MAMMALIAN SPECIES No. 543, pp. 1–6, 4 figs.

Lagostomus maximus.

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Published 27 December 1996 by the American Society of Mammalogists

Lagostomus Brookes, 1828

Lagostomus Brookes, 1828:96. Type species *Lagostomus trichodactylus* Brookes (=*Dipus maximus* Desmarest, 1817).

CONTEXT AND CONTENT. Order Rodentia, Suborder Hystricognathi (Caviomorpha), Superfamily Chinchilloidea, Family Chinchillidae. The genus *Lagostomus* has one extant species (Woods, 1993). For reviews of the complex taxonomic history of *Lagostomus*, see Tate (1935), Ellerman (1940), and Cabrera (1961).

Lagostomus maximus (Desmarest)

Plains Vizcacha

Dipus maximus Desmarest, 1817:117. Type locality not designated. Cabrera (1961:560) suggested that southern Corrientes Province, Argentina, be designated type locality.

Viscaccia americana Schinz, 1825:429. Type locality not designated.

Lagostomus trichodactylus Brookes, 1828:96. Type locality not designated.

Vizcacia pamparum Schinz, 1829:224. Type locality not designated.

Chinchilla diana C. H. Smith, 1842:309. Type locality not designated.

Lagostomus maximus Hollister, 1914:58. Type locality in Buenos Aires Province "8 miles north of Carmen de Patagones, Argentina," not "8 miles south of Carmen de Patagones" according to Tate (1935:368) and Ellerman (1940:236). First use of present combination.

CONTEXT AND CONTENT. Context as in the generic account. Three subspecies are recognized based on coat color, skull morphology, and incisor width, but ranges of subspecies are uncertain (Llanos and Crespo, 1952).

L. m. immollis Thomas, 1910:245. Type locality "Tapia, Tucuman, Argentina."

L. *m. maximus* Desmarest, 1817:117, see above. Includes *americana*, *trichodactylus*, *pamparum*, and *diana*.

L. m. petilidens Hollister, 1914:58, see above.

DIAGNOSIS. The following characteristics distinguish *Lagostomus maximus* from other members of the family Chinchillidae: bilaminate molars, a strong occipital crest, three digits on the hindlimbs, and prepuce abdominal in position (Pocock, 1922). This species has a prominent facial pattern consisting of two parallel black bands, one passing through the eyes and the second across the nose, separated by a white stripe (Fig. 1). Filiform penis and lack of sacculus urethralis are unique among hystricognath rodents (Wood, 1974).

GENERAL CHARACTERS. The plains vizcacha has a short, smooth coat with gray-brown hair on the dorsum, paler flanks, and white underparts. Both sexes have white markings on the cheeks, above the eyes, and at the base of the moderately furred ears. No seasonal changes in coat color have been documented.

The head is massive and the eyes and ears are large. The forelimbs are short and the hindlimbs are long and muscular. The forefoot has four long, flexible digits. The hindfoot is elongate, and the three toes are armed with strong claws.

The plains vizcacha is among the most sexually dimorphic rodents (Llanos and Crespo, 1952). Males have a heavier head and a more pronounced facial mask than females, and are much larger. Means, ranges (in parentheses), and sample sizes for body mass (in kg) and external measurements (in mm) of adult plains vizcachas from the humid grasslands of northern Argentina are (Llanos and Crespo, 1952): females—mass, 4.0 (3.5–5.0), n = 55; total length, 641 (530–735), n = 55; length of tail, 160 (135–173), n = 20; length of hindfoot, 112 (104–118), n = 18; and length of ear, 56 (52–59), n = 20; males—mass, 6.3 (5.0–8.8), n = 65; total length, 753 (685–820), n = 55; length of tail, 181 (154–205), n = 34; length of hindfoot, 126 (118–136), n = 29; and length of ear, 58 (50–65), n = 30. These measurements were made to the tip of the longest hairs on the tail. Mean mass of adult plains vizcachas in semiarid grasslands of San Luis Province, Argentina, is lower (Jackson, 1990*a*): females, 3.4 kg, n = 51; males, 5.88 kg, n = 43.

