

# A new carphodactyline gecko of the New Caledonian genus *Eurydactylodes* (Sauria: Gekkonidae)

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## Abstract

A third species of the endemic New Caledonian carphodactyline gekkonid genus *Eurydactylodes* is described. The new species shares a continuous postlabial/subauricular skin fold and a more homogenous body scalation with *E. symmetricus* (ANDERSSON, 1908), but lacks the large, symmetrical head shields of this species. The head scalation resembles that of *E. vieillardii* (BAVAY, 1869), but this species is easily distinguished by its interrupted postlabial/subauricular skin fold and its much coarser and more irregular body scalation. From the type locality of the new species none of the other two species is so far known.

Key words: Sauria: Gekkonidae: *Eurydactylodes*, new species; New Caledonia.

## Zusammenfassung

Ein neuer carphodactyliner Gecko der neukaledonischen Gattung *Eurydactylodes* (Sauria: Gekkonidae).

Es wird eine dritte Art der endemischen neukaledonischen carphodactylinen Geckogattung *Eurydactylodes* beschrieben. Die neue Art hat mit *E. symmetricus* (ANDERSSON, 1908) eine durchgehende Postlabial-Subaurikularspalte gemeinsam, besitzt aber nicht die großen, symmetrischen Vorderkopfschilder dieser Art. Die Kopfbeschuppung entspricht mehr derjenigen von *E. vieillardii* (BAVAY, 1869), doch ist diese Art durch ihre unterbrochene Postlabial-Subaurikularspalte und die gröbere, unregelmäßigere Rumpfbeschuppung leicht unterscheidbar. Zudem fehlt ihr die für *E. symmetricus* typische Reihe aufrechter Nackenschuppen. Von der Typuslokalität der neuen Art ist bisher keine der beiden anderen Arten bekannt. Das Habitat beschränkt sich auf Galeriewaldbereiche in ansonsten durch Savannen geprägter Landschaft. Die neue Art ist bereits mehrfach erfolgreich nachgezogen worden.

Schlagwörter: Sauria: Gekkonidae: *Eurydactylodes*, neue Art; Neukaledonien.

## 1 Introduction

*Eurydactylodes* WERMUTH, 1965 is a replacement name for *Eurydactylus* SAUVAGE, 1878 which was preoccupied by a coleopteran genus. It was erected to accommodate the single species *Platydactylus vieillardii* BAVAY, 1869 to stress its unique character combination that makes it truly a most unusual-looking gecko. Circa 40 years after the description of the first species, ANDERSSON (1908) described a second one, namely *Eurydactylus symmetricus*. Today, *Eurydactylodes vieillardii* and *E. symmetricus* are considered to be the only members of the genus, the monophyly of which is well supported (BAUER 1990), but which is nevertheless „among the least well known of the carphodactyline groups“ (BAUER 1990: 100). Recently, BÖHME & SERING (1997) were able to demonstrate the ability of *E. vieillardii* to squirt a defensive secretion from its tail, a property which was believed before to occur only in some Australian *Diplodactylus* species. As also *E. symmetricus* possesses respective serial openings in its tail, and as these openings are also lateral and paired (vs. unpaired with one medial opening in *Diplodactylus*), this unique behavioural strategy provides at the same time an additional synapomorphy further corroborating the monophyly of *Eurydactylodes*.

In his major revision of carphodactyline geckos, BAUER (1990: 101 f.) distinguishes *E. symmetricus* from *E. vieillardi* by means of the following diagnostic character states: (1) Cruciform patch of raised tubercles on nape; (2) dorsal head scales large, regularly arranged, symmetrical, generally in contact with each other; (3) slit from mouth to ear continuous. Of these, he used character states (1) and (2) also for his key (see also BAUER & VINDUM 1990: 24, BAUER 1994: 70, and BAUER & SADLER 2000).

