Cerdocyon thous. By Annalisa Berta

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**Cerdocyon Hamilton Smith, 1839**

_Cerdocyon_ Hamilton Smith, 1839:259. Type species Canis azarae Wied by subsequent designation (Thomas, 1914:351).

_Cerdocyon_ Allen, 1905:153. Type species *Canis thous* L. by original designation.

**CONTEXT AND CONTENT.** Order Carnivora, Family Canidae. The genus *Cerdocyon* includes one living species (Fig. 1).

**Cerdocyon thous Hamilton Smith, 1839**

Crab-eating Fox

_Canis thous_ Linnaeus, 1766:60. Type locality Surinam.

_Viserr ocanicurus_ Brongniart, 1792:115. Type locality not known to author; paper not seen.

_Canis azarae_ Wied, 1824:text to pl. 23. Type locality Bahia, Brazil.

_Cerdocyon guarauna_ Hamilton Smith, 1839:262. Type locality northern Brazil.

_Canis melampus_ Wagner, 1841:pl. 92. E. Type locality Matto Grosso, Brazil.

_Canis brachyteles_ Blainville, 1843:30. Type locality Cayenne, French Guiana.

_Canis robustior_ Lund, 1843:33. Type locality Lagoa Santa Caves, Brazil.

_Canis melanostomus_ Wagner, 1843:358. Type locality not known to author; paper not seen.

_Canis enterirracus_ Burmeister, 1861:400. Type locality Paraná, Argentina.

_Canis radis_ Günther, 1879:316. Type locality Demeurre, British Guiana.

_Urocyon aquilus_ Bangs, 1898:93. Type locality Santa Marta, Colombia.

_Lycalopex vetulus_ Studer, 1905:2 (not Lund, 1842). Type locality Marajó Island, Brazil.

_Cerdocyon mimax_ Thomas, 1914:355. Type locality Chapada, Matto Grosso, Brazil.

_Cerdocyon apollinaris_ Thomas, 1918:371. Type locality Chaco, Colombia.

_Cerdocyon tucumanus_ Thomas, 1921:382. Type locality Vipos, Argentina.

**CONTEXT AND CONTENT.** Context given above in generic account. Five subspecies of *C. thous* are recognized as follows (Lanugu, 1969).

_C. t. aquilus_ (Bangs, 1898:93), see above (apollinaris Thomas a synonym).

_C. t. azarae_ (Wied, 1824), see above (guarauna Hamilton Smith, brachyteles Blainville, melanostomus Wagner, angulensis Thomas, and robustior Lund are synonyms).

_C. t. enterirracus_ (Burmeister, 1861:300), see above (riograndidensis Ihering, mimax Thomas, fronto Lionberg, tucumanus Thomas, jacundus Thomas, fulvogriseus Zakovsky, and melampus Wagner are synonyms).

_C. t. germanus_ Allen, 1925:55. Type localitysavanna of Bogota, Colombia.

_C. t. thous_ (Linnaeus, 1766:60), see above (canicurus Brongniart, radis Günther, guarauna Hamilton Smith, savannarum Thomas, vetulus Studer, and lunaris Thomas are synonyms).

**DIAGNOSIS.** Because the genus is monotypic, the following diagnostic characters apply to genus and species: skull with a relatively short muzzle narrowing anteriorly (Fig. 2); sagittal area flattened and lyroform, its outer boundaries usually heavily ribbed; forehead convex owing to development of a large frontal sinus that does not penetrate the postorbital process; palatine shorter than toothrow.

The dental formula is i 3/3, c 1/1, p 4/4, m 3/3, total 44. Canines are small relative to cheek teeth. Slender, attenuate premolars are separated by diastemata. Carnassials are small relative to molars, their lengths always less than the combined lengths of M₂ + 3. Protocone of P₄ is small, has a well-rounded anterobuccal border, and is oriented anterolingually. Upper molars are very broad for their lengths with strong cingula developed. Large hypocones are present (Fig. 2).

Mandible has subangular lobe (sensu Huxley, 1880) developed. Mandibular condyle is above level of alveolar border and angular process has pterygoid fossa expanded (Type D of Gaspar, 1964, fig. 24). Coronal process is anteroposteriorly broad and dorsoventrally low. Lower molars have mesoconid (Fig. 3); M₂ has strong paramarginal and large metaconid positioned slightly posterior to the protoconid. Anterobuccal cingulum is well developed.

