

***Domnina* (Mammalia, Soricomorpha) from the latest Eocene (Chadronian) Medicine Pole Hills Local Fauna of North Dakota**

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ABSTRACT

Two species of soricids are present in the Chadronian Medicine Pole Hills Local Fauna, *Domnina* cf. *D. thompsoni* and a new species of *Domnina* described herein. The new species is the third Chadronian species of *Domnina* and differs from other species in being larger and in having the M₂ nearly the same size as the M₁. The most similar described material is from the Uintan Swift Current Local Fauna, but no taxonomic relationship is suggested. Neither the new species nor *D. cf. D. thompsoni* provide any biochronologic evidence for the age of the Medicine Pole Hills Local Fauna.

INTRODUCTION

The Medicine Pole Hills Local Fauna is a latest Eocene (Chadronian) assemblage preserving a particularly rich small vertebrate fauna from the Chadron Formation of southwestern North Dakota. A preliminary faunal list has been presented (Pearson and Hoganson 1995) but this list will change significantly with greater study. To date Smith (2006) has described the very diverse squamate assemblage and Schumaker and Kihm (2006) have described the multituberculate material. Although study of the mammalian fauna is still in the early stages enough material has been recovered to recognize two species of *Domnina*, including one new species described here. This study includes additional material and is the completion of preliminary work reported by Schumaker (2003).

The Medicine Pole Hills Local Fauna is from a series of poorly consolidated sandstones and mudball conglomerates which lie unconformably on the late Paleocene Tongue River Formation. These deposits cap a series of buttes, the Medicine Pole Hills, south of Rhame in southwestern North Dakota. Murphy et al. (1993) correlated these deposits with the lowest member of the Chadron Formation in North Dakota, the Chalky Buttes Member. Schumaker and Kihm (2006) questioned the correlation with the Chalky Buttes Member, but agreed that the sediments can be assigned to the Chadron Formation, although the

precise correlation is still uncertain. What relationship, if any, the beds at the Medicine Pole Hills have to the Chambers Pass Formation (Terry, 1998) is also uncertain. A more complete description of the geologic setting is given in Schumaker and Kihm (2006).

The age of the Medicine Pole Hills Local Fauna has been suggested as early Chadronian by Heaton and Emry (1996) based on the occurrence of *Leptomeryx yoderi*. Prothero and Emry (1996, 2004) have suggested a division of the Chadronian into four biochrons, and based upon *L. yoderi*, the Medicine Pole Hills Local Fauna would be considered late early Chadronian, although confirmation of the age should await further study of the mammalian fauna.

Following Repenning (1967) the term antemolar is used to refer to all teeth between the incisor and the first molar (Table 1). Of these, only the last, P⁴₄, is given specific designation. The incisor is designated as the I¹₁, following Dannelid (1998). Measurements were taken using the orientations shown in Figure 1 and were made using an optical micrometer with an Olympus SZH 10 binocular microscope.

SYSTEMATIC PALEONTOLOGY

Class Mammalia Linnaeus 1758
Order Soricomorpha Gregory 1910
Family Soricidae Fischer de Waldheim 1817

Genus *Domnina* Cope 1873
Domnina sagittariensis sp. nov.
 Figures 2-4, Table 2

Holotype—PTRM 7890, right dentary with M_{1-3}

Type Locality—PTRM Locality V89002, Bowman County, North Dakota. Details on this locality are available to qualified researchers through PTRM.

Referred Specimens—All specimens from PTRM Locality V89002, PTRM numbers: I_1 : 5553 (L), 7889 (L), 10734 (R dentary with I_1 , M_{1-2}); A_1 : 10700 (R); M_1 2025 (R), 7415 (R); M_2 : 5833 (R), 7284 (R), 7705 (R), 10764 (L dentary with M_2); M_3 : 10737 (R); edentulous dentary: 4921 (R), 7800 (L), 16020 (L); I_1 : 7283 (L), 7289 (partial R), 7416 (partial L), 7437 (R), 10741 (L), 14125 (partial R); A^n : 4949 (L), 8316 (L), 10742 (R), 14682 (R); P_4 : 10284 (L); M^1 : 10275 (L), 10743 (L); M^2 : 5125 (R), 10739 (R); M_1 or M_2 : 4827 (R), 5549 (partial L), 10735 (partial R), 10738 (partial R).

Horizon—Early Chadronian, Chadron Formation.

Etymology—from *sagittarius*, the archer or bowman, and *-ensis*, location; in reference to the type locality in Bowman County, North Dakota.

Diagnosis—Approximately 17% larger than *D. gradata* (M_{1-3} length), 39% larger than *D. thompsoni* (M_{1-3} length) and 11%-15% larger than *D. greeni* (M_1 and M_2 length). Differs from these species in having the M_2 nearly as large as the M_1 (Figure 2A and B and Table 2). Approximately the same size as *D. dakotensis*, but differs from this species in having better developed cingula on the lower molars.

