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UNRAVELING CRYPTIC DIVERSITY IN *Acanthosaura* (SAURIA: SQUAMATA: AGAMIDAE) SPECIES COMPLEXES IN VIETNAM: RESEARCH HISTORY AND CURRENT STATUS

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The cryptic taxonomic diversity of arboreal agamid lizards of the genus *Acanthosaura* in Indochina, particularly in Vietnam, is discussed based on the results of molecular and morphological studies. The present data confirm the monophyly of this genus, the presence of six evolutionary clades within it, and allow to identify the composition of at least three previously assigned complexes (*A. capra*, *A. lepidogaster*, and *A. coronata*) inhabiting Vietnam. The relationships and distribution of these species complexes are discussed.

Keywords: *Acanthosaura lepidogaster* complex; *A. coronata* complex; *A. capra* complex; agamid lizards; morphology; Vietnam; mitochondrial phylogeny; *cyt b*; COI.

INTRODUCTION

Ideas about the relationships within and between the genera of Oriental agamids have undergone significant changes during the 19th and 20th centuries (Günther, 1861; Boulenger, 1885; Smith, 1935). Interest in the problem of phylogenetic relationships within the subfamily has increased significantly in recent years due to the use of molecular methods and the growing interest in Asian herpetological research.

Acanthosaura Gray, 1831 is a genus of arboreal lizards in the taxonomically diverse agamid subfamily Dracoinae Fitzinger, 1826, distributed from northeastern India, southern China including Hainan Island, through Vietnam, Laos, Myanmar, Thailand, Cambodia, the Malay Peninsula and adjacent archipelagos, to Sumatra and the Anambas and Natunas archipelagos (Uetz et al., 2025). In the second half of the 20th century, the majority of researchers accepted the validity of the genus *Acanthosaura* with only four species, i.e., *A. armata* Gray,

1827, *A. capra* Günther, 1861, *A. crucigera* Boulenger, 1885, and *A. lepidogaster* (Cuvier, 1829) (Ananjeva et al., 2008). For many years, it was widely believed that the fauna of Vietnam contained three species of *Acanthosaura*: *A. capra*, *A. crucigera*, and *A. lepidogaster* (Nguyen et al., 2005). Data on the taxonomic position, distribution and range limits of species in this genus is contradictory, which is explained by the considerable morphological similarity of lizards within this genus and the lack of clear diagnostic characters.

The systematics of this genus has undergone several revisions over the past century. In particular, *A. crucigera* has been considered a subspecies of *A. armata*, and six species described from different parts of Indochina have been shown to be synonyms of *A. lepidogaster* (Boulenger, 1885; Smith, 1935; Taylor, 1963; Manthey and Grossmann, 1997). This large-scale integrative international research has resulted in the formation of an extensive collection from different areas, which has made it possible to clarify the distribution and taxonomic status of the different morphotypes of the genus *Acanthosaura*. The use of molecular genetics marks a new stage in the study of these lizards, as well as all other living organisms. Their results (Kalyabina-Hauf et al., 2004; Orlov et al., 2006; Stuart et al., 2006; Ananjeva et al., 2008, 2011, 2020; Wood et al., 2009, 2010; Pauwels et al., 2015; Nguyen et al., 2018, 2019; Liu and Rao, 2019;

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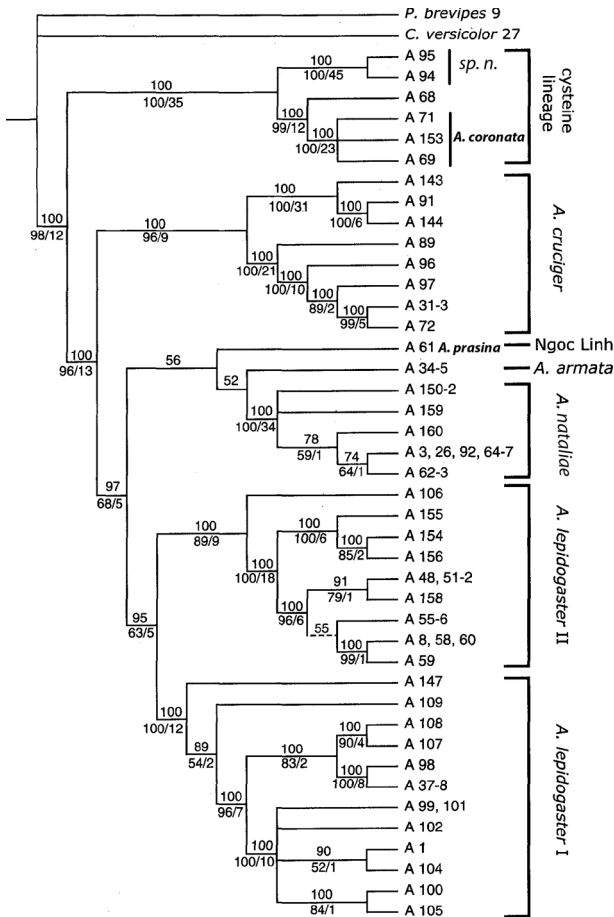


Fig. 1. The maternal lineages among populations of lizards of the genus *Acanthosaura* derived from the analysis of cytochrome *b* sequence data (from Kalyabina-Hauf et al., 2004 with our modifications).

Trivalairat et al., 2020; Liu et al., 2020, 2022, 2023; Ngo et al., 2025a) show that the taxonomic diversity within the genus *Acanthosaura* has been significantly underestimated. Cryptic species have been revealed within the *A. capra* complex (Orlov et al., 2006; Nguyen et al., 2018), the *A. crucigera* complex (Wood et al., 2009, 2010; Liu and Rao, 2019; Trivalairat et al., 2020, 2022), the *A. coronata* complex (Ngo et al., 2025a), and the *A. lepidogaster* complex (Ananjeva et al., 2011; Nguyen et al., 2019; Ngo et al., 2025b). In this paper, we discuss the history of research and analyze the current state of our understanding of taxonomic diversity, distribution, and phylogenetic relationships within these complexes.

History of the study

Kalyabina-Hauf et al. (2004) were the first to use the molecular method and furnish preliminary results on the phylogenetic relationships of *Acanthosaura* (Fig. 1).

A 900-base pair fragment of the mitochondrial cytochrome *b* gene was sequenced from 63 specimens of the arboreal agamid lizard genus *Acanthosaura* from Vietnam, Laos, Myanmar (Burma), Thailand, and Malaysia, representing all four species recognized at the time. It is important to acknowledge the inaccuracy in the identification of *A. capra* in this publication. Subsequent research (Orlov et al., 2006; Nguyen et al., 2019) has revealed the cryptic speciation of this complex, leading to the description of other species within the same complex. This work highlighted major evolutionary lineages and identified previously undescribed species for the first time, some of which were subsequently described with the contribution of data from the publication by Kalyabina-Hauf et al. (2004) deposited in GenBank (Liu and Rao, 2019; Ananjeva et al., 2020; Ngo et al., 2025a) (Supplement; Table 1). Consequently, of the four species classified there as *Acanthosaura* sp., three species have received their names. Notably, the validity of the species *A. coronata* from the cysteine lineage, as designated in this publication (Kalyabina-Hauf et al., 2004) has been revalidated. Furthermore, two species previously unidentified to science have been described as *A. prasina* (Ananjeva et al., 2020) and *A. cuongi* (Ngo et al., 2025a). The results of the analysis of the mitochondrial cytochrome *b* gene indicate the presence of an additional species that constitutes an independent evolutionary lineage of a previously uncharacterized species (Figs. 1 and 2). The analysis also employed other mitochondrial genes including COI and ND2, to further characterize the species (Supplement; Table 1).

The genus *Acanthosaura* recently includes the following 21 species (Uetz et al., 2025): *A. armata* (Gray, 1827); *A. aurantiacrista* Trivalairat, Kunya, Chanhom, Sumontha, Vasaruchapong, Chomngam et Chiangkul, 2020; *A. bintangensis* Wood, Grismer, Grismer, Ahmad, Onn et Bauer, 2009; *A. brachypoda* Ananjeva, Orlov, Nguyen et Ryabov, 2011; *A. capra* Günther, 1861; *A. cardamomensis* Wood, Grismer, Grismer, Neang, Chav et Holden; *A. coronata* Günther, 1861; *A. crucigera* Boulenger, 1885; *A. cuongi* Ngo, Le, Nguyen, Nguyen, Nguyen, Phan, Nguyen, Ziegler et Do, 2025; *A. lepidogaster* (Cuvier, 1829); *A. liui* Liu, Hou, Mo et Rao, 2020; *A. longicaudata* Liu, Rao, Hou, Orlov, Ananjeva et Zhang, 2022; *A. meridiona* Trivalairat, Sumontha, Kunya et Chiangkul, 2022; *A. murphyi* Nguyen, Do, Hoang, Nguyen, McCormack, Nguyen, Orlov, Nguyen et Nguyen, 2018; *A. nataliae* Orlov, Truong et Sang, 2006; *A. phongdienensis* Nguyen, Jin, Vo, Nguyen, Zhou, Che, Murphy et Zhang, 2019; *A. phuketensis* Pauwels, Sumontha, Kunya, Nitikul, Samphanthamit, Wood et Grismer, 2015; *A. prasina* Ananjeva, Ermakov, Nguyen, Nguyen, Murphy, Lukonina et Orlov, 2020; *A. rubrilabris* Liu, Rao, Hou, Or-

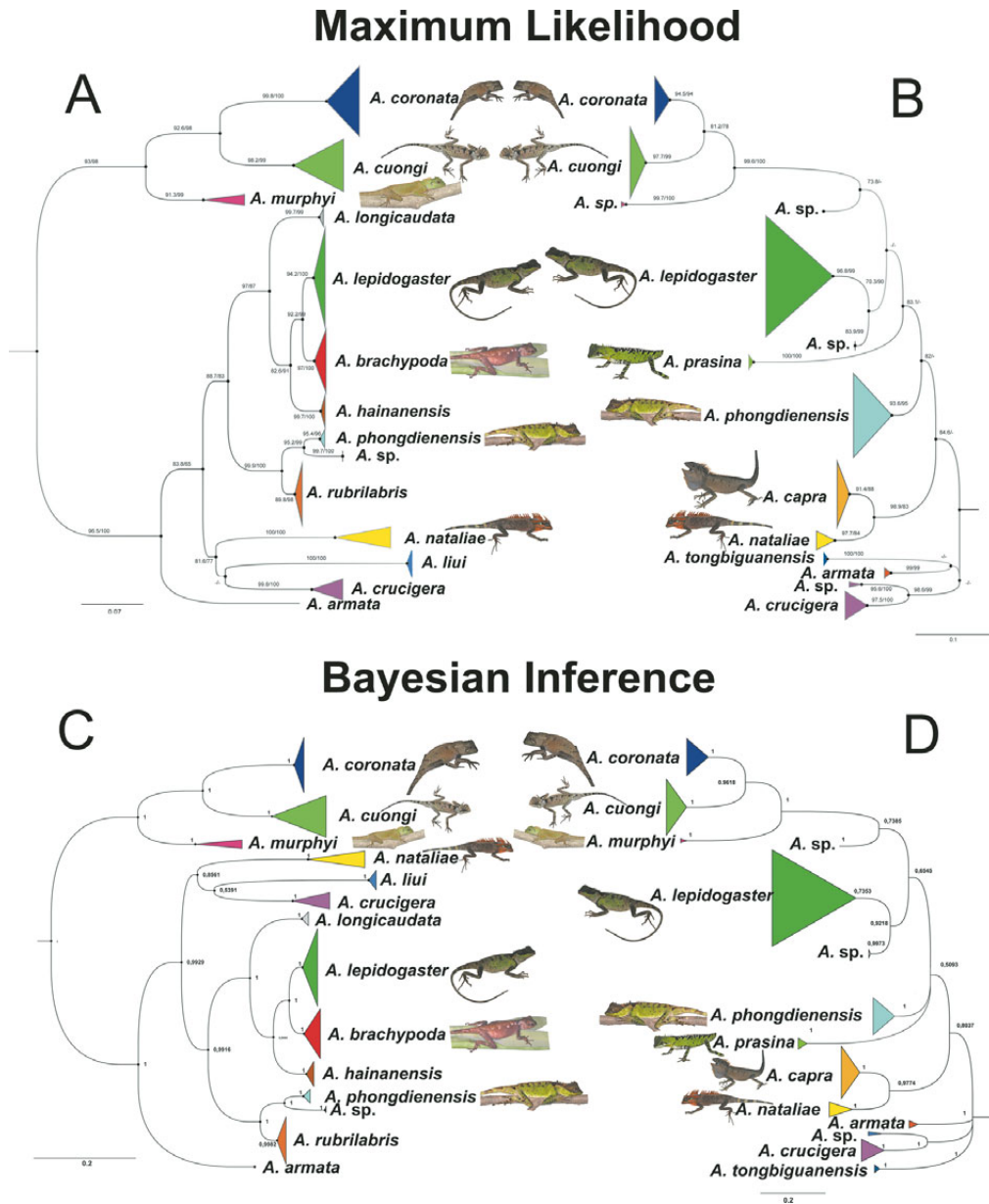


Fig. 2. Phylogenetic trees based on COI (A, C) and *cyt b* (B, D) sequences, representing the genetic lineages of *Acanthosaura* genus corresponding to species status. Panels A and B correspond to the Maximum Likelihood method, while panels C and D correspond to Bayesian Inference.

lov, Ananjeva et Zhang, 2022; *A. titiwangsaensis* Wood, Grismer, Grismer, Ahmad, Onn et Bauer, 2009; *A. tongbiganensis* Liu et Rao, 2019.

