Podarcis sicula (Rafinesque-Schmaltz, 1810)

Italian Wall lizard · (Italian name: lucerola campestre).

Medium-sized lizard. Body robust. The occipital stripe, when present, is formed by more or less dense dark spots. In males these spots can be larger and darker. The dorso-lateral stripes are often continuous but never reaching the temporal region, often even reduced or absent, mainly in males. Ventral part in general whitish, with greenish nuances more or less evident. Sometimes individuals with a reddish or entirely greyish belly are found. Whether on throat or ventral part nearly always dark spots are absent. Blue spots are nearly always present on flanks close to the forelimbs.

Along the external ventral scale row, bluish or black spot can be present. Dorsal scales are small, rounded and more or less keeled. The dorsal coloration is generally green (but with different tonalities from olive green to yellowish) or light brownish. Size also differs among populations.

In the population of north Italy, Elba and northern Corsica the vertebral stripe is represented by a brownish/blackish continuous or discontinuous line, with a green or light brownish stripe placed at both sides.

In southern Italy and in Sicily, individuals show a black vertebral stripe and reduced dorso-lateral ones; completely reticulated individuals and some with uniformly dorsal pattern are also found (the latter was observed in the entire distribution area and frequently in the Siracusa area, R. Sindaco pers. obs). Size in southern populations is generally larger.

In Sardinia and in southern Corsica mainly reticulated individuals are found, even if some with faint patterns. Many micro-insular populations are very variable also with the tendency to be iperchromatic (melanic, or completely blue). The ventral part is also very variable and different colors occur. Total length in adult males up to 26 cm or longer (generally 23–24 cm); SVL up to 9 cm. Females are generally smaller.

In northeastern Italy, where *Podarcis sicula* is sympatric with *P. melisellensis*, the latter can be recognized by its smaller size and the brighter ventral coloration, often even reddish. On continental Italy and on Elba Island, it can be mistaken with *P. muralis*, but the latter shows dark spots on the throat and belly. In Sardinia, *P. tiliguerta* is smaller, has dorsolateral brilliant stripes and dark spots are at least present on the throat. In Sicily, *P. wagleriana* shows usually uninterrupted dorsolateral stripes, a series of dark spots can be present on the vertebral line sometimes only posteriorly; the belly of males in *wagleriana* is orange-colored, in general whitish in *sicula*. More difficult is the distinction between *P. sicula* and *P. wagleriana* of Marettimo Island (Egadian Archipelago) and *P. raffonei* of Vulcano Island (Aeolian Archipelago), due to the frequent presence of hybrids that show intermediate characters.

Distribution, zoogeography and taxonomy: This lizard is mainly distributed in southern-central Europe. It is found on continental Italy, Sicily, Sardinia, Corsica

(satellite islands excluded), on the coastal regions of Slovenia and Croatia (many Dalmatian islands included) and in some areas of Montenegro. It is found on the following Italian islands: Tuscan Archipelago (excluded on Gorgona and Palmaiola islands, and on some islets) (Corti et al., 1991); Pontine Archipelago, Campanian islands, coastal islands of the southern Thyrrhenian Sea (Henle & Klaver, 1986); Egadian and Aeolian Archipelagos, Ustica, Pantelleria, and on many coastal small islands of Sicily (Corti et al., 1998); on the following Sardinian satellite islands La Maddalena, Tavolara, San Macario and Coltellazzo Islet, San Pietro, Sant'Antioco, Mal di Ventre, Asinara and on some minor ones (Poggesi et al., 1996); on some coastal Adriatic islands of Apulia, Tremiti Archipelago and on some coastal islets of Venetia and Friuli (Henle & Klaver, 1986). The presence of the species has also been recently recorded on Lampedusa Island (Lo Valvo & Nicolini, 2001).

