Court file no.:

IN THE COURT OF QUEEN'S BENCH OF ALBERTA
JUDICIAL DISTRICT OF EDMONTON

BETWEEN:

TOVE REECE, ZOOCHECK CANADA INC.
and PEOPLE FOR THE ETHICAL TREATMENT OF ANIMALSINC.

Applicants

-and-

CITY OF EDMONTON

Respondent

AFFIDAVIT OF DR. WILLIAM KEITH LINDSAY

1. I am a Canadian ecologist with over 30 years' experience in biodiversity research and conservation, environmental assessment and monitoring, land-use planning, information systems and institutional analysis in all parts of sub-Saharan Africa and in Asia, Europe and North America. I have attached my CV herein as **Exhibit 1**.

2. Publications that I have authored are listed in my CV some of which are directly related to elephant habitats.

3. I am qualified to discuss the spatial needs of elephants and the impacts on elephants of confinement in small spaces in general, as well as specifically to Lucy, a 34-year old female Asian elephant, while living at the Valley Zoo in Edmonton.

4. In preparing this affidavit, I have reviewed the authorities I reference below with respect to elephants in general. In relation to Lucy specifically, I reviewed documents and other material provided to me by Julianne Woodyer of Zoocheck, Canada Inc., which I verily believe to be true and reasonably accurate.

a. A spreadsheet summarizing information contained in the zoo's medical & keeper records from February 15, 1980 to June 24, 2009. A copy of that spreadsheet is attached hereto as **Exhibit 2**.

b. Sketch maps, with measurements, of Lucy's indoor and outdoor enclosures. A copy of those maps is attached hereto as **Exhibit 3**.

c. A video clip of Lucy in her indoor enclosure taken by Ms. Woodyer on April 25, 2007. A copy of this video clip is included on a DVD and attached hereto as **Exhibit 4**.

d. A video clip of Lucy in her indoor enclosure taken by Ms. Woodyer on March 16, 2009. A copy of this video clip is included on a DVD and attached hereto as **Exhibit 5**.

e. A video clip of Lucy on a walk during icy conditions taken by Ms. Woodyer March 16, 2009. A copy of this video clip is included on a DVD and attached hereto as **Exhibit 6**.

f. A spreadsheet summarizing keepers' walk records with Lucy for the whole of 2008 and for March – July 2009. A copy of those records is attached hereto as **Exhibit 7**.

EXPERIENCE AND TRAINING

5. I joined the Amboseli Elephant Research Project in southern Kenya in 1977, where I studied elephant feeding ecology and demography for my M.Sc. (1982, University of British Columbia) and Ph.D. (1994, Cambridge, UK). In these studies, I conducted field research on ranging, habitat use and demography of African elephants (M.Sc.) as well as feeding behaviour and demography of African elephants (Ph.D.) in relation to habitat conditions and local pastoralist communities in Amboseli National Park, Kenya.

6. My continuing involvement with elephants includes research on home range use, habitat interactions and ecosystem change, policy development for their conservation and management, and efforts to improve elephant well-being in the wild and in captivity. I have reviewed a wide range of documents in relation to elephants including journal articles , academic dissertations, research proposals and management plans. I have performed geographical analysis of changing habitat conditions in relation to ecological factors and human land use and theresponse of elephants to these changes.

7. I have also had the opportunity to observe elephants and their living conditions in captivity in five different zoos in the United States (Brookfield Zoos in Chicago; the Los Angeles Zoo; and the National Zoological Park in Washington), Canada (the Greater Vancouver Zoo) and the United Kingdom (the London Zoo).

8. I additionally had the opportunity to observe and view the outdoor and indoor elephant enclosures at the Lincoln Park Zoo in Chicago. I did not observe elephants at the Lincoln Park Zoo as its elephants had passed away by the time of my visit.

9. My direct, long-term experience has been with African elephants, but I am entirely familiar with the literature on Asian elephants and am in regular correspondence withresearchers and conservationists in a number of Asian countries. In both behavioural, physical and ecological terms, African and Asian elephants share a great many characteristics and requirements.

10. My experience with elephants in the wild and captivity through direct observation as well as my study of the formal and informal literature, provide me with an understanding of the requirements for the well-being of elephants based on their natural biology. Knowledge of these requirements can then be compared directly to the conditions on offer to elephants in captivity in general, and to Lucy in particular.

LUCY'S PHYSICAL HEALTH ISSUES

11. I have considerable experience of observation of healthy elephants in unconfined conditions, in their natural habitat. The summarized medical records from February 15, 1980 to June 24, 2009 indicate that Lucy is suffering from a number of ailments that I have never seen in wild African elephants and am similarly aware are not seen in wild or working Asian elephants.

12. It is abundantly clear from my experience observing captive and wild elephants, and well as from reviewing records of pain medication administered to Lucy (dating from 1 October 1991) that Lucy is suffering and is in privation. The combination of (1) a severely confined living space, (2) concrete substrate in Lucy's indoor enclosure and (3) inappropriate diet are very likely to be the ultimate causes of all the health problems noted below. These conditions of Lucy's captivity are in themselves quite sufficient to cause suffering and privation.

Arthritis

13. The medical records show that Lucy was first diagnosed with rheumatoid arthritis on October 1, 1991 at the age of 16 and she was still being treated for daily pain related to her arthritis as recently as May 17, 2009. Symptoms reportedly include swollen knees, stiff joints, and difficulty with standing and walking.

14. Arthritis is virtually never observed in wild African or Asian elephants and I have never personally observed arthritis in a wild elephant. The literature on elephants held captive in North America (Kane et al., 2008a) and Europe (Clubb & Mason, 2002) indicates that arthritis is a very common condition in captivity. In Lucy's case, the conditions of her confinement, in combination with the concrete substrate in her indoor enclosure, her obesity and the prevention of her species-typical movements have very likely combined to cause her arthritis.

15. Elephants' limbs are like columns, bearing their enormous weight directly downwards on their joints and feet (Benedict, 1937; Kingdon, 1979). Under the natural conditions in which they evolved, elephants rarely stand still for more than an hour or two during periods of midday rest. In the middle of the night, even the largest adult elephants sleep lying stretched outon the ground or leaning on sand mounds or termite hills for 2-4 hours during the hours between midnight and early morning (personal observations). The remainder of their normal daily cycle involves walking, either slowly while feeding, or more rapidly with longer strides during movements between sites of forage, water, shade or wallowing opportunities. During periods of social interaction, they may move very quickly and even run. The summation of these movements means elephants normally cover tens of kilometres per day. Thus, elephants are vigorous animals, normally on the move for 18-20 hours a day (personal observations). The areas included in home ranges of both Asian and African elephants are on the order of hundreds of square kilometres, with the smallest recorded areas of around 50 km^2 and the largest of over 10,000km^2 (Sukumar, 2003; Poole & Granli, 2008).

16. According to the sketch maps set out in Exhibit 3, the area at the Valley Zoo for the outdoor enclosure is approximately 825m^2. The total indoor area is 194m^2 with the main room of the indoor enclosure being less than half that size (79 m^2). I calculated these areas based on the measurements set out in those sketch maps. These areas are larger than what is set out in the

Association of Zoos and Aquariums' 2003 Standards for Elephant Management and Care for a single elephant (the "AZA Standards") which state that indoor enclosures should be at least 37m^2 and outdoor enclosures be at least 167 m^2.

17. It should be noted that the AZA Standards are several orders of magnitude smaller than what elephants experience in the conditions in which they normally live and have evolved. The AZA Standards appear to be much more strongly influenced by what most zoos are currently prepared to offer than what elephants may actually need. However, what is important is that the AZA Standards also recognize that keeping elephants indoors for extended periods is detrimental to their health and well-being. They note that "context is particularly important. [...] If [...] the zoo is located in a cooler climate and the animals are kept inside for many months during the winter, then the indoor space requirements must be met or, preferably, exceeded.". The very cold winter conditions in Edmonton, which last for several months of every year, mean that Lucy is unable to spend much time in her outdoor enclosure, which in any case is very small in relation to the real requirements of elephants for space, as noted above.

18. Also, it should be noted that the Government of Alberta Standards for Zoos in Alberta specifically state that "[e]xhibit enclosures must be of sufficient size to provide for the physical well being of the animal. All animal exhibits must be of a size and complexity sufficient to provide for the animal's physical and social needs and species typical behaviours and movements."

19. Confining an elephant in such a small barn and enclosure would limit her opportunity for movement to no more than a few strides at a time, despite the fact that elephants typically walk many kilometres over the course of a day. Under such restriction an elephant could spend very little time walking and activity would be limited to short pacing bouts, or simply standing on one spot for extended periods. Because Lucy is locked in the barn every evening when her keepers go home and because she is similarly confined throughout much of the very cold winter months in Edmonton, it has been estimated that Lucy spends roughly 70% of her total time indoors (Kiiru, 2007). The video clips I have seen of Lucy in her indoor enclosure (attached as Exhibits 4 and 5) indicate that her movements certainly appear to be limited to standing and occasionally moving one or two paces.

20. These observations, taken together and evaluated in light of the GASZA Standards comments on the need to provide adequately for elephants' physical needs and species typical behaviours and movements, lead ineluctably to the conclusion that Lucy's quarters are far too small. Lucy simply is unable to engage in her species-typical behaviour of extensive walking, which is required for both physical and psychological health (Poole & Granli, 2008),particularly during the winter when she is largely indoors.

21. Long periods spent standing must clearly put enormous pressure on joints and feet, without any relieving movement or exercise, and the impact on limbs is likely to be additionally acute when the animal is overweight or obese and when the substrate is made of concrete, which provides no shock absorption. Lucy's walk records (attached as Exhibit 7) show an average of less than two hours total time walking per day in 2008, with considerably less time in the winter months. The video clip (attached as Exhibit 6) show that she is kept under tight control by the keepers during these walks and that in the icy conditions of winter, her movements can be only slow and cautious. These brief periods of activity do not provide a significant addition to her generally immobile lifestyle (Kiiru, 2007). This immobility – even if it had not resulted in arthritis – causes significant suffering and deprivation to Lucy as she is not allowed to engage in her species-typical movements.

Foot Damage and Infections

22. In the medical records, the first recorded instance of a foot infection was on September 22, 1989. Since then and for the past 20 years, there have been regular records of infections, lesions and cracked toenails, with symptoms including puss-filled bleeding blisters on one or more of her feet, making it painful for her to stand or walk. I have never observed these conditions in free, wild elephants, and if they were to occur, they must be very rare.

23. And as with her arthritis, Lucy's foot infections are apparently caused by the lack of opportunity to move, stretch legs, take the weight off individual feet and improve circulation that comes from having sufficient space (Kane et al., 2008a). Obesity is, of course, likely to contribute to the problem by placing greater weight on the feet, as is the hard, abrasive and unyielding substrate of concrete flooring (making for easy cleaning but not for healthy elephants), which will not cushion the impact of such weight.

24. Pain and suffering inevitably results. The Coalition for Captive Elephant Well-being recommended in its Best Practices document (Kane et al, 2008b) that elephants should have sufficient space so that they are able to walk at least 10 kilometers per day. Based on experiences from Oakland Zoo, this would appear to require a minimum area ofat least 12,000 m^2 (3 acres), which is over 60 times larger than Lucy's current indoor enclosure and 15 times larger than her outdoor enclosure.

25. A useful comparison is the experience of captive elephants which have moved to the considerably less confining conditions of sanctuaries, where they have thousands to millions of square metres in which to roam. By their nature, the sanctuaries receive animals that may arrive with pre-existing foot problems, developed in the zoos or circuses where they lived previously. With time in the new environment, the condition of elephants' feet shows marked improvement when the elephants are able to move much more freely (Derby, 2008); in the Tennessee Elephant Sanctuary, foot disease problems are reported to disappear completely (Buckley, 2008).

26. Building a three acre indoor zoo enclosure for Lucy – which is what I believe would be necessary for her to be able to walk the 10 kilometers per day recommended by the Coalition for Captive Elephant Well-being (Kane et al., 2008b), would be an enormously costly endeavour. There is the cost of building the structure, heating it in the winter and maintaining it. Furthermore, the floor should not be made of concrete – otherwise Lucy would be very likely to continue to suffer from foot damage infections are a result of the abrasiveness and lack of shock absorption.

Obesity

27. On December 7, 2005, the medical records show that Lucy weighed 8,900 pounds, just over four metric tonnes. The normal weight of an adult female Asian elephant in the wild in Tamilnadu and Karnataka, India, is reportedly 3,055 kilogrammes, or some 6,735 pounds (Sukumar 2003), so at the end of 2005 Lucy was overweight by over two thousand pounds. The record for December 7, 2005 indicates that she was then put on a special diet, but this change was ineffective; by March 12, 2009 her weight had risen to 9,440 pounds.

