Introduction

Hundreds of fossils have been recovered from Barrington's Ice Age deposits over the decades. The most spectacular of these are the bones and teeth of large mammals. Known as the Ice Age megafauna, most were plant eaters and a few were their predatory meat eaters. Many of the Barrington mammals could only tolerate warm climates. With the onset of cold glacial conditions they migrated southwards into Europe.

Hippopotamus

Hippopotamus amphibius is the most spectacular and interesting of the various large mammals, whose fossil remains have been recovered from Barrington. The presence of this warm climate species in Britain, Europe and Asia is evidence for repeated warm episodes during the Ice Ages. Its water-dwelling and grazing habits help build a picture of Barrington 125,000 years ago with a large river and surrounding water meadows with grasses and sedges where the hippos grazed at night.

Straight-tusked elephant – extinct

The largest and most impressive of the warm climate animals to live at Barrington was the straight-tusked elephant – *Palaeoloxodon antiquus.* Standing up to 4 metres high at the shoulder and weighing up to 15,000 kg, these extinct elephants were larger than any of their modern relatives. Their fossil remains consist mainly of limb bones and teeth, those skeletal parts which were resistant to weathering and erosion.

Giant deer – extinct

The extinct giant deer – *Megaloceros giganteus*, was one of the largest members of the deer family. The male's antlers grew to some 3.6m wide, their huge size driven by sexual selection as females were attracted to the largest antlered males. Annual shedding and regrowth of the antlers put enormous nutritional stress on the animals as their plant food of leaves and herbs was of limited nutritional value. However, giant deer were tough and adaptable animals and their fossil remains appear in deposits of both warm interglacial and cold glacial episodes.

Red deer

The red deer – *Cervus elaphus*, is the largest living land mammal in Europe and a tough Ice Age survivor. An adaptable feeder on grasses, shrubs and tree foliage, it can withstand both warm and cold but not glacial conditions. The antlers are used in inter-male rivalry over females during the breeding season and against predators before being shed and regrown the next year. Despite being hunted by predators such as lions, hyenas and wolves, red deer were and still are widespread across Europe. They returned to Britain 11,000 years ago following the last glacial.

Aurochs – extinct

The aurochs – *Bos primigenius* is an extinct species of large wild cattle with heavily muscled neck and shoulders but relatively slender rump and legs, which made them more powerful and faster moving than modern cattle. The most distinctive feature was the large curved horns, up to 100 cm in length, which were grown by both sexes. The horns were used for defence against predators such as lions and hyenas and for inter-male competition.

Steppe Bison – extinct

The extinct steppe bison – *Bison priscus* was another large and resilient grazing herbivore, whose thick covering of hair allowed it to tolerate both warm and cold climates, consequently its fossil remains are found in both interglacial and glacial deposits. It was widespread across the grasslands of Europe and Asia throughout much of the Ice Age before becoming extinct in early Holocene times when it was replaced by other bison species. Interbreeding with the aurochs produced the surviving European bison - *Bison bonasus*.

The Barrington Food Chain

Meat eating animals at the top of the food chain are far fewer in number than the animals they prey upon. At Barrington the primary producer was the lush plant life, which was eaten by different primary consumers. Some of these herbivores, such as the deer and extinct aurochs, were abundant. They in turn were eaten by secondary consumers – the carnivores.

Top Carnivores

The top carnivore at Barrington was the extinct cave lion - *Panthera leo spelaea* but its fossil remains are rare. More common was the spotted hyena - *Crocuta crocuta,* a successful hunter and scavenger, which left its mark on the broken and chewed bones of its prey. Competitors to the hyenas were the gray wolves – *Canis lupus* but they were few in number as was the more omnivorous brown bear - *Ursus arctos*. However, the gray wolf and brown bear were more adaptable to changing climates and environment and survived into historic times.

Spotted hyena

Fossils from Barrington show what a remarkable carnivore the spotted hyena – *Crocuta crocuta* is. The skull, jawbones and teeth are built to provide a powerful bite-force and the chewed and broken bones of other animals, show how effective that bite can be. Spotted hyenas are not just scavengers but also active predators who cooperate to hunt and kill animals much large than themselves. In Britain hyenas disappeared at the onset of the last glaciation never to return.

Barrington's plant eaters

The warm and humid climate at Barrington during the last interglacial, around 125,000 years ago, resulted in abundant plant-life of grasses, sedges, herbs, shrubs and woodland trees. This varied plant-life of primary producers was food for a variety of large mammalian herbivores, known as primary consumers. The grasses and sedges were grazed by hippos, aurochs and bison, whilst the shrubs and trees were browsed by the deer, rhinoceros and elephants.

The aurochs

The auroch was one of the most common and largest herbivores of the Ice Age megafauna, being widespread throughout Europe and Asia during the warm interglacial intervals of the Ice Age. It grazed on grasses and sedges in open areas especially marshes and river floodplains. The aurochs was one of the few members of the megafauna to return to Britain after the last glacial. It was domesticated in Holocene times and survived in Britain until the Bronze age. The last known aurochs died in 1627 in Poland.

Narrow-nosed rhinoceros

The extinct narrow-nosed or steppe rhinoceros - *Stephanorhinus hemitoechus* was a large and relatively adaptable herbivore, which preferred warm climates but could also tolerate cold steppe conditions where it lived alongside the woolly mammoth and woolly rhinoceros. The narrow-nosed rhinoceros adapted its feeding accordingly from open forest shrubs, trees and grasses to steppe grasses and herbs. It became the most widespread rhinoceros in Europe by Devensian times (MIS5). However, it was just one of several rhinoceros species, which spread across Europe and Asia during the Quaternary Ice Ages.

Straight-tusked elephant – extinct

The straight-tusked elephant – *Palaeoloxodon antiquus*, was the largest of Barrington's the warm climate plant-eaters. These extinct elephants moved into Britain from Europe when the climate allowed. With massive tusks, up to 2m long and huge grinding cheek teeth, they were destructive browsers on trees and shrubs, creating open woodland with intervening grasslands. As climates cooled into the last interglacial, the straight-tusked elephant along with the hippo and narrow-nosed rhino migrated south, never to return Britain.