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An annotated checklist of parasitic lice (Insecta: Phthiraptera) from the Galápagos Islands

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Table of contents

Abstract	3
Introduction	3
Materials, methods and conventions	7
Checklist of lice	9
Species incertae sedis	26
Species deleted from the Galápagos louse fauna	67
Host-lice list	69
Acknowledgements	77
References	77

Abstract

We list all described species and subspecies of parasitic lice from the Galápagos Islands, based on literature and specimen records. A total of eight families, 47 genera, and 104 species and subspecies of parasitic lice are listed, of which 26 are new species records and eight are new genus records. Also, we report 17 new host-lice associations. The checklist includes 17 endemic species (16 from birds, one from a mammal), 79 native species and subspecies (78 from birds, one from a mammal), and eight species and subspecies (five from birds, three from mammals) introduced by human agency. Nine species assigned in error to the Galápagos Islands in the literature are discussed and deleted from the fauna. For each valid species and subspecies we give information on its taxonomic history, type material, host associations, geographic distribution, biogeographical status, systematic relationships, and relevant literature references. We also give a brief summary of louse biology, and an account of the history of louse collecting, expeditions, collections, and research relating to Galápagos Islands lice. We include a host-parasite list, and a list of hosts which breed in the Galápagos Islands but without lice recorded from them. Also, we formally designate four lectotypes from the Kellogg Collection.

Key words: Parasitic lice, Phthiraptera, hosts, Galápagos Islands, new records, references, type material, lectotype designations, Kellogg Collection, expeditions, history

INTRODUCTION

The Galápagos Islands (Fig. 1) are world famous for their distinctive plants and animals, and the high degree of endemism of these species. A number of papers dealing with the systematics, distribution and evolution of all Galápagos insects have been published in recent years (e.g. Peck 2001, 2006; Landry & Roque-Albelo 2004, 2010; Pacheco *et al.* 2007; Sinclair 2009; Palma & Price 2010; Heraty & Herrera 2011). Peck (2001) dealt with the “smaller orders” of insects, except the Phthiraptera, the parasitic lice. This paper attempts to fill that gap by listing all valid species of Phthiraptera recorded from the Galápagos Islands, including information on their taxonomic history, type material, host associations, geographic distribution, biogeographical status, systematic relationships, and literature references.

Lice are wingless, dorso-ventrally compressed insects adapted to an obligate ectoparasitic life style on homoeothermic vertebrates, i.e. birds and mammals, only. Their adult length ranges between 1 and 12 mm, with an average of 2 to 4 mm. They spend their complete life cycle in the plumage or in the fur of the host. Females cement their eggs onto the base of feathers or hairs, and after a short incubation period, the first instar nymph hatches. Nymphs shed their skin (moult) three times before reaching the adult stage. Both adults and nymphs of the so-called chewing lice (suborders Amblycera, Ischnocera and Rhynchophthirina) are parasites of mammal and birds, feeding on feathers, skin debris and secretions, and occasionally blood. The so-called sucking lice (Suborder Anoplura) are exclusively mammal parasites and feed on blood (Marshall 1981).

Lice have evolved together with their hosts for such long periods of time that birds and mammals have become adapted to carry quite a number of lice without suffering serious harm. Normal host behavioural activities—such as preening, dusting, grooming, bathing, anting—and physiological traits—such as immune resistance, feather and hair moulting, feather chemistry and toughness—contribute to control the size of louse populations (Johnson & Clayton 2003). However, lice do decrease the health and fitness of the host, especially when their numbers increase due to host illness or malnutrition, or when they transmit microorganisms that cause disease (Clayton, Adams & Bush 2008).