

A new species of flea from the Galápagos Islands

by

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The Galápagos Islands have been "naturally selected" as an area of study by naturalists for a reasonably long time, especially since the establishment of the "Charles Darwin Foundation for the Galápagos Islands" in 1959. Entomologically this archipelago has been combed to a fair extent and *e.g.* LINSLEY & USINGER (1966, *Proc. Calif. Acad. Sci.* 33: 113—196) listed 618 species of insects belonging to 18 orders. Siphonaptera, however, are among the remaining 12 orders from which no representatives have hitherto been recorded.

The quantitative species-composition of the flea-fauna of a certain geographical area is correlated with the quantitative and qualitative species-composition of the host-fauna combined with the climatic conditions in which the hosts live as well as with their geographic history. The oceanic Galápagos Islands were populated by chance and the mammalian host-reservoir consists of only two species of migratory bats (*Lasiurus* spp.), six species of rodents (*Oryzomys* spp.) the ancestors of which having drifted thither from the South American mainland, and several introduced animals such as the black rat, house mouse, dog, cat, pig, goat, ass and cow. Fleas have apparently not yet been collected from these hosts. The bats may be harbouring some of these parasites but it would be of even greater interest to know whether the species of *Oryzomys*, four of which having evolved into an endemic subgenus (*Nesoryzomys*), have Neotropical species of fleas which similarly may have differentiated from mainland ancestors. The avian host-reservoir is larger: of the 90 species breeding on these isles 77 are endemic but half of these are finches (Geospizidae) which -like similar birds in the tropics- are very likely unsuitable hosts for fleas. Nevertheless, it is hoped that nests of the land-birds will be examined for these insects. Nests of sea-birds are often more rewarding sources of fleas and the distinct new species described below was found to occur in nests of a shearwater and two species of storm petrels. It may well occur in nests of various other sea-birds. Continued collecting, which may even bring to light other species of fleas, is therefore highly desirable.

Thanks are due to the collectors of the type-series, Dr. D. W. SNOW and Dr. M. P. HARRIS.

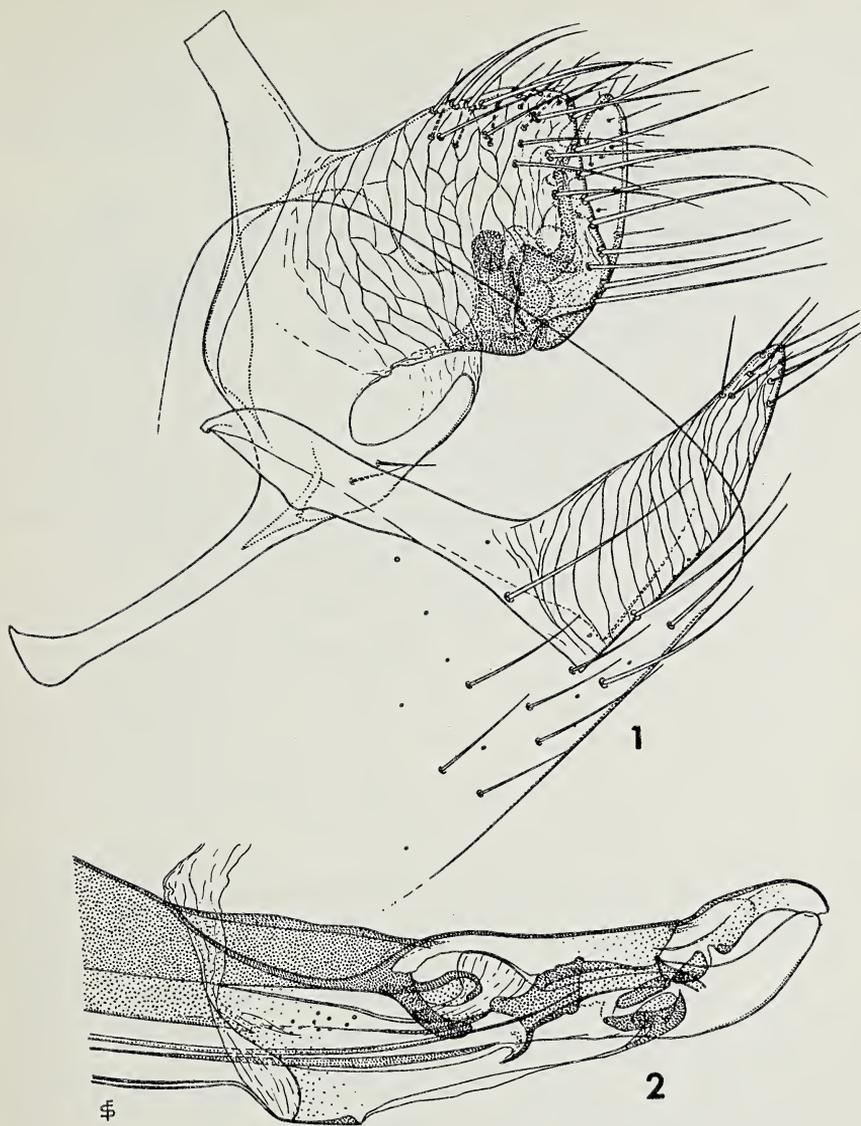
Parapsyllus cedei n.sp.

