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**FAUNAL REMAINS FROM ARCHAEOLOGY SITES IN  
SOUTHWESTERN NEW MEXICO**

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**ABSTRACT:** This study attempts to create a comprehensive catalog of all known records of faunal remains recovered from 105 archaeological sites located across southwestern New Mexico. These sites range in age from 2000BC to AD 1450. Approximately 250 taxa of mollusks, fishes, amphibians, reptiles, birds and mammals are represented in this compilation. Primary reference materials from published and unpublished sources are included, along with the repositories where relevant collections may be found for potential reexamination by researchers from a variety of fields of interest.

**RESUMEN:** El presente estudio procura establecer un catálogo exhaustivo de todos los registros conocidos de restos faunísticos recuperados de 105 sitios arqueológicos ubicados en todo el suroeste de Nuevo México. La edad de estos sitios varía entre 2000 a. C. y 1450 d. C. En esta compilación se encuentran representados aproximadamente 250 taxones de moluscos, peces, anfibios, reptiles, aves y mamíferos. Materiales de referencia primaria de fuentes publicadas y no publicadas también se incluyen, junto con los repositorios donde se pueden encontrar colecciones relevantes para una posible reexaminación por investigadores de diversos campos de interés.

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Southwestern New Mexico has a long, rich history of archaeological research from early investigations in the late nineteenth century continuing up to the present day. Non-human faunal remains from archaeological sites have been recovered and reported on with varying degrees of focus and rigor. As valuable sources of both anthropological and biological data, information gathered from zooarchaeological research is potentially of value to a wide range of studies such as zoogeography, ecology, and conservation. However, this information is largely published in literature that is not very accessible to researchers outside archaeology. Much of the primary data on animal remains from archaeological sites are published in “gray literature” such as Cultural Resource Management company reports that can be hard for researchers in other fields to locate. In addition, standards of reporting have changed substantially over time, with some reports providing simply “laundry lists” of taxa present in the animal bone assemblage from a site without associated specimen counts (Lyman 2015).

Another challenge is the reporting of unusual taxa, particularly taxa found well outside their present geographic range, without adequate discussion of the reliability of the identification or how the specimen may have ended up in that archaeological site. Interdisciplinary publications can alleviate some of these problems by summarizing zooarchaeological data in formats that make information easier for interested researchers outside archaeology to locate. An excellent example of such a publication is Arthur Harris’s (1993) *Quaternary Vertebrates of New Mexico*, now an active and ongoing website, *Pleistocene Vertebrates of Southwestern USA and Northwestern Mexico* (<https://www.utep.edu/leb/pleistNM/default.htm>). This work has been both an inspiration and in part a model for the presentation of archaeological data that fills some of the time gap between the end of the last ice age and the start of written records.

The data summarized herein should be of interest to biologists, archaeologists, and researchers in related fields interested in examining long-term faunal stasis and change in southwest New Mexico. This information from before the time of European contact has the potential to inform us on how both anthropogenic and nonanthropogenic (naturogenic) environmental changes have affected animal distribution and relative abundance in the study area over time. Among other applications, this information can assist in establishing realistic conservation baselines (e.g., Pauly, 1995; Vera, 2009). It is of particular importance that discussions about establishing such baselines take into account the long history of anthropogenic effects on the landscape, as even relatively non-intensive agriculture and other human activities have been shown to have effects on ecological systems that can persist for centuries (van der Leeuw, 2000; Briggs et al., 2006). Such issues are often best addressed through interdisciplinary research approaches that allow us to identify interesting issues that a specialist in one field working alone is unlikely to recognize.

A secondary benefit is simply providing a list of taxa that have been identified in the study area during the 2000 BC–AD 1450 time period. This provides a springboard for identifying future archaeological research issues, and will also help zooarchaeologists in particular improve their awareness of when an identification is surprising, as well as update the taxonomy and nomenclature used for species identification.

This study represents a comprehensive compilation of data from faunal assemblages from southwestern New Mexico between 2000 BC and AD 1450. The area we’ve chosen to delineate in this study encompasses the major watersheds of the Gila and San Francisco rivers west of the Continental Divide, and the Mimbres River and other endorheic (closed) basins on either side of the current Divide in the lower southwestern corner of the State (Figure 1). These data are derived from published and unpublished sources (see References), and include all archaeological current understandings.

In order to facilitate researchers’ access to the large amount of data compiled on the study area, information is presented in three appendices. **Appendix 1** consists of a listing of all excavated archaeological sites from which animal data are available that include over 25 specimens identified to the genus level or better. Smaller assemblages are also included if they contained specimens not found in virtually every archaeological assemblage in the region (e.g., *Lepus* and *Sylvilagus*). The references therein point researchers to the primary data on these assemblages. Consulting the primary references rather than relying on the summary information presented in this study is of great importance to researchers wishing to gain a detailed

understanding of changes in animal distribution over time and space. A number of factors contribute to variability in the presence, absence, and relative abundance of taxa in an archaeological assemblage. Variation in the excavation techniques, screening procedures and screen sizes used to locate animal bones and mollusk shells in excavated deposits, and the identification, analytical and reporting techniques, and reference collections used by different zooarchaeologists can make comparing assemblages difficult (Driver, 1992; Wolverton, 2015; Lau and Kansa, 2018). In this study, some older reports presented only presence/absence data, and some sites have only mollusk shell data available without reports on vertebrate remains. These are obvious influences, but subtle effects of interanalyst variability exist as well. In addition, taphonomic processes such as fragmentation and decay vary between archaeological sites and can act differently on the remains of different taxa. These effects mean the specimens we find archaeologically cannot reliably be translated into direct counts of complete animals (Lyman, 2008). Anthropogenic and non-anthropogenic environmental influences also affect the presence, absence, and relative abundances of taxa in different ways, as do social factors such as human hunting practices (Schollmeyer and Driver, 2013).

The first column in the Appendix 1 table lists each site by name in alphabetical order, and also lists the site number. Most sites have numbers from the New Mexico Laboratory of Anthropology (LA numbers); a few are numbered in the Arizona State Museum (ASM) numbering system. These numbers link them to the statewide site databases maintained by each state. The next column provides a map number we assigned to each site, allowing users to locate them on a map of the study area (Figure 1). Site dates and time periods are listed in the table as well, with the major time periods briefly summarized below. Although we do not examine chronological changes in any detail in this study, this is a fruitful area for further research, and the information summarized here will allow interested researchers to locate datasets for their time periods of interest.

The references in Appendix 1 point researchers to the primary data on these assemblages. Although some are widely available, others had very limited print runs and may require access to a specialized library or interlibrary loan service. Other references were never published. Researchers needing assistance locating these references (particularly unpublished data) are encouraged to contact Archaeology Southwest (where copies are now on file) and corresponding author KGS. Finally, the repository column lists the location where the archaeological collections from each site are curated. In a few cases, we were sadly unable to locate the collections associated with some older excavations. This represents a great loss of scientific information, as taxon identifications can no longer be verified and data not reported by the original analysts can no longer be retrieved. We hope that some of these lost collections may be located someday (and if you find one, please let us know).

The listed repository is the major location for faunal collections for these sites; some sites have additional, older collections in other repositories. Repository abbreviations are as follows: AFM= Amerind Foundation Museum, Dragoon, AZ. ASM = Arizona State Museum, Tucson, AZ. ASU = Arizona State University School of Human Evolutionary and Social Change Archaeological Collections. ASW = Archaeology Southwest, Tucson, AZ (all listed collections under study there at the time of this publication will be permanently curated at the Arizona State Museum when analyses are completed). CNMA/MIAC = Center for New Mexico Archaeology, Museum of Indian Arts and Culture, Santa Fe, NM. FMNH= Field Museum of Natural History, Chicago, IL. GNF = Gila National Forest, USDA Forest Service, Silver City District Office, Silver City, NM. LA/MIAC = Laboratory of Anthropology Museum of Indian Arts and Culture, Santa Fe, NM. MMA = Maxwell Museum of Anthropology, University of New Mexico, Albuquerque, NM. MU=University of Missouri, Columbia, MO. NMSU = New Mexico State University, Las Cruces, NM. PMAE = Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA. SNMNM = Smithsonian National Museum of Natural History, Washington, D.C. TARL = Texas Archaeological Research Laboratory, University of Texas at Austin, Texas. UMN=University of Minnesota, Minneapolis and Saint Paul, MN. WACC = Western Archaeological Conservation Center, Tucson, AZ. WNMU=Western New Mexico University Museum, Silver City, NM. Unknown = the authors were unable to ascertain the current repository for these collections.

The listed reference collection is the main comparative reference collection used by the analyst for that assemblage. Analysts are less likely to identify a specimen (especially to species level) if they lack access to a reference collection that contains it. The reference collection abbreviations are the same as those used for repositories, with the following additions: BMUW = Burke Museum, University of Washington, Seattle, WA. CNHM = Chicago Natural History Museum, IL. MSB = Museum of Southwestern Biology, University of New Mexico, Albuquerque, NM. NMOAS = New Mexico Office of Archaeological Studies, Santa Fe, NM. OKAS = Oklahoma Archaeological Survey, Norman, OK. PVCC = Paradise Valley Community College Bioarchaeology Labs, Paradise Valley, AZ. TAM = Texas A&M University, College Station, TX. UT = University of Toronto, Canada. UTEP = Laboratory for Environmental Biology, University of Texas El Paso. UU = University of Utah, Salt Lake City, UT. Unknown = the reference collection used by the original analyst was not reported.

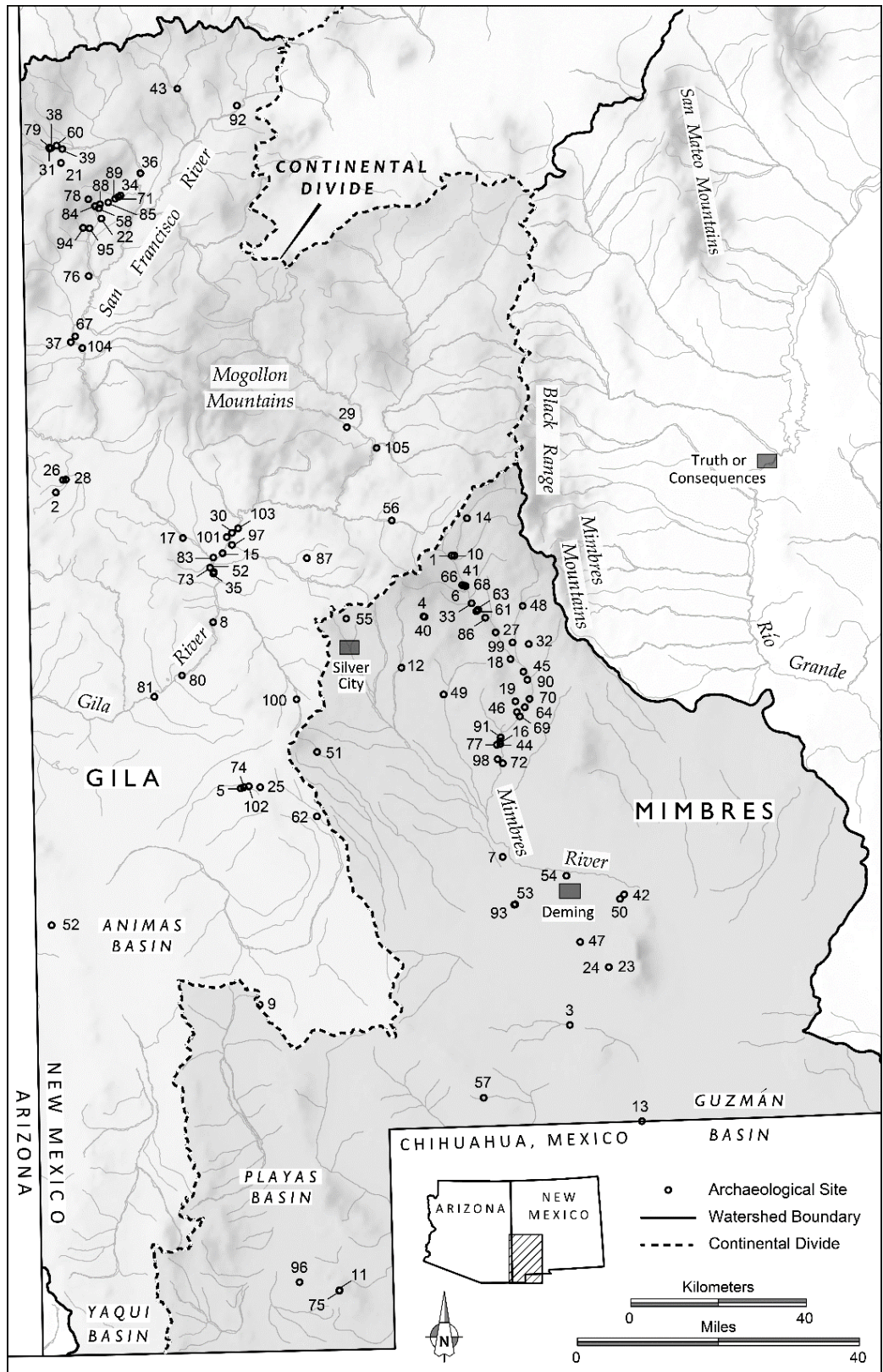
**Appendix 2**, the second section of this study, lists all of the vertebrate and mollusk taxa recovered from archaeological assemblages in the study area. Each family, genus or species account lists the time periods, major watershed, and sites where that taxon has been recovered, and provides a count (number of bones, with a whole animal or portion such as a wing counted as 1) of that taxon from each assemblage (denoted with a P when present but no count is available). An archaeological assemblage, as used here, is the set of specimens from a specific time period and archaeological site. Thus, a site may be listed more than once under an account, if it yielded animal remains from deposits at that site associated with more than one archaeological time period. This section also contains our comments on taxa of note, particularly taxa whose distributions in the past differ from their historic and modern ranges. These comments also highlight taxa whose identifications we find questionable, or which were identified decades ago and now merit reexamination by a specialist. In this section older taxonomic names used by the original analysts have been upgraded to the currently accepted names. Information on these changes is discussed in each taxon entry, where applicable.

The nomenclature used reflects for the most part current taxonomic understandings from the following sources: for mollusks (Coan and Valentich-Scott, 2012; Williams et al., 2017; MolluscaBase, 2018; WoRMS, 2018), fishes (Sublette et al., 1990; Minckley and Marsh, 2009), amphibians and reptiles (Painter et al., 2017), birds (AOU, 1998; Chesser et al., 2017), and mammals (Bradley et al., 2014).

Finally, **Appendix 3** provides a brief overview of the archaeological time periods used in Appendix 2. The zooarchaeological data presented here come from human contexts, and the presence and abundance of any taxon is due to human decisions and activities in the past rather than directly reflecting the occurrence of these animals on the landscape. This brief overview introduces some of the reasons the representations of certain taxa show changes over time and space in this dataset, allowing researchers to form ideas to be tested with more detailed examinations of animal distribution data.

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**Figure 1.** Map of the study area showing archaeological sites contributing assemblages to this study. Map numbers correspond to sites listed in Appendix 1.



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**APPENDIX 1: ARCHAEOLOGICAL SITES**

Site	Map No.	Watershed	Elevation (m)	Dates	Period	References	Reference Collection	Specimen Repository
Three Circle (LA 53)	1	Mimbres	1945	AD550-1000	Late Pithouse	Urban, 1981	unknown	MMA
3-Up (LA 150373)	2	Gila	1615	AD1300-1450	Salado	Huntley et al., 2019	ASM	ASW
76 Draw (LA 156980)	3	Mimbres	1280	AD1130-1450	Animas	McCarthy, 2013	MU	MU
Badger Ruin (LA 111395)	4	Mimbres	2073	AD1000-1130	Classic Mimbres	Kearns et al., 1999	unknown	LA/MIAC
Beargrass (LA 121158)	5	Gila	1737	AD200-1000	Pithouse	Duncan, 2000	MSB	LA/MIAC
Beauregard (LA 18888)	6	Mimbres	1920	AD550-1000	Late Pithouse	Powell and Langenwalter, 1977	unknown	MMA
Black Mountain (LA 49)	7	Mimbres	1372	AD1130-1300	Black Mountain	Schollmeyer, 2016	ASM	LA/MIAC
Blacks Bluff (LA 34787)	8	Gila	1341	AD1300-1450 AD1000-1130	Salado Classic Mimbres	Schollmeyer, 2016	ASM	Private collection
Bobcat Cave (LA 9071)	9	Mimbres	1509	2000BC- AD1450	Archaic-Animas	McCluney, 1973; Harris, 1993	MU	LA/MIAC
Bradsby (LA 78337)	10	Mimbres	2330	AD550-1000	Late Pithouse	Urban 1981	unknown	MMA
Buffalo Cave (LA 5690)	11	Mimbres	1524	AD550-1000	Late Pithouse	Lambert and Ambler, 1961	SNMNM	LA/MIAC
Cameron Creek Village (LA 190)	12	Mimbres	1768	AD550-1130	Late Pithouse/ Classic Mimbres	Bradfield, 1929	unknown	LA/MIAC and UMN
Columbus Pueblo (LA 85774)	13	Mimbres	1219	AD1000-1130	Classic Mimbres	Cannon, 2010	UU	LA/MIAC
Cooney Ranch #1 (LA 5841)	14	Mimbres	2134	AD1000-1130	Classic Mimbres	Nisengard, 2000	OKAS	MMA
DeFausal/Kartchner/G-12 (LA 34779)	15	Gila	1402	AD1000-1130	Classic Mimbres	Sullivan and Berg, 1983	UT	Private collection
Dike/Levee (LA 14983)	16	Mimbres	1536	AD1200-1300	Tularosa	Urban 1981	unknown	MMA
Dinwiddie (LA 106003)	17	Gila	1433	AD 1300-1450	Salado	Viriden-Lange, 2015	ASM	ASW
Disert (LA 15021)	18	Mimbres	1676	AD1300-1450	Salado	Powell and Langenwalter, 1977; Nelson and LeBlanc, 1986	unknown	MMA
Doolittle Cave (LA 15032)	19	Mimbres	1646	2000BC- AD1130	Archaic-Classic Mimbres	Cosgrove, 1947	unknown	PMAE
Duncan Site (AZ CC:8:4 [ASM])	20	Gila	1158	AD200-550	Early Pithouse	Lightfoot, 1984	unknown	ASU
DZ Site (LA 70185)	21	Gila	2164	AD1130-1300	Tularosa	Oakes, 1999	NMOAS, MSB	LA/MIAC
Eaton (LA 34800)	22	Gila	1402	2000BC- AD200	Archaic	Hemphill, 1983	unknown	unknown

Site	Map No.	Watershed	Elevation (m)	Dates	Period	References	Reference Collection	Specimen Repository
Fence Corner (LA 70196)	23	Gila	2012	AD550-1000	Late Pithouse	Oakes, 1999	NMOAS, MSB	LA/MIAC
Florida Mountain (LA 18839)	24	Mimbres	1402	AD550-1000	Late Pithouse	Schriever, 2002	unknown	CNMA/MIA C
Forest Home (LA 78089)	25	Gila	1890	2000BC-AD550	E Ag-Early Pithouse	Duncan, 2000	MSB	LA/MIAC
Fornholt (LA 164471)	26	Gila	1585	AD1130-1300	Tularosa	Schollmeyer, 2017	ASM	ASW
Galaz (LA 635)	27	Mimbres	1737	AD550-1000	Late Pithouse	Powell and Langenwalter, 1977	unknown	MMA
Gamalstad (LA 164472)	28	Gila	1585	AD500-1130	Late Pithouse/ Classic Mimbres	Huntley et al., 2019	ASM	ASW
Gila Cliff Dwellings (LA 13658)	29	Gila	1829	AD1130-1300	Tularosa	McKusick, 1986	unknown	WACC
Gila River Farm (LA 39315)	30	Gila	1402	AD1300-1450	Salado	Virden-Lange, 2017	unknown	ASW
Haca Negra (LA 89846)	31	Gila	2195	2000BC-AD1300	Archaic-Tularosa	Oakes, 1999	NMOAS, MSB	LA/MIAC
Haji Baba (LA 19059)	32	Mimbres	1817	AD1000-1130	Classic Mimbres	Urban 1981	unknown	MMA
Harris (LA 1867)	33	Mimbres	1829	AD550-1000	Late Pithouse	Powell, 2015	PVCC	MMA
Haury's Site (LA 39969)	34	Gila	1829	AD1000-1130	Reserve	Oakes, 1999	NMOAS, MSB	LA/MIAC
Heron Ruin (LA 34788)	35	Gila	1372	AD1000-1130	Classic Mimbres	Burns, 1972	unknown	unknown
Higgins Flat (LA 8682)	36	Gila	1829	AD1130-1300	Tularosa	Martin et al., 1956	CNHM	FMNH
HO-Bar (LA 68160)	37	Gila	1524	AD200-550	Early Pithouse	Michael Pool pers. comm.	unknown	TARL
Hough (LA 3279)	38	Gila	2195	AD1130-1300	Tularosa	Oakes, 1999	NMOAS, MSB	LA/MIAC
Humming Wire (LA 45508)	39	Gila	2134	AD550-1000	Late Pithouse	Oakes, 1999	NMOAS, MSB	LA/MIAC
Jackson Fraction (LA 111413)	40	Mimbres	2073	AD1000-1130	Classic Mimbres	Kearns et al., 1999	unknown	LA/MIAC
Janss (LA 12077)	41	Mimbres	1829	AD1300-1450	Salado	Powell and Langenwalter, 1977; Nelson and LeBlanc, 1986	unknown	MMA
Kipp Ruin (LA 153465)	42	Mimbres	1280	AD 200-1000 AD550-1000 AD1300-1450	Pithouse Late Pithouse/ Classic Mimbres Salado	DeBry, 2008	NMSU	NMSU
LA 4989	43	Gila	2134	AD1130-1300	Tularosa	Kayser, 1972	unknown	LA/MIAC
LA 14981	44	Mimbres	1524	AD550-1130	Late Pithouse/ Classic Mimbres	Urban 1981	unknown	MMA
LA 14992	45	Mimbres	1670	AD550-1130	Late Pithouse/ Classic Mimbres	Urban 1981	unknown	MMA
LA 15012	46	Mimbres	1646	Unknown	Unknown	Urban 1981	unknown	MMA
LA 18849	47	Mimbres	1295	Unknown	Unknown	Urban 1981	unknown	MMA

