

Gloria Maris	45 (6)	142-164	Antwerpen, januari 2007
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RED SEA MOLLUSCA

Part 24

Class : *Gastropoda*

Family : *Conidea*

*G. Verbinnen*¹ *E. Wils*²

Genus *Conus* Linné, 1758

1. *Conus acuminatus* Hwass in Bruguière, 1792

Fig. 1

Encycl. Méth., 688-689, N°. 77.

During all our expeditions, *C. acuminatus* was neither collected in the Gulf of Aqaba nor in the northern part of the Red Sea. The species is moderately common in the south. Some individuals were collected south of Port Sudan. At the Dahlak Archipelago, *C. acuminatus* is quite common.

Note: Several authors consider *C. locumtenens* Blumenbach, 1791 as the first and valid name for this species. According to Coomans, Moolenbeek & Wils (1979), the latter must be regarded as a *nomen oblitum*, and be added to the list of rejected names.

Nota: Verschillende auteurs erkennen *C. locumtenens* Blumenbach, 1791 als eerste, gangbare naam voor deze soort. Echter, Coomans Moolenbeek & Wils (1979) beschouwen die als een "*nomen oblitum*" toe te voegen aan de lijst van afgewezen namen.

2. *Conus acutangulus* Lamarek, 1810

Fig. 2-3

Annl. Mus. Hist. nat. Paris, 15: 286, N°. 121.

Rare at the searched areas. During the expeditions of 1971, divers of C.V.D. collected a few specimens at Coral Beach (Eilat, Gulf of Aqaba). The specimens were hidden in a rubble substrate at moderate depths (30 to 35 metres).

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Remark: The Red Sea populations of *C. acutangulus* are very polymorphic: some of the collected specimens seem to be conspecific with the holotype of *C. gemmulatus* Sowerby, 1870. Wils (1986) also noticed those differences, but lacking sufficient material, he considered *C. gemmulatus* a form of *C. acutangulus*. As mentioned, the latter is an extremely variable species, which manifests itself in a variety of very distinctive forms. The average size is 18mm.

Opmerking: In de Rode Zee is *C. acutangulus* een zeer polymorfe soort, sommige exemplaren lijken sprekend op het holotype van *C. gemmulatus* Sowerby, 1870. Wils (1986) vermeldde ook deze verschillen, maar door gebrek aan voldoende materiaal beschouwde hij *C. gemmulatus* als een vorm van *C. acutangulus*. Laatstgenoemde is een zeer variabele soort, met sterk uiteenlopende kenmerken. De gemiddelde lengte is 18mm.

3. *Conus arenatus aequipunctatus* Dautzenberg, 1937

Fig. 4

Mém. Mus. Roy. Hist. nat. Belg. hors serie 2 (18): 31, pl. 1, f. 2.

Locally very common. *C. a. aequipunctatus* is probably one of the most common cones of the Red Sea. They burrow in sandy habitats, commonly close to coral reefs.

Note: This subspecies is restricted to the Red Sea, Gulf of Oman and Persian Gulf. *C. a. aequipunctatus* is distinguished from the nominal *C. arenatus arenatus* Hwass in Bruguière, 1792, by the pronounced shoulder nodules. The sides of the last whorl are nearly straight and ornamented with three distinct brownish to orange punctuated bands.

Nota: Deze ondersoort is endemisch in de Rode Zee, Golf van Oman en de Perzische Golf. *C. a. aequipunctatus* verschilt van de nominale soort *C. arenatus arenatus* Hwass in Bruguière, 1792, door de uitgesproken knobbels op de schouders. De zijden van de laatste winding zijn bijna recht en deze hebben drie uitgesproken bruine tot oranje gespikkelde banden.

4. *Conus aulicus* Linné, 1758

Fig. 5

Syst. Nat., 10 ed, 717 n°279

C. aulicus is a widespread species and commonly found. They usually live in sand under stones and corals in the intertidal and shallow sublittoral zones. In the Red Sea they are rare.

Note: For the region Gulf of Aqaba we report one specimen collected at Na Ama Bay in 1987. Two specimens were collected at Ras um Sidd, one in 1987 and a second one at the diving spot Turtle Bay in 1999. In the vicinity of Hurghada, one dead specimen was collected at Abu Sha`r near the Hydro biological Institute, in 1993.

The species must be considered dangerous (toxic venom).

5. *Conus bayani* Jousseaume, 1872

Fig. 6

Rev. Mag. Zool., (ser.2), 23, 200, pl.18, fig. 1.

During all our expeditions *C. bayani* was never collected in the explored areas.

From a local fisherman (the late Captain Awad) in Hurghada 1991, we obtained four specimens that were collected south off El Quseir. No further references were dated, except that the specimens were live taken at a depth of nearly 30 metres.

6. *Conus canonicus* Hwass in Bruguière, 1792

Fig. 7

Encycl. Méth., 749-750, N°. 143.

C. canonicus is a cosmopolitan species in tropical seas. In the Red Sea they are rather rare. During all our expeditions, this species was found neither in the Gulf of Aqaba, nor in the northern part of the Red Sea. In the vicinity of Port Sudan a few specimens were collected. Those were buried in sand in front of the reef.

The species must be considered dangerous (toxic venom).

7. *Conus coronatus* Gmelin, 1791

Fig. 8

Syst. Nat., 13 ed, 3389, N°.39.

Locally very common throughout the searched areas. *C. coronatus* was collected in both shallow and deeper water. The specimens are usually hidden under rocks and dead coral.

Note: Wils (1986) collected a curious form at Ras el Burka (Gulf of Aqaba), which he thought to be like *C. miliaris* Hwass in Bruguière, 1792, together with the typical *C. coronatus*. Verbinnen (1997) mentioned this variety as *C. aristophanus* Sowerby, 1857. Eventually, after studying more than 150 specimens, Wils concluded that the mentioned variety actually is a form of *C. coronatus*.

Nota: Wils (1986) verzamelde in Ras el Burka (Golf van Aqaba) samen met een specifieke vorm van *C. coronatus* een merkwaardige vorm van deze schelp die hij vond lijken op *C. miliaris* Hwass in Bruguière, 1792. Verbinnen (1997) noemt deze variant *C. aristophanus* Sowerby, 1857. Na het bestuderen van meer dan 150 exemplaren beschouwt Wils uiteindelijk de variant als een vorm van *C. coronatus*.

