



Supplementary data for a recent revision of the genus *Spinosipella* (Bivalvia, Septibranchia)

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Abstract

A supplementary list of material examined is provided, completing the list given in a recently published paper revising the genus *Spinosipella* worldwide (Simone & Cunha, 2008). Most of the material belongs to the Muséum National d'Histoire Naturelle, Paris, France.

Key words: Mollusca, Bivalvia, *Spinosipella*, revision, deep waters.

Resumo

Uma lista complementar do material examinado é apresentada, inteiramente de um trabalho publicado recentemente sobre o gênero *Spinosipella* em todo o mundo (Simone & Cunha, 2008). O material examinado veio principalmente da coleção do Museu Nacional de Historia Natural de Paris, França.

Palavras-chave: Mollusca, Bivalvia, *Spinosipella*, revisão, águas-profundas.

Introduction

During study of the material used as the basis for the recently published revision of the genus *Spinosipella* Iredale, 1930 (Simone & Cunha, 2008), a large quantity of material was sent by colleagues worldwide. This was important as *Spinosipella* species are rare and only collected in very deep water. The institution that sent most of the material is Le Muséum national d'Histoire naturelle, Paris, France, courtesy of Dr. Philippe Bouchet.

While completely examined, the entire list of material examined was too long to be published in the descriptive paper (Simone & Cunha, 2008). In that paper, three of the valid species had a complete list of material examined: *Spinosipella agnes* Simone & Cunha, 2008; *S. tinga* Simone & Cunha, 2008; and *S. acuticostata* (Philippi, 1844). However, only a partial list of examined material was provided for the remaining two species: *S. deshayesiana* (Fisher, 1862); and *S. costeminens* (Poutiers, 1981). A supplementary list of this material is, therefore, provided in this paper.

Spinosipella deshayesiana (Fischer, 1862)

Material examined: Paratypes of *S. ericia*: AUSTRALIA; **S of Cape Wiles**, 174-183m, 35°39'S 136°40'E, AMS 032068, 1 left, 1 right valves (Zoological Results of the F.I.S. Endeavour, 28/viii/1909). Additional material: Holotype of *S. japonica*: JAPAN. ANSP 49639, 1 shell. SW PACIFIC, MNHN. **Loyaute** (R/V "Alis" Campagne VOLSMAR, B. Richer-ORSTOM coll.); 22°22'S 168°44'E, 380-420 m, 4 valves (Sta. DW 38, 08/vi/1989); 22°23'S 168°43'E, 500-550 m, 3 valves (Sta. DW 37, 08/vi/1989); (R/V "Alis" MUSORSTOM 6, Bouchet & Richer col.) 20°47'S 167°05'E, 340 m, 3 valves (Sta. DW 392, 13/ii/1989), 20°47'S 167°06'E, 370 m, 1 valve (Sta. DW 398, 13/ii/1989), 21°02'S 167°32'E, 430 m, 9 valves (Sta. DW 464, 21/ii/1989), 21°01'S 167°31'E, 425 m, 11 valves (Sta. DW 459, 20/ii/1989), 21°02'S 167°31'E, 420 m, 5 valves (Sta. DW 460, 20/ii/1989), 20°40'S 167°03'E, 424 m, 15 valves (Sta. DW 411, 15/ii/1989), 20°47'S 167°06'E, 390 m, 7 valves (Sta. DW 391, 13/ii/1989), 21°09'S 167°55'E, 310 m, 4 valves (Sta. DW 479, 22/ii/1989), 20°47'S 167°05'E, 380 m, 4 valves (Sta. DW 397, 13/ii/1989), 20°40'S 167°03'E, 463 m, 10 valves (Sta. DW 413, 15/ii/1989). FIDJI, MNHN;

(R/V "Alis" Campagne BORDAU 1, Bouchet, Warén & Richer coll.); 17°20'S 178°44'W, 477-493 m, 30 valves (Sta. DW 1432, 02/iii/1999), 19°41'S 178°11'W, 321-424 m, 7 valves (Sta. DW 1475, 08/iii/1999), 19°01'S 178°25'W, 3 valves (Sta. DW 1488), 19°01'S 178°26'W, 395-540 m, 6 valves (Sta. DW 1486, 10/iii/1999). TONGA IS., MNHN. (R/V "Alis" Campagne BORDAU 2, Bouchet, Warén & Richer coll.); 21°16'S 174°59'W, 463-464 m, 4 valves (Sta. DW 1526, 02/vi/2000), 21°41'S 175°19'W, 391-421 m, 4 valves (Sta. DW 1537, 04/vi/2000), 23°22'S 176°18'W, 400-416 m, 5 valves (Sta. CP 1628, 19/vi/2000), **S of Nomuka** group, 20°38'S 175°03'W, 476-478 m, 16 valves (Sta. DW 1548, 06/vi/2000). VANUATU; **Monts Gemini**, 20°59'S 170°04'E, 425 m, MNHN, 1 valve (R/V "Alis" Campagne VOLSMAR, B. Richer-ORSTOM coll.) (Sta. DW 50, 04/iv/1989). **New Caledonia**, MNHN (R/V "Alis" Campagne BATHUS 4, Bouchet & Richer-ORSTOM coll.); 19°04'S 163°27'E, 264-270 m, 4 valves (Sta. DW 942, 08/viii/1994), 21°01'S 164°27'E, 416-433 m, 1 valve (Sta. CP 889, 02/viii/1994); (R/V "Alis" Campagne BERYX 11, B. Richer-ORSTOM coll.) 24°44'-24°43'S 168°08'-168°08'E, 270-350 m, 1 valve (Sta. DW 11 + CP23, 16-17/x/1992); (R/V "Alis" Campagne BATHUS 2, Bouchet & Richer-ORSTOM coll.) 22°48'S 167°26'E, 334-358 m, 5 valves (Sta. CP 724, 11/v/1993), 22°48'S 167°16'E, 444-445 m, 16 valves (Sta. DW 719, 11/v/1993), 22°55'S 166°49'E, 520 m, 1 valve (Sta. CP 733, 13/v/1993); (R/V "Alis" Campagne BATHUS 1, Bouchet & Richer-ORSTOM coll.); 20°58'S 165°36'E, 302-335 m, 1 valve (Sta. CP 701, 18/iii/1993). GUAM; **Mariana Islands**, E Agana Bay, reef talus, 72-90m, FMNH 287170, 2 valves (BGUAM-53, G. Paulay, B.D. Smith col., 04/vii/1997), **N of Mangilao**, off Hawaiian Rock Quarry, 90-117 m, 13°27.006'N 144°50.67'E, FMNH 287249, 2 valves (BGUAM-90, G. Paulay et al. col., 31/vii/1997), Double Reef, dredged by R.V. Pescadot, 109-128 m, AMS 287754, 11 valves (B.D. Smith col., 22/iv/1986). AUSTRALIA. **S of Cape Wiles**, Bass Strait, SE of Cape Everard, 165-274 m, 38°15'S 149°12'E, AMS 426106, 6 valves (FIS Endeavour, 09/v/1914). Philippines, **Aliguri Islands**, near Dipolog, Mindanao, EGC, 1 specimen (Exp. Guido Poppe, 27/xii/00); Musorston 2, 13°32'N 121°07.5'E, 130-137 m depth, NMHN, 3 valves (sta. 33); **Bohol Sea**, Off Balcasag Island, 9°31.0'S 123°40.4'E, 397-410 m, MNHN, 1 valve (Sta. DW 2401, R/V "DA-BFAR" PANGLAO 2005 Deep Sea Cruise, MNHN-NUS-NFRDI Coll., 31/v/2005). Myanmar (BIRMANIA), **35 mi. W. of Andaman Sea**, 13°00'N 97°41'E, ANSP 292986, 5 valves (30/iii/1963, R/V Anton Bruun, sta. 36A, dredge, intern. Indian O. Exped.). **Preparis North Channel, 50 mi. SW of Ir-rawaddy river**, 15°08'N 94°04'E, ANSP 293752, 4

