

A TICK OF THE *ORNITHODOROS CAPENSIS* GROUP
ESTABLISHED ON BUSH KEY, DRY TORTUGAS,
FLORIDA¹

A CONTRIBUTION TO THE KNOWLEDGE OF THE TERRESTRIAL ARTHROPODS
OF THE DRY TORTUGAS ISLANDS

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A tick (Fig. 1 insert) tentatively determined as *Ornithodoros capensis* Neumann, 1907, was recently found to be established on Bush Key, Dry Tortugas, Florida. Ticks currently identified as *O. capensis* are widely distributed in many parts of the world as parasites of marine birds. The so-called *capensis* group, which includes this species, needs to be revised but until such a revision is completed, we prefer to regard any determinations of material in this group as tentative, especially where the specimens are from previously unreported areas. The various forms that have been considered under the name *O. capensis*, as well as host and distribution data for this species up to 1957, are given in a study of the ticks of Micronesia (Kohls, 1957). Subsequently, this species has been recorded from New Zealand (Dumbleton, 1958) and the Island of Chesterfield in the South Pacific (Rageau and Vervent, 1958).

Besides these literature records, the Rocky Mountain Laboratory has a large lot of ticks, provisionally determined as *O. capensis*, from nesting sites of Sooty and Noddy Terns at Soldado Rock, Trinidad, British West Indies (unpublished data). These specimens were collected by Dr. T. H. G. Aitken of the Trinidad Regional Virus Laboratory on June 18, 1961, and are morphologically indistinguishable from the Florida specimens.

The infestation reported in this paper from Bush Key represents the second report of a tick of the *O. capensis* group occurring in the United States. The first record was from Hawaii (Joyce, 1953).

Bush Key is a bird sanctuary and nesting site for Sooty and Noddy Terns and is one of a tiny group of coral keys that form the Dry Tortugas 68 miles west of Key West, Florida. It is separated from Garden Key with its bastion towers of Fort Jefferson by a deep channel.

Great colonies of Sooty Terns (*Sterna fuscata fuscata* Linnaeus) have used the Dry Tortugas as a nesting area for centuries, and the Brown Noddy (*Anous stolidus stolidus* [Linnaeus]) occurs here also but in lesser numbers (Sprunt, 1950). In 1915 and 1916, Bird Key, 500 feet long and 300 feet wide, was a bird reservation for Sooty and Noddy Terns and was protected by the United States Government and the Audubon Society. At this time, a warden was stationed on the island from April until the end of August (Bowman, 1918). The breeding of Sooty and Noddy Terns on Bird Key was described by Audubon in 1832 (Watson and Lashley, 1915).

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In 1935, Bird Key disappeared and the birds shifted first to Garden Key and then to Bush Key, where they have been nesting for over 20 years. These nesting sites have been protected except for scientific investigations. This is now the only major breeding colony of Sooty and Noddy Terns within the boundaries of the United States except for Hawaii (Fisher and Lockley, 1954). Other colonies of Sooty and Noddy Terns occur on Cat Cay in the Bahamas and on several other oceanic islands in the British West Indies. Both species also breed on islets in tropical portions of the eastern Atlantic and the Indian and Pacific Oceans.



Figure 1. Collecting ticks from dead bay cedar, *Suriana maritima* L. (photo by F. W. Mead). Insert: *Ornithodoros capensis* (photo by N. J. Kramis).

Bush Key appeared about 1900 as an elevated coral reef with piles of detritus heaped up in spots and was at first barren of vegetation (Bartsch, 1919). It was not mentioned in a floral survey of the sand keys of Florida (Millspaugh, 1907). Considerable change has occurred in Bush Key since it appeared (Davis, 1942) and today Bush Key supports distinct plant communities of a subclimax type. Dr. Oliver L. Austin, Jr., Associate

Curator at the University of Florida State Museum, informs us (personal communication) that about 16,000 terns were banded there between 1936 and 1941, and that about 16,000 terns have been banded each year since 1959. While some of these birds were being banded in July, 1961, Dr. Austin in company with Dr. W. B. Robertson, Jr., Park Biologist, Everglades National Park, collected a tick from the foot of a Sooty Tern and the junior author identified it tentatively as *O. capensis*.



Figure 2. Examining a clump of *Cyperus brunneus* Sw. for ticks (photo by F. W. Mead).

H. A. Denmark and Frank W. Mead, Entomologist of the Division of Plant Industry, returned to the Dry Tortugas in January, 1962, to continue a faunal survey of land arthropods of that area in which the Entomology Section, Division of Plant Industry of the Florida Department of Agriculture, is conducting. They found Bush Key infested throughout with *O. capensis*. The senior author first found them by beating dead bay cedar, *Suriana maritima* L., over a beating square (Fig. 1). All dead bay cedar so examined was found infested. Dead limbs of the white mangrove, *Laguncularia racemosa* O. Gaetn., were found to be infested to heights of

two feet to three feet above ground level. Old, abandoned, Brown Noddy nests from living bay cedar plants and litter collected beneath a dense growth of white mangrove were gathered for Berlese samples. Both nests and litter were infested.

The Brown Noddies nest from two feet to five feet above the ground on almost any plant available, including *Opuntia*, and this may account for the ticks being found above ground level. Sooty Terns nest on the ground in the open, and the chicks run under cover. This should explain the presence of ticks in the open and in the litter under white mangrove. Mead found the heaviest infestation in and around the roots of a dead clump of sedge, *Cyperus brunneus* Sw. (Fig. 2). Approximately one-fourth of a cubic foot of soil, plant and roots, was taken for Berlese samples, from which approximately 5,000 ticks were recovered.

Apparently the ticks survive without feeding in the absence of terns from August to April by hiding in protected areas such as crevices of dead wood, old nests, or roots of dead sedge. Ticks did not attempt to feed on either collector, but would crawl out of the direct sunlight and hide.

It appears that colonies of ticks may have existed on any of the keys used as nesting sites in the Dry Tortugas area for many years.

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