

= Sumatran rhinoceros =

The Sumatran rhinoceros, also known as the hairy rhinoceros or Asian two-horned rhinoceros (*Dicerorhinus sumatrensis*), is a rare member of the family Rhinocerotidae and one of five extant rhinoceroses. It is the only extant species of the genus *Dicerorhinus*. It is the smallest rhinoceros, although it is still a large mammal; it stands 112–145 cm (3–4 ft) high at the shoulder, with a head-and-body length of 2–3 m (7–10 ft) and a tail of 35–70 cm (14–28 in). The weight is reported to range from 500 to 1,000 kg (1,000 to 2,000 lb), averaging 700–800 kg (1,500–1,800 lb), although there is a single record of a 2,000 kg (4,400 lb) specimen. Like both African species, it has two horns; the larger is the nasal horn, typically 15–25 cm (5–9 in), while the other horn is typically a stub. A coat of reddish-brown hair covers most of the Sumatran rhino's body.

Members of the species once inhabited rainforests, swamps, and cloud forests in India, Bhutan, Bangladesh, Myanmar, Laos, Thailand, Malaysia, Indonesia, and China. In historical times, they lived in southwest China, particularly in Sichuan. They are now critically endangered, with only five substantial populations in the wild: four on Sumatra and one on Borneo. Their numbers are difficult to determine because they are solitary animals that are widely scattered across their range, but they are estimated to number fewer than 100. Survival of the Peninsular Malaysia population is in doubt, and one of the Sumatran populations may already be extinct. Total numbers today may be as low as 80. In 2015, researchers announced that the Bornean rhinoceros had become extinct from the northern part of Borneo (Sabah, Malaysia); however, a new population was discovered in East Kalimantan in early 2016.

The Sumatran rhino is a mostly solitary animal except for courtship and offspring-rearing. It is the most vocal rhino species and also communicates through marking soil with its feet, twisting saplings into patterns, and leaving excrement. The species is much better studied than the similarly reclusive Javan rhinoceros, in part because of a program that brought 40 Sumatran rhinos into captivity with the goal of preserving the species. The program was considered a disaster even by its initiator; most of the rhinos died and no offspring were produced for nearly 20 years, representing an even worse population decline than in the wild. In March 2016, a Sumatran rhinoceros was spotted in Indonesian Borneo.

= = Taxonomy and naming = =

The first documented Sumatran rhinoceros was shot 16 km (9–9 mi) outside Fort Marlborough, near the west coast of Sumatra, in 1793. Drawings of the animal, and a written description, were sent to the naturalist Joseph Banks, then president of the Royal Society of London, who published a paper on the specimen that year. In 1814, the species was given a scientific name by Johann Fischer von Waldheim, a German scientist and curator of the State Darwin Museum in Moscow, Russia.

The scientific name *Dicerorhinus sumatrensis* comes from the Greek terms *di* (??, meaning "two"), *cero* (????, meaning "horn"), and *rhinos* (????, meaning "nose"). *Sumatrensis* signifies "of Sumatra", the Indonesian island where the rhinos were first discovered. Carl Linnaeus originally classified all rhinos in the genus, *Rhinoceros*; therefore, the species was originally identified as *Rhinoceros sumatrensis* or *sumatranus*. Joshua Brookes considered the Sumatran rhinoceros, with its two horns, a distinct genus from the one-horned *Rhinoceros*, and gave it the name *Didermoceros* in 1828. Constantin Wilhelm Lambert Gloger proposed the name *Dicerorhinus* in 1841. In 1868, John Edward Gray proposed the name *Ceratorhinus*. Normally, the oldest name would be used, but a 1977 ruling by the International Commission on Zoological Nomenclature established the proper genus name as *Dicerorhinus*.

The three subspecies are:

D. s. sumatrensis, known as the Western Sumatran rhinoceros, which has only 75 to 85 rhinos remaining, mostly in the national parks of Bukit Barisan Selatan and Gunung Leuser in Sumatra,

but also in Way Kambas National Park in small numbers . They have recently gone extinct in Peninsular Malaysia . The main threats against this subspecies are habitat loss and poaching . A slight genetic difference is noted between the Western Sumatran and Bornean rhinos . The rhinos in the Malaysian Peninsular were once known as *D. s. niger* , but were later recognized to be a synonym of *D. s. sumatrensis* . Three males and four females currently live in captivity at the Sumatran Rhino Sanctuary at Way Kambas , the youngest male having been bred and born there in 2012 . Another calf , a female , was born at the sanctuary in May 2016 . The sanctuary 's two males were born at the Cincinnati Zoo and Botanical Garden .

