshop, *Referential communication*)

2009 German Society for Primatology (Plenary lecture, 11th Congress, Hanover)
Year of Darwin Lecture, School of Biosciences, Birmingham University (Public lecture)
Max Planck Institute for Evolutionary Anthropology, Leipzig. (Workshop, *Understanding Tool Use*)

2008 Institute of Cognitive Sciences, Montréal. (Invited lecturer, Summer School on *Social Cognition*)

2007 University of Vienna, Faculty of Life Sciences. (Inter-faculty series, "The evolution of social cognition")
European Federation of Primatology. (Plenary lecture, Second Congress, Charles University Prague)
MRC / Cold Spring Harbor. (Invited lecturer, Workshop on *Social Cognition*, St Anne's College, Oxford)
Carlsberg Academy, Copenhagen. (Plenary lecture, conference *Missing Links*)

2006 The Royal Society, London. (Symposium, *From Brain to Culture*)
Japan Society for Animal Psychology (Plenary lecture, 66th Annual Meeting, Kyoto.)

2005 Portuguese Primatological Association, 2nd Int. Conf. (Plenary lectures to conference, Lisbon)
University of Tokyo, "Evolutionary Cognitive Sciences" series (Lecture)

2004 Institute of Cognitive & Decision Sciences, University of Oregon. (Public Lecture).

- Wenner-Gren Foundation for Anthropological Research.* (Closed conference "Roots of Human Sociality", North Carolina.)
- 2003 *European Workshop in Cognitive Neuropsychology.* (International workshop, Bressanone, Italy.)
- 2002 *University of Oxford, McDonnell-Pew Centre.* (Annual Autumn School in Cognitive Neuroscience.)
Perspectives on Imitation. (International workshop, Royaumont Abbey, France.)
University of Oxford, McDonnell-Pew Centre for Cognitive Neuroscience. (Theme "Rational animals?" Autumn School)
Fundació "la Caixa" Museum of Science, Barcelona; & Social & Cultural Centre, Tarragona (Public lectures)
- 2001 *VIIth European Congress of Psychology.* (Keynote address to Congress, forming part of BPS Centenary, London.)
Institute of Cognitive Neurology. (Symposium, "Human Cognition", UCL, London.)
British Association for the Advancement of Science. (Lecture, press conference. "Constraints on Culture", Glasgow.)
British Psychological Society. (Keynote lecture, Consciousness & Experiential Psychology section.)
Knapping Stone: a uniquely hominid behaviour? (International workshop, Abbaye des Prémontrés, France.)
Malingering & Illness Deception. (International workshop, Blenheim, Oxford.)
- 2000 *British Neuropsychiatry Association.* (Plenary lecture to Millennial Meeting, "The social brain")
International Congress for Cognitive Science. (Invited main lecture, "Primate Cognition", Inuyama.)
Gaia Research Project. (Symposium, "Animal Architecture", Edinburgh.)
Sorbonne University. (Workshop, "Cognitive Science", Paris.)
The Royal Society of Edinburgh. (International Conference, "Human Nature", Edinburgh.)
Max Planck Institute, Andechs. (Symposium, "The Social Brain", Bochum.)
University of Ghent. (Symposium, "Science and Philosophy of Pain", Gent.)

Additional invited, funded talks at: Auckland University (Psychology, Zoology); BAAS SET7 Week (St Andrews); Gesamthochschule, Kassel (Primatenbiologie); Deutsches Primatenzentrum, Göttingen; Duke University, North Carolina (Biological Anthropology); Dundee University (teaching forum); Durham University (Psychology, Anthropology); Eötvös Loránd University, Budapest (Ethology); Hang Sen Centre for Cognitive Studies, Sheffield (twice); Hawaii University, Honolulu (Psychology); Kyoto University; Living Links Center, Emory University; MRC Cognitive Brain Research Unit, Cambridge (twice); Max Planck Institute, Leipzig; Max Planck Institute, Seewiesen, Bavaria; Miami University, Ohio (Zoology); University of Otago, New Zealand (Psychology); Queens University, Kingston Ontario (Psychology); Université de Rennes 1 (Zoology); Royal Anthropological Institute, London; Royal (Dick) School of Veterinary Studies, Edinburgh; Yerkes Regional Primate Research Center, Atlanta GA; UCSD (Psychology); York University, Toronto (Psychology); Universities of Aberdeen (Psychology), Abertay (Psychology), Cambridge (Psychology, Archaeology & Anthropology), Durham (Psychology, Anthropology), Edinburgh (Psychology, Zoology), Exeter (Psychology), Leeds (Psychology), Liverpool (Psychology, Zoology), Manchester (Psychology), Oxford (Zoology), Oxford Brookes (Anthropology), Reading (Archaeology), St Andrews (Divinity, Modern Languages, Zoology, Psychology), Stirling (Psychology), UCL (Archaeology), Sussex (Neuroscience & Robotics), York (Centre for Human Palaeontology & Human origins); Zoological Society of London.

External Postgraduate Examining (since 2000)

- 2000 *Ph.D. Oxford Brookes University (Anthropology)* L. Ambrose.
- 2001 *M.Sc. University of Stirling (Psychology)* A Nowell.
- 2002 *M.Sc. University of Durham (Anthropology)* B A Whiting.
Ph.D. London School of Economics (Psychology) K Rigby.
- 2003 *Ph.D. Exeter University (Psychology)* P. Citrynell.
- 2004 *Ph.D. University of Cambridge (Psychology)* J Dally
Ph.D. Exeter University (Psychology) P. Citrynell, re-examination
- 2005 *Ph.D. University of Cambridge (Psychology)* J Dally
- 2008 *Habilitation. University of Vienna (Faculty of Life Sciences)* Dr Thomas Bugnyar
- 2009 *University of Cambridge (Psychology)* C Bird
- 2012 *University of Cambridge (Archaeology & Anthropology)* P Bertolani
University of Birmingham (Psychology) J Troschiano

PhD Supervision (since 2000)

- 1999-04 R Noser (self-funded), "Navigation by chacma baboons within the home-range"
- 2000-04 R da Cunha (funded by CAPES, Brazil), "Long distance communication of howler monkeys"
- 2000-04 A Valero (funded by CONACYT, Mexico), "Social interactions of spider monkeys"
- 2001-05 L Bates (funded by BBSRC), "Foraging skills of female chimpanzees"
- 2004-08 E Cartmill (funded by Univ. St Andrews) "Gestural communication in great apes"
- 2005-06 F Moore (joint supervision) "Effects of resource control on female reproductive strategies"
- 2005-09 A Ruiz (funded by ORS) "Monkeys' understanding of intention and attention"
- 2007-10 C Hobaiter (funded by own EC grant) "Gestural communication in great apes"
- 2007-11 C Casar (funded by CAPES, Brasil) "Vocal communication of wild titi monkeys"
- 2008-12 K Hall (funded by Janet Anderson trust and ORSAS) "Theory of mind in chimpanzees"
- 2010-14 L Orr (funded by NSF Studentship) "gestural communication in gorillas"
- 2011-15 A Smet (funded by Univ. St Andrews) "Cognition in the African elephant"
- 2012- B Fallon (self-funded) "Gestural communication by sexually consorting male chimpanzees"
- 2013- K Graham (funded by Univ. St Andrews) "Negotiation of sexual relationships among bonobos"

Books

1. Byrne, R W and Whiten A (Eds.) (1988) *Machiavellian Intelligence: Social Expertise and the Evolution of Intellect in Monkeys, Apes and Humans*. Oxford University Press, Oxford; 413 pages. [Japanese edition published by Nakanishiya Shuppan Press, Kyoto, 2004.]
2. Byrne, R W (1995) *The Thinking Ape: evolutionary origins of intelligence*. Oxford University Press, Oxford; 266 pages. [British Psychological Society Book Award 1997. Reprinted annually; Japanese edition published by Otsuki Shoten, Tokyo, 1998. Chinese edition, in translation, published by Human Education Publishing House, 2006.]
3. Whiten, A and Byrne, R W (Eds.) (1997) *Machiavellian Intelligence II: Extensions and Evaluations*. Cambridge University Press, Cambridge; 403 pages. [Japanese edition published by Nakanishiya Shuppan Press, Kyoto, 2004.]

Book Chapters: 65 published, last 4 years given

1. Byrne, R W & Bates, L A (2011) Elephant cognition: what we know about what elephants know. In Moss, C J, Poole, J & Lee, P (Eds.) *The Amboseli Elephants*. University of Chicago Press.
2. Cartmill, E A & Byrne, R W (2011) Addressing the problems of intentionality and granularity in non-human primate gesture. In S. Gale and M. Ishino (Eds.), *Integrating Gestures. The interdisciplinary nature of gesture*, pp.15-26. John Benjamins Publishing Company: Amsterdam.
3. Krueger K, Farmer K and Byrne R (2011) The use of sensory laterality for indicating emotional and cognitive reactions on environmental stimuli in animals In M. Erhard, U. Pollmann, B. Puppe, K. Reiter, S. Waiblinger (Eds.) *Current research in applied ethology KTBL*. Darmstadt.
4. Hobaiter, C & Byrne, R W (2012) Gesture use in consortship: wild chimpanzees' use of gesture for an 'evolutionarily urgent' purpose. In S Pika and K Liebal (Eds.), *Developments in Primate Gesture Research*, pp. 129-146. John Benjamins Publishing Company: Amsterdam.
5. Byrne, R W, Sanz, C M & Morgan, D B (2013) Chimpanzees plan their tool use. In C. Sanz, J. Call and C. Boesch (Eds.) *Tool Use in Animals: Cognition and Ecology*, pp.48-63. Cambridge University Press.
6. Byrne, R W (in press) From parsing actions to understanding intentions. In F. Stjernfelt, T. Deacon and T. Schilhab (Eds.), *New perspectives on the symbolic species*. Springer-Verlag, Heidelberg.
7. Byrne, R W (in press) The dividing line. What sets humans apart from our closest relatives? In M. A. Jeeves (Ed.) *The Emergence of Personhood: A Quantum Leap?* William B. Eerdmans.
8. Barnard, P, Davidson, I and Byrne, R W (in press) Towards a richer theoretical scaffolding for interpreting archaeological evidence concerning cognitive evolution. In T. Wynn and F. L. Coolidge (Eds.) *Formal Models in Evolutionary Cognitive Archaeology*. New York: Oxford University Press.

Journal Articles: 138 published, last 4 years given

1. Byrne, R W and Bates, L A (2011) Cognition in the wild: exploring animal minds with observational evidence. (Editorial) *Biology Letters*, 7, 619-622.
2. Byrne, R W, Hobaiter, C and Klailova, M (2011) Local traditions in gorilla manual skill: Evidence for observational learning of behavioural organization. *Animal Cognition*, 14, 683-693.
3. Byrne, R W and Rapaport, L (2011) What are we learning from teaching? *Animal Behaviour*, 82, 1207-1211.
4. Hobaiter, C and Byrne, R W (2011) The gestural repertoire of the wild chimpanzee. *Animal Cognition*, 14, 745-767.
5. Hobaiter, C and Byrne, R W (2011) Serial gesturing by wild chimpanzees: its nature and function for communication. *Animal Cognition*, 14, 827-838.
6. Byrne, R W (2012) From parsing actions to understanding intentions. *Biosemiotics*, 6, 131-150.
7. Căsar, C, Byrne, R, Young, R J and Zuberbühler, K (2012) The alarm call system of wild black-fronted titi monkeys, *Callicebus nigrifrons*. *Behavioural Ecology and Sociobiology*, 66, 653-667.
8. Căsar, C, Byrne, R W, Hoppitt, W, Young, R J and Zuberbühler, K. (2012) Evidence for semantic communication in Titi monkey alarm calls. *Animal Behaviour*, 84, 405-411.
9. Rapaport, L and Byrne, R W (2012) Reply to Thornton & McAuliffe 2011. *Animal Behaviour*, 84, e1-e3.
10. Byrne, R W (2013) Animal curiosity. *Current Biology*, 23, R469-R470.
11. Căsar, C, Zuberbühler, K, Young, R J and Byrne, R W (2013) Titi monkey call sequences vary with predator location and type. *Biology Letters*, 9, 20130535.
12. Cochet, H and Byrne, R W (2013) Evolutionary origins of human handedness: evaluating contrasting hypotheses. *Animal Cognition*, 16, 531-542.
13. Da Cunha, R G T and Byrne, R W (2013) Age-related differences in the use of the "moo" call in black howler monkeys (*Alouatta caraya*) *International Journal of Primatology*. DOI 10.1007/s10764-013-9718-4
14. Hobaiter, C and Byrne, R W (2013) Laterality in the gestural communication of wild chimpanzees. *Annals of the New York Academy of Sciences*, 1288, 9-16.
15. Hobaiter, C, Leavens, D A and Byrne, R W (2013) Deictic gesturing in wild chimpanzees? Some possible cases. *Journal of Comparative Psychology*. DOI 10.1037/a0033757
16. Noser, R and Byrne, R W (2013) Change point analysis of travel routes reveals novel insights into foraging strategies and cognitive maps of wild baboons. *American Journal of Primatology*. DOI 10.1002/ajp.22181
17. Smet, A F and Byrne, R W (2013) African elephants can use human pointing cues to find hidden food. *Current Biology*. DOI 10.1016/j.cub.2013.08.037
18. Cochet, H and Byrne, R W (2014) Complexity in animal behaviour: Towards common ground. *Acta Ethologica*. DOI 10.1007/s10211-014-0205-5
19. Hall, K, Oram, M W, Campbell, M W, Eppeley, T E, Byrne, R W and de Waal, F B M (2014) Using cross correlations to investigate how chimpanzees (*Pan troglodytes*) use conspecific gaze cues to extract and exploit information in a foraging competition. *American Journal of Primatology* 76, 932-941. DOI: 10.1002/ajp.22279
20. Hobaiter, C & Byrne, R W (2014) The meanings of chimpanzee gestures. *Current Biology* 24, 1596-1600. DOI 10.1016/j.cub.2014.05.066
21. Noble, D W A, Byrne, R W and Whiting, M J (2014) Age-dependent social learning in a lizard. *Biology Letters*, 10, 7, 20140430.
22. Noser, R and Byrne, R W (2014) Change point analysis of travel routes reveals novel insights into foraging strategies and cognitive maps of wild baboons. *American Journal of Primatology*, 76, 399-409. DOI 10.1002/ajp.22181
23. Smet, A F and Byrne, R W (2014) African elephants (*Loxodonta africana*) recognize visual attention from face and body orientation. *Biology Letters*, 10, 7, 20140428.
24. Smet, A F and Byrne, R W (2014) Interpretation of human pointing by African elephants: generalisation and rationality. *Animal Cognition*. DOI: 10.1007/s10071-014-0772-x
25. Byrne, R W (2015) The what as well as the why of animal fun. *Current Biology*, 25, R2-R4. doi:10.1016/j.cub.2014.09.008
26. Noser, R and Byrne, R W (2015) Wild baboons (*Papio ursinus*) remember single foraging episodes. *Animal Cognition*, in press.
27. Hockings, K J, McLennan, M R, Carvalho, S, Ancenaz, M, Bobe, R, Byrne, R W, Dunbar, R I M, Matsuzawa, T, McGrew, W C, Williamson, E A, Wilson, M L, Wood, B, Wrangham, R W, and Hill, C M. (2015) Apes in the Anthropocene: flexibility and survival. *Trends in Evolution & Ecology*, in press.

- Poole, J.H. (2011) The behavioral contexts of African elephant acoustic communication. In: *The Amboseli Elephants: A Long-Term Perspective on a Long-Lived Mammal*. Moss, C.J. & Croze, H.J. (Eds.) Chicago: University of Chicago Press.
- Poole, J.H. & P.K. Granli (2009) Database of African elephant acoustic communication. <http://www.elephantvoices.org> (last accessed November 8, 2016).
- Poole, J.H. & P.K. Granli (2011) Signals, Gestures, and Behavior of African Elephants. In: *The Amboseli Elephants: A Long-Term Perspective on a Long-Lived Mammal*. Moss, C.J. & Croze, H.J. (Eds.) Chicago: University of Chicago Press.
- Poole, J.H., P.L. Tyack, A.S. Stoeger-Horwath & S. Watwood (2005) Elephants are capable of vocal learning. *Nature*, **434**: 455–456.
- Prebble, S.C., D.R. Addis & L.J. Tippet (2013) Autobiographical memory and sense of self. *Psychological Bulletin*, **139** (4): 815–840.
- Premack, D. & G. Woodruff (1978) Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences*, **1**: 515–526.
- Reiss, D., & L. Marino (2001) Mirror self-recognition in the bottlenose dolphin: A case of cognitive convergence. *Proceedings of the National Academy of Sciences, USA*, **98**: 5937–42.
- Roth, G. & U. Dicke (2005) Evolution of the brain and intelligence. *Trends in Cognitive Sciences*, **9**: 250–257.
- Shannon, G., R. Slotow, S.M. Durant, K.N. Sayialel, J.H. Poole, C. Moss & K. McComb (2013) Effects of social disruption in elephants persist decades after culling. *Frontiers in Zoology*, **10** (62): 1–10.
- Shoshani, J., W.J. Kupsky & G.H. Marchant (2006) Elephant brains. Part I: Gross morphology, functions, comparative anatomy, and evolution. *Brain Research Bulletin*, **70**: 124–157.
- Smet, A.F. & R.W. Byrne (2013) African elephants can use human pointing cues to find hidden food. *Current Biology*, **23** (20): 2033–2037.
- Smet, A.F. & R.W. Byrne (2014) African elephants recognize visual attention from face and body orientation. *Biology Letters*, **10**: 20140428.
- Soltis J., K. Leong & A. Savage (2005) African elephant vocal communication I: Antiphonal calling behavior among affiliated females. *Animal Behaviour*, **70**: 579–587.
- Stoeger, A.S., D. Mietchen, S. Oh, S. de Silva, C.T. Herbst, S. Kwon & W.T. Fitch (2012) An Asian Elephant Imitates Human Speech. *Current Biology*, **22**(22): 2144–8

- Viljoen, P. J. (1989) Spatial distribution and movements of elephants (*Loxodonta africana*) in the northern Namib desert region of Kaokoveld, South West Africa-Namibia. *Journal of Zoology*, **219**: 1-19.
- Wood, J.D., B. McCowan, W.R. Langbauer, J.J. Viloen & L.A. Hart (2005) Classification of African elephant *Loxodonta africana* rumbles using acoustic parameters and cluster analysis. *Bioacoustics*, **15**: 143-161.

