

# NABONE

## ZOOARCHAEOLOGICAL DATABASE

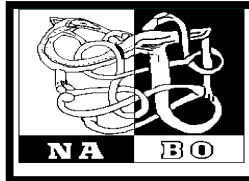
### RECORDING SYSTEM CODES

North Atlantic Biocultural Organization  
Zooarchaeology Working Group

8<sup>TH</sup> Edition , January 2004

#### Objectives

This recording manual is the 8<sup>th</sup> working version of the NABO Zooarchaeology Working Group Data Records Project, authorized by the January 1997 working group meeting in NYC. The basic structure follows James Rackham's database (Microsoft Access) with some changes and clarifications for North Atlantic applications. The Hunter Bioarchaeology lab was charged with adapting the Rackham system to the realities of modern work in the North Atlantic, and to balance recorded detail with the need for rapid and consistent processing of the large bone collections now becoming common in our research area. A particular concern was the need to and to provide both a long term data immediately addressing current joint system will eventually comprise a system) a developed Access database Excel spreadsheet set providing College QBONE system (which currently holds a great deal of North Atlantic bone data). This package will be posted on the NABO website ([www:geo.ed.ac.uk/nabo](http://www.geo.ed.ac.uk/nabo)) and will eventually be available for download to any interested user.



promote long term data comparability archive and a set of analytic tools research objectives. The NABONE complete manual (including this coding with useful queries and reports, and an analytic output similar to the Hunter

#### Lab Testing

The Data Records project has used a series of large (ca 50k TNF) archaeofauna from excavations of the 9<sup>th</sup>-19<sup>th</sup> c sites in Iceland with the kind cooperation of the Archaeological Institute, Iceland (FSO) and the Icelandic National Museum. Following the WG recommendations, we have done extensive testing of the present codes and recording system with the help of zooarchaeologists at different levels of training and experience to attempt to improve clarity and promote consistent use by different workers. We have also used this system as a teaching tool in introductory courses. While we feel that the seven versions since Jan 1997 have improved the utility of the system, there is certainly room for improvement- please help us by pointing out errors and areas for improvement !

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## Species Codes

*Note that codes are not provided for all possible species in the N Atlantic region (a large task), but only as a short hand reference for the most commonly appearing taxa. For species not included, simply enter the full scientific name (**not** your own special code please) following current nomenclature. If you find yourself doing this a great deal, please contact us ([nabo@voicenet.com](mailto:nabo@voicenet.com)) and we will provide an official addition to these species codes on the NABO website. It is often a good idea to use the search & replace function in access to replace codes for less common taxa with the full scientific name after you are done data entry to make sure of correct interpretation by later users (eg OVI is pretty transparent, but PV is more mysterious). Thanks!*

Code	Scientific Taxon	English Common Names
<b>MAMMALS</b>		
EQU	Equus (domestic)	Horse
BOS	Bos t. (domestic)	Cattle
SUS	Sus scrofa (dom.)	Pig
OVCA	Caprine (dom.)	Sheep/Goat indeterminate
OVI	Ovis aries (dom.)	Sheep
CRA	Capra hircus (dom.)	Goat
CAN	Canis familiaris (dom.)	Dog
FEL	Felis domest. (dom.)	Cat
LTM	Large terrestrial mammal	cow-horse-large deer sized
MTM	medium terr. mammal	caprine-pig-small deer sized
STM	small terr. mammal	dog-fox-hare sized
VSTM	very small terr. mam.	mouse-vole sized
UNIM	indeterminate mammal	unidentifiable MAMMAL fragment
UNI	indeterminate	completely unidentifiable fragment
PG	Pagophilus groenl.	Harp seal
PV	Phoca vitulina	Harbor or Common seal
PH	Phoca hispida	Ringed seal
EB	Erginathus barbatus	Bearded seal
CC	Cystophora cristata	Hooded seal
HG	Halichoerus gryphus	Grey seal
WAL	Odobenus rosmarus	Walrus
LP	Large Phocid	bearded-grey-hooded seal size
SP	Small Phocid	harp-harbor-ringed seal size
PSP	Phocid sp.	Seal species indeterminate
LCET	Large Cetacean	Great whale (baleen or sperm)
SCET	Small Cetacean	Porpoise-Beluga-Narwhal sized toothed
CESP	Cetacean sp.	Whale species indeterminate

