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FIRST RECORDS OF SPECIES OF THE GENUS *NOSOPON* HOPKINS, 1950 (PHTHIRAPTERA: MENOPONIDAE) IN SPAIN

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ABSTRACT: The genus *Nosopon* is reported from Spain for the first time, represented by 2 species: *N. casteli* Tendeiro, 1959 from the griffon vulture (*Gyps fulvus*) and *N. lucidum* (Rudow, 1869) from the common kestrel (*Falco tinnunculus*). The griffon vulture (*Gyps fulvus*) becomes a new host for *N. casteli*. Measurements and illustrations are included to facilitate the identification of both species of *Nosopon*.

KEY WORDS: Phthiraptera, Menoponidae, *Nosopon, N. casteli, N. lucidum, Gyps fulvus, Falco tinnunculus*, new records, Spain.

Lice of the genus *Nosopon* Hopkins, 1950 (Phthiraptera: Menoponidae) are exclusively parasitic on birds of prey belonging to the order Falconiformes. They can be distinguished from other menoponid genera by the following combination of characters: head broad and semilunar in shape, temples with ventral submarginal patch or row of setae, dorsum of head without scattered minute alveoli, head setae 24-25 short, mesonotum with 4 anterior setae, venter of 3rd femur and sternites IV-V without brushes or ctenidia, and postvulval sclerite with setae (CLAY, 1969).

Thirteen nominal species of *Nosopon* have been described (see ANSARI, 1951; HOPKINS & CLAY, 1952; TENDEIRO, 1959, 1979, 1993; PRICE & BEER, 1963; PRICE, 1976; PRICE & EMERSON, 1984), but we recognise only 9 of them as taxonomically distinct (see TENDEIRO, 1993; PRICE, PALMA & HELLENTHAL, 1997).

No records of *Nosopon* have been included in the list of «Mallophaga» from Spain published by MARTIN-MATEO (1989) or in the catalogue of animal parasites from Spain compiled by CORDERO, CASTAÑON & REGUERA (1994). In a recent study on the abundance and distribution of lice from Spanish raptors, PEREZ, RUIZ & COOPER (1996) listed *Pterophilus* sp. from *Gyps fulvus*, and *Nosopon* sp. from *Falco tinnunculus*. We have now re-examined this material and concluded that the correct identities of these lice are, respectively, *Nosopon casteli* Tendeiro, 1959 and *N. lucidum* (Rudow, 1869).

All specimens were obtained from wild hosts kept in captivity in health recuperation centres for raptorial birds. The lice were fixed, cleared and slide mounted following the same technique as described by PEREZ, RUIZ & COOPER (1996). This material is kept in the collection of the Department of Animal and Plant Biology and Ecology, Jaén University, Spain.

The material examined includes 14 males, 8 females and 4 nymphs of *Nosopon casteli* from two specimens of *Gyps fulvus* (Hablizl), one from Matalascañas, Huelva, 13 December 1986 (Cat. No. 176), the other from Matasgordas, Huelva, 25 March 1987 (Cat. No. 169).

One male and 2 females of *Nosopon lucidum* from three specimens of *Falco tinnunculus* Linnaeus, all from Alfacar, Granada, 21 November 1986 (Cat. No. 3, 23, 87).

Nosopon casteli belongs to a group of six species

	♂♂ (n = 14)			♀♀ (n = 8)		
	min.	max.	X ± SD	min.	max.	X ± SD
H.L.	247,0	285,0	271 ± 9,9	266,0	294,5	283,8 ± 8,8
H.W.	503,5	532,0	521,0 ± 8,2	532,0	551,0	541,5 ± 8,2
Ce.I.			0,52			0,52
Th.L.	494,0	551,0	523,2 ± 19,5	513,0	579,5	547,4 ± 17,7
Th.W.	465,5	541,5	496,0 ± 21,3	494,0	551,0	526,1 ± 17,7
Ab.L.	931,0	1045,0	1009 ± 34,4	997,5	1159,0	1088,9 ± 46,5
Ab.W.	693,5	741,0	726,1 ± 14,7	817,0	931,0	845,5 ± 35,2
To.L.	1738,5	1843,0	1795 ± 39,2	1862,0	1995,0	1920,2 ± 42,3
Co.I.			2,47			2,27
C.Ap.L.	703,0	741,0	718,6 ± 14,6			

