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Nasua nasua. By Matthew E. Gompper and Denise M. Decker

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Nasua nasua (Linnaeus, 1766)

Brown-nosed Coati

[Viverral] nasua Linnaeus, 1766:64. Type locality “America.” Restricted to “Pernambuco, Brazil” by Hershkovitz (1959).


[Viverral] guajavo Gmelin, 1788:87. Type locality “Sarainami.”

Nasua rufa Geoffroy St.-Hilaire, 1803:85. Type locality “Amérique du Sud.”


Nasua olivacea Olfers, 1818:227. Type locality “Brasilien.”

Nasua modesta Olfers, 1818:227. Type locality “Brasilien.”

Nasua minor Olfers, 1818:227. Type locality “Brasilien.”

Nasua sociabilis Schinz, 1821:199. Type locality “in Brasilien.”


Nasua coati Blainville, 1841:121:32. Type locality unknown, but probably French Guiana (Hershkovitz, 1959).

Nasua monachus Smith, 1842:220. Type locality not mentioned.

Nasua monticola Schinz, 1843:310. Type locality “Peru.”

Nasua leucorhyncha Tschudi, 1845:100. Type locality not known.

Nasua vitatta Tschudi, 1845:100. Type locality “Innen von Guyana.” (near Mt. Roraima).

Nasua ocellata Tschudi, 1845:102. Type locality “in Brasilien.”

Nasua dorsalis Gray, 1866:169. Type locality “South America.” Restricted to (eastern) Peru and Ecuador by Thomas (1912).

Nasua quichua Thomas, 1901:248. Type locality “Jima, Central region of Cordilleras, Province of Azuay, Ecuador. Altitude 2480 m.”

Nasua phaeocephala Allen, 1904:334. Type locality “in Brasilien.”

Nasua candace Thomas, 1912:228. Type locality “Medellin, Antioquia, Colombia.”

Nasua moniau Thomas, 1912:229. Type locality “Balzar Mts., N.W. of Guayaquil, Western Ecuador.”

Nasua judep Thomas, 1914:57. Type locality “Bogota,” Colombia.

Nasua gualeu Lônberg, 1921:30. Type locality Gualeu, Ecuador.

Nasua hensellii Lônberg, 1921:102. Type locality “in Brasilien.”

Nasua hensellii Lônberg, 1921:102. Type locality “in Brasilien.”

N. n. candace Thomas, 1912:228, see above. Current name combination first used by Allen 1916a:121. (gualeu Lônberg is a synonym).

N. n. dorsalis: Gray, 1866:169, see above. Current name combination first used by Cabrera, 1956:3 (judep Thomas, jure naa Lônberg, and mephisto Thomas are synonyms; Cabrera, 1958).

N. n. moniau: Thomas, 1912:229, see above. Current name combination first used by Allen 1916a:121. (gualeu Lônberg is a synonym).

N. n. montana: Tschudi, 1845:102, see above. Current name combination first used by Cabrera, 1956:3 (monticola Schinz is a synonym, but apparently has priority over montana).

N. n. nasua: Linnaeus, 1766:64, see above. Current name combination first used by Vieira 1945:410 (coati Blainville, mexicana Hagemann, minor Olfers, monde Olfers, olivacea Olfers, pusillus Geoffroy St.-Hilaire, guajavo Gmelin, and rufa Geoffroy St.-Hilaire are synonyms; Cabrera, 1958).


N. n. vitatta: Tschudi, 1845:100, see above. Current name combination first used by Cabrera, 1958:248 (dichromatica Tate and phaeocephala Allen are synonyms; Cabrera, 1958).

The names aureus Lesson and monachus Smith have not, as yet, been allocated to subspecies.

DIAGNOSIS. Nasua nasua (Fig. 1) differs from N. narica, its only congener, by pelage on the muzzle that is brown or gray and hairs on the nape of the neck that are in a reversed anterior position. The palate is flat along the midline, rather than concave as in N. narica (Fig. 2). The sides of the nasal bones converge posteriorly rather than being parallel, and the postorbital process of the jugal bone is present. The entocnoid on m2 is absent.

