

Distribution analysis of bone findings at the prehistoric site of Mondeval de Sora (Belluno - Italy): issues and proposals

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Fig. 1

Mondeval de Sora (Fig. 1) is situated in the heart of the Dolomites (South Eastern Alps, Italy) at an altitude of about 2150 m a.s.l. It represents a key deposits for the study of occupation and exploitation patterns of mountain areas by Mesolithic hunter-gatherers during the early Holocene [1].

A spatial analysis of the faunal assemblage from the main Sauveterrian (Early Mesolithic) Stratigraphic Unit (S.U. 8) has been undertaken in order to identify the presence of possible concentrations connected to the different human activities carried out in the settlement.

Due to the high density of the findings the coordination of the single remain has not been possible during excavation. Therefore it has become necessary to remove sediments and remains by the square and sub-square method. A complication has arisen since during the different years of the field campaign the 1m side squares were excavated by sub-squares with different sides - respectively 33 , 20 and 10 cm - depending on the abundance of the findings. In some cases a single square was excavated by several layers (up to 3) each consisting of sub-squares with different sizes.

In order to solve this problem a square of 1m side has been created within a GIS [2] to which the sub-squares with sides of different lengths (33cm, 20cm and 10cm) have been superimposed (Fig. 2). By applying the topologic overlay tool a table has been added with the percentages of the areas of the sub-squares of 10cm and 20cm sides overlapping the sub-squares with 33cm side. The same percentages have then been attributed to the number of findings of the smaller sub-squares and results have been summed up. We have thus obtained the number of findings contained in each sub-square of 33cm side. The application of this method has allowed data to be standardized over the whole excavated area.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Fig. 2

Finally data have been elaborated in two different ways in order to obtain distribution maps of archaeological remains.

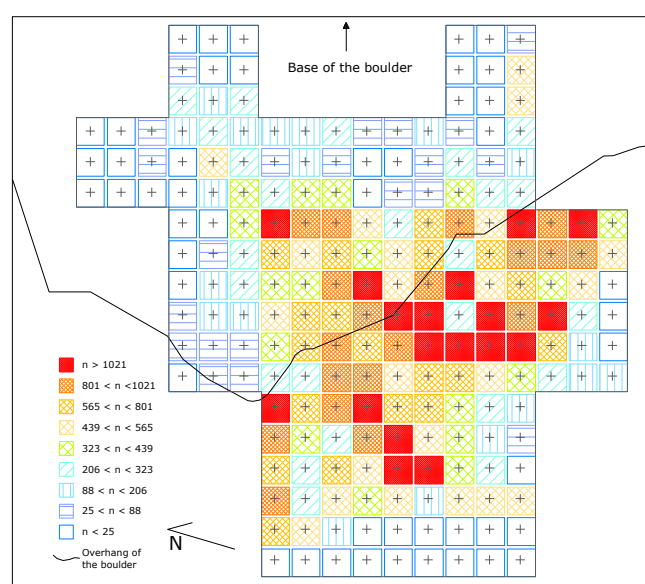


Fig. 3

The first method applied has been the reclassification of the sub-square with 33cm sides by using as class limits those obtained with the quantile method on 10 classes [3] and applying the GIS tools. A coropleth map with the distribution of the bone findings has been elaborated (Fig. 3).

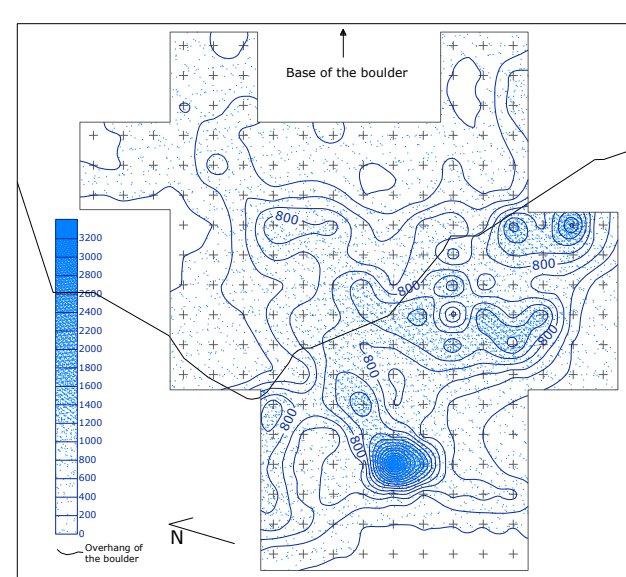


Fig. 4

In the second method calculated values have been assigned to the center of gravity of each sub-square with 33cm sides and an interpolation has been made using the algorithm of Krige [4]. An isopleth map has thus been obtained, which has allowed the distribution of the remains to be visualized (Fig. 4).

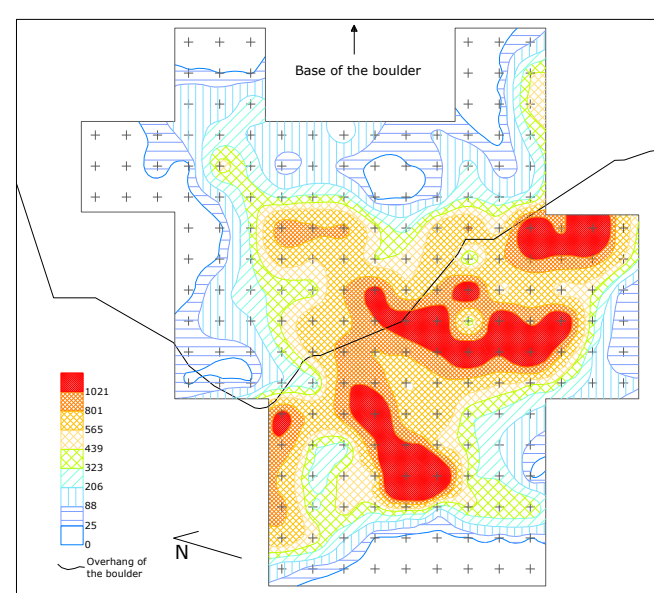


Fig. 5

Although the first method appears formally more correct, the results show that the second one gives a more immediate visualization of the findings distribution. Nonetheless it also implies that the number of findings from one point to another displays a continuous variation and this condition is not coherent with archaeological data.

The correspondence between the maps obtained with the two methods is demonstrated when the second method is applied by only displaying the contour lines having the value of the class limits of the first method (Fig. 5).

[1] Fontana F., Govoni L., Guerreschi A., Padoanello S., Siviero A., Thun Hohenstein U., Ziggliotti S., 2009. L'occupazione sauveterriana di Mondeval de Sora 1, settore I (San Vito di Cadore, Belluno) in bilico tra accampamento residenziale e campo da caccia. *Preistoria Alpina* (ISSN 0393-0157), 44, pp. 207-226.

[2] Autodesk Map® 3D 2006.

[3] Conolly J. & Lake M., 2006. *Geographical Information Systems in Archaeology* (ISBN-13 978-0-521-79744-3), Cambridge University Press, pp. 338.

[4] Surfer®8 Golden Software.

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