According to BAUER (1990: 101 f.), the characters proposed by ANDERSSON (1908) and ROUX (1913) to separate the two species are too variable to be reliable. ROUX (1913: 107 f.) summarized ANDERSSON's (1908) and his own observations regarding the differences of *E. symmetricus* as compared with *E. vieillardi* as follows: (1) large, flat,

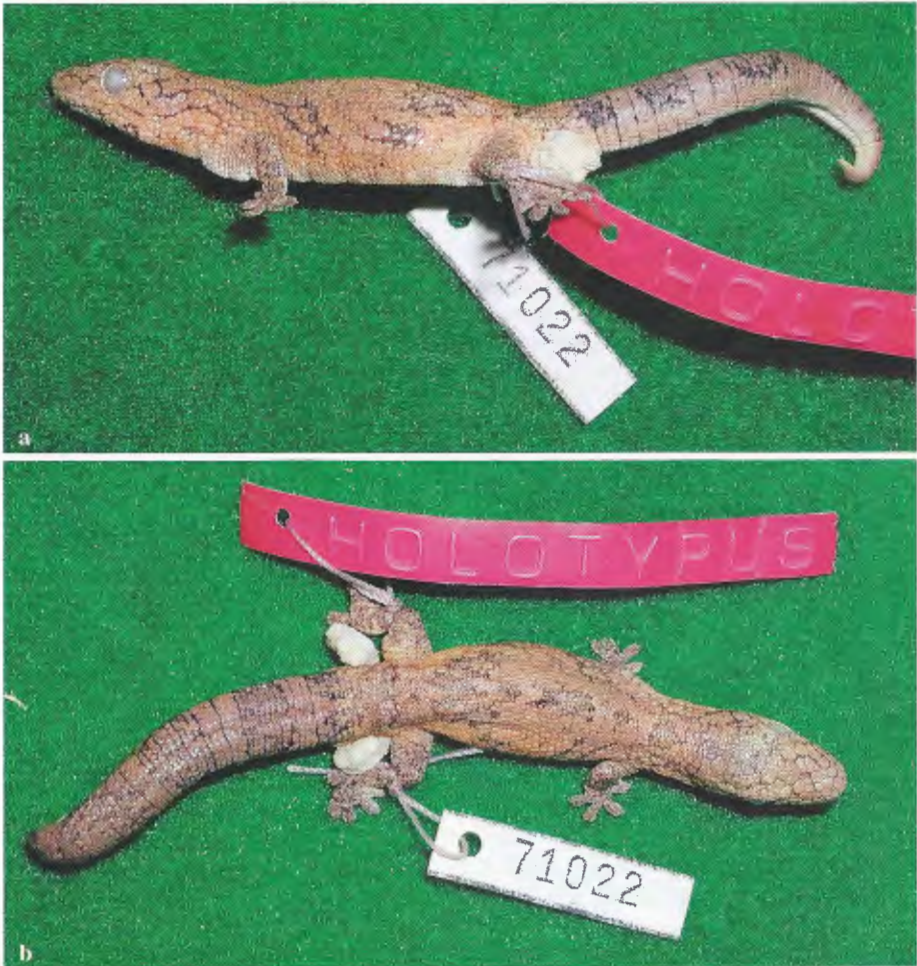


Fig. 1. Holotype of *Eurydactylodes agricolae* sp. nov. (ZFMK 71022). a. lateral view; b. dorsal view.

Holotypus von *Eurydactylodes agricolae* sp. nov. (ZFMK 71022). a. Seitenansicht; b. Dorsalansicht.



Fig. 2. Living male of *Eurydactyloides agricolae* sp. nov.  
Lebendes Männchen von *Eurydactyloides agricolae* sp. nov.



Fig. 3. *Eurydactyloides vieillardii*. Note the irregular, heterogenous head and body sculation.

*Eurydactyloides vieillardii*. Man beachte die unregelmäßige, heterogene Kopf- und Körperbeschuppung.



Fig. 4. *Eurydactyloides symmetricus* climbing. Note the raised tubercles on the nape.