valves (1/iv/1963, R/V Anton Bruun sta. 43, dredge, intern. Indian O. Exped.), **57 mi. N.W. of Tavoy Islands**, 13°28'N 97°19'E, ANSP 293311, 11 valves (30/iii/1963, R/V Anton Bruun, sta. 37A, dredge, intern. Indian O. Exped.). ANDAMANS SEA. **14 mi. NW of Port Blair**, 12°01'N 92°55'E, 49 m depth, ANSP 292533, 1 valve (27/iii/1963, R/V Anton Bruun, sta. 28B, shrimp trawl, intern. Indian O. Exped.). THAILAND. **Phuket Islands**, Andaman Sea, 08°29'N 97°59'E, 42 m depth, ANSP 291764, 11 valves (23/iii/1963, R/V Anton Bruun, sta. 19, dredge, intern. Indian O. Exped.), **Andaman Sea**, 09°19'N 97°52'E, 58 m depth, ANSP 291810, 1 valve (23/iii/1963, R/V Anton Bruun, sta. 20, dredge, intern. Indian O. Exped.).

Spinospella costeminens (Poutiers, 1981)

Material examined. Holotype. Additional material (MNHN): SW PACIFIC (R/V "Alis" MUSORSTOM 7, Bouchet, Metiviér & Richer coll.); 12°34'S 178°15'E, 1280-1300 m, 1 valve (Sta. CP 623, 22/v/1992), 12°16'S 177°28'E, 786-800 m, 26 valves (Sta. CP 552, 18/v/1992), 13°49'S 179°56'E, 700-715 m, 5 valves (Sta. DW 635, 30/v/1992); **Wallis Islands** (R/V "Alis" MUSORSTOM 7, Bouchet, Métivier & Richer coll.); 13°12'S 176°16'W, 455-515 m, 3 valves (sta. DW 523, 13/v/1992), 13°11'S 176°15'W, 500-600 m, 1 valve (Sta. DW 525, 13/v/1992), 13°19'S 176°17'E, 350 m, 6 valves (Sta. DW 601, 25/v/1992), 13°10'S 176°13'E, 415-475 m, 1 valve (Sta. DW 585, 22/v/1992), 13°24'S 176°15'E, 540-560 m, 1 valve (Sta. DW 527, 14/v/1992), 15°05'S 167°12'E, 305-314 m, 3 valves (MUSORS-TOM 8, Sta. DW1106, 07/x/1994, Bouchet & Richer coll.); **Banc Combe** (R/V "Alis" MUSORSTOM 7, Bouchet, Metiviér & Richer coll.); 12°15'S 177°28'W, 791-795 m, 10 valves (Sta. CP 551, 18/v/1992), 12°27'S 177°29'E, 550-552 m, 1 valve (Sta. DW 546, 17/v/1992), 12°23'S 177°24'E, 700-740 m, 1 valve (Sta. DW 548, 17/v/1992), 12°27'S 177°28'E, 600 m, 15 valves (Sta. DW 540, 17/v/1992), 12°27'S 177°28'E, 500-505 m, 1 valve (Sta. DW 541, 17/v/1992); **Fortuna Islands** (R/V "Alis" MUSORSTOM 7, Bouchet, Metiviér & Richer coll.); 14°13'S 178°11'E, 349-355 m, 1 valve (Sta. DW 514, 12/v/1992), 14°13 S 178°11'E, 260-300 m, 2 valves (Sta. DW 513, 12/v/1992); 14°20'S 178°04'E, 300-390 m, 1 valve (Sta. DW 504, 11/v/1992), 14°15'S 178°11'E, 200-240 m, 2 valves (Sta. DW 509, 12/v/1992), 13°39'S 198°55'E, 650-700 m, 12 valves (Sta. DW 636, 30/v/1992); **Banc Waterwitch** (R/V "Alis" MUSORSTOM 7, Bouchet, Metiviér & Richer coll.); 12°31'S 176°40'E, 500 m, 2 valves (Sta. DW 529, 16/v/1992), 12°23'S 176°42'E, 440-500 m, 1 valve (Sta. DW 534, 16/v/1992); **Banc Tuscarora** (R/V "Alis" MUSORSTOM 7, Bouchet, Me-