28. According to a recent announcement by the Valley Zoo (Anon, 2009), Lucy has lost approximately 400 pounds over the last month, with the goal being that she lose 1,000 pounds in

a year. With the recent weight loss, Lucy remains approximately 2,300 pounds overweight. Even if Lucy manages to lose the targeted 1,000 pounds, she will continue to be extremely obese and will likely continue to experience the health complications related to her obesity – namely: arthritis and foot infections. (I cannot comment on whether the rapidity of Lucy's recent weight loss will have any detrimental effect on her health.)

29. Elephants' food in the wild is generally of low quality and very fibrous (personal observations), which they compensate for by feeding for long periods and passing large quantities of plant material through their digestive tracts (Kingdon, 1979; Sukumar, 2003). It is often the case that zoo-keepers provide food to elephants as a reward, or even a "tranquilizer" to keep them happy and occupied (Lair, 1997). Generally this food has much higher nutrient content and much lower fibre than natural diets, and on such diets elephants experience considerable weight gain (Lair, 1997). At the same time, the lack of opportunity to exercise continuously, as noted above, is painful and causes suffering because it is likely to compound the problem of weight gain and maintenance, as has clearly been the case with Lucy.

30. Such obesity will add to the pressures put on joints and feet, as noted above, and will have other health consequences, including cardio-vascular problems and conditions related to poor circulation, such as chronic infection (Kane et al., 2008a). Lucy's medical records show a long history of infected wounds (since 21 October 1983) and ears (since 7 February 1990) and blockages of breathing passages (since 9 February 2000). Accompanying the obesity of confined, over-fed elephants is a general impoverishment of muscle tone and overall poor health.

31. In sanctuaries, elephants often lose the excess fat of an obese zoo animal and, in any case, their muscle tone is greatly improved (Buckley, 2008).

Stereotypic behaviour

32. The stereotypic behaviour often seen in confined elephants – head-bobbing, swaying from foot to foot, moving back and forth repeatedly along a similar short path – is evidence of inadequate environmental stimulation that would otherwise be provided by a sufficiently large and challenging living space (Lair, 1997; Poole & Granli, 2008; Kane et al. 2008a). In the two video clips I have seen of Lucy in her indoor enclosures (attached as Exhibits 4 and 5), Lucy engaged in stereotypic movements of her head and feet. In the Exhibit 4 video, Lucy spent the

entire length of the clip (5 minutes 47 seconds) with her head in the corner against the wall bars, rocking backwards and forwards, shifting her weight from hind to front feet and back and bobbing her head slightly up and down with each motion. In the Exhibit 5 video, after walking slowly and scouring the bare concrete floor with her trunk in an apparent search for food items for 4 minutes 10 seconds, she spent over five and half minutes in the familiar forward and backward rocking/ bobbing rhythm, initially with her head in the corner (50 seconds) and then with her back to the wall bars (4 minutes 42 seconds).. This repetitive behaviour is quite simply a response to boredom and stress (Kane et al, 2008a). As with the foot and joint problems described above, I have never seen wild elephants perform this kind of clearly pathological fixed-action behaviour, nor is it seen in more stimulating captive situations, such as sanctuaries (Buckley, 2008).

33. Poor psychological health, as evidenced by stereotypy, is likely to result in reduced physical health and a weaker immune system (Bradshaw, 2009). It clearly can only reflect Lucy's privation and suffering in her present environment of extremely limited and unstimulating living space.

LACK OF AN ELEPHANT COMPANION

34. Keeping such a naturally social animal such as a female elephant in isolation from her conspecifics is something that never occurs under normal conditions and is completely unnatural on a psychological level. Based on this fact alone, it can only be concluded that Lucy, in her current socially isolated state is suffering and in privation.

35. Elephants are very social and sociable by nature. They are born into family groups, with one or (usually) more adult females, a number of juvenile females and elephant calves of both sexes. There is continuous contact and interaction with these relatives, with whom female elephants remain for their entire lives (Lee & Moss, 2008). When they become separated from family members during the course of daily movements through complex habitats and then are reunited, they display excitement and enter into vocal, visual and tactile displays of bonding. On the other hand, when elephants die, the surviving family members show evidence of a form of emotional response that is clearly analogous, if not identical, to what humans interpret as grief (personal observations). These bonds usually involve close kin, but elephants have also been

seen, occasionally, to develop similar attachments to unrelated animals. From long-term studies (Lee & Moss, 2008) and vocalization playback experiments (McComb *et al.*, 2000) in Amboseli, Kenya, it has been established that elephants can identify and determine their relationships with over 200 different unique individuals of whom they are socially aware. It is entirely reasonable to conclude from these observations that the social environment is extremely important to the psychological well-being of elephants.

36. Observations of individual elephants have documented that they clearly have distinct personalities, and that social relationships are complex and vary between individuals on a context-specific basis (Lee & Moss, 2008). Some elephants are more sociable than others, but no female elephants are "loners" or "anti-social"; all show interest in forming relationships with other individuals. These relationships benefit the survival of individuals, as they can co-operate with others in the raising and protection of young or passing on and making use of collective memory of habitat resource locations in a variable environment. Antisocial behaviour in an elephant would reduce its survival chances considerably and would not be a trait favoured by natural selection.

37. The AZA Standards discourage currently existing institutions from keeping female elephants in a group of fewer than three female elephants and require all new exhibits to be able to hold at least three female elephants. This level is considerably lower than is found in the wild, where a mother-calf unit can be just two animals, but family units are typically 6-8 animals and can often number as many as thirty, while larger groupings of associating families are very common (Lee & Moss, 2008). The Valley Zoo is in violation even of the very low AZA Standard.

38. There are anecdotal, but compelling, reports of individual captive elephants being reunited with fellow captives from whom they have been separated for many years showing considerable excitement and apparent affection. At the same time, some elephants when placed in close proximity with others may show marked aggression and dominance interaction, with the subordinate animal thereafter suffering continuous stress. Elephants are very sensitive to the behaviour of other elephants and are accustomed to interacting and responding to other elephants. It is therefore essential that elephants be free to join with or avoid other individual

animals based on their own assessment of compatibility whether or not humans would view their actions as "social" or "antisocial" (Buckley, 2008).

39. The suggestion that human keepers can substitute for the companionship of fellow elephants is unjustified anthropomorphism based on no evidence that has ever been presented in the scientific literature. A solitary elephant may choose to interact with humans simply for some stimulation in the total absence of other elephants, although it has been argued that this "bonding" is analogous to the dependence that develops between human kidnap victims and their captors (Bradshaw, 2009). As noted above, the stereotypical actions of isolated elephants (Lucy being no exception) is likely an expression of their social boredom as well as the lack of stimulation in their physical environment and the deprivation and suffering caused by it. It is abundantly clear that Lucy would benefit greatly from the company of other elephants.

40. However, as noted above, it is important that she is able to make an active choice of that company (Buckley, 2008).

THE NOISE IN LUCY'S PHYSICAL ENCLOSURE

41. The video clips attached in Exhibits 4 and 5 show the indoor enclosure to be a noisy place, particularly when groups of children come down stairs into the observation area and their loud voices bounce off the bare walls and floor. The fact that elephants have very sensitive hearing (McComb et al. 2000) must add to the distress that Lucy experiences in such an acoustically challenging environment (Kane et al., 2008a).

USE OF THE ANKUS

42. Elephants are large, powerful animals but are also intelligent and sensitive. Aggressive treatment by other elephants, whether by signals of domination or by the deed of physical punishment, is recognised by the elephant on the receiving end, and creates both fear and stress (Poole & Granli, 2008). The same applies to aggressive treatment by people.

43. Elephants are not domesticated animals, having never been bred for the conditions of captivity (Lair, 1997), and in order for humans to interact with them closely, as they do in so-called "free contact" management, the most common approach is to dominate them. A bullhook or ankus is typically used by people to punish elephants and to reinforce that punishment, by

hitting or jabbing them in areas of soft tissue under their legs, in the genital or anal region, behind ears or around their eyes. This process of domination through negative conditioning is called "training". Elephants come to associate the ankus with physical punishment and will sensibly try to avoid receiving such treatment; after time, repeated punishment is not necessary and the simple physical presence of the ankus is sufficient threat (Lair 1997). However, since the relationship is based on fear, it is always going to involve stress and psychological damage, and could also build a legacy of anger against the keepers who employ it. If an individual elephant feels this anger, and at any stage has the opportunity to express it, the keeper's life could be in danger, and so, in response could that of the elephant (Buckley, 2008).

44. In the case of Lucy, the video clip of her being taken on a walk (attached as Exhibit 6) clearly shows the keepers each carrying an ankus in plain view so that she can see it. I have not observed the keepers striking Lucy, but the fact that the ankus is present and on display to Lucy does indicate that it is being used as an instrument of coercive power.

45. "Passive control" where elephants are encouraged by positive reinforcement (Buckley, 2008) and "protected contact", where elephants are always separated from people by barriers (Whittaker & Laule, 2008), are much more sensible alternative approaches for close interaction with elephants, from the viewpoints of both human safety and elephant well-being. The use of the ankus to maintain control over elephant behaviour in domination approaches inevitably requires coercion and causes suffering.

PROJECTED OUTCOME OF A MOVE TO A SANCTUARY

46. I am advised by Ms Woodyer and I do verily believe, that if Lucy is released from the Valley Zoo that she will be transferred to one of two American elephant sanctuaries in the United States: Performing Animal Welfare Society ("PAWS") in California or The Elephant Sanctuary ("TES") in Tennessee.

47. A move to one of these elephant sanctuaries would be of considerable positive benefit to Lucy. It is to be expected that she would experience both physical and social benefits, and a positive transformation in her overall health.

The Physical Benefits

48. The warm weather and very large areas (tens to hundreds of acres) available to an elephant at either PAWS in California (Derby, 2008) or TES in Tennessee (Buckley, 2008) would allow her to enjoy the following benefits:

a. Spending the majority of the year outdoors, with opportunity for exercise of limbs, heart and body on a daily and continuous basis, with long walks and challenging terrain;

b. Mental stimulation afforded by a complex environment;

c. Autonomy of movement choices, with the elephant able to choose where and when it wants to spend its time, on her own terms;

d. An improved diet, with a predominance of grasses and woody vegetation in addition to the food provided by the staff;

e. Improved overall physical health, as a combined result of the factors listed above.

The Social Benefits

49. With such a large area and the presence of several other animals, an elephant at a sanctuary can experience the following social benefits:

a. Company of other elephants, chosen or avoided on a voluntary basis;

b. Ability to maintain long-term relationships with one or more of those other animals;

c. Freedom from coercive treatment by humans;

d. Confidence and autonomy, and reduced stress levels;

e. Improved psychological health, as a combined result of these factors.

50. I am aware that PAWS and TES have excellent veterinarians and attentive staff available to assess and treat the health issues that develop with the animals in their care. However, as a result of the improved living conditions at a sanctuary, many of the health problems that are seen

at zoos occur at much lower frequency, if at all. Thus, the better conditions are a form of positive preventative medicine, and much less direct interventive treatment by staff is required.

51. The movement of Lucy from Edmonton to a sanctuary need not be a highly stressful, and thus risky, process. Sanctuary staff are extremely experienced in the transportation of elephants from zoos all over North America (Buckley, 2008; Derby, 2008), and are well able to minimize the health risks to the animal involved.

52. There are no cases of elephants dying as a result of the process of moving to a sanctuary from a zoo or circus.

53. My understanding of elephant biology makes it clear that a move from Valley Zoo to an elephant sanctuary would be of enormous value to the quality of Lucy's life in both physical and psychological terms. It would provide an end to the privation and suffering she is currently experiencing in Edmonton. By sending Lucy to a sanctuary, the Valley Zoo would join the growing number of zoos around North America that are taking positive steps towards identifying the strengths and limitations of their institutions, their role in both conservation and public education, and their recognition of legitimate concerns over the well-being of the wild animals they hold captive.

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SWORN BEFORE ME in Oxford)
the City of Oxford , this 18th day of)
December 2009.)
)

Notary Public

DR. WILLIAM KEITH LINDSAY

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This is Exhibit "1" referred to in the
affidavit of Dr. William Keith Lindsay
sworn before me, this 18th
day of December 19 2009

A COMMISSIONER FOR TAKING AFFIDAVITS

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Curriculum Vitae

Name	William Keith LINDSAY
Profession	Ecologist/ Project Manager
Date of Birth	5 November 1952
Nationality	Canadian / British (dual citizenship)

Key experience

Keith Lindsay is a Canadian-British ecologist and project manager with over 30 years' professional experience in Southeast Asia, Africa, Latin America, the Caribbean, North America and Europe, in planning, conducting and evaluating field projects and in senior administrative and leadership roles. Dr Lindsay has been actively involved in research on the ecology of African elephants with the Amboseli Elephant Research Project since 1977. His work has focussed on the relationships between habitat conditions, foraging behaviour and population dynamics. Initially undertaking direct field studies (1978-79, 1982-84), he has worked in recent years on the geographical analysis of changing habitat conditions, in relation to ecological factors and human land use, and the response of elephants to these changes. He continues to act as a scientific advisor to researchers associated with AERP, and on policy development for elephant conservation and management in all regions of Africa, and efforts to improve their well-being in both the wild and captivity.

