ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

(MINISTERIE VAN CULTUUR, RECREATIE EN MAATSCHAPPELIJK WERK)

Deel 53 no. 9 110 11 juli 1978

# AN ANNOTATED REVIEW OF THE SALAMANDER TYPES DESCRIBED IN THE FAUNA JAPONICA

by

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## Abstract

The whereabouts of the salamander types described by Temminck & Schlegel in the Fauna Japonica (1838) are discussed and lectotypes are selected from the syntypes for the following nominal species: *Salamandra naevia* Temminck & Schlegel, *S. unguiculata* Temminck & Schlegel, *S. subcristata* Temminck & Schlegel, *Molge pyrrhogaster* Boie, *S. nebulosa* Temminck & Schlegel, *S. maxima* Temminck & Schlegel, *Triton japonicus* Temminck, *S. Genei* Temminck & Schlegel, *Onychodactylus Schlegeli* Tschudi and *Megalobatrachus Sieboldii* Tschudi. The holotype of *S. pleurodeles* Temminck & Schlegel was located and designated as lectotype of *Pleurodeles waltl* Michahelles. Also the holotype of *S. scutata* Temminck & Schlegel was found.

## Preface

In the past few years I received several questions from a number of foreign colleagues regarding the type-material of salamanders described by Temminck and Schlegel in the part of the Fauna Japonica dealing with reptiles and amphibians. As a list of the type specimens in the herpetological collections of the Rijksmuseum van Natuurlijke Historie does not exist and probably will not be published in the near future, it was deemed useful to prepare a short note on the present subject.

## Introduction

In 1838 the preparation of the 'Reptile' part of the Fauna Japonica by C. J. Temminck and H. Schlegel was completed, publication following in the same year. The book consists of two parts, to which in the RMNH copy a third has been added that does not form an integral part of it. Because this third part also is of importance to herpetology it is taken into account here as well. Thus, we have to deal with the following parts:

1. An introduction ("Préface suivi d'un aperçu historique et physique sur les reptiles du Japon") which was written by Ph. F. von Siebold and dated May 1838. In this part a number of general remarks regarding the reptiles and amphibians is made, the indigenous names as far as known are listed and data on the habits and habitat of the species are provided.

2. The second part entirely deals with the reptiles and amphibians. According to the title page it was written by Temminck and Schlegel, but it was signed on the last page only by Schlegel and dated January 1838. From remarks in Von Siebold's (1838) preface it is clear that Schlegel probably wrote the entire text of the part on reptiles and amphibians alone, with the obliging cooperation of Temminck ("soutenu par la coöperation bienveillante de M. Temminck": p. II), which probably only means that Temminck encouraged Schlegel to do the work. Nevertheless, we have to accept Temminck & Schlegel as the authors of the names discussed below, because they appear as such on the title page of the 'Reptile' part of the Fauna Japonica while in the text there are no data which would lead one to accept Schlegel as the only author, apart from the signature mentioned before. This part was published in three instalments (Holthuis & Sakai, 1970: 75), of which the one containing the amphibians appeared after May 1838. On pages 114-135 five Japanese, two European and one North American salamanders were described. They are the subject of this paper.

3. A review ("Coup d'oeil sur la faune des iles de la Sonde et de l'empire du Japon. Discours préliminaire destiné à servir d'introduction à la Faune du Japon") written by Temminck and dated November 1835, has accidentally been bound together with the RMNH copy of the Reptile part of the Fauna Japonica. Mees (1957) discussed the importance of this part for zoological nomenclature and reached the conclusion that the correct publication date of the "Discours préliminaire" is January 1836.

## Whereabouts of the material

Most of the specimens Temminck & Schlegel used for their descriptions are still present in the collections of the Rijksmuseum van Natuurlijke Historie (RMNH), only partly marked as type-material. The Japanese material was sent to the RMNH from Japan by Von Siebold and by H. Bürger between 1827 and 1834 (Holthuis & Sakai, 1970: 38). The European salamanders were sent to Leiden by F. J. Cantraine and by C. W. Michahelles, whereas the North American salamander was donated to the RMNH by G. Troost. Since then, some of the Japanese material apparently has been donated to or exchanged with other museums.

