



Questionnaire-based survey on distribution of canine ocular thelaziosis in southwestern France



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ABSTRACT

The distribution of *Thelazia callipaeda*, commonly known as “oriental eyeworm”, has been considered for a long time to be confined to the former soviet Republics and Asia where the nematode causes infections in domestic and wild carnivores, rabbits and sometimes humans. However, since 2000, thelaziosis has been diagnosed in dogs and sometimes in cats from a growing number of European countries, including France. In 2006, a survey demonstrated that many autochthonous cases of canine thelaziosis were present in the department of Dordogne (southwestern France) in three hyperenzootic counties where strawberry production was predominant. The objective of the present study was to obtain an updated evaluation of the enzootic occurrence of *T. callipaeda* in France. In April 2016, an electronic questionnaire was sent to 1670 veterinary clinics from 24 French departments of southwestern France. Among 279 responses, 97 veterinary clinics reported cases of canine thelaziosis during the last 12 months. Most of them (72/97, 74.2%) reported a limited number of cases. Two veterinary clinics in previously-identified hyperenzootic counties of Dordogne reported the higher incidence (50 and 68 new cases annually). Noteworthy, two clinics located in another department (Landes) also reported many autochthonous cases (30 cases annually) demonstrating the existence of new enzootic foci. The present investigation confirmed that Dordogne is still an enzootic area of ocular thelaziosis and that the disease is spreading in new areas of southwestern France since a decade.

1. Introduction

Thelazia spp. (Spirurida, Thelaziidae) are nematodes living in the conjunctival sac of warm-blooded vertebrates. The presence of these nematodes is responsible for epiphora, conjunctivitis, keratitis and even corneal ulcers (Anderson, 2000). *Thelazia* spp. are transmitted by different species of flies feeding from the lacrimal secretions of the definitive hosts. Among the species described within the genus, *Thelazia californiensis* and *Thelazia callipaeda* are parasites of carnivores. *Thelazia californiensis* is confined to the western part of the United States of America and has never been reported in Europe. *Thelazia callipaeda*, the “oriental eye worm”, is common in the former Soviet Republics but also in India, Thailand, China and Japan (Otranto and Traversa, 2005), where it causes infections in dogs and cats but also in humans (Shen et al., 2006; Otranto and Eberhard, 2011). In areas where thelaziosis is enzootic, wild mammals such as foxes and lagomorphs are reservoir hosts for the nematodes (Otranto et al., 2009). In Europe, the first report came from Italy (Rossi and Bertaglia, 1989) followed by various subsequent records in the same country (Di Sacco et al., 1995; Lia et al.,

2000; Otranto et al., 2003). During the last decade, the knowledge about the distribution of *T. callipaeda* in Europe has been greatly improved. To date, ocular thelaziosis is widespread among dogs (and to a lesser extent among cats) from northern (Aosta valley) to southern (Calabria region) Italy (Rossi and Bertaglia, 1989; Lia et al., 2000; Otranto et al., 2003), southern Switzerland (Ticino) (Malacrida et al., 2008), southwestern France (Dordogne) (Dorchies et al., 2007), central western Spain (Miró et al., 2011), central and northern Portugal (Vieira et al., 2012; Pimenta et al., 2013), Bosnia and Herzegovina (Hodžić et al., 2014), Serbia (Tasić-Otašević et al., 2016), Romania (Ionita et al., 2016) and Hungary (Colella et al., 2016). Very recently, autochthonous cases of thelaziosis have been reported in dogs, cats and in one rabbit from northern and central parts of Greece (Papadopoulos et al., 2017) and in four dogs from Slovakia (Cabanova et al., 2017).

The vector of *T. callipaeda* is the fruitfly *Phortica variegata* (Diptera, Drosophilidae). The males of this species feed on the lacrimal secretion of the definitive hosts, thus depositing *T. callipaeda* infective third stage larvae in their conjunctival sacs. The demonstration of the role played by *P. variegata* was obtained under laboratory (Otranto et al., 2005a)

