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Thyroptera discifera.

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Thyroptera discifera (Lichtenstein and Peters) 1855

Peters' Disk-winged Bat

Hyonycteris discifera Lichtenstein and Peters, 1855*a*:336. Type locality "Puerto Cabello (America Centralis)." Actually Puerto Cabello, Venezuela (Wilson, 1976).
Th[*yroptera*]. *discifera*, Peters, 1865:581.

CONTEXT AND CONTENT. Order Chiroptera, Suborder Microchiroptera, Family Thyropteridae, Genus *Thyroptera*. The genus *Thyroptera* includes two living species, *T. tricolor* (see Wilson and Findley, 1977) and *T. discifera*. Two subspecies of *T. discifera* currently are recognized (Wilson, 1976):

T. d. discifera (Lichtenstein and Peters), 1855*a*:336, see above (*major* Miller is a synonym).
T. d. abdita Wilson, 1976:307. Type locality "Escondido River, 50 mi. east of Bluefields, Nicaragua."

DIAGNOSIS. *Thyroptera discifera* is likely to be confused only with *T. tricolor*, from which it differs as follows: venter only slightly paler than dorsum; calcar with a single cartilaginous projection extending into posterolateral border of uropatagium. *Thyroptera tricolor* is usually much paler ventrally than dorsally and has two cartilaginous projections on the calcar.

GENERAL CHARACTERS. For illustrations see the following: Lichtenstein and Peters (1855*a*:335–336; 1855*b*:81–94, pl. II—animal, ventral view; ear, lateral view; head, frontal, dorsal, and lateral views; skull, frontal, dorsal, and lateral views; toothrows, lateral and occlusal views); Miller (1896:109–112, pl. VII—animal, ventral view; fig. 1—toothrows, lateral and occlusal views; fig. 2—head, lateral view; fig. 3—foot and uropatagium, ventral view; fig. 4—foot); Robinson and Lyon (1901:155–156); Miller (1907:192–193, fig. 30—skull, dorsal, ventral, and lateral views); Miller (1931:411–412); Goodwin (1942:139–140); Hall and Kelson (1959:156, fig. 114—skull, dorsal, ventral, and lateral views); Walker *et al.* (1975:332, fig. A—animal, ventral view; fig. B—foot; fig. C—wing; fig. D—wing disk) Wilson (1976:307, fig. 1—skull, dorsal and ventral views; mandible, occlusal view).

The most striking general character is the presence of circular, sucking disks at the bases of the thumbs and hind feet. For complete descriptions see Miller (1896) and Wilson (1976).

External measurements (in mm; Wilson, 1976) are: head and body length, 37 to 47; tail length, 24 to 33; hind foot length, 4; ear length, 10.7 to 12; calcar length, 7 to 8; tibia length, 14 to 16.4; forearm length, 31.1 to 35.4; metacarpal III length, 29.7 to 34.5; digit III, phalanx 1 length, 14.5 to 16.7; digit III, phalanx 2, 8.5 to 10.6; metacarpal IV, 29 to 33.8; digit IV, phalanx 1, 9.3 to 11.1; digit IV, phalanx 2, 5.1 to 7.3; metacarpal V, 26.7 to 31.4; digit V, phalanx 1, 8.1 to 8.9; digit V, phalanx 2, 5.8 to 7.4.

Cranial measurements (Wilson, 1976) are: condylocanine length, 12 to 12.9; mastoid breadth, 6.7 to 7; zygomatic breadth, 6.9 to 7.1; braincase breadth, 6.6 to 6.8; interorbital breadth, 2.5 to 2.8; rostal breadth, 4 to 4.3; maxillary toothrow length, 5.4 to 5.9; width across canines, 2.7 to 2.9; width across molars, 4.7 to 5.1.

DISTRIBUTION. *Thyroptera d. discifera* is known from northern South America southwards to at least 10 degrees South in Perú (Cabrera, 1958). *Thyroptera d. abdita* is known only from the type locality in Nicaragua. The exact distributional limits are difficult to determine owing to a paucity of published records. There is no fossil record.

FORM. The following description of *T. discifera* is paraphrased from the detailed original descriptions published in German by Lichtenstein and Peters (1855*a*, 1855*b*).

The rostral portion of the head is sharply offset from the braincase. The lips are thick, and the gums have up to 12 V-shaped, transverse folds. The small eyes are 1 mm forward of the edge of the mouth. The external ears extend forward to the eyes, and the rear edge reaches downward to the edge of the mouth. They are somewhat square, with three lobes forming a funnel,