Lucy Bates/Richard M. Byrne Elephant Autonomy Affidavit

Exhibit B

References cited

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**AFFIDAVIT OF JOYCE POOLE, FOR PETITIONER, IN SUPPORT OF PETITION,
SWORN TO DECEMBER 2, 2016 [A- 139 - A- 164]**

COUNTRY OF UNITED STATES)
 PROVINCE OF DISTRICT OF COLUMBIA) ss:
 MUNICIPALITY OF WASHINGTON)

COPY

Affidavit of Joyce Poole

Joyce Poole being duly sworn, deposes and says:

Introduction and Qualifications

1. My name is Joyce Poole. I graduated with a Bachelors of Art with High Honors in Biological Sciences from Smith College in 1979. I received my PhD from the University of Cambridge in 1982 from the Sub-Department for Animal Behaviour, under the supervision of Professor Robert Hinde. I completed a Postdoctoral Research Fellowship from 1984-1988 at Princeton University under the guidance of Professor Daniel Rubenstein. I reside and work in Sandefjord, Norway, and in Il Masin, Kajiado County, Kenya. I run elephant behavior and conservation projects in Maasai Mara ecosystem, Kenya, and in Gorongosa National Park, Mozambique

2. I submit this affidavit in support of The Nonhuman Rights Project, Inc. (NhRP). I have personal knowledge of the facts to which I attest, and am not a party to this proceeding.

3. I have studied wild elephants in Africa and worked toward their conservation and welfare for more than 40 years. My research interests are focused on social and reproductive behavior, acoustic and gestural communication, cognitive science, decision-making, and conservation. I am currently Co-Director of ElephantVoices, a California 501(c)(3) non-profit organization I co-founded in 2002, which aims to inspire wonder in the intelligence, complexity and voices of elephants, and to secure a kinder future for them. We advance the study of elephant cognition, communication and social behavior, and promote the scientifically sound and ethical management and care of elephants through research, conservation, advocacy, and the sharing of knowledge. Specifically, I direct the research, conservation, and welfare work for ElephantVoices.

4. In addition to co-directing ElephantVoices, I have worked and conducted research for a number of organizations, including: (1) as the Research Director of the Amboseli Elephant Research Project from 2002-2007, for the Amboseli Trust for

Elephants, where I oversaw the elephant monitoring, collaborative research projects, and training programs for the then 3 decades-long study of elephants; (2) as a scientific advisor for Discovery in July, 1996 and July, 1997, for the IMAX production *Africa's Elephant Kingdom*; (3) as a Consultant for Richard Leakey & Associates from 1994-1997 performing training, lecturing, and advising for wildlife documentaries; (4) as an Author from 1994-1995 for *Coming of Age with Elephants* (Hyperion Press, 1996; Hodder & Stoughton, 1996); (5) as a Coordinator of the Elephant Program for the Kenya Wildlife Service from 1991-1994, setting and implementing Kenya's elephant conservation and management policy, supervising management-oriented research, reconciling land use and other conflicts between elephants and people, and building local expertise; (6) as a Consultant for the World Bank, from 1990-1991, developing Pre-Project Facility by drafting the Elephant Conservation and Management Policy and Research Policy Framework and Investment Program for the Kenya Wildlife Service; (7) as a Consultant for the International Union for the Conservation of Nature, in 1990, compiling an overview of elephant conservation in Eastern Africa for the Paris Donors Conference; (8) as a Consultant for the Tanzanian Wildlife Department in 1989, drafting a successful proposal to the Convention on Trade in Endangered Species to up list the African elephant to Appendix I of the Convention; (9) as a Consultant to the World Wildlife Fund in 1989, engaging in discussions with Japanese and Chinese government officials and ivory carvers regarding detrimental impacts of the ivory trade on elephant survival; (10) as a Researcher for the African Wildlife Foundation in 1989, assembling data on effects of poaching on East African elephant populations; and (11) as a Researcher for the Amboseli Elephant Research Project from 1975-1980.

5. I have conducted field work as part of my scientific research in multiple sites in multiple countries over my career, including: (1) elephant monitoring, conservation and research as part of the Gorongosa Restoration Project in Mozambique, ongoing since 2011; (2) elephant monitoring and conservation project in the Maasai Mara ecosystem in Kenya, ongoing since 2010; (3) the initiation of Asian elephant monitoring and conservation in the Minneriya-Kaudulla National Parks in Sri Lanka in 2008; (4) the study of elephant communication, cognition, and social behavior, conducting playback experiments, and recording elephant vocalizations and behavior in the Amboseli National Park in Kenya, 1998-2009; (5) recording elephant

vocalizations and behavior in Maasai Mara National Park, Tsavo National Park, and Laikipia District in Kenya in 1998; (6) assessing the numbers and habitat use of elephants in West Kilimanjaro, Tanzania in 1997; (7) overseeing numerous elephant surveys and studies of elephants carried out under my direction by the Kenya Wildlife Service Elephant Program in Kenya from 1990-1994; (8) studying elephant vocal and olfactory communication via vocal, visual, and chemical signaling and assessment between musth males in Amboseli National Park, Kenya from 1984-1990; studying the contextual use of very low frequency calls by elephants (9) assessing the effects of poaching on the age structure and social and reproductive patterns of elephant populations in Amboseli, Tsavo, Queen Elizabeth, and Mikumi National Parks in Kenya, Uganda, and Tanzania in 1989; (10) Focal animal sampling musth and male-male competition among elephants in Amboseli National Park, Kenya from 1980-1982; and (11) participating in Cynthia Moss' long-term studies of elephants in Amboseli National Park, Kenya from 1975-1979.

6. Over the course of my career, I have received several awards and honors related to my research, including; (1) an Outstanding Lifetime Achievement Award from the Jackson Hole Wildlife Film Festival in 2015; (2) a Certificate of Recognition from the California State Legislature and Assembly in 2007, for "tireless efforts in educating people on elephant captivity"; (3) the Smith College Medal in 1996 for elephant research and conservation work "exemplifying the true purpose of a liberal arts education"; (4) an F32 National Research Service Award (NRSA) Individual Postdoctoral Fellowship from the National Institute of Mental Health from 1985-1988; (5) a Research Fellowship from the Harry Frank Guggenheim Foundation in 1984; (6) a Research Fellowship from the New York Zoological Society from 1980-1981; (7) a Graduate Study Fellowship from Smith College in 1981; (8) the Sarah W. Wilder and Sarah W. Whipple Fellowship from 1979-1980; (9) Sigma Xi from 1979-1980; and (10) the A. Brazier Howell Award in 1979 for my paper on *musth* in African elephants, presented at the 1979 American Society of Mammalogists meetings.

7. I am affiliated with a number of professional organizations and hold several board and advisory memberships, including: (1) member of the Board for the Global Sanctuary for Elephants, from 2014-present; (2) member of the Advisory Board for the Kimmela Center for Animal Advocacy, from 2013-present; (3) member of the

Scientific Advisory Board for Elephant Aid International, from 2010-present; (4) member of the Alliance for Captive Elephants, in 2010; (5) member of the Board of Directors for ElephantVoices, from 2008-present; (6) member of Ethologists for the Ethical Treatment of Animals, from 2002-present; (7) member of the Scientific Advisory Committee for the Amboseli Elephant Research Project, from 2002-present; (8) member of the Science Advisory Board for the Captive Elephant Management Coalition, from 1988-2001; (9) member of the Panel of Experts for the Species Survival Network, in 2004; (10) Trustee for the Amboseli Trust for Elephants, from 2002-2011; and (11) member of the African Elephant Specialist Group, as part of the Species Survival Commission for the IUCN, from 1988-2001.

8. I have written two books concerning my work with elephants, including: (1) *Elephants* (1997, Colin Baxter Photography, Grantown-on-Spey, Scotland), and (2) *Coming of Age with Elephants* (1996, Hyperion Press, New York; 1996, Hodder & Stoughton, London).

9. I have published 28 peer-reviewed scientific articles over my career. These articles have been published in many of the world's premier scientific journals, including: *Nature*, *Science*, *Frontiers in Zoology*, *Biology Letters*, *Proceedings of the Royal Society B*, *Immunogenetics*, *PLoS ONE*, *The Ecologist*, *Animal Behaviour*, *Oryx*, *Behavioral Ecology and Sociobiology*, *Behavior*, *Journal of Reproduction and Fertility*, *Molecular Ecology*, *Journal of Consciousness Studies*, *Current Biology*, *Journal of the Acoustical Society of America*, *Etica and Animali*, and *Conservation Biology*. Specific topics of these publications include: Persistence of effects of social disruption in elephants decades after culling, Persistence of early life experiences 40 decades later on survival and success among African elephants, Poaching and wildlife conservation, Leadership in elephants: the adaptive value of age, Elephants, ivory, and trade, Simulated oestrus behavior in African elephants, Major histocompatibility complex variation and evolution in two genera of elephants, Fine-scaled population genetic structure in a fission-fusion society, Do elephants show empathy?, Elephant cognition, Behavioural inbreeding avoidance in wild African elephants, African elephants have expectations about locations of out-of-sight family members, Elephants can classify human ethnic groups by odour and garment colour, Age, musth, and paternity success in wild male African elephants, Wild African elephants discriminate between familiar and unfamiliar conspecific seismic alarm calls, Social

trauma early in life can affect physiology, behavior, and culture of animals and humans over generations, Elephants are capable of vocal learning, Older bull elephants control young males, African elephants assess acoustic signals, The Aggressive state of musth in African elephants, Mate guarding, reproductive success, and female choice in African elephants, Rutting behavior in African elephants, and Musth in the African elephant. Additionally, my research has been published in six non-peer reviewed publications.

10. My scientific work has also been published as chapters in several peer-refereed books, including *Mammals of Africa* (2013, Academic Press), *The Amboseli Elephants: A Long-Term Perspective on a Long-Lived Mammal* (2011, University of Chicago Press), *An Elephant in the Room: The Science and Well Being of Elephants in Captivity* (2008, Tufts University Cummings School of Veterinary Medicine's Center for Animals and Public Policy), *Elephants and Ethics: Toward a morality of Co-existence* (2003, Johns Hopkins University Press), *Behavioral Ecology and Conservation Biology* (1998, Oxford University Press), *The Differences Between the Sexes* (1994, Cambridge University Press), *Primate Social Relationships* (1983, Blackwell Scientific Publications). In addition to these peer-reviewed book chapters, my scientific work has been published in three additional book chapters, which were not refereed.

11. My scientific research has additionally been published in several peer-reviewed symposia proceedings, including "Vocal imitation in African savannah elephants (*Loxodonta Africana*)" in *Razprave IV* (2006, Rezreda Sazu XLVII-3); "Conservation biology: The ecology and genetics of endangered species," in *Genes in Ecology* (1991, Blackwell Scientific Publications, London, The 33rd Symposium of the British Ecological Society); "Elephant mate searching: Group dynamics and vocal and olfactory communication" and in *The Biology of Large African Mammals in their Environment* (1989, Clarendon Press, Oxford, Proceedings of the Symposium of the Zoological Society of London).

12. In addition to my peer-reviewed scientific publications, I have also published a number of technical reports for various foundations, working groups, and organizations. These reports include: (1) a series of reports relating to our work on elephants in the Maasai Mara from 2012-2015; (2) a series of reports relating to our work on elephants in Gorongosa National Park from 2012-2015 (3) a 2010 critique of

"The status of African elephants (*Loxodonta africana*) in the 2008 IUCN Red List of Threatened Species"; (4) a 1997 Typescript Report describing a survey of elephants and other wildlife of the West Kilimanjaro Basin, Tanzania; (5) a 1996 report in "Decentralization and Biodiversity Conservation" as part of a World Bank Symposium; (6) a 1994 report in the *Proceedings of the 2nd International Conference on Advances in Reproductive Research in Man and Animals* about the Logistical and ethical considerations in the management of elephant populations through fertility regulation; (7) a 1993 report detailing Kenya's Initiatives in Elephant Fertility Regulation and Population Control Techniques in *Pachyderm*; (8) a 1992 survey of the Shimba Hills elephant population for the Elephant Programme, Kenya Wildlife Service; (9) a 1992 report on the Status of Kenya's Elephants by the Kenya Wildlife Service and the Department of Resource Surveys and Remote Sensing; (10) a 1991 Elephant Conservation Plan for the Kenya Wildlife Service, Ministry of Tourism and Wildlife; (11) a 1990 Regional Overview of Elephant Conservation in Eastern Africa, in *Regional Perspectives and Situation Regarding Elephant Conservation and the Ivory Trade*, produced for the Paris Donors Meeting of the IUCN; (12) a 1990 report on Elephant Conservation and Management in *The Zebra Book, Policy Framework and Five-year Investment Programme* for the Kenya Wildlife Service; and (13) a 1989 report on The effects of poaching on the age structures and social and reproductive patterns of selected East African elephant populations in *The Ivory Trade and the Future of the African Elephant* for the 7th CITES Conference of the Parties.

13. In addition to my scientific publications, I have also published 14 popular articles in more general publications, including: National Geographic's blog *A Voice for Elephants*, *Basecamp Explorer AS*, *Swara*, *Care for the Wild News*, *Sotokoto*, *Wildlife News*, *Komba*, *Animal Kingdom*, and *Natural History*.

14. I have been an invited speaker at international meetings and symposia throughout the world, including: (1) Keynote, Jackson Hole Wildlife Film Festival, 2015; (2) National Geographic Retreat, International Council of Advisors in Stockholm, Sweden, 2014; (3) Chinese Zoo Directors Meeting on Animal Welfare, in Shenzhen, China in 2013; (4) the Royal Geographical Society, Hong Kong, China in 2013; (5) the Explorer's Club in New York, 2013; (6) the Explorer's Symposium for National Geographic, in Washington, DC in 2012; (7) "Nature's great masterpiece: Stories of

Elephants,” the 2012 Sabine Distinguished Lecture in Psychology, Colorado College; (8) Panel discussion for the National Geographic Society, Washington DC in 2008; (9) Seminar on Language Evolution and Cognition held by Communication Research Centre, Northumbria University & Language Evolution and Computation Research Unit, University of Edinburgh, Scotland in 2007; (10) Public lecture at the Explorer’s Club, New York in 2007; (11) lecture on communication, behavior, and social life among elephants, for the Science Museums of the la Caixa Foundation, Barcelona, Spain in 2006; (12) speaker in series of lectures on Animal Communication, for the Science Museums of the la Caixa Foundation, in Madrid, Spain in 2006; and (13) lecture on Animal Cognition and Communication, at the Tufts Center for Animals and Public Policy in Boston in 1999.

15. In addition to my scientific research, I have also focused extensively throughout my career on public education and outreach. I have utilized many different media formats in pursuit of this goal. I currently maintain three websites, including: (1) www.ElephantVoices.org - about elephant social behavior, communication and welfare; (2) www.facebook.com/elephantvoices; and (3) <http://www.theelephantcharter.info> - The Elephant Charter, co-written in 2008 by Joyce Poole, Cynthia Moss, Raman Sukumar, Andrea Turkalo and Katy Payne. I also currently maintain five online databases for the general public, including: (1) The Mara Elephants Who's Who Database (on <http://www.elephantvoices.org>); (2) The Mara Elephants Whereabouts Database (on <http://www.elephantvoices.org>); (3) ElephantVoices Gestures Database (on <http://www.elephantvoices.org>); (4) ElephantVoices Call Type & Context-Type Databases (on <http://www.elephantvoices.org>). I further developed, populate, and maintain elephant databases for the Gorongosa National Park including: (5) The Gorongosa Who's Who Database (on <http://www.elephantvoices.org>); and (6) The Gorongosa Whereabouts Database (on <http://www.elephantvoices.org>).

16. My research concerning elephant social behavior and communication, as well as my conservation work, has been featured in a number of printed articles, including publications such as *Readers' Digest*, *Scientific American*, *Science*, *National Geographic Kids*, *National Geographic Magazine*, *National Geographic Adventure*, *New York Times Magazine*, *National Geographic Explorer*, *LA Times*, *Highlights for Children*, *Scholastic*, *The New York Times*, *Science Times*, *Science*, *Science News*,

Spektrumdirekt, National Geographic News, Kyodo News Washington Bureau, Daily Telegraph, and the Guardian. Additionally, my life and work have been featured in several books, including: (1) Jodi Picoult's novel *Leaving Time*; (2) Martin Meredith's 2001 *Africa's Elephant*, a biography, and (3) Doug Chadwick's 1992 *Fate of the Elephant*. My work was also highlighted by Doug Chadwick in his 1992 feature article for *National Geographic Magazine*. My elephant recordings have featured in (1) Paul Winter's Summer Solstice Concert in New York Cathedral, in 2013 (2) in the Emmy award winning work by Paul Winter, *Miho* in 2010; (3) in *Avatar* in 2009; (4) in *Pulse of the Planet*.

17. I have been interviewed and my research has been featured on a number of radio programs, including: (1) a 2012 Sam Litzinger interview on *The Animal House/NPR* (WAMU 88.5); (2) Elephant welfare views featured on *WBUR's Inside Out Documentary on American Zoos* with Diane Toomey in 2009; (3) Elephant communication research featured in *Up Front Radio, San Francisco* with Sandip Roy Chowdhury in 2008; (4) Elephant communication, cognition, and welfare with Karl Losken *Animal Voices 102.7fm* in Vancouver, BC Canada in 2008; (5) *Science Update, American Association for the Advancement of Science (AAAS)* in 2005; (6) *BBC Radio Science, the Leading Edge* in 2005; (7) *German Public Radio (SWR) program Campus* in 2005; (8) *NPR* in 2005 about elephant vocal learning; (9) *BBC News Scotland* in 2005 about vocal learning in elephants; (10) *ABC's Radio 702* with Rory McDonald about elephant welfare in 2005; (11) Elephant communication research featured in *BBC's Beyond our Senses program Sounds of Life* with Grant Sonnex, in 2004; (12) Elephant communication research featured in *NPR program on elephant language* in 2004; (13) *WETA-FM, News 820's Openline & WNYC* in 1996; and (14) *Musth in the African elephant, BBC Radio 4, The living World* in 1981. In addition to these radio appearances, I have also appeared on the *Science* and the *city Pod* cast, in 2007.

