



This document is the response from Global Sanctuary for Elephants, Santuário de Elefantes Brasil, April 25, 2022, to the document “O Caso Sandro” officially filed and sent to the Prosecutor, discussing the care of Sandro the elephant, housed at The Quinzinho de Barros Municipal Zoological Park, and why he should remain at his current location. The blue text is translated text (from Portuguese) from the original document. The black text is the response from GSE/SEB. Our response was translated into Portuguese and also legally filed. References not included in the online version, only the filed version.

The Asian elephant (*Elephas maximus* Linnaeus, 1758) is a mammal of the order Proboscidea, family Elephantidae, and is the last living species of the genus *Elephas*. Three subspecies are recognized: the *E.m. indicus*, in Continental Asia (India, Nepal, Bangladesh, China, Bhutan, Myanmar, Laos, Vietnam, Cambodia, Malaysia, Thailand); *In. maximus*, in Sri Lanka; and *in. sumatranus*, on the islands of Sumatra and Borneo, in Indonesia and Malaysia.

Male Asian elephants reach an average of 2.75 m in height at the shoulder and an average weight of 4 tons, females on the other hand average 2.40 m in height and an average weight of 2.7 tons. The length of the body and head, including the trunk, is 5.5-6.5 m, with the tail 1.20-1.50 m long. The largest Asian elephant on record weighed 7 tons, was 3.43 m tall at the shoulder and 8.06 m long. There are reports, however, of much larger animals of up to 3.7 m in height.

The Asian elephant is one of the last megaherbivores (ie, herbivorous mammals that reach an adult body weight of over 1000 kg) remaining on Earth (Owen-Smith, 1988). Being hindgut fermenters with relatively low digestive efficiency (Dumonceaux 2006), elephants must consume large amounts of food per day to meet energy requirements. They are generalists and feed on a variety of plants, which vary depending on habitat and season.

Asian elephants inhabit grasslands, tropical evergreen forests, semi-evergreen forests, humid deciduous forests, dry deciduous forests, and dry thorn forests, as well as cultivated and secondary forests or thickets. They are seen from sea level to over 3,000 m altitude in the Eastern Himalayas (Choudhury 1999). However, it is unclear which of these habitat types, if any, represents the ideal suitable habitat for the elephant, as many landscapes have been subject to human modification. Elephant population densities can range from more than 3 individuals per

km<sup>2</sup> in parts of India, Sri Lanka, and Borneo to less than 1 individual per km<sup>2</sup> in much of mainland Southeast Asia (Alfred et al. 2010; de Silva, Ranjeewa and Weerakoon 2011; Fernando and Pastorini 2011; Jathanna et al. 2015).

The life expectancy of Asian elephants is 60 to 70 years. Males reach sexual maturity between 10 and 15 years of age, while females are capable of giving birth at 11 years, but most do so in the wild between 13 and 16 years (Shoshani and Eisenberg 1982, de Silva et al. 2013). Due to the long gestation and calving periods, elephants have a minimum birth interval of approximately four to five years (Sukumar 2003), but in areas where there is a high density, the intervals can extend to six years or more (Sukumar 1992). , Williams 2007, Silva et al. 2013). The survival of calves can be influenced by social buffering, particularly from grandmothers (Lahdenpera et al. 2016), which makes Asian elephants one of the unique social species.

Asian elephant society is organized into well-defined communities or clans, composed of adult females as well as sub-adult and juvenile males and females (de Silva et al. 2011b, Nandini et al. 2018). All clan members do not necessarily associate for long periods as it is a society with high fission-fusion dynamics, with groups of elephants seen generally as part of a larger community/clan (de Silva et al. 2011b, Nandini et al. . 2018). Sub-adult males disperse from their natal clans, and adult males are mostly solitary but form loose social bonds with other males and only temporarily associate with female groups (Vidya and Sukumar 2005). Females or subsets of them within a clan are genetically related to each other (Vidya and Sukumar 2005, Nandini 2016).

The Asian elephant is listed as Endangered on the International Union for Conservation of Nature (IUCN) Red List due to an inferred population size reduction of at least 50% over the last three generations, based on the reduction of its area of occupancy and in the quality of their habitat. According to an assessment in the early 2000s, nearly half of the Asian elephant's range, covering 873,000 km<sup>2</sup> in 13 countries on the continent, comprised habitats that were fragmented and heavily impacted by anthropogenic pressures (Leimgruber et al. 2003). As of 2018, population size estimates collected across all countries of distribution suggest a global abundance of Asian elephants of 48,323 to 51,680 individuals in the wild (Menon and Tiwari 2019).

The challenges facing elephant conservation are habitat loss and fragmentation, human-elephant conflict, poaching, and illegal elephant trade (Leimgruber et al. 2003; Sukumar 2003, 2006; Sukumar et al. 2016; AERSM 2017). As elephant habitats decrease and become more fragmented, human-elephant interaction increases, leading to intense conflicts between people and elephants, causing fatalities on both sides as well as damage to human property (Nath and Sukumar 1998, Williams et al. 2001, Madhusudan 2003, Kumar et al. 2004). The elephant populations of Vietnam, Sumatra, and Myanmar are under great threat; only 100 to 130 elephants are believed to have been left in the wild in Vietnam, with the likely numbers even lower. In addition to ivory, the trade in other elephant body parts, especially the fur trade, has increased in recent years, further threatening elephant populations. The trade could result in the indiscriminate killing of elephants of both sexes, further endangering the region's fragile

elephant population. The skin is being used to make beads that are used as bracelets and necklaces sold as good luck charms. However, human-elephant conflict remains the leading cause of mortality of Asian elephants in the wild and has become a major threat to the conservation of the species throughout its range, and needs to be urgently managed to avoid retaliation and exterminate elephant populations in the wild.

### **Quinzinho de Barros Municipal Zoological Park**

The Quinzinho de Barros Municipal Zoological Park (PZMQB) is a zoo located in the municipality of Sorocaba, state of São Paulo, Brazil, being considered the second zoo in Brazil in the number of species.

Inserted in Vila Hortência, within the eastern region of the city of Sorocaba, in an area of 128,339 square meters, with approximately 17,500 square meters occupied by the lake and 38,700 by secondary forest, where various animals live, such as howler monkeys, sloths, marmosets, agoutis, skunks, herons, and small snakes. Annually, 600,000 regular visitors pass through the zoo's gates, in addition to more than 90,000 public and private students from 80 different cities.

It houses 1,145 animals of 290 species, of which 70% correspond to the national fauna, with special emphasis on 36 species threatened with extinction. With the "A" classification, the highest awarded by IBAMA, the zoo is a reference in Latin America in terms of leisure, research, preservation, and environmental education, the latter having been developed since 1979. The work developed there receives support and recognition from various national and international entities, such as the Smithsonian Institution, World Wide Fund for Nature, US Fish and Wildlife Service, O Boticário Foundation for Nature Protection, Pró-Natureza Foundation, among others.

