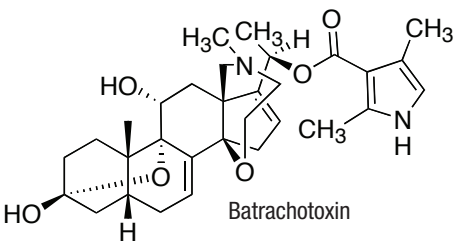
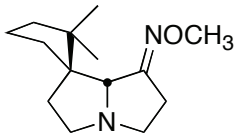
CONSERVATION INTERNATIONAL
TROPICAL FIELD GUIDE SERIES

Aposematic Poison Frogs (Dendrobatidae) of the Andean Countries:

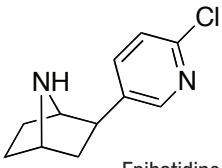
Bolivia, Colombia, Ecuador, Peru and Venezuela



Batrachotoxin



Spiropyrrolizidine
236A



Epibatidine

Editors
Ted R. Kahn
Enrique La Marca
Stefan Lötters
Jason L. Brown
Evan Twomey
Adolfo Amézquita

Illustrated by
Ted R. Kahn

Conservation International is a private, non-profit organization exempt from federal income tax under section 501c(3) of the Internal Revenue Code.

ISBN: 978-1-934151-27-3
© 2016 Conservation International
All rights reserved.

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of Conservation International or its supporting organizations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Any opinions expressed in this publication are those of the writers and do not necessarily reflect those of Conservation International or its co-publishers.

This guide is part of the Conservation International Tropical Field Guide Series. The series editors are Russell A. Mittermeier, José Vicente Rodríguez-Mahecha, and Anthony B. Rylands.

Citation:
Kahn, T.R., E. La Marca, S. Lotters, J.L. Brown, E. Twomey and A. Amézquita, Eds. 2016. *Aposematic Poison Frog (Dendrobatidae) of the Andean Countries: Bolivia, Colombia, Ecuador, Perú and Venezuela*. Conservation International Tropical Field Guide Series, Conservation International, Arlington. USA. xxiii + 588pp.

Example of citation for chapters and accounts:
Brown, J.L. and E. Twomey. 2016. Yavarí Poison Frog *Ranitomeya yavaricola* Pérez-Peña, Chávez, Twomey, and Brown 2010. In: *Aposematic Poison Frogs (Dendrobatidae) of the Andean Countries: Bolivia, Colombia, Ecuador, Perú and Venezuela*, T.R. Kahn, E. La Marca, S. Lötters, J.L. Brown, E. Twomey and A. Amézquita (eds.), pp.519–523 Conservation International Tropical Field Guide Series, Conservation International, Arlington. USA.

Printed in Bogotá, Colombia by Unión Gráfica, Ltda.

9 8 7 6 5 4 3 2 1

Amazonian Poison Frog
Ranitomeya amazonica (Schulte, 1999)

Marco Rada[1], Santiago J. Sánchez Pacheco[2] and Jason L. Brown[3]

[1]Pontificia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil
[2]University of Toronto and Royal Ontario Museum, Toronto, Canada
[3]Duke University, Durham, NC, USA

Names

Amazonian Poison Frog; Iquitos Poison Frog; *Rana Venenosa de Iquitos*. The specific epithet *amazonica* and the vernacular Amazonian refer to the Amazon, where this poison frog was originally discovered (Schulte, 1999). The vernacular name *Iquitos* is an eponym for both the indigenous *Iquitos* tribe, and the city of the same name in Amazonian Perú (Beolens *et al.*, 2013).

Taxonomic Comments

This poison frog was originally described by Schulte (1999) in the genus *Dendrobates* using the specific epithet *amazonicus*. Grant *et al.* (2006) placed it in *Ranitomeya* and, following the International Code of Zoological Nomenclature (ICZN), changed the species name for gender concordance to *amazonica*. Analyses of phylogenetic and bioacoustic data support the retention of *R. amazonica* as a valid species in *Ranitomeya* (Twomey *et al.* in Brown *et al.*, 2011).

Identification and Description

Ranitomeya amazonica is a small dendrobatid with a snout-vent length (SVL) of 18.0 mm in females (Schulte, 1999; see Lötters *et al.*, 2007). Males are slightly smaller. The third finger is not swollen; the first finger is shorter than the second. The skin is smooth. The ground color is black. The dorsal pattern consists of one mid-dorsal yellow, orange or red stripe running from the snout, where it is broad and often divided into a Y-shape, down the first two-thirds of the dorsum. Complete, colored, longitudinal, dorsolateral stripes run from the snout above the eyes back to the posterior dorsum. Some populations appear more uniformly red or orange, with stripes fusing across the dorsum, resulting in a mostly colored pattern interspersed with spots and dashes of black ground color. Colored, supralabial stripes run from the snout below the eyes and along the upper jaws to the forearms, where they break; posterior to the forearms these stripes resume and continue laterally to the groin. The forearms and hind limbs are reticulated light blue or greenish-blue on the ground color of black. The black on the limbs may form large black spots. The venter is yellow or orange with large black spotting (see Lötters *et al.*, 2007; Twomey *et al.* in Brown *et al.*, 2011).

Identification and Description of Larvae and Froglets

Tadpoles of this species are gray to black. The labial tooth row formula (LTRF) is 2(2)/3. A-1 is complete; A-2 has a medial gap. The oral apparatus (OA) is oriented anteroventrally and the oral disk (OD) is slightly emarginated laterally or indented with a single row of large blunt marginal papillae (MP); submarginal papillae (SM) are absent. The spiracle is sinistral; the vent is dextral (Twomey *et al.* in Brown *et al.*, 2011).

