

3.8 Sechuran fox *Pseudalopex sechurae* (Thomas, 1900) Data Deficient (2004)

C. Asa and E.D. Cossíos

Other names

English: Sechura desert fox, Peruvian desert fox; **French:** renard de Sechura; **German:** Sechurafuchs, perufuchs; **Spanish:** perro de monte de Sechura, zorra Pampera (Ecuador), zorro costeño, zorro de Sechura, Pacha zorro, Juancito (Peru); **Indigenous names:** Pacha zorro (Cajamarca Department); Moche and Olmo: Pacter, Pacterillo (Peru).

Taxonomy

Canis sechurae Thomas, 1900. Ann. Mag. Nat. Hist., ser. 7, 5:148. Type locality: “Desert of Sechura, N.W. Peru... Sullana”.

Simpson (1945) included the Sechuran fox in the genus *Dusicyon*. Langguth (1969) also considered *Pseudalopex* a subgenus of *Dusicyon*, although he subsequently (1975) regarded it as a subgenus of *Canis* (as did Van Gelder 1978). Clutton-Brock *et al.* (1976) also included the species in the genus *Dusicyon*, but did not recognise subgenera. Berta (1987) recognised *Pseudalopex* as a distinct genus including the Sechuran fox. This treatment was followed by Wozencraft (1993) and Nowak (1999).

Chromosome number is not known.

Description

The Sechuran fox is the smallest species of the genus *Pseudalopex* (Huey 1969) (Table 3.8.1). The head is small, with relatively long ears (about 2/3 the length of the

Table 3.8.1. Body measurements for male Sechuran foxes from Coto de Caza El Angolo, Piura (CDC Universidad Nacional Agraria Molina).

HB	670mm (500–780) n=4
T	292mm (270–340) n=4
SH	288mm (220–360) n=4
E	70mm (60–80) n=4
WT	3.6kg (2.6– 4.2) n=4

head) and a short muzzle. Face is grey, and there is a rufous-brown ring around the eyes (Thomas 1900). The ears may be reddish on the back; the dark muzzle may have paler hairs around the lips. The pelage consists of pale underfur with agouti guard hairs, while the underparts are fawn or cream-coloured. There is sometimes a dark stripe down the back. The frontal limbs (up to the elbows) and the back limbs (up to the heels) are usually reddish in colour. The tail is relatively long and densely furred, ending in a dark tip. The dental formula is 3/3-1/1-4/4-2/3=42. The carnassials are slightly smaller, and the grinding teeth larger, than in allied forms (Thomas 1900); the canines are “fox-like” (Clutton-Brock *et al.* 1976).

Subspecies Monotypic.

Similar species Chilla (*Pseudalopex griseus*): usually presents a rufous tinge on the face and muzzle and a black spot on the chin; muzzle slightly narrower. Hoary fox (*P. vetulus*): rufous face and muzzle; well-marked dark stripe along the dorsal line of the tail; general colour normally brighter.



Adult male Sechuran fox.
Lambayeque, Peru, 2001.

Daniel Ascencios

Current distribution

The Sechuran fox can be found in the coastal zones of north-western Peru and south-western Ecuador, between 3 and 12°S (Figure 3.8.1). In Peru, it is distributed on the western slope of the Andes between the frontier with Ecuador and Lima. Specimens living further south may be the chilla or another species not yet described (E. Vivar pers. comm.).

Range countries Ecuador, Peru (Eisenberg and Redford 1999).

Relative abundance

Little known. This species was judged by Grimwood (1969) as abundant and not in need of protection. The species is easily observed in rural areas and disturbed environments from Piura department to La Libertad department in Peru. Surveys based on footprints in Coto de Caza El Angolo in Piura, Peru, show an average of 12.6 foxes per km (CDC 1989). The Sechuran fox is uncommon in Ecuador.

Estimated populations/relative abundance and population trends

Table 3.8.2. The status of Sechuran foxes in various regions (Population: A=abundant, C=common, U=uncommon; X=present but abundance unknown, ?=current presence not confirmed; Trend: S=stable, D=declining, ?=unknown).

Country	Population size	Trend
Ecuador	U	D
Peru	A	S
Tumbes Department	C	S
Piura Department	A	S
Lambayeque Department	A	S
La Libertad Department	A	S
Cajamarca Department	C	S
Ancash Department	X	?
Ica Department	?	?
Lima Department	U	?

