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SHORT COMMUNICATION

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Identification of the poison dart frog *Dendrobates auratus* as a potential prey of the grey-necked wood rail *Aramides cajaneus* using artificial models, with a link to video evidence

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The grey-necked wood-rail *Aramides cajaneus* is a gruiform bird species that inhabits humid forests, mangroves and swampy areas throughout the Neotropics, from Mexico to Argentina (Marcondes & Silveira, 2015). It is crepuscular and has a varied diet that includes cereal grains such as rice and corn and fruit (Skutch, 1994; Stiles & Skutch, 1989) as well as live animal prey, such as snakes and crabs (Kilham, 1979; Villegas-Retana & Picado-Masis, 2021).

Non-toxic clay models are considered an effective tool to identify potential predators of dendrobatid frogs (Flores et al., 2015; Hegna et al., 2011; Saporito et al., 2007). The green and black poison frog *Dendrobates auratus* is a conspicuous, diurnal species (Summers & Clough, 2001) with aposematic (warning colouration) that inhabits the Neotropics and among its predators are birds (Flores et al., 2015; Master, 1999). During a broader research project aimed at confirming if predation by birds could be a limiting factor on the distribution of this frog in coastal areas of Veraguas Province, Panama, we observed active predation by *A. cajaneus* on non-toxic, hand-painted clay models mimicking a local *D. auratus* morph. The preparation of the clay models is described in the Supplementary Material.

Our experiment was undertaken in a secondary forest in Calasol beach on the mainland by Coiba Island (7° 46'2.23" N, 81° 31'51.44" W; 41 m a.s.l.) in front of where the frog occurs naturally. The climate is humid tropical with an average temperature of 25 °C. The test employed three blocks of forest with minimal separation of 125 m between block one and block two, and a maximum separation of 2 km between block three and block one. During July 2025, at the onset of the rainy season, we deployed 100 non-toxic clay artificial models in each block. Each model was glued to a portion of dried banana leaf and the morning after construction deployed in a zig-zag pattern, without any specific orientation, with 10 m separation between them. They were monitored daily at the same hour, 24 hours after placement, and in the same order for a total period of 7 days.

Each predation event was recorded through the interpretation of marks left on the models. In addition, 20 camera traps (model HyperFire 2, Reconyx, USA) were randomly installed in one block 2.5 m from the models positioned, to record predation events. The cameras remained active 24 hours a day in motion-detection mode,

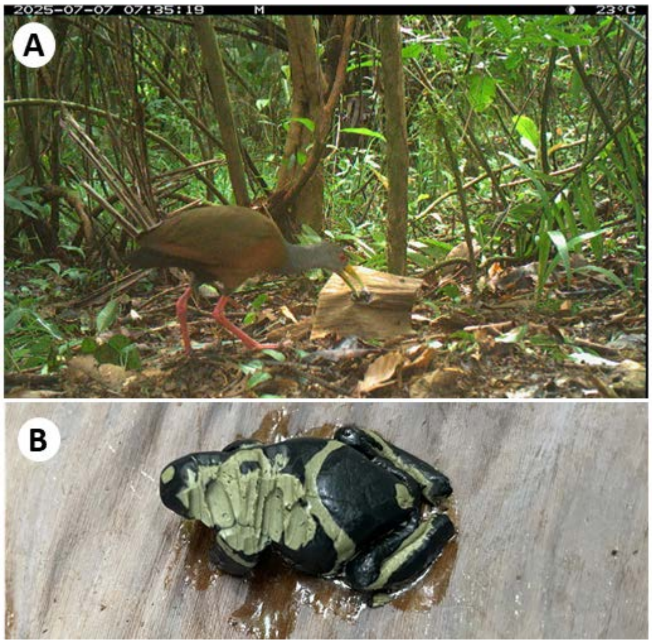

Figure 1. A. *Aramides cajaneus* attacking an artificial clay model of *Dendrobates auratus* captured by a camera trap at Calasol beach on 7 July 2025, **B.** Beak marks left on one artificial clay model of *D. auratus*

programmed to capture two instant photographs and a 10-second video during the period of highest activity of *D. auratus* (Graves, 1999). Several individuals of *A. cajaneus* were recorded inspecting, pecking and ingesting the artificial models (Fig. 1; BHS video, 2026). From a total of 68 attacks on models, 11 were bird attacks and from these 4 could be directly attributed to *A. cajaneus* based on camera trap evidence, giving an attack rate by *A. cajaneus* of 1.3 attacks per 100 models. This confirms a previous observation during a similar experiment (Flores et al., 2015) in Santa Fe, Veraguas province in 2011 in which an *A. cajaneus* was identified passing very close to an artificial model of the same species that was later confirmed as predated by birds.

Our observations suggest that *D. auratus* is likely predated by *A. cajaneus* expanding the known prey spectrum for this bird and confirming published literature mentioning the consumption of "frogs and invertebrates" without specifying families or species (Taylor, 2020; Stiles & Skutch, 1989). This behaviour could indicate tolerance of the aposematic signal and neurotoxic alkaloids of *D. auratus*. However, as inferences based on artificial models are limited this claim should be confirmed with experimental trials using live predator-prey interactions. This finding has direct implications for understanding the effectiveness of aposematism and the coevolutionary processes between poisonous anurans and their potential predators in neotropical ecosystems. *Aramides cajaneus* is now included in the list of the following bird species - *Baryphthengus martii, Momotus momota, Crax rubra* and *Tinamus major* (Willink et al., 2014; Masters, 1999) - that have been identified as potential predators of toxic aposematic frogs.

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