1. In the files of the RMNH is a handwritten list in French: "Échange

des Reptiles". The list is divided into two columns of which the right hand one is headed "Cédé au Musee de Paris février 1838" and includes the following record:

| | | | |
|---|---|---|---|
| "Salamandra | naevia | Japon | 1 |
| „ | nebulosa | id | 2 |
| „ | subcristata | id | 2" |

The list was also dated February 1838 and signed (and written) by H. Schlegel. This material apparently was part of the respective type-series and was sent to Paris after Temminck & Schlegel had completed their manuscript for the Fauna Japonica. Judging by a handwritten list in the Muséum nationale d'Histoire naturelle (MNHNP) (M. Thireau in lit.), the Paris Museum received in April 1838 two specimens of *Salamandra subcristata* and one of *S. naevia,* all from Japan and sent by the Leiden Museum. This material is undoubtedly the same as that mentioned in the Leiden list and therefore can be regarded as part of the type-series. Especially since the only material Leiden received from Japan before 1850 was that sent by Von Siebold and Bürger.

Moreover, in the RMNH files there is another handwritten list in French, (very likely also by Schlegel), but unfortunately undated and unsigned. It has the following heading: "Catalogue des objets d'histoire naturelle cédes sous titre d'echange de la part du Musee des Pays Bas à celui de Paris", consisting of six unnumbered pages. On the sixth page are listed:

| | | | |
|---|---|---|---|
| "Salamandra | pyrhogaster | Japon | 4 |
| „ | n sp | „ | 2 |
| La grande Salamandre du Japon | | | 1 |
| Molge unguiculata | | | 3" |

I was unable to discover which species is meant by "[Salamandra] n sp" but possibly this concerns either *S. naevia* or *S. nebulosa.* It seems most likely that this second list refers to another shipment than the one of February 1838 and, because of the notation "n sp" and the other names used, I am inclined to think that this shipment was sent to Paris before the Fauna Japonica part dealing with the salamanders was published in 1838. However this may be, part of this material apparently was lost, because in 1854 Duméril, Bibron and Duméril, judging by their descriptions, only had at their disposal one specimen of each of the following species, all acquired from the Leiden Museum: *Ellipsoglossa naevia* (p. 100), *E. nebulosa* (p. 101), *Onychodactylus Schlegeli* (p. 115) and *Tritomegas Sieboldii* (p. 164). From their text it seems also evident that they did not have at hand specimens of *Triton sub-cristatus*

(p. 141). However, according to the data in the files of the RMNH six specimens of this last species were sent to Paris and according to the Paris files at least two of these were received. At the moment the collections of the MNHNP contain at least five specimens (reg. nos. 4711 (2 ex.) and 4712 (3 ex.), M. Thireau in lit.). It is not clear what happened to the other specimens.

2. In the RMNH files there are two other handwritten lists in French by Schlegel, concerning an exchange with the Berlin Museum. One is written in blue ink on a single sheet of paper and is divided into two columns; the handwriting is small and slovenly and the list covers both sides of the sheet. Apparently this is a rough draught. The other list is written in black ink, consists of eight pages of which six have been written on; there is only one column per page and the handwriting is larger and much neater. The title of both lists is: "Catalogue des reptiles et poissons cédés sous titre d'échange au Musee de Berlin de la part de celui des Pays Bas — en echange d'un envoi fait en 1843". The lists are dated 26 March 1849 and were signed by Schlegel; their contents are identical. On p. 1 both of the draught and of the neat copy are listed among other species:

| | | | |
|---|---|---|---|
| "Salamandra | nebulosa | Japon | 2 |
| „ | naevia | — | 2 |
| „ | unguiculata | — | 3" |

3. No data concerning an exchange with or donation to the British Museum (Natural History) (BMNH) in London could be found in the RMNH files, though it is evident that material from Leiden was sent to London. Gray (1850) mentions the following specimens received from the Leiden Museum and originating from Japan: 3 *Cynops pyrrhogaster* (p. 25), 2 *Hynobius nebulosus* (p. 30); 4 *Molge striata* (p. 31), 1 ad., 1 larva *Onychodactylus japonicus* (p. 33) and 1 (skin + skeleton) *Sieboldia maxima* (p. 52). Boulenger (1882), dealing with the same collection, mentions 4 *Molge pyrrhogastra* (p. 20), 2 *Hynobius nebulosus* (p. 33), 4 *Hynobius naevius* (p. 32) and 1 *Megalobatrachus japonicus* (p. 81) as originating from the Leiden Museum. When comparing Boulenger's data with those of Gray it soon becomes clear that Boulenger's specimens a and b of *Onychodactylus japonicus* must be the same ones as those mentioned by Gray and received from Leiden.

