

Isolierte Populationen des Feuersalamanders (*Salamandra s. salamandra*) am Arealrand in den Salzburger Zentral- und Schieferalpen

Andreas Maletzky^{1,2,3}, Peter H. Kaufmann³, Dominik Ankel^{1,3}, Werner Krupitz³,
Cvetka Lipovnik^{1,3}, Maria Müller^{1,3}, Alexander Niedrist^{1,3},
Gudrun Schweinitzer³ & Marcus Weber³

¹Universität Salzburg, FB Biowissenschaften, Hellbrunnerstr. 34,
A-5020 Salzburg, andreas.maletzky@sbg.ac.at;

²ENNAACON environment nature consulting KG, Altheim 13, A-5143 Feldkirchen;

³Herpetologische Arbeitsgemeinschaft am Haus der Natur Salzburg, Museumsplatz 5, A-5020 Salzburg

Isolated populations of the fire salamander (*Salamandras s. salamandra*) in alpine areas of Salzburg

The main distribution area of the fire salamander (*Salamandra salamandra*) in the state of Salzburg is located in the northern part of the Limestone Alps and the sandstone hills of the Flysch region further north. The southern edges of the continuous range can be found in the Limestone Alps near Lofer and Golling/Abtenau respectively (ca. N 47°33'). The species primarily inhabits mixed beech forests (*Fagus sylvatica*) with rather cold fishless brooks, rich in oxygen, at an elevation of 400 to 900 m a.s.l. However, there are also reported localities in valleys of the Central Alps, which have not been surveyed since decades. We aimed at enhancing the knowledge about alpine populations, evaluate historical and subrecent localities, characterise the current habitat situation and develop ideas for their long-term conservation. After consolidating all existing distribution data, seven survey areas (5*5 km) were delineated. Six contained earlier fire salamander localities, one at least suitable habitat structures. In each survey area, four to seven brooks were surveyed between June and August 2016. In autumn 2016 and spring 2017 further controls of roads and paths in the survey areas completed the field work. In parallel and several times, requests for findings of fire salamanders were launched via local media and the citizen science portal www.naturbeobachtung.at. Only in two survey areas, populations of *S. salamandra* could be confirmed successfully. Three new localities outside of the study areas were reported by locals as a reaction to our citizen science efforts, among them the currently southernmost and formerly unknown population in the Central Alps. It is very hard to determine possible changes, i.e. declines of the species range in this area. It is certain, that the alpine valleys of Salzburg do not possess many suitable habitats for this species due to height and climatic conditions and populations may not be as large as in the core area of the species. Due to interviews with locals referring to declines or disappearance of some populations and as the attempts to proof some old localities were in vain, a decline in at least some areas can be assumed. Possible explanations are changes in water chemistry of larval brooks during the Acid rain events in the 1970s and 1980s or the aftermath of massiv torrent regulations.

Key words: Amphibia, Caudata, *Salamandra salamandra*, Salzburg, alpine populations, isolation populations, mapping, citizen science.