Site	Map No.	Watershed	Elevation (m)	Dates	Period	References	Reference Collection	Specimen Repository
LA 19030	48	Mimbres	1865	AD1000-1130	Classic Mimbres	Urban 1981	unknown	MMA
LA 19150	49	Mimbres	1685	AD550-1130	Late Pithouse/ Classic Mimbres	Urban 1981	unknown	MMA
LA 54812	50	Mimbres	1280	2000BC-AD200	Archaic	Jones et al., 2012	unknown	LA/MIAC
LA 83772	51	Mimbres	1829	AD200-550	Early Pithouse	Wiseman, 1998	unknown	LA/MIAC
LA 129571	52	Gila	1311	AD1450+	Protohistoric Apachean	Jones et al., 2012	unknown	LA/MIAC
LA 144921	53	Mimbres	1372	2000BC-AD550	E Ag-Early Pithouse	Jones et al., 2012	unknown	LA/MIAC
LA 159879	54	Mimbres	1311	2000BC-AD200	E Ag pre-200	Akins, 2015	NMOAS	LA/MIAC
La Gila Encantada (LA 113467)	55	Mimbres	1981	AD550-1000	Late Pithouse	Schmidt, 2010	ASM	MMA
Lake Roberts Vista (LA 71877)	56	Gila	1829	AD550-1130	Late Pithouse/ Classic Mimbres	Stokes and Roth 1999; Roth 2007; Myers 2009	unknown	GNF
Las Hermanas (LA 19072)	57	Mimbres	1372	AD550-1000	Late Pithouse/ Classic Mimbres	Fitting, 1971b	unknown	unknown
Lazy Meadows (LA 39975)	58	Gila	1951	AD550-1000	Late Pithouse	Oakes, 1999	NMOAS, MSB	LA/MIAC
Lone Mountain Cave	59	Mimbres	unkn	AD550-1130	Late Pithouse/ Classic Mimbres	Cosgrove, 1947	unknown	PMAE
Luna Village (LA 45507)	60	Gila	2134	AD550-1000	Late Pithouse	Oakes, 1999	NMOAS, MSB	LA/MIAC
Mattocks (LA 676)	61	Mimbres	1798	AD550-1000 AD1000-1130	Late Pithouse Classic Mimbres	Powell, 1977	unknown	MMA
MC 110 (LA 88765)	62	Gila	1615	AD550-1000	Late Pithouse	Fitting, 1971a	unknown	unknown
McAnally (LA 12110)	63	Mimbres	1829	AD200-550	Early Pithouse	Diehl and LeBlanc, 2001	unknown	MMA
McSherry (LA 15050)	64	Mimbres	1609	AD1000-1130	Classic Mimbres	Urban 1981	unknown	MMA
Mesa Top (AZ CC:4:12)	65	Gila	1189	AD200-550	Early Pithouse	Berman, 1978	UTEP	NMSU
Mitchell (12076)	66	Mimbres	1890	AD1000-1130	Classic Mimbres	Powell, 1977	unknown	MMA
Mogollon Village (LA 11568)	67	Gila	1554	AD200-550 AD200-1000 AD550-1000	Early Pithouse Pithouse Late Pithouse	Cannon, 1999	BMUW, MSB	ASM
Montezuma (LA 18890)	68	Mimbres	1890	AD550-1000 AD1000-1130	Late Pithouse Classic Mimbres	Powell and Langenwalter, 1977; Powell, 1977	unknown	MMA
Montoya (LA 15075)	69	Mimbres	1585	AD1130-1300	Black Mountain	Powell and Langenwalter, 1977	unknown	MMA
NAN Ranch (LA 2465)	70	Mimbres	1585	AD550-1000 AD1000-1130	Late Pithouse Classic Mimbres	Sanchez, 1992, Shaffer, 1991	TAM	WNMU
Old Peralta (LA 43766)	71	Gila	1890	2000BC-AD200	Archaic	Oakes, 1999	NMOAS, MSB	LA/MIAC
Old Town (LA 1113)	72	Mimbres	1372	AD550-1000 AD1000-1130	Late Pithouse Classic Mimbres	Sanchez, 1992; Myers, 2009	TAM	LA/MIAC

Site	Map No.	Watershed	Elevation (m)	Dates	Period	References	Reference Collection	Specimen Repository
Ormand Village (LA 5793)	73	Gila	1341	AD1300-1450	Salado	Akins, 1998	MSB	LA/MIAC
Peterson Canyon (LA 121159)	74	Gila	1737	AD550-1000	Late Pithouse	Railey, 2000	MSB	LA/MIAC
Pinnacle Cave (LA 5691)	75	Mimbres	1585	AD1000-1300	Classic Mimbres-Early Postclassic	Lambert and Ambler, 1961	SNMNM	LA/MIAC
Promontory (LA 9713)	76	Gila	1829	AD200-550	Early Pithouse	Martin et al., 1949	CNHM	FMNH
Pruitt Ranch (LA 1117/LA 15030)	77	Mimbres	1530	AD550-1130	Late Pithouse/ Classic Mimbres	Urban 1981	unknown	MMA
Raven's Roost (LA 70188)	78	Gila	2073	2000BC- AD200	Archaic	Oakes, 1999	NMOAS, MSB	LA/MIAC
Red Ear (LA 89847)	79	Gila	2195	2000BC- AD1300	Mixed	Oakes, 1999	NMOAS, MSB	LA/MIAC
Redrock 1 #1 (LA 29397)	80	Gila	1250	2000BC- AD550	E Ag-Early Pithouse	Silverbird, 1980	NMSU	unknown
Redrock Village (LA 5416)	81	Gila	1219	AD1000-1130	Classic Mimbres	Mills and Mills, 1977	unknown	unknown
Riverside (LA 34789)	52	Gila	1372	AD1000-1130 AD1300-1450	Classic Mimbres Salado	Baker, 1971	unknown	unknown
Saige-McFarland (LA 5421)	83	Gila	1402	AD1000-1130	Classic Mimbres	Gillespie, 1987; Myers, 2009	ASM	LA/MIAC
Sawmill (LA 9657)	84	Gila	1951	AD1000-1130	Reserve	Bluhm, 1957	CNHM	FMNH
Spurgeon Draw (LA 39968)	85	Gila	1890	AD1130-1300	Tularosa	Oakes, 1999	NMOAS, MSB	LA/MIAC
Stailey (LA 18939)	86	Mimbres	1768	AD1300-1450	Salado	Nelson and LeBlanc, 1986; Myers, 2009	unknown	MMA
Steamboat Cave (LA 73054)	87	Gila	1829	AD550-1130	Late Pithouse/ Classic Mimbres	Cosgrove, 1947	unknown	PMAE
SU (LA 64931)	88	Gila	1951	AD200-550	Early Pithouse	Martin, 1943	CNHM	FMNH
SU Tank (LA 39972)	89	Gila	1890	AD200-550 AD1000-1130	Early Pithouse Reserve	Oakes, 1999	NMOAS, MSB	LA/MIAC
Swarts Ruin (LA 1691)	90	Mimbres	1646	AD550-1130	Late Pithouse/ Classic Mimbres	Cosgrove and Cosgrove, 1932 [2004]	unknown	PMAE
Thompson (LA 14976)	91	Mimbres	1597	AD200-550	Early Pithouse	Urban 1981	unknown	MMA
Tularosa Cave (LA 4427)	92	Gila	2042	2000BC- AD1450 2000BC- AD200 AD200-550 AD550-1000 AD550-1300	Mixed Archaic Early Pithouse Late Pithouse Late Pithouse-Tularosa Reserve/Tularosa	Hough, 1914; Heller, 1976	unknown	FMNH

Site	Map No.	Watershed	Elevation (m)	Dates	Period	References	Reference Collection	Specimen Repository
Tunis School (LA 54814)	93	Mimbres	1341	AD1000-1300 AD200-550	Early Pithouse	Jones et al., 2012	unknown	LA/MIAC
Turkey Foot Ridge (LA 9709)	94	Gila	1859	AD550-1000	Late Pithouse	Martin and Rinaldo, 1950	CNHM	FMNH
Turkey Toes (LA 70201)	95	Gila	1890	AD550-1000	Late Pithouse	Oakes, 1999	NMOAS, MSB	LA/MIAC
U-Bar Cave (LA 5689)	96	Mimbres	1524	Pleistocene- AD1450	Mixed	Lambert and Ambler, 1961	SNMNM	LA/MIAC
Villareal II (LA 34794)	97	Gila	1402	AD1300-1450	Salado	Lekson, 2002	unknown	unknown
Walsh (LA 15044)	98	Mimbres	1493	AD1130-1300	Black Mountain	Powell and Langenwalter, 1977	unknown	MMA
Wheaton-Smith (LA 18903)	99	Mimbres	1731	AD550-1000 AD1000-1130	Late Pithouse Classic Mimbres	Urban 1981	unknown	MMA
Wind Mountain (LA 127260)	100	Gila	1737	AD550-1000 AD1000-1130	Late Pithouse Classic Mimbres	McKusick, 1996; Olsen and Olsen, 1996	ASM	AFM
Winn Canyon (LA 34813)	101	Gila	1402	AD200-550	Early Pithouse	Fitting, 1973	unknown	unknown
Wood Canyon (LA 99631)	102	Gila	1768	2000BC- AD200	E Ag pre-200	Duncan, 2000	MSB	LA/MIAC
Woodrow Ruin (LA 2454)	103	Gila	1402	AD550-1000 AD550-1130 AD1000-1130	Late Pithouse Late Pithouse/ Classic Mimbres Classic Mimbres	Schollmeyer, 2015	ASM	LA/MIAC
WS Ranch (LA 3099)	104	Gila	1524	AD200-1300	Early Pithouse-Tularosa	Shaffer and Neely, 1992	TAM	TARL
X-S-X (LA 50702)	105	Gila	1707	AD1000-1130	Classic Mimbres	Forrester, 1992	unknown	SNMNH

## APPENDIX 2: TAXA

Faunal assemblages from archaeological sites in the Gila and Mimbres watersheds of southwestern New Mexico, arranged by taxon.

### PHYLUM MOLLUSCA

#### CLASS BIVALVIA

#### ORDER ARCIDA

#### FAMILY GLYCYMERIDIDAE

*Glycymeris* sp.—undifferentiated bittersweet clams

**2000BC-AD550:** *GILA*—Tularosa Cave (2).

**2000BC-AD1450:** *MIMBRES*—Doolittle Cave (P).

**AD200-550:** *GILA*—SU (P).

**AD550-1000:** *GILA*—MC 110 (1); *MIMBRES*—Beauregard (2), Galaz (51), Harris (13), Three Circle (2), Wheaton-Smith (81).

**AD550-1130:** *GILA*—Gamalstad (6); *MIMBRES*—Bradsby (6), LA 14981 (1), LA 14992 (1), Cameron Creek Village (1), Galaz (230), Lone Mountain Cave (P), Montezuma (11), Old Town (1), Pruitt Ranch (P), Swarts Ruin (1, P).

**AD900-1000:** *GILA*—Luna Village (4).

**AD1000-1130:** *GILA*—Saige-McFarland (P), X-S-X (P), Sawmill (2); *MIMBRES*—Columbus Pueblo (1), LA 19030 (2), Mattocks (34), McSherry (3), Mitchell (5), NAN Ranch (361).

**AD1130-1300:** *GILA*—Fornholt (14), Higgins Flat (1), Spurgeon Draw (1), Hough (2); *MIMBRES*—Walsh (1).

**AD1300-1450:** *GILA*—3-Up (2), Villareal II (1); *MIMBRES*—Disert (2), Stailey (1).

**UNKNOWN:** *MIMBRES*—LA 15012 (1).

**Comments:** Marine clam shell imported from the Gulf of California.

*Glycymeris gigantea*—giant bittersweet

**AD550-1000:** *MIMBRES*—Harris (94), La Gila Encantada (4).

**AD1000-1130:** *GILA*—Wind Mountain (95).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (21).

**AD1300-1450:** *GILA*—Dinwiddie (2).

**Comments:** Marine clam shell imported from the Gulf of California.

*Glycymeris maculata*—speckled bittersweet

**AD1130-1300:** *GILA*—Higgins Flat (17).

**Comments:** Anderson et al. (1986:180) considered the identification of these Higgins Flat marine clams by Martin et al. (1956) probably incorrect as the adults of *maculata*, unlike *G. gigantea*, are not large enough to be made into bracelets.

#### ORDER VENERIDA

#### FAMILY CARDIIDAE

*Laevicardium elatum*—giant Pacific cockle

**AD1000-1130:** *MIMBRES*—Mattocks (1), Mitchell (1).

**AD1130-1300:** *GILA*—Fornholt (6).

**AD1300-1450:** *GILA*—Gila River Farm (1).

**Comments:** Marine shell imported from the Pacific coast.

#### ORDER PECTINIDA

#### FAMILY PECTINIDAE

Pectinidae—undifferentiated marine scallop

**AD550-1130:** *MIMBRES*—Galaz (10).

**AD1000-1130:** *MIMBRES*—NAN Ranch (137).

**AD1130-1300:** *GILA*—Fornholt (3).

*Argopecten* sp.—undifferentiated calico scallop

**AD550-1130:** *MIMBRES*—Cameron Creek Village (P).

**AD1000-1130:** *MIMBRES*—Walsh (2).

**Comments:** An imported marine shell.

*Argopecten ventricosus*—Pacific calico scallop

**AD550-1000:** *MIMBRES*—Harris (1).

**AD550-1130:** *GILA*—Gamalstad (1). *MIMBRES*—Cameron Creek Village (P).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1), Higgins Flat (3); *MIMBRES*—Old Town (1).

**Comments:** An imported marine shell. Synonyms: *A. circularis*, *Pecten circularis*, *Aequipecten circularis*.

*Euvoila vogdesi*—concave scallop

**AD550-1130:** *MIMBRES*—Cameron Creek Village (P).

**AD1000-1130:** *GILA*—Wind Mountain (1).

**Comments:** An imported marine shell. Synonyms: *Pecten excavatus*, *P. vogdesi*.

#### FAMILY SPONDYLIDAE

*Spondylus sp.*—undifferentiated thorny oyster

**AD550-1130:** *MIMBRES*—Galaz (52), Swarts Ruin (P).

**AD1000-1130:** *MIMBRES*—NAN Ranch (74).

**AD1300-1450:** *MIMBRES*—Disert (1).

**Comments:** An imported marine shell.

*Spondylus crassisquama*—Pacific thorny oyster

**AD550-1000:** *MIMBRES*—Florida Mountain (97), Wheaton-Smith (1).

**AD1000-1130:** *MIMBRES*—Mitchell (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

**UNKNOWN:** *MIMBRES*—LA 18849 (3).

**Comments:** An imported marine shell. Synonym: *S. princeps*.

*Spondylus limbatus*—donkey thorny oyster

**AD550-1000:** *MIMBRES*—Florida Mountain (235), Galaz (92).

**AD550-1130:** *MIMBRES*—Montezuma (1).

**AD1000-1130:** *MIMBRES*—Mattocks (1).

**AD1300-1450:** *GILA*—Dinwiddie (1).

**Comments:** An imported marine shell. Synonym: *S. calcifer*.

### ORDER PTERIOIDA

#### FAMILY PTERIIDAE

*Ptera sterna*—Pacific wing-oyster

**AD1000-1130:** *GILA*—Wind Mountain (1).

**Comments:** An imported marine shell.

### ORDER UNIONOIDA

#### FAMILY UNIONIDAE

*Anodonta californiensis*—California floater

**AD550-1000:** *MIMBRES*—Harris (13), La Gila Encantada (7).

**AD550-1130:** *GILA*—Gamalstad (1), Sage-McFarland (110), Lake Roberts Vista (13);

*MIMBRES*—Cameron Creek Village (1), Galaz (1), Bradsby (1), Swarts Ruin (1).

**AD1000-1130:** *MIMBRES*—Jackson Fraction (cf. 3), Mattocks (6), Old Town (4).

**AD1130-1300:** *GILA*—Fornholt (3), Gila Cliff Dwellings (1).

**AD1300-1450:** *GILA*—Dinwiddie (44), Gila River Farm (20), Ormand Village (51).

**Comments:** This western species of freshwater mussel was once broadly distributed throughout the lower Colorado River Basin, including the Gila River and its major drainages in Arizona and southwestern New Mexico (Myers, 2009). It has also been documented (pre-historically and historically) in the Rio Yaqui Basin of Sonora and Chihuahua, and east of the Continental Divide in the Guzmán Basin complex of northwestern Chihuahua. The archaeological record clearly shows that the native range of *Anodonata* once extended into the Mimbres River drainage in New Mexico (Myers 2009; this study). This mussel is now considered extirpated (and listed as Critically Imperiled by Arizona; Vulnerable as *A. nuttalliana* by IUCN) throughout this former range except for a small relic population believed still extant in the upper Black River drainage in the White Mountains of Arizona, and rapidly diminishing numbers in the Rio Yaqui and Guzmán Basin of northern Mexico (Myers, 2009; Blevins et al., 2017).



According to Terry Myers (pers. comm.), *Anodonta californiensis* in the Gila Basin inhabited 1<sup>st</sup> to 5<sup>th</sup> order streams with low gradients, soft non-organic silts, stable water regimes, and an absence of scouring floods. They also required an abundance of fish to serve as host during their immature life stage and to serve as this mollusk's primary means of dispersal. Most of the archaeological specimens recovered showed no signs of being worked and were believed locally collected, primarily as a food source (Wallace, 1998). Manufacture into ornaments is thought limited as this species is relatively thin shelled and workable only for one to two days after harvesting, but manufacture in process is documented at Dinwiddie (Viriden-Lange, 2015).

Williams et al. (2017) regarded *A. dejecta* a synonym of *Anodonta californiensis*, and the winged floater, *A. nuttalliana* of California northward a separate species. *Anodonta californiensis* is considered the sole species inhabiting the Colorado basin (including the Gila River), Rio Yaqui basin, and Guzmán basin in pre-Columbian and recent times.

## ORDER VENERIDA

### FAMILY CHAMIDAE

*Chama echinata*—a jewelbox clam

**AD1000-1130:** *GILA*—Wind Mountain (5).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

**Comments:** An imported marine clam shell.

## CLASS GASTROPODA

### ORDER CAENOGASTROPODA [NEOTAENIOGLOSSA]

#### FAMILY POTAMIDIDAE

*Cerithideopsis* sp.—undifferentiated hornsnail

**AD550-1130:** *MIMBRES*—Cameron Creek Village (P).

**Comments:** An imported sea snail shell. Synonym: *Cerithidea* sp.

*Cerithideopsis californica*—California hornsnail

**AD1300-1450:** *GILA*—Gila River Farm (1).

**Comments:** An imported sea snail shell. Synonym: *Cerithidea californica*.

#### FAMILY TURRITELLIDAE

*Turritella* sp.—undifferentiated turretsnail

**AD550-1130:** *MIMBRES*—Galaz (4).

**AD1000-1130:** *MIMBRES*—NAN Ranch (1).

**AD1300-1450:** *GILA*—Gila River Farm (1).

**Comments:** An imported sea snail shell.

### ORDER CYCLONERITIDA

#### FAMILY NERITIDAE

*Theodoxus luteofasciatus*—a nerites marine snail

**AD550-1000:** *MIMBRES*—Harris (1).

**Comments:** An imported marine shell.

### ORDER HETEROSTROPHA

#### FAMILY ARCHITECTONICIDAE

**AD1000-1130:** *MIMBRES*—NAN Ranch (1).

**Comments:** Imported staircase or sundial sea snail shell.

### ORDER HYGROPHILA [BASOMMATOPHORA]

#### FAMILY LYMNAEIDAE

*Lymnaea/Stagnicola* sp.—undifferentiated pondsnail

**2000BC-AD550:** *MIMBRES*—LA 54812 (1).

**AD1130-1300:** *GILA*—Fornholt (1).

**Comments:** the taxonomy of these freshwater snails has an unsettled history. For example, the wrinkled marshsnail of Arizona, New Mexico and elsewhere has been variously considered as

*Stagnicola caperata* (Bequaert and Miller, 1998; Turgeon et al., 1998), *Lymnaea caperata* (Taylor, 1987; Harrold and Guralnick, 2010), and *Hinkleyia caperata* (MolluscaBase, 2018).

