Figure 19: High rocky cliffs are the most favorable environment for thermophylous species as *E. italicus* (Peschiera Maraglio, Lombardy, Italy) (photo by Giorgio Colombo).

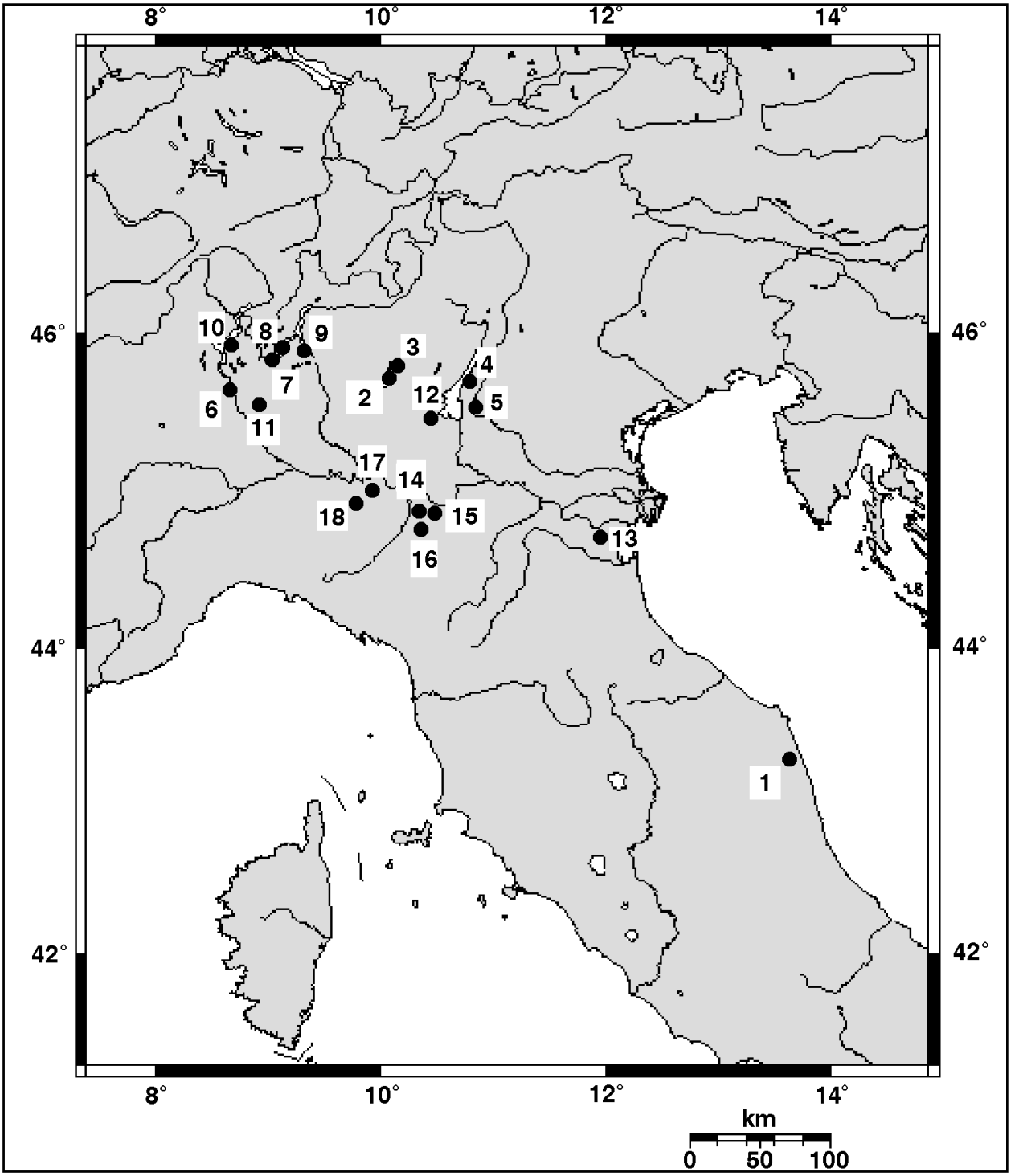

Figure 20: *E. italicus* collecting sites. Emilia Romagna, Lombardy, Marche, Veneto, and Piedmont (Italy): **1.** Fermo; **2.** Monte Isola; **3.** Cislano; **4.** Campo; **5.** Ceraino; **6.** Varallo Pombia; **7.** Cernobbio; **8.** Isola Comacina; **9.** Onno; **10.** Cittiglio; **11.** Busto Arsizio; **12.** Montichiari; **13.** Ferrara; **14.** Felino; **15.** Montechiarugolo; **16.** Torrechiara; **17.** San Pietro in Cerro; **18.** Castell'Arquato.