D. s. harrissoni , known as the Bornean Rhinoceros or Eastern Sumatran rhinoceros , which was once common throughout Borneo ; now , only about 15 individuals are estimated to survive . The known population lives in East Kalimantan , with them having recently gone extinct in Sabah . Reports of animals surviving in Sarawak are unconfirmed . This subspecies is named after Tom Harrisson , who worked extensively with Bornean zoology and anthropology in the 1960s . The Bornean subspecies is markedly smaller than the other two . The captive population consists of one male and two females at the Borneo Rhinoceros Sanctuary in Sabah .

D. s. lasiotis , known as the Northern Sumatran rhinoceros or Chittagong rhinoceros , which once roamed India and Bangladesh , but has been declared extinct in these countries . Unconfirmed reports suggest a small population may still survive in Burma , but the political situation in that country has prevented verification . The name *lasiotis* is derived from the Greek for " hairy @-@ ears " . Later studies showed that their ear @-@ hair was not longer than other Sumatran rhinos , but *D. s. lasiotis* remained a subspecies because it was significantly larger than the other subspecies .

== Evolution ==

Ancestral rhinoceroses first diverged from other perissodactyls in the Early Eocene . Mitochondrial DNA comparison suggests the ancestors of modern rhinos split from the ancestors of Equidae around 50 million years ago . The extant family , the Rhinocerotidae , first appeared in the Late Eocene in Eurasia , and the ancestors of the extant rhino species dispersed from Asia beginning in the Miocene .

The Sumatran rhinoceros is considered the least derived of the extant species , as it shares more traits with its Miocene ancestors . Paleontological evidence in the fossil record dates the genus *Dicerorhinus* to the Early Miocene , 23 ? 16 million years ago . Many fossils have been classified as members of *Dicerorhinus* , but no other recent species are in the genus . Molecular dating suggests the split of *Dicerorhinus* from the four other extant species as far back as 25 @. @ 9 ± 1 @. @ 9 million years . Three hypotheses have been proposed for the relationship between the Sumatran rhinoceros and the other living species . One hypothesis suggests the Sumatran rhinoceros is closely related to the black and white rhinos in Africa , evidenced by the species having two horns , instead of one . Other taxonomists regard the Sumatran rhinoceros as a sister taxon of the Indian and Javan rhinoceros because their ranges overlap so closely . A third hypothesis , based on more recent analyses , however , suggests that the two African rhinos , the two Asian rhinos , and the Sumatran rhinoceros represent three essentially separate lineages that split around 25 @. @ 9 million years ago ; which group diverged first remains unclear .

Because of morphological similarities , the Sumatran rhinoceros is believed to be closely related to the extinct woolly rhinoceros (*Coelodonta antiquitatis*) . The woolly rhinoceros , so named for the coat of hair it shares with the Sumatran rhinoceros , first appeared in China ; by the Upper Pleistocene , it ranged across the Eurasian continent from Korea to Spain . The woolly rhinoceros survived the last Ice Age , but , like the woolly mammoth , most or all became extinct around 10 @, @ 000 years ago . Although some morphological studies questioned the relationship , recent molecular analysis has supported the two species as sister taxa .

== Description ==

A mature Sumatran rhino stands about 120 ? 145 cm (3 @. @ 94 ? 4 @. @ 76 ft) high at the shoulder , has a body length of around 250 cm (8 @. @ 2 ft) , and weighs 500 ? 800 kg (1 @, @ 100 ? 1 @, @ 800 lb) , though the largest individuals in zoos have been known to weigh as much as 2 @, @ 000 kilograms (4 @, @ 400 lb) . Like the African species , it has two horns . The larger is the nasal horn , typically only 15 ? 25 cm (5 @. @ 9 ? 9 @. @ 8 in) , though the longest recorded specimen was much longer at 81 cm (32 in) . The posterior horn is much smaller , usually less than 10 cm (3 @. @ 9 in) long , and often little more than a knob . The larger nasal horn is also known as the anterior horn ; the smaller posterior horn is known as the frontal horn . The horns are dark grey or black in color . The males have larger horns than the females , though the species is not otherwise sexually dimorphic . The Sumatran rhino lives an estimated 30 ? 45 years in the wild , while the record time in captivity is a female *D. lasiotis* , which lived for 32 years and 8 months before dying in the London Zoo in 1900 .

