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distributional ranges although they are not sympatric in all parts (Servheen *et al.*, 1999). Though both are rarely seen because of their secretive and solitary nature and their occurrence in dense forest habitats, they leave distinct signs, especially claw marks on climbed trees. The only way to differentiate the two bears is by their hind foot claw marks that are significantly bigger in Black bears though it always not applicable to young animal (Steinmetz and Garshelis, 2008).

Habitat: Inhabit a wide variety of habitats from coastal foothills to high altitudes up to 4,300 m (Prater, 1980) but prefers tropical moist mountain forests.

Distribution: In Bangladesh, occurs in forest patches in northeast, especially in Sreemangal area of Maulvibazar district and forested areas of Chittagong district and the Chittagong Hill Tracts (personal observation). Found in forests throughout much of southern Asia including Pakistan, Afghanistan, India, China, and Myanmar through south-east Asia to Japan. They are also known to be present in eastern Russia, Korea, and Taiwan.

Economic important: Hides and other body parts of bear have high demand for trophy value and for various products that are now subject to laws and regulation because of bear population decrease. Some of forest range people also eat their meat. Gall bladder is used in traditional medicine in many countries although this is prohibited.

Ecological role: As a fruit eater, it plays an important role in forest ecosystem by dispersing seeds of many important plants.

Status: It is considered Critically Endangered (CR) in Bangladesh (IUCN Bangladesh, 2000) and listed in CITES Appendix I. Globally considered Vulnerable (VU) (IUCN, 2008).

Remarks: Scientific name, *Ursus thibetanus*, literally means, *moon bear of Tibet*, and it is easily distinguishable by the crescent shaped area of white fur on its chest. The Asiatic Black Bears are much closer to American Black Bears but have a heavy, stocky body than the later. Their ears are also large and set far apart on their large, round head.

[Suprio Chakma]

Order **PERISSODACTYLA** Owen, 1848

(Horses, Rhinoceroses, and Tapirs)

Most species have three digits on hindfoot and three or four on forefoot, but in some only a single digit (the third) remains. Some species have horns, but these are dermal structures without bony cores, and are located on nasals or frontals in midline of skull. Contrasts with horns of artiodactyls, which have bone cores are paired and are located on the frontals. Anterior part of skull of perissodactyls is elongated and accommodates a full series of large cheek teeth (most have a total of 44 teeth). Molars and premolars hypsodont in grazing forms such as horses, and brachydont in browsers such as tapirs. Modern species are lophodont (complexly so in equids), in contrast to artiodactyls, which tend to be selenodont or bunodont. Perissodactyls have a simple stomach, in contrast to chambered structure of most artiodactyls. Now, all that remain are 3 living families, with 18 species in all (Carter, 1984).

Family **RHINOCEROTIDAE** Gray, 1821

(Rhinoceroses)

Rhinos have massive bodies and a large head with 1-2 horns. Horns dermal in origin; very solid and composed of compressed, fibrous keratin. Rhinos have a broad chest and short, stumpy legs. The radius/ulna and tibia/fibula are only slightly moveable, but well-developed and separate. Both hind and forefeet mesaxonic with 3 digits each; each digit with a small hoof. Eyes small and fairly short but prominent and erect ears. Thick skin scantily-haired and wrinkled, furrowed or pleated, producing appearance of riveted armor plates in some

species. Tail bears stiff bristles. An elongate skull, which is elevated posteriorly. A small braincase, and nasal bones project forward freely and may extend beyond and above premaxillae. Surface of nasals where the horns sit is roughened. A strongly developed occipital crest. Teeth 24-34, mostly premolars and molars for grinding. Dental formula: incisor 0/0; canine 0/0; premolar 3/3; molar 3/3 =24 to incisor 1/2; canine 0/1; premolar 4/3; molar 3/3= 36. Canines and incisors are vestigial except for lower incisors in Asian rhinos, which are developed into powerful slashing tusks (Nowak and Paradiso, 1983).