FAMILY PLANORBIDAE

*Helisoma* sp.—undifferentiated ramshorn snail

**AD1300-1450:** *GILA*—Dinwiddie (1).

**Comments:** a freshwater snail.

*Helisoma tenue*—Mexican ramshorn snail

**AD550-1000:** *MIMBRES*—Harris (1).

**AD1000-1130:** *MIMBRES*—Haji Baba (1).

**Comments:** Taxa of uncertain status according to MolluscaBase (2019). Considered a synonym of *Planorbella tenuis* by Turgeon et al. (1998).

ORDER LEPETELLIDA

FAMILY HALIOTIDAE

*Haliotis* sp.—undifferentiated abalone

**AD550-1130:** *MIMBRES*—Montezuma (1).

**AD1000-1130:** *GILA*—Wind Mountain (1); *MIMBRES*—Columbus Pueblo (1), NAN Ranch (81).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

**AD1300-1450:** *GILA*—Dinwiddie (2); *MIMBRES*—Disert (2).

**Comments:** An imported sea snail shell.

*Haliotis fulgens*—green abalone

**AD1000-1130:** *MIMBRES*—Mitchell (1).

ORDER LITTORINIMORPHA

FAMILY STROMBIDAE

*Lobatus galeatus*—Eastern Pacific giant conch

**AD1000-1130:** *GILA*—Wind Mountain (1).

**Comments:** An imported sea snail shell. Synonym: *Strombus galeatus*.

*Strombus* sp.—undifferentiated true conch

**AD1000-1130:** *MIMBRES*—NAN Ranch (2).

**Comments:** An imported sea snail shell. Genus designation uncertain.

FAMILY VERMETIDAE

Vermetidae—undifferentiated worm snail

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (3).

**Comments:** An imported sea snail shell.

ORDER NEOGASTROPODA

FAMILY COLUMBELLIDAE

*Columbella* sp.—undifferentiated dove snail

**AD1000-1130:** *MIMBRES*—NAN Ranch (1).

**Comments:** An imported sea snail shell.

*Columbella major*—fat dove shell

**AD550-1000:** *MIMBRES*—Wheaton-Smith (23).

*Columbella strombiformis*—stromboid dove shell

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

FAMILY CONIDAE

*Conasprella perplexa*—puzzled cone snail

**AD200-550:** *MIMBRES*—Thomson (1).

**AD550-1000:** *MIMBRES*—Galaz (1).

**AD1000-1130:** *MIMBRES*—Mattocks (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (7).

**AD1300-1450:** *MIMBRES*—Disert (1), Janss (3), Stailey (1).

**Comments:** An imported sea snail shell. Synonym: *Conus perplexus*.

- Conus sp.*—undifferentiated cone snail  
**AD550-1000:** *MIMBRES*—Harris (1).  
**AD550-1130:** *MIMBRES*—Cameron Creek Village (P), Galaz (7), Swarts Ruin (P).  
**AD1000-1130:** *MIMBRES*—NAN Ranch (5).  
**AD1130-1300:** *GILA* — Higgins Flat (12).  
**AD1300-1450:** *GILA* — Dinwiddie (7), Gila River Farm (4), Ormand Village (3);  
*MIMBRES*— Stailey (1).  
**Comments:** An imported sea snail shell.
- Conus gladiator*—gladiator cone snail  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (2), Higgins Flat (13).  
**Comments:** An imported sea snail shell.
- Conus princeps*—prince cone snail  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
**Comments:** An imported sea snail shell.
- Conus regularis*—regular cone snail  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
**AD1300-1450:** *GILA* — Dinwiddie (1).  
**Comments:** An imported sea snail shell. Synonym: *Gradiconus regularis*.
- FAMILY NASSARIIDAE
- Nassariidae—undifferentiated Nassa mud snails  
**AD1000-1130:** *MIMBRES*—Columbus Pueblo (12).  
**Comments:** An imported sea snail shell.
- Nassarius sp.*—undifferentiated Nassa mud snail  
**AD550-1000:** *MIMBRES*—Harris (1).  
**AD1000-1130:** *MIMBRES*—NAN Ranch (182).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
**Comments:** An imported sea snail shell.
- Nassarius iodes*—a Nassa mud snail  
**AD1300-1450:** *GILA* — Dinwiddie (1), Gila River Farm (2).  
**Comments:** An imported sea snail shell.
- Nassarius moestus*—a Nassa mud snail  
**AD550-1130:** *GILA*—X-S-X (P); *MIMBRES*—Cameron Creek Village (P).  
**Comments:** An imported sea snail shell.
- Tritia sp.*[?]*—*a Nassa mud snail  
**AD550-1130:** *MIMBRES*—Galaz (12), Swarts Ruin (P).  
**Comments:** An imported sea snail shell. The authors of these site reports are more likely referring to a member of the genus *Nassarius* as *Tritia* sea snails are restricted to eastern Atlantic waters.
- FAMILY OLIVIDAE
- Agaronia testacea*—Panama false olive  
**AD550-1000:** *MIMBRES*—Harris (123).  
**AD1000-1130:** *GILA*—Wind Mountain (2).  
**Comments:** An imported marine snail shell.
- Oliva sp.*—undifferentiated olive sea snail  
**AD550-1130:** *GILA*—X-S-X (P); *MIMBRES*—Bradsby (1).
- Oliva incrassata*—Giant olive  
**AD1000-1130:** *GILA*—Wind Mountain (1).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
**Comments:** An imported sea snail shell.
- Oliva spicata*—veined olive  
**AD550-1130:** *MIMBRES*—Cameron Creek Village (P).  
**AD1000-1130:** *GILA*—Wind Mountain (2).  
**Comments:** An imported sea snail shell.
- Olivella sp.*—undifferentiated dwarf olive  
**2000BC-AD1450:** *MIMBRES*—Doolittle Cave (P).  
**AD200-550:** *GILA*—Mesa Top (1), SU (P); *MIMBRES*—Thompson (1), Tunis School (1).

**AD550-1000:** *MIMBRES*—Harris (9), Las Hermanas (1).  
**AD550-1130:** *GILA*—Steamboat Cave (P); *MIMBRES*—Galaz (400), Swarts Ruin (P).  
**AD1000-1130:** *GILA*—Saige-McFarland (P); *MIMBRES*—Columbus Pueblo (1), NAN Ranch (34).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1), Higgins Flat (13).  
**AD1300-1450:** *GILA*—Dinwiddie (6), Ormand Village (2).  
**Comments:** An imported sea snail shell.

*Olivella dama*—dama dwarf olive

**AD200-550:** *MIMBRES*—Thompson (2).  
**AD550-1000:** *MIMBRES*—Florida Mountain (68), Harris (32), Wheaton-Smith (17).  
**AD550-1130:** *MIMBRES*—Galaz (2), LA 19150 (2), Montezuma (7).  
**AD1000-1130:** *GILA*—Wind Mountain (4); *MIMBRES*—LA 19030 (6), Mattocks (3).  
**AD1130-1300:** *GILA*—Fornholt (2), Gila Cliff Dwellings (1).  
**AD1200-1300:** *MIMBRES*—Dike/Levee (2).  
**AD1300-1450:** *GILA*—3-Up (1); Dinwiddie (6); *MIMBRES*—Disert (2), Janss (6).  
**UNKNOWN:** *MIMBRES*—LA 18849 (±300).

**Comments:** An imported sea snail shell. Synonym: *O. purpurata*.

#### FAMILY RAPHTOMIDAE

*Pleurotomella* sp.—undifferentiated Raphitomid sea snail

**AD550-1130:** *MIMBRES*—Galaz (1).  
**Comments:** An imported marine snail shell.

### ORDER STYLOMMATOPHORA

#### FAMILY OREOHELICIDAE

*Oreohelix* sp.—undifferentiated mountain snail

**AD1000-1130:** *MIMBRES*—Jackson Fraction (3).  
**Comments:** A diverse and widespread genus of large, western montane land snails.

*Oreohelix houghi*—Diablo mountain snail

**AD550-1000:** *MIMBRES*—Harris (1).  
**AD550-1130:** *MIMBRES*—Montezuma (1).  
**AD1000-1130:** *MIMBRES*—Haji Baba (1).  
**AD1130-1300:** *MIMBRES*—Walsh (2).

#### FAMILY PRISTILOMATIDAE

*Hawaiiia minuscula*—minute gem snail

**AD1130-1300:** *GILA*—Fornholt (4).  
**AD1300-1450:** *GILA*—Gila River Farm (2).  
**Comments:** A common and widespread monotypic species of Pristiomatid land snails.

#### FAMILY SUCCINEIDAE

*Succinea* sp.—undifferentiated ambersnail

**AD1300-1450:** *GILA*—Dinwiddie (3), Gila River Farm (1).  
**Comments:** This genus of land snails includes *S. grosvenori*, a xeric-tolerant species common at lower elevations in southern New Mexico and Trans-Pecos Texas, and *S. luteola*, a species of marshes and other damp habitats common in Texas westward to the Rio Grande Valley of southern New Mexico (Taylor, 1987).

#### FAMILY XANTHONYCHIDAE [HELMINTHOGLYTIDAE]

*Sonorella* sp.—undifferentiated tallussnail

**AD550-1000:** *MIMBRES*—La Gila Encantada (3).  
**AD1000-1130:** *GILA*—Wind Mountain (4).  
**Comments:** Almost all of the 66 recognized species of *Sonorella* land snails (Turgeon et al., 1998) are restricted to montane talus habitats south of the Gila River in Arizona (Bequaert and Miller, 1998). Only four are known eastward into southern New Mexico: *S. hachitana* (Big Hatchet Mts., Florida Mts., Peloncillo Mts.), *S. animasensis* (Animas Mts.), *S. orientis* (Organ Mts.), and *S. todseni* (Dona Ana Co.) (NMDGF, 2006).

## PHYLUM [SUBPHYLUM] VERTEBRATA

### CLASS OSTEICHTHYES

Osteichthyes—undifferentiated bony fish

**2000BC-AD550:** *GILA*—Redrock 1 #1 (1); *MIMBRES*—LA 144921 (2).

**AD200-1300:** *GILA*—WS Ranch (67).

**AD550-1000:** *GILA*—Woodrow Ruin (19); *MIMBRES*—Galaz (5), Harris (2), Montezuma (1), NAN Ranch (2).

**AD550-1130:** *GILA*—Woodrow Ruin (21).

**AD1000-1130:** *GILA*—DeFausal/Kartchner/G-12 (1), Haury's Site (2), Saige McFarland (15), Woodrow Ruin (2), X-S-X (10); *MIMBRES*—Mattocks (1), Montezuma (1), NAN Ranch (4).

**AD1130-1300:** *GILA*—Fornholt (169); *MIMBRES*—Black Mountain (1), Montoya (16).

**AD1300-1450:** *GILA*—3-Up (20), Ormand Village (2), Villareal II (2); *MIMBRES*—Disert (3), Janss (16), Stailey (3).

ORDER CYPRINIFORMES—undifferentiated ray-finned fish

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Woodrow Ruin (1).

**AD550-1130:** *GILA*—Woodrow Ruin (3).

**AD1000-1130:** *GILA*—Woodrow Ruin (2); *MIMBRES*—NAN Ranch (5).

**AD1130-1300:** *GILA*—Fornholt (1)

FAMILY CYPRINIDAE

Cyprinidae—undifferentiated minnows

**AD1130-1300:** *GILA*—Fornholt (5).

*Gila nigrescens*—Chihuahua chub

**AD550-1000:** *MIMBRES*—Galaz (1).

**Comments:** Members of this western genus of chubs have a complex and challenging taxonomic and systematic history, and particularly so among the numerous putative species of the Chihuahuan and Sonoran Desert regions of the U.S. and Mexico (Schönhuth et al., 2014). Remnant populations of Chihuahua chubs (*Gila nigrescens*) are still extant in the upper Mimbres drainage as well as directly south in the geologically and hydrologically dynamic bolsons of northwestern Chihuahua (Axtell, 1977; Minckley et al., 1986; Castiglia and Fawcett, 2006). Roundtail chub, *G. robusta*, which now includes the recently synonymized taxa *intermedia* and *nigra* (Page et al., 2017), occur west of the continental divide in the upper reaches of the Gila River; they no longer occur in the San Francisco River, where they were last documented in 1948 (Propst, 1999). Prehistoric records are limited to a vertebra tentatively identified as *G. robusta* from Late Pleistocene deposits at Howell's Ridge Cave near the bootheel of New Mexico (Van Devender and Worthington, 1977), and as *G. nigrescens* (3) recovered from the archaeological site of Paquime (Casas Grandes) in northwestern Chihuahua (Di Peso et al., 1974).

FAMILY CATOSTOMIDAE—undifferentiated suckers

**AD550-1000:** *MIMBRES*—Galaz (1).

**AD1130-1300:** *GILA*—Hough (5), Spurgeon Draw (1).

**AD1300-1450:** *GILA*—3-Up (4).

**Comments:** Desert suckers (*Catostomus clarki*) and Sonora suckers (*C. insignis*) are uncommon but widespread throughout the Gila River Basin of New Mexico (Paroz and Propst, 2007). The razorback sucker (*Xyrauchen texanus*), now extirpated, probably also occurred in the upper Gila drainage within historic times (Sublette et al., 1990). The Rio Grande sucker (*C. plebeius*) is currently found in the upper Rio Grande as well as the Guzmán Basin, which includes the Mimbres River in New Mexico. Interestingly, apparently isolated populations of Rio Grande suckers also occur west of the continental divide in the upper San Francisco River drainage and in the Sapillo Creek drainage, a tributary of the Gila River just over the divide from the Mimbres. Long considered non-native introductions (Sublette et al., 1990), recent genetic studies by McPhee et al. (2008) and Turner et al. (2019) strongly support the hypothesis that the presence of Rio Grande suckers in the Gila basin are of natural occurrence brought about by headwater stream captures during the Pleistocene. Why no other extant

populations of this fish have been discovered elsewhere in either the Gila or San Francisco watersheds remains a conundrum.

FAMILY ICTALURIDAE—undifferentiated catfish

**AD1000-1130:** *GILA*—Haury’s Site (2).

**AD1300-1450:** *GILA*—3-Up (1).

**Comments:** No details are provided by the authors reporting catfish remains from these two sites in the San Francisco basin. There are no native catfish species known from within the study area. All of the 4-5 species (*Ictalurus melas*, *I. natalis*, *I. punctatus*, possibly *I. lupus*, and *Pylodictis olivaris*) now present in the Gila and Mimbres basins are introduced non-natives. The Yaqui catfish (*Ictalurus pricei*) of northern Mexico is the closest native catfish, occurring in the Yaqui Basin of Sonora, Chihuahua, and (formerly) southeastern Arizona, and east of the Continental Divide in the Guzmán Basin (Casas Grande River) of northwestern Chihuahua but now considered extirpated (Varela-Romero et al., 2011).

### CLASS AMPHIBIA

Amphibia—undifferentiated amphibians

**2000BC-AD550:** *MIMBRES*—LA 144921 (1).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *MIMBRES*—Galaz (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1), Hough (2); *MIMBRES*—Montoya (1).

### ORDER ANURA

Anura—undifferentiated frogs and toads

**AD200-1300:** *GILA*—WS Ranch (158).

**AD550-1000:** *GILA*—Luna Village (1).

**AD1000-1130:** *MIMBRES*—NAN Ranch (10).

**AD1130-1300:** *GILA*—Fornholt (3), Hough (4), Spurgeon Draw (19); *MIMBRES*—Black Mountain (1).

**AD1130-1450:** *MIMBRES*—76 Draw (2).

**AD1300-1450:** *MIMBRES*—Black Mountain (8).

FAMILY SCAPHIOPODIDAE—Nearctic spadefoots

*Scaphiopus* sp. — North American spadefoots

**AD200-1130:** *GILA*—Wind Mountain (1).

*Scaphiopus couchii*—Couch’s spadefoot

**AD1000-1130:** *GILA*—Saige-McFarland (3).

FAMILY BUFONIDAE

Bufonidae—undifferentiated toads

**AD200-1300:** *GILA*—WS Ranch (4).

**AD550-1000:** *GILA*—Luna Village (1), Wind Mountain (6).

**AD550-1130:** *GILA*—Woodrow Ruin (2).

**AD1000-1130:** *GILA*—Saige McFarland (1); *MIMBRES*—NAN Ranch (2).

**AD1130-1300:** *GILA*—Fornholt (4), Spurgeon Draw (2); *MIMBRES*—Montoya (1), Walsh (1).

*Anaxyrus woodhousii*—Woodhouse’s toad

**AD1000-1130:** *GILA*—Saige-McFarland (1).

FAMILY RANIDAE

*Lithobates* sp.—true frogs

**AD1130-1300:** *MIMBRES*—Montoya (2).

### CLASS REPTILIA

Reptilia—undifferentiated reptiles

**2000BC-AD550:** *GILA*—Wood Canyon (1); *MIMBRES*—LA 144921 (10).

**AD200-1000:** *GILA*—Beargrass (2).

**AD200-1300:** *GILA*—WS Ranch (1).



- AD550-1000:** *MIMBRES*—Galaz (2).  
**AD550-1130:** *GILA*—Woodrow Ruin (1).  
**AD1000-1130:** *GILA*—Heron Ruin (2); *MIMBRES*—Mattocks (2), NAN Ranch (1).  
**AD1130-1300:** *GILA*—Fornholt (1), Gila Cliff Dwellings (1); *MIMBRES*—Black Mountain (1).  
**AD1300-1450:** *GILA*—Villareal II (2).

## ORDER TESTUDINES

### Testudines—undifferentiated turtles

- 2000BC-AD550:** *GILA*—Forest Home (1), Wood Canyon (14); *MIMBRES*—LA 144921 (48), LA 159879 (1).  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD200-550:** *MIMBRES*—LA 129562 (1), Tunis School (1).  
**AD200-1000:** *GILA*—Beargrass (1); *MIMBRES*—Kipp Ruin (10).  
**AD200-1300:** *GILA*—WS Ranch (6).  
**AD550-1000:** *MIMBRES*—Galaz (26), Kipp Ruin (4), NAN Ranch (4).  
**AD550-1130:** *GILA*—Woodrow Ruin (1).  
**AD1000-1130:** *GILA*—Saige McFarland (2); *MIMBRES*—Columbus Pueblo (2), Mattocks (6), NAN Ranch (6).  
**AD1130-1300:** *GILA*—Fornholt (3), Gila Cliff Dwellings (2); *MIMBRES*—Black Mountain (139), Montoya (2), Walsh (11).  
**AD1130-1450:** *MIMBRES*—76 Draw (1841).  
**AD1300-1450:** *GILA*—Ormand Village (1); *MIMBRES*—Black Mountain (13), Kipp Ruin (1).

### FAMILY EMYDIDAE

#### Emydidae—undifferentiated pond turtles

- AD200-550:** *MIMBRES*—LA 129562 (4).  
**AD 200-1000:** *GILA*—Beargrass (1).  
**AD1000-1130:** *GILA*—X-S-X (1); *MIMBRES*—NAN Ranch (1).  
**AD1130-1300:** *GILA*—Hough (4).

#### *Chrysemys picta*—painted turtle

- 2000BC-AD550:** *MIMBRES*—LA 144921 (3).  
**AD550-1000:** *GILA*—MC 110 (1).

**Comments:** Painted turtles are currently found from the Rio Grande, eastward (Degenhardt et al., 1996; Painter et al., 2017). These precolumbian records represent either possible transports from the Rio Grande, or natural occurrence in the past in or near the Mimbres drainage given this species was until only recently quite common directly south, along with the soft shell turtle *Apalone spinifera* in the bolsons of northwestern Chihuahua (Brand, 1937; Axtell, 1977; Lemos-Espinal et al., 2017). Old occurrence records of painted turtles west of the continental divide in Arizona are delineated by the Turtle Taxonomy Working Group (2017) and discussed by Jennings (1987).

#### *Terrapene ornata*—ornate or desert box turtle

- 2000BC-AD550:** *GILA*—Wood Canyon (27); *MIMBRES*—LA 144921 (1).  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1512).  
**AD200-550:** *MIMBRES*—LA 129562 (1).  
**AD1130-1300:** *MIMBRES*—Black Mountain (6).  
**AD1130-1450:** *MIMBRES*—76 Draw (27).  
**AD1300-1450:** *MIMBRES*—Black Mountain (1).

