

This article was downloaded by: [81.204.120.139]

On: 09 August 2014, At: 22:30

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Italian Journal of Zoology

Publication details, including instructions for authors and subscription information:  
<http://www.tandfonline.com/loi/tizo20>

### Lacerto agilis in north-eastern Italy (Reptilia, Lacertidae)

Luca Lapini<sup>a</sup> & Andrea Dall'Asta<sup>b</sup>

<sup>a</sup> Museo Friulano di Storia Naturale, Via Marangoni 39, I-33100, Udine, Italy

<sup>b</sup> Sezione di Scienze Biocarsiche, Museo Civico di Storia Naturale di Trieste, Piazza A. Hortis 4, I-34123, Trieste, Italy

Published online: 19 May 2010.

To cite this article: Luca Lapini & Andrea Dall'Asta (2004) *Lacerto agilis* in north-eastern Italy (Reptilia, Lacertidae), Italian Journal of Zoology, 71:S1, 121-124, DOI: [10.1080/11250003.2004.9525548](https://doi.org/10.1080/11250003.2004.9525548)

To link to this article: <http://dx.doi.org/10.1080/11250003.2004.9525548>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>



## *Lacerta agilis* in north-eastern Italy (Reptilia, Lacertidae)

LUCA LAPINI

Museo Friulano di Storia Naturale,  
Via Marangoni 39, I-33100 Udine (Italy)

ANDREA DALL'ASTA

Sezione di Scienze Biocarsiche,  
Museo Civico di Storia Naturale di Trieste,  
Piazza A. Hortis 4, I-34123 Trieste (Italy)

### ABSTRACT

The authors present a databank on the distribution of *Lacerta agilis* in Trentino Alto Adige and Friuli-Venezia Giulia (north-eastern Italy) based on bibliographic and museum data as well as field surveys. In these regions, the sand lizard seems to be very rare. Up to now, in the area surrounding Bozen (Alto Adige), the presence of the species has not been confirmed, since the labels of some historical museum samples do not allow any precise localities to be identified. In Friuli-Venezia Giulia, the lizard has only been signalled in the Danube Catchment near Tarvisio, and at the border of the Julian Pre-Alps, near Gorica. In the area of Tarvisio, neither an unpublished datum from the Carnic Alps nor the data from Fusine in Valromana have been confirmed. Moreover, the record from Gorica comes from a label of an old museum sample, and may refer to a very wide area around this town, probably in Slovenia. What is more, assuming that the present situation might be heavily underestimated, the species in north-eastern Italy must be considered seriously endangered, perhaps on the verge of local extinction.

**KEY WORDS:** *Lacerta agilis* - distribution - north-eastern Italy.

### ACKNOWLEDGEMENTS

We wish to thank T. Fiorenza and F. Stergulec (Udine) for their collaboration in the field survey, G. Planinc (Ljubljana), G. Mainardis (Venzone, Udine) and S. Bruno (Anguillara Sabazia, Rome) for some materials and useful information. Special thanks also to C. Castellani (Fagagna, Udine) who improved the English form of the manuscript.