Genus *Dicerorhinus* Gloger 1841

Maximum shoulder height 1.45 m; body hair copious in young, largely disappearing with age; skull elongated anterior to orbit, shortened posteriorly; two horns, frontal placed some distance behind nasal, over eye or somewhat posterior; both with broad, rugose basal region, rapidly narrowing to short but slender stem region; no anterior groove on nasal horn; muzzle anterior and lateral to nasal horn heavily keratinized; nostrils with straight, immobile upper border; body-folds less pronounced than in *Rhinoceros*; and postscapular fold complete, passing over shoulder, and fold at base of forelimb also complete, but folds in posterior region of body incomplete, poorly developed (Groves and Kurt, 1972).

Dicerorhinus sumatrensis (Fischer, 1814)

Synonyms: *Rhinoceros sumatrensis* Fischer, 1814; *Rhinoceros sumatranus* Raffles, 1821; *Rhinoceros malayanus* Newman, 1874; *Ceratorhinus niger* Gray, 1873; *Ceratorhinus crossii* Gray, 1872; *Ceratorhinus blythii* Gray, 1873.

English names: Sumatran Rhinoceros, Asiatic Two-horned Rhinoceros, Hairy Rhinoceros.

Local names: Gandar, Gara.

Description: Body relatively short and stocky, and pillar-like legs are short. Two horns are found on the nose in both sexes, with the front horn growing larger than the rear. Larger nasal horn also known



Sumatran Rhinoceros (from xxxx www)

as anterior horn, smaller posterior horn as frontal horn. Males have larger horns than females, though species is not otherwise sexually dimorphic (Groves and Kurt, 1972; van Strien 1974; Huffman, 2009). Two thick folds of skin encircle the body behind the front legs and before the hind legs. This rhinoceros

has a smaller fold of skin around its neck. Skin is like leather with small, rough, polygonal grains but soles is strikingly soft and tender. Coarse grain of skin disappears little by little with wear. Facial skin is characteristically wrinkled in neighbourhood of eye, and the muzzle rounded and unwrinkled due to heavy keratinization. Unique among rhinos, Sumatran rhinoceros is covered with a conspicuous coat of coarse, reddish-brown hair. In wild, hair is hard to observe because rhinos are often covered in mud. In captivity, however, hair grows out and becomes much shaggier, likely because of less abrasion from walking through vegetation. A patch of long hair around ears and a thick clump of hair at the end of the tail. Like all rhinos, they have very poor vision. The upper lip is hooked and prehensile (Neuville, 1927; Huffman, 2009). **Colour:** horns are black (in the wild) or dark grey in colour. **Size:** a mature rhinoceros stands 120–145 cm high at shoulder, has a body length of around 250 cm and weighs 500–800 kg, though largest individuals in zoos have been known to weigh as much as 1,000 kg. Males' horns usually larger than those in females. Posterior horn much smaller, usually less than 10 cm long, and often little more than a knob. Skin itself is thin 1–1.6 cm (Neuville, 1927; Huffman, 2009).

Habits: The Sumatran Rhinoceros is fast and agile; it climbs mountains easily and comfortably traverses steep slopes and riverbanks. The Sumatran rhinoceros feeds just before dawn and after dusk