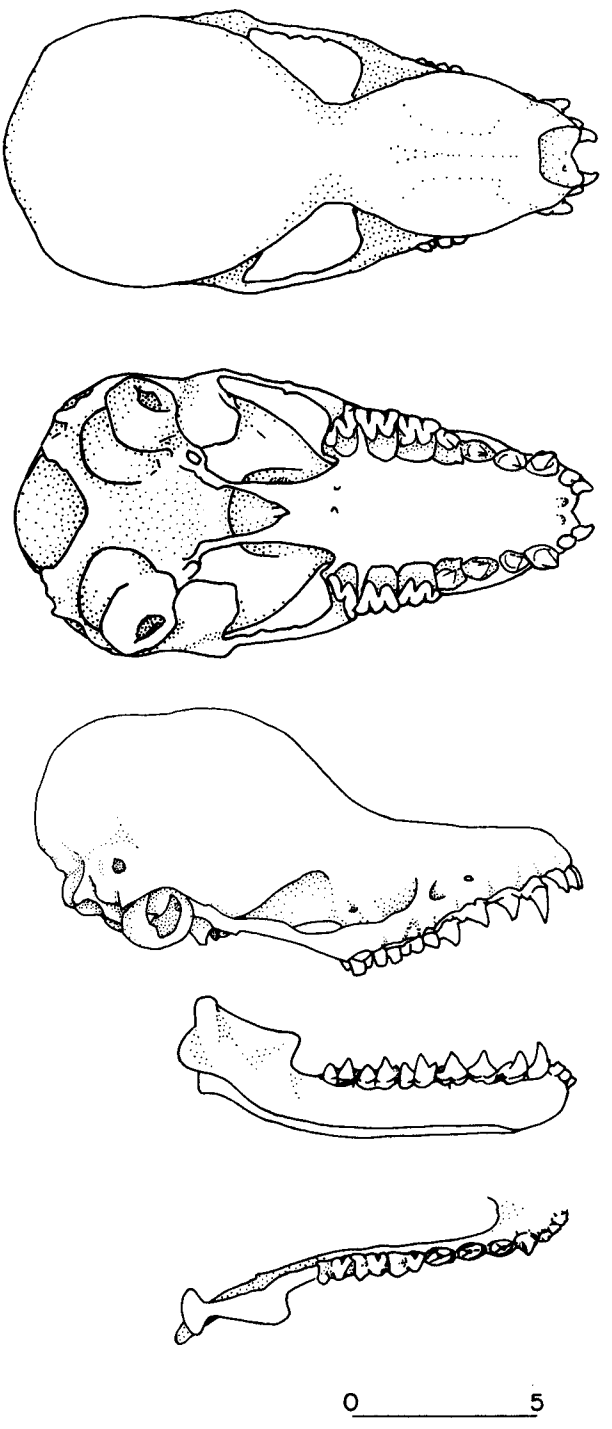

FIGURE 1. Skull and jaw of *Thyroptera discifera* (USNM 102927) drawn by Wilma Martin.

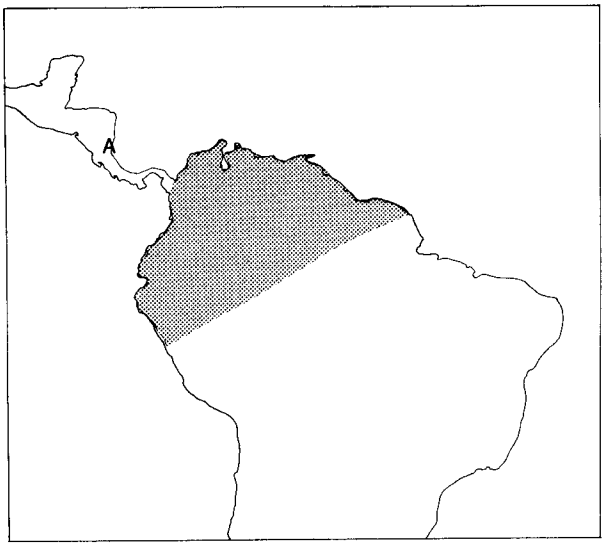

FIGURE 2. Distribution of *Thyroptera discifera abdita* (A) and *Thyroptera discifera discifera* (shaded area).

the lowest defining the antitragus portion of the ear. A small tragus is present. The ear is covered with fine hairs only on the front side, the remainder of the ear being naked.

The body is entirely covered with long, fine hairs, which are slightly shorter on the venter. Both males and females have a single pair of axillary nipples. The forearm is long and extends beyond the snout when laid beside the body. The thumb is free and relatively short. At the base of the thumb is a large, somewhat oval, adhesive disk, 3.5 mm in diameter. Digit 2 consists of a shortened metacarpal with no phalanges. Metacarpal 2 is only about one-fourth as long as metacarpal 3. Metacarpal 4 is slightly shorter than 3 but noticeably longer than 5. The first phalanx of digit 3 is as long as the next two phalanges together, and the digit ends with a cartilaginous tip. The first phalanx of digit 4 is longer than that of digit 5, and the second phalanx is equal in length to that of digit 5.

The femur and tibia are approximately equal in length. The feet are small and contain suction disks somewhat smaller than those at the bases of the thumbs. The first toe is encased in the wing membrane up to the claw. All toes are bound together by membrane to about the middle of the claws, but the third and fourth toe are almost completely syndactylous. Each toe contains two phalanges. The calcar is about half as long as the tibia and bears a keel supported by a single cartilaginous projection. The last two caudal vertebrae protrude from the free edge of the uropatagium. Each of the last five vertebrae is progressively shorter than the preceding one. The flight membranes are thin and, except near the body, only sparsely haired.