8. *Conus cuvieri* Crosse, 1858

Fig. 10

Revue Mag. Zool., (2) 10: 123.

The geographical range of this species does not extend to the most northern parts of

the Red Sea, Gulf of Aqaba or the Gulf of Suez. At Port Sudan the species is relatively rare. However, four individuals, one adult and three juveniles, were collected (1975).

Note: The species becomes moderately common southward. At the Dahlak Archipelago (Dissei Isl.) *C. cuvieri* is quite common.

Nota: De soort wordt meer algemeen naar het zuiden van de Rode Zee. In de Dahlak Archipel (Dissei Isl.) is *C. cuvieri* een vrij algemene soort

9. *Conus distans* Hwass in Bruguière, 1792

Fig. 11

Encycl. Méth., 1: 634, N°. 32.

C. distans is a cosmopolitan species in tropical seas. In the Red Sea they are very rare. During all our expeditions this species was only collected at Coral Beach, Eilat in 1971.

Off Hurghada in 1979, a few specimens were collected at a diving depth of 5-6 metres. In the vicinity of Port Sudan a few more specimens were collected. Those were buried in sand in front of a reef.

Remark: In former publications concerning Red Sea Malacology the species was erroneously identified. Sharabati (1984) considers the specimens (pl. 31, fig. 8-8a) as *C. fumigatus* Hwass in Bruguière, 1792. Occasionally adult specimens of *C. fumigatus* reach 50 mm, and not 81mm as quoted by Sharabati. Dekker & Orlin, (2003) regard the specimen (fig. 8) as *C. cf. caillaudii* Kiener, 1845 and the other (fig. 8a) as *C. lividus* Hwass in Bruguière, 1792. The authors also use *C. cf. caillaudii* for the specimens figured by Sharabati in pl. 30, fig. 4-4a. In our opinion, *C. caillaudii* has nothing in common with the specimen figured. Heiman & Singer (2003) consider the species (fig. 8) figured by Sharabati as a 'name not established yet'. We regard the specimen figured (pl. 31, fig. 8) as a juvenile *C. distans*.

Opmerking: In verschillende publicaties over de Rode Zee Malacologie wordt de soort foutief geïdentificeerd. Sharabati (1984) noemt de soort (pl. 31, fig. 8-8a) *C. fumigatus* Hwass in Bruguière, 1792. Volwassen exemplaren van *C. fumigatus* halen uitzonderlijk 50mm, en niet 81mm zoals door Sharabati aangehaald wordt. Dekker & Orlin, (2003) beschouwen de op fig. 8 afgebeelde soort als *C. cf. caillaudii* Kiener, 1845 en die op fig. 8a als *C. lividus* Hwass in Bruguière, 1792. Deze auteurs gebruiken ook *C. cf. caillaudii* als naam voor een exemplaar door Sharabati afgebeeld op pl. 30, fig. 4-4a. Met alle respect, maar *C. caillaudii* heeft niets gemeen met de afgebeelde exemplaren.

Heiman & Singer (2003) beschouwen de soort (fig. 8) afgebeeld door Sharabati als een 'nog niet bevestigde naam'. Voor ons is het afgebeelde exemplaar (pl. 31, fig. 8) een juveniel exemplaar van *C. distans*.

10. *Conus eduardi* Delsaerd, 1997**Fig. 12**

Gloria Maris. 1996 Vol. 35 (4-5), p. 57-62.

(non *C. edwardi* Preston, 1908; non *C. edwardsi* Cossmann, 1889)

During our 13th expedition to the Red Sea, the second author obtained a very attractive *Conus*-specimen from Mr. Mohammed Fayad. The species had been collected south of El Quseir, but more references were not dated. At that time, Verbinnen (1997) provisionally identified this species as *Conus* cf. *kawamurai* Habe, 1962.

Note: The holotype of *Conus eduardi* is now stored in the collection of Dr. P.G. Stimpson, Tennessee (U.S.A.).

It is also important to note that Delsaerd described *Conus eduardi* in 1997.

11. *Conus emaciatus* Reeve, 1849**Fig. 13**Conch. Icon. 1, *Conus*, Suppl., pl. 5, spec. 298.

During all our expeditions, *C. emaciatus* was never collected in the Gulf of Suez nor in the most northern part of the Red Sea. In the Gulf of Aqaba we collected a few specimens at Ras um Sidd. In the vicinity of Hurgada one specimen was collected at Sharm el Naga in 1992. At Coral Beach in 2004 a juvenile specimen was live taken in a habitat identical to that of *C. virgo* Linné, 1758. In the southern part of the Red Sea *C. emaciatus* is moderately common. Several specimens were collected in the vicinity of Port Sudan.

12. *Conus erythraeensis* Reeve, 1843**Fig. 14**Conch. Icon. 1, *Conus*: pl.24, spec. 137.

During all our expeditions this species was only collected at Dahab in 1986 (Gulf of Aqaba). When assisted by divers of C.V.D., a single and very remarkable specimen was brought up live-taken. This specimen came from deeper water, probably more than 30 metres. Information concerning the habitat was not registered.

Note: The geographical range of *C. erythraeensis* does normally not extend to the Gulf of Aqaba, nor to the northern part of the Red Sea. Most specimens are known from Sudan, Somalia, Dahlak Archipelago and Massawa. The specimen mentioned is stored in the collection of the second author.

Nota: Normaal reikt de geografische verspreiding van deze soort niet tot de Golf van Aqaba of het noordelijke gedeelte van de Rode Zee. De meeste exemplaren komen van Soedan; Somalië, Dahlak Archipel en Massawa. Het bovengenoemde exemplaar is in de verzameling van de tweede auteur.

13. *Conus flavidus* Lamarck, 1810**Fig. 15**

Annls. Mus. Hist. nat. Paris, 15: 265, N°. 57.

Locally very common. *C. flavidus* is probably the most common cone of the Red Sea. The specimens occur in a variety of habitats, usually buried in sandy patches associated with coral reefs. In several habitats *C. flavidus* was collected together with *C. sanguinolentus* Quoy & Gaimard, 1834.