and moves during night. It is a browser and has a diet of young saplings, leaves, fruits, twigs, barks and shoots, and these animals are especially fond of wild mangoes, figs, and species of bamboo. Usually consume up to 50 kg of food a day. Saltlicks are very important to their nutrition. The saltlicks also serve an important social purpose for the males visit the licks to pick up the scent of females in oestrus. During day, it relaxes in mud wallows and ponds. Wallows are usually created by animals, with surrounding 10-35 meters kept clear, and used as a resting place. Seasonal movements have been recorded, with animals moving to higher elevations during rainy season, and down to valleys during cooler months. They can maneuver on steep slopes with skill, and can swim well-having been spotted venturing into surrounding sea. Sumatran rhinoceros is dependent on salt-licks, with populations living around the licks. Around one of these licks, the population density was 13-14 animals per square kilometer was noted. Home ranges of adult males average 50 sq km, with the edges overlapping extensively. Females have smaller ranges, with average size being 10-15 sq km. Both sexes mark their ranges with scrapes, excrement, and bent saplings. The Sumatran Rhinoceros is the most vocal of the rhinoceros species (Evans, 1904; Hubback, 1939; Huffman, 2009). Females become sexually mature at the age of 6-7 years, while males become sexually mature at about 10 years old. Gestation period around 15-16 months. The calf, which typically weighs 40-60 kg weaned after about 15 months and stays with mother for first 2-3 years of its life. In the wild, the birth interval for this species is estimated to be 4-5 years (Flower, 1931; Groves and Kurt, 1972; van Strien, 2005).

Habitat: Lives in both lowland and highland secondary rainforest, swamps and cloud forests. It inhabits mainly in hilly areas close to water, particularly steep upper valleys with a lot of undergrowth. The species occurs mainly in hilly areas nearby water sources, and exhibits seasonal movements, moving uphill in times of lowland flooding (Groves and Kurt, 1972; Nowak, 1999; van Strien *et al.*, 2008).

Distribution: The last survivor of this species in Bangladesh was caught in November 1867 (Hood, 1869; Mansion, 1876) or January 1868 (Dawkins *et al.*, 1883; Thomas, 1901) on the Sangu River near Chittagong. In recent times three subspecies of the Sumatran rhinoceros were reported from foothills of the Himalayas in Bhutan and north-eastern India, through southern China, Myanmar, Thailand, Cambodia, Laos, Vietnam and the Malay Peninsula, and onto the islands of Sumatra and Borneo in Indonesia (van Strien *et al.*, 2008). Out of three subspecies, *Dicerorhinus sumatrensis lasiotis* (Buckland 1872) occurred in different parts of Bangladesh. The subspecies *D. s. sumatrensis* (Fischer, 1814), known as the Western Sumatran Rhinoceros, currently occurs only in Sabah and Sarawak (Malaysia), Kalimantan (Indonesia), and on Peninsular Malaysia. *D. s. harrissoni* (Groves 1965), known as the Eastern Sumatran Rhinoceros or Bornean Rhinoceros, presently occurs only in parts of Sumatra and Peninsular Malaysia. The subspecies *D. s. lasiotis* (Buckland 1872), known as the Northern Sumatran Rhinoceros, formerly also occurred in India, Bhutan, and Myanmar. It is Regionally Extinct (RE) in Bangladesh, Bhutan and India, but there is a possibility that populations remain in northern Myanmar (van Strien *et al.*, 2008). Hence the present distribution of the Sumatran rhinoceros is Indonesia and Malaysia; possibly extinct from Myanmar; and Regionally Extinct (RE) from Bangladesh, Bhutan, Brunei, Cambodia, India, Laos, Thailand and Vietnam (van Strien *et al.*, 2008).

Ecological role: Some of the plants eaten by this rhinoceros are toxic to man, especially the nettle *Laportea microstigma*.

Status: The species is listed as Critically Endangered (CR) because its population size is estimated to number fewer than 250 mature individuals, with no subpopulation greater than 50 individuals, and it is experiencing a continuing decline (van Strien *et al.*, 2008). The species has been included on CITES Appendix I since 1975, and legally protected in all range states (van Strien *et al.*, 2008).