Phylogenetic analysis and the subsequent classification of complexes within the genus are not yet considered definitive at the current level of research. The analysis of individual mitochondrial genes has also revealed the complexes *capra* and *lepidogaster* were previously designated within the genus (Ananjeva et al., 2008) although the situation with *lepidogaster* species is more compli-

cated. Concurrently, “*coronata*” was initially assigned to the “*lepidogaster*” complex based on morphological characters with insufficient molecular genetic data. Subsequent DNA analysis of a more extensive sample collected in Indochina, particularly in Vietnam, revealed that this differentiation was erroneous. Specifically, it was revealed that several cryptic species were identified within the “*lepidogaster*” complex (Ananjeva et al., 2011; Liu et al., 2022, 2023). However, subsequent studies demonstrated that the *A. coronata* did not belong to this com-

plex. It represents a distinct evolutionary lineage (see phylogenetic trees of Kalyabina-Hauf et al., 2004; Ananjeva et al., 2020; our data, Figs. 1 and 2).

Smith (1935) synonymized *A. coronata* with *A. lepidogaster*; However, Stuart et al. (2006) and Ananjeva et al. (2008) subsequently confirmed that *A. coronata* should be removed from synonymy with *A. lepidogaster* based on morphological differences. To date, ten species of *Acanthosaura* have been documented in Vietnam, in-

cluding *A. brachypoda*, *A. capra*; *A. cardamomensis*; *A. coronata*, *A. cuongi*, *A. lepidogaster*; *A. murphyi*; *A. nataliae*, *A. phongdienensis*; and *A. prasina*. These can be tentatively assigned to three complexes: 1. *A. lepidogaster*: *A. brachypoda*, *A. lepidogaster*, *A. phongdienensis*, and possible *A. prasina*; *A. capra*: 2. *A. capra*, *A. murphyi*, and *A. nataliae*; and 3. *A. coronata*: *A. coronata* and *A. cuongi*. *A. cardamomensis* likely belongs to the *A. crucigera* complex. The situation is complicated

TABLE 1. Vouchers, Localities, and GenBank NCBI Accession Numbers for the Studied Species of Agamid Lizards

Voucher	Species	Viet Nam Province	District	Locality	Coordinates	cyt <i>b</i>	COI
KKK53	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV714672	PV646289
KKK55	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658750	PV646288
KKK56	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658751	PV646283
KKK57	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	—	PV646292
KKK 62	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658752	—
KKK108	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658753	PV646287
KKK109	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658754	PV646291
KKK147	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	—	—
KKK 148	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658755	PV646282
KKK150	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658756	PV646290
KKK153	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658757	PV646293
KKK154	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658758	—
KKK155	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Ka Kinh National Park	14°18' N 108°29' E	PV658759	PV646294
KCR42	<i>A. cuongi</i>	Gia Lai	K'Bang	Kon Chu Rang Nature Reserve	14°47' N 108°54' E	PV658749	—
CMR88	<i>A. cuongi</i>	Kon Tum	Sa Thầy	Chu Mom Ray	14°42' N 107°77' E	PV658746	PV646284
CMR89	<i>A. cuongi</i>	Kon Tum	Sa Thầy	Chu Mom Ray	14°42' N 107°77' E	PV658747	PV646285
CMR90	<i>A. cuongi</i>	Kon Tum	Sa Thầy	Chu Mom Ray	14°42' N 107°77' E	PV658748	PV646286
CTDN1	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	—	PV646553
CTDN2	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	PV694983	PV646554
CTDN65	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	PV694984	PV646555
CTDN66	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	—	PV646556
CTDN67	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	PV694985	PV646557
CTDN97	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	PV694986	PV646558
CTDN201	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	PV694987	PV646559
CTDN229	<i>A. coronata</i>	Đồng Nai	Tân Phú	Cát Tiên National Park	—	PV694988	PV646560
BGM1	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646545
BGM2	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646546
BGM3	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646547
BGM4	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646548
BGM5	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646549
BGM6	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646550
BGM115	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646551
BGM116	<i>A. coronata</i>	Bình Phước	Bù Gia Mập	Bù Gia Mập National Park	—	—	PV646552
32551	<i>A. nataliae</i>	Kon Tum	Kon Plông	Kon Plông	—	PV658742	PV646561
32552	<i>A. nataliae</i>	Kon Tum	Kon Plông	Kon Plông	—	PV658743	—
32553	<i>A. nataliae</i>	Kon Tum	Kon Plông	Kon Plông	—	PV658744	PV646562
32555	<i>A. nataliae</i>	Kon Tum	Kon Plông	Kon Plông	—	PV658745	—
32554	<i>A. capra</i>	Kon Tum	Kon Plông	Kon Plông	—	PV658741	—
CMR16	<i>C. versicolor</i>	Kon Tum	Sa Thầy	Chu Mom Ray	14°42' N 107°77' E	—	PV645227
CMR17	<i>C. versicolor</i>	Kon Tum	Sa Thầy	Chu Mom Ray	14°42' N 107°77' E	PV658740	PV645228
CMR18	<i>C. versicolor</i>	Kon Tum	Sa Thầy	Chu Mom Ray	14°42' N 107°77' E	—	PV645229

for the *lepidogaster* complex due to the uncertainty surrounding the type locality of *A. lepidogaster*, which is widespread in southern China, Thailand, Laos, Vietnam, and Myanmar. The locality has been designated as “Cochinchina,” but the specific region is ambiguous. Since the 16th century, Cochinchina has been used to refer to all of Vietnam. However, since the early 19th century, Cochinchina has been geographically delineated as the southern provinces of Vietnam Ananjeva et al. (2008) proposed a broader interpretation of Cochinchina encompassing the entirety of modern Vietnam. The precise geographical origin of *A. lepidogaster* remains undetermined, though DNA sequence analysis of the type specimen may offer further insights. Previous DNA analyses indicated the species occurrence in Vietnam from Ha Tinh Province northward (Ananjeva et al., 2008), and morphological analyses suggested its occurrence from Kon Tum Province northward, though the precise boundary remains ambiguous (Ananjeva et al., 2008; Nguyen et al., 2019).

A recent review of the composition of this complex within China and Vietnam has resulted in the following taxonomic determinations: *A. brachypoda*, *A. lepidogaster*, *A. longicaudata*, *A. phongdienensis*, and *A. rubrilabris* (Liu et al., 2022, 2023). Nguyen et al. (2019) proposed that the population in central Vietnam is *A. phongdienensis*, the population in northwestern Vietnam is *A. brachypoda*, and the population in northeastern Vietnam is *A. lepidogaster*. We concur with this classification, which suggests that the type locality of *A. lepidogaster* is more likely to be in northeastern Vietnam. In Liu et al. (2023) paper, the species status of *A. hainanensis* Boulenger, 1900 is recovered; most authors consider this name synonymous with *A. lepidogaster* (Uetz et al., 2025). *A. brachypoda* occur in northwest Vietnam and *A. phongdienensis* — in central Vietnam.

Subsequent studies will elucidate the distribution of species in this and analogous complexes. The present state of current understanding of taxonomic diversity, distribution, and phylogenetic relationships within this genus, based on the literature sources and own data of mt DNA analysis is considered below. The cytochrome *b* gene (*cyt b*) and the cytochrome-*c*-oxidase first subunit gene (COI) are the focus of this study (Supplement; Table 1). This choice was because most of the reliable data obtained in the study of the genus *Acanthosaura* is based on the study of these genes.

MATERIAL AND METHODS

Sampling. During our extensive long-term fieldwork in various provinces of Vietnam from 1995 to 2024, we collected specimens of the agamid lizard genus *Acantho-*

saura. Subsequent molecular analyses confirmed the assignment of these specimens to different species and became the basis for the first molecular phylogeny (Kalyabina-Hauf et al., 2004) and the description of several new species (Orlov et al., 2004; Ananjeva et al., 2011; 2020; Ngo et al., 2025a).

Molecular analysis. Samples were taken from the muscle tissue of specimens preserved in 70% ethanol. DNA extraction was performed using the Magen HiPure Universal DNA Kit (Magen Biotechnology, Guangzhou, China) and the BiolabMix DU-250 (Novosibirsk, Russia). The concentration of DNA was measured using a spectrophotometer Nano-500 (Allsheng Instruments, Hangzhou, China) and was found to exceed 2 ng/μl. Two mitochondrial genes fragments, the cytochrome *b* gene (*cyt b*) and the cytochrome-*c*-oxidase first subunit gene (COI), were used in phylogenetic analysis. For the first subunit of the cytochrome *c* oxidase gene, the universal primers used were forward VUTF 5'-TGT AAA ACG ACG GCC AGT TCT CAA CCA AYC AYA ARG AYA TYG G-3' and reverse VUTR 5'-CAG GAA ACA GCT ATG ACT ARA CTT CTG GRT GKC CRA AR AAY CA-3' (Lissovsky et al., 2010). For the cytochrome *b* gene, the following universal primers were used: forward L14841 5'-CCA TCC AAC ATC TCA GCA TGA TGA AA-3' and reverse H15149 5'-GCC CCT CAG AAT GAT ATTT GTC CTC A-3' (Irwin et al., 1991). The PCR reaction mixture (25 μl) contained 50 – 100 ng of DNA, 0.5 μM of each primer, 0.2 mM dNTPs, 1.5 mM MgCl₂, 2.5 μl of 10× PCR buffer (10 mM Tris-HCl, pH 8.3, 50 mM KCl), and 2 units of Taq polymerase (Thermo Scientific). The PCR protocol for amplifying the cytochrome-*c*-oxidase fragment (COI) included an initial denaturation step for 3 min at 95°C, followed by 34 cycles of denaturation at 95°C for 30 sec, annealing at 56°C for 30 sec, extension at 72°C for 1 min, and a final extension for 5 min at 72°C. The protocol for *cyt b* included an initial denaturation for 5 min at 95°C, followed by 35 cycles of denaturation at 95°C for 30 sec, annealing at 52°C for 30 sec, extension at 72°C for 30 sec, and a final extension for 5 min at 72°C. The PCR products were prepared for sequencing by gel purification using the Magen HiPure Gel DNA Mini Kit (Magen Biotech Co., Guangdong, China). Sequencing was performed on an ABI 3500 automated sequencer (Applied Biosystems) utilizing the BigDye[®] Terminator v. 3.1 (Applied Biosystems) kit and the same primers used for amplification.

The obtained sequences were manually aligned using Chromas v. 2.5.1 (Technelysium Ltd., Australia). The identification procedure against known nucleotide sequences in GenBank (NCBI) was conducted using the BLAST algorithm (Altschul et al., 1990). Maximum like-

likelihood (ML) and Bayesian inference (BI) methods were performed to reconstruct the phylogenetic tree. The most suitable DNA substitution model for the dataset was determined using jModelTest v. 2.1.10 (Posado, 2008). For the phylogeny based on the COI gene, the best-fit model was predicted to be TIM3 + F + G4 (AIC = 9607.6, BIC = 10500.3). The TN+F+G4 model was identified as the best fit for *cyt b* (AIC = 6942.1, BIC = 7668.9). Our sequences of *Calotes versicolor* (COI: PV645227 – PV645229; *cyt b*: PV658740) together with sequences from GenBank (COI: MT438567, MT438615 – 7; *cyt b*: AY572870) were used as an outgroup. Phylogenetic reconstruction was conducted using IQ-Tree with 1000 bootstrap iterations (Hoang et al., 2018; Minh et al., 2020). Data visualization and editing were performed using FigTree v. 1.4.3 and Inkscape. Sequences were deposited in GenBank NCBI under the accession numbers (COI: PV645227 – PV645229, PV646282 – PV646294, PV646545 – PV646560, PV646561 – PV646562; *cyt b*: PV714672, PV658746 – PV658759, PV658740 – PV658745, PV694983 – PV694988).

Morphological analysis. A set of characters was selected to ensure the maximum comparability of published data for all currently recognized species of the genus *Acanthosaura*. Comparative morphological data were taken from original descriptions and subsequent studies (Günther, 1861; Boulenger, 1885; Smith, 1935; Taylor, 1963; Orlov et al., 2006; Ananjeva et al., 2008, 2011; Wood et al., 2009, 2010; Pauwels et al., 2015; Nguyen et al., 2018, 2019) including comprehensive summarized tables with data on all the species of the genus *Acanthosaura* (Liu and Rao, 2019).

