

Nomination for inscription  
on the World Heritage List

# Roșia Montană

## *Mining Landscape*

EXECUTIVE SUMMARY





**ROȘIA MONTANĂ  
MINING LANDSCAPE**

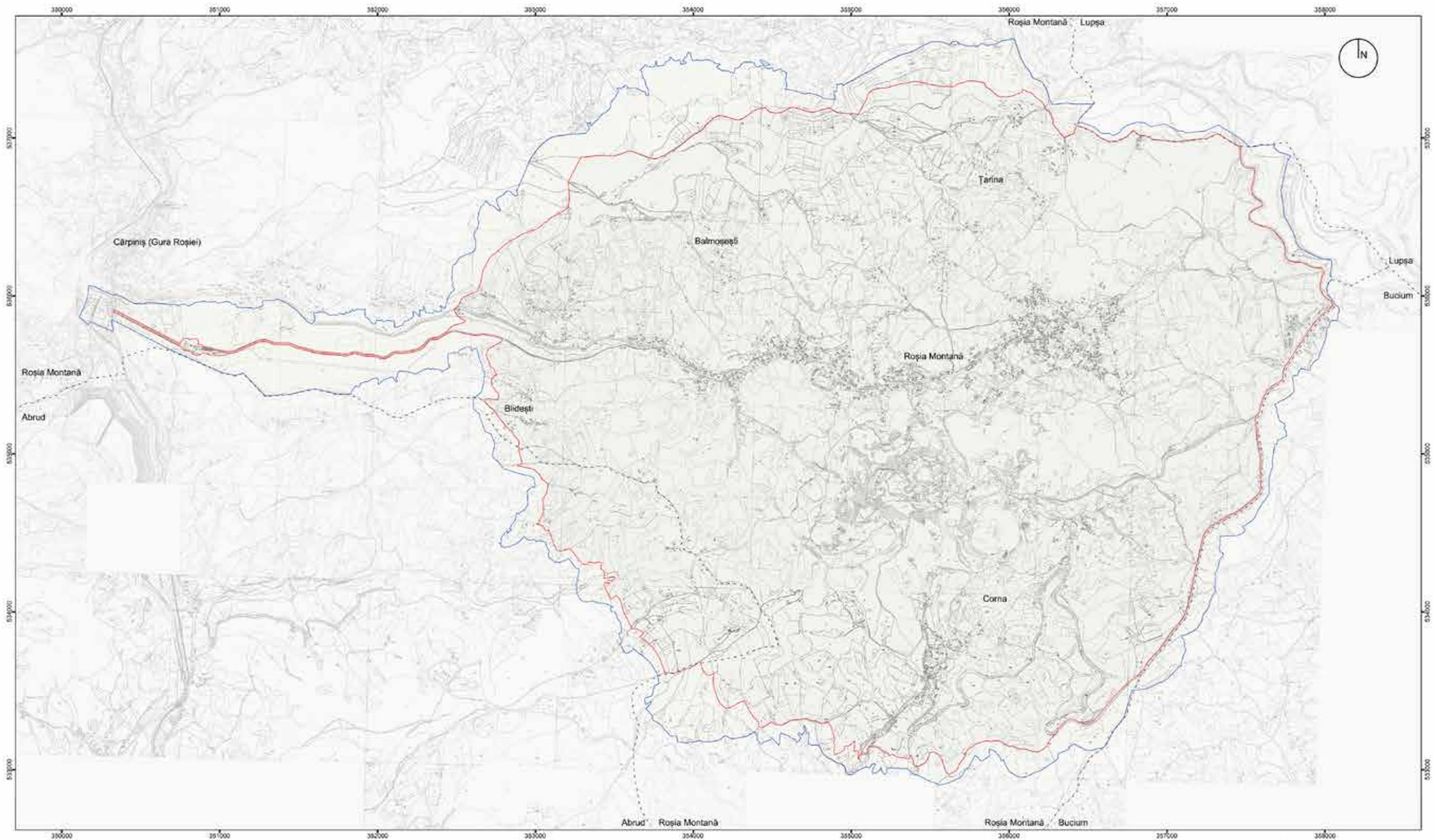
Nomination for inscription  
on the World Heritage List