Note: Sharabati (1984) does not mention *C. flavidus* but incorrectly considers the specimens (p. 29, fig. 3-3a-3b) as *C. frigidus* Reeve, 1848, also (fig. 5) as *C. sugillus* Reeve, 1844 (sic) = *C. sugillatus* Reeve, 1844 = *C. muriculatus* Sowerby, 1833.

Nota: Sharabati (1984) maakt geen melding van *C. flavidus* in de tekst, maar beeldt deze wel af onder verkeerde namen (p. 29) bij fig. 3-3a-3b als *C. frigidus* Reeve, 1848 en bij fig. 5 als *C. sugillus* Reeve, 1844 (sic) = *C. sugillatus* Reeve, 1844 = *C. muriculatus* Sowerby, 1833.

14. *Conus fragilissimus* Petuch, 1979**Fig. 16**

Nemouria. Occas. Papers Delaware Mus. Nat. Hist., N°.23, 14-18.

The geographical range of this species does not extend to the most northern part of the Red Sea, Gulf of Aqaba or into the Gulf of Suez. At Marsa Sha'b (N. of Port Sudan) the species is relatively rare. However, a few specimens were collected; all of them were hidden between sea grasses in the littoral zone.

Note: It is possible that in some Red Sea collections *C. fragilissimus* is incorporated as a juvenile of the well-known *C. geographus* Linné, 1758. Adult specimens of the former occasionally reach 45mm. Sharabati (1984) considers *C. fragilissimus* as a subspecies of *C. geographus*. In fact both species live sympatrically in the explored area.

The species must be considered as very dangerous (highly toxic venom).

Nota: Het is mogelijk dat in sommige collecties van de Rode Zee *C. fragilissimus* is opgenomen als een juveniel van *C. geographus* Linné, 1758. Volwassen exemplaren van de eerstgenoemde soort worden soms 45mm groot. Sharabati (1984) beschouwt *C. fragilissimus* als een ondersoort van *C. geographus*. In feite komen beide soorten sympatrisch voor.

15. *Conus generalis maldivus* Hwass in Bruguière, 1792**Fig. 17**

Encycl. Méth., 1: 644, N°. 42.

Locally very common throughout the searched areas. The majority of *C. g. maldivus* inhabits vegetated patches near fringing reefs. Juvenile specimens were also frequently collected between varieties of coral formations in deeper water.

Note: Juvenile specimens are slenderer, having a sharp and elevated spire, this form is known as *C. spirogloxus* Deshayes, 1863. Juvenile specimens of *C. generalis generalis* Linné, 1758 and *C. g. maldivus* often look similar. When growing up, it becomes evident they are two distinct subspecies.

Nota: Juvenile exemplaren zijn slanker en hebben een verhoogde spira. Deze vorm is gekend als *C. spirogloxus* Deshayes, 1863. Juvenile exemplaren van *C. generalis s.s.* Linné, 1758 en *C. g. maldivus* zijn praktisch niet van elkaar te onderscheiden. Naarmate ze groeien, wordt het duidelijker dat er sprake is van twee verschillende ondersoorten.

16. *Conus geographus* Linné, 1758

Fig. 18

Syst. Nat., 10 ed, 718, N°. 283.

Moderately common. *C. geographus* is a widespread species in tropical seas, but difficult to find in the Red Sea. The species usually occurs near and on fringing reefs in the sublittoral zone. Some individuals were occasionally collected in the intertidal zone. During daytime they often hide in sandy patches. Average size: 90mm.

This fish eating species must be considered as extremely dangerous (highly toxic venom). Its sting has resulted in several human fatalities.

17. *Conus inscriptus evansi* Bondarev, 2001

Fig. 20

La Conchiglia N°. 299, p. 25-26.

Originally described as *Conus evansi*.

During all our expedition, *C. i. evansi* was never collected in the explored areas. From a local fisherman (the late Captain Awad) in Hurghada 1991, we obtained several specimens, which had been collected offshore south of the Sudanese border. Information concerning the habitat had not been registered, the specimens were said to be live taken.

Remark: At first we considered the collected specimens as a form of *C. inscriptus* Reeve, 1843. Conspecific specimens were recently introduced by Bondarev as a new species: *C. evansi*, with type locality Dahlak Archipelago. In our opinion, the former is only the representative of *C. inscriptus* in the Red Sea. So, for the moment we regard *C. evansi* as a subspecies.

Very similar populations are known from areas of W. Thailand: *C. i. forma maculospira* Pilsbry & Johnson, 1921. The comparison of the radulae might lead to a more definite conclusion.

Opmerking: Toentertijd hebben we de verzamelde exemplaren provisorisch beschouwd als een vorm van *C. inscriptus* Reeve, 1843. Gelijksortige exemplaren werden onlangs door Bondarev geïntroduceerd als een nieuwe soort *C. evansi* met als typelocaliteit de

Dahlak Archipel. Naar onze mening is de eerstgenoemde enkel de vertegenwoordiger van *C. inscriptus* in de Rode Zee. Voorlopig beschouwen we *C. evansi* als een ondersoort.

Sterk gelijkende populaties zijn gekend in gebieden in W. Thailand: *C. inscriptus* fa *maculospira* Pilsbry & Johnson, 1921.

18. *Conus litoglyphus* Hwass in Bruguière, 1792

Fig. 21

Encycl. Méth., 1: 692, N°. 81.

C. litoglyphus is a cosmopolitan species in tropical seas. In the Red Sea they are rare.

Note: The first record of a live taken specimen was published by Mienis (1984); Mr. Eli Holzer collected it north of Sharm el Sheikh, Sinai, Gulf of Aqaba. During an expedition in the vicinity of Port Sudan in 1975, one dead specimen was collected, as reported by Wils (1986). While snorkelling at Ras um Sidd 1996, four juvenile specimens were live taken in relatively shallow water.

Nota: De eerste vermelding van een levend exemplaar werd gedaan door Mienis (1984). Dat exemplaar was verzameld door Eli Holzer ten noorden van Sharm el Sheik, Sinai, Golf van Aqaba.

Tijdens onze expeditie in de omgeving van Port Soedan in 1975 werd één dood exemplaar verzameld, zoals gemeld door Wils (1986). Tijdens het snorkelen in relatief ondiep water nabij Ras um Sidd 1996 werden vier levende juveniele exemplaren verzameld.

