

Chrysocyon brachyurus. By J. M. Dietz

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Chrysocyon Smith, 1839

Chrysocyon Smith, 1839:241. Type species *Canis jubatus* Desmarest by original designation.

CONTEXT AND CONTENT. Order Carnivora, Family Canidae. The genus *Chrysocyon* contains one species: *C. brachyurus* (Van Gelder, 1978).

Chrysocyon brachyurus (Illiger, 1815)

Maned Wolf

Canis brachyurus Illiger, 1811 (1815):109. Type locality not specified.

Vulpes cancosa Oken, 1816:1036. Type locality "Paragay, in Rieden, nicht sudlich dem Plata."

Canis jubatus Desmarest, 1820:198. Type locality Paraguay.

Canis campestris Wied-Neuwied, 1826:334. Type locality Brazil (by subsequent designation, Avila-Pires, 1965).

Canis isodactylus Ameghino, 1906:9. Type locality not specified.

Chrysocyon brachyurus Osgood, 1919:35. First use of current combination.

Canis vulpes Larranaga, 1923:344. Type locality "in vallibus humidisq;ue locis."

CONTEXT AND CONTENT. Context is given in the generic account. Synonymy for *Chrysocyon brachyurus* has been clarified by Cabrera (1958) and Osgood (1934).

DIAGNOSIS. *Chrysocyon* is distinguishable from most other Canidae by its golden-red pelage and by a height at the shoulder of approximately 90 cm (Fig. 1). Compared with members of the genus *Canis*, the upper carnassial in *Chrysocyon* is reduced, its length less than the combined length of the upper two molars. The upper incisors are weak, and the canines are long and slender. The genus differs from other South American canids in that the sagittal crest is developed as a prominent ridge (Fig. 2); the front of the orbit is level with the posterior boundary of the first upper molar; the frontals are wide and flattened; the width across the postorbital process is equal to or exceeds that across the braincase (Osgood, 1934).

GENERAL CHARACTERS. The maned wolf is the largest of the South American Canidae. An adult weighs approximately 23 kg, and has a total length of about 147 cm, of which approximately 45 cm is contributed by the tail. The lengths of any of the bones of the extremities exceed those for other South American canids (Langguth, 1969), and that of the hindfoot is 29.5 cm (Dietz, 1981). The head has a fox-like appearance with a slender muzzle and large ears (16.8 cm; Dietz, 1981) with well-developed bursae. Both *Chrysocyon* and *Speothos* have a rhinarium that extends to the upper lip. The only other South American canid approximating this condition is *Cerdocyon*. The vibrissae, especially the superciliary, genal, and interramal tufts, and the submental series, are longer in *Chrysocyon* than in *Speothos* (Pocock, 1927). The cranium has a narrow rostrum and palatine bones, thus more closely resembles that of *Canis latrans* than that of *C. lupus* (Studer, 1904). The baculum is only slightly longer than in the much smaller *Speothos* and has a wide inferior groove that does not extend to the distal tip (Pocock, 1927). The body is golden-red and the lower legs and anterior portion of the dorsal erectile mane are black. White markings occur on the pinnae, under the chin, and on the tip of the tail. Tracks left by the maned wolf are generally distinguishable from those of other South American canids by the proximal union of the pads of the third and fourth digits (as they are in the smaller tracks of *Speothos*; Krieg, 1940).

DISTRIBUTION. The maned wolf inhabits the grasslands and scrub forests of central South America (Fig. 3) from the mouth of the Parnaiba River in northeastern Brazil, west to the Pampas del Heath in Peru, and south through the Chaco of Paraguay to Rio Grande do Sul state, Brazil. The present geographic range, about 5 million km², is approximately equal in area to the range before 1940 and includes a range extension of 0.5 million km² in the recently deforested Zona da Mata of central Brazil (Dietz, in press). Responses to questionnaires suggest the possibility of a disjunct population of maned wolves in the llanos of Colombia north of Vaupes River (Dietz, in press). The species formerly was found in Uruguay (Figueira, 1894) and south of the La Plata River, Argentina (Cabrera, 1958).

FOSSIL RECORD. Fossils of *Chrysocyon* are known only from the Holocene and late Pleistocene epochs (Zoologisk Museum, Denmark; specimens L.32 to L.38 from Lund's expeditions to Lagoa Santa, Minas Gerais, Brazil) in the Brazilian Central Highlands. The absence of fossil remains elsewhere suggests that the species evolved in this geographic region (Langguth, 1975).