NB: For cetacea identified to species please enter the full scientific name

RAN	Rangifer tarandus	Caribou/Reindeer
CER	Cervus elaphus	Red Deer
DAM	Dama dama	Fallow Deer
CLS	Capreolus capreolus	Roe Deer
DSP	Cervid sp.	Deer species indeterminate
LUP	Canis lupus	Wolf
FOX	Vulpes v.	Red fox
AFX	Alopex lagopus	Arctic fox
FXSP	Fox sp.	Fox species indeterminate
NAN	Ursus maritimus	Polar bear
URS	Ursus arctos	Brown bear
URSP	Bear sp.	Bear species indeterminate
SOAR	Sorex araneus	Common shrew
ASL	Apodemys sylvat.	Meadow mouse
MUS	Mus musculus	House mouse
MSP	Mouse sp.	Mouse species indeterminate
NORV	Rattus norveg.	Brown rat
RAT	Rattus rattus	Black rat
RTSP	Rat sp.	Rat sp. indeterminate
LEP	Lepus europeaus	Hare
ORC	Oryctolagus cun.	Rabbit
LAGO	Lagomorph	Hare/ Rabbit indeterminate

**BIRDS (NB: we recommend you do a search & replace in Access to provide the full scientific names after you are done entry for clarity- bird name codes can become confusing rapidly)**

AVSP	Bird Species	Indeterminate bird
FRA	Fratercula arctica	Puffin
ALA	Alle alle	Little auk
PLA	Pluvialis apricaira	Golden plover
HER	Larus argentatus	Herring gull
LAS	Larus species	Gull species
LAC	Larus canus	Common gull
ALT	Alca torda	Raxorbill
FUL	Fulmarus glacialis	Fulmar
URA	Uria aalge	Guillemot
SUB	Sula bassana	Gannet
SOM	Somateria mollissima	Eider duck

PHC	Phalacrocorax carbo	Cormorant
PHA	Phalacrocorax aristotelis	Shag
PHSP	Phalacrocorax sps.	Cormorant/Shag sps.
GAL	Gallus gallus	Domestic fowl
LAM	Lagopus mutus	Ptarmigan
APL	Anas platyrh.	Mallard Duck
NUA	Numenius arquata	Curlew

**FISH (When in doubt use full scientific name)**

COD	Gadus morhua	Atlantic cod
LIN	Molva molva	Ling
HAD	Melan. aeglf.	Haddock
GAD	Gadidae	Cod Family
SAL	Salmo salar	Atlantic Salmon
TRT	Salmo trutta	Trout
CHR	Savelinus alp.	Arctic Char
SMD	Salmonid sp	Salmon species
HAL	Hippoglossus hippoglossus	Atlantic Halibut
ANA	Anarhichas lupus	Atlantic Wolf fish
BRO	Brosme brosme	Cusk
POL	Pollachius virens	Pollack
PLE	Pleuronectiformes	Flatfishes
RAJ	Rajidae	Skates
FISH	Fish sp. indet.	fish indeterminate

**MOLLUSCA**

MED	Mytilus edulis	Common Mussel
CLM	Mya sp.	Clam sp.
MOLSP	Mollusca sp.	Indeterminate mollusca
LIT	Littorina littorea	Common periwinkle
PAT	Patella vulg.	Common Limpet