19. *Conus miliaris fulgetrum* Sowerby I, 1834

Fig. 22

Conch. Illustr. Pt. 56-57, f. 82.

Originally described as *Conus fulgetrum*.

Locally very common. *C. m. fulgetrum* occurs from very shallow water to diving depths. They are usually hidden under stones covered by algae. Adult specimens prefer deeper water, and are mostly encrusted by calcareous growth. They often have heavy growth marks.

Remark: Some authors like Cook (1885), Walls (1979) and Sharabati (1984) consider *C. fulgetrum* a valid taxa. Walls was in doubt: in a note he considered *C. fulgetrum* very close to *C. miliaris* Hwass in Bruguière, 1792. Dekker & Orlin (2003) also regard the species as *C. miliaris*. In our opinion, the species is of subspecific rank. The subspecies distinguishes from the latter by several aspects. Briefly: by the shoulder edge, which is nodulated and white coloured, and by the ornamentation of numerous white zigzag markings on a reddish brown underground. The last whorl is more grooved and granulated, too.

In the absence of a type specimen in BMNH, Wils (1986) designated the figure 82 in

Conch. Illustr, as lectotype.

Opmerking: Sommige auteurs: Cook (1885), Walls (1979) en Sharabati (1984) beschouwen *C. fulgetrum* als een geldige soort. Walls had wel twijfels: in een nota omschreef hij *C. fulgetrum* als sterk gelijkend op *C. miliaris* Hwass in Bruguière, 1792. Dekker & Orlin (2003) duiden de soort aan als *C. miliaris*. Naar onze mening betreft het hier een ondersoort die in meerdere aspecten van de laatstgenoemde verschilt. In het kort: doordat de schoudererranden knobbels hebben en een witte kleur hebben, en door het zigzag patroon van witte lijnen op een roodbruine achtergrond. De laatste winding is ook meer gegroefd en gekorrelt.

Bij gebrek aan een type exemplaar in BMNH heeft Wils (1986) figuur 82 in Conch. Illustr. als lectotype aangeduid.

20. *Conus namocanus badius* Kiener, 1845

Fig. 24

Coq. Viv, 2, 89-90, pl. 33, f. 3.

Originally described as *Conus badius*.

In areas that are out of bounds for military reasons and therefore quite undisturbed by the public, *C. n. badius* is moderately common. The species inhabits vegetated patches near fringing reefs. Juvenile specimens were frequently collected between varieties of coral formations in deeper water. Adults are heavily encrusted with calcareous growth; they usually have heavy growth marks.

Note: *C. badius* is considered a synonym of *C. namocanus* Hwass in Bruguière, 1792. Specimens from East Africa (Red Sea) are distinct and easy to differentiate from their congeners from the Indo-Pacific. Briefly: the general form is more obtuse, the shoulder is angulated and the spire less elevated. Average size: 70mm.

Nota: *C. badius* wordt beschouwd als een synoniem van *C. namocanus* Hwass in Bruguière, 1792. Exemplaren van Oost Afrika (Rode Zee) zijn onmiskenbaar en eenvoudig te onderscheiden van hun soortgenoten uit de Indo-Pacific. De algemene vorm is meer afgestompt, de schouder is hoekig en de spira minder hoog.

21. *Conus nigromaculatus* Röckel & Moolenbeek, 1992

Fig. 23

Acta Conchyliorum, Stuttgart, N°. 3, pp. 46/47, pl. 5, fig. 19-25.

During all our expedition, *C. nigromaculatus* was never collected in the explored areas. From the late Captain Awad, 1991, we obtained several specimens, which were collected south of the Sudan border.

No references were added, except for the fact that the specimens were live taken.

22. *Conus nigropunctatus* Sowerby II, 1857.**Fig. 25**

Thes. Conch. 3, *Conus*, 28, spec. 332, pl. 15 (201), fig. 342.

Moderately common throughout the searched areas. *C. nigropunctatus* lives from very shallow water to diving depths. They are usually hidden among stones and dead coral. We occasionally spotted specimens while spawning their egg capsules. In some areas (Milton Beach, Nabq, S. Sinai, Gulf of Aqaba), Hurghada and Safaga, the specimens are extremely variable in colouration.

Note: The true identity of the species was in doubt. In former publications concerning Red Sea Malacology, disagreement exists. Some authors: Issel (1869), Mastaller (1978) and Sharabati (1984) call this very polymorphic species *C. catus* Hwass in Bruguière, 1792. Others: Tryon (1884) and Sturany (1903) consider the Red Sea specimens as a form or subspecies of *C. catus*. Some authors even identified the specimens as *C. achatinus* Gmelin, 1791. We consider the species occurring in the Red Sea, Gulf of Aden, Arabian Sea and Gulf of Oman as *C. nigropunctatus*. We therefore add *C. elatensis* Wils, 1971 to the list of synonymys.

For lack of a type specimen in BMNH, Wils (1986) designated figure 342 in Thes. Conch. as lectotype. The type locality is corrected to "Eilat, Gulf of Aqaba, Red Sea".

Nota: Aan de echte identiteit van de soort is getwijfeld. In eerdere publicaties over de Rode Zee bestaat hierover onenigheid. Sommige auteurs: Issel (1869), Mastaller (1978) en Sharabati (1984) noemen deze zeer polymorfe soort *C. catus* Hwass in Bruguière, 1792, terwijl anderen: Tryon (1884), Sturany (1903) en Röckel (1995) de Rode Zee exemplaren beschouwen als een vorm of ondersoort van *C. catus*. Somige auteurs identificeren de exemplaren als *C. achatinus* Gmelin, 1791. Wij beschouwen de soort die voorkomt in de Rode Zee, Golf van Aden, Arabische Zee en de Golf van Oman als *C. nigropunctatus*. Daarom voegen we *C. elatensis* Wils, 1971 toe aan de lijst van synoniemen.

23. *Conus nussatella* Linné, 1758**Fig. 29**

Syst. Nat., 10 ed., 716, N°. 273.

C. nussatella is a cosmopolitan species and commonly found. In the Red Sea they are moderately common, but nevertheless difficult to collect. The species usually occurs near fringing reefs in the intertidal zone. During daytime they are buried in sandy substrate. Juvenile specimens prefer habitats of coral formations in deeper water. Average size 50 mm.