RESULTS

All species of the genus *Acanthosaura* were found to be part of a single phylogenetic lineage, sister to the genus *Calotes* Cuvier, 1817, and exhibiting high values of uncorrected *p*-distances in relation to garden lizards (24.0 – 45.9), further confirming the monophyly of this genus. The overall topology of the BI and ML trees is similar for both studied markers (Fig. 2). According to molecular analysis, all species of the genus *Acanthosaura* represented in GenBank can be grouped into several clades. Three major clades exist, with species within each clade being significantly distanced from those in other clades: *A. cuongi* – *A. coronata* (1); *A. murphyi* (2); and the remaining species of the genus *Acanthosaura* (3). The third group can be further subdivided into five or seven subgroups depending on which phylogeny is considered (COI and *cyt b*, respectively). Analysis of the COI sequences reveals subgroups comprising *A. armata* (1); *A. crucigera*, *A. nataliae*, and *A. liui* (2); *A. rubrilabris*,

A. phongdienensis, and *Acanthosaura* sp. (3); *A. longicaudata* (4); and *A. lepidogaster*, *A. hainanensis*, and *A. brachypoda* (5). The *cyt b* sequence analysis allows for the identification of groups as follows: *Acanthosaura* sp. (1); *A. lepidogaster* and *Acanthosaura* sp. (2); *A. prasina* (3); *A. phongdienensis* (4); *A. capra* and *A. nataliae* (5); *A. armata* and *A. tongbiguanensis* (6); and *A. crucigera* and *Acanthosaura* sp. (7). Notably, the phylogenies based on short *cyt b* sequences appear less robust (according to short fragment), and the lack of data for the second gene in certain species precludes definitive conclusions regarding groupings within the genus. It is likely that species designated as *Acanthosaura* sp. have counterparts in other trees and may be interpreted following the acquisition of new data on the missing genes through the examination of new material or existing specimens from collections. For instance, the species *Acanthosaura* sp., which clusters with the sister *A. coronata* – *A. cuongi* group in the *cyt b* phylogeny, likely represents *A. murphyi*.

The highest levels of haplotype diversity ($H_d \pm S.D.$) for the cytochrome *c* oxidase gene (Table 1; Fig. 2) are observed in *A. lepidogaster*, *A. coronata*, *A. rubrilabris*, *A. murphyi*, and *A. brachypoda*. For the *cyt b* gene, high haplotype diversity is noted in *A. lepidogaster*, *A. phongdienensis*, and *A. prasina*; however, both *A. coronata* and *A. cuongi* also exhibit high values for this metric (Fig. 3; Table 2). The greatest number of haplotypes was found for *A. lepidogaster*, the most widely distributed species and one most represented in genetic databases. Nevertheless, the nucleotide diversity for the cytochrome *c* oxidase gene was highest for *A. nataliae* (0.042), *A. murphyi* (0.035), and *A. cuongi* (0.026). For the *cyt b* gene, nucleotide diversity was also elevated in *A. crucigera* (0.050), *A. lepidogaster* (0.049), and *A. coronata* (0.023), indicating a high level of genetic variability among these species. Negative values of Fu's F_s for *A. coronata*, *A. brachypoda*, *A. lepidogaster*, and *A. rubrilabris* (COI) as well as for *A. cuongi* (*cyt b*) may suggest an excess of alleles and recent population expansion or dispersal.

***Acanthosaura capra* complex.** The results of the cytochrome-*c*-oxidase first subunit gene fragments (COI) (Fig. 2A) provide more complete data than the cytochrome *b* gene analysis. Unfortunately, the cytochrome *b* gene analysis lacks data for *A. murphyi* and *A. capra* (Table 1; Fig. 2B). This makes it difficult to clarify the composition and relationships in the *A. capra* species complex, which was previously thought to consist of *A. capra*, *A. murphyi*, and *A. nataliae* species. Discordance was found in the results of the analysis of this complex using the gene for the first subunit of cytochrome *c* oxidase. Our phylogenetic tree (Fig. 2A), as well as previous conclusions (Nguyen et al., 2018), showed that

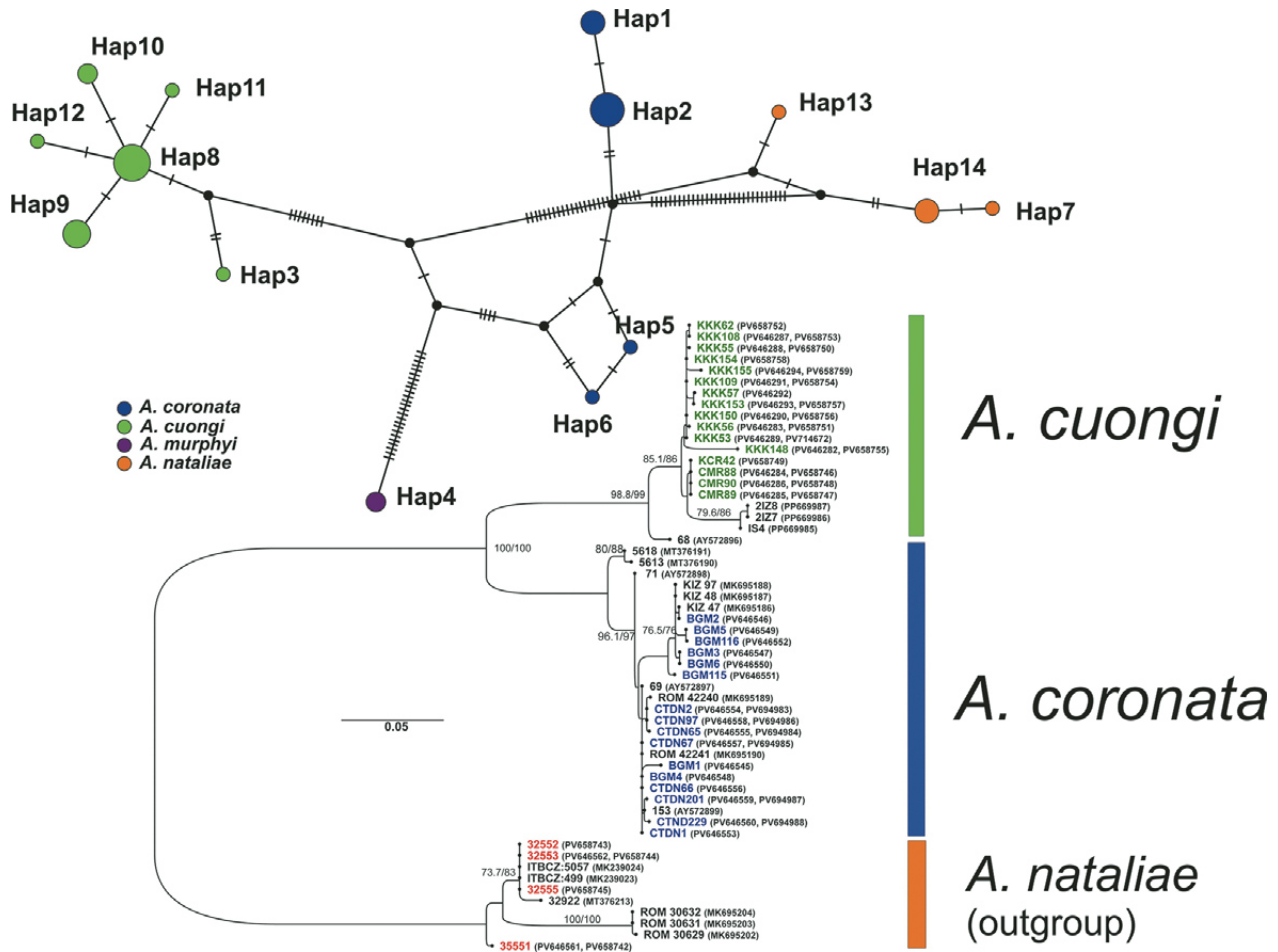


Fig. 3. Phylogeny of *Acanthosaura cuongi* and *A. coronata* based on combined *cyt b* and COI genes sequences and a haplotype network constructed based on *cyt b*.

A. nataliae is the sister taxon of *A. lepidogaster* and cannot be considered in the same species complex with *A. capra* and *A. murphyi*. In this case, we find inconsistencies between morphological and molecular genetic data. As a “morphological” group, all three species are large-sized species of *Acanthosaura* with only one pair of post-orbital spines compared to another large species *A. armata* and other congeners with two pairs of spines (postorbital and nuchal or occipital). A large-sized *Acanthosaura* species has only a single postorbital (superciliary) spine and no spine on the occiput between the tympanum and nuchal crest. It is distinguished from *A. coronata*, *A. crucigera*, *A. lepidogaster*, and other smaller species by these highly visible characters. They have a significantly larger body size (94.0 – 137.9 for *A. capra*; 103.7 – 127.3 for *A. murphyi*, and 106.7 – 158.0 for *A. nataliae*) than small-sized species from other complexes (*coronata* 66.0 – 86.1, *cuongi* 79.4 – 104.61, and *lepidogaster* 75.5 –

120.0) (Ananjeva et al., 2008; Liu and Rao, 2019). Species in this complex differ from each other in pholdosis and coloration characters (Nguyen et al., 2018).

These species are distributed in south-central and southern Vietnam (Fig. 4a). Our data also show that both *A. capra* and *A. murphyi* occur on the Langbian Plateau and adjacent areas in the south, while *A. nataliae* occurs from the Kon Tum Plateau, part of the broader Central Highlands region, to Quang Tri Province in the north (Orlov et al., 2006; Nguyen et al., 2009, 2018, 2019). On the base of some doubts in the type locality of *A. capra* (as well as *A. coronata*) designated as Chartaboum, coast of Siam (Stuart et al., 2006) the first author wrote that it is highly likely that these species were obtained by Mouhot during his single trip through eastern Cambodia in 1859. It was a trip to “Brelum,” located in extreme eastern Mondolkiri Province, Cambodia or just over the border in present-day Vietnam (Fig. 4a). Thus, this species is

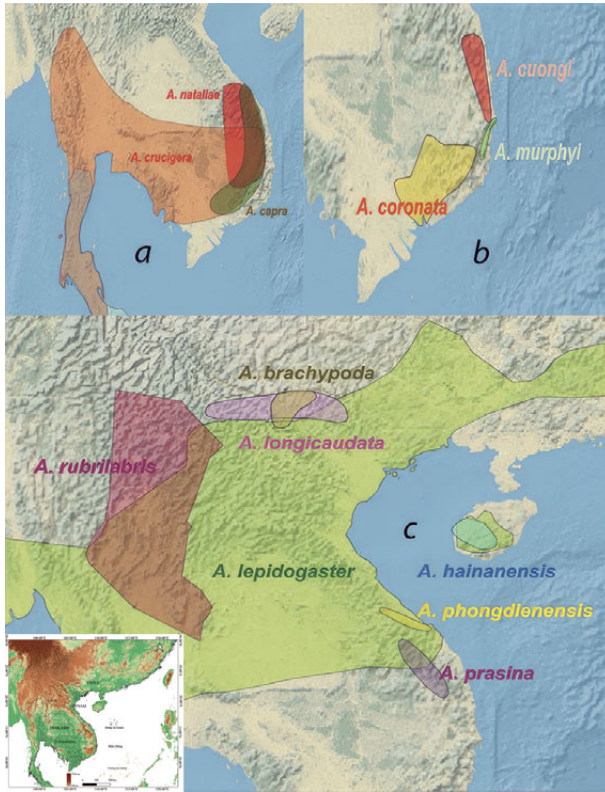


Fig. 4. Distribution of *Acanthosaura* species in Vietnam and adjacent territories.

known from Cambodia, Monduliri Province and southern Vietnam: Khanh Hoa, Lam Dong (Cat Loc, Da Teh), Dong Nai (Trang Bom) provinces (Nguyen et al., 2009, 2018, 2019). *A. murphyi* is narrow endemic species currently known eastwards from *A. capra* distribution range

in Vietnam, in Hon Ba NR, Khanh Hoa Province and Ca Forest, bordering between Phu Yen and Khanh Khoa provinces with the distance between two localities being about 90 km (Fig. 4a). *Acanthosaura nataliae* has been erroneously identified as *A. capra* for over 75 years, e.g., the specimens of Delacour et Lowe (BMNH 1927.5.20.33 and MNHN 1927.48) from Kon-Toum, Indochina (= Kon Tum Province, Vietnam). Smith (1935: 160) examined Delacour and Lowe's BMNH specimen and wrote "one specimen at Dak-to in Annam (15 °N) (Brit. Mus., 1927, 5.20.33) has no occipital spines and was first identified as *capra*; the enlarged scales at the base of the long spine are present however and I therefore regard it as "*crucigerus*." This occurrence of *A. nataliae* in Kon Tum Province has been confirmed by paratype ZISP 23436 (female) from Mang Canh Village, Konlong District, Kon Tum Province, Vietnam.

