**Small Mammals and Fish Bones**

This chapter describes the fish and small mammal bones recovered from Area M in terms of taxon, skeletal elements, and information relevant to age determination and taphonomy, whenever applicable.

**Small Mammals**

Lior Weissbrod

During the 2009 season, several samples were recovered from an 8th-century BCE context (L.09-315, see Chapter X). This locus was divided into small 0.5 x 0.5 m squares. Samples were carefully retrieved from each square. These amounted to over 2,500 identifiable bones, recovered from a sediment volume of roughly three quarters of a cubic meter, all wet-sieved through a 1 mm mesh screen. An estimate of the density of these finds (the number of specimens per liter of sediment) shows that it amounts to about 10 specimens per liter (see Table 1). Remains of small mammals (86 specimens) constitute about 4% of this assemblage (Table 2).

Six different taxa of small mammals have been identified in this material through an analysis of the molar teeth (Table 2). These belong to two mammalian orders: Rodentia (rodents, NISP=27, 43%) and Eulipotyphla (insectivores), including the common house mouse (*Mus musculus domesticus*, NISP=40, 46.5%), jird (*Meriones tristrami*, NISP=1, 1.2%), field vole (*Microtus guentheri*, NISP=5, 5.8%), and shrew (Soricidiae, NISP=3, 3.5%). The dominant species is the house mouse (85% of molars). No signs of chemical corrosion or burn marks were found on any of the bones.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | **Taxonomic information** | | |
| **Basket** | **Square/Sector** | **Volume** | **Small mammals** | **Other small vertebrates** | **N/A** |
| 74051 | SE | 9 | 2 | 44 |  |
| 74052 | NE | 9 | 0 | 57 |  |
| 74054 | NW | - | 0 | 8 |  |
| 74055 | SW | - | 0 | 66 |  |
| 74099 | SW | - | 2 | 37 |  |
| 74100 | Middle | - | 1 | 31 |  |
| 74101 | NW | - | 1 | 119 |  |
| 74102 | Installation: 1st level | - | 2 | 21 |  |
| 74104 | Installation: 2nd level | - | 0 | 10 |  |
| 74105 | Installation: 5th level | - | 1 | 31 |  |
| 74106 | Installation | - | 3 | 9 |  |
| 74107 | 3a | - | 1 | 27 |  |
| 74108 | 7a | 7 | 0 | 50 |  |
| 74108 | 7b | - | 0 | 42 |  |
| 74143 | 7c | - | 0 | 43 |  |
| 74195 | 3b | 4 | 0 | 11 |  |
| 74198 | 3c | 8 | 0 | 153 |  |
| 74240 | 4a | 9 | 12 | 53 |  |
| 74241 | 4c | 8 | 4 | 36 |  |
| 74242 | 8c | 9 | 0 | 1 |  |
| 74243 | 8a | 9 | 7 | 87 |  |
| 74245 | 10d | 9.5 | 0 | 39 |  |
| 74301 | 9c | 6 | 1 | 93 |  |
| 74302 | 9d | 5 | 1 | 23 |  |
| 74310 | 9a | 9 | 3 | 69 |  |
| 74364 | 14b | - | 0 | 25 |  |
| 74369 | 11b | 10 | 2 | 301 |  |
| 74373 | 14a | 9 | 2 | 138 |  |
| 74374 | 11d | 9 | 1 | 99 |  |
| 74403 | 15b | 4 | 0 | 21 |  |
| 74437 | 5a | 8 | 3 | 105 |  |
| 74444 | 5b | 6 | 0 | 16 |  |
| 74444 |  | 8 | 5 | 142 |  |
| 74447 | 17b | 4 | 4 | 57 |  |
| 74474 | 5d | 8 | 2 | 28 |  |
| 74478 | 3a | 4 | 0 | 14 |  |
| 74480 | 3d | 4 | 1 | 27 |  |
| 74487 | 4a | 10 | 1 | 21 |  |
| 74488 | 4c | 9 | 1 | 26 |  |
| 74524 | 8a | 10 | 2 | 82 |  |
| 74525 | 8c | 8 | 4 | 29 |  |
| 74577 | 18a | 2 | 1 | 1 |  |
| 74580 | 18d | 3.5 | 2 | 6 |  |
| 74585 | 4c | 9.5 | 0 | 43 |  |
| 74586 | 8a | - | 7 | 36 |  |
| 74637 | 5d | 8 | 1 | 27 |  |
| 74641 | 5d | - | 6 | 32 |  |
| **Sum** |  | **235.5** | **86** | **2436** |  |