CONTEXT AND CONTENT. Order Carnivora, Superfamily Canoidea, Family Procyonidae, Subfamily Procyoninae, Genus Nasua (Wilson and Reeder, 1993). The genus Nasua contains two species (Decker, 1991; Wilson and Reeder, 1993). Numerous subspecies names have been assigned, and as a result the synonymy is complex and confusing. Ten recognized subspecies (Cabrera, 1958; Hershkovitz, 1959; Decker, 1991) are described as follows:

N. n. boliviensis Cabrera, 1956:3. Type locality “Palmar, provincia de Chapare, departamento de Cochabamba, Bolivia, a 1,500 m de altitud.”

Fig. 1. Adult female Nasua nasua from the Caetetus Reserve, São Paulo, Brazil. Additional band members are in the background. Photo by A. Keuroghlian.
Fig. 2. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Nasuia nasua* (male, Los Angeles County Museum 56765). Greatest length of cranium is 129 mm.

sized species with a long, slender tail equal in length to head and body and often held vertically erect during foraging. The tail is not prehensile. The brown-nosed coat also has an elongated rostrum, terminating in a flexible rhinarium that protrudes beyond the end of the lower mandible. The claws are long, the feet plantigrade, soles naked. Ears are short. The canines are blade-like, and the premolars and molars have comparatively high crowns with sharp cusps (Emmons, 1990; Hasson, 1978; Redford and Eisenberg, 1992).

Average external measurements (in mm) of five adult males (mean ± 1 SD) and one female *N. n. vittata*, respectively, from Suriname are as follows: length of head and body, 532.0 ± 36.1, 525; length of tail, 444.5 ± 20.3 (n = 4 males), 430; length of head (foot without claw), 39.6 ± 1.5, 38; length of ear, 46.0 ± 1.6, 40; body mass (g), 3863 ± 652 (n = 4 males), 3,000. Average cranial measurements (in mm; mean ± 1 SD) for two males and three females, respectively, from Suriname are as follows: greatest length of skull, 121.7 ± 4.0, 112.5 ± 3.6; condylarbasal length, 115.2 ± 3.3, 106.4 ± 4.2; zygomatic breadth, 65.9 ± 2.1, 55.1 ± 3.1; length of mandible (n = 3 males), 85.0 ± 2.3, 78.8 ± 3.9 (Hasson, 1978). Average external and cranial measurements (in mm; mean ± 1 SD) of seven adult males and three adult females, respectively, from Mato Grosso and Para, Brazil (*N. n. nasua* and *N. n. sphacia*) are as follows: length of head and body, 649.0 ± 57.2, 531.0 ± 18.5; length of tail, 491.7 ± 30.0, 407.3 ± 12.7; greatest length of skull, 129.9 ± 2.3, 116 ± 0.1; length of mandible, 91.6 ± 1.5, 84.3 ± 0.6; zygomatic breadth, 70.9 ± 3.7, 62.7 ± 1.5 (Vierra, 1943). Twelve males and 13 females (including adults and subadults) collected from Yagua hunters of Amazonian Bolivia between February and May had mean weights of 4.6 (range, 1.5-4.5) and 4.1 (2.7-5.0) kg, respectively (Redford and Stearnan, 1993).

Extensive variations in *Nasuia nasua* pelage coloration are reported throughout their range (Emmons, 1990; Hasson, 1978; Redford and Eisenberg, 1992). Breeding experiments show that even within a litter, pelage coloration of individuals is variable (Taibal, 1958). The usual color is reddish or reddish brown to dark brown, often overlaid with some yellow. The snout is uniformly dark brown to black, with the front having more yellow hairs, thereby giving a grizzled pattern. White spots are found above, below, and behind the eye. The outside of the ear is dark, inside whitish. The neck is yellowish, leading to underparts of white or yellowish to light brown. Feet are dark brown to black. The tail is colored like the dorsum in redish or dark brown to black and annulated with yellow or light brown. The ring pattern of the tail may be scarcely visible (Emmons, 1990; Hasson, 1978; Redford and Eisenberg, 1992).