Misidentified with both large sized species could be associated with historical confusing of these two forms and with not clearly understood identification character of *A. capra* in Boulenger (1885) and Smith (1935). Boulenger (1885: 300) noted "dorsal scales very small, obtusely keeled, and a few slightly enlarged scales ones are scattered among them." In synopsis of the fauna of British India (Smith, 1935: 162) the character of scalation is described as "very small intermixed with larger scattered ones which are strongly keeled." The latter is not coincided with original description (Günther, 1861) and with pholidosis pattern of the type specimen. All samples named *A. capra* used in previous phylogeny studies (Kalyabina-Hauf et al., 2004; Ananjeva et al., 2008) are *A. nataliae* because the specimens were from Tram Lap, Gia Lai Province, which is the type locality of *A. nataliae*. It should be noted that according to our cyto-

TABLE 2. Genetic Diversity Metrics Based on Sequences of the First Subunit of Cytochrome *c* Oxidase (COI) of the *Acanthosaura* Species

Species	P_i	$H_d \pm S.D.$	Fu's Fs	h	S	k	n
<i>A. coronata</i>	0.012	0.959 ± 0.0008	-2.698	13	21	6.830	19
<i>A. cuongi</i>	0.026	0.717 ± 0.0091	2.437	5	17	4.100	16
<i>A. murphyi</i>	0.035	1.000 ± 0.0313	1.096	4	38	19.667	4
<i>A. nataliae</i>	0.042	0.810 ± 0.0169	5.957	4	44	23.143	7
<i>A. brachypoda</i>	0.012	0.908 ± 0.0026	-1.190	11	23	6.667	18
<i>A. crucigera</i>	0.019	0.524 ± 0.0435	6.487	3	32	12.238	7
<i>A. hainanensis</i>	0.004	0.644 ± 0.0231	1.217	4	6	2.622	10
<i>A. lepidogaster</i>	0.010	0.946 ± 0.0006	-4.854	17	30	5.675	29
<i>A. liui</i>	0.003	0.679 ± 0.0149	1.110	3	4	1.607	8
<i>A. longicaudata</i>	0.003	0.533 ± 0.0296	2.506	2	3	1.600	6
<i>A. phongdienensis</i>	0.003	0.733 ± 0.0241	0.381	3	3	1.400	6
<i>A. rubrilabris</i>	0.005	0.948 ± 0.0015	-7.624	13	22	3.033	18

Note. Here and thereafter: P_i , nucleotide diversity; $H_d \pm S.D.$, haplotype (gene) diversity ± variance of haplotype diversity; Fu's Fs, Fu's Fs statistic; h , number of haplotypes; S , number of polymorphic (segregating) sites; k , average number of pairwise nucleotide differences; n , number of sequences used.

chrome *b* gene analysis data, there are marked genetic differences between the populations of *A. nataliae* in Kon Tum and Gia Lai provinces. These two populations exhibited strong bootstrap support (ranging from 80.8 to 100), and although the genetic distances between them were relatively low (uncorrected *p*-distance for COI gene is 7.8), they represent well-defined genetic lineages.

***Acanthosaura coronata* species complex.** This species complex demonstrates a compelling illustration of cryptic species identification. One of them, *A. coronata* Günther, 1861, inhabits Cambodia and South Vietnam, Lam Dong and Dong Nai provinces (Uetz et al., 2025). Smith (1935) previously regarded it as a synonym of *A. lepidogaster*. The results of molecular analysis and thorough examination of type specimens and specimens whose DNA was analyzed revealed that two species of the *A. lepidogaster* complex differ in the size of the diastema between crests (Stuart et al., 2006; Ananjeva et al., 2008). Such a diastema is almost absent in *A. coronata*; this was indicated by Boulenger (1885) accepted the validity of this species. In addition, the species differ in the length of the postorbital spines and the relative tail length. An important diagnostic character is the condition of the rostral scute: being undivided in *A. lepidogaster* and some other species of the genus. It is often divided into two or three small scutes in *A. coronata*. In addition, *A. coronata* is smaller than *A. lepidogaster* (Ananjeva et al., 2008).

The expansion of sample collections in southern Vietnam and the widespread use of molecular genetic methods have allowed us to reassess the taxonomic status of individual populations of this species complex.

As a result, *A. cuongi* Ngo, Le, Nguyen, Nguyen, Nguyen, Phan, Nguyen, Ziegler et Do, 2025 was recently described from Phu Yen Province, Tay Hoa District. It differs from the closest lineage member, *A. coronata* by having pairwise genetic distances of 11.58–12.11%. Morphologically it differs by larger body length (max. snout-vent length: 104.61 vs. 86.1 mm) and head length (23.34–31.1 vs. 14.4–16.3 mm), the presence of dorsal crest spines, more subdigital lamellae on the fourth toe, fewer canthus rostralis scales (9–11 vs. 12–15), fewer scales bordering the rostral scale (5–7 vs. 9), and fewer scales between the nasal and rostral scales (1 vs. 3–4) (Ngo et al., 2025a).

These species are distributed throughout southern Vietnam (Fig. 4b). *A. coronata* Günther, 1861 was described from Chartaboum Mouhot, a collection of French explorers and naturalists, which Günther described in his memoirs as being on the coast of Siam (Stuart et al., 2006), from the same habitat as *A. capra*. Considerations for a possible type locality have been given above in the section on *A. capra* (Stuart et al., 2006). According to the

authors of the description, *A. cuongi* is currently known from two localities: Van Ninh district of Khanh Hoa province and Tay Hoa district of Phu Yen province, with records from near the coast of south-central Vietnam (Fig. 4b).

***Acanthosaura lepidogaster* species complex.** It is the most complex in terms of its composition and understanding of its phylogenetic relationships. This complexity stems primarily from the ambiguity surrounding the precise type locality of *A. lepidogaster* sensu stricto, a species that is widely distributed across southern China, Thailand, Laos, Vietnam, and Myanmar. The precise determination of this locality remains elusive and can only be ascertained through the technical feasibility of molecular identification of syntypes stored in various institutions. The National Museum of Natural History in Paris currently houses the lectotype MHNP 5076 and the paralectotype MHNP 6895, which are crucial for precise taxonomic determination. In his original description, Cuvier (1829) designated it as “Cochinchina,” a term that was historically understood to encompass a broader region, including the entirety of Vietnam. However, beginning in the early 19th century, the term was restricted to the southern provinces of Vietnam (Ananjeva et al., 2008; Adler, 2009). Ananjeva et al. (2008) proposed the presence of the species in Vietnam from Ha Tinh Province northward, and morphological analyses indicated the occurrence of *A. lepidogaster* northward from Kon Tum Province. Other researchers studying these lizards and examining this complex, describing a new species and clarifying their distribution in China and northern Vietnam (Ananjeva et al., 2011, 2020; Nguyen et al., 2019; Liu et al., 2023), have adopted this assumption. Recent advancements in our understanding of the diversity of this complex have been accompanied by a substantial refinement of our knowledge regarding the distribution of its various species. This refinement has been particularly confirmed the discovery of new species, such as *A. brachypoda* Ananjeva, Orlov, Nguyen et Ryabov, 2011, *A. tongbiguanensis* Liu et Rao, 2019, *A. phongdienensis* Nguyen, Jin, Vo, Nguyen, Zhou, Che, Murphy et Zhang, 2019; *A. prasina* Ananjeva, Ermakov, Nguyen, Nguyen, Murphy, Lukonina et Orlov, 2020; *A. longicaudata* Liu, Rao, Hou, Orlov, Ananjeva et Zhang, 2022 and *A. rubrilabris* Liu, Rao, Hou, Orlov, Ananjeva et Zhang, 2022.

Our results of molecular genetic analysis (Figs. 2 and 3; Tables 2 and 3) confirmed the data of the above-mentioned authors and the distribution of the following species of the complex in Vietnam (Nguyen et al., 2019; Liu et al., 2023) (Fig. 4). *A. lepidogaster* is distributed in northeastern Vietnam and most of the Guangxi Autonomous Region, Guangdong Province, and small parts of

Jiangxi, Fujian, Hunan, and Guizhou Provinces, China. *A. brachypoda* occurs in northwestern Vietnam and southeastern Yunnan Province, China, northwestern Vietnam. *A. phongdienensis*, the southernmost species of this complex, is known from central Vietnam and may occur in southern Laos (Liu et al., 2023). Recently (Ngo et al., 2025b) the first record *A. longicaudata* in Vietnam was registered on the border with China, in Dien Bien and Lai Chau provinces.

It should be noted that the composition and phylogenetic relationships within this complex and its relationships with other species of the genus are not completely resolved. Our results show the heterogeneity of the studied samples of specimens (Figs. 1 and 2) tentatively defined as *A. lepidogaster*, which requires additional studies to clarify this issue.

The only known species of *A. crucigera* complex, *A. cardamomensis* is recorded in Vietnam from one locality — Phu Quoc Island in the Kien Giang Province only.

DISCUSSION

Changes in the understanding of taxonomic diversity and phylogenetic relationships of lizards of the genus *Acanthosaura* are briefly described above. This genus currently comprises 21 species, of which 11 are known from Vietnam, with eight of them endemic to the Truong Son Mountain Range (Ngo et al., 2025a, 2025b). Several centers of *Acanthosaura* genus diversity have been identified, with the highest species richness occurring in Central Vietnam with Central Highland (*A. cuongi*, *A. nataliae*, *A. prasina*, *A. phongdienensis*, *A. murphyi*), Southern Vietnam (*A. capra*, *A. coronata*, *A. cardamomensis*), and North Vietnam (*A. brachypoda*, *A. lepidogaster*, *A. longicaudata*) (Fig. 4). Some of them even occur in sympatry, such as *A. capra* and *A. coronata* which are both known from the border area between Vietnam and Cambodia (Nguyen et al. 2018). *Acanthosaura phongdienensis* and *A. prasina* are allopatrically distributed, but can be found in sympatry with the widely distributed *A. nataliae* (Orlov et al., 2006; Nguyen et al., 2019;

Ananjeva et al., 2020). New discoveries of sympatric species still can be expected in different parts of Vietnam.

Species of the genus *Acanthosaura*, including those found in Vietnam, lead a predominantly arboreal mode of life (Red List of Threatened Species) in different types of tropical forests. Ontogenetic changes in biotopic preferences have been noted for these agamas: young lizards are more often observed in the lower forest tier and even in the litter than adults (Table 4) are. Diurnal changes in activity are also known, when sleeping lizards are observed on branches at night, and during the day, they can feed in the lower forest tier. Only one of the small species, *A. coronata*, is distinguished by a predominantly terrestrial lifestyle. The ecology of these lizards has been poorly studied, but it is known that as forest species they are at risk of population decline due to large-scale economic development of their habitats. The most comprehensive information on these species is presented in species accounts in <http://www.iucnredlist.org>.

Among the 11 species, almost half (five species) have not yet been assessed for conservation status because they were described relatively recently. One species has been assigned Red List Category DD, 4 species least concern 1 species Near threatened.

Acanthosaura species exhibit uneven representation in genetic databases. Currently, the most extensively sequenced markers include the cytochrome *c* oxidase subunit I (COI) gene (123 sequences), cytochrome *b* (*cyt b*) (92 sequences), and NADH dehydrogenase subunit 2 (ND2) (28 sequences). COI sequences are available for 14 *Acanthosaura* species, *cyt b* for 10 species, while ND2 is represented for only six species, currently making it unsuitable for reliable species identification in cases of syntopic coexistence. Only two complete mitochondrial genomes of *Acanthosaura* are available (KR092427 *A. lepidogaster* and AB266452 *A. armata*). Nuclear gene data (40 sequences) exist for just one species (*A. lepidogaster*), obtained during phylogenetic studies of iguanian lizards using 29 nuclear genes (Townsend et al., 2011), as well as RAG-1, BDNF and CMOS — classical markers

TABLE 3. Genetic Diversity Metrics Based on Sequences of Cytochrome *b* Gene (*cyt b*) of the *Acanthosaura* Species

Species	P_i	$H_d \pm S.D.$	Fu's Fs	h	S	k	n
<i>A. coronata</i>	0.023	0.727 ± 0.01284	1.930	5	20	4.591	12
<i>A. cuongi</i>	0.006	0.767 ± 0.00704	-1.982	6	7	1.258	16
<i>A. nataliae</i>	0.010	0.700 ± 0.04768	1.458	3	8	3.200	5
<i>A. capra</i>	0.003	0.362 ± 0.02098	0.692	3	5	0.895	15
<i>A. crucigera</i>	0.050	0.833 ± 0.01600	2.798	6	45	16.278	9
<i>A. lepidogaster</i>	0.049	0.940 ± 0.00035	2.585	14	52	15.954	30
<i>A. phongdienensis</i>	0.028	0.883 ± 0.00213	1.845	9	42	9.275	19
<i>A. prasina</i>	0.006	0.833 ± 0.04948	0.006	3	3	1.833	4

TABLE 4. Ecological Characteristics and Conservation Status of the *Acanthosaura* Species of Vietnam