### **Zoo function**

According to the Convention on Biological Diversity (CBD), two forms of biodiversity conservation are foreseen, in-situ and ex-situ. Zoos are framed in ex-situ conservation, which consists of conserving animals and plants outside their natural environment, specifically in conditions where the natural habitat is unfavorable for that species, due to human consequences (Dias, 2003; Ganem, 2010). This practice makes it possible to conserve species and their genetic material so that, if they are threatened or extinct in the wild, it is possible to repopulate natural populations by carrying out reintroduction programs from individuals in captivity (Moreira, 2012).

In the past, animals were used as a symbol of ostentation and power to conquer the nobility. After the fall of the monarchies, the animals kept by the high royalty were transferred to the bourgeoisie who created the modern zoos open to the public for a fee. Until then, wild fauna was kept in inadequate enclosures, without concern for animal welfare and only for the profit and entertainment of humans. (Days, 2003). Due to the zoos' past, critics still question the

practices of these institutions. However, zoos have evolved their goals along with the growing relevance of environmental issues in society. From the 20th century, collections of wild animals in captivity can be justified only by the conservation of the species. Currently, the main objective of a zoo is the conservation of biodiversity, environmental education, scientific research and leisure, with the exhibition of fauna being only a method for education and for raising funds to maintain research and health. animal (Costa, 2004; Dias, 2003; Oeco, 2020).

Many zoos around the world are trying to be more forward-thinking in their care of animals, but the Sorocaba Zoo is at least a decade behind progressive zoos both in the US and in Europe. Just this week, the Paighton Zoo in England, which has a modern barn, used protected contact, and offered more space and enrichment opportunities for their elephants than most facilities, announced it would never again house elephants. In their statement, they noted, "Elephants are highly intelligent and have very complex social behavioral needs. As much as we loved Duchess (and her companion, Gay) and as popular as she was with our visitors, we do not believe that we can provide the necessary environment for elephants here at Paighton." ([Mirror.co.uk](http://Mirror.co.uk)) [99]

And while conservation is an admirable goal, and some zoos have created programs for breeding and releasing certain captive species to repopulate the wild, a single elephant has never been released into the wild from a zoological society. Unfortunately, quite the opposite has happened. With regard to elephants, true conservation happens in the wild, in each elephant's native environment, and no ex-situ conservation work by the Sorocaba Zoo has been noted.

### **Description of the specimen Sandro**

When we deal with the Asian elephant (*Elephas maximus* Linnaeus) Sandro in particular, we refer to an animal of an average of 4 tons, already elderly, who spent more than two-thirds of his life under human care at the Quinzinho de Barros Municipal Zoo, having been rescued from a circus at a young age, and therefore never lived in a herd, sharing part of his life only with the Asian elephant (*Elephas maximus* Linnaeus) Haisa, he does not have the herd instinct to be introduced to new specimens, also emphasizing that the animals of the SEB (Sanctuary of Elephants Brazil), are females, and we have that by Brazilian legislation, the reproduction in animal keepers is strictly prohibited, thus leading to the need to build a separate enclosure so that Sandro does not have contact with the females.

The animal in question suffers from severe arthrosis, that is, a chronic degeneration of the joints that are located at the bone ends, and this condition is diagnosed by veterinarians specializing in wild and wild animals (which are, respectively, free-living animals found in the Brazilian fauna. and free-living animals found in faunas outside Brazil). Due to the disease, the animal in question is unable to walk long distances without being affected with manifestations of pain by the rheumatic condition.

In this case, it is also an animal with aggressive behavior, which is difficult to let any person unknown to its routine (as well as zoo interns - they cannot have direct contact with the animal precisely because of its behavior) approach, is thus accustomed to the care of specific people, such as their keepers (fixed and freelancers), veterinarians and zoo biologists, highlighting the dangers of taking the animal totally dependent on the care of human beings to a wide environment, with unknown people to its routine.

Many elephants who have been rehomed to a vast habitat sanctuary originated from facilities where they lived alone, perhaps for decades, and had ongoing socialization issues, but that does not mean the elephants are incapable of reverting to a more natural way of socialization. "Because elephants have complex physical and social needs that are difficult to meet even in professionally accredited zoological institutions (Kagan et al.[22]), they suffer from high rates of behavioral and physical pathology;" [98] sanctuary can assist in the recovery of these innate behaviors and responses. For example. Bambi (a current female Asian elephant resident of Elephant Sanctuary Brazil (SEB)) and Maison, another female Asian elephant, were physically aggressive toward each other at the Bosque Zoo for years. Since relocating to SEB, Bambi has a positive, bonded, and natural social relationship with Mara and Rana, two other female Asian elephants. Rana lived alone for almost 50 years (in both circus and zoo), and is one of the most supportive herd mates we have known in our 50+ combined years working with elephants in multi-elephant facilities.

The "O Caso Sandro" document is correct in that breeding is not permitted at the sanctuary, but that does not mean there are no opportunities for socialization. Socialization is not simply defined as sharing a habitat. Elephants can communicate vocally from kilometers away. Sandro will not only be able to smell the other elephants but can 'speak' to them as well. The sanctuary designs its facilities for multiple factors, among them the potential for socialization, if the elephants desire it, and are physically and emotionally ready to take part in relationships. The Asian female and Asian male habitats will have a connecting corridor, allowing for contact between the genders along a common barrier. Through these interactions, we can measure the desire for further social interaction from all elephants involved. If all elephants appear to have an interest in possibly sharing space, there are methods of birth control that can be used to allow this if, after assessment, it seems that it would be beneficial for all elephants involved.

There is also the possibility of bringing in another male Asian elephant, which would allow a more natural socialization, since male elephants tend to spend more time in bachelor herds with other males in the wild. The SEB facilities are also designed so that the male elephants can be housed separately, if they are not socially compatible, or can be given a separate space during musth, or if they appear to desire to be off on their own.

The zoo acknowledges that Sandro suffers from arthritis, claiming it makes him unable to walk long distances but offers no information about what they are doing to aid him with his condition. Their theory on exercise is contrary to what has been proven in numerous elephant studies, along with countless studies on other species, including humans. "Research in humans [97-94] and other species (rodents [93-90], dogs [89-87], swine [86]) demonstrates that exercise can

reduce the risk of developing health issues and mitigate complications associated with these ailments once developed.” In regard to foot issues and arthritis, the same study that was cited in the “O Caso Sandro” paper states that research “demonstrates that exercise can reduce the risk of developing health issues and mitigate complications associated with these ailments once developed.[85]” This study, which was broken down into nine separate and more defined areas, also discusses the belief that hard substrate (which includes concrete and packed dirt that is not regularly tilled) is the main cause of foot and joint ailments. The section on recumbence behavior states, “Our results add to a growing body of evidence suggesting that hard substrate negatively impacts animal welfare. Concrete has been associated with higher rates of sole hemorrhages [84] and swollen knees [83] in cattle, and with incidents of foot and joint disease in zoo elephants. [82]”

“The continued prevalence of hard substrate in zoo environments indicates that zoos must remain proactive in their attempts to incorporate soft substrate into both indoor and outdoor areas.[82]’ Other studies also show the mental benefit of exercise, stating “Exercise not only increases the supply of oxygenated blood to a metabolically expensive brain, but also increases serum neurotrophic factors and BDNF (Heisz et al; Liang et al.) [80;81] [98],” leading to improved mental well-being.

