Fissidentalium (Compressidentalium) pseudohungerfordi n. sp.,
a well known undescribed scaphopod in the group of
Fissidentalium (Compressidentalium) hungerfordi (PILSBRY & SHARP 1897)
(Mollusca: Scaphopoda).

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1Cismar and 2Rotterdam

Abstract: A huge number of shells belonging to the group which traditionally was called Fissidentalium
(Compressidentalium) hungerfordi (PILSBRY & SHARP 1897) was analysed. By comparison with the original diagnoses and
pictures of the types three species were distinguished of which one was discovered to be unknown. Most of the specimens studied
belong to this new species Fissidentalium (Compressidentalium) pseudohungerfordi n.sp. which can easily be distinguished by
the lower number of ribs. Only shells from the South China Seas and some from Japanese waters could be assigned to F. hungerfordi.

Introduction: The variability of the bright yellow or orange coloured scaphopods from Eastern and
Southeastern Asia has confused us for many years. When starting the intesner research on
“Fissidentalium hungerfordi”-like scaphopods, the first aim (SAHLMANN 2015) was to clarify the status
and distribution of F. sibogae BOISSEVAIN 1906. This analysis gives reason to have a closer look to the
remaining specimens. Differences in rib number, rib shape and overall shape are obvious on a second
look. The shells from South China Seas and some shells from Japanese waters could be attributed to fit
with the original diagnosis of F. hungerfordi as given by SOWERBY (1889) and PILSBRY & SHARP (1897),
whereas especially all F. hungerfordi-like shells from Philippine waters seem to be different (SAHLMANN
& WIESE 2015).

Having already observed the first differences in an early stage of the research more than a decade ago,
in the meantime a large number of these comparably uncommon species were assembled to verify the
stability of the grouping. Now more than 100 specimens of the species around Fissidentalium hungerfordi
could be studied, more than 70 of them different from the known species F. hungerfordi and F. sibogae.
The genus Fissidentalium still needs systematic clarification. Whether all species regardless their
dimensions and shape of aperture should be lumped together, or the species with a more or even less
compressed shell should be separated as belonging to Compressidentalium HABE 1963, used as a
subgenus or even in generic rank, as it was done by SCARABINO (1995), is still open to discussion. At the
moment, we prefer to use Compressidentalium as a subgenus of Fissidentalium.

Material: Specimens of shells of the group of Fissidentalium hungerfordi from the scaphopod
collection of the “Haus der Natur – Cismar” (HNC) and the private collection of JORDY VAN DER BEEK
(JvdB), were analysed. The intense discussions with our friend ARIE FRANS DE JONG during the
Scaphopod Workshops in Cismar were of great help to clarify the status of the specimens.

Fissidentalium (Compressidentalium) pseudohungerfordi n. sp.

Diagnosis: Shell straight, slightly curved in the posterior part if not truncated, shell obviously
increasing towards aperture; about 27 (16-36) ribs near the mouth, about 11 to 26 ribs near the apex (near
the anterior end of the slit). Intercalation (addition of secondry ribs) starts near the apex with finer
additional riblets that become more or less identical to the primary ribs. Ribs may vary from flat to
elevated, ribs of variable size at dorsal side, interstices as wide as the ribs with a very finely cancellated
sculpture. Apex with a narrow slit of considerable length, slit sometimes notch-like or absent, due to the
degree of truncation. Colour cream or light to bright orange with some lighter or darker bands, ventral
side most times less coloured, colour tends to fade with time, dead shells taken from the sediment often in shades of uniform cream or brown. Ventral and dorsal side of the aperture convex in shape. Depending on the prominence of the ribs the aperture is mostly obviously crenulated. In section, shell towards the mouth compressed dorsoventrally to an oval of various degree.

The total length is up to more than 90 mm, the mouth up to 13.7 mm x 11.1 mm. The shells studied weigh from 0.8 g to 5.2 g, the average weight per length is 0.33 g/cm.

**Etymology:** The hitherto overlooked new species was named referring to the closely allied and confused species *F. (C.) hungerfordi* with its name giving person RICHARD HUNGERFORD and pointing out the evidence of a cryptic species

**Type locality:** Off Bohol Island, Philippines

**Range:** Philippines, Indonesia, New Caledonia, Japan (Tosa Bay area).

**Habitat:** Depths from 30 m to 350 m, probably also in greater depths.

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**Type material and figures:**

**Holotype:** HNC 84465a, Philippines, Bohol Island, collected by local fishermen,

- Length (L) = 59.6 mm, aperture width (Aw) = 8.5 mm, aperture height (Ah) = 6.9 mm, 1.18 g, Pl. 10