24. *Conus obscurus* Sowerby I, 1833**Fig. 30**

Conch. Illustr., Pt.29, f. 26.

Throughout the explored areas, this species is very rare.

Remark: Up to 1992, *C. obscurus* had never been collected and was unknown to us for the Red Sea region. That year at Safaga (Lotus Bay), Dr. W. Wellens collected a juvenile specimen (18mm) while diving at a depth of about 5 metres. Till 2003, *C. obscurus* was never collected again. At the reef edge at Coral Beach (Hurghada) we then had the opportunity to discover a second one of subadult age (35mm). This specimen was live-taken. *C. obscurus* is hereby reported as a first record for the Red Sea.

The species must be considered dangerous (toxic venom).

Opmerking: In Safaga 1992 (Lotus Bay) verzamelde Dr. W. Wellens een juveniel exemplaar (18mm) op een duikdiepte van ongeveer 5 meter. Tot 2003 werd geen enkel exemplaar meer verzameld. Dat jaar op het rif van Coral Beach (Hurghada) vonden we een tweede exemplaar van 35mm. *C. obscurus* wordt hierbij vermeld als eerste record voor de Rode Zee. De soort dient als gevaarlijk beschouwd te worden (toxisch gif.)

25. *Conus parvatus sharmiensis* Wils, 1986

Fig. 31

Gloria Maris Vol. 25 (5-6) p. 189, figs. 71-72.

Locally very common throughout the searched areas. *C. p. sharmiensis* occurs in a variety of habitats, usually buried in sand in very shallow water; or hidden between seaweed.

Note: *C. p. sharmiensis* is distinguished from the nominal *C. parvatus parvatus* Walls, 1979: the shoulder and spire of *C. p. sharmiensis* is white and unspotted. Its body whorl is marked with pale brown to orangish red spots, forming fine axial lines.

In the description, Wils considers the Red Sea as the geographical range for this subspecies. However, Moolenbeek & Coomans (1990) mentioned the species from Oman, also Bosch et al, 1995 reported them from the Gulf of Oman, southern Oman and Masirah Island.

Nota: *C. p. sharmiensis* onderscheidt zich van de nominale *C. parvatus parvatus* Walls, 1979: schouder en spira van eerstgenoemde zijn wit en zonder vlekken. De winding wordt gemarkeerd door lichtbruin tot oranje rode vlekjes in een fijne, axiale structuur.

In de beschrijving vernoemt Wils de Rode Zee als geografisch gebied voor deze ondersoort. Echter, Moolenbeek & Coomans (1990) vermelden vondsten van Oman. Bosch et al, 1995 vernoemt tevens de Golf van Oman, Zuid Oman en Masirah eiland.

26. ** The *Conus pennaceus* Born, 1778 complex

Fig. 43

Index. Mus. Vindob., 1:152, 1780 Testacea: pl. 7, fig. 14

C. pennaceus is an extremely polymorphic species in colouration and in shape, throughout the geographical distribution. This results in a long list of synonyms. The Red Sea specimens are completely different from the type species. The typical form of

C. pennaceus has a flattened to slightly elevated spire, such a specimen does not occur in the Red Sea. Several authors made an attempt to clear the problem and divided *C. pennaceus* in forms and subspecies. Concerning the Red Sea, Wils (1986) considers *C. quasimagnificus* da Motta, 1982 and *C. magnificus* Reeve, 1843 as valid taxa. *C. marmoricolor* Melvill, 1900 was regarded as a form of the latter.

In 1992 we had the opportunity to study more than 400 specimens from various localities. The variability from locality to locality is enormous; even within a single population many intermediates exist. We normally do not accept variety names because they have no taxonomical value. But what to do within this complex?

C. pennaceus is, zowel in kleur als in vorm, een uiterst polymorfe soort in het ganse geografische verspreidingsgebied. Dit resulteert in een lange lijst synoniemen. De exemplaren van de Rode Zee zijn totaal verschillend van het lectotype. De typische vorm van *C. pennaceus* heeft een uitgevlakte tot licht verhoogde spira, de exemplaren van de Rode Zee hebben dit niet. Verschillende auteurs hebben getracht orde op zaken te stellen en verdeelden *C. pennaceus* in vormen en ondersoorten. In de Rode Zee beschouwt Wils (1986) *C. quasimagnificus* da Motta, 1982 and *C. magnificus* Reeve, 1843 als geldige soorten, terwijl *C. marmoricolor* Melvill, 1900 wordt beschouwd als een vorm van deze laatste.

In 1992 hadden we de mogelijkheid om meer dan 400 exemplaren van verschillende localiteiten te bestuderen. De verscheidenheid van plaats tot plaats is enorm; zelfs binnen een zelfde populatie komen veel tussenvormen voor.

Normaal accepteren we geen namen van variëteiten omdat ze geen taxonomische waarde hebben. Maar wat te doen in dit complex?

27. *Conus quercinus akabensis* Sowerby III, 1887

Fig. 33

Thes. Conch. 5: 273, spec. 528, pl. 36, figs. 752-753.

Originally described as *Conus akabensis*.

C. quercinus Solander, 1786 is a cosmopolitan species and commonly found in the West Pacific. In the Red Sea the subspecies *C. akabensis* is not common and occasionally collected. *C. q. akabensis* occurs in the intertidal zone, hidden among stones and dead coral. During daytime they are buried in sandy substrate. At Fanadir Island, some individuals were collected on a fringing reef in relatively shallow water. Some adults are very encrusted with calcareous growth and they usually have heavy growth marks.

Note: *C. akabensis* is generally considered an albino form of *C. quercinus*. Wils (1986) mentioned this consideration as correct, but the Red Sea specimens are readily distinguished from the nominal *C. quercinus quercinus*. The subspecies also lacks the numerous fine irregular brown axial spiral cords; the spire varies from concave to relatively flat. Juvenile specimens are very slender and totally different from the adults, they are also known as *C. egregius* Sowerby, 1914.

Nota: Over het algemeen wordt *C. akabensis* beschouwd als een albinovorm van *C. quercinus*. Wils (1986) was het hier mee eens. Nochtans verschillen Rode Zee-exemplaren duidelijk van de nominale *C. quercinus quercinus*. Bij de ondersoort ontbreken ook de talrijke fijne onregelmatige axiale lijnen; de spira varieert van concaaf tot relatief vlak. Juveniele exemplaren zijn opmerkelijk slank en verschillen totaal van de volwassen exemplaren, ze zijn beter gekend onder de naam *C. egregius* Sowerby, 1914.