tiviér & Richer-ORSTOM coll.); 11°47'S 178°19'E, 540-542 m, 3 valves (Sta. CP 555, 19/v/1992), 11°47'S 178°25'E, 900 m, 1 valve (Sta. CP 565, 20/v/1992), 11°48'S 178°22'E, 775-777 m, 4 valves (Sta. CP 562, 19/iii/1992); (R/V "Alis" MUSORSTOM 7, Bouchet, Richer-ORSTOM coll.); 11°46'S 178°27'E, 1015-1020 m, 1 valve (Sta. CP 564, 13/viii/1998), 14°20'S 178°04'E, 250-330 m, 1 valve (Sta. DW 496, 10/v/1992). VANUATU (R/V "Alis" Campagne MUSORSTOM 8, Bouchet & Richer de Forges coll.); 19°22'S 169°23'E, 250 m, 2 valves (Sta. DW 979, 22/ix/1994), 19°16'S 169°24'E, 372-466 m, 1 valve (Sta. DW 988, 23/ix/1994), 20°20'S 169°49'E, 360-408 m, 2 valves (Sta. DW 964, 21/ix/1994), 15°03'S 167°07'E, 154-179 m, 6 valves (Sta. DW 1105, 07/x/1994), 20°21'S 169°47'E, 497-570 m, 1 valve (Sta. DW 958, 20/ix/1994), 15°37'S 167°16'E, 184-190 m, 3 valves (Sta. DW 1070, 04/x/1994), 17°56'S 168°44'E, 765-780 m, 1 valve (Sta. CP 1035, 29/ix/1994), 18°52'S 168°56'E, 720-830 m, 1 valve (Sta. CP 1007, 25/ix/1994), 17°53'S 168°13'E, 740-775 m, 2 valves (Sta. CP 1012, 27/ix/1994), 15°04'S 167°08'E, 205-210 m, 6 valves (Sta. DW 1101, 07/x/1994), 18°52'S 168°55'E, 748-775 m, 5 valves (Sta. CP 992, 24/ix/1994), 18°52'S 168°56'E, 764-786 m, 2 valves (Sta. CC 996, 24/ix/1994), 15°58'S 166°38'E, 1160-1220 m, 1 valve (Sta. CP 1125, 10/x/1994), 18°01'S 168°48'E, 920-950 m, 1 valve (Sta. CP 1036, 29/ix/1994), 18°51'S 168°52'E, 910-936 m, 1 valve (Sta. CP 991, 24/ix/1994), 15°05'S 167°11'E, 281-288 m, 6 valves (Sta. DW 1097, 07/x/1994), 15°37'S 167°16'E, 180-191 m, 1 valve (Sta. DW 1071, 04/x/1994), 16°16'S 167°21'E, 360-419 m, 1 valve (Sta. DW 1065, 02/x/1994), 17°55'S 168°42'E, 690-750 m, 1 valve (Sta. CC 1034, 29/ix/1994), 16°13'S 167°21'E, 408-430 m, 1 valve (Sta. DW 1059, 02/x/1994), 19°21'S 169°31'E, 602-648 m, 1 valve (Sta. DW 986, 23/ix/1994), 20°20'S 169°50'E, 390-422 m, 1 valve (Sta. DW 960, 20/ix/1994), 20°21'S 169°48'E, 436-475 m, 3 valves (Sta. DW 959, 20/ix/1994), 19°22'S 169°28'E, 436-475 m, 4 valves (Sta. DW 972, 22/ix/1994); **S Vanuatu - Monts Gemini** (R/V "Alis"); 20°20'S 169°50'E, 390-422 m, 1 valve (Campagne MUSORSTOM 8, Sta. DW 960, 20/ix/1994), 20°59'S 170°03'E, 450 m, 1 valve (Campagne VOLSMAR, Sta. DW 51, B. Richer-ORSTOM coll., 04/iv/1989), 20°59'S 170°02'E, 710 m, 2 valves (Sta. DW 55, 05/vii/1989). TONGA ISLANDS (R/V "Alis" Campagne BOUDAU 2, Bouchet, Warén & Richer coll.); 21°44'S 175°20'W, 322-329 m, 2 valves (Sta. CP 1533, 04/vi/2000), 21°43'S 175°19'W, 302-327 m, 2 valves (Sta. DW 1534, 04/vi/2000), 21°41'S 175°19'W, 391-421 m, 14 valves (Sta. DW 1537, 04/vi/2000), 18°37'S 173°54'W, 4 valves (Sta. DW 1587, 13/vi/2000), 21°45'S 175°21'W, 320-323 m, 1 valve (Sta. DW 1536, 04/vi/2000), 21°44'S 175°20'W, 322-322 m, 4 valves (Sta. DW 1532, 04/vi/2000), 23°02'S 175°47'W, 327-342 m, 5 valves (Sta. DW 1612, 17/vii/2000), 21°39'S 175°19'W, 471-508 m, 20 valves (Sta. DW 1538, 04/vi/2000); **Eua Islands** (R/V "Alis" Campagne BORDAU 2); 21°21'S 175°07'W, 336-347 m, 4 valves (Sta. DW 1518, 01/vi/2000), 21°16'S 174°59'W, 483-509 m, 2 valves (Sta. CP 1527, 03/vi/2000), 21°43'S 175°18'W, 268 m, 1 valve (Sta. DW 1535, 04/vi/2000), 21°17'S 174°59'W, 349-351 m, 1 valve (Sta. CP 1525, 02/vi/2000), 21°21'S 175°02'W, 229-246 m, 2 valves (Sta. DW 1516, 01/vi/2000), 21°25'S 175°03'W, 447-450 m, 2 valves (Sta. DW 1520, 01/vi/2000); **Seamount** (R/V "Alis" Campagne BORDAU 2); 23°03'S 175°53'W, 482-504 m, 2 valves (Sta. DW 1615, 17/vi/2000), 23°23'S 176°18'W, 407-443 m, 6 valves (Sta. DW 1631, 19/vi/2000), 23°02'S 175°51'W, 429-549 m, 11 valves (Sta. DW 1614, 17/vi/2000), 21°49'S 175°20'W, 320-323 m, 4 valves (Sta. DW 1635, 20/vi/2000), 22°16'S 175°20'W, 313-316 m, 4 valves (Sta. DW 1606, 16/vi/2000), 22°15'S 175°23'W, 356-367 m, 2 valves (Sta. DW 1607, 16/vi/2000); **S of Nomuka group**; 20°38'S 174°58'W, 491-500 m, 25 valves (R/V "Alis" Campagne BORDAU 2, Sta. DW 1552, Bouchet, 06/vi/2000); **Ha'apai Group** (R/V "Alis" Campagne BORDAU 2); 20°50'S 174°57'W, 200-487 m, 3 valves (Sta. DW 1601, 15/vi/2000), 19°42'S 174°49'W, 257-265 m, 1 valve (Sta. DW 1577, 11/vi/2000); **N of Ha'apai group** (R/V "Alis" Campagne BORDAU 2); 19°06'S 174°18'W, 436-442 m, 4 valves (Sta. CP 1593, 14/vi/2000), 19°12'S 174°13'W, 353-386 m, 1 valve (Sta. CP 1590, 14/vi/2000), 19°03'S 174°19'W, 523-806 m, 1 valve (DW 1595, 14/vi/2000); **NW of Tongatapu** (R/V "Alis" Campagne BORDAU 2); 21°05'S 175°23'W, 391-421 m, 14 valves (Sta. DW 1637, 464-507 m, 21/vi/2000), 21°05'S 175°23'W, 532 m, 1 valve (Sta. DW 1642, 21/vi/2000), 21°09'S 175°22'W, 395-395 m, 1 valve (Sta. CP 1641, 21/vi/2000); **SW of Tongatapu** (R/V "Alis" Campagne BORDAU 2, Bouchet, Warén & Richer coll.); 21°16'S 175°18'W, 427-436 m, 9 valves (Sta. DW 1543, 05/vi/2000), 21°24'S 175°18'W, 488-491 m, 6 valves (Sta. DW 1547, 05/vi/2000), 21°17'S 175°17'W, 444-447 m, 1 valve (Sta. CP 1545, 05/vi/2000), 21°15'S 175°14'W, 317-329 m, 1 valve (Sta. DW 1540, 05/vi/2000), 21°18'S 175°18'W, 441-443 m, 5 valves (Sta. DW 1544, 05/vi/2000); **Tongatapu** (R/V "Alis" Campagne BORDAU 2); 21°05'S 175°22'W, 456-510m, 1 valve (Sta. DW 1509, 31/v/2000), 21°05'S 175°22'W, 456-510m, 1 valve (Sta. DW 1509, 31/v/2000), 21°44'S 175°20'W, 322-322 m, 1 valve (Sta. DW 1532, 04/vi/2000), 22°12'S 175°20'W, 189-196 m, 1 valve (Sta. DW 1603, 16/vi/2000), 20°49'S 174°57'W, 263-320 m, 3 valves (Sta. DW 1602, 15/

