

Elephant Cognition and Intelligence

Elephants are sentient and one of the most intelligent animals. Various luminaries like Gary Varner (philosopher), Professor Richard W. Byrne (researcher), Rhea Ghosh (author of 'Gods in Chains'), Lucy Bates (researcher), Joyce Poole (Researcher and Co-Founder and Co-Director of ElephantVoices), Karen M. Comb (Professor of Animal Behaviour and Cognition, University of Sussex) and Dr. Gay Bradshaw (psychologist and ecologist) have time and again proved through their research that elephants are **autonomous beings with high cognitive and social skills**.

Elephants are known for their long memory, intelligence, complex social structure and thus are vulnerable to stress and to trauma which can have long term psychological consequences.¹ Moreover, they are adept tool users² and cooperative problem solvers, highly empathic - comfort the other when upset, and have a sense of self.

1. Biological proof of Intelligence

- Elephants are among the most intelligent, socially intricate and emotionally complex non-human species.
- They share certain characteristics of human brains, namely deep and complex folding of the cerebral cortex, large parietal and temporal lobes, and a large cerebellum. The elephant brain is the largest among terrestrial mammals. Elephants have the greatest volume of cerebral cortex available for cognitive processing of all land mammals. The temporal and parietal lobes of the cerebral cortex manage communication, perception, and recognition and comprehension of physical actions, while the cerebellum is involved in planning, empathy, predicting and understanding the actions of others.³
- Elephants can also detect the vocalizations of their companions seismically. When an elephant vocalizes, an exact replica of this signal propagates separately in the ground.

¹ <https://elephantvoices.org/>

² Hart, B., L.A. Hart, M. McCoy & C.R. Sarath, 2001, *Cognitive behaviour in Asian elephants: use and modification of branches for fly switching*, *Animal Behaviour* 62:839-847

³ Bates L.A., J.H. Poole & R.W. Byrne (2008a) "*Elephant cognition*", *Current Biology* 18 (13): R544-R546 and Cozzi, B, S. Spagnoli, L. Bruno. 2001. An overview of the central nervous system of the elephant through a critical appraisal of the literature published in the XIX and XX centuries. *Brain Research Bulletin*. 54 (2) 219-227

They can detect earth tremors, thunderstorms and the hoof beats of distant animals in the same manner.⁴

2. Socially Complex Beings

- Elephants exhibit a high degree of social complexity and have large social networks – from natal family to bond groups, clans, independent adult males and also to strangers. they have close and co-operative social relationships between individuals and families in a fluid multi-tiered society.⁵ This is rare in the animal kingdom.
- Special relationships between individual elephants may last a lifetime.
- Some of the calls used by elephants are powerful low frequency vocalizations that carry over long distances. they can recognize the voices of other elephants from up to 2 kilometers away. Family members in particular have a large communication network which is unique to long-lived mammals like elephants with fluid social systems, long-range signaling capacities and the mental capacity for extensive social recognition.⁶

3. Long Memory

- Large animals with large brains have better memory. They have greater capability for learning and are able to learn more complicated tasks. Like humans, elephants have memories that span many years which allows them to accumulate social skills, which is key to function as a member of a family.⁷

⁴ O'Connell-Rodwell, C., B.T. Arnason & L.A. Hart. 2000. Seismic properties of Asian elephant (*Elephas maximus*) vocalizations and locomotion. *Acoust. Soc. Am.* 108 (6) 3066-3072; O'Connell-Rodwell, C.E. 2007, *Keeping an "ear" to the ground: Seismic communication in elephants*, *Physiology* 22:287-294

⁵ Wittemyer, G., Douglas-Hamilton, I., Getz, W. M. 2005. The socioecology of elephants: analysis of the processes creating multitiered social structures. *Animal Behaviour*. 69: 1357-71; Moss, C. 1988. *Elephant Memories: Thirteen Years in the Life of an Elephant Family*. William Morrow, New York; Sukumar, R. 1989. *The Asian Elephant: Ecology and Management*. Cambridge University Press, Cambridge.