### FAMILY KINOSTERNIDAE

#### *Kinosternon* sp.—American mud turtles

- 2000BC-AD1450:** *GILA*—Wood Canyon (10), *MIMBRES*—Bobcat Cave (52).  
**AD 200-1130:** *GILA*—Wind Mountain (1).  
**AD550-1000:** *GILA*—Mogollon Village (6), Wind Mountain (4).  
**AD1130-1300:** *GILA*—Fornholt (1).

#### *Kinosternon flavescens*—yellow mud turtle

- AD1000-1130:** *GILA*—Saige-McFarland (1).



**Comments:** William Gillespie (1987) reported this complete shell (carapace+plastron) of a mud turtle, and separated it from the more likely *K. sonoriense* based on the presence of raised posterior marginal scutes on the carapace. Given the lack of other non-shell elements, he suggested this specimen may have been an artifact, perhaps a rattle.

#### FAMILY TESTUDINIDAE

*Gopherus cf. morafkai*—Morafka’s desert tortoise

**AD550-1130:** *GILA*—Wind Mountain (2)

**Comments:** Reports on several sites list “Testudinidae” (“tortoise” or “land tortoise”) remains which we have relegated to Testudines, above, as these records appear to have been using nonstandard terminology and are most likely referring to the terrestrial box turtle *Terrapene ornate* in the Emydidae family. The only unambiguous claim of desert tortoise (genus *Gopherus*) in our study area is two “*G. agassizii*” plastron fragments recovered from the Wind Mountain site in upper Mangas Creek, Gila drainage (Olsen and Olsen, 1996). It is of no small interest that the range of desert tortoises may once have extended eastward to include the southern borderlands of the study area. Late Pleistocene remains of desert tortoises, identified and reconfirmed as *G. agassizii*, now *G. morafkai* for populations east of the Colorado River (see Murphy et al., 2011; Edwards et al., 2016; and the Turtle Taxonomy Working Group, 2017) for current taxonomic understandings) have been recovered from several cave sites in southcentral and southeastern New Mexico (Brattstrom, 1964; Van Devender et al., 1976), and farther west (as *Gopherus* sp.) from U-Bar Cave in eastern Hidalgo County (Harris, 1989). That desert tortoises may have persisted, perhaps still persist, along the borderlands into historical times is suggested by Lee’s (2008) dozen or so records and reports from recent decades of desert tortoises in the San Simon, San Bernardino, and Playas Valleys of Cochise County, Arizona, and Hidalgo and Luna County, New Mexico. Additionally, Donald D. Brand (1937, pg. 52), a University of California geographer conducting field work in northwestern Chihuahua between 1929 and 1935 noted the following: “Among the Chelonia the Mexican mud turtle, Texas terrapin, painted box turtle, Agassiz tortoise, and Emory’s soft-shelled turtle are most frequently encountered. The sloughs and dry-season pools of the Rio Santa Maria and Rio Casas Grandes abound in turtles...The desert tortoise is a strange wanderer sometimes encountered miles from the nearest water on the desert plains between the Rio Santa Maria and the Rio Grande.”

#### ORDER SQUAMATA, SUBORDER SAURIA

Sauria—undifferentiated lizards

**2000BC-AD550:** *GILA*—Wood Canyon (1); *MIMBRES*—LA 144921 (1).

**AD200-550:** *MIMBRES*—LA 129562 (2).

**AD200-1000:** *GILA*—Beargrass (8).

**AD200-1300:** *GILA*—WS Ranch (29).

**AD1000-1130:** *MIMBRES*—Jackson Fraction (2).

**AD1130-1300:** *GILA*—Hough (1); *MIMBRES*—Montoya (1).

#### FAMILY CROTAPHYTIDAE

*Crotaphytus collaris*—collared lizard

**AD1000-1130:** *GILA*—Saige-McFarland (1).

#### FAMILY PHRYNOSOMATIDAE

*Phrynosoma* sp.—horned lizards

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD200-1300:** *GILA*—WS Ranch (2).

**AD1130-1300:** *MIMBRES*—Walsh (2).

*Phrynosoma cornutum*—Texas horned lizard

**2000BC-AD550:** *MIMBRES*—LA 144921 (15).

**Comments:** This lizard is widely distributed in southern and eastern New Mexico (Painter et al., 2017). Phylogenetic studies by Guerra (1998) and Rosenthal and Forstner (2014) provide insights into the biogeographic history of this species in the northern Chihuahuan Desert.

#### FAMILY TEIIDAE

*Aspidoscelis* sp.—whiptails

**AD200-1000:** *GILA*—Beargrass (5).

## ORDER SQUAMATA, SUBORDER SERPENTES

Serpentes—undifferentiated snakes

**2000BC-AD550:** *MIMBRES*—LA 144921 (104).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (25).

**AD 200-1000:** *GILA*—Beargrass (3).

**AD200-1300:** *GILA*—WS Ranch (23).

**AD550-1000:** *MIMBRES*—NAN Ranch (7), Old Town (2).

**AD1130-1300:** *GILA*—Fornholt (23); *MIMBRES*—Black Mountain (6), Walsh (2).

**AD1130-1450:** *MIMBRES*—76 Draw (5).

**AD1300-1450:** *MIMBRES*—Disert (15).

### FAMILY COLUBRIDAE

Colubridae—undifferentiated common snakes

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD200-1300:** *GILA*—WS Ranch (28).

**AD550-1000:** *MIMBRES*—Galaz (2), NAN Ranch (11).

**AD1000-1130:** *GILA*—Saige McFarland (1).

**AD1130-1300:** *GILA*—Hough (1); *MIMBRES*—Montoya (1).

*Lampropeltis* sp.—kingsnakes

**AD1130-1300:** *GILA*—Spurgeon Draw (14)

*Lampropeltis* cf. *spendida*

**2000BC-AD550:** *MIMBRES*—LA 144921 (1).

### FAMILY VIPERIDAE

Viperidae—undifferentiated vipers

**AD200-1000:** *MIMBRES*—Kipp Ruin (2).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *MIMBRES*—NAN Ranch (1), Old Town (15).

**AD1000-1130:** *MIMBRES*—NAN Ranch (1).

*Crotalus* sp.—rattlesnakes

**2000BC-AD550:** *MIMBRES*—LA 144921 (1).

**AD1130-1300:** *MIMBRES*—Walsh (7).

*Crotalus atrox*—western diamond-backed rattlesnake

**2000BC-AD550:** *MIMBRES*—LA 144921 (52).

## CLASS AVES

### ORDER ANSERIFORMES

#### FAMILY ANATIDAE

Anatidae—undifferentiated ducks, geese

**2000BC-AD550:** *GILA*—Tularosa Cave (2).

**AD200-550:** *GILA*—Tularosa Cave (1).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Mogollon Village (1), Tularosa Cave (1); *MIMBRES*—Galaz (1).

**AD550-1300:** *GILA*—Tularosa Cave (2).

**AD1130-1300:** *GILA*—Hough (1).

*Aix sponsa*—wood duck

**AD1130-1300:** *GILA*—Hough (1).

*Anas* sp.—dabbling ducks

**AD550-1000:** *GILA*—Wind Mountain (1); *MIMBRES*—NAN Ranch (1).

**AD1000-1130:** *GILA*—DeFausal/Kartchner/G-12 (2); *MIMBRES*—NAN Ranch (2).

**AD1300-1450:** *MIMBRES*—Disert (1).

*Anas acuta*—northern pintail

**AD1000-1130:** *GILA*—Saige McFarland (P).

*Anas crecca*—green-winged teal

**AD1000-1130:** *GILA*—Saige McFarland (P); *MIMBRES*—Mattocks (1).

*Anas platyrhynchos*—mallard

**AD1000-1130:** *GILA*—Saige McFarland (2).

- AD1130-1300:** *GILA*—Hough (3), Spurgeon Draw (1).  
*Branta canadensis*—Canada goose  
**AD550-1000:** *GILA*—Turkey Foot Ridge (1).  
**AD1000-1130:** *GILA*—Saige McFarland (P).  
**AD1300-1450:** *GILA*—Ormand Village (1).  
*Bucephala albeola*—bufflehead  
**AD1000-1130:** *GILA*—Saige McFarland (P).  
*Mergus merganser*—common merganser  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1), Hough (2).  
*Mergus serrator*—red-breasted merganser  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
*Oxyura jamaicensis*—ruddy duck  
**AD1000-1130:** *GILA*—Saige McFarland (1).  
*Spatula cf. cyanoptera*—cinnamon teal  
**AD1000-1130:** *GILA*—Saige McFarland (P).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
**Comments:** Listed as cinnamon teal from both sites, but unless feathers were used for identification (which they were not in these cases), it would be extremely difficult to separate this teal from the bones of its congener, blue-winged teal, *S. discors*.

### ORDER GALLIFORMES

Galliformes—undifferentiated gallinaceous birds

- AD550-1000:** *MIMBRES*—NAN Ranch (5).  
**AD1000-1130:** *MIMBRES*—NAN Ranch (20).

#### FAMILY ODONTOPHORIDAE

Odontophoridae—undifferentiated quail

- 2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD550-1000:** *GILA*—Turkey Foot Ridge (1).  
**AD1000-1130:** *MIMBRES*—NAN Ranch (1).  
**AD1130-1300:** *MIMBRES*—Walsh (2).

**Comments:** The specimen from NAN Ranch was a partially articulated burial (counted here as one specimen).

*Callipepla* sp.—crested quails

- 2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD550-1000:** *MIMBRES*—Galaz (1).  
**AD550-1130:** *GILA*—Woodrow Ruin (2).  
**AD1000-1130:** *GILA*—Saige McFarland (1).  
**AD1130-1300:** *GILA*—Fornholt (2); *MIMBRES*—Montoya (5), Walsh (1).  
**AD1300-1450:** *MIMBRES*—Disert (6), Stailey (1).

*Callipepla gambelii*—Gambel's quail

- AD 200-1130:** *GILA*—Wind Mountain (1).  
**AD550-1000:** *GILA*—Humming Wire (4), Luna Village (9), Wind Mountain (3); *MIMBRES*—Las Gila Encantada (1).  
**AD1000-1130:** *GILA*—Saige McFarland (2+); *MIMBRES*—Mattocks (4).  
**AD1130-1300:** *GILA*—Hough (2), Spurgeon Draw (1).  
**AD1300-1450:** *GILA*—Ormand Village (2); *MIMBRES*—Janss (1).

*Callipepla squamata*—scaled quail

- 2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD 200-1000:** *MIMBRES*—Kipp Ruin (1).  
**AD550-1000:** *GILA*—Luna Village (1).  
**AD1000-1130:** *GILA*—Saige McFarland (2); *MIMBRES*—Mattocks (1), Montezuma (1).  
**AD1130-1300:** *GILA*—Hough (2); *MIMBRES*—Montoya (3).  
**AD1300-1450:** *GILA*—3-Up (1).

*Colinus virginianus*—northern bobwhite

- 2000BC-AD550:** *MIMBRES*—LA 144921 (4).  
**AD550-1000:** *GILA*—Luna Village (13).

**Comments:** This species is currently found well outside the study area in far eastern New Mexico and eastern Sonora. An isolated population of the “masked” form occurred in southern Arizona up until the late 1800s-early 1900s. According to Ligon (1961), it’s “quite probable that [masked bobwhite] formerly occurred in the Animas Valley of Hidalgo County”; however, Sayre (2002) pointed out that the presence of masked bobwhites in New Mexico’s bootheel was, in fact, more likely the result of Ligon and Arizona Game officials “planting” them there, unsuccessfully as it quickly turned out, from birds captured in Sonora, Mexico sometime between 1937 and 1950. Harris (2018) included the uncertain identification of this species from Mid-Wisconsin deposits in U-Bar Cave, Hidalgo County, based in part on Ligon’s probability statement. The archaeological material from LA 144921 in the Mimbres drainage included 1 coracoid, 1 femur, and 2 humeri (Jones et al., 2012). Oakes (1999) provided no information on the Luna Village specimens. Neither author mentions the unusual occurrence of this out-of-range species or how they were identified.

*Cyrtonyx montezumae*—montezuma quail

**2000BC-AD550:** *GILA*—Redrock 1 #1 (1).

**AD1000-1130:** *GILA*—Saige McFarland (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (2).

*Oreortyx* sp.—mountain quail

**AD1130-1300:** *MIMBRES*—Montoya (1).

**AD1300-1450:** *MIMBRES*—Disert (3).

**Comments:** Mountain quail are found today in the foothills and mountains of far western US, making its occurrence in a Mimbres archaeological site highly suspect. A right carpometacarpus comprised the only Montoya remains (Powell and Langenwalter, 1977). Interestingly, Harris (2018) reported semi-fossils identified to this species from several Wisconsin-aged cave sites scattered across southern New Mexico (and one in southern Chihuahua, Mexico).

#### FAMILY PHASIANIDAE

Phasianidae—undifferentiated turkeys, grouse

**AD200-1300:** *GILA*—WS Ranch (4).

**AD550-1000:** *GILA*—Luna Village (1); *MIMBRES*—NAN Ranch (12), Old Town (4).

**AD1000-1130:** *MIMBRES*—NAN Ranch (28), Old Town (1).

**AD1130-1300:** *GILA*—Hough (5).

**AD1300-1450:** *GILA*—Ormand Village (1).

*Meleagris gallopavo*—turkey

**2000BC-AD550:** *GILA*—Tularosa Cave (3).

**2000BC-AD1450:** *GILA*—Tularosa Cave (P).

**AD200-550:** *GILA*—Ho-Bar (1), Promontory (3), SU (20), Tularosa Cave (3).

**AD200-1000:** *MIMBRES*—Kipp Ruin (5).

**AD 200-1130:** *GILA*—Wind Mountain (9).

**AD200-1300:** *GILA*—WS Ranch (3).

**AD550-1000:** *GILA*—Fence Corner (30), Luna Village (4), MC 110 (2), Tularosa Cave (6), Turkey Foot Ridge (6), Wind Mountain (20), Woodrow Ruin (1); *MIMBRES*—Kipp Ruin (5), La Gila Encantada (11), Montezuma (23), NAN Ranch (3).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD550-1300:** *GILA*—Tularosa Cave (6).

**AD1000-1130:** *GILA*—Haury’s Site (3), Saige McFarland (P), Sawmill (4), SU Tank (18); *MIMBRES*—Cooney Ranch #1 (1), Mattocks (17), Mitchell (13), Montezuma (19), NAN Ranch (6).

**AD1130-1300:** *GILA*—DZ Site (1), Fornsolt (3), Gila Cliff Dwellings (24), Hough (263), LA 4989 (P), Spurgeon Draw (5).

**AD1300-1450:** *GILA*—3-Up (3), Ormand Village (1); *MIMBRES*—Disert (3).

**Comments:** One specimen from Fornsolt was a partial burial of the left leg and right wing of an adult male bird (14 elements counted here as one specimen). Five reported from NAN Ranch were burials of partially articulated individuals (each counted as one specimen here).

*Meleagris gallopavo*—wild turkey

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (7).

*Meleagris gallopavo*—domesticated turkey

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (2).

*Tympanuchus cupido*—greater prairie-chicken

**AD1000-1130:** *MIMBRES*—Mattocks (1)

**Comments:** Well out of modern range and most likely misidentified (see below). Powell (1997) provided no details or discussion of this unusual record from the Mimbres drainage.

*Tympanuchus cf. pallidicinctus*—lesser prairie-chicken

**AD550-1000:** *MIMBRES*—Kipp Ruin (1).

**Comments:** Basing his identification on a single but complete carpometacarpus, DeBry (2008) acknowledged this record from near the Florida Mountains southeast of Deming is well beyond current range in far-eastern New Mexico but that this species may have occurred farther west in the past. Harris (2018) provides no fossil evidence of prairie-chicken occurrence west of Otero County in south-central New Mexico either during or around the end of the last glacial, but does give Late Pleistocene records of another extralimital Tetraonid, the sage-grouse (*Centrocercus* spp), from cave deposits farther west in Hidalgo and Grant counties (Braun and Williams, 2015).

## ORDER PODICIPEDIFORMES

### FAMILY PODICIPEDIDAE

Podicipedidae—undifferentiated grebes

**AD1300-1450:** *MIMBRES*—Stailey (1).

*Podilymbus podiceps*—pied-billed grebe

**AD550-1000:** *GILA*—Luna Village (1).

## ORDER COLUMBIFORMES

### FAMILY COLUMBIDAE

Columbidae—undifferentiated doves, pigeons

**AD200-550:** *MIMBRES*—LA 129562 (1).

**AD550-1000:** *MIMBRES*—Harris (1).

*Patagioenas fasciata*—band-tailed pigeon

**AD200-1130:** *GILA*—Wind Mountain (2).

**AD550-1000:** *GILA*—Wind Mountain (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

*Zenaida asiatica*—white-winged dove

**2000BC-AD550:** *GILA*—Redrock 1#1 (1).

*Zenaida macroura*—mourning dove

**AD550-1000:** *GILA*—Luna Village (18), Tularosa Cave (2), Wind Mountain (1).

**AD1000-1130:** *GILA*—Saige McFarland (4+).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (2).

## ORDER CUCULIFORMES

### FAMILY CUCULIDAE

*Geococcyx californianus*—greater roadrunner

**2000BC-AD550:** *GILA*—Wood Canyon (2).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD550-1000:** *GILA*—Wind Mountain (1).

**AD1000-1130:** *GILA*—Saige McFarland (1+), Wind Mountain (1).

**AD1130-1300:** *GILA*—Fornholt (1); *MIMBRES*—Black Mountain (1).

**AD1300-1450:** *GILA*—Ormand Village (1); *MIMBRES*—Black Mountain (1).

## ORDER CAPRIMULGIFORMES

### FAMILY CAPRIMULGIDAE

*Chordeiles* sp.—nighthawks

**AD550-1000:** *GILA*—Wind Mountain (1); *MIMBRES*—Old Town (1).

**Comments:** The specimen from Old Town consisted of a partially articulated wing (counted here as one specimen).

#### ORDER GRUIFORMES

##### FAMILY RALLIDAE

*Fulica americana*—American coot

**AD1000-1130:** *GILA*—Saige McFarland (P).

##### FAMILY GRUIDAE

Cf. *Antigone canadensis*—sandhill crane

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**Comments:** Reported as “crane” by Cosgrove and Cosgrove (1932).

#### ORDER PELECANIFORMES

##### FAMILY PELECANIDAE

*Pelecanus erythrorhynchos*—American white pelican

**AD550-1000:** *GILA*—Wind Mountain (1).

**AD1300-1450:** *GILA*—Ormand Village (1).

##### FAMILY ARDEIDAE

Ardeidae—undifferentiated herons, egrets, bitterns

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

*Ardea alba*—great egret

**AD1000-1130:** *GILA*—Saige McFarland (1).

*Ardea herodias*—great blue heron

**AD1000-1130:** *GILA*—Saige McFarland (P).

#### ORDER CATHARTIFORMES

##### FAMILY CATHARTIDAE

Cathartidae—undifferentiated American vultures

**AD200-1300:** *GILA*—WS Ranch (1).

*Cathartes aura*—turkey vulture

**AD200-1300:** *GILA*—WS Ranch (7).

**AD550-1000:** *GILA*—Wind Mountain (1); *MIMBRES*—La Gila Encantada (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

**AD1300-1450:** *GILA*—Ormand Village (1).

#### ORDER ACCIPITRIFORMES

##### FAMILY ACCIPITRIDAE

Accipitridae—undifferentiated hawks, eagles

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (2).

**AD200-1130:** *GILA*—Wind Mountain (1).

**AD200-1300:** *GILA*—WS Ranch (13).

**AD550-1000:** *GILA*—Wind Mountain (2); *MIMBRES*—NAN Ranch (4), Old Town (1).

**AD1130-1300:** *GILA*—Hough (2).

**Comments:** A specimen from NAN Ranch was a burial of a partially articulated individual (counted here as one specimen).

*Accipiter* sp.—bird hawks

**AD550-1000:** *GILA*—Mogollon Village (1).

*Accipiter cooperii*—Cooper’s hawk

**AD200-1130:** *GILA*—Wind Mountain (2).

**AD1000-1130:** *MIMBRES*—Mattocks (1).

**AD1000-1300:** *GILA*—Tularosa Cave (3).

*Aquila chrysaetos*—golden eagle

**AD200-1130:** *GILA*—Wind Mountain (3).

**AD550-1000:** *GILA*—Wind Mountain (2).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1300:** *GILA*—Tularosa Cave (4).



**AD1300-1450:** *GILA*—Ormand Village (1).

**Comments:** The specimen from Swarts was a burial of a partially articulated individual.

*Buteo* sp.—buteonine hawks

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (3).

**AD200-1130:** *GILA*—Wind Mountain (1).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Luna Village (1), Tularosa Cave (1), Woodrow Ruin (2), Wind Mountain (16); *MIMBRES*—Galaz (4), Montezuma (1).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—Woodrow Ruin (1); *MIMBRES*—NAN Ranch (4), Mattocks (3), Mitchell (3), Montezuma (11).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1); *MIMBRES*—Montoya (6), Walsh (1).