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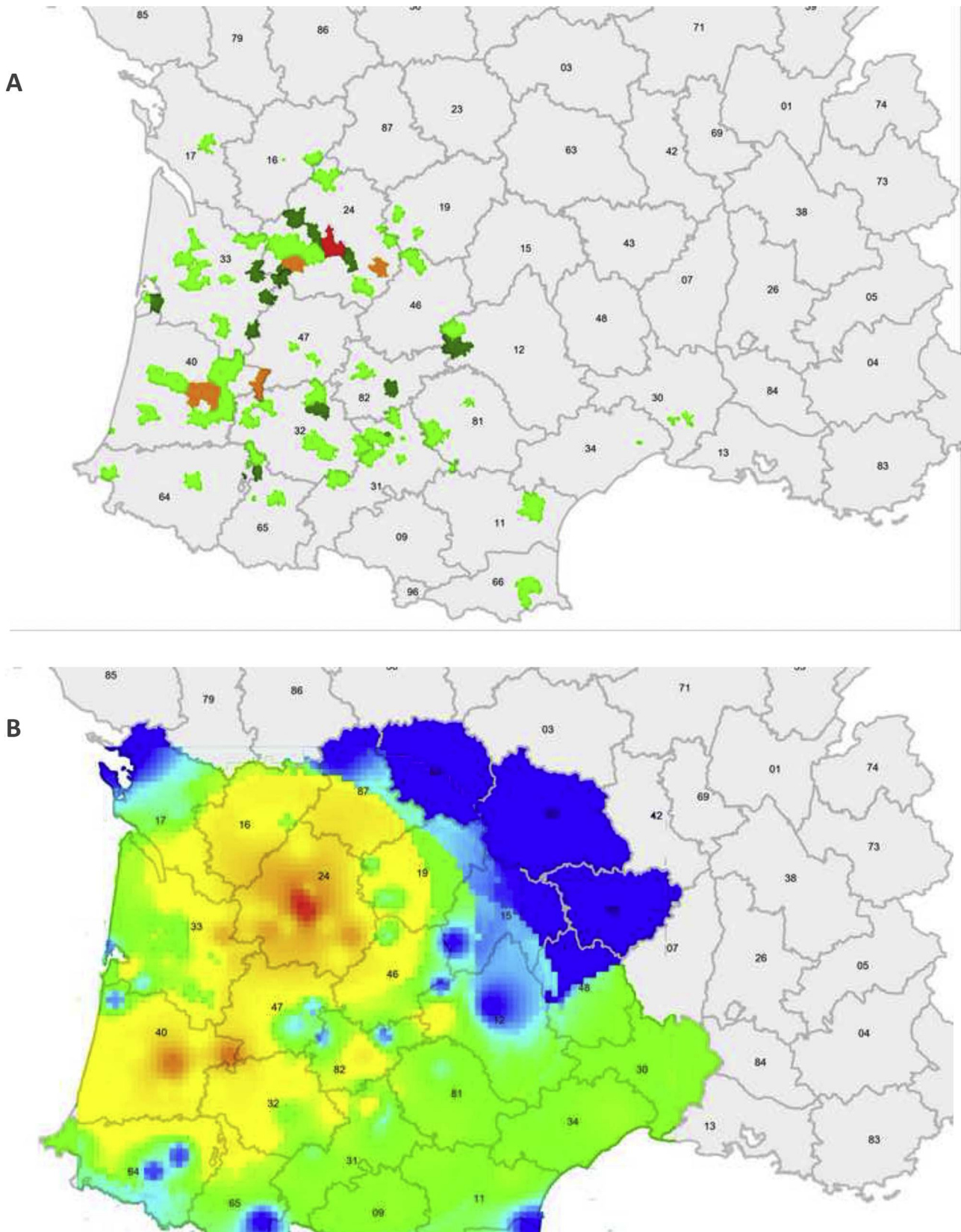


Fig. 1. Maps of southwestern France where cases of ocular canine thelaziosis were reported by veterinary practitioners from April 2015 to April 2016. Each department has a specific number: Ariège (no. 9), Aude (no. 11), Aveyron (no. 12), Cantal (no. 15), Charente (no. 16), Charente Maritime (no. 17), Corrèze (no. 19), Creuse (no. 23), Dordogne (no. 24), Gard (no. 30), Haute Garonne (no. 31), Gers (no. 32), Gironde (no. 33), Hérault (no. 34), Landes (no. 40), Haute Loire (43), Lot (no. 46), Lot et Garonne (no. 47), Lozère (no. 48), Puy de Dome (no. 63), Pyrénées Atlantiques (no. 64), Hautes Pyrénées (no. 65), Pyrénées orientales (no. 66), Tarn (no. 81), Tarn et Garonne (no. 82), Vienne (no. 87). **A)** Map at the counties scale. In light green: 1 to 5 reported cases/clinic; in dark green: 6 to 20 reported cases/clinic; in orange: 21 to 50 reported cases/clinic; in red: more than 50 reported cases/clinic. **B)** Grid surface map displaying data as continuous color gradations across southwestern France. In blue: areas without any reported cases; in green: areas with sporadic reports; in yellow, orange and red: areas with regular reports. (For interpretation of the references to colour in the text, the reader is referred to the web version of this article.)

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