NYMPHAL STAGES OF *ABROCOMOPHAGA HELLENTHALI* (PHTHIRAPTERA, GYROPIDAE), A PARASITE OF *OCTODON DEGUS* (RODENTIA, OCTODONTIDAE)

Armando C. Cicchino[1]
Dolores del Carmen Castro[1]

ABSTRACT

The three nymphal instars of *Abrocomophaga hellenthali* Price & Timm, 2000 are described and compared with both sexes of the adult stage. The most remarkable quali and quantitative body features of all instars are cathegorized and its progression along the development stated.

KEYWORDS. *Abrocomophaga*, Phthiraptera, nymphal instars, Rodentia.

INTRODUCTION

The genus *Abrocomophaga* Emerson & Price, 1976, originally attributed to the family Abrocomophagidae (EMERSON & PRICE, 1976) and later synonymized with Gyropidae by PRICE & TIMM (2000), contains to date three Chilean species parasitic on rodent hosts belonging to the families Abrocomidae (*Abrocoma* Waterhouse, 1837 and *Cuscomys* Emmons, 1999) and Octodontidae (*Octodon* Bennett, 1832) (PRICE & TIMM, 2000). Although adults of all species are well characterized, no preimaginal instar have been described for the Chilean and Peruvian species. The knowledge of nymphal features may help to elucidate the true position of a genus within a lice family (MODRZEJEWSKA & ZLOTORZYCKA, 1987), as it is the case for *Abrocomophaga* of the new world family Gyropidae. The scope is to decribe the three nymphal stages and additional features of the adults of *Abrocomophaga hellenthali* Price & Timm, 2000.

MATERIAL AND METHODS

Specimens were collected on freshly trapped hosts, *Octodon degus* (Molina, 1782) in Valparaiso, Chile, by J. C. Torres Mura in January 26th 1988. They were preserved in ethanol 70º, and then mounted on conventional slides following the procedures of CASTRO & CICCHINO (1978). The specimens were housed in Museo de La Plata (MLP), La Plata, Buenos Aires Province, Argentina.

All body measurements are in millimeters, and include maximum head length (HL), maximum

1. Museo de La Plata, Paseo del Bosque s/n, 1900, La Plata, Buenos Aires, Argentina (CONICET).

preocular width (measured at level of the antennal groove) (POW), maximum occipital width (OW), and maximum abdominal width (AW) and total length of the body (TL). All them were obtained from specimens mounted on slides, and counts of setae were made from all the specimens available.

Abrocomophaga hellenthali Price & Timm, 2000

(Figs. 1-18)

PRICE & TIMM (2000:214, figs. 5-8) described adults of both sexes. Additional specimens from Chile permitted to complete their descriptions.