**GENERAL CHARACTERS.** The back and sides of the body are brindle gray and pale bay, a mixture of yellowish white and black hairs with more black along the back and at base of tail. The face, ears, and fronts of legs are reddish, whereas the throat and belly are pale or whitish. Tips of the ears, backs of legs, and the region between the jaws are black. Within this pattern there is a great deal of variation among individuals; some are quite pale and others are much darker with nearly black legs and ears (Buehler, 1973; Cabrera and Yepes, 1960) (Fig. 1).

_Langguth (1970) listed the following mean external measurements (in mm) based on 20 specimens of C. thous compiled from the literature and in collections: length of head and body, 642; length of tail, 285; length of hindfoot, 132; length of ear, 67. Mean and extreme (in parentheses) measurements in mm for cranium and tooth measurements for C. thous aquilus (n = 20) from Colombia are: condylarbasal length, 109.1 (103.0 to 122.8); greatest length of skull, 123.1 (111.8 to 138.3); breadth of braincase, 45.9 (44.5 to 47.0); least interorbital breadth, 26.0 (24.1 to 29.4); postorbital constriction, 31.8 (29.3 to 34.3); width of zygoma, 68.4 (65.0 to 76.1); length of mandible, 102.1 (89.6 to 105.9); length of mandibular toothrow, 64.0 (56.5 to 67.2).

**DISTRIBUTION.** Crab-eating foxes inhabit the savannah and woodland areas of northeastern South America (Fig. 4). Their range extends from Colombia and Venezuela south into Brazil, Paraguay, northern Argentina, and Uruguay.

**FOSSIL RECORD.** Two fossil species referred to this genus, _C. ensenadensis_ (Ameghino, 1885) and _C. lycdekeri_ (Ameghino, 1889), compare closely with the living species, _C. thous_. _Cerdocyon_ is recorded in North America from Hemphillian de-
posits in Arizona and from Blancan deposits in Baja California, Mexico (Teford, in litt; Torres-R. and Ferrusquia-V., 1981).

**FORM.** Langnuth (1969) included comments relative to the cranial and postcranial anatomy of *C. thous* in his study of South American canids (for a summary, see Tables 4 and 8 in Langnuth, 1969). Adaptations in the masticatory and locomotor apparatus of *C. thous* are in accord with its role as an omnivorous ground-dwelling carnivore inhabiting forested areas. The short, robust limbs seen in *C. thous* facilitate movement in dense forests. *Cerdocyon thous* is similar to *Atelocynus*, *Speothos*, and *Chrysocyon*

![Figure 2: Skull of Cerdocyon thous thous (AMNH 130475, female from Auyanepui, Venezuela) in dorsal, lateral, and ventral views. Scale is 5 cm. Drawn by Nancy Halliday.]

![Figure 3: Left lower jaw of Cerdocyon thous thous (AMNH 130475) in lateral and occlusal views. Scale is 5 cm. Drawn by Nancy Halliday.]

in having a short, uncoiled caecum; this contrasts with the long, coiled caecum typical of other canids.

**ONTOGENY AND REPRODUCTION.** The little information that is available on the reproductive habits of this animal comes from observations of captives in zoos. The following discussion is based on reproductive data for three females reared at the National Zoological Park, Washington, D.C. (Brady, 1978). In captivity, they produced two litters of three to six pups a year with a 7 to 8 month interbirth interval. The available information suggests a peak in births in January or February, but it is not known if another peak occurs in July and August. Both sexes become sexually mature during their first year. The appearance of raised leg urination, common to both sexes, indicated the onset of sexual maturity. The average gestation period was 56 days but varied from 52 to 59.

Pups of crab-eating foxes are born with the eyes and ears closed and without teeth. They weigh between 120 and 160 g at birth. The natal coat is charcoal grey with a buff patch in the inguinal region. Beginning with day 20, the pelage begins to change color, and by day 35 the adult pelage is attained. Body measurements and data on tooth eruption were presented by Brady (1978) for the three litters.

Development of the young is divisible into three stages: (1) early nesting stage (days 1 to 30 after birth), when the young are completely dependent on mother’s milk; (2) mixed nutritional dependency stage (days 30 to 90), when the pups are completely weaned; and (3) postweaning dependency stage (90 days to 5 months after birth), when the pups subsist almost entirely on solid foods.