Unfortunately, from what we have been told, Sandro is closed inside each night between 1600-1700 hr and released back outside at 0800-0900 hr. At a minimum, this means he is standing on concrete for 15 hours a day, exacerbating his already compromised physical issues. The section of the study that focuses on risk factors and impacting foot and musculoskeletal health states “Fowler [79] proposes that lack of exercise, limited space, standing on hard substrates, environmental factors that increase contact of feet with excrement, and moisture, and obesity are important contributing factors to elephant foot and musculoskeletal health problems” and “Indeed, the final multi-variable models revealed a significant relationship between time on hard substrate and both foot and MS scores such that just a 10% increase in time on hard surfaces was associated with increased risk of both foot and musculoskeletal abnormalities. [78]”

The “O Caso Sandro” paper also mentions Sandro’s aggression. His supposedly aggressive demeanor makes it completely inappropriate for him to be handled in free contact, which is the method that we have been told the zoo still uses, and we have been shown photos to document this fact. Sandro’s care staff also uses a tool called a ‘bull hook’ which has been deemed an archaic method in which to control an elephant by the US zoo governing board the Association of Zoos and Aquariums (AZA), and has been outlawed in several states in the US, due to the abusive nature of the tool. In a study of the management of elephants, it is stated that “aversive techniques (free contact) have been repeatedly found to be related to aggression, an increase in undesirable behaviors, and the potential for suffering and diminished welfare. [77]” In a different study on European zoo elephants, it is noted that “Protected contact training is reported to lead to a dramatic reduction in aggression in some elephants (e.g. Maddox [76]). For instance, a study carried out by Desmond & Laule [75] found that the aggression of an African bull elephant, considered to be very dangerous and thus kept in a no-contact situation, almost completely disappeared after it was trained in a protected contact system.[74]”

At the sanctuary, Sandro, like all of our residents, will be handled through protected contact and positive reinforcement management, which is a much safer and humane way to work with any elephant, but especially one that has a history of aggression. The European zoo study also states that “Elephants that have limited space or are shackled are also said to behave more aggressively towards humans and conspecifics than elephants able to move freely [74] (Schmid [73], cited in Kurt [72]).”

## **Specimen care routine**

Sandro is checked daily by his keepers, who check his skin, ears, paws, movements, reactions, and behavior. He regularly undergoes blood and urine tests as a way to check for any changes that are not visible externally. All information obtained is stored for temporal comparison and with other institutions, producing a database that allows for external and qualified monitoring. The specimen is attached to its keepers and professionals, showing signs of affection towards people with whom it has been in contact for years.

Sandro's daily diet deserves special attention: it involves a wide variety of vegetables and food supplements, established and continually reviewed by veterinarians and zootechnicians.

Elephants at SEB undergo regular diagnostics, using both in-house machines and equipment, including blood testing machines and thermal imaging, and our in-house radiographic equipment to assess foot health. Lab results are evaluated using parameters created by multiple studies and collated by Dr. Susan Mikota, world-renowned elephant veterinarian and author of *Biology, Medicine, and Surgery of Elephants*. Mikota is a personal colleague, has aided with the creation of Brazil's import sanitary requirements, and is available to our organization for consultation at any time.

While the diet at SEB is mostly natural forage that mimics the innate behavior of elephants to graze and browse for 15-18 hours a day, the elephants are also provided with a supplemental diet. This additional nourishment is based on the elephant diets formulated at The Elephant Sanctuary in Tennessee by a wildlife nutritionist, in conjunction with the guidelines from the *Nutrition Advisory Group Handbook* and a study on dietary requirements of the Asian elephants by Hekkel. This study, and the dietician that created the original diet, stress that the best way to improve an elephant's nutrition is to increase natural forage and grazing behavior. BIAZA regulations state that “it is ideal to provide a variety of feeding opportunities that ensures elephants can feed for 20 hours a day, [71]” and they recommend feeding browse *ad libitum*.

The addition of these supplement feedings serves three main purposes: to enable staff to check in with the elephants and monitor appetite, chewing, etc.; to passively help foster a positive relationship between caregiver and elephant, and to provide caregivers with a daily vehicle to

distribute any supplementation or medication necessary. It also serves as an opportunity for passive observation of mobilization, and socialization between elephants and their environment.

While a balanced diet is required, studies have also shown the behavioral implications associated with scheduled simple feeding. The zoo study addressing environmental enrichment, feeding, exercise, and training states that “Research on elephants and other species has shown that providing animals with smaller portions of food more frequently can improve body condition (sows [70]), reduce abnormal behavior (Asian elephants, giraffe, okapi [69,68]), and increase naturalistic feeding behavior (African elephants [67]). Since elephants in the wild feed during diurnal and nocturnal periods [66,65], a pattern of smaller, more frequent meals could be beneficial during the daytime and the nighttime [85].”

### **History of the proposal to transfer the specimen to the Associação Santuário de Elefantes do Brasil**

On November 18, 2020, Asian elephant Haisa, Sandro's partner since 1995, passed away at the age of 60 on PZMQB. She had been suffering from osteoarthritis (an irreversible and incurable disease) since May 2020, which had been closely monitored by the zoo staff with extra medication and care. In the networks, a conflict is created that the cause of death would have been the fact that she lived in the zoo, which contradicts the current literature, which demonstrates that animals in the zoo reach greater longevity (Meehan et al. 2016, de Silva et al. . 2013). With her death, the city government announced that it would carry out greater monitoring of Sandro's behavior, to verify the possible emotional impact of the elephant.

On December 11, 2020, the Public Ministry, in the figure of the prosecutor Jorge Alberto de Oliveira Marum, issued a recommendation that Sandro be transferred to the Elephant Sanctuary, in Mato Grosso. “According to the MP, 'elephants are extremely sensitive and intelligent animals and, therefore, Sandro may suffer from loneliness and longing for his companion if he remains in the zoo's enclosure. In addition, the agency states that the enclosure where the animal lives are small, considering its habits in nature. The Elephant Sanctuary of Brazil (SEB), located in Chapada dos Guimarães (MT), would offer a more suitable place to welcome Sandro, informed the MP. However, the technical source that supported the recommendation was not informed.