Dr Lindsay joined the staff of The Environment & Development Group in 1994, since which time he has undertaken a variety of long- and short-term overseas consultancy missions and project work, both independently and with EDG, in Africa, the Caribbean the Middle East and Southeast Asia in the fields of project/programme monitoring and evaluation, institutional analysis, environmental assessment and land use planning, information systems, protected area monitoring and management, and biodiversity research and conservation. He has also been responsible for the administrative and technical management of projects with a broad range of international donors and geographical coverage. All these projects have been directly related to the relationships between natural resources, local communities and local, national and international institutions for their development and management.

Education

Academic:

Member, 2009-present, Oxford Centre for Tropical Forests, University of Oxford
Associate Fellow, 2003-2006, Environmental Change Institute, University of Oxford
Ph.D. Zoology, 1995, University of Cambridge
M.Sc. Zoology, 1982, University of British Columbia, Vancouver, Canada
B.Sc. (Hons.) Zoology, 1974, University of British Columbia, Vancouver, Canada

Training Courses:

GIS Distance Learning, Kingston University Professional Programme, Modules 2-4. February 2001, Kingston University and The GeoInformation Group
Managing Multiple Projects, Objectives and Deadlines, 1 November 1999, Skillpath Seminars, Birmingham
Project Cycle Management (Office Instructions - Module 1), 11-13 December 1996, Department for International Development, London

Computer Literacy

- Geographic Information Systems, including ArcView and ArcGIS 9; Google Earth Pro.
- Microsoft Office suite, Adobe Acrobat and Photoshop, EndNote.
- SPSS and other statistical software
- Experience of internet research and electronic data searches

Experience record

Independent consultancy and research (1974 to date)

Kenya: Research on elephant feeding ecology, population demography and habitat use (Amboseli Elephant Research Project, 1978 – present)

Research and analysis focussed on the relationships between habitat conditions, foraging behaviour and population dynamics. Following direct field studies (see below), work in recent years has been directed towards the geographical analysis of changing habitat conditions, in relation to ecological factors and human land use, and the response of elephants to these changes. His duties have included data analysis and writing of chapters for an edited book, *The Amboseli Elephants: A Thirty Year Study of a Long-lived Species*, provision of expertise in Geographic Information Systems (GIS) and the development of a direct-funding mechanism for the resolution of land use conflict between elephants and local pastoralist/agricultural communities. Since 2005, has served on Scientific Advisory Committee of AERP, supporting the direction and planning of collaborative research. Reviewed a wide range of documents in relation to elephants including articles for referred journals, academic dissertations, research proposals and management plans.

United Kingdom: Participation in and preparation of a paper in response to a meeting at the Parliamentary and Scientific Committee of the House of Lords (June – September 2007)

Attended and provided comment on a presentation on 6 June 2007 at the House of Lords' Parliamentary and Scientific Committee on **Elephants - Will they survive the next 100 years in the wild?** by Ian Whyte and "Twink" Allen, which put forward their views on the need to cull elephants. Subsequently provided a paper, upon a request from the chair of the meeting, to accompany the presentations in the journal, *Science in Parliament*.

South Africa: Contributing author to SA Elephant Assessment (CSIR, September – November 2007)

Provided text to a chapter on "Effects of elephant on ecosystems and biodiversity" and reviewed other chapters of the South Africa Elephant Assessment, a critical summary of the available literature on elephant biology and management. This review is intended to provide background information to inform the management and conservation of elephants in South Africa, and is likely to have wider implications on elephant management in southern Africa and elsewhere.

South Africa: Corresponding member of the Science Round Table (Department of Environmental Affairs and Tourism, December 2005 – August 2006)

Contribution to a series of discussions of key elephant conservation and management issues, as part of a panel of local and international elephant experts. This process followed earlier consultations by and presentations to DEAT, and was aimed at reaching a scientific consensus on the state of knowledge of elephants' perceived threat to biodiversity in Kruger National Park and other protected areas in South Africa.

South Africa: Briefing to Minister, DEAT (Care for the Wild International, November 2005)

Prepared and contributed a presentation, as part of a multi-disciplinary team, to the Minister of Environmental Affairs and Tourism, on elephant welfare issues, legal constraints, ecology and non-lethal options for elephant management.

South Africa: Participant at Elephants Alive Workshop (Care for the Wild International, July 2005)

Prepared and delivered a presentation on ecology and its application to elephant management in protected areas, as well as participation in workshop and plenary sessions and interviews with broadcast and print media, at the Elephants Alive Workshop. This workshop examined the assumptions underlying proposals to cull elephants in Kruger National Park, and proposed management alternatives to culling.

UK and Chile: Technical support in the context of CITES Conferences of Parties (Care for the Wild International, October 2002, October 2004)

Assisted CFTWI in the preparation of briefing documents on elephant management and ivory trade issues for presentation at CoPs 12 (2002) and 13 (2004) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Attended CoP 12 in Santiago, Chile, on behalf of CFTWI.

Kenya: Data management advisor (African Wildlife Foundation, September 1995)

Advising the African Wildlife Foundation, Kenya, on a data management system for the Amboseli Elephant Research Project.

Jordan: Range ecologist (IFAD, July 1995)

With the Environmental Research Group Oxford (ERGO), advised the government of Jordan on the development of an environmental monitoring programme for a proposed national programme for rangeland rehabilitation and development under funding from IFAD. Supplied specialist expertise on rangeland monitoring and assessment.

UK: Wildlife ecologist (UNITAR, 1996)

Preparation of a chapter on wildebeest radio-tracking, human land use, remote sensing and GIS in a technical handbook on *Remote Sensing and Wildlife Management* for the Natural Resources Institute, UK, under funding from UNITAR.

UK: Wildlife ecologist (African Wildlife Foundation/ EU, 1995)

Preparation of a chapter *Studying Elephant-Habitat Interactions* in a technical handbook, *Studying Elephants*, for AWF, Kenya, under funding from the European Union.

Botswana: Range/Wildlife Ecologist in the Department of Wildlife and National Parks (EU, 1988-92)

Under the EU-funded project "Initial Measures for the Conservation of the Kalahari Ecosystem", duties included those of Acting Head of the Research Division, Senior Wildlife Biologist at the DWNP headquarters office and field ecologist advising on the ecological impact of and recommendations for waterhole development for wildlife in the Central Kalahari Game Reserve and advising on interventions to support local communities. As a member of the Research Division, provided input to the development of elephant policy and on elephant research priorities.

UK: Conference participant (African Studies Centre, Cambridge, 1985)

Prepared and delivered a paper on integrating parks and pastoralists for a conference on *Conservation in Africa: People, Policies and Practices.*

Kenya/ UK: PhD researcher, University of Cambridge (1982-87)

Field research on feeding behaviour and demography of African elephants, in relation habitat conditions and local pastoralist communities, in Amboseli National Park, Kenya. Advising the Kenya Government on elephant management options.

Kenya/ Canada: MSc, University of British Columbia, (NSERC, 1978-82)
Field research on ranging, habitat use and demography of African elephants in Amboseli National Park, Kenya.

Kenya: Field ecologist (New York Zoological Society, 1977-79, 1983)
Operation of an ecological monitoring programme in Amboseli National Park, Kenya.

Canada: Wildlife research technician, Government of British Columbia & University of British Columbia (1974-75, 1980)
Activities included a survey of coastal peregrine falcons, a study of grizzly bears and mountain goats in relation to logging operations, the retrieval and filing of wildlife inventory data and a study of snowshoe hare population regulation.

Publications and reports

Lindsay, K. (2007) Elephant survival needs good science and clear thinking. *Science in Parliament*, 64(4):24-26.

Lindsay, W.K. (1996) Wildlife tracking, remote sensing and GIS as tools for protected area management in Africa. In: *GIS and Remote Sensing for Protected Area Management. Information for Decision Making*. Prototype Workbook (UNIDAR/IDRISI Style), Natural Resources Institute, Chatham, pp.63-73.

Lindsay, W.K. (1995) Studying elephant-habitat interactions. In: K. Kangwana (ed.) *Studying elephants*. African Wildlife Foundation Technical Handbook Series No.7, Nairobi.

Lindsay, W.K. (1994) *Feeding ecology and population demography of African elephants in Amboseli, Kenya*. PhD thesis, University of Cambridge, 180 pp.

Lindsay, W.K. (1993) Elephants and habitats: the need for clear objectives. *Pachyderm*, 16:34-40.

Lindsay, W.K. (1992) *Technical Assistance to the Department of Wildlife and National Parks. Initial Measures for the Conservation of the Kalahari Ecosystem*. Final Report under EDF Project No. 6100.026.14.001 to the Department of Wildlife and National Parks, Government of Botswana, Bonifica S.p.A., Rome, 189pp.

Lindsay, W.K. (1991) *Estimating rate of increase of the northern Botswana elephant population: A critical evaluation of aerial census results for the period 1980-1985*. Unpublished report to the Department of Wildlife and National Parks, Government of Botswana, Gaborone, 12pp.

Lindsay, W.K. (1991) *Age structure and rate of increase in Botswana's elephants: Classification counts of juveniles in Chobe National Park. Report on a field study conducted during 11 - 16 July, 1991*. Unpublished report to the Department of Wildlife and National Parks, Government of Botswana, Gaborone, 8pp.

Lindsay, W.K. (1991) Food intake rates and habitat selection of elephants in Amboseli, Kenya. *African Wildlife: Research and Management*. International Council of Scientific Unions, Paris, pp.88-92

Lindsay, W.K. (1990) Elephant/habitat interactions. In: P. Hancock (ed.) *The Future of Botswana's elephants*. Kalahari Conservation Society, Gaborone, pp. 19-23

Lindsay, W.K. (1987) Integrating parks and pastoralists: some lessons from Amboseli, Kenya. in D. Anderson and R. Grove (eds) *Conservation in Africa: People, Policies and Practices*. Cambridge University Press, Cambridge, pp.149-167

Lindsay, W.K. (1982) *Habitat selection and social group dynamics of African elephants in Amboseli, Kenya*. MSc thesis, University of British Columbia, 200pp.

Bulte, E., R. Damania, L. Gillson & **K. Lindsay** (2004) Space – the final frontier for economists and elephants? *Science*, 306: 420-421

Gillson, L. & **K. Lindsay** (2003) Ivory and Ecology – changing perspectives on elephant management and the international trade in ivory. *Environmental Science and Policy*. 6:411-419.

Gordon, I.J. & **W.K. Lindsay** (1990) Could mammalian herbivores "manage" their resources? *Oikos*, 59: 270-280.

Inamdar, A., de Jode, H., **Lindsay, K.** & S. Cobb (1999) Capitalizing on nature: protected area management. *Science*, 283: 1856-1857.

Starfield, A.M. & **W.K. Lindsay** (1990) *Report on a decision-making workshop held in the Department of Wildlife and National Parks, Gaborone, Botswana, August 21, 22 & 23, 1990.* Unpublished report to the Department of Wildlife and National Parks, Government of Botswana, Gaborone, 23pp.

Western, D. & **W.K. Lindsay** (1984) Seasonal herd dynamics of a savanna elephant population. *African Journal of Ecology*, 22:229-244.

Young, T.P. & **W.K. Lindsay** (1988) Role of even-age population structure in the disappearance of *Acacia xanthophloea* woodlands. *African Journal of Ecology*, 26:69-72.

Popular articles:

Lindsay, K. (2009) Elephants need room to roam. *NC-Greensboro News and Record*, Sunday, October 25, 2009.

Lindsay, W.K. (1986) Trading elephants for ivory. *New Scientist*, 112(1533): 48-52.

Lindsay, W.K. (1986) Elephant problems and human attitudes. *Swara*, 9(3):24-27.

Lindsay, W.K. (1983) Elephants, trees and people. *Wildlife News*, 18:8-11

Short-term consultancies for The Environment & Development Group (1994 to date)

Dr Lindsay has provided consultancy services through EDG on short-term assignments relating to elephants:

Elephant-related assignments:

Kenya: Team Leader, National Strategy for the Conservation and Management of Kenya's Elephants (Kenya Wildlife Service, February 2007 – 2008)

Leader of the team tasked with assisting KWS in the preparation of an elephant conservation strategy. Initial briefings with KWS officials followed by a literature review, a series of consultative workshops in each administrative region, a questionnaire survey of key NGOs and draft report preparation leading to a national conference.

Mali: Initiating Measures to Protect the Gourma Elephants – Phase 1 (US Department of State/ US Fish & Wildlife Service, July 2003 – December 2005)

Field site visit to Bamako, the capital of Mali, to meet officials of the Division Nationale de la Conservation de la Nature, and to the Gourma region to supervise studies of elephant population structure. See the Annex for more details of this project.