Species	Distribution	Mode of life; Height of occupied perches	Red List Category and Criteria	Habitats; vegetation type	Threats
<i>A. capra</i>	Cambodia; Vietnam	Arboreal. Perches occupied 1 – 2 m above the ground	Near Threatened ver 3.1	Lowland and mid-hill evergreen forest, with subpopulations persisting in secondary forest.	Agriculture; Deforestation, plantations
<i>A. murphyi</i>	Vietnam from locality between Phu Yen and Khanh Hoa provinces	Arboreal. Perches occupied 1 – 1.5 m above the ground	Has not yet been evaluated for the IUCN Red List	Evergreen forest	Agriculture; Deforestation, plantations
<i>A. nataliae</i>	Cambodia; Lao People's Democratic Republic; Vietnam	Arboreal. Perches occupied 1 – 3 m above the ground	Least Concern ver 3.1	Wet evergreen polydominant rain forest in mountainous regions of central Vietnam	Agriculture; Deforestation, plantations
<i>A. brachypoda</i>	Southeastern Yunnan Province, China; northwestern Vietnam	Arboreal. Perches occupied 1 – 1.2 m above the ground	Data Deficient ver. 3.1	Tropical montane evergreen forest; forest mountain slope; bush in dense undergrowth	Residential and commercial development; tourism and recreation areas. Ongoing clearance of understorey habitat
<i>A. lepidogaster</i>	China, Lao People's Democratic Republic; Myanmar; Thailand; Vietnam	Arboreal. Perches occupied 1 – 1.5 m above the ground	Least Concern ver. 3.1	Lowland and submontane primary tropical and subtropical forests. Submontane, hill evergreen and mixed deciduous forest, mixed secondary forests of hardwood, bamboo and shrub	Habitat degradation and forest destruction
<i>A. longicaudata</i>	Northwestern Vietnam and southern China	Arboreal. Perches occupied 0.3 – 1.2 m above the ground	Has not yet been evaluated for the IUCN Red List	Forest. Trees with diameters from 0.5 to 3 cm, or on leaves of small trees, beneath dense forest canopy, along forest trails or small streams	Habitat degradation and forest destruction
<i>A. phongdienensis</i>	Phong Dien Nature Reserve, Thua Thien-Hue Province, Vietnam	Arboreal. Perches occupied 1 – 1.2 m above the ground	Has not yet been evaluated for the IUCN Red List	Small trees in evergreen forest; along small streams	Habitat degradation and forest destruction
<i>A. prasina</i>	Central Highlands of Vietnam	Arboreal 1.0 – 1.5 m above the ground	Has not yet been evaluated for the IUCN Red List	Evergreen polydominant. Prefer shrubs along woodlands, thin trunks of young trees or even thickets of dense grassy vegetation. Sometimes they inhabit thickets along the banks of streams	Habitat degradation and forest destruction
<i>A. coronata</i>	South Vietnam, Cambodia	Mainly terrestrial, partly arboreal, ascends trees when in danger	Least Concern ver. 3.1	Hill evergreen mixed with deciduous and bamboo forest, on and near to the ground, and on a rock near a small stream. Secondary forest or scrubby areas	Deforested areas or plantation
<i>A. cuongi</i>	South-central Vietnam: Van Ninh District of Khanh Hoa Province and Tay Hoa District of Phu Yen Province, nearby the coastline	Arboreal. Perches occupied 0.1 – 1.8 m above the ground	Has not yet been evaluated for the IUCN Red List	Evergreen forests, the southeast Truong Son Mountain Range of Phu Yen and Khanh Hoa provinces. Shrubs, thin trunks of small trees, beneath dense forest canopy. The new species occurs in sympatry with <i>A. murphyi</i> in the aforementioned provinces	Habitat degradation and forest destruction
<i>A. cardamomensis</i>	Cambodia; Thailand; Vietnam Phu Quoc Island, the Kien Giang province	Arboreal/party terrestrial	Least Concern ver. 3.1	Hill evergreen forest during the day and at night on various substrates such as ferns (approximately 0.5 meters above the ground), leaf litter, up to 2 m above the forest floor, and sleeping on vines near the edge of streams. It occurs in both primary and secondary forest habitats, including edge habitats	Agriculture; deforestation, plantations

for nuclear phylogenies (Wiens et al., 2012; Grismer et al., 2016; Wang et al., 2019).

A significant limitation is that researchers often work with only one mitochondrial marker, which substantially hinders the reconstruction of a comprehensive phylogenetic framework for the genus. Given the low morphological variability among species and insufficient knowledge of their distributions, this approach may lead to new taxonomic errors and inaccuracies. For instance, our work with *Acanthosaura* specimens from Kon Ka Kinh National Park revealed a new cryptic species within the *A. coronata* species complex, which was independently described this year as *A. cuongi* based on COI analysis (Ngo et al., 2025a). However, molecular analysis using only *cyt b* could have erroneously led us to describe this species anew, potentially creating future taxonomic confusion. The use of two mitochondrial markers increases the probability of constructing well-supported phylogenetic trees and helps avoid such errors.

Future studies should prioritize the inclusion of additional mitochondrial genes, potentially through sequencing complete mitochondrial genomes of representative lineages, to establish a well-supported phylogeny of the genus. It is equally crucial to compare mitochondrial phylogenies with those reconstructed from nuclear markers. Such an integrated approach with high-throughput next generation sequencing would help elucidate the current taxonomic challenges discussed in this study.

Supplementary materials. The following supporting information can be downloaded at <https://cloud.mail.ru/public/SG7C/mxev1imcP> (accessed on 5 March 2023): Supplementary Table 1. Database of available genetic sequences for *Acanthosaura* agamid lizards.

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ID	Species (Article)	Vouchers (Isolates)	Country, Locality	Coordinates	cyt <i>b</i>	COI	ND2	16S rRNA	12S rRNA	Reference	Notes
1	<i>Acanthosaura prasina</i>	Isolate 28857/ ZISP 28857	Viet Nam: Gia Lai Prov, Kon Chu Rang NR, the Broad of Kon Chu Rang	14.311 °N 108.363 °E	MT376212					Ananjeva et al., 2020	
2	<i>Acanthosaura prasina</i>	Isolate 179NLO/ ZISP 30745	Viet Nam: Gia Lai Prov, Kon Chu Rang NR, the Broad of Kon Chu Rang	14.311 °N 108.363 °E	MT376206					Ananjeva et al., 2020	
3	<i>Acanthosaura prasina</i>	Isolate 178NLO/ ZISP 30746	Viet Nam: Gia Lai Prov, Kon Chu Rang NR, the Broad of Kon Chu Rang	14.311 °N 108.363 °E	MT376205					Ananjeva et al., 2020	
4	<i>Acanthosaura longicaudata</i>	Voucher KIZ L0133	Jiahe Township, Jiangcheng County, Puer City, Yunnan Province, China	22°46'19" N 101°53'24" °E		ON207530				Liu et al., 2022	Holotype of <i>Acanthosaura longicaudata</i>
5	<i>Acanthosaura aurantiacrista</i>	PTr-2020a isolate RE000047NO/THNHM28523	Sop Khong, Omkoi, Chiang Mai, Thailand				MK798133			Trivalairat et al., 2024	Paratypes
6	<i>Acanthosaura aurantiacrista</i>	PTr-2020a isolate RE000046NO/QSMI1448	Sop Khong, Omkoi, Chiang Mai, Thailand				MK798132			Trivalairat et al., 2024	Paratypes
7	<i>Acanthosaura aurantiacrista</i>	PTr-2020a isolate RE000045NO/QSMI1447	Sop Khong, Omkoi, Chiang Mai, Thailand				MK798131			Trivalairat et al., 2024	Paratypes
8	<i>Acanthosaura aurantiacrista</i>	PTr-2020a isolate RE000044NO/THNHM28522	Sop Khong, Omkoi, Chiang Mai, Thailand				MK798130			Trivalairat et al., 2024	Paratypes
9	<i>Acanthosaura aurantiacrista</i>	PTr-2020a isolate RE000043NO/THNHM28521	Sop Khong, Omkoi, Chiang Mai, Thailand				MK798129			Trivalairat et al., 2024	Paratypes
10	<i>Acanthosaura aurantiacrista</i>	PTr-2020a isolate RE000042NO/QSMI1446	Sop Khong, Omkoi, Chiang Mai, Thailand				MK798128			Trivalairat et al., 2024	Paratypes
11	<i>Acanthosaura phongdienensis</i>	Voucher KIZ 10697	Phong Dien, Thua Thien-Hue, Vietnam			MK695210				Nguyen et al., 2019	
12	<i>Acanthosaura phongdienensis</i>	Voucher KIZ 10695	Phong Dien, Thua Thien-Hue, Vietnam			MK695209				Nguyen et al., 2019	Holotype of <i>Acanthosaura phongdienensis</i>
13	<i>Acanthosaura phongdienensis</i>	Voucher ITBCZ 6830	Phong Dien, Thua Thien-Hue, Vietnam			MK695208				Nguyen et al., 2019	
14	<i>Acanthosaura phongdienensis</i>	Voucher KIZ 10657	Phong Dien, Thua Thien-Hue, Vietnam			MK695207				Nguyen et al., 2019	
15	<i>Acanthosaura phongdienensis</i>	Voucher ROM 48013	Phong Dien, Thua Thien-Hue, Vietnam			MK695206				Nguyen et al., 2019	
16	<i>Acanthosaura phongdienensis</i>	Voucher ITBCZ 6831	Phong Dien, Thua Thien-Hue, Vietnam			MK695205				Nguyen et al., 2019	
17	<i>Acanthosaura cuongi</i>	Isolate 2IZ8/IEBR R.5257	Phu Yen Province, Vietnam	12.86 °N 109.22 °E	PP669987					Ngo et al., 2025a	
18	<i>Acanthosaura cuongi</i>	Isolate 2IZ7/IEBR R.5250	Phu Yen Province, Vietnam	12.86 °N 109.22 °E	PP669986					Ngo et al., 2025a	
19	<i>Acanthosaura cuongi</i>	Isolate IS4/IEBR R.5251	Khanh Hoa Province, Vietnam	12.86 °N 109.22 °E	PP669985					Ngo et al., 2025a	
20	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0088	Mangshi, Yunnan, China			ON207549				Liu et al., 2022	
21	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0032	Zhenkang, Yunnan, China			ON207548				Liu et al., 2022	
22	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0033	Yongde, Yunnan, China			ON207547				Liu et al., 2022	
23	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0145	Gengma, Yunnan, China			ON207546				Liu et al., 2022	
24	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0142	Ximeng, Yunnan, China			ON207545				Liu et al., 2022	
25	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0140	Lancang, Yunnan, China			ON207544				Liu et al., 2022	
26	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0137	Lancang, Yunnan, China			ON207543				Liu et al., 2022	
27	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0026	Puer, Yunnan, China			ON207542				Liu et al., 2022	
28	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0127	Menghai, Yunnan, China			ON207541				Liu et al., 2022	
29	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0039	Menghai, Yunnan, China			ON207540				Liu et al., 2022	
30	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0125	Jinghong, Yunnan, China			ON207539				Liu et al., 2022	
31	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0041	Jinghong, Yunnan, China			ON207538				Liu et al., 2022	
32	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0040	Jinghong, Yunnan, China			ON207537				Liu et al., 2022	
33	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0006	Jinghong, Yunnan, China			ON207536				Liu et al., 2022	
34	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0010	Mengla, Yunnan, China			ON207535				Liu et al., 2022	
35	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0057	Mengla, Yunnan, China			ON207534				Liu et al., 2022	
36	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0083	Mengla, Yunnan, China			ON207533				Liu et al., 2022	
37	<i>Acanthosaura rubrilabris</i>	Voucher KIZ L0063	Mengla, Yunnan, China			ON207532				Liu et al., 2022	
38	<i>Acanthosaura longicaudata</i>	Voucher KIZ L0150	Jiangcheng, Yunnan, China			ON207531				Liu et al., 2022	
39	<i>Acanthosaura longicaudata</i>	Voucher KIZ L0132	Jiangcheng, Yunnan, China			ON207529				Liu et al., 2022	
40	<i>Acanthosaura longicaudata</i>	Voucher KIZ L0051	Jiangcheng, Yunnan, China			ON207528				Liu et al., 2022	
41	<i>Acanthosaura liui</i>	Voucher KIZL2020007	Jianshui, Honghe, Yunnan, China			MT769767				Liu et al., 2020	