### INTRODUCTION

*Lacerta agilis* (Linnaeus, 1758) is one of the most widely distributed Palearctic lizards, whose range includes the Pyrenees, central France and England up to central Asia (Chinese Sinkiang and south-western Mongolia). To the north, the species is distributed in England, southern Sweden and Russia, reaching 60° in latitude, while to the south it spreads over the eastern Pyrenees, the Alps, the Balkans, north-eastern Anatolia, Caucasus and Transcaucasia, northern Kazakhstan and the mountains of central Asia (Tien-Shan). In the southern part of its range, the species principally selects mountainous areas, often with scattered populations, reaching at least as far as Greece (Mount Pindos). The discovery of the sand lizard in Italy is quite recent (Lapini *et al.*, 1989). The first Italian specimen was collected in Piedmont - in snow-melting waters in the 60s - but the sample, at the time stored in the "Craveri" Natural History Museum of Bra (Cuneo), was not published because it had been identified as *Zootoca vivipara* (A. Morisi, ex verbis, 1988). Only after the revision of its specific determination, it was possible to publish this datum (Lapini *et al.*, 1989). Some studies recently carried out in the Maritime Alps of Piedmont have confirmed the presence of the species in this area, also identifying new sites of presence (Sindaco, 1999; Sindaco *et al.*, 2002; Di Già & Sindaco, 2004). This small range is strictly connected to that discovered by Polidori & Caratti (1992) on the French slope of these mountains, where *L. agilis* was firstly reported by Castanet (1978). In north-eastern Italy, the species lives in some mountain areas of the Danube Catchment (Lapini *et al.*, 1989; Rahmel, 1991; Societas Herpetologica Italica, 1996; Lapini *et al.*, 1999), and even in these areas, it inhabits localities strictly connected to other parts of its range (Austria: Gail Valley, Bischoff, 1984, Cabela & Tiedemann, 1985; Slovenia: Zelenci, Gregori, 1980; Mrzli Sudenec ispod Triglava, Pavletic, 1964). In western Slovenia, the species seems to reach at least the River Isonzo (= Soca), but in the last forty years it has become very rare (Brelj, in Lapini *et al.*, 1989). At present, therefore, the occurrence of this species has certainly been confirmed in Piedmont and Friuli-Venezia Giulia, but some old studies also vaguely refer to the surrounding area of Bozen, at present in Trentino-Alto Adige, and to Gorica (probably Gorizia), which at present is subdivided into two parts by the Italian/Slovenian border. It must be noted that both the data from Bozen (=Bolzano: Rahmel, 1991) and Gorica (Tome, 1996) refer to old material preserved in Herpetological museum collections. The old labels of historical collections often refer to large areas around major towns of ancient provinces; sometimes they cannot be traced to any precise locality. The specimens collected in the Italian Danube Catchment (Fusine in Valromana) show quite a homogeneous phenotype and seem to belong to the nominal race, that probably includes *argus* (Korsós & Bischoff, 1997). This

subspecies is distributed in most of northern, central and western Europe, up to the Carpathian Mountains and eastern Poland.

#### MATERIALS AND METHODS

The first part of the study was dedicated to collecting and organising all existing information concerning the presence of the species in north-eastern Italy, since not all had been published. This information is principally from the databanks of the Chorologic Atlas of Amphibians and Reptiles of Friuli-Venezia Giulia (Lapini *et al.*, 1996, 1999), including museum archives, as well as from interviews with collaborators of the above-mentioned Chorologic Atlas Project. The field work was performed by means of random zig-zag perlustration in several suitable habitats of the Friuli-Venezia Giulia Region, with particular attention to the more recent sites of presence, with a total of about seventy hours of active field work in the summers 2000-2002. During these inspections, various types of information on the herpetological assemblage of each monitored locality were also recorded, along with the recent evolution of the habitats and special reference to all possible situations of environmental threat.

#### RESULTS AND DISCUSSION

From our archive research, it seems clear that the last available information on the presence of *L. agilis* in the area of Fusine in Valromana refers to a subadult male collected (and released) by A. dall'Asta in the summer of 1990. Later, a photograph of this specimen was published in Lapini *et al.* (1999: 99) and constitutes the last certain evidence of the presence of the sand lizard in Friuli-Venezia Giulia. There are also more recent sightings of *L. agilis* both from Fusine and other areas of the Carnic Alps, but they have not been confirmed by objective evidence, such as photographs, etc. These sightings must be carefully checked because the large females of *Zootoca vivipara carniolica* Mayer, Böhme, Tiedemann & Bischoff, 2000, are quite similar to the *L. agilis* females, and are very common in the mountains of north-eastern Italy (Ghielmi, 2001; Surget-Groba *et al.*, 2002). Another possible piece of information regarding the present distribution of *L. agilis* in Friuli-Venezia Giulia is stored in the herpetological archives of the Museo Friulano di Storia Naturale (MFSN-Udine). It refers to one moult skin collected in the Carnic Alps ("between Mounts Corona and Segràn", in the Udine Province) in the summer of 1988 by A. Ceresole (Milano). This surprising sample was announced to the curator of the Collection by S. Bruno (in litteris, 16.XII.1988), and afterwards sent to the same specialist. It was never possible to confirm its origins with new local findings, and the skin was included in the Inventory of the MFSN Collection only later. The sample, however, comes from a large area near the Austrian border where the presence of the species seems to be quite probable (see Cabela & Tiedemann, 1985; Cabela *et al.*, 1992, 2001). Our field survey was particularly focused on checking the above mentioned