vi/2000), 21°02'S 175°19'W, 555-581 m, 1 valve (Sta. DW 1508, 31/v/2000); **S of Nomuka group** (R/V "Alis" Campagne BORDAU 2); 20°38'S 175°01'W, 511 m, 4 valves (Sta. CP 1551, 06/vi/2000), 20°38'S 174°58'W, 482-498 m, 2 valves (Sta. DW 1554, 06/vi/2000); **Vava' group**: 18°34'S 173°55'W, 440-487 m, 2 valves (R/V "Tangaroa" Campagne BORDAU 2, Sta. DW 1586, 13/vi/2000). NEW CALEDONIA; 20°37'S 166°58'E, 538 m, 1 valve (CALSUB 1989, R/V "Cyna-na" Pl. 15), 24°56'S 168°22'E, 520 m, 4 valves (R/V "Vauban" SMIB 3, Sta. DW 01, B. Richer-ORSTOM coll., 20/v/1987); **Lord Howe**; 37°85'S 167°27'E, 815 m, 1 valve (CALSUB 1989, Cyara direns, pl.16, 07/iii/1989); **Banc Nova**; 22°11'00S, 159°14'70E, 305 m, 8 valves (Campagne Chalcal 1, St. D 63, 1984); **N of New Caledonia** (R/V "Alis" Campagne BATHUS 4, Métivier, Richer-ORSTOM coll.); 18°56'S 163°08'E, 609-702 m, 1 valve (Sta. CP 912, 5/viii/1994), 18°48'S 163°19'E, 600 m, 1 valve (Sta. CP 922, 06/viii/1994), 20°32'S 164°57'E, 616-690 m, 1 valve (Sta. CP 949, 10/viii/1994), 19°01'S 163°15'E, 341-351 m, 7 valves (Sta. DW 902, 04/viii/1994), 18°49'S 163°15'E, 600-616 m, 4 valves (Sta. DW 914, 5/viii/1994), 18°50'S 163°17'E, 610-660 m, 2 valves (Sta. DW 919, 06/viii/1994), 18°51'S 163°17'E, 575-580 m, 1 valve (Sta. DW 915, 5/viii/1994), 19°00'S 163°12'E, 461 m, 1 valve (Sta. DW 904, 04/viii/1994), 18°45'S 163°17'E, 610-620 m, 1 valve (Sta. DW 920, 06/viii/1994), 19°00'S 163°26'E, 280-288 m, 1 valve (Sta. CP 938, 08/viii/1994); **S of New Caledonia** (R/V "Alis", Bouchet & Richer-ORSTOM coll.); 24°53'S 168°21'E, 565-600 m, 17 valves (Campagne BERYX 11, Sta. DW10, 15/x/1992), 23°39'S 168°00'E, 230-360 m, 1 valve (Sta. CH 41, 20/x/1994), 24°44'S - 24°43'S, 168°10' - 168°08'E, 270-350 m, 7 valves (Sta. DW 11 + CP 23, 16-17/x/1992), 22°36'S 166°27'E, 570-605 m, 1 valve (Campagne BATHUS 2, Sta. DW 740, 14/v/1993), 23°41'S 168°01'E, 285 m, 1 valve (Campagne SMIB 8, Sta. DW 79, 07/ix/1989), 22°59' - 23°S' 168°21' - 168°23'E, 491-558 m, 4 valves (Sta. DW 193-196, 01/ii/1993), 24°55'S 168°22'E, 508-510 m, 5 valves (Sta. DW 149, 27/ii/1993), 23°38'S 167°43'E, 433-450 m, 2 valves (Sta. DW 166, 20/ii/1993), 24°46'S 168°08'E, 251-255 m, 2 valves (Sta. DW 157, Banc Kaimon Maru, 28/ii/1993), 22°39'S 167°11'E, 202-227 m, 2 valves (Campagne BATHUS 2, Sta. DW 715, 10/v/1993), 22°33'S 166°26'E, 233-258 m, 3 valves (Sta. DW 749, 15/v/1993), 22°19'S 166°11'E, 455 m, 1 valve (Sta. CP 760, 16/iii/1993); **off Norfolk**; 24°46'S 168°09'E, 226-238 m, 2 valves (R/V "Tangaroa" Campagne HALIPRO 2, Sta. BT 70, B. Richer-ORSTOM coll., 20/xi/1996), 24°52'S 168°22'E, 635-680 m, 2 valves (R/V "Alis" Campagne BERYX 11, Sta. DW 09, B. Richer-ORSTOM coll., 15/x/1992), 22°50'S 166°25'E, 236-264 m, 1 valve (R/V "Alis" Campagne BATHUS 2, Sta. DW 732, Bouchet & Richer-ORSTOM coll., 13/v/1993), 22°19'S 166°10'E, 620-700 m, 1 valve (Sta. CP 762, 16/v/1993), 23°03'S 166°58'E, 397-400 m, 4 valves (Sta. DW 730, 12/v/1993), 22°11'S 165°59'E, 1060-1450 m, 8 valves (Sta. CP 767, 17/v/1993), 22°47'S 167°29'E, 241-260 m, 2 valves (Sta. DW 726, 12/v/1993), 23°03'S 166°56'E, 592-622 m, 1 valve (R/V "Alis" Campagne BATHUS 3, Sta. CP 845, 01/xii/1993), 21°17'S 165°57'E, 190-207 m, 2 valves (R/V "Alis" Campagne BATHUS 1, Sta. DW 653, Bouchet & Richer-ORSTOM coll., 12/iii/1993), 23°10'S 166°49'E, 870-1000 m, 1 valves (R/V "Alis" HALIPRO, Sta. CH 876, Richer-ORSTOM coll., 31/v/1994), 22°51' - 22°52'S 167°12' - 168°12'E, 408-436 m, 10 valves (R/V "Alis" Campagne SMIB 8, Ile des Pins, sud-estRécif sud, Stns. DW 197-199, P. Boucher et B., Richer coll., 01/iii/1993), 18°47'S 163°17'E, 610-613 m, 4 valves (R/V "Alis" Campagne BATHUS 4, Sta. CP 921, Bouchet & Richer-ORSTOM coll., 06/viii/1994), 22°52'S 167°12'E, 415-445 m, 1 valve (R/V "Alis" Campagne NORFOLK 1, Sta. DW 1735, Lozouet, Boisselier, Richer-IRD coll., 28/vi/2001), 24°54'S 168°22'E, 509-513 m, 25 valves (Sta. DW 1691, 23/vi/2001), 24°56'S 168°21'E, 507-967 m, 15 valves (Sta. DW 1692, 23/vi/2001), 24°56'S 168°21'E, 507-967 m, 3 valves (Sta. DW 1692, 23/vi/2001), 23°28'S 167°52'E, 366-560 m, 1 valve (Sta. DW 1654, 19/vi/2001), 23°17.3'S 167°50.4'E, 276-350 m, 15 valves (Sta. DW 1651, 19/vi/2001); **Banc Espouge** (R/V "Alis", Richer-IRD coll.); 24°56.8'S 168°21.8'E, 518-540m, 2 valves (Campagne LITHIST, Sta. CP 09, 11/viii/1999), 24°55.4'S 168°21.6'E, 504-530m, 6 valves (Sta. DW 07, 11/viii/1999), 24°55'S 168°22'E, 508-532 m, 60 valves (Campagne SMIB 8, Sta. DW 146-147, P. Bouchet et B. Richer coll., 27/ii/1993), 24°56'S 168°21'E, 510 m, 5 valves (Sta. DW 148, 27/ii/1993), 24°55'S 168°21'E, 564-1144 m, 3 valves (Campagne NORFOLK 1, Sta. DW 1693, 23/vi/2001), 24°55'S 168°22'E, 508-541 m, 1 valve (Sta. DW 1684, 23/vi/2001), 24°56'S 168°22'E, 533-545 m, 24 valves (Sta. DW 1688, 23/vi/2001), 24°55'S 168°22'E, 508-541 m, 33 valves (Sta. DW 1684, 23/vi/2001), 21°11'S 165°53'E, 780-800 m, 7 valves (Campagne BATHUS 1, Sta. CP 660, 13/iii/1993), 23°03'S 166°59'E, 452-464 m, 1 valve (Campagne BATHUS 2, Sta. CP 736, 13/iii/1993), 21°42'S 166°41'E, 1000-1120 m, 2 valves (HALIPRO 1, Sta. C 858, Richer-ORSTOM coll., 20/iii/1994); **Banc Kaimon-Maru** (Lozouet, Boisselier, Richer-IRD coll.); 24°45'S 168°09'E, 231-233 m, 14 valves (R/V "Alis" Campagne NORFOLK 1, Sta. DW 1675, 22/vi/2001), 24°43'S, 168°10'E, 298-324 m, 8 valves (Sta. DW 1679, 22/vi/2001), 24°45'S 168°10'E, 385-392 m, 8 valves (Sta. DW 1680, 22/vi/2001),