In the second half of 2021, the National Forum for Animal Protection and Defense nationalizes the campaign to transfer Sandro to the Elephant Sanctuary of Brazil, claiming that the animal deserved to spend its final years in a natural environment, without visitation, where it was free since it would possibly be suffering with the death of the partner and with the reduced space of the PZMQB (although they do not present anything that corroborates them). At the same time, the municipal government, after pressure from civil society, showed interest in transferring Sandro for BioParque, in Rio de Janeiro - RJ; however, BioParque declined to receive Sandro. On March 11, the city of Sorocaba announced that it had accepted the recommendation of the Public Ministry, represented by prosecutor Jorge Alberto de Oliveira Marum and that it would



prepare the necessary documents for transporting the elephant to the SEB. Again, the argument was that because he suffered from loneliness after losing Haisa, he should go to a wider place to feel good.

On March 20, 2022, a peaceful protest was called by former zoo interns to defend Sandro's permanence in PZMQB. Among the points raised was the advanced age of the specimen, which put any long-distance transfer at risk; the fact that he is not a wild animal, and depends on continuous care and a balanced diet daily; that he is not suffering, abused, or abandoned; that there is a risk of non-adaptation to the sanctuary or other space, as males exhibit solitary behavior.

While the “O Caso Sandro” paper states that animals in zoos tend to live longer, this does not apply to elephants. The Welfare of Zoo Elephants in Europe study states, “Most species have a greater life expectancy in captivity compared to their wild counterparts, due to the reduced risks of disease, predation, starvation and competition (e.g. Conway [64]; Mallinson & Barker [63]). In contrast, estimates for elephants suggest that they live longer in the wild than in zoos. For instance, Moss [62] estimates that African elephants live for up to 65 years in the wild. Similar longevity estimates exist for Asian elephants, most referring to those held in timber camps, where 10% to 22.5% reach 60 years or over (Schmidt & Mar 1996, cited in Schmid [61]; Gale [60]) and individuals as old as 79 have been reported (Sukumar [59]). In contrast, data from the studbooks reveal that out of 517 Asian and 238 African zoo elephants of a known age (dead and alive), none have lived to 60 years, and the maximum recorded age is 56 in Asians and 50 in Africans. Furthermore, the mean life expectancy (i.e. the mean age at death) of elephants in European zoos is just 15 years in Asians and 16 years in Africans, if all deaths are included. [74]” And, while the more recent estimate for the average lifespan of captive elephants cited by the AZA is higher, it still falls below the average lifespan for wild elephants.

The death of Haisa at the Sorocaba Zoo was indeed tragic and, unfortunately, it is likely that a similar fate will fall upon Sandro if he is to live out the rest of his life in his current enclosure at the zoo. While arthritis is irreversible, improvements can be made to his condition with the appropriate environment, allowing advancement in his foot health as well. The reasons behind such a high prevalence of foot and joint problems in captive elephants are avoidable. “ Those related to the captive environment are as follows: lack of exercise; insufficient foot grooming by handlers; improper enclosure surface; unhygienic conditions; excessive moisture; malnutrition; the performance of stereotypic behaviours; joint problems and skeletal disorders such as arthritis (Roocroft & Oosterhuis [58]; Sampson [57]). Additional factors that could exacerbate the occurrence of foot problems is the excessive weight of many zoo elephants compared to those kept in extensive systems and wild elephants (Kurt & Hartl [56]), and general stress, which could impact immune functioning and hence the contraction and spread of infections (e.g. Broom [55]; Toates [54]).[74]” At the end of her life, due to a significant decline in her foot and joint health, Haisa’s front legs were incredibly swollen, she was unable to take any steps, went down several times, requiring being lifted by a crane, and spent her last days painfully standing in the scorching sun. This is not a fate Sandro should have to suffer.

The argument in favor of moving Sandro to the sanctuary is not simply to address his loneliness; the argument is that sanctuary can provide him with a life that is more appropriate for his species. Space to wander will improve joint mobility and foot health. He will develop more muscle, which will aid in taking weight off of his already ailing joints and feet. Grazing naturally will allow his body to process food in the way it was meant - small meals throughout most of his waking hours, versus several concentrated meals a day, making digestion and breakdown of nutrients easier for his organs. Constant grazing on grass and consumption of browse will wear his teeth and also improve digestion. The mental stimulation that comes with choice and space will allow for psychological healing and a healthier mental state. Different smells, sights, areas, etc., will all aid in his overall emotional wellbeing. Sandro's relocation isn't just about making sure he is not lonely. It is about giving him a more natural life, and one that will improve both his body and mind. Multiple staff members of SEB have visited the Sorocaba Zoo and have seen Sandro firsthand, which reinforces our belief that he is in need of these crucial changes.

The belief that space affects the well-being of elephants is not a sanctuary theory, but has been documented in a recent study dealing specifically with elephants and cetaceans. "Large-brained animals with complex cognitive capacities such as elephants and cetaceans seem particularly prone to poor welfare in captive environments insofar as they do not have an adequately stimulating, natural environment. which is why we hypothesize that elephants and cetaceans in artificial environments suffer neural damage. In terms of the amygdaloid complex, its psychological functions (and those of other well-developed adjacent brain areas) are impacted by impoverished environments [98]."

While one of the arguments in "O Caso Sandro" states that the Rio Zoo declined to accept Sandro, we were presented with evidence to the contrary, including their proposal for the space he would share with Koala. When the Rio Zoo was the option for Sandro, there was no public objection from the Sorocaba Zoo in regard to his transfer. Elephants are shipped from zoo to zoo, repeatedly, throughout the world, so often that inter-zoo transfers were included in the US group zoo study as a factor in wellbeing. These transfers occur over varying distances, with elephants of different age ranges, on a regular basis. Luckily, our staff specializes in the care and transport of elephants (with participation in over 60 elephant relocations), in which most elephants have been considered geriatric, all without incident.

To address the points raised at the protest that were stated in the "O Caso Sandro" paper: "Sandro is not a wild animal": this may be a semantics/ language issue because he is indeed a wild animal who lives in captivity. Although it is suggested he is captive-born, that does not make him a domesticated animal. At the sanctuary, he will continue to receive daily care from specialists in the area of the rehabilitation of geriatric captive elephants, not simply thrown into the wild to manage on his own. The habitats are fenced and Sandro will be placed on an individualized care schedule.

The stated argument that he is not suffering is one of opinion. One can say that someone in prison is fine; they receive food, medical care, and access to yard time, but this does not mean they are healthy and not suffering mentally and physically from a lack of choice, freedom, and

space. The “Putative neural consequences of captivity” study does support the belief that, due to his small enclosure, lack of conspecifics, and stimulation, Sandro is indeed suffering.

While Sandro can never be released back into the wild, he can certainly adapt to a vast-space environment that combines individualized medical care with the space that elephants need as a species. The elephant and cetacean study also states, “authentic sanctuaries report improved physical and psychological health in elephants after their arrival, including decreased frequency or extinction of stereotypies, reduced aggression toward keepers, muscle tone gain, and formation of social bonds between elephants with different social histories, including elephants who were abused, traumatized, or solitary for decades (Buckley [53]; Derby [52]) [98].” The many elephants who have been transferred to vast habitat sanctuaries have shown that not only can captive elephants from various backgrounds adjust, but they thrive when allowed to live in a way that is natural for the species.

