



The Lifeways of Early Kantharodai, Sri Lanka

**Barbara Helwing¹, Nimal Perera^{2,4}, P. Pushparatnam³, Jude Perera⁴,
Thilanka Siriwardana⁵, Martin R. Wright¹, Patrick Faulkner¹**

¹ The University of Sydney, Faculty of Arts and Social Sciences, Department of Archaeology, Australia

² Postgraduate Institute of Archaeology, University of Kelaniya, Sri Lanka

³ University of Jaffna, Unit of Archaeology, Department of History, Sri Lanka

⁴ Department of Archaeology, Colombo, Sri Lanka

⁵ Rajarata University, Sri Lanka

Abstract

In the 1st millennium BCE, Sri Lanka was central to the wide-spanning trading networks in the Western Indian Ocean region. Population agglomerations grew on the coast and further inland, where Anuradhapura emerged as the major central place. Parallel agglomerations formed in the south in Tissamaharama and in the north on Jaffna Peninsula in Kantharodai. The site of Kantharodai on the northern tip of Sri Lanka is the largest known early historic mound site on the Jaffna Peninsula, thought to represent the ancient centre of the region. The Early Historic occupation of Kantharodai began ca. 400-100 BCE. In our study we focus on the older historic occupation phase at Kantharodai, represented by a rich midden deposit of domestic refuse that offer insights into the environmental conditions faced by early occupants of the site and their modes of subsistence. We provide a glimpse into the subsistence strategies of the earliest settled population in Kantharodai who augmented a diet based on domesticated livestock through multiple wild species from forests, swamps, mangroves and marine habitats. Based on the faunal evidence from early Kantharodai, this complex socio-economic structure appears to have been in operation, confirming proposed models of mixed economies in operation in the Early Historic Period of the region.

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“When you are interested in supra-regional contacts, you need to investigate a harbour site!” were the words of Siran Deraniyagala, when we were sitting comfortably on the porch of his house in Ratnapura in February 2017. I took his advice literally, and Nimal Perera and I embarked on an exploratory tour of Sri Lankan harbour sites, visiting Manthai, Kantharodai, Trincomalee and other places over the following week. This was the beginning of a new project investigating the site of Kantharodai on Jaffna Peninsula on the northern tip of the island, from the initial moment onwards, robustly advised by Siran Deraniyagala – whose grandfather happened to be the first scholar to report on the site. As an international and interdisciplinary team, we began to explore the site in 2018 and opened a first excavation trench in 2019, aiming to build a reference sequence and gain an overall insight into site formation and extension of this earliest population centre of the Jaffna Peninsula. With the following glimpse into some new evidence on the ecological background to the founding of the site gathered from this excavation, the team wishes to gratefully pay tribute to Siran and say a heartfelt “Thank you!” for his steady support.

Background

Since the 3rd millennium BCE Bronze Age, the littoral and hinterland regions of the Western Indian Ocean were growing into a large-scale, integrated trade and exchange network. At first focused on the hotspots of early urbanisation in the river plains of the Nile, Euphrates and Tigris, and the Indus, later in the 2nd millennium BCE the system drew together the coastal zones of Oman, Pakistan and western India and connected to a parallel Eastern Indian Ocean network. Between the two ocean spheres, Sri Lanka held a lynchpin position southeast of the tip of India. At the latest when sedentary lifeways and agriculture were introduced there sometime early in the 1st millennium BCE, the island rapidly became not just a stepping-stone and relay station in these wide-spanning networks, but was also an active supplier of highly priced trade items such as spices and gemstones. Population agglomerations grew not directly on the coast but further inland, where Anuradhapura emerged from the 5th century BCE as the major central place. Parallel agglomerations formed in the south in Tissamaharama (Weisshaar et al., 2001) and in the north on Jaffna Peninsula in Kantharodai.