Two thick folds of skin encircle the body behind the front legs and before the hind legs . The rhino has a smaller fold of skin around its neck . The skin itself is thin , 10 ? 16 mm (0 @. @ 39 ? 0 @. @ 63 in) , and in the wild , the rhino appears to have no subcutaneous fat . Hair can range from dense (the most dense hair in young calves) to scarce , and is usually a reddish @-@ brown . In the wild , this hair is hard to observe because the rhinos are often covered in mud . In captivity , however , the hair grows out and becomes much shaggier , likely because of less abrasion from walking through vegetation . The rhino has a patch of long hair around its ears and a thick clump of hair at the end of its tail . Like all rhinos , they have very poor vision . The Sumatran rhinoceros is fast and agile ; it climbs mountains easily and comfortably traverses steep slopes and riverbanks .

= = Distribution and habitat = =

The Sumatran rhinoceros lives in both lowland and highland secondary rainforest , swamps , and cloud forests . It inhabits hilly areas close to water , particularly steep upper valleys with copious undergrowth . The Sumatran rhinoceros once inhabited a continuous range as far north as Burma , eastern India , and Bangladesh . Unconfirmed reports also placed it in Cambodia , Laos , and Vietnam . All known living animals occur in Peninsular Malaysia , the island of Sumatra , and Sabah , Borneo . Some conservationists hope Sumatran rhinos may still survive in Burma , though it is considered unlikely . Political turmoil in Burma has prevented any assessment or study of possible survivors . The last reports of stray animals from Indian limits were in 1990s .

The Sumatran rhino is widely scattered across its range , much more so than the other Asian rhinos , which has made it difficult for conservationists to protect members of the species effectively . Only five areas are known to contain Sumatran rhinoceros : Bukit Barisan Selatan National Park , Gunung Leuser National Park , and Way Kambas National Park on Sumatra ; Danum Valley in Sabah , Malaysia , on the island of Borneo , and on Indonesian Borneo west of Samarindah .

The Kerinci Seblat National Park , Sumatra 's largest , was estimated to contain a population of around 500 rhinos in the 1980s , but due to poaching , this population is now considered extinct . The survival of any animals in Peninsula Malaysia is extremely unlikely .

Genetic analysis of Sumatran rhino populations has identified three distinct genetic lineages . The channel between Sumatra and Malaysia was not as significant a barrier for the rhinos as the Barisan Mountains along the length of Sumatra , for rhinos in eastern Sumatra and Peninsular Malaysia are more closely related than the rhinos on the other side of the mountains in western Sumatra . In fact , the eastern Sumatra and Malaysia rhinos show so little genetic variance , the populations were likely not separate during the Pleistocene , when sea levels were much lower and Sumatra formed part of the mainland . Both populations of Sumatra and Malaysia , however , are close enough genetically that interbreeding would not be problematic . The rhinos of Borneo are sufficiently distinct that conservation geneticists have advised against crossing their lineages with the other populations . Conservation geneticists have recently begun to study the diversity of the gene pool within these populations by identifying microsatellite loci . The results of initial testing found levels of variability within Sumatran rhino populations comparable to those in the population of the less endangered African rhinos , but the genetic diversity of Sumatran rhinos is an area of continuing study .