Similar Species

Ranitomeya ventrimaculata and *R. variabilis* have an external morphology similar to *R. amazonica.* Distinguishing the lowland morphs of *R. variabilis* and *R. amazonica* can be difficult. Where the species come into contact, near Iquitos, *R. variabilis* typically has thin, yellow, longitudinal, mid-dorsal and dorsolateral stripes and *R. amazonica* has broad, bright red or orange, longitudinal, mid-dorsal and dorsolateral stripes, or is blotched. Individuals of *R. amazonica* from the Guiana Shield are almost identical in appearance to some *R. variabilis* individuals, having thin, yellow longitudinal, dorsolateral stripes that fuse with the ventrolateral stripe near the axillae. *Ranitomeya amazonica* typically displays a conspicuous black Y-shape that starts mid-dorsum and terminates at the snout (occasionally this is present in *R. ventrimaculata*, though the mid-dorsal stripe is largely complete in this species). Near Iquitos, *R. reticulata* may be confused with the similarly colored and patterned red morph of *R. amazonica* (where the stripes fuse on the dorsum replacing the more commonly seen pattern of stripes).

Alkaloid Profile

Unknown.

Natural History and Ecology

Diurnal and terrestrial, sometimes arboreal (scansorial), this lowland poison frog inhabits leaf litter in primary and old growth secondary rain forests at elevations of up to 500 meters. It is commonly found in areas that have sandy, loamy, poor quality soils, where large arboreal bromeliad species flourish on the ground, or on larger rock outcroppings (see Lötters *et al.*, 2007).

Calls and Vocalizations

The call of this poison frog was described by Twomey *et al.* (in Brown *et al.*, 2011) as having a frequency range of 3000–7000 hertz. The dominant frequency is 4930 ± 445 Hz with notes 0.16–0.36 seconds long. Notes are highly pulsed, 24–70 pulses per second. These 'buzz' calls (Myers and Daly, 1976a) vary slightly according to ambient air temperature.

Reproduction

The reproduction of *R. amazonica* (mainly French Guianan populations, but Peruvian as well), has been studied and described in detail (Lescure and Bechter, 1982; Schulte, 1999;

see Lötters *et al.*, 2007; Poelman and Dicke, 2007, 2008; Poelman *et al.*, 2013). Like other members of the *variabilis* species group, *R. amazonica* reproduces most frequently in bromeliads and is known to change its food provisioning strategy according to the season. Clutches consist of 2–10 eggs, which are laid on leaves in the axils of terrestrial bromeliads partially submerged in the water of water-filled phytotelmata (Poelman and Dicke, 2007; Poelman *et al.*, 2013). Bromeliads of *Catopsis berteroniana* (Schult. & Schult. f.) Mez are more-often used for egg deposition where limited resources are required for egg development, and bromeliads of *Aechmea aquilega* (Salisb.) Griseb. with resource-rich phytotelmata (containing insects, algae and subsequent detritus) are used for tadpole deposition (Poelman *et al.*, 2013). Males typically transport tadpoles to larger bromeliad phytotelmata, but this behavior is occasionally observed in females. Where individual males and females (mated pairs) use territorial sites for both eggs and larval deposition they both essentially provision food for their offspring (Poelman *et al.*, 2013). The larvae are cannibalistic, and in the wet season, when food resources are abundant, tadpoles are deposited individually, not in groups. During the dry season, however, when food resources in phylototelmata are lowest, tadpoles are deposited together, and it is supposed that these tadpoles are offered by the parents as a dietary supplement which are cannibalized, accelerating metamorphosis (Poelman and Dicke, 2007, 2008) in times when resources are scarce (Poelman *et al.*, 2013).

Distribution

This species ranges along the Río Amazonas-Solimões from Iquitos, Department of Loreto, Perú, eastward to the Amazon delta and north and east in southern Colombia; Department of Amazonas, and into northeastern Brazil in the states of Amapá, Amazonas, and Pará; these mostly Andean localities are shown on the map, which, however, does not reflect the non-Andean northernmost distribution in Guyana and in French Guiana. In Guyana, it occurs in the upper Takutu-upper Essequibo, and in French Guiana in the Arrondissements of Cayenne, Saint-Laurent-du-Maroni (Twomey *et al.* in Brown *et al.*, 2011).

Threats

Illegal commercial collection for the international pet trade probably adversely affects local population densities of these poison frogs. More detrimental to the long-term survival of this species is habitat loss due to deforestation (IUCN Red List of Threatened Species™ version 2011.2).

Conservation Status

The Amazonian Poison Frog is classified as Least Concern (LC) on the IUCN Red List of Threatened Species™ (version 2011.2). Most populations are covered under the specific epithet *R. ventrimaculata* because the assessment was carried out prior to the revision of *Ranitomeya* by Brown *et al.* (2011). It has a large distribution and presumed large population, and it is unlikely to be declining quickly enough to qualify for listing in a threatened category. This species occurs in many protected areas through its range. In Colombia, Decree INDERENA No. 39 of 9 July, 1985, forbids the collection of *Ranitomeya* spp. for commercial (or other) purposes. It is listed in Appendix II of CITES.

Ranitomeya amazonica — Morphs

= 10 mm

Ranitomeya amazonica — Map