FORM AND FUNCTION. The long limbs, narrow body, and pacing gait of the maned wolf appear to be adaptations to life in grassland habitat (Dietz, 1981; Sokolowsky, 1927). The percentage ratio of hindlimb to length of spine is in excess of 100% (Hildebrand, 1952). The pelage lacks underfur. Whereas the caecum in most canids is convoluted, that in *Chrysocyon* (and in three other species of South American canids) is short and cylindrical (Flower, 1879). Hematological and blood chemistry values generally fall within the ranges for domestic dogs (Bush, 1980; Dietz, 1981). However, hematocrit and hemoglobin values for free-living maned wolves (38.1% and 12.2 g/100 ml, respectively) are lower than for captive individuals (46.0% and 15.2 g/100 ml).

ONTOGENY AND REPRODUCTION. Females are monestrous; copulation in captives occurs from October through February in the Northern Hemisphere (Altmann, 1972; Encke, 1971), and from August through October in South America (Acosta,



FIG. 1. Captive adult maned wolf at the Conservation and Research Center, National Zoological Park. Photo by author from Smithsonian Contrib. Zool., 392 (1984), Smithsonian Institution Press, Washington, D.C.

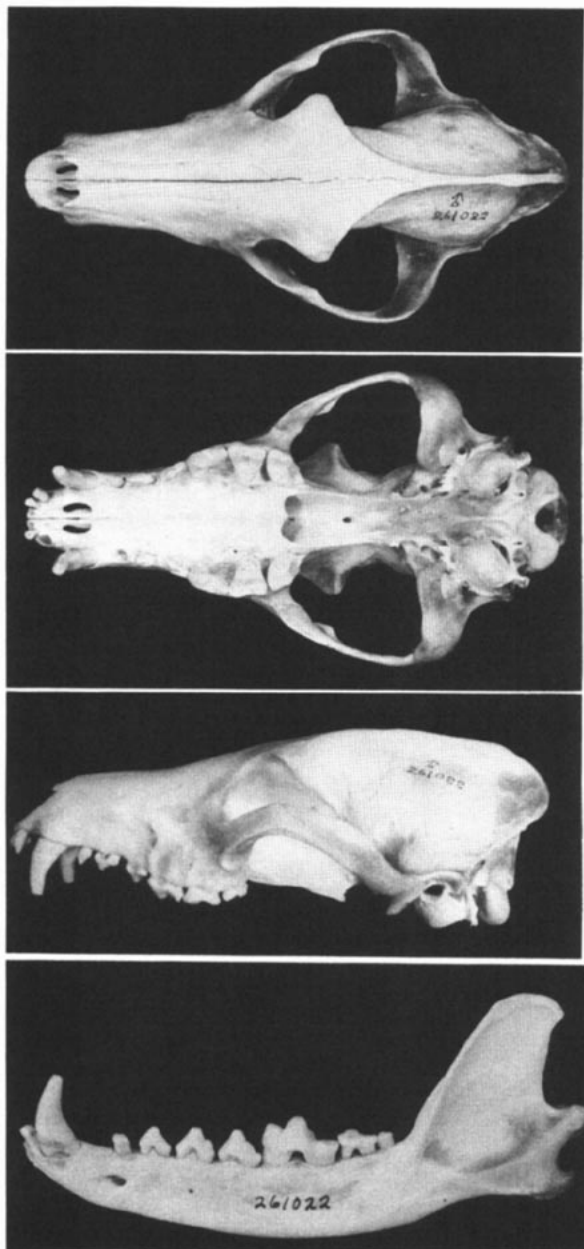


FIG. 2. Dorsal, ventral, and lateral views of cranium and lateral view of the mandible of *Chrysocyon brachyurus*, USNM 261022, from Brazil. Zygomatic breadth is 130 mm.

1972). Thus, onset of reproduction appears to be related to photoperiod. Copulation in captives occurs during a period of 1 to 4 days and is characterized by ties lasting up to 14 min (Kleiman, 1968; Lippert, 1973). Captive females are aggressive toward humans about 1 week before parturition and for several months afterwards (Brady and Ditton, 1979). Parturition follows a gestation of approximately 65 days and does not differ from that of other canids (Faust and Scherpner, 1968; Hammerling and Lippert, 1975). Litter size usually ranges from two to five with a recorded maximum of seven (Carvalho, 1976).

Pups weigh 340 to 430 g at birth, within the normal range for canids (Beckoff and Jamieson, 1975), and develop rapidly. Eyes and ears open by day 9, the pinnae stand erect by week 4, and the pelage changes from black to buff-red by week 10. However, the legs do not develop adult proportions until 1 year of age (Acosta, 1972; Brady and Ditton, 1979; Encke et al., 1970; Seidel, 1972). Longevity in captivity has been estimated at from 12 to 15 years (da Silveira, 1968).