18. I have also appeared and been featured in a variety of Television programs, including in: (1) *Gorongosa Park: Rebirth of Paradise* (2015), a PBS six-part series about the restoration of *Gorongosa National Park* in which my elephant work is highlighted in episodes 2 and 5; (2) *An Apology to Elephants*, an award winning 2013 documentary that explores abuse and brutal treatment of elephants; (3) *War Elephants* (2012), an award winning documentary about the traumatized elephants in *Gorongosa*

National Park, Mozambique, and their recovery, by National Geographic Wild, worldwide; (4) Elephant communication research is featured in "Elephant having tales to tell" (2008), NHK, Japan (Japanese and English versions); (5) Interview on elephant communication and cognition for Smart Planet for REDES-TVE, Spain (2006); (6) Elephants and vocal learning, Daily Planet Discovery Channel Canada (2005); (7) Elephant cognition and conservation views featured on National Geographic Explorer *Elephant Rage* (2005); (8) Elephant recordings featured in Discovery Channel's *Echo III* (2004); (9) Elephant communication research, Elephant's Talk, featured in BBC documentary *Talking with Animals* (2002); (10) Work featured on News and Talk shows such as CNN (1993), ABC news Women and Science, The Today Show, (1996), West 57th Street CBS News (1989), PM Magazine (1987). (11) Research featured in *Inside the Animal Mind Part 3 Animal Consciousness*, WNET Nature (1999); (12) Featured on Episode 16, *Elephants*, in series, *Champions of the Wild*, Omni Film Productions, Vancouver, Canada (1998); (13) Life, elephant research, and conservation work subject of National Geographic Special, *Coming of Age with Elephants* (1996); (14) *Wildlife Warriors*, National Geographic Special (1996); (15) *A Voice for Elephants* *USIA AfricaPLX* (1996); (16) Discovery Channel documentary "Ultimate Guide to Elephants" (1996); (17) *Elephants like us*, Rossellini and Associates (1990); (18) *The language of the elephants*, Rossellini and Associates (1990); (19) Elephant research and conservation work featured in National Geographic Special *Ivory Wars* (1989); (20) Research highlighted in BBC production *Trials of Life* with David Attenborough (1988); (21) Work on elephant infrasound featured in *Supersense* BBC Natural History Unit series on animal senses (1988); and (22) Featured in Sports and Adventure, *Women of the World* (1987).

19. I have testified as an expert witness in several court cases in several countries, including: (1) In 1998 in South Africa in the Case of NSPCA v. Riccardo Ghiazza regarding the capture, mistreatment of 34 baby elephants. Ghiazza was eventually found guilty of cruelty; (2) In 2005 via video link in International Fund for Animal Welfare, et al. v. Minister for the Environment and Heritage et al., N2005/916 regarding the export of Asian elephants from Thailand to Australia; (3) In 2008 in Washington DC in American Society for the Prevention of Cruelty to Animals, Animal Welfare Institute, The Fund for Animals, Animal Protection Institute & Tom

Rider Plaintiffs in *ASCPA v. Ringling Brothers and Barnum & Bailey Circus*; and (4) In 2012 in Los Angeles in *Aaron Leder vs. John Lewis, City of Los Angeles*, in a case regarding the welfare of the elephants of Los Angeles Zoo. I am currently involved in another case in South Africa but have not yet appeared in court.

20. My Curriculum Vitae fully sets forth my educational background and experience and is annexed hereto as "Exhibit A".

Basis for opinions

21. The opinions I state in this Affidavit are based on my professional knowledge, education, training, and years of experience observing and studying elephants, as well as my knowledge of peer-reviewed literature about elephant behaviour and intelligence published in the world's most respected journals, periodicals and books that are generally accepted as authoritative in the field, and many of which were written by myself or colleagues whom I have known for several years and with whose research and field work I am personally familiar. A full reference list of peer-reviewed literature cited herein is annexed hereto as "Exhibit B".

Opinions

Premise

22. Elephants are autonomous beings. Autonomy in humans and nonhuman animals is defined as self-determined behaviour that is based on freedom of choice. As a psychological concept it implies that the individual is directing their behaviour based on some non-observable, internal cognitive process, rather than simply responding reflexively. Although we cannot directly observe these internal processes in other beings, we can explore and investigate them by observing, recording and analysing their behaviour, as I have done with elephants for my entire career.

23. I shall indicate which species, African (*Loxodonta Africana*) or Asian (*Elephas maximus*), specific observations relate to. If the general term 'elephants' is used with no specific delineation, it can be assumed the comment relates to the African species, though it is likely that it applies to the Asian species as well.

Brain And Development

24. Elephants are large-brained, with the biggest absolute brain size of any land animal (Cozzi et al 2001; Shoshani et al 2006). Even relative to their body sizes,

elephant brains are large. Encephalization quotients (EQ) are a standardised measure of brain size relative to body size, and illustrate by how much a species' brain size deviates from that expected for its body size. An EQ of one means the brain is exactly the size expected for that body, and values greater than one indicate a larger brain than expected (Jerison 1973). Elephants have an EQ of between 1.3 and 2.3 (varying between sex and African and Asian species). This means an elephant's brain can be up to two and a half times larger than is expected for an animal of its size; this EQ is similar to that of the great apes, with whom elephants have not shared a common ancestor for almost 100 million years (Eisenberg 1981, Jerison 1973). Given how metabolically costly brain tissue is, the large brains of elephants must confer significant advantages; otherwise their size would be reduced. A large brain allows for greater intelligence and behavioural flexibility (Bates et al 2008a).

25. Generally, mammals are born with brains weighing up to 90% of the adult weight. This figure drops to about 50% for chimpanzees. Human baby brains weigh only about 27% of the adult brain weight (Dekaban & Sadowsky 1978). This long period of brain development over many years (termed 'developmental delay') is a key feature of human brain evolution and is thought to play a role in the emergence of our complex cognitive abilities, such as self-awareness, creativity, forward planning, decision making and social interaction (Bjorkland 1997). Delayed development provides a longer period in which the brain may be shaped by experience and learning (Furster 1992). Elephant brains at birth weigh only about 35% of their adult weight (Eltringham 1982), and elephants show a similarly protracted period of growth, development and learning (Lee 1986). This similar developmental delay in the elephant brain is therefore likewise associated with the emergence of similarly complex cognitive abilities.

26. Despite nearly 100 million years of separate evolution (Hedges 2001), elephants share certain characteristics of our large brains, namely deep and complex folding of the cerebral cortex, large parietal and temporal lobes, and a large cerebellum (Cozzi et al 2001). The temporal and parietal lobes of the cerebral cortex manage communication, perception, and recognition and comprehension of physical actions (Kolb and Whishaw 2008), while the cerebellum is involved in planning, empathy, and predicting and understanding the actions of others (Barton 2012). Thus, the physical

similarities between human and elephant brains occur in areas that link directly to the capacities necessary for autonomy and self-awareness.

27. Elephant brains hold nearly as many cortical neurons as do human brains: humans: 1.15×10^{10} ; elephants: 1.1×10^{10} (Roth & Dicke 2005). Elephants' pyramidal neurons are larger than in humans and most other species (Cozzi et al 2001). Pyramidal neurons are found in the cerebral cortex, particularly the pre-frontal cortex – the brain area that controls executive functions (a set of cognitive processes that are required for choosing and monitoring behaviors that facilitate an individual to reach certain goals, e.g., problem solving, planning, working memory, inhibitory and attentional control and cognitive flexibility). The degree of complexity of pyramidal neurons is linked to cognitive ability, with more (and more complex) connections between pyramidal neurons being associated with increased cognitive capabilities (Elston 2003). Elephant pyramidal neurons have a large dendritic tree, i.e. a large number of connections with other neurons for receiving and sending signals (Cozzi et al 2001).

28. Elephants, like humans, great apes and some cetaceans, possess *von Economo neurons*, or spindle cells – the so-called 'air-traffic controllers for emotions' – in the anterior cingulate, fronto-insular, and dorsolateral prefrontal cortex areas of the brain (Hakeem et al 2009). In humans, these cortical areas are involved – among other things – in the processing of complex social information, emotional learning and empathy, planning and decision-making, and self-awareness and self-control (Allman et al 2001; Allman et al 2002; Allman et al 2011). The shared presence of spindle cells in the same brain locations in elephants and humans strongly implies these higher-order brain functions – the building blocks of autonomous, self-determined behaviour – are common between these species (Butti et al 2009; Hakeem et al 2009).

29. As described below, along with these common brain and life-history characteristics, elephants share many behavioural and intellectual capacities with humans, including: self-awareness, empathy, awareness of death, intentional communication, learning, memory, and categorisation abilities. Many of these capacities have previously been considered – erroneously – to be uniquely human, and each is fundamental to and characteristic of autonomy and self-determination.

Awareness Of Self And Others

30. Asian elephants exhibit Mirror Self Recognition (MSR) using Gallup's classic 'mark test' (Gallup 1970; Plotnik et al 2006). MSR is the ability to recognise a reflection in the mirror as oneself, and the mark test involves surreptitiously placing a coloured mark on an individual's forehead that it could not see or be aware of without the aid of a mirror. If the individual uses the mirror to investigate the mark, the individual recognises the reflection as herself. Besides elephants, the only other mammals that have successfully passed the mark test and exhibited MSR are the great apes (chimpanzees, bonobos, gorillas and orangutans) and bottlenose dolphins (Parker and Mitchell 1994, Reiss and Marino 2001). MSR is significant because it is considered to be the key identifier of self-awareness. Self-awareness is intimately related to autobiographical memory in humans (Prebble et al 2011), and is central to autonomy and being able to direct one's own behaviour to achieve personal goals and desires. By demonstrating that they can recognize themselves in a mirror, elephants holding a mental representation of themselves from another perspective, and thus be aware that they are a separate entity from others (Bates and Byrne 2014).

31. A being who understands the concept of dying and death possesses a sense of self. Based on the research conducted to date, observing reactions to dead family or group members suggests an awareness of death in only two animal genera beyond humans; chimpanzees and elephants (Anderson et al 2010, Douglas-Hamilton et al 2006). Having a mental representation of the self – a pre-requisite for mirror-self recognition – contributes to the ability to comprehend death. Wild African elephants have been shown experimentally to be more interested in the bones of dead elephants than the bones of other animals (McComb et al 2006), and have frequently been observed using their tusks, trunk or feet to attempt to lift sick, dying or dead individuals (Douglas-Hamilton 1972, Moss 1992, Poole, 1996, Payne 2003, Douglas-Hamilton et al. 2006). Although they do not give up trying to lift or elicit movement from the body immediately, elephants appear to realise that once dead, the carcass cannot be helped anymore, and instead engage in more 'mournful' behaviour, such as standing guard over the bodies, and protecting it from the approaches of predators (e.g Douglas-Hamilton 1972, Croze cited in Moss 1982, Moss 1988, Poole, 1996, Payne 2003, McComb et al 2006). Others have observed them covering the bodies of dead elephants with dirt and vegetation (Moss 1992; Poole 1996). In the particular case of mothers who lose a calf, although they may remain with the calf's body for an

extended period, they do not behave towards the body as they would a live calf. Indeed, the general demeanour of elephants who are attending to a dead elephant is one of grief and compassion, with slow movements and few, if any, vocalisations (Poole, 1996.). These behaviours are akin to human responses to the death of a close relative or friend, and illustrate that elephants possess some understanding of life and the permanence of death. Furthermore, elephants' interest in the bodies, carcasses and bones of elephants who have passed is so marked that when one has died, trails to the site of death are worn into the ground by the repeated visits of many elephants over days, weeks, months and even years (Poole, personal observation). The accumulation of dung around the site attests to the extended time that visiting elephants spend touching and contemplating the bones. I have observed that, over years, the bones may become scattered over tens or hundreds of square meters as elephant pick up the bones and carry them away. The tusks are of particular interest and may be carried and deposited many hundreds of meters from the site of death (Poole, personal observation).

32. The capacity for mentally representing the self as an individual entity has been linked to general empathic abilities (Gallup 1982), where empathy can be defined as identifying with and understanding another's experiences or feelings by imagining what it would be like to be in their situation. Empathy is an important component of human consciousness and autonomy, and is a cornerstone of normal social interaction. It goes beyond merely reading the emotional expressions of others. It requires modelling of the emotional states and desired goals that influence others' behaviour both in the past and future, and using this information to plan one's own actions; empathy is only possible if one can adopt or imagine another's perspective, and attribute emotions to that other individual (Bates et al 2008b). Empathy is, therefore, a component of and reliant on 'Theory of Mind' - the ability to mentally represent and think about the knowledge, beliefs and emotional states of others, whilst recognising that these can be distinct from your own knowledge, beliefs and emotions (Premack and Woodruff/Frith and Frith 2005).

33. Elephants clearly and frequently display empathy in the form of protection, comfort and consolation, as well as by actively helping those who are in difficulty, such as assisting injured individuals to stand and walk, or helping calves out of rivers or ditches with steep banks (Bates et al 2008b, Lee 1987, Poole, 1996). Elephants

have been observed to react when anticipating the pain of others (e.g. seen to wince when a nearby elephant stretched her trunk toward a live wire – Poole, personal observation) and have even been observed feeding those who are not able to use their own trunks to eat (Moses Kofi Sam, personal communication) and to attempt to feed those who have just died (Croze, cited in Moss 1982).

34. In an analysis of behavioural data collected from wild African elephants over a 40-year continuous field study, I have concluded that as well as possessing their own intentions, elephants can diagnose animacy and goal directedness in others, understand the physical competence and emotional state of others, and attribute goals and mental states (intentions) to others (Bates et al 2008b), as evidenced in the examples below:

'IB family is crossing river. Infant struggles to climb out of bank after its mother. An adult female [not the mother] is standing next to calf and moves closer as the infant struggles. Female does not push calf out with its trunk, but digs her tusks into the mud behind the calf's front right leg which acts to provide some anchorage for the calf, who then scrambles up and out and rejoins mother.'

'At 11.10ish Ella gives a 'lets go' rumble as she moves further down the swamp . . . At 11.19 Ella goes into the swamp. The entire group is in the swamp except Elspeth and her calf [<1 year] and Eudora [Elspeth's mother]. At 11.25 Eudora appears to 'lead' Elspeth and the calf to a good place to enter the swamp — the only place where there is no mud.'

In addition to the examples analyzed in Bates et al 2008b, in what appeared to be a spontaneous attempt to prevent injury to the newborn, I observed two adult females rush to the side of a third female who had just given birth, back into her and press their bodies to her. In describing the situation I wrote:

'The elephants' sounds [relating to the birth] also attracted the attention of several males including young and inexperienced, Ramon, who, picking up on the interesting smells of the mother [Ella], mounted her, his clumsy body and feet poised above the newborn. Matriarch Echo and her adult daughter Erin, rushed to Ella's side and, I believe, purposefully backed into her in what appeared to be an attempt to prevent the male from

landing on the baby when he dismounted."

Examples such as these demonstrate that the acting elephant(s) (the adult female in the first example, Eudora in the second, and Erin and Echo in the third) was able to understand the intentions or situation of the other (the calf in the first case, Elspeth in the second; Ella's newborn and the male in the third) – i.e. to either climb out of or into the water, or be trampled on by the male – and they could adjust their own behaviour in order to counteract the problem being faced by the other. Whilst humans may act in this helpful manner on a daily basis, such interactions have been recorded for very few non-human animals (Bates et al 2008b). In raw footage I recently acquired of elephant behavior filmed by my brother in the Mara, Kenya, an allo-mother moves a log from under the head of an infant, in what appears to be an effort to make him more comfortable (Poole, personal observation; Video 1, attached on CD as "Exhibit C"). In a further example of understanding goal directedness of others, elephants appear to understand that vehicles drive on roads or tracks and furthermore they appear to know where these tracks lead. In Gorongosa, Mozambique, where elephants exhibit a culture of aggression toward humans, charging, chasing and attacking vehicles, adult females anticipate the direction the vehicle will go and attempt to cut it off by taking shortcuts *before* the vehicle has begun to turn (Poole personal observation 2012). The roots of empathetic behavior begin early in elephants. Just as in humans where rudimentary sympathy for others in distress has been recorded in infants as young as 10 months old (Kanakogi et al 2013 see <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0065292>) young elephants exhibit behavior that indicates that they feel sympathy for others. For instance, during fieldwork in the Maasai Mara in 2011 I filmed a mother elephant using her trunk to assist her one-year-old female calf up a steep bank. Once the calf was safely up the bank she turned around to face her five-year-old sister, who was also having difficulties getting up the bank. As the older calf clambered up the bank with effort the younger calf approached her and first touched her mouth (a gesture of reassurance among family members) and then reached her trunk out to touch the leg that had been having difficulty. Only when her sibling was safely up the bank did the calf turn to follow her mother (filmed by Poole, 2011; Video 2, attached on CD as "Exhibit D").

35. Experimental evidence from captive African elephants further demonstrates that elephants attribute intentions to others, as they follow and understand human pointing gestures - the only animal so far shown to do so spontaneously. The elephants understood that the human experimenter was pointing in order to communicate information to them about the location of a hidden object (Smet and Byrne 2013). Attributing intentions and understanding another's reference point is central to empathy and theory of mind.

36. Our analysis of simulated oestrus behaviours in African elephants – whereby a non-cycling, sexually experienced older female will simulate the visual signals of being sexually receptive, even though she is not ready to mate or breed again – shows that these knowledgeable females adopt false oestrus behaviours in order to demonstrate to naïve young females how to attract and respond appropriately to suitable males. The experienced females may be taking the youngsters lack of knowledge into account and actively showing them what to do; a possible example of true teaching as it is defined in humans. Whilst this possibility requires further investigation, this evidence, coupled with the data showing that they understand the ostensive cues in human pointing, demonstrates that elephants do share some executive skills with humans, namely understanding the intentions and knowledge states (minds) of others. Ostensive communication – refers to the way humans use particular behaviour such as tone of speech, eye contact, physical contact to emphasize that a particular communication is important. Lead elephants in family groups use ostensive communication frequently (e.g. Ear-Flap-Slide and Ear-Slap; Poole & Granli 2011 and Comment-Rumbling; Poole, 2011) as a way to say, “Heads up – I am about to do something that you should pay attention to.”

37. Further related to empathy, coalitions and cooperation have been documented in wild African elephants, particularly to defend family members or close allies from (potential) attacks by outsiders, such as when a family group tries to ‘kidnap’ a calf from an unrelated family (Lee 1987, Moss and Poole 1983) or during the extraordinary teamwork executed by elephants when they defend themselves against predators, particularly, human beings (Poole and Granli 2011; Poole, 2011). These latter behaviors are preceded by gestural and vocal signals typically given by the matriarch and acted upon by family members and have been documented many times amongst the Gorongosa elephants and in elephant behavior footage from there that we

are currently analyzing. These behaviours are based on one elephant understanding the signals, emotions and goals of the coalition partner(s) (Bates et al 2008b).

38. Cooperation is also evident in experimental tests with captive Asian elephants, whereby elephants demonstrated they can work together in pairs to obtain a reward, and understood that it was pointless to attempt the task if their partner was not present or could not access the equipment (Plotnik et al 2011). Problem-solving and working together to achieve a collectively desired outcome involve mentally representing both a goal and the sequence of behaviours that is required to achieve that goal; it is based on (at the very least) short-term action planning.

39. Wild elephants have frequently been observed engaging in cooperative problem solving, for example when retrieving calves that have been kidnapped by other groups, when helping calves out of steep, muddy river banks (Bates et al 2008b), when rescuing a calf attacked by a lion (acoustic recording calling to elicit help from others (Poole, 2011 and see Roaring-Rumbles) by or the vocal and gestural communication used when they are negotiating a plan of action (e.g. when elephants use cadenced-rumbling, Poole 2011, or High-Fiving to lend their “voice” to a proposed or targeted plan of action; Video 3, attached on CD as “Exhibit E”) or when they must navigate through human-dominated landscapes to reach a desired destination (e.g. habitat, salt-lick, waterhole) as evidenced in video footage of Selenge and her family filmed in 2015. These behaviours demonstrate the purposeful and well-coordinated social system of elephants, and show that elephants can hold particular aims in mind and work together to achieve those goals. Such intentional, goal-directed action forms the foundation of independent agency, self-determination, and autonomy.

