

Gordion: Tumulus MM Circuit

About 600 meters round trip; unpaved path

Tumulus MM is the largest of over 100 ancient burial mounds in the area around Gordion. It still stands over 50 m high. It was constructed sometime around 740 BC to cover the tomb of a Phrygian king, most probably the father of King Midas. This tour will guide you around the tumulus, and into its cool interior. If you have time, the Gordion Landscape Overview from the top of Tumulus P will put the great Tumulus in context. You can investigate the landscape more deeply with the South Ridge tour and Citadel Mound circuit supplement.

Did it always look like this?

It is very hard for plants to gain a foothold on the steep upper slopes of the tumulus, and until the fence was erected in 1996, grazing flocks also reduced the vegetation cover substantially. In 1988, the bare ground of Tumulus MM almost glowed in the late afternoon sun; by 2002, a rich diversity of plants grew on the mound.



Why is there a fence around the Tumulus?

We are trying to reduce wind and water erosion on Tumulus MM by getting a continuous cover of plants to grow. We are particularly encouraging plants native to the central Anatolian steppe, as they are adapted to local conditions. The fence protects the plants from grazing animals and trampling by people.



Grasses are great!

Perennial grasses are an important component of central Anatolian steppe vegetation. They provide a dense mat of vegetation year-round, because they live from one year to the next through the dry summer season. Perennial grasses stay green longer than the annual grasses and produce less potentially flammable dry matter. There is a particularly high density of annual grasses on the southern and eastern sides of the tumulus—in this area they usually ripen and turn brown by mid-June. Perennial grasses grow better on the north and west sides. You can recognize them even from a distance because they grow in clumps and have tall spikes that wave in the breeze in late spring and summer. If you walk around the tumulus you can see some interesting features of the vegetation. Note particularly that the variety and density of plants within the fence is much greater than in the unprotected area around the outside, and the vegetation changes as you walk around the mound (different 'aspect', from southwest-facing clockwise to south-facing) and according to slope.

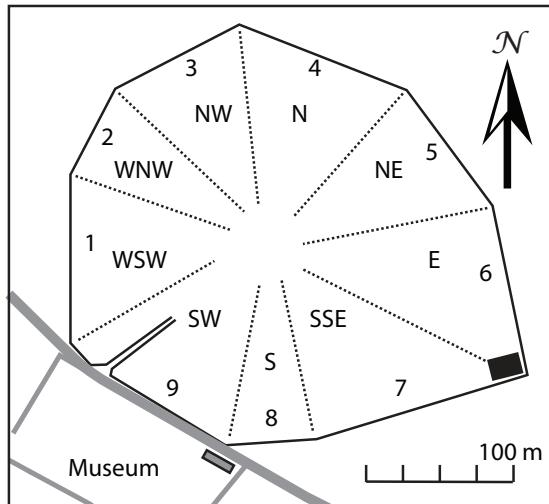


www.sas.upenn.edu/~nmiller0/Tour_MM_circuitprint.pdf

NOTE: I prepared this walking tour in the summer, 2014. It is based on many publications and conversations over the years with the following people: Ayse Gürsan-Salzmann, Ben Marsh, Mecit Vural, and many Gordion team members. If you have any comments or corrections, feel free to contact me at nmiller0@sas.upenn.edu. The views expressed here are mine alone. Naomi F. Miller, July, 2014

Now we can start the tour

Face the entrance (northeast) and walk in a clockwise direction. The fence is an irregular polygon with 9 angles. Sections are indicated by number, and corner posts with "/" between the section numbers.



This tour will be a lot easier for you if you orient yourself to the cardinal directions with the help of the plan of the mound. At the end are some photographs of some of the more common plants.

Entrance

Cypress (*Cupressus sempervirens*), pine (*Pinus nigra*), and cedar (*Cedrus libani*) make it hard to see the tumulus at ground level. In this zone of natural steppe, trees must be carefully tended and watered in order to grow.

Follow the fence to your left

Tree-of-Heaven (*Ailanthus altissima*) has been planted within the fence along the sidewalk. It spreads by both seed and runners, and helps hide Tumulus MM at street level.

Section 1

As you walk along Section 1, you will see a white cliff, a gypsum outcrop called Kızılarkayası, in the distance. Following the horizon line downhill to the right, a large tumulus comes into view. Tumuli were meant to be seen; as you walk around, you will see many both close and far. The first village of Yassıhöyük was established at the base of the cliff in the early 20th century. The inhabitants moved to the present location in the 1920s because of malaria and for security (during the War of Independence).