**DISTRIBUTION.** *Nasuia nasua* is found from Colombia and Venezuela to Uruguay and northern Argentina (Fig. 3). In Ecuador it has been described from both the eastern and western slopes of the Andes at altitudes up to 2,500 m (Lönnberg, 1921, 1921–1922; Thomas, 1901, 1914). The species is absent from the llano grasslands of Venezuela (Eisenberg, 1989). Distribution in Argentina is restricted primarily to the eastern portions of the provinces of Salta and Jujuy, northeastern Santa Fe, eastern portions of Chaco and Formosa, and throughout Misiones and Corrientes (Mares et al., 1989; Olrog, 1979; Olrog and Lucero, 1983; Redford and Eisenberg, 1992). *N. nasua* has also been introduced to Robinson Crusoe, one of the Juan Fernandez Islands of Chile (Gawell, 1989; Miller and Rottmann, 1976; Pine et al., 1979).

**FOSSIL RECORD.** While procyonoids first entered South America by island-hopping in the late Miocene, these species were not ancestral to modern coatis (Simpson, 1950). *Nasuia* evolved in North America and was a participant in the Great American Interchange following the rise of the Panamanian land bridge in the Pleocene (Baskin, 1982, 1986; Simpson, 1950; Welb, 1985). *Nasuia* and *Procyon* likely differentiated from the genus *Panamazuia* during the Hemphillian (late Miocene), as first probable records of each genus are from the late Hemphillian of Florida and Kansas (Baskin, 1982). In North America the fossil *Nasuia* are represented by a possible species of *Nasuia* (Baskin, 1982) from the late Miocene of Florida, and by *N. protoreica* (Dalquest, 1978) from the middle Blancan (early Pleocene) of Texas. earliest records of South American *Nasuia* are possibly *Ensenadan* (late Pleistocene) fossils from Tarija, Bolivia (Hoffstetter, 1963; Marshall et al., 1984). and
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female Nasua, unidentifed to species, had brain weights of 34.9 and 39.0 g (Welker and Campos, 1963).

The snout of N. nasua is greatly elongated, with the upper edge of the rhaminum extending beyond the nostrils, such that the anterior surface is nearly flat and slopes obliquely down and back. The upper lip is entire, showing no trace of a philtrum. Nostrils are elongated rather than being semicircular as in other procyonids. The internarial septum is long and narrow, with deep intranarial portions defined by a groove from the adjoining central portion, which has no median groove. The rostral surface of the rhaminum is densely innervated by sensory receptors, and rhinal contact with stimuli is made more intimate and varied by the action of numerous proboscs muscles, allowing unusually high mobility of the proboscis (Compton, 1966; Pocock, 1921; Windle and Parsons, 1897). The facial vibrissae are better developed in Nasua than in other procyonids (Pocock, 1921).

The eye of N. nasua contains a reflective tapetum, which indicates that diurnal activity may have evolved from a nocturnal ancestor. In addition, N. nasua has color vision. Unlike Potos flavus, N. nasua shows discriminative abilities between color hues, which may be an adaptation for foraging on brightly colored fruits (Chausseul, 1992). Eyes of N. nasua are dichromatic, with one of the two cone photopigments having a peak sensitivity at 430 nm, further evidence of color vision (Jacobs, 1995; Jacobs and Deegan, 1992).

Nasua nasua has shorter limbs than does Procyon lotor. The radius in an adult male weighing 4.6 kg was 77.0 mm long, while that of a P. lotor of similar mass measured 93.5 mm. Mean fascicle lengths for various muscles in a muscle group vary little intraspecifically (McClearn, 1985, 1990). Limb morphology of N. nasua is described by Windle and Parsons (1897, 1898). The fibula is slender, fused to the tibia at the upper end, and articulates by a synovial joint at the lower end, where rotary movement is permitted by the flexibility of the fibula (Barrett and Naegez, 1953). The forelimbs contain long, powerful, blunt, and slightly curved claws, with digits webbed to the proximal ends of the digital pads. The underside of the digits and webs are naked, and the plantar pad is broad, moderately well defined, and four-loved. Above the carpal pad on the ulnar side is a tuft of carpal vibrissae. Claws of the hind feet claws are somewhat shorter than those on the forefoot, and the plantar pad is naked over the whole of the tarsometatarsal area as far back as the tip of the calcanealum (Pocock, 1921). N. nasua is unable to fully reverse its hind foot as does the fully arboleus Potos flavus. Head-first descent is accompanied by femoral abduction and an approximate 60° inversion and 60° rotation at the transverse tarsal joint. N. nasua is thus able to grasp a verticle trunk or vine, but cannot turn the toes posteriorly nor reverse the plantar surface of the foot (Jenkins and McClearn, 1982, 1984). At walking speeds N. nasua employs a lateral sequence, and the body moves according to a slow canter at speeds of approximately 1 m/sec. N. nasua will gallop for short distances, but has not been observed to trot (McClearn, 1992).