4. Barbour & Loveridge (1929: 334) report a "cotype" of *Salamandra naevia* Schlegel (MCZ 7365) which the Museum of Comparative Zoology (MCZ) obtained via an exchange with the BMNH. The same authors (1946: 188) report "cotypes" of *Salamandra subcristata* Schlegel (MCZ 21327) and of *S. unguiculata* Schlegel (MCZ 21320) obtained through exchange from

the RMNH in 1935. In the RMNH files there is a letter (dated August 22, 1935) of A. Loveridge to L. D. Brongersma confirming the receipt of these specimens in August 1935. Although it is not indicated from which register number they came, it is clear from the data provided by Barbour & Loveridge (1946) that MCZ 21327 comes from RMNH 2397 and MCZ 21320 from RMNH 2290.

5. Stejneger (1907) reports three specimens of *Hynobius naevius* of the Copenhagen Museum from "Japan" that may possibly have been received from the RMNH (p. 28) and one of *H. nebulosus* which "was received in 1847 probably from Schlegel in Leiden, and is labelled "Japan." " (p. 32). On the same page the author says, when discussing the habitat, that the original specimens were "collected by von Siebold at Mits yama, near Nagasaki. A specimen from the latter place is also in the Senckenberg Museum". I could not find any data about transactions concerning these species with the Copenhagen or Senckenberg Museum in the RMNH files.

6. According to Dunn (1923: 482) "specimens of the original series [of *Salamandra naevia*] have been widely distributed". The same author (p. 497), under the heading "TYPE" says about *Salamandra nebulosa*: "In Leiden Rijksmuseum, collected by von Siebold (No type was specified and specimens from the large original series are in the British Museum, the Senckenberg Museum and the Copenhagen Museum).". Apparently Dunn based himself on the data provided by Stejneger (1907) but did not include the reserve Stejneger had built in in his statements about the provenance of the specimens in Senckenberg and Copenhagen. Therefore I prefer to treat this material as not being part of the type-series, until the opposite has been confirmed beyond doubt.

7. Dunn (1927) also reports a "cotype of [*Hynobius*]*nebulosus*" in the collections of the California Academy of Sciences. I could not trace when and how this specimen came to the CAS. There are no data on a transaction concerning this specimen in the RMNH files.

## Species accounts

### **Hynobius naevius** (Temminck & Schlegel)

*Salamandra naevia* Temminck & Schlegel, 1838: 122, pl. IV figs. 4-6, pl. V figs. 9-10; Schlegel, 1837-1844: 122, pl. 39 fig. 4; Barbour & Loveridge, 1929: 334.

*Pseudosalamandra naevia*: Tschudi, 1838: 92.

*Molge striata* Gray, 1850: 31.

*Ellipsiglossa naevia*: Duméril, Bibron & Duméril, 1854: 100.

*Hynobius naevius*: Boulenger, 1882: 32; Van Lidth de Jeude, 1898: 6; Stejneger, 1907: 26; Dunn, 1923: 482.

The RMNH collection contains the following pertinent material:

| | | | | | |
|---|---|---|---|---|---|
| RMNH | 2305 | 2 larvae | in spirits | v. Siebold | Japan |
| RMNH | 2306 | 11 specimens (3 hgr., 8 ad) | in spirits | v. Siebold | Japan |
| RMNH | 18559 | 1 skeleton of adult | dry | | Japan |

I checked this material against the description and the plates in the Fauna Japonica and found that adult specimen RMNH 2306A has been depicted in pl. IV figs 4-6 and that RMNH 18559 served as basis for the drawings of the skull in pl. V figs. 9-10. It should be remarked here that pl. IV figs. 4 and 5 are true figures of respectively the left side and the dorsal surface of the head of RMNH 2306A, but that fig. 6 is a reversed image of the throat. The figures are life-size and reasonably well in agreement with the specimen. I here select RMNH 2306A as lectotype of *Salamandra naevia* Temminck & Schlegel, 1838. The specimen is adult, has a snout-vent length of 81 mm, a tail length of 55 mm and a total length of 136 mm. The remaining seven adults and three halfgrown specimens in RMNH 2306, the two larvae in RMNH 2305, the skeleton (RMNH 18599), MCZ 7365 and the material in the museums of London, Paris and Berlin thus automatically become paralectotypes. The skeleton (RMNH 18559) has been reported on before by Van Lidth de Jeude (1898) in the "Catalogue osteologique" as *Hynobius naevius*: "a. Squelette (10,5 cm.). Japon.".