Habitat

The Sechuran fox occupies habitats ranging from sandy deserts with low plant density to agricultural lands and dry forests (Cabrera 1931; Huey 1969; Langguth 1975).

Food and foraging behaviour

Food A generalist, omnivorous species, the Sechuran fox varies its diet opportunistically, preferentially consuming vertebrate prey or carrion when available, but often depending predominantly on seeds or seed pods. Studies during late winter and early spring in the inland Sechuran desert found droppings containing mainly the remnants of seeds or seed pods of *Prosopis juliflora* (algarrobo), *Capparis scabrida* (zapote) and *C. avicennifolia* (vichayo)

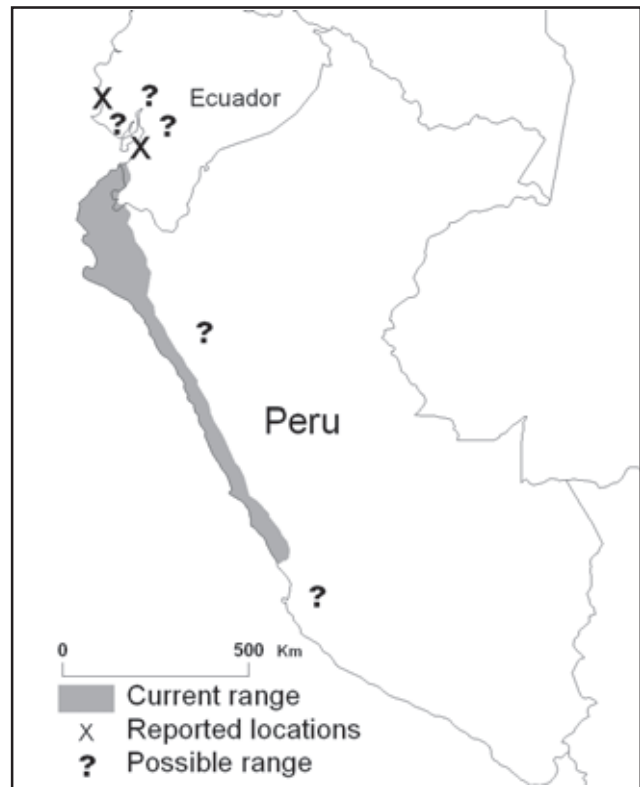


Figure 3.8.1. Current distribution of the Sechuran fox.

(Huey 1969; Asa and Wallace 1990). Seeds in faeces were not digested, indicating that the syrupy matrix surrounding the seeds may be the actual source of nourishment. In a germination study (C. Asa unpubl.), seeds recovered from faeces sprouted earlier than those gathered from the ground, suggesting that the foxes not only act as seed dispersers, but affect the ability of the seeds to germinate rapidly when sporadic rains occur.

Fox droppings along the coast contained crabs and several bird species, probably obtained as carrion that washed ashore (Huey 1969; Asa and Wallace 1990). However, following the El Niño rains of 1983/1984, fox droppings revealed a dramatic dietary shift to grasshoppers and mice (*Phyllotis gerbillus*) as these prey became more abundant (Asa and Wallace 1990). During summer in Reserva Nacional Lachay (coastal loma in central Peru), the main foods were insects, scorpions (*Carica candicans*), fruits and rodents (Asa and Wallace 1990). The lack of standing water in the inland desert habitat suggests that the foxes can survive without drinking. However, foxes may lick condensation from vegetation on foggy mornings.

Foraging behaviour The Sechuran fox is primarily nocturnal. Radio-telemetry data indicated that individuals emerged from daytime sleeping dens in rocky buttes before sunset and remained active through most of the night before re-entering dens at dawn (Asa and Wallace 1990).

The phases of the moon did not influence this activity pattern, perhaps because foxes were consuming seeds and seed pods rather than hunting. Occasionally, foxes can be seen during the day (Huey 1969; C. Asa and M.P. Wallace pers. obs.). No food caching has been recorded.

Damage to livestock or game Damage to poultry and guinea pigs has not been measured, but some rural habitants (principally of Lambayeque, La Libertad and Piura departments, Peru) often report such damage, principally from September to January (D. Cossíos unpubl.). There are no reports of damage to game.