DISTRIBUTION. *Lagostomus maximus* is native to the Pampas and adjoining semiarid Monte and Chaquenean regions of Argentina, Bolivia, and Paraguay (Fig. 2; Cabrera, 1961; Cabrera and Yepes, 1960; Redford and Eisenberg, 1992). Detailed data on the current distribution of this species are not available. In Argentina, the plains vizcacha was classified as a "national plague" under Law 4863 of 1905. Official campaigns have eradicated it in many arable areas (Godoy, 1963). Plains vizcachas also are hunted commercially for meat and fur. As a result, this species has disappeared from most prime grasslands and agricultural areas in Argentina. Weir (1974*a*) expressed concern that control measures and exploitation might cause extinction of *Lagostomus maximus*, but it is still abundant in marginal areas. The distribution of the plains vizcacha has expanded through human activity in some semiarid areas; new colonies are often peridomestic, suggesting that habitat modification by clearing and grazing facilitate establishment (Bucher, 1987). Barlow (1969) indicated that the plains vizcacha was once introduced into Uruguay, but was then extirpated.

FOSSIL RECORD. The family Chinchillidae is known from the early Oligocene to Recent in South America (Simpson, 1940). The genus *Lagostomus* appeared in the Pampean Ensenadan faunal stage of the Pleistocene in Argentina (Landry, 1957).

FORM AND FUNCTION. The palate is strongly constricted anteriorly. The dental formula is i 1/1, c 0/0, p 1/1, m 3/3, total 20. Cheek teeth are ever-growing and have a pattern of tightly pressed transverse laminae without cement. Two laminae are present in each tooth except in M3 of the upper series, which has three (Ellerman, 1940). Paroccipital processes are long and distinct from the small bullae (Fig. 3). The infraorbital foramen is large with a

FIG. 1. Adult male plains vizcacha, *Lagostomus maximus*, in front of a burrow, Lihue Calel National Park, La Pampa Province, Argentina.

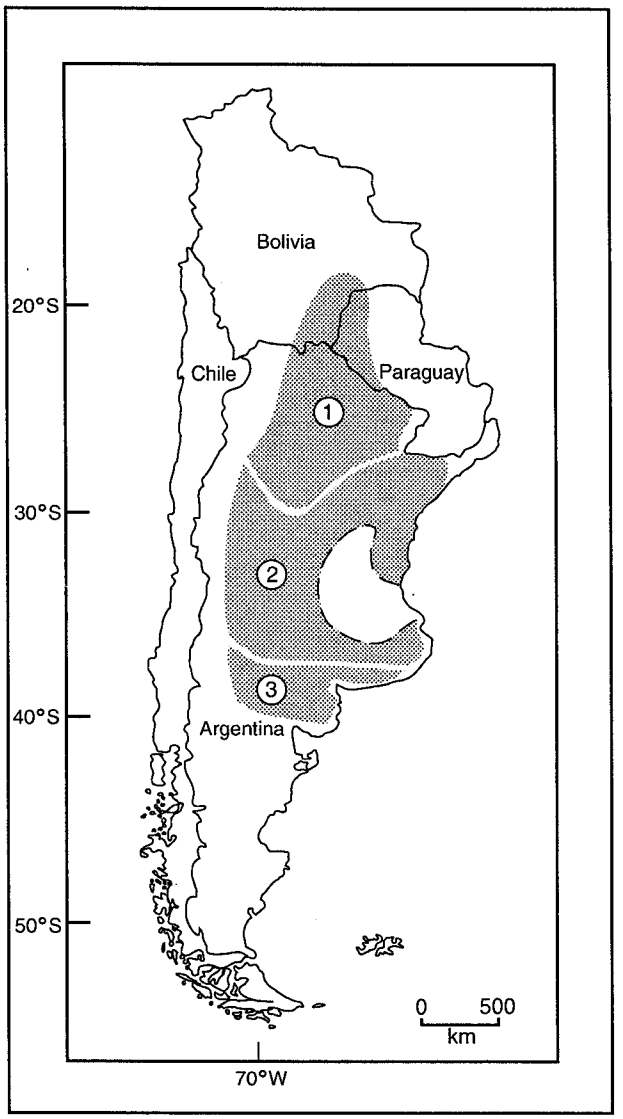

FIG. 2. Distribution of *Lagostomus maximus* in Bolivia, Paraguay, and Argentina (modified from Llanos and Crespo, 1952, and Redford and Eisenberg, 1992): 1, *L. m. immollis*; 2, *L. m. maximus*; 3, *L. m. petilidens*. The white area within the range of *L. m. maximus* represents a conservative estimate of the pampas area from which vizcachas have been exterminated (Llanos and Crespo, 1952).