Description—The lower incisor is procumbent with a series of cusps along the dorsal-buccal margin, two small ones proximally and two larger ones distally (Figure 3G and H). There is a small lingual cusp at the proximal end of the enamel and a shallow notch on the dorsal surface where the incisor is overlapped by the first antemolar. The dorsal face of the tooth has a shallow groove that extends to the penultimate distal cusp. There is a deeper groove on the medial face of the tooth which extends about one-third the length of the enamel posteriorly onto the root.

The I_1 of *D. sagittariensis* differs from that of *D. gradata* described by Patterson and McGrew (1937) in being more procumbent forming an approximate 10° angle with the ventral border of the mandible (Figure 2C and D) and in having accessory cusps. Because so few of these teeth have been described for *Domnina*, we are uncertain if these features are diagnostic for *D. sagittariensis* or individual variation. However, all of the Medicine Pole Hills I_1 specimens of *D. sagittariensis* have accessory cusps, as do those of *D. cf. D. thompsoni* (see below)

PTRM 10700 is tentatively interpreted as an A_1 . The A_1 has a single procumbent root and the tooth

overlaps the posterior portion of the incisor. The cusp is triangular with a single anteriorly placed cusp and a slightly developed external cingulum (Figure 3I). The posterior margin of the enamel is V-shaped where it was overlapped by the next tooth in the sequence.

The M_1 is typical of *Domnina*, the trigonid is narrower than the talonid (Figure 3J). The protoconid is the largest trigonid cusp with the paraconid slightly smaller than the metaconid. The hypoconid is the largest talonid cusp. The entoconid is tall, approximately the same height as the paraconid and connected to the metaconid by a crest (entoconid crest of Repenning, 1967). The posthypocristid (hypolophid) extends straight to the posterobuccal corner of the tooth and ends posterior to the entoconid. There is a very slight expansion of the end of this crest that could be called the hypoconulid. This cusp is separated from the entoconid by a very slight notch. The anterior cingulum is well developed and continues to the buccal face of the tooth but does not extend to the buccal face of the protoconid. The external cingulum begins at the hypoflexid and extends to the posterobuccal corner, then continues as the posterior cingulum which ends at the posterolabial corner of the tooth below the hypoconulid. There is a lingual cingulum from the anterolingual corner of the tooth to below the metaconid. In PTRM 7415 there are weakly developed crests from the paraconid and metaconid which close off the trigonid basin. These crests are not seen in other M_1 specimens (although advanced wear may have removed them).

The M_2 is very similar to the M_1 except for two important features. The trigonid and talonid are nearly the same width and the anterior-external-posterior cingulum is better developed, being complete along the entire buccal margin of the tooth (Figure 3K). In addition, the lingual cingulum is less well developed than on the M_1 .

The M_3 is smaller than the M_2 , with the trigonid wider than the talonid. The talonid is reduced and the entoconid is not a distinct cusp on the only well preserved specimen (PTRM 10737, Figure 3L), but there is a complete crest which closes off the lingual portion of the talonid basin. There is no hypoconulid. The anterior-external-posterior cingulum is complete.

The dentary has four alveoli between the M_1 and I_1 . Of these, the posterior-most is the smallest and lies beneath the anterior edge of the M_1 . The next three alveoli are larger and become more procumbent anteriorly. It appears that P_4 was either a very small, single-rooted tooth, or perhaps somewhat larger and double-rooted. Patterson and McGrew (1937) described *D. gradata* as having four antemolars, with the alveoli for A_1 and P_4 larger than those of the A_2 and A_3 . In each of the Medicine Pole Hill specimens that preserve the posterior alveoli, the posterior-most