Section 2/3 boundary

The flat area on the plain ahead of you is green year round with the perennial, bermuda grass (*Cynodon dactylon*). Shepherds water their flocks here in the morning. DO NOT get between a dog and its flock. The white cliff is ahead to the right. The soils from this area may have been brought to MM to give it a light color; before the fence was erected, the mound shone in the raking light of morning and evening.

Section 3

The mountain Çile Dağı is on the horizon; you should be able to see a large tumulus that appears as a small bump downhill to the right on the horizon line.

Section 5

As you leave the north side of the mound, the plants have to endure harsher conditions. Before the fence was erected, the flocks would pass by here daily. Higher up, the dry side of the tumulus is also hard on plant life. The photograph below was taken from the Section 4/5 corner toward the tumuli to the south. Even in the drought year of 2014, the vegetation differences are clear.



Section 6

There is a lot of Syrian rue (*Peganum harmala*) (green) and brome grass (*Bromus tomentellus*) near the fence on the inside. In the absence of grazing pressure the bermuda grass declines, but outside the fence it grows as densely as a lawn.



Section 6/7

The sharp, right-angled corner of the fence was extended in order to protect a small section of the excavated ancient Roman road. Looking back along Section 6 you can see Kızılarkayası (to the north), and Tumulus P and the museum along Section 7 (to the southwest).



Section 7

Section 7 is the driest, harshest side for plants.

Section 8/9

Section 8/9 is marked by the Yassihöyük sign. *Ailanthus altissima*, a planted tree, has been spreading along the fence line, and just inside the fence winterfat (*Krascheninnikovia ceratoides*) bushes thrive. At the corner of Museum grounds is a small native plant garden; cross the street to get a preview.

Common plants that grow near the fence (for images, see next page)

Section: Street

Aspect: southwest

Peganum harmala, annual grasses

Section 1

Aspect: west-southwest

Peganum harmala, *Noaea mucronata*, *Artemisia* sp., *Stipa holosericea*, *Aegilops* sp.

Section 2

Aspect: west-northwest

Stipa holosericea, fewer annual grasses; *Krascheninnikovia ceratoides*, *Salsola laricina*

Section 3

Aspect: northwest

Stipa holosericea, *Peganum harmala*, *Salsola laricina*, *Festuca ovina*, *Krascheninnikovia ceratoides*

Section 4

Aspect: north

Peganum harmala, *Festuca ovina*, *Stipa holosericea*, *Artemisia* sp., and higher up, large *Krascheninnikovia* bushes

Section 5

Aspect: northeast

Stipa holosericea, *Bromus tomentellus*, *Agropyron cristatum*, *Peganum harmala*

Section 6

Aspect: east

Peganum harmala, *Bromus tomentellus*, *Stipa holosericea*, *Agropyron cristatum*

Section 7

Aspect: south-southeast

Peganum harmala, *Hordeum murinum*, *Noaea mucronata*, *Stipa holosericea*

Section 8

Aspect: south

Peganum harmala, *Hordeum murinum*, *Stipa holosericea*

Section: Street

Aspect: southwest

Krascheninnikovia ceratoides, *Peganum harmala*, cultivars

Trees

Pinus nigra
(black pine/karaçam)



The dominant tree in the mountains 50 km to the west; used for inner wall of MM tomb chamber

Cupressus sempervirens
(cypress/selvi, servi)



I'm not sure why it was planted here

Ailanthus altissima
(tree-of-heaven/)



Native to China, widely cultivated as a street tree in Turkey

Juniperus excelsa
(juniper/ardıç)



Along with oak, a dominant tree about 20 km to the west; used for the outer casing of the MM tomb chamber

Cedrus libani
(Lebanon cedar/sedir)



Imported from several hundred km; used as flooring and in the coffin; a luxury item

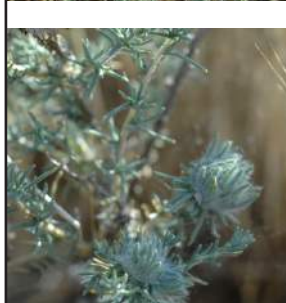
Broad-leaf perennials

Krascheninnikovia ceratoides
(winterfat/buzalık otu)



Sheep and goat eat this in the winter, when tastier plants are unavailable

Salsola laricina
(saltwort/), male and female flowers shown



Common on MM, it is heavily grazed beyond the fence

Peganum harmala
(Syrian rue/üzerlik)



Its bitter alkaloids are a defense against grazing

Artemisia sp.
(wormwood/yavşan)



The leaves are very aromatic when crushed

Noaea mucronata
(thorny saltwort/)