40. Elephants also show innovative problem solving in experimental tests of insight (Foerder et al 2011), where insight can be defined as the ‘a-ha’ moment when a solution to a problem ‘suddenly’ becomes clear. (In cognitive psychology terms, insight is the ability to inspect and manipulate a mental representation of something, even when you can’t physically perceive or touch the something at the time.) Or more simply, insight is thinking and using only thoughts to solve problems (Richard Byrne, *Evolving Insight*, Oxford Online Press, 2016¹). A juvenile male Asian elephant

¹ Available at <https://global.oup.com/academic/product/evolving-insight-9780198757078?cc=us&lang=en&> (last accessed Oct. 11, 2016).

demonstrated just such a spontaneous action by moving a plastic cube and standing on it to obtain previously out-of-reach food. After solving this problem once, he showed flexibility and generalization of the technique to other, similar problems by using the same cube in different situations, or different objects in place of the cube when it was not available. This experiment again demonstrates that elephants can choose the appropriate action and incorporate it into a sequence of behaviour in order to achieve a goal, which they kept in mind throughout the process.

41. Further experiments also demonstrate Asian elephants' ability to understand goal-directed behaviour. When presented with food that was out of reach, but with some bits resting on a tray that could be pulled within reach, the elephants learned to pull only those trays that were baited with food (Irie-Sugimoto et al 2007). Success in this kind of 'means-end' task demonstrates causal knowledge, which requires understanding not just that two events are associated with each other but also that there is some mediating force that connects and affects the two which may be used to predict and control events. Moreover, understanding causation and inferring object relations may be related to understanding psychological causation, i.e., the appreciation that others are animate beings that generate their own behaviour and have mental states (e.g., intentions).

Communication and social learning

42. Speech is a voluntary behaviour in humans, whereby a person can choose whether to utter words and thus communicate with another. Therefore speech and language reflect autonomous thinking and intentional behaviour. Elephants also intentionally use their vocalisations to share knowledge and information with others (Poole 2011). Females and dependents call to emphasise and reinforce their social units and to coordinate movement. Male elephants primarily communicate about their sexual status, rank and identity, though like females they also use calls to coordinate movement and interactions in their social groups. Call types (47 have been described by Poole, 2011) can generally be separated into laryngeal calls (such as rumbles, cries, roars) or trunk calls (such as trumpets, snorts), with different calls in each category being used in different contexts (Poole et al 1988; Poole 2011; Poole and Granli 2004; Soltis et al 2005; Wood et al 2005). Field experiments have shown that African elephants distinguish between different call types (for example, contact calls – rumbles that travel long distances to maintain associations between elephants that

could be several kilometres apart, oestrus rumbles – that occur after a female has copulated or musth rumbles that are made by males in the heightened sexual and aggressive state of musth) and these different call types elicit different responses in the listeners. Elephant vocalisations are not simply reflexive, they have distinct meanings to listeners and they are truly communicative, similar to the volitional use of language in humans (Leighty et al 2008; Poole 1999; Poole 2011).

43. Elephants display a wide variety (> 200 described) of gestures, signals and postures, used to communicate information to the audience (Poole and Granli 2011 and ElephantVoices Elephant Gestures Database²). Such signals are adopted in many different contexts, such as aggressive, sexual or socially integrative situations, and each signal is well defined and results in predictable responses from the audience. That is, each signal or gesture has a specific meaning both to the actor and recipient. Elephants' use of gestures demonstrates that they communicate intentionally and purposefully to share information with others and/or alter the others' behaviour to fit their own will.

44. Elephants use specific calls and gestures to plan and discuss a course of action. These may involve responding to a threat by a group retreat or mobbing action (including celebration of successful efforts), or planning and discussing where, when and how to move to a new location. I have studied elephant communication for two decades and have field notes, acoustic recordings and raw footage of numerous examples of such communication.

45. In group-defensive situations elephants respond with highly coordinated behaviour, both rapidly and *predictably*, to specific calls uttered and particular gestures exhibited by group members. In other words, these elephant calls and gestures hold specific meanings not only to elephant listeners, but also, through experience, to human observers. The rapid, predictable and collective response of elephants to these calls and gestures indicates that elephants have the capability of understanding the goals and intentions of the signalling individual. For example, as was documented and described by me in Episode 2 of PBS six-part series *Gorongosa Park: Rebirth of Paradise*, matriarch Provocadora's contemplation of us (Listening, J-

² <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database.html>

Sniffing) followed by her purposeful Perpendicular-Walk³ (in relation to us) toward her family and her Ear-Flap-Slide⁴ was a clear indication to her family to begin a Group-Advance⁵ (on us). This particular elephant attack is a beautiful example of elephants' use of empathy, coalition and cooperation. Provocadora's instigation of the Group-Advance led to a two and a half minute Group-Charge⁶ in which the three other large adult females of the 36-member family took turns to lead the charge, passing the baton, in a sense, from one to the next. Once they succeeded in their goal of chasing us away they celebrated their victory High-Fiving⁷ (with their trunks) and engaging in an End-Zone-Dance⁸. High-Fiving is also typically used to initiate a coalition and is both preceded by and associated with other specific gestures and calls that lead to very goal oriented collective behavior. Elephant group defensive behavior is highly evolved and involves a range of different tactical manoeuvres adopted by different elephants. The calls and gestures used are too many to mention here but many are described in Poole 2011 and on ElephantVoices Elephant Gestures Database⁹ under Defensive¹⁰ and in Elephant Calls Context Database¹¹ under the section Group Defense¹².

46. In planning and communicating intentions regarding a movement, elephants use both vocal (see Logistical¹³ on the ElephantVoices Elephant Calls Context Database) and gestural communication (see Movement Initiation and Leadership¹⁴ on the

³ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/431-defensive/confront-predator/1660-perpendicular-walk.html?layout=gesture>

⁴ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/411-social-integration/movement-initiation-leadership/1789-ear-flap-slide.html?layout=gesture>

⁵ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/408-defensive/mobbing/1817-group-advance.html?layout=gesture>

⁶ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/408-defensive/mobbing/1818-group-charge.html?layout=gesture>

⁷ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/405-aggressive/escalation/1845-high-fiving.html?layout=gesture>

⁸ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/406-aggressive/post-conflict-display/1831-end-zone-dance.html?layout=gesture>

⁹ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database.html>

¹⁰ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/306-defensive.html?layout=gesture>

¹¹ <https://www.elephantvoices.org/multimedia-resources/elephant-calls-database-contexts.html>

¹² <https://www.elephantvoices.org/multimedia-resources/elephant-calls-database-contexts/194-group-defense.html?layout=callscontext>

¹³ <https://www.elephantvoices.org/multimedia-resources/elephant-calls-database-contexts/206-social-integration/logistical.html?layout=callscontext>

¹⁴ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/411-social-integration/movement-initiation-leadership.html?layout=gesture>

ElephantVoices Elephant Gestures Database). For example, I have observed that a member of a family will use the axis of her body to point in the direction she wishes to go and then vocalize, every couple of minutes, with a specific call known as a “let’s-go” rumble¹⁵ (Poole et al, 1988; Poole 2011, ElephantVoices Elephant Calls Context Database¹⁶), “I want to go this way, let’s go together.” The elephant will also use intention gestures – such as Foot-Swinging – to indicate her intention to move. Such a call may be successful or unsuccessful at moving the group or may lead to a longer (45 minutes or more) discussion (series of rumble exchanges known as Cadenced Rumbles¹⁷) that I interpret as negotiation. Sometimes such negotiation leads to disagreement and the group may spilt and go different ways for a period of time. In situations where the security of the group is at stake, for instance when a movement is planned through or near to human settlement, all group members are focused on the decision of the matriarch. So while “let’s go” rumbles are uttered, others adopt a Waiting¹⁸ posture until the matriarch, after much Listening¹⁹, J-Sniffing²⁰ and Monitoring²¹ decides it is safe to proceed, where upon they bunch together and move purposefully, and at a fast pace in a Group-March (I have an example on film from Maasai Mara, 2015). Elephants typically move through dangerous habitat at high speed and at night in a very goal oriented manner known as “streaking,” which has been described and documented through the movements of elephants wearing satellite tracking collars (Douglas-Hamilton et al 2005). The many different signals - calls, postures, gestures and behaviors elephants use to contemplate and initiate such movement (including others e.g. Ear-Flap, Ear-Flap-Slide) are clearly understood by other elephants (just as they can be by long-term study by human observers), mean very specific things and indicate that elephants 1) have a particular plan which they can communicate with others; 2) can adjust this plan

¹⁵ <https://www.elephantvoices.org/multimedia-resources/elephant-calls-database-contexts/214-social-integration/logistical/let-s-go-rumble.html?layout=callscontext>

¹⁶ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/411-social-integration/movement-initiation-leadership.html?layout=gesture>

¹⁷ <https://www.elephantvoices.org/multimedia-resources/elephant-calls-database-contexts/215-social-integration/logistical/cadenced-rumble.html?layout=callscontext>

¹⁸ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/411-social-integration/movement-initiation-leadership/1788-waiting.html?layout=gesture>

¹⁹ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/424-attentive/listening/1702-listening.html?layout=gesture>

²⁰ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/423-attentive/sniffing/1705-j-sniff.html?layout=gesture>

²¹ <https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database/423-attentive/sniffing/1710-monitoring.html?layout=gesture>

according to their immediate assessment of risk or opportunity 3) can communicate and execute the plan in a coordinated manner.

47. ~~46.~~ Furthermore, elephants have been shown to vocally imitate the sounds they hear around them, from the engines of passing trucks and the calls of other species to the commands of human zookeepers (Poole et al 2005, Stoeger et al 2012). Imitating another's behaviour demonstrates a sense of self, as it is necessary to understand how one's own behaviour relates to the behaviour of others.

48. ~~47.~~ Experimental evidence demonstrates that African elephants recognize the importance of visual attentiveness of the intended recipient (in this case, human experimenters) of gestural communication (Smet & Byrne 2014), further supporting the conclusion that elephants' gestural communication is intentional and purposeful. Furthermore, the ability to understand the visual attentiveness and perspective of others is crucial for empathy and mental-state understanding.

Memory And Categorisation

49. ~~48.~~ Elephants have both extensive and long-lasting memories, just as the folk stories and adages encourage us to believe. McComb et al. (2000), using experimental playback of long-distance contact calls in Amboseli National Park, Kenya, showed that African elephants remember and recognize the voices of at least 100 other elephants. Each adult female elephant tested was familiar with the contact-call vocalizations of individuals from an average of 14 families in the population. When the calls were from a familiar family—that is, one that had previously been shown to have a high association index with the test group—the test elephants contact-called in response and approached the location of the loudspeaker. When a test group heard unfamiliar contact calls (from groups with a low association index with the test group), they bunched together and retreated from the area.

50. ~~49.~~ McComb et al (2001) went on to show that this social knowledge accrues with age, with older females having the best knowledge of the contact calls of other family groups. McComb et al (2011) also showed that older females are better leaders, with more appropriate decision-making in response to potential threats (in this case, in the form of hearing lion roars). Younger matriarchs under-reacted to hearing roars from male lions. Sensitivity to hearing this sound increased with increasing matriarch age, with the oldest, most experienced females showing the strongest response to this

danger. These experimental studies show that elephants continue to learn and remember information about their environments throughout their lives, and this accrual of knowledge allows them to make better decisions and better lead their families as they grow older.

51. ~~40~~ Elephants' long-term memory is further demonstrated from data on their movement patterns. African elephants are known to move over very large distances in their search for food and water. Leggett (2006) used GPS collars to track the movements of elephants living in the Namib Desert. He recorded one group traveling over 600 km in five months, and Viljoen (1989) showed that elephants in the same region visited water holes approximately every four days, even though some of them were more than 60km apart. Elephants inhabiting the deserts of both Namibia and Mali have been described traveling hundreds of kilometers to arrive at remote water sources shortly after the onset of a period of rainfall (Blake et al. 2003; Viljoen 1989), sometimes along routes that researchers believe have not been used for many years. These remarkable feats suggest exceptional cognitive mapping skills, reliant on the long-term memories of older individuals who traveled that path sometimes decades earlier. Indeed it has been confirmed that family groups with older matriarchs are better able to survive periods of drought. The older matriarchs lead their families over larger areas during droughts than those with younger matriarchs, again apparently drawing on their accrued knowledge (this time about the locations of permanent, drought-resistant sources of food and water) to better lead and protect their families (Foley, Pettorelli, and Foley 2008).
52. ~~40~~ It has recently been shown that long-term memories, and the decision-making mechanisms that rely on this knowledge, are severely disrupted in elephants who have experienced trauma or extreme disruption due to 'management' practices initiated by humans. Shannon et al (2013) demonstrated that elephants in South Africa who had experienced trauma decades earlier showed significantly reduced social knowledge. During archaic culling practices, these elephants were forcibly separated from family members and subsequently translocated to new locations. Two decades later, they still showed impoverished social knowledge and skills and impaired decision-making abilities, compared with an undisturbed population in Kenya. Disrupting elephants' natural way of life can negatively impact their knowledge and decision-making abilities.

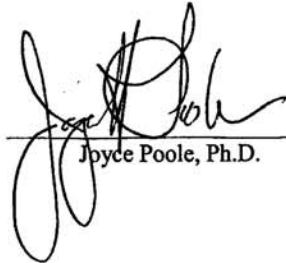
53. ~~53.~~ Elephants demonstrate advanced 'working memory' skills. Working memory is the ability to temporarily store, recall, manipulate and coordinate items from memory. Working memory directs attention to relevant information, and results in reasoning, planning, and coordination and execution of cognitive processes through use of a 'central executive' (Baddeley 2000). Adult human working memory is generally thought to have a capacity of around seven items. In other words, we can keep about seven different items or pieces of information in mind at the same time (Miller 1956). We conducted experiments with wild elephants in Amboseli National Park, Kenya, manipulating the location of fresh urine samples from related or unrelated elephants. The elephants' responses to detecting urine from known individuals in surprising locations showed that they are able to continually track the locations of at least 17 family members in relation to themselves, as either absent, present in front of self, or present behind self (Bates et al. 2008a). This remarkable ability to hold in mind and regularly update information about the locations and movements of a large number of family members is best explained by elephants possessing an unusually large working memory capacity, apparently much larger than that of humans.

54. ~~54.~~ Elephants show sophisticated categorisation of their environment, with skills on a par with those of humans. My colleagues and I experimentally presented the elephants of Amboseli National Park, Kenya, with garments that gave olfactory or visual information about their human wearers - either Maasai moran (male warriors who traditionally attack and spear elephants on occasion as part of their rite of passage), or Kamba men (who are agriculturalists and traditionally pose little threat to elephants). In the first experiment, the only thing that differed between the cloths was the smell, derived from the ethnicity and/or lifestyle of the wearers. The elephants were significantly more likely to run away when they sniffed cloths worn by Maasai than those worn by Kamba men or no one at all. In a second experiment, we presented the elephants with two cloths that had not been worn by anyone, but here one was white (a neutral stimulus) and the other was red—the color that is ritually worn by Maasai moran. With access only to these visual cues, the elephants showed significantly greater reaction to red garments than white, often including signs of aggression. We concluded that elephants are able to categorize a single species (humans) into sub-classes (i.e. 'dangerous' or 'low risk') based on either olfactory or visual cues alone (Bates et al. 2007). McComb et al. went on to show that the same elephant population

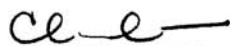
can also distinguish between human groups based on our voices. The elephants reacted differently (and appropriately) depending on whether they heard Maasai or Kamba men speaking, and also when they heard male or female Maasai (where female Maasai pose no threat as they are not involved in spearing events), and adult Maasai men or young Maasai boys (McComb et al 2014). Scent, sounds and visual signs associated specifically with Maasai men are categorized as 'dangerous', while neutral signals are attended to but categorized as 'low risk'. These sophisticated, multi-modal categorization skills may be exceptional among non-human animals.

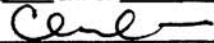
Summary

55. Scientific knowledge about elephant intelligence has been increasing rapidly in the past decade: what we currently know is only a tiny fraction of what elephant brains are likely capable of, and yet more amazing abilities are still likely to be discovered. But even based on what we know at this stage, including through my own and my colleagues' extensive experience, observations and studies, both African and Asian elephants share many key traits of autonomy with humans and like humans are autonomous beings.


Joyce Poole, Ph.D.

Sworn to before me
this 2nd day of December, 2016


Notary Public

DISTRICT OF COLUMBIA: SS
SUBSCRIBED AND SWORN TO BEFORE ME
THIS 2nd DAY OF Dec 2016.

NOTARY PUBLIC
My Commission Expires 11.14.2020



**EXHIBIT A TO POOLE AFFIDAVIT -
CURRICULUM VITAE OF JOYCE POOLE [A- 165 - A- 174]**

CURRICULUM VITAE

JOYCE POOLE

(Updated April 2012)

ElephantVoices	ElephantVoices US	Website: http://www.elephantvoices.org
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Norway	USA	Skype: elephantvoices

RESEARCH INTERESTS

Acoustic communication, Cognitive science, Decision-making, Conservation.

EDUCATION

Postdoctoral	Princeton University Research Fellow 1984-1988; Advisor: Daniel Rubenstein.
Ph.D. 1982	University of Cambridge, U.K, Sub-Department Animal Behaviour. Dissertation: <i>Musth and male-male competition in the African elephant</i> ; Supervisor: Robert Hinde.
B.A. 1979	Smith College. High Honors in the Biological Sciences. Dissertation: <i>Behavioral-Ecology of the African elephant</i> .

HONORS AND AWARDS

2007	Certificate of Recognition, California Legislature Assembly, <i>for tireless efforts in educating people on elephant captivity.</i>
1996	Smith College Medal for elephant research and conservation work, <i>exemplifying the true purpose of a liberal arts education.</i>
1985-1988	Research Fellowship, National Institute Mental Health
1984	Research Fellowship, Harry Frank Guggenheim Foundation
1980-1981	Research Fellowship, New York Zoological Society
1981	Graduate Study Fellowship, Smith College
1979-1980	Sarah W. Wilder and Sarah W. Whipple Fellowship
1979-1980	<i>Sigma Xi</i>
1979	Winner, A. Brazier Howell Award for paper on <i>musth</i> in African elephants presented at the 1979 American Society of Mammalogists meetings.