Botswana: The African Elephant in the Context of CITES (EU, 1994)

Technical assistance in the preparation of briefing documents for and facilitation of an international meeting on elephant conservation issues, in relation to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), held in Botswana in co-ordination with the DoE (UK), the EU and the US Fish & Wildlife Service.

Other assignments:
Consultancy services through EDG on short-term assignments in other sectoral areas summarized in Annex 1.

Project Manager with The Environment & Development Group, Oxford (1994 to date)
As Project Manager, Dr Lindsay has been responsible for providing technical and administrative support to a large number and variety of projects. Such support has included project cycle management (design, implementation and result monitoring via logical framework), managing relations with clients and consultants, logistical and procurement arrangements and technical support to field personnel (including site visits). Details of the projects can be found in Annex 2, but they have included work in the following sectoral and geographical areas for donor, governmental, non-governmental and private sector organisations:
Sectoral areas

- project/ programme design, monitoring and evaluation;
- institutional analysis, change management and capacity building
- strategic land use planning (infrastructure, socio-economic and environmental analysis), focussing on sustainable development;
- climate change mitigation and adaptation
- protected area planning and development implementation, including biodiversity monitoring and conservation, revenue generation through sustainable agriculture, forestry and ecotourism, with emphasis on local community involvement;
- community-based natural resource management, wildlife/ natural resource -based enterprise development;
- information systems and regional co-ordination;

Geographical areas

- Southeast Asia, including the Philippines (and ASEAN in general), Vietnam.
- Africa, including Botswana, Cameroon, Gabon, Kenya, Malawi, Mali, Namibia, Tanzania, Uganda and Zambia.
- Caribbean and Latin America, including Trinidad & Tobago and Guyana.

Annex 1: Details of short-term EDG consultancies undertaken by Keith Lindsay

UK: Review of FCPF Readiness Preparation Plan by Suriname (World Bank, October 2009)

Chairing of tele-conferences and preparation of a synthesis report on the Technical Advisory Panel review of the REDD Readiness Preparation Plan submitted by the Government of Suriname to the Forest Carbon Partnership Facility, supported by the World Bank.

UK & Africa-wide: Scoping potential DFID engagement & support on REDD for Africa (DFID, February-April 2009)

An EDG team, including Dr Lindsay, provided advice on potential DFID support to help Sub-Saharan Africa develop climate change policy in relation to REDD (Reducing Emissions from Deforestation and Forest Degradation) approaches, and practice for effective participation and influence in international instruments and finance, and which contribute to national sustainable development.

UK & Central Africa: COMIFAC REDD International Advisory Group (DFID, January-December 2009)

Dr Lindsay provided EDG support in its role as the Facilitator and Co-ordinator of a newly established International Advisory Group (IAG), providing technical input and supporting knowledge on REDD and climate change to the Central African Forestry Commission (COMIFAC). This work supports DFID's and the Norwegian Government's commitment, under the branding of the Congo Basin Forest Fund (CBFF), to provide additional funding to support working closely with regional governments, COMIFAC and the Congo Basin Forest Partnership (CBFP), to help ensure a co-ordinated regional African voice is secured for the UNFCCC climate negotiations in December 2009, as requested by COMIFAC Ministers in Bangui (Central African Republic), to the CBFF, in October 2008.

Africa-wide: Review of past success and future priorities for REDD-related forest interventions in tropical Africa (FPAN, December 2008-June 2009)

In conjunction with CIRAD Forêt, of Montpellier, France, EDG is conducting a wide-ranging review and evaluation, including field visits to many tropical African countries, to help to clarify future priorities for private philanthropic giving to assist the process of preparing for REDD and assisting countries to enter a potential global carbon trading regime. Dr Lindsay supports the analysis and is preparing for site visits.

United Kingdom: R-PIN Reviews for Forest Carbon Partnership Facility (World Bank, October-November 2008)

Office-based assistance to expert reviews of the Readiness Plan Idea Notes submitted by six African countries (Uganda, Liberia, Cameroon, Equatorial Guinea, Central African Republic and Democratic Republic of Congo). These documents give details of forestry sector activities, cross-sectoral activities in the rural economy generally, the level of stakeholder engagement in thinking about future REDD activities, experience in the country of payments for ecosystem services and the ideas evolving in each country about how to apply the REDD process in a future carbon-trading regime. Dr Lindsay has provided back-stopping support in document review and reporting.

UK/Washington, DC: Donor Dialogue on REDD issues in Central Africa (WWF, October 2008)

On behalf of the Congo Basin Forest Partnership and COMIFAC, the Commission on Forests for Central Africa , EDG conducted an analysis of proposed donor interventions in support of REDD programmes in Central Africa, followed by facilitation of a multi-

stakeholder meeting in Washington. Dr Lindsay supported the analysis and preparation for the workshop.

United Kingdom / DRC: General Environmental and Social standards for roads built in DRC (DFID, April-November2008)

Contributed to a set of practical guidelines and standards to the Government of DRC that Chinese (and other) engineering companies must adhere to in order to mitigate the potential environmental and social impacts of roads they build in DRC. EDG worked closely with the Ministry of Infrastructure, Public Works and Reconstruction (MITPR), the Ministry of Environment, Conservation, Nature and Tourism (MECNT), other Ministries, DFID, the Chinese Embassy in DRC, Sinohydro and any other relevant partners. These standards are now in the process of being incorporated into DRC legislation.

United Kingdom/ DRC: DFID-DRC Environmental policy (DFID, April-November 2008)

Assisted facilitation of an internal discussion in DFID-DRC's Kinshasa office on environmental and social impact mitigation on road projects, including realistic expectations on environmental and social mitigation on a series of road projects, the position to take on bush meat, (integrated conservation management, protected areas or a combination of the two), and the monitoring of logging activity.

United Kingdom/DRC : Refinement of ESIA study of Bukavu-Walikale link road (EU/GTZ, May-July 2008)

Provided technical and administrative support to refine and improve a study of the Environmental and Social Impact of the rehabilitation of the road linking Bukavu to Walikale, via the Park National Kahuzi-Biega, in Eastern DRC.

United Kingdom: Evaluation of the Pilot Phase of the Rapid Response Facility for Natural World Heritage Sites (Fauna & Flora International, December 2007 – January 2008)

Review of documents and internet resources, semi-structured interviews with key stakeholders and report preparation and presentation in an external evaluation of the pilot phase of an innovative facility for the provision of urgent small grant funding to the site managers of UNESCO Natural World Sites in response to short term threats to their viability. The facility is a partnership between FFI, UNESCO and the United Nations Foundation, and the work was undertaken on behalf of this partnership under contract to FFI.

Central Africa: Congo Basin Forest Fund (DFID, 2007-2008)

EDG was commissioned to visit Central Africa and write a review of forest-sector issues in the six Congo Basin countries (Cameroon, Equatorial Guinea, Gabon, Central African Republic, Congo and Democratic Republic of Congo) to be confronted by the newly established $200 million CBFF. Dr Lindsay contributed to the review of issues and report production.

UK/Sudan:: Report on environmental issues relating the Country Assistance Programme in post-conflict Sudan (DFID, September 2007 – present)

Desk-based review of documentation and internet resources on the key environmental issues relating to livelihoods, natural resource governance and environmental causes and consequences of conflict in Sudan, focussing on the Darfur region, "Three Areas" and the south. A key area of this analysis is the role of, and consequences for, social conflict over resources in relation to climate change.

Democratic Republic of Congo: Data management specialist, Environmental Assessment of the initial road section for the PRO-ROUTES road rehabilitation programme (DFID, July 2007 – January 2008)

Coordinated the multi-disciplinary team that undertook the detailed assessment of the road section for the first year of construction under the PRO-ROUTES road rehabilitation programme.

Zambia: Head of Natural Resources Sub-team on Review of Norwegian Aid to the Republic of Zambia during 1991-2005 (NORAD, July-September 2007)

Through the Oxford-based consultancy OPM, led the sub-team responsible for analysis of Norwegian aid to the wildlife sector in Zambia, aimed primarily towards its support to South Luangwa National Park and the adjacent Lupande Game Management Area. The work included study of documentary evidence, semi-structured interviews with a wide range of stakeholders in Zambia and a site visit to the South Luangwa area. Contribution of a supplementary annex to the main report, including analysis of both conservation and social factors against standard evaluation criteria, as well from the perspective of power relations within Zambian society.

Democratic Republic of Congo: Data management specialist, Environmental and Social Management Framework for the PRO-ROUTES road rehabilitation programme (EU, March – September 2007)

Through the Brussels-based consultancy AGRECO, jointly led the process of developing an Environmental and Social Management Framework for the PRO-ROUTES road rehabilitation programme in northern and central DRC, working with a multi-disciplinary field team. Site visits to DRC to coordinate inputs with officials in the DRC government and team members, and to provide quality control of geographically-based data collection along the route of the road. The focus of the work was to provide a critical assessment of the direct and indirect social, economic and environmental impacts – both positive and negative – of upgrading major roads through settled and forested areas, and to propose mitigation and monitoring measures for implementation during the course of the construction and in the future.

Ghana: Protected Area Development Project Phase II. (European Union, April 2006 – October 2009)

Conducted site visits in support of the project – described in greater detail under Project Management below – aimed at the conservation and management of the forested Ankasa and Bia Conservation Areas, Western Region, Ghana. A key aspect of the project is sustainability through novel financing mechanisms, including climate change mitigation/ REDD and payment for ecosystem services.

Democratic Republic of Congo: Data management specialist, Environmental Scoping Report on the PRO-ROUTES road rehabilitation programme (DFID, December 2006 – January 2007)

Desk-based research, follow-up site visit and report preparation for scoping of an environmental and social assessment of the DFID/EU/World Bank multi-donor PRO-ROUTES programme of road rehabilitation in post-conflict DRC.

Tanzania: Institutions and Biodiversity Specialist, Mid-Term Review of the Conservation and Management of the Eastern Arc Mountain Forests Project (UNDP/GEF, June-July 2006)

Team member on a mid-term review of a project aimed at ensuring the sustainable conservation of the valuable Eastern Arc mountain forests, home to many endemic plant and animal species and the source of water, hydropower and potentially sustainable livelihoods for millions of Tanzanians. It has two components: one, a site-based project in the Uluguru Mountains and the second, a holistic conservation strategy for the entire Eastern Arc Mountains. These two components comprise the current project "Conservation and Management of the Eastern Arc Mountain Forests" (CMEAMF), which is being implemented

with funding from the GEF channelled through the UNDP, in coordination with a larger programme of World Bank support to the Forest and Beekeeping Division. In collaboration with an international forestry/ conflict resolution specialist (and Team Leader) and two national forestry/ governance specialists, Dr Lindsay provided recommendations on project design and implementation during the remainder of its term and on sustainability.

Cambodia: Mid-Term Review of the Cardamom Mountains Protected Forest and Wildlife Sanctuaries Project (UNDP/GEF/UNF, December 2004 – January 2005)

Led a mid-term review of a complex project – with multiple donors, NGO implementers and government agencies – aiming to conserve and manage sustainably the largest area of intact forest in Indochina. With support from an Environmental Governance Specialist, provided recommendations on project design and implementation during the remainder of its term and on future sustainability of its impacts.

ASEAN Member Countries: Institutional planning specialist, ASEAN Regional Centre for Biodiversity Conservation (European Union, October 2004; March-April 2003)

2004: Team Leader on a mission to facilitate the transition from the EU-funded ARCBC project to an autonomous regional body, the ASEAN Centre for Biodiversity (ACB).

2003: Support to a consultant team advising the ARCBC on options for long term sustainability of the Centre, including its transition to an autonomous regional body.

Trinidad and Tobago: Environmental Specialist, NE Tobago Management Plan (EU, June 2002)

Provided expertise in minimising environmental impacts of road development on a forest/ coastal region (following World Bank guidelines), institutional capacity appraisal and GIS-based thematic mapping in support of a multi-disciplinary team engaged in producing a tourism-based development plan for the north-eastern region of Tobago.

Botswana: Deputy Team Leader and Leader of Wildlife Issues Sub-team, Environmental Audit and Impact Assessment of Veterinary Fences in Ngamiland (Department for International Development (UK), June 1999-September 2000)

Supplied expertise in rangeland and wildlife/livestock and assessment and co-ordinated the activities of other specialist team members in the production of recommendations for environmental management of veterinary control fences and roads. Supported the project's purpose, to strengthen the capacity of the Department of Animal Health and Production for implementing new animal health and production policies which are cost-effective, reduce conflict between wildlife and livestock and maximise the sustainable use of Botswana's rangeland through ecotourism and livestock husbandry.