The baculum is spatulate dorsally with a prominent central lobe on the ventral surface and an indistinctly bifid distal end (Burt, 1966; Chaine, 1925; Decker, 1991; Didier, 1950; Mondolfi, 1967; Pocock, 1921). Layne (1954) reports an os clitoris in Nasua. The lamina propria of the seminiferous tubules is 1–3 μm thick and contains a single layer of myofibrils (Crissal, 1990). Anal glands of N. nasua are highly modified, with a glandular area situated along the dorsal margin of the anus containing a series of pouches that open by four or five slits on each side. These glands are unique among Carnivora (Pocock, 1921). Preputial glands of N. nasua are multiloculated structures made of branched alveoli which empty through a series of ducts to the squamous epithelium of the prepurpee. Sebaceous material secreted from these glands is used in scent-marking, perhaps in combination with urine (Fiedler, 1955, 1957; Shannon et al., 1995).

Like most carnivores, N. nasua has a single major hemoglobin, and analyses of N. nasua hemolysate revealed an α and a β-globin chain (Ahmed et al., 1990; Brimhall et al., 1977, 1979; Seal, 1969; Stenzel and Brimhall, 1977). Three unidentified coasts had a venous pH of 7.35, with blood gas and hematological values similar to the kinkajou and racoon (Satterfield, 1976; Soifer, 1970).

In a study of 8-year-old captives, 2-year-old captive 21.3 ± 0.5°C during the day and 25.1 ± 0.3°C at night (Chevillard-Hugot et al., 1980). Measured physiological characteristics of these coasts revealed a basal metabolic rate of ca. 60% the predicted

Lujanian (latest Pleistocene) fossils from caves in Minas Gerais, Brazil (Berta and Marshall, 1978; Winge, 1895–1896).

FORM AND FUNCTION. The dental formula is i 3/3, c 1/1, p 4/4, m 2/2, total 40, and teeth are generally smaller than Procyon lotor and larger than Nasuella olivacea (Hollister, 1916).

The canines are large, especially the adult male lower canine, and laterally compressed with the points turned outward. Premolars are two or three-rooted (Hollister, 1916; Husson, 1978; Vieira, 1940).

Length of the jaw and length of the tooth row are long relative to other procyonids, resembling measurements found in canids (Rudinsky, 1981). As with all procyonids, ursids, and mustelids, N. nasua does not possess a cecum. However, unlike mustelids, ursids, and Potos flavus, the caliber of the intestinal tract of N. nasua increases distal to the terminal or recurrent straight portion of the Meckel's tract, and the anterior mesenteric vein bends sharply to receive numerous vessels from the minor loop of Meckel's tract (Mitchell, 1905).

The ear is short and rounded, with a shallow pouch-shaped luna in front of the posterior edge of the pinna (Pocock, 1921). Procyonids possess enlarged auditory bullae, which are achieved by gradual caudal entostyamic growth, relative to other carnivores (Hunt, 1974). The auditory bulla of N. nasua is similar in height and inflation to that of Procyon lotor, although smaller, and showing differences in caudal entostyamic form. The alisphenoid canal is absent (Flower, 1869; Hoag, 1948; Pocock, 1928). Auditory function of N. nasua represents an efficient mode of sound reception relative to other Carnivora, because of a delayed decline of sensitivity, a relatively high sensitivity, and a wide band of peak sensitivity. The region of maximum sensitivity extends 7.4 octaves, with an upper frequency limit of 95 kHz, and a range of maximal peripheral sensitivity of 250 Hz to 45 kHz (Peterson et al., 1969).

