

THE DISCOVERY AND DISTRIBUTION OF MAMMOTH REMAINS IN BENTON COUNTY, WASHINGTON STATE

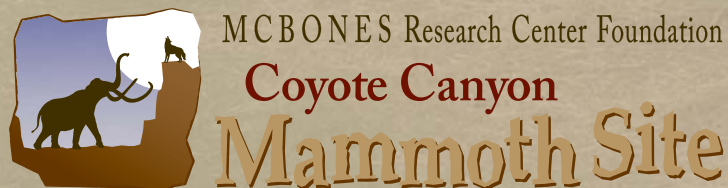
Bax R. Barton
 Burke Museum of Natural History and Culture and Quaternary Research Center
 University of Washington, Seattle, WA
 baxqrc@u.washington.edu

George V. Last
 Pacific Northwest National Laboratory, Richland, WA
 george.last@pnl.gov

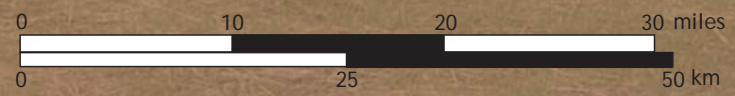
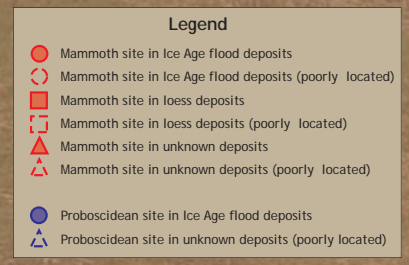
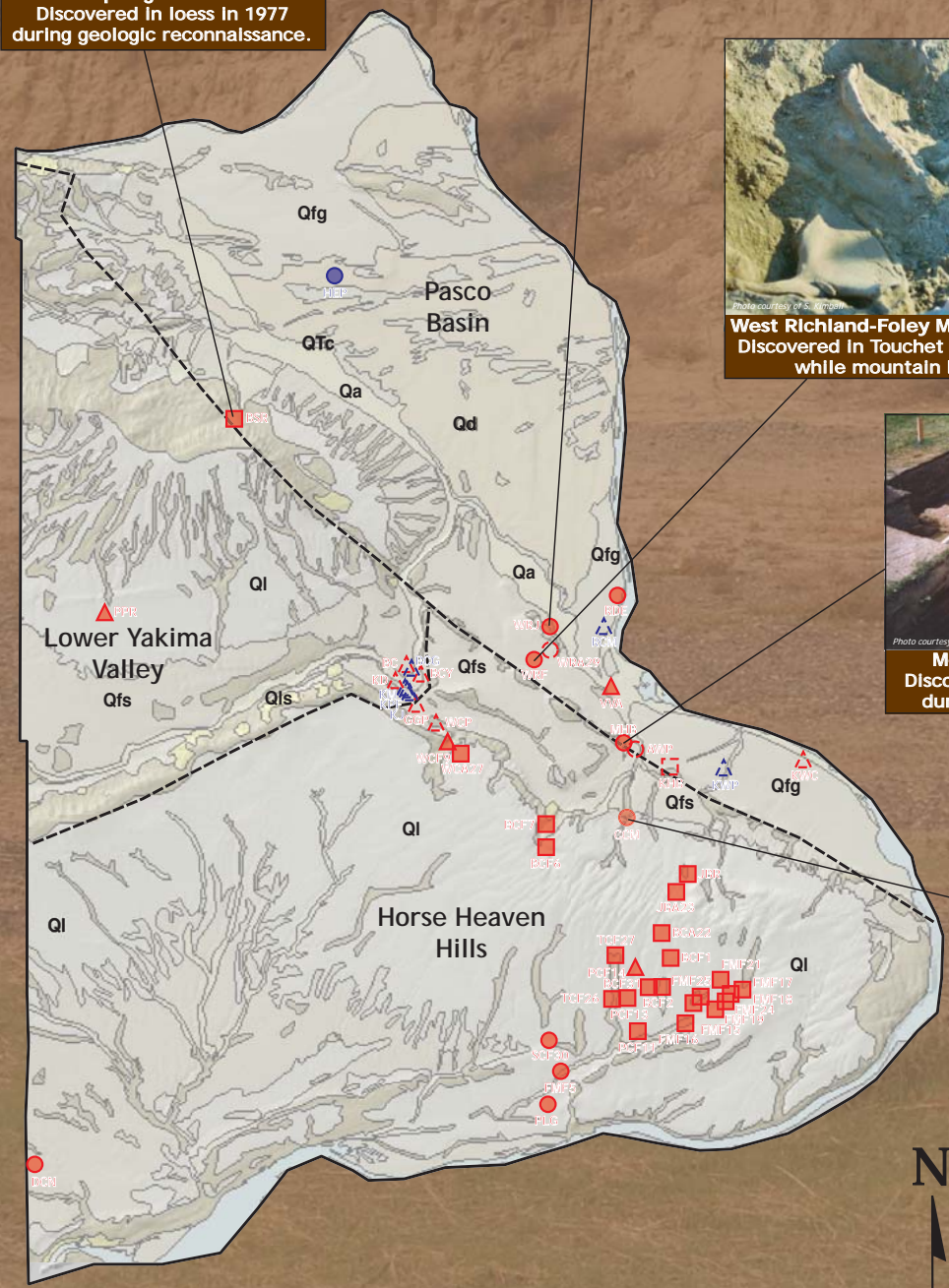