Table 1: General information on small mammal assemblage

**Fish Bones**

Omri Lernau

The fish bone assemblage from Hazor is smaller and includes samples from several seasons and contexts (Table ?). These amount to 1,107 bones, which can be divided by period: 406 specimens from LBA contexts, 12 from Iron I, and 689 specimens from Iron II contexts.

Eleven different families of fish were identified (Table 1). In the Iron Age they can be divided into three subcategories: Three families— Clariidae, Cyprinidae and Cichlidae—were local, from Lake Hula, the Jordan River, and the Sea of Galilee; these constituted 90.4% of the assemblage. Seven families had their origins in the Mediterranean Sea: Carangidae, Engraulidae, Moronidae, Mugilidae, Sciaenidae, Serranidae, and Sparidae, and amounted to 9.2% of the assemblage. Only one family—Centropomidae—was imported from the Nile; it constituted 0.4% of the assemblage (a single bone).

The assemblage from the LBA is far less varied. A total of four families have been identified and divided into two subcategories. Three of these—Clariidae, Cyprinidae and Cichlidae—are local and originated in the Lake Hula, the Jordan River or the Sea of Galilee; they amount to 98.2% of the assemblage; Only one family, Sparidae, originated in the Mediterranean Sea and made up 1.8% of the assemblage.

It should not come as a surprise that burnt fish bones are more common in the LBA as these were found in the destruction level of the Administrative Palace. They comprise 34.6% of the assemblage and only 4.5% of the Iron II assemblage.

The size of the fish could be estimated from 66 specimens of the LBA and 47 specimens of the Iron Age (Table 2). In all cases, it seems that the fish brought to the site were small. Even large fish that could potentially reach a length of 1-1.5 m (such as *Clarias gariepinus and* *Lates niloticus*) are represented by small specimens.