The brain of N. nasua is morphologically similar to that of N. narica (Anthony and Botar, 1933), but differs from those of other procyonids in having an enlarged sensory cortex region receiving afferent projections from the tip of the snout or rhinum and a forepaw reception area specialized for movement of paws. These data are compatible with observations that species of Nasua have the longest snout and claws of the Procyonidae (Barker and Welker, 1969; Pubols et al., 1965; Welker and Campos, 1963). Two adult

**FIG. 3.** Distribution of Nasua nasua in South America. Determination of extreme localities (Columbia and Argentina) was based on individual specimens examined by Decker (1991). Numbers refer to type localities of subspecies: 1, N. n. nasua; 2, N. n. spadicea; 3, N. n. solitaria; 4, N. n. vitator; 5, N. n. montana; 6, N. n. dorsalis; 7, N. n. quichua; 8, N. n. candae; 9, N. n. manium; 10, N. n. boliviensis.
value, excellent thermoregulatory ability in the cold—partly due to decreasing thermal conductance at falling ambient temperatures, and thermal stability up to 35°C. Basal heart rate was 20 beats/min, about 70% of the predicted value. Charnley and Hadfield (1980) suggest cold might not be a limiting factor for adults, but may be for juveniles.

Pulmonary arteries of N. nasua are relatively thin, and collagenous wall thickness is absent (Wagner et al., 1991). Unlike N. narica, which has a very muscular pulmonary arteries and a vigorous pulmonary pressure response to acute hypoxia (Hanson et al., 1993), in N. nasua localized alveolar hypoxia leads to vasconstriction, and blood flow is diverted away from affected lung regions (Grant et al., 1976; Hughes, 1975; Robinson, 1982). The morphology of the heart of N. nasua is described by Heine (1973).

**Ontogeny and Reproduction.** Gestation period of N. nasua is 74–77 days (Brown, 1938; Leclerc-Cassan, 1976; Standley, 1992). The placenta is zonary with a slight break towards the mesometrial side of the gravid uterus and with a large extravasation appendaged on the antimesometrial side. Maternal blood is present in a hematochorial covering by allantoechochorionic membrane (Vacek, 1951, 1970). Milk from one captive individual contained 25% dry matter and 9% raw protein (Bock et al., 1986).

Captive litter size varies from 1 to 7 (Ben Shaul, 1962; Findlay et al., 1971; McToddlidge, 1969) with 4–3 being most common (Standley, 1992). Alloluring has been observed in captivity (McToddlidge, 1969). In one captive litter from which not all neonates survived and in which those that did were hand-reared after five days, neonates weighed 78 g at 5 days. Eyes opened at 10 days, and newborns were standing firmly by 19 days. At 24 days the newborns were walking well and were able to focus their eyes. At 26 days the infants started to climb (Ben Shaul, 1962).

In the wild, females leave the group and give birth to young in a nest constructed in a tree (Emmons, 1990). After 5 or 6 weeks the female rejoins the group with her newborns (Cabrera and Yepes, 1960). In Parque Nacional Iguazu, Misiones, Argentina, breeding occurs between October and February, and litters are usually born in March and April, although newborns have been observed in late November (Crespo, 1982).

**Ecology.** N. nasua is primarily an occupant of forested habitat. It has been reported from multistrates deciduous and evergreen rainforest, riverine gallery forest, cloud forest, and xeric chaco, cerrado, and dry scrub forests (Brooks, 1993; Emmons, 1990; Handley, 1976; Mondolfi, 1976; Schaller, 1983). It is found over a wide altitudinal range, with Andean individuals found at elevations up to 2,500 m (Lönnberg, 1921; Thomas, 1901, 1914). In El Bagual Ecological Reserve, Argentina, track counts over four hours on a heavy use of lowland rainforest and no use of high forests or savanna habitats (Yanosky and Mercoll, 1992).

N. nasua is omnivorous, eating predominantly invertebrates and fruit, although vertebrates and carrion are also consumed when available. Stomach contents of three N. nasua from Venezuela contained adult and larval beetles, scorpions, spiders, centipedes, and fruits of Guazuma ulmifolia. One unidentified reptile was found in the stomach of an adult female. Adult and larval coleoptera comprised 20% of total stomach volume and occurred in all three animals examined (Bishai, 1986). Stomach contents of 12 N. nasua from Bolivia contained 69.5% fruit by volume (11 of 12 stomachs) and 30.5% invertebrates (9 of 12 stomachs). Principal foods were fruits of Psidium guajava, Socratea exorrhiza, Schefflera princeps, Cecropia, and coleoptera. One stomach contained a small cicadae redent (Redford and Stearnan, 1963). In the Pantanal of Brazil, N. nasua was observed feeding on fruits of Ficus and Copernicia palms, and two stomachs contained fish, snakes, crabs, and other invertebrates (Schaller, 1983). N. nasua is an important predator on the eggs of the Paragayan caiman, Caiman yacare (Croakish and Schaller, 1980). N. nasua eats tarantulas after rolling the spider to remove urticating setae. Nevertheless, brown-nosed coatis learn to avoid some species, such as Theraphosa leblondi, whose setae are difficult to remove (West, 1993). Myers (1930) observed that a habituated brown-nosed coat also ate some variety of invertebrates but also rejected many species such as ants, termites, and insects which emit noxious fluids or odors. The diet of captive N. nasua is discussed by Standley (1992).

