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Habitat characteristics of the spectacled salamander Salamandrina terdigitata (Lacépède, 1788) in southern Latium (Central Italy)

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The spectacled salamander, Salamandrina terdigitata (Lacépède, 1788), is endemic to Italy, protected by the Latium administrative region (regional law no. 18, dated April
and enclosed in the European 92/43/EEC Habitat Directive. No research on this species has been carefully carried out in southern Latium except for the Lepini Mountains (Corsetti, 1994a), and the only available informations are due to general works on the Italian herpetofauna (Bruno, 1973) and other works (Carruccio, 1900; Zerunian and Sciscione, 1984; Bonifazi and Carpaneto, 1990; Corsetti and Capula, 1992; Corsetti, 1994b). This study aimed to verify the habitat characteristics of the reproductive sites of the spectacled salamander.

The area examined is the southern Latium "anti-Apennine", or Volsci Chain, that comprehends Lepini Mts., Ausoni Mts. and Aurunci Mts. It forms a homogeneous and well delimited geographic and geologic unity which is located in the administrative provinces of Rome, Frosinone and Latina. This area, of about 2,200 km², extends mainly in NW-SE direction and includes heights from sea level to 1,536 m (Mt. Semprevisa, Lepini Mts.). The Volsci Chain is made up of Mesozoic limestone and is characterised by both hypogean and superficial karst. According to a bio-climatic map of Italy (Tomaselli et al., 1973), the study area belongs to the Thermomediterranean and Mesomediterranean subregions. On the southern slopes of the basal plain, the vegetation is represented by the relics of the mediterranean forest of holm oak (Quercus ilex), often reduced to low bushes, or degraded steppes of Ampelodesmos mauritanicus. In the mountainous southern slopes, in the basal northern slopes and in internal areas, the vegetation is a mixed association of Quercus pubescens, Quercus cerris and Ostrya carpinifolia. Moreover, in few relict areas the vegetation is represented by beech woods (Fagus sylvatica) with presence of holly (Ilex aquifolium) and yew (Taxus baccata).

The study is based mainly on data collected by regular field observations in 1991, 1992 and 1993, spending little more than 300 hours in the field; some first-hand data were partially obtained by irregular observations from 1981 to 1990 in spring and summer. Twenty-six I.G.M. (Military Geographic Institute) maps 1:25,000 scale were examined (fig. 1a) and 199 potential breeding sites were scheduled for the Salamandrina terdigitata (fig. 1b). The habitat parameters estimated for each site were: height above sea level, surrounding vegetation type and aquatic habitat, syntopic taxa and water temperature, taken several times in the same sites, mainly in autumn and spring. Heights above sea level were collected by means of an altimeter Thommen 2000, while water temperature was measured with a mercury thermometer.

Seventy-four sites of reproduction were identified over the whole area, corresponding to 57 stations in which the species has been found (fig. 1c). Habitat characteristics of the spectacled salamander for laying eggs are summarised in table 1. Half of the breeding sites correspond to water sources, many of which (70%) have been modified by shepherds by interventions in masonry, in order to collect water for the livestock, cattle or horses. Most of the sources (70%) have a value of flow less than 1 l/sec; they are often subjected to desiccation, especially in summer months (from the second half of June up to September-October) and sometimes also in winter (February). Natural ponds (16.2%) easily dry up, because they are filled only with rainwater or weak sources. Springs