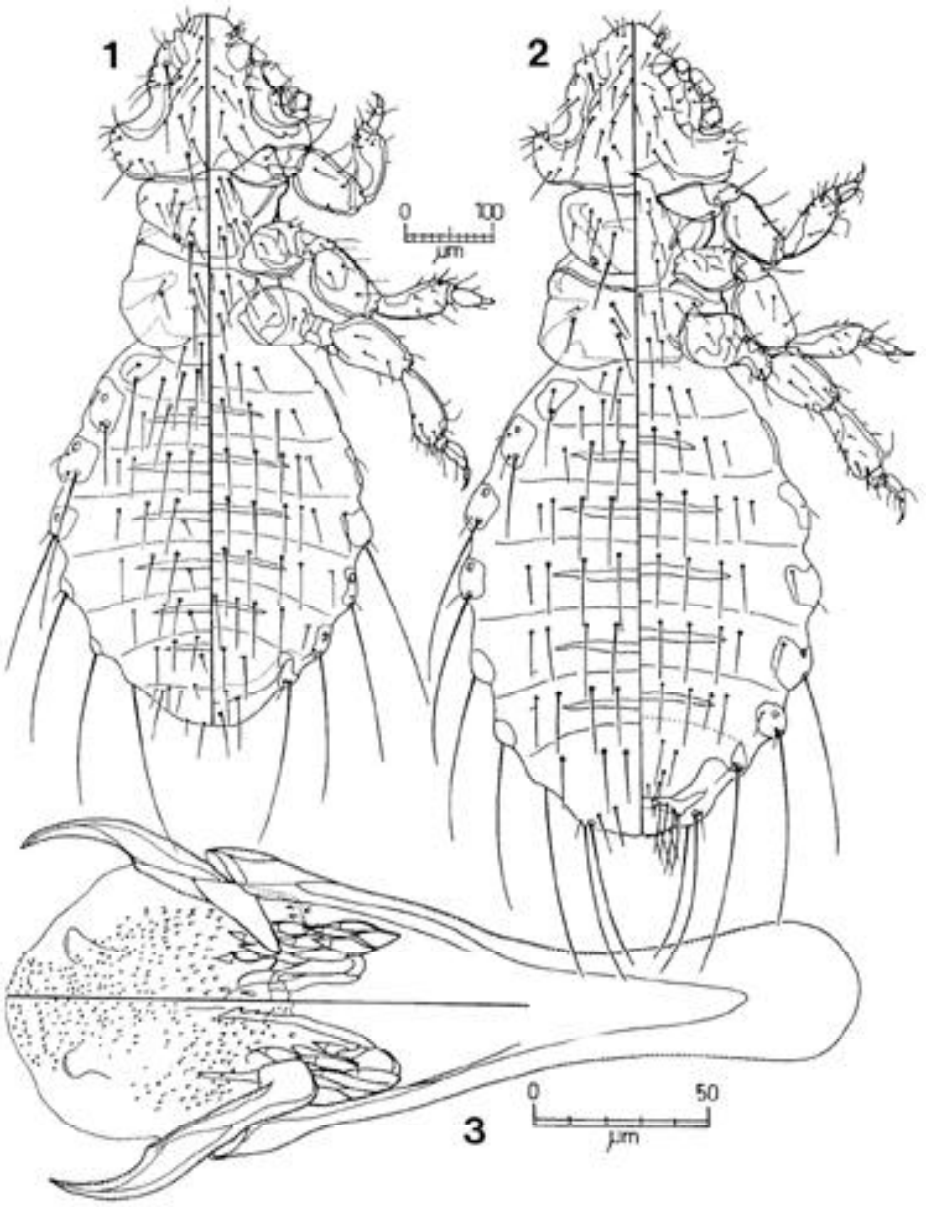
Male external morphology and chaetotaxy (fig. 1). Head subtriangular, noticeable wider than long (cephalic index length/width averaging 0.84), with dorsal and ventral cephalic setae (fig. 8) essentially as for *A. chilensis* Emerson & Price, 1976. Two of the preantennal setae much thicker and stouter than the remaining, spiniform (fig. 18). Pronotum with 14 dorsal setae. Metanotum with 5+5 setae, less frequent 5+4. Promesosternal plate with 6-7 anterior and 7-9 posterior setae. Metasternal plate with 9 anterior and 4 posterior setae. Abdomen shortened, broadly elliptical (ratio length/width averaging 1.47), with tergites shortened and much widened in segments III-VIII, with a posterior central seta each side each one. Paratergal plates II-VII with a long postspiracular and a short adjacent setae each side; III-V with a small seta adjacent to spiracle. Tergal chaetotaxy: I 4, II 5-6, III 6-8, IV 8, V 7-8, VI 8, VII 6-7, VIII 4. Subgenital plate with 3-4 and 1-2 posterior setae. External genitalia: basal plate elongated, inverted "Y" shaped, with short and falciform paramera (fig. 3); internal sac heavily spiculated, being the upper spicules much stronger and pigmented, coalescent, forming a pair of paralateral sclerites, having also a pair of blunt and badly defined posterior sclerites (figs. 4, 5). Body measurements: HL 0.183-0.193; POW 0.148-0.152; OW 0.228-0.231; AW 0.362-0.376, TL 0.703-0.814.