ECOLOGY. In one field study (Dietz, 1984), activity was

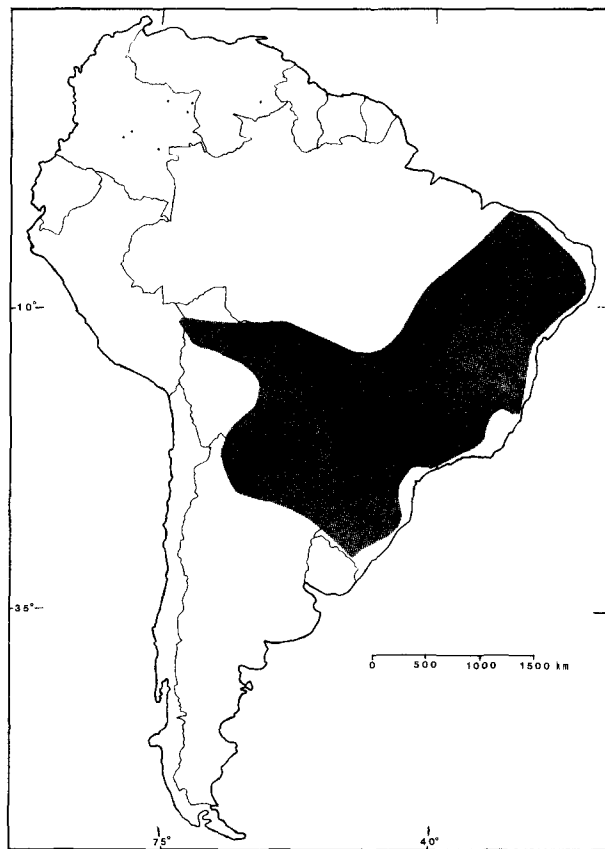


FIG. 3. Geographic distribution of the maned wolf (shaded area). Dots represent locations specified in response to questionnaires distributed from 1978 to 1980 (Dietz, in press).

nocturnal with crepuscular peaks. Males were active more often than females. Diet consisted largely of fruits and small mammals, and changed with seasonal availability of foods. Monogamous male-female pairs defended permanent territories averaging 27 km². Although pair members used the same areas, males and females were found in close association only during the breeding season. When wolves occupying territories died they were soon replaced by others of the same sex.

The total captive population increased from 59 individuals in 1959 to approximately 100 in 1980 (Bush, 1980; Roeben, 1975). Successful management in captivity includes the provision of large enclosures for each pair, privacy during the breeding season, and a diet high in protein but low in fat (Bush, 1980; Brady and Ditton, 1979; Faust and Scherpner, 1968; Kühme, 1975). Pairs composed of opposite sexes are easier to house in the same enclosure than are pairs of the same sex (Altmann, 1972; Encke, 1971). Some diseases important in the management of *Chrysocyon* in captivity and, perhaps, in the wild include dirocofymiasis, cystinuria, severe gingival hyperplasia, and parvovirus (Bovee et al., 1981; Bush, 1980; Fletcher et al., 1979; Matera et al., 1968).

BEHAVIOR. Anestrus in captive maned wolves is characterized by mutual avoidance and minimum levels of scent marking and vocalization. Proestrus is a period of social approximation culminating in estrus. Individual distance increases during gestation, but mutual use of space remains high suggesting that females regulate the extent to which males participate in rearing their offspring (Dietz, 1984). Captive males may help females during parturition and in rearing of the young (Bartmann and Nordhoff, 1984). However, the contribution to parental care by free-living males is unknown. Signals such as barks, visual displays, and locus-specific defecation carry well over long distances and may be related to spacing of individuals through avoidance (Kleiman, 1972). Long-distance vocalization in the wild and in captivity is most common during the breeding season (Brady, 1981; Dietz, 1984). Interaction sequences in juvenile maned wolves, characterized by wrestling and

frequent switching of behavioral categories, resemble those described for *Canis* species and are not divergent with respect to sex (Biben, 1983).

GENETICS. The diploid number of chromosomes for *Chrysocyon* is 38 (Newnham and Davidson, 1966). From this and other karyological information the species appears most closely related to *Canis*, *Lycan*, *Atelocynus*, *Dusicyon*, and *Speothos* (Chiarelli, 1975). Dürr and Schmitt (1970) examined the electrophoretic differentiation of serum proteins for the maned wolf and found that this species differed from *Canis familiaris*, *C. aureus*, *C. lupus*, *Speothos venaticus*, and *Lycan pictus* in the mobilities of five globulin components of the transferrin complex.

REMARKS. The maned wolf is classified by the International Union for the Conservation of Nature and Natural Resources as "vulnerable" (Thornback and Jenkins, 1982), and by agencies of the Brazilian government as "endangered" (Carvalho, 1968).

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Editors of this account were B. J. VERTS and SYDNEY ANDERSON. Managing editor was TIMOTHY E. LAWLOR.

J. M. DIETZ, NATIONAL ZOOLOGICAL PARK, CONSERVATION AND RESEARCH CENTER, FRONT ROYAL, VIRGINIA 22630.