The assemblage of fish bones found at Hazor is heavily dominated by local fish, in contrast to most other excavated inland sites in which the majority of bones belong to marine kinds of fish caught in the Mediterranean and fresh water fish imported from the Nile. This is true both for the Late Bronze and the Iron Ages. This difference seems to mean that the inhabitants of Hazor did not take part in a well established commerce in fish which was highly developed across the country especially during the Late Bronze and Iron periods. Marine and imported fish were consumed in significant proportions in Beth Shean and Tel Rehov, as close to the Lake of Kinneret and the Jordan River as Hazor. Bones of local fresh water fish made up a small proportion only of the assemblage studied there. Hazor was strategically situated on one of the main roads connecting the Land of Canaan with the north and it is therefore difficult to explain the lack of evidence for imported fish in the site.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Locus** | **Family** | **Species** | **Genus** | **n** |
| L.09-315 | Carangidae | *trachurus* | *Trachurus* | 1 |
| L.09-315 | Centropomidae | *niloticus* | *Lates* | 1 |
| L.09-315 | Cichlidae | - | - | 49 |
| L.09-315 | Cichlidae | *galilaea* | *Tilapia* | 2 |
| L.09-315 | Cichlidae | *zillii* | *Tilapia* | 1 |
| L.09-315 | Clariidae | *gariepinus* | *Clarias* | 108 |
| L.09-315 | Cyprinidae | - | - | 47 |
| L.09-315 | Engraulidae | *encrasicholus* | *Engraulis* | 1 |
| L.09-315 | Moronidae | *labrax* | *Dicentrarchus* | 1 |
| L.09-315 | Mugilidae | - | - | 4 |
| L.09-315 | Mugilidae | *ramada* | *Liza* | 1 |
| L.09-315 | No diagnosis | - | - | 303 |
| L.09-315 | Sciaenidae | *regius* | *Argyrosomus* | 1 |
| L.09-315 | Serranidae | - | - | 1 |
| L.09-315 | Sparidae | - | - | 7 |
| L.09-315 | Sparidae | *aurata* | *Sparus* | 2 |
| L.15-302 | Cichlidae | - | - | 2 |
| L.15-302 | Cyprinidae | - | - | 1 |
| L.15-302 | Cyprinidae | *damascina* | *Capoeta* | 1 |
| L.15-302 | No diagnosis | - | - | 7 |
| L.15-302 | Sparidae | *aurata* | *Sparus* | 1 |
| L.15-303 | Cichlidae | - | - | 2 |
| L.15-303 | No diagnosis | - | - | 4 |
| L.15-311 | Cichlidae | - | - | 2 |
| L.15-311 | Clariidae | *gariepinus* | *Clarias* | 1 |
| L.15-311 | Cyprinidae | - | - | 2 |
| L.15-311 | No diagnosis | - | - | 11 |
| L.15-325 | Clariidae | *gariepinus* | *Clarias* | 3 |
| L.15-325 | No diagnosis | - | - | 10 |
| L.15-329 | Clariidae | *gariepinus* | *Clarias* | 9 |
| L.15-329 | Cyprinidae | - | - | 1 |
| L.15-329 | No diagnosis | - | - | 25 |
| L.15-335 | Cichlidae | - | - | 1 |
| L.15-335 | Cyprinidae | - | - | 1 |
| L.15-335 | No diagnosis | - | - | 3 |
| L.15-344 | Clariidae | *gariepinus* | *Clarias* | 3 |
| L.15-344 | Cyprinidae | - | - | 1 |
| L.15-344 | No diagnosis | - | - | 6 |
| L.15-347 | Cichlidae | - | - | 2 |
| L.15-347 | Clariidae | *gariepinus* | *Clarias* | 11 |
| L.15-347 | Cyprinidae | - | - | 1 |
| L.15-347 | Cyprinidae | *longiceps* | *Barbus* | 1 |
| L.15-347 | No diagnosis | - | - | 10 |
| L.15-347 | Sparidae | *aurata* | *Sparus* | 1 |
| L.15-348 | No diagnosis | - | - | 4 |
| L.15-355 | Cyprinidae | - | - | 1 |
| L.15-355 | No diagnosis | - | - | 1 |
| L.16-301 | Cichlidae | - | - | 1 |
| L.16-301 | Clariidae | *gariepinus* | *Clarias* | 5 |
