



Research Paper

First record of Ischnoceran Louse *Anaticola anseris* (Linnaeus, 1758) (Insecta: Phthiraptera: Philopteridae) from White Domestic Goose (*Anser anser* f. *domesticus*) in Punjab (India)

Aftab Ahmad^{1*}, Gaurav Sharma², Akhlaq Husain³ and Ashwani Kumar Dubey^{4**}

^{1,2}Zoological Survey of India, Northern Regional Centre, Kaulagarh Road, Dehradun, Uttarakhand, India.

³41, Hari Vihar, Vijay Park, Charata Road, Dehradun, Uttarakhand, India.

⁴Department of Zoology, Government College Prithvipur, District Niwari, Madhya Pradesh, India.

*Corresponding author email: draftab.lifescience@rediffmail.com

**ORCID <https://orcid.org/0000-0001-7297-6860>

Received: 09/05/2026

Revised: 12/09/2026

Accepted: 20/09/2026

Abstract: White domestic geese (*Anser anser* f. *domesticus*) from several localities of the Rakh Sarai Amanat Khan Conservation Reserve were examined to determine the occurrence of phthirapteran ectoparasites. Of the seven phthirapteran species reported from the host group, only *Anaticola anseris* (Linnaeus, 1758) was encountered during the present survey. The record constitutes the first documentation of *Anaticola anseris* (Linnaeus, 1758) associated with White Domestic Goose, *A. anser* f. *domesticus*, in Punjab, India.

Keywords: Ischnoceran louse, *Anaticola anseris*, in *Anser anser* f. *domesticus*, Punjab.

Introduction:

The genus *Anaticola* Clay, 1935 includes ischnoceran lice associated mainly with anseriform birds, particularly members of families Anatidae (ducks and geese) and Phoenicopteridae (flamingoes). Earlier taxonomic studies recognized approximately 38 valid species reported from Anatidae (Bedford, 1936; Keler, 1960; Eichler & Vasjukova, 1980; Price et al., 2003). Members of *Anaticola* generally possess an elongated and slender body (Clay, 1936; Price et al., 2003; Chang et al., 2016; Siya et al., 2019) and the species *Anaticola anseris* (Linnaeus, 1758) commonly referred to as the goose wing louse or slender goose louse, is a Ischnoceran louse characterized by a small, dorsoventrally flattened body. As a permanent ectoparasite, it remains associated with its avian host and feeds

mainly on feather material, epidermal debris, and secretions present on the plumage (Price et al., 2003). However, these works did not provide comprehensive diagnostic characters or a practical identification key for all species. Ledger (1980) consequently emphasized the need for a thorough revision of the genus because many described species were difficult to identify reliably. Louse infestations of swan geese have been documented since the nineteenth century (Rudow, 1869; Giebel, 1874). Earlier studies have reported seven phthirapteran species from these hosts, comprising three ischnocerans-*Anaticola anseris*, *Anatoecus dentatus* and *Anatoecus icterodes* and four amblycerans-*Ciconiphilus pectiniventris*, *Holomenopon leucoxanthus*, *Ornithobius mathisi* and *Trinoton anserinum* (Bedford, 1936; Lakshminarayana, 1979; Price et al., 2003). This study provides an exhaustive account of the occurrence and anatomical characteristics of *Anaticola anseris* (Linnaeus, 1758) infesting the White Domestic Goose, *Anser anser* f. *domesticus*, and documents the first instance of this parasitic association in Punjab, India.

STUDY SITE: Amritsar District, Punjab (India)

Physiography: Amritsar district (31.63°N 74.87°E' with an average elevation of 234 m in the Majha region of the state), covers an area of 2683 Sq. Km, with primary water bodies consisting of major perennial rivers, sacred tanks (*sarovars*) within the city and a network of canals. The material was collected from the birds in Rakh Sarai Amanat Khan Conservation Reserve, which forms part of the Forest Division under the district.

Climate: Hot and arid; temperature range -1 to 45 °C with four primary seasons, viz. winter (December- March) when minimum

temperature drops to -1 °C; summer (April-June), when temperature reaches to 45 °C; monsoon (July- September) and post-monsoon (October-November); average annual rainfall is about 726 mm.