**ECOLOGY.** *Cerdocyon thous* is a ground-dwelling carnivore, living in the forest and forest edge, open woodlands and wooded savannas. It preys on small mammals, eats fruits and invertebrates, and scavenges.

Normally nocturnal, crab-eating foxes are opportunistic hunters. Mondolfi (in Walker, 1975) reported that the stomachs of 19 foxes contained, in descending order of abundance, small

![Figure 4: Map showing the geographic distribution of Cerdocyon thous. Numbers refer to subspecies ranges compiled by Cabrera (1931, 1957): 1. *C. t. aquilus*; 2. *C. t. azarae*; 3. *C. t. entromanus*; 4. *C. t. germanus*; 5. *C. t. thous*.]

0 600 1200 km
rodents (field mice and rats), insects (mostly grasshoppers), fruits (figs, small berries, bananas, guasimo, and mangoes), lizards, frogs, toads, and birds. Brady (1979) suggested that crab-eating foxes shifted their food seasonally on the llanos of central Venezuela in accordance with availability. During the wet season, foxes relied primarily on insects which were abundant and easily captured in the drier areas of their home ranges. During the dry season, when insects became scarce, foxes shifted their hunting activities to the lowlands where crabs and vertebrates were abundant.

Although the fur of C. thous has little commercial value, crab-eating foxes are subject to constant and intense hunting pressure.

**BEHAVIOR.** Observations on the behavior of C. thous are based primarily on Brady's (1979) study in Venezuela. His data suggest that adult foxes must often travel in pairs but hunt individually. Either sex led foraging movements, and frequent changes in the lead occurred. Foxes usually foraged from 1800 to 2400 h with intermittent rest periods. The home ranges of the three pairs studied by Brady were in close proximity to one another, with some overlap. Different types of terrain were occupied by each pair, ranging from wet, muddy lowlands to open grasslands. Seasonal shifts in utilization of home range appear to be correlated with changes in availability and distribution of prey. During the wet season, 85% of sightings of foxes were in dry highlands, compared with the dry season when 66% of sightings were in wet lowlands. Several intergroup encounters were observed, but the most occurred during the wet season when range overlap was greatest.

Langguth (1975) reported that in many areas, crab-eating foxes occur sympatrically with the pampas fox, *Dusicyon gynaducers.* He suggested that because these two species of foxes utilize similar foods competitive exclusion may occur in some areas.

**GENETICS.** The crab-eating fox has a diploid number of 74 chromosomes and a fundamental number of 110. The karyotype comprises 36 metacentric and submetacentric and 38 acrocentric autosomes; the X chromosome has not been identified (Wurster-Hill, 1973).

**REMARKS.** The taxonomic position of the genus *Cerdocyon* within the family Canidae is unresolved. In Langguth's (1969) classification, *Cerdocyon thous* was given subgeneric rank in the genus *Cerdocyon,* which also included the subgenera *Atelocynus* and *Speothos.* In a later classification, Langguth (1975) elevated *Cerdocyon (Cerdocyon)* to generic rank, recognizing *C. thous* as the only species in the genus. A numerical classification of the family by Clutton-Brock et al. (1976) followed Simpson's (1945) arrangement of species, recognizing *C. thous* as a valid species, and differing from Langguth (1975) in recognizing *C. thous* in the genus *Dusicyon.* Van Gelder (1978) recognized *Cerdocyon* as subgenus of *Canis.* Preliminary studies of recent and fossil forms of *Cerdocyon* (Berta, pers. observ.; Tedford and Taylor, in litt.) support recognition of *Cerdocyon* as a genus and suggest that *C. thous* is generally distinct from both *Dusicyon* and *Canis* and most closely related to the Asian raccoon dog, *Nyctereutes.*

The generic name *Cerdocyon* is formed from the Greek words kerkos (meaning fox) and cyon (dog) referring to the dog and fox-like characters of this animal. The specific name *thous* is formed from the Greek word thos and means jackal. Other vernaculars include Zorro de Monte, Common zorro, Forest fox, and Azara's fox.

**LITERATURE CITED**


— 1843. Bericht über die neuesten Leistungen von Lund, bezüglich der gegenwärtigen wie der ausgestorbenen Säuge-
2:647–1500.
Weimar.


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