Adaptations

In addition to the species' nocturnal activity, the small size and somewhat large ears of the Sechuran fox may also be adaptation to desert life. The species' ability to exist in areas with no standing water also attests to its adaptation to arid habitats.

Social behaviour

Little is known about the social behaviour of this species. Groups larger than three individuals are rare, and usually only observed in cases where food sources are concentrated. Of four radio-collared foxes, the home range of one adult male adjoined that of one adult female accompanied by two almost full-grown juveniles (one male and one female) (Asa and Wallace 1990). However, each individual foraged separately during the night and occupied separate, though nearby, dens during the day.

Reproduction and denning behaviour

Birdseye (1956) reported births occurring primarily in October and November. Abdominal distension suggested that one adult radio-collared female may have been pregnant when captured in August (Asa and Wallace 1990). If this female was indeed pregnant, it is significant that the adult male in the adjoining territory did not associate with her at that time, as might be expected if he was her mate. The male in her territory appeared to be juvenile, but could possibly have been her mate. However, the other juvenile within her territory was female, suggesting that both juveniles may have been her offspring from the previous breeding season.

Competition

Occasional competition with the culpeo (*P. culpaeus*) may arise when this species moves to the coast. There is probably competition with the chilla at the southern limit of its range.

Mortality and pathogens

Natural sources of mortality According to local reports boa constrictors prey on pups. Predation by other carnivores, like pumas (*Puma concolor*), other felids and

culpeo foxes is possible in some areas, but pumas and jaguar (*Panthera onca*) are now uncommon in the Sechuran fox's habitat. Large raptors in these areas normally prey on smaller animals (e.g., *Geranoetus melanoleucus*, *Sarcorhamphus papa*, *Buteo* spp., and others).

Persecution The Sechuran fox is persecuted in some zones where it is considered a predator of poultry, guinea pigs and other domestic animals.

Hunting and trapping for fur Although the use of this species for fur is not permitted, the illegal practice does exist though on a very small scale. Illegal hunting and trapping for making amulets and dissecting specimens is more extensive.

Road kills Road kills are common in northern Peru, but the number of the road kills is not estimated.

Pathogens and parasites Not known.

Longevity Not known.

Historical perspective

Shamans in northern Peru use dissected specimens or parts of the fox's body (e.g., paws, tails or heads), to perform traditional magic-religious rituals.

Conservation status

Threats The most important threats are from the market for handicrafts and amulets and from persecution because of damage to livestock. In Peru, the rural inhabitant's attitude towards the species is one of persecution (68.3% of correspondents) or indifference (31.7%). The stated reasons for persecution were due to damage on domestic fowl and guinea pigs (65% of correspondents), the consumption of vegetal or stored goods (13.3%), and the belief of goat predation (10%) (D. Cossíos unpubl.). The Sechuran fox also faces some pressure in agricultural zones and from urbanisation and habitat degradation; habitat reduction or loss is considered the principle threat to this species in Ecuador (Tirira 2001).

Commercial use Illegal sale of puppies, of amulets made from body parts, and of handicrafts made from fur occurs principally in the markets of Tumbes, Chiclayo, Piura and Lima city. The most common type of handicraft made with coastal fox parts consists of preserved adult animals in a "sitting" position. This activity is limited almost exclusively to the department of Piura, Peru.

The practice of magic-religious rituals by shamans involving preserved Sechuran fox specimens or parts is the principal human use of this species in Peru. The specimens are used to attract "good spirits" or "positive energies" during premonition rituals or to manufacture amulets,

called seguros, with different purposes. Some shamans use also the Sechuran fox's fat for the treatment of bronchial illness and stomach disorders (D. Cossíos unpubl.).

Occurrence in protected areas

- *Ecuador*: Parque Nacional Machalilla, Manabí; Reserva Ecológica Manglares Churute, Guayas.
- *Perú*: Zona Reservada de Tumbes, Tumbes; Parque Nacional Cerros de Amotape, Tumbes; Coto de Caza el Angolo, Piura; Coto de Caza Sunchubamba, Cajamarca; Santuario Histórico Bosque de Pomac, Lambayeque; Zona Reservada Algarrobal el Moro, Lambayeque; Zona Reservada de Laquipampa, Lambayeque; Reserva Nacional de Calipuy, Ancash; Reserva Nacional de Lachay, Lima.

