

SNAKE LUNG PARASITE

OVERVIEW OF PENTASTOMES

Pentastomes are wormlike crustaceans that parasitize the lungs of reptiles and mammals. They rely on host blood for sustenance. Several pentastome genera occur in North American snakes, but the native range of the pentastome *Raillietiella orientalis* is restricted to Asia and Africa.

SPILLOVER: INTRODUCTION TO SOUTH FLORIDA

Snake lung parasites *R. orientalis* are thought to have been introduced to the United States by the release of Burmese pythons (*Python bivittatus*) to the wild in Florida. Parasite spillover events from nonnative pythons to native snakes have been found in all 17 counties of south Florida. Such events appear to be moving northward as *R. orientalis* infections have recently been found as north as Alachua County, Florida (see map). At least 16 Florida snake species are known to have been infected with *R. orientalis*, including snakes of the genera *Agkistrodon*, *Crotalus*, *Coluber*, *Drymarchon*, *Lampropeltis*, *Masticophis*, *Nerodia*, *Pantherophis*, *Python*, *Sistrurus*, and *Thamnophis*.

LIFE CYCLE

Snake pentastomes have complex life histories where the parasite infects different species during different parts of its life cycle. Fishes, amphibians, and mammals may serve as intermediate hosts for pentastomes that infect snakes as their final host species before reproduction and egg release. Snake pentastomes are transferred to their final snake host when the snake preys upon an infected intermediate host. The life cycle of the Asian pentastome *R. orientalis* in Florida is still being discovered, but at this time, intermediate hosts appear to include anole lizards and anurans. Invasive *R. orientalis* pentastomes in Australia are suspected of relying on frogs as intermediate hosts. Biologists have detected snake lung parasites in dead snake mouths, and upon dissection, in their trachea and lungs.

UNKNOWN

Snake pentastomes have only recently been on the radar of USA scientists and managers concerned with snake health and conservation. Several unknowns at this time include: current range of invasive pentastome snake lung parasites; full list of intermediate and final hosts; effects on intermediate and final hosts; possible role in declining populations of sensitive snake species; likely range of invasive *R. orientalis* in North America; and biosecurity measures that can impede its invasion.

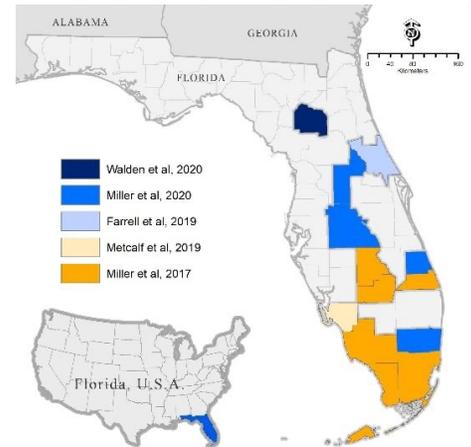


Image Source: Robert Ossiboff, University of Florida, USA. Map of the current known distribution of the pentastome snake lung parasite *Raillietiella orientalis* introduced to the USA by invasive Burmese Pythons.

SUGGESTED READING

- Farrell, T.M., et al. 2019. Spillover of pentastome parasites from invasive Burmese Pythons (*Python bivittatus*) to Pygmy Rattlesnakes (*Sistrurus miliarius*), extending parasite range in Florida, USA. *Herpetol. Rev.* 50(1):73-76.
- Metcalf, M.F., et al. 2019. *Crotalus adamanteus*: endoparasite. *Herpetol. Rev.* 50: 389.
- Miller, M.A., et al. 2020. Highly competent native snake hosts extend the range of an introduced parasite beyond its invasive Burmese python host. *Ecosphere* 11(6):e03153.
- Walden, H.D., et al. *Raillietiella orientalis* (Sambon, 1922), in a free-ranging