Siran Deraniyagala’s excavations in the citadel of Anuradhapura have provided the key sequence and radiocarbon-based chronology (Deraniyagala 2004, 352–59; 707–14) to describe the transition into protohistory and subsequent developments. The Anuradhapura sequence began with a Mesolithic layer (I), and then a quick transition to the Iron Age (II) and the early Iron Age (III, c. 900–600 BCE), characterised by Black-and-Red Ware, the use of iron, and houses built from wattle and daub. After this followed a second rapid culture change in the so-called Early Historic period with multiple subphases (IV–VIII, ca. 600 BCE – 1250 CE), identified via different forms of Black-and-Red ceramics and houses with clay roof tiles.

The Early Historic occupation of Kantharodai began ca. 400–100 BCE, following from an underlying and undatable layer containing quartz microliths, and thus parallels the lower to middle Early Historic period in Anuradhapura. Two distinct occupation phases are documented in our sounding E1, the older one (level 3) is

represented by a rich midden deposit of domestic refuse. In the following, we focus exclusively on this older Early Historic occupation of the site and introduce primary data from the midden deposit, with specific emphasis on understanding the environmental conditions confronting the early occupants of the site and the modes of subsistence at their disposal. The settling of the site coincided with the introduction of domestic rice and livestock, but so far we lack the data to determine the importance of agriculture and pastoralism in comparison to the use of natural resources during the Early Historic period.

The site of Kantharodai

The Jaffna Peninsula is located within the northernmost Sri Lankan arid lowland ecozone (Figure 1). Identified as Ecozone F by Deraniyagala (1992), the region is characterised by flat, low relief landscapes below 300m ASL, with average annual rainfall of c. 1000 mm influenced by the strength and annual variability in the northeast (October-March) and southwest (April-September) monsoons. Groundwater occurs in deep karstic formations, large rivers are scarce, and most watercourses are seasonal. Prolonged droughts, and regular almost annual effective dry periods affect the floral and faunal structures across this ecozone (Deraniyagala, 1992: 497-498; Murphy et al., 2018).

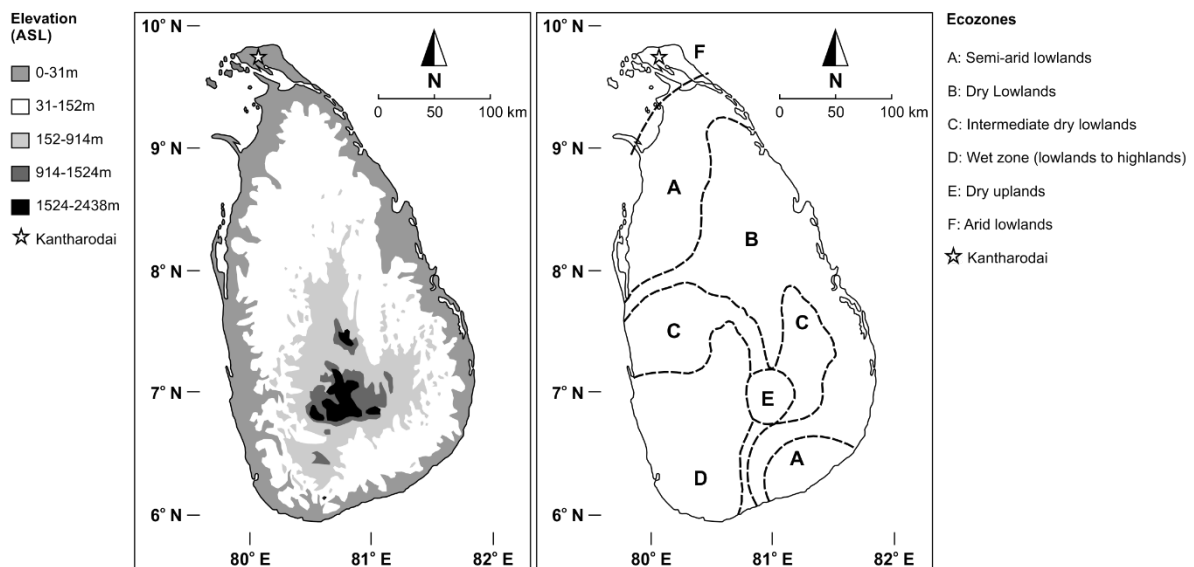


Figure 1. Map of Sri Lanka with the location of Kantharodai in the Jaffna Peninsula (Map by P. Faulkner)

The vegetation in the peninsula is dominated by semi-deciduous closed forest with bushy, spiny undergrowth. Following cultivation, these forests break down into scrub woodland, then into discontinuous thorny thickets (Deraniyagala, 1992:503-504). It is also apparent that mangrove ecosystems and marshland would have been situated close to Kantharodai (Allué et al., 2020).

