

Lepus insularis. By Howard H. Thomas and Troy L. Best

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Lepus insularis Bryant, 1891

Black Jackrabbit

Lepus insularis Bryant, 1891:92. Type locality "Espiritu Santo Island, Gulf of California [Baja California Sur], Mexico."

Lepus edwardsi Saint-Loup, 1895:4. Type locality "Ile de d'Espiritu-Santo."

CONTEXT AND CONTENT. Order Lagomorpha, Family Leporidae, Subfamily Leporinae, Genus *Lepus*, Subgenus *Macrotolagus*. There are 30 species in the genus *Lepus* (Wilson and Reeder, 1993). *L. insularis* is monotypic (Hall, 1981).

DIAGNOSIS. *Lepus insularis* is distinguishable from *L. californicus* by its darker upperparts and shorter ears (Nelson, 1909). The skull of *L. insularis* (Fig. 1) generally is larger than that of *L. californicus* (Dixon et al., 1983). *L. insularis* is about the same size as *L. c. martirensis*, but the braincase is broader, the supraorbital processes are narrower, the jugals are heavier with a deeper pit anteriorly, and the bullae are larger. In general appearance, the skull of *L. insularis* closely resembles that of *L. c. xanti*, but it is larger, the bullae are larger, and the supraoccipitals are more slender than in *L. c. magdalenae*. The jugals are heavier than in any subspecies of *L. californicus* in Baja California (Nelson, 1909).

GENERAL CHARACTERS. In winter pelage, the top of the head is glossy black, usually with a few white hairs on the middle of the crown, and often grizzled with dark buffy or grayish brown, especially around the base of the ears. The sides of the head are blackish and grizzled with gray. The eyes are surrounded by a ring of nearly clear gray. The fronts of the ears are blackish and finely grizzled with gray, especially on the basal one-half. The posterior one-half of the ears is gray with a narrow black border at the pit. The insides of the ears are gray, and are fringed along the front edges with long gray hairs; the posterior borders are velvety white. The nape and rest of the upperparts, including the top of the tail, are glossy black with fine grizzling of dark cinnamon or brown. The shoulders and sides of the body primarily are dark buffy or cinnamon buffy; the cinnamon or buffy becomes clearer ventrally. The tops of the forelegs and feet are similar to the sides of the body, but are more rusty or reddish. The hind legs are colored like the sides of the body, but the tops of the hind feet are paler, sometimes dingy whitish. The tops of the toes are dark buffy and between the toes the hairs are blackish (Nelson, 1909). A black line extends along the inner sides of the hind feet from the toes to a little above the heel. The soles of the feet are heavily padded (Bryant, 1891). The underside of the tail is dull buffy brown, and the underside of the head is dark iron-gray. In most individuals, the rest of the underparts vary from dark cinnamon-buffy to dusky brown (sometimes nearly uniform). In others, the underside of the neck is darker (like the sides of the body) and the underside of the body is clearer or paler buffy, with little or none of the dusky grizzling present in darker animals (Nelson, 1909).

Average external measurements (in mm) are: total length, 574; length of tail, 96; length of hind foot, 121; length of ear from notch (dry), 105 (Nelson, 1909). Average cranial measurements (in mm) are: basilar length, 73.8; zygomatic breadth, 43.3; postorbital constriction, 13.8; length of nasals, 39.2; width of nasals, 18.7; length of maxillary toothrow, 17.4; diameter of external auditory meatus, 5.4; breadth of braincase, 24.7; length of palatal bridge, 6.0; depth of rostrum, 17.8; parietal breadth, 24.8; length of bullae, 15.0 (Dixon et al., 1983).

DISTRIBUTION. The black jackrabbit is endemic to Espiritu Santo Island in the Gulf of California, Mexico (Fig. 2), from sea level to ca. 300 m elevation (Nelson, 1909). It has been introduced to nearby Pichilique Island (Townsend, 1912).

