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SHORT COMMUNICATION

Photographic evidence of interspecies mating in geckos of the *Lepidodactylus lugubris* unisexual-bisexual complex (Squamata: Gekkonidae)

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Palavras-chave: acasalamento heteroespecífico, clones, complexo de espécies unisexual-bissexual, hibridização, Micronésia, Oceano Pacífico.

Lepidodactylus lugubris (Duméril and Bibron, 1836) is an "all female" parthenogenetic species of gecko that is widely distributed in parts of mainland areas and on many islands of the Indian and Pacific Ocean basins (Bauer and Henle 1994, Ineich 1999, Zug 2013); it occurs extralimitally in the American tropics and subtropics (Henderson *et al.* 1976, Bauer *et al.* 2007, Lorvelec *et al.* 2011, Daza *et al.* 2012). *Lepidodactylus moestus* (Peters, 1867) is a bisexual species that occurs in Micronesia (in the western Pacific Ocean), from Palau eastward through the Federated States of Micronesia (FSM) to the Marshall Islands (Ota *et al.* 1995, Zug 2013) in sympatry with the former.

An interspecies mating between unisexual *Lepidodactylus lugubris* and a male of the bisexual *L. moestus* was photographed by Carlos Cianchini on Kosrae [Island], FSM, at 18:15 h on 22 August 2013 (Figure 1). The mating pair

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was on a window frame inside a house at Pukusruk Wan village (05°21'01" N, 163°00'41" E, elev. 28 m a.s.l.) on the northeastern side of the island. This is the first direct evidence of mating between these two species. However, examples of "possible hybrids between *L. moestus* and *L. lugubris*" have been recorded from several disparate island groups in Micronesia (Ota *et al.* 1995). All the islands are distantly located in different directions from Kosrae and at, or near the limits of, the zone of sympatry between the two species—Koror and Ngergoi Islands, Palau, approximately 3000 km to the west, Kapingamarangi Atoll, FSM, 1026 km to the southwest, and Arno Atoll, Marshall Islands, 977 km to the east. In a broader context, differences in ploidy and dorsal pattern within populations of the *L. lugubris* complex have been attributed to presumed crosses between bisexual species and often backcrosses of asexual clonal females to bisexual males (Ineich 1987, 1988, 1992, Ineich and Ota 1992, 1993, Ota *et al.* 1995, Radtkey *et al.* 1995). Hybrid males derived from bisexual-unisexual crosses are rare; they exhibit gonadal and spermatogenic abnormalities and are presumed to be sterile (Ineich and Ota 1992,Yamashiro and Ota 1998). The anatomy of offspring resulting from unisexual-bisexual crosses has been studied in French Polynesia. The genital tract of the hybrid is aberrant and does not allow reproduction (Saint Girons and Ineich 1992).

Molecular and morphological studies indicate that examples of *Lepidodactylus lugubris* previously considered bisexual and having a functional genital tract were misidentified. These are cryptic, bisexual species that include *L. moestus* and at least one undescribed species, which are the respective maternal and paternal ancestors of some clonal lineages of *L. lugubris* sensu stricto (Volobouev *et al.* 1993, Radtkey *et al.* 1995). At least five major clones of *L. lugubris* differing in ploidy and coloration (dorsal pattern) were first recognized by Ineich (1988; see also Ineich 1999). The diploid lineages are thought to be derived from

Figure 1. Interspecies mating between *Lepidodactylus moestus* (left) and *L. lugubris* (right) photographed on a window frame inside a house on Kosrae, Federated States of Micronesia; dark area at the top of the image is the bottom edge of the window, looking out.

hybridization between bisexual species. The triploids might have resulted from backcrosses of asexual diploid clonal females with males of one of the two bisexual species, and perhaps also with other and now extinct bisexual species (Ineich 1988, 1999, Moritz *et al.* 1993, Boissinot *et al.* 1997). The *L. lugubris* in the interspecies pair photographed on Kosrae exemplifies diploid Clone-A, which is distinguished by having seven (but occasionally 6 or 8) pairs of small dark spots straddling the dorsal midline from the neck to the base of the tail (Ineich 1988, 1999). It is the most widespread of the *L. lugubris* clones (Ineich 1999, Short and Petren 2008) and has been implicated in the probable displacement and depletion of other clones and bisexual species in its spread throughout the Pacific after World War II (Ineich 1999). Now, it appears to be expanding its range into the Caribbean

(Atlantic Ocean) Basin (Lorvelec *et al.* 2011) and mainland South America (Bauer *et al.* 2007) via human introduction.

The distribution and relative abundance of the different clones and bisexual species of the *Lepidodactylus lugubris* complex within the FSM is poorly known and in need of further study. Ineich's (1999) review of variation from the entire distributional range of the unisexual-bisexual complex included relatively few specimens from the FSM. Three were from Kosrae (1 diploid Clone-A, 1 triploid Clone-B, and a male identified as likely being *L. moestus*) and several sterile individuals were from Pohnpei State, which Ineich (1999) thought to have originated from crosses between Clone-A females and *L. moestus* males. Nine other specimens were from Yap State, which included eight *L. moestus* from Yap proper and a Clone-B from one of the outer atolls. More recently, *L. lugubris*, *L. moestus*, and *L.* sp. were recorded in sympatry in Yap State on Ngulu (Buden 2010), and Sorol (Buden 2013) Atolls, in Chuuk State on Satawan (Buden 2007) and Namonuito (Buden and Taborosi in prep.) Atolls, and on Houk Island (Buden and Taborosi in prep.), but individual clones were not identified according to Ineich's (1988) clonal categories.

Additionally, Ineich (1987) observed occasional pseudocopulations between distinct clones (diploid and triploid) of *Lepidodactylus lugubris* in French Polynesia and such behavior has since been recorded in other places (McCoid and Hensley 1991, Brown and O'Brien 1993). This behavior seems to be common among unisexual lizards (Cole and Townsend 1983). Thus it seems that clonal females can copulate or pseudocopulate with other distinct clones, with one of their parental bisexual species, or with some other bisexual species within the *L. lugubris* unisexual-bisexual complex.

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