**AD1300-1450:** *GILA*—3-Up (1); *MIMBRES*—Disert (1).

**Comments:** The four specimens from AD1000-1130 at NAN Ranch and the specimen from AD550-1000 at Montezuma were each partially articulated burials (each counted here as one specimen).

*Buteo jamaicensis*—red-tailed hawk

**2000BC-AD550:** *GILA*—Wood Canyon (1).

**2000BC-AD1450:** *GILA*—Tularosa Cave (P).

**AD200-1130:** *GILA*—Wind Mountain (5).

**AD550-1000:** *GILA*—Woodrow Ruin (3); *MIMBRES*—Galaz (4).

**AD1000-1130:** *GILA*—Saige McFarland (P), Woodrow Ruin (1); *MIMBRES*—Mattocks (2).

**AD1130-1300:** *GILA*—Hough (8).

**AD1300-1450:** *GILA*—3-Up (1).

**Comments:** The specimen from Wood Canyon was a partially articulated burial (counted here as one specimen).

*Buteo lagopus*—rough-legged hawk

**AD1130-1300:** *GILA*—Hough (3).

*Buteo regalis*—ferruginous hawk

**AD1000-1130:** *GILA*—Saige McFarland (P); *MIMBRES*—Mattocks (5), Montezuma (9).

**AD1130-1300:** *GILA*—Hough (1); *MIMBRES*—Montoya (4).

**Comments:** One specimen from Montoya was a partial burial (15 elements) from one individual (counted here as one specimen).

*Parabuteo unicinctus*—Harris's hawk

**AD550-1000:** *GILA*—Luna Village (1)

**Comments:** With a modern range that extends only marginally into the semi-desert and grassland habitats of southern Arizona and New Mexico, the reported occurrence of this bird of prey in the Mogollon Highlands without details (Oakes, 1999) is highly suspect.

## ORDER STRIGIFORMES

Strigiformes—undifferentiated owls

**2000BC-AD550:** *GILA*—Tularosa Cave (1).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

### FAMILY STRIGIDAE

Strigidae—undifferentiated typical owls

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD1300-1450:** *MIMBRES*—Disert (1).

*Athene cunicularia*—burrowing owl

**AD1000-1130:** *GILA*—Saige McFarland (1).

**AD1300-1450:** *GILA*—Ormand Village (1).

**Comments:** The specimen from Saige McFarland was a partially articulated wing (counted as one specimen here).

*Bubo virginianus*—great horned owl

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD550-1000:** *GILA*—Wind Mountain (2).

**AD550-1300:** *GILA*—Tularosa Cave (1).

*Megascops* sp.—screech-owls

**AD1130-1300:** *MIMBRES*—Black Mountain (1).

*Strix occidentalis*—spotted owl

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

FAMILY TYTONIDAE—barn owls

*Tyto alba*—barn owl

**AD550-1000:** *GILA*—Wind Mountain (1); *MIMBRES*—Old Town (1).

**Comments:** The specimen from Old Town was an articulated wing (counted here as one specimen).

## ORDER PICIFORMES

### FAMILY PICIDAE

Picidae—undifferentiated woodpeckers

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *MIMBRES*—NAN Ranch (2).

**AD550-1300:** *GILA*—Tularosa Cave (11).

**AD1000-1130:** *MIMBRES*—NAN Ranch (1).

**AD1130-1300:** *GILA*—Fornholt (1).

**AD1300-1450:** *GILA*—3-Up (1).

*Colaptes auratus*—northern flicker

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (2).

**AD200-550:** *GILA*—Tularosa Cave (1).

**AD1000-1130:** *GILA*—Saige McFarland (1); *MIMBRES*—NAN Ranch (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

**AD1300-1450:** *GILA*—Ormand Village (1).

*Melanerpes formicivorus*—acorn woodpecker

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

## ORDER FALCONIFORMES

### FAMILY FALCONIDAE

*Falco* sp.—falcons

**AD200-1300:** *GILA*—WS Ranch (12).

**AD550-1000:** *GILA*—Tularosa Cave (1); *MIMBRES*—NAN Ranch (6), Old Town (1).

**AD550-1300:** *GILA*—Tularosa Cave (1).

**AD1000-1130:** *MIMBRES*—NAN Ranch (7).

**AD1130-1300:** *GILA*—Fornholt (3).

**Comments:** Five of the specimens from NAN Ranch were partially articulated burials (each counted here as one specimen).

*Falco mexicanus*—prairie falcon

**2000BC-AD550:** *GILA*—Tularosa Cave (1).

**AD550-1000:** *GILA*—Luna Village (10).

**AD1300-1450:** *GILA*—Ormand Village (3).

*Falco sparverius*—American kestrel

**AD 550-1000:** *GILA*—Wind Mountain (1).

**AD1000-1130:** *MIMBRES*—Mattocks (3).

## ORDER PSITTACIFORMES

### FAMILY PSITTACIDAE

**AD550-1130:** *MIMBRES*—Cameron Creek Village (2).

**AD1000-1130:** *MIMBRES*—Galaz (5).

**Comments:** Captive semi-domestic or trade item endemic to southern Mexico, Central and South America.

*Ara* sp.—macaws

**AD1000-1130:** *MIMBRES*—Old Town (1).



**Comments:** Captive semi-domestic or trade item endemic to southern Mexico, Central and South America. There is some debate over how reliably scarlet and military macaws can be differentiated based on skeletal remains, as these identifications are often based on size and the two species overlap in size during juvenile stages; many of the archaeologically identified remains are likely those of juveniles (see Crown 2016). We assume here that the published identifications are accurate, but hope for future research on this issue.

*Ara macao*—scarlet macaw

**AD 200-1130:** *GILA*—Wind Mountain (1).

**AD550-1130:** *MIMBRES*—Cameron Creek Village (1), Galaz (3), Old Town (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1), Freeman Ranch (1).

**Comments:** Captive semi-domestic or trade item endemic to southern Mexico, Central and South America. The location of the Freeman Ranch site is unknown (although it is likely close to the Dinwiddie site, LA 106003) and no report on the site exists.

*Ara militaris*—military macaw

**AD550-1130:** *MIMBRES*—Galaz (1).

**AD1000-1130:** *MIMBRES*—Mitchell (2).

**Comments:** Captive semi-domestic or trade item endemic to Mexico southward to northeastern South America.

*Rynchopsitta pachyrhyncha*—thick-billed parrot

**AD550-1000:** *MIMBRES*—Cameron Creek Village (1), Treasure Hill (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

**Comments:** Endemic to the temperate forests of northern Mexico and up until relatively recently (1920s or so), a sporadic visitor to the mountains of New Mexico and Arizona. Not known to be bred in captivity or as a live trade item. Neither report specified how these were distinguished from the Amazon parrots (*Amazona* sp.), some species of which could have been transported from the same areas as macaws and by similar means; *Amazona* bones have been found at another Mogollon site, Grasshopper Pueblo, outside our study area to the west (Olsen 1990).

## ORDER PASSERIFORMES

Passeriformes—undifferentiated perching birds

**AD200-550:** *MIMBRES*—LA 129562 (2).

**AD200-1300:** *GILA*—WS Ranch (34).

**AD550-1000:** *MIMBRES*—Harris (6), La Gila Encantada (2), NAN Ranch (12), Old Town (1).

**AD550-1130:** *GILA*—Woodrow Ruin (2).

**AD550-1300:** *GILA*—Tularosa Cave (2).

**AD1000-1130:** *GILA*—DeFausal/Kartchner/G-12 (1); *MIMBRES*—Cooney Ranch #1 (1), NAN Ranch (23).

**AD1130-1300:** *GILA*—Fornholt (2); *MIMBRES*—Black Mountain (1). **AD1300-1450:** *MIMBRES*—Disert (2).

FAMILY TYRANNIDAE

Tyrannidae—undifferentiated tyrant flycatchers

**AD1130-1300:** *GILA*—Fornholt (1).

FAMILY LANIIDAE

*Lanius* sp.—shrikes

**AD1130-1300:** *MIMBRES*—Black Mountain (1).

FAMILY CORVIDAE

Corvidae—undifferentiated jays, magpies, crows

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Luna Village (1), Wind Mountain (1).

**AD1000-1130:** *MIMBRES*—NAN Ranch (2).

**AD1130-1300:** *GILA*—Fornholt (1); *MIMBRES*—Montoya (2).

**AD1300-1450:** *MIMBRES*—Stailey (1).

**Comments:** The specimen from Fornholt was a burial of a partially articulated immature jay (*Aphelocoma*, *Cyanocitta*, or *Gymnorhinus*) (counted here as one specimen). One specimen from NAN Ranch was also a burial (counted here as one specimen).

- Aphelocoma wollweberi*—Mexican jay  
**AD550-1000:** *GILA*—Fence Corner (5), Luna Village (13).  
**AD1130-1300:** *GILA*—Hough (5).
- Corvus brachyrhynchos*—American crow  
**AD200-550:** *MIMBRES*—LA 129562.  
**AD550-1000:** *GILA*—Luna Village (1).  
**AD1130-1300:** *GILA*—Hough (1).
- Corvus corax*—common raven  
**2000BC-AD550:** *GILA*—Tularosa Cave (1).  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD 200-1130:** *GILA*—Wind Mountain (3).  
**AD550-1000:** *GILA*—Wind Mountain (3); *MIMBRES*—Beauregard (4), La Gila Encantada (3).  
**AD1000-1130:** *GILA*—Saige McFarland (P).  
**AD1130-1300:** *GILA*—Hough (2).
- Corvus cryptoleucus*—Chihuahuan raven  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (5).  
**AD 550-1000:** *GILA*—Wind Mountain (1).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).
- Cyanocitta stelleri*—Steller’s jay  
**AD550-1000:** *GILA*—Tularosa Cave (1), Wind Mountain (1).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).
- Nucifraga columbiana*—Clark’s nutcracker  
**AD1000-1130:** *GILA*—Saige McFarland (P).
- Pica hudsonia*—black-billed magpie  
**AD1300-1450:** *MIMBRES*—Black Mountain (1).  
**Comments:** Identified by tibiotarsus only (Schollmeyer, 2016). Out of current range (Alaska to northern New Mexico and Arizona); however, Emslie (1981) suggested magpies once had a more southerly distribution in New Mexico (bones from Pottery Mound—Rio Puerco). There are Late Wisconsin and Mid-Wisconsin-Holocene records of this species from U-Bar Cave (eastern Hidalgo County) and Shelter Cove (southern Dona Ana County), respectively (Harris, 1993, 2018). There could be the small possibility this flashy, intelligent bird was, like parrots, an occasional trade item, perhaps kept alive as a pet or for their iridescent feathers.
- FAMILY ALAUDIDAE  
*Eremophila alpestris*—horned lark  
**AD1000-1130:** *GILA*—Saige McFarland (P).
- FAMILY HIRUNDINIDAE  
*Progne subis*—purple martin  
**AD1130-1300:** *GILA*—Hough (1).
- FAMILY TURDIDAE  
Turdidae—undifferentiated thrushes  
**AD1130-1300:** *GILA*—Spurgeon Draw (1).  
*Turdus migratorius*—American robin  
**AD1000-1130:** *GILA*—Saige McFarland (P).
- FAMILY FRINGILLIDAE  
Fringillidae—undifferentiated finches  
**AD1130-1300:** *MIMBRES*—Black Mountain (1).
- FAMILY PASSERELLIDAE  
Passerellidae—undifferentiated sparrows  
**AD200-1300:** *GILA*—WS Ranch (1).  
**AD550-1000:** *MIMBRES*—NAN Ranch (2), Old Town (1).  
**AD1000-1130:** *MIMBRES*—NAN Ranch (5).
- Zonotrichia* sp.—Zonotrichid sparrows  
**AD1000-1130:** *GILA*—Saige McFarland (1).
- FAMILY ICTERIDAE  
Icteridae—undifferentiated blackbirds, orioles

**AD550-1000:** *GILA*—Luna Village (6), Wind Mountain (1).  
*Agelaius phoeniceus*—red-winged blackbird  
**AD1000-1130:** *MIMBRES*—Mattocks (1),  
*Euphagus cyanocephalus*—Brewer’s blackbird  
**AD1000-1130:** *GILA*—Saige McFarland (P).  
*Molothrus* sp.—cowbirds  
**AD550-1000:** *MIMBRES*—NAN Ranch (1),  
*Quiscalus* sp.—grackles  
**2000BC-AD1450:** *GILA*—Tularosa Cave (P).  
*Sturnella* sp.—meadowlarks  
**AD1000-1130:** *GILA*—Saige McFarland (P).  
**AD1300-1450:** *GILA*—Ormand Village (2).  
**Comments:** One specimen from Ormand Village was a burial of a partially articulated individual (counted here as one specimen).

**CLASS MAMMALIA**  
**ORDER LAGOMORPHA**  
**FAMILY LEPORIDAE**

*Lepus* sp.—jackrabbits

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).  
**2000BC-AD550:** *GILA*—Eaton (P), Tularosa Cave (33), Wood Canyon (90), Forest Home (19); *MIMBRES*—LA 144921 (671).  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (618), Doolittle Cave (P).  
**AD200-550:** *GILA*—Duncan Site (21), Ho-Bar (1), Mogollon Village (7), Wind Mountain (4); *MIMBRES*—LA 129562 (41), Tularosa Cave (9), Tunis School (67).  
**AD200-1000:** *GILA*—Beargrass (71), Mogollon Village (2).  
**AD200-1130:** *GILA*—Wind Mountain (57).  
**AD200-1300:** *GILA*—WS Ranch (62).  
**AD550-1000:** *GILA*—Mogollon Village (5), Peterson Canyon (1), Tularosa Cave (26), Turkey Foot Ridge (8), Wind Mountain (1083), Woodrow Ruin (8); *MIMBRES*—Beauregard (5), Buffalo Cave (P), Florida Mountain (33), Galaz (388), Harris (72), La Gila Encantada (34), Las Hermanas (590), Mattocks (3), Montezuma (70), NAN Ranch (1224), Old Town (684).  
**AD550-1130:** *GILA*—Woodrow Ruin (45).  
**AD550-1300:** *GILA*—Tularosa Cave (10).  
**AD1000-1130:** *GILA*—Blacks Bluff (1), Riverside (1), Saige-McFarland (148), Sawmill (4), Wind Mountain (65), Woodrow Ruin (9), X-S-X (1); *MIMBRES*—Badger Ruin (1), Columbus Pueblo (153), Cooney Ranch #1 (17), Jackson Fraction (7), Mattocks (577), Mitchell (27), Montezuma (27), NAN Ranch (2597), Old Town (29).  
**AD1000-1300:** *MIMBRES*—Pinnacle Cave (P).  
**AD1130-1300:** *GILA*—Fornholt (44); *MIMBRES*—Black Mountain (642), Montoya (150), Walsh (307).  
**AD1130-1450:** *MIMBRES*—76 Draw (831).  
**AD1300-1450:** *GILA*—Riverside (7); *MIMBRES*—Black Mountain (44), Disert (42), Janss (16), Stailey (6).  
**AD1450+:** *GILA*—LA129571 (2).  
*Lepus californicus*—black-tailed jackrabbit  
**2000BC-AD550:** *GILA*—Redrock 1#1 (14), Old Peralta (6), Raven’s Roost (2); *MIMBRES*—LA 159879 (19).  
**AD200-550:** *GILA*—Ho-Bar (7), Wind Mountain (3); *MIMBRES*—LA 83772 (7).  
**AD200-1000:** *MIMBRES*—Kipp Ruin (929).  
**AD200-1130:** *GILA*—Wind Mountain (68).  
**AD550-1000:** *GILA*—Fence Corner (11), Luna Village (44), Wind Mountain (182); *MIMBRES*—Galaz (2), Kipp Ruin (886), La Gila Encantada (1), Montezuma (6).  
**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—DeFausal/Kartchner/G-12 (29), Haury's Site (7), Heron Ruin (2), SU Tank (2), Wind Mountain (3).

**AD1130-1300:** *GILA*—DZ Site (2), Gila Cliff Dwellings (37), Hough (145), Spurgeon (115); *MIMBRES*—Montoya (1).

**AD1300-1450:** *GILA*—3-Up (10), Ormand Village (51), Villareal II (3); *MIMBRES*—Janss (1), Kipp Ruin (26).

**Comments:** Two specimens from the Swarts site and one from the Montoya site were burials of partially articulated individuals (each counted here as one specimen).

*Cf. Lepus callotis*—white-sided jackrabbit

**AD550-1130:** *GILA*—Wind Mountain (9).

**Comments:** Olsen and Olsen (1996) provisionally assigned (as *L. gaillardia*) several skeletal remains from the Wind Mountain site to this species. While this primarily Mexican species (Brown et al. 2018) may have ranged beyond New Mexico's bootheel in times past, no discussion is provided on the methodology used to differentiate it from the osteologically similar and much more likely *L. californicus*.

*Sylvilagus* sp.—cottontail rabbits

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).

**2000BC-AD550:** *GILA*—Forest Home (13), Redrock 1 #1 (2), Tularosa Cave (187), Wood Canyon (51); *MIMBRES*—LA 462, LA 159879 (12).

**2000BC-AD1450:** *GILA*—Red Ear (1); *MIMBRES*—Doolittle Cave (P); *MIMBRES*—Bobcat Cave (459).

**AD200-550:** *GILA*—Duncan Site (17), Ho-Bar (3), Mesa Top (14), Mogollon Village (14), Tularosa Cave (141), Wind Mountain (4); *MIMBRES*—LA 129562 (24), Tunis School (17).

**AD200-1000:** *GILA*—Beargrass (28).

**AD200-1130:** *GILA*—Wind Mountain (121).

**AD200-1300:** *GILA*—WS Ranch (37).

**AD550-1000:** *GILA*—MC 110 (3), Mogollon Village (2), Tularosa Cave (92), Turkey Foot Ridge (5), Wind Mountain (957), Woodrow Ruin (17); *MIMBRES*—Beauregard (33), Buffalo Cave (P), Florida Mountain (8), Galaz (265), Harris (153), La Gila Encantada (57), Las Hermanas (110), Mattocks (6), Montezuma (84), NAN Ranch (444), Old Town (168).

**AD550-1130:** *GILA*—Woodrow Ruin (76).

**AD550-1300:** *GILA*—Tularosa Cave (20).

**AD1000-1130:** *GILA*—Blacks Bluff (5), DeFausal/Kartchner/G-12 (50), Redrock Village (P), Riverside (2), Saige-McFarland (121), Sawmill (1), Wind Mountain (43), Woodrow Ruin (5); *MIMBRES*—Columbus Pueblo (1), Cooney Ranch #1 (18), Jackson Fraction (30), Mattocks (455), Mitchell (26), Montezuma (40), NAN Ranch (702), Old Town (5).

**AD1000-1300:** *MIMBRES*—Pinnacle Cave (P).

**AD1130-1300:** *GILA*—Fornholt (129), Gila Cliff Dwellings (145); *MIMBRES*—Black Mountain (264), Montoya (115), Walsh (218).

**AD1130-1450:** *MIMBRES*—76 Draw (375).

**AD1300-1450:** *GILA*—3 Up (46), Riverside (1), Villareal II (12); *MIMBRES*—Black Mountain (5), Disert (88), Janss (37), Stailey (1).

**AD1450+:** *GILA*—LA 129571 (1).

*Sylvilagus audubonii*—desert cottontail

**2000BC-AD550:** *GILA*—Old Peralta (1), Raven's Roost (1).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (24).

**AD200-550:** *GILA*—Mogollon Village (1); *MIMBRES*—LA 83772 (6).

**AD200-1000:** *MIMBRES*—Kipp Ruin (213).

**AD550-1000:** *GILA*—Fence Corner (4), Luna Village (91); *MIMBRES*—Beauregard (12), Kipp Ruin (153), Montezuma (3).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1130-1300:** *GILA*—DZ Site (9), Gila Cliff Dwellings (1), Hough (317), Spurgeon (205); *MIMBRES*—Montoya (2), Walsh (14).

**AD1300-1450:** *GILA*—Ormand Village (113); *MIMBRES*—Kipp Ruin (18).

*Sylvilagus floridanus*—eastern cottontail  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (3).  
**AD200-550:** *GILA*—Mogollon Village (1).  
**AD550-1000:** *MIMBRES*—Montezuma (1).