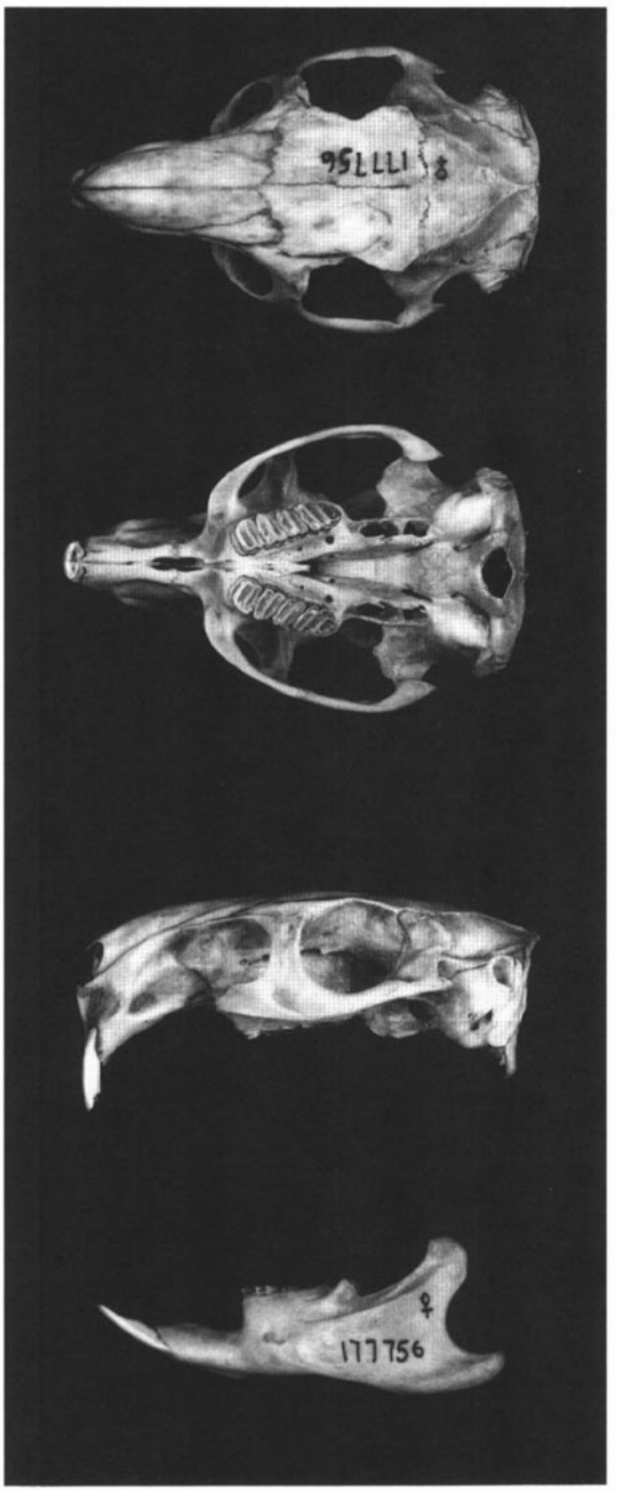

FIG. 3. Dorsal, ventral and lateral views of cranium, and lateral view of mandible of a female plains vizcacha, *Lagostomus maximus*, from La Pampa Province, Argentina (Museum of Vertebrate Zoology, University of California, Berkeley 177756). Greatest length of cranium is 108 mm.

prominent canal for nerve passage. Guard hairs are dark and coarse, but the underfur is soft. General color of the upper parts shows some local variation from light brown in sandy areas to dark gray in others, but the substrate also may tinge the coat color. Male *Lagostomus maximus* have a mat of coarse vibrissae on the cheeks (Pocock, 1922). These vibrissae are absent in females. The tail is furred except for the horny base on the underside. Hair is longest dorsally. During aggressive encounters, the tail is arched and the hairs erected (Branch, 1993*a*). The tail is used as a third leg when the animal sits on its haunches (Weir, 1974*a*). Plains vizcachas frequently have stub tails because the tail breaks easily at the fourth caudal vertebra (Anderson and Jones, 1984).