FOSSIL RECORD. The genus *Lepus* had its origin in the late Pliocene or early Pleistocene in the Holarctic. The genus spread southward in the late Pleistocene and now extends (excluding introductions) into South Africa (Dawson, 1967). No fossils of *L. insularis* are known. Because Espiritu Santo Island has been present for only 5,000-12,000 years, there is no reason to suppose that *L. insularis* is a relic that was once widespread (Flux, 1983).

FORM AND FUNCTION. At a short distance, *L. insularis* appears coal black, and is extraordinarily conspicuous on open or



FIG. 1. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Lepus insularis* from Espiritu Santo Island, Baja California Sur (sex unknown, United States National Museum of Natural History 79039). Greatest length of cranium is 95.0 mm. Photographs by H. H. Thomas.

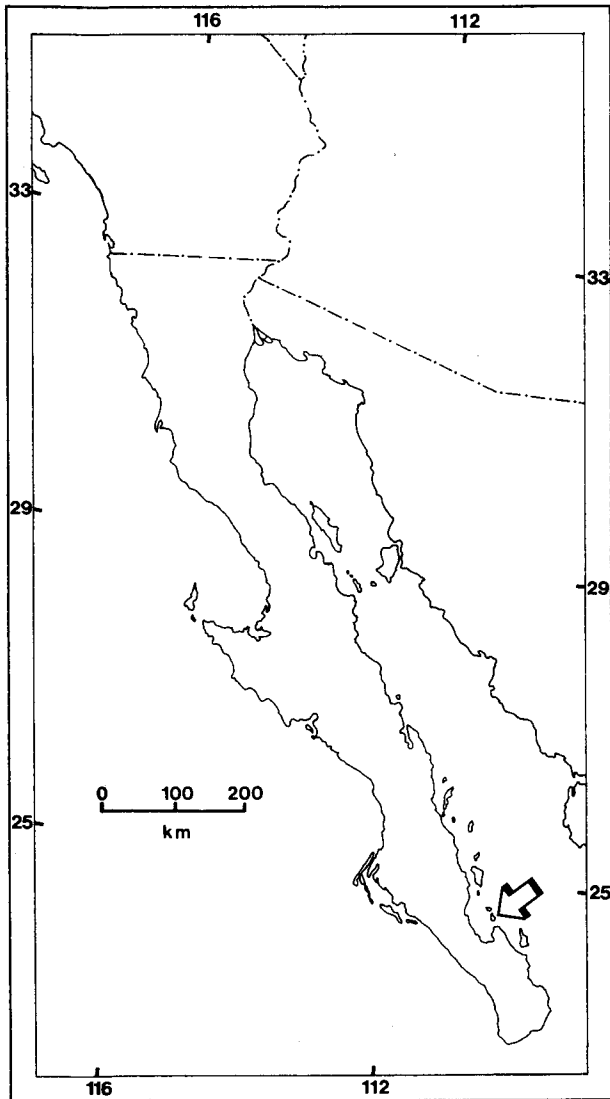


FIG. 2. Distribution of *Lepus insularis*. This species is known only from Espiritu Santo Island (arrow), Baja California Sur, Mexico (Hall, 1981).

rocky ground, even when motionless. The black jackrabbit resembles a short, charred stump among the green or gray-green vegetation, or on bare and brown slopes. Populations of *L. californicus* in what appears to be the same climate, vegetation, and other physical surroundings on the mainland exhibit no sign of melanism. The isolation of *L. insularis* on Espiritu Santo Island, combined with the virtual absence of predatory birds and mammals, apparently has removed selection pressure favoring cryptic coloration (Nelson, 1909).

ECOLOGY. Black jackrabbits are most abundant in the valleys and on adjoining lower slopes of the hills on Espiritu Santo Island. They are rather numerous in the valleys, but much less abundant than is *L. californicus* on the nearby mainland (Nelson, 1909).

