

# Spinose Ear Tick

## (*Otobius megnini* Dugès)

### General Information

The spinose ear tick (Fig. 1) is a member of the Argasidae family commonly referred to as the soft ticks. This tick is widely distributed throughout North America, but is especially common in the arid southwestern United States. Infestations in South America and South Africa also have been reported. The spinose ear tick is most closely associated with cattle and livestock species, but can infest multiple wildlife species as well as companion animals.

Extreme infestations can be burdensome for the host and difficult for animal producers to predict and control.



**Figure 1:** Spinose ear tick nymph. Photo courtesy of Dr. Alec Gerry, University of California, Riverside.

entire feeding life on a single host animal. Larvae that contact cattle or another suitable animal host will migrate to the head of the animal and attach within the folds of the ear. The tick will remain on the same animal for up to several months completing the larval and two nymphal stages before dropping off the host to molt to the non-feeding adult stage. Only the immature stages of the spinose ear tick are parasitic; reflected in the well-developed mouth parts (including a barbed hypostome) of the larva and nymphs. Once ticks have molted to the adult stage and mated, females can survive off the host for more than one year laying several batches of eggs on the ground, with total eggs numbering about 1,000 per adult female.

### Damage

Though there are no known diseases associated with the spinose ear tick, heavy infestations can lead to serious concerns for animal producers. Large infestations may result in restlessness and extensive energy expenditure through combative behaviors

### Identification and Life History

The spinose ear tick was first described in northern Mexico in 1883. As the name implies, immature stages have a spiny cuticle and are often found deep in the ear canal of the host (Fig. 2). The parasitic larval and nymphal stages are grayish to red-brown in color, with mouthparts hidden from above as is typical of ticks in the Argasidae family. Little is known about the seasonality of these pests and infestation has been reported year-round, though seasonal peaks have been observed and are likely to be regionally specific.

The spinose ear tick is unusual among ticks in that it has a one-host lifecycle, meaning that it will spend its

attempting to relieve the irritation. Even moderate infestations may lead to decreases in weight gain and milk production in cattle, while extreme infestations have been implicated in disfigurement and in rare cases even death as a result of secondary infections at tick feeding sites. Animals should be frequently monitored for signs of infestation as these pests can be a continuous source of stress to livestock and may remain associated with host animals in excess of 200 days.

### *Integrated Pest Management*

*Monitoring:* Identification of the immature stages located within the animal's ear canal is the most common diagnostic used in identifying spinose ear tick infestation. Often, infested animals will shake their head in an attempt to dislodge the ticks, and these behavioral expressions may serve as an indicator of infestation. In contrast to most tick species, monitoring adult spinose ear ticks is challenging because adults do not seek hosts and are therefore not attracted to host odors like CO<sub>2</sub> that might be used for tick surveillance. Adults are thought to take refuge in areas where animals often spend the most time, including but not limited to feeding and watering sites, and bedding or resting locations. Based on inconsistent reports of seasonal peaks associated with different geographical regions, animals should be monitored year round to assess population fluctuations specific to individual locations.



**Figure 2:** Ear canal infested with spinose ear ticks. Photo courtesy of Dr. Alec Gerry, University of California, Riverside.

To date, there is no action threshold for spinose ear ticks; therefore, managerial intervention for control is based on producer discretion. However, it is important to keep in mind that secondary infections can arise even with low level infestations.

*Management:* Once identified there are a number of control options available. Manual removal using forceps while taking special care to fully remove individual ticks can be employed. However, under heavy infestation, animals may be extremely sensitive to these procedures and may not fully cooperate. Special care should be taken to maximize animal and worker safety when performing manual removal.

There are many products labeled for use on agricultural and companion animals to control ticks, including the spinose ear tick. Products include insecticide ear tags, acaricides applied as sprays or pour-ons, and even injectable parasiticides. In all cases be sure to follow label instructions for safe and effective use of these products.

*References for more information*

Blagburn, B. L. and M. W. Dryden. 2009. Biology, treatment, and control of flea and tick infestations. *Veterinary Clinics of North America: Small Animal Practice*, 39:1173-1200.

Imes, M. 1918. The spinose ear tick and methods of treating infested animals. United States Department of Agriculture Farmer's Bulletin, No. 980, pp. 1-8.

Price C. J., D. H. Kattes, K. K. Herrmann, and C. L. Higgins. 2015. Spatial and temporal distributions of the spinose ear tick, *Otobius megnini*, within animal shelters at Fossil Rim Wildlife Center. *The Southwestern Naturalist*. 60:224-230.

Wanchinga, D. M. and R. W. Barker. 1986. Colonization and laboratory development of *Otobius megnini* (Acari: Argasidae). *Journal of Economic Entomology* 79:999-1002.

**AUTHORS:** B. G. Smythe (New Mexico State University) and A. C. Gerry (UC Riverside)

**PUBLICATION DATE:** 25 July 2017