One of the building blocks of the sanctuary is autonomy. If Sandro chooses to wander alone and not socialize with other elephants, he doesn’t have to. While the “O Caso Sandro” paper repeatedly states that males are loners, this is an outdated theory, and one that has been disproven through multiple studies of male elephants in the wild, who tend to stay in bachelor groups. One elephant study states, “In general, older males spend more time in all-male groups and less time solitary than younger males. Older males, when they are in musth, also spend 2-3 months a year in female groups (Poole [50]; Lee et al. [49]) [51].” Author/researcher Caitlin O’Connell has dedicated years and books specifically to this topic, stating, “Male elephants have a reputation as loners. But in Amboseli National Park in Kenya, where the longest-running studies on male elephants have been conducted, bulls have been observed to have a best friend with whom they associate for years. Another study, in Botswana, found that younger males seek out older males and learn social behaviors from them [48].” With this updated understanding, US and European zoos now house males together, with some zoos (like the Denver Zoo, which houses 5 male elephants together - no females) keeping groups of males in their exhibits.

Our hope is to be able to offer Sandro the opportunity to socialize with another male, should that be his choice. Our habitat construction is designed to allow for the males to spend time together or be separated, while still offering vast space. This allows for a safer introduction, and the ability for them to spend time alone during musth if needed. If they choose to not interact, they remain with ample space through our expansive interconnected enclosures.

### **Risks related to specimen transfer**

Sandro does not fit into the primary objectives of the Associação Santuário de Elefantes do Brasil. The objective of the Association, according to its statute, is the rescue and rehabilitation of elephants. Therefore, it is not the case with Sandro, who does not have to be rehabilitated or rescued for anything.

There are, at the moment, no technical notes that justify the transfer of Sandro to SEB, and in relation to the arguments presented by the defenders of the transfer, there is little technical veracity in all of them. There is no mistreatment, hunger, or abandonment of the specimen in the PZMQB and the idea that, as an elderly animal whose companion died in 2020, it would need to go to another wider and wilder place ignores the behavior of the species and the literature on quality of life of elephants in zoos. A review published in 2016 in Plos One Journal, USA, called "Determining Connections between the Daily Lives of Zoo Elephants and Their Welfare: An Epidemiological Approach". epidemiological study) which involved 255 elephants in 70 zoos and a team of 5 elephant management experts and 19 scientists (in addition to researchers, consultants, students, and technicians) aimed to understand the factors that influence elephant welfare. Based on the results, good zoos can act to improve the lives of the animals in their care. The results of this research indicated that social interactions and opportunities to interact with their environment may be more important to elephants' well-being than space.

The trip to the Sanctuary is a very negative point. There are 1484 km that separate the PZMQB and the SEB, which would be carried out by a company specializing in animal transport, with an estimated duration of 2 days. Sandro is an elderly elephant, who has been with PZMQB since 1982; a transfer of this magnitude would cause a high-stress load on the animal, which would be presented to a completely new environment, with a different climate than the one it is used to, without the presence of handlers and employees to which it is used and has a bond. Perhaps he finds the presence of others strange, perhaps he isolates himself in search of his former human friends. Furthermore, Sandro is not an animal that was caught in the wild; he was born in captivity and therefore does not have the ability to forage for food in the quantity and quality he obtains in the PZMQB.

There is still a great possibility that it will not be accepted by the herd that already exists there, made up of five young females, given that the behavior of the males of the species when adults is to live alone, meeting with the flocks of females during the breeding season (something which also cannot happen in the SEB, as the reproduction of species is not authorized in sanctuaries, due to the lack of regulation). Sandro never socialized much with Haisa. In all the years of coexistence, they only tried to breed once, without success.

The Cerrado is not the natural environment for elephants, and it has never been Sandro's natural environment. He is not able to recognize edible plants and poisonous plants; had no contact with poisonous, venomous, or predatory animals, and therefore does not know how to react when in the presence of one; there are local endo and ectoparasites which he has never had contact with and which can contaminate the organism in him. The absence of a changeover and containment area makes any handling and direct contact between animals and handlers difficult. And the wide space does not allow for proper observation and monitoring of food and potential signs such as diarrhea, worms, and reduced joint movements, among others.

The problem of the SEB itself must also be pointed out. Barros, 2016, points out that the existence of a sanctuary of 1100 hectares in the surroundings of a Conservation Unit (the Chapada dos Guimarães National Park) for exotic animals in the midst of an extremely

threatened biome, which is the Cerrado, is a huge mistake. , the most biodiverse savanna on the planet. Reduced to less than 20% of its original extension, it is where 8 of the 12 large river basins in the country have springs and therefore require urgent recovery measures. The SEB is also supported by donations from individuals and companies, which casts doubt on its capacity for financial stability in the medium term, since the costs of paying staff and caring for the animal are very high. Finally, there is no review in the literature that indicates a “qualitative leap” in the lives of elephants in SEB in relation to zoos, since as it is a new project and without regulation by IBAMA, it does not have adequate parameters for such a comparison.

As addressed earlier, science does support the statement that Sandro is indeed in need of rehabilitation. And while the “O Caso Sandro” document argues there is not a lot of science backing the benefits of sanctuary, our rebuttal shows quite the opposite.

The multi-zoo, US-based study on elephant welfare is a good reference (and was done so by the “O Caso Sandro”) and one that points out the archaic nature of the care that is currently offered to Sandro at the zoo. While the study does say that “social interactions and opportunities to interact with their environment may be more important to elephants’ wellbeing than space,” the study also states that “While this investigation of space as a predictor of zoo elephant welfare is the most thorough to date, it was limited to the range of exhibit sizes at participating North American zoos, and future studies incorporating larger areas could potentially find associations between space and welfare outcomes [47].” The author of the study acknowledges their reference to “space” does not include significant space, such as the space offered to elephants at the sanctuary.