⁶ Langbauer Jr., W.R. 2000. Elephant Communication. *Zoo Biology*. 19:425-445;

⁷ Bates, L.A., Poole, J.H. Byrne, R.W. 2008, *Why study elephant cognition?* *Current Biology*, Vol 18, No 13, 544-546; Cozzi, B, S. Spagnoli, L. Bruno. 2001, *An overview of the central nervous system of the elephant through a critical appraisal of the literature published in the XIX and XX centuries*, *Brain Research Bulletin* 54 (2) 219-227; <https://elephantvoices.org/elephant-sense-a-sociality-4/elephants-are-intelligent.html>

- Elephants have been observed to remember individual human beings and others of their kind. ⁸
- They accumulate and retain social and ecological knowledge by remembering scents and voices of other individuals, migratory routes, special places and learned skills for decades. ⁹

4. Autonomy

- Elephants are autonomous beings. Autonomy in humans and non-human animals is defined as self – determined behaviour that is based on freedom of choice. As a psychological concept, it implies that the individual is directing their behaviour based on some non-observable, internal cognitive process, rather than simply responding reflexively.
- They are self-aware i.e. they can introspect and recognize themselves as individuals separate from the environment and other individuals. ¹⁰
- The physical similarities between human and elephant brains occur in areas that are relevant to capacities necessary for autonomy and self-awareness.

5. Emotional Complexity and Behaviour

- Elephants display a wide variety of behaviours including grief, joy, learning, mimicry, play, compassion, co-operation and communication. ¹¹

⁸ McComb, K., G. Shannon, K.N. Sayialel, & C. Moss (2014) *Elephants can determine ethnicity, gender, and age from acoustic cues in human voices*, Proceedings of the National Academy of Sciences, 111 (14): 5433-5438

⁹ <https://elephantvoices.org/elephant-sense-a-sociality-4/elephants-are-intelligent.html>

¹⁰ Plotnik, J.M., de Waal, F.B. M. & Reiss, D. 2006. Self-recognition in an Asian elephant. *Proceedings of the National Academy of Sciences of the USA* 103: 17053-17057; Simonet, P. M., Myers, L., Lamoureux, J., Quashnick, J., Jacobs, K., Willison. 2000, *Social and Cognitive Factors in Asian Elephant Mirror Behaviour and Self-Recognition*, Paper presented at the Animal Social Complexity & Intelligence, Chicago Academy of Sciences, August 23-26, 2000.

¹¹ https://www.sheldrickwildlifetrust.org/html/elephant_emotion.html

- They frequently display empathy in the form of protection, comfort and consolation, as well as by actively helping those in difficulty, such as assisting injured individuals to stand and walk, or helping calves out of rivers or ditches.¹²
- A cornerstone of normal human social function is the ability to detect and respond appropriately to the emotions of others, and the ability to empathize has long been considered a key component of what makes us different from other species.
- The general demeanour of elephants attending to a dead elephant is one of grief and compassion. These behaviours are similar to human responses to the death of a close relative or friend and demonstrate that elephants possess some understanding of life and the permanence of death.
- Elephants exhibit a variety of responses to dying or dead elephants and to elephants bones or tusks including touching with the trunk and feet, attempted lifting and carrying of the body or bones, feeding, body guarding, covering and burying the dead body.¹³

6. Individuality

- Elephants have strong individual personalities that affect how they interact with other elephants, how others perceive them, and how well they are able to influence members of their group. For example, some elephants are popular while others are not. Some elephants show strong leadership qualities, some are highly social while others are less social.¹⁴

¹² Bates L.A., P.C. Lee, N. Njirau, J.H. Poole, K. Sayialel, S. Sayialel, C.J. Moss & R.W. Byrne (2008b) "Do elephants show empathy?", *Journal of Consciousness Studies* 15 (10-11): 204-225

¹³ Douglas-Hamilton, I., Bhalla, S., Wittemyer, G., Vollrath, F. 2006, *Behavioral reactions of elephants towards a dying and deceased matriarch*, *Applied Animal Behavior Science*

¹⁴<https://elephantvoices.org/elephant-sense-a-sociality-4/elephants-are-socially-complex.html>;
https://www.sheldrickwildlifetrust.org/html/elephant_emotion.html

The uncontroverted scientific evidence demonstrates that elephants are autonomous and that they value their liberty in ways similar to humans. The current legal protection with no recognition of inherent value and rights of elephants is thus glaringly unjust. The disregard and contempt for rights of elephants have resulted in barbarous and unjustifiable atrocities being committed on them with utter neglect towards the suffering of these magnificent living beings. It further necessitates the recognition and enforcement of basic rights for elephant such as right to a dignified life and bodily liberty which elephants inherently deserve while equally inheriting this world with other living beings and being stakeholders in the future of our planet.

Federation of Indian Animal Protection Organisations (FIAPO) is India's apex animal rights organisation. Created for the movement, by the movement, FIAPO is India's only federation with more than 80 members and over 200 supporter organisations nationally.