It is impossible to provide a more precise locality for the material discussed here. Von Siebold (1838), in his introduction, says that this species inhabits the islands of Nippon and Sikok (p. XVI) (= Hondo and Shikoku). Temminck & Schlegel (1838) in their description (p. 123) say that it inhabits the same places as their *Salamandra unguiculata*, which occurs "dans les contrées montueuses des îles Nippon et Sikok, particulièrement dans les provinces Sagami, Sinano, Tanba, Tazima et Tosa, situées entre les 33 et 36 degrés de latitude boréale." This should be considered the type locality.

The specimen figured in Schlegel (1837-1844) may not belong to the type-series. The figure was drawn after a living specimen in Japan. None of the RHMN paralectotypes bears any resemblance to the specimen. So, it either was not sent to Europe, or else it was among the material yielded to other museums.

### **Onychodactylus japonicus** (Houttuyn)

*Salamandra unguiculata* Temminck & Schlegel, 1838: 123, pl. V figs. 1-6; Barbour & Loveridge, 1946: 188.

*Onychodactylus Schlegeli* Tschudi, 1838: 92; Duméril, Bibron & Duméril, 1854: 115.

*Onychodactylus japonicus*: Gray, 1850: 33; Boulenger, 1882: 35; Van Lidth de Jeude, 1898: 7.

The RMNH collection contains the folowing pertinent material:

| | | | | | |
|---|---|---|---|---|---|
| RMNH | 2289 | 20 adults | in spirits | v. Siebold | Japan |
| RMNH | 2290 | 8 specimens (5 ♀♀, 3 hgr.) | in spirits | Bürger | Japan |
| RMNH | 2291 | 7 larvae | in spirits | v. Siebold | Japan |
| RMNH | 2292 | 4 specimens (2 ♀♀, 2 ♂♂) | in spirits | v. Siebold | Japan |
| RMNH | 18560 | 1 skeleton of adult | dry | | Japan |

All material in spirits has been indicated as "type material", although only RMNH 2289 is provided with a more recent label saying "typen v. *Salamandra unguiculata* Schleg.". All material (both that in spirits and the skeleton) agrees in bearing old, red-margined labels on which the name "*Salamandra unguiculata* Schleg." is written. There is no doubt that all specimens listed above were part of the original type series of Temminck & Schlegel. Comparison with plate V of the Fauna Japonica gave the following results: RMNH 2292A, an adult ♂ (snout-vent length ± 60 mm, tail length ± 77 mm, total length ± 137 mm) has been depicted in fig. 1; RMNH 2292B, an adult ♀ (snout-vent length 70 mm, tail length 71 mm, total length 141 mm), of which the right foreleg has been severed from the body, is pictured in fig. 2; RMNH 2292C, an adult ♂ (could not be measured because of its poor condition) is depicted in fig. 3; RMNH 2291A, the largest larva (snout-vent length 47 mm, tail length 47 mm, total length 94 mm) has been depicted in fig. 4 and RMNH 18560 served as basis for the drawing of the skull (figs. 5 and 6). Tschudi (1838) based his description of *Onychodactylus Schlegeli* on the same material as Temminck & Schlegel used for their description of *Salamandra unguiculata.* Taking into account the above data, I select RMNH 2292A as the lectotype of both *Salamandra unguiculata* Temminck & Schlegel, 1838 and *Onychodactylus Schlegeli* Tschudi, 1838. The remaining specimens in RMNH 2292, the specimens in RMNH 2289, 2290, 2291, 18560, MCZ 21320 and the specimens in the collections of London, Paris and Berlin thus automatically become paralectotypes of these two names. The skeleton (RMNH 18560) has been reported on before by Van Lidth de Jeude (1898) in the "Catalogue ostéologique" as *Onychodactylus japonicus*: "a. Squelette (12,5 cm.) Japon. *Salamandra unguiculata.*".