24°46'S 168°08'E, 241-245 m, 2 valves (R/V "Tangaroa" Campagne SMIB 8, Sta. DW 159, 28/ii/1993), 24°46'S 168°08'E, 241-245 m, 2 valves (Sta. WD 159, 28/ii/1993), 24°46'S 168°08'E, 235-252 m, 1 valve (R/V "Alis" Campagne SMIB 8, Sta. DW 154, 28/ii/1993), 22°22'S 166°14'E, 495 m, 1 valve (R/V "Alis" Campagne BATHUS 2, Sta. CP 755, 16/v/1993), 23°21'S 168°05'E, 215-260 m, 1 valve (R/V "Alis" Campagne SMIB 4, Sta. DW 55, 09/iii/1989 ORSTOM coll.), 24°55'S 168°22'E, 515-540 m, 1 valve (Sta. DW 37, 07/iii/1989); **Banc Antigonía** (Lozouet, Boisselier, Richer-IRD coll.); 23°22'S 168°03'E, 266-276 m, 1 valve (R/V "Alis" Campagne NORFOLK 1, Sta. CP 1716, 26/vi/2001); **Banc Jumeau-West** (R/V "Alis", Lozouet, Boisselier, Richer-IRD coll.); 23°39'S 168°00'E, 278 m, 1 valve (Campagne NORFOLK 1, Sta. DW 1673, 21/vi/2001); 23°20'S 168°16'E, 340-619 m, 1 valve (Sta. DW 1729, 27/vi/2001), 23°41'S 168°00'E, 230-290 m, 1 valve (Campagne SMIB 8, Sta. DW 170-172, 29/ii/1993), 23°39'S 168°00'E, 320-370 m, 14 valves (Sta. DW 177, Bouchet & Richer coll., 29/ii/1993); **Banc Introuvable** (R/V "Alis" Campagne NORFOLK 1, Lozouet, Boisselier, Richer-IRD coll.); 24°40'S 168°40'E, 581-600 m, 2 valves (Sta. DW 1699, 24/vi/2001), 24°40'S 168°39'E, 575-589 m, 6 valves (Sta. DW 1694, 24/vi/2001), 23°20'S 168°16'E, 347-1063 m, 1 valve (Sta. DW 1732, 27/vi/2001), 24°40'S 168°39'E, 562-587 m, 3 valves (Sta. DW 1695, 24/vi/2001), 24°39'S 168°38'E, 569-616 m, 1 valve (Sta. DW 1697, 24/vi/2001), 24°39'S 168°38'E, 569-616 m, 2 valves (Sta. DW 1697, 24/vi/2001), 24°39'S 168°39'E, 780-806 m, 1 valve (Sta. DW 1696, 24/vi/2001); **Banc Stylaster**; 23°38'S 168°43'E, 430-452 m, 1 valve (R/V "Alis" Campagne SMIB 8, Sta. DW 167, Bouchet & Richer coll., 29/ii/1993); **Volcans Hunter & Matthew** (R/V "Alis" Campagne VOLSMAR, Richer-OESTOM coll.); 22°26'S 171°44'E, 325-400 m, 1 valve (Sta. DW 7, 01/vi/1989), 22°23'S 171°41'E, 260-300 m, 1 valve (Sta. DW 17, 03/vi/1989); **SE of New Caledonia** (R/V "Alis"); 21°26'S 166°17'E, 550-600m, 1 valve (HALIPRO 1, Sta. CP 866, Richer-ORSTOM coll., 22/iii/1994), 13°21'S 176°08'E, 335-340 m, 1 valve (MUSORSTOM 7, Sta. DW 605, Bouchet/Métivier/Richer coll., 26/v/1992); **E of New Caledonia** (R/V "Alis" Campagne BATHUS 1, Bouchet & Richer-ORSTOM coll.); 20°35'S 165°07'E, 250 m, 2 valves (Sta. DW 686, 16/iii/1993), 20°33'S 165°00'E, 270-282 m, 10 valves (Sta. DW 688, 16/iii/1993), 20°33'S 165°01'E, 352 m, 1 valve (Sta. DW 690, 16/iii/1993); **Chesterfield** (R/V "Coriolis" MUSORSTOM 5, Coral Sea, Bouchet, Métivier & Richer coll.); 19°53'S 158°38'E, 400 m, 10 valves (Sta. 361, 19/x/1986), 19°53'S 158°40'E, 370-400m, 5 valves (Sta. 379, 20/x/1986), 19°59'80S 158°45'80E, 250 m, 2 valves (Sta. D 38, Chacal 1984); **Banc Capel**; 24°49'S 159°34'E, 250 m, 12 valves (R/V "Coriolis" MUSORS-TOM 5, Sta. 270, Coral Sea, Bouchet, Métivier & Richer coll., 09/x/1986); **Banc Kelso**; 24°49'S 159°34'E, 250 m, 6 valves (R/V "Coriolis" MUSORS-TOM 5, Sta. 277, Coral Sea, Bouchet, Métivier & Richer coll., 10/x/1986); **Loyaute Islands**; 20°41'S 167°07'E, 360 m, 1 valve (R/V "Alis" Campagne MUSORSTOM 6, Sta. DW 407, Boucher & Richer coll., 15/ii/1989), 21°00'S 167°27'E, 250 m, 1 valve (Sta. DW 453, 20/ii/1989), 21°01'S 167°26'E, 240 m, 3 valves (Sta. DW 456, 20/ii/1989), 21°01'S 167°31'E, 425 m, 3 valves (Sta. DW 459, 20/ii/1989), 21°05'S 167°27'E, 200 m, 7 valves (Sta. DW 462, 21/ii/1989), 21°00'S 167°25'E, 300 m, 1 valve (Sta. DW 452, 20/ii/1989), 20°42'S 167°00'E, 282 m, 3 valves (Sta. DW 399, 14/ii/1989), 21°06'S 167°26'E, 240 m, 3 valves (Sta. DW 461, 21/ii/1989), 20°42'S 167°04'E, 283 m, 2 valves (Sta. DW 419, 16/ii/1989), 20°42'S 167°04'E, 283 m, 1 valve (Sta. DW 417, 16/ii/1989), 20°42'S 167°04'E, 283 m, 1 valve (Sta. DW 419, 16/ii/1989), 20°49'S, 167°06'E, 800 m, 1 valve (Sta. DW 488, 24/ii/1989), 21°22'S 167°50'E, 300 m, 1 valve (Sta. DW 481, 23/ii/1989), 20°42'S 167°00'E, 282 m, 2 valves (Sta. DW 399, 14/ii/1989), 20°23'S 166°20'E, 780 m, 2 valves (Sta. CP 438, 18/ii/1989), 20°23'S 166°20'E, 800 m, 1 valve (Sta. DW 427, 17/ii/1989), 21°31'S 166°21'E, 330 m, 3 valves (R/V "Coriolis" BIOGEO-CAL, Sta. KG 252, P. Lozouet coll., 16/iv/1987), 20°35'S 166°55'E, 470-480 m, 1 valve (Sta. DW 307, 01/v/1987), 20°28'S 166°48'E, 465-470 m, 1 valve (Sta. DW 291, 27/iv/1987), 20°36'S 167°00'E, 830-840 m, 3 valves (Sta. DW 289, 27/iv/1987), 22°17'S 168°42'E, 340-400 m, 1 valve (R/V "Alis" Campagne VOLSMAR, Sta. DW 42, B. Richer-ORSTOM coll., 08/vi/1989), 20°40'S 166°58'E, 510-590 m, 3 valves (Sta. DW 308, 01/v/1987), Lord Howe, 24°31'S 161°52'E, 1060-1130 m, 1 valve (R/V "Tangaroa" Campagne HALIPRO 2, Sta. BT 102, B. Richer-ORSTOM coll., 26/xi/1996). **FIDJI. S of Viti Levu** (R/V "Alis", Bouchet, Warén & Richer-ORSTOM coll.): 18°47'S 178°47'E, 750-767 m, 8 valves (Campagne BORDAU 1, Sta. CP 1460, 06/iii/1999), 19°01'S 178°25'E, 500-516 m, 53 valves (Sta. DW 1488, 10/iii/1999), 16°27'S 178°55'E, 535 m, 24 valves (Sta. DW 1417, 27/ii/1999), 17°18'S 179°33'W, 820-863 m, 11 valves (Sta. DW 1459, 05/iii/1999), 18°50'S 178°27'E, 777-787 m, 6 valves (Sta. DW 1491, 11/iii/1999), 18°44'S 178°25'W, 335-350 m, 29 valves (Sta. DW 1497, 12/iii/1999), 17°22'S 179°28'W, 1216-1226 m, 3 valves (Sta. CP 1458, 05/iii/1999), 17°19'S 179°34'W, 942-976 m, 1 valves (Sta. CP 1457, 05/iii/1999), 19°01'S 178°26'W, 395-540 m, 42 valves (Sta. DW 1486, 10/iii/1999), 18°09'S 178°38'E, 294-300 m, 1