Although the rhino had been thought to be extinct in Kalimantan since the 1990s , in March 2013 World Wildlife Fund (WWF) announced that the team when monitoring orangutan activity found in West Kutai Regency , East Kalimantan , several fresh rhino foot trails , mud holes , traces of rhino @-@ rubbed trees , traces of rhino horns on the walls of mud holes , and rhino bites on small branches . The team also identified that rhinos ate more than 30 species of plants . On 2 October 2013 , video images made with camera traps showing the Sumatran rhino in Kutai Barat , Kalimantan , were released by the World Wildlife Fund . Experts assume the videos show two different animals , but aren 't quite certain . According to the Indonesia 's Minister of Forestry , Zulkifli Hasan called the video evidence " very important " and mentioned Indonesia 's " target of rhino population growth by three percent per year " . On 22 March 2016 it was announced by the WWF that a live Sumatran Rhino was found in Kalimantan ; it was the first contact in over 40 years . The rhino , a female , is being transported to a nearby sanctuary .

= = Behaviour = =

Sumatran rhinoceroses are solitary creatures except for pairing before mating and during offspring rearing . Individuals have home ranges ; bulls have territories as large as 50 km² (19 sq mi) , whereas females ' ranges are 10 ? 15 km² (3 @.@ 9 ? 5 @.@ 8 sq mi) . The ranges of females appear to be spaced apart ; males ' ranges often overlap . No evidence indicates Sumatran rhinos defend their territories through fighting . Marking their territories is done by scraping soil with their feet , bending saplings into distinctive patterns , and leaving excrement . The Sumatran rhino is usually most active when eating , at dawn , and just after dusk . During the day , they wallow in mud baths to cool down and rest . In the rainy season , they move to higher elevations ; in the cooler months , they return to lower areas in their range . When mud holes are unavailable , the rhino will deepen puddles with its feet and horns . The wallowing behaviour helps the rhino maintain its body temperature and protect its skin from ectoparasites and other insects . Captive specimens , deprived of adequate wallowing , have quickly developed broken and inflamed skins , suppurations , eye problems , inflamed nails , and hair loss , and have eventually died . One 20 @-@ month study of wallowing behavior found they will visit no more than three wallows at any given time . After two to 12 weeks using a particular wallow , the rhino will abandon it . Typically , the rhino will wallow around midday for two to three hours at a time before venturing out for food . Although in zoos the Sumatran rhino has been observed wallowing less than 45 minutes a day , the study of wild animals found 80 ? 300 minutes (an average of 166 minutes) per day spent in wallows .

There has been little opportunity to study epidemiology in the Sumatran rhinoceros . Ticks and gyrostigma were reported to cause deaths in captive animals in the 19th century . The rhino is also known to be vulnerable to the blood disease surra , which can be spread by horse @-@ flies carrying parasitic trypanosomes ; in 2004 , all five rhinos at the Sumatran Rhinoceros Conservation Centre died over an 18 @-@ day period after becoming infected by the disease . The Sumatran rhino has no known predators other than humans . Tigers and wild dogs may be capable of killing a calf , but calves stay close to their mothers , and the frequency of such killings is unknown . Although the rhino 's range overlaps with elephants and tapirs , the species do not appear to compete for food or habitat . Elephants (*Elephas maximus*) and Sumatran rhinos are even known to share trails , and many smaller species such as deer , boars , and wild dogs will use the trails the rhinos and elephants create .

The Sumatran rhino maintains trails across its range . These trails fall into two types . Main trails will be used by generations of rhinos to travel between important areas in the rhino 's range , such as between salt licks , or in corridors through inhospitable terrain that separates ranges . In feeding areas , the rhinos will make smaller trails , still covered by vegetation , to areas containing food the rhino eats . Sumatran rhino trails have been found that cross rivers deeper than 1 @.@ 5 m (4 @.@ 9 ft) and about 50 m (160 ft) across . The currents of these rivers are known to be strong , but the rhino is a strong swimmer . A relative absence of wallows near rivers in the range of the Sumatran rhinoceros indicates they may occasionally bathe in rivers in lieu of wallowing .

== = Diet = = =

Most feeding occurs just before nightfall and in the morning . The Sumatran rhino is a browser , with a diet of young saplings , leaves , fruits , twigs , and shoots . The rhinos usually consume up to 50 kg (110 lb) of food a day . Primarily by measuring dung samples , researchers have identified more than 100 food species consumed by the Sumatran rhinoceros . The largest portion of the diet is tree saplings with a trunk diameter of 1 ? 6 cm (0 @. @ 5 ? 2 @. @ 5 in) . The rhinoceros typically pushes these saplings over with its body , walking over the sapling without stepping on it , to eat the leaves . Many of the plant species the rhino consumes exist in only small portions , which indicates the rhino is frequently changing its diet and feeding in different locations . Among the most common plants the rhino eats are many species from the Euphorbiaceae , Rubiaceae , and Melastomataceae families . The most common species the rhino consumes is *Eugenia* .