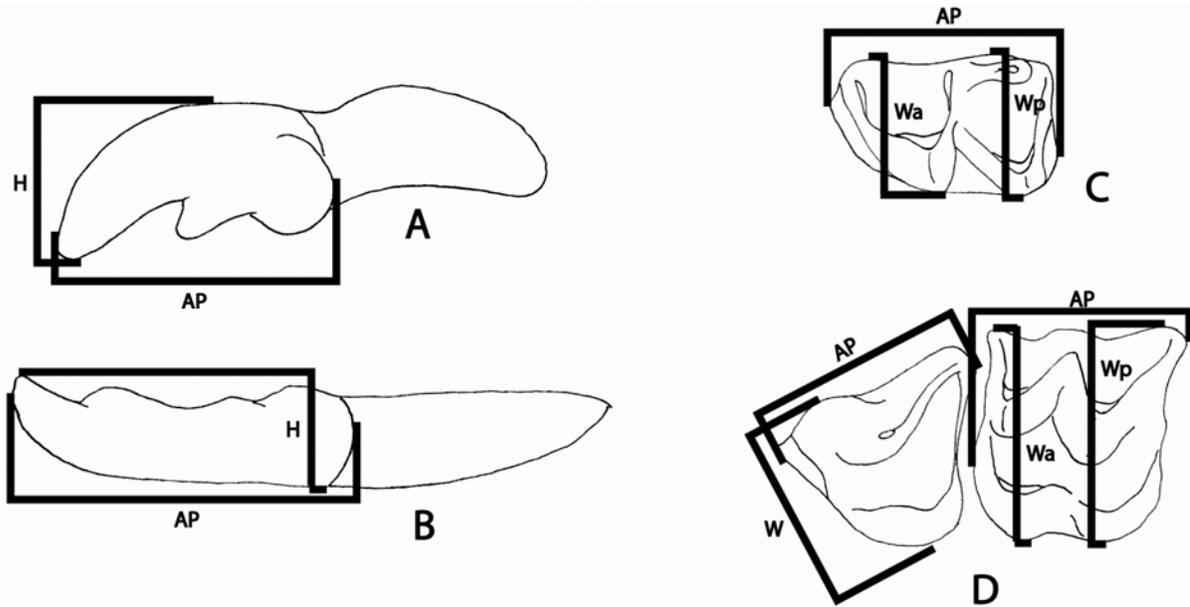


FIGURE 1. Orientations of measurements used in this study, A, height and anterior-posterior length of I^1 , B, height and anterior-posterior length of I_1 , C, anterior-posterior length, width anterior and width posterior of lower molars, D, anterior-posterior length and width of P^4 and upper molars.

TABLE 1. Abbreviations used in this paper.

Museums	
PTRM	Pioneer Trails Regional Museum, Bowman, North Dakota
CM	Carnegie Museum of Natural History, Pittsburgh, Pennsylvania
UC	University of Chicago, Chicago, Illinois
Measurements	
AP	Anteroposterior length
Wa	Width anterior
Wp	Width posterior
W	Width, maximum
H	Height
Teeth (subscript = lower tooth, superscript = upper tooth)	
A	Antemolar
I	Incisor
P	Premolar
M	Molar
R, L	Right, Left

alveolus is the smallest. In *D. thompsoni*, there are five antemolar alveoli and Simpson (1941) suggested that P_4 may have been double-rooted. *Soricolestes*, the only older soricid for which the anterior dentition is known has a relatively large double-rooted P_4 and 5 additional single rooted antemolars (Lopatin, 2002). Without additional specimens preserving the anterior dentition of these species, the significance of this variation cannot be assessed.

The mandibular condyle is preserved on PTRM 16020 (Figure 4) and partially preserved on PTRM 10764 and PTRM 7800. It is generally similar to the condition in *D. thompsoni*. There is a single condyle with two distinct portions, a buccal portion which has a more rounded dorsal surface and an extended lingual portion which has the condyle primarily facing posteriad. There is no gap in the condylar surface although there is a distinct bend with the lingual portion turned anterior relative to the buccal portion. The mental foramen is beneath the M_1 , typically between the anterior and posterior roots.

The upper incisor has three distinct cusps, two on the buccal margin, and one medial (Figure 3A and B). The proximal buccal cusp (the talon of Dannelid 1998) is the smallest, the one forming the distal end of the tooth (the apex of Dannelid 1998) is the largest. The medial cusp (the medial tine of Dannelid 1998) is developed medial and posterior to the apex. On some specimens the medial tine is not as distinctly separated from the apex. There is a moderately developed cingulum at the proximal limit of the enamel. It extends from the ventral midline of the tooth curving dorsally and disappearing on the buccal face of the tooth.

Four specimens are tentatively interpreted as upper antemolars. There are no particular features that separate them and it is not known if they all represent the same tooth or just very similar teeth. The teeth are oval in occlusal outline and have a single procumbent, posterior root (Figure 3C). There is a single, anteriorly placed cusp, just slightly buccal to the midline. A very small crest extends from this cusp to the posterolingual corner of the tooth. There is a minor cuspule on this crest. The external cingulum begins below the buccal face of the large cusp and continues around the posterior margin and is complete to the anteriolabial corner of the tooth. None of the specimens shows any evidence of having been overlapped by the next tooth in the sequence. This may indicate that these are the first teeth anterior to the P^4 or perhaps that the upper antemolars were not as crowded as the lowers.

The P^4 (Figure 3D) matches the description of the P^4 of *D. gradata* given by Repenning (1967). After PTRM 10284 was measured and photographed, the specimen was broken and the buccal half of the tooth was lost.

The first two upper molars are similar with the paracone and metacone subequal. There is a small parastyle which is set at an angle to the preparacrista to a variable degree. The ectoloph is complete and W-shaped. There is no distinct metastyle at the end of the postmetacrista. The protocone is set directly lingual to the paracone with a small preprotocrista which connects to a weakly developed anterior cingulum ending at the parastyle. The postprotocrista trends towards the lingual margin of the base of the metacone, but does not connect to it. In PTRM 10743 (Figure 3E) the postprotocrista connects to the hypocone. In PTRM 10739 (Figure 3F) and PTRM 5125, the postprotocrista makes a weak connection at the base of the buccal face of the hypocone. A low sloping ridge continues posteriorly from the hypocone and encloses a large shallow basin. The ridge becomes the posterior cingulum which is complete and ends below the buccal end of the postmetacrista.