No.	*Date*	*Number of specimens, age and sex*	*Geographic locality*	*Altitude a.s.l.*	*Comments*
85	24 April 2004	*E. italicus* (34 adult males, adult females, and juveniles)	Peschiera Maraglio surroundings, Monte Isola (Brescia), Lombardy, Italy	190 m	In cracks of a high (hot during the day) rocky cliff near the road; specimens seem to be very active after a short rain, in moderate temperature (15°C). Specimens in shallow shelters close the entrance with pedipalps if disturbed (observed with UV light)
108	24 April 2005	*E. italicus* (2 adult females, 1 adult male, 4 subadults and 4 juveniles)	Campo (Verona), Veneto, Italy	150 m	Under the stones on and under stone walls (average humidity) among olive trees and near some abandoned houses, on the path between Castelletto di Brenzone and Campo; a juvenile was observed eating a small isopod (sp. indet.)
51	3 May 2003	*E. italicus* (1 adult male, 1 adult female, 1 subadult and 1 juvenile)	near Cislano (Brescia), Lombardy,Italy	650 m	In cracks of rocky cliffs near the road, with heat and direct sunlight during the day (observed with UV light)
52	4 May 2003	*E. italicus* (1 subadult female)	near Peschiera Maraglio, Monte Isola (Brescia), Lombardy, Italy	190 m	In a crack of a hot rocky cliff near the road; it was found catching and eating a caterpillar, *Malacosoma neustria*
110	7 May 2005	*E. italicus* (1 adult female, 1 subadult female, 1 adult male and 1 exuvium)	Varallo Pombia (Novara), Piedmont, Italy	299 m	In cracks of old stone walls in the town center, near abandoned but also inhabited houses
6	19 May 2002	*E. italicus* (1 subadult female)	Felino (Parma), Emilia Romagna, Italy	185 m	In a quiet and cool room of a castle, on the top of a wall
8	19 May 2002	*E. italicus* (3 adult females)	Montechiarugolo (Parma), Emilia Romagna, Italy	150 m	One specimen found dead on the street; two live females were found under flower pots in humid places
13	19 May 2002	*E. italicus* (1 subadult)	Torrechiara (Parma), Emilia Romagna, Italy	265 m	Under a large basket in a shady and quite humid corner inside a castle
55	7 June 2003	*E. italicus* (1 subadult female)	Busto Arsizio (Varese), Lombardy, Italy	224 m	On the external wall (made with bricks) of an old abandoned building, in the town center (observed with UV light)
11	9 June 2002	*E. italicus* (3 adult females)	Castell'Arquato (Piacenza), Emilia Romagna, Italy	225 m	Under stones fallen from the walls in a castle court, a warm and dry environment; one specimen in association with an ant colony
57	13 June 2003	*E. italicus* (1 adult female)	Cernobbio (Como) Lombardy, Italy	201 m	On the external wall of an inhabited house
14	16 June 2002	*E. italicus* (2 adult females and 1 subadult)	San Pietro in Cerro (Piacenza), Emilia Romagna, Italy	44 m	Under stones and bricks in sun-exposed dry areas near a castle; subadult together with an ant colony
60	22 June 2003	*E. italicus* (1 adult female)	Montichiari (Brescia), Lombardy, Italy	96 m	In a room inside a castle, on a wall
113	24 June 2005	*E. italicus* (1 adult male)	Ferrara (Ferrara) Emilia Romagna, Italy	10 m	In a chapel, on the ground (partially trapped in a spider net but alive), on the left side of San Francesco church, a very cool but dry place. Few hiding places, only some cracks in the walls
114	26 June 2005	*E. italicus* (1 adult female)	Ceraino (Verona), Veneto, Italy	236 m	Under a stone in a dry forest near some small rocky cliffs, on the dug-up road to the Ceraino fortress (Hlawaty)
67	4 July 2003	*E. italicus* (1 adult female)	Busto Arsizio (Varese), Lombardy, Italy	224 m	On the external brick wall of an old abandoned building in the town center; the same specimen was seen again on 5 July 2003 in the same shelter (with UV light). In February 2004, the old building was demolished to make a parking lot. We can consider this significant part of *E. italicus* population in Busto Arsizio *extinct*
18	15 July 2002	*E. italicus* (1 subadult female)	Onno (Lecco), Lombardy, Italy	229 m	Under a stone in a dry riverbed in a quite humid and shady in a *Fagus* forest; this is the only *E. italicus* specimen found in a forest, and not near houses or human buildings

Table 7: *Euscorpius italicus*: specimen and locality data (continued on next page).

No.	Date	Number of specimens, age and sex	Geographic locality	Altitude a.s.l.	Comments
69	17 July 2003	*E. italicus* (1 subadult)	Isola Comacina (Como), Lombardy, Italy	200 m	Under a stone inside the ruins of an old Romanic church; sunny but quite humid environment
75	10 August 2003	*E. italicus* (1 subadult female and 1 juvenile), A. Colombo leg.	Fermo (Ascoli Piceno), Marche, Italy	319 m	Inside a countryside house on the round; the juvenile was taken alive from a spider web in the bathroom
125	6 November 2005	*E. italicus* (2 adult males)	Cittiglio (Varese) Lombardy, Italy	254 m	Inside an inhabited house
26	17 November 2002	*E. italicus* (2 subadult females)	Cittiglio (Varese) Lombardy, Italy	254 m	On a wall inside an inhabited house
9	?	*E. italicus* (1 adult male), C.Ghidoni leg.	?	?	Specimen arrived in a shirt box at Castellanza (Varese), Lombardy, Italy

Table 7: *Euscorpius italicus*: specimen and locality data (continued from previous page).

No.	Date	Number of specimens, age and sex	Geographic locality	Altitude a.s.l.	Comments
61	24 June 2003	*E. naupliensis* (1 adult male and 1 adult female)	Skoulikado (Alykes), Zakynthos Island, Greece	500 m	Under bricks or pieces of fallen plaster inside an abandoned house; environment always shady, cool, and quite humid
62	24 June 2003	*E. naupliensis* (1 adult male)	Volimes (Elation), Zakynthos Island, Greece	160 m	Only prosoma and pedipalps of this dead specimen were found, under a wooden box in a humid corner in the town center
63	24 June 2003	*E. naupliensis* (1 adult female and 1 juvenile)	near Volimes (Elation), Zakynthos Island, Greece	150 m	In cracks of a small rocky cliff near the road; cool and humid environment due to the coniferous tree cover above the cliff
64	24 June 2003	*E. naupliensis* (1 subadult female)	Anafonitria (Elation), Zakynthos Island, Greece	335 m	Under a large stone outside a monastery, together with an adult male of *Mesobuthus gibbosus*; hot and dry environment
65	24 June 2003	*E. naupliensis* (1 subadult male, 1 adult male and 1 adult female)	Louha (Artemision), Zakynthos Island, Greece	480 m	Under stones on a humid moss-covered wall, under *Quercus* tree cover; the collected male is light-colored (orange-tan), maybe due to a developmental error with consequent pigment loss (V. Fet, pers. comm.); after a molt in captivity it has become darker, but still light-colored for the species
90	29 June 2004	*E. naupliensis* (1 adult female)	Louha (Artemision) Zakynthos Island, Greece	480 m	Under a stone located near a stone wall covered by mosses; environment humid and quite shady due to tree cover
91	29 June 2004	*E. naupliensis* (1 adult female)	near Volimes (Elation), Zakynthos Island, Greece	150 m	Under a stone fallen from a small rocky cliff near the street, environment humid and shady due to some *Pinus* trees

