International Journal of Entomology Research
www.entomologyjournals.com
ISSN: 2455-4758
Received: 13-02-2026, Accepted: 16-03-2026, Published: 31-03-2026
Volume 11, Issue 1, 2026, Page No. 615-617

Study on the crop contents of *Anaticola anseris* (Linnaeus, 1758) (Insecta: Ischnocera: Phthiraptera) infesting Domestic goose (*Anser anser domesticus*)

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Abstract
The domestic goose (*Anser anser domesticus*) is known to be infested by *Anaticola anseris* (Linnaeus, 1758). Examination of the crop contents of *A. anseris* indicated that feather barbules were identified in 74.5% of specimens across various developmental stages. Females (82.5%, n=33) displayed a higher prevalence of feather barbules in comparison to males (77.5%, n=31). On the other hand, the proportion of feather barbules in the crops of nymphs in their IIIrd instar was considerably higher (75%, n=30), followed by those in their IInd instar (72.5%, n=29) and Ist instar (65%, n=26). Granules, quartz, mica, and sand grains were not identified as indicators of triturating agents.

Keywords: *Crop contents, Ischnocera, Lice, Anaticola anseris, Phthiraptera, Domestic goose*

Introduction

Anaticola anseris (Linnaeus, 1758), commonly referred to as the goose wing louse or slender goose louse, is a species of chewing louse that infests geese and other waterfowl. Phthirapteran species exhibit considerable diversity in their feeding habits. Some Philopteridae phthirapteran species exclusively consume feathers and do not feed on the blood of their hosts. In contrast, certain Menoponidae species frequently ingest skin derivatives or blood meals. Conversely, Gyropidae species are strictly haematophagous and cannot survive without the blood of a host (Price and Graham, 1997) [17]. The Trichodectidae family, which typically infests mammals, feeds on epidermal scales, skin scurf, and other epidermal derivatives, but does not consume hair. According to the findings of Blagovestchensky (1959), and Nelson (1972) [6, 15], feathers have not been detected in the crops of members of the Ricinidae family, such as *Ricinus* sp., which solely feed on host blood. In terms of mammalian lice, various B*ovicola* species (found on sheep, goats, and cattle) consume skin derivatives (not hair, which is only utilized for oviposition) and have been maintained *in vitro* for several generations on a diet of host skin (Kumar *et al*., 1993 and Rodriguez *et al*., 1986). Waterhouse (1953), Kalamarz (1963), Seager *et al*., (1976), Agarwal and Saxena (1980), Agarwal *et al*., (1982, 1983), and Saxena *et al*., (1985, 1995) [1, 2, 3, 8, 10, 19, 20, 21, 22, 23] have studied the feeding behavior of avian phthirapteran species. Research on these subjects has been periodically reviewed by Ahmad *et al*., 2014 & 2025; Khan *et al*., 2021; Kumar *et al*., 2016, 2018, 2019; 1975 and Price and Graham 1997 [4, 5, 9, 11, 12, 13, 17]. This report presents the findings concerning the crop contents of the ischnoceran species, *Anaticola anseris* (Linnaeus, 1758), which infests domestic geese (*Anser anser domesticus*).

Materials and Methods

Specimens representing both genders and three nymphal instars of the ischnoceran species, *Anaticola anseris* (Linnaeus, 1758), were collected from infested Domestic geese (*Anser anser domesticus*) and subsequently dissected using a Stereozoom Trinocular Microscope. After the terga were removed, the complete alimentary canal was extracted, and the contents of the crop from all developmental stages were placed on a glass slide with the aid of highly pointed entomological pins for microscopic examination. The mouthparts were also examined under the microscope to determine the type of mouthpart.

Result and Discussion

The examination of the crop of an ischnoceran species, Anaticola anseris (Linnaeus, 1758), revealed that feather barbules were identified in 74.5% of the specimens analyzed across different stages. Females exhibited a higher proportion of feather barbules (82.5%, n=33) compared to males (77.5%, n=31). The percentage of feather barbules present in the crops of nymphs during their third instar was notably greater (75%, n=30), compared to those in their second instar (72.5%, n=29) and first instar (65%, n=26) (Table 1, Fig. 1-9). No grinding agents, such as sand grains, granules, and quartz, were detected, nor were there any indications of egg particles or body parts. Additionally, no variations in feeding behaviors associated with sex or developmental stage were found based on the contents of the crop. Microscopic examinations of the ventral side of the head reveal that the mouthparts are situated on the ventral surface of the head (Figs. 3-6). These mouthparts are characterized by their highly sclerotized mandibles, which are specialized for cutting feather barbules and altered for biting.