Female (fig. 2). Cephalic and thoracic features essentially as for male. Metasternal plate with 9-10 and 4 posterior setae. Abdomen broadly elliptical (ratio length/width averaging 1.40). Tergal chaetotaxy: I 4, II 6, III 6-7, IV 6-8, V-VI 8, VII 7-8, VIII 5-8, IX 4 (2 long and 2 short). Sternal chaetotaxy: II 5-8, III 8, IV 9-10, V 8-9, VI 8, VII 6, subgenital plate with 4 anterior and 6-7 posterior setae (fig. 6). Anal fringe with 8+8 setae (fig. 7). Body measurements: HL 0.186-0.200; POW 0.148-0.162; OW 0.221-0.241; AW 0.393-0.428; TL 0.893-0.966.

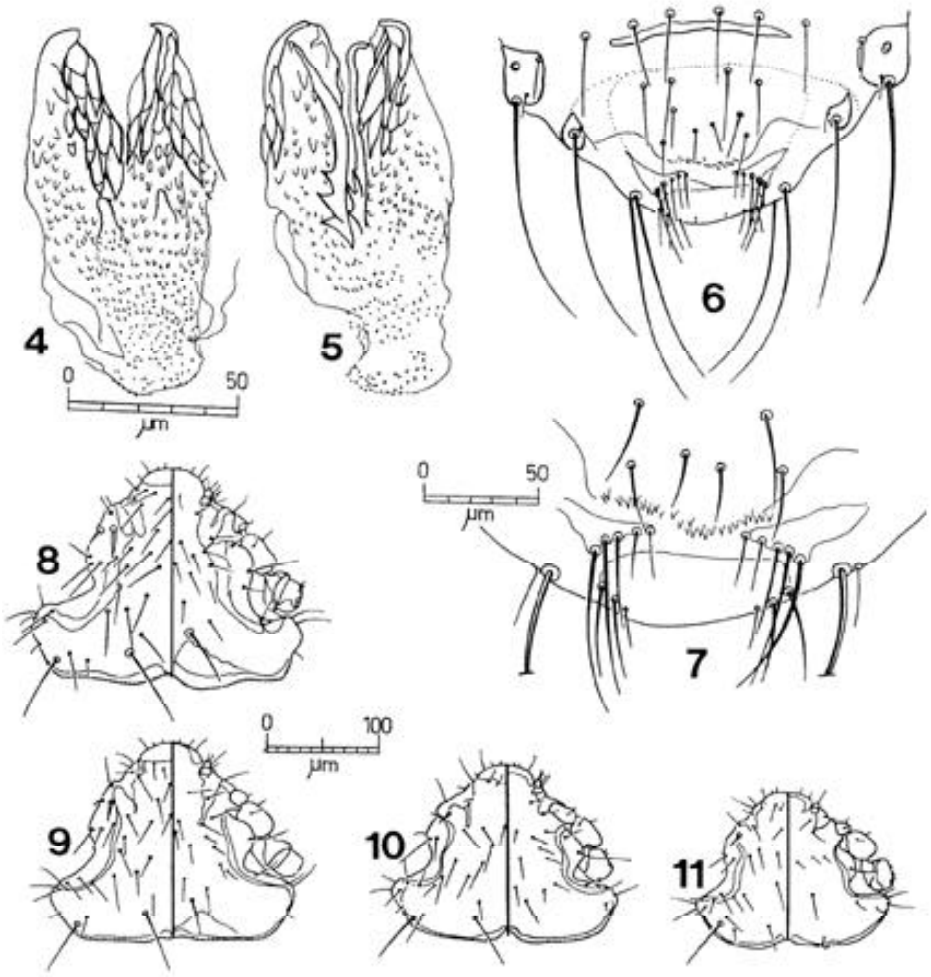
Third nymphal instar (N III) (fig. 14). Cephalic chaetotaxy (fig. 9) reminiscent of male, but with a minor number of dorsal and ventral discal setae. Two preantennal strong setae, like those of the male, but less stout (fig. 17). Pro and metanotal setae as for male. Promesosternal plate with 6 anterior and 6 posterior setae, metasternal one with six anterior and six posterior setae. Paratergal plates III-IV lacking small setae adjacent to spiracle. No traces of pigment in tergal and sternal plates of the abdomen were observed. Tergal chaetotaxy: I 4, II-VIII 6. Sternal chaetotaxy: II-III 6, IV-VI 8, VII 6, VIII 4. Total body length 0.697-0.768.