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42	<i>Acanthosaura liui</i>	Voucher KIZL2020006	Jianshui, Honghe, Yunnan, China			MT769766				Liu et al., 2020	
43	<i>Acanthosaura liui</i>	Voucher KIZL2020005	Jianshui, Honghe, Yunnan, China			MT769765				Liu et al., 2020	
44	<i>Acanthosaura liui</i>	Voucher KIZL2020004	Jianshui, Honghe, Yunnan, China			MT769764				Liu et al., 2020	
45	<i>Acanthosaura liui</i>	Voucher KIZL2020003	Jianshui, Honghe, Yunnan, China			MT769763				Liu et al., 2020	
46	<i>Acanthosaura phongdienensis</i>	Isolate ZISP52/ZISP 33012	Vietnam: Nghe An Prov., Pu Mat NP		MT376216					Ananjeva et al., 2020	
47	<i>Acanthosaura lepidogaster</i>	Isolate S316/ZISP FS316	Vietnam: Vinh Phuc Prov., Tam Dao		MT376215					Ananjeva et al., 2020	
48	<i>Acanthosaura phongdienensis</i>	Isolate R2017/ZISP 33013	Vietnam: Nghe An Prov., Pu Mat NP		MT376214					Ananjeva et al., 2020	
49	<i>Acanthosaura nataliae</i>	Isolate 32922/ZISP 23436	Vietnam: Kon Tum Prov., Mang Canh village, Konplong district		MT376213					Ananjeva et al., 2020	
50	<i>Acanthosaura lepidogaster</i>	Isolate 27796/ZISP 33184	China: Mt. Wuchi, Central Hainan		MT376211					Ananjeva et al., 2020	
51	<i>Acanthosaura lepidogaster</i>	Isolate 27795/ZISP 33183	China: Mt. Wuchi, Central Hainan		MT376210					Ananjeva et al., 2020	
52	<i>Acanthosaura lepidogaster</i>	Isolate 27794/ZISP 33178	China: Mt. Wuchi, Central Hainan		MT376209					Ananjeva et al., 2020	
53	<i>Acanthosaura lepidogaster</i>	Isolate 20978/ZISP 33011	Vietnam: Vinh Phuc Prov., Tam Dao		MT376208					Ananjeva et al., 2020	
54	<i>Acanthosaura lepidogaster</i>	Isolate 20977/ZISP 33010	Vietnam: Vinh Phuc Prov., Tam Dao		MT376207					Ananjeva et al., 2020	
55	<i>Acanthosaura phongdienensis</i>	Isolate 177NLO/ZISP 30749	Vietnam: Gia Lai Prov., Kon Chu Rang NR, K50 Waterfall		MT376204					Ananjeva et al., 2020	
56	<i>Acanthosaura phongdienensis</i>	Isolate 176NLO/ZISP 30748	Vietnam: Gia Lai Prov., Kon Chu Rang NR, K50 Waterfall		MT376203					Ananjeva et al., 2020	
57	<i>Acanthosaura phongdienensis</i>	Isolate 175NLO/ZISP 30747	Vietnam: Gia Lai Prov., Kon Chu Rang NR, K50 Waterfall		MT376202					Ananjeva et al., 2020	
58	<i>Acanthosaura lepidogaster</i>	Isolate 11881/ZISP F11881	Vietnam: Yen Bai Prov., Mu Cang Chai, Che Tao		MT376201					Ananjeva et al., 2020	
59	<i>Acanthosaura lepidogaster</i>	Isolate 11846/ZISP F11846	Vietnam: Yen Bai Prov., Mu Cang Chai, Che Tao		MT376200					Ananjeva et al., 2020	
60	<i>Acanthosaura lepidogaster</i>	Isolate 11845/ZISP F11845	Vietnam: Yen Bai Prov., Mu Cang Chai, Che Tao		MT376199					Ananjeva et al., 2020	
61	<i>Acanthosaura lepidogaster</i>	Isolate 11809/ZISP F11809	Vietnam: Tuyen Quang Prov., Na Hang		MT376198					Ananjeva et al., 2020	
62	<i>Acanthosaura lepidogaster</i>	Isolate 11808/ZISP F11808	Vietnam: Tuyen Quang Prov., Na Hang		MT376197					Ananjeva et al., 2020	
63	<i>Acanthosaura lepidogaster</i>	Isolate 11807/ZISP F11807	Vietnam: Tuyen Quang Prov., Na Hang		MT376196					Ananjeva et al., 2020	
64	<i>Acanthosaura lepidogaster</i>	Isolate 11779/ZISP F11779	Vietnam: Tuyen Quang Prov., Na Hang		MT376195					Ananjeva et al., 2020	
65	<i>Acanthosaura lepidogaster</i>	Isolate 11778/ZISP F11778	Vietnam: Tuyen Quang Prov., Na Hang		MT376194					Ananjeva et al., 2020	
66	<i>Acanthosaura lepidogaster</i>	Isolate 11777/ZISP 30740	Vietnam: Tuyen Quang Prov., Na Hang		MT376193					Ananjeva et al., 2020	
67	<i>Acanthosaura lepidogaster</i>	Isolate 11775/ZISP F11775	Vietnam: Tuyen Quang Prov., Na Hang		MT376192					Ananjeva et al., 2020	
68	<i>Acanthosaura coronata</i>	Isolate 5618/ZISP 33106	Vietnam: Binh Phuoc Prov., Ba Ra mount		MT376191					Ananjeva et al., 2020	
69	<i>Acanthosaura coronata</i>	Isolate 5613/ZISP 33103	Vietnam: Binh Phuoc Prov., Ba Ra mount		MT376190					Ananjeva et al., 2020	
70	<i>Acanthosaura tongbiguanensis</i>	Isolate KIZL201803	Tongbiguan, Dehong, Yunnan, China		MN604014					Liu, Rao, 2019	
71	<i>Acanthosaura tongbiguanensis</i>	Isolate KIZL201802	Tongbiguan, Dehong, Yunnan, China		MN604013					Liu, Rao, 2019	
72	<i>Acanthosaura tongbiguanensis</i>	Isolate KIZL201801	Tongbiguan, Dehong, Yunnan, China		MN604012					Liu, Rao, 2019	
73	<i>Acanthosaura murphyi</i>	LTN-2019a voucher DTD147/PYU 147	Deo Ca Forest, Phu Yen Prov., Vietnam			MK239027				Nguyen et al., 2018	
74	<i>Acanthosaura murphyi</i>	LTN-2019a voucher ITBCZ 3533	Hon Ba NR, Khanh Hoa Prov., Vietnam			MK239026				Nguyen et al., 2018	
75	<i>Acanthosaura murphyi</i>	LTN-2019a voucher ITBCZ 4603	Deo Ca Forest, Phu Yen Prov., Vietnam			MK239025				Nguyen et al., 2018	
76	<i>Acanthosaura nataliae</i>	Voucher ITBCZ 5057	Tram Lap Village, Gia Lai Prov., Vietnam (type locality)			MK239024				Nguyen et al., 2018	
77	<i>Acanthosaura nataliae</i>	Voucher ITBCZ 4994	Tram Lap Village, Gia Lai Prov., Vietnam (type locality)			MK239023				Nguyen et al., 2018	
78	<i>Acanthosaura capra</i>	Voucher BGM01	Bu Gia Map NP, Binh Phuoc Prov, Vietnam			MK239022				Nguyen et al., 2018	
79	<i>Acanthosaura nataliae</i>	Voucher ROM 30632	Tram Lap, Gia Lai, Vietnam			MK695204				Nguyen et al., 2019	
80	<i>Acanthosaura nataliae</i>	Voucher ROM 30631	Tram Lap, Gia Lai, Vietnam			MK695203				Nguyen et al., 2019	
81	<i>Acanthosaura nataliae</i>	Voucher ROM 30629	Tram Lap, Gia Lai, Vietnam			MK695202				Nguyen et al., 2019	
82	<i>Acanthosaura lepidogaster</i>	Voucher YPX 19177	Diaoluoshan, Hainan, China			MK695201				Nguyen et al., 2019	
83	<i>Acanthosaura lepidogaster</i>	Voucher KIZ 12720	Fulong, Guangxi, China			MK695200				Nguyen et al., 2019	
84	<i>Acanthosaura lepidogaster</i>	Voucher ROM 31954	Chi Linh, Hai Duong, Vietnam			MK695199				Nguyen et al., 2019	
85	<i>Acanthosaura lepidogaster</i>	Voucher ROM 34679	Tam Dao, Vinh Phuc, Vietnam			MK695198				Nguyen et al., 2019	

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86	<i>Acanthosaura lepidogaster</i>	Voucher ROM 30720	Tam Dao, Vinh Phuc, Vietnam			MK695197				Nguyen et al., 2019	
87	<i>Acanthosaura lepidogaster</i>	Voucher ROM 30715	Tam Dao, Vinh Phuc, Vietnam			MK695196				Nguyen et al., 2019	
88	<i>Acanthosaura lepidogaster</i>	Voucher ROM 30712	Tam Dao, Vinh Phuc, Vietnam			MK695195				Nguyen et al., 2019	
89	<i>Acanthosaura lepidogaster</i>	Voucher ROM 36080	Quang Thanh, Cao Bang, Vietnam			MK695194				Nguyen et al., 2019	
90	<i>Acanthosaura lepidogaster</i>	Voucher ROM 36077	Quang Thanh, Cao Bang, Vietnam			MK695193				Nguyen et al., 2019	
91	<i>Acanthosaura lepidogaster</i>	Voucher ROM 30507	Na Hang, Tuyen Quang, Vietnam			MK695192				Nguyen et al., 2019	
92	<i>Acanthosaura lepidogaster</i>	Voucher ROM 30505	Na Hang, Tuyen Quang, Vietnam			MK695191				Nguyen et al., 2019	
93	<i>Acanthosaura coronata</i>	Voucher ROM 42241	Cat Tien, Dong Nai, Vietnam			MK695190				Nguyen et al., 2019	
94	<i>Acanthosaura coronata</i>	Voucher ROM 42240	Cat Tien, Dong Nai, Vietnam			MK695189				Nguyen et al., 2019	
95	<i>Acanthosaura coronata</i>	Voucher KIZ 97	Bu Gia Map, Binh Phuoc, Vietnam			MK695188				Nguyen et al., 2019	
96	<i>Acanthosaura coronata</i>	Voucher KIZ 48	Bu Gia Map, Binh Phuoc, Vietnam			MK695187				Nguyen et al., 2019	
97	<i>Acanthosaura coronata</i>	Voucher KIZ 47	Bu Gia Map, Binh Phuoc, Vietnam			MK695186				Nguyen et al., 2019	
98	<i>Acanthosaura brachypoda</i>	Voucher ROM 38123	Sa Pa, Lao Cai, Vietnam			MK695185				Nguyen et al., 2019	
99	<i>Acanthosaura brachypoda</i>	Voucher ROM 38120	Sa Pa, Lao Cai, Vietnam			MK695184				Nguyen et al., 2019	
100	<i>Acanthosaura brachypoda</i>	Voucher ROM 38119	Sa Pa, Lao Cai, Vietnam			MK695183				Nguyen et al., 2019	
101	<i>Acanthosaura brachypoda</i>	Voucher ROM 38118	Sa Pa, Lao Cai, Vietnam			MK695182				Nguyen et al., 2019	
102	<i>Acanthosaura</i> sp.	SK-95/HLMD-RA26970	Per trade, Myanmar		AY572930					Kalyabina-Hauf et al., 2004	
103	<i>Acanthosaura</i> sp.	SK-94/HLMD-RA2969	Per trade, Myanmar		AY572929					Kalyabina-Hauf et al., 2004	
104	<i>Acanthosaura lepidogaster</i>	Isolate 61/ROM 37082	Ngok Linh, Kon Tum Province, Vietnam	15°05'08" N 107°55'42" E	AY572928					Kalyabina-Hauf et al., 2004	
105	<i>Acanthosaura lepidogaster</i>	Isolate 158/ROM 30693	Tam Dao, Vinh Phu Province, Vietnam	21°27'25" N 105°38'48" E	AY572927					Kalyabina-Hauf et al., 2004	
106	<i>Acanthosaura lepidogaster</i>	Isolate 156/ROM 38116	Vicinity of Sa Pa, ~5 km SW of Sa Pa Village, Lao Cai Province, Vietnam	22°18'56" N 103°49'35" E	AY572926					Kalyabina-Hauf et al., 2004	
107	<i>Acanthosaura lepidogaster</i>	Isolate 155/ROM 38115	Vicinity of Sa Pa, ~5 km SW of Sa Pa Village, Lao Cai Province, Vietnam	22°18'56" N 103°49'35" E	AY572925					Kalyabina-Hauf et al., 2004	
108	<i>Acanthosaura lepidogaster</i>	Isolate 154/ROM 38117	Vicinity of Sa Pa, ~4 km W of Sa Pa Village, on tributary of Golden River (= Suoi Vang), Lao Cai Province, Vietnam	22°18'59" N 103°49'16" E	AY572924					Kalyabina-Hauf et al., 2004	
109	<i>Acanthosaura lepidogaster</i>	Isolate 147/PCUM	Khao-Yoi, Thailand	13°22' N 99°81'40" E	AY572923					Kalyabina-Hauf et al., 2004	
110	<i>Acanthosaura lepidogaster</i>	Isolate 109/FMNH 255489	Vieng Tong District, Hauphan Province, Laos	20°14' N 103°12' E	AY572922					Kalyabina-Hauf et al., 2004	
111	<i>Acanthosaura lepidogaster</i>	Isolate 108/FMNH 255487	Nakai District, Khammouane Province, Laos	17°53' N 104°55' E	AY572921					Kalyabina-Hauf et al., 2004	
112	<i>Acanthosaura lepidogaster</i>	Isolate 107/FMNH 255488	Nakai District, Khammouane Province, Laos	17°53' N 104°55' E	AY572920					Kalyabina-Hauf et al., 2004	
113	<i>Acanthosaura lepidogaster</i>	Isolate 106/FMNH 255491	Thaphabat District, Bolikhamxay Province, Laos	18°27' N 103°10' E	AY572919					Kalyabina-Hauf et al., 2004	
114	<i>Acanthosaura lepidogaster</i>	Isolate 105/FMNH 255584	Nghe An, Tuong Duong District, Vietnam	19°03' N 104°37' E	AY572918					Kalyabina-Hauf et al., 2004	
115	<i>Acanthosaura lepidogaster</i>	Isolate 104/FMNH 255581	Nghe An, Con Cuong District, Vietnam	18°58' N 104°48' E	AY572917					Kalyabina-Hauf et al., 2004	
116	<i>Acanthosaura lepidogaster</i>	Isolate 102/FMNH 255587	Nghe An, Tuong Duong District, Vietnam	19°03' N 104°37' E	AY572916					Kalyabina-Hauf et al., 2004	
117	<i>Acanthosaura lepidogaster</i>	Isolate 100/FMNH 255585	Nghe An, Tuong Duong District, Vietnam	19°03' N 104°37' E	AY572915					Kalyabina-Hauf et al., 2004	
118	<i>Acanthosaura lepidogaster</i>	Isolate 101/FMNH 255583	Nghe An, Con Cuong District, Vietnam	18°58' N 104°48' E	AY572914					Kalyabina-Hauf et al., 2004	
119	<i>Acanthosaura lepidogaster</i>	Isolate 99/FMNH 255582	Nghe An, Con Cuong District, Vietnam	18°58' N 104°48' E	AY572913					Kalyabina-Hauf et al., 2004	
120	<i>Acanthosaura lepidogaster</i>	Isolate 98/FMNH 255481	Boualapha District, Khammouane Province, Laos	17°17' N 105°41' E	AY572912					Kalyabina-Hauf et al., 2004	
121	<i>Acanthosaura lepidogaster</i>	Isolate 59/ROM 31960	Chi Linh, Hia Duong Province, Vietnam	21°12'44" N 106°28'39" E	AY572911					Kalyabina-Hauf et al., 2004	