Flora: *Amaltas*, *Eucalyptus*, Ficus trees (Peepal; Banyan), Kachnar (Orchid tree), Kikar, Lasura, Mango, Moringa (Sohanjana), Neem, Sheesham, bushes, grasses (Sarkanda, Kana grass) and aquatic weeds.

Fauna (Water Birds): Coots, ducks, geese, pochards, shovelers, wigeons etc.

Materials and Methods:

During the present study White Domestic Geese, *Anser anser* f. *domesticus*, were examined at different sites within the Rakh Sarai Amanat Khan Conservation Reserve, Amritsar, Punjab, India. Random sampling for phthirapteran ectoparasites was carried out in and around the reserve. Each host was carefully inspected for the presence of lice, and hosts without infestation were released at their original locations. Specimens were collected with fine forceps, pointed tweezers, and a damp camel-hair brush, with the aid of a magnifying lens fitted with an integrated light source. Collected lice were individually labelled and preserved in 70% ethanol, with a separate vial maintained for each host. Specimens were subsequently sorted according to species, sex, and developmental stage under a stereozoom trinocular microscope. For examination under a light microscope, the specimens were cleared and prepared by maceration in 10% KOH, followed by washing with distilled water and treatment with acetic acid. They were then dehydrated through graded ethanol, cleared in xylene, and mounted in Canada balsam.

Results and Discussions:

Systematic Account & Distribution

Anticola anseris (Linnaeus, 1758)

Esthiopterum anseris Linnaeus, 1758.
Systema Naturae, 10: 612.

Esthiopterum anseris, Bedford, 1932. *S.Afr. Ectoparasites*: 337.

Anaticola anseris, Bedford, 1936.
Onderstepoort Journal of Veterinary Science and

Animal Industry. 7 (1): 69-110.

Classification: Class Insecta, order Phthiraptera Haeckel, 1896, suborder Ischnocera Kellogg, 1896, family Philopteridae Burmeister, 1838, genus *Anaticola* Clay, 1935 (genus includes species found in families Anatidae [ducks, geese and swans] and Phoenicopteridae [flamingoes], formerly placed in the genus *Lipeurus* and later *Esthiopterum* [Bedford, 1936]).

Host: *Anser anser* f. *domesticus*

Material studied: *Anaticola anseris*.

(i). 04 examples (♂), Regd.A-16792, Sarai Amanat Khan Village, District Amritsar, Punjab (India), 09.11.2022; collected from the geese feather by 1st author (A.A.).

(ii). 06 examples (♂) & 09 examples (♀) Regd. A-17153, Rakh Sarai Amanat Khan Compartment II, 11.11.2022; collected from the geese feather by 1st author (A.A.).

(iii). 02 example (♂) & 03 examples (♀) Regd. A-7164, Rakh Sarai Amanat Khan Compartment I, 11.11.2022; collected by 1st author (A.A.); collected from the geese feather by 1st author (A.A.).

Description:

Anaticola anseris is recognizable by its particularly slender and elongated body, the configuration of the pre-antennal region, the structure of the male genitalia, and the presence of a small internal lobed structure on either side of the female genital region. Adults are elongated and dorsoventrally

flattened. Females are larger than males, measuring approximately 3.4-4.0 mm, whereas males measure about 2.8-3.2 mm (Figs. 1, 4). The body is differentiated into the head, thorax and abdomen. The head is comparatively narrow anteriorly and rounded, with a hyaline margin. A pair of thick setae occurs ventrolateral along this margin and is accompanied by shorter setae (Fig. 2). The mandibles are strongly developed on the ventral side and are adapted for chewing feather fragments, epidermal debris, and other material associated with the host's plumage (Fig. 2). The antennae comprise five segments: scape, pedicel, and flagellomeres I–III. In males, the scape is comparatively thicker and longer than in females, and flagellomere-I bears a distinct projection (Fig. 5). These antennal structures primarily function in sensory perception and assist movement through the feathers. The abdomen is elongated (Fig. 3) and segmented, bearing numerous setae. In males it is relatively narrower than in females. The legs are well developed and consist of the coxa, trochanter, femur, tibia, tarsus, pretarsus, and a pair of pretarsal claws. Measurements of the principal body parts of males and females are provided in Table 1. *Anaticola anseris* resembles *A. crassicornis* in several external features, including its elongated body with dark-brown lateral margins, head chaetotaxy, temporal margin, ptero-thoracic characteristics, and abdominal chaetotaxy. It can nevertheless be separated from *A. crassicornis* on the basis of clypeal morphology, overall body dimensions, the lateral margins of the ptero-thorax, and male genital structures.

