

## Publication

### Small Animals, Big Impact? Early Farmers and Pre- and Post-Harvest Pests from the Middle Neolithic Site of Les Bagnoles in the South-East of France (L'Isle-sur-la-Sorgue, Vaucluse, Provence-Alpes-Cote-d'Azur)

#### JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

**ID** 4652403

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**Year** 2022

**Title** Small Animals, Big Impact? Early Farmers and Pre- and Post-Harvest Pests from the Middle Neolithic Site of Les Bagnoles in the South-East of France (L'Isle-sur-la-Sorgue, Vaucluse, Provence-Alpes-Cote-d'Azur)

**Journal** Animals

**Volume** 12

**Number** 12

**Pages / Article-Number** ARTN 1511

**Keywords** microfauna; wood mice; grain weevil; pests; resource stress; risk management; Middle Neolithic; western Mediterranean

Simple Summary Archaeological excavations at Les Bagnoles (SE France) unearthed three Middle Neolithic water wells (4250-3700 cal B.C.) whose waterlogged conditions allowed the preservation of organic remains, notably a large number of rodent and beetle species. The evaluation of these results in the context of an open-air farming site raised the question of whether these species could have posed a threat to both the field plants and crops stored at the Middle Neolithic settlement. The findings of this study suggest that the native wood mouse was probably one of the first unwanted inhabitants of human settlements in Europe prior to the appearance of the invasive house mouse during the Bronze Age. The analysis also advances the argument that the storage pest grain weevil played a role in the clear shift in the crop spectrum from naked to glume wheat around 4000 B.C., as glume wheats are less vulnerable to its infestation. Moreover, the current study demonstrates that investigating insects and rodents from archaeological sites is key to grasping the challenges of the competitive relationship between Neolithic farming communities and pests. Pests appear to have accompanied humans and their crops since the beginning of farming. Nevertheless, their study is only rarely integrated into research on farming in prehistory. An assemblage of invertebrates and small mammals was recovered from the waterlogged layers of three wells at the Middle Neolithic site (4250-3700 cal B.C.) of Les Bagnoles (SE France). The microfaunal remains were retrieved from sediment samples by wet sieving (wash-over technique). The most common among the rodents is the wood mouse. The assemblage also consists of insect remains of grain weevil, seed beetle, and corn ground beetle. The different finds not only offer data on the role of insect and rodent pests in the Neolithic but on the possible strategies adopted by the early farming communities in the western Mediterranean in response to pest infestation. The findings appear to confirm the hypothesis that the wood mouse was a commensal and storage pest in settlements long before the arrival of the invasive house mouse during the Bronze Age. The presence of the main storage pest, the grain weevil, suggests a long-term grain storage issue at Les Bagnoles. The combination of the results of the site's archaeobotanical findings with those of other sites in the western Mediterranean suggests that the shift from naked to glume wheat around 4000 B.C. may also stem from a reaction to the problem

of grain weevil infestation.

**Publisher** MPDI

**ISSN/ISBN** 2076-2615

**edoc-URL** <https://edoc.unibas.ch/90908/>

**Full Text on edoc** No;

**Digital Object Identifier DOI** 10.3390/ani12121511

**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/35739848>

**ISI-Number** 000816666700001

**Document type (ISI)** Article