28. *Conus rattus viridus* Sowerby, 1857
Thes. Conch. 3: 20, spec. 162, pl. 5, f. 102.
Originally described as *Conus viridus*.

Fig. 26

Moderately common throughout the searched areas. The majority of the species inhabits vegetated patches near fringing reefs. Adults are very encrusted with calcareous growth and they usually have heavy growth marks. In areas that are out of bounds for military reasons and not accesible to the public, *C. r. viridus* has the opportunity to become very large. We collected some individuals reaching a length of 53mm.

Note: *C. viridus* is considered a synonym of *C. rattus rattus* Hwass in Bruguière, 1792. Specimens from the Red Sea are distinct and easy to distinguish from the nominal species. Briefly: the spire is higher than in the nominal species; the absence of the white flakes on the body whorl is very conspicuous. Wils (1986) designated figure 102 in Thes. Conch. as the lectotype. Hurghada, Red Sea is added as the type locality. For more information concerning this subspecies, see Wils (1986).

Some specimens are often offered as *C. semivelatus* Sowerby, 1882, which is a juvenile of *C. rattus viridis*.

Nota: In militair gebied dat normaal niet toegankelijk is voor het publiek, komen zeer grote exemplaren voor. We hebben er enkele verzameld met lengtes tot 53mm. *C. viridus* wordt beschouwd als een synoniem van *C. rattus rattus* Hwass in Bruguière, 1792. Exemplaren van de Rode Zee zijn afwijkend en simpel te onderscheiden van de nominale soort. In het kort: de spira is hoger dan bij de nominale soort; opvallend is de afwezigheid van de witte vlekken op de laatste winding. Wils (1986) duidt figuur 102 in Thes. Conch. aan als het lectotype. Hurghada, Rode Zee is aangewezen als typelocaliteit. Raadpleeg Wils (1986) voor meer informatie over deze ondersoort. Sommige exemplaren worden dikwijls aangeboden als *C. semivelatus* Sowerby, 1882, wat een juveniel is van *C. rattus viridis*.

29. *Conus sanguinolentus* Quoy & Gaimard, 1834**Fig. 32**

Voyage Astrolabe, Zool., 3: 99, pl. 53, f. 18.

Very common throughout the searched areas. As previously mentioned, *C. sanguinolentus* usually occurs sympatrically with *C. flavidus* Lamarck, 1810. Some individuals can occasionally reach a length of 55mm; those are strongly encrusted with calcareous growth and their spires are extremely eroded. Average size: 25mm.

30. *Conus spec.***Fig. 34**

During our 14th expedition to the Red Sea (1991), we obtained a very attractive cone-specimen. This species had been collected during diving trips south of El Quseir. The specimen was not taken alive, and references were not dated.

Note: After examination, the species was identified as *C. fumigatus* Hwass in Bruguière, 1792 by Moolenbeek, Buijse and Visser. However, G. Raybaudi (Pers. comm. 2005) considers the species also very close to *C. fumigatus*, but also mentioned *C. bondarevi* Röckel & Raybaudi, 1992. For the time being and due to a lack of sufficient material, we consider this species as spec.

Nota: Na studie werd het exemplaar door Moolenbeek, Buijse and Visser gedetermineerd als *C. fumigatus* Hwass in Bruguière, 1792. G. Raybaudi (Pers. comm. 2005) beschouwt het exemplaar als sterk gelijkend op *C. fumigatus*, maar vernoemde ook gelijkenis met *C. bondarevi* Röckel & Raybaudi, 1992. Bij gebrek aan materiaal beschouwen we voorlopig het exemplaar als spec.

31. *Conus striatellus* Link, 1807**Fig. 35**

Beschr. Nat. Samml. Univ. Rostock 3: 103.

C. striatellus is a cosmopolitan species. In the Red Sea they are moderately common and occasionally collected. In the vicinity of Hurghada the species occurs near fringing reefs in the intertidal zone. During daytime they are buried in sandy substrate. Some individuals were collected in very shallow water. Average size: 50mm.

32. *Conus striatus* Linné, 1758**Fig. 36**

Syst. Nat., 10 ed, 716, N°. 277.

C. striatus is widespread. In the Red Sea they are moderately common but only occasionally collected. The species is usually buried under stones and dead coral. Average size: 70mm.

The species must be considered as extremely dangerous (highly toxic venom).

33. *Conus taeniatus* Hwass in Bruguière, 1792
 Encycl. Méth., 692, N°. 24.

Fig. 42

Moderately common throughout the searched areas. The specimens are usually hidden among stones and dead coral. Juvenile specimens are frequently collected in very shallow water. Adults can reach a length of more than 40 mm; those are very encrusted with calcareous growth and frequently have heavy growth marks. Occasionally small specimens (15-20mm) were spotted while spawning their egg capsules. Average size: 25mm.

34. *Conus terebra thomasi* Sowerby, 1881
 Proc. Zool. Soc. London., 635, pl. 56, f. 4.
 Originally described as *Conus thomasi*.

Fig. 37

During all our expeditions *C. t. thomasi* was never collected in the Gulf of Aqaba, nor in the most northern part of the Red Sea. In the vicinity of Hurghada one specimen was collected at Sharm el Naga in 1992. At Coral Beach in 2004 a juvenile specimen was taken alive in a habitat identical to that of *C. virgo* Linné, 1758. In the southern part of the Red Sea *C. t. thomasi* is moderately common. Several specimens were collected in the vicinity of Port Sudan in 1975.

Note: In comparison with *C. terebra s.s.* Born, 1778, *C. t. thomasi* has a lower spire and the sculpture on the body whorl is nearly smooth.

Nota: In vergelijking met *C. terebra s s.* Born, 1778 heeft *C.t. thomasi* een minder hoge spira en de laatste winding is praktisch egaal glad.

35. *Conus tessulatus* Born, 1778
 Index Mus. Vindob. 1, 131.

Fig. 39

C. tessulatus is widespread and locally very common. It is one of the most common cones of the Red Sea. They live burrowing in sandy habitat in relatively shallow water. At the bay of Dahab (Gulf of Aqaba 1989) *C. tessulatus* occurs abundant. Average size: 40mm.