Remarks: The Sumatran Rhino lives an estimated 30–45 years in the wild, while the record time in captivity is a female rhinoceros that lived for 32 years and 8 months before dying in the London Zoo in 1900. She was then considered adult or at least 2 years old. This female rhinoceros was named as Begum. Begum was ultimately brought to England, and sold to the Zoological Society for £1250. The type specimen of *D. s. lasiotis* was described soon after the animal arrived in Regent's Park from British India in February 1872. Type locality of this subspecies was the place of capture (Harper, 1945). This specimen lived in the London Zoo from February 1872 until 31 August 1900. Its age at death

was 32 years and eight months (Anderson, 1872; Sclater, 1872; Thomas, 1901). However, this rhinoceros is not only known from the Chittagong Hill Tracts (Sclater, 1872; Talbot, 1960; Grubb, 2005), but also from Chittagong district (Pollock, 1879; Baker, 1887; Harper, 1945; Gee, 1950). In 1967 a Sumatran rhinoceros was killed near Cox's Bazar (Choudhury, 1997). In February 1876 a male two-horned rhinoceros was killed 20 miles south of Comilla (Mansion, 1876; Flower and Garson, 1884). The head of the latter specimen is preserved in the Museum of the Royal College of Surgeons of London until its destruction during the second world war.

[Ghazi S M Asmat]

Genus *Rhinoceros* Linnaeus, 1758

Forms with thick skin and scanty hair; radius and ulna, tibia and fibula complete; manus and pes tridactyle; orbits incomplete; canines absent; one or two coreless epidermic mesial horns on snout formed of fused hair (Sclater, 1891).

Rhinoceros sondaicus Desmarest, 1822

Synonyms: *Rhinoceros javanicus* Cuvier, 1824; *Rhinoceros floweri* Gray, 1867.

English names: Javan Rhinoceros, Lesser One-horned Rhinoceros, Sondaic Rhinoceros of the Sundarbans.

Local names: Gandar, Gara.

Description: In appearance, the Javan Rhinoceros is closest to the Indian rhinoceros by having a single horn and skin folds that make them look armor



Javan Rhinoceros (from www)

plated, but there are distinct differences in their size, neck folds, and skin textures. The Javan Rhinoceros has heavier skin, and long pointed upper lips which help in grabbing food. Its lower incisors are long and sharp; when the Javan Rhino fights it uses these

teeth. Behind the incisors, two rows of six low-crowned molars are used for chewing coarse plants. The skin has a number of loose folds giving the appearance of armour plating. The neck folds of the Javan rhino are smaller than those of the Indian rhino, but still forms a kind of saddle on the neck. Each foot ends in three hooved toes. It is known for having poor eyesight, but it has keen senses of smell and hearing—despite having smaller ears than other rhinoceros. **Colour:** skin dusky-grey, smooth and covered with a mosaic of scales 1 to 4 cm in diameter. **Size:** head-body length 3.1–3.2 m, and it can reach a height of 1.4–1.7 m; tail 70 cm. Adults are variously reported to weigh between 900 and 2,300 kg. Only a male has a prominent horn, seldom longer than 25 cm long, with the longest recorded only 27 cm, while the female has a lump similar to a halved coconut, or no horn at all. It is smaller than Indian Rhinoceros (Waters, 2000; Dinerstein, 2003).

Habits: It does not often use its horn for fighting, uses it more to scrape mud away in wallows, to pull down plants for eating, and to open paths through thick vegetation. The upper lip is pointed and prehensile (flexible or finger-like), used to grasp food and bring it to the mouth. The home range of females

is no more than 500 ha, while males wander over larger areas, with likely limited dispersal distance. The species is generally solitary, except for mating pairs and mothers with young. Its life history characteristics are not well known, with longevity estimated at about 30-40 years, gestation length of approximately 16 months, and age at sexual maturity estimated at 5-7 years for females and 10 years for males. There is no defined mating season (Grzimek 1990; Nowak, 1999; Waters, 2000).

Habitat: Currently occurs in lowland tropical rainforests, especially in the vicinity of water. The species formerly occurred in more open mixed forest and grassland and on high mountains. Because of its rarity, little is known about its preferred habitat, but it is certainly not naturally restricted to dense tropical forest water (Schenkel and Schenkel, 1969).