PROFESSIONAL SOCIETIES/ BOARD and ADVISORY MEMBERSHIPS

2014-present	Member, Board Global Sanctuary for Elephants
2013-present	Member, Advisory Board, Kimmela Center for Animal Advocacy
2010-present	Member, Scientific Advisory Board, Elephant Aid International
2010	Member, Alliance for Captive Elephants
2008-present	Member, Board of Directors, ElephantVoices
2002-present	Member, Ethologists for the Ethical Treatment of Animals
2002-present	Member, Scientific Advisory Committee, Amboseli Elephant Research Project
1988-2001	Member, Science Advisory Board, Captive Elephant Management Coalition
2004	Member, Panel of Experts, Species Survival Network
2002-2011	Trustee, Amboseli Trust for Elephants
1988-2001	Member, African Elephant Specialist Group, Species Survival Commission, IUCN

EMPLOYMENT

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- 2002-present **Director, Research and Conservation, ElephantVoices:** Directing the research, conservation and welfare work of the non-profit organization, ElephantVoices.
- 2002-2007 **Research Director, Amboseli Elephant Research Project,** Amboseli Trust for Elephants: overseeing the elephant monitoring and collaborative research projects, and training programs for the 3 decades long study of elephants.
- 1999-2001 **Consultant, Basecamp Explorer AS:** Wildlife issues.
- 7/96 & 7/97 **Consultant, IMAX:** Scientific Advisor *Africa's Elephant Kingdom*, Discovery.
- 1994-1997 **Consultant, Richard Leakey & Associates;** Training; Lecturing; Advisor, wildlife documentaries.
- 1994-1995 **Author, *Coming of Age with Elephants*** (Hyperion Press, 1996; Hodder & Stoughton, 1996).
- 1991-1994 **Coordinator, Elephant Program, Kenya Wildlife Service:** Setting and implementing Kenya's elephant conservation and management policy; supervising management-oriented research; reconciling land use and other conflicts between elephants and people; building local expertise.
- 1990-1991 **Consultant, World Bank:** Pre-Project Facility, drafting the Elephant Conservation and Management Policy and Research Policy Framework and Investment Program, Kenya Wildlife Service.
- 1990 **Consultant, International Union for the Conservation of Nature:** compiling overview of elephant conservation in Eastern Africa for Paris Donors Conference.
- 1989 **Consultant: Tanzanian Wildlife Department** drafting successful proposal to the Convention on Trade in Endangered Species to up list the African elephant to Appendix I of the Convention.
- 1989 **Consultant, World Wildlife Fund:** discussions with Japanese and Chinese government officials and ivory carvers regarding detrimental impacts of the ivory trade on elephant survival.
- 1989 **Researcher, African Wildlife Foundation:** Assessing effects of poaching on East African elephant populations.
- 1975-1980 **Researcher, Amboseli Elephant Research Project**

FIELD RESEARCH

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- 2011-ongoing **Mozambique:** Initiation/execution of elephant monitoring and research, as part of the Gorongosa Restoration Project.
- 2010-ongoing **Kenya:** Initiation/execution of conservation project in the Maasai Mara ecosystem.
- 2008 **Sri Lanka, Minneriya-Kaudulla National Parks:** initiating an Asian elephant conservation project and behavior study.
- 1998-ongoing **Kenya, Amboseli National Park:** Elephant communication, cognition and social behavior, conducting playback experiments and recording elephant vocalizations and behavior.
- 1998 **Kenya, Maasai Mara National Park, Tsavo National Park & Laikipia District:** recording elephant vocalizations and behavior.
- 1997 **Tanzania, West Kilimanjaro:** Assessing the numbers and habitat use of elephants utilizing the area.
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- 1990-1994 **Kenya**, overseeing numerous elephant surveys and studies of elephants carried out under my direction by the Kenya Wildlife Service Elephant Program.
- 1984-1990 **Kenya**, Amboseli National Park: Elephant vocal and olfactory communication: vocal, visual, chemical signalling and assessment between musth males.
- 1989 **Kenya, Uganda, Tanzania**: Amboseli, Tsavo, Queen Elizabeth and Mikumi National Parks: Assessing the effects of poaching on the age structure and social and reproductive patterns of elephant populations in East Africa.
- 1980-1982 **Kenya**, Amboseli National Park: Focal animal sampling *Musth* and male male competition among elephants,
- 1975-1979 **Kenya**, Amboseli National Park: participating in Cynthia Moss' long-term studies of elephants, identifying individual elephants, and collecting social behavior, demographic and ranging data.

LECTURES

Invited speaker (selected):

- 2014: National Geographic Retreat, International Council of Advisors, Stockholm, Sweden
- 2013: Chinese Zoo Directors Meeting on Animal Welfare, Shenzhen, China
- 2013: Royal Geographical Society, Hong Kong, China
- 2012: Explorer's Symposium, National Geographic, Washington, DC
- 2012: Nature's great masterpiece: Stories of elephants. Sabine Distinguished Lecture in Psychology, Colorado College.
- 2012: National Geographic Society, Premiere Screening "War Elephants" (Panel) Washington, DC.
- 2008: National Geographic Society (Panel), Washington DC.
- 2007: Seminar on Language Evolution and Cognition held by Communication Research Centre, Northumbria University & Language Evolution and Computation Research Unit, University of Edinburgh, Scotland.
- 2007: Public lecture, Explorers Club, New York.
- 2006: Invited speaker lecture on communication, behaviour and social life among elephants, Science Museums of the la Caixa Foundation", Barcelona, Spain.
- 2006: Invited speaker in series of lectures on Animal Communication Science Museums of the la Caixa Foundation, Madrid, Spain.
- 1999: Animal Cognition and Communication, Tufts Center for Animals and Public Policy, Boston.

LANGUAGES

English: Mother tongue
 Kiswahili: Fluent
 Norwegian: Working knowledge
 Maasai: Ability to communicate at basic level

PUBLICATIONS

Refereed articles, chapters, theses:

Published:

- Shannon, G., Slotow, R., Durant, S.M., Sayialel, K.N., Poole, J., Moss, C., McComb, K.
 2014. Effects of social disruption in elephants persist decades after culling. *Frontiers in*

- Zoology, 10:62; <http://www.frontiersinzoology.com/content/10/1/62>
- Nowak, K., Dobson, A., Poole, J., Granli, P., Kahumbu, P., Lee, P., Kiiru, W., Joram, P., Malima, C., Moss, C. 2013. Elephants are not diamonds. *The Ecologist*. w.theecologist.org/News/news_analysis/1800368/elephants_are_not_diamonds.html
- Lee, P.C., Bussière, L.F., Webber, C.E., Poole, J.H., Moss, C.J. 2013. Enduring consequences of early experiences: 40 year effects on survival and success among African elephants (*Loxodonta africana*). *Biology Letters*. 04/2013; 9(2):20130011. DOI: 10.1098/rsbl.2013.0011.
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- Mutinda, H.S., Poole, J.H., Moss, C. J. 2011. Decision-making and leadership in using the ecosystem. In: *The Amboseli Elephants: A Long-Term Perspective on a Long-Lived Mammal*. Moss, C.J., Croze, H.J & Lee, P.C. (Eds.) University of Chicago Press.
- Wasser, S., Poole, J., Lee, P., Lindsay, K., Dobson, A., Hart, J., Douglas-Hamilton, I., Wittemyer, G., Granli, P., Morgan, B., Gunn, J., Alberts, S., Beyers, R., Chiyo, P., Croze, H., Estes, R., Gobush, K., Joram, P., Kikoti, A., Kingdon, J., King, L., Macdonald, D., Moss, C., Mutayoba, B., Njumbi, S., Omondi, P., Nowak, K. 2010. Elephants, Ivory, and Trade. *Policy Forum, Science*. 327: 1331-1332.
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- www.facebook.com/elephantvoices
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- The Mara Elephants Who's Who Database (on <http://www.elephantvoices.org>)
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- ElephantVoices Gestures Database (on <http://www.elephantvoices.org>)
- ElephantVoices Call Type & Contest-Type Databases (on <http://www.elephantvoices.org>)
- The Minneriya-Kaudulla Elephant Identification Database
<http://www.elephantvoices.org/sriddb>

Printed Articles and books highlighting the work of Joyce Poole

Elephant social behavior and communication research and conservation work featured in: Readers' Digest, Scientific American, Science, National Geographic Kids, National Geographic Magazine, National Geographic Adventure, New York Times Magazine, National Geographic Explorer, LA Times, Highlights for Children, Scholastic, The New York Times, Science Times, Science, Science News, Spektrumdirekt, National Geographic News, Kyodo News Washington Bureau, Daily Telegraph, Guardian.

2001 Martin Meredith's *Africa's Elephant*, a biography.

1992 Doug Chadwick's book *Fate of the Elephant*.

1992 Doug Chadwick in his feature article for National Geographic Magazine.

Recordings featured in Pulse of the Planet.

Pod casts:

2007 Science and the city

Radio (a selection)

2012 Sam Litzinger interview on The Animal House/NPR (WAMU 88.5)

- 2009 Elephant welfare views featured on WBUR's Inside Out Documentary on American Zoos with Diane Toomey
- 2008 Elephant communication research featured in Up Front Radio, San Francisco with Sandip Roy Chowdhury
- 2008 Elephant communication, cognition and welfare with Karl Losken Animal Voices 102.7fm in Vancouver BC Canada
- 2005 Science Update, American Association for the Advancement of Science (AAAS)
- 2005 BBC Radio Science, the Leading Edge
- 2005 German Public Radio (SWR) program Campus
- 2005 NPR Elephant vocal learning
- 2005 BBC News Scotland Vocal Learning in elephants
- 2005 Elephant welfare ABC's Radio 702 with Rory McDonald
- 2004 Elephant communication research featured in BBC's Beyond our Senses program Sounds of Life with Grant Sonnex
- 2004 Elephant communication research featured in NPR program on elephant language
- 1996 WETA-FM, News 820's Openline & WNYC
- 1981 Musth in the African elephant, BBC Radio 4, The living World

Television (a selection)

- 2012 War Elephants, award winning documentary about the traumatized elephants in Gorongosa National Park, Mozambique, and their recovery. National Geographic Wild, worldwide.
- 2008 Elephant communication research is featured in Elephant having tales to tell, NHK, Japan (Japanese and English versions).
- 2006 Interview on elephant communication and cognition for Smart Planet for REDES-TVE, Spain.
- 2005 Elephants and vocal learning, Daily Planet Discovery Channel Canada.
- 2005 Elephant cognition and conservation views featured on National Geographic Explorer *Elephant Rage*.
- 2004 Elephant recordings featured in Discovery Channel's Echo III.
- 2002 Elephant communication research, Elephant's Talk, featured in BBC documentary *Talking with Animals*.
- Work featured on News and Talk shows such as 1993 CNN, ABC news Women and Science, The Today Show, 1996, West 57th Street CBS News, 1989, PM Magazine, 1987.
- 1999 Research featured in *Inside the Animal Mind Part 3 Animal Consciousness*, WNET Nature.
- 1998 Featured on Episode 16, *Elephants*, in series, *Champions of the Wild*, Omni Film Productions, Vancouver, Canada.
- 1996 Life, elephant research and conservation work subject of National Geographic Special, *Coming of Age with Elephants*.
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- 1990 *Elephants like us*, Rossellini and Associates.
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- 1989 Elephant research and conservation work featured in National Geographic Special *Ivory Wars*.

1988 Research highlighted in BBC production *Trials of Life* with David Attenborough.

1988 Work on elephant infrasound featured in *Supersense* BBC Natural History Unit series on animal senses.

1987 Featured in Sports and Adventure, *Women of the World*.

**EXHIBIT B TO POOLE AFFIDAVIT -
LIST OF REFERENCES CITED [A- 175 - A- 178]**

Joyce Poole Elephant Autonomy Affidavit

Exhibit

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**AFFIDAVIT OF KAREN MCCOMB, FOR PETITIONER, IN SUPPORT
OF PETITION, SWORN TO DECEMBER 22, 2016 [A- 179 - A-200]**



COPY

COUNTRY OF UNITED KINGDOM
~~COUNTRY~~ PROVINCE OF EAST SUSSEX ss:
MUNICIPALITY OF EASTBOURNE

Affidavit of Karen McComb

Karen McComb being duly sworn, deposes and says:

Introduction and Qualifications

1. My name is Karen McComb. I was awarded my Bachelors of Science with 1st Class Honours in Zoology from the University of Edinburgh in 1984. I earned my PhD from the University of Cambridge from 1984-1988, under the supervision of Professor T.H. Clutton-Brock, for a thesis entitled "Roaring and reproduction in red deer (*Cervus elaphus*)". I completed a Postdoctoral Research Fellowship from 1989-1990 at the University of Minnesota, and then was a Research Fellow at Newnham College, at the University of Cambridge, from 1990-1993. I have worked at the University of Sussex since 1993, where I have been a Lecturer/Senior Lecturer from 1993-2004, a Reader from 2004-2013, and a Professor (of Animal Behaviour and Cognition) since 2013. I work in the School of Psychology at University of Sussex in Brighton, United Kingdom and reside in East Sussex.

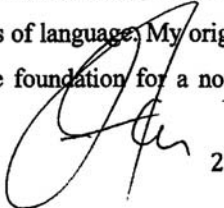
2. I submit this affidavit in support of The Nonhuman Rights Project, Inc. (NhRP) for a writ of habeas corpus on behalf of the captive elephants listed above. I am a nonparty to this proceeding.

3. My current research is directed towards the investigation of emotional awareness as a basis for social success in the domestic horse. Although the essential role that emotional intelligence plays in human social behaviour is well recognized, we collectively still know very little of how individual variation in the ability to identify and respond appropriately to emotional signals influences social integration and success in animal groups. My research team is designing a broad array of naturalistic tests to quantitatively assess individual differences in emotional abilities, which we will examine in relation to measures of social success.. In addition to the scientific significance of my research, there are considerable implications for animal welfare, and my group's findings will allow us to more accurately understand the emotional capacities and requirements of individual horses within the domestic environment.

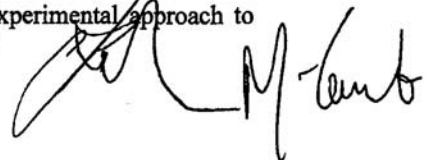
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4. My research career has centered on using naturalistic experiments to probe and understand vocal communication and cognitive abilities in a wide range of mammals, including African elephants, horses, lions, red deer, and domestic cats and dogs. Through the design and implementation of novel experiments which provide a window into abilities that animals use to make every-day decisions in their native environments, I have made breakthroughs that have significantly advanced our fundamental understanding of animal minds and social behaviour. My research has contributed significantly towards advances in: (1) Understanding social cognition and conceptual knowledge. My work focusing on social cognition in domestic horses has led to fundamental insights about how individuals within a group recognize each other, and my research team provided the first systematic demonstration of cross-modal individual recognition of conspecifics in a nonhuman. This finding demonstrates how multi-sensory representations can underlie animals' knowledge of each other, and fundamentally advances our understanding of how conceptual knowledge may have arisen evolutionarily; (2) Understanding social intelligence in wild mammals. My original work evaluating social cognition in African lions laid the groundwork for understanding how the potential costs of fighting with larger groups over limited resources may have provided a selective evolutionary pressure for numerical assessment skills in social species. This potential biological basis for the evolution of mathematical abilities has led broadly to new research on other species based largely on my experimental paradigm. In my research with African elephants, I have demonstrated that the collective experiences and knowledge found in the oldest members of a group can influence the social knowledge of the group as a whole, which has provided fundamental insights into how cognitively advanced social mammals acquire and store information in the wild. Subsequent work provided the first empirical evidence that groups benefit from older leaders specifically due to the group's collectively enhanced ability to respond to predators based on the knowledge of the oldest individual, allowing for the development of intriguing hypotheses for the evolutionary benefits of longevity. More recent work demonstrated for the first time that elephants' knowledge of human predators is much more sophisticated than previously recognized, by showing that elephants can determine ethnicity, gender, and age of humans from acoustic cues in human voices; and (3) Understanding sexual signals and the origins of language. My original research on the function of roaring in red deer provided the foundation for a novel, systematic experimental approach to

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probe and
mammals,
dogs.

studying the role of vocal signaling in sexual selection in mammals. In a series of influential papers, my research group showed that formants, key parameters in human speech, play a critical role in the communication of non-human mammals. In addition, I have used a comparative approach to demonstrate that increases in non-human primate group size and extent of social bonding are related to the development of larger vocal repertoires, providing new information for the scientific investigation of language evolution.

5. In addition to the scientific implications of my research, it has also had impacts for animal conservation and welfare. Specifically, by demonstrating the crucial role that the oldest individuals play in elephant social groups, we have shown how entire populations of cognitively advanced social mammals can be severely disrupted by the removal of even a few critical individuals. Our recent work has also shown that the effects of social disruption can have severe, long-term effects on the cognitive abilities of elephants. This research has significant implications for the conservation and welfare of both wild and captive animals, not just elephants but also other long-lived, large-brained social mammals such as whales and dolphins. Due to this work, I was invited to contribute to the recommendations of the recent Convention on the Conservation of Migratory Species of Wild Animals (CMS).

6. Along with my colleague David Reby, I have developed a very successful research group in Mammal Vocal Communication and Cognition (<http://www.lifesci.sussex.ac.uk/cmvcvcr/Home.html>) at the University of Sussex. This research group has attracted and supported many talented postgraduates and independent research fellows. Currently, I have 3 PhD students, a postdoc, and a full-time research assistant working with me on projects ranging from social communication in African lions to emotional awareness in horses. An additional postdoc is investigating cultural differences between elephant populations.

7. I have been awarded significant extramural grants to fund my research throughout my career from a number of foundations and organizations, including: (1) Levehulme Trust Research Grants, in both 2009 and 2014; (2) a National Geographic grant in 2006; (3) a Waltham Foundation grant in 2002; (4) an EU Marie Curie grant in 2000; (5) a BBSRC research grant in 1996; (6) Tusk Trust grants, in 1994, 1995, and 1996; (7) a Nuffield Foundation grant in 1994; (8) a Royal Society Research grant in 1994; (9) and an NERC small project grant in 1993. Additionally, I have received a number

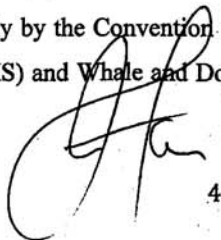
of Royal Society Conference grants throughout my career, most recently in 2009.

8. Over the course of my career, I have received several awards and honors related to my research, including: (1) the 2008 PNAS Cozzarelli Prize for outstanding originality and scientific excellence for the article "Cross-modal individual recognition in domestic horses (*Equus caballus*)" with L. Proops and D. Reby; (2) the prize for best talk by a research student at the Association for the Study of Animal Behaviour Spring Conference in 1987 during my PhD at Cambridge; (3) The University of Edinburgh Class Medal & Ashworth Prize in Zoology in 1984; (4) the Class Medal and William Turner Award in Zoology in 1983; (5) the Moira Lyndsay Stewart Award in Zoology in 1982; and (6) the Jack Roberts Memorial Prize in Botany in 1982.