It should be mentioned here that the specimens in RMNH 2289 are dried specimens with a large hole in the head. Apparently these specimens were used for pharmaceutical purposes as described by Temminck & Schlegel on p. 125. As these authors specifically mention the salamanders from the "monts Facone" as being very famed as a medicine, I think it not too far-fetched to assume that these dried specimens (RMNH 2289) are from that region. According to Temminck & Schlegel the species originates from "les

contrées montueuses des îles Nippon et Sikok, particulièrement dans les provinces Sagami, Sinano, Tanba, Tazima et Tosa, situées entre les 33 et 36 degrés de latitude boreale." This should be considered the type locality of *Salamandra unguiculata* Temminck & Schlegel.

### **Cynops pyrrhogaster** (Boie)

*Molge pyrrhogaster* Boie, 1826: 215.
*Salamandra subcristata* Temminck & Schlegel, 1838: 125, pl. IV figs. 1-3, pl. V figs. 7-8; Schlegel, 1837-1844: 122, pl. 40 figs. 1-3; Barbour & Loveridge, 1946: 188.
*Cynops subcristatus*: Tschudi, 1838: 94.
*Cynops pyrrhogaster*: Gray, 1850: 25.
*Triton sub-cristatus*: Duméril, Bibron & Duméril, 1854: 141.
*Molge pyrrhogastra*: Boulenger, 1882: 20; Van Lidth de Jeude, 1898: 6.

The RMNH collection contains the following pertinent material:

| | | | | | |
|---|---|---|---|---|---|
| RMNH | 2397 | 17 specimens (10 ♀♀, 7 ♂♂) | in spirits | Bürger | Japan |
| RMNH | 18561 | 1 skeleton of adult | dry | ? | Japan |

This material was checked against the description and the drawings in the Fauna Japonica of *Salamandra subcristata* and found to agree very well. Specimen RMNH 2397A agrees completely with pl. IV figs. 1-3 (life size) and the skull of RMNH 18561 apparently served as the basis for pl. V figs. 7-8 (three times enlarged). RMNH 2397A is here selected as lectotype of *Salamandra subcristata* Temminck & Schlegel, 1838. It is an adult ♀ with a snout-vent length of 58 mm, a tail length of 55 mm and a total length of 113 mm. The remaining specimens in RMNH 2397, RMNH 18561, MCZ 21327 and those in the museums of London and Paris thus automatically become paralectotypes The skeleton has been reported on before by Van Lidth de Jeude (1898) in the "Catalogue ostéologique" as *Molge pyrrhogastra*: "a. Squelette (10 cm.). Japon. *Salamandra subcristata.*"

Temminck & Schlegel only record that this species abounds in Japan. Von Siebold (1838: XVI) says that this species has been observed in southern Japan, in the environs of Nagasaki. The type locality of *S. subcristata* Temminck & Schlegel, therefore is restricted here to Nagasaki.

The figures in Schlegel (1837-1844) were made after those of 1838, but the colours were added on the basis of several living specimens (Schlegel, 1837-1844: 123).

The type specimens of *Molge pyrrhogaster* Boie, collected by J. Cock Blomhoff in Japan and described by Boie in 1826, apparently formed part of Cock Blomhoff's private collection, of which at least a part, including the reptiles and amphibians, was sold to the museum of the Amsterdam Zoological Garden "Artis Natura Magistra" (Maitland, 1863: LIII; Engel, 1938: 266).

The material of this museum later was incorporated in the collections of the Zoological Museum Amsterdam (ZMA). When searching this collection I found a bottle (ZMA 5550) containing four salamanders, labelled *Cynops pyrrhogaster* and originating from "Japan", with no further data. Obviously this sample consisted of two batches, the two largest specimens having retained their colour pattern fairly well, the two smallest specimens being badly discoloured and nearly uniformly creamish, with only traces of the original colour pattern. Upon closer examination the smallest specimen proved to be a juvenile *Hynobius nebulosus*. The other discoloured (halfgrown) specimen agrees fairly well with the measurements given for one specimen by Boie (1826) in his original description. According to him this specimen had a total length of 3″ 19‴ of which 1″ 9‴ were accounted for by the tail. When assuming that Boie used the Rhineland foot as standard (1″ = 26.158 mm, divided into 12 lines of each 2.18 mm) than his specimen in the metric system would have measured 100.57 mm. The specimen in ZMA 5550 has a total length of 104 mm, of which 51 mm are accounted for by the tail (measured from distal margin of cloaca) (by Boie's measurement it would be 46 mm). These data regarding the length and the statement that the specimens Boie saw were only halfgrown are the only clues to pin-point a specimen. Though there is no direct evidence that this specimen (which now has been reregistered as ZMA 7286) comes from the Cock Blomhoff collection, there is at least circumstantial evidence for such an assumption:

1. The discolouration suggests a long period of preservation in alcohol.
2. I succeeded in finding one more specimen of the Cock Blomhoff collection in the ZMA collection, viz. a snake, *Agkistrodon halys blomhoffii* (Boie) (ZMA 15179). Although this specimen too does not bear any indication that it comes from the Cock Blomhoff collection, it is perfectly evident that it did, because its scale counts and its measurements exactly agree with those of the single specimen of this species that Boie examined. Thus, ZMA 15179 is the holotype of *Trigonocephalus Blomhoffii* Boie, 1826.

On the basis both of this circumstantial evidence and of the fairly good agreement of its measurements with one of the specimens mentioned by Boie, I here select ZMA 7286 as the lectotype of *Molge pyrrhogaster* Boie, 1826. The type locality is "Japan", but it is here restricted to the environs of Nagasaki.

### **Hynobius nebulosus** (Temminck & Schlegel)

*Salamandra nebulosa* Temminck & Schlegel, 1838: 127, pl. IV figs. 7-9.
*Hynobius nebulosus*: Tschudi, 1838: 94; Gray, 1850: 30; Boulenger, 1882: 33.
*Ellipsoglossa nebulosa*: Duméril, Bibron & Duméril, 1854: 101.

The RMNH collection contains the following pertinent material:

| | | | | |
|---|---|---|---|---|
| RMNH 2307 | 1 larva | in spirits | Bürger | Japan |
| RMNH 2309 | 20 specimens | | | |
| (9 ♂♂, 3 hgr. ♂♂, 6 ♀♀, 2 juvs.) | | in spirits | v. Siebold | Japan |

Comparison of this material with the description and the figures in the Fauna Japonica learns that RMNH 2307A (adult ♀, snout-vent length 64 mm, tail length 45 mm, total length 109 mm) has been depicted in pl. IV figs. 7-9 (life size); therefore this specimen is here selected as lectotype of *Salamandra nebulosa* Temminck & Schlegel, 1838. The remaining specimens in RMNH 2309, RMNH 2307 and the specimens in the collections of London, Paris and Berlin, thus automatically become paralectotypes.

Von Siebold (1838: XVI) reports this species from the environs of Nagasaki. Temminck & Schlegel (1838) give a more precise locality: "monts Mits jama (les trois monts) situés dans les environs de Nagasaki." They also noted that Von Siebold observed larvae of this species in a "source au pied du mont Ho kwa san près de Nagasaki." Apparently this second locality is not applicable to the single larva in our collection (RMNH 2307) because it was collected by Bürger. The specimens in RMNH 2309 evidently originate (at least partly) from the Mits jama in the environs of Nagasaki and this is the correct type locality of *Salamandra nebulosa* Temminck & Schlegel, 1838.

### **Andrias japonicus** (Temminck)

*Triton japonicus* Temminck, 1836: XXVI.
*Salamandra maxima* Temminck & Schlegel, 1838: 127, pls. VI-VIII.
*Megalobatrachus Sieboldii* Tschudi, 1838: 96.
*Sieboldia maxima*: Gray, 1850: 52.
*Tritomegas Sieboldii*: Duméril, Bibron & Duméril, 1854: 164.
*Megalobatrachus japonicus*: Boulenger, 1882: 81.
*Megalobranchus maximus*: Van Lidth de Jeude, 1898: 7.
*Andrias scheuchzeri japonicus*: Westphal, 1958: 25.