Most workers have chosen to identify isolated upper teeth of *Domnina* as M^1 or M^2 (Ostrander 1987; Meyer 2007). However, there do appear to be distinctions that may be used to differentiate these teeth. PTRM 10743 shows two differences from other unworn upper molars. The preparacrista is significantly shorter than the other arms of the ectoloph and the parastyle is directed anteriorly (Figure 3E). In other specimens the arms of the ectoloph are more equal in length and the parastyle is directed anterobuccally. These differences are also apparent in UC 1551 figured by Patterson and McGrew (1937). The relative length of the preparacrista changes with the degree of wear, but the angle of the parastyle appears to be a valid indicator of tooth position. The Medicine Pole Hills specimens tentatively identified as either M^1 or as M^2 are based on this character.

Discussion—*Domnina. sagittariensis* represents the third known Chadronian species and is the largest named species of *Domnina*. Individual teeth of *D. sagittariensis* are 10-30% larger than comparable teeth of *D. gradata* (based upon measurements given by Patterson and McGrew, 1937) and the M_1 - M_3 length is 17% longer. The longer tooth row measurement is primarily due to the size of the M_2 of *D. sagittariensis*. In *D. gradata*, the M_2 is about 15% shorter than the M_1 (Patterson and McGrew, 1937) but in *D. sagittariensis*, the M_2 is only about 4% shorter than the M_1 . *Domnina thompsoni* is the smallest species of the genus, with the M_1 - M_3 tooth row of *D. sagittariensis* approximately 39% longer than *D. thompsoni* (based upon measurements in Simpson 1941).

Domnina greeni is somewhat smaller than *D. sagittariensis* (11-15%) and *D. dakotensis* are similar in size to *D. gradata* (Macdonald, 1970), but both Arikareean species are known from very few specimens and the variation in sizes of the M_1 to M_2 of