Due to the dominant prograding coastlines around the peninsula, extensive intertidal and marine resources would have been available to the people at Kantharodai, including molluscs, fish, marine mammals and marine reptiles. The terrestrial carrying capacity and resource structures are more difficult to estimate due to extensive deforestation, however, the dry open forest may have supported relatively high faunal biomass, albeit potentially being constrained by freshwater scarcity (Deraniyagala, 1992:300).

Kantharodai is the largest known early historic mound site on the Jaffna Peninsula, thought to represent the ancient centre of the region before the focus of settlement moved southwards to the site of Nallur, today on the outskirts of Jaffna city, from the 10th century CE onwards. The site comprises an agglomeration of low mounds and is located approximately 8 km north of the city of Jaffna on the eastern side of the Valukkai Aru, a seasonal river connecting the site with the southern shore of the peninsula.

Through its slightly inland location on the Valukkai Aru, Kantharodai was both well connected and well protected. This strategic position allowed the settlement access to and control of the maritime routes through the Palk Strait, and hence the major route around the southern tip of India. Roman coins collected from the site (Pieris, 1919:46) indicate early contacts with the world empire further west.

Kantharodai was recognised as a historical site in the early 20th century and was subsequently explored and excavated by Paul E. Pieris who recognised the foundations of ancient stupas and of brick buildings (Pieris, 1919:45–65). The stupa field was put under protection and the first restoration started in 1963 (Silva, 1988:133 note 438; quoted after Perera, 2013:63; for a critical evaluation of that work, cf. Ragupathy, 1987:57). Further excavations began in 1966, and major finds were exhibited in the local museum at Jaffna that opened in 1965 (Godakumbura, 1968; 1969:33).

In 1966, Vimala Begley conducted the first excavation of the ancient settlement remains of Kantharodai. She had recognised a mound with several metres of archaeological layers situated north of the stupa field, which she interpreted as the ancient habitation site linked to the stupa field. Her sounding A (25m²) yielded Black-and-Red Ware and Rouletted Ware, resulting in dating these levels (that did not reach to sterile ground) to the 1st-2nd centuries AD (Begley, 1967:24). Two systematic soundings (B, X, each 4 m²) on the northern mounded site (the so-called Wood-Apple site) followed in 1970, but the results were never published except for a cursory mention of a Roman gemstone found there (mentioned only in Begley 1983: 481). A series of 14C dates from this work was included in Deraniyagala's seminal work (Deraniyagala, 2004:730–32) and suggested a division into four major phases I-IV, covering a period from ca. 500 BC to 0 BC.

The last attempt to obtain reliable data from Kantharodai was joint work conducted in 2011 by Nimal Perera and P. Pushparatnam who excavated to bedrock another sounding on top of the Wood Apple site (Perera, 2013). New radiocarbon samples were recovered and select sets of bioarchaeological samples have been studied (Murphy et al., 2018; Kingwell-Banham et al., 2018; Allué et al., 2020), providing insight into vegetation cover and agricultural practices in Early Historic times.

Our most recent approach to the site began in 2018 as a collaborative endeavour between the University of Sydney, the Department of Archaeology in Colombo and its regional office in Jaffna, the Central Cultural Fund, and the

Universities of Jaffna and Rajarata, thereby bringing together scholars and students from multiple backgrounds. We started with a systematic survey to determine location and extent of the site, and in 2019 proceeded with two soundings (E1, E2) located on the southern side of the main mound, each laid out in squares of 4 × 4 m (Figure 2).