Naturalized populations are found in Spain [Almeria (Mertens & Wermuth, 1960) and Santander (Meijide, 1981); Menorca, Balearic Islands (Bedriaga, 1878; Esteban et al., 1994)]; in France [Tolone (Orsini, 1984) and on the Château d'If Island (Morgue, 1924)]; in Turkey [surroundings of Istanbul and on some islands of the Marmara Sea (Basoglu & Baran, 1977)]; in north Africa [surroundings of Tunis and Tripoli (Arnold & Burton, 1978; Henle & Klaver, 1986)]; in the U.S.A. [Philadelphia (Conant, 1959); Kansas (Deichsel & Miller 2000)]. A small population has also been recently recorded for Lisbon, Portugal (González de la Vega *et. al.*, 2001).

This lizard is eurytopic in the southern part of its distribution range while relatively stenotopic in the northern, where it mainly occupies lowlands, coastal and anthropized habitats. In the western Po Valley, at its distribution limit, the species is extremely stenotopic and it presence is limited to xeric meadows close to river sites. *P. sicula* reaches 1000 m elevation in continental Italy and 2200 m on the Mount Etna in Sicily (Turrisi & Vaccaro, 2001).

Without doubt, *Podarcis sicula* is the lacertid lizard characterized by highest distribution capacity. Besides the recent colonisation of new areas in other countries, this is demonstrated by its wide distribution on insular and micro-insular habitats, partially due to anthropic introductions.

Fig. 69: *Podarcis sicula,* Capraia Island, Tuscan Archipelago. R. Sindaco

Fig. 70: *Podarcis sicula,* Alessandria province, Piedmont. R. Sindaco

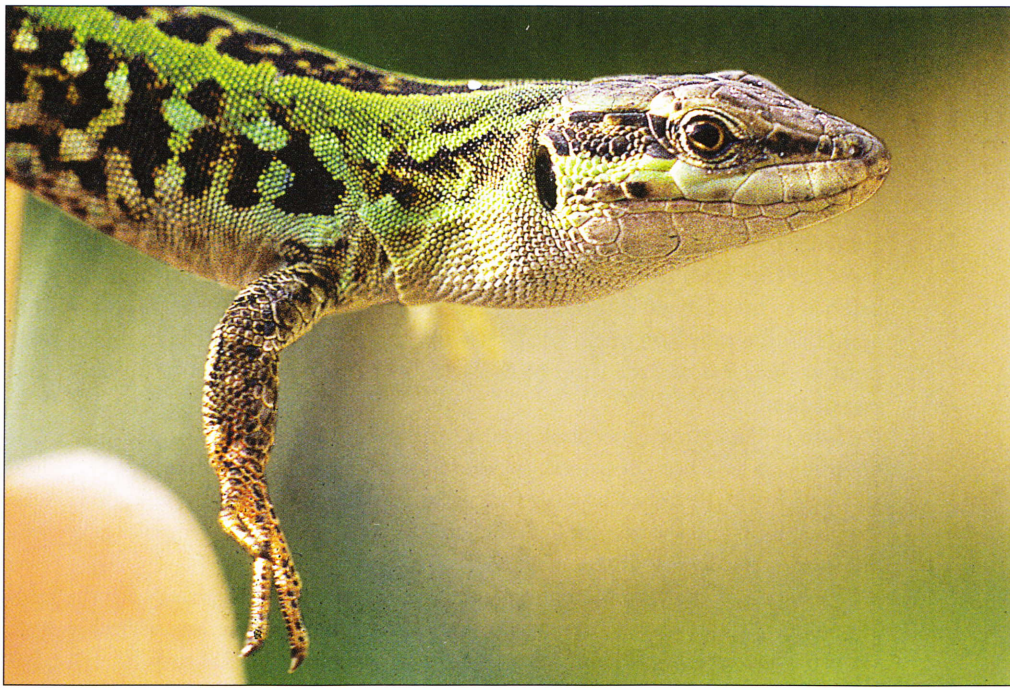

Fig. 71: *Podarcis sicula,* ♂, Ancone, Corsica, France. M. Dieckmann

Fig. 72: *Podarcis sicula,* Katarina Island off Rovinj, Istria, Croatia. G. Deichsel