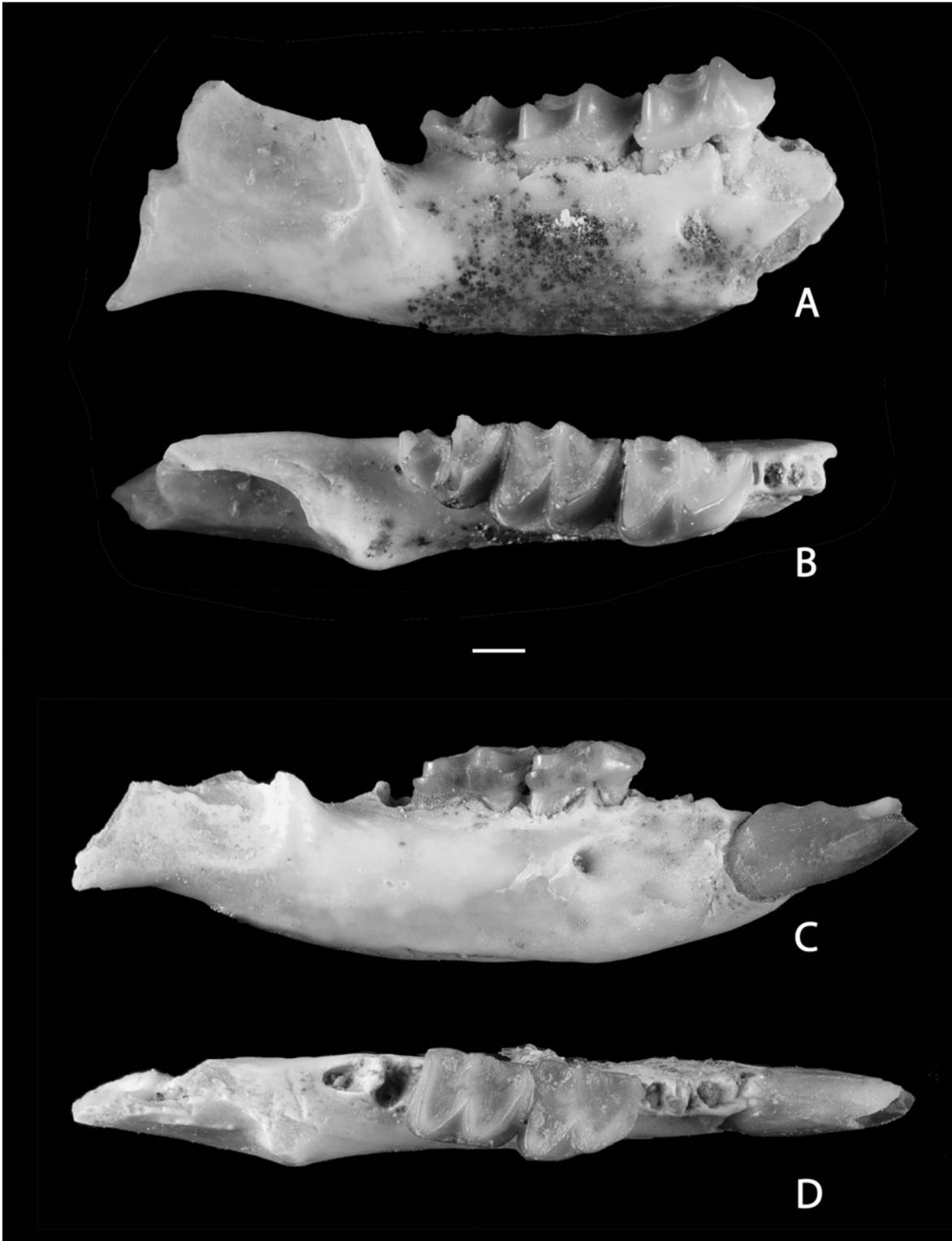


FIGURE 2. *Domnina sagittariensis*. A and B, PTRM 7890 (holotype) right M₁₋₃, buccal and occlusal view. C and D, PTRM 10734 right I₁, M₁₋₂, buccal and occlusal view. Bar scale is approximately 1 mm.

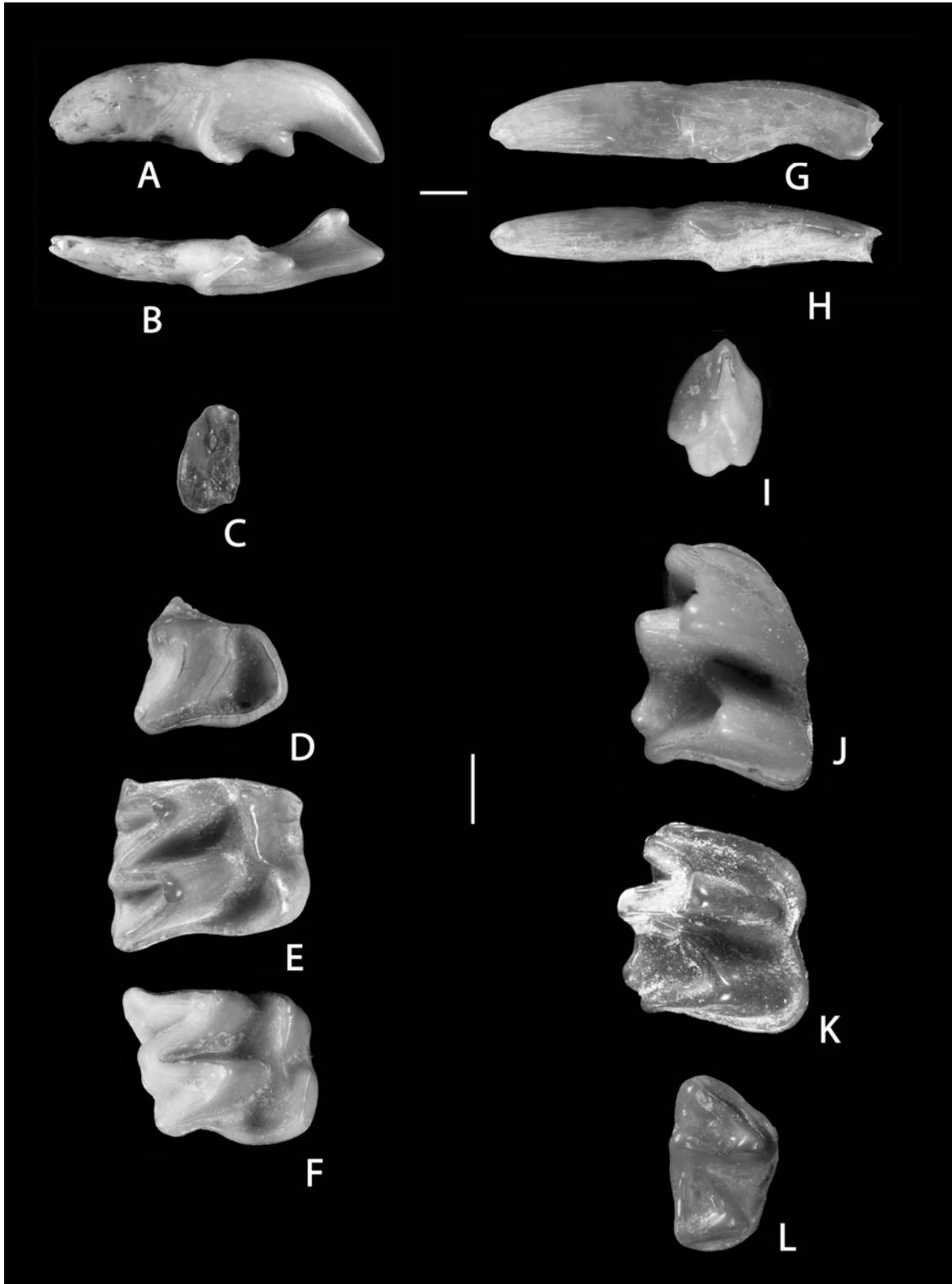


FIGURE 3. *Domnina sagittariensis*. A and B, PTRM 10741, LI¹ (reversed), buccal and oblique ventral view; C, PTRM 8316, LA^u (reversed); D, PTRM 10284, LP4 (reversed); E, PTRM 10743, LM¹ (reversed); F, PTRM 10739, RM²; G and H, PTRM 7889, LI¹ buccal and oblique dorsal view; I, PTRM 10700, RA; J, PRTM 7415, RM₁; K, PTRM 5833, RM₂; L, PTRM 10737, RM₃. Bar scales are approximately 1 mm.