Table 8: *Euscorpius naupliensis*: specimen and locality data.

seems to be absent in more humid areas of castles and ruins, and present only in the hotter sides. On rocky cliffs (Fig. 19), specimens live in cracks, from where they catch prey and during the day are exposed to heat from the rock. During the night, males (one in Cislano and three or four in Peschiera Maraglio) were observed to wander presumably looking for females that, on the contrary, were only seen inside shelters.

In abandoned houses and castles, *E. italicus* occupy cracks in the walls, but was also found under stones, flower pots, bricks, etc. They seem to appear inside inhabited houses (Cittiglio, Lombardy) especially at the beginning of winter, as also confirmed by Braunwalder (2005). In larger cities, most of the specimens concentrate on brick walls of abandoned, old houses and factories.

Only one specimen out of 80 (1.3%) was found in a forest, where humidity was quite high and temperature cool. Braunwalder (2001) demonstrated that it is extremely difficult to find this species in the forested areas in Switzerland (only 33 out of 1031 findings of *E. italicus* were in non-anthropogenic habitats).

Locally significant populations of *E. italicus* can be found on rocky cliffs, mainly located near the roads (Peschiera Maraglio, Lombardy, Italy, with 34 specimens found; maybe also Cislano, Lombardy, Italy, where only four specimens were found but the survey was shorter and more localized). However, this species is also synanthropic and lives inside human buildings.

According to Braunwalder (2005), in Ticino and Mesolcina (Switzerland), *E. italicus* occupies only forests of *Castanea* or *Fagus* with acid soils, with low trees density and optimal exposure to sun, and rocky cliffs with the same characteristics; in anthropogenic habitats it is very common in either inhabited and abandoned buildings..

This large species can probably eat every invertebrate living in its environment (grasshoppers, wasps, bees, moths, flies, butterflies, beetles, cockroaches, centipedes, etc.) due to its big size and powerful pedipalps. In captivity, they preferred crickets and cockroaches to moth larvae (*Galleria mellonella* (L., 1758)) (Pyralidae: Galleriinae), which are often rejected but accepted after long periods of fasting. In nature, a subadult specimen on a rocky cliff was observed on a hot and sunny day grabbing from its shelter a caterpillar, *Malacosoma neustria* (L., 1758) (Lasiocampidae Lasiocampinae), and then killing it (Peschiera Maraglio, Lombardy; Fig. 18). A juvenile *E. italicus* was observed in Veneto (Campo) eating a small isopod (sp. indet.). Sometimes, specimens were found under stones with ant colonies (one adult female in Castell'Arquato, and one subadult in San Pietro in Cerro, both Emilia Romagna, Italy).

This species could be endangered in Italy by cementation and destruction of old abandoned buildings (see Busto Arsizio, Lombardy, Italy), as already indicated for Switzerland by Braunwalder (2005).

Adult males and females were found together in April and May (its possible the mating period may last till the end of summer or more, adult males were also found in June). Two adult females collected in Montechiarugolo (Emilia Romagna, Italy), gave birth in captivity in the end of August.

***Euscorpius naupliensis* (C.L. Koch, 1837)**
(Figs. 21–24, Table 8)

This Greek species, closely related to *E. italicus*, was recently separated from the latter (Gantenbein et al., 2002) due to the results of detailed morphological and molecular analysis; there is 5 % DNA divergence between these two species. Taxonomic problems with *E. italicus* in the Aegean area were also earlier discussed by Fet & Braunwalder (2000). *E. naupliensis* is found only in the Peloponnese (north to Patra, the only point of the peninsula where *E. italicus* was also recorded) and Zakynthos Island (with the nearby Pelouzo islet) in the Ionian islands.

Gantenbein et al. (2002) list a number of records from Peloponnese, but few from Zakynthos (findings of J. Eiselt, K. Palmer, and K. Bilek in Laganas and Pelouzo), where the author conducted observations; Kritscher (1993) also indicates Laganas locality under *E. italicus*. Other works (such as Caporiacco, 1950, under *E. italicus zakynthi*) report, in a general way, "Zakynthos Island". No data on this species' ecology exist.

Another *Euscorpius* species, *E. hadzii* Caporiacco, 1950, has been also recorded from Zakynthos (by J. Eiselt, March 1936; see Fet & Soleglad, 2002); also Ćurčić (1972) indicates Zakynthos Island as one of the points of the dispersal of "*E. carpathicus*". No specimens belonging to the subgenus *Euscorpius* were found during this study.

The author collected 11 specimens in five different localities across the island: Skoulikado, Volimes, near Volimes, Anafonitria, and Louha (Fig. 24). Except J. Eiselt's collecting sites on Zakynthos (Laganas and nearby islet of Pelouzo) (Gantenbein et al., 2002), all other localities for *E. naupliensis* are located in the mountains (maximal altitude in this study: about 500 m a.s.l.), and distribution of the species seems to include Vrachionas, Megalo Vuno (center) and Skopos (south) mountain ranges (see map on Fig. 24). According to Crucitti & Bubbico (2001, as *E. italicus*), this species is found in the Peloponnese up to 1000 m a.s.l.

During two separate trips to Zakynthos Island (Greece), different habitats were surveyed. Most of *E. naupliensis* specimens were found in forests (36.4%), in abandoned houses located in small villages or near monasteries (27.3%), and also on small rocky cliffs near roads (27.3%). Only one (dead) specimen was found in a

Figure 21: *Euscorpius (Polytrichobothrius) naupliensis*, adult male, Skoulikado (Zakynthos Island, Greece) (photo by Marco Colombo).