| L.16-301 | Cyprinidae | - | - | 1 |
| L.16-301 | No diagnosis | - | - | 8 |
| L.16-302 | Cichlidae | - | - | 1 |
| L.16-302 | Clariidae | *gariepinus* | *Clarias* | 5 |
| L.16-302 | No diagnosis | - | - | 2 |
| L.16-302 | Sparidae | *aurata* | *Sparus* | 1 |
| L.16-311 | Cichlidae | - | - | 1 |
| L.16-311 | Cichlidae | *sacra* | *Tristramella* | 1 |
| L.16-311 | Clariidae | *gariepinus* | *Clarias* | 3 |
| L.16-311 | Cyprinidae | - | - | 4 |
| L.16-311 | Mugilidae | *cephalus* | *Mugil* | 1 |
| L.16-311 | No diagnosis | - | - | 29 |
| L.16-322 | Cichlidae | - | - | 2 |
| L.16-322 | Cyprinidae | - | - | 1 |
| L.16-322 | No diagnosis | - | - | 7 |
| L.16-326 | Cichlidae | - | - | 1 |
| L.16-326 | Cyprinidae | - | - | 1 |
| L.16-326 | No diagnosis | - | - | 1 |
| L.16-327 | Cichlidae | - | - | 2 |
| L.16-327 | Clariidae | *gariepinus* | *Clarias* | 5 |
| L.16-327 | Cyprinidae | - | - | 4 |
| L.16-327 | No diagnosis | - | - | 21 |
| L.16-330 | No diagnosis | - | - | 1 |
| L.16-333 | Clariidae | *gariepinus* | *Clarias* | 3 |
| L.16-335 | Clariidae | *gariepinus* | *Clarias* | 3 |
| L.16-335 | Cyprinidae | - | - | 1 |
| L.16-335 | No diagnosis | - | - | 3 |
| L.16-337 | Cichlidae | - | - | 1 |
| L.16-337 | Clariidae | *gariepinus* | *Clarias* | 2 |
| L.16-337 | No diagnosis | - | - | 3 |
| L.16-338 | Cichlidae | - | - | 1 |
| L.16-338 | Clariidae | *gariepinus* | *Clarias* | 2 |
| L.16-338 | No diagnosis | - | - | 2 |
| L.16-339 | Clariidae | *gariepinus* | *Clarias* | 3 |
| L.16-339 | No diagnosis | - | - | 7 |
| L.16-340 | Cichlidae | - | - | 3 |
| L.16-340 | Cichlidae | *zillii* | *Tilapia* | 1 |
| L.16-340 | Clariidae | *gariepinus* | *Clarias* | 40 |
| L.16-340 | Cyprinidae | - | - | 10 |
| L.16-340 | Cyprinidae | *longiceps* | *Barbus* | 1 |
| L.16-340 | No diagnosis | - | - | 89 |
| L.16-340 | Sparidae | - | - | 1 |
| L.17-301 | Cichlidae | - | - | 1 |
| L.17-301 | Clariidae | *gariepinus* | *Clarias* | 10 |
| L.17-301 | Cyprinidae | - | - | 3 |
| L.17-301 | No diagnosis | - | - | 10 |
| L.17-304 | Cichlidae | - | - | 1 |
| L.17-304 | Clariidae | *gariepinus* | *Clarias* | 12 |
| L.17-304 | Cyprinidae | - | - | 2 |
| L.17-304 | No diagnosis | - | - | 18 |
| L.17-304 | Sparidae | - | - | 1 |
| L.17-313 | Cichlidae | - | - | 4 |
| L.17-313 | Clariidae | *gariepinus* | *Clarias* | 14 |
| L.17-313 | Cyprinidae | - | - | 4 |
| L.17-313 | No diagnosis | - | - | 37 |
| L.17-318 | Cyprinidae | - | - | 1 |
| L.17-318 | No diagnosis | - | - | 5 |
| L.17-319 | Cichlidae | - | - | 1 |
| L.17-319 | Clariidae | *gariepinus* | *Clarias* | 2 |
| L.17-319 | Cyprinidae | - | - | 1 |
| L.17-319 | No diagnosis | - | - | 8 |
| L.17-321 | No diagnosis | - | - | 4 |
| L.17-321 | Sparidae | - | - | 1 |
| L.17-325 | Cichlidae | - | - | 2 |
| L.17-325 | Clariidae | *gariepinus* | *Clarias* | 2 |
| L.17-325 | Cyprinidae | - | - | 1 |
| L.17-325 | No diagnosis | - | - | 6 |
| L.17-326 | Cichlidae | - | - | 1 |
| L.17-326 | Clariidae | *gariepinus* | *Clarias* | 1 |
| L.17-326 | Cyprinidae | - | - | 1 |
| L.17-326 | No diagnosis | - | - | 1 |
| L.17-327 | Cichlidae | - | - | 1 |
| L.17-327 | Clariidae | *gariepinus* | *Clarias* | 2 |
| L.17-327 | No diagnosis | - | - | 5 |
| **Sum** |  |  |  | **1107** |

Table 3: Fish bone specimens by locus numbers