these Arikareean species is impossible to evaluate. Hutchison (1972), suggested that if the two Arikareean species were distinct, the postentoconid valley might be used to separate *D. greeni* from *D. dakotensis*. If this character has significance, *D. sagittariensis* is more similar to *D. dakotensis* with this valley less well developed.

Domnina sagittariensis is most similar in size, although somewhat smaller than *Domnina* sp. from the Uintan Swift Current Creek Local Fauna (Storer 1984). It also shares certain features with the Swift Current specimen, a lingual cingulum which may close the trigonid basin of M_1 , and having the M_2 nearly the same size as the M_1 . Whether these characters indicate taxonomic affinities or a phylogenetic relationship is not known.

Domnina sagittariensis fits the diagnosis of *Domnina* given by Repenning (1967) with the M_1 entoconid united to the metaconid and separated from the hypolophid (although only by a shallow notch) and in having the mental foramen below and between the roots of the M_1 . The development of the mandibular condyle is similar to *D. thompsoni* and the upper dentition is also typical of the genus. The only character which is not typical of *Domnina* is the large M_2 relative to the M_1 . Other North American heterosoricine genera show significantly greater distinction from *D. gradata* (the type species) than does *D. sagittariensis*. *Paradomnina* has the lower molar entoconid separated from the metaconid, *Ingentisorex* has a greatly enlarged P^4 and lacks the M^3_3 (Hutchison, 1966), *Wilsonisorex* has distinct conules on the upper molars (Martin, 1978) and *Trimylus* (= *Pseudotrimylus* Engesser, 1979) has the entoconid separate from the metaconid on the lower molars and a more posteriorly placed mental foramen (Repenning, 1967). Among the middle Tertiary European heterosoricines, *Quercysorex* has the masseteric fossa divided into two distinct portions and *Dinosorex* has the molar posthypocristid connected to the entoconid and a more posteriorly placed mental foramen (Engesser, 1975). *Domnina sagittariensis* shows none of these features.

Domnina cf. *D. thompsoni* Simpson 1941
Figure 5A-E, 5G-H and Table 3

Referred Specimens—All specimens from PTRM Locality V89002, PTRM numbers: I_1 : 10272 (L), 10736 (R); M_1 : 10274 (L), 10276 (partial L), 14126 (L); M_3 : 14124 (L), 14127 (L); I^1 : 10740 (partial L); P^4 : 10703 (L), 14681; M^1 : 5831 (L); M^2 10273 (L).

Description—The lower dentition of *D.* cf. *D. thompsoni* differs from *D. sagittariensis* in being smaller, but morphological differences are minor. The

I_1 differs only in having the four accessory buccal cusps increasing in size anteriorly (Figure 5D and E). The M_1 is similar, except in having a slightly less well developed external cingulum on the hypoconid. The M_3 s show the greatest differences in that the talonid basin is not closed lingually, instead it opens by way of a V-shaped notch (Figure 4H). This open M_3 talonid matches the condition in *D. thompsoni* from the Horse Locality (Meyer, 2007) but appears to differ from the type specimen of *D. thompsoni* figured by Simpson (1941).

TABLE 2. Measurements of *Domnina sagittariensis*

Catalog #	Tooth	AP	W	H
7263	I^1	3.50	1.29	2.00
7237	I^1	3.49	1.84	2.27
10741	I^1	3.96	1.65	2.31
		AP	W	
4949	A^u	1.61	0.97	
8316	A^u	1.53	0.78	
10742	A^u	b	1.13	
14682	A^u	1.91	1.13	
10284	P^4	1.97	2.39	
		AP	Wa	Wp
10275	M^1 (cf)	2.10	2.16	2.20
10743	M^1 (cf)	2.50	2.70	2.85
5125	M^2 (cf)	2.42	2.87	2.68
10739	M^2 (cf)	2.29	2.68	2.52
4827	M^1 or M^2	2.23	2.65	2.68
10738	M^1 or M^2	b	2.71	b
		AP	W	H
7889 ²	I_1	4.70	1.49	2.10
10734	I_1	b	1.55	1.91
		AP	W	
10700	A_L	1.55	1.10	
		AP	Wa	Wp
2025	M_1	2.78	1.55	1.87
7415	M_1	2.62	1.62	1.68
7890	M_1	2.45	1.65	1.94
10734	M_1	2.39	1.74	2.07
5833	M_2	2.39	1.65	1.65
7284	M_2	b	1.65	b
7705	M_2	2.55	1.65	1.62
7890	M_2	2.42	1.78	1.81
10734	M_2	2.33	1.87	1.94
10764	M_2	2.52	1.71	1.68
7890	M_3	2.00	1.55	1.32
10737	M_3	1.68	1.07	0.87
		AP		
7890	M_1 - M_3	6.70		
	Depth of Ramus below M_1			
4921	2.98			
7800	3.49			
7890	3.60			
10734	3.33			