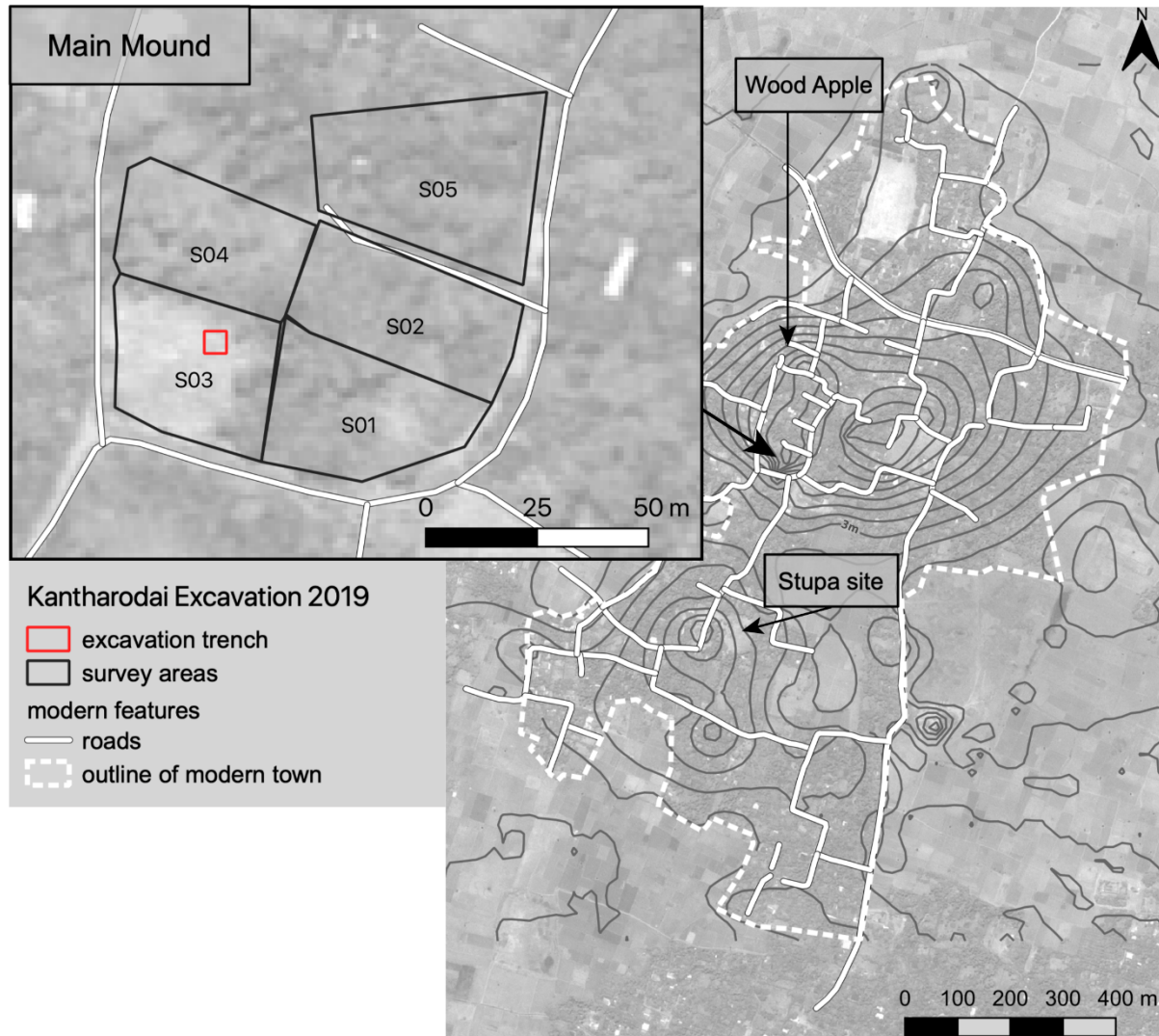


Figure 2. Map of Kantharodai and excavation area (© Kantharodai Project Archive, Map by F. Juercke)

The mound topography clearly indicated that one section had previously been levelled so we expected to quickly reach the most ancient occupation layers. This assumption proved true for trench E1 where we could document a sequence of Early Historic layers down to bedrock.

Kantharodai Trench E1

Excavations in E1 proceeded in a combined planum- and- feature-approach: whenever a feature could be discerned, this was excavated and documented separately, whereas in those cases where no contour lines appeared, the 4 x 4 m excavation area was divided into 1 x 1 m squares. Bedrock was reached at a depth of 2.2 m below the present surface. All soil was screened in a 8 mm mesh sieve, and sensitive deposits were screened with a 2 mm mesh.