Some cases of extinction have been documented for micro-insular populations. The progressive erosion of the Lisca Nera Islet (Aeolian Archipelago), at present fragmented in few emerging rocks, is surely the cause of the extinction of the population discovered by GIGLIOLI (1878) in the 19th century (MERTENS, 1955; LANZA, 1973). TOME (1997) has recently recorded the disappearance of the population of Porer Island (Croatia), formerly described as *P. sicula hadzii* (BRELIH, 1961), probably due to drastic environmental or genetic changes. Still unclear are the causes that led to the disappearance of the population of Santo Stefano Island (Pontine Archipelago), described by MERTENS (1926) as *P. sicula sanctistephani* and at present replaced by the phenotype referred to the nominal subspecies (MERTENS, 1965). LANZA & CORTI (1993) hypothesized that *sanctistephani* might be addressed to a different taxon, archaic and less competitive than *P. sicula*, the latter reaching the island and displacing the authoctonous population.

Due to the extreme morphological variability of this species, many insular infraspecific taxa have been described, starting from the famous "blue lizard" of Faraglioni di Capri Rocks, described by EIMER (1872) as *Lacerta muralis* var. *coerulea*. Besides the nominal form and the subscpecies *campestris*, as for *P. muralis*, we report in table 7 the subspecies described for the Italian insular populations.

Biology and ecology: Many herpetologists are generally concerned with the feeding habits of this species. PÉREZ-MELLADO & CORTI (1993), in the Tuscan Archipelago, observed as prevailing prey: Diptera (18.8 %), spiders (16.2 %), Isopoda (12.9 %), larvae of insects (10.3 %) and Coleoptera (8.4 %). On the Sparviero Islet, where food availability is low, ants represent more than 21 % of the consumed prey and larvae of insects even 32 %. On Formica di Burano Islet, Diptera and Isopoda are mainly consumed (40 % and 24 % respectively). On larger islands, where food is more abundant, the lizards feed on a larger number of taxa.

For Menorca (Balearic Island), the same authors report as main prey: spiders (24 %) and Coleoptera (21 %). OUBOTER (1981) observed on the Vivaro di Nerano Islet (Campania) a diet mainly based on ants, aphids and vegetable matter. RUGIERO (1994) studied the winter diet of a population of the coastal dunes in Latium, where Isopoda (48.4 %), larvae of Lepidoptera (10.3 %), spiders (9.2 %) and Gastropoda (8.2 %) have been found as prevailing prey. SORCI (1990) observed in Sicilian populations the consumption of Coleoptera (in faecal pellets: 40.3 %; in stomach contents: 28.8 %), Gastropoda (3.5 %; 14.6 %), Diptera (10.5 %; 9.7 %), Formicidae (9.7 % in stomach contents), Heteroptera (7 %; 4.8 %), vegetable matter (12.3 % in faecal pellets), besides many others found in lower percentage. In a comparative analysis between *P. sicula* and *P. muralis* of an urban park of Rome, CAPULA et al. (1993) observed that *P. sicula* mainly feeds on Diptera (18.8 %), larvae of Lepidoptera (10.8 %), Formicidae (9.7 %) and Isopoda (8 %). Recent observations by SICILIA et al. (2001) report the predation on *Discoglossus pictus* juveniles in the Botanical Garden of Palermo (Sicily).