Botswana: Team Leader, End of Project Review of DFID Support to the Botswana Department of Meteorological Services (DFID, June 1998)

Led a review that evaluated project outputs against its purpose and recommended viable handover strategies. The project was established to develop software and hardware systems and people skills to provide reliable technical information on the patterns of rainfall distribution and amount and, through it, the condition of Botswana's rangelands.

Botswana: Environmental Specialist, End Of Project Review of the Pilot Botswana Range Inventory & Management Project – "BRIMP" (DFID, April 1998)

Supplied specialist expertise in environmental monitoring and information systems in a review that evaluated project outputs against its purpose and recommended viable handover strategies. The project's purpose was to support and strengthen the range ecology, remote sensing, cartography and monitoring and evaluation sections of the Ministry of

Agriculture, through the provision of training and technical assistance in order to increase their capacity to implement a sustainable pilot rangeland inventory and monitoring programme.

Southern Africa: Wildlife Research Review (US Fish & Wildlife Service, 1995-96)

Surveyed the wildlife departments of Botswana, Namibia, South Africa, Zambia and Zimbabwe, in support of an exercise to compile and evaluate information (for US Fish & Wildlife Service) on donor funding in the wildlife sector.

Annex 2: Details of long-term EDG projects managed by Keith Lindsay

Ghana: Protected Area Development Project Phase II. (European Union, April 2006 – December 2009)

The purpose of the project is to deliver improved conservation and management of Ankasa and Bia Conservation Areas, located in Western Region, which host Ghana's remaining Eastern Guinean Lowland Ecoregion forest areas, and to empower civil society to manage and benefit from natural resources in a sustainable manner. It aims to strengthen the management of the protected areas, maximise on potential for non-consumptive use (i.e. tourism) and support community based initiatives centred on maintaining and restoring wildlife habitats off-reserve and increasing livelihood benefits from on-reserve and off-reserve initiatives. EDG works in collaboration with LTS International and provides technical backup to the activities of the Team Leader, two Park Management Advisors and several short-term consultants, both international and local, through administrative management, quality control of reporting and annual site visits.

Mali: Initiating Measures to Protect the Gourma Elephants – Phase 1 (US Department of State/ US Fish & Wildlife Service, July 2003 – December 2005)

The project is a joint initiative of the Wild Foundation, Save the Elephants and EDG aimed at improving the conservation of the elephants in the Gourma region of Mali, the northernmost such population in Africa. There are two major components – improved knowledge of elephant biology in the Gourma and collation of existing data on the region's ecology and development – as well as improved communication concerning this exceptional elephant population and its conservation needs. A key challenge is to integrate the conservation of elephants with human land use in the region and to facilitate the implementation of the WB-funded "*Projet de conservation et valorisation de la biodiversité du Gourma*" (PCVBG).

ASEAN Countries: Regional Centre for Biodiversity Conservation (EC, 1999-2004)

The overall objective of the project was to intensify biodiversity conservation in the ASEAN countries through improved cooperation in a comprehensive regional context, by helping to set up a network of institutional links among and between ASEAN countries and European partner organisations. This aim was approached by supporting the establishment of a Regional Centre for Biodiversity Conservation (ARCBC), located in Los Banos, Philippines. EDG worked in collaboration with SECA (France), GTZ (Germany) and PRI (Netherlands) and supplied the services of the Team Leader and several short-term consultants.

Vietnam: Protected Areas Resource Conservation (PARC) Project (UNOPS, 1999-2004)

EDG worked in two northern protected area sites, the Na Hang Forest Reserve and Ba Be National Park and one southern site, Yok Don National Park in collaboration with Scott Wilson Asia Pacific and FRR Ltd. Our work focused on a system of project planning in which local partners and stakeholders have a high degree of involvement. The project aimed to improve infrastructure in the two sites, to design education centres and outreach programmes, and to increase ecotourism opportunities.

Trinidad and Tobago: NE Tobago Management Plan (European Commission, 2001-2003)

Elaboration of a development plan for Northeast Tobago. EDG, in conjunction with Trinidad-based Kairi Consultants, are managing a team of international and local experts to define the study's scope and approach, review existing secondary data and literature, consult with stakeholders, analyse the material collected and prepare a development

strategy and management plan for the coastal communities and tropical forest of the biodiversity-rich northeastern region of this small Caribbean island. Part of this work involved the development of Environmental Mitigation Guidelines for the L'Anse Fourmi – Charlotteville Road in the development area.

Cameroon: Environmental Foundation (Exxon Corporation, 2000–2004)

As part of the Environmental Management Plan associated with the construction of an oil pipeline from Tchad to the Atlantic coast of Cameroon, Exxon wishes to establish a sustainable funding mechanism to finance a number of measures in favour of two protected areas and a group of forest-dwelling people. In January – May 1999, the Environment and Development Group was commissioned to review the issues involved and to design the initial administrative and legal aspects of a social and environmental Foundation to provide long term support to defined activities in Cameroon. The implementation of this Foundation was initiated in July 2000.

Gabon: Improvement of Wildlife Viewing in Lopé National Park (EC, 1999- 2002)

Gabon has yet to be widely recognised as an international tourist destination, and the number of visitors to its primary protected area, Lopé National Park, has been declining in recent years. EDG worked with partners in Gabon on attracting a greater number of visitors, increasing sustainable employment in the nature tourism industry, and increasing revenues and ensuring that their distribution is felt to be appropriate by local and national stakeholders.

Namibia: Northern Namibia Environmental Project, (DFID, 1996-2002)

The project aimed to improve the capability of the Ministry of Environment and Tourism to plan and manage the natural resources of the north of the country in ways which are both sustainable and beneficial to the rural economy. EDG is providing a full technical assistance team to gather and co-ordinate data, to develop a natural resource planning framework, and to develop pilot projects in community-based conservation and tourism at village level.

Botswana: Wildlife Conservation and Utilisation in Central and Southern Botswana (EC, 1995-2001)

EDG assisted the Department of Wildlife and National Parks in developing and implementing management plans for three large protected areas. Achieving sustainable benefits for local communities through wildlife-based tourism presents a key objective in the challenging environment of the Kalahari Desert.

Botswana: Institutional Strengthening of Wildlife Department (DFID, 1996-98)

EDG provided a senior adviser and supporting specialist consultancy services to steer the Department of Wildlife and National Parks (DWNP) through a process of change, over which Department staff had a high degree of control.

Uganda: Promoting Wildlife Management at the District Level (EC, 1995-97)

EDG encouraged and assisted Ugandans to manage and develop their wildlife resources at the district level, in accordance with the Government of Uganda's decentralisation policy and policies of the new Uganda Wildlife Authority

Kenya: Community Based Conservation by Pastoralists (EC, 1995-98)

The Environment and Development Group provided training, equipment and policy advice to the Namunyak Wildlife Conservation Trust, a grass-root conservation organisation based in the Sarara-Sabache group ranch of Samburu District.

Tanzania: Nature Conservation Authority for Zanzibar (EC, 1995-98)

The Environment and Development Group assisted relevant ministries of the government of Zanzibar to establish a financially sustainable system of protected areas through institutional development and a pilot protected area project.

Short term projects:

Namibia: Strengthening the System of National Protected Areas Project (Government of Namibia/ UNDP/ GEF (October 2004- February 2005)

The Ministry of Environment and Tourism, Namibia, and UNDP sought the assistance of EDG in preparing Project Documents for two sub-contracts in a GEF-funded programme aimed at Strengthening the System of National Protected Areas. A team of international, regional and local experts collected information and drafted the PD and supporting reports, with EDG's head office providing quality control and overall management support.

Guyana: Multi-donor Mid-term review of the Iwokrama Sustainable Forest Conservation Programme (DFID, September 2000-January 2001)

The Iwokrama Centre is an ambitious multi-donor programme which seeks to demonstrate that the combined global and national/local benefits from forest goods and services can make tropical rainforest conservation and management sustainable. The objectives of the review mission were to: i) examine the progress the Centre has made with the implementation of its Operational Plan (1998-2002); and ii) recommend changes that may be needed in the management and funding of the Centre in the remainder of the first phase of the operation. EDG managed the entire review process on behalf of DFID, from selection of the team of consultants to ensuring delivery of a quality final report

Malawi: Institutional strengthening/ Management Plan preparation for the Mulanje Mountain and Michesi Forest Reserves (Mulanje Mountain Conservation Trust (MMCT), World Bank and DFID, February-May 2000)

The combined output of these two consultancies was a management plan for implementation by the Forestry Department and other stakeholders, notably MMCT, and a strategy for strengthening those institutions.

East Africa: Mid-Term Review of the Wildlife Enterprise and Local Development Project (EC, September-December 1999)

EDG's team evaluated the performance of the African Wildlife Foundation's WELD project in terms of achievement of targets and objectives. The consultants also evaluated the potential contribution of the project to conservation and development in the region, and made recommendations concerning future EC interventions in the field of community conservation in the region.

Malawi: Ecotourism Consultancy for MMCT (World Bank, 1999)

The objective of the EDG's input was to formulate a tourism strategy for the sustainable utilisation of the Mulanje Massif, identifying key features and areas of ecological significance and visitor interest and reviewing existing tourist facilities and infrastructure on and around the mountain. The planning was undertaken in the context of the overall Malawian, and regional, tourism scene, with local communities participation in development planning forming a crucial part of the work.

Zambia: Mid Term Evaluation of and Appraisal for a New Project for the "Development of Sustainable Wildlife Management towards the Diversification of the Zambian Economy" (EC, September 1998 – January 1999)

The project aimed to provide institutional support and restructuring for the National Parks and Wildlife Service in preparation for its transition to parastatal status, and to develop the capacity within the NPWS for producing management plans for the protected areas and associated Game Management Areas of Zambia. The Evaluation looked at project outputs against its purpose and the appraisal provided a detailed draft financing proposal for a follow-on project of support.

This is Exhibit "2" *referred to in the*
affidavit of Dr. William Keith Lindsey
sworn before me, this 4th
day of December *19* 2009

A COMMISSIONER FOR TAKING AFFIDAVITS

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Health Record for Lucy (1980 - March 2009)

Name: Skanik (Lucy)
Birth date per stud book: May 19, 1975
Captured from the wild in Sri Lanka: 1976
Arrived at Edmonton Valley Zoo: May 1977
Sex: Female
There were virtually no medical records available between 1977 and 1980.
The comments provided below are taken directly from the zoo's medical & keeper records that were obtained via Freedom of Information legislation.
Records end March 12, 2009

Date	
15-Feb-80	Cut on left rear leg
21-Oct-83	Pus oozing from tip of tail
1-Apr-84	Deep cracks in skin
8-Apr-86	Infected tail
8-Sep-88	Salmonella
22-Sep-89	**Left front foot abscess. First record of foot infections.**
7-Feb-90	Ear infection
22-Mar-90	Right and left ear infections
1-Aug-90	Chronic ear infection
3-Oct-90	**Chronic ear infection**
7-Nov-90	**Infection in both ears**
11-Nov-90	Abscesses left trunk fold
1-Oct-91	Arthritis – treated with chronic pain medication. **First mention of Arthritis.**
18-Feb-92	**Split right front nail**
3-Mar-92	**Split toe nail**
12-Jan-93	Cracked toe, cuticle and skin
9-Aug-94	Puffy purplish lesions on right back side of tail
4-Oct-94	**White discharge from trunk (large amount)**
4-Jul-95	Split rear nail
11-Jul-95	Hard lump - loosened. Spray topagen on nose
27-Mar-96	Gland discharging odorous material - loose stool
3-Apr-96	Has several lumps on her back
16-Oct-96	Area around temporal glands are developing large cracks - possibly infected
11-Jun-97	Appears sore on right rear leg
21-Oct-97	Scrapes on top of left hip
25-Oct-97	Treat open cracks on neck
26-Oct-97	Treat open crack in skin
27-Nov-97	Cut on centre of trunk
28-Dec-97	Stiffness - treated with pain medication
28-Jan-98	Very stiff and sore - treated with pain medication for more than a month
28-Apr-98	Excessive cracks in nails
28-May-98	Lesion on toe on left front foot
10-Nov-98	Wound on tail
16-Dec-98	Still being treated for infected areas on tail
10-Feb-99	Infected bite wound on tail
10-Feb-99	Left eye weeping - conjunctivitis
27-Feb-99	Still treating infected bite would on tail
25-Aug-99	Not using back legs properly
25-Aug-99	Lump on tail, very swollen and red
9-Feb-00	Not vocalizing - suspected sinus congestion
29-Mar-00	**Pus discharging from trunk - did not eat well the night before**
29-Apr-00	Swollen right leg - treated with pain medication
4-May-00	Stiff leg - treated with pain medication
6-Sep-00	Very sore - doesn't even want to stretch out
14-Sep-00	Arthritic - treated with pain medication
20-Sep-00	Not bending knee fully
20-Nov-00	**Chronic skin crack**
14-Feb-01	Crack in skin on hip
18-Apr-01	Pus in crack on tail
28-Jun-01	Arthritic - treated with pain medication
12-Sep-01	Back right leg sore
3-Oct-01	Scraped face this morning
1-Nov-01	Trouble stretching and getting up - treated with pain medication
14-Nov-01	**Found a screw in her back left foot**
21-Nov-01	Does not want to stretch out or lie down
2-Jan-02	Swollen leg between ankle and knee, not laying down - **interacting with other elephant**
10-Jan-02	Doesn't appear to be laying down to sleep - won't stretch out or lie down
6-Feb-02	**Sore on foot (soft area on foot).**
12-Feb-02	Sore on left foot hardened. Right foot has been sore. Right knee swollen.
21-Feb-02	Being given pain medication for arthritis
28-Feb-02	Radiograph showed spurs in the knee joint.
6-Mar-02	X-ray reveals severe arthritis (degeneration) of right carpus.
20-Mar-02	Right leg stiff at carpus. **Bottom of feet are badly overgrown.**
27-Mar-02	**Possible left foot abscess. Soft spot on left foot.**
31-Mar-02	**Right front pad very soft. Possible ruptured abscess.**
3-Apr-02	**Softness of front right pad has increased, being treated for abscess**
17-Apr-02	**Ruptured abscess on front right foot (pus).**
24-Apr-02	Right front foot, abscess ruptured. Cuticle on toe swollen. Soft spot on the pad (toonie size)