Parapsyllus sp. Harris, 1969, *Proc. Calif. Acad. Sci.* 37: 138.

Type material:

Isla Santa Cruz (= Chávez or Indefatigable), from Audubon's shearwater *Puffinus lherminieri subalaris*, 13.II.1964, leg. D. W. SNOW, ♂ holotype, ♀ allotype, 4 ♂ 2 ♀ paratypes.

Plaza (islet just to the east of Isla Santa Cruz), from Audubon's shearwater *Puffinus lherminieri*: 6.I.1966, 1 ♂ paratype; 24.I.1966, 1 ♂ paratype; 25.I.1966, 1 ♀ paratype; 28.VII.1966, 1 ♂ paratype; 31.VII.1966, 2 ♂ 3 ♀ paratypes;



Figs. 1, 2. *Parapsyllus cedei* n.sp. (holotype). (1) Sternum VIII, segment IX and paramere; (2) aedeagus.

from Madeiran storm petrel *Oceanodroma castro*: 12.II.1966, 3 ♂ 1 ♀ paratypes; 27.VII.1966, 1 ♂ paratype; 29.VII.1966, 1 ♂ paratype; 30.VII.1966, 7 ♂ 8 ♀ paratypes; 31.VII.1966, 2 ♂ 2 ♀ paratypes — all leg. M. P. HARRIS.

Isla Genovesa (= Tower Island), from Galápagos storm petrel *Oceanodroma tethys*, 18.V.1966, leg. M. P. HARRIS, 1 ♀ paratype.

Holotype, allotype and a number of paratypes in the British Museum collection

of Siphonaptera at Tring; other paratypes in collections of various colleagues.

Diagnosis:

The new species belongs to the *longicornis*-group and -subgroup and differs from all other members by the possession of 5 instead of 6 setiferous notches in the posterior margin of mid and hind tibiae and 3 instead of 4 pairs of lateral plantar setae; moreover, there are genitalic differences as well.

Description:

Head: Frontal row well developed, consisting of 4—5 rather long setae; ocular row consisting of 2 (occasionally 1 or 3) setae in front of the sinuate or even markedly lunate eye and one long seta near the genal margin reaching up to the middle of the 3rd segment of the maxillary palp. The rather short and broad genal process with a row of 6—9 setae near or along its ventral margin. Postantennal region with 3 rows of setae, the first and second each with one seta and the third (premarginal) row of 4—6 setae on each side. The five-segmented labial palp reaches to about the apex of the fore trochanter in the male, to the apex of the fore coxa or a little beyond in the female. Setae of antennal pedicel rather short in both sexes and not reaching beyond the basal third of the length of the clava. About 8 small setae bordering the antennal fossa posteriorly.

Thorax: Pronotum and mesonotum each with one row of 8—9 setae on each side (excluding intercalary setae). Mesonotum without pseudosetae under the collar. Metanotum also with one row of setae, 6—8 per side. Mesosternosome usually with two large setae. Metepisternum small, without setae. Metasternum with one large seta (dorso-posteriorly) and metepimeron with two rows of setae, the anterior of which usually of two setae in the male, three in the female, the posterior row of 3—5 setae. Pleural arch small, indicating fairly poor jumping abilities.

Legs: Mid and hind tibiae each with five notches in the posterior (dorsal) margin; two setae inserted in each notch except in the male in the penultimate notch which has only one seta; the apical notch bears 3 setae in the mid tibia, 4 in the hind tibia. Longest seta of second and third hind tarsomeres usually reaching to about the middle of the fourth tarsomere and pretarsus respectively. Pretarsus with three pairs of lateral plantar setae, two subapical plantar setae of equal length which in the fore tarsus of the male are preceded by 3—5 similar setae; without small setae on plantar surface.