sightings and confirming the previous statements for Fusine in Valromana, but it was not possible to confirm any data (Table I). The total extinction of this population, however, seems to be highly improbable. The local habitat requirements, in fact, are still very good in spite of various anthropic interventions to the environment, which in the past was colonised by *L. agilis* (Lapini *et al.*, 1989). Due to the low number of specifically identified localities in various heterogeneous geographic contexts, it was not possible to make generalisations about the habitat selection of the species in north-eastern Italy. In the Piedmontese Alps, this lizard seems to be strictly bound to alpine meadows on very steep mountain slopes, in most cases facing east or south. In these areas, the species does not seem to be strictly bound to water, nor to rocky habitats or accumulation of stones due to the manual cleaning of alpine grazing-lands, dwelling between high herbs (Sindaco, comm. pers.). The ecological information quoted by Capula & Luiselli (1992) on these areas are clearly incorrect, since they indicate a predominant acidophilous *Nardetum strictae* association in spite of the calcareous nature of the local substratum. The only specifically identified locality in the Friuli-Venezia Giulia Region was found at the edges of wide-ranging *Abieti-Fagetum* woods. In this environment, the sand lizard displayed anthropophilous behaviour, dwelling in the area around ruined buildings, colonised by shrubs and ruderal vegetation (Lapini *et al.*, 1989). The habitat selection of the species in the area surrounding Bolzano and Gorica are unknown, because the labels of the old samples quoted by Rahmel (1991) and Tome (1996) do not allow the identification of any precise locality. In Italy, however, the species has a very heterogeneous vertical distribution. In the eastern Alps (Friuli-Venezia Giulia), this lizard lives at 770 m a.s.l., while in the western Alps it usually selects mountain prairies located between 1750 and 2100 m a.s.l., with an apparent preference for meadow habitats situated between 1800 and 1900 m (Sindaco, pers. comm.). In the adjacent French slopes of the Haute-Tinée, Polidori & Caratti (1992) indicate higher habitats for this lizard in most cases located between 1870 and 2300 m a.s.l. However, information on its Italian vertical range must still be considered very approximate, as it is still based on a low number of observations. The information on the annual cycle of activity of this species in Italy is very poor too. In Piedmont, the species is certainly active from the mid-June to the beginning of September, but it seems to be quite probable that in these mountain environments it could emerge from hibernation in May (Sindaco, pers. comm.). The first Italian sample of this species - a specimen found dead in snow-melting waters - was collected in April (Lapini *et al.*, 1989), but this datum may perhaps be attributed to a premature emersion from hibernation. Information is still missing with regards to the period of activity of this lizard in Alto Adige and Friuli-Venezia Giulia. On the other hand, data concerning the

TABLE I - *Lacerta agilis* in north-eastern Italy: a list of chorologic references updated to 2000.

1 ex	* Carnic Alps, between mounts Corona and SAGRÀN, summer 1988. Moultskin, A. Ceresole leg. (Milano), Herp. Coll. MFSN.
1 m	Fusine in Valromana (Udine) 19 July 1988. Area surrounding ruined buildings colonised by shrubs and ruderal vegetation, on the edge of mixed woods ( <i>Abieti-fagetum</i> ). L. Luiselli obs.
1 f	Fusine in Valromana (Udine) 20 August 1988. Area surrounding ruined buildings colonised by shrubs and ruderal vegetation, on the edge of mixed woods ( <i>Abieti-fagetum</i> ). C. Bagnoli, A. dall'Asta & L. Lapini obs.
1 m, 1 f	Fusine in Valromana (Udine) 20 August 1988. Area surrounding ruined buildings colonised by shrubs and ruderal vegetation, on the edge of mixed woods ( <i>Abieti-fagetum</i> ). L. Lapini obs. et det.
1 f, 1 j	Fusine in Valromana (Udine) 21 August 1988. Area surrounding ruined buildings colonised by shrubs and ruderal vegetation, on the edge of mixed woods ( <i>Abieti-fagetum</i> ). L. Lapini leg. et det., Coll. MFSN (femmina adulta). A portrait of this female is shown in Lapini <i>et al.</i> (1999: 98).
1 m	* Fusine in Valromana (Udine) 5 July 1990. Area surrounding ruined buildings colonised by shrubs and ruderal vegetation, on the edge of mixed woods ( <i>Abieti-fagetum</i> ). A. dall'Asta obs. Original datum referred to a subadult, probably the last specimen observed in this locality. A photograph of this specimen was published in Lapini <i>et al.</i> (1999: 99).