A review of the literature reveals that that phthirapteran species not only impact the health and productivity of their hosts but also serve as reservoirs and transmitters of infectious disease strains among these hosts, highlighting the pathogenic significance of their involvement.

Studies on the haematophagous characteristics of various species *i.e. Ardeicola expellidus* & *Ciconiphilus decimfasciatus* (Ahmad *et al*., 2014) [5], *Heterodoxus spiniger* (Agarwal *et al*., 1982) [3], *Menacanthus eurysternus* (Agarwal *et al*., 1983) [2], *M. gonophaeus* & *Myrsidea baktitar* (Khan *et al*., 2021) [9], *M. kalatitar* (Kumar *et al*., 2019) [13], *Menopon gallinae* (Kumar *et al.,* 2016) [11], *Trinoton anserinum* (Seegar *et al.,* 1976) [22], *T. querquedule* (Saxena *et al*., 1985) [21] have been documented by various researchers. Research on the feeding traits of different

species, such as *Ardeicola expellidus* and *Ciconiphilus decimfasciatus* (Ahmad *et al*., 2014) [5], *Heterodoxus spiniger* (Agarwal *et al*., 1982) [3], *Menacanthus eurysternus* (Agarwal *et al*., 1983) [2], *M. gonophaeus* and *Myrsidea baktitar* (Khan *et al*., 2021) [9], *M. kalatitar* (Kumar *et al*., 2019) [13], *Menopon gallinae* (Kumar *et al*., 2016) [11], *Trinoton anserinum* (Seegar *et al*., 1976) [22], and *T. querquedule* (Saxena *et al*., 1985) [21] has been reported by numerous workers. Rana and Bhardwaj, 2017 [18] have studied the crop contents four phthirapteran species- *Colpocephalum turbinatum*, *Companulotes bidentatus compar*, *Hohostiella lata*) *Columbicola columbae* on pigeon. Present study provides valuable insights into the dietary patterns of the ischoceran species *Anaticola anseris* (Linnaeus, 1758), which is known to infest the Domestic goose (*Anser anser domesticus*). *Anaticola anseris* (Linnaeus, 1758) was identified as a feather feeder; however, no grinding agents such as sand grains, granules, and quartz, were detected, nor were there any indications of egg particles or body parts identified. The examination of the feeding behavior of phthirapteran ectoparasites presents numerous challenges that have not yet been fully investigated. As a result, there exists a considerable gap in our understanding of this field, which could prove advantageous to both the scientific community and veterinarians.

Table 1: Showing the percentage of an ischnoceran species *Anaticola anseris* (Linnaeus, 1758) infesting Domestic goose (*Anser anser domesticus*) carrying crops contents.

Species	Stages	Total specimens	Types of crop contents	Specimens with crop contents	Percentage
Anaticola anseris (Linnaeus, 1758)	M	40	Fb	31	77.5
	F	40	Fb	33	82.5
	NI	40	Fb	26	65
	NII	40	Fb	29	72.5
	NIII	40	Fb	30	75
	T	200	Fb	149	74.5

Abbreviations: M (Male), F (Female), NIII (IIIrd instar nymph), NII (IInd instar nymph), NI-Ist instar nymph), Fb (Feather barbules) and T (Total).