Figure 22: *Euscorpius (Polytrichobothrius) naupliensis*, subadult male (color variation), Louha (Zakynthos Island, Greece) (photo by Marco Colombo).

Figure 23: Abandoned houses are a part of *E. naupliensis* habitat in Skoulikado (Zakynthos Island, Greece) (photo by Marco Colombo).

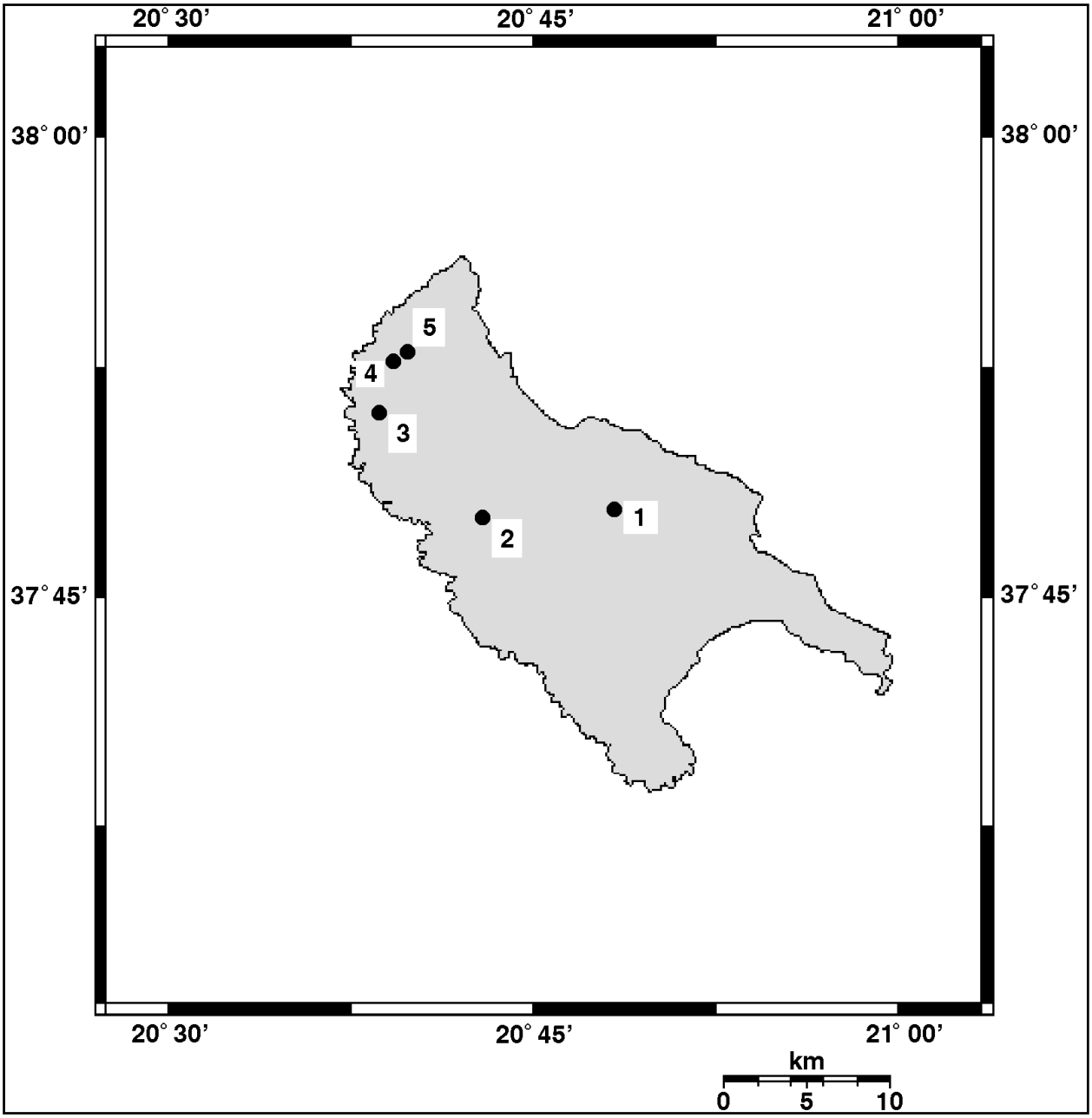

Figure 24: *E. naupliensis* collecting sites. Zakynthos Island (Greece): **1.** Skoulikado; **2.** Louha; **3.** Anafonitria; **4.** Volimes; **5.** near Volimes.

village center (9.0%), but according to local people, they also occur inside inhabited houses. Therefore, as compared to *E. italicus*, this species seems to have a much wider range of natural habitats.

Inside abandoned houses *E. naupliensis* occupies cracks of the walls, but also uses shelters under furniture, bricks and pieces of wood (Fig. 23). Some specimens were found under stones in cool, dark *Pinus* forests; others, in cracks of a small rocky cliff near the road. In one case, a subadult female was found outside a monastery (Anafonitria) in a very dry and hot environment, under a stone together with a large male of the scorpion *Mesobuthus gibbosus* (Brullé, 1832) (Scorpiones: Buthidae). This encounter could be quite unusual, because according to data based on other specimens in this study, *E. naupliensis* thrives in more humid, cooler habitats; beyond all, *M. gibbosus* is usually found in these conditions but farther from human buildings (but there are some accidental records of this species in inhabited houses; Rein, 2006).

In captivity, *E. naupliensis* accepted medium to large sized invertebrates such as adults and larvae of

Figure 25: *Euscorpius (Tetratrichobothrius) flavicaudis*, subadult female, Castelfalfi (Tuscany, Italy) (photo by Giorgio Colombo).