## ORDER CHIROPTERA

### FAMILY VESPERTILIONIDAE

Vespertilionidae—undifferentiated vesper bats  
**AD550-1000:** *MIMBRES*—NAN Ranch (1).  
**AD1300-1450:** *MIMBRES*—Kipp Ruin (1).  
Cf. *Antrozous pallidus*—pallid bat  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
Cf. *Myotis* sp.—mouse-eared bats  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

## ORDER CARNIVORA

### FAMILY CANIDAE

*Canis* sp.—wolves, dog, foxes

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (3).  
**2000BC-AD1450:** *GILA*—Raven’s Roost (1), Tularosa Cave (2), Wood Canyon (6), Red Ear (3). *MIMBRES*—Bobcat Cave (1).  
**AD200-550:** *GILA*—Duncan Site (16), Ho-Bar (3), SU (30); *MIMBRES*—LA 83772 (3), McAnally (1).  
**AD200-1000:** *MIMBRES*—Kipp Ruin (35).  
**AD200-1300:** *GILA*—WS Ranch (14).  
**AD550-1000:** *GILA*—Luna Village (3), Tularosa Cave (4), Wind Mountain (24); *MIMBRES*—Galaz (4), Kipp Ruin (2), Las Hermanas (12), NAN Ranch (5).  
**AD550-1130:** *GILA*—Woodrow Ruin (2).  
**AD1000-1130:** *GILA*—Blacks Bluff (1), Haury’s Site (9), Sawmill (1), Wind Mountain (1); *MIMBRES*—Mattocks (20), Mitchell (2).  
**AD1130-1300:** *GILA*—Fornholt (1), Gila Cliff Dwellings (2), Hough (21), Spurgeon Draw (4); *MIMBRES*—Walsh (5).  
**AD1300-1450:** *GILA*—3 Up (2); *MIMBRES*—Disert (3), Janss (3), Stailey (1).  
**Comments:** Two of the specimens from NAN Ranch were burials of partially articulated individuals (each counted here as one specimen).

*Canis latrans*—coyote

**2000BC-AD550:** *GILA*—Forest Home (13), HO-Bar (1); *MIMBRES*—LA 144921 (1).  
**2000BC-AD1450:** *GILA*—Tularosa Cave (P); *MIMBRES*—Bobcat Cave (2), Doolittle Cave (P).  
**AD200-550:** *GILA*—Winn Canyon (P).  
**AD550-1000:** *MIMBRES*—Florida Mountains (1).  
**AD550-1130:** *MIMBRES*—Swarts Ruin (P).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (3).  
**Comments:** One specimen at HO-Bar and one from Swarts were burials of partially articulated individuals.

*Canis lupus*—wolf

**AD1130-1300:** *GILA*—Hough (2).  
**AD1300-1450:** *GILA*—*MIMBRES*—Janss (1).

*Canis (lupus) familiaris*—domestic dog

**AD550-650:** *MIMBRES*—Kipp Ruin (1).  
**AD550-1000:** *GILA*—Turkey Foot Ridge (4); *MIMBRES*—Galaz (1), Montezuma (1).  
**AD550-1130:** *MIMBRES*—Swarts Ruin (P).  
**AD1300-1450:** *GILA*—3 Up (2).

**Comments:** The dog specimen at Kipp Ruin (a dog burial) was identified based on characteristics of the mandible, cranium, and teeth (Semanko, 2020). None of the other reports

in which domestic dog was identified specify how these specimens were distinguished from other species of *Canis*; the specimen from Montezuma is a cranium.

*Urocyon cinereoargenteus*—common gray fox

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).

**2000BC-AD550:** *GILA*—Tularosa Cave (13), Wood Canyon (2).

**2000BC-AD1450:** *GILA*—Tularosa Cave (P).

**AD200-550:** *GILA*—Tularosa Cave (9).

**AD200-1130:** *GILA*—Wind Mountain (2).

**AD550-1000:** *GILA*—Luna Village (1), Tularosa Cave (7), Wind Mountain (5); *MIMBRES*—Galaz (6), Harris (1), Montezuma (1).

**AD550-1300:** *GILA*—Tularosa Cave (5).

**AD1000-1130:** *GILA*—Sawmill (1); *MIMBRES*—Mitchell (1), Montezuma (1), NAN Ranch (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (13), Hough (6), Spurgeon Draw (4).

**AD1300-1450:** *MIMBRES*—Disert (3).

*Urocyon/Vulpes* undifferentiated

**2000BC-AD1450:** *MIMBRES*—Doolittle Cave (P).

**AD200-550:** *GILA*—Ho-Bar (1).

**AD550-1000:** *GILA*—Wind Mountain (4); *MIMBRES*—Galaz (3).

**AD1130-1300:** *MIMBRES*—Walsh (1).

*Vulpes* sp.—true foxes

**AD200-1300:** *GILA*—WS Ranch (1).

**AD1000-1130:** *GILA*—Sawmill (1).

**Comments:** Three species of true foxes are currently found in New Mexico: *V. vulpes*, the red fox of northwestern NM, *V. macrotis*, the kit fox of southern and western NM, and *V. velox*, the swift fox of eastern NM (see Jones (2016) for reports of occurrence in Grant County). Because of similarity of skeletal elements (primarily relative size and shape), discerning species identity can be difficult, and particularly so between the closely related (perhaps conspecific) kit and swift foxes (Dragoo and Wayne, 2003). Lack of cranial elements can also make discernment of *Urocyon* from *Vulpes* difficult (Harris, 2018). Because of their morphological similarity and because current distribution does not necessarily reflect prehistoric distribution, we've chosen to use caution by including *velox* with *macrotis* in the following account.

*Vulpes macrotis/velox*—kit or swift fox

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD550-1000:** *MIMBRES*—Las Hermanas (1).

*Vulpes vulpes*—red fox

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—Haury's Site (1).

**AD1275-1320:** *GILA*—Hough (1).

**Comments:** According to Cosgrove and Cosgrove (1932 [2004], pg. 5) and without further details, the fox remains from Swarts Ruin were identified by Grover M. Allen, Curator of Mammals at the Museum of Comparative Zoology, Harvard. Oakes (1999) provided no details on the two specimens excavated from these upper San Francisco River sites close to the Arizona border or how they were identified. Red foxes are considered an uncommon native to the higher elevations of northern New Mexico (Findley et al., 1975). Farther south in Catron County, Bailey (1931) reported seeing red foxes in the Mogollon Mountains near the head of Willow Creek. More recently, John Hubbard (BISON-M, 2018) estimated 162 red fox taken by trappers over five winters between 1981 and 1991 from Catron County. Available NMGF furbearer report records of red fox taken by trappers in the state's western-most counties from 2015 to 2018 show 1 from Grant, none from Catron, 1 from Cibola, 31 from McKinley, and 275 from San Juan County (BISON-M, 2018). Mikesic and LaRue (2003) considered red foxes common in northeastern Arizona. Synonym: *V. macroura* (*macrourus*).

FAMILY FELIDAE

*Lynx* sp.—lynxes

**2000BC-AD550:** *GILA*—Tularosa Cave (13).

*Lynx rufus*—bobcat

- Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (4).  
**2000BC-AD550:** *GILA*—Wood Canyon (3).  
**2000BC-AD1450:** *GILA*—Tularosa Cave (P).  
**AD200-1130:** *GILA*—Wind Mountain (1).  
**AD550-1000:** *GILA*—Wind Mountain (4); *MIMBRES*—Kipp Ruin (1), NAN Ranch (17).  
**AD1000-1130:** *GILA*—Heron Ruin (1); *MIMBRES*—Columbus Pueblo (1).  
**AD1130-1300:** *GILA*—Hough (3).  
**AD1130-1450:** *GILA*—Ormand Village (1); *MIMBRES*—76 Draw (4).

*Lynx cf. rufus*

- AD1130-1300:** *MIMBRES*—Montoya (1).  
**AD1130-1450:** *MIMBRES*—Janss (2).

*Puma concolor*—mountain lion

- 2000BC-AD550:** *GILA*—Tularosa Cave (1).  
**AD200-1300:** *GILA*—WS Ranch (5).  
**AD550-1000:** *MIMBRES*—La Gila Encantada (2).  
**AD1000-1130:** *MIMBRES*—Jackson Fraction (2), Mattocks (1).

*Puma cf. concolor*

- 2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD550-1000:** *MIMBRES*—Beauregard (1).  
**AD1000-1130:** *GILA*—Saige McFarland (4); *MIMBRES*—Mattocks (1).  
**Comments:** Harris (1973, pg. 228) reported that the fragment of a carnassial tooth found at Bobcat Cave was from a large cat, either *Puma* or *Panthera* (jaguar), but couldn't rule out a canid.

FAMILY MEPHITIDAE

*Mephitis* sp.—striped and hooded skunks

- Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (2).  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD550-1000:** *GILA*—Tularosa Cave (1); *MIMBRES*—Galaz (1), Las Hermanas (1).  
**AD550-1130:** *GILA*—Woodrow Ruin (1).  
**AD1000-1130:** *MIMBRES*—Mitchell (3).  
**AD1000-1300:** *MIMBRES*—Pinnacle Cave (P).  
**AD1130-1300:** *GILA*—Spurgeon Draw (2).

*Mephitis macroura*—hooded skunk

- AD550-1000:** *GILA*—Wind Mountain (1).

*Mephitis mephitis*—striped skunk

- 2000BC-AD1450:** *GILA*—Tularosa Cave (P).

*Spilogale* sp.—spotted skunks

- 2000BC-AD1450:** *GILA*—Tularosa Cave (P); *MIMBRES*—Bobcat Cave (1).  
**AD550-1000:** *MIMBRES*—Galaz (1).

FAMILY MUSTELIDAE

*Mustela frenata*—long-tailed weasel

- AD1000-1130:** *GILA*—Saige McFarland (1).  
**AD1130-1300:** *GILA*—Hough (1).

*Taxidea taxus*—American badger

- 2000BC-AD1450:** *MIMBRES*—Bobcat Cave (35).  
**AD550-1000:** *GILA*—Tularosa Cave (2), Wind Mountain (1); *MIMBRES*—Galaz (2), Mattocks (1), Montezuma (1).  
**AD550-1300:** *GILA*—Tularosa Cave (1).  
**AD1000-1130:** *MIMBRES*—Mattocks (5), Old Town (1).  
**AD1130-1300:** *GILA*—Hough (1); *MIMBRES*—Black Mountain (1), Montoya (3), Walsh (1).  
**AD1130-1450:** *MIMBRES*—76 Draw (7).  
**AD1300-1450:** *GILA*—Ormand Village (1); *MIMBRES*—Janss (2).

FAMILY PROCYONIDAE

Procyonidae—undifferentiated raccoon, coati, and ringtail

- AD550-1000:** *GILA*—Tularosa Cave (2).

**AD1000-1300:** *GILA*—Tularosa Cave (1).

**AD1130-1300:** *GILA*—DZ Site (1).

*Bassariscus astutus*—ringtail

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).

**AD550-1000:** *GILA*—Gila Cliff Dwellings (1); *MIMBRES*—Galaz (6).

*Procyon lotor*—northern raccoon

**2000BC-AD550:** *GILA*—Wood Canyon (1).

**AD550-1000:** *GILA*—Luna Village (10); *MIMBRES*—NAN Ranch (1).

**AD1000-1130:** *GILA*—Heron Ruin (1).

**AD1130-1300:** *GILA*—Fornholt (1), Gila Cliff Dwellings (4), Hough (2); *MIMBRES*—Montoya (1).

**AD1300-1450:** *GILA*—Villareal II (1); *MIMBRES*—Disert (1).

FAMILY MEPHITIDAE/MUSTELIDAE—undifferentiated skunks/weasels

**AD200-1300:** *GILA*—WS Ranch (2).

**AD550-1000:** *GILA*—Tularosa (1); *MIMBRES*—Galaz (1).

**AD1130-1300:** *GILA*—Spurgeon Draw (1).

FAMILY URSIDAE

*Ursus* sp.—bears

**2000BC-AD550:** *GILA*—Eaton (P), Old Peralta (1).

**AD200-1000:** *GILA*—Beargrass (1).

**AD200-1130:** *GILA*—Wind Mountain (1).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Wind Mountain (8), Woodrow Ruin (2); *MIMBRES*—Montezuma (2).

**AD1130-1300:** *GILA*—Hough (4), Spurgeon Draw (1).

**AD1300-1450:** *MIMBRES*—Janss (2).

*Ursus americanus*—American black bear

**AD200-1130:** *GILA*—Wind Mountain (8).

**AD550-1000:** *GILA*—Wind Mountain (3).

**AD1130-1300:** *GILA*—Hough (8), Spurgeon Draw (1).

*Ursus arctos*—brown (grizzly) bear

**2000BC-AD1450:** *GILA*—Tularosa Cave (P).

**AD1000-1130:** *MIMBRES*—Mattocks (1).

## ORDER ARTIODACTYLA

Artiodactyla—undifferentiated even-toed ungulates

**2000BC-AD1450:** *GILA*—Old Peralta (130), Raven's Roost (34), Tularosa Cave (181), Wood Canyon (43), Forest Home (4), Redrock 1 #1 (1), Red Ear (4), Haca Negra (5); *MIMBRES*—LA 54812 (1), Bobcat Cave (5).

**AD200-550:** *GILA*—Duncan Site (8), Ho-Bar (7), Mogollon Village (9), Tularosa Cave (154), Wind Mountain (11); *MIMBRES*—LA 83772 (2), LA 129562 (3), McAnally (5).

**AD200-1000:** *GILA*—Beargrass (36), Mogollon Village (7); *MIMBRES*—Kipp Ruin (3).

**AD200-1130:** *GILA*—Wind Mountain (64).

**AD200-1300:** *GILA*—WS Ranch (407).

**AD550-1000:** *GILA*—Fence Corner (37), Humming Wire (1), Lazy Meadows (3), Luna Village (48), Mogollon Village (12), Tularosa Cave (200), Turkey Toes (2), Wind Mountain (650), Woodrow Ruin (3); *MIMBRES*—Beauregard (6), Florida Mountain (2), Galaz (91), Harris (8), La Gila Encantada (1), Mattocks (2), Montezuma (16), NAN Ranch (89), Old Town (12).

**AD550-1130:** *GILA*—Woodrow Ruin (85).

**AD550-1300:** *GILA*—Tularosa Cave (40).

**AD1000-1130:** *GILA*—Blacks Bluff (5), Haury's Site (10), Saige McFarland (58), Wind Mountain (18), Woodrow Ruin (2); *MIMBRES*—Columbus Pueblo (3), Cooney Ranch #1 (14), Jackson Fraction (4), Mattocks (161), Mitchell (25), Montezuma (7), NAN Ranch (84), Old Town (3).



**AD1130-1300:** *GILA*—DZ Site (2), Fornsolt (113), Gila Cliff Dwellings (4), Hough (171), Spurgeon Draw (49), Tularosa Cave (3); *MIMBRES*—Black Mountain (17), Montoya (41), Walsh (137).

**AD1130-1450:** *MIMBRES*—76 Draw (39).

**AD1300-1450:** *GILA*—3-Up (558), Ormand Village (130), Villareal II (2); *MIMBRES*—Black Mountain (11), Disert (229), Janss (121), Kipp Ruin (11), Stailey (21).

#### FAMILY ANTILOCAPRIDAE

*Antilocapra americana*—pronghorn

**2000BC-AD550:** *GILA*—Old Peralta (1), Tularosa Cave (26), Wood Canyon (5), Forest Home (1).

**2000BC-AD1450:** *GILA*—Tularosa Cave (P); *MIMBRES*—Bobcat Cave (23), Doolittle Cave (P).

**AD200-550:** *GILA*—Duncan Site (2), Mogollon Village (1), Winn Canyon (P), Tularosa Cave (18); *MIMBRES*—LA 83772 (2).

**AD200-1000:** *GILA*—Mogollon Village (1).

**AD200-1130:** *GILA*—Wind Mountain (20).

**AD200-1300:** *GILA*—WS Ranch (5).

**AD550-1000:** *GILA*—Fence Corner (3), Luna Village (3), Mogollon Village (3), Tularosa Cave (22), Wind Mountain (79); *MIMBRES*—Florida Mountain (5), Galaz (8), Harris (1), La Gila Encantada (1), NAN Ranch (21), Old Town (4).

**AD550-1130:** *GILA*—Woodrow Ruin (12); *MIMBRES*—Cameron Creek Village (P), Swarts Ruin (P).

**AD550-1300:** *GILA*—Tularosa Cave (8).

**AD1000-1130:** *GILA*—Haury's Site (2), Saige McFarland (27), Sawmill (2); *MIMBRES*—Cooney Ranch #1 (4), Mattocks (3), Mitchell (1), NAN Ranch (4).

**AD1130-1300:** *GILA*—DZ Site (1), Fornsolt (5), Gila Cliff Dwellings (8), Hough (28), Spurgeon Draw (12); *MIMBRES*—Black Mountain (6), Walsh (37).

**AD1130-1450:** *MIMBRES*—76 Draw (20).

**AD1300-1450:** *GILA*—3-Up (1), Ormand Village (11), Villareal II (5); *MIMBRES*—Black Mountain (3), Disert (26), Janss (1), Stailey (6).

#### FAMILY BOVIDAE

*Bos* sp. —American bison/domestic cattle

**AD200-1130:** *GILA*—Wind Mountain (1).

**AD550-1000:** *GILA*—Wind Mountain (2).

**Comments:** Olsen & Olsen (1996, pg. 405) reported 3 bones as bison (*Bos bison*) or domestic cattle (*Bos taurus*) from Wind Mountain. One of the two found in a pothunter-disturbed site, House X, was identified as a mesial phalanx of *Bos taurus* (domestic cattle).

There has been reluctance among Southwestern archaeologists to be definitive on bison versus cattle remains (Martin et al., 2017). Clearly, cattle didn't arrive until the mid-1600s at the earliest (Brand, 1961), thus we are assuming that the prehistoric bones identified as *Bos* that were in undisturbed context (disturbance is not always discussed in faunal reports, however) are of bison, not cattle (see further comments below).

*Bos* (cf.) *bison*—American bison

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).

**2000BC-AD1450:** *GILA*—Tularosa Cave (5), Red Ear (1); *MIMBRES*—Bobcat Cave (2), Doolittle Cave (P).

**AD200-1000:** *GILA*—Mogollon Village (1).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Luna Village (2), Turkey Foot Ridge (2).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—Sawmill (1), X-S-X (24).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (26), Hough (4).

**Comments:** The natural occurrence of modern bison west of the Pecos and the Rio Grande into western New Mexico, eastern Arizona, and northwestern Mexico has long been controversial, with the traditional view being one of historical absence (e.g., Bailey 1931, Findley et al. 1975). As a result, a number of archaeological specimens reported from our

study area are listed as either bison or domestic cattle (*B. taurus*) due, in part, to the widely-held assumption that bison were not a native species (e.g., Bobcat Cave) and, as mentioned above, because of the possibility (as with Wind Mountain) that bones of the late arriving domestic cattle could have been introduced into deposits via bioturbation or other disturbance, and that pre-Hispanic bison may have been widely traded, particularly if hides and dried meat were circulated with some bones still attached (Spielmann et al., 1990). As to their non-native status, there is a growing body of paleontological, archaeological and historical evidence that clearly indicates late prehistoric and early historic presence of plains bison extending into these far western areas of the Southwest (Brand, 1937; Reed, 1955; Di Peso et al., 1974; Agenbroad and Haynes, 1975; Truett, 1996; List et al., 2007; List and Solís, 2008; Huffer, 2013; Truett et al., 2014; Martin et al., 2017). As some of this new evidence suggests (e.g., Huffer 2013, Martin et al. 2017), bison presence and abundance here near the extreme edge of their former range may have waxed and waned in response to climatic shifts in seasonality and precipitation. In northern Mexico, bison are known to have persisted from pre-Hispanic times until early in the nineteenth century (List and Solís, 2008). The present free-ranging transnational population of bison of the Janos region of northwestern Chihuahua and the eastern bootheel of southwestern New Mexico is derived from reintroduced animals.

*Ovis canadensis*—bighorn sheep

**2000BC-AD550:** *GILA*— Old Peralta (11), Tularosa Cave (2), Wood Canyon (3), Redrock 1 #1 (1).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (13), Doolittle Cave (P).

**AD200-1000:** *GILA*— Wind Mountain [7], Beargrass (1).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Fence Corner (3), Luna Village (2), Tularosa Cave (1), Wind Mountain (4); *MIMBRES*—NAN Ranch (2).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD550-1300:** *GILA*—Tularosa Cave (1).

**AD1000-1130:** *GILA*—Haury's Site (1), Wind Mountain (1); *MIMBRES*—NAN Ranch (1).

**AD1130-1300:** *GILA*—Fornholt (1), Hough (7).

**AD1130-1450:** *MIMBRES*—76 Draw (18).

**AD1300-1450:** *GILA*—3-Up (2).

#### FAMILY CERVIDAE

Cervidae—undifferentiated deer

**2000BC-AD550:** *GILA*—Wood Canyon (18); *MIMBRES*—LA 144921 (1).

**AD200-1300:** *GILA*—WS Ranch (12).

**AD1000-1130:** *GILA*—Blacks Bluff (1).

**AD1130-1300:** *GILA*—Fornholt (9).

**AD1300-1450:** *GILA*—Ormand Village (18).

*Cervus canadensis*—wapiti (eastern red deer, elk)

**2000BC-AD1450:** *GILA*—Raven's Roost (1), Red Ear (2).

**AD200-550:** *GILA*—Ho-Bar (1).

**AD550-1000:** *GILA*—Luna Village (1), Turkey Foot Ridge (1), Turkey Toes (2), Wind Mountain (1); *MIMBRES*—Montezuma (1).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—Wind Mountain (1); *MIMBRES*—Montezuma (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (5).