Plains vizcachas dig with their forefeet and the soil is pushed out with the nose or kicked backward by the hind legs. The rhinarium is furred and intricately folded, preventing earth from entering the nostrils (Pocock, 1922). The middle hind digit has the largest claw, and a pad of stiff bristles on the inner side is used for grooming.

Females have two pairs of mammae, located laterally on the thorax (Weir, 1974*b*). Fat concentration of the milk ranges from 116 to 182 g/l (Goode et al., 1981). Mean concentrations ($\pm SD$) of other components are: 17 ± 3.1 mM Na, 32 ± 4.5 mM K, 35 ± 6.2 mM Cl, 116 ± 9.3 mM lactose, and 15.7 ± 1.1 g total nitrogen/l. Compared to most other mammals, plains vizcacha milk has a high Na:K ratio (1:1.95) and a low citrate concentration (<10–220 mg/l).

Neonates are relatively large and precocious. In captivity, males were significantly heavier than females at birth (males, $\bar{X}$ = 207.0 ± 6.1 g *SD*, n = 28; females, $\bar{X}$ = 185.0 ± 4.6 g *SD*, n = 49); this difference between the sexes increases during adolescence

(Weir, 1971*a*). For day-old *L. maximus* from San Luis Province, Argentina, there were no significant differences between the sexes in mass ($\bar{X}$ of both sexes = 183.7 g, 159–230, n = 25), total length ($\bar{X}$ = 240 mm, 224–260, n = 11), or length of hindfoot ($\bar{X}$ = 56.5 mm, 49–60, n = 18; Jackson, 1990*a*).

Growth rates of mass, body-tail length, and length of hindfoot have been calculated from a growth curve established from specimens collected in San Luis Province, Argentina, and aged by eye-lens weight. Males (n = 191) grew faster and became larger and heavier than females (n = 202). In males, mass increased rapidly until 18 months of age ($\bar{X}$ = 5.3 kg) and then slowed; the heaviest was 7.3 kg at 30–32 months. For females, weight gain was greatest until 16–18 months ($\bar{X}$ = 3.35 kg); the heaviest was 4.260 kg at 65 months. In both sexes, body length increased until 16–18 months and length of hindfoot increased until animals reached 1 year of age (Jackson, 1986*b*, 1990*b*).

ONTOGENY AND REPRODUCTION. The plains vizcacha possesses a unique reproductive physiology that features hyperovulation of 200–800 ova, followed by delayed implantation of up to five blastocysts in each uterine horn (Weir, 1971*a*, 1971*b*). All but the distal embryo in each uterine horn usually are absorbed almost at once so that twins are common (Roberts and Weir, 1973). Newborns are precocial. *Lagostomus maximus* has a vaginal closure membrane, copulatory plug, long gestation period (154 days including the delayed implantation of 18 days), and lactation anestrus (Weir, 1974*b*). The estrous cycle is 40 days. Breeding is seasonal in the wild; most females are in estrus in the autumn and the young are born in the austral spring (Branch et al., 1993; Jackson, 1989; Llanos and Crespo, 1952; Weir, 1971*a*). Average litter size was 1.94 in San Luis Argentina (Jackson, 1989), 1.89 in Entre Ríos, Argentina (Llanos and Crespo, 1952), and 1.93 in captivity (Weir, 1971*a*). Females first conceived at a mean age of 214 days and gave birth at 368 days (Jackson, 1989). Lactation lasts 2 to 3 months (Jackson, 1989). Young at full term account for 15% of the body mass of the mother (Llanos and Crespo, 1952).