The RMNH collection contains the following pertinent material:

| | | | | |
|---|---|---|---|---|
| RMNH 2392 | 1 juvenile | in spirits | v. Siebold | Japan |
| RMNH 2394 | 1 adult | in spirits | v. Siebold | Japan |
| RMNH 18562 | 1 skeleton of adult | dry | | Japan |

The juvenile specimen RMNH 2392 agrees very well with the description and the figures of *Salamandra maxima* Temminck & Schlegel in pl. VI of the Fauna Japonica. The figures in pl. VI are no reversed images, but agree with the specimen as it is. The only inconsistency is in the number of toes on the right foot. In figs. 1 and 2 of pl. VI the left foot bears five, the right foot

only four toes. This agrees with the explanation of the plate (p. 137) in which is stated that this juvenile is aberrant in having only four toes on the right foot. When checking RMNH 2392 it is immediately evident that a mistake was made in the description and that it is the left foot that bears only four toes. The figures in pl. VIII are all made after RMNH 18562 (life size) except fig. 2, which was drawn after a larger specimen. This skull could not be found in our collections and apparently already had been removed before 1898, because Van Lidth de Jeude (1898) in the "Catalogue ostéologique" only reported the skeleton as *Megalobranchus maximus*: "a. Squelette (68 cm.). Japon.", listing no other material. Possibly the skull in fig. 2 belongs to the specimen in London.

RMNH 2394 is not the specimen figured in pl. VII, which was made after a living specimen of which the outer toes had been worn away as can clearly be seen on the plate. RMNH 2394 has the hands and the left foot damaged. The right foot is intact and shows five distinct toes, thus excluding the possibility that this specimen is the one that was kept alive. Concerning the specimen kept alive, Temminck & Schlegel state (p. 128) that it came to Europe in 1829. This seems incorrect. The specimen was taken to Europe alive by Von Siebold, who left Japan on December 29, 1829 (Holthuis & Sakai, 1970: 32) with two living specimens, one of which was eaten by the other. According to a handwritten list, "Catalogue des animaux vivant rapportés par Mr. v. Sieboldt de Japon et parvenue au Musée en bon état le 23 Juillet", signed by H. Schlegel and dated "23 Juillet 1830" (files RMNH) the surviving specimen (*"Triton japonicus"*) only arrived in Leiden on 23 July 1830, together with several other living animals (e.g. four monkeys, not one as stated by Holthuis & Sakai, 1970: 62). This specimen was kept alive for 10 years in a tank in the RMNH from 1830 to 1840 (Portielje & Abramsz, 1922; Schlegel, 1872) and then sent to the Amsterdam Zoological Garden "Artis Natura Magistra" on a loan basis (Schlegel, 1872). The specimen lived there till June 3, 1881 (Kerbert, 1904; Portielje & Abramsz, 1922). It is unknown what happened to it after its death. Apparently it was not returned to Leiden as agreed upon, because it is not present in the collections of the RMNH, or in those of the Zoological Museum Amsterdam, which had close ties with Natura Artis Magistra. Possibly it was destroyed after its death. Of the specimen figured in pl. VII there is a similar but coloured copy in the RMNH. It shows that in life the specimen was brown with large black spots, as described by Temminck & Schlegel (1838: 130).

Temminck based his short but valid description of *Triton japonicus*, which has priority over *Salamandra maxima* Temminck & Schlegel, on the same material as used by Temminck & Schlegel for their extensive description.

Tschudi (1838) based his description of the genus *Megalobatrachus* exclusively on material in the Leiden museum, because at the time no other recent material of that genus than that in Leiden was available. Tschudi's *M. Sieboldii* apparently is only based on the description of *Salamandra maxima* in the Fauna Japonica. In order to promote stability in nomenclature, I select as lectotype of *Triton japonicus* Temminck, 1836, of *Salamandra maxima* Temminck & Schlegel, 1838 and of *Megalobatrachus Sieboldii* Tschudi, 1838, the juvenile specimen RMNH 2392. Thus, RMNH 2394, RMNH 18562 and the specimens in London and Paris become automatically paralectotypes of these three nominal species.

The skeleton has been reported on by Van Lidth de Jeude (1898) (see above) and by Westphal (1958).