A total of four levels were distinguished, numbered from top to bottom. Only levels 2-4 comprised intact archaeological features. Level 0 represents topsoil that had built up after the more recent levelling of the area had taken place. Level 1 relates to a period of levelling and heavy bulldozing that resulted in the accumulation of about 40 cm of rubble, most likely material excavated from a well approximately 20 m further to the north.

Level 2 represents a habitation phase with a battery of three preserved U-shaped hearths, likely the residues of a domestic kitchen. More hearths seem to have existed but were not preserved due to the heavy bulldozing that also destroyed the upper part of the installations. This area must have lain deserted for some time after usage, as aeolian deposits of yellow sand cover the remains.

Level 3 comprises a thick layer rich in cultural and organic materials that filled two depressions in the natural sand (pits E126, E138, see Figure 3).

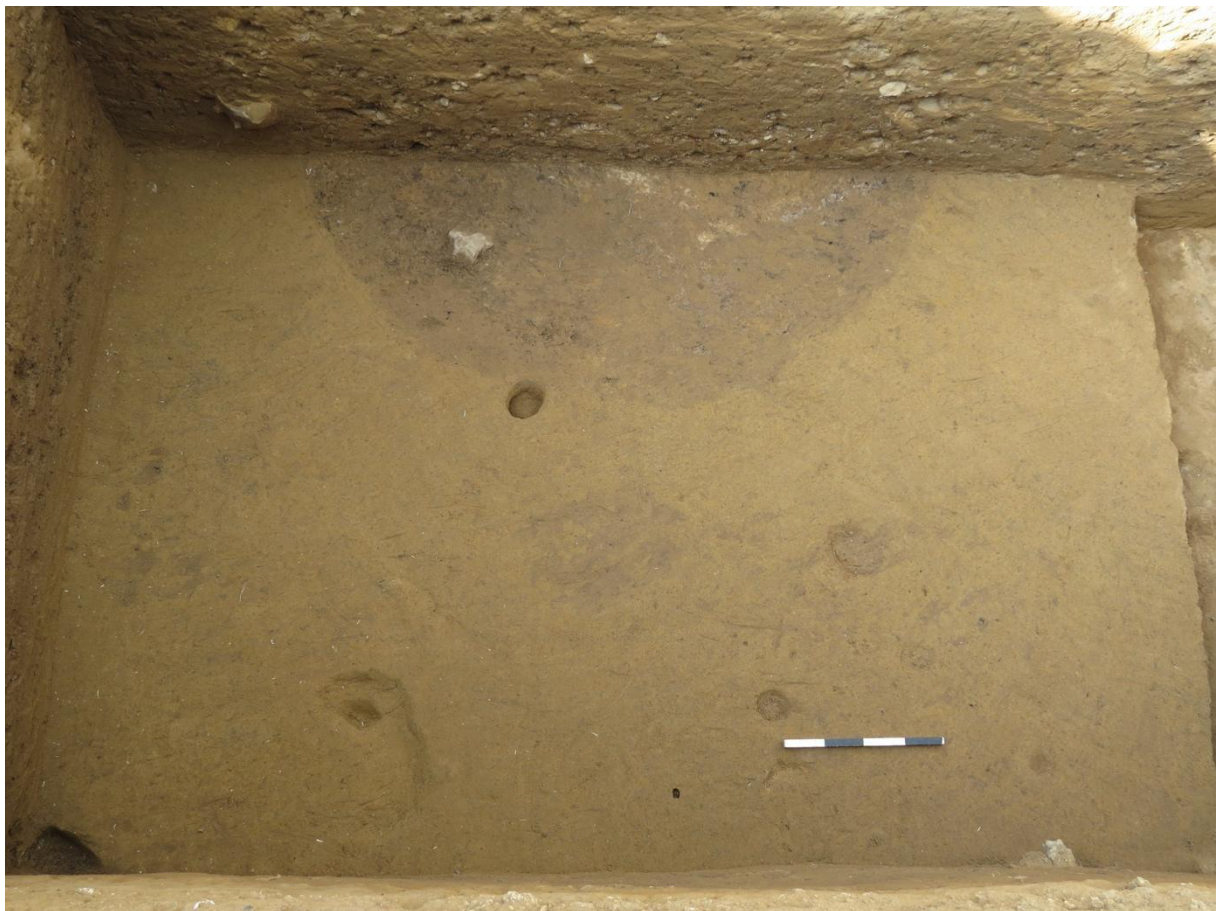


Figure 3. Contour line of pit E138 (© Kantharodai Project Archive)

