

## Introduction

The globally distributed tick genus *Ixodes* currently includes 234 recognized species (Keirans 1992). Thirty-four of these species are considered to be resident in the United States. A comprehensive identification guide is available for adult *Ixodes* spp. of the United States (Keirans and Clifford 1978), excluding *I. eastoni*, which was described subsequently (Keirans and Clifford 1983). Larvae of many of these species can be identified using a combination of the works of Clifford et al. (1961), Webb et al. (1990), and Robbins and Keirans (1992). However, no comprehensive identification guide is available to *Ixodes* spp. nymphs of the United States. Cooley and Kohls (1945) provided a key to 22 of the *Ixodes* spp. nymphs from the United States for which material was available to them. Since 1945, five valid new species of *Ixodes* have been described from the United States and nymphs are now available for these and for the remaining seven species. In an attempt to fill the void, and to provide a comprehensive guide to the nymphal stages of all 34 U.S. species, this monograph has been produced. In addition to providing scanning electron micrographs (SEMs) of the nymphs of all 34 U.S. species of *Ixodes*, we also include an identification key and information on synonymies, geographical distributions, host records, and synopses of medical and veterinary importance.

*Ixodes* is the only genus of prostriate ixodid ticks. As such, all stages of *Ixodes* are easily recognized because the anal groove is anterior to the anus (Fig. 1). Nymphal ticks are readily distinguished from other developmental stages because they have eight legs (larvae have six legs) and lack genital