Protection status CITES – not listed.

Current legal protection Between 1975 and 2000, a governmental authorisation was required to hunt the species in Peru. Since 2000, hunting outside the established areas and trade of the species has been prohibited. The police and the Ministry of Agriculture are responsible for the control of illegal trade. However, it has proven especially difficult to control trade in rural areas and in some cities. Currently, there are no international treaties or conventions regarding this species.

Conservation measures taken The Sechuran fox was not traditionally protected, for cultural reasons, until recently. Now it is protected in Santa Catalina de Chongoyape, a rural community of Lambayeque department, because they are considered important for tourism and as seed dispersers (D. Cossíos unpubl.).

Occurrence in captivity

Some specimens are kept in the following authorised collections: Parque de las Leyendas Zoo, Lima (26 specimens) and Atocongo Zoo, Lima (3 specimens).

Current or planned research projects

E. Vivar (Museum of Natural History, U.N.M.S.M, Lima, Peru) is currently conducting research on the taxonomy and distribution of the Sechuran fox.

Investigations of its relationship with humans, its role in seed dispersal and its diet in Peru are being conducted by D. Cossíos (Instituto Nacional de Recursos Naturales – INRENA, Peru).

Core literature

Asa and Wallace 1990; Birdseye 1956; Cabrera 1931; Huey 1969; Langguth 1975.

Reviewers: Elena Vivar, Michael P. Wallace. **Editors:** Michael Hoffmann, Claudio Sillero-Zubiri.

3.9 Hoary fox
Pseudalopex vetulus (Lund, 1842)
Data Deficient (2004)

J. Dalponte and O. Courtenay

Other names

English: hoary zorro, small-toothed dog; **French:** renard du Brésil; **German:** Brasilianischer, kampffuchs; **Portuguese:** raposa-do-campo, raposinha (Brazil); **Spanish:** zorro de campo común; **Indigenous names:** Tupy: jaguarapitanga; Xavante: waptsã wa (Brazil).

Taxonomy

Canis vetulus Lund, 1842. K. Dansk. Vid. Selsk. Naturv. Math. Afhandl., 9:4. Type locality: Lagoa Santa, Minas Gerais [Brazil] (Cabrera 1958).

Burmeister (1854) created the genus *Lycalopex* for the hoary fox. Osgood (1934) reduced *Lycalopex* to a subgenus of *Dusicyon*, followed by Simpson (1945), Cabrera (1958) and Clutton-Brock *et al.* (1976). Langguth (1969, 1975) placed the species in *Lycalopex*, and Van Gelder (1978) included it in *Canis* (*Lycalopex*). Berta (1987) placed the species in *Pseudalopex* and was followed by Wozencraft (1993).

Chromosome number: 2n= 37 (Wurster-Hill and Benirschke 1968).

Description

The hoary fox is a slender animal with a relatively short, pointed muzzle, and large ears (Table 3.9.1). Pelage colour is variable: the upper body regions are pale grey, whereas the underparts are generally buff yellow to chestnut including the neck, chest and patch behind the ears. The anterior part of the neck is buff white, but the underside of

Table 3.9.1. Combined body measurements for the hoary fox from Pirapora (Minas Gerais), Franca (São Paulo) (Vieira 1946); Chapada dos Guimarães (Mato Grosso) (Thomas 1903); São Miguel (Minas Gerais) (Courtenay unpubl.); Nova Xavantina, Cuiabá, Chapada dos Guimarães (Mato Grosso), Arinos (Minas Gerais) (J. Dalponte unpubl.); Planaltina (Distrito Federal), São Miguel (Minas Gerais) (J. Marinho-Filho pers. comm.)

HB male	587mm (490–715) n=13
HB female	575mm (510–660) n=6
T male	338mm (270–380) n=13
T female	282mm (250–310) n=5
HF male	129mm (120–135) n=11
HF female	129mm (127–130) n=3
E male	69mm (60–76) n=10
E female	67mm (60–75) n=3
WT male	3.3kg (2.5–4) n=8
WT female	3.4kg (3.0–3.6) n=3