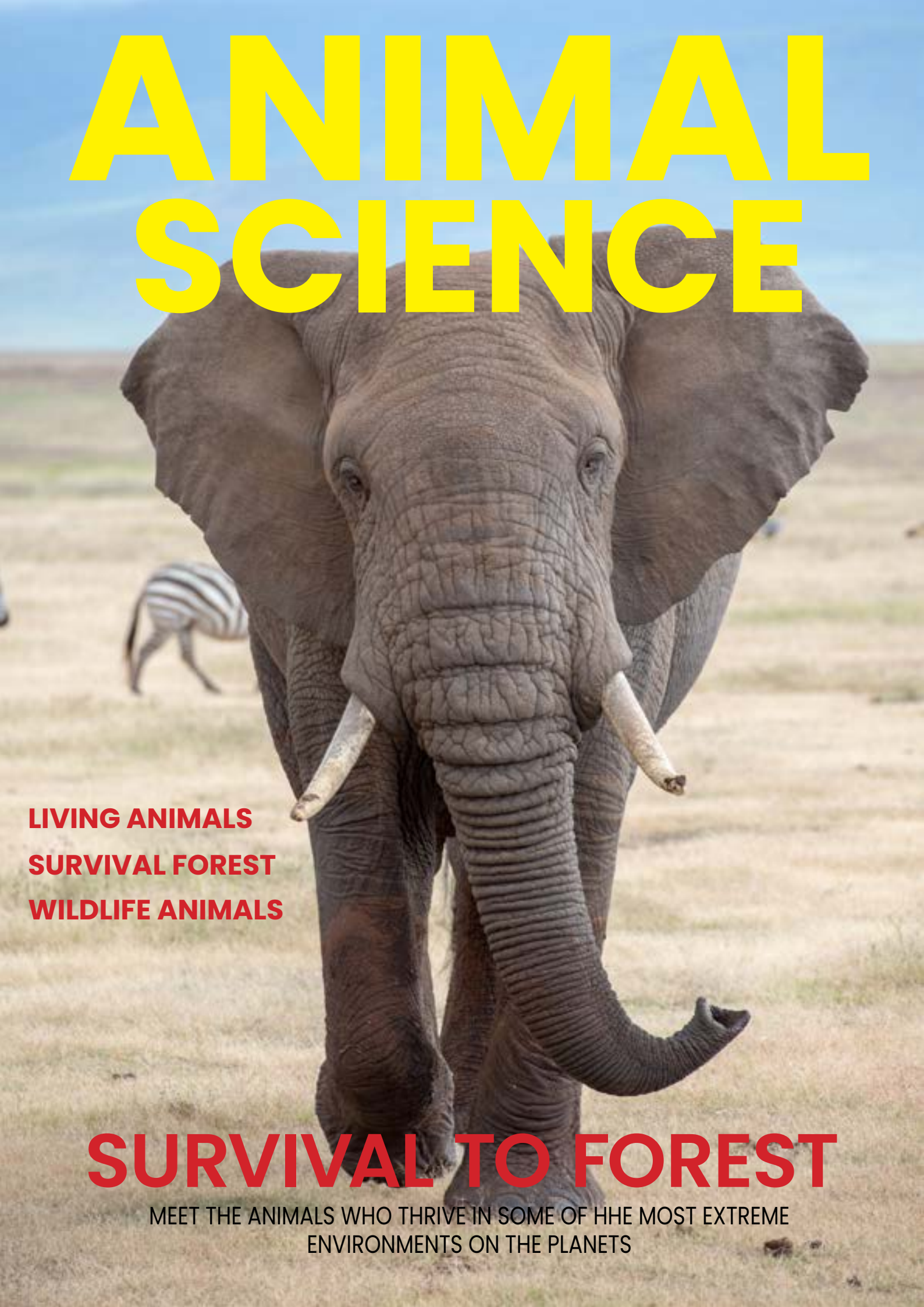
ANIMAL SCIENCE



LIVING ANIMALS

SURVIVAL FOREST

WILDLIFE ANIMALS

SURVIVAL TO FOREST

MEET THE ANIMALS WHO THRIVE IN SOME OF HHE MOST EXTREME ENVIRONMENTS ON THE PLANETS

Elephant, (family Elephantidae), largest living land animal, characterized by its long trunk (elongated upper lip and nose), columnar legs, and huge head with temporal glands and wide, flat ears. Elephants are grayish to brown in colour, and their body hair is sparse and coarse. They are found most often in savannas, grasslands, and forests but occupy a wide range of habitats, including deserts, swamps, and highlands in tropical and subtropical regions of Africa and Asia.