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122	<i>Acanthosaura lepidogaster</i>	Isolate 56/ROM 36075	Quang Thanh, Cao Bang Province, Vietnam	22°37'43" N 105°54'46" E	AY572910					Kalyabina-Hauf et al., 2004	
123	<i>Acanthosaura lepidogaster</i>	Isolate 55/ROM 36073	Quang Thanh, Cao Bang Province, Vietnam	22°37'43" N 105°54'46" E	AY572909					Kalyabina-Hauf et al., 2004	
124	<i>Acanthosaura lepidogaster</i>	Isolate 52/ROM 30694	Tam Dao, Vinh Phu Province, Vietnam	21°27'25" N 105°38'48" E	AY572908					Kalyabina-Hauf et al., 2004	
125	<i>Acanthosaura lepidogaster</i>	Isolate 51/ROM 30720	Tam Dao, Vinh Phu Province, Vietnam	21°27'25" N 105°38'48" E	AY572907					Kalyabina-Hauf et al., 2004	
126	<i>Acanthosaura lepidogaster</i>	Isolate 48/ROM 30503	Tam Dao, Vinh Phu Province, Vietnam	21°27'25" N 105°38'48" E	AY572906					Kalyabina-Hauf et al., 2004	
127	<i>Acanthosaura lepidogaster</i>	Isolate 38/ZISP 20753-2	Northern Annam, Vu Quang, Ha Tinh Province, Vietnam	18°16' N 105°15' E	AY572905					Kalyabina-Hauf et al., 2004	
128	<i>Acanthosaura lepidogaster</i>	Isolate 37/ZISP 20753-1	Northern Annam, Vu Quang, Ha Tinh Province, Vietnam	18°16' N 105°15' E	AY572904					Kalyabina-Hauf et al., 2004	
129	<i>Acanthosaura lepidogaster</i>	Isolate 60/ROM 35038	Chi Linh, Hia Duong Province, Vietnam	21°12'44" N 106°28'39" E	AY572903					Kalyabina-Hauf et al., 2004	
130	<i>Acanthosaura lepidogaster</i>	Isolate 58/ROM 31957	Chi Linh, Hia Duong Province, Vietnam	21°12'44" N 106°28'39" E	AY572902					Kalyabina-Hauf et al., 2004	
131	<i>Acanthosaura lepidogaster</i>	Isolate 8/ROM 31954	Chi Linh, Hia Duong Province, Vietnam	21°12'44" N 106°28'39" E	AY572901					Kalyabina-Hauf et al., 2004	
132	<i>Acanthosaura lepidogaster</i>	Isolate 1/ROM 26328	Khe Moi River, 24 km (by road) W of Con Cuong Village, Nghe An Province, Vietnam	18°56'18" N 104°53'01" E	AY572900					Kalyabina-Hauf et al., 2004	
133	<i>Acanthosaura crucigera</i>	Isolate 153/ROM 42241	Dong Nai, Cat Tien National Park, Dong Nai Province, Vietnam	11°25'23" N 107°25'42" E	AY572899					Kalyabina-Hauf et al., 2004	
134	<i>Acanthosaura crucigera</i>	Isolate 71/ROM 42240	Dong Nai, Cat Tien National Park, Dong Nai Province, Vietnam	11°25'23" N 107°25'42" E	AY572898					Kalyabina-Hauf et al., 2004	
135	<i>Acanthosaura crucigera</i>	Isolate 69/ROM 37083	Dong Nai, Cat Tien National Park, Dong Nai Province, Vietnam	11°25'23" N 107°25'42" E	AY572897					Kalyabina-Hauf et al., 2004	
136	<i>Acanthosaura crucigera</i>	Isolate 68/ROM 31985	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572896					Kalyabina-Hauf et al., 2004	
137	<i>Acanthosaura crucigera</i>	Isolate 143/CAS 208426	Bago Division, Bago Yoma, E. Myanmar	18°52'59" N 95°52'44.9" E	AY572895					Kalyabina-Hauf et al., 2004	
138	<i>Acanthosaura crucigera</i>	Isolate 97/A97	Per trade, Malaysia		AY572894					Kalyabina-Hauf et al., 2004	
139	<i>Acanthosaura crucigera</i>	Isolate 96/A96	Per trade, Malaysia		AY572893					Kalyabina-Hauf et al., 2004	
140	<i>Acanthosaura crucigera</i>	Isolate 72/IRSNB15141	Phang Nga Wildlife Breeding Center, Tabon Tahk Daed, Thai Muang District, Phang Nga Province, Southern Thailand	8°72' N 98°27' E	AY572892					Kalyabina-Hauf et al., 2004	
141	<i>Acanthosaura crucigera</i>	Isolate 33/PCUM	Khao Lak, District (Amphoe) Takua Pa, Province Phang Nga, Thailand	8°55' – 8°65' N 98°14' – 98°45' E	AY572891					Kalyabina-Hauf et al., 2004	
142	<i>Acanthosaura crucigera</i>	Isolate 32/PCUM	Khao Lak, District (Amphoe) Takua Pa, Province Phang Nga, Thailand	8°55' – 8°65' N 98°14' – 98°45' E	AY572890					Kalyabina-Hauf et al., 2004	
143	<i>Acanthosaura crucigera</i>	Isolate 31/PCUM	Khao Lak, District (Amphoe) Takua Pa, Province Phang Nga, Thailand	8°55' – 8°65' N 98°14' – 98°45' E	AY572889					Kalyabina-Hauf et al., 2004	
144	<i>Acanthosaura crucigera</i>	Isolate 91/CAS 206626	Bago Division, Bago Yoma, E. Myanmar	18°52'59" N 95°52'44.9" E	AY572888					Kalyabina-Hauf et al., 2004	
145	<i>Acanthosaura crucigera</i>	Isolate 89/A89	Kaeng Krachan, Kao Yoi Districts, Phetchaburi Province, Central Thailand	13°99' N 102°25' E	AY572887					Kalyabina-Hauf et al., 2004	Tissue sample and photo from Peter P. Van Dijk
146	<i>Acanthosaura capra</i>	Isolate 160/ROM 32166	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572886					Kalyabina-Hauf et al., 2004	
147	<i>Acanthosaura capra</i>	Isolate 159/ROM 32143	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572885					Kalyabina-Hauf et al., 2004	
148	<i>Acanthosaura capra</i>	Isolate 152/ROM 32162	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572884					Kalyabina-Hauf et al., 2004	

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149	<i>Acanthosaura capra</i>	Isolate 151/ROM 32152	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572883					Kalyabina-Hauf et al., 2004	
150	<i>Acanthosaura capra</i>	Isolate 150/ROM 32161	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572882					Kalyabina-Hauf et al., 2004	
151	<i>Acanthosaura capra</i>	Isolate 63/ROM 30628	Tram Lap, Gia Lai Province, Vietnam	14°26'24" N 108°22'59" E	AY572881					Kalyabina-Hauf et al., 2004	
152	<i>Acanthosaura capra</i>	Isolate 62/ROM 30627	Tram Lap, Gia Lai Province, Vietnam	14°26'24" N 108°22'59" E	AY572880					Kalyabina-Hauf et al., 2004	
153	<i>Acanthosaura capra</i>	Isolate 67/ROM 32160	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572879					Kalyabina-Hauf et al., 2004	
154	<i>Acanthosaura capra</i>	Isolate 66/ROM 32155	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572878					Kalyabina-Hauf et al., 2004	
155	<i>Acanthosaura capra</i>	Isolate 65/ROM 32154	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572877					Kalyabina-Hauf et al., 2004	
156	<i>Acanthosaura capra</i>	Isolate 64/ROM 31984	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572876					Kalyabina-Hauf et al., 2004	
157	<i>Acanthosaura capra</i>	Isolate 3/ROM 32160	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572875					Kalyabina-Hauf et al., 2004	
158	<i>Acanthosaura capra</i>	Isolate 26/ROM 32167	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572874					Kalyabina-Hauf et al., 2004	
159	<i>Acanthosaura capra</i>	Isolate 92/ROM 31983	Krong Pa, Gia Lai Province, Vietnam	14°20'29" N 108°28'40" E	AY572873					Kalyabina-Hauf et al., 2004	
160	<i>Acanthosaura armata</i>	Isolate 35/PCUM	Pulau Pinang (= Penang), Penang State, West Malaysia	5°54' N 100°12' E	AY572872					Kalyabina-Hauf et al., 2004	
161	<i>Acanthosaura armata</i>	Isolate 34/PCUM	Pulau Pinang (= Penang), Penang State, West Malaysia	5°54' N 100°12' E	AY572871					Kalyabina-Hauf et al., 2004	
162	<i>Acanthosaura crucigera</i>	Voucher CUMZR 2008.05.26.1	Kaeng Krachan National Park, Phetchaburi Province, Thailand				HM143889			Wood et al., 2010	
163	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher FMNH 263261	Kampot District, Kampot Province, Cambodia				GU817400			Wood et al., 2010	
164	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher FMNH 263227	Kampot District, Kampot Province, Cambodia				GU817399			Wood et al., 2010	
165	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher FMNH 263226	Kampot District, Kampot Province, Cambodia				GU817398			Wood et al., 2010	
166	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher FMNH 263225	Kampot District, Kampot Province, Cambodia				GU817397			Wood et al., 2010	
167	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher LSUHC 7878	Camp 1, Pursat Province, Cambodia				GU817396			Wood et al., 2010	
168	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher LSUHC 7877	Pursat Province, Cambodia	12°01' N 104°08' E			GU817395			Wood et al., 2010	
169	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher LSUHC 7393	Phnom Aural, Kampong Speu Province, Cambodia				GU817394			Wood et al., 2010	
170	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher FMNH 263262	Kampot District, Kampot Province, Cambodia				GU817393			Wood et al., 2010	
171	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher LSUHC 7337	Phnom Aural, Kampong Speu Province, Cambodia				GU817392			Wood et al., 2010	
172	<i>Acanthosaura cardamomensis</i>	PLW-2010a voucher FMNH 263335	Thmar Baing District, Koh Kong Province, Cambodia				GU817391			Wood et al., 2010	
173	<i>Acanthosaura crucigera</i>	Voucher LSUHC 9131	Camp 1, Pursat Province, Cambodia				GU817390			Wood et al., 2010	
174	<i>Acanthosaura crucigera</i>	Voucher CAS : 229582	Botpyinn Township, Pakchan Reserve Forest, Main Ma The camp, Kawthaung District, Tanintharyi Division, Myanmar				GU817389			Wood et al., 2010	
175	<i>Acanthosaura lepidogaster</i>	Voucher MD001	Hainan, China		KR092427	KR092427	KR092427	KR092427	KR092427	Yu et al., 2017	Mitochondrion; 16899 bp
176	<i>Acanthosaura armata</i>	NSMT-H4595			AB266452	AB266452	AB266452	AB266452	AB266452	Okajima and Kumazawa, 2010	Mitochondrion; 16544 bp; Per trade (in Japan), Asia
177	<i>Acanthosaura capra</i>	NSMT-H4596			AB266884					Amer, Kumazawa, 2007	
178	<i>Acanthosaura crucigera</i>	NSMT-H4597			AB263946					Amer, Kumazawa, 2007	