valve (Sta. CP 1507, 13/iii/1999), 16°45'S 179°59'E, 423-500m, 1 valve (Sta. CP 1395, 23/ii/1999), 19°40'S 178°10'E, 314-377 m, 8 valve (Sta. DW 1469, 08/iii/1999), 16°02'S 179°30'E, 550-561 m, 6 valves (Sta. DW 1408, 26/ii/1999), 19°41'S 178°11'E, 310-420 m, 8 valves (Sta. CP 1476, 08/iii/1999), 18°43'S 178°23'E, 430-450 m, 2 valves (Sta. DW 1492, 11/iii/1999), 16°28'S 178°56'W, 367 m, 1 valve (Sta. DW 1418, 27/ii/1999), 17°08'S 178°59'W, 403-406 m, 9 valves (Sta. DW 1421, 28/ii/1999), 19°40'S 178°10'W, 262-266 m, 1 valve (Sta. DW 1472, 08/iii/1999), 18°09'S 178°39'W, 290-300 m, 4 valves (Sta. DW 1465, 06/iii/1999), 17°11'S 178°45'W, 170-183 m, 1 valve (Sta. DW 1435, 02/iii/1999), 16°39'S 179°57'W, 591-596m, 1 valve (Sta. CP 1396, 24/ii/1999), 17°20'S 178°43'W, 488-500 m, 1 valve (R/V "Alis" Campagne BOUDAU 4, Sta. CP 1433, 02/iii/1999), 18°18.5'S 178°05.9'E, 259-348 m, 1 valve (Campagne MUSORSTOM 10, Sta. DW 1374, 17/viii/1998), 18°00.0'S 178°53.7'E, 1058-1091 m, 42 valves (Sta. CP 1361, 13/viii/1998), 18°19.2'S 177°51.7'E, 441-443 m, 1 valve (Sta. CP 1382, 18/viii/1998), 17°30.9'S 178°53.3'E, 879-897 m, 4 valves (Sta. CP 1353, 12/viii/1998), 17°30.9'S 178°53.3'E, 879-897 m, 2 valves (Sta. CP 1353, 12/viii/1998), 18°12.7'S 178°32.4'E, 879-897 m, 6 valves (Sta. CP 1365, 15/viii/1998), 18°12.4'S 178°33.0'E, 144-150m, 5 valves (Sta. CP 1363, 15/viii/1998), 18°00.0'S 178°53.7'E, 1058-1091 m, 3 valves (Sta. CP 1361, 13/viii/1998), 17°42.6'S 178°55.0'E, 959-963 m, 16 valves (Sta. CP 1354, 12/viii/1998), 18°11.1.7'S 178°23.4.8'E, 392-433 m, 1 valve (Sta. DP 1359, 16/viii/1998), 18°18.4'S 178°02.5'E, 233-248 m, 2 valves (Sta. DW 1377, 17/viii/1998), 17°16.1'S 177°45.7'E, 143-173 m, 1 valve (Sta. CP 1323, 07/viii/1998), 16°50.4'S 178°12.5'E, 200-215 m, 7 valves (Sta. DW 1333, 08/viii/1998), 17°49.7'S 178°47.8'E, 183-188 m, 3 valves (Sta. DW 1359, 13/viii/1998), 16°59.6'S 177°35.8'E, 235-252 m, 1 valve (Sta. DW 1339, 10/viii/1998), 18°12.4'S 178°33.1'E, 149-168 m, 1 valve (Sta. DW 1366, 15/viii/1998), 20°58'S 178°45'W, 450-460m, 5 valves (Sta. DW 1479, 08/viii/1998), 17°32.5'S 178°37.5'E, 198-200 m, 2 valves (Sta. DW 1350, 11/viii/1998), 17°49.7'S 178°47.8'E, 183-188 m, 1 valve (Sta. DW 1359, 13/viii/1998), 18°11.8'S 178°30.4'E, 123 m, 2 valves (Campagne SUVA 2, Sta. BS 10, 14/x/1998), 18°11.8'S 178°28.1'E, 213 m, 1 valve (Sta. BS 11, 14/x/1998); **SE of Viti Levu** (R/V "Alis" Campagne BORDAU 1, Bouchet, Warén & Richer coll.); 16°44'S 179°58'E 327-420 m, 3 valves (Sta. DW 1450, 04/iii/1999), 18°40'S 178°27'E, 389-400 m, 2 valves (Sta. DW 1499, 12/iii/1999), 18°09'S 178°38'W, 389-400 m, 4 valves (Sta. DW 1464, 06/iii/1999), 17°08'S 178°59'W, 360-371 m, 2 valves (Sta. DW 1422, 28/ii/1999), 16°40'S 179°36'E, 220-224 m, 1

