

Diversity and distribution of feather lice on Greater Flamingoes (*Phoenicopterus ruber roseus*) in the Camargue, southern France

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Abstract

Feather lice were collected from 250 chicks of the Greater Flamingo (*Phoenicopterus ruber roseus* Pallas) captured alive in the Camargue, southern France, in July 1997. Five louse species were identified: *Colpocephalum heterosoma* Piaget, *Colpocephalum salimalii* Clay and *Trinoton femoratum* Piaget of the family Menoponidae; *Anaticola phoenicopteri* (Coinde) and *Anatoecus pygaspis* (Nitzsch [in Giebel]) of the family Philopteridae. Our collecting results also show that there is body-site segregation among the several louse species inhabiting the same host individual.

Keywords: *Anaticola*, *Anatoecus*, *Trinoton*, *Colpocephalum*, host-body distribution.

Introduction

Colonial birds frequently harbour a great number and variety of ectoparasites (Herman 1936, Rothschild & Clay 1952). Even where the number of louse species parasitising closely related bird species is the same, louse loads are greater on colonial birds than on territorial birds (Rózsa *et al.* 1996). For several reasons, e.g., resource competition and host preening (Reczigeł & Rozsa 1998), ectoparasitic communities are spatially structured on the host, with certain species often being restricted to particular parts of the bird's body (see Clay 1949, Dogiel 1964, Nelson & Murray 1971, Choe & Kim 1987, 1988). We investigated the species diver-

sity and the distribution of feather lice on chicks of Greater Flamingoes, *Phoenicopterus ruber roseus* Pallas, in the Camargue, southern France.

Materials & methods

As part of a long-term population study of the Greater Flamingo, a sample of the chicks raised in the Camargue were captured and banded each year since 1977 (Johnson 2000). This took place at the end of the breeding season, in July or August, when the chicks were aged between 6–10 weeks, the youngest still with some down, the oldest fully feathered and on the point of fledging. We searched for lice on 250 of the chicks captured in July 1997. Each bird was held for a maximum of 5 minutes during which time lice were collected from 3 distinct parts of the body, the head, the wings and the flanks. Lice were detected with the naked eye, removed by hand and preserved in 70% ethyl alcohol. Voucher specimens were slide-mounted following the technique described by Palma (1978) and deposited in the entomology collection of the Museum of New Zealand Te Papa Tongarewa.

Results

Five louse species were identified: *Colpocephalum heterosoma* Piaget, 1880, *Colpocephalum salimalii* Clay, 1951 and *Trinoton femoratum* Piaget, 1880 of the family Menoponidae; *Anaticola phoenicopteri*

Table 1. Total numbers, relative abundance and distribution of four louse species collected from 250 chicks of the Greater Flamingo (*Phoenicopterus ruber roseus*) in southern France.

Louse species	Head	Wing	Flank	TOTAL
<i>Colpocephalum heterosoma</i>	2 (2.1%)	88 (92.6%)	5 (5.3%)	95
<i>Trinoton femoratum</i>	3 (23.1%)	2 (15.4%)	8 (61.5%)	13
<i>Anaticola phoenicopteri</i>	2 (0.7%)	184 (70.2%)	76 (29.1%)	262
<i>Anatoecus pygaspis</i>	33 (94.3%)	2 (5.7%)	0 (0%)	35

(Coinde, 1859) and *Anatoecus pygaspis* (Nitzsch [in Giebel], 1866) of the family Philopteridae. Overall, 412 lice were collected from 122 (48.8%) flamingoes. The number of lice per individual bird ranged from 1 to 8 (mean 3.38). Only seven specimens of *Colpocephalum salimalii* were collected. Numbers of lice, relative abundance and distribution of the four more numerous species, are given in Table 1.

Discussion

All five louse species previously recorded from *Phoenicopterus ruber roseus* (see Clay 1974: 484, as *Phoenicopterus antiquorum*) were found in this study. The differential abundance of the four more

numerous species on the different parts of the body indicates that there is an ecological niche partition among them (Figs 1-4). Lice of the genus *Colpocephalum* were found mostly on the wings (Fig. 1). In their ecological study of lice from domestic pigeons, Nelson & Murray (1971: 24) also found *Colpocephalum* lice mostly on the wings, but also on the tail. Although the total number of *Trinoton* lice found in this study is relatively small (see Table 1), their distribution over the host body suggests that these lice are less site specific than those of the other three genera (Fig. 2). A great proportion of *Anaticola phoenicopteri*, a very long and narrow-bodied species, were found on wings, but almost 30% were collected from the flanks (Fig. 3). These figures largely agree with previous observations that slender elongate lice inhabit wing feathers (see Clay 1949: 281). The very high proportion of *Anatoecus pygaspis* found on the head of the flamingoes (Fig. 4) is further evidence supporting the view that species of *Anatoecus* are typical "head lice" as proposed by Clay (1949: 280).

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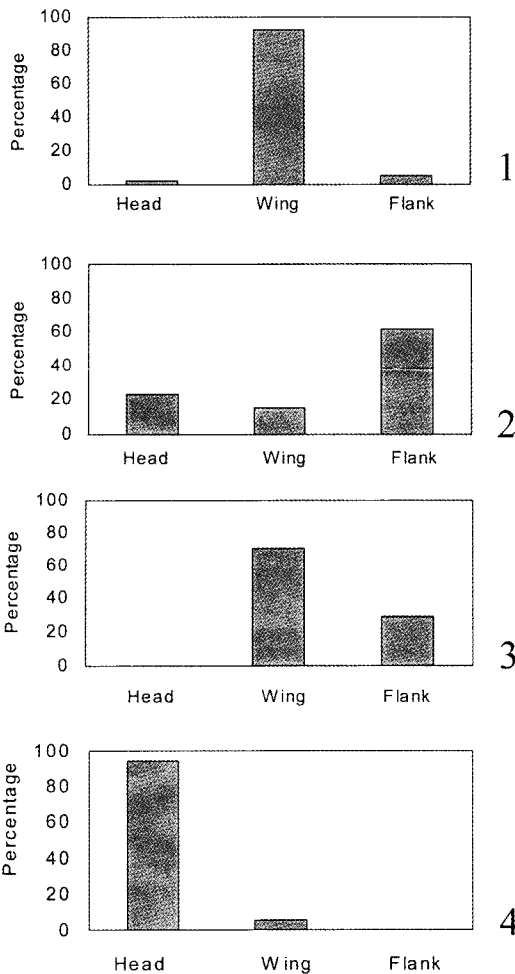
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Figs 1-4. Relative abundance and distribution of the four commoner species of feather lice found on Greater Flamingoes (*Phoenicopterus ruber roseus*) in southern France. 1, *Colpocephalum heterosoma*; 2, *Trinoton femoratum*; 3, *Anaticola phoenicopteri*; 4, *Anatoecus pygaspis*.

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