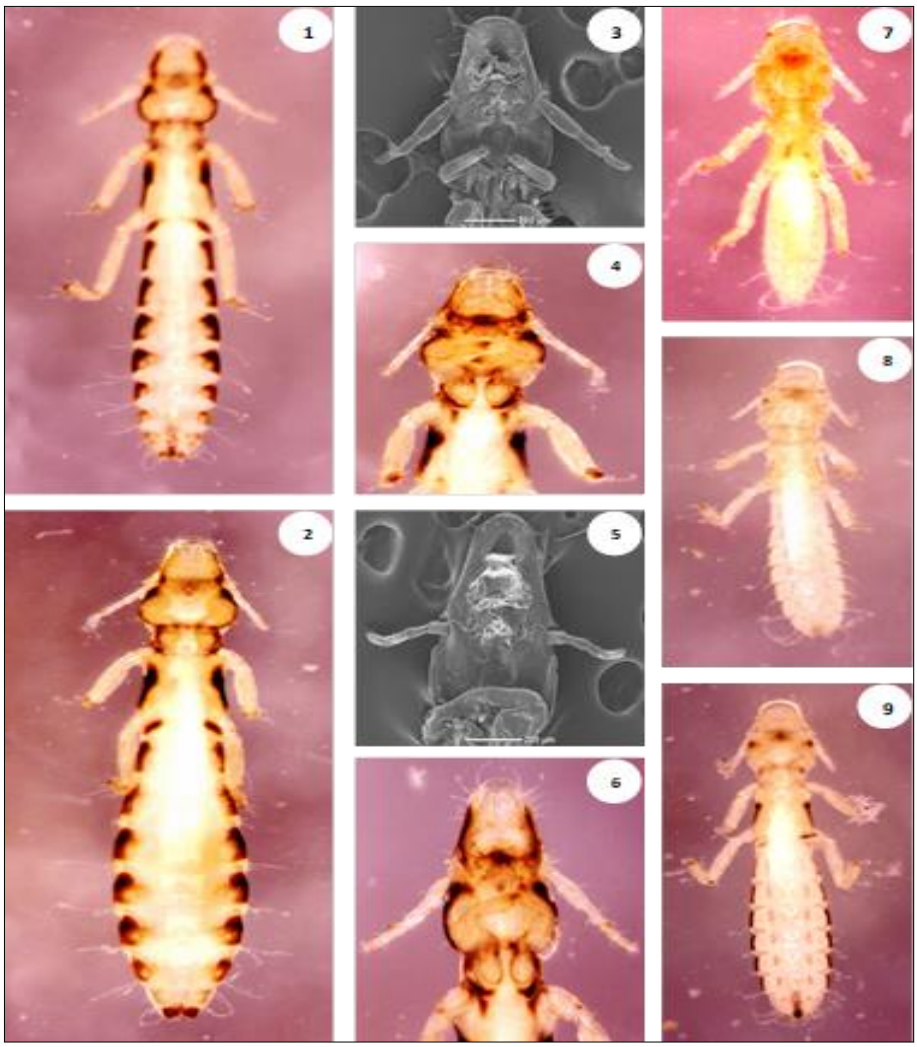

Fig 9: Photographs *Anaticola anseris* (Linnaeus, 1758): 1-2 LM photographs of adult-1. Female 2. Male; 3-6 LM and SEM Photograph of adult head (ventral view), 3. Female (LM), 4. Male (SEM), 5. Female (LM), 6. Female (SEM); 7-9 LM photograph of three nymphal stages, 7. I*st* instar nymph, 8. IInd instar nymph 9. IIIrd instar nymph.

Acknowledgements
We extend our heartfelt appreciation to the Director of the Zoological Survey of India for her invaluable support and for overseeing the execution of this work. We would also like to express our gratitude to the Officer-in-Charge of the Zoological Survey of India, Northern Regional Centre, Dehradun, Uttarakhand, for providing the necessary equipment and laboratory facilities.

Funding: Nil

Conflict of interest: There are no conflicts of interest for the authors.

Compliance with ethical standards Ethical issues: None.

Author contribution: The manuscript was written by Aftab Ahmad and the final version of the manuscript has been approved by Gaurav Sharma.