**AD1300-1450:** *GILA*—3-Up (2); *MIMBRES*—Disert (1).

*Odocoileus* sp.—deer

**2000BC-AD1450:** *GILA*—Eaton (P), Old Peralta (1), Raven's Roost (30), Tularosa Cave (74), Wood Canyon (37), Forest Home (48), Red Ear (3); *MIMBRES*—Bobcat Cave (20).

**AD200-550:** *GILA*—Ho-Bar (17), Mogollon Village (3), SU (82), Tularosa Cave (68), Wind Mountain (10); *MIMBRES*—McAnally (2).

**AD200-1000:** *GILA*—Beargrass (7), Mogollon Village (1); *MIMBRES*—Kipp Ruin (4).

**AD200-1130:** *GILA*—Wind Mountain (28).

**AD200-1300:** *GILA*—WS Ranch (126).

**AD550-1000:** *GILA*—Fence Corner (34), Lazy Meadows (1), Luna Village (40), MC 110 (2), Mogollon Village (2), Tularosa Cave (109), Turkey Foot Ridge (37), Wind Mountain (595), Woodrow Ruin (5); *MIMBRES*—Beauregard (26), Buffalo Cave (P), Florida Mountain (1), Galaz (58), Harris (34), Kipp Ruin (5), Montezuma (11), NAN Ranch (32), Old Town (1).

**AD550-1130:** *GILA*—Woodrow Ruin (41); *MIMBRES*—Cameron Creek Village (P).

**AD550-1300:** *GILA*—Tularosa Cave (30).

**AD1000-1130:** *GILA*—Blacks Bluff (1), DeFausal/Kartchner/G-12 (26), Haury's Site (2), Redrock Village (P), Saige McFarland (8), Sawmill (8), Wind Mountain (8); *MIMBRES*—Cooney Ranch #1 (2), Jackson Fraction (18), Mattocks (39), Mitchell (1), Montezuma (8), NAN Ranch (60).

**AD1000-1300:** *GILA*—Tularosa Cave (6); *MIMBRES*—Pinnacle Cave (P).

**AD1130-1300:** *GILA*—DZ Site (2), Fornholt (53), Hough (307), Spurgeon Draw (4); *MIMBRES*—Black Mountain (1), Montoya (14), Walsh (6).

**AD1130-1450:** *MIMBRES*—76 Draw (43).

**AD1300-1450:** *GILA*—3-Up (73), Ormand Village (52), Riverside (2), Villareal II (6); *MIMBRES*—Disert (100), Janss (32), Stailey (4).

**Comments:** One specimen from the Fornholt site is a burial of a partially articulated individual four to six months old (counted here as one specimen).

*Odocoileus hemionus*—mule deer

**2000BC-AD550:** *GILA*—Old Peralta (19), Wood Canyon (9), Forest Home (7); *MIMBRES*—LA 144921 (2).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (9), Doolittle Cave (P).

**AD200-550:** *GILA*—Duncan Site (1), Promontory (18), Wind Mountain (7).

**AD200-1000:** *GILA*—Beargrass (3); *MIMBRES*—Kipp Ruin (8).

**AD200-1130:** *GILA*—Wind Mountain (268).

**AD550-1000:** *GILA*—Wind Mountain (334); *MIMBRES*—Galaz (5), Harris (26), La Gila Encantada (42), Las Hermanas (2), Montezuma (8).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—Haury's Site (21), Heron Ruin (2), Wind Mountain (4); *MIMBRES*—Badger Ruin (3).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (142), Hough (2), Spurgeon Draw (22).

*Odocoileus virginianus*—white-tailed deer

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (cf. 3).

**AD200-550:** *GILA*—Promontory (2).

**AD200-1130:** *GILA*—Wind Mountain (2).

**AD550-1000:** *GILA*—Wind Mountain (23); *MIMBRES*—Las Hermanas (2).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (22).

## ORDER RODENTIA

### FAMILY CASTORIDAE

*Castor canadensis*—American beaver

**AD200-1300:** *GILA*—WS Ranch (3).

**AD1000-1130:** *MIMBRES*—Mattocks (2).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (7).

**Comments:** Beavers are native inhabitants of the Gila River drainage, but not the Mimbres (see Figure 30 in Bailey, 1931). Resolving this species' status in the Mimbres drainage has proven somewhat complicated. Our extensive review of the archaeological literature uncovered only one report of beaver remains from the Mimbres Valley, where 44 archaeological assemblages have been analyzed from time periods ranging from the Archaic to Late Postclassic (2000 BC to AD 1450). This report was of two beaver incisors supposedly found at the Classic Mimbres period Mattocks site (Powell, 1977). Subsequent reexamination of these specimens indicates they were misidentified (Michael Cannon, pers. comm.). The only valid record or published report of beaver from anywhere in this drainage, past or present, is by Keith Geluso (in Geluso, 2016), a mammologist with the University of Kansas at Kearney, who in 2014 first found beaver present at two conservation reserve sites along the Mimbres.

We believe this species' current presence in the Mimbres is the result of a relatively recent and unofficial translocation, probably from the Gila River.

*Cf. Castor canadensis*

**2000BC-AD550:** *GILA*—Wood Canyon (1).

**Comments:** This is an odd location with no discussion or body part listed in the report by Duncan (2000).

#### FAMILY CRICETIDAE

Cricetidae—undifferentiated muroid rodents

**2000BC-AD550:** *GILA*—Wood Canyon (3); *MIMBRES*—LA 144921 (214).

**AD200-550:** *MIMBRES*—Tunis School (1).

**AD200-1300:** *GILA*—WS Ranch (39).

**AD550-1000:** *MIMBRES*—NAN Ranch (26).

**AD1000-1130:** *MIMBRES*—NAN Ranch (12).

*Microtus* sp.—voles

**AD550-1000:** *MIMBRES*—Galaz (1), Montezuma (1).

**AD1130-1300:** *MIMBRES*—Walsh (1).

**AD1300-1450:** *MIMBRES*—Disert (2).

**Comments:** Members of this genus can be morphologically so similar that they usually require specific teeth or skull structures to be positively identified to species (Smartt, 1977). A good example is *Microtus pennsylvanicus* (Southwestern populations considered *M. drummondii* by Jackson and Cook, 2020), a wet meadow/riparian-dependent vole that has yet to be identified from any archeological site in the study area, but which, if looked for more carefully (i.e., finer screening; see Scarbrough and Harris, 1985), would, like muskrats and other riparian and aquatic species, be a revealing marker of past environments. There are Late Pleistocene-Holocene fossils of *M. pennsylvanicus* from cave deposits farther south as well as north of the study area (Messing, 1986; Scarbrough, 1986), and, until recently, was extant as an isolated colony to the north near Aragon along the Tularosa River, upper San Francisco River drainage (Anderson and Hubbard, 1971; Frey, 2004), and farther south near Galeana in the Rio Santa Maria of the Guzmán Basin, NW Chihuahua (Messing, 1986; List et al., 2010; López-González and García-Mendoza, 2012).

*Microtus mogollonensis*--Mogollon vole

**AD1000-1130:** *GILA*—Saige McFarland (1); *MIMBRES*—Mattocks (4).

**AD1300-1450:** *GILA*—Ormand Village (5).

**Comments:** Extant at higher elevation in grassland-associated habitats of both watersheds (Geluso, 2016), and common as a Late Wisconsin/Holocene fossil throughout the southern cave sites of New Mexico (Harris, 2018). Formerly synonymized with *M. mexicanus* (Frey, 2004).

*Microtus montanus*—montane vole

**AD1130-1300:** *GILA*—Hough (1).

**Comments:** Harris (2018) reported Late Wisconsin/Holocene specimens that are questionably this vole from Howell's Ridge Cave, Little Hatchet Mountains, just north of New Mexico's bootheel. Today found from northern New Mexico, northward, with isolated relic populations (as *M. m. arizonensis*) probably still extant in the upper San Francisco drainage (Frey, 2004).

*Neotoma* sp.—woodrats

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).

**2000BC-AD550:** *GILA*—Tularosa Cave (22), Wood Canyon (2), Forest Home (3), Redrock 1 #1 (1); *MIMBRES*—LA 144921 (28).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (107).

**AD200-550:** *GILA*—Duncan Site (3), Mogollon Village (1), Tularosa Cave (8); *MIMBRES*—LA 129562 (4).

**AD200-1000:** *GILA*—Beargrass (2), Mogollon Village (1); *MIMBRES*—Kipp Ruin (1).

**AD200-1130:** *GILA*—Wind Mountain (2).

**AD200-1300:** *GILA*—WS Ranch (107).

**AD550-1000:** *GILA*—Mogollon Village (1), Tularosa Cave (7), Turkey Foot Ridge (1), Wind Mountain (27), Woodrow Ruin (6); *MIMBRES*—Beauregard (13), Buffalo Cave (P), Galaz

(37), Harris (57), La Gila Encantada (18), Montezuma (14), NAN Ranch (90), Old Town (4).

**AD550-1130:** *GILA*—Woodrow Ruin (17).

**AD550-1300:** *GILA*—Tularosa Cave (1).

**AD1000-1130:** *GILA*—DeFausal/Kartchner/G-12 (1), Saige McFarland (12), Wind Mountain (2); *MIMBRES*—Jackson Fraction (6), Mattocks (12), Montezuma (7), NAN Ranch (118).

**AD1130-1300:** *GILA*—Fornholt (9); *MIMBRES*—Black Mountain (1).

**AD1130-1450:** *MIMBRES*—76 Draw (11).

**AD1300-1450:** *GILA*—Ormand Village (2), Villareal II (1); *MIMBRES*—Disert (10), Janss (1).

*Neotoma albigula*—western white-throated woodrat

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (6).

**AD200-550:** *GILA*—Mesa Top (2).

**AD200-1130:** *GILA*—Wind Mountain (1).

**AD550-1000:** *GILA*—Luna Village (3); *MIMBRES*—Harris (1). **AD1130-1300:** *GILA*—Gila Cliff Dwellings (22), Hough (1), Spurgeon Draw (1).

*Neotoma lepida*—desert woodrat

**AD550-1000:** *MIMBRES*—Harris (4).

*Neotoma mexicana*—Mexican woodrat

**AD550-1000:** *GILA*—Fence Corner (9), Luna Village (60).

**AD1130-1300:** *GILA*—Hough (9), Spurgeon Draw (23).

*Ondatra zibethicus*—common muskrat

**2000BC-AD1450:** *GILA*—Tularosa Cave (1), Redrock 1 #1 (1), Red Ear (2).

**AD200-550:** *GILA*—Mogollon Village (1), Tularosa Cave (16).

**AD200-1300:** *GILA*—WS Ranch (9).

**AD550-1000:** *GILA*—Mogollon Village (1), Tularosa Cave (5).

**AD550-1300:** *GILA*—Tularosa Cave (2).

**AD1000-1130:** *GILA*—Saige McFarland (3); *MIMBRES*—Mattocks (1), Mitchell (1), NAN Ranch (13).

**AD1130-1300:** *GILA*—DZ Site (2), Gila Cliff Dwellings (6), Hough (8), Spurgeon Draw (1).

**AD1300-1450:** *GILA*—Ormand Village (3).

**Comments:** Muskrats are extant in the Gila drainages. Prehispanic records of this semi-aquatic species from Mimbres sites are of particular interest as there are no known historic records or recent reports of their presence in this watershed. Langenwaller (1979) was the first to note this absence of muskrats beyond the Classic Mimbres period and to suggest that high human populations and associated environmental impact during this period resulted in this species' extirpation. That muskrats had a long tenure in this drainage well before this period is evidenced by fossil remains from Baldy Peak Cave in the Florida Mountains that date back to the Late Wisconsin/Holocene, to a time when the Mimbres River was an active river far south of where it flows today (Harris, 2018). In more recent times, muskrats probably occurred in the Guzmán Basin of NW Chihuahua based on the remains of a muskrat excavated from Paquimé in deposits from the Medio Period, AD 1300-1450 (Di Peso et al., 1974). Their possible persistence today in northern Mexico could be farther east in the Rio Grande drainage (Merrill and López-González, 2007), although Lopez-González and Garcia-Mendoza (2012) now consider them probably extirpated from Chihuahua.

*Onychomys* sp.—grasshopper mice

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD200-1300:** *GILA*—WS Ranch (2).

*Onychomys leucogaster*—northern grasshopper mouse

**2000BC-AD550:** *MIMBRES*—LA 144921 (4).

**AD550-1000:** *GILA*—Luna Village (1); *MIMBRES*—Las Hermanas (1).

**AD1000-1130:** *GILA*—Heron Ruin.

**AD1130-1300:** *GILA*—Hough (3).

*Cf. Onychomys torridus*—southern grasshopper mouse

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

*Peromyscus* sp.—deer mice

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD200-1300:** *GILA*—WS Ranch (27).

**AD550-1000:** *GILA*—Luna Village (2), Wind Mountain (1); *MIMBRES*—Galaz (8), Harris (37), Montezuma (1), NAN Ranch (1).

**AD1000-1130:** *GILA*—DeFausal/Kartchner/G-12 (1); *MIMBRES*—Jackson Faction (1), Mattocks (9), Mitchell (1), NAN Ranch (25).

**AD1300-1450:** *GILA*—Ormand Village (1); *MIMBRES*—Janss (1).

*Peromyscus boylii*—brush deer mouse

**AD1130-1300:** *GILA*—Hough (1).

*Peromyscus leucopus*—white-footed deer mouse

**2000BC-AD1450:** *GILA*—Tularosa Cave (P).

**AD550-1000:** *GILA*—Luna Village (2).

**AD1130-1300:** *GILA*—Hough (6), Spurgeon Draw (1).

*Peromyscus maniculatus*—North American deer mouse

**2000BC-AD550:** *MIMBRES*—LA 144921 (1).

**2000BC-AD1450:** *GILA*—Tularosa Cave (P).

**AD550-1000:** *GILA*—Luna Village (26). **AD1130-1300:** *GILA*—Hough (22).

*Reithrodontomys* sp.—harvest mice

**AD550-1000:** *MIMBRES*—Galaz (1).

*Reithrodontomys megalotis*—western harvest mouse

**AD200-550:** *MIMBRES*—LA 129562 (1).

**AD550-1000:** *MIMBRES*—Montezuma (2).

*Sigmodon* sp.—cotton rats

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (6).

**AD200-1000:** *MIMBRES*—Kipp Ruin (1).

**AD550-1000:** *GILA*—Wind Mountain (2). *MIMBRES*—Montezuma (3), NAN Ranch (5).

**AD1000-1130:** *MIMBRES*—Cooney Ranch #1 (1), NAN Ranch (55).

**AD1130-1300:** *MIMBRES*—Montoya (1).

*Sigmodon fulviventer*—tawny-bellied cotton rat

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

*Sigmodon hispidus*—hispid cotton rat

**2000BC-AD550:** *MIMBRES*—LA 144921 (29).

**AD200-550:** *MIMBRES*—LA 83772 (1).

**AD200-1000:** *GILA*—Beargrass (2).

**AD550-1000:** *GILA*—Luna Village (5).

**AD1130-1300:** *GILA*—Spurgeon Draw (1).

*Sigmodon cf. ochrognathus*—yellow-nosed cotton rat

**AD1000-1130:** *GILA*—Saige McFarland (1).

**Comments:** The identification of this species by Gillespie (1987) was based mainly on a single, comparatively small right mandible having a less broad, less robust articular process relative to either *S. fulviventer* or *S. hispidus*. Today all three species are inhabitants of the Gila Valley near this archaeological site, but it remains unclear how long they have co-occurred in this area (Geluso, 2009).

#### FAMILY DIPODIDAE

*Zapus cf. hudsonius*—meadow jumping mouse

**AD1000-1130:** *GILA*—Heron Ruin (2).

**Comments:** The analyst from Heron Ruin did not specify the elements present or any other criteria on which the identification was based despite what ought to have been considered an unusual occurrence. Reexamining this specimen to confirm this identification is desirable, but unfortunately the current whereabouts of this archaeological collection are unknown. Lorna Scarbrough (1986) reported early Holocene remains of *Z. hudsonius* from Bat Cave just north of the study area at the southern edge of the Plains of San Agustin. The closest extant populations of this riparian-dependent species occur in the White and Mogollon mountains of Arizona (Hoffmeister, 1986), and along the middle Rio Grande Valley of New Mexico, northward (Malaney et al., 2012). Most recently, a population of meadow jumping mice was

discovered along the Blue River just inside New Mexico, some 14 km southwest of Luna (NMGF, 2018).

FAMILY ERETHIZONTIDAE

*Erethizon dorsatum*—North American porcupine

**2000BC-AD550:** *GILA*—Tularosa Cave (16), Forest Home (4).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (10), Doolittle Cave (P).

**AD200-550:** *GILA*—Tularosa Cave (9).

**AD550-1000:** *GILA*—Tularosa Cave (21).

**AD550-1300:** *GILA*—Tularosa Cave (1).

**AD1000-1130:** *GILA*—Heron Ruin (4).

**AD1130-1300:** *GILA*—Hough (1).

**AD1300-1450:** *MIMBRES*—Black Mountain (1).

FAMILY GEOMYIDAE

Geomyidae—undifferentiated pocket gophers

**2000BC-AD550:** *MIMBRES*—LA 144921 (3).

**AD200-550:** *MIMBRES*—LA 129562 (1).

**AD200-1300:** *GILA*—WS Ranch (22).

**AD550-1000:** *GILA*—Wind Mountain (7); *MIMBRES*—NAN Ranch (92), Old Town (18).

**AD550-1130:** *GILA*—Woodrow Ruin (3); *MIMBRES*—Swarts Ruin (P).

**AD1000-1130:** *GILA*—Wind Mountain (1); *MIMBRES*—NAN Ranch (158), Old Town (2).

**AD1130-1300:** *GILA*—Fornholt (1), Spurgeon Draw (1).

*Cratogeomys castanops*—yellow-faced pocket gopher

**AD550-1000:** *GILA*—Luna Village (2).

**AD1130--1300:** *MIMBRES*—Black Mountain (1).

**Comments:** The current range of this species in New Mexico does not extend west of the Rio Grande (Findley et al., 1975); however, it's clear from paleontological (Hidalgo County: U-Bar Cave—Late Wisconsin) (Harris, 2018) and archaeological data (San Juan Basin: Middle to Late Holocene) (Lyman, 1983) that this gopher was more widely distributed prehistorically. Synonym: *Pappogeomys castanops*.

*Geomys* sp.

**2000BC-AD1450:** *GILA*—Haca Negra (3).

**AD200-1000:** *MIMBRES*—Kipp Ruin (24).

**AD550-1000:** *MIMBRES*—La Gila Encantada (6).

**AD1300-1450:** *GILA*—Hough (10); *MIMBRES*—Kipp Ruin (1).

**Comments:** Herein we incorporate all site records listed as *Geomys* sp. and also as *Geomys bursarius* (plains pocket gopher). Although the latter is listed in a few archaeological sites (Martin et al., 1952; Heller, 1976; Oakes, 1999), this is likely in error as the study area is well out of its range, both modern and late Pleistocene/early Holocene (Harris, 2018), and the methodology used for identifying what ought to be unusual occurrences was not discussed.

*Geomys arenarius*—desert pocket gopher

**AD200-1130:** *GILA*—Wind Mountain (1).

**AD550-1000:** *GILA*—Wind Mountain (2).

**Comments:** The closest extant records of this Chihuahuan Desert gopher to the Wind Mountain site are from the Deming and Columbus areas of Luna County (Findley et al., 1975).

*Thomomys* sp.

**2000BC-AD550:** *GILA*—Tularosa Cave (6).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**AD200-550:** *GILA*—SU (1).

**AD200-1300:** *GILA*—WS Ranch (14).

**AD550-1000:** *GILA*—Tularosa Cave (3), Turkey Foot Ridge (2), Woodrow Ruin (4), Wind Mountain (11); *MIMBRES*—Beaugard (7), Galaz (118), Montezuma (34), NAN Ranch (79).

**AD550-1130:** *GILA*—Woodrow Ruin (4).

**AD550-1300:** *GILA*—Tularosa Cave (9).

**AD1000-1130:** *GILA*—Woodrow Ruin (1); *MIMBRES*—Blacks Bluff (1), Jackson Faction (1), NAN Ranch (447).

**AD1130-1300:** *GILA*—Fornholt (13); *MIMBRES*—Montoya (14), Walsh (7).

**AD1300-1450:** *MIMBRES*—Disert (74), Janss (25), Stailey (3).

*Thomomys bottae*—Botta's pocket gopher

**2000BC-AD550:** *GILA*—Wood Canyon (1), Forest Home (2).

**AD200-550:** *MIMBRES*—LA 83772 (2).

**AD200-1000:** *GILA*—Beargrass (6).

**AD200-1130:** *GILA*—Wind Mountain (5).

**AD550-1000:** *GILA*—Fence Corner (1), Humming Wire (1), Lazy Meadows (2), Luna Village (120), Wind Mountain (77); *MIMBRES*—Beauregard (10), Galaz (10), Harris (18), Mattocks (2), Montezuma (16).