**Paratype 1:** HNC 84465b, Philippines, Bohol Island, collected by local fishermen,

- L = 77.3 mm, Aw = 11.6 mm, Ah = 9.6 mm, 3.8 g, Pl. 11

**Paratype 2:** HNC 75151, Philippines, Siquijor, 150 m, L = 59.0 mm, Aw = 8.9 mm, Ah = 7.6 mm, 1.10 g, Pl. 12

**Paratype 3:** HNC 84474, Philippines, Balicasag, 80-120 m, L = 62.3 mm, Aw = 8.3 mm, Ah = 7.3 mm, 0.90 g, Pl. 13

**Paratype 4:** HNC 75136, Philippines, Balicasag, L = 57.6 mm, Aw = 8.2 mm, Ah = 6.8 mm, 1.28 g, Pl. 14

**Paratype 5:** NHMUK (ex HNC 84472), Philippines, Siquijor

**Paratype 6:** Naturalis RMNH.5004011 (ex HNC 84262), Philippines, Siquijor

HNC 86245: Philippines, Palawan, L = 89.2 mm, Aw = 11.4 mm, 4.08 g, Pl. 9

HNC 84479a: Japan, Wakayama, L = 76.5 mm, Aw = 11.0 mm, 9.3 mm, 3.01 g, Pl. 15

HNC 75322: Philippines, Balicasag, L = 62.3 mm, Aw = 12.9 mm, Ah = 9.7 mm, 2.42 g, Pl. 16

Multiple figures of the type material of the related *Fissidentalium hungerfordi* (Lectotype BMNH 1889.2.1.1-2a, lectotype selected by SCARABINO 1995, p. 258 and Paralectotype) are given in this issue of Schr. Malakozool. a few pages before (SAHLSTROM & WIESE 2016, figs. 1, 2, 3, 4, 5, 10), for *Fissidentalium sibogae* see also SAHLSTROM (2015).
Comparisons and remarks:
*P. pseudohungerfordi* n. sp. differs from *F. (C.) hungerfordi* in its much lower number of ribs (an average of 27 ribs versus about 82), more prominent ribs and in most cases in a more slender shape. *F. (C.) sibogae* differs in its explicitly triangular aperture and its larger weight of the shell. More details of the measurements are given in the table below.

<table>
<thead>
<tr>
<th></th>
<th><em>Fissidentalium (C.) hungerfordi</em> (n = 15)</th>
<th><em>Fissidentalium (C.) pseudohungerfordi</em> n. sp. (n = 73)</th>
<th><em>Fissidentalium (C.) sibogae</em> (n = 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length - mm</td>
<td>63.0 (± 7.2) (53.6–77.4)</td>
<td>64.3 (± 10.8) (43.1–89.2)</td>
<td>76.2 (± 6.9) (63.9–87.1)</td>
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<tr>
<td>Aperture width Aw - mm</td>
<td>10.8 (± 1.2) (8.7–12.5)</td>
<td>10.3 (± 1.5) (7.5–13.7)</td>
<td>14.1 (± 1.6) (11.1–16.0)</td>
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<tr>
<td>Aperture height Ah - mm</td>
<td>9.08 (± 1.0) (7.6–10.6)</td>
<td>8.47 (± 1.14) (6.5–13.7)</td>
<td>10.4 (± 0.9) (8.6–11.9)</td>
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<tr>
<td>Aw/Ah</td>
<td>1.18 (± 0.03) (1.14–1.24)</td>
<td>1.22 (± 0.05) (1.14–1.37)</td>
<td>1.4 (± 0.10) (1.3–1.5)</td>
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<tr>
<td>Aw–Ah</td>
<td>1.65 (± 0.34) (1.1–2.3)</td>
<td>1.86 (± 0.48) (0.9 – 3.4)</td>
<td>3.78 (± 1.11) (2.5–5.6)</td>
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<tr>
<td>Ribs at aperture - number</td>
<td>81.5 (± 16.00) (54–104)</td>
<td>27.3 (± 5.00) (16–36)</td>
<td>48.6 (± 8.24) (40–62)</td>
</tr>
<tr>
<td>Ribs at adapical end of slit</td>
<td>19.5 (± 5.48) (12–26)</td>
<td>14.8 (± 2.12) (11–26)</td>
<td>19.3 (± 2.78) (15–23)</td>
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<tr>
<td>Weight - g</td>
<td>2.90 (± 1.18) (1.46–5.72)</td>
<td>2.18 (± 1.01) (0.78–5.16)</td>
<td>5.04 (± 1.56) (2.3–6.9)</td>
</tr>
<tr>
<td>Weight per mm - g/mm</td>
<td>0.45 (± 0.13) (0.27–0.69)</td>
<td>0.33 (± 0.11) (0.14–0.61)</td>
<td>0.65 (± 0.16) (0.36–0.88)</td>
</tr>
</tbody>
</table>

Table 1:
Mean values (standard deviation) (extreme values) of the measurements of *Fissidentalium hungerfordi* and its related species. Some additional specimens without locality data or with very questionable information concerning their origin were inspected, but were excluded from the countings and calculations. In a few specimens of *F. pseudohungerfordi* some measurements wouldn’t make sense (e.g. weight in specimens with attached other animals, such as sponges or molluscs), these were not included in the averaged data.