Espiritu Santo Island (Fig. 3) is a waterless volcanic island ca. 16 km in length from north to south and ≤ 6.5 km wide. Rocky hills and low mountains reaching an altitude of ca. 600 m elevation cover most of the island. The shoreline is mainly rocky and precipitous, and in places is fronted by high cliffs. The southern end of the island is separated from the mainland by San Lorenzo Channel, which is ca. 5.5 km across. The geologic structure of the island appears identical to that of the nearest point of the mainland, and the shallow water separating them indicates a recent land connection between the two (Nelson, 1922).

A valley in the southern part of the island, and favorable places elsewhere on lower slopes, have many scattered arid-tropical and



FIG. 3. Habitat of *Lepus insularis* on Espiritu Santo Island, Baja California Sur, Mexico. Photograph by T. L. Best.

lower-Sonoran shrubs and other plants, but the upper slopes are rocky and barren. The vegetation of the island is practically identical with that of the adjacent mainland, consisting mostly of a mixture of giant and other cacti. Among the prominent species are *Tapirira edulis*, *Elaphrium microphyllum*, *Forchammeria watsoni*, *Bourreria sonorae*, *Jatropha canescens*, *Pedilanthus macrocarpus*, *Le Maireocereus gummosus*, *L. thurberi*, *Pachycereus calvus*, several species of *Opuntia*, and *Pereskiaopsis brandegeei* (Nelson, 1922).

Reptiles occurring with *L. insularis* on Espiritu Santo Island include *Sauromalus ater*, *Dipsosaurus dorsalis*, *Callisaurus draconoides*, *Sceloporus magister*, *S. orcutti*, *Urosaurus nigricaudus*, *Uta stansburiana*, *Cnemidophorus tigris*, *C. hyperythrus*, *C. maximus*, *Masticophis flagellum*, *Chilomeniscus punctatissimus*, and *Crotalus mitchelli* (Hafner, 1981). This island has a greater variety of mammal life than many of the other islands along the coast, probably owing to its more recent connection with the mainland (Nelson, 1922). Other mammals endemic to Espiritu Santo Island are *Ammospermophilus insularis*, *Chaetodipus spinatus lambi*, *Peromyscus eremicus insulicola*, *Neotoma lepida vicina*, and *Bassariscus astutus saxicola* (Hall, 1981).

The only predatory mammal on Espiritu Santo Island is *B. astutus*, which probably never hunts even young hares. A few American kestrels (*Falco sparverius*) and caracaras (*Caracara cheriway*) are the only birds of prey known on the island, thus the natural enemies of black jackrabbits are few (Nelson, 1909). According to local fishermen, humans from nearby Pichilingue Island hunt black jackrabbits for food (T. L. Best, pers. comm.).

As Espiritu Santo Island may never be inhabited by humans, the black jackrabbit seems in no immediate danger and the population is stable (Chapman et al., 1983). However, it may be wise to consider establishing another population on some nearby island (Flux and Angermann, 1990). Nothing is known regarding physiology, ontogeny, reproduction, or genetics of *L. insularis*.

REMARKS. *Lepus insularis* is a close relative of *L. californicus* of the nearby peninsula of Baja California (Hall, 1981; Nelson, 1909). The species-level status of *L. insularis* has been questioned (Flux, 1983). However, in a multivariate comparison of *L. insularis* with subspecies of *L. californicus* from Baja California (*L. c. martirensis*, *L. c. xanti*, and the insular subspecies *L. c. magdalenae*) there was a distinct separation of *L. insularis* from *L. californicus* based upon cranial characters (Dixon et al., 1983).

Lepus is derived from the Latin *lepus* meaning hare. The specific epithet *insularis* comes from the Latin *insula* indicating the island range (Jaeger, 1955). Additional common names include black hare (Bryant, 1891) and Espiritu Santo jackrabbit (Nelson, 1909; Townsend, 1912).

B. Owen prepared Fig. 2. We thank J. A. Chapman, F. S. Dobson, R. S. Lishak, and an anonymous reviewer for reviewing an early draft of the manuscript. This is journal article no. 15-923285 of the Alabama Agricultural Experiment Station.

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