While there hasn’t been a study to examine the effects of vast space on elephant welfare, “work on other species have shown that small enclosures can be associated with indicators of poor welfare, such as the performance of stereotypic behaviours (e.g. polar bears, *Ursus maritimus*: van Keulen-Kromhout [46]; rhesus macaques, *Macaca mulatta*: Erwin & Deni [45]), high stress levels (e.g. domestic cats, *Felis chaus*: Kessler & Turner [44]); impaired immune functioning (e.g. pigs: Turner et al. [43]); and reduced reproductive performance (e.g. cotton-topped tamarins, *Saguinus oedipus*: Shepherdson [42]). Increasing the space available has been shown to reverse these effects, for instance decreasing, or even abolishing, stereotypic behaviours (dolphins: Greenwood [41]; e.g. polar bears: Kolter & Zander [40]), as well as promoting positive signs of welfare such as activity and behavioural variation (e.g. pine martens, *Martes martes*: Korhonen et al. 1995; common marmosets, *Callithrix jacchus*: Kitchen & Martin [39]). [74]”

In addition to the above study stating its inability to measure the impact of vast space, this branch of the study’s reference (used in the “O Caso Sandro” document) to “social benefits” is with conspecifics, and the benefits from management, as stated previously, are all processes that do not occur at the zoo. All of the zoos that participated in the study use protected contact, positive reinforcement training management styles, which reduce aggression, promote mental wellbeing, and caregiver safety, things the Sorocaba Zoo does not implement in the care of Sandro. A study on the effects of positive reinforcement training found “a small but significant

decrease in SACort levels in response to positive reinforcement training (PRT) even suggest a potential stress-lowering effect of PRT in the African elephants studied.[38]"

The study the zoo references above also speaks to "good zoos" and their ability to make improvements, which the Sorocaba Zoo would not fall under by US standards (which is where the study took place). The zoo does not meet many of the minimum requirements set forth by the AZA [37], including social structure, management, exercise and program requirements, habitat design (moats are not allowed due to safety issues), and more. The zoo also does not implement many of the benefiting factors discussed in the cited study, including the ability of the elephant to choose whether they spend time indoors or outdoors throughout the total of the day, the existence of indoor/outdoor soft substrates, exercise programs, enrichment programs, nighttime stimulation, etc.

The suggestion that, since Sandro is captive-born, he would not be able to figure out how to forage for food naturally, is absurd and just punctuates the lack of understanding of the innate nature of elephants and their intelligence. Sandro is already fed grass at the zoo. Is the suggestion that when he is exposed to grass that is growing (although he currently picks up his grass off of the ground), he will not comprehend how to pull it and put it in his mouth? That he will just stare at it and wait for it to find its way into his mouth? Some of the elephants who have arrived at SEB, who did not have access to natural grazing, started pulling grass, vines, and branches even before exiting the container. These actions are as natural to them as breathing air. Of the 55 elephants that have been relocated to vast habitat elephant sanctuaries in the Americas, all have immediately started to graze and forage on wild vegetation at the earliest opportunity.

Even if Sandro were to have issues with sourcing his own food, as mentioned earlier, all elephants at the sanctuary are subsidized with an additional diet with multiple meals. This allows us to provide vitamins, supplementation, and medications that are needed after years of an inappropriate lifestyle.

A study evaluating the diets of elephants in Brazilian zoos found that "Most zoos fed diets with higher protein content ( $10.9 \pm 2.4\%$  of DM) than necessary for maintenance requirements of adult elephants (~6 to 8% of DM; Das et al., [23]; Ullrey et al. [35]), with values ranging from 7.6 to 15.4% of DM. These high values are attributed to the amount of concentrate fed (1.8 to 16.5 kg of fresh matter per individual per day), which provided ~4 to 53% of total dietary crude protein, as well as provision of the high-protein (18% CP) alfalfa hay (4.5 to 35.6 kg DM/d) [36]." Sandro receives a diet that feeds both concentrated feed and alfalfa hay, and is almost identical to one of the zoo diets included in this study, which recommended significantly adjustments to their elephant's diet to improve the elephant's health. BIAZA (the British and Irish Association of Zoos and Aquariums) regulations state for captive Asian elephants relying on a completely supplemental diet, that "Grass hay should be the staple dietary ingredient, comprising a minimum of 70% of the total dry matter (ullrey et al [35]) [71]." And while high-quality grass hay can be more difficult to source in Brazil, and generally has a higher cost, even with natural forage available to the elephants at SEB 24-hours a day, the supplemental hay they receive is grass hay.

With regard to the cerrado being a new environment for Sandro, it will be, just as it has been for the other elephants that have come to SEB, and the many elephants that have been relocated to sanctuaries around the globe. Elephants in these sanctuaries have come from different regions and facilities that use different styles of management, yet there are no cases of an elephant dying from ingesting a toxic plant or being killed by a venomous animal. There are theories that elephants can distinguish toxic from non-toxic plants. One line of thinking is that it is linked to seeking out nutritional requirements, but a study has shown that “diet selection by African elephants is better correlated with the presence and concentration of toxic plant secondary metabolites (PSMs) than with nutritional or anti-nutritional factors. [34]” This supports the idea that elephants can distinguish toxic from non-toxic plants. But even in a study where ingestion of a toxic plant was artificially stimulated, it showed that “Elephants and impalas can withstand the poison of *S. campylacanthum*. [33]”

As far as predators, healthy adult elephants do not have predators. “African elephants, *Loxodonta africana*, have relatively few predators that threaten their survival in the wild, but known threats include humans and lions, calves being the most vulnerable. [32]” Calves and sometimes sick elderly elephants have been killed in the wild by a pack of lions. There isn’t any predator that is a threat to an elephant at the sanctuary in Brazil.

As far as adapting to the other animals that live here, that takes almost no time for most elephants. While the “O Caso Sandro” paper states many things they believe could possibly happen, there is no scientific data to support these concerns. On the contrary, there are numerous elephants who have been relocated to sanctuaries that haven’t had any of these problems. While SEB is under 10 years old, the first sanctuary Scott Blais co-founded has already celebrated its 25th anniversary. There are numerous global sanctuary models, with decades of history, that show the sanctuary model works for elephants.

Like all facilities around the world, we do have endo and ectoparasites that may be new to Sandro, just as they would have been when he was relocated to the Sorocaba Zoo. We regularly monitor for endoparasites and check for ectoparasites. Parasites are a part of life. With the stated wildlife bordering the zoo, there are likely species like marmosets and rodents that bring in parasites from outside of the zoo boundaries.

SEB posts photos and videos on social media regularly. Some of these posts include videos of our treatment areas, where elephants are brought in for check-ups, medical testing, foot care, and other needed treatments.[31, 30] To say the sanctuary doesn’t have these kinds of areas is false and should be something that was known or looked into by those trying to make an argument as to why the sanctuary is not a good option for an elephant.

SEB houses elephants like Lady who, due to decades of neglect and lack of foot care, arrived with osteomyelitis, with degraded bones in her feet, and feet in incredibly severe condition. At the sanctuary, she receives daily foot soaks on days when she is near one of the two foot soak areas, or treatment at the training walls when she is further into the habitat.[29] She, like our other elephants, is observed multiple times throughout the day for any shifts in behavior, appetite, and mobility.[28] We have pain scoring charts to quantitatively measure where her

discomfort level is, footcare charts to note any changes, in addition to all of our other medical and behavioral records kept.

Although the elephants at SEB have vast space, staff still go inside of the habitat with a trailer and clean up dung when the elephants are safely shifted to another area. The caregivers perform this task and can identify within our herd which boluses belong to which elephant, and report any changes in size, consistency, or the maceration of hay and forage within each bolus. Though the elephants have abundant space, they are monitored throughout the day, both in person and on our camera system. And unlike the zoo, we have staff that live on site and are able to evaluate elephants throughout the night, listening for any strange sounds or suggestions of distress, and viewing them on the infrared cameras.[27] We also provide late-night feedings, check-ins, and care for new arrivals, taking into account the changes elephants experience in new social groups, and when elephants are sick.