9. I have served with a number of professional organizations throughout my career, including: (1) as an appointed Reviewer for European Research Council grants in 2012; (2) as an academic Editor for *PLoS One* since 2007; (3) as part of the Editorial Board for *Bioacoustics* since 1997; (4) as a consulting Editor for *Animal Behaviour* from 1996-1998; (5) as a Council Member for the Association for the Study of Animal Behaviour (ASAB) from 1993-1997; (6) as a liaison representative for the ASAB with the Institute of Biology from 1995-1997; and (7) as a manuscript reviewer for a number of premier scientific publications, including *Science*, *Nature*, *Current Biology*, *Proceedings of the Royal Society B*, *Proceedings for the National Academy of Sciences*, *PLoS One*, and *Animal Behaviour*, as well as other journals.

10. I have organized a number of conferences during my career, including: (1) a symposium on "Mammal Vocal Communication: Insights into cognitive abilities and the origins of language" at the International Ethological Congress in Budapest, in August 2005 (with David Reby); and (2) the 1999 Association for the Study of Animal Behaviour Conference on "Evolution of Mind" in London, attended by more than 200 people.

11. I have given numerous professional academic lectures throughout my career. Some of these include: (1) an invited lecture to the Cetacean Culture Workshop in 2014, organized jointly by the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and Whale and Dolphin Conservation (WDC); (2) a Plenary



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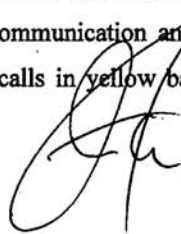
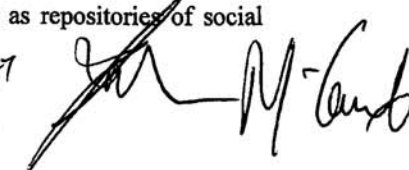
at the 2012 Association for the Study of Animal Behaviour meeting on "Cognition in the Wild"; (3) an invited lecture at the 2011 international workshop on communication and social cognition at the Institute of Evolutionary Biology and Environmental Studies at the University of Zurich; (4) an invited lecture at the 2010 International workshop on referential communication at the Wissenschaftskolleg zu Berlin, Institute for Advanced Study in Berlin; (5) a Plenary lecture at the 2010 Nordic meeting of the International Society for Applied Ethology, in Kuopio, Finland; (6) an invited lecture at the 2009 International Ethological Congress in Rennes, France; (7) an invited lecture in 2009 at the Ecology and Evolutionary Biology Department at the University of Princeton; (8) an invited lecture at the Novartis day at the 2006 Royal Society Discussion meeting on Social Intelligence, in London; (9) an invited lecture (and conference organizer) at the 2005 International Ethological Congress Symposium on "Mammal Vocal Communication: insights into cognitive abilities and the origin of language" in Budapest; (10) a Keynote lecture at the 2003 British Association for the Advancement of Science Symposium on "Where do numbers come from?" at Salford, England; (11) a Plenary lecture at the 2002 Association for the Study of Animal Behaviour conference on "Information Gathering"; (12) an invited lecture at the 2001 symposium on Alternative Approaches to Studying Social Cognition at the International Ethological Congress in Tubingen, Germany; (13) an invited lecture at a 2000 International workshop on animal signaling, Talkbank, at the University of Philadelphia; and (14) a Plenary lecture at the 1999 Association for the Study of Animal Behaviour Conference on "Communication and Social Behaviour" in Lisbon.

12. In addition to academic lectures, I have given a number of public lectures over the course of my career, including: (1) as an invited panel member/speaker at the 2014 Festival of Sound, organized by Magdalene College at the University of Cambridge; (2) as an invited member/speaker at the 2012 Gulbenkian Foundation Supersonix Festival, organized on behalf of the Exhibition Road Cultural Group to focus on the art and science of sound and music-making; (3) a public lecture on "Animal Communication" in the "Learning about Animals" series in London in 2007; (4) a lecture to the 2006 Pet Care Trust Conference in Edinburgh; (5) a Press conference for the launch of my *Science* paper, organized by the American Academy for the Advancement of Science, at the London Zoo in 2001; (6) a lecture at the British

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Library National Sound Archive in 2000; and (7) a joint lecture with Cynthia Moss at a Royal Geographical Society lecture, attended by more than 600 members of the public, in 1996.

13. I have published over 50 peer-reviewed scientific articles over my career. These articles have been published in many of the world's premier scientific journals, including: *Nature*, *Science*, *PNAS*, *Frontiers in Zoology*, *Animal Behaviour*, *Current Biology*, *Biology Letters*, *PLoS ONE*, *Proceedings of the Royal Society B*, *Ethology*, *Animal Cognition*, *Journal of the Acoustical Society of America*, *Journal of Comparative Psychology*, *Advances in the Study of Behaviour*, *American Journal of Primatology*, *Behavioural Ecology*, and *Trends in Ecology & Evolution*. Six of these publications have been featured as cover articles in the journals *Science*, *Nature*, *PNAS*, *Proceedings of the Royal Society B*, and *Biology Letters*. Specific topics of these publications have included: Elephants can determine ethnicity, gender, and age from acoustic cues in human voices; The Equine Facial Action Coding System; The eyes and ears are visual indicators of attention in domestic horses; Cross-modal discrimination of human gender by domestic dogs; Effects of social disruption in elephants persist decades after culling; The responses of young domestic horses (*Equus caballus*) to human-given cues; Leadership in elephants: the adaptive value of age; African wild dogs as a fugitive species: playback experiments investigate how wild dogs respond to their major competitors; Cross-modal perception of body size in domestic dogs; the use of human-given cues by domestic horses; Acoustic bases of motivational misattributions; Oestrus red deer hinds prefer male roars with higher fundamental frequencies; Size communication in domestic dog (*Canis familiaris*) growls; Manipulation by domestic cats: the cry embedded within the purr; Context-related variation in the vocal growling behaviour of the domestic dog; Cross-modal individual recognition in domestic horses; Human listeners attend to size information in domestic dog growls; Experimental investigation of referential looking in free-ranging barbary macaques; Female perception of size-related formant shifts in red deer (*Cervus elaphus*); African elephants show high levels of interest in the skulls and ivory of their own species; Co-evolution of vocal communication and sociality in primates; Long-distance communication of cues to social identity in African elephants; Vocal communication and reproduction in deer; Information content of female copulation calls in yellow baboons; Matriarchs act as repositories of social

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knowledge in African elephants; Elephant hunting and conservation; Roaring and social communication in African lions; Unusually extensive networks of vocal recognition in African elephants; Perception of female reproductive state from vocal cues; Female grouping as a defense against infanticide by males; Behavioural deception; Roaring and numerical assessment in contests between groups of female lions; Female lions can identify potentially infanticidal males from their roars; Roaring and oestrus; Roaring by red deer stags advances date of oestrus in hinds; and Are talkers the only thinkers?.

14. My scientific work has also been published as chapters in several books and edited volumes, including (1) *The Social Dog* (2014, editors J. Kaminski and S. Marshall-Pescini, Elsevier); (2) *The Amboseli Elephants: A Long-Term Perspective on a Long-Lived Mammal* (2011, University of Chicago Press); (3) *New Encyclopedia of Neuroscience* (2008, editor L.R. Squire, Academic Press); (4) *The Barbary macaque: biology, management, and conservation* (2006, editors J.K. Hodges and J. Cortes, Nottingham University Press); (5) *Animal Communication Networks* (2005, editor P.K. McGregor, Cambridge University Press); (6) *Studying Elephants* (1996, African Wildlife Foundation Technical Handbook series); and (7) *Playback and Studies of Animal Communication* (1992, editor P.K. McGregor, Plenum Publishing Corporation).

15. My work has garnered significant media coverage over the course of career. I have made appearances on British, American, Australian, Canadian, and German TV and radio stations (including BBC TV news, Discovery Channel, Radio 4 Today programme, and BBC Science in Action) and my work has been featured in articles in major British, European, and American newspapers (including The Guardian, Times, Liberation, National Geographic magazine, and New Scientist).

16. In April 2001, *Science* organized a press conference in London for the launch of my paper, which was featured as their cover story. Later cover stories in *Biology Letters* (2006), *PNAS* (2009), and *Proceedings of the Royal Society B* (2011) also generated significant media attention, as did my *Current Biology* paper in 2009 which featured as the most popular story on the BBC website, as well as the top Science and Entertainment story.



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17. Three of my most recent papers, in *PNAS* (2014), *Current Biology* (with my PhD student, 2014) and *Frontiers in Zoology* (2013) received unusually extensive world-wide media coverage. This included interviews on the Radio 4 Today Programme, ITV News at Ten, BBC World TV News, Newsround, BBC World Service, and Science in Action, as well as coverage in BBC Breakfast, BBC Radio 2, 3, and 4 news reports, Time magazine, The Economist, *Nature*, *Science*, National Geographic, and by more than 200 other news outlets in the UK and around the world.

18. My elephant research was covered in BBC's "Inside the Animal Mind" in February 2014, and my horse research was filmed for the BBC series "Talk to the Animals" which aired in July 2014. Both programmes were shown in prime-time slots and were very well received by the public.

19. I have done regular consultancies for the BBC and other companies making wildlife documentaries on animal communication. Most recently, I was a scientific consultant for the popular two-part BBC documentary "Talk to the Animals" (2014). I have also provided sound recordings for wildlife documentaries by the BBC and Windfall films, and have a sound recording credit (with Martyn Colbeck) on the BBC's "Echo of the elephants: the next generation" (1995).

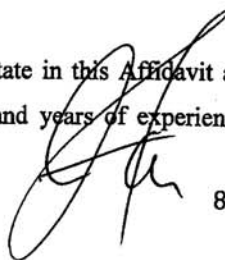
20. My work has been featured in a number of textbooks and popular books, including: (1) John Alcock's and Lee Dugatkin's major textbooks on Animal Behaviour; (2) new edition of the Krebs & Davies *An Introduction to Behavioural Ecology*; (3) new edition of Bradbury and Vehrencamp's *Principles of Animal Communication*; (4) new edition of Shettleworth's *Cognition, Evolution, and Behavior*; (5) Brian Butterworth's *The Mathematical Brain*; and (6) as a chapter in the best-selling *Animal Wise* by Virginia Morell.

21. I provided photographic material to The Field Museum, in Chicago, for an exhibition on Mammoths and Mastodons, Titans of the Ice Age. This exhibit has been touring internationally.

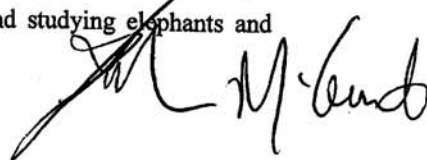
22. My Curriculum Vitae fully sets forth my educational background and experience and is annexed hereto as "Exhibit A".

Basis for opinions

23. The opinions I state in this Affidavit are based on my professional knowledge, education, training, and years of experience observing and studying elephants and


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other social mammals, as well as my knowledge of peer-reviewed literature about elephant behaviour and intelligence published in the world's most respected journals, periodicals and books that are generally accepted as authoritative in the field, and many of which were written by myself or colleagues whom I have known for several years and with whose research and field work I am personally familiar. A full reference list of peer-reviewed literature cited herein is annexed hereto as "Exhibit B".

Opinions

Premise

24. Autonomy in humans is defined as self-determined behaviour that is based on freedom of choice. As a psychological concept it implies that the individual is directing their behaviour based on some non-observable, internal cognitive process, rather than simply responding reflexively. Although we cannot directly observe these internal processes in other people, we can explore and investigate them by observing, recording and analysing behaviour. For non-human animals, observing similar behaviour and recording evidence of shared cognitive capacities should, parsimoniously, lead to similar conclusions about autonomy.

25. I shall indicate which species, African (*Loxodonta Africana*) or Asian (*Elephas maximus*), specific observations relate to. If the general term "elephants" is used with no specific delineation, it can be assumed the comment relates to both species.

Brain And Development

26. Elephants are large-brained, with the biggest absolute brain size of any land animal (Cozzi et al 2001; Shoshani et al 2006). Even relative to their body sizes, elephant brains are large. Encephalization quotients (EQ) are a standardised measure of brain size relative to body size, and illustrate by how much a species' brain size deviates from that expected for its body size. An EQ of one means the brain is exactly the size expected for that body, and values greater than one indicate a larger brain than expected (Jerison 1973). Elephants have an EQ of between 1.3 and 2.3 (varying between sex and African and Asian species). This means an elephant's brain can be up to two and a half times larger than is expected for an animal of its size; this EQ is similar to that of the great apes, with whom elephants have not shared a common ancestor for almost 100 million years (Eisenberg 1981, Jerison 1973). Given how metabolically costly brain tissue is, the large brains of elephants would be expected to

confer significant advantages; otherwise their size would be reduced. Presumably this advantage is allowing greater cognitive capacities and behavioural flexibility (Bates et al 2008).

27. Generally, mammals are born with brains weighing up to 90% of the adult weight. This figure drops to about 50% for chimpanzees. Human baby brains weigh only about 27% of the adult brain weight (Dekaban & Sadowsky 1978). This long period of brain development over many years (termed 'developmental delay') is a key feature of human brain evolution and is thought to play a role in the emergence of our complex cognitive abilities, such as self-awareness, creativity, forward planning, decision making and social interaction (Bjorkland 1997). Delayed development provides a longer period in which the brain may be shaped by experience and learning (Furster 1992). Elephant brains at birth weigh only about 35% of their adult weight (Eltringham 1982), and elephants show a similarly protracted period of growth, development and learning (Lee 1986). This similar developmental delay in the elephant brain is therefore likely associated with the emergence of similarly complex cognitive abilities.

28. Despite nearly 100 million years of separate evolution (Hedges 2001), elephants share certain characteristics of our large brains, namely deep and complex folding of the cerebral cortex, large parietal and temporal lobes, and a large cerebellum (Cozzi et al 2001). The temporal and parietal lobes of the cerebral cortex manage communication, perception, and recognition and comprehension of physical actions, while the cerebellum is involved in planning, empathy, and predicting and understanding the actions of others (Barton 2012). Thus, the physical similarities between human and elephant brains occur in areas that are relevant to capacities necessary for autonomy and self-awareness.

29. Elephant brains hold nearly as many cortical neurons as do human brains, and a much greater number than chimpanzees or bottlenose dolphins (humans: 1.15×10^{10} ; elephants: 1.1×10^{10} , chimpanzees: 6.2×10^9 ; dolphins: 5.8×10^9) (Roth & Dicke 2005). Elephants' pyramidal neurons (a class of neuron that is found in the cerebral cortex, particularly the pre-frontal cortex - the brain area that controls executive functions) are larger than in humans and most other species (Cozzi et al 2001). The degree of complexity of pyramidal neurons is linked to cognitive ability, with more (and more complex) connections between pyramidal neurons being associated with

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increased cognitive capabilities (Elston 2003). Elephant pyramidal neurons have a large dendritic tree, i.e. a large number of connections with other neurons for receiving and sending signals (Cozzi et al 2001).

30. Elephants, like humans, great apes and some cetaceans, possess *von Economo neurons*, or spindle cells – the so-called ‘air-traffic controllers for emotions’ – in the anterior cingulate, fronto-insular, and dorsolateral prefrontal cortex areas of the brain (Hakeem et al 2009). In humans, these cortical areas are involved - among other things - in the processing of complex social information, emotional learning and empathy, planning and decision-making, and self-awareness and self-control (Allman et al 2001; Allman et al 2002; Allman et al 2011). The shared presence of spindle cells in the same brain locations in elephants and humans strongly implies these higher-order brain functions – the building blocks of autonomous, self-determined behaviour – are common between these species (Butti et al 2009; Hakeem et al 2009).

31. As described below, research demonstrates that along with these common brain and life-history characteristics, elephants share many behavioural and intellectual capacities with humans, including: self-awareness, empathy, awareness of death, intentional communication, learning, memory, and categorisation abilities. Many of these capacities have previously been considered – erroneously – to be uniquely human, and each is fundamental to and characteristic of autonomy and self-determination.

Awareness Of Self And Others

32. Asian elephants have been show to exhibit Mirror Self Recognition (MSR) using Gallup’s classic ‘mark test’ (Gallup 1970; Plotnik et al 2006). MSR is the ability to recognise a reflection in the mirror as oneself, and the mark test involves surreptitiously placing a coloured mark on an individual’s forehead that it could not see or be aware of without the aid of a mirror. If the individual uses the mirror to investigate the mark, it is logical to assume that the individual recognises the reflection as itself. (See “Video 1”, attached on CD as “Exhibit C”). Almost all animal species tested on this task fail: they do not recognise the image in the mirror as being a reflection of themselves. Indeed, the only other mammals beyond humans who have successfully passed the mark test and exhibit MSR are the great apes (chimpanzees, bonobos, gorillas, and orangutans) and bottlenose dolphins (Parker and Mitchell 1994,

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Reiss and Marino 2001). MSR is significant because it is considered by many to be a key identifier of self-awareness. Self-awareness is intimately related to autobiographical memory in humans (Prebble et al 2011), and is central to autonomy and being able to direct one's own behaviour to achieve personal goals and desires. By demonstrating that they can recognize themselves in a mirror, elephants appear to be holding a mental representation of themselves from another perspective, and thus be aware that they are a separate entity from others (Bates and Byrne 2014).

33. Related to possessing a sense of self is an understanding of death. Observing reactions to dead family or group members suggests an awareness of death in only two animal genera beyond humans; chimpanzees and elephants (Anderson et al 2010, Douglas-Hamilton et al 2006). Having a mental representation of the self – a prerequisite for mirror-self recognition – probably also confers an ability to comprehend aspects of death. Wild African elephants have been shown experimentally to be more interested in the bones of dead elephants than the bones of other animals (McComb et al 2006) (See "Video 2", attached on CD as "Exhibit D"), and they have frequently been observed using their tusks, trunk or feet to attempt to lift sick, dying or dead individuals (Poole & Granli, 2011). Although they do not give up trying to lift or elicit movement from the body immediately, elephants appear to realise that once dead, the carcass cannot be helped anymore, and instead they engage in apparently "grief-stricken" behaviour, such as standing guard over the body with dejected demeanour, and protecting it from the approaches of predators (Poole & Granli, 2011). They also have been observed to cover the bodies of dead elephants with dirt and vegetation (Moss 1992; Poole 1996). In the particular case of mothers who lose a calf, although they may remain with the calf's body for an extended period, they do not behave towards the body as they would a live calf. Indeed, the general demeanour of elephants who are attending to a dead elephant is one of grief and compassion, with slow movements and few vocalisations (Poole, pers. comm.). These behaviours are akin to human responses to the death of a close relative or friend, and illustrate that elephants appear to possess some understanding of life and the permanence of death (See "Photographs", attached on CD as "Exhibit E").