The soil is not very compact and probably represents a short-term occupation, most likely ongoing discard of domestic refuse. The layer formed a coherent package of thinly banded deposits rich in ash and charcoal, animal bones and Red-and-Black ceramics, that was, however, cut by later pits and termite holes. Bioturbation also proceeded deeper into the sterile sand of phase 4. The upper subphase level 3a is distinguished from lower level 3b as the soil in 3a appears more compacted, maybe a result of ancient trampling over the area. Level 3a comprised *in situ* concentrations of animal bones (Figure 4a) and of marine shell and land snails (Figure 4b), probably residues from meals. A half bowl of Black-and-Red Ware filled with bivalves (*Gafrarium pectinatum* or comb venus) was retrieved here.

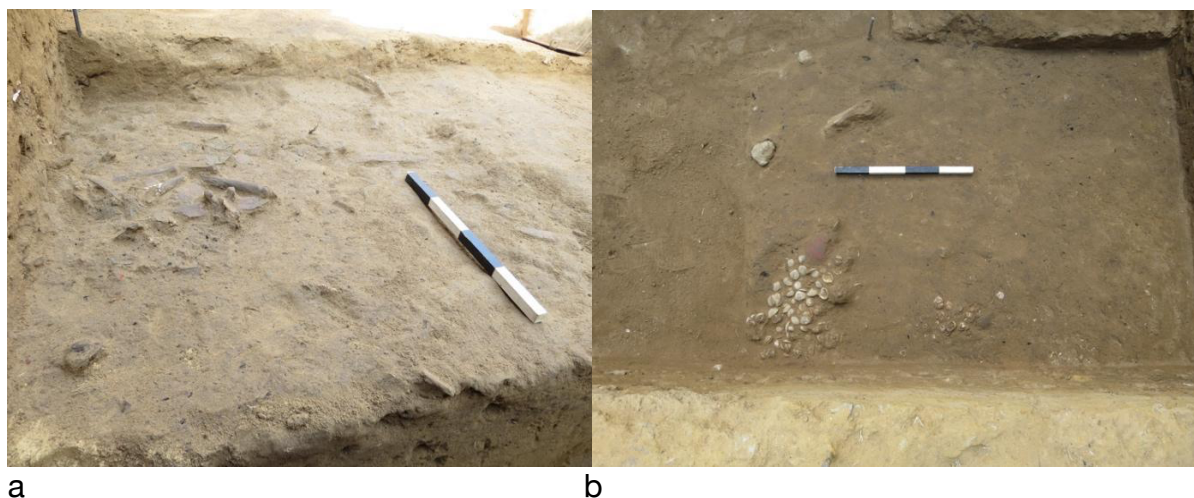


Figure 4. Kantharodai Sounding E1. (© Kantharodai Project Archive)
a - bone concentration in level 3a
b - shell concentration in level 3a

Level 4 refers to a ca. 10-15 cm thick layer of yellow sand overlaying bedrock that was, despite its depth, partly disturbed by heavy animal activity. Sieving yielded a small collection of crystal flakes and some coral fragments.

Radiocarbon dating brackets the lowermost settled occupation attested in trench E1 in the centuries from 400 to 200 BCE. The level 3 occupation belongs to the first decades of the 4th century, and the domestic occupation of level 2 can be assigned to the late 4th and 3rd century BCE. This assignment is corroborated by the material evidence from level 3 that contained a ceramic inventory of Black-and-Red Ware and a few grey and black polished sherds, but no Rouletted Ware or other markers of participation in the maritime interaction throughout the Gulf of Bengal that began in the 3rd century BCE (Schenk, 2006).