Sexual maturity in males is at 12–16 months (Jackson, 1989; Llanos and Crespo, 1952). Males exhibit a well-defined annual reproductive cycle. Testicular and epididymal masses, and serum testosterone peak during the mating season in autumn; gonadal activity decreases during winter (Calvo et al., 1986; Fuentes et al., 1991, 1993; Jackson, 1989). Jackson (1989) found that at least 30% of the mature males (>4 kg) were fertile in any season. Conception rates and male fertility peaked in March–April. During these months, 91% of the males were fertile.

ECOLOGY. The plains vizcacha lives in lowland habitats including subtropical, humid grasslands in northeastern Argentina, dry thorn scrub in Paraguay, Bolivia, and north central Argentina, semiarid grasslands in central Argentina, and desert scrub in the southwestern part of its range (Jackson, 1986*a*; Llanos and Crespo, 1952). These habitats differ greatly in annual precipitation (e.g., >1,000 mm in northeastern Argentina and <300 mm in west central Argentina) and predictability of rainfall. However, information concerning the ecology and behavior of *L. maximus* comes primarily from one area in the humid grasslands of the province of Entre Ríos, Argentina (Llanos and Crespo, 1952), from one semiarid scrub site in the province of La Pampa, Argentina (Branch et al., 1993), and from several locations in the semiarid grasslands of the province of San Luis, Argentina (Giulietti and Jackson, 1986; Jackson, 1989, 1990*a*).

Plains vizcachas are colonial. One to three adult males, two to four times as many females, and immatures live in a communal burrow system called a vizcachera (Llanos and Crespo, 1952). Each vizcachera is composed of numerous burrows spaced a few centimeters to several meters apart (Fig. 4). The sizes of burrow openings vary with soil type and amount of use by plains vizcachas. Llanos and Crespo (1952) recorded holes from 12 cm to 1 m in diameter leading into tunnels sloped 13 to 30 degrees. Tunnels branch and may reach more than 2 m below the surface before opening into large underground chambers. Sticks, bones, dry cow dung, and other objects are collected by plains vizcachas and placed around burrow entrances. These objects are used by males as a substrate for scent marking (Branch, 1993*b*). Other proposed functions include elevation of the burrow entrance to prevent flooding, attracting females and limiting access of predators to burrows (Hudson, 1872; Llanos and Crespo, 1952; Weir, 1974*a*).

FIG. 4. Burrow system (vizcachera) of the plains vizcacha, *Lagostomus maximus*, in the grasslands of San Luis Province, Argentina.

In semiarid scrub of La Pampa, groups of plains vizcachas reside in vizcacheras that range from 18–93 burrows (Branch et al., 1994*c*). Satellite vizcacheras containing 1–10 burrows are scattered among these principal vizcacheras. Vizcacheras are smaller in the grasslands of Entre Ríos (1–11 burrows; Llanos and Crespo, 1952). Llanos and Crespo (1952) did not distinguish between satellite and principal vizcacheras, but noted that a single burrow occupied by an adult male often occurred 20–40 m from the larger vizcacheras. Principal vizcacheras and their associated satellite vizcacheras are aggregated in patches called vizcacherales (Hudson, 1872; Llanos and Crespo, 1952) that are similar to wards of black-tailed prairie dogs (*Cynomys ludovicianus*; Branch et al., 1994*b*). The ratio of satellite to principal vizcacheras in semiarid scrub ranged from 7.8–10.8 (Branch et al., 1994*b*). Some vizcacheras are inhabited for decades, with one known to have been in continuous use for 70 years (Weir, 1974*a*).

During the winter in La Pampa, all animals live in the principal vizcachera; satellite vizcacheras are seldom used except for escaping high risk situations (e.g., when an animal is pursued closely by a predator; Branch, 1993*b*). The plains vizcachas generally enter their own vizcachera rather than a satellite vizcachera or another principal vizcachera, unless they are in extreme danger (Hudson, 1872; Llanos and Crespo, 1952). However, from spring through fall, satellite vizcacheras are used extensively by resident adult males and emigrating males as sites for displaying (vocalizing and scent marking), for escape from other males during male-male encounters, and for escape from predators (Branch, 1993*b*).