Second nymphal instar (N II) (fig. 13). Cephalic chaetotaxy (fig. 10) with a lesser number of dorsal and ventral setae than the N III, and the two preantennal setae almost indistinct of the remaining setae (fig. 16). Paratergal plates similar to the previous stage. Tergal chaetotaxy: I-VIII 4. Sternal chaetotaxy: II 4, III-VII 6, VIII 4. Total body length 0.585-0.591.

First nymphal instar (N I) (fig. 12). Head with a few number of dorsal and ventral discal setae (fig. 11), external setae and preantennal pair wanting (fig. 15). Paratergal



Figs. 1-3. *Abrocomophaga hellenthali* Price & Timm, 2000, specimens from Chile, Valparaiso, Reserva Florestal Peñuelas: 1, male, dorsal-ventral view; 2, female, dorsal-ventral; 3, external male genitalia, dorsal (upper half), ventral (lower half).

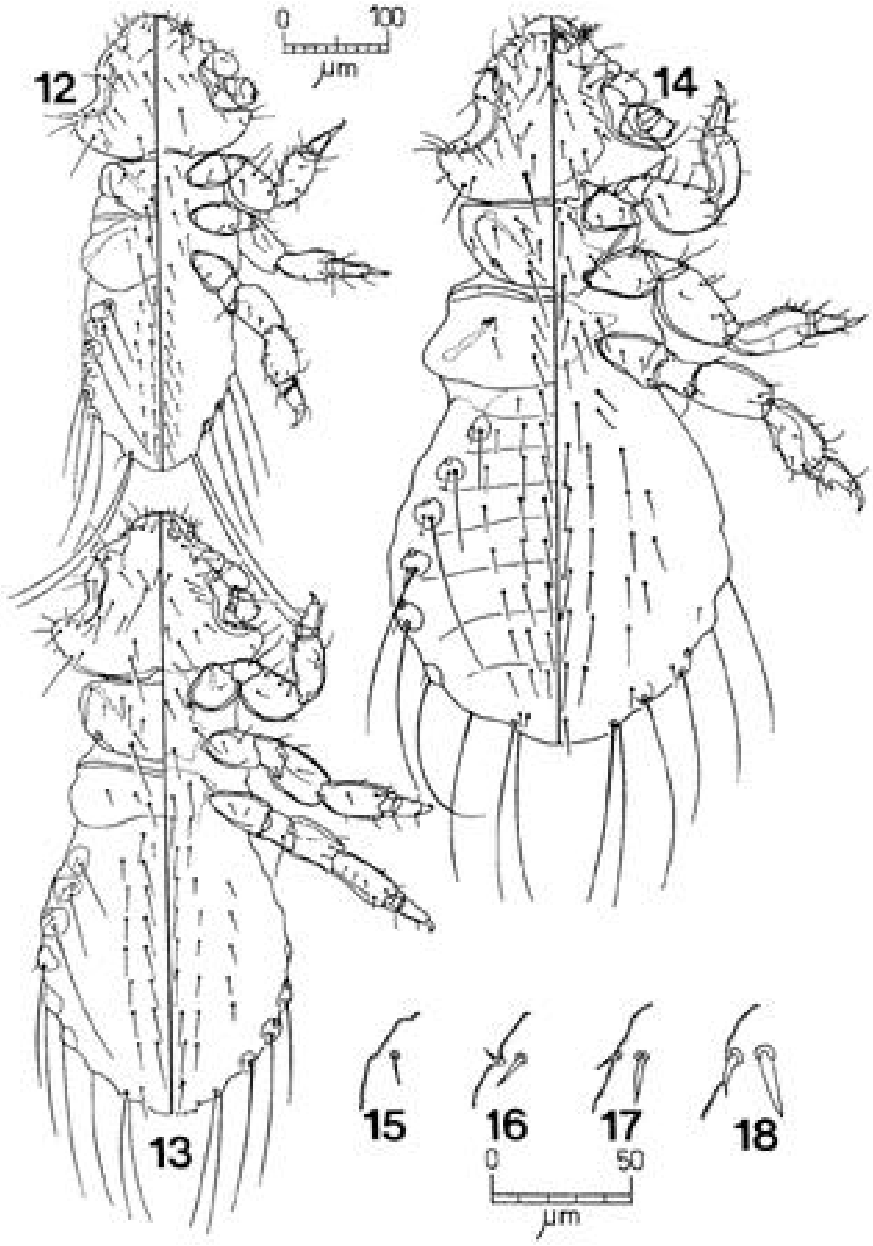


Figs. 4-11. *Abrocomophaga hellenthali* Price & Timm, 2000, specimens from Chile. Male: 4, internal sac of genitalia, dorsal view; 5, ventral; female: 6, abdominal terminalia; 7, details of vulva and anal fringe; head, dorsal-ventral: 8, male; 9, nymph III; 10, nymph II; 11, nymph I. Figs. 4, 5; 6, 7; 8-11 in the same scale, respectively.

chaetotaxy similar to the anterior stage. Tergal chaetotaxy: I 2, III-VIII 4. Sternal chaetotaxy: II-IV 2, V-VIII 4. Total body length (a recently emerged individual) 0.440.

Specimens examined. CHILE, **Valparaiso** (V Región): Reserva Forestal Peñuelas, 5 ♂, 14 ♀, 3 nymphs III, 2 nymphs II and 1 nymph I, 26.I.1988, J. C. Torres Mura col., on *Octodon degus* (Molina, 1782) (MLP).

Discussion. MODRZEJESKA & ZLOTORZYCKA (1987) described four categories of characters along the development of Phthiraptera Amblycera and Ischnocera. Applying them to the postembryonal stages of *Abrocomophaga*, it is stated, constant characters