References

1. Agarwal GP, Saxena AK. Feeding behaviour of *Lipeurus lawrensis tropicalis* Peters (Phthiraptera: Ischnocera) infesting poultry birds. Z Ang Entomol.,1980:89(5):425-427.
2. Agarwal GP, Chandra S, Saxena AK. Haematophagous behaviour of *Menacanthus eurysternus* an amblyceran Mallophaga infesting common Myna, *Acridotheres tristis*. Angew Parasitol.,1983:29:55-59.
3. Agarwal GP, Chandra S, Saxena AK. Feeding habits of dog louse, *Heterodoxus spiniger* (End) (Mallophaga: Amblycera). Z Ang Entomol.,1982:94(2):134-137.
4. Ahmad A, Sharma G. Crop contents of Phthirapteran Ectoparasites Infesting Helmeted Guinea Fowl, *Numida meleagris* (Linnaeus, 1758) (Galliformes: Numidae) International J Theo Appli. Sciences.,2025:17(1):64-67.
5. Ahmad A, Gupta N, Saxena AK. Feedingng behaviour of phthirapteran ectoparasites infesting Cattle egret (*Bubulcus ibis*). Proc Nat Con Cha Bio Res Man.,2014:246-249.
6. Blagovestchensky DI. Nasekomyje puchoedy Tom I, vyp I Fauna SSSR, (Moskva). Leningrad,1959.
7. Hopkins DE, Chamberlain WF. *In vitro* colonization of the goat biting lice, *Bovicola crassipes* and *B limbata*. Ann Ent Soc Amer.,1969:62:826-828.
8. Kalamarz E. Badania nad biologia Mallophaga VI Nowa metoda hodowli piorojadow *in vitro*. Zeszyty Naukowe WSR Olszytynie.,1963:16(313):479-497.
9. Khan G, Roy S, Kumar S, Gupta N. Analysis of the crop contents of two amblyceran lice infesting house crow, *Corvus splendens* (Insecta: Phthiraptera: Amblycera). Acta Sci Vet Sci.,2021:3(10):3-7.
10. Kumar A, Rawat BS, Saxena AK. *In vitro* biology of goat biting louse, *Bovicola caprae* Gurlt (Phthiratpera: Ischnocera). Bioved.,1993:4(2):277-282.
11. Kumar S, Ahmad A, Ali R, Kumar V. A note on the haematophagous nature of poultry shaft louse, *Menopon gallinae* (Amblycera: Phthiraptera). J Parasit Dis.,2016:41(1):117-119.
12. Kumar S, Ali R, Khan G, Saxena AK. Stray notes on the feeding habits of an amblyceran pigeon louse, *Colpocephalum turbinatum* (Phthiraptera: Insect). Appl Nat Sci.,2018:10(1):45-47.
13. Kumar S, Khan G, Ahmad A. Crop Contents of an Amblyceran Menoponid, *Menacanthus kalatitar* (Phthiraptera: Insecta) Infesting Black Partridge, *Francolinus francolinus*. Indian Vet J.,2019:96(04):81-83.
14. Marshall AG. The ecology of ectoparasitic insects. Academic Press, London,1981.
15. Nelson BC. A revision of the New world species of *Ricinus* (Mallophaga) occurring on Passeriformes (Aves) Berkley. Los Angeles, London University of California Press,1972.
16. Nelson BC, Murray MD. The distribution of Mallophaga on the domestic pigeon (*Columba livia*). Int Parasitol.,1971:1:21-29.
17. Price MA, Graham OH. Chewing and sucking lice as parasites of mammals and birds. Technical Bulletin No 1849 USPA Agricultural Research Service,1997.
18. Rana S, Bhardwaj SK. Nature of crop contents of four pigeon lice. Ann Entomol.,2017:35(2):65-68.
19. Rodriguez RB, Cruz MDS, Navio AMF, Jimmenej JP. *Bovicola caprae* at *Capracola limbata* (Mallophaga) parasites de *Capra hircus* Cah ORSTOM. Ser Ent Med Parasitol.,1986:24(3):225-228.
20. Saxena AK, Surman, Kumar A, Singh SK. Crop teeth of poultry shaft louse, *Menopon gallinae* (Linn) (Phthiraptera: Amblycera). Bioved.,1995:5(2):219-222.
21. Saxena AK, Agarwal GP, Chandra S, Singh OP. Pathogenic involvement of Mallophaga. Z Ang Entomol.,1985:99:294-301.
22. Seager SW, Schiller EL, Staden WJL, Trpis M. A Mallophaga, *Trinoton anserinum*; as a cyclo developmental vector for a heartworm parasite of a waterfowl Science.,1976:194:739-741.
23. Waterhouse DF. Studies on the digestion of wool by insects IX Some features of digestion in chewing lice (Mallophaga) from bird and mammalian hosts. Aust J Biol Sci.,1953:6(2):257-275.