\*, original data.; ex, exuvie; m, male; f, female; j, juvenile.

reproductive biology of the Italian sand lizard are still extremely fragmentary and anecdotal. In Piedmont, pregnant females have been mostly observed in the first half of June, but a very late observation (3rd September) might support the hypothesis that some mountain-top populations have a biennial reproductive cycle (Sindaco, pers. comm.). However, in the area of Fusine (Friuli-Venezia Giulia), newborns already appear in August (Lapini *et al.*, 1989). *Lacerta agilis* therefore seems to be extremely rare in north-eastern Italy, being signalled only recently in the surrounding area of Fusine in Valromana (Lapini *et al.*, 1989). Such a rarity is underlined by the abundant faunistic information on amphibians and reptiles of the Tarvisiano, thanks to several herpetological studies in which the presence of the sand lizard has never been detected (Darsa, 1972; Stergulc, 1987; Lapini *et al.*, 1994). On the other hand, also in the neighbouring western parts of the Republic of Slovenia, *L. agilis* is very rare at present (Tome, 1996; Societas Herpetologica Slovenica, 2002). In fact, the only existing records refer back to the 60s and 70s last century, and a more recent data from the north-western Istrian Karst (signalled by a question mark in Tome, 1996) may be easily due to a mistake (G. Planinc, pers. comm.). Moreover, assuming that the present situation of *L. agilis* in north-eastern Italy may be greatly underestimated, the species must be considered critically endangered locally, perhaps on the verge of local extinction.

## REFERENCES

- Bischoff W., 1984 - *Lacerta agilis* Linnaeus 1758 - Zauneidechse. In: W. Böhm (ed), Handbuch der Reptilien und Amphibien Europas. Band 2/I Echsen II (Lacerta). Aula-Verlag, Wiesbaden, pp. 23-68.
- Cabela A., Tiedemann F., 1985 - Atlas der amphibien und reptilien Österreichs (Stand 1984). Neue Denkschr. Naturhist. Mus. Wien, 4: 1-80.
- Cabela A., Grillitsch H., Happ H., Kollar R., 1992 - Die Kriechtiere Kärntens. Carinthia II, 182./102 Jahrg., Klagenfurt, pp. 195-316.
- Cabela A., Grillitsch H., Tiedemann F. (eds), 2001 - Atlas zur Verbreitung und ökologie der amphibien und reptilien in Österreich. Umweltbundesamt-Naturhistorisches Museum Wien verl., Wien, pp. 481-488.
- Capula M., Luiselli L., 1992 - The sand lizard, *Lacerta agilis*, in Italy: preliminary data on distribution and habitat characteristics. Herpetol. J., 2: 101-103.
- Castanet J., 1978 (ed.) - Atlas préliminaire des reptiles et amphibiens de France. Montpellier, pp. 1-137.
- Darsa M., 1972 - Anfibi e rettili di Fusine. Hyla, Notiz. U.E.I., 2: 3-13.
- Di Già I., Sindaco R., 2004 - The distribution and status of *Lacerta agilis* in Piedmont (NW Italy). Ital. J. Zool., Suppl., present volume.
- Ghielmi S., 2001 - Identification de population ovipares de *Lacerta (Zootoca) vivipara* en Italia. Bull. Soc. Herp. Fr., 98: 19-29.
- Gregori J., 1980 - Zelenci, izvir Save Dolinke. Kulturni in naravni spomeniki Slovenije, Zbirka vodnikov, Ljubljana, 97: 1-31.
- Korsós Z., Bischoff W., 1997 - *Lacerta agilis* Linnaeus, 1758. In: J.-P. Gasc, A. Cabela, J. Crnobrnja-Isailovic, D. Dolmen, K. Grossenbacher, P. Haffner, J. Lescure, H. Martens, J. P. Martinez Rica, H. Maurin, M. E. Oliveira, T. S. Sofianidou, M. Veith & A. Zuiderwijk (eds), Atlas of amphibians and reptiles in Europe. Soc. Europ. Herpetol. & Mus. Natl. Hist. Nat. Paris, pp. 1-496.
- Lapini L., Morisi A., Bagnoli C., Luiselli L., 1989 - *Lacerta agilis* Linnè, 1758, specie nuova per la fauna italiana (Reptilia, Squamata, Lacertidae). Gortania, Atti Mus. Friul. Stor. Nat., Udine, 10 (1988): 205-212.
- Lapini L., dall'Asta A., Scaravelli D., 1992 - First record on the occurrence of *Triturus v. vulgaris* (Linnè, 1758) in north-eastern Italy (Amphibia, Caudata, Salamandridae). Gortania-Atti Mus. Friul. Stor. Nat., 13 (1991): 195-201.
- Lapini L., dall'Asta A., Bressi N., Dolce S., 1996 - Atlante preliminare dell'erpetofauna della regione Friuli-Venezia Giulia. Atti I Conv. Ital. Erpetol. Montana, Studi Trent. Sci. Nat., Acta Biol., Trento, 71 (1994): 43-51.
- Lapini L., dall'Asta A., Bressi N., Dolce S., Pellarini P., 1999 - Atlante corologico degli anfibi e dei rettili del Friuli-Venezia Giulia. Ed. Mus. Friul. Stor. Nat., Udine, 43: 1-149.
- Pavletic J., 1964 - Vodozemci i gmizavci. Hrvatski Narodni Zooloski Muzej, Zagreb, pp. 1-37.