We are unsure as to why it was appropriate for this topic to be included in this report, but the location of the sanctuary in the Cerrado biome and any negative impact on that area is easily refuted. First, SEB is not located within the protected area. SEMA, after SEB was in existence for a couple of years, specifically came to create a report [26] of the benefit the sanctuary has had on the regeneration of the property, which was once devastated through use as a cattle ranch. While many properties in the region suffer from overgrazing and complete destruction from soy, corn, and cotton farming, the sanctuary property is returning back to a more natural state. The longer the sanctuary has been in existence, the more we see a regeneration of natural flora and fauna. SEB monitors wildlife through camera traps and photography, but also serves as an area of hard and soft release for wildlife due to the expansive wild space. Not only is the local wildlife thriving, but this year one of the rehabilitated and released tapirs has been seen on the camera traps with a newborn calf.

Sanctuary simply cannot exist if the land is not nurtured. A healthy and varied habitat is what provides both physically and mentally for the elephants. But the beauty of SEB is that it has proven to also create a safe haven for many other species as well.

Global Sanctuary for Elephants (GSE) is a US-based 501(c)3 nonprofit that provides financial support for SEB. GSE's finances are public and voluntarily audited each year to prove the appropriate use of donations. [25] GSE/SEB is also the only sanctuary in South America that is accredited by the Global Federation of Animal Sanctuaries (GFAS) and one of three accredited elephant sanctuaries globally. [24] Part of this accreditation, along with medical care, written protocols and record-keeping, housing requirements, meeting the needs of the species, and other qualifiers, is the ability to show long-term financial stability. We have provided financial documentation, reserve bank accounts, and other evidence that has satisfied their strict requirements. The financial model that has been used for the sanctuary is the same as The Sanctuary in Tennessee, which is currently a multi-million dollar organization. Unlike public zoos, we don't take funds from the government that could be used towards other projects to continue our care of the elephants. Thousands of people around the world gladly give their own money to support our work.



The “O Caso Sandro” paper also states that we are not regulated by Ibama, which is not true. SEB is regulated by Ibama, SEMA, MAPA, and CRMV, all of whom have had different representatives visit the sanctuary multiple times over the years. And although the sanctuary has not created a scientific study that shows the improvement of the lives of the elephants at the sanctuary compared to when they were at their earlier facilities, the evidence is clear. We house several elephants that were labeled as aggressive and antisocial at their earlier facilities that are now passive and part of a herd. Elephants that arrived 800 kg underweight, thought to be suffering from medical ailments, are now at an appropriate weight and in fantastic body condition. Elephants who constantly stereotyped no longer perform this neurotic behavior at all, or very minimally. Each elephant has shown vast improvement since their arrival at the sanctuary. One has to only be willing to accept reality to see this.

## **Alternative proposals**

The alternative proposals are organized in three axes: the physical structure of the zoo, emphasizing the improvement of the enclosures with the integration of native forest into the park; the possibility of transferring a new female to Sorocaba, despite being a complex topic due to the reformulation of legislation for the acquisition or transfer of elephants in Brazil; in addition to ex-situ environmental education, addressing the physiological and behavioral knowledge that can be acquired by studying the behavior and needs of an exotic animal, that is, foreign to the Brazilian fauna.

## **Physical structure of the Zoo**

According to Ibama Normative Instruction No. 07, of April 30, 2015, Art. 3, Item X, a zoo is an “enterprise of a legal entity, consisting of a collection of wild animals kept alive in captivity or in semi-freedom and exposed to public visitation, to meet scientific, conservationist, educational and sociocultural purposes”. The same Normative Instruction defines authorization procedures for the use and management of fauna, providing authorizations and documents necessary for the rigorous 15-step process that precedes the officialization of a zoo (BRASIL, 2015). An important international legal instrument is the Convention on Biological Diversity (CBD) established in 1992 during ECO-92 in Rio de Janeiro (MMA, 2020). Article 9 of the CBD establishes ex-situ conservation strategies, which include the establishment and maintenance of facilities that carry out this activity, in addition to encouraging measures to recover natural populations through reintroduction and the financial investment necessary for the given strategies. (MMA, 2000). The CBD was enacted by Decree No. 2,519, of March 16, 1998 (BRASIL, 1998).

IBAMA Normative Instruction No. 07, of April 30, 2015, (BRASIL, 2015) establishes and normalizes the categories of use and management of wild fauna in captivity, and defines, within the scope of IBAMA, the authorization procedures for the established categories. In it, it is established that the minimum area for the enclosure for two elephants is 1500 m<sup>2</sup>, with dirt floor

or lawn, concrete change with vanishing point for handlers, with at least 60 m<sup>2</sup> per elephant, and reinforced rail doors. The PZMQB enclosure has 3300 m<sup>2</sup>, more than double the minimum area, and is surrounded by a dry moat (which does not require the use of a grid), in addition to having a changing area larger than the minimum required by current legislation.

However, the PZMQB had its last reform in 2004, during the administration of Mayor Renato Amary, 18 years ago. The considerable time that caused the enclosure structures to be worn out due to the action of bad weather, but not compromised. The PZMQB needs to undergo a comprehensive reform that is aligned with the zoo's fundamental objectives: to be a space for ex situ conservation and environmental education, contributing to the construction of a society with strong environmental values.

It is also pointed out that it is necessary to consolidate the expansion of the PZMQB to the 37,200 m<sup>2</sup> land next door, indicated in the Sorocaba Master Plan as destined for this purpose. The inclusion of the land would increase the total area of the PZMQB by 28.77% and allow the construction of new, more spacious enclosures for the cats (for example), and the incorporation of the area that is currently destined for the cats into the elephant enclosure, enhancing the useful area for 6000 m<sup>2</sup>, in case it is evaluated as necessary by zoo professionals directly linked to the care of the specimen. In addition to mammals, other groups of animals would benefit from the reforms, which would also allow the expansion of the entire support and care structure for animals (nurseries, veterinary care, food, among others).

The Ibama Normativa 7 2015 also states that caregivers are not to enter an elephant's space unless he is "contained," but zoo staff has stated and photos have shown that they work with Sandro free contact, disregarding this part of the regulation.

And while we appreciate the zoo proposing improvements, it should not take another caregiving institution that wishes to provide a facility's elephants a better life for them to be interested in making improvements and trying to do better by an animal in their care. Improving Sandro's care should have been their concern all along, and proposed almost a decade ago. Should expansion actually take place, how long would Sandro have to wait to have access to this area? Even with these changes, we have already demonstrated that the space the zoo can offer with this expansion will still not be enough to meet his needs. While the "O Caso Sandro" paper states above that Sandro was never social with Haisa, and that loneliness is not a reason for his location, it now suggests obtaining another female as a companion to solve his current issues.