Distribution: Cosmopolitan in general.
 India:

Northern and Central India: Highly prevalent in northern regions (Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir UT, Ladakh UT and Uttar Pradesh).

Southern India: Uncommon to rare.

Elsewhere: South Africa (Anatidae- Ducks, Geese and Swans) (Bedford, 1936).

Remarks: The domestic goose is a goose that has been domesticated and kept for its meat, eggs, down feathers or as a pet bird.

Table 1. Measurements (mm) of

Anaticola anseris

Character	Male	Female
HL	0.64	0.68
HW	0.41	0.48
PL	0.16	0.18
PW	0.32	0.34
Pt.L	0.41	0.43
Pt.W	0.39	0.47
AL	1.32	2.13
AW	0.61	0.64
TL	2.89	3.40

Abbreviations: HL, head length; HW, head width; PL, prothorax length; PW, prothorax width; Pt.L, pterothorax length; Pt.W, pterothorax width; AL, abdominal length; AW, abdominal width; TL, total length.

Acknowledgments: The authors are thankful to the Director, Zoological Survey of India, Kolkata, for encouragement and to the Officer-in-Charge, Northern Regional Centre, ZSI, Kaulagarh Road, Dehradun for facilities.

References:

Bedford, G. A. H. (1936) A Synoptic Check-List and Host-List Ectoparasites found on South Mammalia, Aves, and Reptilia (Supplement No.1.). *Onderstepoort. Journal*

of Veterinary Science and Animal Industry, 7 (1), 69-110.

Keler, S. V. (1960) Über die dualistische Differenzierung der Gattung *Anatoecus* Cummings (Mallophaga). *Zeitschrift für Parasitenkunde*, 20, 207-316.

Eichler, W. and Vasjukova, T. T. (1980) Die Mallophagengattung *Anaticola* (Phthiraptera, Mallophaga). *Deutsche Entomologische Zeitschrift*, 27, 335-375.

Price, R. D., Hellenthal, R. A., Palma, R. L., Johnson, K. P. and Clayton, D. H. (2003) *The chewing lice: World checklist and biological overview*, 24, 501 pp. Illinois Natural History Survey Special Publication.

Clay, T. (1936) Two new genera of Mallophaga. *Proceedings of the Zoological Society of London*, 615-618.

Chang, Y. C., John, Y., Takekawa, Diann, J. P., Lacy, M. S., Craig, R. E., Anthony, D. F., Lei, Cao, Xin, W., Nyambayar, B., Tseveenmayadag, N. and Xiangming, X. (2016) Chewing lice of Swan Geese (*Anser cygnoides*): New host-parasite associations. *Korean Journal of Parasitology*, 54 (5), 685-691.

Siya, S., Naz, S., Murtaza, A., Dharejo, Kanwal, A. and Thebo. (2019) New record of *Anaticola mergiserrati* (Phthiraptera: Ischnocera: Philopteridae) from Sindh Province, Pakistan, with its detailed morpho-taxonomy. *Pure and Applied Biology*, 8 (1), 656-666.