Reported predators of N. nasua include the jaguar (Panthera onca), puma (Felis concolor), ocelot (F. pardalis) and jaguarundi (F. yagouaroundi—Almeida, 1990; Crespo, 1982; Emmons, 1987; Heyman and Redford, 1993; Redford and Stearnan, 1963; Heyman and Redford, 1993; Redford and Robinson, 1981, 1990; Yost and Kelley, 1985). For some indigenous peoples N. nasua is not a preferred food because of cultural taboos or taste preferences (Stearman, 1990; Stearman and Redford, 1995). Yuqui hunters of Bolivia killed 60 N. nasua during 48 hours of hunting with multiple captives, with 30% of hunting activities involving one animal killed, three in three animals killed, and one in four animals killed (Redford and Stearman, 1995). In Bolivia and Paraguay an estimated 65–75% of animals killed are adults (Redford and Stearman, 1995). The Ache of Paraguay hunt N. nasua by hand; animals are grabbed as they attempt to escape by jumping from trees and killed when the hunter slams the animal against the ground. Hunting success per Ache hunter decreased with increased hunting group size (Hill and Hawkes, 1985).

In Venezuela N. nasua is common in secondary forest and along forest edges, and Bisbail (1993) suggests that habitat modification due to low-level deforestation and road building and to petroleum, timber, and mineral extraction might have only slightly negative, and perhaps positive, effects on populations. In contrast, intensive deforestation, dam-building, and hunting affects populations negatively (Bishai, 1993; Mondolfi, 1976).

N. nasua was introduced by humans to the Juan Fernández Islands, Chile, in 1933 when two pregnant females escaped (Guzmán Parada, 1931; Miller and Rottmann, 1976; Fine et al., 1978; Valenzuela Fúrzán, 1978). The population on the Juan Fernández Islands expanded and in 1972 was estimated to be 4,000 individuals. It has been implicated in the decline of the endemic Juan Fernandez firecrcon hummingbird, Sephanoides fernandensis, and the pink-footed sheathbill, Puffinus creatopus (Colwell, 1969; Miller and Rottmann, 1976). Digging habits of N. nasua have also been implicated as a possible important factor in the deterioration of the native flora (Sanders et al., 1982).

Known endoparasites of N. nasua include Trypanosoma cruzi, T. evansi, and T. rangeli (Ferrioli and Barretto, 1968; Miles et al., 1983; Nunez and Osorio, 1990; Nunez et al., 1993; Oshiro et al., 1990), Leishmania shawi (Lainson et al., 1989), the tapeworms Atriciaeira perri and Diphyllobothrium trinitia (Schmidt and Martin, 1978), kidney worm Dicyotocypella renale (Canese, 1973), acanthocephalans Onchocerca (=Prosthennchus) lohevi and O. spirula (Machado Filho, 1950; Schmidt, 1977), nematodes Diorylaria acutusus and Cyclicopora subaequalis (Seesee et al., 1980), and Schistosoma mansoni (Artiga and Perez, 1967; Perez and Artiga, 1970; Ruiz, 1953). Serologic tests showed that brown-nosed coatis in Brazil had neutralization antibodies for a Bunyavirus serovirus (Fernandes de Rosas et al., 1980). N. nasua is absent from the restingas of the northern coast of Brazil (reviewed by Wallach and Boever, 1983), including tuberculous Mycobacterium (Dolan, 1993; Nóbrega and Reis, 1941; Spencer and Barnes, 1973), canine distemper (Appel and Gillespie, 1972;
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Mickwitz, 1968), feline panleucopenia (Johnson and Hallwell, 1968), Leptospira (Lins and Lopes, 1984), and the fungi histoplasmosis and sporotrichosis (Costa et al., 1994). Reported ticks of N. nasua include Amblyomma ovalle andIxodes luricatus (Barros and Baggio, 1992). Carcinoma of the nasal sinus (Lombard and Witte, 1959), liver damage due to septiciemia toxemia (Shannon et al., 1995), and aneurism of the aorta (Ferney, 1960) are reported in captive brown-nosed coatis. Grau and Davis (1982) describe treatment of malocclusion and oronasal fistula of the mouth of an adult N. nasua.