Health Record for Lucy (1980 - March 2009)

10-Dec-04	**Abscess on right foot.**
13-Dec-04	Poor appetite. Labored breathing worse today. Abscesses on one toenail of each foot and tail.
14-Dec-04	Continue pain medication for arthritis
22-Dec-04	Left foot sore. Treatment for upper respiratory inflammation.
29-Dec-04	**Infection in left front foot. Right toenail split.**
3-Jan-05	Treatment for sinusitis
5-Jan-05	**Right toe very swollen. Left toe draining pus.**
12-Jan-05	Continue pain medication for arthritis
13-Jan-05	Treatment for upper respiratory irritation
2-Feb-05	**Right foot pad is lifting in the centre.**
6-Feb-05	Continue pain medication for arthritis
9-Feb-05	Hip abrasion.
16-Feb-05	**Pus from tail abscess.**
23-Feb-05	Open mouth breathing increased. Hip pus discharge.
3-Mar-05	Treatment for upper respiratory blockage.
9-Mar-05	Right toe bulging and soft. Continued treatment for respiratory blockage.
16-Mar-05	Right toe still swollen. Left toe starting to split. Yellow discharge from sore on hip.
17-Mar-05	Continue pain medication for arthritis
6-Apr-05	**Abscess/hole on hip.**
12-Apr-05	Treatment for upper respiratory congestion.
30-Apr-05	Continued treatment for upper respiratory congestion.
11-May-05	Blood in urine. Enlarged lump on vulva.
12-May-05	Treatment for urinary tract infection.
25-May-05	Blood in urine was a possible reaction to nerve testing.
27-May-05	Continued pain medication treatment for arthritis.
10-Jun-05	Continue treatment for congestion.
15-Jun-05	Lots of nasal mucous - continue treatment for upper respiratory congestion.
29-Jun-05	Lots of open mouth breathing and trunk gurgling. **Difficulty breathing when laying down.** Left toe pus discharge.
13-Jul-05	Discharge from trunk. Continued mouth breathing. **Hole in left front pad.**
27-Jul-05	Nostril seems to be plugged.
3-Aug-05	White discharge from trunk. Nostril appears to have blockage. Right foot callusing, swollen.
10-Aug-05	Continue treatment for upper respiratory congestion.
7-Sep-05	Breathing worse.
21-Sep-05	Frequent mouth breathing.
28-Sep-05	Increased mouth breathing. A bit stiff in the morning.
23-Nov-05	Lots of heavy breathing, very congested.
1-Dec-05	Still congested, breath smells very bad.
7-Dec-05	Left front leg appears painful, not bending elbow. Breath smells like rotting tooth. **Weight at 8,900 lbs - on a strict diet.**
14-Dec-05	Glands swollen behind ears - Has been "grouchy". Continue pain treatment for arthritis.
29-Dec-05	Trunk scope - no visible sign of respirator problem. Right nostril slightly thicker than left.
15-Feb-06	Continued open mouth breathing. Both left and right pad very cracked.
22-Feb-06	Lesion in nostril.
8-Mar-06	**Left foot problems from snow/ice and sand/dirt in cracks and holes.**
3-May-06	**Pus in tail.**
7-Jun-06	Stiff on right front, shoulder and elbow appears sore. Treated with pain medication.
7-Jun-06	**Not sleeping since sand moved out from inside.**
21-Jun-06	Difficulty breathing through trunk. Lots of head resting. **Not laying down to sleep - tired.** Mouth breathing when laying on right side.
28-Jun-06	**Left foot abscess draining. Blisters in mouth.**
12-Jul-06	More trouble breathing when laying on right side.
19-Jul-06	Continue pain medication for arthritis
26-Jul-06	**Pus front left foot.**
2-Aug-06	Not eating as much hay or veggies as normal. Taken off medication re: appetite issues.
9-Aug-06	White foamy trunk discharge.
9-Aug-06	**Still not eating most fruits and veggies. Trunk intermittent foamy thick discharge.**
19-Aug-06	**Pneumonia**, labored breathing, lethargic. **Hole in bottom of left foot, discharge.**
23-Aug-06	Small pustules in skin folds. **Breathing more congested** last couple of days.
27-Sep-06	Still congested, increased discharge from trunk.
4-Oct-06	Starting to get stiff.
18-Oct-06	Congested.
15-Nov-06	Thick white nasal discharge. Left leg sore.
29-Nov-06	**Pus discharge from tail.**
14-Dec-06	Stiffer - did not finish hay last night.
20-Dec-06	Trunk discharge. Lost portion of upper left tooth.
17-Jan-07	Front left shoulder stiff and sore.
14-Feb-07	Left knee swollen and sore. Continuing pain treatment for arthritis.
28-Feb-07	A lot of mucous discharge from trunk.
14-Apr-07	Continue pain medication for arthritis
25-Apr-07	White nasal discharge continues.
28-Apr-09	**Zoocheck first obtained elephant medical records After this request the zoo stopped keeping the detailed record**
4-Jul-07	Very congested, **does not want to lay down.** Pain treatment for arthritis.
11-Jul-07	**Treatment for upper respiratory infection.** Back leg very stiff in morning.
27-Jul-07	Front right knee very stiff - pain treatment for arthritis.
1-Aug-07	Stiff knee, limited flexibility.

Health Record for Lucy (1980 - March 2009)

5-Aug-07	Very stiff, lifting front right leg while out on walk. Right front knee quite swollen.
23-Aug-07	Front right knee still stiff. - continue pain treatment.
5-Sep-07	Congested.
7-Sep-07	Continue pain medication for arthritis
19-Sep-07	Keeper removed 2" stick from hole in left front foot.
8-Oct-07	Very stiff this morning, pain medication.
31-Oct-07	Stiff right front knee (began Oct. 25th). Seems stiff in shoulder.
14-Nov-07	Breathing laboured, thick foamy discharge from trunk.
15-Nov-07	**No flexibility at all in right front knee.** Left front foot swollen above cuticle line.
16-Nov-07	Still very stiff - pain medication.
3-Dec-07	Swelling on ear. Continued mouth breathing, lots of foamy discharge.
18-Dec-07	Difficulty stretching. Continued mouth breathing, bringing up thick white mucous.
27-Dec-07	Still mouth breathing, thick white nasal discharge.
30-Dec-07	Continued pain medication treatment for arthritis.
9-Jan-08	Small lesion on P5 at coronary band.
15-Jan-08	Continue pain medication for arthritis
9-Feb-08	**Not eating hay, lethargic, very little water consumption.** Loose cap in anterior of mouth.
19-Feb-08	Diarrhea. No change in mouth.
12-Mar-08	**Not eating or drinking.** Will not open mouth. **Sore swollen left front over radius.** Diarrhea.
13-Mar-08	Lymph notes at angle of jaw swollen.
20-Mar-08	Continued pain medication treatment for arthritis.
16-Apr-08	Not eating. Painful tooth. **Showing signs of colic today.** Upper left tooth now loose too.
24-Apr-08	Impacted tooth looser. Tooth on other side loosening up. Lethargic.
26-Apr-08	Continued pain medication treatment for arthritis.
20-Jun-08	Malpositioned tooth.
16-Aug-08	**Early stages of colic.**
	Zoocheck obtained elephant medical records since last request
	After this request the medical records were less detailed
30-Sep-08	Continued daily pain medication treatment for arthritis.
30-Sep-08	Arthritis in front left leg more noticeable today, decreased appetite, tooth is aching, she is pushing on her jaw
23-Oct-08	Continued daily pain medication treatment for arthritis.
4-Nov-08	Increased pain medication due to **sore right hind leg.**
11-Nov-08	Continued daily pain medication treatment for arthritis.
12-Nov-08	Lesion on right ear fold
18-Nov-08	Continued daily pain medication treatment for arthritis. There is a note indicating it is "OK to give browse in moderation"
10-Dec-08	Prescribed 27 days worth of pain killers for arthritis pain
12-Jan-09	Continued daily pain medication treatment for arthritis.
	Zoocheck obtained elephant medical records since last request
	City employees exchanged an e-mail after this request that suggests altering the records as follows: (see copy)
	"I've been thinking about the latest FOIP request. I don't know the routine for how things are recorded, but for the next few months could Milton (the zoo's vet) do a routine check on a regular basis and simply record routine check. Lucy doing well. Or something like that so that when we create a pdf that is secured the _____ would have no choice to post her good health along with any treatment information."
	After this, Lucy's medical records had virtually no details
14-Jan-09	Nasal discharge thick some green colour Lots of necrotic (dead tissue) material around tooth
28-Jan-09	**Abscess above cuticle on left front foot outside 2nd toe**
29-Jan-09	**Abscess open**
30-Jan-09	Lucy's weight 9,726 lbs (Lucy was considered to be overweight at 8,300 lbs in other records from the zoo)
4-Feb-09	**Abscess on left front foot opened and draining** Vet discussed diet, weight all foods and record precisely, no extras like bran or popcorn at this time
6-Feb-09	**Lucy's weight 9,440 lbs**
Feb 14 - 16 '09	TB testing as required by provincial law, negative for TB
20-Feb-09	**Lucy's weight 9,380 lbs**
26-Feb-09	**Front right foot - small deflect in ventral toe, slightly tender, clean and disinfect**
6-Mar-09	**Weight 9,446 lbs** - Arthritis treatment for pain
10-Mar-09	tooth bothering her, increase medication for tooth and arthritis pain **Clean right front foot**
12-Mar-09	Weight 9,440 lbs

Notes: Records end March 12, 2009

This is Exhibit "35" referred to in the
affidavit of Dr. William Keith Lindsey
sworn before me, this 18th
day of December 2009