Table 1.– Measurements (in micrometers) of the *Nosopon casteli* specimens from *Gyps fulvus*. H.L. = head length; H.W. = head width; Ce.I. = cephalic index (= H.L./H.W.); Th.L. = thoracic length; Th.W. = thoracic width; Ab.L. = abdominal length; Ab.W. = abdominal width; To.L. = total length; Co.I. = corporal index (= To.L./Ab.W.); C.Ap.L. = copulatory apparatus length.

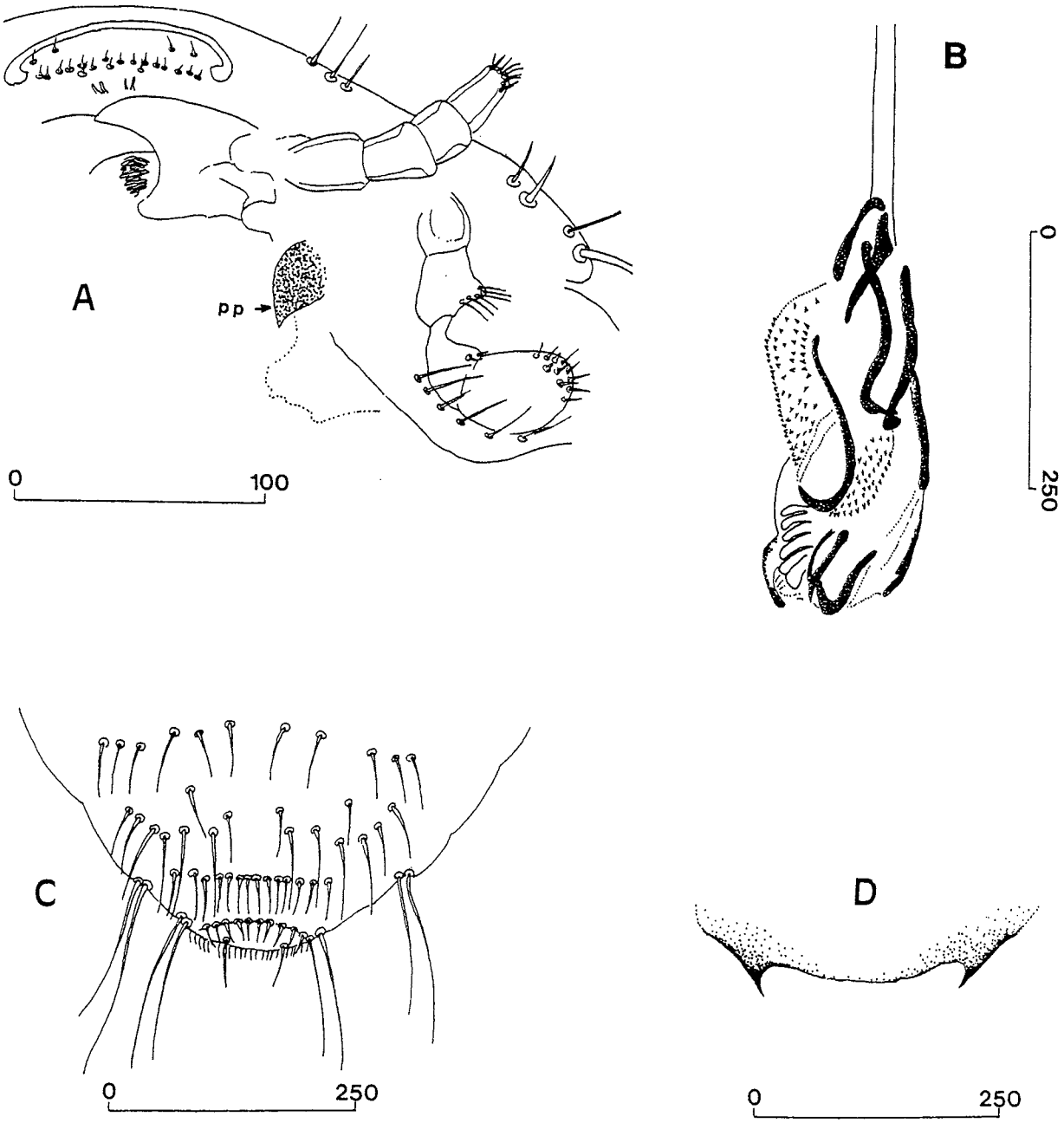

Fig. 1.– *Nosopon casteli*: A) ♀, head (pp = postpalpal process); B) ♂, genitalia; C) ♀, vulval region, ventral view; D) sclerite of female genital chamber, posterior margin. Scale bars in μm.

which have a pair of large ventral spinous postpalpal processes in the head (Fig. 1A). The male of *N. casteli* can be identified by its characteristic genitalia (Fig. 1B), and the female by the sclerite of the genital chamber having a convex posterior margin with two strong latero-posterior processes pointing inwards (Fig. 1D). The mean dimensions of the Spanish females (Table 1) are all larger than those of the holotype as given by TENDEIRO (1959). However, the chaetotaxy of these female specimens largely agrees with that of the holotype. *Nosopon casteli* has been recorded from the African white-backed vulture, *Gyps africanus* (its type host), and from the Cape vulture, *G. coprotheres* by TENDEIRO (1959, 1993). Our material from *Gyps fulvus* represents a new host record for *N. casteli*.

Nosopon lucidum belongs to a group of three species which lack spinous postpalpal processes in the ventral side of the head (Fig. 2A). Further, the male of *N. lucidum*

