



Géosciences de surface (Paléoenvironnement)

Premières datations directes de défrichements protohistoriques sur les chaumes secondaires des Vosges (Rossberg, Haut-Rhin). Approche pédoanthracologique

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Résumé

L'âge des pâturages d'altitude des Vosges est encore très mal connu. Sur la base de l'analyse des archives historiques, il avait été proposé que les défrichements qui avaient abouti à leur installation fussent l'œuvre des moines qui avaient colonisé les vallées vosgiennes entre les VII^e et VIII^e siècles de notre ère. Notre étude pédoanthracologique remet en cause cette hypothèse, grâce à l'identification de charbons de genévrier (*Juniperus communis*) datés du II^e ou du I^{er} siècle av. J.-C. Cette espèce, caractéristique de milieux ouverts en voie d'enfrichements, prouve que des pâturages d'altitude existaient au moins 800 ans avant les dates les plus anciennes avancées, au moins depuis la fin de l'âge du fer. **Pour citer cet article : D. Schwartz et al., C. R. Geoscience 337 (2005).**

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Abstract

First dating of protohistorical forest clearings on the Vosges grasslands (Rossberg, Haut-Rhin, France). A pedoanthracological study. The age of the upland grasslands of the Vosges Mountains is still not well known. On the basis of the study of historical archives, it was assumed that the forest clearings, which led to grasslands establishment, were done by the monks who colonized the Vosges valleys between the 7th and the 8th centuries. Our pedo-anthracological study raises questions about this hypothesis, based on the discovery of *Juniperus communis* charcoal in soils from the 2nd or 1st century BC. This plant species is characteristic of grasslands developing into fallows. The occurrence of *Juniperus communis* charcoals indicates that upland grasslands did exist at least 800 years earlier than it was expected before our study, i.e. at least since the late Iron Age. **To cite this article:** D. Schwartz et al., C. R. Geoscience 337 (2005).

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Mots-clés : Vosges ; Rossberg ; Hautes-Chaumes ; Pédoanthracologie ; Paléobotanique ; *Juniperus communis* ; Âge du fer ; Défrichement ; Pastoralisme ; France

Keywords: Vosges Mountains; Rossberg; Grasslands; Pedoanthracology; Paleobotany; *Juniperus communis*; Iron Age; Forest clearing; Pastoralism; France

Abridged English version

1. Introduction

The origin and the history of the upland grasslands of the Vosges Mountains are still not well known. Most of the grasslands result undoubtedly from forest clearings. As the area was sparsely populated before the Early Middle Age, it was assumed that forest clearings took place in the 7th and 8th centuries AD, as a consequence of the establishment of many abbeys in the Vosges valleys [2,3,7,10,12]. This assumption has never been proved, either by the study of the historical archives or by archaeological or palaeoenvironmental data. The present pedoanthracological study gives a more precise estimation of the age of the earlier forest clearings. The study was carried on soils of the Rossberg Massif (Haut-Rhin).

2. Material and methods

2.1. Localisation

The Rossberg Massif is located in the south of the Vosges Mountains, between the valleys of Thann and Masevaux (Fig. 1). The main summits are the Rossberg (1191 m) and the Thanner Hubel (1189 m). The Grasslands cover most of the area above 900 m a.s.l. The other vegetation types consist in beech and mixed beech-fir forests.

2.2. Sampling

Soils were sampled every 10 cm in depth. One sample consists in a 5-cm-thick layer of about 10 kg of soil. Up to now, only two soil profiles were analysed (ROSS 2 and ROSS 4). They are located at about 1060 m in altitude, on the southwestern (ROSS 2) and on the northeastern (ROSS 4) sides of the Thanner Hubel.

2.3. Methods

After being dried and weighed, the soil samples were stirred to break the aggregates and then sieved at 5, 2 and 0.4 mm, as described by [14]. The charcoals of the finer fraction (< 0.4 mm) have a total weight that is negligible and are too small to be identified; therefore, this fraction has not been used in the study. In the fraction > 5 mm, the charcoal is visually located and picked. The 0.4–5-mm fraction is subdivided by sieving, then extracted by levigation, dried and weighed. We then determine the specific anthracomass, which is defined by the ratio between the charcoal mass of the 0.4–5-mm fraction (expressed in milligrams), and the total mass of soil < 5 mm (expressed in kilograms) [13]. The charcoals are identified with an incident light microscope improved by Nomarski differential interference contrast, using the key of determination developed by Thinon [14–17]. ¹⁴C analyses were done in the R.J. Van de Graaf Laboratory at the Utrecht University using the AMS method. All ¹⁴C dating measurements were carried on charcoal from the ROSS 2 profile.

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