Figure 26: Old abandoned buildings, as this one photographed in Castelfalfi (Firenze, Tuscany), are favorable environments for *E. flavicaudis* (photo by Marco Colombo).

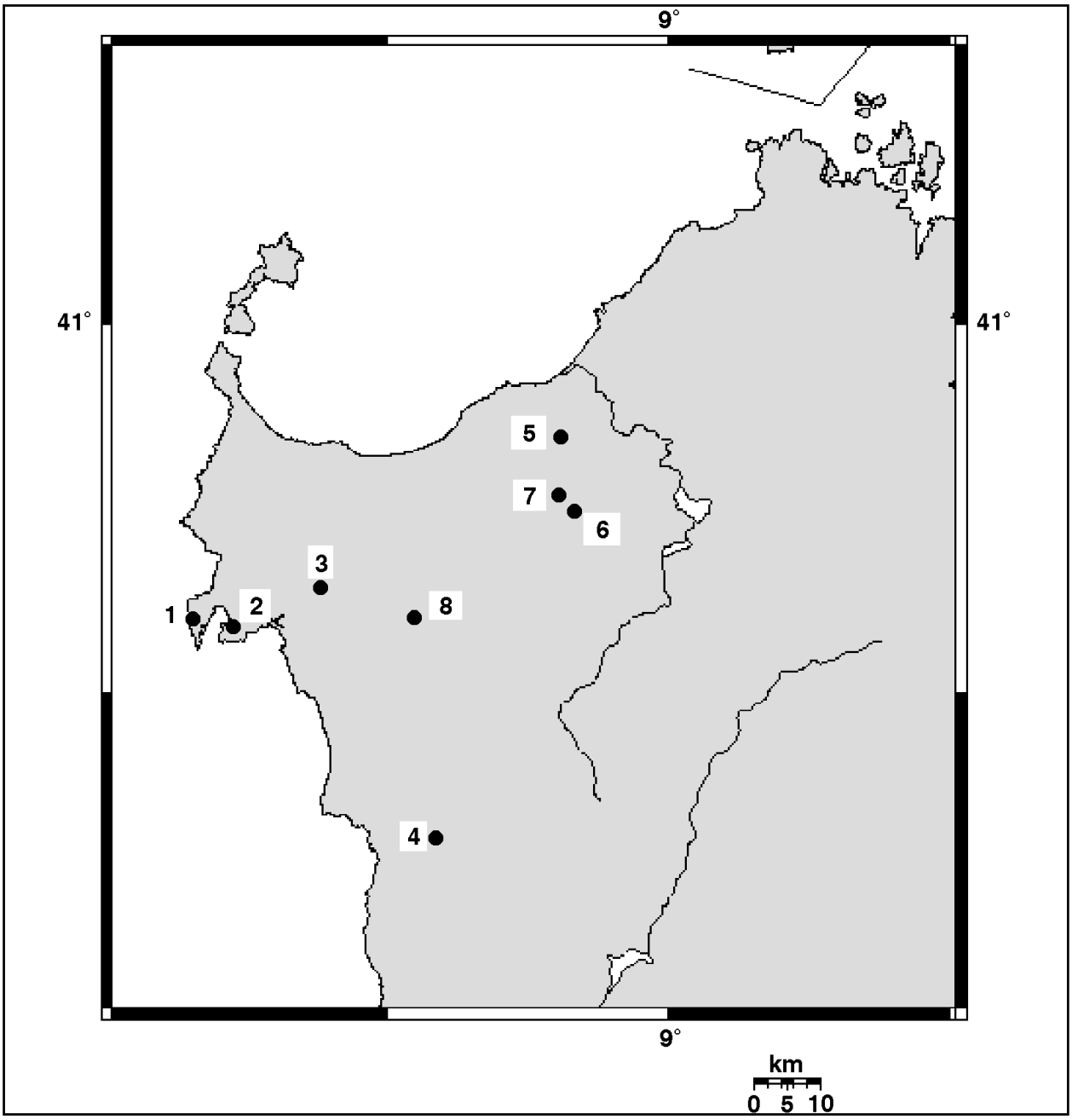

Figure 27: *E. flavicaudis* collecting sites. Northwestern Sardinia (Italy): **1.** Cala della Barca; **2.** Maristella; **3.** Olmedo; **4.** Monteleone Roccadoria; **5.** Sedini; **6.** Chiaramonti; **7.** Martis; **8.** Ittiri.

moths (*Galleria mellonella)*, and subadult (rarely adult) crickets (*Acheta domestica* (L., 1758)) (Gryllidae: Gryllinae).

During the short study periods (June) both adult males and females were observed; an adult female collected in Skoulikado gave birth in captivity in August.

Subgenus *Tetratrichobothrius* Birula, 1917

***Euscorpius flavicaudis* (DeGeer, 1778)**
(Figs. 25–28, Table 9)

Euscorpius flavicaudis is one of the four "old" species (already discussed by Fanzago, 1872), which in the