All plains vizcachas from a vizcachera share a common home range. In semiarid scrub, a mean home range of 1.29 ha (minimum convex polygon) has been reported with a core area (harmonic mean) of 0.58 ha (Branch, 1993*a*). Mean spatial overlap for individuals from neighboring vizcacheras was 3.7%. Core areas did not overlap for neighboring groups. Llanos and Crespo (1952) reported that individuals forage up to 400 m from the vizcachera, suggesting that in some areas plains vizcachas may have larger home ranges.

In captivity, Weir (1971*a*) recorded a sex ratio of 10 females: 8.2 males at birth. In wild populations, the sex ratio with all sex and ages classes combined is approximately 1:1 (Jackson, 1990*a*; Llanos and Crespo, 1952), or slightly skewed toward females (Branch et al., 1993). Because females reach sexual maturity earlier than males, the sex ratio of reproductively active individuals is biased toward females (1.2–3.2; Branch et al., 1993). Females are recruited into their natal vizcacheras and may mate there at 8 months of age. Males disperse, but when environmental conditions are poor they may remain in their natal vizcachera as long as 27 months. During a population decline in semiarid scrub in La Pampa, adult females and juveniles abandoned their resident vizcachera when the number of animals in the vizcachera became very low, and then moved as a group to the closest extant vizcachera (Branch et al., 1993). A complete turnover of adult males occurred annually in each vizcachera. Resident males were replaced by immigrants from outside the vizcacheral. It is not known whether resident males dispersed long distances after mating or whether the turnover re-

sulted from high mortality. The life span of *L. maximus* is estimated at 7–8 years (Llanos and Crespo, 1952).

A variety of mammalian carnivores have been documented as predators of plains vizcachas. Humans undoubtedly are the most important predator in many areas. In Lihue Calel National Park, La Pampa, Argentina, *Lagostomus maximus* was the most frequent item in feces of pumas (*Puma concolor*) during periods of high plains vizcacha density (86% of diet items) and low density (52%; Branch et al., 1996*a*). Predation by pumas resulted in 75% mortality of plains vizcachas with radiocollars (n = 12; Branch et al., 1994*a*). A Geoffroy's cat (*Oncifelis geoffroyi*) was observed chasing a female plains vizcacha (Branch, 1995). Analysis of 230 stomachs of the pampas fox (*Pseudolopex gymnocercus*) revealed only six plains vizcachas (Crespo, 1971), although these foxes are reported to den in plains vizcacha burrows and prey on the young (Hudson, 1872). The crab-eating fox (*Cerdocyon thous*) may prey on *Lagostomus maximus* (Llanos and Crespo, 1952). The grison (*Galictis cuja*) uses plains vizcacha burrows and eats the young (Weir, 1974*a*). The boa (*Constrictor constrictor occidentalis*) may have been an important predator in the northern part of the range (Llanos and Crespo, 1952).

In plains vizcachas from San Luis, Argentina, nine species of parasites were identified, comprising five endoparasites (Rossanigo et al., 1986), including a new nematode (*Lagostonema ecasiese*; Sutton and Durette-Desset, 1987), two fleas (*Pulex irritans, Hectospylla stomis*), a new species of biting louse (*Philandesia maurii*; Cicchino and Castro, 1984) and an unidentified sucking louse (*Eulinognathus* sp.). Plains vizcachas are heavily infested with *P. irritans* (De Santis, 1941).

Hudson (1872) reported that three species of birds nest in vizcacheras. These include burrowing owls (*Athene cunicularia*), the common miner (*Geositta cunicularia*), and the blue and white swallow (*Notiochelidon cyanoleuca*). The owls nest in unused plains vizcacha burrows, miners excavate holes in the sides of burrows for their nests, and swallows breed in excavations abandoned by miners. Hudson (1872) suggested that plains vizcacha burrows may be very important for miners and swallows in the pampas because natural banks are scarce; however, plains vizcachas subsequently have been exterminated from most of the humid pampas.

Plains vizcachas are herbivorous and coprophagous (Jackson, 1985*a*; Kufner et al., 1992; Llanos and Crespo, 1952). In the dry grasslands of central Argentina, 16 of 20 plant species recorded in the diet were grasses (Giulietti and Jackson, 1986). A single species of grass (*Cynodon hirsutus*) accounted for 45% of the diet. In contrast, in the dry scrub habitat of La Pampa, plains vizcachas eat leaves from a wide variety of plant species, including at least 13 grasses, 27 forbs and 11 shrubs (Branch et al., 1994*b*). In addition, plains vizcachas occasionally eat seeds and seed pods from (*Prosopis* spp.), fruit (*Schinus johnstonii* and *Condalia microphylla*), and bark from shrubs.