**AD1000-1130:** *GILA*—Haury's Site (2), Saige McFarland (85), Wind Mountain (1); *MIMBRES*—Jackson Fraction (2), Mattocks (124), Mitchell (3), Montezuma (8).

**AD1130-1300:** *GILA*—DZ Site (4), Gila Cliff Dwellings (29), Hough (50), Spurgeon Draw (4).

**AD1300-1450:** *GILA*—3-Up (10), Ormand Village (8), Villareal II (2); *MIMBRES*—Disert (2).

**Comments:** Herein we incorporate all site records listed as *T. umbrinus*, a taxon once widely recognized to include *bottae* within it (Hall and Kelson, 1959; Hall, 1981). The name *T. umbrinus* is currently restricted in New Mexico to an isolated population of southern pocket gophers (as *T. u. emotus*) in the Animas Mountains, Hidalgo County (Hinesley and Thaeler, 1977; Frey, 2004).

#### FAMILY HETEROMYIDAE

Heteromyidae—undifferentiated pocket mice, kangaroo rats

**AD550-1000:** *GILA*—Mogollon Village (1).

*Dipodomys* sp.—kangaroo rats

**2000BC-AD550:** *GILA*—Wood Canyon (5); *MIMBRES*—LA 144921 (4).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (6).

**AD200-550:** *MIMBRES*—LA 129562 (1).

**AD200-1000:** *GILA*—Mogollon Village (2); *MIMBRES*—Kipp Ruin (9).

**AD200-1300:** *GILA*—WS Ranch (1).

**AD550-1000:** *GILA*—Wind Mountain (1); *MIMBRES*—Beauregard (1), Florida Mountain (1), Galaz (24), La Gila Encantada (1), Las Hermanas (14), NAN Ranch (4).

**AD1000-1130:** *GILA*—Saige McFarland (8), Wind Mountain (1); *MIMBRES*—Cooney Ranch #1 (2), Jackson Fraction (1), Mitchell (2).

**AD1130-1300:** *MIMBRES*—Montoya (1), Walsh (1).

**AD1130-1450:** *GILA*—3-Up (1), Riverside (1), Villareal II (1); *MIMBRES*—76 Draw (1), Disert (8).

*Dipodomys ordii*—Ord's kangaroo rat

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (2).

**AD1130-1300:** *GILA*—Spurgeon Draw (21).

Cf. *Dipodomys merriami*—Merriam's kangaroo rat

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

*Dipodomys spectabilis*—banner-tailed kangaroo rat

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (30).

**AD200-550:** *MIMBRES*—LA 83772 (1).

**AD550-1000:** *GILA*—Luna Village (5).

**AD550-1130:** *GILA*—Saige McFarland (1).

*Chaetodipus/Perognathus* sp.—spiny and silky pocket mice

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (4).

**AD200-550:** *MIMBRES*—LA 129562 (2).

**AD200-1300:** *GILA*—WS Ranch (10).

**AD550-1000:** *MIMBRES*—Galaz (1).

**AD1000-1130:** *MIMBRES*—Mattocks (5), NAN Ranch (4).

**AD1130-1300:** *GILA*—Fornholt (1); *MIMBRES*—Montoya (1), Walsh (8).

**AD1130-1450:** *MIMBRES*—Disert (1).

**AD1300-1450:** *MIMBRES*—Stailey (1).



**Comments:** Prior to Hafner and Hafner (1983), all of New Mexico's pocket mice were included in the genus *Perognathus*, with *Chaetodipus*, the spiny pocket mice, a subgenus. Because of this, there is no way to discern which genus is now represented from the earlier records without examination of the specimens involved and, even then, this would be difficult given the close similarity of the various species' assorted skeletal elements recovered from archaeological sites. Currently, a half dozen or so species in both genera are known to occur in our study area (Findley et al., 1975; Frey, 2004; Geluso, 2016). All are found primarily in arid grassland and desert habitats at lower elevations.

*Cf. Chaetodipus intermedius*—rock pocket mouse  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).

**Comments:** Synonym: *Perognathus intermedius*

*Cf. Perognathus flavescens*—plains pocket mouse  
**AD1000-1130:** *GILA*—Heron Ruin (1).  
**AD1130-1300:** *GILA*—Hough (1).

**Comments:** Oakes (1999) provides no discussion of the skeletal element recovered or how it was identified from the upper San Francisco Hough site. Synonym: *P. apache* (but see Hoffmeister, 1986; Frey, 2004; Neiswenter and Riddle, 2011).

#### FAMILY SCIURIDAE

##### Sciuridae—undifferentiated

**2000BC-AD550:** *GILA*—Tularosa Cave (69); *MIMBRES*—LA 144921 (18).

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (2).

**AD200-550:** *GILA*—Tularosa Cave (41).

**AD200-1000:** *GILA*—Beargrass (4).

**AD200-1130:** *GILA*—Wind Mountain (6).

**AD200-1300:** *GILA*—WS Ranch (7).

**AD550-1000:** *GILA*—Tularosa Cave (122), Wind Mountain (16); *MIMBRES*—Beauregard (1), Galaz (6), Harris (11), Montezuma (5), NAN Ranch (4), Old Town (1).

**AD550-1130:** *MIMBRES*—Swarts Ruin (P).

**AD550-1300:** *GILA*—Tularosa Cave (10).

**AD1000-1130:** *GILA*—Saige McFarland (9), Wind Mountain (2), Woodrow Ruin (2);  
*MIMBRES*—Jackson Faction (1), Mattocks (11), Mitchell (3), Montezuma (1), NAN Ranch (9).

**AD1000-1300:** *GILA*—Tularosa Cave (1).

**AD1130-1300:** *GILA*—Fornholt (8), Hough (1); *MIMBRES*—Black Mountain (1), Walsh (8).

**AD1300-1450:** *GILA*—3-Up (1); *MIMBRES*—Disert (34), Janss (2).

*Ammospermophilus harrisi*—Harris's antelope squirrel

**AD200-1000:** *GILA*—Beargrass (2).

**AD1300-1450:** *GILA*—3-Up (2).

**Comments:** This Lower Sonoran Desert species has a very limited distribution in southwestern New Mexico. Documented records are from the Gila River near Redrock and from numbers of locations in New Mexico's bootheel (Frey, 2004; Geluso, 2009). A recent phylogeographic study by Mantooth et al. (2013) identified 2 distinct lineages of *A. harrisi*, with southwestern NM and eastern AZ populations genetically distinct from those of western AZ and Sonora.

*Ammospermophilus leucurus*—white-tailed antelope squirrel

**AD1130-1300:** *GILA*—Hough (1).

**Comments:** The identification of this desert-to-foothills species as reported without details by Oates (1999) from this Mogollon Highlands site in the upper San Francisco River basin seems unlikely. More likely, and surprisingly not recorded from any site in her study, would be the somewhat larger *Callospermophilus lateralis*, the golden-mantled ground squirrel, a common inhabitant of this area, or for that matter, any of the more closely-sized chipmunks such as *Tamias cinereicollis*, the gray-collared chipmunk.

*Cynomys* sp.—prairie dogs

**2000BC-AD1450:** *GILA*—Tularosa Cave (19); *MIMBRES*—LA 144921 (10), Bobcat Cave (32).

**AD200-550:** *GILA*—Tularosa Cave (8).

**AD550-1000:** *GILA*—Tularosa Cave (24), Turkey Foot Ridge (2), Woodrow Ruin (2); *MIMBRES*—Galaz (4), Motezuma (1), NAN Ranch (22).  
**AD550-1130:** *GILA*—Woodrow Ruin (2); *MIMBRES*—Swarts Ruin (P).  
**AD550-1300:** *GILA*—Tularosa Cave (5).  
**AD1000-1130:** *GILA*—SU Tank (1); *MIMBRES*—NAN Ranch (7).  
**AD1000-1300:** *GILA*—Tularosa Cave (1); *MIMBRES*—Pinnacle Cave (P).  
**AD1130-1300:** *GILA*—Fornholt (2), Hough (2); *MIMBRES*—Black Mountain (3), Montoya (3), Walsh (5).  
**AD1130-1450:** *MIMBRES*—76 Draw (13).

*Cynomys gunnisoni*—Gunnison’s prairie dog

**2000BC-AD1450:** *GILA*—Red Ear (1).  
**AD550-1000:** *GILA*—Fence Corner (2), Humming Wire (1), Luna Village (26).  
**AD1000-1130:** *GILA*—Haury’s Site (1), Heron Ruin (1), SU Tank (9).  
**AD1130-1300:** *GILA*—Hough (132), Spurgeon Draw (61).

**Comments:** Gunnison’s prairie dogs are currently found in the northwestern third of the state, from the northern parts of the Mogollon Mountains and the Plains of San Augustin northward (Findley et al., 1975). This species once ranged farther south as fossil remains are known from the Mid-Wisconsin deposits of U-Bar Cave, Hidalgo County and the Late Wisconsin/Holocene deposits of Howell’s Cave, Little Hatchet Mountains (Harris, 2018).

*Cynomys ludovicianus*-black-tailed prairie dog

**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (16).  
**AD200-550:** *MIMBRES*—LA 83772 (2).  
**AD550-1000:** *GILA*—Luna Village (4), Wind Mountain (2).  
**AD1000-1130:** *GILA*—Saige McFarland (19), Wind Mountain (2).  
**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).  
**AD1300-1450:** *GILA*—Ormand Village (8), Villareal II (8).

*Marmota flaviventris*--yellow-bellied marmot

**AD 1130-1300:** *GILA*—Gila Cliff Dwellings (4).

**Comments:** Extant populations of this western species are restricted to the higher mountains of northern New Mexico (Findley et al., 1975); none are currently found in neighboring Arizona (Hoffmeister, 1986). Based on fossil records, however, this marmot once occurred far south of its present range (Frase and Hoffman, 1980). Late Pleistocene records from within our study area include Walter Hough’s (1914) original discovery of the partial skull of a marmot in Tularosa Cave, which was confirmed by Howell (1915) as *Marmota* sp., and based on distribution, as *Marmota* cf. *flaviventris* of Late Wisconsin age by Harris (2018). Harris also reported Mid-Late Wisconsin marmot remains from U-Bar Cave (Alamo Hueco Mountains, Hidalgo County), and Late Wisconsin-Holocene remains from Baldy Peak Cave in the Florida Mountains south of Deming. With this as background, the presence of four (minimal faunal count) yellow-bellied marmots from the late 13<sup>th</sup> century Gila Cliff Dwellings (McKusick, 1986) is of considerable interest. Yellow-bellied marmot remains of similar age have also been reported from the Keet Seel cliff dwellings site in northeastern Arizona (Lange, 1956). Harris (1970) hypothesized that *Marmota flaviventris* is affected in their geographic and altitudinal distribution by seasonality of precipitation, specifically wetter winters resulting in food-rich springs.

*Otospermophilus/Xerospermophilus* (formerly *Spermophilus*, *Citellus*) sp.

**Pleistocene-AD1450:** *MIMBRES*—U-Bar Cave (1).  
**2000BC-AD1450:** *MIMBRES*—Bobcat Cave (1).  
**AD200-550:** *MIMBRES*—LA 83772 (4).  
**AD200-1000:** *GILA*—Beargrass (1).  
**AD550-1000:** *GILA*—Luna Village (3); *MIMBRES*—Beauregard (8), Galaz (2), Montezuma (5), NAN Ranch (6), Old Town (2).  
**AD1000-1130:** *GILA*—Sawmill (1); *MIMBRES*—Mattocks (12), Montezuma (2), NAN Ranch (5).  
**AD1130-1300:** *GILA*—Fornholt (1), Hough (2); *MIMBRES*—Montoya (2).  
**AD1300-1450:** *MIMBRES*—Black Mountain (1), Janss (6), Stailey (2).

*Otospermophilus variegatus*—rock squirrel

**2000BC-AD1450:** *GILA*—Tularosa Cave (P); *MIMBRES*—Bobcat Cave (6).

**2000BC-AD550:** *GILA*—Tularosa Cave (2).

**AD200-550:** *GILA*—SU (2), Tularosa Cave (2).

**AD200-1000:** *GILA*—Mogollon Village (1); *MIMBRES*—Kipp Ruin (2).

**AD200-1130:** *GILA*—Wind Mountain (5).

**AD200-1300:** *GILA*—WS Ranch (10).

**AD550-1000:** *GILA*—Tularosa Cave (3), Wind Mountain (54); *MIMBRES*—Las Hermanas (2), NAN Ranch (7).

**AD550-1300:** *GILA*—Tularosa Cave (1).

**AD1000-1130:** *GILA*—Wind Mountain (2); *MIMBRES*—Jackson Faction (2), NAN Ranch (14).

**AD1130-1300:** *GILA*—Fornholt (2), Gila Cliff Dwellings (18), Hough (1), Spurgeon Draw (1).

**AD1300-1450:** *MIMBRES*—Stailey (1).

*Sciurus* sp.—tree squirrels

**AD200-550:** *GILA*—Tularosa Cave (5).

**AD550-1300:** *GILA*—Tularosa Cave (2).

**AD1000-1130:** *MIMBRES*—Mitchell (1), NAN Ranch (6).

**AD1300-1450:** *MIMBRES*—Janss (1).

**Comments:** All unidentified *Sciurus* remains from Mimbres sites should be reexamined for species identity, if possible, as there is a long-standing debate as to whether the Arizona gray squirrel (*Sciurus arizonensis*), a mid-elevation, broadleaf riparian species, has had a long tenure in the valley or is now present due to recent range expansion (see Frey et al. 2008).

*Sciurus aberti*—Abert's squirrel

**2000BC-AD550:** *GILA*—Forest Home (3).

**AD200-1000:** *GILA*—Beargrass (1).

**AD550-1000:** *GILA*—Fence Corner (2), Luna Village (2).

**AD1000-1130:** *GILA*—Haury's Site (1), Riverside (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1), Hough (13), Spurgeon Draw (1).

*Tamias* sp.—chipmunks

**AD200-1000:** *GILA*—Beargrass (1).

**AD550-1000:** *MIMBRES*—Beauregard (4).

**AD1000-1130:** *GILA*—X-S-X (1); *MIMBRES*—Jackson Faction (1), Mattocks (1).

**AD1450+:** *GILA*—LA 129571 (2).

*Tamias dorsalis*—cliff chipmunk

**2000BC-AD550:** *MIMBRES*—LA 144921 (14).

**AD200-550:** *MIMBRES*—LA 129562 (56).

**AD550-1000:** *MIMBRES*—Las Hermanas (8).

**AD1000-1130:** *GILA*—X-S-X (1).

**AD1130-1300:** *GILA*—Gila Cliff Dwellings (1).

*Tamiasciurus fremonti*—Southwestern red squirrel

**AD1130-1300:** *GILA*—Hough (1).

**Comments:** Red squirrels are restricted to higher elevation conifer forests. Hope et al. (2016) recognized the southwestern populations of red squirrel as a distinct species from *T. hudsonicus*.

*Xerospermophilus spilosoma*—spotted ground squirrel

**2000BC-AD550:** *MIMBRES*—LA 144921 (1).

**AD200-550:** *MIMBRES*—LA 83772 (1).

**AD550-1000:** *GILA*—Luna Village (1), Turkey Toes (5), Wind Mountain (7); *MIMBRES*—Las Hermanas (2).

**AD1000-1130:** *GILA*—Heron Ruin (2).

**AD1130-1300:** *GILA*—Hough (1).

**Comments:** This is a species found primarily in arid grassland and desert habitats at lower elevations, which calls into question records from the Mogollon Highlands (i.e., Hough, Luna Village, Turkey Toes) near the northern, more montane limits of the study area, where another

small ground squirrel, *Ictidomus tridecemlineatus* (thirteen-lined ground squirrel) may be more likely. See Jones (2016) for Negrito Airstrip, Collins Park, and other Catron County specimen records of *I. tridecemlineatus*.

### APPENDIX 3—THE HUMAN CONTEXT

Human activities have been influencing the landscape and animal communities of southwestern New Mexico for millennia. These recursive interactions began when the first mobile foragers moved into the area over 10,000 years ago, and impacts became increasingly substantial after AD 200 as people began to gather in more sedentary villages with an increased focus on farming and as human populations increased. Archaeological evidence for such impacts includes changes in soil fertility (Sandor and Gersper, 1988), in plant community composition (Minnis, 1985), and in the relative abundance of many animal taxa (Cannon, 2000; Schollmeyer, 2018). Archaeological information also informs us of changes in animal communities and the distribution of individual taxa over time, whether related to human activities, natural causes, or both (e.g., Lyman, 1983).

The earliest archaeological evidence for human activities in the study area is from the Paleoindian Period (9500-6000 BC). This evidence consists primarily of projectile points in shapes characteristic of this era, and no information on archaeological animal bone is available from our specific study area; instead, animal data comes from paleontological studies during this time period (e.g., Harris 1993). Slightly more archaeological evidence is available for the study area during the Archaic period (6000BC-AD200), especially the later Archaic period after about 2000 BC. During this time, smaller animals and plant resources became increasingly important in the human diet. Archaic period people had a highly mobile lifestyle and relied primarily on wild resources, although agriculture gradually became more important late in that period. Paleoethnobotanical evidence indicates maize cultivation in parts of the Southwest by about 2200 BC (Diehl, 2005), although the earliest dates for maize in the study area are around 300 BC (Anyon et al., 2017). In areas with evidence for agriculture before AD 200, the period of early farming is often referred to as the Early Agricultural period rather than the Archaic period (abbreviated here as “E Ag”).

The trend towards increasing sedentism, reliance on agriculture, and larger and more permanent villages continued over the next eight hundred years in the study area. Archaeologists refer to the farming groups of this region from AD 200 to 1450 as part of an archaeological culture area labeled Mogollon. During the Early Pithouse period (AD 200-550), people lived in small villages of round or oval semi-subterranean pithouses and used undecorated brownware pottery. People used a mixed subsistence strategy of foraging wild resources augmented by maize agriculture, and occupations were somewhat sedentary with seasonal movement between pithouse clusters (Diehl and LeBlanc 2001). By the Late Pithouse period (AD 550-1000), people lived in deeper pithouses that transitioned from circular to rectangular in shape over time and were clustered into villages of up to 200 structures. Villagers relied more heavily on maize agriculture during this period, and villages were located on terraces above river drainages near agricultural land and show much less evidence for frequent residential movement. Pottery was at first decorated with red slip (a thin layer of red clay over the brown clay pot), transitioning to painted red-on-white and then black-on-white designs.

During the Classic Mimbres period (AD 1000-1130), people began building cobble masonry surface pueblos of up to 200 rooms in many of the same locations as their earlier pithouse villages. Human populations reached their highest pre-Columbian levels during this period in the Mimbres Valley and upper Gila drainage. Agricultural foods were a primary component of villagers’ diets, with fields watered by rainfall and runoff and by systems of small check-dams in some areas and canal irrigation in others (Lekson 1992). Decorated pottery consisted almost entirely of the well-known Mimbres Classic Black-on-white bowls and jars most people now associate with the Mimbres area.

Around AD 1130, people stopped making the iconic black-on-white pots and changed their settlement patterns dramatically. In the upper Gila area, there is very little evidence of sedentary

farming populations from 1130 through the 1200s, and most residents must have moved away. The Mimbres Valley also saw a much-reduced population during this time, although small numbers of people continued to live in some villages there. In the San Francisco drainage area, human populations rose, reaching their peak levels in the 1200s (Oakes 1999).

Another dramatic change in human population distribution took place just before AD 1300, when people in the upper Gila and Mimbres drainages re-aggregated into large adobe pueblos of the Cliff phase Salado period (AD 1300-1450). In the San Francisco drainage area, human populations declined dramatically during the first part of this period (Oakes 1999). Although canal irrigation seems likely near the large Cliff phase adobe pueblos, no evidence for it has yet been uncovered (Lekson, 2002). The large villages of the upper Gila and Mimbres areas included a multiethnic population with ancestors from the local area, as well as people descended from migrants from the Kayenta area of northeastern Arizona (Clark et al. 2014). Pottery in this period was painted with black, white, and red designs archaeologists view as linking it to a larger regional Salado religion or ideology that helped socially integrate an increasingly diverse population. After AD 1450, sedentary farmers moved out of the upper Gila and Mimbres drainages; their descendants today live in the modern Southwestern pueblos, including Zuni, Hopi, Acoma, and Laguna. By the time of the earliest Spanish written records the region was home to mobile Apache people, many of whose descendants are members of the Fort Sill, San Carlos, and Mescalero Apache tribes. The physical remains of their camp sites are extremely difficult for archaeologists to recognize, and archaeological data from the period from 1450 to the time of European contact is very scarce.

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