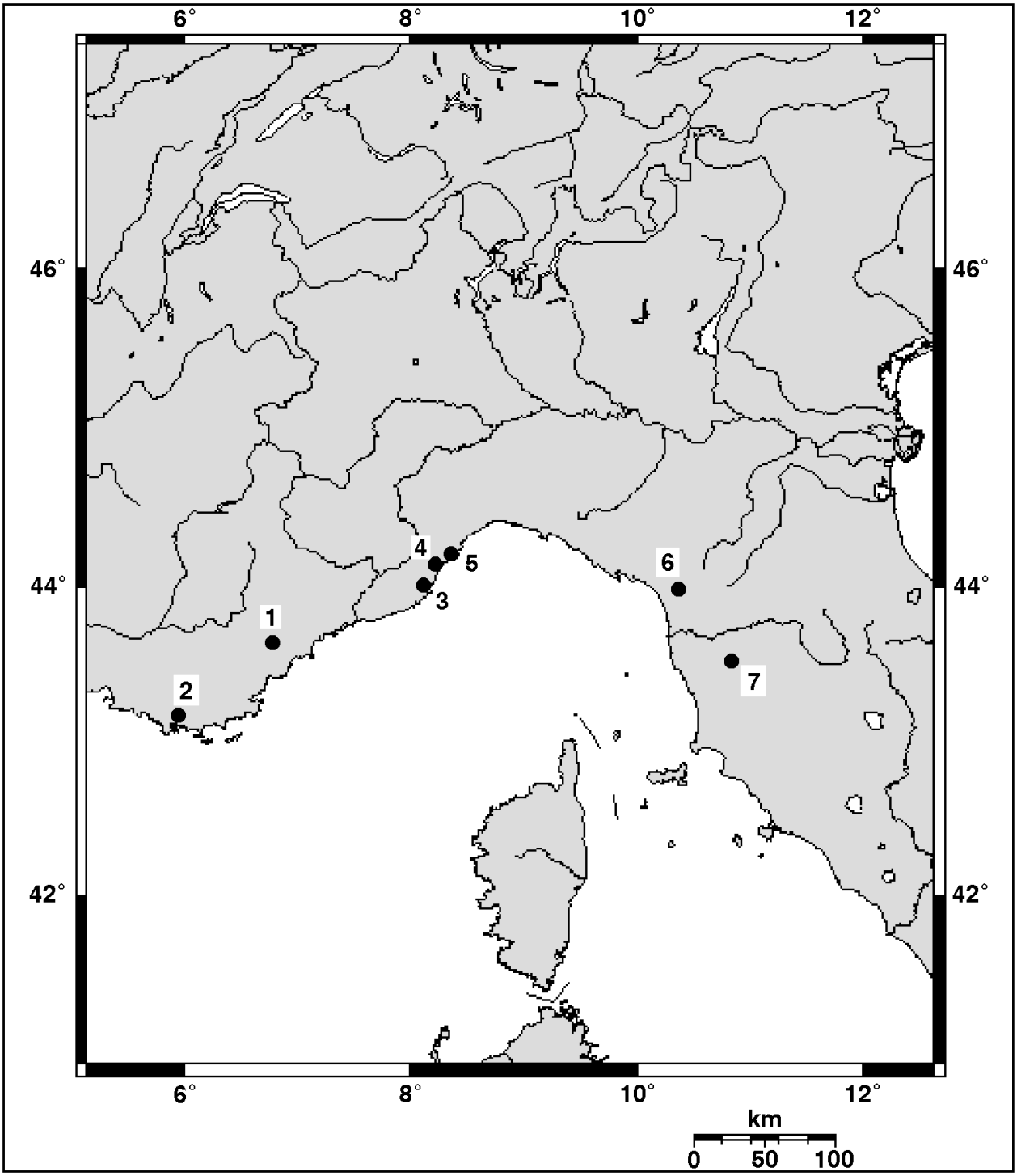

Figure 28: *E. flavicaudis* collecting sites. Liguria, Tuscany (Italy) and Var (France): **1.** Fayence; **2.** Mont Faron; **3.** Andora Castello; **4.** Toirano; **5.** Finale Ligure; **6.** Levigliani; **7.** Castelfalfi.

recent years has not been part of any important taxonomic changes; none of the subspecies listed by Caporiacco (1950) was elevated to species status. It is characterized by a typical Western Mediterranean chorotype (Crucitti, 1993), and it is found in northern Africa (Algeria, Tunisia) and southern Europe (southern France and Corsica, Italy and southern Spain, including Balearic Islands); it was introduced to northern Europe (Great Britain) and southern America (Uruguay) (Fet & Sissom, 2000). In Italy, it is recorded from the entire Tyrrhenian

No.	Date	Number of specimens, age and sex	Geographic locality	Altitude a.s.l.	Comments
79	3 January 2004	*E. flavicaudis* (1 subadult)	Finalborgo di Finale Ligure (Savona) Liguria, Italy	31 m	Under a stone among Covone Castle ruins, in a lighted and not very humid place
29	4 January 2003	*E. flavicaudis* (1 subadult female)	Toirano (Savona) Liguria, Italy	150 m	Under a flower pot near a high rocky cliff, at the entrance to the famous Toirano Caves; sun-exposed dry environment
32	9 March 2003	*E. flavicaudis* (1 subadult)	Levigliani (Massa), Tuscany, Italy	650 m	Under the plaster of an old house; the specimen escaped into a crack of the wall when discovered
105	25 March 2005	*E. flavicaudis* (5 adult females, of which 2 dead, and 5 juv.)	Castelfalfi (Firenze), Tuscany, Italy	300 m	In the cracks of the walls of a large abandoned house surrounded by fields, inside (drier environment) and outside (more humid environment); two females were found dead inside an empty tank, maybe because they fell into but couldn't climb its smooth walls. At the time of observation a thick fog covers the fields (observed with UV light)
37	18 April 2003	*E. flavicaudis* (2 adult males, 3 adult females, 1 subadult, 2 undetermined)	Castelfalfi (Firenze), Tuscany, Italy	300 m	On the external walls (quite humid but sun-exposed) of a large abandoned house, surrounded by fields; a few specimens inside, mainly wandering males (observed with UV light)
38	19 April 2003	*E. flavicaudis* (24 specimens, incl. adult males, adult females,and juveniles)	Castelfalfi (Firenze), Tuscany, Italy	300 m	In the same abandoned house, but a few specimens outside the cracks, maybe due to lower temperatures and stronger wind (observed with UV light)
70	27 July 2003	*E. flavicaudis* (2 subadults)	Maristella (Sassari), Sardinia, Italy	21 m	Under flower pots exposed to sun but quite humid, near an inhabited country house
71	29 July 2003	*E. flavicaudis* (1 adult female)	Maristella (Sassari), Sardinia, Italy	21 m	Under a barbecue grill in a house garden; the specimen was found dead and without the right pedipalp (observed with UV light)
118	30 July 2005	*E. flavicaudis* (3 juveniles)	Maristella (Sassari), Sardinia, Italy	21 m	Near an inhabited house, under regularly watered flower pots; a specimen was found with the typical whitish coloration, near its old exuvium
72	31 July 2003	*E. flavicaudis* (1 adult female)	Maristella (Sassari), Sardinia, Italy	21 m	On the external wall of an inhabited house, at night
94	31 July 2004	*E. flavicaudis* (3 subadults)	Maristella (Sassari), Sardinia, Italy	21 m	Under regularly watered flower pots (also together), near an inhabited country house; scorpions were found together with some small spiders, earwigs and many specimens of the isopod *Armadillidium vulgare*
1	August 1999, August 2000, August 2001	*E. flavicaudis* (9 females and subadults)	Maristella (Sassari) Sardinia, Italy	21 m	In inhabited houses in the countryside; sometimes in association with ant colonies
22	August 2002	*E. flavicaudis* (2 adult males, 1 adult female, and 6 subadults)	Maristella (Sassari), Sardinia, Italy	21 m	In cool and quite humid places near inhabited houses in the countryside, under flower pots, slabs of wood, blocks of cement, but also under stones near shady (but not cool) *Pinus* forests
23	August 2002	*E. flavicaudis* (1 adult male and 1 adult female)	Cala della Barca (Sassari), Sardinia, Italy	30 m	Under the same stone in hot and dry environment, with low Mediterranean maquis. This area is subjected to a particularly strong wind from the northwest (locally called "Maestrale") that deposits the salt from the nearby sea water to the maquis (some stones can be more or less covered by salt)
24	August 2002	*E. flavicaudis* (1 subadult)	Sedini (Sassari), Sardinia, Italy	306 m	Under a large stone near a nearly abandoned church, surrounded by untilled fields; very hot and dry environment