The vertebral column contains 7 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 6 caudal vertebrae (Walton and Walton, 1970, listed 4 lumbar, 4 sacral, and 9 caudal vertebrae). The ribs are broad; six pairs are attached to the sternum and six pairs are free. The sternum is keeled and unusually broad. The pelvic bones touch one another in front. The fibula is rudimentary, hardly extending half the length of the tibia. Each toe contains only two phalanges.

The tongue is long (10 mm), has a dorsoventrally flattened and rounded end, and is covered with fine, grainy papillae. The hyoid appears flattened, with a pointed extension reaching into the tongue. The lungs consist of a single lobe on each side. The heart is oval, bluntly rounded posteriorly, 6.5 mm long by 4.5 mm wide. The stomach forms a bean-shaped blind sac out of which, on the right side next to the cardia, extends the simple, 55-mm long intestine, which is initially enlarged. The liver is divided into a larger left lobe and a smaller right lobe. Below and between these lobes lies the rather large, pear-shaped gall bladder. The spleen is elongated (7 mm) and three-sided. The kidneys are bean-shaped, unlobed, and 5 mm long. The penis is about 8 mm long, and appears lacking in internal supporting bones. The posterior end of the testis is outside the abdominal cavity in the inguinal region.

The inner upper incisor slants forward and slightly to the inside. The crown is distinctly bifid, with the inner lobe longer than the outer. The outer upper incisor has the same shape, but is much smaller. The upper canine has two small cusps on the lingual border of the cingulum. It is approximately twice as far from the outer incisor as from the first premolar. The first premolar is slightly smaller than the second, and both are similar in shape to the canine except for much shorter and flattened cusps. The third premolar is irregularly square in cross-section and has five cusps; a central large one on the labial side; a small, sharp, anterior one; a weakly-developed posterior one; and (on the lingual cingulum) a sturdy anterior one and a weaker posterior one that is difficult to distinguish. The three molars are similar to those of *Vespertilio*. The first two have the normal W-shaped pattern with three labial (parastyle, mesostyle, metastyle) and two lingual (protocone, metacone) cusps. On each tooth, the lingual cingulum bears a large anterior (protocone) and small posterior (hypocone) cusp. The last upper molar is much shorter, twice as broad as it is long. The W-shaped pattern lacks the posterior quarter, leaving only five cusps; one on the lingual cingulum, and four on the crown.

The six lower incisors are crowded together, and trifid. The first is the smallest and the third the largest on each side. The lower canine is appreciably shorter than the upper, occludes anterior to it, and bears an anterior and a posterior cusp on the cingulum. The three lower premolars increase in size from front to back, and are like the canine in shape, except for a much lower main cusp. Of the three lower molars, m2 is the largest; the W-shaped pattern is turned inversely to that of the upper molars. The inner protrusion of the cingulum is lacking, making these teeth narrower than the upper molars, and they contain only the two outer and three inner cusps of the crown.

FUNCTION. Robinson and Lyon (1901) pointed out that the sucking disks have largely usurped the function of the thumb and toes, which are much reduced. The surface of the disc appeared to them to be permanently moist, so that the bats were capable of clinging to smooth surfaces without using their claws. They observed a captive walking on the inside of a glass bell jar by means of the disks.

The same authors stated that young cling to the neck and breast of the mother with teeth and claws, even when she flies about. The disks are of no use in clinging to the fur, but the young apparently manage to hang on even with the reduced claws. The mammae are broad and straplike, 2 mm long and 3 mm wide, providing a convenient means for the young to hold on by their teeth alone. One young managed to cling to the nipple for 20 minutes without once using its claws.

ECOLOGY. The only natural history information recorded for this species is that of Robinson and Lyon (1901) who collected 10 adults and seven young in Venezuela. One group of 10 was caught by a native with a single sweep of his hand as they roosted under a dead banana leaf. He was attracted to the site by droppings on the ground. A second group of seven was subsequently captured in the same manner. Both groups contained males, females, and flying young. The month of capture for both groups was July.

These observations suggest both differences and similarities to *T. tricolor* (Findley and Wilson, 1974). *Thyroptera tricolor* roosts in rolled *Heliconia* leaves and is never found in the open. In contrast, the colony structure seems similar, with various combinations of sexes and ages represented in a single group.

Guimaraes and D'Andretta (1956) described a unique nycteribiid fly, *Hershkovitzia primitiva*, from four specimens of *T. discifera* from Colombia. This parasite is considered to be the most primitive member of the family Nycteribiidae, and is not closely related to other genera of the family, which are known to occur on a wide variety of New World bats.

REMARKS. The type locality for *T. d. abdita* is "Escondido River, 50 mi. east of Bluefields, Nicaragua." According to Jones *et al.* (1977), this is actually the I. P. Plantation, 3 km S and 13 km E Rama. *Thyroptera* is Greek for "disk-winged"; *discifera* also refers to the disks. The subspecific name *abdita*, meaning hidden or secret, refers to the confused nomenclatural history of the species and to the fact that the subspecies was not described until 84 years after the type series was collected in 1892.

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