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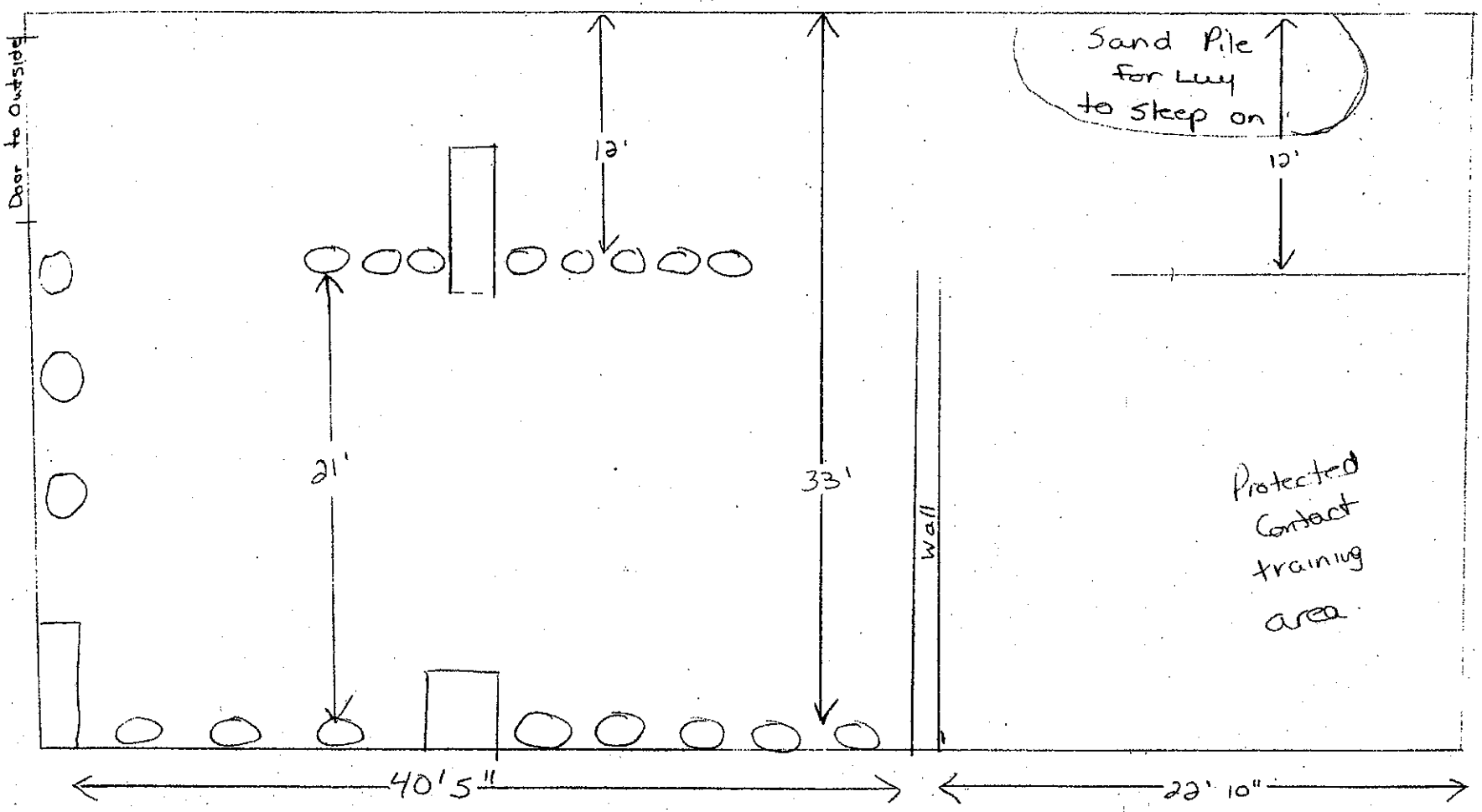
Lucy's Barn


Door to Outside
12'
21'
33'
Sand Pile for Lucy to sleep on
12'
Wall
Protected Contact training area
40'5"
22'10"
Viewer Gallery

This is Exhibit "4" *referred to in the*
affidavit of Dr. William Keith Lindsey
sworn before me, this 18th
day of December *20* 09

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This is Exhibit "5" referred to in the
affidavit of Dr. William Keith Lindsay
sworn before me, this 18th
day of December 19 2008

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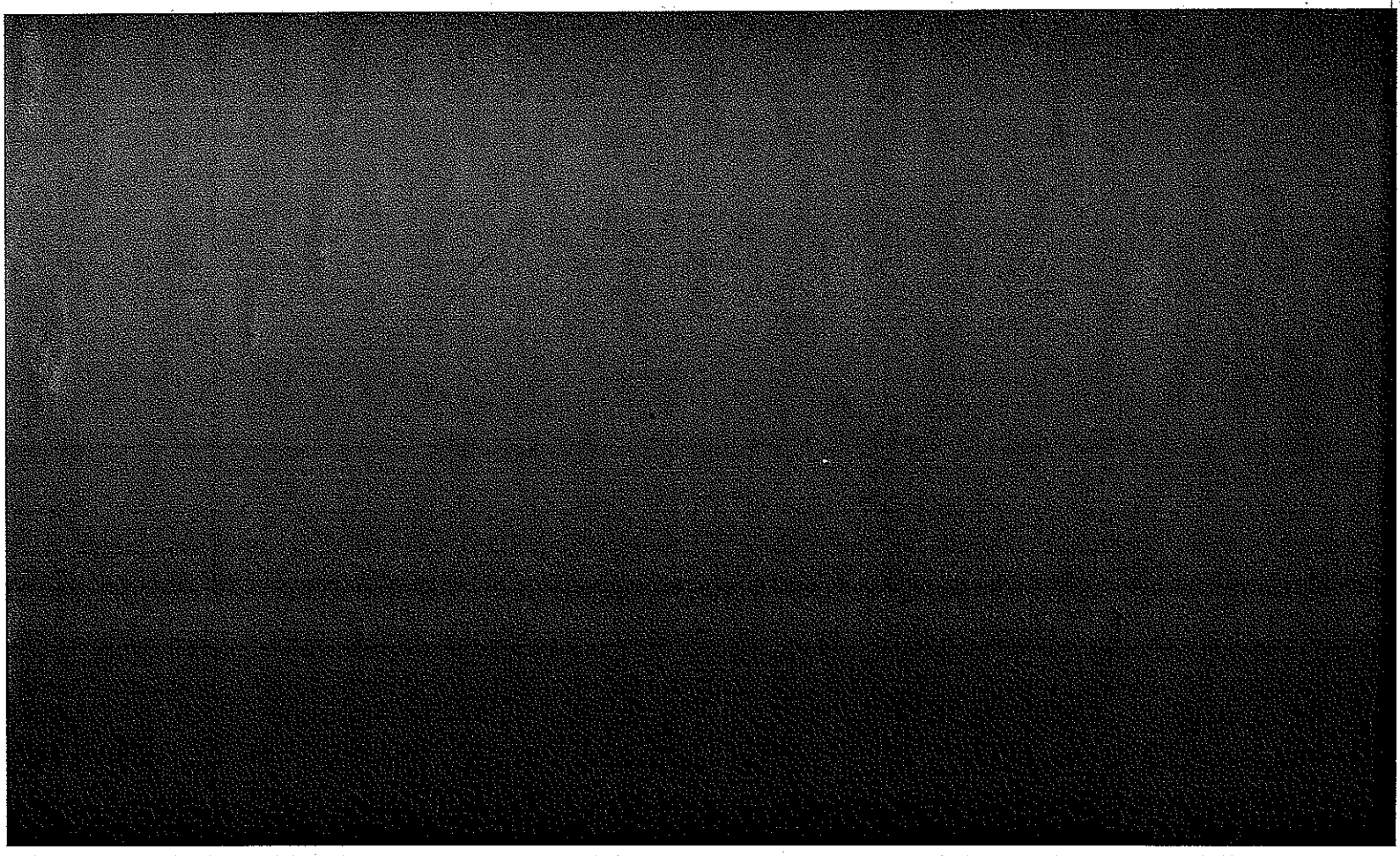

This is Exhibit "6" referred to in the
affidavit of Dr. William Keith Lindsey
sworn before me, this 18th
day of December 20 09

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This is Exhibit "7" *referred to in the affidavit of* Dr. William Keith Lindsay *sworn before me, this* 18th *day of* December *20* 09

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Lucy's walks - 2008						
		temp	# of minutes	# of walks / day	Demo	
Jan	1	-14		0		
	2	-8	45	1		
	3	-4	75	1	1	
	4	-4	75	1	0	
	5	-3	90	2	1	
	6	-1	40	1	1	
	7	-10	20	1		
	8	-13	0	0	1	
	9	-18				
	10	-16	0	0	1	
	11	-5	60	1	0	Stiff shoulder & knee
	12	-6	150	2	1	
	13	-5	75	2	1	Left front foot abcess
	14	-2				
	15	-7	0	0	1	
	16	-3	60	1	0	Foot stinking
	17	-8	40	1	1	
	18	-14	20	1		
	19	-15	0	0	1	
	20	-16	0	0	0	
	21	-8				Lost big piece of tooth in past week - top right
	22	-3.5	30	1	2	
	23	-6	60	1		
	24	-8	30	1	1	
	25	-9	30	1		Fitting for boot
	26	-3	83	2	0	
	27	-23	0	0		Did not lay down last night, scrapes on Right eye, forehead leaning on wall, not hungry
	28	-30				Lucy experiencing anxiety near end of day
	29	-29	0	0	1	
	30	-31				
	31	-24	0	0	2	
Feb	1	-23	0	0	0	
	2	-17	0	0	1	
	3	-19	0	0	1	
	4	-18	0	0		
	5	-10	40	2	0	
	6	-13	8	1		
	7	-20				
	8	-23	0	0		
	9	-27				Not eating hay
	10	-18			1	Sleepy - did not lay down last night, abrasions right side of head from wall leaning - larger gap around r upper tooth
	11	-7	50	1		Tooth loosening
	12	-7	20	1		
	13	-11	35	1		
	14	0	40	1	1	
	15	2	110	2		

	16	0	30	1	1	Icy spots on walk
	17	-1	20	1	1	Very icy on walk - not eating shifting uncomfortably
	18	2	45	1		Very icy, slopped on right rear & a bit on left
	19	-4	45	1		cold wind & icy - lethargic, eat nothing all day
	20	-4	75	1		Tooth loosening deeper under gums
	21	0	120	1		Prep for x-raying left front foot
	22	-2	45	1	1	Train for x-ray
	23	0	105	2	1	
	24	-1	70	1	1	Had x-ray today
	25	-1	60	1		
	26	4	65	1		Did not get to ele until 8:30am
	27	2	50	1		More x-rays - left front toes
	28	2	90	1		
	29	0	60	1		nail split
Mar	1	2	40	1	1	stiff in back legs
	2	-15	0	0	1	
	3	-1	0	0		tooth closer to coming out - seperating 80%
	4	-2	60	1	1	
	5	-2	50	1		
	6	-2	60	1	1	
	7	4	100	2		
	8	3	120	2	1	
	9	4	90	2		
	10	3	75	1		
	11	5	90	1	1	
	12	4				poor appetite
	13	2	60	1		Lympth node sample, urine sample
	14	-1	60	1	1	
	15	-3	30	1	1	
	16	-12	15	1	1	
	17	4	60	1		
	18	4	40	1		
	19	3	90	1		
	20	3	60	1		
	21	2	80	1		
	22	-1	105	2	1	
	23	4	70	2	1	
	24	3	100	2	1	
	25	3	60	1		
	26	3	150	1		Walked until 4pm "due to PETA people"
	27	1	150	1		"they're back"
	28	1	60	1		
	29	-5	60	2		
	30	-3				
	31	0	105	1		
April	1		75	1		
	2		90	1		
	3		60	1	1	
	4					
	5		60	1	1	
	6		105	2	1	
	7		90	1		
	8		90	1		
	9		90	1		
	10		135	1	1	
	11					

	12		120	2		
	13		120	1	1	
	14		60	1		
	15		120	1		
	16		90	1		No well, vet gettting new pain killers
	17		240	2	1	Ness examined her today
	18		95	2	1	Dr Aung there today for display
	19		130	2	1	
	20		0	0	1	
	21		0	0	0	
	22		0	0		
	23		60	1		
	24		80	1	1	Very lethargic, would not eat until drugs kicked in
	25		40	1		
	26				1	
	27		90	1	1	
	28		90	1		
	29		135	2	1	
	30					
May	1					
	2		150	1		
	3		180	2	1	
	4		180	2	1	
	5		150	2	1	
	6		90	2		
	7		90	1		
	8		180	2		
	9		170	2		
	10		140	2	1	
	11		135	2	1	
	12		140	2	1	
	13		220	2	1	
	14		175	20	1	
	15		180	2	1	Upper left tooth seperated
	16		150	1	1	
	17		255	2	1	
	18		225	2	1	Mouth breathing today, sour trunk
	19		60	1	1	
	20		90	1	1	
	21		90	1		
	22		90	1	1	
	23		150	2	1	
	24		180	2	1	
	25		165	2	1	
	26		225	2	1	
	27		210	2	1	
	28		270	2	1	
	29		210	2	2	Ness checked out her feet
	30		240	2	1	
	31		265	3	2	
June	1		90	1	1	
	2		90	2	1	Eat some of large foam football (may have been thrown into enclosure by public)
	3		150	1	1	Lost of mouth breathing
	4		180	2	1	
	5		240	3	1	Had access to yard until 9pm
	6		150	2	1	