ABSTRACT

Located in the heart of the Columbia Basin geographic province, Benton County occupies an important piece of Ice Age geography in the Pacific Northwest. During the late Pleistocene, geologic constriction at Wallula Gap impounded dozens of catastrophic Missoula Floods forming multiple ephemeral versions of Lake Lewis. Fine-grained sediments from these temporary lakes, collectively known as the Touchet Beds, cover much of Benton County up to 330 m above sea level. Loess (wind-deposited sediments) blanket these flood deposits throughout much of the county. Mammoth (*Mammuthus* spp.) subfossils are common finds in the Touchet Beds (most recently at the Coyote Canyon Mammoth Site, southwest of Kennewick); many are also reported in late Pleistocene loess deposits in the county. Benton County may be divided into three geographic subprovinces: Horse Heaven Hills, Pasco Basin, and lower Yakima River Valley. All three subprovinces have produced mammoth finds, although not in equal numbers. Here we present data gathered from newspaper accounts, museum collections, published reports, and personal accounts that document the remains of at least 45 mammoths from Benton County, with an additional 10 proboscidean finds (tusks, non-diagnostic bones) that may also plausibly be interpreted as being from mammoths as well. Thirty (66.3%) of the mammoth finds from the county are from the Horse Heaven Hills subprovince, reflecting extensive surface surveying by paleontologists and archaeologists in the 1960s. Foremost among these was a series of paleontology surveys conducted by Fry (1969) over some 25 square miles of this subprovince. Fry's research documented 21 mammoth finds and represents 70% of the finds currently known from the Horse Heaven Hills. Eleven mammoths have been reported from the Pasco Basin, accounting for roughly 24.3% of the mammoths known from Benton County. Most of these finds stem from private/commercial/state-federal construction projects that have deeply and extensively sampled the late Pleistocene sediments of this subprovince. Four (9.3%) of the county's mammoth finds have been reported from the lower Yakima River Valley. Many of these were found during agricultural and construction activities related to population growth. These distributional disparities merit further investigation.