The vegetal diet of the Sumatran rhinoceros is high in fiber and only moderate in protein . Salt licks are very important to the nutrition of the rhino . These licks can be small hot springs , seepages of salty water , or mud @-@ volcanoes . The salt licks also serve an important social purpose for the rhinos ? males visit the licks to pick up the scent of females in oestrus . Some Sumatran rhinos , however , live in areas where salt licks are not readily available , or the rhinos have not been observed using the licks . These rhinos may get their necessary mineral requirements by consuming plants rich in minerals .

== = Communication = = =

The Sumatran rhinoceros is the most vocal of the rhinoceros species . Observations of the species in zoos show the animal almost constantly vocalizing , and it is known to do so in the wild , as well . The rhino makes three distinct noises : eeps , whales , and whistle @-@ blows . The eep , a short , one @-@ second @-@ long yelp , is the most common sound . The whale , named for its similarity to vocalizations of the humpback whale , is the most song @-@ like vocalization and the second @-@ most common . The whale varies in pitch and lasts from four to seven seconds . The whistle @-@ blow is named because it consists of a two @-@ second @-@ long whistling noise and a burst of air in immediate succession . The whistle @-@ blow is the loudest of the vocalizations , loud enough to make the iron bars in the zoo enclosure where the rhinos were studied vibrate . The purpose of the vocalizations is unknown , though they are theorized to convey danger , sexual readiness , and location , as do other ungulate vocalizations . The whistle @-@ blow could be heard at a great distance , even in the dense brush in which the Sumatran rhino lives . A vocalization of similar volume from elephants has been shown to carry 9 @. @ 8 km (6 @. @ 1 mi) and the whistle @-@ blow may carry as far . The Sumatran rhinoceros will sometimes twist the saplings they do not eat . This twisting behavior is believed to be used as a form of communication , frequently indicating a junction in a trail .

== = Reproduction = = =

Females become sexually mature at the age of six to seven years , while males become sexually mature at about 10 years old . The gestation period is around 15 ? 16 months . The calf , which typically weighs 40 ? 60 kg (88 ? 132 lb) , is weaned after about 15 months and stays with its mother for the first two to three years of its life . In the wild , the birth interval for this species is estimated to be four to five years ; its natural offspring @-@ rearing behavior is unstudied .

The reproductive habits of the Sumatran rhinoceros have been studied in captivity . Sexual relationships begin with a courtship period characterized by increased vocalization , tail raising , urination , and increased physical contact , with both male and female using their snouts to bump the other in the head and genitals . The pattern of courtship is most similar to that of the black rhinoceros . Young Sumatran rhino males are often too aggressive with females , sometimes injuring and even killing them during the courtship . In the wild , the female could run away from an overly aggressive male , but in their smaller captive enclosures , they cannot ; this inability to escape

aggressive males may partly contribute to the low success rate of captive @-@ breeding programs .

The period of oestrus itself , when the female is receptive to the male , lasts about 24 hours , and observations have placed its recurrence between 21 and 25 days . Rhinos in the Cincinnati Zoo have been observed copulating for 30 ? 50 minutes , similar in length to other rhinos ; observations at the Sumatran Rhinoceros Conservation Centre in Malaysia have shown a briefer copulation cycle . As the Cincinnati Zoo has had successful pregnancies , and other rhinos also have lengthy copulatory periods , a lengthy rut may be the natural behavior . Though researchers observed successful conceptions , all these pregnancies ended in failure for a variety of reasons until the first successful captive birth in 2001 ; studies of these failures at the Cincinnati Zoo discovered the Sumatran rhino 's ovulation is induced by mating and it had unpredictable progesterone levels . Breeding success was finally achieved in 2001 , 2004 , and 2007 by providing a pregnant rhino with supplementary progestin . Recently , a calf was born in captivity of an endangered female in western Indonesia , only the fifth such birth in one and a quarter century .