FIGURE 4. *Domnina sagittariensis*. A and B, PTRM 16020, left dentary; A, posterior view of mandibular condyle; B, superior view of the mandibular condyle. Bar scales are approximately 1 mm.

TABLE 3. Measurements of *Domnina* cf. *D. thompsoni*.

Catalog #	Tooth	AP	W	H
10740	I ¹	b	0.73	1.17
		AP	W	
10703	P ⁴	b	1.73	
14681	P ⁴	1.78	1.66	
		AP	Wa	Wp
5831	M ¹ (cf)	1.73	1.76	1.71
10273	M ² (cf)	1.85	1.85	1.73
		AP	W	H
10272	I ₁	3.45	0.93	1.29
10736	I ₁	3.45	1.02	1.27
		AP	Wa	Wp
10274	M ₁	2.05	1.17	1.27
14124	M ₃	1.44	1.15	0.88
14127	M ₃	1.51	1.07	0.88

The upper dentition is also similar to *D. sagittariensis*. The single I¹ preserves only the proximal portion of the tooth along with the root. The specimen shows the same development of the talon and proximal cingulum as seen in the I¹ of *D. sagittariensis*. The two P⁴ specimens are similar to *D. gradata* and *D. sagittariensis*, with specimens having a small parastyle and protocone and the tooth having a straight posterior margin (Figure 5A). The only two upper molars in the collection are similar to comparable teeth of *D. sagittariensis*. PTRM 5831 has a short preparacrista and an anteriorly directed parastyle (Figure 5B) and is interpreted as an M¹. PTRM 10273 has a longer preparacrista, an anterobuccally directed parastyle and is interpreted as an M² (Figure 5C). These specimens differ from comparable teeth of *D. sagittariensis* only in size.

Discussion—The Medicine Pole Hills specimens are referred to *Domnina* cf. *D. thompsoni* because they

are generally smaller than material referred to *D. gradata*, although there is some overlap of size in the M₃, and because the specimens are in the size range of specimens referred to *D. thompsoni*. The lack of an enclosed talonid basin on M₃ is the only morphologic characteristic distinguishing the Medicine Pole Hills material from the holotype of *D. thompsoni*.

Domnina cf. *D. thompsoni* is not as abundant as *D. sagittariensis* in the fauna. This is not due to a size bias, as most of the mammal specimens from the locality are teeth in the size range of *D. cf. D. thompsoni* or smaller.

cf. *Domnina* sp.
Figure 5F

Referred Specimens—PTRM Locality V89002, PTRM 14680, RP₄

Description and Discussion—A single specimen (PTRM 14680) is tentatively interpreted as a P₄ of *Domnina* based upon the description of the P₄ given by Repenning (1967). It is worn, but is generally trapezoidal in outline. There is a single large anterior cusp with a small cuspid on the posterobuccal corner. Buccal and lingual cingula are present but not strongly developed. The tooth has a single large procumbent root. This tooth is the approximate size of the P₄ of *D. gradata* as given by Patterson and McGrew (1937), but no other specimens in the collection represent that species. It is also large enough to be a premolar of *D. sagittariensis*, but the root is too large and too procumbent to be a P₄ of that species. It does not show any indication of having had another tooth overlapping its posterior margin, so it does not appear to be an antemolar of *D. sagittariensis*. The tooth is too large to be a P₄ of *D. cf. D. thompsoni*. The tooth has an AP dimension of 1.34 mm and a W dimension of 1.17 mm.

CONCLUSIONS

The sorcid material from the Medicine Pole Hills Local Fauna includes two species, *D. cf. D. thompsoni* and *D. sagittariensis*. *Domnina thompsoni* has been reported from Pipestone Springs (Simpson, 1941), Little Pipestone Springs (Tabrum et al., 1996), Raben Ranch (Ostrander, 1987), and the Cypress Hills Calf Creek and Horse Localities (Meyer, 2007) all of which have been interpreted by Prothero and Emry (2004) as middle Chadronian and the late Chadronian 10 N local fauna (Tabrum et al., 2001). *Domnina* cf. *D. thompsoni* has been reported from the Duchesneau Diamond O Ranch (Tabrum et al., 1996) and the late Chadronian Florissant Formation (Worley-Georg and Eberle, 2006). The occurrence of *D. cf. D. thompsoni* in the Medicine Pole Hills Local Fauna does not