36. *Conus textile neovicarius* da Motta, 1982
 Public. Ocas. Soc. Port. Malac. 1, 4, fig. 4.

Fig. 27

Locally common throughout the searched areas. The specimens are usually hidden among stones and dead coral. Juveniles are frequently collected in very shallow water. Adults can reach a length of more than 100mm; those are usually buried in sand in the intertidal zone.

Remark: *C. t. neovicarius* is a very polymorphic subspecies both in form and colouration. In the discussion concerning the subspecies *C. textile dahlakensis* da

Motta, 1982 the author mentioned the species as an isolated population occurring at the Dahlak Archipelago. However, in the vicinity of Port Sudan, Hurghada and Ras Nusrani (Gulf of Aqaba) *C. t. dahlakensis* was collected sympatrically with *C. t. neovicarius*. We therefore consider the latter only as a form.

This fish eating species must be considered very dangerous (highly toxic venom). Its sting has resulted in several human fatalities.

Opmerking: *C. t. neovicarius* is zowel in vorm als in kleur een zeer polymorfe ondersoort. In de discussie rond de ondersoort *C. textile dahlakensis* da Motta, 1982 heeft de auteur de ondersoort aangeduid als een geïsoleerde populatie uit de Dahlak archipel. Echter, in de omgeving van Port Soedan, Hurghada en Ras Nusrani (Golf van Aqaba) komt *C. t. dahlakensis* samen voor met *C. t. neovicarius*. Hierdoor beschouwen we de laatst genoemde enkel als een vorm.

Deze visetende soort moet als zeer gevaarlijk worden beschouwd (zeer toxisch gif). Een steek heeft in verscheidene gevallen de dood tot gevolg gehad.

37. *Conus vexillum sumatrensis* Hwass in Bruguière, 1792

Fig. 38

Encycl. Méth., 1 : 655, N°. 54.

Originally described as *Conus sumatrensis*.

Locally common throughout the searched areas. The majority of *C. v. sumatrensis* inhabits vegetated patches near fringing reefs. But also juvenile specimens were frequently collected between varieties of coral formations in deeper water. Adults can reach a length of more than 90 mm, those are very encrusted with calcareous and coral growth. Average size: 70 mm.

Note: Wils (1986) designated Hurghada (Egypt) as the correct type locality for this subspecies. At the time the author also mentioned two distinct forms. Indeed, specimens collected in the most northern part of the Gulf of Aqaba are more elongated than the typical form of the subspecies.

Juveniles were described as *Conus sulphuratus* Kiener, 1845.

Nota: Hurghada werd door Wils (1986) aangewezen als de correcte typelocaliteit voor deze ondersoort. De auteur vermeldt twee goed onderscheidbare vormen. Inderdaad zijn de verzamelde exemplaren uit het noordelijke deel van de Golf van Aqaba meer langgerekt dan de typische vorm van de ondersoort.

Juvenile exemplaren zijn beschreven als *Conus sulphuratus* Kiener, 1845.

38. *Conus virgo* Linné, 1758

Fig. 40

Syst. Nat., 10 ed., 713, N°. 253.

C. virgo is a cosmopolitan species in tropical seas. In the Red Sea they are locally very common and frequently collected. Juvenile specimens prefer shallow water, where

they frequently occur amongst rocks covered with seaweed and algae. Adults are to be found at depths up to 30 metres and more. Average size: 80mm.

39. *Conus wilsii* Delsaerd, 1998

Fig. 41

Gloria Maris 1997 Vol. 36 (4), p. 69-72

During our 14th expedition to the Red Sea (1991) we obtained two very attractive cone-specimens from a local fisherman (the late Captain Awad). These specimens had been collected south of El Quseir. No information concerning the habitat was added, except that the specimens had been taken alive.

Note: The holotype and paratype of *Conus wilsii* were provisionally in the collection of Mr. Ed. Wils. However, the Holotype is now stored in the Royal Belgian Institute of Natural Sciences (Section Malacology) under N°. IG: 30616 Type N°. 1365. It is also important to note that Delsaerd described *Conus wilsii* in April 1998.

Plate 1

Fig. 1 *Conus acuminatus* Hwass in Bruguière, 1792

Fig. 2 *Conus acutangulus* Lamarck, 1810

Fig. 3 *Conus acutangulus* fa *gemmulatus* Sowerby, 1870

Fig. 4 *Conus arenatus aequipunctatus* Dautzenberg, 1937

Fig. 5 *Conus aulicus* Linné, 1758

Fig. 6 *Conus bayani* Jousseau, 1872

Fig. 7 *Conus canonicus* Hwass in Bruguière, 1792

Fig. 8 *Conus coronatus* Gmelin, 1791

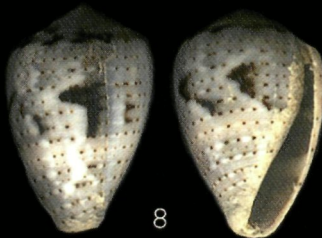
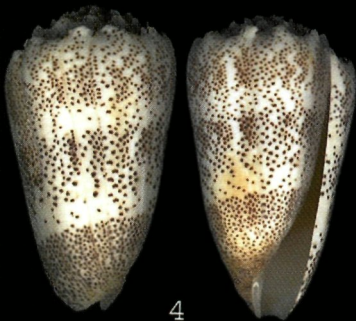
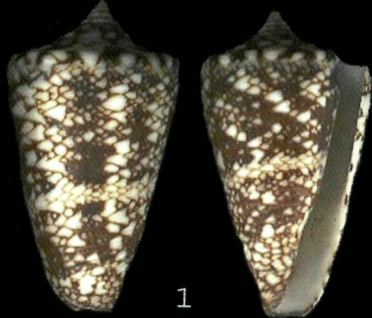
Fig. 9 *Conus coronatus* fa *aristophanus* Sowerby, 1857

Fig. 10 *Conus cuvieri* Crosse, 1858

Fig. 11 *Conus distans* Hwass in Bruguière, 1792

Fig. 12 *Conus eduardi* Delsaerd, 1998 (Holotype)