= = Conservation = =

Sumatran rhinoceroses were once quite numerous throughout Southeast Asia . Fewer than 100 individuals are now estimated to remain . The species is classed as critically endangered (primarily due to illegal poaching) while the last survey in 2008 estimated that around 250 individuals survived . Until the early 1990s , the population decline was estimated at more than 50 % per decade , and the small , scattered populations now face high risks of inbreeding depression . Most remaining habitat is in relatively inaccessible mountainous areas of Indonesia .

Poaching of Sumatran rhinoceros is a cause for concern , as the price of its horn has been estimated as high as US \$ 30 @,@ 000 per kilogram . This species has been overhunted for many centuries , leading to the current greatly reduced ? and still declining ? population . The rhinos are difficult to observe and hunt directly (one field researcher spent seven weeks in a treehide near a salt lick without ever observing a rhino directly) , so poachers make use of spear traps and pit traps . In the 1970s , uses of the rhinoceros 's body parts among the local people of Sumatra were documented , such as the use of rhino horns in amulets and a folk belief that the horns offer some protection against poison . Dried rhinoceros meat was used as medicine for diarrhea , leprosy , and tuberculosis . " Rhino oil " , a concoction made from leaving a rhino 's skull in coconut oil for several weeks , may be used to treat skin diseases . The extent of use and belief in these practices is not known . Rhinoceros horn was once believed to be widely used as an aphrodisiac ; in fact traditional Chinese medicine never used it for this purpose . Nevertheless , hunting in this species has primarily been driven by a demand for rhino horns with supposedly medicinal properties .

The rainforests of Indonesia and Malaysia , which the Sumatran rhino inhabits , are also targets for legal and illegal logging because of the desirability of their hardwoods . Rare woods such as merbau , meranti and semaram are valuable on the international markets , fetching as much as \$ 1 @,@ 800 per m³ (\$ 1 @,@ 375 per cu yd) . Enforcement of illegal @-@ logging laws is difficult because humans live within or near many of the same forests as the rhino . The 2004 Indian Ocean earthquake has been used to justify new logging . Although the hardwoods in the rainforests of the Sumatran rhino are destined for international markets and not widely used in domestic construction , the number of logging permits for these woods has increased dramatically because of the tsunami . However , while this species has been suggested to be highly sensitive to habitat disturbance , apparently it is of little importance compared to hunting , as it can withstand more or less any forest condition .

The Bornean rhino in Sabah was confirmed to be extinct in the wild in April 2015 , with only 3 individuals left in captivity .

The mainland Sumatran rhino in Malaysia was confirmed to be extinct in the wild in August 2015 .

In March 2016 there was a rare sighting of a Sumatran Rhino in Kalimantan , the Indonesian part of Borneo . The last time there was a Sumatran Rhino in the Kalimantan area was approximately 40 years ago . This optimism was met with despair as that very specific Sumatran Rhino was found

dead several weeks later after the sighting . The reason of the death is currently unknown .

= = = In captivity = = =

Sumatran rhinoceroses do not thrive outside of their ecosystem . The London Zoo acquired a male and female in 1872 that had been captured in Chittagong in 1868 . The female named " Begum " survived until 1900 , the record lifetime for a captive rhino . Begum was one of at least seven specimens of the extinct subspecies *D. s. lasiotis* that were held in zoos and circuses . In 1972 , Subur , the only Sumatran rhino remaining in captivity , died at the Copenhagen Zoo .

Despite the species ' persistent lack of reproductive success , in the early 1980s , some conservation organizations began a captive @-@ breeding program for the Sumatran rhinoceros . Between 1984 and 1996 , this ex situ conservation program transported 40 Sumatran rhinos from their native habitats to zoos and reserves across the world . While hopes were initially high , and much research was conducted on the captive specimens , by the late 1990s , not a single rhino had been born in the program , and most of its proponents agreed the program had been a failure . In 1997 , the IUCN 's Asian rhino specialist group , which once endorsed the program , declared it had failed " even maintaining the species within acceptable limits of mortality " , noting that , in addition to the lack of births , 20 of the captured rhinos had died . In 2004 , a surra outbreak at the Sumatran Rhinoceros Conservation Centre killed all the captive rhinos in Peninsular Malaysia , reducing the population of captive rhinos to eight .

