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Scientists find the key to a lost world in Gibraltar – by Professor Clive Finlayson, DPhil, MBE

The Rock of Gibraltar was inhabited by Neanderthals from 100 thousand to 30 thousand years ago. So far, a total of 8 sites, either with Neanderthal fossils or their technology, have been discovered on the Rock. Two of them, Gorham's and Vanguard Caves, are the subject of on-going research. These caves are currently at sea level, but between 55 and 30 thousand years ago they faced an emerged coastal shelf with the shoreline as far as 5 km away at times. The caves hold a unique archive of fauna and flora, in the form of fossils, charcoal and pollen, helping environmental reconstruction of now-submerged shelf landscapes. In addition, a 300-metre dune complex on the East side of the Rock and other geological features complement the biological picture.

In a recently published paper in the journal *Geomorphology*, all this evidence has been combined to "undrown" a lost world that was the Gibraltar of 55 to 30 thousand years ago. The work is further complemented by a study of the ecology of the species recorded at the Gibraltar caves, using present-day observations. The species composition in this fossil record closely matches the present-day fauna and vegetation of the Doñana National Park, currently the richest reserve in terms of biodiversity in the Iberian Peninsula and located only 100 km to the northwest of Gibraltar.

What did this lost world look like? According to this latest research it was a mosaic of pine groves, coastal dunes, shrubland and seasonal wetlands. Dr Geraldine Finlayson of the Gibraltar Museum, who was an author of the paper, said "Gibraltar was a Mediterranean Serengeti. Herds of deer, wild horse and cattle grazed on the savannahs and were stalked by a strange mix of predators that included Spotted Hyaenas, Leopards, Brown Bears, Wolves and Lynxes. This was truly a bit of Africa in Europe". All the information gathered has permitted scientists, for the first time, to quantify the vegetation structure of the ancient coastal plain and the modelling of the spatio-temporal dynamics of coastal shelf off Gibraltar between 55 and 30 thousand years ago.

The paper comes on the back of two others published already in 2013. “This is a remarkable output of scientific literature for such a small institution as the Gibraltar Museum, comparable to the best research centres in European and North American universities” added Dr Geraldine Finlayson. “We have been working very hard to make Gibraltar a Centre of Excellence and we are getting there. We are grateful to the support that HM Government of Gibraltar has given us and we are optimistic that, with this backing, we can take Gibraltar to yet another level.”