**State Party**  
Romania

**State, Province or Region**  
Alba County

**Name of Property**  
Roșia Montană Mining Landscape

**Geographical coordinates**  
46° 18' 22" N  
23° 7' 50" E



**Title:**  
Roșia Montană Mining Landscape

**Key:**  
— Nominated Property  
— Buffer zone

**Scale:** 0 100 200 300 400 500

**Geographical coordinates:**  
46° 18' 22" N  
23° 7' 50" E

## 6 Description of the boundary of the nominated property



Tăul Mare (© Radu Sălcudean)

The boundary of the property has been delineated by a process of first by mapping the range of identified attributes that convey potential Outstanding Universal Value, ensuring that all of these are encompassed in order to meet the condition of integrity, and then by carefully selecting a clearly defined line that can be readily identified on the ground. Due consideration was also given to protection and management criteria.

Mountain ridgelines have been utilised, that coincide with the watershed (water being important to ore processing), in order to achieve a high level of functional integrity in terms of the mining cultural landscape, its processes and defining features - cultural and natural, geographical and geological. This approach is also positive in terms of visual integrity (visual impact) as the site is located in a natural amphitheatre surrounded on three sides by dividing ridges and peaks, such flanking ranges

being a dominant feature of the landscape and its settlements, and which were subjected to mining purposes and a distinctive agricultural regime that was vitally important in the daily life of the mining community throughout its history. Further, the boundary encompasses extensive archaeological potential (in both the landscape and underground), our current knowledge to be supplemented by a forthcoming programme of Lidar survey to complement more than a decade of archaeological research on, and beneath, the ground.

## 7 Proposed Statement of Outstanding Universal Value

*Roşia Montană Mining Landscape* contains the most significant, extensive and technically diverse underground Roman gold mining complex currently known in the world. Workings attested by the famous Roman wax-coated wooden writing tablets have been dated to the Roman occupation of Dacia (106–170 CE) and, together with potentially previous and subsequent phases, mining activity spans more than two millennia. Historically, precious metals coinage financed trade and military force that, together, created and sustained empires. At Roşia Montană all phases have left their mark, both underground and at surface, an evolution almost exclusively determined by people's quest for gold. This socio-technical palimpsest of successive empires and cultures has unparalleled time-depth and is exceptionally diverse and readable in such a compact area.

Roşia Montană is situated in a natural amphitheatre of massifs and radiating valleys in the Metalliferous range of the Apuseni Mountains, located in the historical region of Transylvania in the central part of present-day Romania. The site represents the centre of the so-called *Golden Quadrilateral* of the Southern Carpathians – the richest precious metals province in Europe.

Gold occurred in veins within seven small mountains that visually dominate the landscape of Roşia Montană, itself surrounded on three sides by dividing ridges and peaks. Towering crags are pierced by old mine entrances, their tops scarred by opencast working. Roman archaeology at surface is prolific and pervasive, comprising ore-processing areas, living quarters, administrative buildings, sacred areas and necropolises, some with funerary buildings with complex architecture, all set in relation to over 7 km of ancient underground workings discovered to date. Forest and scree mix on steep slopes and, mounted on rocky knolls, the towers and spires of historic churches command the villages of Roşia Montană and the much smaller Corna, settlements constrained by relief in valleys that also provided for ore-dressing, communication and transport. Steeply sloping meadows are characterised by agro-pastoral practices that are as old as the mining activity itself, and a number of artificial lakes, formerly header ponds for ore processing that were greatly expanded from 1733, punctuate higher elevations.