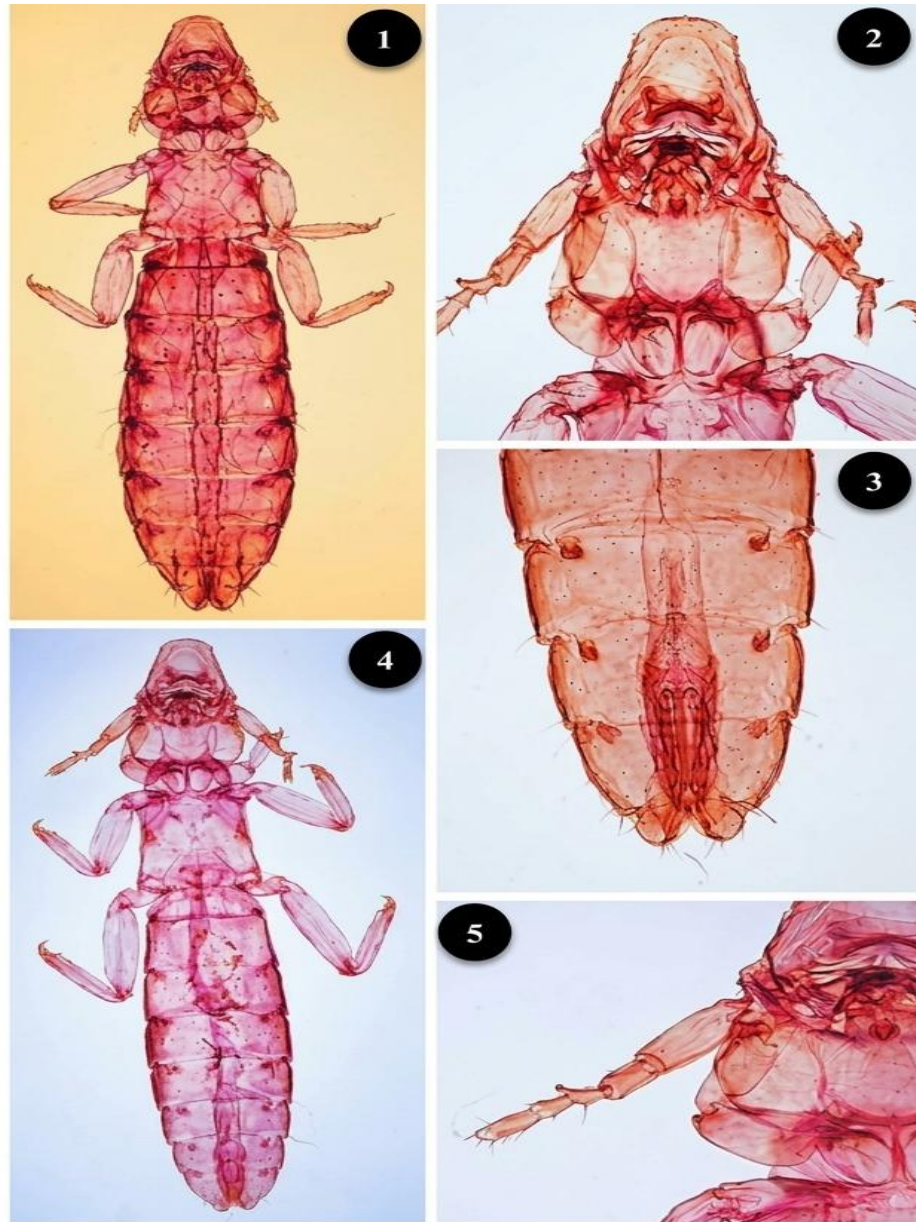
Rudow, F. (1869) Beitrag zur Kenntniss der Mallophagen oder Pilzfresser. *Neue exotische Arten der Familie Philopterus*: 37-38. Universität Leipzig, Leipzig, Deutschland.

Giebel, C. G. (1874) *Insecta Epizoa*: 308 pp. Otto Wiegand, Leipzig, Germany.

Ledger, J. A. (1980). The arthropod parasites of vertebrates in Africa south of the Sahara. Phthiraptera (Insecta). *Publ of the S African Inst Med Res.*, 4, 1-327.

Lakshminarayana, K. V. (1979) A synoptic list of Mallophaga sens. lat. (Phthiraptera: Insecta) from India and adjacent countries

together with host and regional indices. Rec. zool Surv. India, 75, 39-201



Figs. 1-5 (Light Microscope Photographs): *Anaticola anseris* 1. Female, 2. Enlarged view of the head showing mandibles of male 3. Enlarged view of the posterior side showing male genitalia 4. Male 5. Enlarged view of male antenna showing the scape, pedicle and flagellomere.