**BEHAVIOR.** Nasua nasua is diurnal and spends the night sleeping in trees (Alho et al., 1987; Brooks, 1993; Crespo, 1982; Lacher et al., 1986; Standley, 1992; Yanosky, 1991). While it is primarily terrestrial, it easily descends or ascends small trees and vines. It has more difficulty climbing the smooth trunks of large trees, andNormally descends or ascends by moving out the end of a limb and transferring to nearby branches of the same tree (McClearn, 1992). When disturbed in trees, N. nasua immediately returns to the ground and escapes terrestrially (Crespo, 1982; Husson, 1976). Brown-nosed coats are good swimmers (Liais, 1872; Standley, 1992).

Adult males are solitary, while females and immature males travel in groups of up to 30 individuals (Crespo, 1982; Emmons, 1990; Schaller, 1983). Detailed studies of band size have not been conducted. However, in Mato Grosso, Brazil, bands contain up to 13 members with an average band size of 5.3, of which 44% are subadults (Schaller, 1983). Crespo (1982) reports bands of up to 20 individuals in Parque Nacional Iguazu, Argentina. Group members give constant contact vocalizations (Emmons, 1990).

Successful discrimination performances on spatial tasks by N. nasua do not differ from those of Potos flavus or Procyon lotor, but are poorer than those of Bassariscus astutus (Gouette et al., 1986). In tests of visual learning and concept formation in captive individuals, N. nasua is able to respond correctly to cognitive tests of same-difference and shape recognition (Chaussell, 1991).

**GENETICS.** Diploid chromosome number of N. nasua is 38, including 28-30 metacentric and submetacentric autosomes, 6-8 acrocentric autosomes, a submetacentric X, and a submetacentric Y (Hanz & Benirschke, 1976; Panzetta and Alaimo, 1967, 1969; Wurster and Benirschke, 1968). Examination of cytogenetic G-banding in a zoo colony of N. nasua, N. narica, and hybrid individuals revealed that hybridization results in complex chromosome rearrangements (Veltje et al., 1987).

Coat color is influenced by sex and by parental genotype. A cross of a red male with a brown female resulted in an F1 of red males and brown females. Crossings of the presumably heterozygous F1 produced F2 offspring which included red males and females as well as brown females (Talibet, 1958).

**CONSERVATION STATUS.** Nasua nasua is legally protected under CITES Appendix III in Uruguay (Emmons, 1990).

**REMARKS.** Confusion over the status of solitary males led early researchers to designate separate species names, N. solitaria Schinz, 1821 and N. sociabilis Schinz, 1821, for adult males and for gregarious band members, respectively, and many of the common names still used in North and South America perpetuate the confusion. Although the name coat monde from the Brazilian vernacular properly refers to solitary males, it is often used to denote all coatis. Though usage the spelling has become constant (Hen- sel, 1869; Kaufmann, 1962, 1963). N. nasua is also referred to as the ring-tailed, southern, or South American coati (Decker, 1991; Emmons, 1990; Mares et al., 1989). Common names for N. nasua include coat (Guarani), kishi (Huamboja and Agurana), cane (Ache), achumi (Peru), tejon (Ecuador), cumbuho (Columbia), guati, quamtumundé (Brazil), kafi (Kalapalo), cochinho (Argentina), neus- bein, kwasswasi (Surinam-Basso, 1973; Berlin and Berlin, 1993; Emmons, 1990; Hill and Hawkes, 1983, 1983; Lombard, 1921; Patton et al., 1981). The common name coat is of Tupian Indian origin, cane meaning hill, and tum meaning nose, referring to the coat's sleeping position of the nose tucked on the body (Lins; 1872; Kaufmann, 1962). The scientific name Nasua is derived from the Latin nasua, meaning nose (Gocht, 1979).

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