

# ANIMALS IN ARCHAEOLOGY

HPAR 6002

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## ASSIGNMENT ONE - QUANTIFYING ANIMAL BONES

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Quantifying animal bones is an important aspect of the archaeological task due to the range of interactions humans have with other animals. The evidence of these past human / animal interactions are represented in worked bone artifacts<sup>1</sup> and in bone assemblages<sup>2</sup> which often form a significant part of the archaeological record. <sup>3</sup> Bone assemblages contain traces of past human behaviours, meals and processes<sup>4</sup>, and offers the potential to help inform archaeological interpretations from an individual site and context; local, national and international basis<sup>5</sup>. Bone assemblages also allows human interaction with animals to be explored through history, prehistory and across cultures<sup>6</sup>.

Animal bones help inform interpretation across a range of areas; paleoenvironments, animal biography, diet, animal management, past human behaviours, seasonality of exploitation, carcass processing, pets, pests, ritual and religion.<sup>7</sup>

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<sup>1</sup> Paterson, C. in M.P. Pearson, M Brennand, J. Mulville and H. Smith, '*Cille Pheadair: a Norse Farmstead and Pictish Burial Cairn in South Uist*'. ( Oxford: Oxbow Books, 2018), p.337-361.

<sup>2</sup> T O'Connor, '*The Archaeology of Animal Bones*', (Stroud: Sutton Publishing, 2000), p.vii.

<sup>3</sup> R.L.Lyman, '*Vertebrate Taphonomy*', (Cambridge: Cambridge University Press, 1994), p.1.

<sup>4</sup> R.L.Lyman, '*Vertebrate Taphonomy*', (Cambridge: Cambridge University Press, 1994), p.1.

<sup>5</sup> P.Baker and F. Worley, '*Animal Bones and Archaeology. Recovery to Archive*' (Historic England).

Available

at:<https://historicengland.org.uk/images-books/publications/animal-bones-and-archaeology/animal-bones-archaeology-handbook/>. p.1.

<sup>6</sup> T O'Connor, '*The Archaeology of Animal Bones*', (Stroud: Sutton Publishing, 2000), p.vii.

<sup>7</sup> Ibid. p. 1-2.



Pic. 1. Bone assemblage. (Britannica.com)

The relative abundance of animal species can inform us what people ate and the animals age at death.<sup>8</sup> Help investigate the role of animals within the economy.<sup>9</sup> Butchery marks can indicate how animals were butchered<sup>10</sup> and cuts being eaten. Dietary data provides information on cultural social status and identity. Taxonomic and biometric data informs on animal

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<sup>8</sup> O'Connor, 'The Archaeology of Animal Bones', p.90.

<sup>9</sup> M. Holmes, H Hamerow and R. Thomas, 'Close companions? A Zooarchaeologist Study of the Human-Cattle relationship in Medieval England', *Animals*, 11, 1174 (2021). Available at:<https://doi.org/10.3390/ani11041174>.

<sup>10</sup> R. Lee Lyman, 'Seal and Sea-Lion Butchering on the Southern Northwest Coast', *American Antiquity*, vol. 57, No.2 (Apr. 1992), p.246.

management<sup>11</sup>; domestication<sup>12</sup> and husbandry. Tooth measurements can indicate size, shape of animals and husbandry changes over time.<sup>13</sup> Mortality profiles combined with sex ratios inform whether livestock were kept for meat, traction or secondary products (e.g. wool and milk).<sup>14</sup> Butchery tool marks provide evidence on organization and technology of bone working and butchery and processing.<sup>15</sup> Deposition of whole animals, old age or assisted fracture healing informs on human animal relationships.<sup>16</sup> Evidence of pest species help inform on human settlement. <sup>17</sup>Ritual and religious belief systems may be evidenced by avoidance of certain meats, animal sacrifice / disposition or community gatherings.<sup>18</sup>

An important aspect of quantifying animal bones is estimating taxonomic abundance. There are two main quantifying units utilized; NISP (the number of identified specimens) and MNI (Minimum number of individuals). NISP is calculated by adding all of the skeletal elements which have been identified to taxon together, including bones, teeth and fragments.<sup>19</sup> The process of taxonomic identification is aided by similarities of the mammal skeleton. (see appendix 1.)The resultant figure represents the maximum number of individuals that can be present in any given assemblage.

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<sup>11</sup> M. Holmes in M. McKerracher and H. Hamerow, '*New Perspectives on the Medieval Agricultural Revolution*', (Liverpool: Liverpool University Press, 2022), p.100.

<sup>12</sup> J.Peters, A von den Driesch, D. Helmer and M. S. Sequi, 'Early Animal Husbandry in the Northern Levant', *Paleorient*, vol. 25. No.2 (1999), pp.27-48.

<sup>13</sup> S.J.M. Davis, 'The Archaeology of Animals', (London: Routledge, 2002), pp.39-44.

<sup>14</sup> M. Holmes in M. McKerracher and H. Hamerow, '*New Perspectives on the Medieval Agricultural Revolution*', p.110.