34. The capacity for mentally representing the self as an individual entity has been linked to general empathic abilities (Gallup 1982), where empathy can be defined as identifying with and understanding another's experiences or feelings by relating

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personally to their situation. Empathy is an important component of human consciousness and autonomy, and is a cornerstone of normal social interaction. It goes beyond merely reading the emotional expressions of others. It requires modelling of the emotional states and desired goals that influence others' behaviour both in the past and future, and using this information to plan one's own actions; empathy is only possible if one can adopt another's perspective, and attribute emotions to that other individual (Bates et al 2008). Empathy is, therefore, a component of and reliant on 'Theory of Mind' - the ability to mentally represent and think about the knowledge, beliefs and emotional states of others, whilst recognising that these can be distinct from your own knowledge, beliefs and emotions (Premack and Woodruff// Frith and Frith 2005).

35. Elephants clearly and frequently display empathy in the form of protection, comfort, and consolation, as well as by actively helping those who are in difficulty, such as assisting injured individuals to stand and walk, or helping calves out of rivers or ditches with steep banks (Bates et al 2008, Lee 1987) (See "Video 3", attached on CD as "Exhibit F"). Elephants have even been observed feeding those who are not able to use their own trunks to eat (see Poole and Granli, 2011).

36. In an analysis of behavioural data collected from wild African elephants over a 40-year continuous field study, Bates and colleagues concluded that as well as possessing their own intentions, elephants can diagnose animacy and goal directedness in others, understand the physical competence and emotional state of others, and attribute goals and mental states (intentions) to others (Bates et al 2008), as evidenced in the examples below:

'IB family is crossing river. Infant struggles to climb out of bank after its mother. An adult female [not the mother] is standing next to calf and moves closer as the infant struggles. Female does not push calf out with its trunk, but digs her tusks into the mud behind the calf's front right leg which acts to provide some anchorage for the calf, who then scrambles up and out and rejoins mother.' (See "Video 4", attached on CD as "Exhibit G")

'At 11.10ish Ella gives a 'lets go' rumble as she moves further down the swamp ... At 11.19 Ella goes into the swamp. The entire group is in the

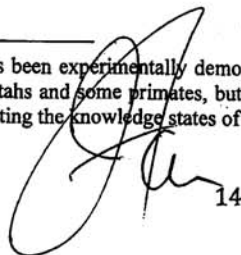
swamp except Elspeth and her calf [<1 year] and Eudora [Elspeth's mother]. At 11.25 Eudora appears to 'lead' Elspeth and the calf to a good place to enter the swamp — the only place where there is no mud.'

Examples such as these demonstrate that the acting elephant (the adult female in the first example, and Eudora in the second) was able to understand the intentions of the other (the calf in the first case, and Elspeth in the second) – i.e. to either climb out of or into the water – and they could adjust their own behaviour in order to counteract the problem being faced by the other. Whilst humans may act in this helpful manner on a daily basis, such interactions have been recorded for very few non-human animals (Bates et al 2008).

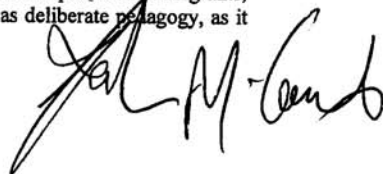
37. Experimental evidence from captive African elephants further demonstrates that elephants have the potential to attribute intentions to others, as they follow and understand human pointing gestures. The elephants understood that the human experimenter was pointing in order to communicate information to them about the location of a hidden object (Smet and Byrne 2013) (See "Video 5", attached on CD as "Exhibit H"). Attributing intentions and understanding another's reference point is central to empathy and theory of mind.

38. Evidence of 'natural pedagogy' is rare among non-human animals, with only a few potential examples of true teaching (whereby the teacher takes into account the knowledge states of the learner as they pass on relevant information) recorded anecdotally in chimpanzees (Boesch 1991) and killer whales (Guinet and Bouvier 1995)¹. Teaching is therefore still widely considered to be unique to humans (Csibra and Gergely 2009). Bates & Byrne's analysis of simulated oestrus behaviours in African elephants – whereby a non-cycling, sexually experienced older female will simulate the visual signals of being sexually receptive, even though she is not ready to mate or breed again – shows that these knowledgeable females can adopt false oestrus behaviours in order to demonstrate to naïve young females how to attract and respond appropriately to suitable males. The experienced females may be taking the youngster's lack of knowledge into account and actively showing them what to do; a possible example of true teaching as it is defined in humans. Whilst this possibility

¹ Functional teaching has been experimentally demonstrated in various animal species including ants, babblers, meerkats, cheetahs and some primates, but this is not the same as deliberate pedagogy, as it does not rely on representing the knowledge states of the learners.

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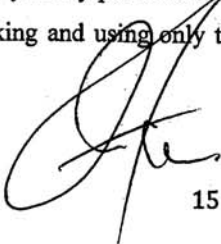
requires further investigation, this evidence, coupled with the data showing that they understand the ostensive cues in human pointing, suggests that elephants do share some executive skills with humans, namely understanding the intentions and knowledge states (minds) of others.

39. Further related to empathy, the occurrence of coalitions and cooperation have been documented in wild African elephants, particularly to defend family members or close allies from (potential) attacks by outsiders, such as when a family group tries to 'kidnap' a calf from an unrelated family (Lee 1987, Moss and Poole 1983). These behaviours are based on one elephant understanding the emotions and goals of the coalition partner (Bates et al 2008).

40. Cooperation is also evident in experimental tests with captive Asian elephants, whereby elephants demonstrated they can work together in pairs to obtain a reward, and understood that it was pointless to attempt the task if their partner was not present or could not access the equipment (Plotnik et al. 2011) (See "Video 6", attached on CD as "Exhibit I"). Problem-solving and working together to achieve a collectively desired outcome involve mentally representing both a goal and the sequence of behaviours that is required to achieve that goal; it is based on (at the very least) short-term action planning.

41. Wild elephants have frequently been observed engaging in cooperative problem solving, for example when retrieving calves that have been kidnapped by other groups, or when helping calves out of steep, muddy river banks (Bates et al 2008, Moss, 2011) These behaviours demonstrate the purposeful and well-coordinated social system of elephants, and show that elephants can hold particular aims in mind and work together to achieve those goals. Such intentional, goal-directed action forms the foundation of independent agency, self-determination, and autonomy.

42. Elephants also show innovative problem solving in experimental tests of insight (Foerder et al 2011), where insight can be described as the 'a-ha' moment when a solution to a problem 'suddenly' becomes clear. (In cognitive psychology terms, insight is the ability to inspect and manipulate a mental representation of something, even when you can't physically perceive or touch the something at the time. Or more simply, insight is thinking and using only thoughts to solve problems) (see Richard





Byrne, *Evolving Insight*, Oxford Online Press, 2016²). A juvenile male Asian elephant demonstrated just such a spontaneous action by moving a plastic cube and standing on it to obtain previously out-of-reach food. After solving this problem once, he showed flexibility and generalization of the technique to other, similar problems by using the same cube in different situations, or different objects in place of the cube when it was not available. (See "Video 7", attached on CD as "Exhibit J"). This experiment again demonstrates that elephants can choose the appropriate action and incorporate it into a sequence of behaviour in order to achieve a goal, which they kept in mind throughout the process.

43. Further experiments also demonstrate Asian elephants' ability to understand goal-directed behaviour. When presented with food that was out of reach, but with some bits resting on a tray that could be pulled within reach, the elephants learned to pull only those trays that were baited with food (Irie-Sugimoto et al 2007). Success in this kind of 'means-end' task is a demonstration of causal knowledge, which requires understanding not just that two events are associated with each other but also that there is some mediating force that connects and affects the two which may be used to predict and control events. Moreover, understanding causation and inferring object relations may be related to understanding psychological causation, i.e., the appreciation that others are animate beings that generate their own behaviour and have mental states (e.g., intentions).

Communication and social learning

44. Speech is a voluntary behaviour in humans, whereby a person can choose whether to utter words and thus communicate with another. Therefore speech and language are reflections of autonomous thinking and intentional behaviour. Elephants also use their vocalisations to share knowledge and information with others, apparently intentionally (Poole 2011). Male elephants primarily communicate about their sexual status, rank and identity, whereas females and dependents call to co-ordinate and reinforce their social units. Call types can generally be separated into calls produced primarily by the larynx (such as rumbles) or trunk calls (such as trumpets), with different calls in each category being used in different contexts (Poole 2011; Poole and Granli 2004; Soltis et al 2005; Wood et al 2005). Field experiments have shown

² Available at <https://global.oup.com/academic/product/evolving-insight-9780198757078?cc=us&lang=en&> (last accessed Dec. 13, 2016).

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that African elephants distinguish between different call types (for example, contact calls – rumbles that travel long distances to maintain associations between elephants that could be several kilometres apart, or oestrus rumbles – that occur after a female has copulated) and these different call types elicit different responses in the listeners. Elephant vocalisations are not simply reflexive, they have distinct meanings to listeners and they are truly communicative, similar to the volitional use of language in humans (Leighty et al 2008; Poole 1999; Poole 2011).

45. Furthermore, elephants have been shown to vocally imitate the sounds they hear around them, from the engines of passing trucks to the commands of human zookeepers (Poole et al 2005, Stoeger et al 2012). Imitating another's behaviour is demonstrative of a sense of self, as it is necessary to understand how one's own behaviour relates to the behaviour of others.

46. Elephants display a wide variety of gestures, signals and postures, used to communicate information to the audience (Poole and Granli gestures chapter 2011). Such signals are adopted in many different contexts, such as aggressive, sexual or socially integrative situations, and each signal is well defined and results in predictable responses from the audience. That is, each signal or gesture has a specific meaning both to the actor and recipient. Elephants' use of gestures demonstrates that they communicate intentionally and purposefully to share information with others and/or alter the others' behaviour to fit their own desires.

47. Experimental evidence demonstrates that African elephants recognize the importance of visual attentiveness of the intended recipient (in this case, human experimenters) of gestural communication (Smet & Byrne 2014), further supporting the suggestion that elephants' gestural communication is intentional and purposeful. Furthermore, the ability to understand the visual attentiveness and perspective of others is crucial for empathy and mental-state understanding.

Memory And Categorisation

48. Elephants have both extensive and long-lasting memories, just as the folk stories and adages encourage us to believe. McComb et al. (2000), using experimental playback of long-distance contact calls in Amboseli National Park, Kenya, showed that African elephants remember and differentiate the voices of at least 100 other elephants. Each adult female elephant tested was familiar with the contact-call

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McComb

vocalizations of individuals from an average of 14 families in the population. When the calls were from the test elephants' own family, they contact-called in response and approached the location of the loudspeaker and when they were from another non-related but familiar family — that is, one that had previously been shown to have a high association index with the test group — they listened but remained relaxed. However, when a test group heard unfamiliar contact calls (from groups with a low association index with the test group), they bunched together and retreated from the area.

49. McComb et al. (2001) went on to show that this social knowledge accumulates with age, with older females having the best knowledge of the contact calls of other family groups. McComb et al. (2011) also showed that older females are better leaders, with more appropriate decision-making in response to potential threats (in this case, in the form of hearing lion roars). Younger matriarchs under-reacted to hearing roars from male lions, the most dangerous predators because they can subdue a young elephant even when hunting alone. Sensitivity to picking out the roars of male lions increased with increasing matriarch age, with the oldest, most experienced females showing the strongest response to this danger. These experimental studies show that elephants continue to learn and remember information about their environments throughout their lives, and this accrual of knowledge allows them to make better decisions and better lead their families as they grow older.

50. Further demonstration of elephants' long-term memory comes from data on their movement patterns. African elephants are known to move over very large distances in their search for food and water. Leggett (2006) used GPS collars to track the movements of elephants living in the Namib Desert. He recorded one group traveling over 600 km in five months, and Viljoen (1989) showed that elephants in the same region visited water holes approximately every four days, even though some of them were more than 60km apart. Elephants inhabiting the deserts of both Namibia and Mali have been described traveling hundreds of kilometers to arrive at remote water sources shortly after the onset of a period of rainfall (Blake et al. 2003; Viljoen 1989), sometimes along routes that researchers believe have not been used for many years. These remarkable feats suggest exceptional cognitive mapping skills, reliant on the long-term memories of older individuals who traveled that path sometimes decades earlier. Indeed it has been confirmed that family groups with older matriarchs are

better able to survive periods of drought. The older matriarchs lead their families over larger areas during droughts than those with younger matriarchs, again apparently drawing on their accrued knowledge (this time about the locations of permanent, drought-resistant sources of food and water) to better lead and protect their families (Foley, Pettoirelli, and Foley 2008).

51. Very importantly, it has recently been shown that long-term memories, and the decision-making mechanisms that rely on this knowledge, are severely disrupted in elephants who have experienced trauma or extreme disruption due to 'management' practices initiated by humans. Shannon et al (2013) demonstrated that elephants in South Africa who had experienced trauma decades earlier showed significantly reduced social knowledge. During archaic culling practices, these elephants were forcibly separated from family members and subsequently translocation to new locations (practices which have also accompanied taking elephants into captivity). Two decades later, they still showed impoverished social knowledge and skills and impaired decision-making abilities, compared with an undisturbed population in Kenya. Disrupting elephants' natural way of life can very negatively impact their knowledge and decision-making abilities.

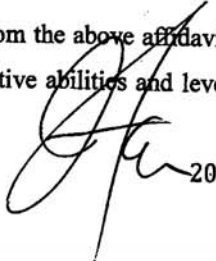
52. Elephants demonstrate advanced "working memory" skills. Working memory is the ability to temporarily store, recall, manipulate and coordinate items from memory. Working memory directs attention to relevant information, and results in reasoning, planning, and coordination and execution of cognitive processes through use of a "central executive" (Baddeley 2000). Adult human working memory is generally thought to have a capacity of around seven items. In other words, we can keep about seven different items or pieces of information in mind at the same time (Miller 1956). Bates and colleagues conducted experiments with wild elephants in Amboseli National Park, Kenya, manipulating the location of fresh urine samples from related or unrelated elephants. The elephants' responses to detecting urine from known individuals in surprising locations showed that they are able to continually track the locations of at least 17 family members in relation to themselves, as either absent, present in front of self, or present behind self (Bates et al. 2008a). This remarkable ability to hold in mind and regularly update information about the locations and movements of a large number of family members is best explained by predicting that elephants possess an unusually large working memory capacity, apparently much

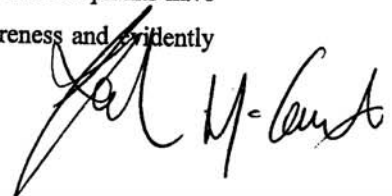
larger than that of humans.

53. Elephants show sophisticated categorisation of their environment, with skills on a par with those of humans. Bates and co-authors experimentally presented the elephants of Amboseli National Park, Kenya, with garments that gave olfactory or visual information about their human wearers — either Maasai moran (male warriors who traditionally attack and spear elephants on occasion as part of their rite of passage), or Kamba men (who are agriculturalists and traditionally pose little threat to elephants). In the first experiment, the only thing that differed between the cloths was the smell, derived from the ethnicity and/or lifestyle of the wearers. The elephants were significantly more likely to run away when they sniffed cloths worn by Maasai than those worn by Kamba men or no one at all (See "Video 8", attached on CD as "Exhibit K"). In a second experiment, the researchers presented the elephants with two cloths that had not been worn by anyone, but here one was white (a neutral stimulus) and the other was red — the color that is ritually worn by Maasai moran. With access only to these visual cues, the elephants showed significantly greater reaction to red garments than white, often including signs of aggression. Bates et al. concluded that elephants are able to categorize a single species (humans) into subclasses (i.e. "dangerous" or "low risk") based on either olfactory or visual cues alone (Bates et al. 2007). McComb et al. went on to show that the same elephants can also distinguish between human groups based on just their voices. The elephants reacted differently (and appropriately) depending on whether they heard Maasai or Kamba men speaking, and also whether they heard male or female Maasai (where female Maasai pose no threat as they are not involved in spearing events), and adult Maasai men or young Maasai boys (McComb et al. 2014). Scent, sounds, and visual signs associated specifically with Maasai men are categorized as "dangerous," while neutral signals are attended to but categorized as "low risk." These sophisticated, multi-modal categorization skills may be exceptional among non-human animals. These experiments also demonstrate the acute sensitivity that elephants have to the human world, monitoring our behavior and learning to recognize situations where humans might cause them harm.

Summary

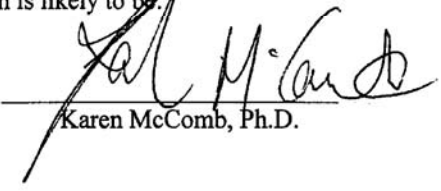
54. As will be clear from the above affidavit, both African and Asian elephants have highly advanced cognitive abilities and levels of emotional awareness and evidently

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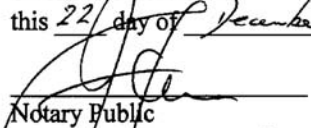


share many key traits of autonomy with humans, and so parsimoniously it must be concluded that elephants are also autonomous beings.

55. Scientific knowledge about elephant intelligence has been increasing rapidly in the past decade: what we currently know is only a tiny fraction of what elephant brains are likely to be capable of, with recent advances underlining just how sophisticated elephant behavior and cognition is likely to be.




Karen McComb, Ph.D.

Sworn to before me
this 22 day of December, 2016


Notary Public

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EASTBOURNE, EAST SUSSEX
BN20 9DQ, UNITED KINGDOM

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**EXHIBIT A TO MCCOMB AFFIDAVIT -
CURRICULUM VITAE OF KAREN MCCOMB [A-201 - A-213]**

**Prof. Karen McComb:
Curriculum Vitae**

Animal Behaviour & Cognition

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+ 44 (0)1273 678610

*Job title: Professor of Animal
Behaviour and Cognition*



SCIENTIFIC CAREER & QUALIFICATIONS

B.Sc., University of Edinburgh (1980-1984)

- 1st Class Honours in Zoology

Ph.D., University of Cambridge (1984-1988)

- Thesis title: Roaring and reproduction in red deer (*Cervus elaphus*).
Supervised by Prof. T.H. Clutton-Brock

Research Fellow, University of Minnesota (1989 - 90)

Research Fellow, Newnham College, University of Cambridge (1990 - 93)

Lecturer / Senior Lecturer, University of Sussex (1993 - 2004)

Reader, University of Sussex (2004 - 2013)

Professor, University of Sussex (2013 - present)

PRIZES & AWARDS

University & early career

- University of Edinburgh Class Medal & Ashworth Prize in Zoology (1984),
Class Medal & William Turner Award in Zoology (1983), Moira Lyndsay
Stewart Award in Zoology & Jack Roberts Memorial Prize in Botany (1982).
- Prize for best talk by a research student at the Association for the Study of
Animal Behaviour Spring Conference (1987) during PhD at Cambridge.