Table 7:

taxa	Author/s	Island/s	localization
aemiliani	Capolongo (1984)	Scoglio Maggiore, Scoglio Minore di Apani rocks	Eastern Apulia
amparoae	Capolongo (1979)	Dino Island	Southern Calabria
calabresiae	(Taddei, 1949a)	Montecristo Island	Tuscan Archipelago
caporiaccoi	(Taddei, 1949a)	Capraia Island and Peraiola Islet	Tuscan Archipelago
cerbolensis	(Taddei, 1949a)	Cerboli Island	Tuscan Archipelago
ciclopica	(Taddei, 1949b)	Lachea Islet and Madonnina Rock	Eastern Sicily
coerulea	(Eimer, 1872)	Faraglione di Mezzo, Faraglione di Fuori rocks	Capri, Campania
gallensis	(Eimer, 1881)	Gallo Maggiore and Castelluccia Islets	Campania
klemmeri	(Lanza & Capolongo, 1972)	Licosa Islet	Campania
lanzai	(Mertens, 1967)	Gavi Island	Pontine Archipelago
latastei	(Bedriaga, 1879)	Ponza Island and Faraglione della Madonna Rock	Pontine Archipelago
liscabiancae	(Mertens, 1952)	Lisca Bianca Islet	Aeolian Archipelago
massinei	(Mertens, 1961)	Rotonda Islet	Campania
medemi	(Mertens, 1942)	Isola Bella	Eastern Sicily
monaconensis	(Eimer, 1881)	Faraglione Monacone Islet	Capri, Campania
palmarolae	(Mertens, 1967)	Palmarola Island	Pontine Archipelago
pasquinii	(Lanza, 1967)	Cappello Rock	Pontine Archipelago
patrizii	(Lanza, 1952)	Zannone Island	Pontine Archipelago
paulae	(Lanza et al., 1971)	Santo Ianni Islet	Western Basilicata
roberti	(Taddei, 1949a)	Formica Grande di Grosseto Islet	Tuscan Archipelago
salfii	(Lanza, 1954b)	Vivaro di Nerano Islet	Campania
sanctinicolai	(Taddei, 1949b)	Tremiti Islands	Apulia
trischittai	(Mertens, 1952)	Bottaro Islet	Aeolian Archipelago
tyrrhenica	(Mertens, 1932a)	Giglio and Giannutri Islands	Tuscan Archipelago

A comparison of the population dynamic of *P. sicula* in continental versus island habitats was made by Henle (1988) in three localities of Croatia. A large number of females of Omiš (the southern-most locality) reached the sexual maturity during the first year, despite what happened on Figarola Island. The author hypothesized that this trait could be related with more favorable climatic conditions. Henle (1988) also observed high population densities, in Omiš up to 16000 individuals/ha, in Rovinj 500–9500 ind/ha and in Figarola Island 1500–7500 ind/ha. On the Vivaro di Nerano

Fig. 73: *Podarcis sicula,* ♂, from Lipari Island. P. Lo Cascio

Fig. 74: *Podarcis sicula,* Forza d'Agro, Sicily. G. Deichsel

Islet, Ouboter (1981) observed 980 ind/ha in habitats characterized by *Pistacia lentiscus* and meadows of *Hyparrhenia hirta*.

Mortality rate on islands seem to be lower than on the continent (Henle, 1988). On the studied island (Figarola), the only predators are rats, while birds and lacertivorous snakes are present on the continent.

The activity pattern of *P. sicula* was studied by Foà et al. (1992) in coastal areas of Tuscany; the activity is bi-modal (April–October) and in winter, when the weather conditions are favorable, the lizards can be active for 2–3 hours; in summer (July/August) 14 hr activity was recorded. *P. sicula* activity body temperature is 28.5–37.8 °C (Van Damme et al., 1990; Tosini et al., 1992). Two-five eggs are normally laid and up to two clutches per year have been recorded. Henle (1988) observed an exceptional clutch of 8 eggs. Ouboter (1981) reports for a captive female of Vivaro di Nerano Islet two clutches per year of 2 and 3 eggs each.

Fig. 75: *Podarcis sicula,* Mount Cofano, Trapani, Sicily. R. Sindaco

Fig. 76: *Podarcsi sicula,* Mount Cofano, Trapani, Sicily. R. Sindaco