

Wetlands as an early source of food and raw materials

From the earliest times, people have drawn upon the wide variety of wetland fauna and flora for their subsistence – for food, fuel and the raw materials for shelter, clothing, ornament and other personal possessions. Elephant bones from the Torralba marshes in Spain and the long wooden spears from Schoningen in Germany offer dramatic evidence from the Early Palaeolithic era that our remote ancestors were already hunting in the wetlands. At Kalambo Falls on Lake Tanganyika, wood and plant remains are well-preserved and remind us that early people were also gathering plant foods and other resources from wetlands.

Soon after the end of the last Ice Age, archaeological sites in Japan show increasing use of wetland resources. The site of Awazu in Lake Biwa (a Ramsar site) consists mainly of a midden built up from the remains of shellfish – additional evidence of waterchestnuts, carp and catfish, turtles and ducks, indicates that these wetland foods made up a significant part of the people's diet.

Sites in North America and northern Europe show that people were fishing in wetlands at about the same period. On the northwest coast of North America, at Hoko River, 3,000-year-old bentwood and composite fish-hooks were found in recent excavations – experimental fishing by archaeologists and Makah tribal elders has demonstrated that the bentwood hooks were intended for catching Pacific cod, and the composite hooks for catching flatfish. At Friesack in Germany nets were used, whereas from Kunda in Estonia two pike skeletons with bone points still embedded in them indicate that fish there

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Transporting reeds used for roof thatching in Madagascar.

Wetland birds have been hunted for food since ancient times, employing nets, bows and arrows, trained cats and birds of prey, amongst many other techniques. On the temple bas-reliefs at Esna, from Fifth Dynasty Egypt, elaborate methods of hunting waterfowl are depicted, including the use of domesticated geese as decoys, as well as decoys made from clay and feathers, to attract migrating birds to concealed hunters. More recently, the popularity of recreational hunting, particularly in the developed world, has led to concerns about the sustainability of hunting practices and the need to maintain wetland ecosystems. Hunters' associations have often been effective in helping to sustain wild bird populations and their wetland environment.

Wetlands were used by early farmers as well, particularly in tropical and sub-tropical regions – often, but not always, sustainably, of course. In Belize and Guatemala, the Maya were draining and cultivating wetland soils some 3,000 years ago. In Papua New Guinea, research along the Wahgi River in the Highlands has yielded even earlier evidence – garden-size ditch-and-mound systems were constructed 9,000 years ago to grow a variety of different crops, whilst by about 2,000 years ago the system had

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Excavation of wooden sluices and weirs which formed part of a 2000-year-old rice paddy system in Minamikita, Osaka, Japan.

evolved into more intensive wetland taro production. In Japan, farming in wetlands was added to the use of wild resources at least 2,500 years ago, when rice paddy fields were constructed in marshlands, with drains and wooden weirs and wood-lined field banks. In medieval Europe, many wetlands were partially drained to improve the grazing and allow the production of hay; on saltmarshes, sheep could graze safe from the parasitic liver fluke.

Other raw materials from wetlands include the clays and peats which build up under wet and waterlogged conditions. At Dolni Vestonice in the Czech Republic, small fired-clay figurines have been found, made by the people who lived here 25,000-30,000 years ago. Peat was dug and dried for fuel in Europe from about 3,000 years ago; in the Fens of eastern England it provided the fuel for production of salt

(itself another wetland resource), for example, by burning peat or reeds and rushes that had been soaked in saltwater.

Many wetland plants provide valuable resources as well, notably the many species of freshwater reeds and rushes, which have a long history of use all over the world for making boats and rafts – a use which extends to the present, for example in the extensive use of the *Phragmites* reed in the wetlands of the Tigris-Euphrates, the totora rush in the South American Andes, and papyrus in Africa.

Wetland animals have provided raw materials in addition to food. Beaver in Europe and North America, for instance, were hunted for food and for their thick fur, for the aspirin-like castoreum from their glands, and for their sharp incisor teeth which could be used as ready-made chisel blades. Sometimes wetland animals provided the materials used in rituals, as when a swan's wing was placed beneath a baby when it was buried beside its mother at Vedbaek, on a former inlet of the sea near Copenhagen, some 6,000 years ago.

Throughout the world and from the beginning of human history, people have turned to wetlands to sustain their lives. It is important to remember that this dependency continues today. One billion people today rely upon fish as their primary source of protein and the majority consumed are marine fish, two thirds of which depend upon coastal wetlands at some stage in their life cycle. For three billion people worldwide, rice, a wetland plant, forms the staple diet.

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