The faunal assemblage from E1, phase 3

The invertebrate and vertebrate fauna recovered from the Phase 3 contexts of our excavation at Kantharodai highlight a remarkable degree of taxonomic richness. These data are broken down into the broad categories: terrestrial vertebrate, fish and elasmobranch (shark, ray and skate), aquatic vertebrates (dugong, turtle and crocodile) and bird, and invertebrates (molluscs and crustaceans) by the number of identifiable specimens (NISP) as shown in Figure 5.

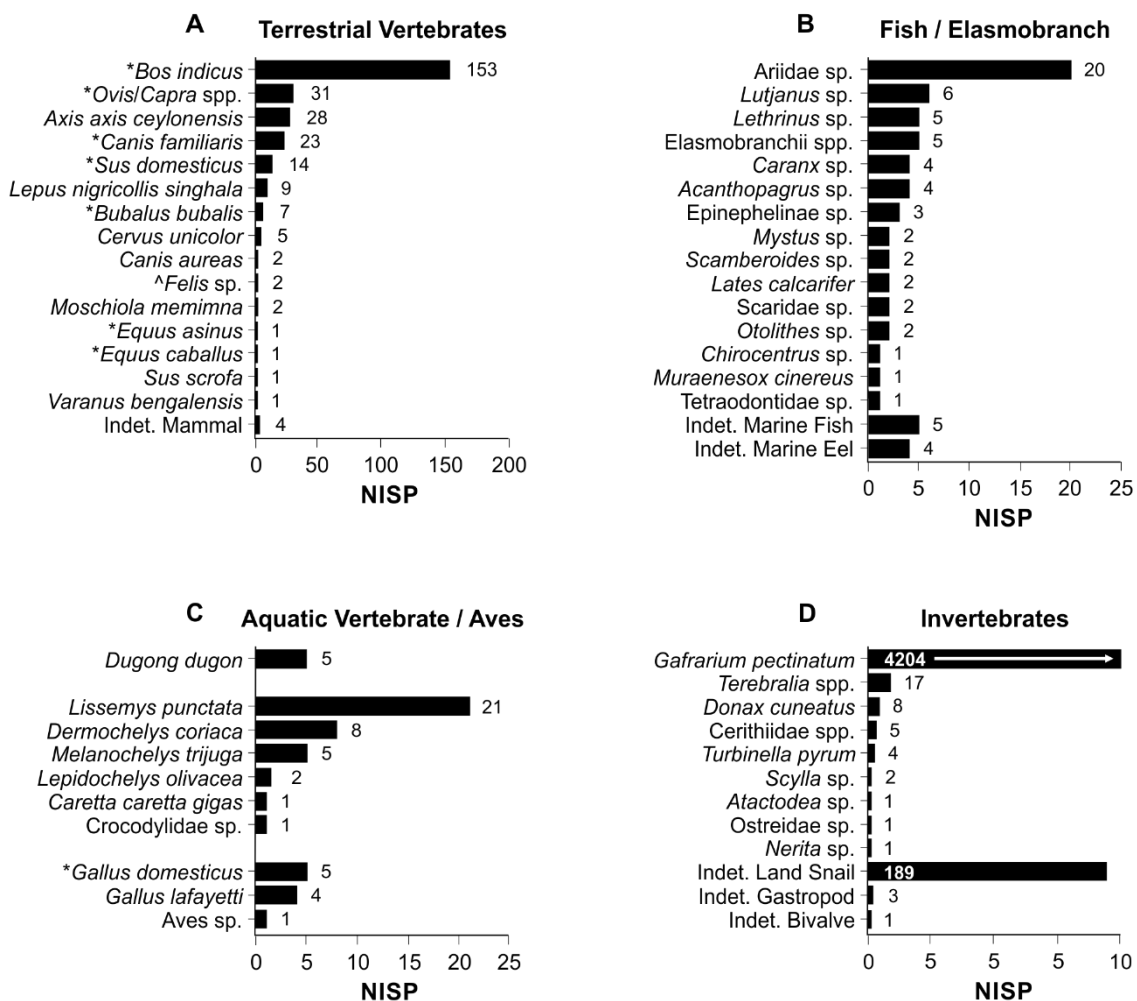


Figure 5. Faunal composition by NISP from Kantharodai phase 3: terrestrial vertebrate (A), fish/elasmobranch (B), aquatic vertebrate and Aves (C) and invertebrate (D). (* indicates domesticated taxa; ^ indicates possibly domesticated taxa)

These data highlight the broad-spectrum nature of the economy and subsistence structure in operation during this early period at Kantharodai. Importantly, the faunal assemblage demonstrates the use of both wild and domesticated taxa from diverse habitats and environmental contexts.

