



Maximum Clutch Size of an Invasive Burmese Python (*Python bivittatus*) in Florida, USA

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Native to southeastern Asia, the Burmese Python (*Python bivittatus* Kuhl 1820) is an invasive species established in southern Florida (Snow et al. 2007; Krysko et al. 2016; Krysko et al. 2019). Pythons are documented as having negative effects on the Greater Everglades Ecosystem and they have proven to be a complex problem for managers trying to control populations (Guzy et al. 2023). This species can move long distances (Pittman et al. 2014; Hart et al. 2015), use diverse habitats (Hart et al. 2015; Walters et al. 2016; Bartoszek et al. 2021a), consume a wide range of vertebrate prey items (Romagosa et al. 2022; Guzy et al. 2023 and citations therein), and has few documented predators (Bartoszek

et al. 2021b; Mccollister et al. 2021; Currylow et al. 2023). Another factor that likely has contributed to the success of Burmese Pythons as an invasive species is their reproductive output (Reed et al. 2012). Though data are limited, clutch sizes of pythons in Florida range from 22–84 (mean = 49; see Currylow et al. 2022a and citations therein). Herein we report, to the best of our knowledge, the largest number of eggs in a single wild python nest recorded to date in Florida.

As part of larger studies, we radiotracked a wild Burmese Python within Big Cypress National Preserve, Collier county, Florida, USA. The female python (measuring 494 cm in total length) was found to have oviposited a clutch on 23 May



Figure 1. Largest Burmese Python (*Python bivittatus*) clutch of 96 oviposited eggs (of which 83 appeared to have hatched) discovered as part of study in Big Cypress National Preserve, Florida, USA. The eggs/eggshells shown were removed from the field and dehydrated in a drying oven for preservation. Photograph courtesy of the U.S. Geological Survey.

2022. We closely monitored the nest and observed the female attending the clutch until six days before eggs began to pip. Hatching subsequently occurred from 19 to 31 July 2022. We subsequently counted the eggs and found that the nest held 96 eggs/eggshells (Fig. 1). Of those, 83 appeared to have hatched and 13 were intact, but non-viable and showed signs of decay. Of the non-viable eggs, eight were of approximately the same size as the hatched eggs (~7.7 cm length), and the remaining five were various intermediate sizes (~6.7 cm length) to much smaller (~5.5 cm length) and misshapen relative to the other eggs (Fig. 2). We removed the eggs and eggshells from the field and dehydrated them in a drying oven for preservation.

To our knowledge this is the largest clutch size ever documented for a free-ranging Burmese Python. Few studies have recorded oviposited clutch sizes for wild pythons (e.g., Hanslowe et al. 2016; Josimovich et al. 2021; Currylow et al. 2022b), but there are several records of potential clutch sizes from necropsied individuals that include counts of later-stage reproductive structures (secondary follicles) or oviductal eggs (Krysko et al. 2008; Krysko et al. 2012). However, counts from necropsied animals, as opposed to oviposited nests, may overestimate actual clutch sizes (Currylow et al. 2022a). For example, some secondary follicles or oviductal eggs could be resorbed or retained instead of being laid (Anderson et al. 2022). Anderson et al. (2022) reported a 17% egg retention rate in wild Burmese Pythons ($n = 5$ of 30) with one female retaining as many as 35 eggs.

Additionally, we found that only 83 of the 96 (86%) oviposited eggs hatched, indicating that the number of eggs in an oviposited clutch may not represent an equal number of hatchlings (i.e., does not result in 100% hatching success). This record adds to our expanding knowledge of the repro-

ductive potential of this invasive species and underscores the challenges to their management in the Greater Everglades Ecosystem.

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Figure 2. The subset of the 13 non-viable eggs that were part of the largest Burmese Python (*Python bivittatus*) clutch (96 oviposited eggs) ever documented. Eggs shown were dehydrated in a drying oven for preservation. The nest was discovered in Big Cypress National Preserve, Florida, USA. Prior to being dehydrated, eight of these eggs originally appeared approximately average-sized, while the rest were variously smaller and misshapen. Photograph courtesy of the U.S. Geological Survey.

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