*Eurydactyloides symmetricus* kletternd. Bemerkenswert sind die hochstehenden Tuberkelschuppen auf dem Nacken.

polygonal, symmetrical head shields being in contact to each other (not so on the temple); (2) supraorbital region with three rows of rounded scales, that are much smaller than the head shields; (3) in the middle of nape a group of strongly raised, convex shields (being not always symmetrical, i.e. consequently not necessarily cruciform); (4) postlabial slit continuous with subauricular slit; (5) supralabials only 8 (vs. 10 in *E. vieillardii*). Of these, character states (1) and (5) were used by ROUX (1913: 104) in his identification key. At any rate, three of his characters (1, 3 and 4) are the same as those used by BAUER (1990) to differentiate the two species.

Recently, the senior author was able to collect some specimens of *Eurydactylodes* which were first considered to be *E. symmetricus* (and consequently catalogued as such) as their postlabial slit was continuous with the subauricular slit. However, on closer, subsequent examination, they turned out to combine character states of both *E. vieillardii* and *E. symmetricus*. The suggestive assumption that they might be intergrades between the two species could not be considered further, as they seemed to form a population on their own in New Caledonia, without the presence of any of the two known species at their collection site, and as they established also a breeding colony in Germany. Therefore, they are clearly representing a new, third species of *Eurydactylodes*.

## 2 Results

*Eurydactylodes agricolae* sp. nov. (figs. 1, 2, 5a, 7)

**Holotype:** ZFMK (= Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn) 71022, adult male, circa 20 km north of Koumac, NW New Caledonia, collected by F.W. HENKEL, October 1998.

**Paratype:** ZFMK 71023, adult female, collected with the holotype.

**Diagnosis:** *Eurydactylodes agricolae* sp. nov. (fig. 1, 2) is distinguished from *E. vieillardii* (fig. 3) and *E. symmetricus* (fig. 4) by combining a more homogenous body scalation and a continuous postlabial/subauricular dermal slit (fig. 5a; as in *E. symmetricus*: fig. 5b) with irregular, heterogenous head shields and the lack of raised tubercles in the nape (as in *E. vieillardii*, which has moreover an interrupted postlabial/subauricular slit: fig. 5c).

**Description:** The holotype measures 47 mm snout-vent length and 46 mm tail length. The upper part of the snout is covered by irregular flat, smooth plates which are asymmetrically arranged, with interspersed smaller scales. Eight supralabials on either side of the head. Supraciliar and occipital area of head with smaller scales that pass into the rather homogenous dorsal scalation, without enlarged, raised tubercles on the nape. Lateral body scales larger than middorsals, particularly between tympanum and insertion of foreleg. A continuous deep longitudinal slit in the skin stretching from the supralabials below the eye towards the margin of the tympanum. Mental shield rather narrow, triangular in shape, followed by a median, enlarged postmental, which is surrounded by several smaller postmentals that pass gradually into the fine, granular throat scalation. 9/9 infralabials. Chest and belly scales small, but a bit larger than the gular scales. Together with flank scales and the (only feebly larger) middorsal scales, there are 65 scales around midbody (calculated as average from three counts). There are 12 adhesive lamellae under the 4th toe. Tail prehensile, with regular whorls,

three of which are forming one segment. These segments are further separated by lateral slits which are the evasive ducts of the defensive, poisonous secretion which all members of the genus *Eurydactyloides* can squirt from their tails.

Colour (in preservative) olive-grayish above, with some faint blackish reticulation on the sides of head and neck. The postlabial/subauricular skin fold is bright yellow. Underparts whitish.

**Variation:** The female paratype measures 52 mm snout-vent length, the tail is regenerated. The scalation agrees generally with that of the holotype, the midbody scale count is 60. There are 13 adhesive lamellae under the 4th toe. The regenerated tail shows no regular segmentation into three scale rows-wide whorls, and evasive ducts of the caudal glands are not visible. The colouration is a bit darker than that of the holotype, including some grey mottling in the forepart of the belly and a reddish tinge on the lower surface of the regenerated tail.

The key characters of the new species, namely the combination of irregular head scales with a continuous postlabial/subauricular skin fold, is also invariably present in several additional specimens, which were collected with the holo- and paratype. They are presently kept alive by the senior author and are not designated here as belonging to the type series.