NB: Please enter full scientific name for all Mollusca identified to sp level

**BONE ELEMENTS (Mammal & Bird)**

HCO	HORN CORE (FRAG)	STE	STERNUM
ANT	ANTLER ( FRAG)	RIB	RIB
ANTS	ANTLER, SHED PEDICLE	CC	COSTAL CARTILAGE
S+A	SKULL+ ATTACHED ANTLER	SCP	SCAPULA
S+H	SKULL + ATTACHED HORN CORE	HUM	HUMERUS
SKL	SKULL (FRAG)	RAD	RADIUS
FRN	FRONTAL	RUL	RADI US + ULNA
PAR	PARIETAL	ULN	ULNA
TEM	TEMPORAL	CAR	CARPAL
PET	PETROUS (BULLA)	TAR	TARSAL
ZYG	ZYGOMATIC	AST	ASTRAGALUS
OCC	OCCIPITAL	CAL	CALCANEUS
NAS	NASAL	TRC	NAVICULOCUBOID
ROS	ROSTRUM	CTA	CARPAL/ TARSAL RAG
PMX	PREMAXILLA	MTC	METACARPAL
MAX	MAXILLA	MC1	METACARPAL 1
MAN	MANDIBLE	MC2	METACARPAL 2
IN	INCISOR	MC3	METACARPAL 3
PM	PREMOLAR	MC4	METACARPAL 4
MO	MOLAR	MC5	METACARPAL 5
CN	CANINE	PHA	PHALANX FRAG
PC	POST CANINE (SEALS)	PH1	PHALANX 1
TTH	TOOTH (FRAG)	PH2	PHALANX 2
HYD	HYOID	PH3	PHALANX 3
		SES	SESAMOID
		FEM	FEMUR
ATL	ATLAS	TIB	TIBIA
AXI	AXIS	TIF	TIBIA+FIBULA (SEALS)
CEV	CERVICAL VERT	LML	LATERAL MALLEOLUS
TRV	THORACIC VERT	FIB	FIBULA
LMV	LUMBAR VERT	MTT	METATARSAL
CDV	CAUDAL VERT		
VER	VERTEBRAL FRAG	MT1	METATARSAL 1
SAC	SACRUM	MT2	METATARSAL 2
		MT3	METATARSAL 3
PAT	PATELLA	MT4	METATARSAL 4
PES	ARTICULATED FOOT	MT5	METATARSAL 5
INN	INNOMINATE frag		
ACE	Acetabulum only	MTP	METAPODIAL FRAG
VLV	VALVE (MOLLUSCA)	BAC	BACULUM
UMB	Umbo (univalves, eg Limpet centers)		
LBF	LONG BONE FRAGMENT		
UNI	UNIDENTIFIED FRAG		

**BONE ELEMENTS ( Additional for Birds)**

SYN	SYNSACRUM	FUR	FURCULA
TBT	TIBIOTARSUS	CLV	CLAVICULA
PPX	PROX PHAL. (WING)	COR	CORACOID
LSA	LUMBOSACRALE	TMT	TARSO-METATAR.
CMT	CARPO-METAC.		
RNG	TRACHEAL RING (birds)		

**BONE ELEMENTS (Fish)**

ETH	ETHMOID	SUP	SUPRAOCCIPITAL
PRF	PREFRONTAL	EXO	EXOCCIPITAL
VOM	VOMER	MTR	MESOPTERYGOID
MES	MESETHMOID	MET	METAPTERTYGOID
ALI	ALISPHENOID	HYO	HYOMANDIBULAR
PARA	PARAPHENOID	SYM	SYMPLECTIC
SPH	SPHENOTIC	INH	INTERHYAL
PTE	PTEROTIC	EPH	EPIHYAL
EPI	EPIOTIC	CER	CERATOHYAL
OPI	OPISTHOTIC	HYH	HYPOHYAL
PRT	PROTIC	BAH	BASIHIAL
OTO	OTOLITH	PP	PHARYNGEAL PLATE
IB	INVESTING BONES	EPB	EPIBRANCHIAL
NAS	NASAL	CEB	CERATOBANCHIAL
FRN	FRONTAL	HYP	HYPOBRANCHIAL
STP	SUPRATMPORAL	BAB	BASIBRANCHIAL
SPB	SUPRAORBITAL	BP	BASIBRANCHIAL PLT.
LAC	LACHRYMAL	URO	UROHYAL
SUB	SUBORBITAL	PHA	PHARYNGOBRNCHL.
DEN	DENTARY	POS	POSTEMPORAL
ANG	ANGULAR	SPC	SUPRACLEITHRUM
RET	RETROANGULAR	CLE	CLEITHRUM
SUO	SUPRAOPERCLE	PCM	POSTCLEITHRUM
PRO	PREOPERCLE	QUA	QUADRATE
SUM	SUPRAMAXILLA	MCC	MESOCORACOID
OPE	OPERCLE	RAD	RADIALS
SBO	SUBOPERCLE	BAM	BASIPTERTYGIUM
INT	INTEROPERCLE	IS	INTERHAEMAL SPINE
BR	BRANCHIOSTEGAL RAY	PV	PRECAUDAL VERT.
PAL	PALATINE	UV	ULTIMATE VERT.
ECT	ECTOPTERTYGOID	HRP	HYPURAL
EPU	EPURAL	ENS	EXPANDED NRL SPN.
EHS	EXPANDED HAEMAL SPINE	BAS	BASIOCCIPITAL
PEN	PENULTIMATE VERTEBRAE	URN	Uroneural
CBP	Caudal Bone Plate		