The village of Roşia Montană boasts an impressive inventory that illustrates a diversity of architectural styles, eclectic influences fused with local tradition, a cosmopolitan settlement whose roots and embellishments are based on freeholders' exploitation of gold. Five religious denominations and several ethnic groups have lived together in work and community life, a situation that is reflected in the current character of this Transylvanian mining settlement substantially frozen in the eighteenth and nineteenth centuries at the inception of its prosperous urbanisation. Churches dominate the built environment and contribute substantially to its symbolic imagery. Characteristic buildings with outer porches form a typological background to a series of distinctive and mostly decorative features that were borrowed from the repertoire of Classical or Baroque architecture. This structure, distinguished also by grand walls and monumental gates that face winding roads, gradually gives way in the industrial suburbs to miners' households consisting of wooden dwellings above high stone-built basements, many of which housed ore-processing workshops with water sumps fed by springs that could be used in the harshest of winters. Final interventions derive from the communist regime that imposed nationalisation in 1948, and which ended traditional family – or small group – operated mining. State-run mining by underground and opencast ended in 2006. Properties that today proclaim a past built on gold, are still home to a living community; and the landscape continues to yield a living. Its cultural and natural assets are of such quality, however, that opportunities for a sustainable future have perhaps never been brighter.

# Criteria under which the property is nominated (ii), (iii), (iv), (vi)



Roman-Catholic church and cemetery, in the historic centre of Roşia Montană (© Radu Sălcudean)

## Justification for Criteria

### → Criterion (ii):

to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;

*Roşia Montană Mining Landscape* contains the world's pre-eminent example of an underground Roman gold mine and, further, demonstrates over 2,000 years of subsequent exploitation and continuous settlement.

Many of the mining features preserved in over 7 km of Roman workings demonstrate exceptional

innovative techniques developed by skilled migrant Illyrian-Dalmatian miners to exploit gold in such ways that suited the technical nature of the deposit. Control of precious metal resources, to use as currency, was a fundamental factor in the development of Roman military power and Imperial expansion. When in possession of the Apuseni Mountains there was an imperative to immediately commence mining in an efficient manner.

A decade of professional underground archaeological campaigns, beginning in 2001, elucidates a fusion of imported Roman mining technology with locally developed techniques, unknown elsewhere from such an early era. Multiple chambers that housed treadmill-operated water-dipping wheels for drainage represent a technique likely routed from Hispania to the Balkans,

whilst perfectly carved trapezoidal-section galleries, helicoidal shafts, inclined communication galleries with stairways cut into the bedrock, and vertical extraction areas (stopes) superimposed above one another with the roof carved out in steps, are in a combination so specific to Roşia Montană that they likely represent pioneering aspects in the technical history of mining.

The significance of *Roşia Montană Mining Landscape* is not limited to antiquity as the Apuseni Mountains were Europe's main source of gold from the end of the Crusades in the thirteenth century until the discovery of the Americas in the sixteenth century, thereafter remaining pre-eminent in terms of output, during the 18<sup>th</sup> and 19<sup>th</sup> centuries in particular, when German, Austrian and Hungarian miners were brought in and used their own advanced technology to exploit the deposits on a much larger scale.

### → Criterion (iii):

to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared

*Roşia Montană Mining Landscape* embodies the cultural tradition of one of the oldest documented mining communities in Europe, anciently founded by the Romans and which survived under influences of successive socio-technical and organisational systems whilst gradually waning until its final disappearance at the beginning of the twenty-first century.

The site was the most important precious metal mine located in the *Golden Quadrilateral* of the Romanian Carpathians and is associated with exceptional epigraphic testimony from the Roman Imperial era. Wax-coated wooden writing tablets discovered in the mine during the eighteenth and nineteenth centuries have been correlated with numerous stone epigraphic monuments discovered on site. Together they provide an authentic picture of daily life and cultural practice in this ancient frontier mining camp community.