<sup>15</sup> E. Fairnell in P.Baker and F. Worley, '*Animal Bones and Archaeology. Recovery to Archive*' (Historic England). p. 67.

<sup>16</sup> M. MacKinnon, 'Sick as a Dog: zooarchaeological evidence for pet dog health and welfare in the Roman World', '*World Archaeology*', Vol. 42. No.2. (June 2010), pp.290-309.

<sup>17</sup> Davis, '*The Archaeology of Animals*', p.182.

<sup>18</sup> L. Higbee in A.B. Powell, '*An Iron Age Enclosure in Romano-British Features at High Post, near Salisbury*', Salisbury: Wessex Archeology, 2012), pp.70-80.

<sup>19</sup> R L. Lyman, '*Quantitative Paleozoology*', p.27.

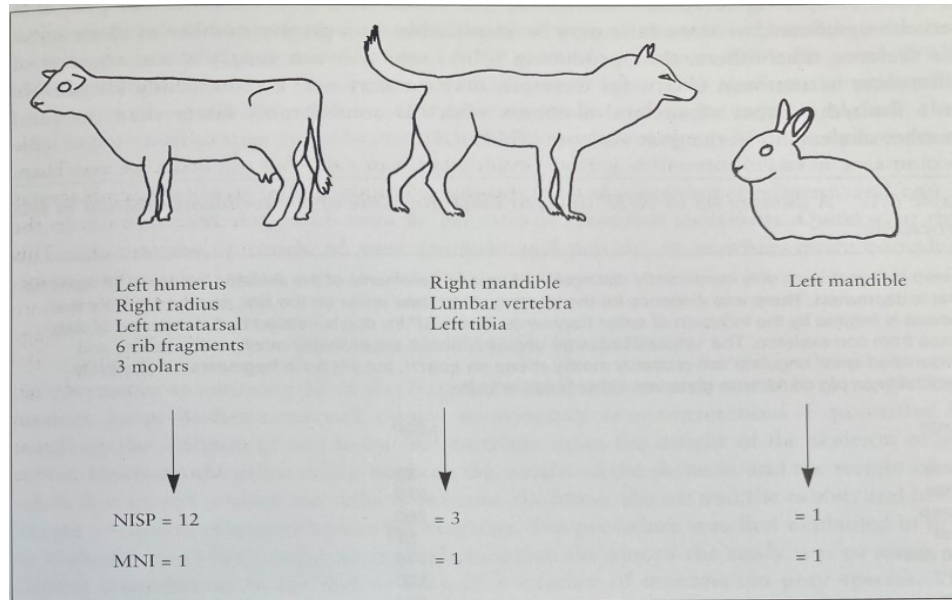


Fig.2.. Illustration of how NISP and MNI are calculated (O'Connor 2000).

MNI is calculated by identifying the elements to taxon and then to right or left side. The right / left elements are then matched together and if overlap anatomically they are assumed to be from a single individual. If not able to be matched then this is assumed to be from a different individual. MNI is then given by the most commonly occurring element adjusted for matching. If an assemblage consists of six right femurs and two left anatomically matched femurs there has to have been a minimum of six individuals present. This is because each animal has only got one right and one left femur.

Binford and Bertram stated all bones '*may be identified given sufficient training*'. (Binford and Bertram 1977,125)<sup>20</sup>. Some bones are also more useful diagnostically than others. However, the recovery of bones is influenced by the archaeological techniques employed<sup>21</sup>, the human and non human resources available, funding, time and the excavation purpose , aims and objectives.

<sup>20</sup> L.R. Binford and J.B. Bertram in O'Connor 'The Archaeology of Animal Bones', p.36.

<sup>21</sup> R. H. Meadow 'Animal Bones: Problems for the Archaeologist Together with Some Possible Solutions', *Paleorient*, Vol.6. (1980). pp 65-77.

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## Appendix 1.