BENTON COUNTY



BENTON COUNTY MAMMOTH FINDS

Site	Find/report date	Description	Provenience	Reference
BC	1936-77/1968	Benton City gravel pit: molar		newspaper
BCY	1950s-60s/1968	Benton City/Yakima River: tusk		newspaper
KHB	1954/1954	Kennewick Highlands-Brannan: partial skeleton	loess	newspaper
PPR	1954/1954	Prosser/Palmiero-Roza Farm: tusk		newspaper
DCN	1967/1970	Dead Canyon-Newcomb/Repennig: partial skeleton	Touchet Beds	Newcomb and Repennig, 1970
WCP	1969	Webber Canyon-Phelps: femur		newspaper
BCF1	1969	Bofer Canyon-Fry Site 1: "bones of mammoth"	loess	Fry, 1969
BCF2	1969	Bofer Canyon-Fry Site 2: "bones of mammoth"	loess?	Fry, 1969
FMF5	1969	Four Mile Canyon-Fry Site 5: "bones of mammoth"	Touchet Beds	Fry, 1969
BCF6	1969	Badger Canyon-Fry Site 6: "bones of mammoth"	loess	Fry, 1969
BCF7	1969	Badger Canyon-Fry Site 7: "bones of mammoth"	loess	Fry, 1969
WCF9	1969	Webber Canyon-Fry Site 9: "bones of mammoth"		Fry, 1969
PCF11	1969	Prospect Canyon-Fry Site 11: "bones of mammoth"	loess?	Fry, 1969
PCF13	1969	Prospect Canyon-Fry Site 13: "bones of mammoth"	loess?	Fry, 1969
PCF14	1969	Prospect Canyon-Fry Site 14: "bones of mammoth"		Fry, 1969
FMF15	1969	Four Mile Canyon-Fry Site 15: "bones of mammoth"	loess?	Fry, 1969
FMF16	1969	Four Mile Canyon-Fry Site 16: "bones of mammoth"	loess?	Fry, 1969
FMF17	1969	Four Mile Canyon-Fry Site 17: "bones of mammoth"	loess?	Fry, 1969
FMF18	1969	Four Mile Canyon-Fry Site 18: "bones of mammoth"	loess?	Fry, 1969
FMF19	1969	Four Mile Canyon-Fry Site 19: "bones of mammoth"	loess?	Fry, 1969
FMF21	1969	Four Mile Canyon-Fry Site 21: "bones of mammoth"	loess?	Fry, 1969
FMF24	1969	Four Mile Canyon-Fry Site 24: "bones of mammoth"	loess?	Fry, 1969
FMF25	1969	Four Mile Canyon-Fry Site 25: "bones of mammoth"	loess?	Fry, 1969
TCF26	1969	Taylor Canyon-Fry Site 26: "bones of mammoth"	loess?	Fry, 1969
TCF27	1969	Taylor Canyon-Fry Site 27: "bones of mammoth"	loess	Fry, 1969
SCF27	1969	Straub Canyon-Fry Site 30: "bones of mammoth"	loess	Fry, 1969
BCF31	1969	Bofer Canyon-Fry Site 31: "bones of mammoth"	loess	Fry, 1969
KD	1970/1970	Kiona-Davis: tusk	stream bed	newspaper
KWC	1970	Kennewick-Cosens: partial skeleton		newspaper
RDE	1977	Richland/Davidson St.-Elder: "leg bone"	Pasco Gravels	newspaper
BSR	1977/1978	Benson Springs-Reidel: molar, vertebra	loess	personal account
PLC	1977/1979	Plymouth (Umatilla)-Gilbow: partial skeleton	Touchet Beds	Gilbow, 1981; newspaper
GCP	1978/1980	Goose Gap-Paglieri: vertebra		Paglieri, 1980
WRP	1978/1980	West Richland-Paglieri: partial skeleton	Touchet Beds	Paglieri, 1980
AWP	1978/1980	Amon Wasteway-Paglieri: partial skeleton	Touchet Beds	Paglieri, 1980; Waitt, 1980
WRJ	1978/1978	West Richland-Jeppson: partial skeleton	Touchet Beds	Martin <i>et al.</i> , 1983
JBR	1981/1984	Johnson Butte (Kenn. Road Cut)-Rensberger: molar	loess	Rensberger <i>et al.</i> , 1984
WRF	1986?	West Richland-Foley: partial skeleton	Touchet Beds	personal account; newspaper
VVA	1995/1995	Valley View-Anthony: partial skeleton	alluvium	newspaper; pers. comm.
MHB	1997/1998	Meadow Hills-Bauder: partial skeleton	Touchet Beds	newspaper; pers. comm.
BCA22	1998	Bofer Canyon-Abolins Site 22: "mammoth remains"	loess	pers. comm.
JBA23	1998	Johnson Butte-Abolins Site 23: "mammoth remains"	loess	pers. comm.
WCA27	1998	Webber Canyon-Abolins Site 27: "mammoth remains"	loess	pers. comm.
WRA29	1998	West Richland-Abolins Site 29: "mammoth remains"	Touchet Beds	pers. comm.
CCM	2000/2008	Coyote Canyon-Mahaffee/Miller: partial skeleton	Touchet Beds	personal account; newspaper

OTHER PROBOSCIDEAN FINDS

Site	Find/report date	Description	Provenience	Reference
KM	1911/1912	Kiona-Michner: proboscidean "skeleton"		newspaper
KPF	1912/1912	Kiona-Palmer Farm: proboscidean "pelvic bone"		newspaper
BCG	"1912/1912"	Benton City-George: mastodon? "skeleton"		newspaper
RCM	1920/1920	Richland Big Canal-Murray: proboscidean vertebrae		newspaper
KWP	?/1931	Kennewick-Perry: mastodon? "leg bone"		newspaper
BRT	1936/1936	Richland/Roza Tunnel: mastodon? molars		newspaper
HEP	1983/1983	Hanford/US Ecology-Paglieri: "proboscidean bone"	Touchet Beds	newspaper
KJ	1986/1998	Kiona-Johnson: proboscidean (mastodon) bones		newspaper; pers. Comm.

DISCUSSION

Forty-five mammoth finds have been identified from Benton County. Although other proboscidean finds may also plausibly be interpreted as being from mammoths, we have chosen to temporarily exclude them from further analysis. Of the 45 mammoth finds, 30 (66.3%) are from the Horse Heaven Hills subprovince, 11 (24.3%) are from the Pasco Basin, and 4 (9.3%) were found in the Lower Yakima River Valley. Variability in subprovince distribution of mammoth finds within Benton County may be due, in part, to county subprovince differences in the distribution of human activities (construction, agriculture, etc.) that have led to subfossil finds. Likewise, subprovince paleoenvironmental differences may also account for some of the geographical variation in mammoth finds. Discerning the role/weight of these factors remains a challenge for continuing research.

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