Distribution: Javan Rhinoceros is surviving in only two known locations, one in Indonesia and the other in Vietnam. It is Regionally Extinct (RE) from Bangladesh, Cambodia, China, India, Laos, Malaysia (Peninsular Malaysia), Myanmar and Thailand (van Strien *et al.*, 2008). In the past, Javan Rhinoceros inhabited a large area in South and Southeast Asia. Because all three species of Asian Rhinoceros (Indian, Sumatran, and Javan) occurred in the same general region, and early reports failed to distinguish between them, it is difficult to ascertain their precise ranges. What is known is that approximately 150 years ago, three distinct subspecies existed. Experts believe the first subspecies *Rhinoceros sondaicus inermis* Lesson, 1838, which is now extinct, lived in the west, from India, Bhutan, and Bangladesh eastwards to Myanmar and into China. The second subspecies *R. s. annamiticus* Heude, 1892 lived in Vietnam, Laos, Cambodia, and eastern Thailand. The third subspecies *R. s. sondaicus* Desmarest, 1822 lived along Southeast Asia's southern-most peninsula (Myanmar in the north, Thailand in the middle, and Malaysia in the south), as well as on the Indonesian islands of Sumatra and Java (JimB, 2009). Out of three subspecies, *R. s. inermis* was once existed in different parts of Bangladesh. It is characterized by

a shorter basal length and less inclined occipital plane than specimens from Java, and large teeth (Groves, 1967). Pennant (1798), Duncan (1883), Dawkins *et al.* (1883), Simson (1886), Beddard (1902), Manrique (1927), de Poncins (1935), De (1990), Kinloch (1892), Shebbare (1953), Mukherjee (1982), Salter (1984), Husain (1985), Jalil (1986), Rookmaaker (1983, 1997, 2000) reported this rhinoceros from the then Sundarbans. It is probable that not very long after 1892 *R. sondaicus* have been exterminated in the Sundarbans (Burton 1951). Husain (1985) commented that this rhinoceros existed in the Sundarbans till 1908. He also mentioned that some rhinoceros bones were identified in an excavation site at Kapasia near Dhaka city. It was also distributed through Baugundee of Jessore district and Mathabhananga River of Barisal (Rookmaaker, 1997). It might have existed in Chittagong district (Pollock, 1879; Shebbare and Roy, 1948), the Chittagong Hill Tracts (Burton, 1951; Massicot, 2005), and a Javan rhinoceros was shot near Sylhet, by a tea planter called Gordon Fraser (Wood, 1930). This subspecies has probably gone extinct during the first decades of the 20th century, perhaps before 1925. There are 11 specimens of *R. sondaicus* from the Sundarbans in natural history museums in Kolkata, Berlin and London (Rookmaaker, 1997).

Status: The Javan Rhinoceros has been included in the CITES Appendix I in 1975. This species is listed as Critically Endangered (CR) because there are less than 50 mature individuals; and because its population size is estimated to be fewer than 250 mature individual, with no subpopulation greater than 50 individuals, it is in continuing decline (van Strien *et al.*, 2008). It is now extirpated from Bangladesh territory.

Remarks: Origin of scientific name of *Rhinoceros* (Greek: *rhino* = nose; *keras* = horn; and *sondaicus* (Latin: *icus* = a locality) referring to the Sunda Islands in Indonesia, Sunda = Java. Type locality of the species is Java of Indonesia, but the type locality of the subspecies *R. s. inermis* was the Sundarbans (Bangladeshi part, also called eastern Sundarbans) from where a hornless female and a young were

collected by Lamare-Picquot in 1828. Lesson (1838) described these two specimens as *Rhinoceros inermis* (*inermis* means unarmed, as the females of this subspecies had no horn).