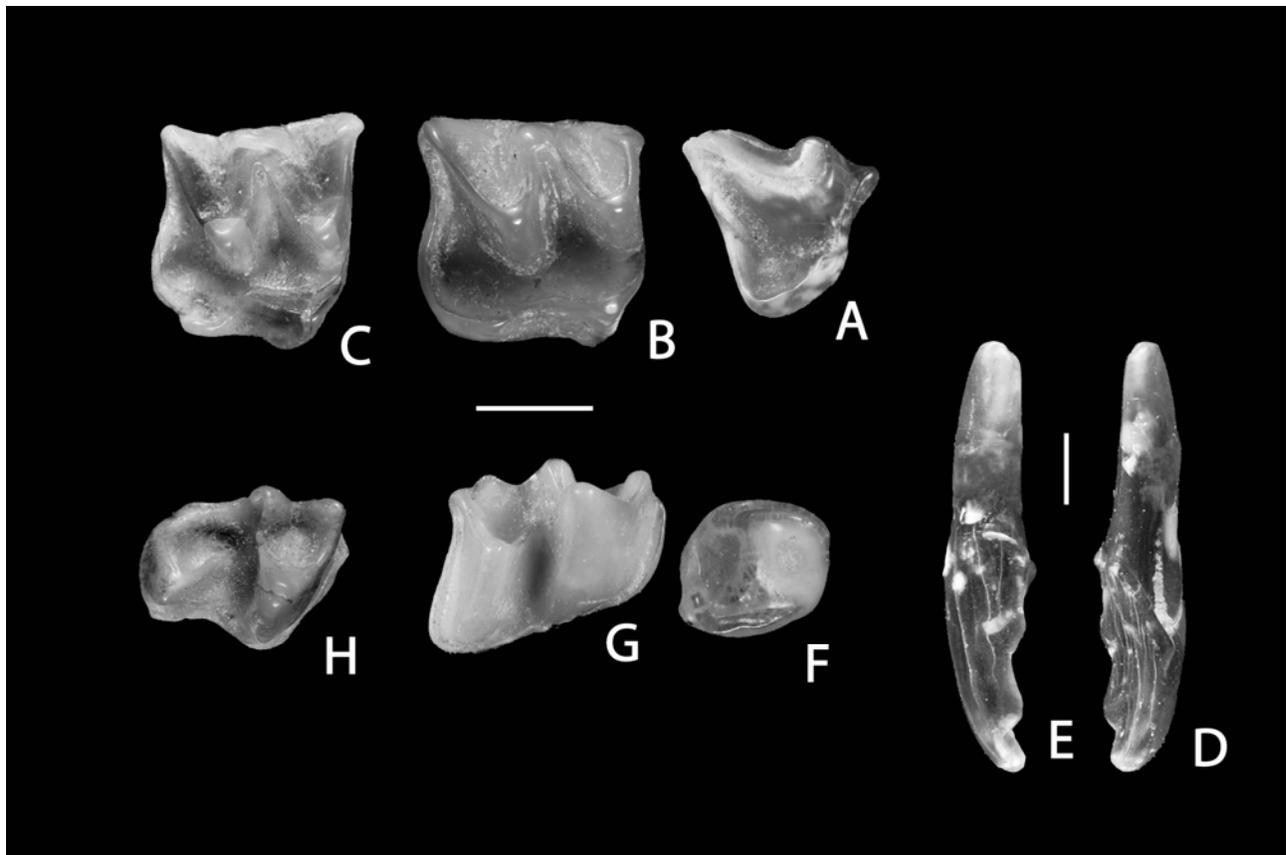


Figure 5. *Domnina*. A-E, G-H, *Domnina* cf. *D. thompsoni*. A, PTRM 14681, LP⁴ (reversed); B, PTRM 5831, LM¹ (reversed); C, PTRM 10273, LM² (reversed); D and E, PTRM 10736, RI₁; G, PTRM 10274, LM₁ (reversed); H, PTRM 14124, LM₃ (reversed); F, cf. *Domnina* sp. PTRM 14680, RP₄. Bar scale is approximately 1 mm.

corroborate nor refute the early Chadronian age interpreted by Heaton and Emry (1996).

Domnina sagittariensis occurs only in the Medicine Pole Hills Local Fauna and as such offers no specific biochronologic evidence. The only other reported Chadronian species of *Domnina* is *D. gradata* from the middle Chadronian Raben Ranch locality (Ostrander 1987), a species which is better represented in Orellan faunas. Specimens conferred to *D. gradata* have been reported from faunas as old as Uintan (Krishtalka and Setoguchi 1977). However, based upon the figured M¹ (CM 16996) which has the hypocone separated from the protocone by a distinct notch, we doubt that the specimen represents *D. gradata*.

The soricid material from the Medicine Pole Hills Local Fauna does not provide a more definitive age for the fauna, but does include portions of the dentition of *Domnina* not previously described. It also documents the third known Chadronian species of the genus.

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