Plate 1



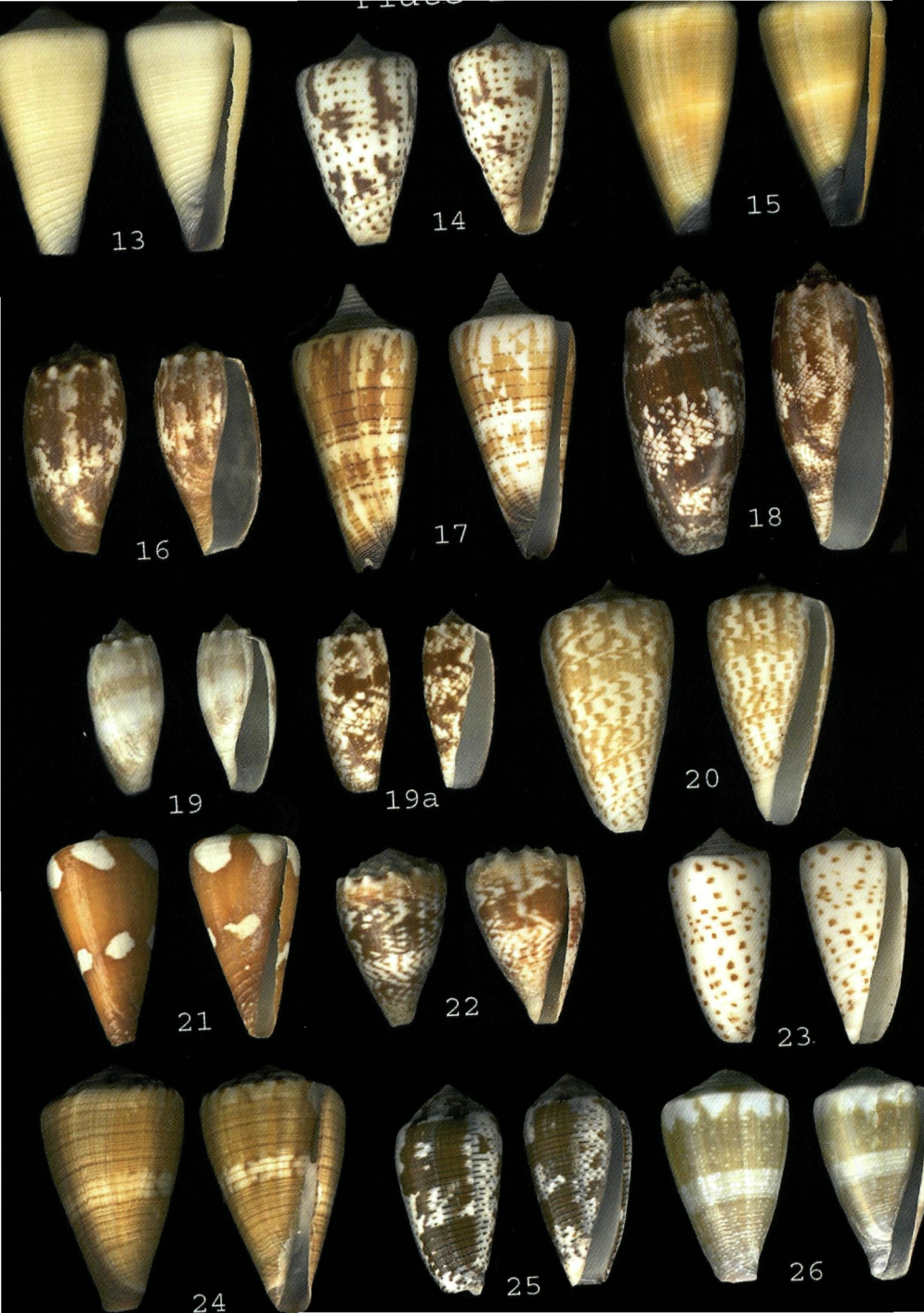


Plate 2

- Fig. 13 *Conus emaciatus* Reeve, 1849
Fig. 14 *Conus erythraeensis* Reeve, 1843
Fig. 15 *Conus flavidus* Lamarck, 1810
Fig. 16 *Conus fragilissimus* Petuch, 1979
Fig. 17 *Conus generalis maldivus* Hwass in Bruguière, 1792
Fig. 18 *Conus geographus* Linné, 1758
Fig. 19 *Conus fragilissimus* Petuch, 1979 (juvenile)
Fig. 19a *Conus geographus* Linné, 1758 (juvenile)
Fig. 20 *Conus inscriptus* fa *evansi* Bondarev, 2001
Fig. 21 *Conus litoglyphus* Hwass in Bruguière, 1792
Fig. 22 *Conus miliaris fulgetrum* Sowerby, 1834
Fig. 23 *Conus nigromaculatus* Rökel & Moolenbeek, 1992
Fig. 24 *Conus namocanus badius* Kiener, 1845
Fig. 25 *Conus nigropunctatus* Sowerby, 1857
Fig. 26 *Conus rattus viridus* Sowerby, 1857

Plate 3

- Fig. 27 *Conus textile neovicarius* da Motta, 1982
 Fig. 28 *Conus textile* n. fa *dahlakensis* da Motta, 1982
 Fig. 29 *Conus nussatella* linné, 1758
 Fig. 30 *Conus obscurus* Sowerby, 1833
 Fig. 30a *Conus obscurus* Sowerby, 1833 (juvenile)
 Fig. 31 *Conus parvatus sharmiensis* Wils, 1986
 Fig. 32 *Conus sanguinolentus* Quoy & Gaimard, 1834
 Fig. 33 *Conus quercinus akabensis* Sowerby, 1887
 Fig. 34 *Conus spec*
 Fig. 35 *Conus striatellus* Link, 1807
 Fig. 36 *Conus striatus* Linné, 1758
 Fig. 37 *Conus terebra thomasi* Sowerby, 1881
 Fig. 38 *Conus vexillum sumatrensis* Hwass in Bruguière, 1792
 Fig. 39 *Conus tessulatus* Born, 1778
 Fig. 40 *Conus virgo* Linné, 1758
 Fig. 41 *Conus wilsii* Delsaerd, 1998 (Holotype)
 Fig. 42 *Conus tainiatus* Hwass in Bruguière, 1792

Plate 4

Fig. 43 The variability of the *Conus pennaceus* Born, 1778 complex in the Red Sea.

Photos by Maria Vermeiren.