[Ghazi S M Asmat]

Rhinoceros unicornis Linnaeus, 1758

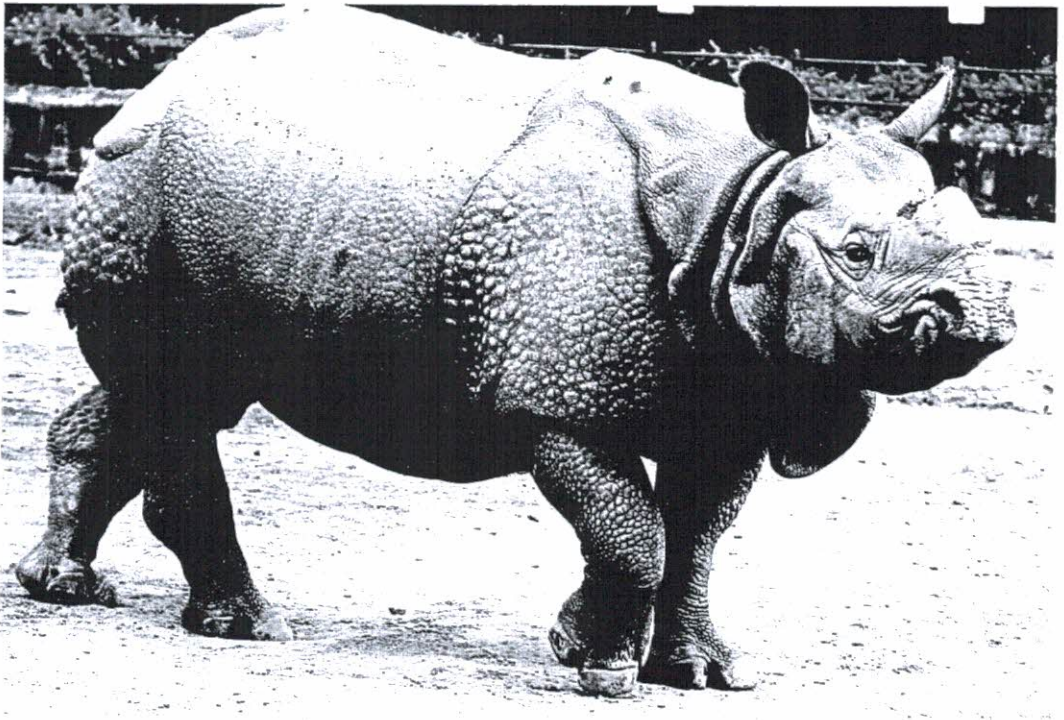
Synonyms: *Rhinoceros asiaticus* Blumenbach, 1830; *Rhinoceros indicus* Cuvier, 1817; *Rhinoceros jamrachii* Sclater, 1877.

English names: Indian Rhinoceros, Great Indian One-horned Rhinoceros.

Local names: Gandar, Gara.

Description: Indian Rhinoceros has armour-like hide, thick and tough with many folds, and large,

horn is approximately 18.5 by 12.0 cm, rapidly narrowing until smooth. Breadth of stem is 55-75% of breadth of base. Base is roughened, irregularly grooved, but with a well marked groove running up the front. In captive animals, the horn is worn down to a thick knob, or an abnormal shape (Laurie *et al.*, 1983). Forefeet and hindfeet have scent glands. Each gland has a distensible orifice 5.5 to 7.5 mm above the sole pad, hidden in a transverse fold (Owen, 1862; Cave, 1962). **Colour:** skin usually grey-brown, with interior of folds slightly pinkish, but, due to mud wallowing, the colouration varies with region's soil colour. **Size:** height of a female is 1.6 m; males 1.8 m; female weighs 1600 kg, while a male weighs 2200 kg (Massicot, 2005).



