



Press Release

77,000 year old evidence for „bedding“ and use of medicinal plants uncovered at South African rock shelter

An international team of researchers, with the participation of the University of Tübingen, have discovered the earliest evidence for the intentional construction of plant “bedding”

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An international team of archaeologists, with the participation of Christopher Miller, Juniorprofessor at the University of Tübingen, is reporting 77,000-year-old evidence for preserved plant bedding and the use of insect-repelling plants in a rock shelter in South Africa. This discovery is 50,000 years older than earlier reports of preserved bedding and provides a fascinating insight into the behavioural practices of early modern humans in southern Africa.

The team, led by Lyn Wadley of the University of the Witwatersrand, Johannesburg, in collaboration with Christopher Miller (University of Tübingen, Germany), Christine Sievers and Marion Bamford (University of the Witwatersrand), and Paul Goldberg and Francesco Berna (Boston University, USA), is reporting the discovery in the scientific journal *Science*, available online this week.

The ancient bedding was uncovered during excavations at Sibudu rock shelter (KwaZulu-Natal province, South Africa), where Prof. Wadley has been digging since 1998. At least 15 different layers at the site contain plant bedding, dated between 77,000 and 38,000 years ago. The bedding consists of centimetre-thick layers of compacted stems and leaves of sedges and rushes, extending over at least one square meter and up to three square meters of the excavated area. Christine Sievers, of the University of the Witwatersrand, was able to identify several types of sedges and rushes used in the construction of the bedding.

The oldest evidence for bedding at the site is particularly well-preserved, and consists of a layer of fossilized sedge stems and leaves, overlain by a tissue-paper-thin layer of leaves, identified by botanist Marion Bamford as belonging to *Cryptocarya woodii*, or River Wild-quince. The leaves of this tree contain chemicals that are insecticidal, and would be suitable for repelling mosquitoes. “The selection of these leaves for the construction of bedding suggests that the inhabitants of Sibudu had an intimate knowledge of the plants surrounding the shelter, and were aware of their medicinal uses. Herbal medicines would have provided advantages for early human health, and the use of insect-repelling plants adds a new dimension to our understanding of human behaviour 77,000 years ago” said Lyn Wadley, honorary professor at the University of the Witwatersrand.

“The inhabitants would have collected the sedges and rushes from along the uThongathi River, located directly below the site, and laid the plants on the floor of the shelter. The bedding was not just used for sleeping, but would have provided a comfortable surface for living and working,” said Wadley. Microscopic analysis of the bedding, conducted by Christopher Miller, junior-professor for geoarchaeology at the University of Tübingen, suggests that the inhabitants repeatedly refurbished the bedding during the course of occupation.

The microscopic analysis also demonstrated that after 73,000 years ago, the inhabitants of Sibudu regularly burned the bedding after use. “They lit the used bedding on fire, possibly as a way to remove pests. This would have prepared the site for future occupation and represents a novel use of fire for the maintenance of an occupation site,” said Miller.

The preserved bedding is also associated with the remains of numerous fireplaces and ash dumps. Beginning at 58,000 years ago, the number of hearths, bedding and ash dumps increases dramatically. The archaeologists believe that this is a result of increased occupation of the site. In the article, the archaeologists argue that the increased occupation may correspond with changing demographics within Africa at the time. By around 50,000 years ago, modern humans began expanding out of Africa, eventually replacing archaic forms of humans in Eurasia, including the Neanderthals.

This discovery adds to a long list of important finds at Sibudu over the past decade, including perforated seashells, believed to have been used as beads, and sharpened bone points, likely used for hunting. Wadley and others have also presented early evidence from the site for the development of bow and arrow technology, the use of snares and traps for hunting and the production of glue for hafting stone tools.

The discovery is particularly well timed, since future work at the site may be in jeopardy. Local officials are planning the construction of large housing tracts near Sibudu that would irreparably damage the site and prevent future excavation. Wadley and her colleagues hope that this discovery will emphasize the importance of Sibudu as an irreplaceable cultural resource for South Africa and the rest of the world.

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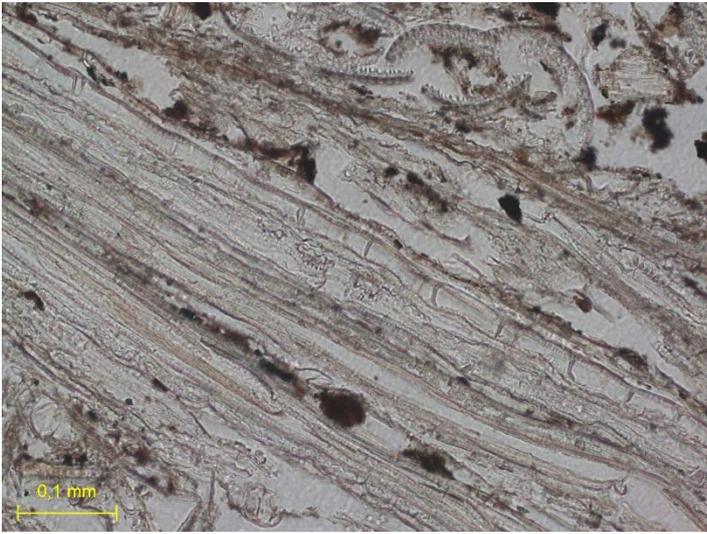
Sibudu excavations 2011. Credit: Prof. Lyn Wadley



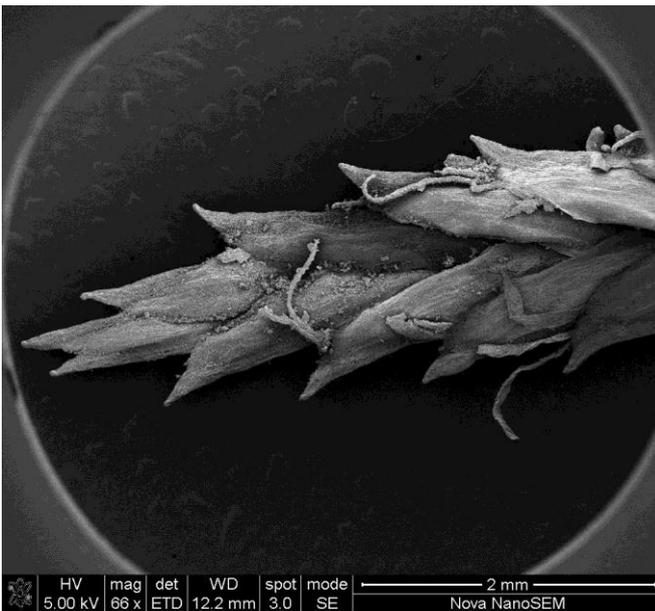
Prof. Christopher Miller sampling sediments in order to make geological thin sections. Credit: Prof. Lyn Wadley



Leaves in plaster jacket. Credit: Marion Bamford



A photomicrograph (scale in lower left is 0.1 mm) from a geological thin section of bedding, in profile. The laminated remains of sedges and other plants from the bedding are visible here as silica-rich fossils. This bedding layer is dated to before 77,000 years ago. Credit: Prof. Christopher Miller



Burnt sedge nutlet from Sibudu at 58,000 years ago. Credit: Christine Sievers and Muthama



Modern sedges being reaped on the uThongathi River. They will be used to make sleeping mats.
Credit: Prof. Lyn Wadley