**Distribution and habitat:** The specimens were found only within a gallery forest with dense vegetation (fig. 6) accompanying a river on both sides at a maximum depth of about 50 m each. After these 50 m the vegetation changed abruptly into a natural, savanna-like type, similar to Mediterranean macchias. *Eurydactyloides agricolae* was restricted to the dense, tropical forest-like vegetation and was found at a perch height of 1-2 m.

The geckos were found sitting on the stalks or on the leaves of rather microphyllous plants (fig. 7). In their distribution area they were associated with *Rhacodactylus chahoua* (a new northernmost locality record for this species), *Bavayia cyclura*, *B. validiclavis*, *Lioscincus nigrofasciolatus* and *Caledoniscincus austrocaledonicus*. All species do not seem to have been recorded from this area north of Koumac.

**Etymology:** The specific epithet *agricolae* is the genitive of the latinized patronym of our friend and colleague AARON M. BAUER (in Latin: *agricola*), to whom we wish to dedicate our new species, in recognition of his great contributions to the knowledge of geckos in general and of Pacific geckos in particular.

### 3 Remarks

It is important to note that the new species, though combining characters of the two congeners known before, can certainly not be considered as hybrid form between these two, because:

1. it is forming a constant population of its own, producing also breeding populations in captivity; and
2. it originates from an area in NW New Caledonia, where none of the two other species has been found. Therefore it seems to be the only *Eurydactyloides* species inhabiting that part of the island (Grande Terre) (fig. 8).

As compared with its two congeners *Eurydactyloides vieillardii* and *E. symmetricus*, *E. agricolae* seems to have the highest scale counts around midbody, namely 60-65, versus 46-52 in *E. vieillardii* and 47-55 in *E. symmetricus*, according to our limited

