



Response of the Lateglacial fauna to climatic change



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ABSTRACT

This study deals with faunal finds from the Swiss Paleolithic, especially from the Late Glacial. Faunal assemblages from archeological sites as well as off-site finds dated by scientific means are included. In the middle of the Oldest Dryas the large glacial species – mammoth, rhinoceros, cave bear, musk ox – become extinct. During the Early Bølling the last arctic species disappear, and are succeeded by animals like red deer and elk, preferring a moderate climate. From the middle of the Allerød, species typical of a denser forest (roe deer and wild boar) are very frequent.

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1. Introduction

The climatic change in the Late Glacial caused a distinct change in the fauna as well as in human culture (Nielsen, 2009). The hunter-gatherers of the Late Glacial depended solely on natural resources, and thus on the environmental conditions. As Lateglacial sites with good conditions for preservation of botanical finds hardly exist in southern Central Europe, it is not possible to estimate the importance of plant food for the population of this period. According to the study of Madlena Beckmann (Beckmann, 2004) a number of edible plants were available, though. To what extent they were used cannot be estimated. It can be assumed that game was by far the most important source of food. Fishing and gathering of eggs are documented in some settlement sites.

In order to survive, the Paleolithic population had to adapt to the change of the fauna caused by climatic change. New strategies of hunting had to be developed according to the habits of the new species of game that appeared as a result of the changed environmental conditions. This fact is of course evident from the composition of the faunal remains found in the settlement sites, but also in the archeological assemblages as well. New types of tools and more or less frequent appearances of certain tool types indicate the change in the hunting methods (Fig. 3 and 5).

The climatic change thus initialized a distinct cultural development in human society. Regrettably we have only extremely few Paleolithic sites with preserved bones from the Swiss Plateau. I thus

have to include assemblages from the Swiss Jura and from the Prealps in order to be able to analyze the Lateglacial fauna. Off-site finds, e.g. single finds of remains of animals, are also an important source of information (Table 1; Fig. 9). These finds are mostly remains of animals that died from natural causes, although a few shows signs of hunting (Fig. 2).

2. Middle and early Late Paleolithic

During the Middle Paleolithic so far only the Mousterian Culture has been established in Switzerland. It is not very well represented, probably owing to the glaciations that in major parts of the country prevented settlements and moreover destroyed traces of sites (Le Tensorer, 1998). Most finds come from caves and from sites situated in the Jura Mountains outside the maximal glaciation. This culture, attributed to the Neanderthal species, is dated between 300/200,000 and 40/35,000 cal BP. The fauna of this period during warmer and colder phases, includes species like mammoth, woolly rhinoceros, cave bear, musk ox, ibex, and cave hyena (Wegmüller, 2002; Kuzmin, 2008; Furrer and Mäder, 2006).

Settlement sites of the early Late Paleolithic is, probably also due to the Glaciations, so far not clearly observed in Switzerland, probably also because of the glaciation. A few primitive chert tools from the Steigelfadbalm cave are not typical of any culture. In adjoining parts of Germany and France, which were unaffected by glaciation, numerous sites with a highly developed material culture from this time are known. The period is dated between 40/35,000 (?) and 22,000 cal BP. A few Swiss off-site faunal finds show the presence of mammoth (Fig. 1). The Steigelfadbalm cave yielded bones from cave bear, cave hyena, red deer, and ibex (Nielsen, 2007).

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Table 1
Paleolithic faunal finds from Switzerland.

Site	Species	Reference	Age (BP)	Palynology	Location	Reference	
24 Rochefort–Cotencher	Archeological sites						
		ETH-4506	39,720 ± 1230 BP (layer V)	Palynology: early-Würm	Cave, Jura	Le Tensorer, 1998	
		ETH-4505	40,980 ± 1150 BP (layer V)				
	Cave bear	<i>Ursus spelaeus</i>	ETH-4507	43,200 ± 1080 BP (layer V)			
	Brown bear	<i>Ursus spelaeus</i>					
	Wolf	<i>Canis lupus</i>					
	Alpine wolf	<i>Cuon alpinus</i>					
	Fox	<i>Vulpes vulpes</i>					
	Arctic fox	<i>Alopex lagopus</i>					
	Corsac fox	<i>Vulpes corsac</i>					
	Marten	<i>Martes martes</i>					
	Ermin	<i>Mustela erminea</i>					
	Weasel	<i>Mustela nivalis</i>					
	Polecat	<i>Mustela putorius</i>					
	Wolverine	<i>Gulo gulo</i>					
	Cave lion	<i>Felis spelaea</i>					
	Panther	<i>Felis pardus</i>					
	Wild cat	<i>Felis silvestris</i>					
	Lynx	<i>Lynx lynx</i>					
	Iberian lynx	<i>Lynx pardina</i>					
	Horse	<i>Equus sp.</i>					
	Woolly rhinoceros	<i>Coelodonta antiquitatis</i>					
	Wild boar	<i>Sus scrofa</i>					
	Red deer	<i>Cervus elaphus</i>					
ibex	<i>Capra ibex</i>						
Chamois	<i>Rupicapra rupicapra</i>						
Arctic hare	<i>Lepus timidus</i>						
Squirrel	<i>Sciurus vulgaris</i>						
Marmot	<i>Marmota marmota</i>						
Hamster	<i>Cricetus cricetus</i>						
Lemming	<i>Discrostonx</i>						
Snowgrouse	<i>Lagopus lagopus</i>						
25 Oberwil–Schnurenloch				Palynology: the entire layer 7 is probably mid-Würm	Alpine cave	Andrist et al., 1964	
	Cave bear	<i>Ursus spelaeus</i>					
	Fox	<i>Vulpes vulpes</i>					
	ibex	<i>Capra ibex</i>					
	Marmot	<i>Marmotta marmotta</i>					
	Cave bear	<i>Ursus spelaeus</i>					
	Fox	<i>Vulpes vulpes</i>					
	Marmot	<i>Marmotta marmotta</i>					
	Cave bear	<i>Ursus spelaeus</i>	GrN-4895	30,020 ± 520 BP			
	Wolverine	<i>Gulo gulo</i>					
	Wolf	<i>Canis lupus</i>					
	Fox	<i>Vulpes vulpes</i>					
	Arctic fox	<i>Alopex lagopus</i>					
	Red deer	<i>Cervus elaphus</i>					
	ibex	<i>Capra ibex</i>					
	Marmot	<i>Marmotta marmotta</i>					
	Arctic hare	<i>Lepus timidus</i>					
	Cave bear	<i>Ursus spelaeus</i>					
	Wolf	<i>Canis lupus</i>					
	Alpine wolf/cuon	<i>Cuon alpinus</i>					
	Cave lion	<i>Panthera leo spelaea</i>					
	Wildcat	<i>Felis silvestris</i>					
	Fox	<i>Vulpes vulpes</i>					
	Musk ox	<i>Ovibos moschatus</i>					
	Red deer	<i>Cervus elaphus</i>					
	ibex	<i>Capra ibex</i>					
	Chamois	<i>Ruprica ruprica</i>					
	Marmot	<i>Marmotta marmotta</i>					

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