African elephant

The African savanna, or bush, elephant (Loxodonta africana) weighs up to 8,000 kg (9 tons) and stands 3 to 4 metres (10 to 13 feet) at the shoulder. The African forest elephant (Loxodonta cyclotis), which lives in rainforests, was recognized as a separate species in 2000 and is smaller than the savanna elephant. It has slender, downward-pointing tusks. The common belief that there existed “pygmy” and “water” elephants has no basis; they are probably varieties of the African forest elephants.

Form and function

The trunk (proboscis)

African savanna elephant

The trunk, or proboscis, of the elephant is one of the most versatile organs to have evolved among mammals. This structure is unique to members of the order Proboscidea, which includes the extinct mastodons and mammoths. Anatomically, the trunk is a combination of the upper lip and nose; the nostrils are located at the tip. The trunk is large and powerful, weighing about 130 kg (290 pounds) in an adult male and capable of lifting a load of about 250 kg. However, it is also extremely dexterous, mobile, and sensitive, which makes it appear almost independent of the rest of the animal. The proboscis comprises 16 muscles. A major muscle covering the top and sides functions to raise the trunk; another covers the bottom. Within the trunk is an extremely complex network of radiating and transverse muscle fascicles that provide fine movement. A total of nearly 150,000 muscle fascicles have been counted in cross sections of trunk. The trunk is innervated by two proboscidean nerves, which render it extremely sensitive. Bifurcations of this nerve reach most portions of the trunk, especially the tip, which is equipped with tactile bristles at regular intervals. At the end of the trunk are flaplike projections enabling it to perform amazingly delicate functions, such as picking up a coin from a flat surface or cracking a peanut open, blowing away the shell, and putting the kernel in the mouth. African elephants have two such extremities (one above and one below); Asian elephants have one. An Asian elephant most often curls the tip of its trunk around an item and picks it up in a method called the “grasp,” whereas the African elephant uses the “pinch,” picking up objects in a manner similar to that of a human’s use of the thumb and index finger. The trunk of the African elephant may be more extendable, but that of the Asian elephant is probably more dexterous..

Asian elephant

The Asian elephant (Elephas maximus) weighs about 5,500 kg and has a shoulder height of up to 3.5 metres. The Asian elephant includes three subspecies: the Indian, or mainland (E. maximus indicus), the Sumatran (E. maximus sumatranus), and the Sri Lankan (E. maximus maximus). African elephants have much larger ears, which are used to dissipate body heat.

Elephants use the trunk like a hand in other ways as well. Tool use in elephants involves holding branches and scratching themselves in places that the trunk and tail cannot reach. Large branches are sometimes wielded, and objects may be thrown in threat displays. When elephants meet, one may touch the face of the other, or they will intertwine trunks. This “trunk-shake” can be compared to a human handshake in that it may be associated with similar functions such as assurance and greeting or as a way of assessing strength.

African savanna elephant feeding,Breathing, drinking, and eating are all vital functions of the trunk. Most breathing is performed through the trunk rather than the mouth. Elephants drink by sucking as much as 10 litres (2.6 gallons) of water into the trunk and then squirting it into the mouth. They eat by detaching grasses, leaves, and fruit with the end of the trunk and using it to place this vegetation into the mouth. The trunk is also used to collect dust or grass for spraying onto themselves, presumably for protection against insect bites and the sun. If danger is suspected, elephants raise and swivel the trunk as if it were “an olfactory periscope,” possibly sniffing the air for information.

Sound production and water storage

Elephants produce two types of vocalization by modifying the size of the nostrils as air is passed through the trunk. Low sounds are the growl, rolling growl, snort, and roar; high sounds are the trump, trumpet, pulsated trumpet, trumpet phrase, bark, gruff cry, and cry. Rumbling sounds initially thought to be caused by intestinal activity are now known to be produced by the voice box (larynx) and are considered to be similar to purring in cats. that supports the tongue and the voice box . In addition, the sprayed liquid contains small food particles commonly found in the pharyngeal pouch, as opposed to digested food from the stomach.

Finally, repeated field observations attest that elephants can spray themselves while walking or running. As it would be difficult to suck liquid from the stomach while running, the most likely explanation for the liquid’s source is the pharyngeal pouch. Another possible function of the pouch is heat absorption, especially from the sensitive brain area above it.

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