The old species *Fissidentalium (Compressidentalium) zanzibarense* PLATE 1908 or *Fissidentalium (Compressidentalium) sumatrense* BOISSEVAIN 1906 are too poorly known to clarify their relations to *F. (C.) pseudohungerfordi* n. sp.

Conclusions:
Careful inspection of the shell morphology shows that *F. pseudohungerfordi* n. sp. can be easily distinguished from *F. sibogae* and *F. hungerfordi* by rib count and shape of the shell. It is not always easy to find out which of both sibling species is mentioned in the literature. Most publications (e.g. OKUTANI 2000, MA 2004, POPPE 2011, ROBIN 2011, SAHLMANN 2015) clearly figure shells of *F. pseudohungerfordi* instead of *F. hungerfordi*. SCARABINO (1995) and SAHLMANN & WIESE (2016) are showing the “true” *F. hungerfordi*.

At present knowledge, all Philippine specimens of the group of *F. hungerfordi*, which are not *F. sibogae*, are belonging to the new species *F. pseudohungerfordi*, whereas all shells from the Chinese waters seems to be *F. hungerfordi*. Shells from Japanese waters may belong to all three species. In the Tosa Bay area all three species are reported together, which is a good argument against speculations about biological or ecological reasons of shell related differences in these particular species.

For more than a century one of the most beautiful and presumably well known scaphopod species, present in most shell collections, was intermingled with another, but easily discriminable species. This shows how easily specialists and collectors minds could be fooled over a long time.
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

Explanations of Plate 10:

*Fissidentalium pseudohungerfordi* n. sp., Holotype
Philippines, Siquijor, 59.6 mm, HNC 84465a
SAHLMANN, VAN DER BEEK & WIESE: Fissidentalium hungerfordi and F. pseudohungerfordi n. sp.

Explanations of Plate 11:

Fissidentalium pseudohungerfordi n. sp., Paratype 1
Philippines, Siquijor, 77.3 mm, HNC 84465b
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

Explanations of Plate 12:

Fig. 3: *Fissidentalium pseudohungerfordi* n. sp., Paratype 2
Philippines, Siquijor, 59.0 mm, HNC 75151
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

Explanations of Plate 13:

*Fissidentalium pseudohungerfordi* n. sp., Paratype 3
Philippines, Balicasag, 80-120 m, 62,3 mm, HNC 84474
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

**Explanations of Plate 14:**

*Fissidentalium pseudohungerfordi* n. sp., Paratype 4
Philippines, Siquijor, 57.6 mm, HNC 75136
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

Explanations of Plate 15:

*Fissidentalium pseudohungerfordi* n. sp.,
Japan, Wakayama, 76.5 mm, HNC 84479a
Sahmann, Van der Beek & Wiese: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

Explanations of Plate 16:

*Fissidentalium pseudohungerfordi* n. sp., broad specimen
Philippines, Balicasag, 62.3 mm, HNC 75322
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

Explanations of Plate 17:

*Fissidentalium pseudohungerfordi* n. sp. with unusual secondary colonization: specimen with a glass sponge at its apical end, Philippines, Siquijor, 200 m (HNC 84263)
Explanations of Plate 18:

*Fissidentalium pseudohungerfordi* n. sp. with unusual secondary colonization:

Old empty shell inhabited by a specialized hermit crab (dried specimen),
on the shell male and female specimens of *Capulus* spec. are settled and relics of dried sea anemones are present.

Philippines, Siquijor Island, 200 m (HNC 84464).
SAHLMANN, VAN DER BEEK & WIESE: *Fissidentalium hungerfordi* and *F. pseudohungerfordi* n. sp.

**Explanations of Plate 19:**

*Fissidentalium (C.) pseudohungerfordi* n. sp., empty shell and fragment collected and mounted by the carrier shell *Xenophora pallidula* (REEVE 1842) (Family Xenophoridae), off Balicasag Island, Philippines, 150 m (HNC 86163).
References:


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