Abdomen: Terga II — VII with two rows of setae in both sexes; spiracular fossae usually rounded. Basal sternum without a lateral patch of small setae.

Male (Figs. 1, 2): Sternum VIII with a fairly straight apical margin, not forming a distinct lobe, and with 6—12 setae on the ventral part. Apodeme of tergum IX quite narrow, without a projection. Manubrium narrow and straight, with an upturned triangular apex. Basimere quadrangular, with distinct surface sculpture; ventrally with a deep bay; with about 15 long setae at and near the dorsal and posterior margins and about half a dozen slender setae dorso-apically on outer and inner surfaces; 0—2 short setae near the base of the ventral projection. Telomere elongate, with relatively few thin and small setae and a more or less rounded-off apex; anterior margin markedly angulate, with denticulus in middle. Subdorsal anterior extension of proximal arm of sternum IX hardly

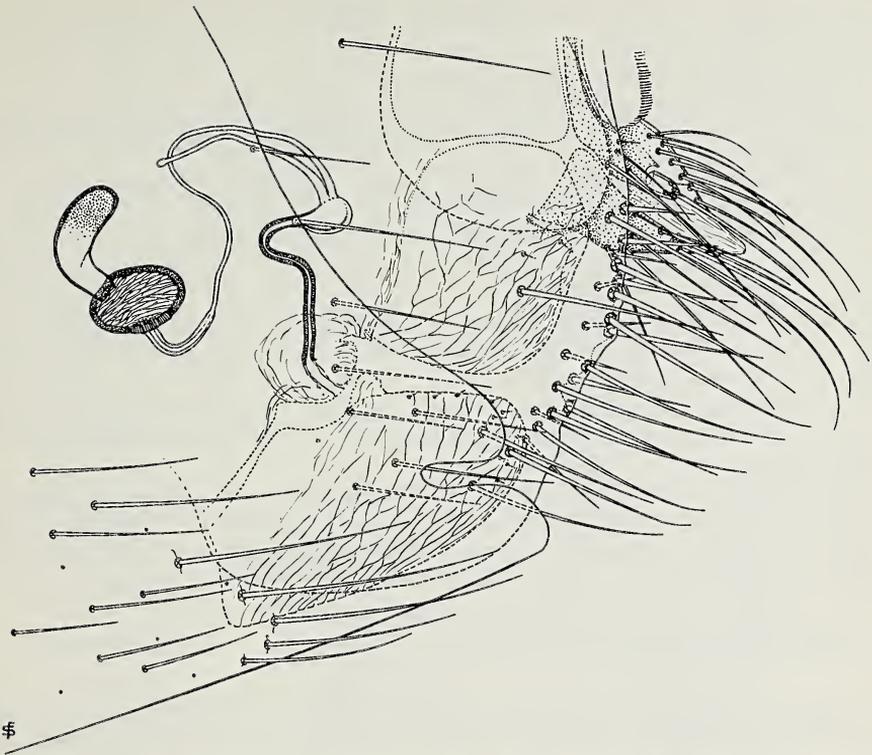


Fig. 3. *Parapsyllus cedei* n.sp. Terminal abdominal segments and genitalia (allotype; spermatheca drawn from a paratype).

developed. Distal arm of sternum IX an elongate triangle, gradually tapering to a pointed apex; with 5—10 short setae marginally at and near the apex. Phallosome as shown in Fig. 2; the single virga penis makes about a quarter of a convolution.

Female (Fig. 3): Posterior margin of sternum VII with a narrow sinus of variable depth which divides a rather small rounded upper lobe from a similar but larger lower lobe; sternum VII with a row of 6—7 setae each side, preceded by 3—8 shorter setae. Tergum VIII with a fairly regularly but rather weakly convex posterior margin; chaetotaxy as in Fig. 3. Sterna VIII and IX with a distinct surface sculpture. Length of anal stylet very variable, from about as long as its maximum width to twice that length. Ductus bursae thick-walled, its upper half strongly curved cephalad; bulga of spermatheca oval; hilla fairly long and curved.

Length: ♂ 1.5—1.75 mm., ♀ 2—2.75 mm.

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