M Ali Reza Khan

Indian Rhinoceros

raised bumps on the neck shoulders and flanks. Neck fold does not continue across back. There is little hair on the hide except on the edges of the ear-fringes, the eyelashes, and the tuft on the tail. The triangular upper lip is prehensile. There is a single black horn on the nose (Huffman, 2009). Base of

Habits: Males are solitary, with unstructured, overlapping territories. Females are solitary unless occurring with young. Indian rhinos are active mainly at night, in early morning, and in the late afternoon. Middle of the day is mainly spent resting, either in the shade or in wallows. The diet includes

mainly grasses, but also some fruit, leaves, shrub and tree branches, and cultivated crops (Nowak, 1999). The species also utilizes mineral licks regularly. Rhinoceros wallow in lakes, rivers, and temporary pools (Laurie, 1978). When alarmed it normally takes to sudden flight, running swiftly away from the source of disturbance, sometimes snorting or hooking as it goes (Laurie *et al.*, 1983). Often accompanied by tick birds (several species, including myna birds) and egrets that ride on their backs, which are thought to feed on parasites between the folds of skin. Egrets also forage on the insects exposed by the moving feet of the animal (arkive.org, 2009). In the wild, estrus occurs every 27 to 42 days (Laurie, 1978), and these animals are estimated to live up to 40 years (Grzimek, 1990). There is a report of one animal living for 47 years in captivity (Nowak, 1999). One wild born male was about 43-44 years old when he died in captivity (Weigl, 2005). The gestation length of approximately 16 months (Nowak, 1999). The females are grown up (sexually mature) at 4 years in captivity, but about 6.5 years in the wild, and males at 8 years in captivity, but about 10 years in the wild (Laurie *et al.*, 1983).

Habitat: In the past, the Indian rhino was recorded from a number of habitats, including marshy lowland and reed beds; tall grass or bush with patches of savanna and occasional streams and swamps; thick tree and scrub riverine forest; and dry, mixed forest. It is found throughout its present range in alluvial plain habitats: riverine grasslands with tall grass and marshy areas bordered by riverine woodlands, drier sal forest, or tropical almond forest. Furthermore, its range now has been so restricted by human activity that it often uses cultivated areas, pastures, and modified woodlands (Laurie *et al.*, 1983; Nowak, 1999). The Indian rhinoceros is one of the species that lives in both the Himalaya and the Indo-Burma Biodiversity Hotspots and the Terai-Duar Savannas and Grasslands Global 200 Ecoregion (Olson and Dinerstein, 1999).

Distribution: Historically, the Indian rhinoceros once existed across the entire northern part of the Indian subcontinent, along the Indus, Ganges and

Brahmaputra River basins, from Pakistan to the Indian-Burmese border, including parts of Nepal, Bangladesh and Bhutan (Foose and van Strien, 1997). It may also have existed in Myanmar, southern China, and Indochina, though this is uncertain (Talukdar *et al.*, 2008). The species was common in northwestern India and Pakistan until around 1600, but disappeared from this region shortly after this time (Rookmaker, 1984). The species declined sharply in the rest of its range during the period from 1600-1900, until the species was on the brink of extinction at the beginning of the twentieth century. Currently, the Indian rhinoceros exists in a few small subpopulations in the Nepal and India (Foose and van Strien, 1997; Grubb, 2005), with an unsuccessful reintroduction of a pair in 1983 into Pakistan (Talukdar *et al.*, 2008). It is declared as Regionally Extinct (RE) from Bangladesh, Bhutan and Pakistan. In Bangladesh, it was distributed across different parts of Rajshahi division, including Rangpur, Dinajpur (Choudhury, 1985) and Jessore, foothills of the Garo hill and along the Brahmaputra River basins in greater Mymensingh and Sylhet (Rookmaaker, 1980; Choudhury, 1985; Khan, 1982 and 1987; Asmat, 2000). Report of this species from the Sundarbans by Khan (1982) was mistaken, caused by confusing the Indian Rhinoceros with the Javan/Smaller one-horned Rhinoceros, *Rhinoceros sondaicus* (Asmat, 2000). The last member of this species was found in 1908 (Khan, 1982).