There are eight taxa that have been identified as being domesticated or potentially domesticated, including zebu (*Bos Indicus*), water buffalo (*Bubalus bubalis*), sheep/goat (*Ovis/Capra* spp.), donkey and horse (*Equus asinus*, *E. caballus*), domestic pig (*Sus domesticus*), small to medium cat (*Felis* sp), and chicken (*Gallus domesticus*). As a proportion of the vertebrates, the domesticated fauna comprises 58% of the assemblage, indicating a relative even occurrence of domesticated and wild resources in the economy.

The wild vertebrate fauna includes the Sri Lankan axis deer (*Axis axis ceylonensis*), sambar deer (*Cervus unicolor*), the Sri Lankan junglefowl (*Gallus lafeyettii*), dugong (*Dugong dugon*), and leatherback, Indian black and Indian flapshell turtles (*Dermochelys coriacea*, *Melanochelys trijuga*, *Lissemys punctata*). There are at least 14 fish taxa represented, dominated by catfish (*Ariidae* sp.), with small numbers of Chondrichthyes (shark, skate and ray).

Many of these species inhabit a wide range of environments, making a simple correlation between the fauna represented and ecosystem structure around Kantharodai relatively difficult. That said, 56% of the vertebrate fauna generally inhabit dry deciduous forest, scrubland and open tropical savanna; 18% from estuaries, floodplains, freshwater waterways and mangrove swamps; and 13% from various intertidal/subtidal and nearshore marine habitats. The remaining taxa could have been drawn from a wide range of terrestrial habitats, including urban contexts.

The mollusc and crustacea show very low-level richness and diversity, with the assemblage dominated by one taxon (the sand/mudflat bivalve *Gafrarium pectinatum*) at 95% by NISP, with minor representation by all other taxonomic categories. These minor taxa cover a range of relatively nearshore habitat zones, including supratidal hard substrate to intertidal soft shore niches, mangrove muds and reef environments. These data show a clear foraging preference for upper intertidal sandy beaches, with harvesting and transportation of the likely biomass dominant *G. pectinatum*, with minor transportation of molluscs from other near-shore environments.

Combined, these data from a domestic refuse deposit indicating a mixed economy in operation, combining domesticated livestock (e.g. cattle, buffalo, goat, horse and pig) with hunting/trapping (terrestrial and marine mammals and reptiles) and fishing, supplemented by foraging (taking into consideration the crustacea and molluscan evidence). A broad-spectrum of fauna were being used from surrounding forest and open savanna habitats, which reinforce the botanical evidence from previous studies as well as indicate access to the coast and transportation of marine species. Importantly, these data also highlight freshwater, swamp and mangrove species, suggesting immediate access to water and the resources contained within aquatic environments. This breadth may reflect not just habitat structure around and within easy access for the people of Kantharodai, but also potentially a way to buffer uncertainty in economic production within the northern dry zone.

Conclusion

The data from the level 3 domestic refuse deposit provide a glimpse into the subsistence strategies of the earliest settled population in Kantharodai who augmented a diet based on domesticated livestock through multiple resources from the wild, with marine and coastal species in addition to domesticated livestock. Such a coexistence of agriculture and pastoralism with hunting, gathering, fishing and foraging has previously been proposed by Murphy et al., (2018: 99) for Jaffna and for southern India by Morrison (2016) as an established subsistence strategy during the Early Historic period. Based on the available faunal evidence from early Kantharodai, this complex socio-economic structure certainly appears to have been in operation, confirming the proposed models of mixed economies in operation in the Early Historic period of the region.

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