**END**

PRO	PROXIMAL
DIS	DISTAL
S	SHAFT
MED	MEDIAL (On the center line of the body)
LAT	LATERAL (Off the center line of the body)
UP	UPPER (TEETH)
LW	LOWER (TEETH)
P+E	PROX. SHAFT + DETACHED EPIPHYSIS
D+E	DISTAL SHAFT + DETACHED EPIPHYSIS
PE	PROXIMAL EPIPHYSIS (DETACHED)
DE	DISTAL EPIPHYSIS (DETACHED)
ANT	ANTERIOR
POS	POSTERIOR
V+E	VERTEBRA + DETACHED EPIPHYSIS
W	WHOLE BONE
F	FRAGMENT (UNIDENTIFIED)
E	DETACHED VERTEBRAL EPIPHYSIS
W-S	Fish vertebrae with intact centra but lacking all spines

**FRAGMENT SIZE (FRAG) Maximum dimension**

1	BELOW 1 CM MAXIMUM DIMENSION
2	FROM 1 - 2 CM
5	FROM 2 - 5 CM
10	FROM 5 - 10 CM
11	LARGER THAN 10 CM MAX. DIMENSION

**DIAGNOSTIC ZONE - SEE ILLUSTRATIONS  
(RACKHAM VERSION)****FUSION STATE**

F	FUSED COMPLETELY, LINE OBSCURED
U	UNFUSED ( LOOSE EPIPHYSIS MUST BE GLUED ON)
I	INTERMEDIATE : FUSED BUT LINE CLEARLY VISIBLE
FP	Fused Proximally but not distally (whole bone)
FD	Fused Distally but not proximally (whole bone)
FB	Fused both Proximally and Distally (whole bone)
UB	Unfused both Proximally and Distally (whole bone)

**BUTCHERY**

CH	CHOPPED (HEAVY BLOW)
KN	KNIFED (SCRATCHES)
SP	SPLIT DOWN SAGGITAL PLANE
TR	SPLIT TRANSVERSELY (ACROSS MIDLINE)
BP	BIPERFORATED (METAPODIALS ONLY)
POL	GLOSSY POLISH (SET ASIDE)
SW	SAWN (SET ASIDE)
DR	DRILLED (SET ASIDE)
WO	OTHER WORKING (SET ASIDE)
IM	IMPACT FRACTURE
BI	BILATERAL IMPACT- HAMMER & ANVIL
SV	Svið preparation (split cranium)

**BURNING**

B	BLACK BURNED
W	WHITE- GREY BURNED
S	SCORCHED (Black and dk brown patches on unburned background)

**GNAWING**

DOG	DOG/ CANINE
ROD	RODENT
OH	OTHER (USE COMMENTS)



## AGE ESTIMATE

This column is for the analyst's best estimate of age based on overall bone condition, not simply fusion or eruption state. Note that all frags will be assumed adult or no assessment possible if blank. Juveniles (unfused) should be recorded in the FUSION column. "Neonatal" refers to the commonly found elements that are rough textured, unfused and usually deriving from animals  $\leq 3-4$  months old. "Fetal" refers to extremely young animals, either really late fetal or 1-2 weeks old (medially unfused metapodials etc). Both categories are regularly recovered from North Atlantic sites, and may be worth separating. "Old" elements are from animals showing clear marks of age (not only fused, but obliterated epiph. Lines, exteoses, etc)- do not apply to all adults, thanks!

NN	NEONATAL (rough texture, unfused)
FT	FOETAL (late fetal or just born- younger than NN)
O	OLD ANIMAL

## SEX

M	MALE
F	FEMALE
C	CASTRATE

## METRICS / TOOTH ROWS

Enter here the working codes for measurable elements and tooth rows (mandible). The columns provided on the record form can be used for either Grant (1982) tooth wear codes on dp4, P4, M1, M1, M3 or for common measurements (we follow von den Dreisch 1976, see lab manual). Each bone element selected for measurement needs its own reference number, usually proceeded by the site code (eg HST 125). Preferred order for common metrics is Bp, SD, GL, Bd . If you have lots more measurements you may want to use a separate form- make sure it is stapled to the original sheet. Reference numbers should be inked onto measured bones so they can be retrieved if necessary along with full context information (as HST97 G 6b 217/470 124). ALL mandibles scored for eruption and wear are also to get a reference number inked onto the bone and should be bagged individually with full context data. Use foam padding if mandibles are in poor condition. Maxillae should have eruption state recorded (M1 in wear, M3 in wear etc).

## Comments

Use the comments section to record observations specific to the bone - non metrical characters, pathologies, or any other information that may be helpful. Use more than one line per bone if necessary. For lengthy discussions, use the analysis notebook provided but make sure to enter all the notes in the appropriate part of the access database.