*Roşia Montană Mining Landscape* is rooted in a past that evolved in a tradition consistently bound by efforts to extract gold. Detailed physical testimony is provided by: the underground mining works, chronologically differentiated by distinctive technical features; the socio-technical surface mining landscape consisting of ore-processing areas, habitation areas, sacred areas, necropolises; the current mining village built at the dawn of the industrial era; and the extensive documentation of the communities that generated them.

Archaeological evidence survives alongside the legacy of modern underground mining operations, whilst

the landscape reveals evidence of an increasing scale of modification through time to serve mining and the way of life of its communities under successive control of empires and state, each phase adding to, or in some case erasing, its predecessors. Today, life continues in a landscape little changed in some respects, retaining its capacity to yield a limited yet traditional living from agriculture. Its cultural and natural assets, however, are of such quality that they have the potential to offer a sustainable future for generations that follow.

### → Criterion (iv):

to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

*Roşia Montană Mining Landscape* is testimony to the long history of gold exploitation in the Carpathian precious metals province of the *Golden Quadrilateral*, from the Roman era to the twenty-first century. It is an example that illustrates the strategic control and vigorous development of precious metals' mining by the Roman Empire, essential for its longevity and military power. Following the decline of mining in Hispania (Iberian Peninsula, modern Spain and Portugal), *Aurariae Daciae* (Roman Dacia, AD 106 to AD 272) was the only significant new source of gold and silver for the Roman Empire, among the likely key motivations for Trajan's conquest.

The pre-eminent underground Roman mining network, with its outstanding technical attributes and associated landscape, is exceptional testimony to the diffusion and further development of precious metals mining technology during the expansion of the Roman Empire in the 2<sup>nd</sup> and 3<sup>rd</sup> centuries CE. Archaeological investigation has revealed important aspects that contribute to the global history of mining. Such extensive perfectly carved trapezoidal-section galleries, helicoidal shafts and inclined communication galleries with stairways cut into the bedrock, and vertical extraction areas (stopes) superimposed above one another with the roof carved out in steps, are unknown elsewhere from such an early era. Features such as multiple chambers for treadmill-powered water-dipper wheels (and the wooden remains of such equipment), whilst recorded but mostly destroyed elsewhere in the Roman world by subsequent modern mining, are preserved at Roşia Montană. They are of exceptional value due to their rarity, extent and state of conservation.

The modern socio-technical mining legacy is significant, too, from the prolific Habsburg legacy of the seventeenth to nineteenth centuries to the pre-industrial



The entrance to the Holly Cross master gallery, photograph from the 1900's (C. Lajos)

mining and ore-processing methods captured at the moment of technological changes on the verge of the modern industrial revolution. Mining operations undertaken at this time were mostly by 'freeholder' families that favoured the continuation of such ore-dressing methods until nationalisation in 1948.

Large-scale underground mining started under the communist regime, an era that has left enormous caverns, and in 1971 this switched to large-scale opencast working of the Cetate massif, destroying the spectacular Roman mining works known as the "Citadel" and continuing until 2006 by which time it had effectively reduced the elevation of the mountain by as much as twenty per cent. The apartment blocks inserted in the first stage of the socialist age into an essentially eighteenth-nineteenth century architectural ensemble is a striking relic of this era.



#### Criterion (vi):

to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance;

The Roman wax-coated wooden tablets (*tabulae ceratae*) of *Alburnus Maior* (Roşia Montană) were made famous by the great German historian Theodor Mommsen (1817-1903), generally regarded as one of the greatest classicists of the nineteenth century. They represent a significant source for his interpretation of Roman law and on the law of obligations, which had a significant impact on the German Civil Code, subsequently forming the basis for similar regulations in other countries such as Portugal, China, Japan, South Korea, Taiwan, Greece and Ukraine.