Economic importance: Indian Rhinoceros horn can be sold for more than twice its weight in gold. After processing, it is known to have been sold for \$30,000 per kg. The horn is used as a medicine and an aphrodesiac. Medicinal uses are as a pain reliever and fever suppressant. There are no scientific studies, however, that show that rhinoceros horn is effective for any of these purposes. In addition to the horn, rhino hide, blood, urine, and dung also have economic value (Fahey, 1999).

Ecological role: It can be supportive for tick birds (several species, including myna birds) and egrets that ride on their backs, which are thought to feed on parasites between the folds of skin. Egrets also forage on the insects exposed by the moving feet of the rhino (www.arkive.org, 2009).

Status: The Indian rhino is listed on CITES Appendix I. Classified as Vulnerable (VU) in IUCN Red List (Talukdar *et al.*, 2008). This species was close to extinction in the early 1900s in Bangladesh territory.

Remarks: Origin of scientific name of *Rhinoceros* (Greek: *rhino* = nose, *keras* = horn; and Latin: *uni* = one, *cornis* = horn. The type locality of this rhinoceros was Bengal (Laurie *et al.*, 1983).

[Ghazi S M Asmat]

Order **ARTIODACTYLA** Owen, 1841
(Even-toed Ungulates)

Artiodactyls are a large and remarkably diverse group of mammals. Majority live in relatively open habitats, such as plains and savannas, but others dwell in forests, and one group is semiaquatic. Within the order can be found some of the fastest-running mammals, but the Artiodactyla also includes relatively slow and cumbersome species such as pigs and hippos. These mammals are paraxonic, plane of symmetry of each foot passes between third and fourth digits. In all species number of digits is reduced at least by loss of the first digit, and the second and fifth digits small in many. The third and fourth digits remain large and bear weight in all artiodactyls. The most extreme toe reduction seen in any artiodactyls (living or extinct) is in forms such as antelope and deer, which have just two functional (weight-bearing) digits on each foot. In such forms the third and fourth metapodials fuse, partially or completely, to form a single bone called a cannon bone. In the hind limb the bones of the ankle are also reduced in number, and astragalus becomes the main weight-bearing bone. They share a number of cranial and dental characteristics, but group is so diverse that there are exceptions to each trait. The anterior part of skull tends to be long and narrow. Horns or antlers are often present, usually on frontals, are usually larger than parietals. Have a postorbital bar or process. Number of teeth variable. A diastema usually separates anterior and posterior teeth, especially in the lower jaw. Cheek teeth are bunodont in some forms, but more commonly selenodont. Premolars tend to be relatively small and not fully molariform (Simpson, 1984).

Family **SUIDAE** Gray, 1821
(Hogs and Pigs)

Medium-sized animals are typically stocky with a barrel-like body. Skin usually thick and sparsely haired. Head and body length ranges from 50-190 cm, tail length ranges from 3.5-4.0 cm and adult body weight can be as high as 350 kg. Eyes usually small and located high on skull, and ears are small and pointed. Skull usually long and has a flat dorsal profile. One of the most notable characteristics is mobile snout, a cartilaginous disk at its tip and terminal nostrils. It is supported by a prenasal bone located below nasals. Skull has a prominent occipital crest that is formed from the supraoccipital and parietal bones. Metapodials not fused, and first digit is missing from both forefeet and hindfeet. All four digit have hooves, but these are only functional in locomotion on the middle digits (the third and fourth), as the smaller lateral digits are located higher on the limb (paraxonic). Dental formula varies among genera: incisor 1or 3/3; canine 1/1; premolar 2 or 4/2 or 4; molar 3/3 = 36-44. Upper incisors decrease in size laterally; lower incisors long, narrow and set at a low angle in jaw so that they are almost horizontal. Upper canines grow out and backward into large, curved tusks; wear between upper and lower canines produces sharp edges. Upper canines are ever-growing. Molars are bunodont or cuspidate (Simpson, 1984).