Through grazing and clipping of some plants (shrubs and tall grasses) but not others, plains vizcachas alter the species composition, cover, and vegetation structure around their burrows (Branch et al., 1996*b*). In grasslands, the area around a vizcachera frequently resembles a closely mowed lawn. With intense herbivory, plains vizcachas convert cover in areas around their burrows from grass to forbs. By consuming a large proportion of the biomass of green plants, plains vizcachas also reduce the mass of standing dead plants and increase the amount of bare ground (Fig. 4). The process of local extinction of vizcacha colonies and formation of new colonies generates a dynamic mosaic of patches on the landscape (Branch et al., 1996*b*).

BEHAVIOR. Plains vizcachas are nocturnal and active all year (Branch, 1993*c*). They emerge from their burrows typically about one-half hour before dusk. They spend a short time grooming, dust bathing, and sitting at the vizcachera and then depart in one or more groups to forage (Branch, 1993*b*; Llanos and Crespo, 1952). In winter, adult males forage with females and immatures, but during the remainder of the year they often forage alone. Llanos and Crespo (1952) observed plains vizcachas foraging in groups of up to 30 individuals. Groups frequently coalesce and change membership during the night (Branch, 1993*b*). Between foraging bouts, animals return to the vizcachera. On nights with no wind, the final bout of feeding may extend until after sunrise (Jackson, pers. obs.). Occasionally, plains vizcachas rest outside their burrows during the day. They do not store food or carry food to the burrows to feed young (Llanos and Crespo, 1952).

Plains vizcachas spend more time feeding and less time at the den site in winter than in other seasons. The pattern is reversed in summer. Females nurse young inside the burrows for 2–3 months in spring, and females and young spend large amounts of time at the vizcachera between foraging bouts during summer. Seasonal changes in activity budgets of males are associated with increases in male-male conflicts, vigilance for intruding males, and territorial displays. These behaviors occur primarily at the vizcachera. In La Pampa, masses of males decline during the summer, when they compete for access to areas used by females, and masses reach a minimum during the autumn mating season (Branch, 1993*c*).

Home range boundaries are not defended (Branch, 1993*b*). However, all sex and age classes defend the vizcachera against intruding members of the same sex-age class and adult females also defend it against juveniles attempting to disperse into the vizcachera. Resident plains vizcachas repeatedly chase intruders. Occasionally, fights occur which consist of bipedal wrestling, biting of the hind quarters and throat, rolling, and kicking. Generally, intruders are individuals that come from outside the vizcachera and attempt to disperse into the vizcachera. Aggression among neighbors is rare (Branch, 1993*b*). In addition to physical aggression, male-male encounters often are accompanied by an interchange of vocalizations that includes a two-syllable "pi-chung" call that can be heard for hundreds of meters, interspersed with a complex series of whinnies, grunts, squeaks, and foot stamping (Eisenberg, 1974; Hudson, 1872; Weir, 1974*a*). These vocalizations are made by males standing at principal or satellite vizcacheras and incite similar vocal responses from neighboring males. Adult males urinate on the sticks around burrow openings and also rub their cheeks on these sticks (Branch, 1993*a*). These behaviors, which probably function in scent marking, are not exhibited by females.

Hudson (1872) reported that plains vizcachas visit among vizcacheras, but behavioral studies indicate that they rarely approach burrow systems of other social groups (Branch, 1993*b*). Hudson (1872) did not distinguish between principal and satellite vizcacheras or observe marked animals. Visits may have been among principal and satellite vizcacheras within the home range of a single social group, rather than between social groups.