Around 50 Roman wax-coated wooden tablets were discovered during the 1780s and 1850s in mining galleries at Roşia Montană, with some 24 surviving in museums around the world. These are first-rate sources of legal, socio-economic, demographic and linguistic information not only regarding *Alburnus Maior* but the entire Dacian province and, implicitly, the Roman Empire. The tablets provide intimate details of life in the mining community and are also correlated with an unparalleled number of stone epigraphic monuments, votive and funerary, discovered on site and preserved in museums at Roşia Montană, Cluj-Napoca, Turda,



Wax-coated tablet XI (NHMR Archives)

Alba Iulia and Deva. Information reveals explicit details of mining organisation, sale and purchase contracts, receipts of loans with interest, and the sale of slaves. Epigraphic evidence attests not only Illyrians but also Greek and Latin migrants hired to work in the mines and organised in associations (*e.g. collegia aurariorum, societas danistaria*).

Academic research into the history of the Roman Empire during the Antonine dynasty and its relationship to the Dacians' gold and gold extracted from Roman Dacia has opened a new area of research into European cultural history: the economic recovery of the Roman Empire, the commencement of monumental public construction works in Rome, among which the Forum and Trajan's Column are perhaps the most important elements, and the direct linkage to the gold-mining area of Dacia where *Alburnus Maior* was its principal centre.

The perceived value of Roşia Montană's gold resources, like that of other gold-producing regions, changes with time, trade, technology and ownership of territory. The destination and uses of gold also change with the above. For the Romans, gold was vital for currency to pay its soldiers across its Frontiers - and for funding the import traffic that plied the 'roads' of silk and spices that led to Rome.



Votive altar dedicated to Janus, Hop Găuri Area (NHMR Archives)



General view - Tăul Mare, Cârnic Massif, Cetate Massif and the former mining exploitation (© Radu Sălcudean)



General view - Cetate Massif with the traces of the open pit mine from the Communist period (© Radu Sălcudean)



The Square on a market day.  
In the background Ajtai Palace, demolished in the 1980s, photograph from the 1900s (C. Lajos)



Văidoaia area, a typical small-scale mining neighborhood; each house or group of houses had a stamping mill, photograph from the 1900s (C. Lajos)

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## Statement of integrity

The property contains all the necessary attributes that express Outstanding Universal Value. It is constrained within a natural amphitheatre that is radically different from the surrounding landscape and includes all metalliferous massifs of *Alburnus Maior* and the two principal valleys (Roşia and Corna) for ore-dressing, settlement, transport and communication. The landscape represents a palimpsest of successive empires and cultures that have shaped it. Its most recent exploitation, open pit mining from 1971 to 2006, is responsible for its largest scale and most dramatic physical change – though this activity is ultimately representative of irreversible loss and unsustainable practice.

The boundary has been determined using a combination of geological/mining maps, natural features such as ridgeline watersheds (functional, for water supply in ore-processing) and viewsheds (into and out of the property), roads, and the administrative boundaries that will assist with management of the property. It includes all areas with significant archaeological potential.

*Roşia Montană Mining Landscape* has undergone multiple transformations; some gradual over the centuries, and some sudden and devastating such as the destruction of the Roman openworks on Cetate (the “Citadel”) by opencast mining starting in the 1970s, and the recent sustained buildings demolition campaign that began in 2004 in preparation for the resumption of open pit mining and the creation of processing facilities. During the latter, important exemplars of local architectural heritage and even entire portions of built fabric (such as the central area of Corna), were destroyed in a total that exceeded 250 properties. A significant number survive, however, as a direct result of local owners maintaining efforts, or due to new investor’s repairs. The state of conservation of many historic buildings remain poor - making the preservation and conservation of this precious heritage all the more important - and some unauthorised development of small-scale housing has taken place. At the same time community based heritage programmes have made the connection between local owners, professionals in the field of conservation and volunteers from all over the world. During the last decade a range of historic buildings have been rescued using local resources and traditional techniques.

## Statement of authenticity

The area proposed currently constitutes a detailed testimony to unparalleled Roman gold mining and humanity’s relationship with the landscape, as well as to more than two millennia of mining practices by successive empires and cultures. It contains attributes that are high in authenticity in terms of the location and the form and materials of surviving historic features, with a clear sense of how, when and by whom mining shaped the land.