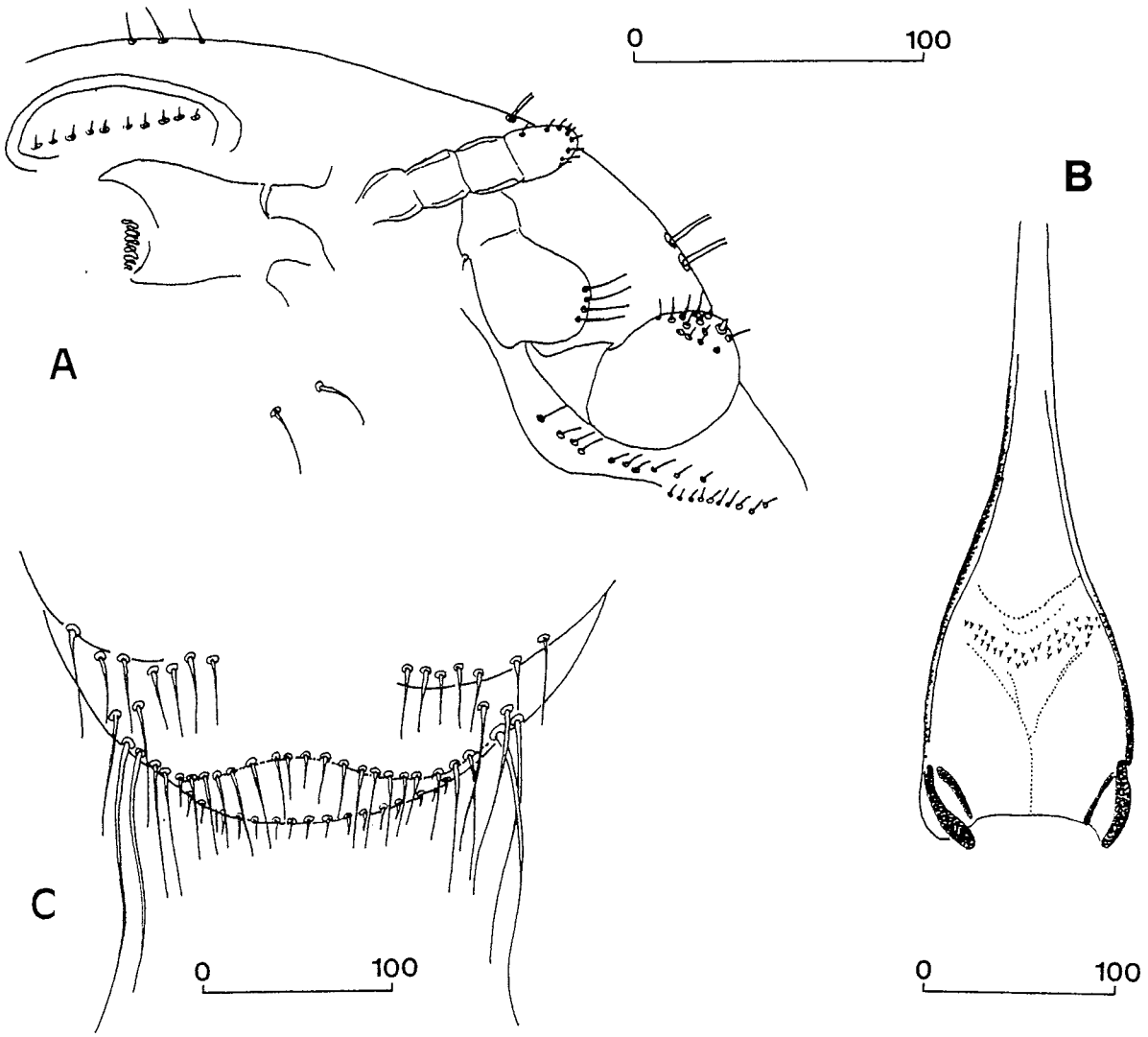

Fig. 2.– *Nosopon lucidum*: A) ♀, head; B) ♂, genitalia; C) ♀, vulval region, ventral view. Scale bars in µm.

	♂♂ (n = 1)	♀♀ (n = 2)		
		min.	max.	X ± SD
H.L.	256,5	275,5	285,0	280,3 ± 4,8
H.W.	503,5	560,5	570,0	565,3 ± 4,7
Ce.I.	0,51			0,50
Th.L.	351,5	389,5	399,0	394,3 ± 4,7
Th.W.	380,0	446,5	484,5	465,5 ± 19,0
Ab.L.	722,0	950,0	1026,0	988,0 ± 38,0
Ab.W.	513,0	703,0	712,5	707,8 ± 4,8
To.L.	1330,0	1615,0	1710,0	1662,5 ± 47,5
Co.I.	2,59			2,35
C.Ap.L.	380,0			

Table 2.– Measurements (in micrometers) of the *Nosopon lucidum* specimens from *Falco tinnunculus*. H.L. = head length; H.W. = head width; Ce.I. = cephalic index (= H.L./H.W.); Th.L. = thoracic length; Th.W. = thoracic width; Ab.L. = abdominal length; Ab.W. = abdominal width; To.L. = total length; Co.I. = corporal index (= To.L./Ab.W.); C.Ap.L. = copulatory apparatus length.

lacks complex genitalic processes (Fig. 2B) and the female does not have a chitinized sclerite in its genital chamber (Fig. 2C). The dimensions of our single male fall within the ranges given by TENDEIRO (1959) for a number of males from various hosts, but our two females are somewhat larger (Table 2). The type host of *N. lucidum* is the western red-footed falcon, *Falco vespertinus* Linnaeus, but it has also been recorded from a wide range of hosts belonging to the genera *Falco, Accipiter, Circus* and *Spizaetus*.

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