

## **SOME BOTANICAL CONSIDERATIONS FOR THE CONSERVATION AND PRESERVATION OF TUMULUS MM AT GORDION**

Naomi F. Miller, Ph.D.

Research Specialist, The University Museum  
The University of Pennsylvania, Philadelphia

Erosion occurs most quickly on bare ground, but the destructive power of wind and water (rainfall and downhill washing) can be greatly reduced if the soil surface is protected by a continuous cover of vegetation. Plants forming a shallow mat of roots would help stabilize the soil even further.

A useful approach for preserving Tumulus MM might be to plant the native steppe grasses and other small native plants. Once established, little maintenance would be necessary because these plants are naturally adapted to the fairly arid conditions that have prevailed since antiquity.

The most effective and stable system would take advantage of the natural variety of plants that occurs in the region. That way, no matter what the growing conditions are in any one year, at least some plants would prosper, helping to maintain a protective layer of living and decaying plant matter. Although the climatic conditions are not directly comparable, it may be of interest that the largest prehistoric earthen mound in the United States (Monk's Mound at Cahokia, in the Mississippi valley) has been planted with grass in order to stabilize it.

A good model of what healthy grass cover would look like on the Midas Mound can be seen in a patch of relatively undisturbed steppe vegetation that exists between Yassıhöyük and Şabanözü. It is clear that in the absence of grazing a dense cover of grasses and other flowering plants (and maybe even mosses) grows, leaving little or no bare soil.

The major native grasses seem to be:

*Stipa arabica*

*Stipa holosericea*

*Stipa* sp.

*Phleum* cf. *boissieri*

*Taeniatherum caput-medusae*

*Agropyron cristatum* subsp. *pectinatum*

*Amblyoprum muticum*

Native flowers include:

*Papaver* sp., (gelincik)

*Matricaria* sp. (papatya)

other Compositae (bileşikgiller) such as *Achillea* cf. *tenuifolia*,

*Jurinea* sp., *Xeranthemum* sp.

*Alyssum* sp.

and many, many others.

Grasses waving in the breeze and many colorful flowers could impress the visitor with a seasonally changing effect. In addition, native plants would create a more archaeologically accurate view of the surface.

The technical problems of establishing steppe vegetation on the Midas Mound may be solved by range management specialists in Turkey. Dr. Musa Doğan (METU), a specialist on the grasses of Turkey, would be a person to contact. In the face of agricultural, economic, and urban development, researchers in the growing field of prairie restoration in the

United States have been developing techniques for the preservation and re-establishment of America's native steppe vegetation. Perhaps their experience could be tapped as well.

It would probably be necessary to collect seed from the wild. Planting native grasses on Tumulus MM (and perhaps other mounds, as well) might employ one or two teenagers or young men of Yassihöyük. Not only would this bring some cash into the village, but it might also demonstrate to doubters that archaeological tourism could bring benefits to Yassihöyük. Local co-operation (especially by shepherds) is critical if such a plan is to succeed. The proposed addition of a fence around the base of the Midas Mound would be an important first step in the protection of all the plants on the tumulus from grazing animals.

Finally, it should be noted that trees are probably less effective against erosion than grasses for several reasons. The planting holes are bigger and so would disturb more soil, and they would expose bare ground beneath the canopy. Over time, trees would probably also require more maintenance. Native grasses would therefore be more suitable than trees for erosion control by providing a dense mat of roots near the surface and a continuous plant cover the whole of Tumulus MM.

Naomi F. Miller, Ph.D.

Research Specialist, The University Museum

The University of Pennsylvania, Philadelphia

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## TÜMÜLÜS MM'İN KORUNMASI İÇİN BAZI BOTANİK DÜŞÜNCELER

Naomi F. Miller

Türkçe Özet : Latif ÖZEN

Çıplak bir arazide, yağmur ve rüzgarın aşındırıcı etkileri, toprak yüzeyini tamamen kaplayan bir bitki örtüsü ile kazınarak azaltılabilir.

Tümülüs MM'in erozyon etkilerine karşı korunması için, bakım gerektirmeyen ve kolay yetişen doğal step bitkileri (*Stipa arabica*, *stipa holosezica*, *phleum of. boisseizi amblyopyzum muticum...* gibi), doğal çiçeksi bitkilerin (*gelincik*, *papatya*, *achillea cf. tenuifolia*, *alyssum sp...* gibi) ekilerek yetiştirilmesi yararlı olabilecek bir yaklaşımdır. Bölgedeki bitkilerin doğal çeşitliliği ve şartları ne olursa olsun yetişebilmeleri, bu etkin koruyucu sistem için bir avantaj teşkil etmektedir. Hernekadar, iklimsel koşulları farklı olsada, Amerika'daki bir prehistorik höyüğün (*Cahokia'daki Monk's Mound*) erozyona karşı stabilizasyonunda yetiştirilen bitkilerle bir benzerlik kurulabilir. Şabanözü ve Yassıhöyük arasındaki arazide bulunan step bitkileri uygundur.

Ayrıca, bitkilerin doğal güzelliği ziyaretçileri etkileyebileceği gibi, orjinal yakın bir arkeolojik çevre de yaratır.

Bu koruma sistemi ile ilgili teknik problemler, Dr. Musa DOĞAN (ODTÜ) gibi Türkiye'deki uzmanlar ve yöneticiler vasıtasıyla çözülebilir. Ayrıca, Amerika'daki sistem için geliştirilen tekniklerde bir kaynak olabilir.

Bu amaçla, Tümülüs MM'de yapılacak çalışmalar Yassıhöyük'lülere istihdam olanağı sağlayacağı gibi, arkeolojik turizmin köylülere kazanç kaynağı olabileceği de kanıtlanmış olur. Ancak özellikle hayvancılık olmak üzere yerel girişimlerin bir plan dahilinde yapılması sağlanmalıdır. Höyüğün çevresinde yapılması önerilen çit, oradaki bitkileri büyükbaş hayvanlardan korumak için atılacak önemli bir ilk adım olmalıdır.

Son olarak, araştırmalar göstermiştir ki bu küçük bitkiler, kesiksiz bir örtü oluşturması, köklerin sık olması ve bakımlarının kolay olması gibi sebeplerden dolayı erozyona karşı oluşturulacak sistem için ağaçlardan daha etki ve daha uygundur.