The "O Caso Sandro" paper claims that Sandro's enclosure is 3300m<sup>2</sup> area, however, based on the drawings provided, this includes the space between the enclosure and the public. The actual measurement of the enclosure is believed to be just over the very minimum standard. It should also be noted that these minimum requirements were never based on the needs of the species, but were adopted by Ibama from standards that were established by zoos, without scientific support.

## Environmental education

Much has been said about visitation at PZMQB. Visiting the site is intended not only to raise funds used to pay for part of the services contracted by the city hall (caretakers, concierge, kitchen, and cleaning) but also the important role of promoting environmental education in the city. Zoos are places intended for the rescue, reproduction, and conservation of fauna, in addition to being areas of environmental protection, also allowing the maintenance of local flora and fauna. This means that the animals in the enclosures are undergoing the conservation process since they were rescued from places where they were exploited (as is the case with Sandro, who came from the circus circle) to a qualified space for care and rehabilitation, as demonstrated by Scaglione et al. al. (2019). Along with this, there is the preservation of native vegetation in the PZMQB area, and with it, the animals that live there, many identified by visitors during walks (Conde et al., 2011). In addition, the zoo has an enormous role in research on taxidermic, phylogenetic, and cladistic maintenance and review, since it has a museum with replicas, bones, and preserved animals, which are often threatened or already extinct, which can be accessed by researchers.

Since 1979, environmental education programs have been carried out at the PZMQB, with various activities, such as visits to schools and educational institutions and activities in the park itself. The role of EE (environmental education) has been of paramount importance for citizen integration of what takes place within the zoo: those who participate come to understand the role of PZMQB in species conservation, rescue, rehabilitation, reproduction, release, and scientific research (Artigas & Fischer, 2019). The commotion generated by the possibility of transferring the elephant from the PZMQB is intrinsically linked to the dismantling of EA in the city. The population is unaware of the work carried out in the place and starts to feel that they no longer belong to it. This is not just the case at the Zoo: the number of employees and interns in environmental education has drastically decreased since the previous administration of the city hall in all parks in the city, a situation that has not yet been resolved and intensified during the Covid-19 pandemic. The number of EA interns at the Zoo reached 14 in previous years, reaching 1 last year and zero this year, and the current interns are rotating, as they are assigned to the Secretary of the Environment most of the time. . It is necessary to designate employees and interns for this function in this proposal so that we can avoid commotions like the one that occurred with the Black chimpanzee and is happening today with Sandro, based on the erroneous idea that zoos are captivity for animals that should be in nature.

While we appreciate the stated benefit that the zoo has in regard to the museum and the local flora and fauna, none of that changes if Sandro is no longer at the zoo. Our goal is not to suggest closing or shaming the zoo, but rather seeks to urge their evolving with an increased understanding of the impact of captivity on certain species. Realizing when your facility, no matter the improvements, doesn't have the ability to meet those needs, and taking the best care of one of your charges should be a priority, even if that means relocating them somewhere else.

Zoos in Argentina are shifting to the model of a true EcoParque, finding appropriate homes for highly intelligent and emotionally complex species that cannot thrive in exhibits that limit their

space and natural behaviors. They are choosing to focus on the rehabilitation of indigenous species, expanding exhibits for those animals, providing significant educational opportunities to their visitors, and engaging in true conservation. The zoos still have the ability to bring in visitors and educate them without compromising the well-being of any of their residents. A facility isn't providing an appropriate education when keeping a male and female elephant together, in a sterile environment that does not replicate that in nature. What is a child to learn when that is what they look at? Sandro has also demonstrated a certain level of discomfort being on display based on the incident in 2000 when he hit a 9-year-old girl with a rock, knocking out 10 teeth and breaking her jaw.

## **Conclusion**

It is concluded that Sandro's transfer to a sanctuary presents a series of risks that do not justify such an action. The welfare of the animal, which is the only male Asian elephant in the country, is at risk even if carried out by highly qualified teams with all available structures. Sandro is not treated badly; it is not the target specimen of SEB's objectives; he is not confined in a space that causes him stress, and there is no other technical or scientifically based situation that justifies its transfer to the Associação Santuários de Elefantes do Brasil.

There is undoubtedly a consensus between both parties, whether those who defend his permanence or those who defend his transfer: Sandro's well-being is of great importance. But it is not possible to defend one side without presenting substantial evidence that the animal is suffering great suffering, enough to justify a 2-day trip, this one being 1484 km, to witness another climatology, in an environment totally unknown to the specimen, because it is not wild, it is not able to obtain its food, which requires high-complexity daily care whose real funding is only possible through the public authorities.

It is necessary to recover the structure of the PZMQB, increasing the amount allocated annually for the cost of services, annexing the land to the side to increase the useful area, renovating the headquarters of environmental education, hiring interns and employees in an adequate number for the complexity of one of the best zoos in Latin America.

The statements that have been presented by the biologists and a veterinary student in "O Caso Sandro" in favor of Sandro staying at the zoo, are without evidence to support that this is the best option for his welfare and wellbeing. The scientific evidence illuminates that his current enclosure, which is nominally over the minimal requirements, the lack of staff highly experienced with the care of elephants, the inappropriate diet, and the number of hours he is confined to just 130m<sup>2</sup>, are all elements documented as significant factors contributing to chronic physical and psychological comprise of captive elephants. Additionally, the reports state that keepers enter the enclosure with Sandro. This is a practice that zoological governing bodies across the globe

determined should be ceased 15 and 20 years ago due to the high risk to keeper safety and the direct risk to elephant welfare. This practice is also illegal, and not in accordance with the Ibama Normativa 7 2015.

The arguments made against Sandro's transfer are equally without evidence. The authors have stated several reasons against Sandro's relocation, yet none can be supported with data. The actual scientific data is in direct contrast to the statements and beliefs of the authors. The data demonstrates that elephants, even those who are 10 years older than Sandro, have adapted and tolerated transport with ease. These relocations include distances that are almost twice the distance Sandro would travel. Evidence from international sanctuaries demonstrates that elephants from all captive backgrounds, including those who were born in captivity and spent more than 4 decades in small zoo enclosures, adapt to sanctuary life without hesitation. The statement that Sandro will not know how to feed himself is dismissive of the basic natural instincts of wild animals and inconsistent with the history of every elephant who has been relocated to spacious environments with natural forage.

Elephant Sanctuary Brazil exists specifically to provide a life that allows captive elephants to live with autonomy and dignity, within a safe environment surrounded by nature. This is a life that is supported through science and practical, historical experience.

Our world is changing. What we know about animal cognition and animal suffering is profoundly different than it was 10 or even 20 years ago. Science now shows us that complex animals confined to understimulated and restricted environments suffer from neural damage (damage to their brain). Zoos across the globe are coming to the conclusion that their enclosures, which are up to 5 times larger than Sandro's, are not sufficient to provide healthy living conditions for captive elephants. We urge the commission and the city of Sorocaba to look at the science and the data, and to make a decision that honors Sandro.