Aggression is low among members of a vizcachera; cooperative behaviors such as allogrooming and anti-predator vocalizations are frequent. There is no evidence that aggression by adult males plays a role in dispersal of young males, and though a resident male occasionally appears to avoid another resident male, there are no clear dominance hierarchies among males or females. Two or more resident adult males often sit in close proximity to each other near a burrow entrance, occupy the same underground chamber even during the mating season, and forage together. Allogrooming was observed between all sex and age classes within a vizcachera, including between adult males. It is most frequent among females. This behavior was observed outside the vizcachera and consists of nibbling on the face, neck, and back, and rubbing cheeks. Mutual grooming is common. Plains vizcachas use a communal dust bath near the vizcachera. All individuals have access to all burrows in the vizcachera (Branch, 1993*b*).

In response to the presence of a puma, or other threats such as gun shots, plains vizcachas give a loud two-syllable, anti-predator call (Branch, 1993*a*; Llanos and Crespo, 1952). This call is given most frequently by adult males and is similar to vocalizations made in response to intruding male plains vizcachas; however, often individual call elements are of shorter duration. This call may be repeated continually for several minutes and is contagious among males at neighboring vizcacheras (Branch, 1993*a*). Llanos and Crespo (1952) described how these vocalizations pass in a wave from vizcachera to vizcachera, picking up new callers as the wave progresses, and sometimes extend over a distance of two kilometers. Plains vizcachas run to their home vizcachera in response to this call. When startled by a fox or another minor threat, adult females, and occasionally immature plains vizcachas, give a single syllable "wank" (Branch, 1993*a*). Members of the group respond by looking around, but do not run for cover. In addition to anti-predator calls, plains vizcachas produce a variety of other vocalizations that have not been described thoroughly. In his account of the *L. maximus*, Hudson (1872:830) wrote, "I doubt if there is in the world any other four-footed thing so loquacious or with a dialect so extensive." Female plains vizcachas utter muttering sounds while foraging and

may give a clacking cry when being groomed (Eisenberg, 1974). Juveniles, and sometimes adult females, give short yelps when approaching an adult male for cheek-rubbing (Branch, 1993*a*). Tooth grinding and growls are made when threatening a conspecific or humans (Branch, pers. obs.; Eisenberg, 1974). Males give a postcopulatory "grunt grunt" (Eisenberg, 1974). When under severe stress, plains vizcachas emit a "scream" that results in conspecifics running to that individual (Jackson, pers. obs.).

GENETICS. The diploid karyotype consists of 56 chromosomes (Wurster et al., 1971). The autosomes are metacentric or submetacentric (George and Weir, 1974). The Y chromosome is a small acrocentric (Wurster et al., 1971) or a very small submetacentric (George and Weir, 1974). One of the largest pairs of chromosomes has secondary constrictions forming satellite markers (Wurster et al., 1971). The ratio of the short arm of the chromosome to the satellite is greater than 1.25 (George and Weir, 1974).

REMARKS. Thomas (1910) described another species of vizcacha, *Lagostomus crassus,* based on a skull found buried in sand in the Department of Cuzco, Peru, a thousand kilometers from the nearest known populations of *Lagostomus maximus.* He considered it an extinct species because vizcachas were not known to occur in Peru. The skull was not fossilized and cranial measurements fall within the range of *L. maximus* (Cabrera, 1961). Possibly, this skull was from a *L. maximus* that was taken to Peru.

The plains vizcacha is of considerable economic interest in Argentina because of its status as an agricultural pest and the commercial value of meat and skins. This species also is a popular small-game animal with sport hunters. Plains vizcacha meat is consumed only locally; it is white with good nutritive value due to its high coefficient of digestibility, low fat fusion point, and high percentage of proteins (Machado, 1942, 1943). The conversion ratio between whole dead and carcass weights for 50 males and 38 females from San Luis, Argentina was 56–60% (Jackson, 1985*b*). Dried skins are exported or made into coats, rugs and bedspreads and then sold locally or overseas. Official statistics for exports of plains vizcacha pelts for 1976–1983, including manufactured products, fluctuated between 5,798 (1983) and 125,605 (1977) skins, with a total free-on-board value of US$ 19,914 (1983) to US$ 946,611 (1980) and a maximum unit price of US$ 8.25 (Jackson, 1986*a*).

We thank O. P. Pearson for invaluable assistance with the section on the taxonomic history of vizcachas, and O. P. Pearson and R. Pine for reviewing the manuscript. This is Florida Agricultural Series No. R-05172.

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