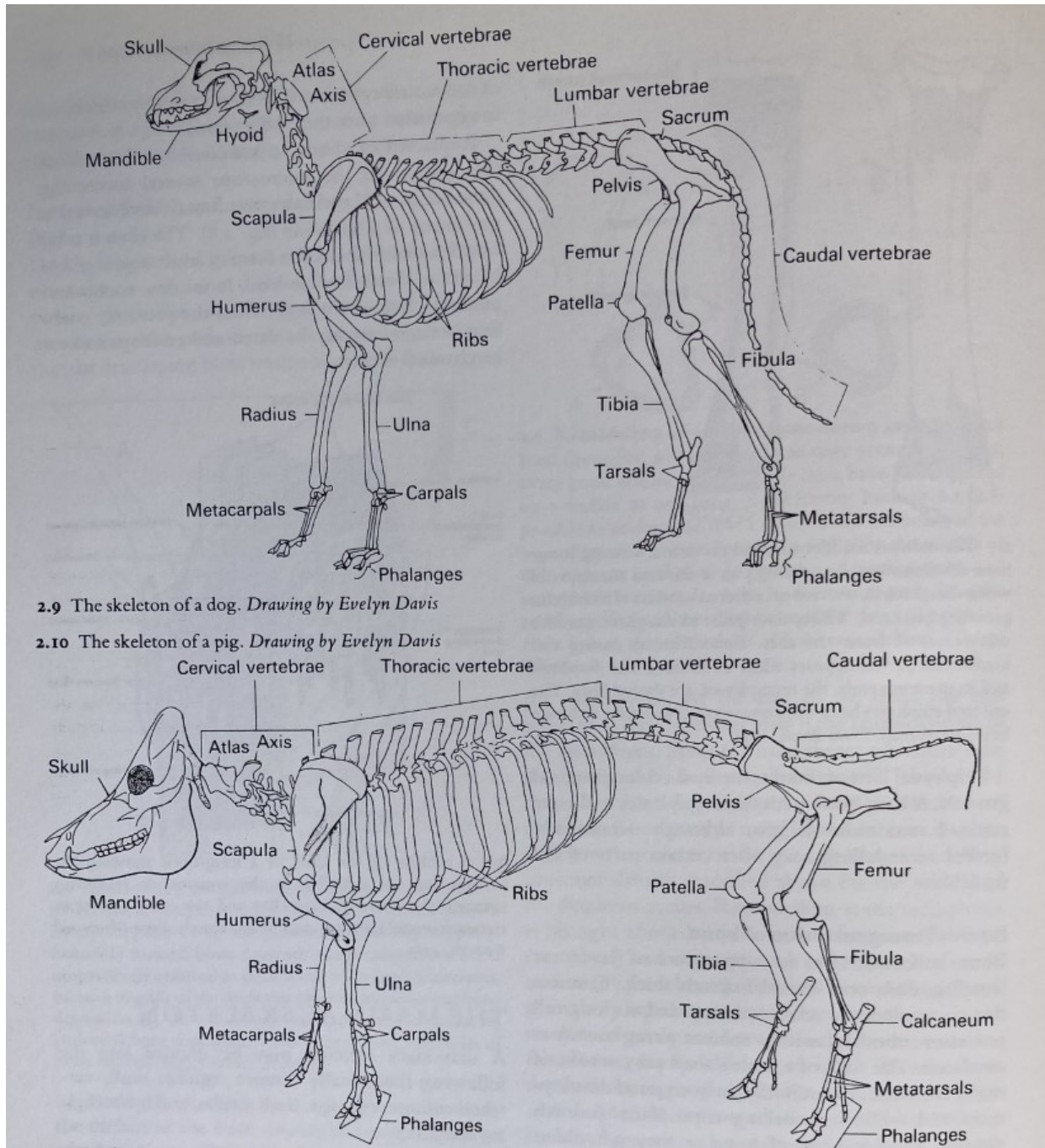


Fig.3. The skeleton of a dog and Pig by Evelyn Davis which shows the similarities in the mammal skeleton (Davis 1987).

## Appendix 2.

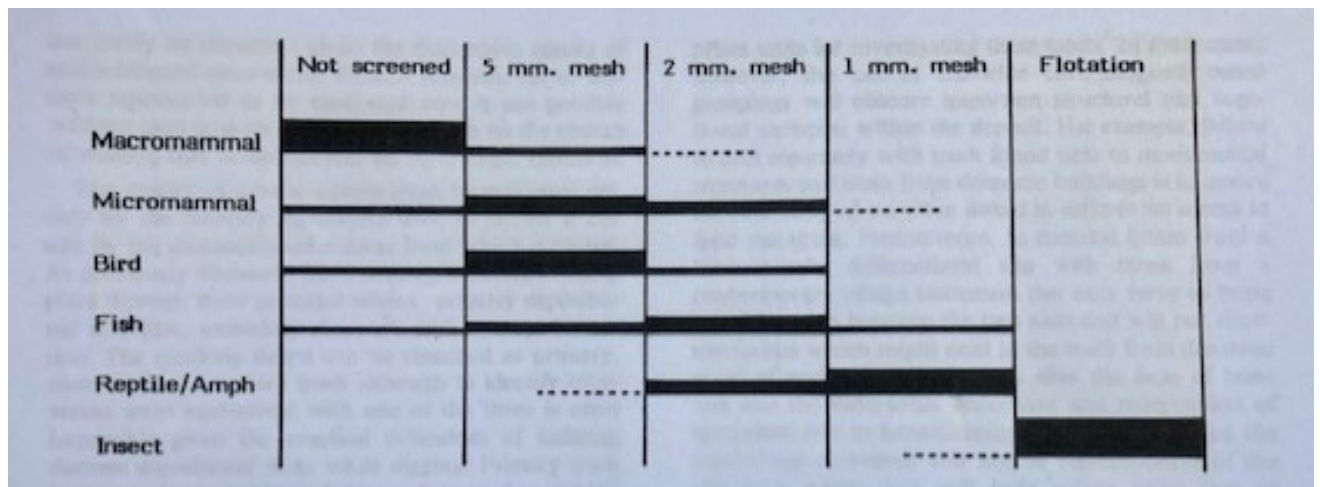


Fig.4. Approximate proportions of faunal remains recovered using progressively finer techniques. (Meadow 1980).