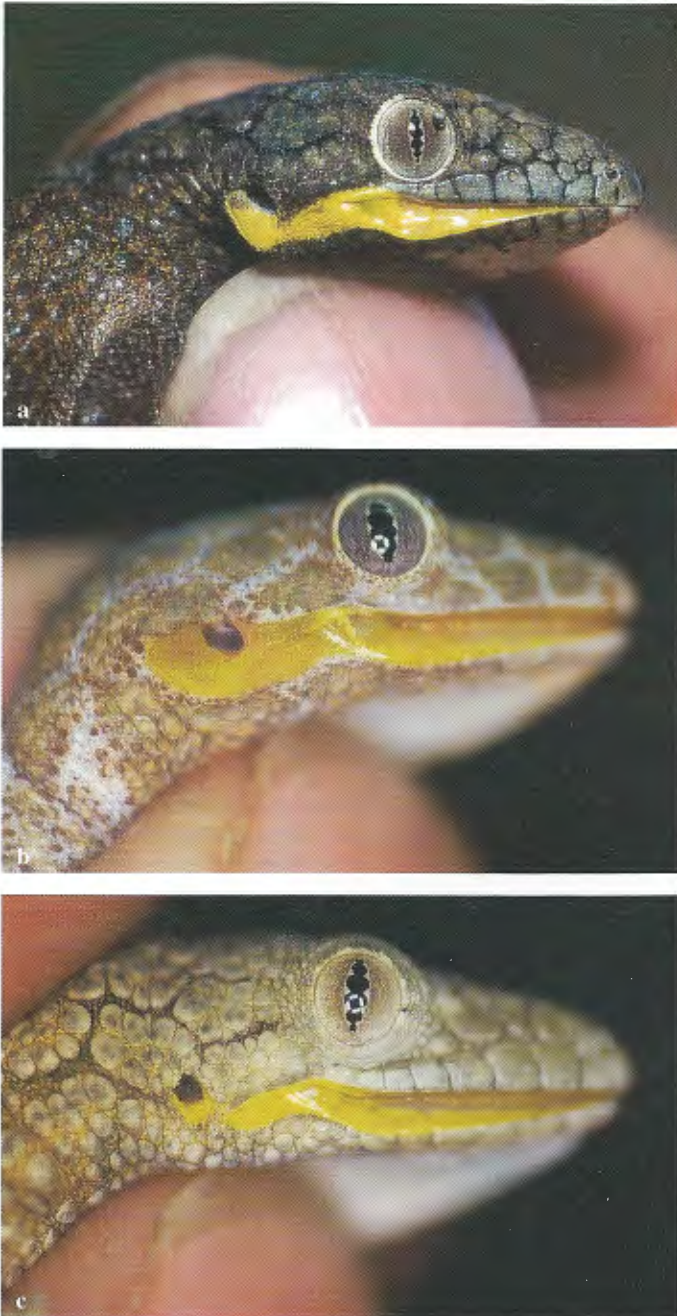


Fig. 5. Lateral views of the heads of the three *Eurydactyloides* species, to show the postlabial/subauricular dermal slits. a. *E. agricolae* sp. nov.; b. *E. symmetricus*; c. *E. vieillardii*.

Seitliche Kopfansichten der drei *Eurydactyloides*-Arten, die die postlabialen/subaurikularen Hautspalten zeigen. a. *E. agricolae* sp. nov.; b. *E. symmetricus*; c. *E. vieillardii*.



Fig. 6. Gallery forest 20 km N of Koumac, habitat at the type locality of *E. agricolae* sp. nov.

Galeriewald 20 km nördlich von Koumac, Habitat an der Typuslokalität von *E. agricolae* sp. nov.



Fig. 7. A couple of *E. agricolae* in the habitat, climbing at night. All photos: F.W. HENKEL.

Pärchen von *E. agricolae* beim nächtlichen Klettern im Habitat. Alle Aufnahmen: F.W. HENKEL.

comparative material. Also the number of adhesive lamellae under the 4th toe seems to be a little bit increased (12-13 vs. 8-10 in *E. vieillardi* and *E. symmetricus*). The holotype of *E. agricolae* exhibits moreover greater and broader evasive exits of the lateral tail glands which are actually narrowing the two anterior scales at their hind margin; a piece of exuvia showed even an epidermal connection deeply inside this tail openings.

However, these differences have to be verified in a much larger material of *Eurydactyloides*. A thorough revision of this peculiar and remarkable carphodactyline genus may even reveal the existence of additional new taxa, which would not be astonishing if the recent taxonomic development in other New Caledonian geckos (first of all *Bavayia*) is considered.

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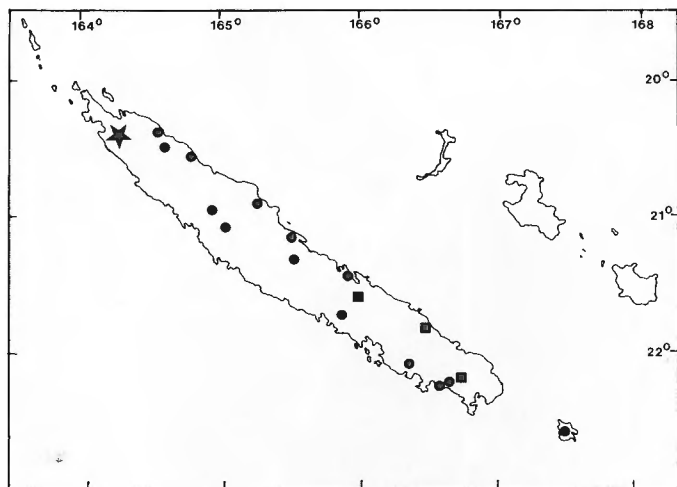


Fig. 8. Map of New Caledonia showing the known distribution of *Eurydactyloides*. Dots: *E. vieillardii*; Squares: *E. symmetricus*; star: *E. agricolae* sp. nov. Modified from BAUER (1997).

Karte von Neukaledonien mit der bekannten Verbreitung von *Eurydactyloides*. Punkte: *E. vieillardii*; Quadrate: *E. symmetricus*; Stern: *E. agricolae* sp. nov. Verändert nach BAUER (1997).

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