- Polidori E., Caratti G., 1992 - Nouvelles données concernant le Lézard de souches (*Lacerta agilis* L.) dans les Alpes du Sud. *Boll. Mus. Reg. Sci. Nat. Torino*, 10: 341-357.
- Rahmel U., 1991 - Neue Funde der Zauneidechse *Lacerta agilis* (Linnaeus, 1758) auf der Alpensüdseite. *Salamandra*, Frankfurt am Main, 27: 181-186.
- Sindaco R., 1999 - *Lacerta agilis* Linnaeus, 1758 Lucertola agile. *In*: Andreone F. & R. Sindaco (eds), *Erpetologia del Piemonte e della Valle d'Aosta. Atlante degli anfibi e dei rettili*. *Mus. Reg. Sci. Nat. Torino, Monogr. no. 26*, pp. 202-203.
- Sindaco R., Biggi E., Boano G., Delmastro G.B., 2002 - Novitates herpetologicae pedemontanae, 1. *Riv. Piem. Stor. Nat.*, 23: 195-206.
- Societas Herpetologica Italica, 1996 - Atlante provvisorio degli Anfibi e Rettili italiani. *Ann. Mus Civ. Stor. Nat. "Giacomo Doria"*, 91: 95-178.
- Societas Herpetologica Slovenica, 2002 - Plazilci Slovenije. 21. Za interno uporabo S. H. S., Ljubljana, pp. 1-3.
- Stergul F., 1987 - Anfibi e rettili della Foresta di Tarvisio. Osservazioni preliminari sul popolamento erpetologico di alcuni habitat forestali e montani. *In*: AA. VV. (eds), *Vertebrati della Foresta di Tarvisio. I - Saggio faunistico*. *Min. Agr. For., Corpo Forest. St., Tarvisio*, pp. 19-61.
- Surget-Groba Y., Heulin B., Ghielmi S., Guillaume C.-P., Vogrin N., 2002 - Phylogeography and conservation of the populations of *Zootoca vivipara carniolica*. *Biol. Conserv.*, 106: 365-372.
- Tome S., 1996 - Pregled razsrijenosti plazilcev v Sloveniji [Distribution of reptiles in Slovenia]. *Annales, Anali za istrske in mediteranske studije, Koper*, 9: 217-228.