Its spines are a defense against grazing

Grasses

Aegilops spp.
(goat-face grass/)

Aegilops umbellulata



Aegilops geniculatum



At least four species of this annual grass grow on MM. These are two of them

Agropyron cristatum (crested wheatgrass/)



A perennial grass that spreads by underground stems

Bromus tomentellus (brome grass/)



A perennial bunchgrass

Cynodon dactylon (Bermuda grass/ ayrik otu)



A perennial grass that spreads by underground stems

Hordeum murinum (wall barley/iyecen)



Ubiquitous annual whose seeds will get in your socks

Festuca ovina (sheep fescue/)



A perennial bunchgrass

Stipa holosericea (feathergrass/)



A perennial bunchgrass; near the top of MM in the S and SE sector, the related *Stipa arabica* also waves in the breeze

Gordion: Building the Tomb Chamber

What's underneath all that dirt?

Tumulus MM is the largest of over 100 man-made mounds of earth, clay and stone used to cover and mark an important burial at Gordion. Inside MM is a wooden tomb chamber created around 740 BC for the burial of a man who must certainly have been a king (probably the father of the famous King Midas). The tomb chamber itself is the oldest standing wooden building in the world. You enter the tumulus today first through an open trench and then through a 70-meter-long tunnel, both dug by the excavators in 1957. This has created a cave-like environment for the tomb chamber that stays around 60° F (15.5° C) throughout the year. This naturally low temperature and humidity level prevents any fungus from attacking the wood. Several modern devices around the tomb are being used to monitor any movement in the ancient logs and any changes in environment.



What's at the end of the tunnel?

When you reach the tourist fence at the end of the tunnel, you are looking at the northwest corner of the tomb chamber. The first wall of wood is made of roughly-trimmed juniper logs, with notches and mortise holes at their large ends that were cut for transporting the logs out of the forest: the notch fit over an axle between two wheels, and the hole fit over a peg in the axle. The log was turned into a kind of wagon. The space in which you are standing was originally filled with thousands of rocks, some of which became pressed into the wood (you can still see some set between the modern concrete pillars on your left); this rubble filling was all that held the juniper logs in place (the steel support system holding them now was installed in 2002, replacing an earlier set of supports).

What was in the chamber?



On your right, you will see the entrance cut through the juniper logs during the 1957 excavation; originally there was no door, since the tomb was never meant to be opened after the burial. More rubble filled the space between the juniper logs and the finely worked pine wall beams of the tomb chamber proper (most of this rubble is still in place). When the excavators cut through the pine wall, they found themselves literally at the foot of the dead king, whose remains lay on what was left of his cedar coffin. His body and all the equipment from the funeral banquet were placed in the tomb from above after the chamber had been built to the roof level. Today, the tomb chamber is empty: a few bronze artefacts can be found in a case in the Gordion Museum, but most of the material is now housed in the Museum of Anatolian Civilizations in Ankara.

How was the chamber constructed?

The pine and juniper used for construction were locally available, but the cedar floor beams (and coffin) were imported, probably as a form of diplomatic exchange between kings. The tomb was constructed using basic chopping tools: the axe, the adze, and the chisel. Saws were apparently used only for smaller wooden objects, like the furniture that can be seen on display in Ankara. Unlike the other excavated flat-topped wooden tomb chambers at Gordion, this tomb has a double-pitched roof, like the megarons on the Citadel Mound. Everything about its construction was designed to keep the tomb chamber proper intact, with simple notches typically used to join beams at their ends. The builders got this exactly right: despite the bending and cracking of many of the pine timbers you can see inside the tomb chamber, the roof and walls never failed. The king and his funerary offerings were still protected in space, even though time had taken a toll on the remains.

How was the tomb excavated?

After the excavation, the rubble was mostly cleared from around the wooden tomb chamber, and the concrete shell that you see surrounding the tomb was completed in 1961. Given the dangerous working conditions facing the Turkish engineer and his team, this concrete structure is itself a remarkable monument, despite its somewhat rough appearance. The tunnel was lined with stone and concrete in 1963, and the contractor (like the ancient Sitidos, whose signature was found carved on a beam) was thoughtful of later archaeologists when he left his name and the date in a pair of concrete ceiling slabs part way down the tunnel. The outer trench was lined with stone in 1978. Now both tourists and researchers can safely visit this unique tomb.



Richard Liebhart, 2014



In the two photographs to the left, Richard Liebhart serves as scale for the juniper (short) and pine (tall). This juniper grows 20 km from Gordion, and the pine forest is about 50 km from the site.