From the description by Temminck & Schlegel (1838: 135) and from Von Siebold's introduction (1838: XV) it is clear that the first specimen of this species was obtained in Sakanost'a, a small village at the foot of the "mont Souzouga yama à 15 *Ri* environ à l'est de Miyako" and that this specimen originated from these mountains (p. 135). Probably this was the same specimen mentioned by Holthuis & Sakai (1970: 66) which was caught on March 27, 1826 by Choan Minato, a pupil of Von Siebold. The mountains are here called "Suzuka" and are in the province of Omi, "on the way from Tsuchiyama to Sakanoshita". It is not clear which of the specimens of the type series is from that locality, but it seems prudent to take this locality as the type locality. Other localities mentioned by Temminck & Schlegel (1838) are Ohosaka and Mijako, where Von Siebold saw this species offered for sale. These places cannot be considered type localities.

Apart from the five Japanese salamanders, Temminck & Schlegel (1838) also described a few other salamanders in the introductory part of the section dealing with this group (pp. 115-121). Of these several were new to science or provided new synonymes of older names and for convenience's sake they are dealt with here as well.

**Hydromantes g. genei** (Temminck & Schlegel)

*Salamandra Genei* Temminck & Schlegel, 1838: 115; Schlegel, 1837-1844: 122, pl. 39 figs. 5-7.

The RMNH collection contains the following pertinent material:

RMNH 2296 7 specimens (1 ♂, 3 ♀♀, 3 hgr.) in spirits Sardinia Cantraine

Temminck & Schlegel (1838) gave a short but useful and valid description of this species on the basis of a series of seven specimens received from Sardina through the courtesy of Professor F. J. Cantraine. The smallest

specimen was said to be "un pouce et demi" long, without showing any traces of gills, the largest specimen with a length of "trois pouces et demi" to them seemed to be of "moyen age". The largest specimen upon examination turned out to be an adult female with a snout-vent length of 47 mm and a missing tail. The next largest specimen is an adult male (snout-vent length 46 mm, tail length 35 mm, total length 81 mm) in breeding condition with a distinct mental gland and a slightly protuberant cloacal region. Most likely this was the specimen that was pictured by Schlegel (1837-1844), the only lead being that its total length agrees with that of the figure. Nothing is left of the pattern indicated in the figures. The smallest specimen in the batch has a total length of 37 mm and thus agrees well with the "un pouce et demi" mentioned in the description. Apparently the specimens in RMNH 2296 are the syntypes of *Salamandra Genei* Temminck & Schlegel, 1838 and I here select RMNH 2296A, the adult male, as the lectotype. The remaining specimens in RMNH 2296 automatically become paralectotypes.

### **Pleurodeles waltl** Michahelles

*Pleurodeles waltl* Michahelles, 1830: 195.
*Salamandra pleurodeles* Temminck & Schlegel, 1838: 117; Schlegel, 1837-1844: 122, pl. 39 figs. 2-3.

The RMNH collection contains the following pertinent material:

RMNH 2379 1 specimen (adult ♀) in spirits Spain Michahelles

This specimen was the only one available to Temminck & Schlegel in 1838. It agrees with the description of *Salamandra pleurodeles* by Temminck & Schlegel (1838) and with the figures published by Schlegel (1837-1844). Thus, this specimen (RMNH 2379) is the holotype of *Salamandra pleurodeles* Temminck & Schlegel, 1838, of which the type locality is "southern Spain". From Michahelles' (1830) description it is clear that he possessed several specimens and it seems likely that RMNH 2379 formed part of it. As I do not know of any former lectotype designation, it seems useful to select RMNH 2379 also as the lectotype of *Pleurodeles waltl* Michahelles, 1830 of which the type locality is Chiclana, southern Spain.

### **Hemidactylium scutatum** (Temminck & Schlegel)

*Salamandra scutata* Temminck & Schlegel, 1838: 119; Schlegel, 1837-1844: 123, pl. 40 figs. 4-6.
*Hemidactylium scutatum*: Tschudi, 1838: 94.

The RMNH collection contains the following pertinent material:

RMNH 2301 1 specimen in spirits Tennesee Troost

This specimen agrees completely with the data and figures published by

Temminck & Schlegel (1838) and by Schlegel (1837-1844) and is the holotype of *Salamandra scutata* Temminck & Schlegel, 1838. The type locality is Nashville, Tennessee, U.S.A. and the type was collected by G. Troost. Tschudi (1838) also reported on this specimen.

## Acknowledgements

I thank my colleague Dr. L. B. Holthuis for his help in searching the RMNH files and for his sound advice on historical matters.

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