valve (Sta. DW 1403, 25/ii/1999), 17°20'S 178°42'E, 495-500 m, 9 valves (Sta. DW 1431, 02/iii/1999). **SALOMON IS.** (R/V "Alis", B. Richer-ORSTOM coll.); 23°41'S 168°01'E, 240-300 m, 2 valves (Campagne BERYX 11, Sta. DW 40, 20/x/1992), 9°48.2'S 160°54.3'E, 233-269 m, 1 valve (Campagne SALOMON 1, Sta. DW 1817, Bouchet/Dayrat/Warén, Richer-IRD coll., 03/x/2001), 8°49.2'S 159°52.2'E, 180-187 m, 3 valves (Sta. DW 1758, 26/ix/2001), 8°31.2'S 160°37.7'E, 1036-1138 m, 4 valves (Sta. CP 1781, 29/ix/2001), 10°17'S 161°43'E, 97-223 m, 3 valves (Sta. DW 1840, 06/x/2001), 10°27.2'S 161°58.5'E, 159-169m, 10 valves (Sta. DW 1848, 06/x/2001), 9°45'S 160°52'E, 611-636 m, 1 valve (Sta. CP 1808, 02/x/2001), 8°20.7'S 160°40.7'E, 295-381 m, 1 valve (Sta. DW 1776, 29/ix/2001), 8°47.4'S 160°00.5'E, 172-179 m, 3 valves (Sta. DW 1760, 27/ix/2001), 10°23.7'S 161°47.5'E, 307-311 m, 2 valves (Sta. DW 1844, 06/x/2001), 8°19.6'S 160°38.7'E, 435-542 m, 1 valve (Campagne BORDAU 1, Sta. DW 1770, 28/ix/2001). **PHILIPPINES** (MNHN-NUS-NFRDI coll.). **Bohol/Sulu Seas** (R/V "DA-BFAR" PANGLAO 2005 Deep-Sea Cruise); Off Aligbay Island, 8°45.2'N 123°16.1'E, 624-647 m, 3 valves (Sta. CP 2354, 29/v/2005), 8°56.5'S 123°32.7'E, 679-740 m, 2 valves (Sta. CP 2362, 26/v/2005); **Bohol Sea, Balicasag Island** (R/V "DA-BFAR" PANGLAO 2005 Deep-Sea Cruise); 9°31.7'N 123°41.9'E, 309-342 m, 2 valves (Sta. CP 2399, 31/v/2005), 9°28.6'S 123°40.0'E, 470-566 m, 2 valves (Sta. CP 2394, 30/v/2005), 9°31.9'S 123°43.7'E, 164-176 m, 1 valve (Sta. DW 2339, 23/v/2005). **TAIWAN. Bashi channel** (R/V "Fisher Researcher 1", Bouchet & Richer-IRD & Chan coll.); 22°01.9'S 120°36.4'E 246 m, 2 valves (Sta. DW 34, 31/vii/2000), 22°01.8'N 120°26.6'E, 246 m, 1 valve (Sta. CP 35, 31/vii/2000); **S of China Sea**: 22°01.7'S 120°16.4'E, 904 m, 2 valves (R/V "Fishery Researcher 1" TAIWAN 2000, Sta. CP 32, Bouchet, Richer-IRD & Chan coll., 30/vii/2000); **E of Taiwan** (R/V "Fishery Researcher 1" TAIWAN 2000, Bouchet, Richer-IRD coll.); 22°47.2'S 121°27.3'E, 442 m, 3 valves (Sta. DW 44, 02/viii/2000), 24°35.1'S 122°05.8'E, 221 m, 2 valves (Sta. CP 58, 04/viii/2000).

Acknowledgements

The authors are grateful to the researchers who loaned the material for this study: Winston Ponder and Ian Loch (AMS) for types of *Spinosipella ericia*; Emilio Garcia (EGC) for *S. deshayesiana* (Philippines); and especially to Philippe Bouchet and Philippe Maestrati, MNHN, for a large quantity of material sent from several places of the world, mostly from the Indo-Pacific. This project is supported by FAPESP (Fundação de Amparo a Pesquisa do Estado de São Paulo), procs. no. 03/05860-6, 04/02333-8, and a "Treinamento Técnico 3" grant, under the supervision of Antonia Cecília Z. Amaral and Luiz R.L. Simone.

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Received: May 18, 2008. Accepted: June 28, 2008.