Recent career

- PNAS Cozzarelli Prize (2008) for outstanding originality and scientific
excellence for article "Cross-modal individual recognition in domestic horses
(*Equus caballus*)" with L. Proops and D. Reby. I led this study, taking a

major role in conceiving and designing the experiment and writing the paper. <http://www.pnas.org/site/misc/cozzarelliprize.shtml>

CURRENT RESEARCH FOCUS

My current research is focused on investigating emotional awareness as a basis for social success in a non-human - the domestic horse. Despite the key role that emotional intelligence is believed to play in human social behaviour - we still know little of how individual differences in abilities to identify and respond appropriately to the emotional signals of others determine social integration and success in animal groups. With the strong research team that I have built in this area, I am developing a novel battery of naturalistic tests to quantitatively assess individual differences in emotional abilities and directly relating performance to measures of social success. As well as its scientific importance, our work has considerable significance for animal welfare and will allow us to better understand the emotional capacities and requirements of individual horses within the domestic environment.

SUMMARY OF RESEARCH CAREER

My research career has focused on using naturalistic experiments to provide important new insights into vocal communication and cognitive abilities in a wide range of mammals including African elephants, horses, lions, red deer and domestic cats and dogs. By devising novel experimental designs that tap into abilities animals use in decision-making in their natural environments, I have made significant breakthroughs in a number of key areas including:

Advances in our understanding of social cognition and conceptual knowledge

I previously led major new work on social cognition in domestic horses, including developing novel paradigms to examine cross-modal individual recognition in this species. Our study in *PNAS* (Proops et al., 2009), which was awarded the Cozzarelli Prize, provided the first systematic demonstration of cross-modal individual recognition of conspecifics in a nonhuman. This constituted a major advance, suggesting that rich multi-sensory representations could underlie animals' knowledge of each other. I am now initiating experimental studies on horses that will extend our understanding of animal social cognition to encompass decision-making about one of the most pertinent available indices of another's response - their emotional state (see current research above).

Advances in our understanding of social intelligence in wild mammals

My original work on social cognition in African lions (McComb et al., 2004) was important in showing that the costs of fighting with larger groups could have selected for numerical assessment skills in social species - suggesting a possible biological basis for the evolution of mathematical abilities and stimulating new research on other species based on my experimental paradigm. In a highly cited cover article in *Science* (McComb et al., 2001), I subsequently used playback experiments on African elephants to demonstrate that the possession of enhanced

discriminatory abilities by the oldest individual in a group could influence the social knowledge of the group as a whole, providing the first insights into how cognitively advanced social mammals acquire and store information in the wild. I also provided the first empirical evidence that groups benefit from older leaders because of their enhanced ability to make crucial decisions about predatory threat, throwing new light on selection for longevity (McComb et al., 2011). Our most recent *PNAS* paper (McComb et al., 2014) demonstrated that elephants' knowledge of human predators was extremely precise - revealing unusual abilities to determine ethnicity, gender and age from acoustic cues in human voices.

Advances in our understanding of sexual signals and the origins of language

My original papers on the functions of roaring in red deer provided the basis for a new systematic experimental approach to studying the role of vocal signals in sexual selection in mammals (e.g. McComb, 1987, which was a cover story in *Nature*). I realised early on the importance of applying source-filter theory to the study of mammal vocal communication and subsequently developed this approach with David Reby (originally my postdoc) and Ben Charlton (our PhD student) in a series of influential papers showing that formants, key parameters in human speech, also play a crucial role in the communication of non-human mammals (e.g. Reby & McComb, 2003; Reby et al., 2005). This work is given detailed coverage in the new edition of the flagship behavioural ecology text (Davies, Krebs & West, 2012 *An Introduction to Behavioural Ecology*). I have also used a comparative approach to show that evolutionary increases in the size of non-human primate vocal repertoires have been associated with increases in group size and extent of social bonding, results that have added new perspectives to ongoing debates about language evolution (McComb & Semple, 2005).

As well as its scientific significance, my work has also had important practical consequences for animal conservation and welfare. In particular, by revealing the key role that the oldest individuals play in elephant social groups, we demonstrated how whole populations of cognitively advanced social mammals could be dramatically affected by the removal of just a few key individuals (McComb et al. 2001 & 2011). In addition, our recent work illustrating that social disruption can have very significant long-term effects on elephant cognitive abilities had implications for the conservation and welfare of both wild and captive animals. As a result of the above findings, which are relevant to the conservation and welfare not just of elephants but also of other long lived, large-brained social mammals such as whales and dolphins, I was invited to contribute to the recommendations of the recent Convention on the Conservation of Migratory Species of Wild Animals (CMS).

SUMMARY OF TEACHING

I have always aimed to deliver excellence in Teaching and Learning at both undergraduate and postgraduate (MSc & PhD) levels. At undergraduate level, I currently organise and teach a successful final year module in Animal Vocal

Communication and contribute to modules on Psychobiology and Contemporary Issues in Psychology. I also teach on post-graduate modules on Social Neuroscience and Voice Analysis and Re-synthesis.

Student feedback comments on Animal Vocal Communication illustrate the key elements that the students appreciate: "Most interesting course I have taken while at Sussex doing Psychology, very up to date research, great teaching, got to go into lab and discover how real research is conducted", "This was the best course of my degree", "The practical sessions reinforced what was learnt in the lectures, but in a fun way. Karen is very enthusiastic about this course and about the subject area which makes it a much more interesting and enjoyable class", "The workshops encourage critical thinking about experimental design and enable us to apply what we have learned in lectures", "Karen is clearly passionate about her subject and is very willing to discuss topic areas further when asked. It's also really nice to have someone lecturing who contributes so much to the scientific literature covered in the course".

Undergraduates and MSc students have benefitted from conducting their research projects as part of my lab, where they become integrated members of the research group. Several of these projects have contributed to significant publications on which students have been co-authors) and inspired students to go on to further MSc and PhD degrees themselves. My PhD students and postdocs have also performed outstandingly and many have gone on to very successful academic careers.

ADDITIONAL SCHOOL & UNIVERSITY CONTRIBUTION

I have held a number of significant administrative responsibilities within the university, notably:

- Chair of Postgraduate Exam Board 2014 - present
- Deputy Chair of Postgraduate Exam Board 2013
- Co-ordinator of undergraduate research projects for School of Psychology (2005 onwards) and previously for Experimental Psychology (1998/99 onwards)
- Exam Board secretary (2001-2003)
- Member of Academic Appeals Board (2002)
- Internal assessor for Periodic Review of Teaching in Biology (1997)

Mammal Vocal Communication and Cognition Research Group

In addition to fulfilling the specific internal roles above, I have served the university through developing, alongside my colleague David Reby, a highly successful research group in Mammal Vocal Communication and Cognition <http://www.lifesci.sussex.ac.uk/cmvcvcr/Home.html>

This has attracted and supported talented postgraduates and independent research fellows. At present, I have 3 PhD students, a postdoc and a full-time research

assistant, working on projects ranging from social communication in African lions to emotional awareness in horses; an additional postdoc on culture in elephants is expected next year. Along with David Reby's students and collaborators, this makes for a vibrant research community.

I have also significantly enhanced the University's profile through the success of my external academic and public activities as documented below.

MEMBERSHIPS & NETWORKS

(i) Journals & academic affiliations

- UFAW link representative for University of Sussex 2014 onwards.
- Academic editor for *PLoS ONE* 2007 onwards.
- Editorial board of *Bioacoustics* 1997 onwards.
- Consulting editor for *Animal Behaviour* 1996-1998
- Council member for the Association for the Study of Animal Behaviour 1993-1996. ASAB liaison representative for the Institute of Biology 1995-1997
- Reviewer for *Science*, *Nature*, *Current Biology*, *Proceedings of the Royal Society B*, *Proceedings for the National Academy of Sciences*, *PLoS ONE*, *Animal Behaviour* and other journals
- Appointed reviewer for European Research Council grants 2012

(ii) Conference organisation

- Organised symposium on "Mammal vocal communication: insights into cognitive abilities and the origins of language" at the International Ethological Congress in Budapest, August 2005 (with David Reby)
- Organiser of the Association for the Study of Animal Behaviour Conference on "Evolution of Mind" held in London in December 1999 (with Stuart Semple), attended by more than 200 people

(iii) Recent invited academic lectures

- Invited speaker, Cetacean Culture Workshop, organised jointly by the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and Whale and Dolphin Conservation (WDC) (April 2014)
- Plenary talk at the Association for the Study of Animal Behaviour meeting on "Cognition in the Wild" (December 2012)
- Invited speaker, International workshop on communication and social cognition, Institute of Evolutionary Biology and Environmental Studies, University of Zurich (March 2011)
- Invited speaker, International workshop on referential communication, Wissenschaftskolleg zu Berlin, Institute for Advanced Study, Berlin, (June 2010)
- Plenary speaker, International Society for Applied Ethology, Nordic meeting, Kuopio, Finland (January 2010)

- Invited speaker, International Ethological Congress, Rennes (August 2009)
- Invited speaker, Ecology and Evolutionary Biology, University of Princeton (April 2009)
- Invited speaker, Novartis day at the Royal Society Discussion meeting on Social Intelligence in London (May 2006)
- Invited speaker (and organiser), International Ethological Congress Symposium on "Mammal vocal communication: insights into cognitive abilities and the origins of language", Budapest (August, 2005)
- Keynote speaker, British Association for the Advancement of Science, Symposium on "Where do numbers come from", Salford (September 2003)
- Plenary speaker, Association for the Study of Animal Behaviour conference on Information Gathering (December 2002)
- Invited speaker, symposium on Alternative Approaches to Studying Social Cognition, International Ethological Congress, Tübingen (August 2001)
- Invited participant, International workshop on animal signalling, TalkBank, University of Philadelphia (May 2000)
- Plenary speaker, Association for the Study of Animal Behaviour Conference on Communication and Social Behaviour, Lisbon (July 1999)

BUSINESS, ENTERPRISE & THE COMMUNITY

(i) Lectures to the general public / industry

- Invited panel member/speaker Festival of Sound, organised by Magdalene College, University of Cambridge (December 2014)
- Invited panel member/speaker in Gulbenkian Foundation Supersonix Festival, organised on behalf of the Exhibition Road Cultural Group to focus on the art and science of sound & music-making (June 2012)
- Public lecture on 'Animal Communication' in Learning About Animals series in London (May 2007)
- Lecture to the Pet Care Trust Conference in Edinburgh (November 2006)
- Press conference at London Zoo in April 2001 for launch of my *Science* paper, organised by the American Academy for the Advancement of Science
- Lecture at the British Library National Sound Archive (December 2000)
- Royal Geographical Society lecture (jointly with Cynthia Moss) attended by more than 600 members of the public (November 1996)

(ii) Media involvement & TV documentaries

- There has been considerable media coverage of my work over the years, with appearances on British, American, Australian, Canadian and German TV and radio stations (including BBC TV news, Discovery Channel, Radio 4 Today programme and BBC Science in Action) and articles in major British, European and American newspapers (eg, The Guardian, Times, Liberation, National Geographic magazine, New Scientist). *Science* organised a press conference in London in April 2001 for the launch of my paper, which was

their cover story - and later cover stories in *Biology Letters* (2006), *PNAS* (2009) and *Proceedings of the Royal Society B* (2011) also generated widespread media attention, as did my *Current Biology* paper in 2009 which featured as the most popular story on the BBC web site, as well as the top science and environment story. Two of my most recent papers - in *PNAS* (2014) and *Frontiers in Zoology* (2013) - received unusually extensive world-wide coverage, as did a recent *Current Biology* (2014) paper with my PhD student. This included interviews on the Radio 4 Today Programme, ITV News at Ten, BBC World TV News, Newsround, BBC World Service, and Science in Action, as well as being covered in BBC Breakfast, BBC Radio 2, 3 & 4 news reports, Time Magazine, The Economist, *Nature*, *Science*, National Geographic and by more than 200 other news outlets here and abroad.

- I have done regular consultancies for the BBC and other companies making wildlife documentaries on animal communication. Most recently, I was scientific consultant for the popular two-part BBC documentary "Talk to the Animals" (2014). I have also provided sound recordings for wildlife documentaries by the BBC and Windfall films and have a sound recording credit (with Martyn Colbeck) on the BBC's "Echo of the elephants: the next generation" (1995).
- My elephant research was covered in BBC's "Inside the Animal Mind" in February 2014 and my horse research was filmed for the BBC series "Talk to the Animals" which aired in July 2014. Both programmes were given prime-time slots and were very well received by the public.

(iii) Educational Displays for Museums

- I provided photographic material to The Field Museum, Chicago for an exhibition on Mammoths and Mastodons, Titans of the Ice Age. This exhibition is currently on tour round the world.

(iv) Contribution to Primary Education

- I was invited to write an autobiographical outline for "STEM stories" an NSF project designed to encourage girls in the U.S.A. to pursue careers in Science by introducing them to the senior scientists in particular fields (<http://www.stemstories.org/>).

(v) Contribution to major textbooks and popular books

- My work has featured in John Alcock's and Lee Dugatkin's major textbooks on Animal Behaviour and currently receives detailed coverage in the new editions of the Krebs & Davies *An Introduction to Behavioural Ecology*, Bradbury & Vehrencamp's *Principles of Animal Communication* and Shettleworth's *Cognition, Evolution and Behavior*. It has also been reported in popular books including Brian Butterworth's *The Mathematical Brain* and there is a chapter on my research in the best-selling book: *Animal Wise* by Virginia Morell.

RESEARCH GRANTS

I have received consistent funding for my research over the years, most notably from The Leverhulme Trust and BBSRC:

Leverhulme Trust Research Grant (PI): £285,389 (Jan 2014) *Emotional awareness as a basis for social success in a non-human: the domestic horse*. This project is currently in progress and employs 2 full-time research staff – Dr Leanne Proops (PDRF) and Ms Kate Grounds (RA).

Leverhulme Trust Research Grant (PI): £174,892 (Mar 2009) *Age and experience as determinants of acquired knowledge in a non-human mammal*.

National Geographic grant (PI): \$27,000 plus PDRA salaried by Durban (Jan 2006) *Elephant matriarchs and conservation*.

Waltham Foundation grant (PI): £9,632 (July 2002)
The Function of Purring in Cats: Seismic and Airborne Communication.

EU Marie Curie grant (Co-PI/Supervisor of PDRF): 114,072 Euro (Oct 2000)
Origin, Structure & Function of Sender-related Acoustical Features in Sexually Selected Mammal Vocalisations.

BBSRC research grant (PI): £166,092 (Mar 1996)
Communication Networks, Social Organisation and Reproductive Success.

Tusk Trust grants (PI): 3 x £1,500 (awarded 1994, 1995 & 1998)
Acoustic Communications in Elephants.

Nuffield Foundation grant (PI): £3,960 (Nov 1994)
Acoustic Communication in Social Mammals.

Royal Society Research grant (PI): £9,253 (Mar 1994)
Infrasonic Signalling in Elephants.

NERC small project grant (PI): £14,832 (Oct 1993)
Acoustic Communication & the Evolution of Mammal Social Systems.

In addition I have had a number of Royal Society Conference grants, most recently in 2005 & 2009.

SCIENTIFIC PUBLICATIONS

JOURNAL ARTICLES

* McComb, K. Shannon, G., Sayialel, K. & Moss, C. (2014) Elephants can determine ethnicity, gender, and age from acoustic cues in human voices *PNAS* 111(14), 5433-5438.

* cover article and subject of a *PNAS* commentary

Wathan, J. & McComb, K. (2014) The eyes and ears are visual indicators of attention in domestic horses. *Current Biology* 24, R1-R2.

Ratcliffe, V.F., McComb, K. & Reby, D. (2014) Cross-modal discrimination of human gender by domestic dogs. *Animal Behaviour* 91, 127-135.

* Shannon, G., Slotow, R., Durant, S.M., Sayialel, K.N., Poole, J., Moss, C. & McComb, K. (2013) Effects of social disruption in elephants persist decades after culling. *Frontiers in Zoology* 2013, 10: 62.

* shared first authorship

Proops, L., Rayner, J., Taylor, A. M. and McComb, K. (2013) The responses of young domestic horses (*Equus caballus*) to human-given cues. *PloS ONE*, 8 (6). e67000.

Proops, L. & McComb, K. (2012) Cross-modal individual recognition in domestic horses (*Equus caballus*) extends to familiar humans. *Proceedings of the Royal Society B, London* 279, 3131-3138.

* McComb K., Shannon G., Durant S.M., Sayialel K., Slotow R., Poole J., and Moss C. (2011) Leadership in elephants: the adaptive value of age. *Proceedings of the Royal Society B, London* 278,3270-3276; doi:10.1098/rspb.2011.0168.

* cover article

Webster, H., McNutt, J. W. & McComb, K. (2011) African wild dogs as a fugitive species: playback experiments investigate how wild dogs respond to their major competitors. *Ethology* 117, 1-10.

Taylor A. M., Reby D. & McComb K. (2011) Cross modal perception of body size in domestic dogs (*Canis familiaris*). *PLoS ONE* 6, e17069.

Webster, H. McNutt, J.W & McComb, K. (2010) Eavesdropping and risk assessment between lions, spotted hyenas and African wild dogs. *Ethology* 116, 233-239.

Proops, L. & McComb, K. (2010) Attributing attention: the use of human-given cues by domestic horses (*Equus caballus*). *Animal Cognition* 13, 197-205.

Proops, L., Walton, M. & McComb, K. (2010) The use of human-given cues by domestic horses (*Equus caballus*) during an object choice task *Animal Behaviour* 79, 1205-1209.

Taylor A. M., Reby D. & McComb K. (2010) Why Do Large Dogs Sound More Aggressive to Human Listeners: Acoustic Bases of Motivational Misattributions. *Ethology* 116, 1155-1162.

Reby D., Charlton B., Locatelli Y. & McComb K. (2010) Oestrous red deer hinds prefer male roars with higher fundamental frequencies. *Proceedings of the Royal Society B, London* 277, 2747-2753.

Taylor, A. M., Reby, D. & McComb, K. (2010) Size Communication in domestic dog (*Canis familiaris*) growls. *Animal Behaviour* 79, 205-210.

McComb, K., Taylor, A.M., Wilson, C. & Charlton, B., (2009) Manipulation by domestic cats: the cry embedded within the purr. *Current Biology* 19, R507-508.

Taylor, A., Reby, D. & McComb, K. (2009) Context-related variation in the vocal growling behaviour of the domestic dog (*Canis familiaris*). *Ethology* 115, 905-915.

* Proops, L., McComb, K. & Reby, D. (2009) Cross-modal individual recognition in domestic horses. *Proceedings of the National Academy of Sciences* 106, 947-951.

* cover article and subject of a PNAS commentary

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**EXHIBIT B TO MCCOMB AFFIDAVIT -
LIST OF REFERENCES CITED [A-214 - A-217]**

Karen McComb Elephant Autonomy Affidavit

Exhibit B

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