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179	<i>Acanthosaura longicaudata</i>	Voucher KIZ L0212	Lvchun, Yunnan, China			OR102782				Liu et al., 2023	
180	<i>Acanthosaura longicaudata</i>	Voucher KIZ L0214	Lvchun, Yunnan, China			OR102781				Liu et al., 2023	
181	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0162	Ledong, Hainan, China			OR102780				Liu et al., 2023	
182	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0161	Changjiang, Hainan, China			OR102779				Liu et al., 2023	
183	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0160	Ledong, Hainan, China			OR102778				Liu et al., 2023	
184	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0159	Ledong, Hainan, China			OR102777				Liu et al., 2023	
185	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0158	Dongfang, Hainan, China			OR102776				Liu et al., 2023	
186	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0157	Dongfang, Hainan, China			OR102775				Liu et al., 2023	
187	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0156	Dongfang, Hainan, China			OR102774				Liu et al., 2023	
188	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0002	Changjiang, Hainan, China			OR102773				Liu et al., 2023	
189	<i>Acanthosaura hainanensis</i>	Voucher KIZ L0001	Changjiang, Hainan, China			OR102772				Liu et al., 2023	
190	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0155	Hekou, Yunnan, China			OR102771				Liu et al., 2023	
191	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0154	Hekou, Yunnan, China			OR102770				Liu et al., 2023	
192	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0136	Malipo, Yunnan, China			OR102770				Liu et al., 2023	
193	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0135	Malipo, Yunnan, China			OR102768				Liu et al., 2023	
194	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0134	Malipo, Yunnan, China			OR102767				Liu et al., 2023	
195	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0100	Malipo, Yunnan, China			OR102766				Liu et al., 2023	
196	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0099	Malipo, Yunnan, China			OR102765				Liu et al., 2023	
197	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0098	Malipo, Yunnan, China			OR102764				Liu et al., 2023	
198	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0097	Pingbian, Yunnan, China			OR102763				Liu et al., 2023	
199	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0096	Pingbian, Yunnan, China			OR102762				Liu et al., 2023	
200	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0095	Pingbian, Yunnan, China			OR102761				Liu et al., 2023	
201	<i>Acanthosaura brachypoda</i>	Voucher KIZ L0093	Pingbian, Yunnan, China			OR102760				Liu et al., 2023	
202	<i>Acanthosaura lepidogaster</i>	Voucher KIZ NG	Longzhou, Guangxi, China			OR102759				Liu et al., 2023	
203	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0122	Wuyishan, Fujian, China			OR102758				Liu et al., 2023	
204	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0120	Hezhou, Guangxi, China			OR102757				Liu et al., 2023	
205	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0117	Longmen, Guangdong, China			OR102756				Liu et al., 2023	
206	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0115	Ruyuan, Guangdong, China			OR102755				Liu et al., 2023	
207	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0112	Huanjing, Guangxi, China			OR102754				Liu et al., 2023	
208	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0109	Shixing, Guangdong, China			OR102753				Liu et al., 2023	
209	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0106	Xing'an, Guangxi, China			OR102752				Liu et al., 2023	
210	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0101	Napo, Guangxi, China			OR102751				Liu et al., 2023	
211	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0025	Shangsi, Guangxi, China			OR102750				Liu et al., 2023	
212	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0021	Jinggangshan, Jiangxi, China			OR102749				Liu et al., 2023	
213	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0019	Jinggangshan, Jiangxi, China			OR102748				Liu et al., 2023	
214	<i>Acanthosaura lepidogaster</i>	Voucher KIZ L0003	Jingxi, Guangxi, China			OR102747				Liu et al., 2023	
215	<i>Acanthosaura crucigera</i>	Voucher USNM 587487	Tanintharyi (Tenasserim) Region of Myanmar			MT607982				Mulcahy et al., 2018	
216	<i>Acanthosaura crucigera</i>	Voucher USNM 587489	Tanintharyi (Tenasserim) Region of Myanmar			MT607981				Mulcahy et al., 2018	
217	<i>Acanthosaura crucigera</i>	Voucher USNM 587488	Tanintharyi (Tenasserim) Region of Myanmar			MT607980				Mulcahy et al., 2018	
218	<i>Acanthosaura crucigera</i>	Voucher USNM 587485	Tanintharyi (Tenasserim) Region of Myanmar			MT607979				Mulcahy et al., 2018	
219	<i>Acanthosaura crucigera</i>	Voucher USNM 587486	Tanintharyi (Tenasserim) Region of Myanmar			MT607978				Mulcahy et al., 2018	
220	<i>Acanthosaura crucigera</i>	Voucher USNM 587490	Tanintharyi (Tenasserim) Region of Myanmar			MT607977				Mulcahy et al., 2018	
221	<i>Acanthosaura crucigera</i>	Voucher USNM 587487	Tanintharyi (Tenasserim) Region of Myanmar					MT608654		Mulcahy et al., 2018	
222	<i>Acanthosaura crucigera</i>	Voucher USNM 587489	Tanintharyi (Tenasserim) Region of Myanmar					MT608653		Mulcahy et al., 2018	
223	<i>Acanthosaura crucigera</i>	Voucher USNM 587488	Tanintharyi (Tenasserim) Region of Myanmar					MT608652		Mulcahy et al., 2018	
224	<i>Acanthosaura crucigera</i>	Voucher USNM 587485	Tanintharyi (Tenasserim) Region of Myanmar					MT608651		Mulcahy et al., 2018	

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225	<i>Acanthosaura crucigera</i>	Voucher USNM 587486	Tanintharyi (Tenasserim) Region of Myanmar					MT608650		Mulcahy et al., 2018	
226	<i>Acanthosaura crucigera</i>	Voucher USNM 587490	Tanintharyi (Tenasserim) Region of Myanmar					MT608649		Mulcahy et al., 2018	
227	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595362	Vietnam: Du Gia Forest, Bac Me, 3.2 km E of Khau Ca Reserve (straight-line distance)			OM420413				Mulcahy et al., 2018	
228	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595361	Vietnam: Du Gia Forest, Bac Me, 3.2 km E of Khau Ca Reserve (straight-line distance)			OM420412				Mulcahy et al., 2018	
229	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595360	Vietnam: Du Gia Forest, Bac Me, 3.2 km E of Khau Ca Reserve (straight-line distance)			OM420411				Mulcahy et al., 2018	
230	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595359	Viet Nam: Trang An Landscape Complex, Thung Nham Bird Garden, northeastern corner of Thung Nham Bird Garden			OM420392				Mulcahy et al., 2018	
231	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595358	Viet Nam: Trang An Landscape Complex			OM420364				Mulcahy et al., 2018	
232	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595357	Viet Nam: Trang An Landscape Complex			OM420363				Mulcahy et al., 2018	
233	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595356	Viet Nam: Trang An Landscape Complex			OM420362				Mulcahy et al., 2018	
234	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595355	Viet Nam: Bai Tu Long Bay, Ba Mun Island			OM420356				Mulcahy et al., 2018	
235	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595354	Viet Nam: Bai Tu Long Bay, Ba Mun Island			OM420355				Mulcahy et al., 2018	
236	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595353	Viet Nam: Bai Tu Long Bay, Ba Mun Island			OM420354				Mulcahy et al., 2018	
237	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595352	Viet Nam: Bai Tu Long Bay, Ba Mun Island			OM420352				Mulcahy et al., 2018	
238	<i>Acanthosaura lepidogaster</i>	Voucher USNM Herp 595351	Viet Nam: Bai Tu Long Bay, Ba Mun Island, central west side of Ba Mun Island, 3 km N of Tram kiem lam Lach Che ranger station (straight-line distance)			OM420327				Mulcahy et al., 2018	
239	<i>Acanthosaura lepidogaster</i>	Voucher DW004LJ01003	Anguo herb market and Bozhou herb market, Pekin, China			MG257674		MH047784		Su et al., 2020	
240	<i>Acanthosaura lepidogaster</i>	Voucher DW004LJ01002	Anguo herb market and Bozhou herb market, Pekin, China			MG257673		MH047783		Su et al., 2020	
241	<i>Acanthosaura lepidogaster</i>	Voucher DW004LJ01001	Anguo herb market and Bozhou herb market, Pekin, China			MG257672		MH047782		Su et al., 2020	
242	<i>Acanthosaura crucigera</i>	Isolate RE0012WE/QSMI1592	Muang, Tak, Thailand				MH777408			Trivalairat et al., 2024	
243	<i>Acanthosaura crucigera</i>	PoT-2019a isolate RE0011SO/THNHM28061	Na Yong, Trang, Thailand				MH777407			Trivalairat et al., 2024	
244	<i>Acanthosaura aurantiacrista</i>	PoT-2019a isolate RE0025WE/THNHM28064	Mae Sariang, Mae Hong Son, Thailand				MH777406			Trivalairat et al., 2024	Holotype
245	<i>Acanthosaura crucigera</i>	PoT-2019a isolate RE0013SO/THNHM28062	Na Yong, Trang, Thailand				MH777405			Trivalairat et al., 2024	
246	<i>Acanthosaura crucigera</i>	PoT-2019a isolate RE0010SO/QSMI1594	Na Yong, Trang, Thailand				MH777404			Trivalairat et al., 2024	
247	<i>Acanthosaura crucigera</i>	Isolate RE0014WE/QSMI1593	Muang, Tak, Thailand				MH777403			Trivalairat et al., 2024	
248	<i>Acanthosaura crucigera</i>	Isolate RE0015WE/THNHM28057	Muang, Tak, Thailand				MH777402			Trivalairat et al., 2024	
249	<i>Acanthosaura crucigera</i>	Voucher USNM Herp 587019	Myanmar: Tanintharyi, Yeybu village, 6.5 km (air) NE of Yeybuchaung-ngal (stream)			MG935416		MG935713		Mulcahy et al., 2018	
250	<i>Acanthosaura lepidogaster</i>	Isolate ALE04						KT763423		Yang et al., 2017 (appendix)	Outgroup to <i>J. polygonata</i>
251	<i>Acanthosaura lepidogaster</i>	Isolate ALE03						KT763422		Yang et al., 2017 (appendix)	Outgroup to <i>J. polygonata</i>
252	<i>Acanthosaura lepidogaster</i>	Isolate ALE02						KT763421		Yang et al., 2017 (appendix)	Outgroup to <i>J. polygonata</i>
253	<i>Acanthosaura lepidogaster</i>	Isolate ALE01						KT763420		Yang et al., 2017 (appendix)	Outgroup to <i>J. polygonata</i>

ID	Species (Article)	Vouchers (Isolates)	Country, Locality	Coordinates	cyt <i>b</i>	COI	ND2	16S rRNA	12S rRNA	Reference	Notes
254	<i>Acanthosaura lepidogaster</i>	MVZ222130	Vietnam?				AF128498			Macey et al., 1997	
255	<i>Acanthosaura lepidogaster</i>	MVZ224090	Vietnam?				AF128499			Macey et al., 1997	
256	<i>Acanthosaura crucigera</i>							AB031980	AB031963	Honda et al., 2000	
257	<i>Acanthosaura cuongi</i>	KKK53	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV714672	PV646289				This article	
258	<i>Acanthosaura cuongi</i>	KKK55	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658750	PV646288				This article	
259	<i>Acanthosaura cuongi</i>	KKK56	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658751	PV646283				This article	
260	<i>Acanthosaura cuongi</i>	KKK57	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E		PV646292				This article	
261	<i>Acanthosaura cuongi</i>	KKK 62	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658752					This article	
262	<i>Acanthosaura cuongi</i>	KKK108	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658753	PV646287				This article	
263	<i>Acanthosaura cuongi</i>	KKK109	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658754	PV646291				This article	
264	<i>Acanthosaura cuongi</i>	KKK147	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E						This article	
265	<i>Acanthosaura cuongi</i>	KKK 148	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658755	PV646282				This article	
266	<i>Acanthosaura cuongi</i>	KKK150	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658756	PV646290				This article	
267	<i>Acanthosaura cuongi</i>	KKK153	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658757	PV646293				This article	
268	<i>Acanthosaura cuongi</i>	KKK154	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658758					This article	
269	<i>Acanthosaura cuongi</i>	KKK155	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°18' N 108°29' E	PV658759	PV646294				This article	
270	<i>Acanthosaura cuongi</i>	KCR42	Viet Nam, Gia Lai, K' Bang, Kon Ka Kinh National Park	14°47' E	108°54' E	PV658749				This article	
271	<i>Acanthosaura cuongi</i>	CMR88	Viet Nam, Kon Tum, Sa Thầy, Chu Mom Ray	14°42' N 107°77' E	PV658746	PV646284				This article	
272	<i>Acanthosaura cuongi</i>	CMR89	Viet Nam, Kon Tum, Sa Thầy, Chu Mom Ray	14°42' N 107°77' E	PV658747	PV646285				This article	
273	<i>Acanthosaura cuongi</i>	CMR90	Viet Nam, Kon Tum, Sa Thầy, Chu Mom Ray	14°42' N 107°77' E	PV658748	PV646286				This article	
274	<i>Acanthosaura coronata</i>	CTDN 1	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park			PV646553				This article	
275	<i>Acanthosaura coronata</i>	CTDN 2	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park		PV694983	PV646554				This article	
276	<i>Acanthosaura coronata</i>	CTDN65	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park		PV694984	PV646555				This article	
277	<i>Acanthosaura coronata</i>	CTDN66	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park			PV646556				This article	
278	<i>Acanthosaura coronata</i>	CTDN67	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park		PV694985	PV646557				This article	
279	<i>Acanthosaura coronata</i>	CTDN97	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park		PV694986	PV646558				This article	
280	<i>Acanthosaura coronata</i>	CTDN201	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park		PV694987	PV646559				This article	
281	<i>Acanthosaura coronata</i>	CTDN229	Viet Nam, Đồng Nai, Tân Phú, Cát Tiên National Park		PV694988	PV646560				This article	
282	<i>Acanthosaura coronata</i>	BGM 1	Viet Nam, Bình Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646545				This article	
283	<i>Acanthosaura coronata</i>	BGM 2	Viet Nam, Bình Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646546				This article	
284	<i>Acanthosaura coronata</i>	BGM 3	Viet Nam, Bình Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646547				This article	
285	<i>Acanthosaura coronata</i>	BGM 4	Viet Nam, Bình Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646548				This article	

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286	<i>Acanthosaura coronata</i>	BGM 5	Viet Nam, Binh Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646549				This article	
287	<i>Acanthosaura coronata</i>	BGM 6	Viet Nam, Binh Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646550				This article	
288	<i>Acanthosaura coronata</i>	BGM115	Viet Nam, Binh Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646551				This article	
289	<i>Acanthosaura coronata</i>	BGM116	Viet Nam, Binh Phước, Bù Gia Mập, Bù Gia Mập National Park			PV646552				This article	
290	<i>Acanthosaura nataliae</i>	32551/ZISP 32551	Viet Nam, Kon Tum, Kon Plông, Măng Cánh		PV658742	PV646561				This article	
291	<i>Acanthosaura nataliae</i>	32552/ZISP 32552	Viet Nam, Kon Tum, Kon Plông, Măng Cánh		PV658743					This article	
292	<i>Acanthosaura nataliae</i>	32553/ZISP 32553	Viet Nam, Kon Tum, Kon Plông, Măng Cánh		PV658744	PV646562				This article	
293	<i>Acanthosaura nataliae</i>	32555/32555	Viet Nam, Kon Tum, Kon Plông, Măng Cánh		PV658745					This article	
294	<i>Acanthosaura capra</i>	32554/32554	Viet Nam, Đắk Lắk, Krông Bông, Lắk, Chư Yang Sin National Park		PV658741					This article	