Figs. 12-18. *Abrocomophaga hellenthali* Price & Timm, 2000, specimens from Chile. Dorsal-ventral view: 12, nymph I; 13, nymph II; 14, nymph III; pair of supraantennal setae: 15, nymph I; 16, nymph II; 17, nymph III; 18, male. Figs. 12-14; 15-18 in the same scale, respectively.

that are independent from developmental stage: number of supraantennal setae (2), from N II to adults (figs. 16-18). Characters changing gradually from nymphs to adults: number of supraantennal setae between NI (1, fig. 15) and N II-adult (2, figs. 16-18; gradual thickening of the supraantennal pair of setae from NII to adults (figs. 16-18); gradual increment in number or dorsal and ventral discal cephalic setae (figs. 8-11); gradual increment of the promesosternal setae (NI = 2+2, NII = 4+4, NIII = 6+6, adults = 6-7+7-9) and metasternal setae (NI = 4+2, NII = 6+4, NIII = 6-7+4, adults = 9+4); gradual increment in number of tergal setae (specially from NII to adults) (figs. 1, 2, 12-14). Characters referring only to preimaginal instars: absence of anal fringe, fully developed in male (fig. 6) and female (fig. 7) of the adult stage. Characters present only in adults: presence of discrete and pigmented tergal and sternal plates in male and female.

Each one of the three nymphal instars of *A. hellenthali* is well characterized by the combination of body proportions, measurements and chaetotaxy. It is expected the same fact regarding the other two species in this genus. Due to the lacking of data concerning the features of preimaginal instars of other genera and/or species within the Gyropidae, it is not possible to discuss if the above mentioned characteristics conform a general pattern of all the members of this family, or if they are exclusive of *Abrocomophaga*.

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