Table 9: *Euscorpius flavicaudis*: specimen and locality data (continued on next page).

No.	*Date*	*Number of specimens, age and sex*	*Geographic locality*	*Altitude a.s.l.*	*Comments*
95	3 August 2004	*E. flavicaudis* (2 subadults)	Olmedo (Sassari) Sardinia, Italy	68 m	Together under a tree stump, near a barbecue into a garden of an inhabited house. Some possible prey also found under the stump such as small spiders, chilopods, and pseudoscorpions (Chernetidae); the environment was quite humid, and many snails were observed at night
119	3 August 2005	*E. flavicaudis* (1 adult female)	Maristella (Sassari), Sardinia, Italy	21 m	Under a flower pot near an inhabited house
96	6 August 2004	*E. flavicaudis* (1 exuvium)	near San Leonardo church, near Ittiri (Sassari), Sardinia, Italy	400 m	In a crack of a small, hot, and dry rocky cliff near a dug-up road surrounded by untilled fields; no alive specimens were found
73	10 August 2003	*E. flavicaudis* (1 subadult female)	Maristella (Sassari), Sardinia, Italy	21 m	Inside an inhabited house, on the ground; it escaped into a crack of the wall, and then found again and released outside on 14 August 2003
120	11 August 2005	*E. flavicaudis* (1 adult female and 1 undetermined)	near Monteleone Roccadoria (Sassari), Sardinia, Italy	268 m	Under stone slabs in a small cliff covered by bushes, not very humid itself but near the Temo lake; a specimen escaped through a gallery dug into the ground behind to slabs
99	15 August 2004	*E. flavicaudis* (1 subadult)	Maristella (Sassari), Sardinia, Italy	21 m	Under a stone in a quite humid environment, on the boundary between a *Pinus* forest (humid) and a fire-cut line (dry)
121	19 August 2005	*E. flavicaudis* (1 adult male, 1 adult female, 8 juveniles and 1 undetermined remain)	San Pantaleo church, Martis (Sassari), Sardinia, Italy	300 m	Up to four specimens together (also of different ages) under pieces of marble on the ground of the abandoned church; dusty and dry environment, shared with isopods (*Armadillidium vulgare*), pseudoscorpions, and beetles (*Blaps mucronata*)
122	20 August 2005	*E. flavicaudis* (1 adult female)	Maristella (Sassari), Sardinia, Italy	21 m	Under a stone on the border of a shady and cool pine forest surrounded by a dry and hot fire-cut line
123	22 August 2005	*E. flavicaudis* (1 adult male, 2 adult females and 3 juv.)	near Chiaramonti (Sassari), Sardinia, Italy	400 m	Under stones of a wall covered by some high trees near Santa Giusta church; two specimens, a juvenile and the adult male, were feeding on specimens of the isopod *Armadillidium vulgare*, abundant due to the recent rainfall
100	26 August 2004	*E. flavicaudis* (2 adult females, 1 adult male and 8 subadults)	San Pantaleo church, Martis (Sassari), Sardinia, Italy	300 m	Inside the abandoned church (shady but dry), under pieces of marble fallen from the walls, also together (up to three subadults or two adults); small spiders and many isopods (*Armadillidium vulgare*) were also found there
74	30 August 2003	*E. flavicaudis* (1 juvenile, maybe a male)	Maristella (Sassari), Sardinia, Italy	21 m	Inside an inhabited house, on the ground
124	30 August 2005	*E. flavicaudis* (1 adult female)	Maristella (Sassari), Sardinia, Italy	21 m	Inside an inhabited house, under some bags on the ground
127	27 December 2005	*E. flavicaudis* (1 juv.)	Andora Castello (Savona), Liguria, Italy	100 m	Under a stone on the top of a stone wall just outside the castle
129	29 December 2005	*E. flavicaudis* (1 female [subadult?])	Mont Faron, near Toulon (Var), France	506 m	Under a stone, together with some isopods, in a quite dry wood with sparse pines; presence of ice on the surface of the stone (on the side in contact with the ground)
27	31 December 2002	*E. flavicaudis* (1 adult female)	Fayence (Var), France	350 m	Under a large flower pot (where the soil was nearly flooded due to the rain) in the center of the small town