In terms of knowledge, unparalleled epigraphic and documentary evidence combined with a decade of intensive systematic archaeological investigation has already provided a major contribution to the understanding of Roman mining techniques and organisation. Significant potential remains for the Roman period as well as for further stages in the mining landscape evolution.



Roman mining gallery (© Ivan Rous)



# Requirements for protection and management



Training workcamp (*Adoptă o casă* Summer Schools)

The property is included in a wider area that is designated in view of its protection by urban planning regulations, an area that also comprises several individually designated elements, from the Roman mining works, to the historic houses and two geological formations.

The more direct protection is granted by listing, with 50 elements within the property included in the Historic Monuments List. They comprise the archaeological site with a few particular sub-components, the historic centre of the mining town, the Roman mines in Mt. Cârnic, houses and churches. Several other components are currently being assessed for listing, among them the header ponds of the extensive hydro-technical system.

Under this protection framework, the responsibilities fall with the municipality, in respect to the protection through urban planning measures, and with the respective owners, when it comes to listed properties.

According to the law, once a nomination is submitted, all provisions in place for World Heritage sites will apply to the respective property as well. These include the management system designed to protect all World Heritage properties in Romania. Roşia Montană

will benefit from these provisions with the submission of the nomination file to UNESCO. Until then, heritage authorities in Romania are preparing new forms of management for such multi-governance sites and landscapes uniting different heritage typologies that will integrate local partnerships and programmes in which relevant players come together to achieve each management goal.

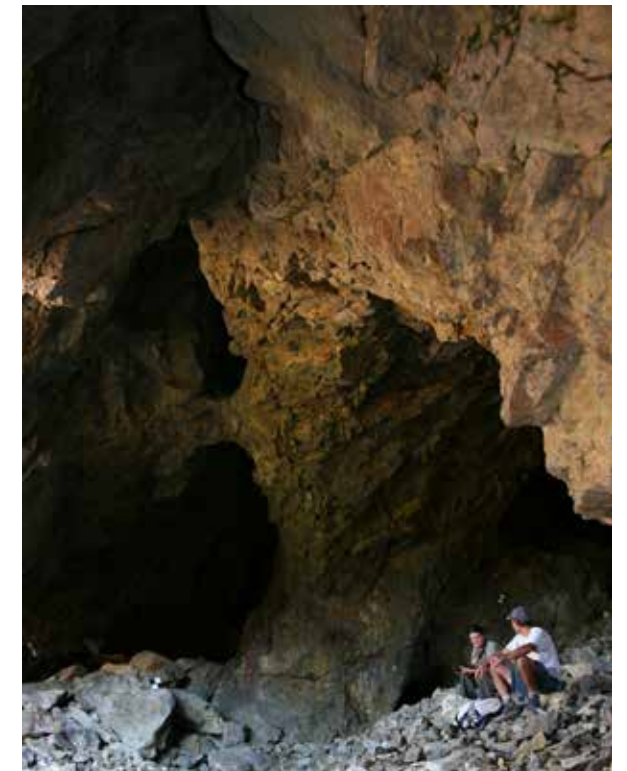
An active citizenship journey over the last decade, where civic society and heritage practitioners have come together in recognition of the unique Roşia Montană heritage, show that the management of the property can be founded on cross-sectorial support and people-centred approaches. These programmes also triggered systematic monitoring campaigns which are now being endorsed by heritage institutions. This is already improving the capacity for specialized institutions and local authorities to work with other institutions and civil society to build on the successes of Roşia Montană and learn from the experience of working there for other heritage places.



Traces of modern mining, Mt. Cârnic (© Ivan Rous)



Typical Roman mining gallery in Mt. Orlea (© Barry Gamble)



Modern mining works in Văidoaia Massif (© ARA Association)



Mining and agro-pastoral landscape,  
Tăul Anghel and Tăul Brazi (© Radu Sălcudean)



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