	7		155	2	1	
	8		155	2	1	Group of vets came to see her
	9		130	2	1	
	10		240	2	1	
	11		180	3	1	
	12		130	2	1	
	13		120	2	1	
	14		180	2		
	15		180	2	1	
	16		165	2	1	
	17		170	2	1	Mosquitoes bugging her - dusting during demo
	18		150	2	1	
	19		180	2	1	Lethargic - skin cold to touch even after out in the sun on her walk
	20		155	2	1	Skin still cold - Milt gave Banamine (60mls) 1 PM - no Buzone until Sunday - breath is worse tonight - never been this bad - end of day hot outside but her skin is still cold
	21		75	2	1	Met kids with cancer - impatient then the attack of horseflies. Did well considering. Wanted to eat by herself and started to come around
	22		145	2	1	Silly after bath for demo - scratching herself all over. Way better mood than yesterday
	23		80	1	1	Physiotherapy - gasped in yd
	24		135	2	1	During soccer gave her 2 nectarines - she spit them out - upset tummy? Too acidic, took them away. Got bland veg's tonight and only a few grapes
	25		75	1		
	26		190	2	1	
	27		75	1	1	kick ball - later in PM - not very interested
	28		270	3	1	
	29		270	3	1	AM - not interested in eating hay
	30		195	2	1	AM - not eating again
July	1				2	
	2		210	2	1	Andi - lines & circles after walk. Swatted Andi on walk, found lump/swelling - hot to touch where Andi was standing & a lot of mucous on her side (stung?). Andi - wrong place at wrong time
	3		165	2		Sandy has ordered repellant (horseflies bad am/pm). Lump on left side hot to the touch. Told Milt - just watch it. Very hot in PM - didn't want mudbath - wanted to lay on sandpile outside - body very hot - hosed off continuously. (Watch for new flutterbees - esp in gutter & drinker drain pits).
	4		75	1	1	
	5		150	1	1	Played with fire hose for long time - laying down outside after - better mood - calmer
	6		165	2	1	
	7		85	2		End of day - her mouth very sticky - was peeling petroleum from large ball & eating it - we pushed it into the moat and called Milt. Tried to scrub it off (Milt not too concerned)
	8		165	2	1	Left 2 flakes of hay from yesterday - Physiotherapy sessions (bit of gasping)
	9		175	2	1	

	10		170	2	1	Showed Brianne lines, circles, pivots - Physiotherapy sessions (gasping)
	11		180	2	1	Jan & crew in to taping video of 18(1)(a)(b) 9:30 - 12:30. She was such a good patient girl
	12		255	3	1	Laceration on top of her finger - flushes with Betadine. Late pm on walk, very agitated, bolting, grabbing things, posturing, got back to building, wanted to be left alone
	13		180	1	1	Rinses after bath with fly repellent rinse. Not feeling well today
	14		145	2	1	Dr. Ness came down and gave Banamine - No Buzone today. Hose off with firehose - played soccer - very energetic
	15		170	2	1	
	16		60	1	1	
	17		195	2	1	
	18		135	2	1	After I gave her a bath she went straight to the sand pile outside and laid down (stayed there for 10 mins), then turned to her left side and tried to go to sleep. She is very tired today, had her s/o for demo and she went to sleep, took about 20 minutes before she woke up and we then continued the demo. Not enough sand for her to get comfy,talked to Colin and we'll get sand next week. Dug up her pile as best we could.
	19				1	Was quiet in AM - wouldn't eat treats on walk but came around towards end of walk
	20				1	
	21		50	1		Banamine 9:15 - gave alfalfa to get her to eat. Extremely tired, somewhat sore on LF. Laying down for long periods on outside pile, listless, not very hungry or thirsty, dry mouth. (6:45 PM - no poop all day! The one in the bucket was from when I came in at 10:30 am)
	22					Not feeling well this morning, all her food from yesterday was not touched (fruits, veg, hay, peanuts), tried to give her water, juice, she would not take anything. Dr. Ness took blood sample and will send it in. I gave her Banamine at 9:30 am. Turned heat on - cold in here. End of day, rubbing RF leg - I put blue mark on area. Holding end of trunk in a fist for a while.
	23		180	2	1	Ate her veg's but left 3 crunchie jugs full/3 flakes hay. Last night Trevor saw her sleep inside 10-11 PM, she slept outside as well. We built up both piles last night. She was beginning to eat when we left.
	24		180	2	1	Pooped by 2:30, dragging front feet. Only 2 small poops today, only 3 small last night.
	25		135	2	1	Went to Fort Ed, got 5 bales of stocky hay. Trevor hand fed bucket & she ate almost all. She had 1 pail of cookies during the day plus 1/2 tonight. Finished all of the hay we gave her earlier (5 flakes), so I (Trevor) gave her 2 @ 9:00 and 2 more @ 10:30 with a handful of crunchies
	26		180	2		Didn't eat fruit & veg's from last night. PM Branx einnamen "pudding"

	27		140	2	1	AM - feeling a lot better, slept outside, very deep impression in the sand. Popsicle after demo with cantaloupes fillings and 2 L apple juice. Lay down and slept again for a few minutes
	28		150	2	1	
	29		170	2	1	
	30		200	2		Had not eaten most of her hay by 10:20 pm, was just starting to eat a small amount of it.
	31		170	2	1	Not feeling well this AM. Did not start eating until after 10:30 AM. Encounter for Wade at 2:45 - 3:00 PM
Aug	1		130	2	1	She is in a very good mood this morning, wanting lots of attention
	2		80	1	1	
	3		110	2	1	
	4		135	2	1	
	5		145	2	1	
	6		225	3	1	Hot! Brancereal
	7		155	2		
	8		120	2	1	More energy tonight than really during the day
	9		155	2	1	Tooth (top left) starting to separate a bit. Very cranky in circles in PM & PC work.
	10		180	2	1	
	11		180	2	1	
	12		195	1	1	Gave her bran cereal with hay
	13		150	2	1	Stomach troubles again. No browse for 5 weeks, not eating. 60 mls Banamine 9:45 AM. If she's not eating hay, Milt said she can have 1/3 bale alfalfa instead if she will eat it. Dean brought city councellor & friends to meet Shanik. Did not give crunchie jugs in PM, instead threw bagels to her every once in a while.
	14		160	2	1	Feeling better this AM - ate well - cinnamon mix AM
	15		160	2	1	
	16		120	1	1	
	17		75	1	1	She was very tired this morning, did not really want to walk. She is having a hard time breathing, tried to have her sleep but she cannot seem to breath lying down. Gave her some all bran with cinnamon.
	18		135	2		Mister on cold water only - kept building cool
	19		165	2	1	AM hay (2 flakes - didn't eat them)
	20		165	2	1	
	21		165	2	1	Didn't eat AM flakes, not eating much. Vinegar trunk wash.
	22		60	1		
	23		165	2	1	Not interested in this hay
	24		160	2	1	
	25		180	2	2	Trunk wash 2X, lots of thick mucous
	26		190	2	1	
	27		155	2	1	Brancereal
	28		165	2	1	Good mood tonight
	29		160	2	1	M & J talked and because she hadn't slept well the night before and was very tired - I gave her 3 scoops last night
	30		200	2	1	

	31		180	2		
Sept	1		75	1	1	
	2		255	2		
	3		195	2		
	4		180	2		Shaw Cable - film/interview painting
	5					In a good mood, walking fast all over but bratty. I saw her trying to step on the bottom line of the fence in bull yard. Turning off/on lights in office like a poltergeist.
	6		170	2	1	Played with her in large yard 5 - 5:30 PM
	7		105	1	1	Gave mud bath in real mud by garden area out back
	8		180	2		
	9		195	3		
	10		170	2		
	11		230	2		
	12		180	2		Not feeling well again today. She wouldn't eat or drink so Dr. Ness gave her some Banamine. Took her for a walk first and she started to eat grass and had a small drink. Took Banamine with crunchies & cinnamon.
	13		170	3	1	In a bratty mood.
	14		195	2	1	
	15		185	2	1	
	16		60	1		Lay down 2 times between 8 - 9:15, tired, bobcat fluffed outside pile. Milt checked later
	17		195	2	1	
	18		195	2	1	Sandy brought dentist vet to visit. Scrub bum & tail only - poopy)
	19					
	20		215	2	1	
	21		225	2	2	Not eating much (am hay) - got into the koppertox - gave her charcoal
	22		135	2	1	
	23		90	1		
	24		135	2		
	25		170	2	1	
	26		200	2		
	27					Broke the fence again in the same place
	28		75	1	1	
	29		200	2		Ate alfalfa only
	30		185	2	1	Very tired this AM - layed down to sleep inside but couldn't get comfortable, favouring and resting her left front leg - bugging with her jaw and teeth a lot. To Brenda, at 5 PM she had not touched the hay you gave her - so I will only give her 6 tonight & the lettuce to keep her stomach moving. Her leg was looser tonight. Treatment with Banamine in PM 60 mls.
Oct	1		180	2		Dr. Ness looked at her. Still very sore today L. front leg. Swinging leg. Difficulty bending knee.
	2		160	2	1	
	3		240	2	1	
	4				1	
	5		165	2	1	Left side bottom lip swollen - kicking at belly a lot

	6		180	2		She was kicking at her abdomen a lot today, very tired. Lay down on flat grass as well as on the roadway, slept for 20 min on the burm by the parking lot. A little more B&A this afternoon.
	7		190	2		She is feeling better today, ate well this AM, slept last night inside on sandpile, looks like she slept for a while. Very energetic on her afternoon walk.
	8		90	2		
	9		215	2	1	Gave hay AM - didn't eat - alfalfa PM
	10		150	2		
	11		120	2	1	
	12		135	2	1	Found scrape on trunk - probably on outdoor cable, treated with hibitane. Got into med shampoo.
	13		90	1	1	
	14		200	3		
	15		200	2		
	16		140	1	1	
	17		180	2		
	18		185	2	1	
	19		120	2	1	A lot of sand in mucous
	20		150	2		
	21					Did not want to go out in the back today. She was going to try to lay down. Grumpy and not listening very well for a walk.
	22		220	2		
	23		155	1	1	Great mood in PM
	24		160	2		
	25		170	3	1	
	26		120	2	1	
	27		165	2	1	Lines & circles, amazing how well she works when she is hungry.
	28		170	2	1	
	29		60	1	1	AM depressed, very needy, wouldn't eat. Crunchies, bagel, carrots, hay - still hay on floor
	30		170	2	2	
	31		185	2		A little stiff down hill, swinging right leg out coming down.
Nov	1		240	3	1	
	2		197	3	1	
	3		170	2		Right hip stiff going down slopes
	4		180	2		Very stiff again today going down hills, however, she did loosen up. Dr. Ness looked at her and upped her meds for one week. T.V. filming today, she was very good.
	5				3	Skanik to receive 3 scoops of buzone 2 X day for 7 days. The inside lobe of her right ear is reddish and more swollen that the other one.
	6		75	1	1	Small bit of popsicle hit a nerve and hurt her, wouldn't eat, lay down by parking lot so brought her back. Better in PM
	7		200	2		
	8		120	1	1	
	9		185	2	1	
	10		150	1		Left 2 flakes of hay, she hardly touched what was left at 3:30, mucous on body all over
	11		187	2		Left 4 flakes from night. Tooth bothering her

	12		187	2		Scrubbed left side - covered in mucous
	13		119	2		Panalog on ear AM
	14		60	1		Andi/JB PC put Panalog. PM tooth bothering her. Slow to work and had small log in her mouth some of the time. Left foot shook when holding up for koppertox
	15		145	2	2	
	16		165	3	2	
	17		162	2		Panalog AM/PM
	18					She is extremely slow today, not walking the greatest. Slow in PM as well
	19		45	1		Right front leg by pits - muscle pulled? Swelling there.
	20		50	1	1	Not eating soft stuff - doing commands right front leg bit stiff
	21		110	1		
	22		180	2	1	
	23		90	1	1	In a good mood today
	24		120	1	1	
	25		275	2		Long drink in PM - warm water
	26		147	1		Left front very stiff to lift for PC. Body very hot this AM. Left 2 full hays scattered - better later.
	27				1	Thick fecal build-up under anal flaps - removed. Didn't lay down to sleep last night.
	28		150	2		Slept on sand pile last night
	29		215	3	1	
	30		180	2	1	Sprinkled a little nutmeg on some hay - perked up in PM
Dec	1		135	2		
	2		155	2	0	
	3					
	4		35	2	3	
	5		105	2	1	
	6					Tired this morning
	7				2	
	8		35	1		Turned mister on. Her abdomen is distended and hard.
	9		50		0	
	10		90	2		Elm browse
	11		80	2	0	CBC in for extra footage
	12		43	2	0	
	13				1	
	14					
	15				1	
	16		30	2		
	17		20	1		
	18				2	
	19		0		1	
	20				0	
	21				1	
	22				0	
	23		0		1	
	24				0	
	25					
	26				0	
	27		115	2	1	
	28		55	2	0	

	29		87	2	0	
	30				0	
	31		0			
Total minutes on walks			39,550	526		
Total hours out of encl.			659			
Total minutes in a year			525,600			
% of year out of encl.			7.5%			
Average hours out per day			1.8059361			

No. 2009

IN THE COURT OF QUEEN'S BENCH
OF ALBERTA

JUDICIAL DISTRICT OF EDMONTON

BETWEEN:

TOVE REECE, ZOOCHECK CANADA INC. and
PEOPLE FOR THE ETHICAL TREATMENT OF
ANIMALS INC.

Applicant

- and -

CITY OF EDMONTON

Respondent

AFFIDAVIT OF DR. WILLIAM KEITH LINDSAY
SWORN: DECEMBER 18, 2009

RUBY & SHILLER
BARRISTERS
11 PRINCE ARTHUR AVENUE
TORONTO ONTARIO M5R 1B2

ATTENTION: CLAYTON RUBY

TELEPHONE: (416) 964 9664
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File: 146,385 RCS