Table 9: *Euscorpius flavicaudis*: specimen and locality data (continued from previous page).

coast, from Liguria to Calabria, through Tuscany, Latium, and Campania; populations are also present on some minor islands (e.g. Tuscan Archipelago) and in Sardinia (but not in Sicily). According to Crucitti (1993), the southern limit of the range of *E. flavicaudis* in Italy (Fossa di Catanzaro, 250 m a.s.l.) is due to the sea which occupied this depression in Pleistocene. It is quite common in southern France, as reported by Simon (1879), Fage (1928), Berland & Dromaguet (1933), Dorier (1935), and Lacroix (1991); Vachon & Roman (1965) reported it for the first time near Lyon. The author collected this species along Tyrrhenian coast in mainland Italy (Liguria and Tuscany) and in southern France (Var; Fig. 28), as well as in Sardinia (Fig. 27).

According to Crucitti et al. (1998) this species is common in Latium from sea level to 630 m a.s.l.; author's observations confirm this altitudinal distribution all over Italy, with highest collecting site located at about 650 m a.s.l. (Levigliani, Tuscany).

E. flavicaudis is a large species that could be considered as quite thermophilous. Most of the specimens was found in abandoned houses and castles (62.7%), characterized by sun-exposed, dry outside walls and dark rooms inside (Fig. 26). In such environment, scorpions were mostly found on the outside walls, occupying cracks and slits; inside the buildings, only wandering specimens were found with UV light**,** possibly during their search for mates. In ruins, dozens of specimens (in one case, 25 scorpions within about 6 m^2) could be found during night observations with UV light. In other cases, when there were no cracks in the walls (e.g. San Pantaleo Church, Sardinia), the entire scorpion population of that building lived under blocks of marble or tiles fallen from roof or walls.

A high percentage of *E. flavicaudis* (28.0%) was found in inhabited houses, mainly in Sardinia. Here, scorpions enter into the buildings through door slits and then hide under household furnishings, bags, etc., but they were usually found in more humid rooms such as bathrooms (under towels and buckets). Outside, *E. flavicaudis* can be found under flower pots, cement blocks, firewood, and any other suitable place to hide from the hot sun, often together with isopods (*Armadillidium vulgare* Latreille, 1804) (Isopoda: Oniscidae), small spiders, snails, chilopods, pseudoscorpions (Pseudoscorpionida: Chernetidae), and beetles (*Blaps mucronata* Latreille, 1804) (Coleoptera: Tenebrionidae).

According to Simon (1879), in northern France *E. flavicaudis* occupies only inhabited houses, while in the south it is commonly found under stones and bark in natural habitats.

A few specimens (3.4%) were found on or near small rocky cliffs. One specimen (Liguria) was found under a flower pot near a rocky cliff, so it is possible that other specimens inhabited cracks there. An exuvium (but no live specimens) was found in a crack on a hot and dry rocky cliff near a dug-up road in Sardinia. Also in Sardinia, two specimens were found between stone slabs on a small rocky cliff near the Temo Lake.

Some specimens (5.1%) were also found in Mediterranean maquis in Sardinia, where they lived under stones (sometimes in couples), in a very dry environment, literally "baked" by sun during the day (daily temperatures in summer usually between 25°C and 38°C); however, scorpions appeared healthy and unharmed. Among these specimens, some were found under stones on the border between shady pine forests and hot cut-fire lines with a typical maquis vegetation and sparse stones. Recently (2002-2005), it was more difficult to find specimens in this habitat; the author noticed that most of the stones had been turned by wild boars (*Sus scrofa* (L., 1758)) (Artiodactyla: Suidae), very common in the area.

Only one specimen was found in a forest habitat (pines) in southern France (Mont Faron, near Toulon). *E. flavicaudis* seems to be not active during windy nights (observation with UV lights in Tuscany).

Observations in captivity show that this species accepts all kinds of prey, such as crickets, grasshoppers, moths (both adults and larvae), beetles and cockroaches, but not isopods of the species *Armadillidium vulgare*, which are found in the same habitats and are preyed upon by *E. flavicaudis* in nature; two scorpions were observed feeding on these isopods near Chiaramonti (Sassari, Sardinia). No scorpion remains were found in the examined webs of the notorious European black widow spider, *Latrodectus tredecimguttatus* (Rossi, 1790) (Araneae: Theridiidae), which shares the same habitat in the Mediterranean maquis (Sardinia). Remains of many other arthropods (Orthoptera, Coleoptera, Blattodea, Gryllodea, Lepidoptera, Araneae, Hymenoptera) have been found in black widow webs during several years of studies. In two cases in Sardinia (Maristella, Sassari), in August, some specimens were found in association with ant colonies under stones.

Adult males and females were found together in April, July and August; assuming that it is also possible to find them in May and June, mating could occur in spring and summer. An adult female collected in southern France (Fayence, Var) gave birth in captivity on 28 May 2003; also other females, collected in Sardinia in 1999, gave birth in captivity (the exact date was not recorded).

Acknowledgments

The author is grateful to all those people that helped in this study, with useful advice about English, arthropods, and photography. In particular, he would like to thank his whole family, and then Pit Baer, Filippo Maria Buzzetti, Andrea Colombo, Roberto Czeppel, Fabio De Vita, Victor Fet, Adrian Fowles, Carlo Ghidoni, Jan Ove

Rein, Francesco Tomasinelli, Valerio Vignoli, and many others.

Victor Fet's help in finding old literature, together with his comments, was fundamental for the final work, as well as technical information given by Michael E. Soleglad.

Giorgio Colombo, author's father, provided some of the photographs taken together with the author during these years of observations. Andrea Colombo, Carlo Ghidoni, and Valerio Vignoli collected some specimens for this study.

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