Seven of these captive rhinos were sent to the United States (the other was kept in Southeast Asia) , but by 1997 , their numbers had dwindled to three : a female in the Los Angeles Zoo , a male in the Cincinnati Zoo , and a female in the Bronx Zoo . In a final effort , the three rhinos were united in Cincinnati . After years of failed attempts , the female from Los Angeles , Emi , became pregnant for the sixth time , with the zoo 's male Ipuh . All five of her previous pregnancies ended in failure . Researchers at the zoo had learned from previous failures , though , and with the aid of special hormone treatments , Emi gave birth to a healthy male calf named Andalas (an Indonesian literary word for Sumatra) in September 2001 . Andalas 's birth was the first successful captive birth of a Sumatran rhino in 112 years . A female calf , named " Suci " (Indonesian for " pure ") , followed on 30 July 2004 . On 29 April 2007 , Emi gave birth a third time , to her second male calf , named Harapan (Indonesian for " hope ") or Harry . In 2007 , Andalas , who had been living at the Los Angeles Zoo , was returned to Sumatra to take part in breeding programs with healthy females , leading to the siring and 23 June 2012 birth of male calf Andatu , the fourth captive @-@ born calf of the era ; Andalas had been mated with Ratu , a wild @-@ born female living in the Rhino Sanctuary at Way Kambas National Park .

Despite the recent successes in Cincinnati , the captive @-@ breeding program has remained controversial . Proponents argue that the zoos have aided the conservation effort by studying the reproductive habits , raising public awareness and education about the rhinos , and helping raise financial resources for conservation efforts in Sumatra . Opponents of the captive breeding program argue that the losses are too great ; the program is too expensive ; removing rhinos from their habitat , even temporarily , alters their ecological role ; and captive populations cannot match the rate of recovery seen in well @-@ protected native habitats . In October 2015 Harpan , the last rhino in the Western Hemisphere , left the Cincinnati Zoo to Indonesia .

= = Cultural depictions = =

Aside from those few individuals kept in zoos and pictured in books , the Sumatran rhinoceros has remained little known , overshadowed by the more common Indian , black and white rhinos . Recently , however , video footage of the Sumatran rhinoceros in its native habitat and in breeding centers has been featured in several nature documentaries . Extensive footage can be found in an Asia Geographic documentary *The Littlest Rhino* . Natural History New Zealand showed footage of a Sumatran rhino , shot by freelance Indonesian @-@ based cameraman Alain Compost , in the 2001 documentary *The Forgotten Rhino* , which featured mainly Javan and Indian rhinos .

Though they were documented by droppings and tracks , pictures of the Bornean rhinoceros were first taken and widely distributed by modern conservationists in April 2006 , when camera traps photographed a healthy adult in the jungles of Sabah in Malaysian Borneo . On 24 April 2007 , it was announced that cameras had captured the first @-@ ever video footage of a wild Bornean rhino . The night @-@ time footage showed the rhino eating , peering through jungle foliage , and sniffing the film equipment . The World Wildlife Fund , which took the video , has used it in efforts to convince local governments to turn the area into a rhino conservation zone . Monitoring has continued ; 50 new cameras have been set up , and in February 2010 , what appeared to be a pregnant rhino was filmed .

A number of folk tales about the Sumatran rhino were collected by colonial naturalists and hunters from the mid @-@ 19th century to early 20th century . In Burma , the belief was once widespread that the Sumatran rhino ate fire . Tales described the fire @-@ eating rhino following smoke to its source , especially campfires , and then attacking the camp . There was also a Burmese belief that the best time to hunt was every July , when the Sumatran rhinos would congregate beneath the full moon . In Malaya , it was said that the rhino 's horn was hollow and could be used as a sort of hose for breathing air and squirting water . In Malaya and Sumatra , it was once believed that the rhino shed its horn every year and buried it under the ground . In Borneo , the rhino was said to have a strange carnivorous practice : after defecating in a stream , it would turn around and eat fish that had been stupefied by the excrement .